BUDAPEST BUSINESS SCHOOL
UNIVERSITY OF APPLIED SCIENCES

Shape the future together! - IV. BBS International Sustainability Student Conference Proceeding (PDF) Budapesti Gazdasági Egyetem

The book of full paper

2021

Shape the future together! -
IV. BBS International Sustainability Student Conference Proceeding (PDF) Budapesti Gazdasági Egyetem

Editor
Dr. Szegedi Krisztina

Reviewer:
Dr. Kovács Ildikó

Responsible Publisher
Budapest Business School

Graphic Design
Ottó Varga

ISBN
978-615-6342-21-8

DOI
10.29180/9786156342218

Disclaimer
Although care has been taken to ensure that the information contained in this Proceedings book is correct and complete, BBS cannot guarantee the accuracy, precision and the completeness of the aforementioned information, therefore the editors assume no responsibility, and shall in no event be liable for any direct, indirect, special or incidental damage resulting from, arising out of or in connection with the use of this information, nor for any infringement of third party intellectual property rights which may result from its use.

Budapest Business School, 2022

Publisher: Budapest Business School University of Applied Sciences
H-1055, Budapest Markó utca 29-31.
Responsible Publisher: Prof. Dr. Heidrich Balázs, rector

Selected pappers

The Importance Usage of Solar Energy and Households Perspective: A Research in Hungary

AUTHORS

Ali Bagdadi, Annamária Ács

Budapest Business University, 1054 Budapest, Alkotmány street 9-11.

bagdadi.ali.55@unibge.hu, annamaria.acs.17@unibge.hu

DOI: 10.29180/9786156342218_1

ABSTRACT

Renewable energy is “useful energy that is collected from renewable resources, which are naturally replenished on a human timescale, including carbon-neutral sources like sunlight, wind, rain, tides, waves, and geothermal heat” (Omar et al. 2014). According to the Eurostat database, the percentage of renewable energy sources in the energy mix of the European Union is increasing year after year (Europe, 2020). in 2020 target that the values reached in eastern European countries, 28.5% in Croatia, 24.3% in Romania, 21.7% in Slovenia and 16.9% in Slovakia and Hungary 12.6%. consequently, the government of Hungary took up our last position in renewable energy in 2020 and prompted it to develop a new climate strategy to improve this situation (Mekh, 2021). according to the new strategy, Hungary is estimated to be climate and carbon-neutral by the end of the decade.

Among the alternative sources of renewable energy, solar energy is becoming the favorite, and with this research main aim is the utilization rate of renewable energy sources and the European green deal targets in Hungary. However, due to the drastic drop in the cost of solar panels in the energy mix of households, solar energy has become a favourite of renewable energy sources. In this research a survey technique was used, a survey was conducted with 210 households residing in Hungary. With survey find out what people think about their energy consumption regarding solar energy and how it fits today's challenges. the survey proved that people have important general knowledge about renewable energy sources.

Even in 2020, a year when an economic contraction was experienced in many areas all over the world, great strides were made in the field of energy. It has come to a promising position especially in reducing foreign dependency on energy and obtaining clean energy. In the climate strategy, Hungarian government plans to create 8,000 mw of solar energy by 2050, which will be mainly used in households, municipal buildings, and the hospitality industry.

Keywords: Sustainable Development, Green Deal, Renewable Energy, Solar Energy

1. Introduction

With the continuous development of technology, Hungarian households are increasingly in need of energy. The ecological footprint of Hungarian households is close to the European average and we expect further growth. The projects of the Széchenyi 2020 program promoting the development of the green economy provide significant subsidies for the use of renewable energy for households and small-medium sized enterprises. In our country, tenders prefer the utilisation of geothermal and solar energy among all the alternative energy sources. With the advancements of technology, the Hungarian households have a higher need for energy. The ecological footprints of the households are near the European Union`s average and is expected to grow. Two Operational Programs, GINOP`s and VEKOP`s contracts offer non-refundable sponsorship for small and medium sized businesses to use renewable energy. For households interest subsidies are offered in the form of credits with 0% interest rate. In 2019 the credit`s duration could only be 20 years maximum, with an own contribution of 10% for the contracts. In 2020 the non-refundable sponsorships may be consumed as part of the housing assistances, because we could only accomplish a small percentage of our obligations towards the European Union`s plans.

In December 2019 the European Commission has proposed the European Green Deal, the new growth strategy of the European Union. The core aim of the ambitious strategy is to reach the climate neutrality of the EU by 2050. In order to reach the net zero greenhouse gas emission, the growth strategy covers all sectors of the economy, including the energy sector and the implementation of renewable energy sources are promoted (European Commission, 2019) To accelerate the use of electricity produced from renewable sources the European Union also offers financial tool for Member States. According to the National Energy and Climate Plan of Hungary, the set target of the country regarding the share of renewables by 2030 is 21%, which is considered as unambitious as the minimum level of share defined by the EU is 23%. (Ministry of Innovation and Technology, 2020).

The EU proposed a huge financial support available between the years 2021-2027, the so-called Recovery and Resilience Facility, which is in the case of Hungary is as high as 6.3 billion EUR. The aim of the fund on the one hand is to mitigate the impact of the coronavirus pandemic, on the other hand it is in line with the goals of the European Green Deal supporting the economies to prepare for green and digital transformation (European Commission, 2019). Each Member States had to submit its own national recovery and resilience plan, including the planned reforms and investment plans. The Hungarian plan has 9 components (A-I), component F is energy, in the light of green transition. This section has three main parts, one of these is dealing with the residential renewable energy investments, which has two further focuses: investment support for residential solar systems and for the electrification of residential heating systems in combination with a solar system (Palyazat,2020).

The government has announced the introduction of a new, enormous residential solar panel tender will be opened in the summer. Attila Steiner Secretary of State announced on the XI. Szolár Konferencia (Solar Conference) on the 14th April, that Hungary plans a budget more than 100 billion HUF for the tender aiming the development of complex energy solutions, as they want to support solar systems, which are partly designed to replace their own consumption on roof structures, as well as energy-saving, modern, electric heating systems – financed by the recovery and resilience facility. It will be available for more than 80 thousand households. Further, the Secretary of State highlighted that

Hungary's objective regarding the solar panel capacity is to reach the 6,000 Megawatts by 2030. (Magyarország Kormánya, 2021).

In energy generating the alternative energy sources made up 7.2% of the electricity production. Consumers of the alternative energy sources prioritized biomass, geothermal- and solar energy. Hungary`s gross energy consumption in 2017 was 3000 ktoe, consisting of 80% biomass usage (Hernandez et al. 2017). It would ne obvious for households to use our enormous 60PJ/year geo-thermic potential for their heat demands, but only a small portion is used (Dinya, 2018). The capacity of coal energy could be raised from 330 megawatts to 1200 Mws, but due to the lack of authorisation there were no such power plants built since 2010. As of 2017 more than 20 000 solar power systems were working in our country, generating a total of 28.5 kto energy (Bozsik, 2018).

1. Table Comparing renewable energy sources, own work. (Source: Energiaklub, 2019)

	Consumption			Domestic facilities	Availability	Investment	Payback time	Barriers to use
	Electricity	Heat production	Fuel					
Biomass / Biogas	X	X	X	Favourable agricultural conditions, few energy forest	It depends on agricultural production and is therefore seasonal	Processing plant, operating units	Very soon	It can be detrimental to food production
Wind energy	X			Northwest Hungary is favourable,	Weather dependent	Construction & Network Integration, Land Use	7-8 years	Integration into a centralized electricity grid is problematic
Geothermic energy	X	X		Excellent conditions, especially in the Danube-Tisza Intermediary	Anytime	Installation, relatively high cost	Electricity: 5-8 years, heat generation: 2 years	Relatively high capital requirements
Solar energy	X	X		Favourable conditions: number of sunny hours per year: 1900-2300 hours / year	Weather dependent	Installation, relatively high cost	Photovoltaic application: 12-17 years, solar thermal energy: 6 years	Costly installation, long-term return on investment
Hydropower	X			Adverse hydrographic situation	Area and hydrographic dependent	Power plant construction, network integration (very high capital requirements)	8-15 years	Nature conservation problems, unfavourable conditions

As seen in Table 1 from the return rates, the households prioritize geothermic - and solar energy among the alternative energy sources. Next, we can see an examination of a household`s long term benefits.

On the one hand, the research aimed to analyse the correctness of the results announced by the new climate strategy and, on the other hand, we are contemplating why solar energy is becoming the favourite renewable energy source.

2. Literature Review

2.1 Development of Solar energy and heat units in Hungary

In recent years, renewable energy has been developed rapidly with the development of technology. Renewable energy is useful energy that is collected from renewable resources, which are naturally replenished on a human timescale, including carbon-neutral sources like sunlight, wind, rain, tides, waves, and geothermal heat (Omar et al. 2014).

Today, with the increase of the population and the development of technology, the need for energy is increasing day by day. Decreasing resources and increasing energy demand increase the tendency towards renewable energies. Solar energy, wind energy and biomass energy are among the most used renewable energy sources. However, the use of solar energy enables it to be used quite efficiently even in countries with the lowest number of sunny days.

Among the renewable energy types, there are different renewable energy technologies such as wind turbines, solar panels, concentrated solar power, bowl Stirling (Kharrazi et al. 2020). There are several reasons why solar panels are the reason of preference over other renewable energy technologies. For example, solar panels are mostly stationary and do not make any noise compared to wind turbines. The costs of solar panel systems are getting cheaper every year, and solar panel systems are becoming preferred because they require less maintenance (Boretti et al. 2020) According to the Eurostat database, the percentage of renewable energy sources in the energy mix of the European Union is increasing year after year (Europe, 2020). in 2020 target that the values reached in eastern European countries, 28.5% in Croatia, 24.3% in Romania, 21.7% in Slovenia and 16.9% in Slovakia and Hungary 12.6%. Consequently, the government of Hungary took up our last position in renewable energy in 2020 and prompted it to develop a new climate strategy to improve this situation (Mekh, 2020). According to the new strategy, Hungary is estimated to be climate and carbon-neutral by the end of the decade.

Among the alternative sources of renewable energy, solar energy is becoming the favourite, and with this research main aim is the utilization rate of renewable energy sources and the European green deal targets in Hungary. However, due to the drastic drop in the cost of solar panels in the energy mix of households, solar energy has become a favourite of renewable energy sources.

Calculations have been made on household energy use, which shows that even larger investments will generate profits for families within 10 years. Municipalities benefiting from EU subsidies and tourism sites can expect even better payback times (Becken & Simmons, 2002). From a tourist point of view, solar energy is used to reduce the energy bill for accommodations and attractions, and the government provides significant support to improve the use of solar energy in rural accommodations. (Michalkó et al. 2017.) More than 500 people have been consulted on their views concerning energy sources. During the cluster analysis, we asked different questions about the energy structure of the country for each age group. There are great differences between age groups because younger generations see solar and wind

energy as the energy source of the future, meanwhile middle-aged people are considering nuclear power and older people traditional hydrocarbon-based technology to be a reliable source of energy.

Since the start of the 20th century there are usual observations of the rays and to register the hours of sunshine. In Hungary the global rate, at midday, with average sunshine in the winter seasons, meaning from October to March is 250-600 W/m². In the summer, from April to September this rate is between 600-1000 W/m² (Lukács, 2010). The proportion of the sprinkled light can reach 40-50%, so keeping in mind the domestic conditions flat solar panels are more useful since they can absorb both direct and sprinkled light.

One of the key goals of the National Energy Strategy is to make 90% of domestic electricity production carbon dioxide-free by 2030. Hungary plans to achieve carbon neutrality by 2050 in line with EU targets. One of the goals of the climate protection action plan is to more than triple the capacity of solar power plants in the next 10 years, and by 2035, 200,000 households should have roof-mounted solar panels.

Hungary currently has a capacity of 2 gigawatts (GW) solar capacity and the government aims to achieve a three-fold increase by 2030, in the industrial and household sectors combined, north-western Hungary, where EcoSolifer will start commercial production of solar cells at 100 megawatts (MW) factory.

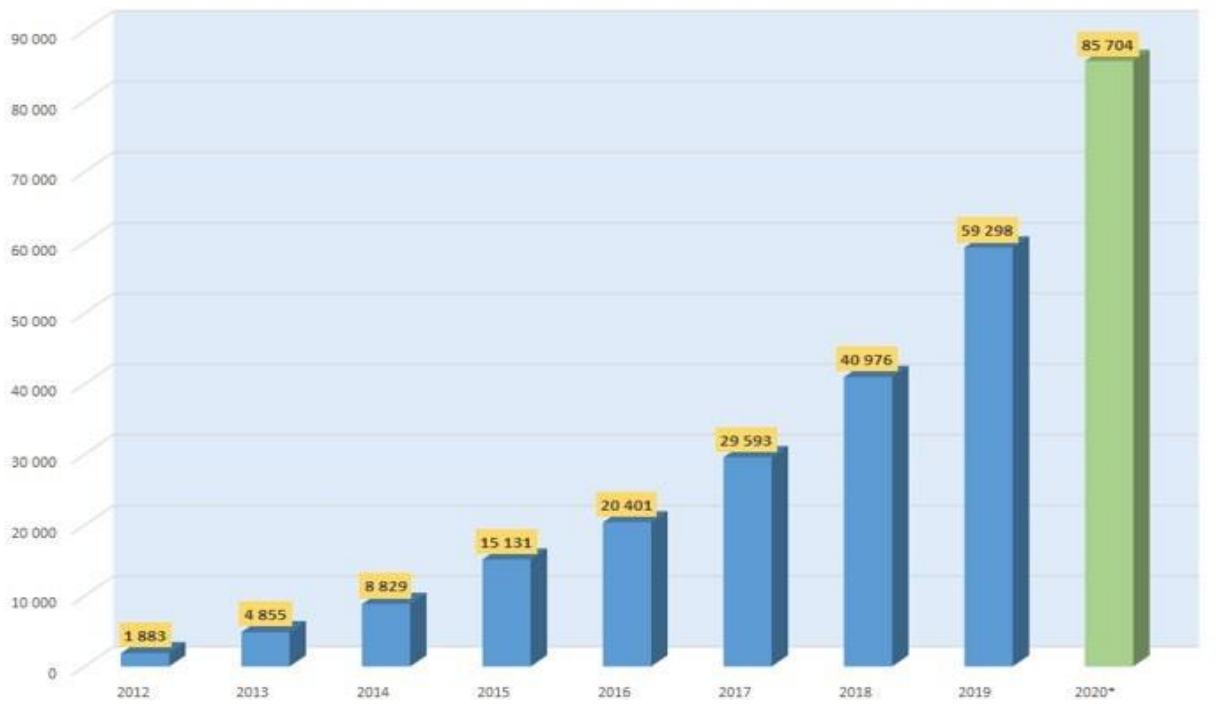
The capacity of solar panels installed on rooftops accounts for a significant share of growth in the household solar sector. Therefore, the government supports the developments with non-refundable subsidies from 2021.

The goal is to increase the rate of carbon-free electricity production to 90 percent by 2030, relying on nuclear and solar energy to reach this target (Ceenergynews, 2021). Solar energy is a costly energy source, however in the past decade the price of an average Solar panel has been reduced to less than a third of its original price, so it is becoming more and more beneficial to use one (Figure 1).

1. Figure Cost of solar energy (Source: Matasci, 2021)

It is hard to get an assessment of the exact number of solar panels in use and the size of the Hungarian solar panel market because the Central Statistics Office does not provide data. The statistics seen now are based on the data from the Hungarian Technical Building Union.

The next figure shows the yearly achievements of the new solar panel system in Hungary between 2012 and 2020. It can be seen that in the given time frame, a constant growth occurred on the solar panel market. The currently used household sized 85 704 panels by 2020 (Figure 2).



2. Figure Development of solar energy and heat units in Hungary(Source: Matasci, 2021)

The domestic solar panel market shows a rather unstable performance, as seen in the previous display. It can be explained by comparing the market data and the individuals` and detached house owners` state aid, the gaps align with the changes of the aid`s quality.

The energy consumption of an average Hungarian household is estimated to around 2000kWh. To estimate the performance of a solar panel system needed to generate energy, we need to calculate it by dividing the yearly electricity consumption, given in kWh by 1100 (because 1100kWh can be generated with a 1 kW system) which, in the case of consuming 2000 kWh, equals to 1.82kWh. The mostly used polycrystalline solar panels generate 0.12-0.18 kWh per m2. So for a normal household, at least 10 m2 of solar panels with a 1.8 kW performance is needed to cover the whole electricity bill. According to annuity costs it is built up of multiple factors. We have to take into consideration, the investment cost at the beginning of the examined period, the yearly maintenance fees, the energy consumption fees that come with operating the machines and other expenses such as the payment of the workers and insurances. The one year value is obtained by correcting with annuity factors that take inflation, changes in interest rates and other price increase effects into consideration. Then we compare the annuity costs to the income that was also calculated with with annuity factors. The income is interpreted as the savings coming from using renewable energy instead of traditional energy. We calculate the values to 4-5 people, take 3 flat-panels as base, since that can be seen as the usual

phenomena. In the case of domestic hot water, the floor area of the house in m2 is not needed, only the number of inhabitants, since they will be the water users.

2.2. Exact data of the Solar panel system

To calculate, estimate data is used from macroeconomic and technical literature.

- solar panel`s full usable surface (FKOLL): 5,4 m2,
- capacity of the hot water tank: 300 litre,
- systems gross investment cost (A0): 1.000.000 Ft,
- system`s estimated energy production (QFKOLL): 600 kWh/(m2.year),
- system`s yearly energy generating (QKOLL): 5,4 m2*600 kWh/m2= 3240 kWh,
- system`s maintenance cost factor (fS): 0,5%.

The current central bank interest rate is 6.25%, but for the sake of simplicity. It wil count with 6%, general inflation of 4%, regarding energy sources I estimate a higher rise in cost, equal to 5% in electricity and 7% in pipeline gas.

The economic data in the example:

- central bank interest rate (p): 0,9%,
- interest rate factor that equals the central bank interest rate: (q=1+ (p/100): 1,009,
- price change factor of electricity (rF): 1,05 (5%-os annual growth),
- price changing factor of pipeline gas (rB): 1,07 (7%-os annual growth),
- maintenance costs are a price change factor (rS): 1,04 (4%-os annual growth),
- price of electricity in the first year (EELEC): 45Ft/kWh,
- price of pipeline gas in the first year (EGAS): 18Ft/kWh,
- -length of examined life – cycle (T): 25 years,
- -solar panel system`s residual value at the end of the 25 year cycle (RW): 0Ft.

2.3. Cost of capital of the examined system

The highest cost is almost always the investment cost of the equipment. The annuity of it (AN,C) can be calculated as the series of the gross investment cost (A0-RW) divided by the residual value and the examined period`s (T) annuity factor (a). To keep it simple I will not count the residual value, meaning I will take it as the system`s inability to provide values after the 25 years period
The annuity factor that shows one Forint`s present value with the „q” annuity factor is this:

$$a = \frac{q^T \cdot (q-1)}{q^T - 1} = \frac{1{,}06^{25} \cdot (1{,}06-1)}{1{,}06^{25} - 1} = 0{,}0782$$

The interest rate calculated with it is:

$A_{N,C} = (A_0 - R_W) \square a = (1.000.000 - 0) \square 0{,}0782 = 78.227$ Ft

2.4. Maintenance cost

The yearly regular maintenance cost is proportional to the investment cost, it`s value can be calculated with the maintenance cost factor (fs) and the annuity factors (a, baS).
In case of solar panel systems, the maintenance cost is the 0.5% of the investment. If the inflation of the maintenance cost`s yearly rise is too high, the price-dynamic annuity factor (bas) should also be counted by the annuity of the maintenance cost capital value`s factor (bs).

$$b_S = \frac{1 - \left|\frac{r_S}{q}\right|^T}{q - r_S} = \frac{1 - \left(\frac{1{,}04}{1{,}06}\right)^{25}}{1{,}06 - 1{,}04} = 18{,}94$$

$ba_S = b_S \square a = 18{,}94 \square 0{,}0782 = 1{,}48$

So the maintenance cost calculated with annuity:

$A_{N,S} = A_0 \square (f_S / 100) \square ba_S = 1.000.000 \square (0{,}5/100) \square 1{,}48 = 7.409$ Ft

2.5. Operating costs

The solar panel system`s operating cost means the cost of the energy used to operate it. In this case it`s the electricity used for regulations and pumps. The regulator`s energy consumption can be overlooked and the pump`s energy consumption can be estimated like this:

- average operating hours of the solar system ~ 2500 hour/year,
- average electric performance of the pump: 30W,
- yearly energy consumption of the pump: $Q_{PUMP} = 2500 \square 30 = 75000$ Wh = 75 kWh,

This is the (75/3240)×100=2.3% of the solar panel system’s useful heat quantity.

Solar panel system`s electricity cost in the first year:

$A_{F1} = Q_{PUMP} \times E_{ELEC} = 75$ kWh $\square$ 45 Ft/kWh = 3.375 Ft

Taking into consideration, the 5% rise in electricity cost, the energy cost capital value factor is:

$$b_F = \frac{1-\left(\frac{r_F}{q}\right)^T}{q-r_F} = \frac{1-\left(\frac{1,05}{1,06}\right)^{25}}{1,06-1,05} = 21,10$$

The energy cost`s price-dynamic annuity factor can be calculated as seen here:

$ba_F = b_F \times a = 21,10 \times 0,0782 = 1,65$

Based on this the energy cost value calculated with annuity is:

$A_{N,F} = A_{F1} \times ba_F = 3.375 \times 1,65 = 5.569$ Ft

With bigger renewable energy producing equipment, further costs can appear, for example the worker`s fee, or the insurance of the equipment, however these are not likely, therefore I will not include them in my calculations.
The full cost of the solar panel system calculated with annuity:

$A_{N,TOT} = A_{N,C} + A_{N,S} + A_{N,F} = 78.227 + 7.409 + 5.569 = 91.205$ Ft

With the knowledge of the full cost, the price of the heat energy generated, also known as solar heat can be calculated like this:

$K_{KOLL} = A_{N,TOT} / Q_{KOLL} = 91.205.\text{-Ft} / 3240$ kWh $= 28,15$ Ft/kWh

This means that the solar panel system in my example, during the 25 years, produces us energy at that price, which is not a bad price, considering that 18 Ft/kWh is the current price of gas, which would result in an only 1.8% rise yearly. However, we can also compare it to the current price of electricity, which is much higher, standing at 45 Ft/kWh.

2.6. Calculating Incomes

The solar panel system`s income (AN,B) is the traditional energy (natural gas) consumption cost that was replaced by using the equipment.

Natural gas savings in the first year:

$A_{B1} = Q_{KOLL} \times E_{GAS} = 3240$ kWh □ 18 Ft/kWh $= 58.320$ Ft

Considering the yearly 7% increase of natural gas price, the income capital value rate is:

$$b_B = \frac{1-\left(\frac{r_B}{q}\right)^1}{q-r_B} = \frac{1-\left(\frac{1,07}{1,06}\right)^{25}}{1,06-1,07} = 26,46$$

Income`s price-dynamic annuity factor is calculated this way:

$ba_B = b_B \square a = 26{,}46 \square 0{,}0782 = 2{,}07$

So the income calculated with annuity:
$A_{N,B} = A_{B1} \square ba_B = 58.320 \square 2{,}07 = 120.722$ Ft

Equation of annuity: income – all costs:

$A_N = A_{NB} – A_{N,TOT} = 120.722 – 91.205 = 29.517$ Ft

3. Green Deal and Solar Energy in Hungary

The core objective of the Green Deal is to fight efficiently against climate change by providing a new, sustainable growth strategy. The goal of the strategy is to transform the European Union into a modern, resource-efficient and competitive economy. In order to reach its goals, the Green Deal has several tools, measures and strategies which support the reduction and total elimination of the emission of greenhouses gases; the green and digital transformation in line with economic growth; and ensures that no country would be left behind. (European Commission, 2019) It is out of question that such an extensive transformation of the economy of 27 countries affects all the sectors of those. Ambitious goals come with ambitious financial needs. The transformation of Europe from an economy based on the use of fossil fuels and natural resources to a sustainable economy using renewable energy sources and taking a special attention to create environmentally-respectful product cycles with the reuse of materials and wastes, to create a sustainable agriculture, construction sector and transportation, moreover to reduce pollution requires comprehensive strategical and financial implementation plans. Going further, the outbreak of the COVID-19 pandemic poses other economic, financial and societal challenges to the European countries. On the one hand, the pandemic destabilized the global economy and shown that urgent measures are needed in order to improve the resilience of the economies. On the other hand, the pandemic is an opportunity to direct the economy to a sustainable and inclusive growth, as António Guterres, UN Secretary General highlighted in his speech on the 11th Petersburg Climate Dialogue in April (UN, 2020).

In order to reach its purposes, the Green Deal offers a coherent financial system. There are

funds, grants, loans, taxation aligned with the climate objectives of the European Union. (Eur-lex.europa.eu. 2020) The recently proposed Multiannual Financial Framework (MFF) and the Next Generation EU both aim to support EU member states to be more resilient and to recover and rebuild after the COVID-19 pandemic via green and digital transition(European Commission, 2020a).

In September 2020 the European Commission presented its plan on the new target of the further reduction of GHG emission. According to the new target, the European Commission raised the goal to 55% reduction by 2030, compared to the pre-industrial level. (European Commission, 2020.a.) Previously, the EU was committed to a less ambitious 30% reduction target by 2030, however in April 2021, the new reduction target was accepted by member states. Due to the newly accepted target of GHG reduction, the Renewable Energy Directive (later: Directive) needs an upgrade to readjust itself to the change. In the Directive the targeted share of renewables in the energy mix by 2030 was 32%,

however according to the new draft it is increased some 38-40% in order to support the achievement of the new 55% reduction of the GHG emission in the EU (Euroactiv. 2021).

In October 2020 the European Commission published its annual report, the State of Energy Union, according to which solar energy is identified as the energy technology that can contribute the most as a growth strategy to the European Green Deal. (European Commission, 2020.b.) Based on recent forecast, after the demand improved by 11% in the EU in 2020, the solar sector is forecasted to increase with 23% in 2021, the market growth is seen to show a decline in 2022 (13%) and 2023 (14%), however, these assumptions show a higher rate than could be concluded from the National Energy and Climate Plan. Moreover, according to the measurement of Solar Power Europe, the cost reduction of solar power will continue further, with a 7% year-on-year average decrease. Further, that can be assume that Recovery Packages will boost solar sector – as seen in the introduction section in the case of Hungary's plan about the Recovery and Resilience Facility (Solar Power Europe, 2020).

Public subsidies and policies of green transition direct the growth of green investments by businesses. There is an increasing need for action for policy-makers, companies and consumers and to adopt appropriate response measures under the pressure.

The replacement of energy by renewable energy has a high importance in the strategy, the European Green Deal requires the fundamental reorganization of the energy system.

4. Methodology

Solar energy is becoming a favourite among alternative renewable energy sources, and the main objective of this research is to address the utilization rate of renewable energy sources and the European green deal targets in Hungary. However, costs for households have been laid down. Survey technique of research methods was used in this study. The surveys were conducted with 210 households residing in Hungary. The survey includes questions about what households think about energy consumption related to solar energy and how they are suitable for today's challenges.

5. Result

In this research, a survey was conducted to reveal the opinions of households on energy consumption and how this fit into today's challenges. In this study, the participants filled in the questionnaires online. Answering was entirely voluntary and anonymous for every person. The research took place between 2020 December 2nd and 2021 March 12th. The composition of the respondents satisfied the socio-demographic view of Hungary`s population, however it isn`t a representative research. The survey proved that people have significant general knowledge of renewable energy sources. They recognize the importance of it and know the equipment's, with which households can help protect nature. The survey also proved that the majority of the respondents does not or cannot use renewable energy sources.

The following questions focused on daily equipment of households and how much attention is given to energy efficient lifestyle. 80% of respondents stated, they use energy saving light-bulbs, in contrast to 20% who use normal light-bulbs. Electronic devices are hidden energy consumers, and 62% of

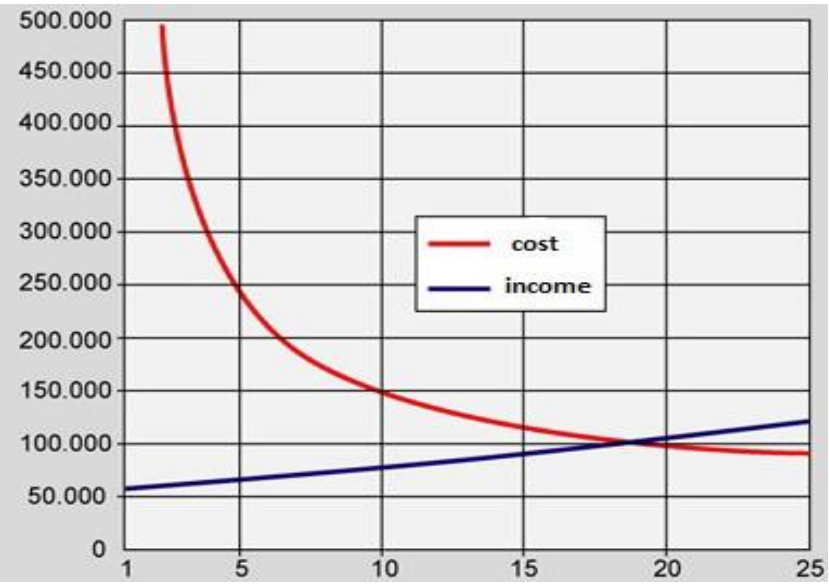
respondent said they let the devices consume freely. It would be highly beneficial to unplug or turn off these devices.

Regarding heating, 40% thought their heating system is outdated, to which they gave „old, it needs to be repaired" as a reason.10% said that there are better heating systems than theirs, or it is not fitting since it does not use renewable energy. 80% of respondents expressed their interest in using renewable, alternate energy for their heating. Those who answered with no, thought that they are too old to start a proper conversion process to renewable energy, or that their current accommodation makes it impossible to do so. About the energy consumption 76% picked solar energy as the one they would like to switch when it comes to heating. This falls in line with the fact that most technological advancements were made in this field and solar panel systems are available to everyone now. 51% of the respondents said yes when I asked if they know the term „half-passive house", so more than half of the people have encountered it before. Overall it seems like a better ratio than what we expected, however when we asked what that is, most respondents selected „energy saving building". The respondents gathered 82% of their information from the internet, their knowledge on the other hand often appeared to be completely different regarding the renewable energy sources.

In conclusion, it can be stated that instead of alternative energy sources, gas- and district heating is still considered the best heating system.

The Paks Nuclear Power Plant, electricity coming from Russia and 8,000 MW of solar energy will be enough to supply the country. Cheap Chinese solar panels will make solar energy a favourite for households and the tourism industry, but they may also raise a ton of problems in the near future. Because they are cheap, but will fail soon, solar panels will contain relatively large amounts of environmentally hazardous material, so large quantities of units that are already inoperable will need to be stored. There are currently no calculations on how much the storage of large amounts of solar panels will cost, according to our current calculations, we paint a very positive picture for investing in energy.

From our calculations we can determine, that with the assumed economic and technical data, a normal sized household`s solar panel system, that generates 60-70% of the house`s hot water needs, is economical, since with 25 years of usage, we can save around 29,500 Ft per year, which would be around 737,500 Ft for the 25 years. On the contrary, if we look at the outcomes of the costs and profits, (as seen in Figure 3.) it is concluded, that the system`s payback period, meaning the time when the income is higher than the costs, is rather long, taking 19 years.



3. Figure Cost and Income calculated with Annuity, own work

It is important to note, that the chosen energy source in our example was natural gas, which is the cheapest energy source now. If we use the significantly more expensive electricity for example an electric water-heater with the solar panels instead of gas, the payback period is reduced to 8 years. Aside from this, it will bring further improvements if we are granted State Aid. The percentage of this according to the Green Investment System`s population tendering procedure is 30-60%. The base 30% could reduce payback period to 14 years with natural gas and 6 years with electricity.

The mainly complex investments allow for a „climate bonus" with a further 10-30% aid, which will reduce even natural gas`s payback period to a single digit.

We believe that it is important to state, that after the examination shown above from a financial perspective, in case of a renewable energy using investment, it is not only the quantifiable profit that should be considered. The prevention of carbon dioxide and other harmful emission with the substituting of fossil fuels, the independent, local energy generation`s benefits, the optimisation of the economics of scale with such systems, also the workplaces created for planning, implementing and maintenance, all count towards the benefits of the investments.

It is seen from survey, that the households are interested in the new possibilities, but due to their own comfort, it is hard to make steps to reduce their own carbon footprints. Regarding modern heating systems 80% of the respondents thought district- and gas heating is the safest, cheapest solution. For the future of the households, it can be stated that including their energy structure, renewable energy source usage will also play a bigger role. Flat-panels gained popularity in Europe and energy storing lithium-ion accumulators are the ones they see opportunities in

.

However new technologies have appeared, such as solar cooling, solar process heating, and solar district heating systems. If the energy storing conditions improve, the State Aids will also experience growth (according to our measurements, these two factors play a big role in our decisions), and then solar energy and bioenergy (Popp, J. 2013) is going to gain bigger exposure in households compared to other energy sources.

6. Conclusion

At the top of the inevitable principles of the concept of sustainability are the processes such as increasing the share of renewable energy sources, conducting and managing energy efficiency and saving studies. Renewable energy has an important place for sustainable development as it is a solution to environmental, economic and social problems and is an effective solution to the problems caused by fossil fuels. Sustainable development is only possible when clean, reliable, and economical energy reaches every part of society. Thus, the government needs to focus on carbon-neutral targets that will be maintained by 2030. In addition, energy is one of the most important strategic issues for Hungary, as it is all over the world. Hungary is predominantly oil and natural gas in energy consumption and is dependent on foreign countries in this regard. Efforts should be further accelerated in order to reduce our external dependence on energy and to replace the exhausted energy resources with renewable energy sources, especially solar energy, and such investments should be evaluated as strategic investments. Especially the energy that comes to the world in one second from solar energy, which is one of these sources, is many times more than the total energy production of the world. Despite being such a rich resource, Hungary cannot sufficiently benefit from this solar energy. The most important obstacle in the implementation of this energy system has been the high installation cost compared to traditional energy sources. As the costs are stated, recent developments in solar energy production and storage technologies have caused a rapid decrease in installation costs. For this reason, the establishment of solar power plants was not preferred much before, but nowadays this energy system can be installed at an affordable cost with the decrease of technological costs and also this system is supported by the Hungarian government within the scope of the European Green Deal. The enormous budget within the Recovery and Resilience Facility supporting the green transition of member states of the block. The Hungarian Government published its recovery and resilience plan which plans to support the solar sector efficiently, also the government proposed budget for the summer regarding a government fund from the recovery facility to promote the implementation of solar panels and solar energy heating systems.

Therefore, the applications of photovoltaic panels in houses and buildings, it is aimed to meet the electricity requirement and to increase the awareness of the sustainable environment. With these supports, Hungary will reduce the use of households in homes and buildings by benefiting from the advantageous solar energy and meeting their energy needs from foreign countries.

In addition, turning to the sun is an important advantage in terms of protecting the environment in order to prevent the increasing energy need and the extinction of fossil fuels. Solar energy, which is one of the renewable energy sources, has both environmental and health benefits like clean energy. These; prevention of air pollution, prevention of water pollution, reduction of resource use and prevention of environmental pollution.

The beginning of this study is the use for households and the studies stated under the European green deal. No study has been found in Hungary regarding the use of solar panel energy in the tourism industry, which contributes the most to the national economy. One of the most important factors of

sustainable development is the provision of sustainable tourism. By eliminating the destructive elements of the sustainable tourism industry, it evaluates ecological, social and economic elements together and ensures that both present and future generations benefit from the scarce resources of the tourism industry. Therefore, future research will focus on the place and benefits of solar panels in the tourism industry.

References

Kharrazi, V. Sreeram, Y. & Mishra(2020) Assessment techniques of the impact of grid-tied rooftop photovoltaic generation on the power quality of low voltage distribution network-A review. Renew Sustain Energy Rev, 120 p. 109643 https://doi.org/10.1016/j.rser.2019.109643

Becken, S, Simmons, D. G. 2002) Understanding Energy Consumption patterns of tourist attractions and activities in New Zealand. Tourism Management 23. pp. 343-354.

Boretti, A., Nayfeh, J., & Al-Kouz, W. (2020). Validation of SAM Modeling of Concentrated Solar Power Plants. Energies, 13(8), 1949. doi:10.3390/en13081949

Bozsik, N. 2018: A Kelet-Közép-Európai országok energiafelhasználásának elemzése. JCEGI. Gyöngyös. pp. 17-25.

Ceenergynews. (2021). Hungary to reach 6 GW of solar power capacity by 2030 [Accessed 02 May 2021].from https://ceenergynews.com/renewables/hungary-to-reach-6-gw-of-solar-power-capacity-by-2030/.

Coogan, J., Herrington, N., 2011. Q methodology: an overview. Research in Secondary Teacher Education, pp. 24-28.

Dinya, L. 2018: Biomassza-alapú energiatermelés: A múlt és a jövő. Magyar Tudomány 179. pp. 1180-1183.

Euroactiv. (2021). LEAK: EU's draft renewables law confirms 38-40% target for 2030. [Accessed 08 May 2021]., from https://www.euractiv.com/section/energy/news/leak-eus-draft-renewables-law-confirms-38-40-target-for-2030/.

European Commission. (2020.a. State of the Union: Commission raises climate ambition and proposes 55% cut in emissions by 2030. [Accessed 08 May 2021]., from https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1599.

European Commission. (2020).b. 2020 report on the State of the Energy Union pursuant to Regulation (EU) 2018/1999 on Governance of the Energy Union and Climate Action [Ebook]. [Accessed 08 May 2021].2021, from.

European Commission. n.d. (a) European Green Deal. [online] Available at: <https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en> [Accessed 11 April 2021].

European Commission. n.d. , (b) Recovery and Resilience Facility. [online] Available at: <https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility_en> [Accessed 11 April 2021].

Hernandez, L., Burriel, J. R., Bujdosó, Z., Topliceanu, L. 2017: Training needs in renewable energies for local development. http://repositori.uji.es/xmlui/bitstream/handle/10234/167300/O2_Training%20needs%20in%20RES%20for%20local%20development_En.pdf?sequence=4

Lukács, G. S. 2010: Megújuló energiák könyve. Szaktudás Kiadó Ház. Budapest, 340p.

Magyar Épületgépészek Szövetsége. (2017). VIII. Napenergia-hasznosítás az épületgépészetben - konferecia és kiállítás-Napenergia-hasznosítás iparági helyzetkép [pdf]. [Accessed 24 March 2021]., from http://www.megsz.hu/megsz/images/stories/2017-honlap/Nap-2017/14_Varga_P%C3%A1l_-_Napenergia-helyzetk%C3%A9p-2017-web.pdf

Magyar Épületgépészek Szövetsége. (2018). IX. Napenergia-hasznosítás az épületgépészetben -Napelemes helyzetkép és jövőkép [from]. [Accessed 03 April 2021], from. http://www.megsz.hu/megsz/images/stories/2018-honlap/NAP-2018/12-1_-_Varga_P%C3%A1l_-_Napenergia-helyzetk%C3%A9p-napelem-2018.pdf

Magyarország Kormánya. 2021. Az uniós helyreállítási alapból Magyarország 16-17 milliárd eurót tervez lehívni. [online] Available at: <https://kormany.hu/hirek/az-unios-helyreallitasi-alapbol-magyarorszag-16-17-milliard-eurot-tervez-lehivni> [Accessed 17 April 2021].

Matasci, S. (2021). Cost of Solar Panels: 2021 Pricing Guide | EnergySage. Solar News. [Accessed 25 April 2021]., from https://news.energysage.com/how-much-does-the-average-solar-panel-installation-cost-in-the-u-s/.

Megújuló energia. ENERGIAKLUB. (2021). [Accessed 02 April 2021]., from https://energiaklub.hu/temak/megujulo-energia.

Michalkó, G., Lontai-Szilágyi Zs., Kiss, K., Martonné Erdős, É. 2018: A megújuló energia szerepe a falusi turizmus modernizációjában. In: Ministry of Innovation and Technology. (2020.) National Energy and Climate Plan. [pdf] Available at: <https://ec.europa.eu/energy/sites/ener/files/documents/hu_final_necp_main_en.pdf> [Accessed 15 April 2021].

Napelemrendszer.info. (2019). Új, 2021-es napelem pályázatok magánszemélyeknek családi házakra. [Accessed 25 March 2021]., from https://napelemrendszer.info/napelem-palyazatok.html.

Palyazat.gov.hu. (2019). Megjelent „Napelemes rendszer telepítésének támogatása mikro-, kis- és középvállalkozásoknak" című felhívás | Széchenyi 2020. [Accessed 02 April 2021]. from https://www.palyazat.gov.hu/megjelent-napelemes-rendszer-teleptsnek-tmogatsa-mikro-kis-s-kzpvllalkozsoknak-cm-felhvs.

Palyazat.gov.hu. 2020. Helyreállítási és Ellenállóképességi Eszköz (RRF). [online] Available at: <https://www.palyazat.gov.hu/helyreallitasi-es-ellenallokepessegi-eszkoz-rrf#> [Accessed 16 April 2021].

Popp, J. 2013: A bioenergia szerepe az energiaellátásban. Gazdálkodás. 57. évfolyam 5. kiadás pp. 419 – 435.

Solar Heat Europe. (n.d.) Welcome to Solar Heat Europe - Solar Heat Europe. [Accessed 17 March 2021]. from http://solarheateurope.eu/welcome-to-solar-heat-europe/.

SolarPower Europe (2020): EU Market Outlook for Solar Power 2020-2024 Available at: https://www.solarpowereurope.org/wp-content/uploads/2020/12/3520-SPE-EMO-2020-report-11-mr.pdf?cf_id=33407

SolarSide. (2016) Elon Musk korunk egyik legnagyobb újítója. - 1. Napelem vagy villanyszámla?. [Accessed 01 April 2021]., from https://www.solarside.hu/tag/elon-musk/.

Szalók Cs. (szerk): Változások és kihívások a turizmusban. Budapest, pp. 4-17.

The Private Market in Eastern Europe; Microbusinesses as a solution to unemployment and Private Insurances as a solution to poor medical service

AUTHOR

Adin Džidić H6K04F

DOI: 10.29180/9786156342218_2

1. Introduction

Microbusiness, a possible way to solve the problem of unemployment in eastern Europe? Regarding the topic of microbusiness, an ancient day which has been around for centuries now, many people have in fact seen them as the "go-to" way as to solve problems of general unemployment which has plagiarized most of the world today. The general idea of microbusiness goes as: if one can't find a desired position, one should indeed strive and their best to create it. However, this has proven itself on numerous occasions that it was much easier said than done, as starting a microbusiness does yield numerous risks of its own, with the major one being falling into bankruptcy as well as inadvertently falling into a legal affair. (Heyes, 2019) The former has indeed proven itself to be much more of a general danger for those who engage in this idea unprepared, while the latter might prove itself to be signifying a greater danger for those business which survive the initial stage which may last for a few months up to a few years at the time.

2. Case study of Eastern Europ

In the eastern Europe and the Balkans, the area with the problem of brain-drain being largest than anywhere else in the world (Mappes-Niediek, 2018), microbusiness have often been credited as the possible salvation for smaller communities whose youth have been emigrating to larger cities and towns in the search for a better employment. (Calus, 2018) Albeit the idea has been present ever since the dawn of the mankind, when humans in the early civilizations have set up shops, some selling fresh meat and vegetables, while others were offering blacksmithing service or clay-based products to make early pots and vases, the microbusiness have went into a steady decline, followed by a complete disbandment in the early 20th century, when most of such business in eastern Europe (initially in the former USSR) were forcibly nationalized and their former owners were often times persecuted. (Livi-Bacci, 1993)

3. History behind their downfall

This, combined with the strict rhetoric of the socialist regime, with the aim of developing an idea of a "peasant, soldier, worker" citizen meant that the inhabitants of the lands once formerly members of the Warsaw Pact, including its eastern counterparts in Asia, have often developed a mentality centralized around obedience rather than critical thinking, where the state will do most (if not all) of your planning for You, and Your part being to secure a job in a desired field and work until you retire.

(Patnaik) This approach was indeed easily achievable as the states were fairly affluent, and while some of them were better-off than the others, almost of the socialist countries had workplaces readily available, and voluntary unemployment was highly frowned upon. (Porket)

4. Resurrection and subsequent issues

Unfortunately, with the fall of the Iron Curtain in the 1990s, many of those who have idolized such approach found themselves facing difficult times. With the newly elected democratic governments, modeled after those in the West, initially small but developing private sector began to emerge out of the ruins of the old system, and has gradually replaced it into the ruthless capitalism seen today. (Johnson, 1994) Over the time, the governments started to sell of their state operated enterprises, many of them which were sold for much less than their initial worth. (Sachs) Those who have bought those same companies were the pioneer generation of the eastern European entrepreneurs, a concept which was at the time almost forgotten by most of their countrymen. However, their vision, criticized by many as being unfair and disadvantageous to others had in fact made many of those people into ruthless millionaires. Sadly, such individuals were often linked to the underworld and had shady pasts behind them, often having been petty criminals or often times being related or on good terms with such. (Fatić, 1999) With 2020s on the rise, those times, which have happened three decades ago now, have left a profound impact on the present-day society of eastern Europe. However, what an honest man could have learned from such people is that sometimes, self-reliance and self-sustainment is the one of the keys to success in a modern capitalist society and its hybrids like that of an eastern Europe. Although privatizing state enterprises was often done through unethical means (most notably in the Balkans), in this particular essay, we will discuss about how a private sector has in fact saved smaller communities from disappearance and how people have earned money to open them through legal means. The reason why jobs are often lacked in smaller areas is due to the fact that most investors are aiming to earn their profits in larger cities, often times circumventing smaller communities, seeing them as not prosperous and worthy of investment.

5. Case of Agrokomerc, the first corruption scandal in the Balkans

However, one particular community in the most north-western part of Bosnia and Herzegovina became the place where the domino effect of privatization slowly begun. In the town of Velika Kladuša, which is the Northernmost municipality in Bosnia and Herzegovina, WW2 had left many people terribly impoverished, with the new communist government set in place replacing the Yugoslav monarchy. The surrounding region often known as the Cazinska Krajina (literally meaning, the Cazin frontier, as it was historically a place of many crucial battles fought by armies on all sides). Most of the locals opted to join the Yugoslav Partisans, however, with the food rations often being in short supply, many people have felt betrayed by their own government. A small breathing space was left for private entrepreneurs, who could still own shops that hired no more than 4 employees. The fact that the Cazin Rebellion had happened in 1950 left the region under even a tighter grip from the state government, and in some way, even poorer. (SarajevoTimes, 2016) This trait was shared with a town of Sjenica in south-eastern Serbia, where Marshall Tito of Yugoslavia had ordered that no investments should be made for 40 years at least as a result of locals inciting a rebellion against the communist regime during

the Second World War. Out of the poverty which struck the region, a man named Fikret Abdić would emerge, who would start the first controversial conglomerate of former Yugoslavia, Agrokomerc. Abdić grew up in relative poverty and obscurity, being one of 13 children and the driving factor behind his work was to see his beloved Krajina become an equal to the better developed parts of the former Yugoslavia. In fact, quoting himself, he worked for 20 hours a day, would sleep for three and would rest for one, (telegraf.rs, 2016) with his brainchild and the core fruit of his labor becoming the Agrokomerc company, which today is considered to be one of the largest chains of supermarkets in Bosnia and Herzegovina. Agrokomerc, which at the time was state-owned, was in fact one of the first larger entrepreneurial ventures in Yugoslavia, employing as many as 13 thousand people, achieving Abdić's dream of helping the impoverished Krajina region. (source.ba, 2016) So much was Abdić's popularity that the word Babo (meaning daddy in Bosnian) became synonymous for him in the local region. (dictionary, n.d.) As quoted in the text, Abdić, who was an independent thinker, he had provided jobs for the poor, most of which have had the stereotypical socialist mentality of: "find a job and work until you retire, the state will take care of your life". However, in 1987, following the infamous Agrokomerc affair where the regular inspection discovered that Agrokomerc made as many as 750 million USD of unsecured promissory notes, the situation went poorly for Abdić, and according to some, his arrest was the unofficial beginning of the Bosnian Civil War. (Dani, 2007) (Bourne, 1987) Eight years later, from a businessman, Abdić would end up becoming a warlord and one of the most hated men in all of Bosnia and Herzegovina. (Nadarević, 2020) However, Agrokomerc story would path the way of privatization in the former Yugoslavia, considering that the company was later privatized. Despite of the fact that Agrokomerc brought food to the table of many families, the controversy surrounding it and its CEO stands to this day.

6. Microbusinesses, pros and cons

As earlier mentioned, this very trait of microbusiness (most notably for those in smaller areas) can be considered as one of their most fatal flaws, and that is the fact that they might lack the proper marketing unless when this issue is properly addressed. Overall speaking, while some microbusiness and private enterprises might struggle with proper marketing (which is a necessity for them), others might not find the issue to be as sincere, for example taxis. Cab drivers and their cabs, adhering to the fact that the "TAXI" sign is recognized worldwide as a go-to way to show that the vehicle is available for transportation of passengers for hire, don't really need a lot of marketing for them in order to become successful in their line of work. Those type of enterprises have already been established and fall within the traditional sector of entrepreneurship. However, those which are innovative are required to rely on heavy marketing in order to promote their new service. Often times, this has been achieved through commercials, where a business owner would pay a local broadcasting service to provide a commercial for their service. However, in the 21st century, television has gradually been replaced with using personal devices such as computers and smartphones. In fact, just in the last 6 years, the amount of people who said that they regularly watch cable television has dwindled from 75% in the United States in 2015, to merely 56% in 2021. Therefore, adhering to the principle of the survival of the fittest, business is now bringing commercials to personalized computers of the users, usually through the form of ads. In fact, 2/3 online business today have advertised their products through online ads, a surge from the past years when marketing online was done in the lesser extent. For this particular task, we will be examining

several smaller towns in Bosnia and Herzegovina and Serbia on how do they curb and survive in the 21st century mainly through the application of smaller business. Subotica (also known in Hungarian as Szabadka) has been known as the Hungarian capital of Serbia for decades, when it was annexed by then Kingdom of Serbs, Croats and Slovenes following the infamous treaty of Trianon. Due to strong, natural irrigation from the nearby Danube combined with its mostly flat surrounding area, most of the land became fairly suitable for agriculture and growth of livestock. As a result, locals have been induced in the agricultural labor there for most of the city's existence. In fact, according to recent data, there's an estimated 0,88 ha of agricultural land per inhabitant in the surrounding area. One of the most commonly grown plants is corn. (authors, 2019) Being cheap and reliable, having been used in Europe since it was imported by the travelers from America, it became the favorite of farmers for feeding their livestock, primarily pigs but also cows and other different cattle. However, one of the main problems in the city is the lack of potential youth. Vojvodina, often known as the Vajdasag, was as earlier mentioned, a part of Hungary until the Treaty of Trianon. However, around 2011, the new Hungarian government introduced a rapid change to the Hungary's law on citizenship, making Hungarian citizenship available to anyone whose ancestors were born in the area of the old Hungarian Kingdom. This didn't apply to Hungarians living in the region only, but as well to Serbs, Croats, Slovaks, Ukrainians and other national minorities living in the aforementioned region, under condition that they learn to speak Hungarian fluently and that they don't have a criminal record. (Today, bez datuma)Over a course of night, the coveted citizenship of a European Union member state became available almost on spot, with the fact that as many as 700 thousand people were granted citizenship. (Today, bez datuma)This, in turn, led to a massive brain-drain, as these days, Szabadka saw around 1500 youth leave the city for the search of work in the countries of the European Union, most commonly Germany, Austria and Sweden. With the fact that Szabadka has only 100 thousand inhabitants, this information could be seen as very alarming. (Google, n.d.) Those who have decided to stay have to some extent opened up smaller businesses in order to provide sustenance. Per the official definition, a microbusiness is a type of a business which employs less than ten individuals. They should be, however, differentiated from small businesses, which depending on the desired field, can be actually considered fairly large companies from a perspective of a common man. In fact, in some cases, some small businesses can hire up to 500 employees, which is fairly large compared to a microbusiness. Szabadka, a city where most of the locals tend to rely on private companies for self-sustenance is an example of a town from above discussion. Szabadka, like some others, can be taken for study for the UN's Sustainability 2030 Agenda.

6. Through the eyes of the UN Sustainable Goals

Namely, the agenda focuses on 17 core goals with the aim of prolonging the current way of life with some significant improvements in both the social and the ecological sector. (UN, 2020) All of the 17 of the UN's Sustainable Goals, depending on the region, can be applied to the small businesses, however, the two of the closest ones would be 8) Decent Worth and Economic Growth and 11) Sustainable Cities and Communities. (8. Decent Work and Economic Growth) (Cities and Communities, 2020) In particular, the Decent Work and Economic Growth puts an emphasis on this, quoting as: The socio-economic response framework consists of five streams of work: …3. Protecting jobs, supporting small and medium-sized enterprises, and informal sector workers through economic response and recovery programs… (8. Decent Work and Economic Growth) During the unprecedented

times of the COVID 19 pandemic, some small business, many of which have operated for years and would have likely been subject to the second phase of danger (reminding, scams and corruption) were inflicted with the problems typically faced by businesses at their early stage of work; the lack of market.

7. How COVID 19 Changed the face of entrepreneurship

Probably the most severely hit were cafes, adhering to the fact that the lockdown in most of the world's countries forced the cafes to either partially or fully close. (Observatory, 2020) Following cafes, a great deal of other businesses, such as airlines have fallen into despair, as the amount of passengers had dwindled. (KPMG, 2020) However, other businesses such as online delivery services like Wolt and Uber have had a surge in their market, as the companies have seen a 3 billion dollar rise in the second and third quarters of the covid 19 pandemic regarding their market. (Market watch, 2020) As most of the restaurants had to close altogether with many people being afraid of going outside, the only way for restaurants to generate profit was through delivery. Although a large number of restaurants had previously relied on personal delivery employees, due to flexibility, most of them have shifted to contract apps which offer more flexibility to the currier.

8. Ideas

Food & Goods Delivery

Some of the most popular of these apps were UberEats, Glovo, GlubHub, Wolt and specifically for Hungary, NetPincer (Nemere, 2021). (CisionPrNewsWire, 2021). This has again generated another type of profitable small enterprises. In Hungary specifically, most of the delivery couriers are required to register a KATA or Kft, which can loosely be translated as an American equivalent of an ltd. Now, most of these companies don't really act in the way that they directly pay the couriers, but instead, couriers are sort of their own bosses, paying the taxes for their KATA or Kft. Whilst the program of the aforementioned apps set up the mini contracts typically for assigning delivery. This is a very new type of a microbusiness, but it has proven itself to by extremely effective due to flexible workhours and steady profit. In fact, some of the best paid Wolt Couriers in western Europe were said to make even double the average salary, with one man making around eight thousand Euros a month by delivering food via Wolt in Helsinki, Finland. (BossManaatti, 2021). Salaries are considerably lower in Hungary, but they can make up to a thousand Euros a month for common work and even more for the additional workload. Adhering to the fact that an average median salary in Finland is around 4400 Euros per month, this makes that type of earnings beyond the comfort limit. (explorer, 2021) This was also achieved by another man named Sabbi Lyon decided to try himself to make eight thousand US Dollars in a month by delivering Ubereats, which he achieved with great efforts. (SabbiLyon, 2020) Lyon concluded that the best times to deliver are particularly on weekends when most people are relaxing with their families and friends.

Drones for hire

Another new idea which had emerged (but was not often seen being done due to Covid-19 restrictions) was renting a private drone. Remote controlled drones in particular, especially those with cameras attached often times from producers like GoPro etc. have been known to have been commercially successful for filming. Due to their compact size, drones have slowly started to replace helicopters as the primary way to film certain large gatherings such as weddings and concerts, and a selected group of people have decided to capitalize on the idea. With some cheaper drones costing as little as fourteen thousand Hungarian Forints, most of them are easily affordable to the general public. Although certain countries like Bosnia and Herzegovina, require owners to register their drones in the local Civil Aviation authority, typically charging around 15 Bosnian Marks (7,5 Euros) tax per a registered drone. (Civil Aviation Authority, 2021) Additionally, most drones have a certain hook which can be used to attach cameras to them, whilst others don't and are required to be remote controlled by sight of an individual. According to goPro's official website, a GoPRO camera can cost anything between three to four hundred USD. (GoPro, 2021) With these two combined, we can estimate that a price for a go pro camera and a mid-range drone could be around five hundred American Dollars or four hundred Euros. Filming services typically don't come in cheap, and we could see an amount of money for that be around seventy to two-hundred and fifty USD per an hour depending on the quality and professionalism in the United States. (Bark.com) With this in mind, it would mean that an identical service in Hungary would come maybe twice or even thrice as cheap, as on average, the life in Hungary is up to 40% cheaper than it is in the United States. (Mylifeelsewhere, 2021) Registering such a business would most likely fall under three category of a kft or KATA, but adhering to the fact that there would be no need to register more than a single employee, KATA would have most likely been the action needed. This option is considered by some to be a fairly solid investment, taken into consideration that humans are after all social beings, and since the lockdown will not last forever, nor will the public venues remain inaccessible to the public, people will want recordings of the days important to them, and from there on, drones can take the lead. (8 reasons to buy a drone). Another way how individuals can make money through the ways of entrepreneurship and microbusiness has been recorded for a prolonged period of time; truck driving.

Truck driving

With the lockdown of 2020, truck drivers were in a greater need than ever, being asked to deliver goods on time, most of it being sanitary products and things which we typically consider under our basic groceries. (Marshall, 2020) To go through this, due to many stereotypes about being a private truck driver, one of the major drawbacks is the gender barrier, considering that women made up only around 6,6% of the world's truck driving population in 2019. (Vultaggio, 2019) However, the pay associated with the job can be considered above average regardless of one's living location. Taken into consideration that the large majority of truck drivers operate their own trucks, they can be considered as owners of microbusinesses. Per some statistical data, the average truck driver in Germany would earn around thirty nine thousand Euros a year, which when put down the table, would make the NET salary of 3404 Euros a month, which is almost a thousand Euros more than an average German salary of 2500 Euros. (I am Expat) (Economic Research Institute) So, overall speaking, there are however many drawbacks of being a truck driver, such as, as it is well known, long work hours, mobility and

often times loneliness, not to mention high price of operating the truck itself. (New Sound Trucking School, 2019)

Freelancing

Another thing which can also be done by many people who want to start their own microbusiness is to register to become a freelancer. For one to be a freelancer, one should typically have a set of skills needed on today's market, ranging from anything from translation to knowledge in programming languages. Once again, the best possible thing about being a freelancer is the flexible workhours, meaning that you can work whenever you want and whenever you please, which is very similar in fashion to a cab driver. Additionally, another great feature of the job is the easy availability of education needed to do it. Namely, since large amount of education needed for these types of jobs is related to programming and 3D designs, it comes to no surprise that today, finding an education for most of those jobs is accessible at our fingertips. To be specific, programs such as Khan Academy and Coursera often times offer university level education (particularly in the field of programming and 3D design) free of charge. (Khan Academy) However, the only problem is that although most of them offer the education, none of them offer the diploma, which can be a drawback at the modern job market, as the job market has always been in a search for degrees. The aforementioned are just a set of examples of what websites are in for an offer, as there are many others available. Interestingly enough, however, as a part of a small pilot project, many great universities (including Harvard and Oxford) have started to publish recordings of their classes particularly in the field of hard sciences (math, physics etc). (Oxford University YouTube Channel) Alongside of these, other various non profits and free tutors often times publish their programming classes for free, primarily on YouTube, where many of those are available. Salaries for a freelancing programmer can vary depending on their workhours and approach to work. However, for a median salary, in the United States, a programmer can make around sixty-four thousand dollars in a single year. (PayScale) This is however just a median salary, meaning that around a half earn less than that, and another half earns more than that. Although most of this essay had been focused on the eastern Europe, here, a little deviation was made, considering that programming is something which is spread worldwide. Nevertheless, the prevalence of programmers is the highest in the south east Asia, particularly in Bangladesh, where as many as six hundred fifty thousand of them. (Daily). Eventually, with the large numbers, one of the major drawbacks is that the competition is fairly great, however, for those who wish to work hard enough, jobs will always be readily available.

3D Printing

Continuing after this, 3D printing is known to be another sort of very successful venture which many young entrepreneurs have engaged themselves in. Namely 3D printing, especially during the COVID 19 pandemic had proven itself to be a blessing in disguise, considering the fact that 3D printers across the world have made parts for the COVID-19 respirators when they were in need or in scarcity. (Ok, 2021) 3D printers typically produce plastic parts for various types of machines, and although they can be costly to obtain, they are considered to be a safe investment, considering that they are capable of producing useful items depending on the model. During the pandemic, it was observed that they could be used to produce parts for the respirators which were in a short supply, and that very thing was

exactly done, saving possibly thousands of lives. (Springer Link, 2020) This in particular came to be seen in Italy, where many people were saved through this method. (Feldman, 2020) However, in the normal days, 3D printers can be used to make novelty items, personally designed things, jewelry, car accessories, keychains and many others things as well. 3d printers, as mentioned above, can be a good source of profit. (PCMAG)

9. Larger small businesses

Lockers for hire

In Serbia also, another type of small enterprises has emerged amidst the COVID pandemic, that being renting out of small private storages. (Danas, 2020) Initially, the idea was almost unheard of in most of Europe, as probably the first time someone had seen it in action was through the History Channel's show "Storage Wars". Initially, storages were popularized in the United States as people often moved to different houses. Because of this, they needed a place where they could leave their permanent belongings safely without moving them each time. In fact, as many as 30 million Americans have changed their address in 2019, with as many as 3 million moving from one state to another. (Wood, 2020) In Serbia, private storages became an option which was favored by many such as café owners, whom had to close down amidst the pandemic. Zoran Stajic, the owners of Toro Box, the largest company in Serbia of this type, firmly believes that the investment, albeit large, will pay off in around 5 years, predicting that private storages will become high popularized by microbusinesses and private individuals alike. (Danas, 2020) The reason why private storages weren't as popular in eastern Europe as they are in the United States is most likely due to the fact that most eastern Europeans have had their permanent address unchanged for most of their lives, and most of them keep their personal belongings at home. In fact, in nearby Croatia, as many as 62% of all individuals were reported to still live with their parents, a stark contrast from the United States and even western Europe, where standards expect young adults to move out upon graduating from high school. (Bence, 2020) However, starting such large business, although initially defined as a small company doesn't come as cheap, but is seen as very profitable, taken into consideration that the private Storage Industry made around 24 billion USD per year. (Danas, 2020) Of course, with the tides changing, it can be expected that such businesses could be profitable in the capital city of Belgrade, where large amount of people have been moving to from smaller areas. (blic.rs, 2016) With all of them needing a temporary apartment for rent, it can be expected that they will have a good use of private storage units. (snapnsure, 2019) This phenomenon has been observed many times in history, as most of those who move to cities from smaller areas rent apartments, and majority of those who move don't sell their property in their hometown. The risks however for starting such a business are tremendous with many hurdles which every firm faces as debated above. One of the things discussed earlier about private storages is that in order for them to be as efficient as possible, they would need to be open 24/7, meaning that staff is required to be there at all times, indeed severely increasing the labor costs, since they would need to be available in three shifts. (Danas, 2020). However, with west brining new trends, storages have already become popular in the EU part of European continent, where several companies such as "SelfStore" in Budapest have started to offer their services. (SelfStore Budapest, n.d.)

10. Private medical insurances

Introduction

Private medical insurances have seen a spike in use in the eastern Europe since the market became an open one in the 1990s. The trend, introduced from the United States has proven itself to be life-saving; an average price of a private insurance package can be as low as 300 euros a year per person in the eastern Europe, with family packages typically going around 1000 euros a year or less, this option has been made highly popular primarily due to the poor condition of the eastern Europe's health infrastructure. Since the fall of the communist governments, many health institutions have fallen into despair. In Bosnia in particular, in 2019, doctors were said to still use surgical equipment produced in the late 1980s. Additionally, equipment such as proficient X-Rays were not deemed to even be existent in certain hospitals.

Lack of trust towards the government

Additionally, with doctor's being understaffed, patients are sometimes made to wait hours at the times at local municipal clinics unless when they come with an appointment, as great deal of doctors had moved away. In particular, there was a situation in a city of Goražde where in 2014 and 2015, not a single individual had responded for a job offer of becoming a pediatrician in the local hospital. As of 2020, there are only 2 pediatricians working in the hospital clearly in a need for more. (Faktor, 2020) The COVID 19 pandemic had also proven that the government often times was not to be regularly trusted, as there was a massive scandal involving purchase of faulty respirators for those infected by COVID 19, where the Bosnian Federal Government bought respirators worth around 5 million euros (cca 10 million Bosnian Marks) through a proxy company owned by a close friend of the government officials. Respirators, worth in reality less than 1/20 of the paid price have proven to be utterly worthless, as they were produced to be used only in the emergency vehicles carrying patients to the emergency room and not for passive use for those infected. (AP News, 2020) In reality, this brings us to an idea why the common people have opted to use the private medical insurance. With this taken into consideration, most of the people have lost trust in the Ministry of Health, often seeing it as fairly inefficient on the smaller scale. One of the, however, core reasons behind the popularization of the private insurances (especially among the elderly and the parents of the infants) is potential organ failure. Bosnia and Herzegovina in particular is not a member of the European Union, meaning that it is also not a member of either of the three great European organizations established to help those in need of urgent organ transplants.

Organ transplants

Those three organizations are Eurotransplant (of which Hungary is a member of) (Calus, 2018) (Eurotransplant, n.d.), Scandiatransplant (Scandiatransplant, n.d.) and Baltictransplant (National Library of Medicine, n.d.). According to the recent data, average waiting time for a kidney transplant in neighboring Croatia was around a year. Croatia, also a member of the Eurotransplant (like most of its members) utilizes the so called opt-out system, in contrast to opt-in which is practiced in Bosnia and Herzegovina. Organ donations are usually conducted from dead to living, however, living donors

were also known to donate organs as well, usually by a very close relative. Several factors have to be taken into consideration, such as if donator and the recipient have the same blood type and if the donor had previously suffered from illnesses which could potentially harm the recipient (such as cancer or serious sexually transmitted diseases like AIDS or Hepatitis) where in that case the potential donor is immediately disqualified. (American Cancer Society, n.d.) What is the main difference between the opt-in and the opt-out system is something which concerns the organ donation as voluntary or not?

Opt-in vs Opt-out

Countries practicing the opt-out system such as Hungary have a policy where upon death, the person's organs (if the individual was healthy as prescribed above) are immediately harvested for the sake of organ donation, and in such way, when done on larger scale, the society benefits as the matching organs can be sent to people in need. In this case, the organs are not harvested from the body of the deceased individual only if they make a will that their body must not be dissected after their legal death. (Lifesource, n.d.) This of course, is done on much rarer bases, as most individuals see organ donation as beneficial, an opinion which is shared by the majority of the world's religious scholars agree, with both the Muslim Shariah Law and the Jewish Halakah seeing it as permissible as long as it could be beneficial for someone who is living, whilst the Church of England in fact defines it as a "religious duty". (Church of England, n.d.) In contrary, in the opt-in systems, which is present today in the United States as well as some eastern European countries like Bosnia and Herzegovina and Serbia, organ donation is permissible only and exclusively if the person makes a will that their organs can be harvested for the sake of rescue of others. (Lifesource, n.d.) This in fact can be a major drawback. However, in the United States, a country where as many as 68% of all of the individuals have private insurance, with only 8% of the population not having any kind of insurance whatsoever, this is typically not a large issue, as organs can be easily acquired by the insurance companies ranging from whopping 440 thousand dollars for a kidney, with heart going for as high as a 1,3 million dollars. (Statista) This is a stark contrast to Europe where a kidney transplant, if self-financed, would typically cost around 60-70 thousand Euros. (The Guardian) For that reason, those who are in a need of an organ transplant in non-EU part of the Balkans often instead rely on the third and much cheaper option; Asia. The Turkish Republic has been nourishing good diplomatic relations with the non-EU part of the Balkans for almost two decades now, with many Turks seeing that part of the world as brotherly and closely related. A recent program established by the Turkish Government enabled those Bosnians who are less privileged to seek treatment in Turkey for certain illnesses and organ transplants. However, for those who don't fall in the program, the transplant is typically financed either by themselves or their insurance companies, or sometimes, through donations. Adhering to the fact that a median salary in Turkey is around 900 Euros a month in the larger cities like Istanbul and Ankara (Salary Explorer, bez datuma), it comes to no surprise that a kidney transplant costs around twenty to thirty thousand USD, which although financed with difficulty if all of the expenses are handled by the patient who earns an average salary (in Bosnia) of around 480 Euros a month, is seen as a feasible task. (Budapest Business Journal, 2020) Another option recently popularized with the spread of internet is conducting organ transplants in Iran and India, where kidneys can be purchased and transplanted for as little as ten thousand dollars, legally. (Iran Kidney cost) Knowing that the private insurance coverage in eastern Europe can be around 50 thousand Euros or even more in certain cases, this brings us to a conclusion

that investing in a private insurance can be categorized as potentially very beneficial to the individual. This type of insurance doesn't necessarily need to be just for organ transplants, as they very initially made to support accidents, most commonly work-related injuries or those caused by car crashes. However, as many often opt not to take a private insurance, if the accidents happen, many of them are left uncovered awaiting financial compensation, such as in a case of an accident where an individual was inadvertently (or deliberately) injured by somebody else. Insurance in such cases work in a way that they will financially support the victim (who is their customer) until the case is resolved and the person responsible is required to pay the compensation not to the (The European Dental Markets in Figures)to the accused one if found guilty, as compared to the victims, the insurance companies are much less flexible regarding the possible "Deal" in the compensation. However, the private insurances weren't really a "thing" in most of Europe, let alone its eastern part, so returning to the question of how they have emerged in popularity. Although the era of communism in the 1990s had seen many health institutions working splendidly, their decline began with wide-spread corruption during the fall of the Iron Curtain, which was also the time of opening of many private clinics, most notably Dental Clinics.

American Healthcare compared to the European one

Namely, private insurances were initially popularized in the United States due to one core difference in the system. Whilst compared to most of the world where each country has a government-sponsored healthcare program, such program in the United States is almost non-existent. The core problem is that the majority of American hospitals are in fact not owned or particularly financed by the United States Department (Ministry) of Health. As according to the official statistics, as many as 62% of all of the American hospitals are designated as "non-profits" (The Health Care Blog, 2017) meaning that they are entirely financed by the patients and their insurances. Further down the line, additional 21% of hospitals are for-profit or private, and only 21% are fully owned by the government (American Hospital Association, n.d.). This brings us to a conclusion on why the majority of Americans opt for private insurance, as such thing is a necessity for survival. In eastern Europe however, although not required for survival like in the United States, a good amount of people have opted for private insurances for "just in case" situation, knowing that in some bad scenarios, the government might not always be able to help with treatment. Alongside of the private insurance which is typically covered by self-financing, general insurance, such as that for the state hospitals in Europe is typically covered by the individual's employer. However, as the situation in Europe is such that many people often work outside of the contract, or by receiving "cash-in-hands" which is most commonly found with working short term contracts or by those working in cafes and constructions sites, many individuals are required to find other means to provide themselves even for state insurance. This can be done by self-financing, as people who own microbusiness' often do so (entrepreneur.com, n.d.) or by applying through the employment bureaus, where those registered can receive free health insurance for a period of time. (Healthcare.gov, n.d.)

References

(n.d.). Retrieved from SelfStore Budapest: https://www.selfstore.hu/en

(n.d.). Retrieved from FROM IDOL TO WAR CRIMINAL AND BACK: https://translate.google.com/translate?hl=en&sl=hr&tl=en&u=http%3A%2F%2Fwww.logovita.ba%2Fpolitika%2F4487-od-idola-do-ratnog-zlocinca-i-natrag-9789537773694.html&sandbox=1

(n.d.). Retrieved from Bark.com: https://www.bark.com/en/us/aerial-photography/aerial-drone-photography-costs/

(n.d.). Retrieved from I am Expat: https://www.iamexpat.de/career/working-in-germany/salary-payslip-german-minimum-wage

(n.d.). Retrieved from Economic Research Institute: https://www.erieri.com/salary/job/heavy-truck-driver/germany

(n.d.). Retrieved from Khan Academy: https://support.khanacademy.org/hc/en-us/articles/202260114-Does-it-cost-money-to-use-Khan-Academy-#:~:text=Learning%20at%20Khan%20Academy%20is,no%20spam%2C%20and%20no%20ads.&text=This%20way%2C%20you%20can%20focus%20on%20learning.

(n.d.). Retrieved from Oxford University YouTube Channel: https://www.youtube.com/channel/UCLnGGRG_uGSPLBLzyhg8dQ

(n.d.). Retrieved from PayScale: https://www.payscale.com/research/US/Job=Computer_Programmer/Salary

(n.d.). Retrieved from PCMAG: https://www.pcmag.com/news/3d-printing-what-you-need-to-know#:~:text=Designers%20use%203D%20printers%20to,and%20novelty%20items%2C%20and%20toys.

(n.d.). Retrieved from Statista: https://www.statista.com/statistics/808471/organ-transplantation-costs-us/

(n.d.). Retrieved from The Guardian: https://www.theguardian.com/society/2003/dec/04/health.medicineandhealth#:~:text=The%20going%20rate%20for%20a,rural%20parts%20of%20the%20country%22%2C

(n.d.). Retrieved from Iran Kidney cost: https://www.latimes.com/world/middleeast/la-fg-iran-kidney-20171015-story.html#:~:text=In%20fact%2C%20Iran%20offers%20people,30%2C000%20kidney%20transplants%20this%20way.

(n.d.). Retrieved from Salary Explorer: http://www.salaryexplorer.com/salary-survey.php?loc=2383&loctype=3

(n.d.). Retrieved from Scandiatransplant: https://pubmed.ncbi.nlm.nih.gov/10503091/

(n.d.). Retrieved from Eurotransplant: https://www.eurotransplant.org/about-eurotransplant/cooperating-saves-lives/

(n.d.). Retrieved from National Library of Medicine: https://pubmed.ncbi.nlm.nih.gov/9414685/

(n.d.). Retrieved from American Cancer Society: https://www.cancer.org/treatment/survivorship-during-and-after-treatment/be-healthy-after-treatment/can-i-donate-my-organs.html#:~:text=Some%20people%20with%20cancer%20may,be%20used%20after%20they%20die.

(n.d.). Retrieved from Lifesource: https://www.life-source.org/latest/opt-in-vs-opt-out/

(n.d.). Retrieved from Church of England: https://media.gosh.nhs.uk/documents/Religious_Leaflet_christian.pdf

(n.d.). Retrieved from AllLaw: https://www.alllaw.com/articles/nolo/personal-injury/accidents-claim-settlements-faq.html

(n.d.). Retrieved from American Hospital Association: https://www.aha.org/statistics/fast-facts-us-hospitals

(n.d.). Retrieved from entrepreneur.com: https://www.entrepreneur.com/article/334299

(n.d.). Retrieved from Healthcare.gov: https://www.healthcare.gov/unemployed/coverage/

(n.d.). Retrieved from The European Dental Markets in Figures: https://www.infodent.com/arcdoc/obj/markets_280.pdf

(2007). Retrieved from Dani: https://translate.google.com/translate?hl=en&sl=bs&tl=en&u=http%3A%2F%2Fwww.idoconline.info%2Farticle%2F320060

(2016). Retrieved from blic.rs: https://translate.google.com/translate?hl=en&sl=sr&tl=en&u=https%3A%2F%2Fwww.blic.rs%2Fvesti%2Fdrustvo%2Fpitali-smo-mlade-zasto-hrle-u-beograd-odgovori-su-odraz-porazavajuce-slike-naseg%2F1n4k3kz

(2016). Retrieved from SarajevoTimes: https://www.sarajevotimes.com/the-only-organized-rebellion-of-the-people-against-the-government-in-titos-yugoslavia/

(2016). Retrieved from telegraf.rs: https://www.telegraf.rs/vesti/2386901-vratio-se-tito-u-veliku-kladusu-babo-je-omiljen-u-bosni-ovo-je-njegova-holivudska-prica-foto-video

(2016). Retrieved from source.ba: https://translate.google.com/translate?hl=en&sl=bs&tl=en&u=https%3A%2F%2Fwww.source.ba%2Fclanak%2FAlen%2F392328%2FSumnjam-da-ce-Imamovic-napraviti-nesto-dobro-sa-Agrokomercom-sve-je-to-politika

(2017). Retrieved from The Health Care Blog: https://thehealthcareblog.com/blog/2017/04/25/the-fairy-tale-of-a-non-profit-hospital/

(2019). Retrieved from snapnsure: https://www.snapnsure.net/blog/why-people-use-self-storage-unit/

(2019). Retrieved from New Sound Trucking School: https://nstschool.com/blog/advantages-and-disadvantages-of-a-truck-driving-career/#:~:text=Disadvantages%20of%20truck%20driving%20can%20include%3A&text=This%20can%20get%20lonely%20and,can%20be%20frustrating%20and%20inevitable.

(2020). Retrieved from Faktor: https://translate.google.com/translate?hl=en&sl=bs&tl=en&u=https%3A%2F%2Fwww.faktor.ba%2Fvijest%2Fdjecu-nema-ko-lijeciti-u-cijelom-gorazdu-samo-dva-pedijatra-na-konkurse-se-niko-ne-javlja%2F69797

(2020). Retrieved from KPMG: https://home.kpmg/xx/en/home/insights/2020/04/airlines-and-covid-19.html

(2020). Retrieved from Market watch: https://www.marketwatch.com/story/the-pandemic-has-more-than-doubled-americans-use-of-food-delivery-apps-but-that-doesnt-mean-the-companies-are-making-money-11606340169

(2020). Retrieved from Springer Link: https://link.springer.com/article/10.1007/s40964-020-00159-x

(2020). Retrieved from Budapest Business Journal: https://bbj.hu/economy/statistics/figures/bosnias-average-net-monthly-salary-up-in-may

(2020). Retrieved from AP News: https://apnews.com/article/china-technology-medical-equipment-europe-global-trade-5363cf8ab0c788c0a6d7e25eb3577f09

(2021). Retrieved from Civil Aviation Authority: http://www.bhdca.gov.ba/index.php/bs/dron

8 reasons to buy a drone. (n.d.). Retrieved from dji.com: https://store.dji.com/guides/8-reasons-to-buy-a-drone/

8. Decent Work and Economic Growth. (n.d.). Retrieved from United Nations: https://www.un.org/sustainabledevelopment/economic-growth/

authors, S. (2019). Retrieved from CORN SILAGE QUALITY IN VOJVODINA PROVINCE IN TWO SEASONS: https://www.spasb.ro/index.php/spasb/article/view/2561

Bence, G. (2020). Share of young people living with parents above EU avg. Retrieved from Budapest Business Journal: https://bbj.hu/budapest/gastronomy/food/share-of-young-people-living-with-parents-above-eu-avg#:~:text=The%20EU%20average%20was%2030.5,stood%20at%204%25%20in%20Denmark.

BossManaatti. (2021). BossManaatti. Retrieved from YouTube: https://www.youtube.com/watch?v=yIdEjQMl_Kc

Bourne, E. (1987). Yugoslavia debates changes in wake of financial scandal. Retrieved from The Christian Monitor: https://www.csmonitor.com/1987/0918/oblow.html

Calus, V. (2018). Eastern Europe for Entrepreneurs: The Good, the Bad and the Hustle. Retrieved from entrepreneur.com: https://www.entrepreneur.com/article/318253

CisionPrNewsWire. (2021). Retrieved from https://www.businessofapps.com/data/food-delivery-app-market/

Cities and Communities. (2020). Retrieved from UN: https://www.un.org/sustainabledevelopment/cities/

Daily. (n.d.). A struggle of being a freelancer in Bangladesh. Retrieved from The Daily Star: https://www.thedailystar.net/toggle/news/struggles-being-freelancer-bangladesh-

2078253#:~:text=According%20to%20the%20ICT%20Division,Economy%20Index%20published%20by%20Payoneer.

Danas. (2020). Business and finance: Small warehouses are an entrepreneurial venture that will only be current in Serbia (translated from Serbian). Retrieved from Danas: https://translate.google.com/translate?hl=en&sl=sr&tl=en&u=https%3A%2F%2Fwww.danas.rs%2Fekonomija%2Fbiznis-i-finansije-mali-magacini-su-preduzetnicki-poduhvat-koji-ce-tek-biti-aktuelan-u-srbiji%2F

dictionary. (n.d.). Retrieved from https://en.glosbe.com/bs/en/babo

explorer, s. (2021). Retrieved from http://www.salaryexplorer.com/salary-survey.php?loc=73&loctype=1

Fatić, A. (1999). Retrieved from https://www.jstor.org/journal/seerjlabosoci?refreqid=fastly-default%3Ad0d8a499684be32c1168c930f7900ac8

Feldman, A. (2020). Retrieved from Forbes: https://www.forbes.com/sites/amyfeldman/2020/03/19/talking-with-the-italian-engineers-who-3d-printed-respirator-parts-for-hospitals-with-coronavirus-patients-for-free/

Google. (n.d.). Retrieved from Google Arts and Culture: https://artsandculture.google.com/entity/subotica/m0187jt?categoryid=place

GoPro. (2021). Retrieved from https://gopro.com/en/us/shop/cameras

Heyes, A. (2019). Retrieved from Investopedia: https://www.investopedia.com/ask/answers/040615/what-risks-does-entrepreneur-face.asp#:~:text=Entrepreneurs%20face%20multiple%20risks%20such,creating%20a%20realistic%20business%20plan.

Johnson, S. (1994). Retrieved from https://www.nber.org/system/files/chapters/c6728/c6728.pdf

Livi-Bacci, M. (1993). On the Human Costs of Collectivization in the Soviet Union. Retrieved from JSTOR: https://www.jstor.org/stable/2938412?seq=1

Mappes-Niediek, N. (2018). My Europe: Eastern brain drain threatens all of EU. Retrieved from Deutsche Welle: https://www.dw.com/en/my-europe-eastern-brain-drain-threatens-all-of-eu/a-46755913

Marshall, A. (2020). wired.com. Retrieved from As Covid-19 Spreads, Truckers Need to Keep on Trucking: https://www.wired.com/story/covid-19-spreads-truckers-keep-trucking/

Mirko Ivkovic, I. J. (n.d.). Retrieved from https://www.spasb.ro/index.php/spasb/article/view/2561

Mylifeelsewhere. (2021). Retrieved from Mylifeelsewhere: https://www.mylifeelsewhere.com/cost-of-living/united-states/hungary#:~:text=Hungary%20is%2040.7%25%20cheaper%20than%20United%20States.

Nadarević, A. (2020). Retrieved from remarker: https://remarker.media/politics/criminal-grand-slam-of-fikret-abdic/

Nemere, P. (2021). Retrieved from https://translate.google.com/translate?hl=en&sl=hu&tl=en&u=https%3A%2F%2Findex.hu%2Fgazdasag%2F2021%2F02%2F08%2Fennyit-fizetnek-az-ettermek-az-online-rendelesert%2F

Observatory, E. (2020). How has coronavirus affected pubs, cafes and restaurants? Retrieved from Economics Observatory: https://www.economicsobservatory.com/how-has-coronavirus-affected-pubs-cafes-and-restaurants

Ok, M. (2021). Retrieved from 3D Printers in the battle against covid 19: https://link.springer.com/article/10.1007/s42247-021-00164-y

Patnaik, U. (n.d.). Peasants and Industrialisation in the Soviet Union. Retrieved from JSTOR: https://www.jstor.org/stable/3520381?seq=1

Porket. (n.d.). Retrieved from https://www.tandfonline.com/doi/abs/10.1080/14631378908427602?journalCode=cpce18

SabbiLyon. (2020). Made $8,000 Driving UBER EATS for 30 days STRAIGHT. Retrieved from Youtube: https://www.youtube.com/watch?v=URPH1rvY-Dc

Sachs, J. (n.d.). Privatization in Eastern Europe:. Retrieved from https://www.brookings.edu/wp-content/uploads/1990/06/1990b_bpea_lipton_sachs_summers.pdf

Today, H. (n.d.). ‘Radical Change of Direction’ – 10th Anniversary of Dual Citizenship Law Marked. Retrieved from Hungary Today: https://hungarytoday.hu/hungarian-citizenship-law-potapi-10/

UN. (2020). Sustainable Development Goals. Retrieved from UN: https://www.un.org/sustainabledevelopment/development-agenda/

Vultaggio, M. (2019). Statista. Retrieved from https://www.statista.com/chart/19848/female-truckers-increasing/#:~:text=Women%20are%20increasingly%20attracted%20to,of%20the%203.5%20million%20truckers.

Wood, T. (2020). moveBuddha. Retrieved from Moving Industry Statistics: https://www.movebuddha.com/blog/moving-industry-statistics/#:~:text=According%20to%20new%20Census%20data,an%20interstate%20move%20every%20year.

Organisational learning and sustainability

AUTHOR

Aliz Benkó, PhD student

Budapest Business School

University of Applied Sciences, Doctoral School of Entrepreneurship and Business

DOI: 10.29180/9786156342218_3

ABSTRACT

Objectives: Finding a connection between organisational learning, learning organisations and inter-organisational learning. Presentation of the inter-organisational learning model. I investigated the extent to which the factor of sustainable development is present in the healthcare markets of 4 European countries where procurement takes place through central tenders. With this in mind, I have realised what results effective inter-organisational learning may bring in terms of sustainability.

Methodology: Targeted analysis and processing of 3 literature reviews in terms of theoretical background to find common ground between organisational learning, learning organisations and inter-organisational learning. Content analysis of the tender documentation of the 4 selected countries with a regard to sustainability criteria. Among companies operating in the healthcare sector.

Findings: Definitions of organisational learning most often include statements about the following key concepts: action and behaviour, learning and knowledge. In the definitions of learning organisations, the following 5 broad areas can be identified where researchers perform the definition of the concept: Learning, Organisational Structure, Shared Vision, Knowledge Management, Strategy, which means that learning and knowledge management are common. The elements of behaviour and learning return in the model of sustainable inter-organisational learning, with the addition that effective inter-organisational cooperation is subject to the existence of trust between the cooperating parties.

Research/practical implications: I conducted a content analysis in the EU countries where healthcare procurement is carried out through tenders. I searched for the requirements and criteria for sustainability in the invitations to tender and also determined their proportion in the tender as a whole. In each of the countries examined, this constituted no more than 5-6%.

Originality/value: The research draws attention to the need for trust in inter-organisational sustainability learning. The research identifies as a further research direction the health sector as one of the most dynamically developing sectors for the implementation of inter-organisational sustainability learning.

Keywords: organisational learning, sustainable development, knowledge sharing, inter-organisational sustainability learning

1. Introduction

We live in the age of knowledge and information society, where human knowledge and intelligence have gained increased recognition (Bencsik 2009). No company is able to organise and sustain itself without the right knowledge (Davenport-Prusak 2001). At both the corporate and the individual level, the role of what has been coined lifelong learning, and knowledge management has also become a key issue (Bencsik 2009).

According to the literature, the concentration of a company on market orientation alone does not necessarily mean a sustainable competitive advantage for companies. This can be explained by the following reasons. First, market orientation represents a narrow focus for the company that monitors the expressed needs of consumers and the activities of competitors, which can be perceived as the use of adaptive learning rather than the application of the ability to support the creation of new knowledge (Slater Narver, 1995). This narrow focus may cause companies not to recognise threats from non-conventional sources or market niches, the company focuses only on adaptation, which prevents market-oriented companies from building a sustainable competitive advantage. Second, based on resource-based corporate theory, an ability or resource results in an enduring performance advantage if it cannot be imitated by competitors (Barney, 1991). However, this is only true if companies are provided with tacit knowledge that is crucial for understanding buyers' current and latent needs (Day 1994). Such a knowledge base is only developed if companies adopt a broader and more proactive approach to market orientation (Slater Narver, 1998). It is widely accepted that a company's sustainable advantage lies in its ability to learn and anticipate market trends faster and easier than the competition. The learning organisation is an example of higher adaptation as opposed to the mere market orientation of firms (Örtenblad A.2004.)

In my research, I am looking for the answer to what is the connection between organizational learning, learning organizations and inter-organizations learning.I would like to know how sustainability is present in the health care market in Hungary?

2. Theory

2.1. Overview of organisational learning definitions

I would like to start my review of the definitions of organisational learning by stating that internal resources and the external environment should appear as the two main priorities in organisational learning research, and we must accept that these two are strategically related to organisational performance (Bontis N. et al. 2002). Although this essential correlation is often absent from publications related to organisational learning, highlighting it is important as it is vital for the organisational efficiency.

In reviewing the literature, I found that the concepts of organisational learning and learning organisation are still confused in many publications. In my research, I follow the line of thinking that I separate organisational learning from the learning organisation and discuss it separately.

I did not find a uniform definition for organisational learning in the literature. This research area borders on several other areas, such as knowledge management, management or change management.

I present definitions of organisational learning in chronological order based on research by Bontis et al., supplemented by definitions collected by Roland Yeo.(see Table1.)

Chronology provides an opportunity to review how new concepts evolve and are included in the definitions. Argyris and Schön initially considered organisational learning only as a tool for recognising and correcting errors. Daft (1984) already mentioned the concept of knowledge and the concept of environmental interaction. In the first 20 years, action, knowledge and behaviour dominate the definitions, learning itself is first included in the definition by Crossan et al. (1999).

The analysis of key concepts focused on specifications of action in the definitions, followed by knowledge, learning, and then behaviour.

Table1: Definitions of organisational learning

Author	**Definition of organisational learning**
1. Argyris & Schön [1978]	Organisational learning is a process of detecting and correcting error.
2. Daft & Weick [1984]	Organisational learning is the knowledge of the interaction between organisational action and the environment.
3. Fiol & Lyles [1985]	Organisational learning is the process of evolving action as a function of better knowledge and understanding.
4. Levitt & March [1988]	Organisations learn by encoding the outcome of experience into routines within the organisation that guide behaviour.
5. Stata (1989)	Organisational learning is a fundamental process in the creation of innovation. The degree to which individuals and organisations learn can become the only sustainable competitive advantage, in particular in knowledge-intensive industries.
6. Senge (1990)	Organisational learning entails the individual development of people whose perception becomes that of organisational thinkers to develop their own personal mental models and learn to work together.
7. Huber [1991]	When an entity acquires knowledge, through the processing of information, its possible behaviour changes.
8. Lee et al. [1992]	The organisational learning process is a cyclical process in which individual action leads to organisational interaction with the environment. Environmental responses are interpreted by individuals who in turn learn by reviewing their identification of causes and effect relationships.
9. Meyer-Dohm [1992]	Organisational learning is the transformation of continuous testing and experience into shared knowledge that the organisation has access to and uses to achieve its main goals.
10. Nadler et al. [1992]	Learning requires an environment in which the results of experiences are sought, examined, and disseminated throughout the organisation.

11. Kim [1993]	Organisational learning can be defined as the increasing organisational capacity to take effective action.
12. Levinthal & March [1993]	Organisational learning struggles with the problem of balancing competing goals of developing new knowledge and exploiting existing skills, as opposed to a dynamic trend that emphasises either one or the other.
13. Day [1994]	Organisational learning involves the following processes: honest discussion, communicated interpretations, creation of memory.
14. Crossan et al. [1995]	Learning is a process of change in perception and behaviour, but this does not necessarily mean that performance is directly improved.
15. Slater & Narver [1995]	As the most basic definition, organisational learning is the development of new knowledge or insights that have the potential to influence behaviour.
16. Cavaleri & Fearon [1996]	Organisational learning is the deliberate creation of shared meanings that stem from the shared experiences of people in the organisation.
17. Braham [1996]	Organisational learning is learning about learning. The result is a renewed relationship between employees and their work that encourages the organisation to create a future for itself.
18. Miller [1996]	Learning must be distinguished from decision-making. The former increases organisational knowledge, while the latter does not. Learning may take place long before or long after the action.
19. Schein [1996]	Organisational learning is key in helping executives and engineers (groups that represent the basic design elements of technology) learn how to learn, how to analyse their own cultures, and how to evolve those cultures around their strengths.
20. Denton [1998]	Organisational learning is the ability to adapt and utilize knowledge as a source of competitive knowledge. Learning must result in a change in the organisation's behaviour and action patterns.
21. Scwandt & Marquardt [2000]	Organisational learning is a complex interaction between people, their actions, symbols, and processes within an organisation.

Self made based on Bontis et al. 2000, following Yeo 2005, Ferincz A 2016.

Table2: Occurrence of key concepts in definitions

Key concepts	**Definitions**
Error recognition	1
Knowledge	9, 12, 15, 18, 20
Action	2, 3, 11, 18, 20, 21
Behaviour	4, 7, 14, 15,
Innovation	5
Information processing	7
Environmental adaptation	8, 20,
Shared experience	16
Learning	14, 15, 17, 19, 20,

Self made table

In general terms, organisational learning is a form of learning that takes place within the organisation, and has an impact on the functioning of the organisation. Essentially, it is displayed along the rules, routines, modes of operation, structures functioning within the organisation. An organisation is made up of individuals who learn individually, however, organisational learning is not the aggregate of the individual learning done by the individuals who make up the organisation, but much more than that. For the purposes of my research, I wish to use Gelei's definition, in which he emphasises the importance of complex learning theory and the change in the mindset of the individuals who make up the organisation. In this sense organisational learning

"...means an organisational self-cognizance process, the essence of which is that the organisation, reflecting on the accumulated collective experience and questioning the things taken for granted, becomes increasingly aware of its own situation, goals and operation, and can therefore operate with heightened efficiency and effectiveness" (Gelei, 2002: p. 6).

Given that organisational learning emphasises complex learning, I summarized the formulation of complex learning models in terms of organisational level interpretation. Argyris (1998) emphasises small group learning and the involvement of an outside observer who is able to participate in the self-cognizance process as a facilitator. Senge introduces the concept of learning organisation as community learning. Dialogue learning is a form of experiential learning carried out collectively where participants learn together from their shared and individual experiences. Participants gather their individual and collective experiences on a given topic in a dialogue and then reflect on them together. Individual and collective experience thus become the source of collective knowledge. The purpose of collective dialogue just like that of the individual learning process, is self-cognizance, to better understand ourselves and our organisational functioning.

Each of the above definitions includes the individual's self-cognizance, self-evaluation, and willingness to cooperate. A person with a healthy self-evaluation is capable of small group dialogue, the role of the facilitator, or the collective learning articulated by Senge. This requires a collaborative person, this dialogue is based on trust, honesty and acceptance of the other as partner.

I discovered an apparently unexplored area based on the literature on organisational learning that I have studied. The key concepts summarised in Table 2 show that the majority of definitions include the words action, behaviour, knowledge, and learning. Knowledge is created as a result of learning. However, learning will only take place in an ideal environment, so it is necessary to construct an environment as an organisation that supports the creation of organisational learning.

2.2. Learning organisations

Pivotal to the concept of a learning organisation is organisational learning, which is the deliberate use of learning processes for the continuous transformation of the organisation (Dixon, 1999) and the associated knowledge management. (Argyris and Schon, 1978; Senge, 1995; Schein, 1993). Assuming that, with well-developed core competencies, organisations are capable of producing new products and services (Nevis et al., 1995), they should nonetheless not be considered as learning organisations. What makes an organisation generally a learning organisation is none other than its ability to create, integrate, and apply knowledge. This capability is vital for firms seeking to achieve a sustainable competitive advantage (Bierly et al., 2000).

For an overall review of learning organisations, I will start from a meta-analysis on this topic. (Keith et al. 2006) After reviewing documents consisting of 754 journal articles and books, the research grouped key topics. Following the methodology of meta-analysis, the study collected all the learning organisation literature, extracted information from it and presented it to us in a systemised form.

The synthesised set of the following five broad categories can be seen in the literature on the topic of learning organisation:

(1) Personal mastery – the nature of learning at the individual level, where the individual is the creator, and as a result, the application takes place through the team, where the team and the organisation are present as synthesisers.

(2) Structure – the basic processes and composition and systems required for learning organisations.

(3) Shared vision – a catalyst and connector that can guide the organisation through change through effective leadership.

(4) Knowledge management - capturing, structuring and redefining data is the implicit and explicit knowledge of the individual and the group.

(5) Strategy - by which the organisation identifies the possibility of value growth, for which it develops the necessary competencies and thus exploits its potential.

Table 3: Key elements from a meta-analysis of over 100 literature reviews of definitions of learning organisations

Topic	**level%**	**Concept**
The team is a critical operational unit of the organisation.	40	Team
Understanding the mental model is important for developing individual learning.	65	Mental model
The process of learning with a double loop is the essence of the learning organisation.	75	Double-loop learning
The organisational structure should support informal communication and socialisation.	40	Informal collaborations and socialisation
Without effective leadership and vision, the individual and the team cannot create a learning organisation.	30	Leadership, Vision
Without the individual and the group, knowledge is not created	27.5	Explicit knowledge
Technology plays a vital role in the creation of organisational knowledge The learning organisation soars upward	35	Technology driven knowledge base Strategy

Based on (Keith et al. 2006)

2.3. Relationship between organisational learning and learning organisations

Pivotal to the concept of a learning organisation is organisational learning, which is the deliberate use of learning processes for the continuous transformation of the organisation (Dixon, 1999) and the associated knowledge management (Argyris and Schön, 1978; Senge, 1995;).

The foundations of organisational learning were first formulated by Argyris and Schön. Based on their work, organisational learning is the ongoing process in the organisation by which members of the organisation continually monitor their activities and, if necessary, make changes to achieve their organisational goals. According to Argyris, organisational learning is none other than "a process of detecting and correcting error". He contends that the organisation learns through individuals. So by organisational learning, he meant when specific groups of people react similarly to different external influences. Organisational learning essentially deals with the continued creation of new knowledge and the updating and development of existing knowledge.

Senge (Senge 1998) contends that a learning organisation means a working community where individuals strive for constant improvement of their competencies, adopt new ways of thinking that are supported by leadership, provide ample scope for collective ideas, and people are motivated to acquire the ability to learn together. An organisation that increases its creativity and talent by augmenting its knowledge for its continued development and survival. These organisations operate according to five principles, and each of these principles is necessary for the organisation to develop, to attain the gradual achievement of organisational goals, and to increase the level of human self-realisation.

These principles are as follows:

1. Systems thinking.
2. Self-development, self-management.
3. Shared vision.
4. Inner belief (attitude change, patterns of thinking).
5. Group learning, team work.

"… We can create communities, companies, institutions where people constantly endeavour to expand their ability to perform in order to achieve the results they actually strive for; where they help and support new, emerging ways of thinking; where collective ideas and desires play a role; where people are constantly learning how they can learn together. Thus, a learning organisation is essentially an organisation that continually increases and strengthens its creativity and talent in order to shape its future" (Senge 1998).

From my research point of view I consider the definition of the learning organization as the starting point, in which the goal is to create and operate organizational learning, and the end result of this efficient operation is the learning organization (Keith T..2006).

On the next chart I present the connection between the Learning organisation and organisational learning.

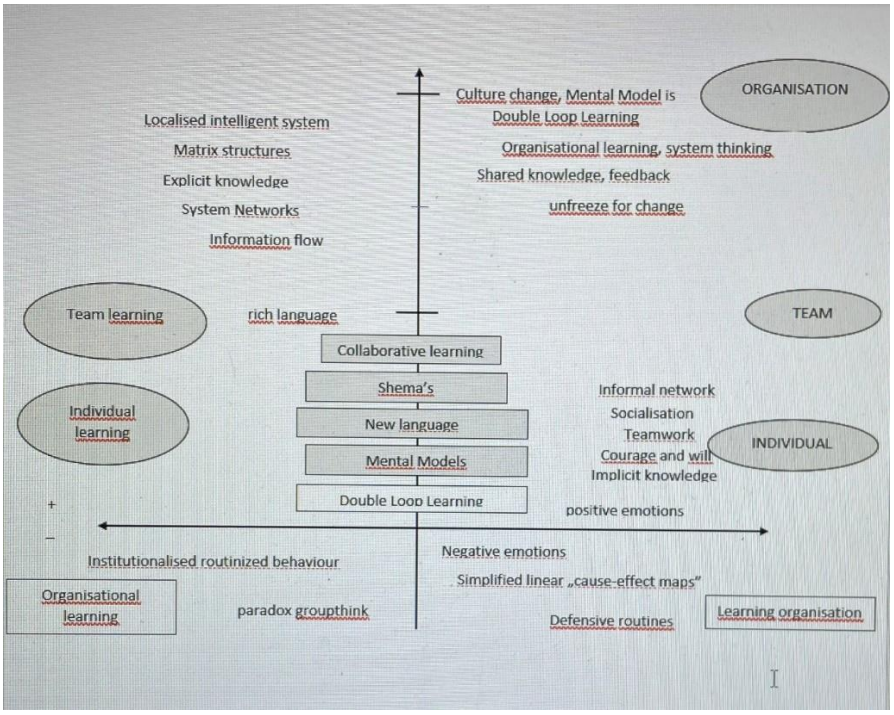


Figure 1. Connection the learning organisation and organisational learning. Self made based on Keith T. (2008)

2.4. Inter-organisational sustainability learning

Collaborative partnerships initiate inter-organisational learning processes. The model of inter-organisational sustainability learning is presented below (Dzhengiz T 2020).

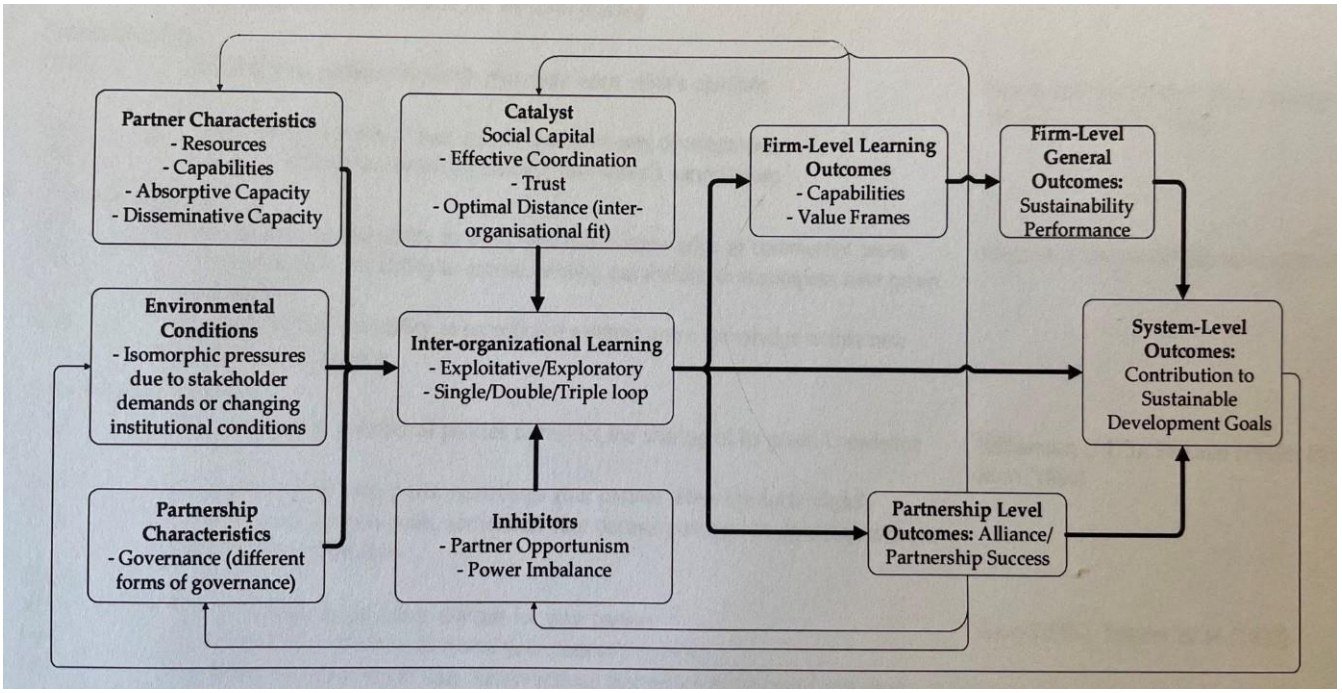


Figure 2 The model of inter-organisational sustainability learning Source: Dzhengiz T 2020.)

Based on the above model systematic literature review, it started with a search of 5688 articles on Web of Science, and according to the search criteria, it was formulated as the result of a review of 122 reviews (Dzhengiz, 2020). The study studied partnerships that were created to foster sustainability.

We speak of inter-organisational learning when the organisation imports the knowledge from outside, e.g. during supplier-customer relations, expert activity, contractual partnership activity. The key elements of the model: Partner characteristics, where two critical elements were identified, absorptive capacity, which is none other than the capacity to learn within an organisation, the willingness and ability of an organisation to apply the new knowledge learned to achieve its goals (Dzhengiz, 2020). This ability is paramount in the creation of green innovations.

Equally important is social capital in establishing inter-organisational collaborations. This includes effective cooperation and cooperation based on trust.

Because, based on the model, the above two factors, trust and partnerships, have the greatest impact on inter-organisational learning, I selected the healthcare sector to examine the extent to which sustainability is present as a criterion and an expectation in tenders. The method of analysis was content analysis and only EU public procurements were part of the sample.

I sought to answer whether and to what extent the criterion of sustainability is present in invitations to tender as an external environmental requirement based on the model of inter-organisational sustainability learning?

3. Methods

I performed a content analysis in the documentation of tenders in the European market in the healthcare sector. I looked for sustainability and environmental criteria in the documentation.Based on this, I studied the tender documentation of the Netherlands, Great Britain, Switzerland, Germany and Hungary.

4. Findings

Sustainability requirements in tenders are linked to 3 main themes: waste management, energy efficiency, green or sustainable procurement.

In terms of waste management, besides communal waste management, healthcare institutions generate significant amounts of so-called hazardous waste. The tenders announced contain expectations for the destruction of this waste, and technologies that promote the reduction of the quantity of hazardous waste are preferred.

Energy efficiency

The hospital sector in the EU must also comply with the EU Energy Efficiency Directive (EED).

The Dutch Climate Accord hospital initiative - a roadmap towards more sustainability - has been set up in the Netherlands. The regulations of this are included in the tenders, it incorporates the use of environmentally friendly packaging, the production of refillable packaging, and the use of “green” raw materials.

Hospitals are required to draw up a road map towards their sustainability goals to show how they are planning to work towards 2030 and 2050 CO2 emission goals when it comes to their buildings. On voluntary basis, organisations in healthcare sector can participate in the Green Deal Zorg and the certification programme Milieuthermometer Zorg, both of which have some connection to the Climate Accord.

There are three tiers on the Milieuthermometer Zorg: Bronze, Silver and Gold

Bronze level onwards required to have 4 yearly energy audit done under EED an exemption from EED audit. The second tier, Silver includes criteria on sustainable practices.

The importance of sustainable practices is reflected in the tender documents with one hospital demanding an environment management system from the supplier, and one hospital awarding 20% of achievable points to supplier with a corporate sustainability plan.

In the case of Germany, the sustainability criterion for the energy use of equipment is present in a narrow area, i.e. the procurement of equipment for endoscopy. This is to comply with EED regulations.

5. Further direction of research

Based on the model, the fact that driven by the environment, but through collaborations, organisations embark on achieving sustainability goals, I determined the direction of further research. I would like to assess the quality of partnerships in the field of major healthcare suppliers, focusing on the following areas:

Shared value, participation, communication, learning capacity, trust and knowledge sharing information. Using a part of the validated questionnaire of Jao-Hong Cheng (2008), to conduct a questionnaire survey of the Hungarian TOP 200 healthcare suppliers to assess which ones demonstrate sustainability in their activities. Based on the questionnaire, following from the number of these companies and their collaboration activities, we can get an idea of the extent to which the appearance of sustainability goals is expected to appear in the Hungarian healthcare system thanks to the partnership collaborations.

6.Conclusions

As a result of the analysis of organizational learning and the definitions of learning organizations, it has become clear that, according to the definitions, most of the wording is wrapped around the topic of learning. According to the model of sustainable learning between organizations, mutual trust is essential for learning between organizations. As I assumed a business relationship based on a high degree of trust among suppliers in the healthcare market, I examined the tender procurement documentation with content analysis use keyword sustainability, environmental protection. Requirements include sustainability as a tender criteria.

References

Argyris, C. (1991): Teaching Smart People How To Learn. Harvard Business Review, May-June: p. 5-15. DOI:10.1162/1524173027622512

Argyris, C. and Schon, D. (1978), Organisational Learning: A Theory of Action Perspective, https://doi.org/10.2307/40183951

Barney, J. (1991): Firm resources and sustained competitive advantage. Journal of Management, 17 (1), 99-120 https://doi.org/10.1177/014920639101700108

Bencsik, A. (2009): A tudásmenedzsment emberi oldala. Z-Press Kiadó Kft., Miskolc DOI: 10.1556/9789630597845

Bierly, P., Kessler, E. and Christensen, E.W. (2000), "Organisational learning", Journal of Organisational Change Management, Vol. 13 No. 6, pp. 595-618. https://doi.org/10.1108/09534810010378605

Bontis, N., Crossan, M.M. & Hulland, J. [2002]: Managing an organizational learning system by aligning stocks and flows. Journal of Management Studies, 39(4), pp. 437-69. https://doi.org/10.1111/1467-6486.t01-1-00299

Davenport, T. H., Prusak, L. (2001): Tudásmenedzsment. Kossuth Kiadó, ISBN: 963-094-208-9

Daft, R. and K. Weick. (1984). 'Toward a Model o f Organizations as Interpretation https://doi.org/10.2307/258441

Day, G.S., Nedungadi, P. (1994): Managerial Representation of Competitive Advantage. Journal of Marketing, 58 (April), 31-44 https://doi.org/10.1177/002224299405800203

Crossan, M.M., Lane, H.W., & White, R. E. [1999]: An organizational learning framework: From intuition to institution. Academy of Management Review, 24(3), pp. 522-537.https://doi.org/10.5465/amr.1999.2202135

Dixon, N. (1999), The Organisational Learning Cycle: How We Can Learn Collectively, ISBN 9780566080586 Published April 29, 1999 by Routledge 264 Pages https://doi.org/10.4324/9781315554945

Dzhengiz T. A Literature Review of Inter-Organizational Sustainability Learning Received: 23 May 2020; Accepted: 12 June 2020; Published: 15 June 2020 Sustainability https://doi.org/10.3390/su12124876

Gelei A. (2006): A szervezet interpretatív megközelítéseDOI: 10.14267/VEZTUD.2006.ksz1.08

Ferincz, A. (2016): Adaptation and Change in Organizational Learning Research, Vezetéstudomány, 47:(5) pp. 53-63.https://doi.org/10.14267/VEZTUD.2016.05.05

Keith T. and Allen S. (2006) The learning organisation:a meta-analysis of themes. The Learning Organization Vol. 13 No. 2, pp. 123-139 DOI 10.1108/09696470610645467

Nevis, E.C., DiBella, A. and Gould, J.M. (1995), "Understanding organisations as learning systems", Sloan Management Review, Vol. 36 No. 2, pp. 73-85.Publisher:Emerald Group Publishing Limited ISSN:0048-3486

Örtenblad, A.(2004) The learning organisation. https://doi.org/10.1108/09696470410521592

Slater, F., Narver, J.C. (1995). Market Orientation and the Learning Organization, The Journal of Marketing, 59 (3), 63-67 https://doi.org/10.2307/1252120

Slater, S.F., Narver, J.C. (1998): Research notes and communications: Customer-led and marketoriented: let's not confuse the two. Strategic Management Journal, 19, 1001-1006.https://doi.org/10.1002/(SICI)1097-0266(199810)19:10<1001::AID-SMJ996>3.0.CO;2-4

Yeo, R.K. [2005]: Revisiting the roots of learning organization. The Learning Organization, 12(4), pp. 368 - 382. doi: http://dx.doi.org/10.1108/09696470510599145

Promoting sustainable consumption in consumer-to-consumer interactions

AUTHOR

Anna Mária Breczku

Budapest Business School

Faculty of Commerce, Hospitality and Tourism

DOI: 10.29180/9786156342218_4

ABSTRACT

Customers buy plastic-wrapped products which contribute to harming the environment. The focus of current research is those aspects of sustainable consumption, which contribute to the increasing number of consumer choices based on the principles of sustainability. More specifically the research aims at understanding those consumer groups that spread information about sustainable buying decisions.

The aim of the research is to find answers to these questions:

1. How can customers be influenced to make more conscious purchasing decisions?
2. What are the best influencing tools to reach consumers?
3. Who inspires consumers to choose different products?

To answer these questions, a quantitative method will be used, in the form of a questionnaire. Also, measuring the effectiveness of influencing tools on a scale from 1-10. Participants will be recruited through social media channels.

The researcher believes that age groups are influenced by different tools. Research also shows that customers are often considerably influenced by other customers who speak out about the importance of sustainability. This factor must be considered.

The research aims at identifying those consumer groups which play the most influential role in advancing sustainability among other consumers. It will support customers on personal changes and showcase the most effective influencing tools for each age group.

1. Introduction

In this study, the researcher aims to discover the context of customer-customer interactions in sustainable consumption.

Sustainable consumption has become an emerging field of research. In advance to big data collection and the ability to analyse them helps researching and analysing sustainable consumption (Wang et al, 2019).

In addition, not only sustainable consumption, but the personal behaviour of customers towards sustainable consumption is indeed important since it has a significant impact on the changes towards a sustainable life.

Customers' personal changes have been examined as well, besides customers' influence on others. Changes in customer consumption are interesting as they may be influenced and changed in a positive or negative way. Consumption is a big question because nowadays the average consumption has increased, and customers have neglected being sustainable and now the Earth and the population face its consequences (Wiedmann et al, 2020)

2. Theory

Population growth boosts the consumption of resources, both in person and in household consumption. Nowadays, customers' unsustainable consumption habits are negatively impacting the environment (Pilgrimiené et al., 2020).

It is important to speak about the negativity and problems in connection of unsustainable living. Communication is a key tool to use when a problem should be discussed, or a story to be told.

In sustainable consumption, communication has an essential role. Sustainability communication is a great tool to underline the importance of sustainable consumption. Still, sustainable consumption is an individual behaviour change (Fischer et al, 2021).

Consumers buying behaviour is related to the consumption of the needed goods and services to personal satisfaction. Different kind of factors influence the purchasing and decision-making process of customers. Besides the factors of purchasing behaviour, preferred brands, shopping habits, other factors influence customers as well, for example, social, personal factors (A, 2019).

Customers can feel engaged in products and services as well. It is important to compose customer engagement into sustainable consumption. Engagement is a key strategic tool when it is about promoting consumer behaviour. Customers tend to be more engaged to objects emotionally, meaning that customer engagement can advance beneficial changes in consumer behaviour (Pilgrimiené et al., 2020).

Considering that customers are influenced by social and personal factors underlines that customer-to-customer interaction is a possible way of influencing each other to have more sustainable consumption habits.

Customer-to-customer interactions have been examined by Jungi & Yoo (2016). The two researchers have examined both negative and positive interactions. They found that when customers are experiencing good customer service from another person, they try to keep in touch with them (Jungi & Yoo, 2016).

The fact that customers are able to be influenced through services' means, that positive mentality could be pushed through these channels to reach customers. On the other hand, as customers do like other customer's actions, it underlines the importance of the interaction between customers, which establishes the niche for this research, to find how customers impact customers and promote each other for sustainable consumption.

Sustainable consumption has gained assiduous attention and became a meaningful research area. However, this field is still in its inception (Quoquab & Mohammad, 2020). Still, there are enough research and knowledge which helps the researcher in further studies related to this research area.

3. Influence

Social media has a high influencing efficiency, which can lead to social responsibility (Simeone & Scarpato, 2020). We have all experienced the influence of a seen advertisement or a story read about someone else's experience. Let it be about anything, but he context, the feeling came through and were so strong to make us act in a certain way, based on the arouse we felt from that interaction.

Customer-to-customer interactions have increased and strengthened. Customer interactions have gained its effectiveness through the ability of being connected to each other via online media more than ever before (Blazevic et al, 2013).

4. Methodology

To expand the research, qualitative and quantitative research methods will be used to gather primary data. Primary data are from the origin of the source (Sileyew, 2019).

For qualitative information, a case study has been done to investigate consumer-to-consumer interactions.

Case study as a qualitative research method enables the researcher to conduct in-depth research in the affected area. The concept of research must be understood to make an effective case study. The researcher must be aware of the aims as well. Specific checklist for case studies helps the researcher conduct the study properly, fulfilling all needed steps (Rashid et al., 2019).

More primary data were collected through the quantitative data collection. The questionnaire is a great tool to reach participants (Sileyew, 2019). Inside the questionnaire a Likert scale have been also inserted to measure the effectiveness of each influencing tool, measure the effectiveness of customer-to-customer interactions.

5. Research findings

Questionnaire

The questionnaire was conducted with the help of the social media platform called, Facebook. There were 201 numbers of participants.

The first section has been related to sustainability. Twenty questions were asked in the survey to obtain information about customer interactions and promote sustainability. A Likert scale was also used to measure their impact.

Secondly the researcher delegated the questions on the fields of customers impacting each other.

In this section, questions were asked about whether customers are impulse buyers, are they affected by others during consumption, or have they changed anything because someone has affected them so much. On the other hand, the researcher wanted to know, what and how are impacting customers.

Furthermore, two questions were based on the influence of customer on someone else and their impact.

The fourth section looked at the impact of customers on others. This section is customer-centered, who try publicly or have the courage to talk about their personal lifestyle changes through social media platforms. 4 questions were related to this topic, asking about knowing anyone who is known by the public and reaches other customers with their personal advice, and if yes, who are these customers and on which platforms have they met with these people. Furthermore, to measure the effectiveness of their impact, a Likert scale has been established to measure it.

Finally, some background information was requested to facilitate the researcher's ability to group responses with demographic information.

Regarding the participants out of 201, 75% were women, 24% men and 1% other gender. The participants were from a wide range of ages still most of the participants were between 40-50.

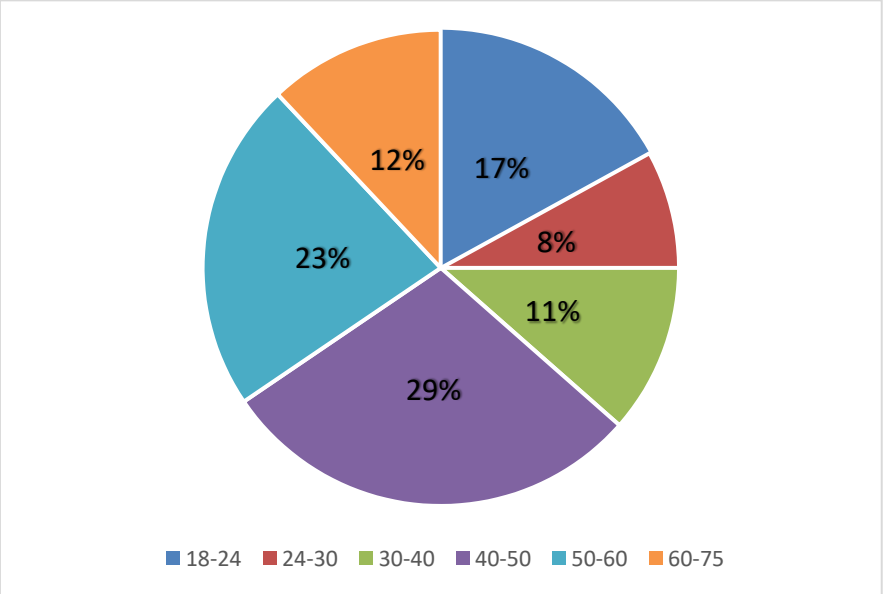


Figure 1, self-made

In relation to the occupation of the participants has a full-time work, with 61% and in relation to the place of life is the capital with 60%.

The first question was about the thought of conscious consumption. The researcher wanted to know whether customers were aware of the conscious use. Most of the participants chose the answer yes, there is conscious consumption, which underlines the importance of conscious consumption and the fact that customers should know about it and it underlines that customers know about this terminology.

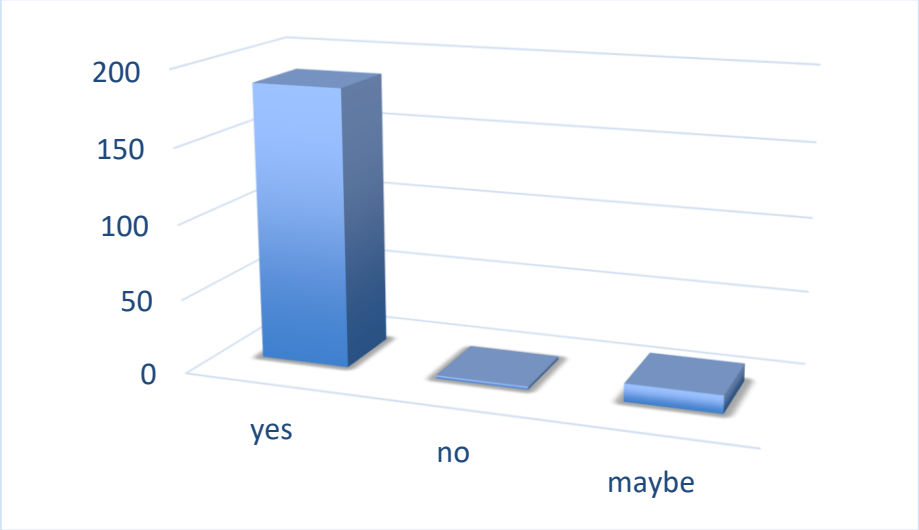


Figure 2, self-made

The next question was about, the inner call for customers to be more conscious and do they take in mind sustainability. 179 participants said that there is a call for them to be more conscious. It means customers are aware of and motivated to make changes. Which is a positive sign towards customers' opinion.

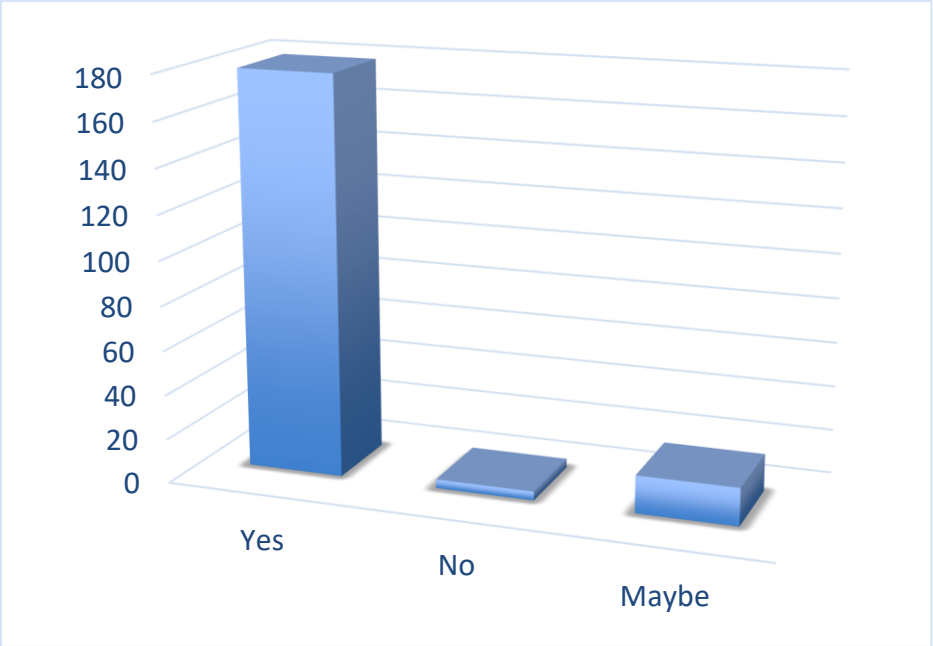


Figure 3, self-made

The next question in the survey was about the changes that consumers have already made in their consumption patterns. 31% had made a big change, the omission of plastic bags which is an easy yet helpful decision. As discussed before, plastic bags and one of the most damaging for the environment. Close to that in percentage is using tote bags, which is a replacement of plastic bags, providing safer carriage of the products in an environmentally friendly way.

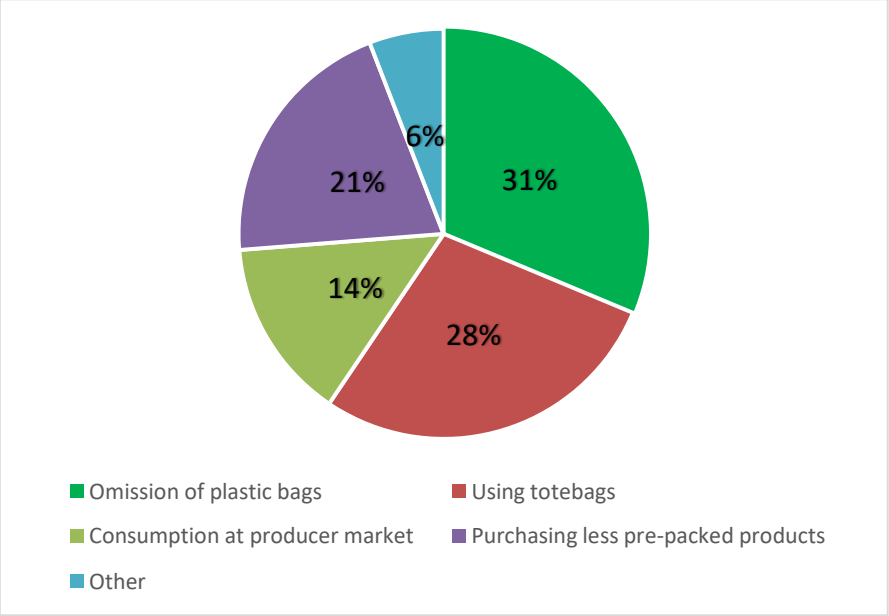


Figure 4, self-made

Continuing the questions, as mentioned in the methodology section the researcher indicated Likert scales to measure the impact on customers. The first scale was to measure how much do customers consider themselves as conscious consumers. The examination of the scale, number of efficiencies and number of responses to these numbers is relatively high. This reveals that customers not just care about the environment, but they do act as well.

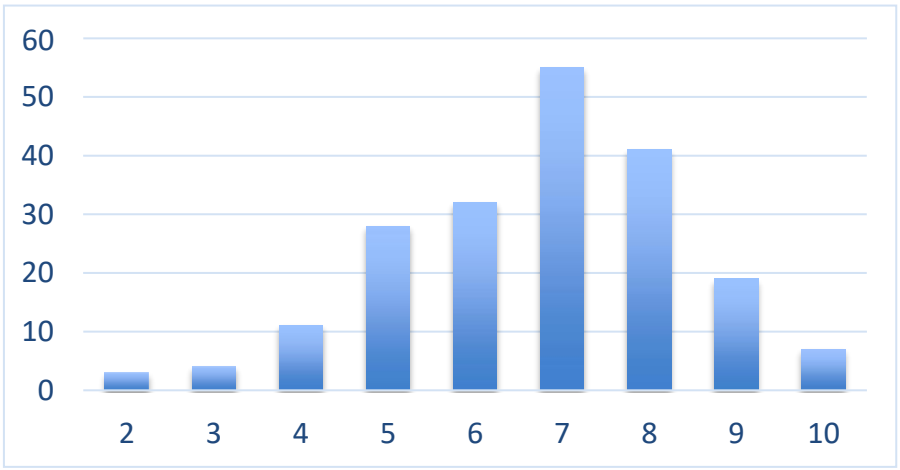


Figure 5, self-made

The following question is, do customers consider themselves as impulsive customers have revealed that customers with 54 percent states that they are not impulsive customers. Even though 25 percent answered with a “maybe” which is a high percentage. This can show that some customer may not accept that they are impulsive customer.

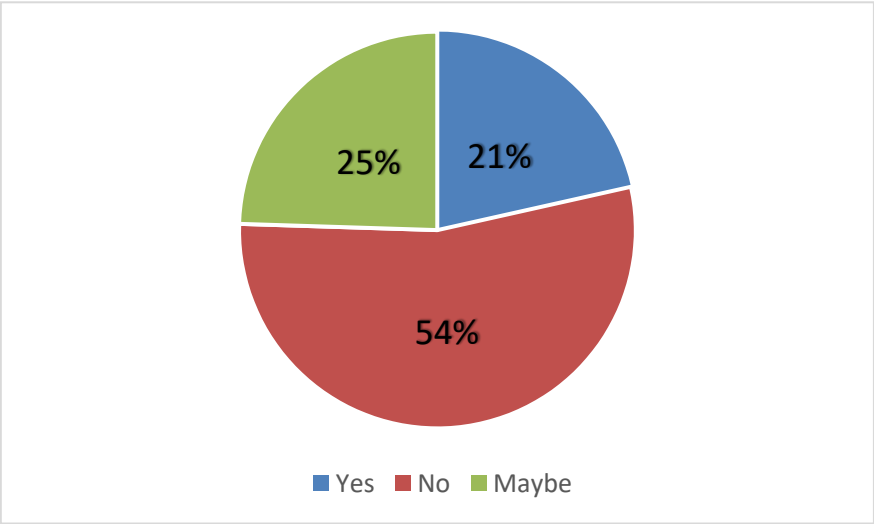


Figure 6, self-made

Then, to find out if customers are impacted by others a question was asked regarding this area. So, the question has about been customers impacted by others during consumption. Looking at the chart, customers say they are not affected by others, which is a controversial response compared to before and after responses.

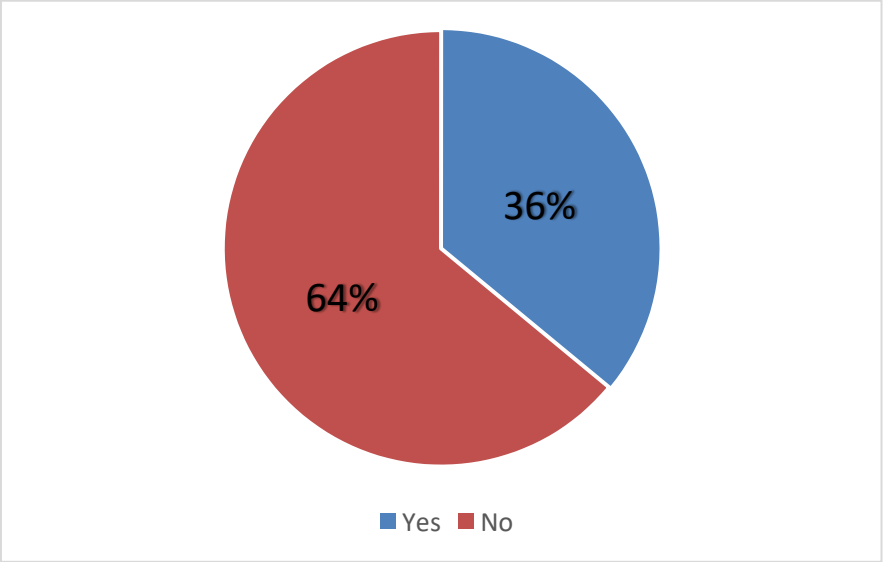


Figure 7, self-made

With respect to the last question, the following is about the changes consumers have made to their consumption because someone or something has influenced them. The answers are mainly yes, and it shows customers can be influenced by others.

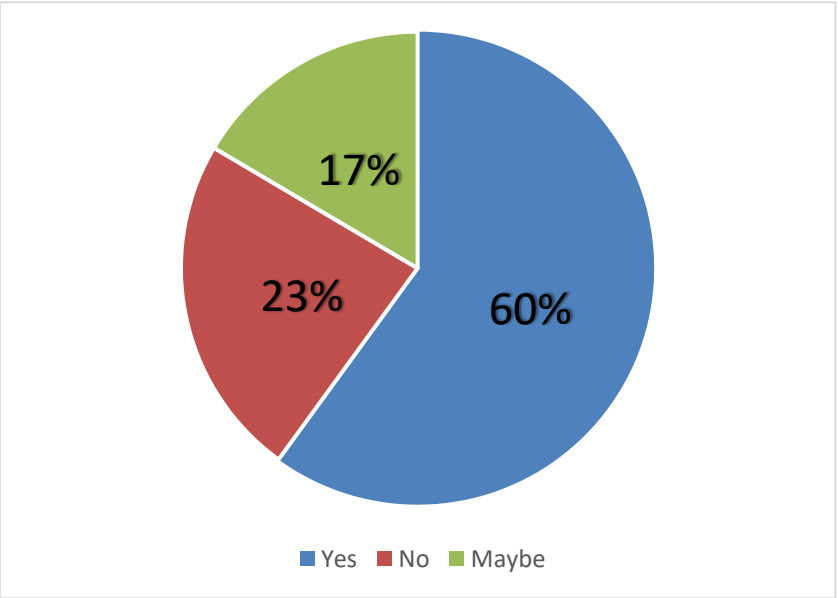


Figure 8, self-made

The next question helped to reveal if customers' changes were in a positive direction. Fortunately, 91% of participants changed their habits on a positive basis.

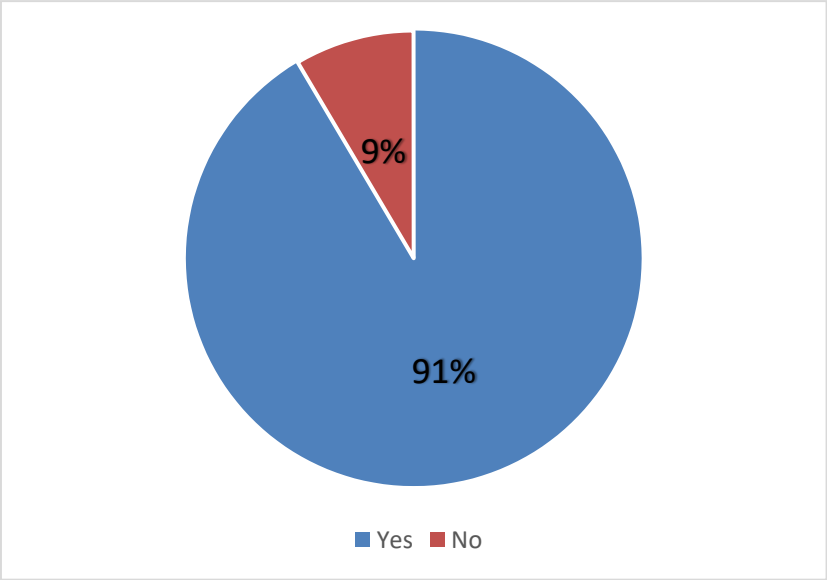


Figure 9, self-made

The next question is to get a glimpse into what is impacting customers. 37% said that the opinion of others is the most influential tool that has an impact on them, then associations have an enormous impact on customers as well. News and media are close to each other, both with high scores, as they are excellent tools as well, when used appropriately.

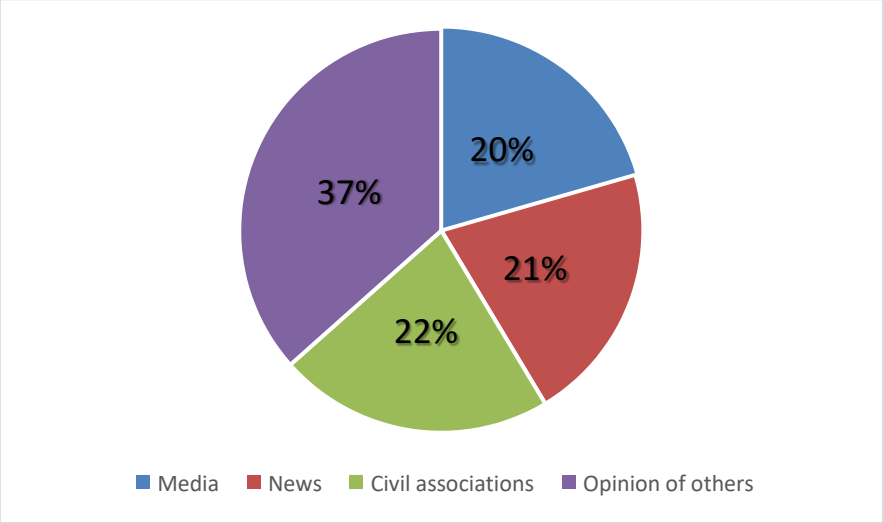


Figure 10, self-made

Then the question was who affects the customers. Perhaps it is not a surprise that family influences most others, then friends. The two have a great importance of influence and it is normal that these people influence us because they are the closest to us. There may be an overlap between the answers as participants may choose more answers, which is why the two percentages are close to each other.

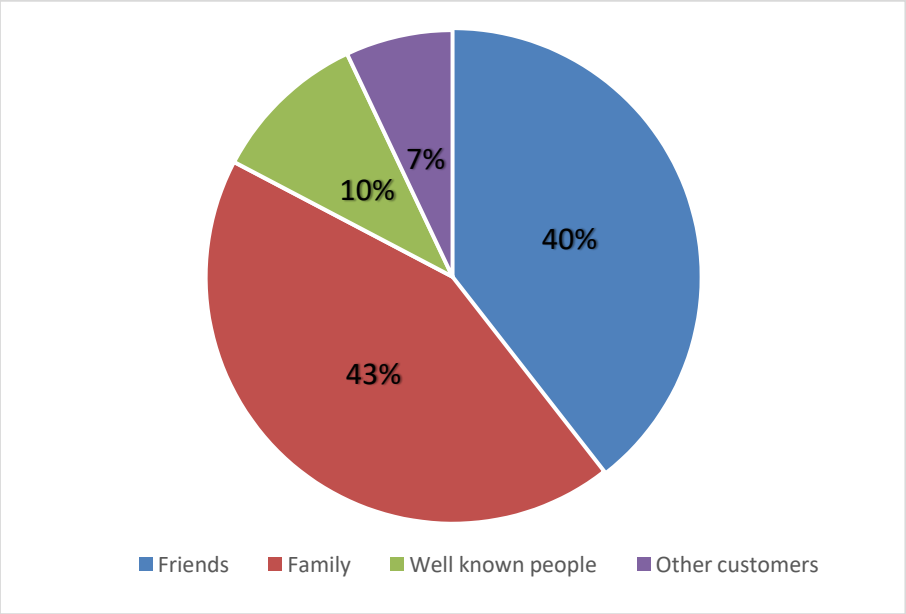


Figure 11, self-made

To determine whether participants influenced others, the next question showed that yes, they influenced others to have different consumption changes.

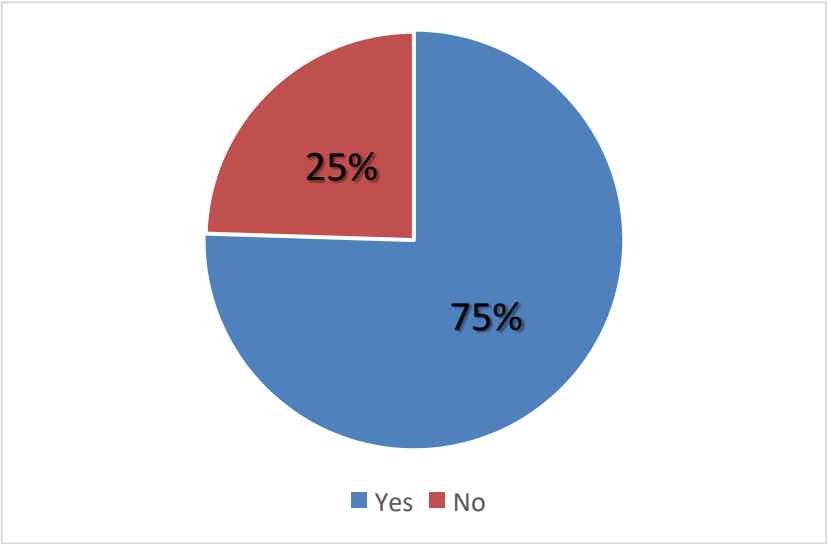


Figure 12, self-made

To measure the effectiveness of their impact shows positivity. The numbers and the number of responses show a strong impact, and we can hope that they will last as long.

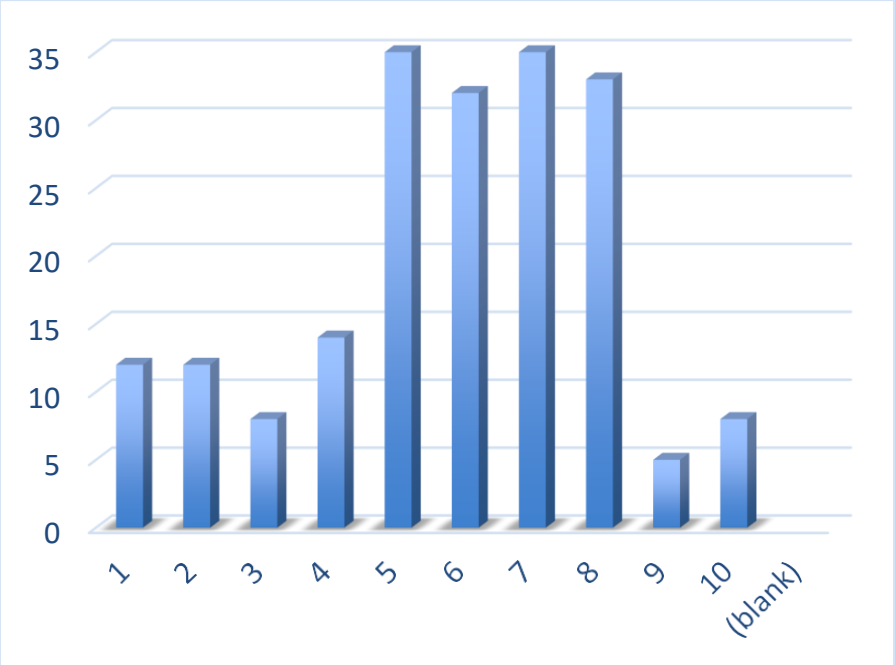


Figure 13, self-made

In relation to the case study, the researcher asked whether customers know anyone who speaks publicly about conscious consumption. With 64 percent the participants answered they do not know anyone who does anything like that.

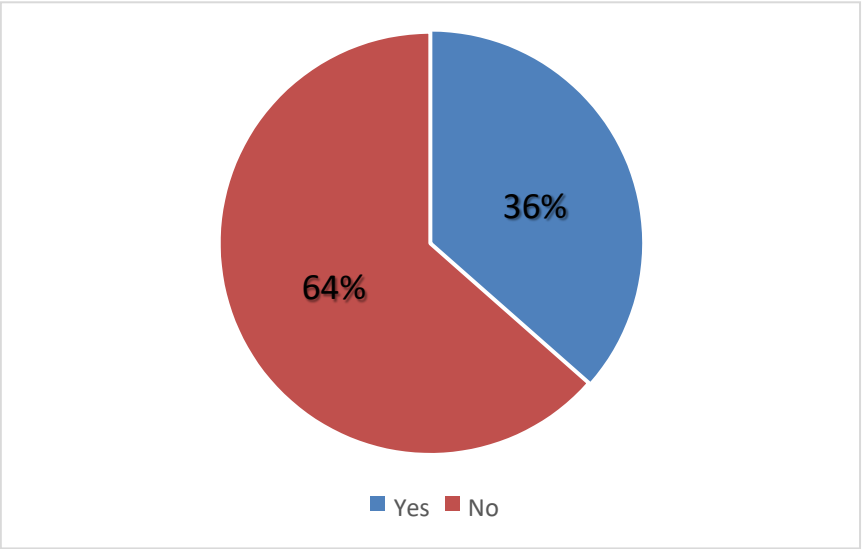


Figure 14, self-made

The researcher expected different outcome of the question before. Still with this question, it was to measure the impact of the influence of others. The answer in the scale indicates the connection to the previous question. Even though 36 percent received an impact from others, the effectiveness was so low, that the scale reveals that others, who publicly talk about being eco-friendly is low, and it only reaches the impact level of 1.

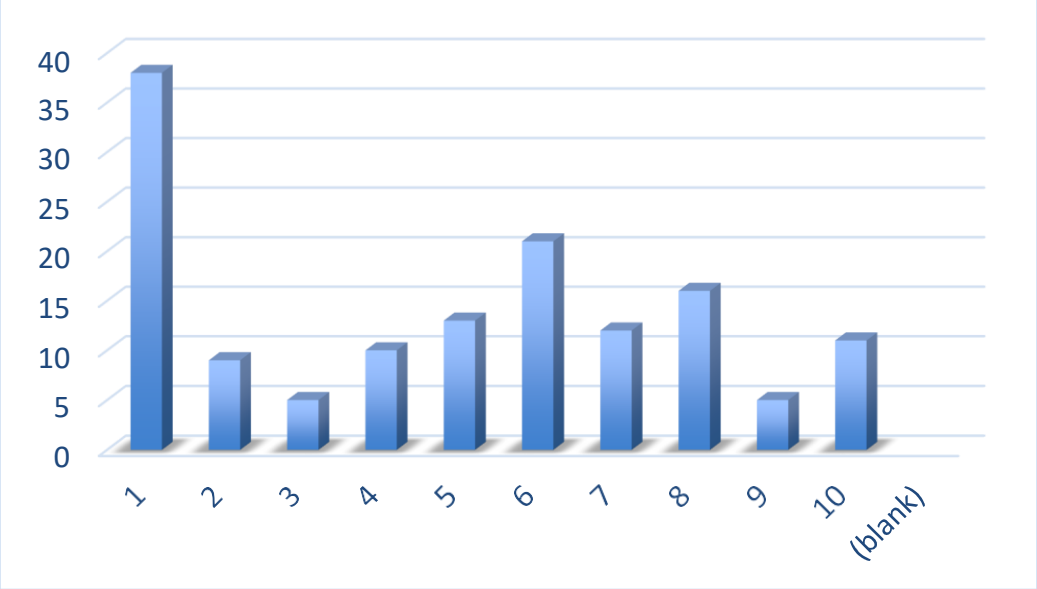


Figure 15, self-made

The final question related to platforms where customers may meet with other customers. The platforms show that Facebook is the most used place to meet with others and then personal communication is the most effective platform to meet with these customers. The researcher thinks that it is almost obvious that this tow has received the highest rating. First, Facebook is used by most of the examined customers based on the case study. On the other hand, personal communication is always different from anything else. It is useful, impactful, and effective.

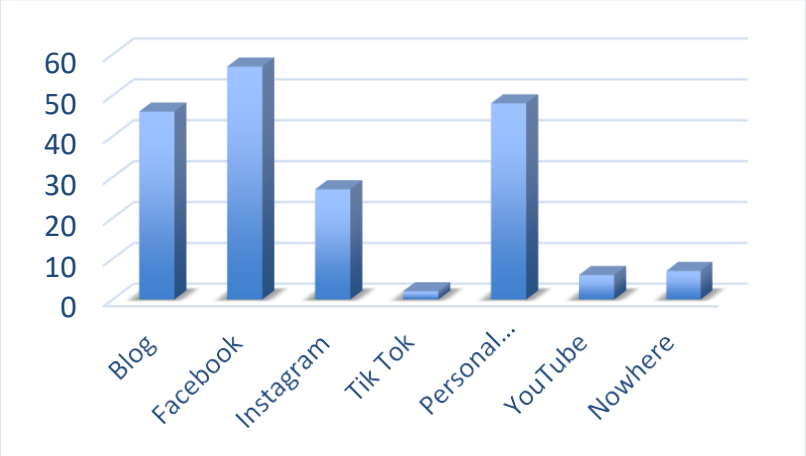


Figure 16, self-made

6. Case study

With the tool, case study, the goal is to examine customers that have a social impact on other customers to have a more sustainable lifestyle and consumer habits. The researcher herself follows some customers, who are not influencers, but customers who are highlighting the importance of this area. The researcher wanted to know what other customers think, that are they listening to them as well-known customers. Through the research one question was in connection with the case study: Who are the customers, who publicly reach others through different platforms and help other customers in lifestyle changes.

Not all answers suggested a specific person, more were about the Facebook groups of which they are part, but unfortunately not mentioning the groups.

Luckily, some names came up in the questionnaire. These names are useful because these people are determinative in a sustainable way of life, and they do promote this way of living and give suggestions to other customers. These names were mentioned by the fillers: Alekosz, Juhász Bence, Ökoanyu-Nagy Réka, Antal Éva (Vászonzsákoslány), Mengyán Eszter, Németh Csilla, Tóth Andi (Háztartásom hulladék nélkül), David Attenborough, Dr. Jane Goodall, Sárdi Barbara, Keleti Andrea, Puskás Peti and his Fiancée Bogi, Pocsaji Csilla, ZeroWastener, Istenes Bence, Kump Edina (Hulladékmentes.hu)

Therefore, to narrow down the names, the researcher decided to work with 4 customers, who were mentioned by more fillers. Öko-Anyu, Éva Antal, Pocsaji Csilla, Edina Kump (Hulladékmentes.hu).

The four customers were analysed by which platforms they use, to see where they can be found, and which are the most used platforms by them compared to the answers the survey participants give. On the other hand, they were analysed by the number of followers, subscribers they have and how much reactions do they receive from their followers.

Ökoanyu, Réka Nagy:

Réka Nagy is a journalist, editor, and has been working in the field for over twenty years. For 6 years she had her own headline in the famous Hungarian newspaper called, Nők Lapja. After that she had

her publications in different papers and started her own blog and write about what she loves. She was motivated, and interested in her own job, in the field of sustainability and eco-consciousness that she wrote 4 books. All based on being eco. Besides her blog, web page, she has her Facebook page and Instagram profile. All used for one purpose, using the tools of various online media appearances. Her posts on Facebook are like the ones on Instagram. One thing that differs, that on Facebook, she tends to post her blog posts, while on Instagram she is more likely to post about tips and tricks, DIY ideas and shows products and gives recommendations.

Éva Antal

Éva is also known by the name, Vászonzsákoslány. She had an interview with Index, where she explained, how she was able to collect such a low amount of waste, that she filled only a jar with it. She has a passion for keeping her personal waste at a low level. On Instagram and on YouTube, she gives advice, she talks about the ideas, her decisions and tries to prove that a lifestyle like this, does not mean having a less joyful life.

Csilla Pocsaji

Csilla has introduced a zero-waste shop to the market. Back in 2019, they wanted to create something unique, which supports their mission, having a greener household, and supports others as well, on creating a sustainable lifestyle. On the 9th of November, in 2019, they have opened their store at Békéscsaba, under the name Tebe shop, where Tebe means the tree of life. After a year, Csilla, have applied into the TV show, called Between Sharks, which is a Hungarian tv show, created to introduce new investments. She had been successful, and one of the “sharks”, Toman Szabina, has invested into her idea, shop, and became part-owner of the grocery shop. Besides the shop, Csilla has taken the advantages of social media platforms and started to talk about sustainability, life changing habits. On Facebook she has a page, for the shop, but she is the one who posts about tips, DIY ideas. She was passionate and started her Tik Tok channel as well. On Tik Tok, with the uniqueness of creating videos, she creates meaningful videos, full of ideas, tips, DIY ideas and answers questions, regarding her personal lifestyle changes, questions she may not have answered before, and so on.

Edina Kump (hulladékmentes.hu)

Edina is an Environmental Researcher. She had been the first person to create Hungary’s first webpage dedicated to zero waste products, and education about sustainable, zero-waste lifestyle. This page has been available since 2016. The webpage Hulladékmentes.hu is filled with knowledge. Visitors can read about zero-waste lifestyle, household, conscious consumption and many other useful information and knowledge is on the page. Edina does courses for customers; besides, she can be invited to do lectures, conferences in this area. For additional information and for different target groups as well, she has an Instagram page, where she posts about her lifestyle, recipes, and tricks, also she can be found on Pinterest.

7. Platforms

The platforms used by them are not always the same. Some of them focuses mainly on their blog, some tries to be present on Facebook and Instagram, and some have already opened for new social media platforms to reach their target group, for example Tik Tok.

Blogs

First, focus on blogs. Ökoanyu and Edina Kump has webpages where they post blog posts, articles.

Okoanyumag.hu is the page of Réka, where she writes about more than just sustainability. The has officially became a magazine. The site has different categories, such as news, households, children, plastic-free, climate, and podcast. She writes regularly and has the page updated. On the side of interactions, not much can be seen. Readers can vote up or down on each article, but the results cannot be seen. The researcher assumes, the results influence the articles which can be seen on the landing page (Nagy, 2021c).

Edina has her page called Hulladékmentes.hu. This page is her compact webpage where her blog can be reached and read as well. Her blog has different subcategories, so readers can easily access the needed article they would like to read. The page is also the web-shop for zero-waste products, and tools, and other information can be found on the site, such as lectures, course applications, information about them end so on (Hulladékmentes.hu, 2016)

Facebook

The platform that most of these consumers use is Facebook. All four are active on the platform.

Ökoanyu, has 21 000 followers. She usually posts her articles on her page. She also writes interesting news, gives updates on her personal life, and shares interesting events. On the side of interactions, not all her posts receive the same amount of likes and comments. The most likes are usually on posts which are about something new, something eye catching or outstanding. Based on the likes, her post usually reaches people around 70 to even 300. Some posts are also shared by readers, which helps her posts reach others as well. The average shares are around two to 25 shares, which shows that readers to interact and react to the posts and want to reshare the read information. The comment section is not filled with offending comments. Most comments are supporting and harmonious ones, which encourages the page owner to keep up with her work (Nagy,2021b)

Csilla is officially present under the name of Tebe shop which is her zero-waste store. The page is liked by 6595 people, 6780 people follow them. This may not seem a high number, still examining the site it shows that customers are interested in the page. Photos are liked and loved by customers. Not many comments and shares are on the posts, but customers do interact with them (Tebe, 2021).

Edina’s page, Hulladékmentes.hu is the most liked out from the 3 pages, with 45 310 K and followed by 46 723 K. Even though these numbers are high, the interactions on the posts compared to the followers are low. Posts are usual and up-to date based on new products in the shop, new trends, available courses (Kump, 2021).

Éva as Vászonzsákoslány has 3100 followers and her Facebook page has a five-star rating. She shares content about her daily life, in pictures, videos. She posts frequently and the average reaction to her posts in likes is around 60, and average two to three comments and shares are on her posts (Antal, 2021a).

Instagram

Moreover, the other used social media platform is Instagram. This platform has a different method to share information. Pictures are in the focus point and text is an addition which can give expanded information to the post.

Ökoanyu's username is @okoanyu. She has 3981 followers. First her profile was a personal user profile, later she started to post about tips, some personal insights, DIY (Do it yourself) ideas, suggestions, and some product promotions, suggestions. Her photos are appreciated with likes and comments (Nagy, 2021a).

Éva Antal is present on Instagram as well, @vaszonzsakoslany. She has 20 100 K followers. Her photos are liked by thousands of people. Her usual likes are around 2000. She usually shares videos of cooking, suggesting recipes as she is vegan, and usually suggest useful tips. Comments are usually appreciating her, ask for additional tips. It is good to see, that only some people leave hate comments on her site (Antal, 2021).

Csilla has her personal private profile, but Tebe- hulladékmentes bolt (@tebe_hulladekmentes_bolt) can be found on Instagram. The posts are almost the same as the ones published on Facebook. Tips, DIY ideas, information about the store are posted with pictures and texts. Here, the likes compared to the amount of likes on Facebook is higher. Their profile has 3797 followers, and the posts are liked by 50-150 people on average. Here as well, no hate comments can be read, which shows, that people follow these pages, profiles because they are interested in this topic, and would love to hear about them (Tebe,2021b).

Edina's page can be found under the name @hulladekmentes. The posts in some terms are the same as on Facebook. Some posts have different themes, but her profile is the same in terms of subjects of the posts as the ones mentioned above. Her profile has 16 500 followers, and the average likes higher in average, around 80-200. Regarding the comments, the same conclusion can be drawn that no hate comment can be found (Kump, 2021b).

TikTok

Further, another platform which the researcher has examined is TikTok. TikTok is a platform which allows people to create videos short videos including songs, texts, and effects on the videos (Influencer Marketing Hub, 2019). Csilla and Éva are on Tik Tok, with the same aim as on Facebook and Instagram.

Csilla has a private profile, but has another one representing her store, under the username, @tebeshop. She creates videos about the same categories posted on Facebook or Instagram, but because of the uniqueness of this platform, the videos provide different kind of feelings, and the information can

reach the watcher differently. She has 67 000 followers and 2.6 million likes in sum on her videos. Most of her videos are watched by thousands of users. Here, she receives hate comments, because Tik Tok shows videos to everyone, viewers do not have to follow the profile. In the opinion of the researcher, Csilla does a great job. She does react to these comments, but in a creative way, protecting her thoughts and trying to calm the hate commenters down (Pocsaji,2021).

Lastly Éva is on this platform with 11 videos, 6972 followers and with overall 66 900 likes. Her videos are published on Instagram as well. These videos are about her lifestyle, ideas, and routines. The comment section is sometimes filled with hatred, but mostly the comments are supporting ones, or ask for support, suggestions, which may have not been answered in the video (Antal, 2021b).

YouTube

In addition, the researcher has examined one more platform, YouTube.

Vászonzsákoslány, Éva is on YouTube, she calls herself a youtuber as well. She has 8 playlists for different categories, such as Podcasts, Veganism, Q&A, DIY, Zero-waste, and menstruation, living, her favourites and a list about her performances in other videos. All in all, she has 63 videos, 37 800 followers. The videos are watched by thousand and liked as well. On YouTube viewers can dislike, but not many dislikes have been given to her videos. An interesting fact is the comment section. Under some videos there is the ability to comment, but under videos, which have a bit offending, or not so common content, the comment section is blocked. It is understandable, that she has decided, not to let viewers comment (Antal, 2019).

Lastly, on this platform Tebe shop is also present, they have 529 subscribers and 6 videos, related to this topic. Their YouTube profile is based on the same topics as on their other platforms (Pocsaji, 2020).

In conclusion, these customers focus on the zero and low waste lifestyle. They use various types of platforms to reach other customers and influence and promote them to have lifestyle changes. The platforms used are webpages, blogs, Facebook, Instagram, Tik Tok, YouTube and Pinterest. All of them has a great number of followers, who interact with their posts, thoughts, videos. It is a pleasure to see, their profiles are not filled with hate and the customers who follow them are really interested in their job.

8. Conclusion

Regarding the research questions the researcher was able to answer all three questions by the usage of both survey and case study.

In summary, customers know about sustainability and mindful consumption. They care about this, but what they receive as an impact from other customers, externally is still not enough for them to change.

We know that they are aware of the environmental problems we face and that customers can be and are influenced to make conscious decisions.

The most commonly used tools include media, personal communication and Facebook. They are most influenced by family and friends.

We can say that customers who speak publicly about consciousness is great. They are able to reach many other customers. Perhaps they should work on their methods to reach out to others because the impact of their work is weak even though they reach numerous people on social media.

References

A, C. (2019). FACTORS AFFECTING CONSUMER BUYING BEHAVIOUR. International Journal of Advanced Research, 7(1), 563–568. https://doi.org/10.21474/ijar01/8362

Antal, É. (2019, August 10). Vászonzsákoslány - YouTube. Www.youtube.com. https://www.youtube.com/channel/UCtqNEyhcBMVPFvAAwRcleKw

Antal, É. (2021a). Vászonzsákoslány. Www.facebook.com. https://www.facebook.com/vaszonzsakoslany/

Antal, É. (2021b). vaszonzsakoslany. Www.instagram.com. https://www.instagram.com/vaszonzsakoslany/

Antal, É. (2021c). Vászonzsákoslány (@vaszonzsakoslany) TikTok | Nézd meg Vászonzsákoslány legújabb TikTok videóit. TikTok. https://www.tiktok.com/@vaszonzsakoslany?lang=hu-HU

Blazevic, V., Hammedi, W., Garnefeld, I., Rust, R. T., Keiningham, T., Andreassen, T. W., Donthu, N., & Carl, W. (2013). Beyond traditional word-of-mouth. Journal of Service Management, 24(3), 294–313. https://doi.org/10.1108/09564231311327003

Hulladékmentes. (2016). Hulladékmentes.hu - szakértői zero waste oldal, az élhető jövőnkért. Hulladékmentes.hu. https://hulladekmentes.hu/

Index. (2019, August 1). A lány, aki nem termel szemetet, és még spórol is vele. Www.youtube.com. https://www.youtube.com/watch?v=7dfHfgByuDU&ab_channel=Index.hu

Influencer Marketing Hub. (2019, January 18). What is TikTok? What you need to know about the new Musical.ly. Influencer Marketing Hub. https://influencermarketinghub.com/what-is-tiktok/

Jung, J. H., & Yoo, J. J. (2016). Customer-to-customer interactions on customer citizenship behavior. Service Business, 11(1), 117–139. https://doi.org/10.1007/s11628-016-0304-7

Kump, E. (2016). Kump Edina. Hulladékmentes.hu. https://hulladekmentes.hu/rolam/

Kump, E. (2021a). Hulladekmentes. Www.instagram.com. https://www.instagram.com/hulladekmentes/

Kump, E. (2021b). Log into Facebook. Facebook. https://www.facebook.com/hulladekmentes.hu

Nagy, R. (2021a). Okoanyu. Www.instagram.com. https://www.instagram.com/okoanyu/

Nagy, R. (2021b). Ökoanyu. Www.facebook.com. https://www.facebook.com/Okoanyu/

Nagy, R. (2021c). Ökoanyu magazin. Ökoanyu Magazin. http://okoanyumag.hu/

Piligrimienė, Ž., Žukauskaitė, A., Korzilius, H., Banytė, J., & Dovalienė, A. (2020). Internal and External Determinants of Consumer Engagement in Sustainable Consumption. Sustainability, 12(4), 1349. https://doi.org/10.3390/su12041349

Pocsaji, C. (2020, November 2). Tebe Shop - YouTube. Www.youtube.com. https://www.youtube.com/channel/UC1cImgrfU8D_FX-D3dPJ2cQ

Pocsaji, C. (2021). Csilla Pocsaji (@tebeshop) TikTok | Nézd meg Csilla Pocsaji legújabb TikTok videóit. TikTok. https://www.tiktok.com/@tebeshop?lang=hu-HU

Quoquab, F., & Mohammad, J. (2020). A Review of Sustainable Consumption (2000 to 2020): What We Know and What We Need to Know. Journal of Global Marketing, 1–30. https://doi.org/10.1080/08911762.2020.1811441

Rashid, Y., Rashid, A., Warraich, M. A., Sabir, S. S., & Waseem, A. (2019). Case Study Method: A Step-by-Step Guide for Business Researchers. International Journal of Qualitative Methods, 18, 160940691986242. https://doi.org/10.1177/1609406919862424

Sileyew, K. J. (2019). Research Design and Methodology. Text Mining - Analysis, Programming and Application [Working Title]. https://doi.org/10.5772/intechopen.85731

Simeone, M., & Scarpato, D. (2020). Sustainable consumption: How does social media affect food choices? Journal of Cleaner Production, 277, 124036. https://doi.org/10.1016/j.jclepro.2020.124036

Sustainable consumption communication: A review of an emerging field of research. (2021). Journal of Cleaner Production, 300, 126880. https://doi.org/10.1016/j.jclepro.2021.126880

Tebe, S. (2021a). Log into Facebook. Facebook. https://www.facebook.com/tebebolt/

Tebe, S. (2021b). tebe_hulladekmentes_bolt. Www.instagram.com. https://www.instagram.com/tebe_hulladekmentes_bolt/

Wang, Z., Xue, M., Wang, Y., Song, M., Li, S., Daziano, R. A., Wang, B., Ma, G., Chen, K., Li, X., & Zhang, B. (2019). Big data: New tend to sustainable consumption research. Journal of Cleaner Production, 236, 117499. https://doi.org/10.1016/j.jclepro.2019.06.330

Wiedmann, T., Lenzen, M., Keyßer, L.T., Steinberger, J.K. (2020), Scientists' warning on affluence Nature Communications, 11 (1) p. 3107, 10.1038/s41467-020-16941-y

Corporate social responsibility development – Challenges for Hungarians small and medium-sized enterprises in the pandemic

AUTHOR

Chu Minh Huy AJGZZ1

FIMB Budapest Business School

DOI: 10.29180/9786156342218_5

ABSTRACT

Small and medium-sized enterprises (SMEs) can be considered as the backbone of Europe's economy, which represent 99% of all businesses in the EU. They employ around 100 million people, account for more than half of Europe's GDP and play a key role in adding value in every sector of the economy. Hungary is also a place where SMEs are popular and important to the whole economy. They provide various job opportunities, create innovation and boost competitiveness annually. To maintain the position in the long term, it is crucial for SMEs to develop their Corporate Social Responsibility (CSR) effectively and assess their performance annually. However, they have to face various difficulties in CSR development. And now in the time of Covid-19, there are a lot of bigger problems for them to solve: adapting to new situations, updating the national regulations, changing and adjusting their rules and their strategies, etc. This paper describes the situation of SMEs in Hungary, the main challenges in CSR development that they have suffered before and in the time of the pandemic, and also giving potential solutions to alleviate those challenges.

Information and statistics in the paper are taken from online sources, as well as from scientific articles, which are all listed at the end of this paper. The aim of the paper is to raise awareness of the challenges in Hungarian SMEs and to come up with the ideas to adjust and develop their CSR in the pandemic. Therefore, it may change the perspectives of managers about the attitudes needed in order to survive in the crises.

Keyword: Covid-19, Small and medium-sized enterprises, Corporate Social Responsibility, potential solutions, main challenges.

1. Introduction

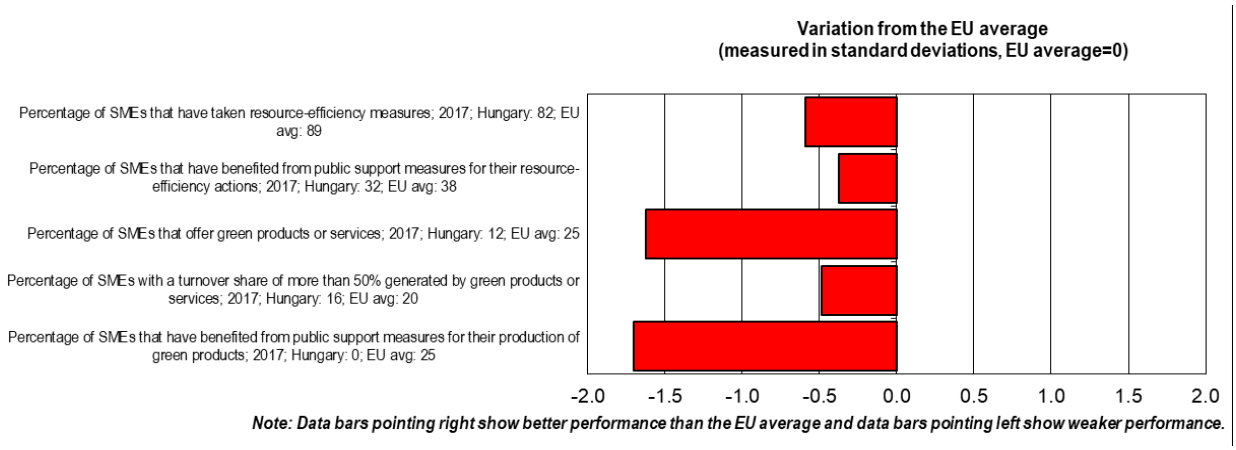
According to the definition given by Fernando (2021), Corporate Social Responsibility (CSR) is "a self-regulating business model that helps a company be socially accountable to itself, its stakeholders, and the public". By practicing CSR, companies can be aware of their impacts on all different aspects of society, including economic, social, and environmental dimensions. Companies have the opportunities to devote themselves to useful social activities and contribute to alleviate social problems. Moreover, through CSR activities, companies and customers, or their stakeholders in general, can become better connected, which is neccessary in building trusts and creating a good reputation for the success of the companies. In other words, a company, which implements CSR

activities, is operating in ways that enhance society and the environment, instead of contributing negatively to them.

However, Covid-19 coming in 2020 has brought several effects for shareholders, businesses, consumers and markets. The specific features of Covid-19 are unique and its impact leads to a rethinking of strategies for the SMEs in developed and emerging market economies. As can be seen, the pandemic has represented a big environmental change in the world economy and society as a whole, which has definitely impacted on CSR activities. Since no one knows when the pandemic will end or be completely controlled, there is still an uncertainty about the strategies that SMEs are implementing in terms of their long run and sustainability. And even when the pandemic ends, economic, social and cultural impacts will still remain. What are the issues of CSR activities in Hungarian SMEs before and during the Covid-19 pandemic? How can they improve their performance and avoid negative impacts of the pandemic on their CSR activities? These are two main questions that should be identified clearly. In this paper, the CSR situation of SMEs in Hungary before the pandemic and the impacts of Covid-19 on Hungarian SMEs are discussed. Through the findings, this paper recommends some solutions to minimize the negative effects of the pandemic to the CSR development.

2. Findings

Hungarian SMEs have faced a lot of challenges in their CSR activities even before the pandemic. In terms of Environment SBA (Small Business Act) principle, performance of Hungary is the worst among the Member States and far below the EU average point. Since 2015, Hungarian SMEs have experienced negative results. For example, from 2015 to 2017, there was a decrease in the percentage of Hungarian SMEs which produced green and environmentally-friendly products (18% to 12%). Especially, in 2017, there is no Hungarian SME benefiting from public support to produce those products (Hungary SBA Fact Sheet, 2019), which made them not consider green production, efficient consumption and other CSR activities as important.



Source: Hungary SBA Fact Sheet 2019

While Hungary has realised that eco-innovation and green technologies are important for the future of the Hungarian economy, more efforts must be made in this area. “Green Economy Development

Programme" implemented in 2011 is one of the most significant measures to increase resource efficiency and support environmentally-friendly businesses. The Environmental and Energy Efficiency Operational Programme adopted in 2012 is also a measure to help SMEs adapt their businesses to a low-carbon economy. In the case of agricultural suppliers and forestry companies, there were some measures adopted to develop their efficiency in resources used. In 2017, a new Hungarian support system for electricity production from renewable energy sources (METÁR) was introduced along with the EU Renewable Energy Directive. As a result, Hungary has become more cost-efficient in electricity production from renewable energy sources, mostly from solar energy.

During the period 2017-2018, there were four measures adopted in order to support the CSR activities of Hungarian SMEs. Firstly, the measure "Deduction of the cost of a recharging point from the CIT (Corporate Income Tax) base" allowed firms to remove the installation costs of recharging points for electric cars. This helped encourage the use of electric cars in Hungarian SMEs that can reduce environmental issues. Secondly, with METÁR - the new Hungarian support system for electricity production from renewable energy sources, producers of renewable energy can sell their electricity on the free market and apply for operational support. The system is supported with 145 million Euros annually. Thirdly, with a budget of over 76 million Euros, the "Tenders for entrepreneurs in forestry" granted for forestry-related SMEs in terms of environmental management methods, innovative tools, access to finance, biodiversity and sustainability. The "Improvements of Hungarian National Climate Protection Authority" was also an effective scheme. It focused on a greenhouse gas database, training for SMEs that have greenhouse gases activities, and holding useful workshops to raise awareness of greenhouse gas reduction methods. The scheme had a budget of 1.275 million Euros.

Another measure implemented after that should be also considered. It is "Supporting building energy developments through the use of renewable energy". This measure had a total budget of 164 million Euros. With this measure, Hungarian SMEs can register for support to improve the energy efficiency of their company buildings, for instance, setting up solar panels. In general, it is an effective measure to reduce greenhouse gas emissions through reducing primary energy consumption and encouraging renewable energy sources used in buildings among Hungarian SMEs. The amount of grants is between 4687 Euros and 312500 Euros, which has supported 800-1750 applications to improve the energy efficiency of buildings.

In general, the measures adopted for Hungarian SMEs have been working quite effectively. They have also contributed to making progress on the environment and other interests of customers. However, SMEs still cannot obtain EMAS (Eco-Management and Audit Scheme) certificates, which is crucial for Hungarian SMEs to prove their efficiency in environmental business. Green public procurement is still not effective enough, and Hungarian SMEs should also be given more incentives in order to encourage them to invest in environmental activities and campaigns.

Moreover, it is remarkable that the rate of companies whose customers support their CSR performance by training or educational programmes is very low. Expectations of large companies are very important factors for their SME business partners to encourage them in their CSR activities. However, multinational corporations basically do not support their SME suppliers in improving their CSR performances (Nagypal, 2014), which makes the CSR situation in Hungarian SMEs more difficult. Sustainability and CSR activities are still seen as an afterthought for many corporations in Hungary. They focus more on profits, revenue and business growth. CSR is considered as a long-term investment

lacking short term returns. Therefore, corporations feel less attractive investing in CSR activities. Additionally, many traditional entrepreneurship education programs do not mention CSR in the agenda, or leave it as an elective one. It means that many companies do not understand well enough about the value of CSR for long-term success and tend to neglect it.

In 2020, with the appearance of Covid-19, the overall economy has experienced a big recession. From small to big enterprises, many of them have experienced their losses in terms of sales, employment rate and strategy implementation. In the case of SMEs, the pandemic really negatively affects their commercial property, such as inventory and equipment. The ability to fulfill orders and future sales of Hungarian SMEs are also impacted, which can lead to their insolvency. Another important factor which prevents the recovery of SMEs is the decreasing employment rate and customers. Moreover, the uncertainty of Covid-19 has made it harder for SMEs to manage their strategy in the long run. The number of cases in developed economies in Europe has increased. Therefore, the global supply and industrial chains have been blocked. The uncertainty in operations of Hungarian SMEs has also increased. The decrease in risk tolerance of investors has led to some financial issues for Hungarian SMEs, increasing their liquidity and debt default risks, and strengthening the fluctuation in economic operation. Due to the widespread of the pandemic, the governments of Eastern Europe countries, including Hungary, have strictly restricted the flow of people. As a result, there have been delays in labor supply, which has broken the smooth transmission of the industrial supply chains. In brief, Covid-19 and its prevention measures such as lockdowns and social distancing regulations have significantly impacted the SMEs so that they must face the challenges and find potential solutions to survive this crisis. Thus, CSR activities of Hungarian SMEs have been somehow restricted in both the amount of money invested and how the operation can be implemented.

Under the present pandemic situation, when everyone is going online, SMEs focus on saving themselves by attracting consumers, moving to digital marketing and quickly converting their products into cash flow. Therefore, the process of SMEs fulfilling their CSR to gain consumer recognition and favor in order to overcome this crisis is a challenge that all SMEs must tackle urgently.

3. Conclusion and recommendations

In European countries, Covid-19 has shown the weaknesses of many SMEs, with over 90% of SMEs reporting a decrease in turnover since the beginning of the pandemic (Whiteman, 2020). The situation now is different from before. SMEs not only try to maintain and implement their CSR strategy but also adapt the new situation of the pandemic by being resilient. To be resilient means preparing and managing for every challenge, as well as making decisions quickly. In times of the pandemic, investing in sustainability in the long-term can impede flexibility of response to challenge in the short term due to the uncertainty of Covid-19.

Placing CSR activities and the environment at the forefront of social and economic recovery of SMEs is very necessary. Currently, there is a disconnection between the environmental and social issues and businesses, because they are considered as the responsibility of governments to prioritise. However, as Covid-19 has shown us, intervention from SMEs can have many positive impacts, and be even more effective than government intervention.

When SMEs now are going online, they should give their employees as much flexibility as possible to finish their tasks. With the Covid's negative impacts on health, child care and elder care has become the priority for every employee and they have to take responsibility for it. Forcing them to work without caring about their responsibility or their own health just makes the situation worse. Otherwise, they can easily become depressed and stressed due to the heavy tasks, pressures and fears about the widespread of the pandemic. Therefore, it is necessary to listen to the staff and understand what they really need. Communicating openly with employees is important to maintain a relaxed atmosphere and a comfortable work space. Moreover, SMEs could encourage their staff to do volunteer work in their communities. For instance, during this pandemic, staff members could contribute to social activities such as food distribution or masks donation. That is also an opportunity to gain trust from the community to the firms. SMEs can support their staff by assigning a few hours every week towards a social responsibility of choice.

During this pandemic, SMEs can help each other by introducing them to new potential customers. By promoting small businesses on social media platforms, SMEs can get access to a larger number of customers and have opportunities to advertise about their CSR activities. They should update reliable Covid-19 information, rules/regulations and their CSR activities to their website more regularly in order to build trust from customers. Expanding their audience reach will help them gain extra business during the hard time of Covid-19. This giving-back activity can be carried on even after the pandemic as long as it does not affect the bottom line of SMEs

In the time of pandemic, holding mentoring programs making use of online platforms is becoming popular and effective. Everybody is now staying at home and has more free time to learn something new. SMEs can take this opportunity to offer free mentorship sessions, which brings a lot of educational values to the customers. This could be done through webinars or online meetings. Mentoring online is convenient, easier to manage time and can even make records if needed. Customers can feel free to express their ideas with the companies. Employees of the SMEs can improve their online and public speaking skills through all these programs. In addition, managers of SMEs will be contributing to growing and shaping the future workforce.

In the long term, EU policy needs to focus on entrepreneurship education policy to encourage the implementation of CSR activities in SMEs. Entrepreneurs are made through years of experience, education and skills development. Youngsters nowadays are becoming more interested in entrepreneurship, training programs and schemes. Therefore, it is necessary to make them understand the value of CSR activities to the business success. Providing them with a framework to get good CSR performance not only encourages them to consider CSR as important in their strategy, but also helps them identify what should be done to overcome business challenges, especially during the time like the pandemic nowadays.

References

CSR in the Age of Coronavirus (2020), available at https://prowly.com/magazine/corporate-social-responsibility-in-the-age-of-covid-19/ (Accessed 2 May 2021)

Fernando, J. (2021). Corporate Social Responsibility. Investopedia, available at: https://www.investopedia.com/terms/c/corp-social-responsibility.asp (Accessed 30 April 2021)

Hungary SBA Fact Sheet 2018 (2018). European Commission, available at: http://ec.europa.eu (Accessed 30 April 2021)

Hungary SBA Fact Sheet 2019 (2019). European Commission, available at: http://ec.europa.eu (Accessed 1 May 2021)

Jones, A. (2020).How to continue CSR activities during Covid, People Management, available at: https://www.peoplemanagement.co.uk/voices/comment/how-to-continue-csr-activities-during-covid#gref (Accessed 4 May 2021)

Nagypal, N. (2014). Corporate social responsibility of Hungarian SMEs with good environmental practices. Available at: https://www.jstor.org/stable/24330961?seq=1#metadata_info_tab_contents (Accessed 3 May 2021)

Ndegwa, W. (2020). How SMEs can engage in CSR over the Covid-19 slowdown. Expertise, available at: http://expertise.co.ke/2020/05/13/how-smes-can-engage-in-csr-over-the-covid-19-slowdown/ (Accessed 4 May 2021)

Whiteman, G. (2020). What do SMEs need to become sustainable and resilient, in the context of COVID-19 and other global challenges?, available at: https://blogs.ec.europa.eu/promotingenterprise/files/2020/10/What_do_SMEs_need_to_become_sustainable_and_resilient_Georgina-Whiteman.pdf (Accessed 3 May 2021)

How to reduce the harmful impact of cigarettes on environment

AUTHOR

Karen Elisabeth Kaul E83VTJ

Budapest Business School (BBS)

elisabethkaul2@gmail.com

DOI: 10.29180/9786156342218_6

ABSTRACT

The fundamental aim of this research is to inform the reader about the importance of implementing sustainable practices at a business and social level, focusing on reducing the impact of cigarettes on the environment. After going through all the data, the idea is to make the readers think critically about why and how they can contribute to reducing cigarette littering and the consequent pollution. The research contains the analysis on different proposals, if they can be applied, and how to educate society to decrease cigarette waste.

This study represents a review of the literature documenting the impact of cigarettes´ chemicals on the environment, and how consumers behave (if recycling or throwing cigarettes away).

The expected research results would be encountering a wide range of alternatives and feasible solutions to replace the actual composition of conventional cigarettes, and strategies to educate the smokers´ population about the importance of reutilizing the leftovers from cigarettes. In this way, changing actual practices and reducing pollution would contribute to a more sustainable world, from which all, businesses and consumers, would benefit.

I chose this topic because I consider it as a latent issue in many countries, and I strongly believe that educating about this problem can protect people who are exposed to these chemicals in their daily life, either if they consume tobacco products or if they drink contaminated water, deal with smoke-filled air, etc. Protecting natural life is also crucial, as polluted oceans influence greatly not only our present but also our future as humankind.

1. Introduction

It is a worldwide known fact that tobacco use causes serious health problems. But what about the impact on our planet? This question came to my mind when walking a crowded street in Budapest, Hungary, and observed workers cleaning it. For me, it was a cultural shock realizing how socially accepted is the smoking habit here, with the consequent harmful habit of littering. In 2018, the smoking rate in Hungary was 30.60% of the total population aged over 15 years old (Macrotrends, 2021).

The vast majority of cigarette butts are plastic of single-use containing hundreds of toxic chemicals once smoked. Littered cigarette filters can persist in the environment for many years and release these chemicals to air, land, and water, harming plant growth and wildlife.

Each year, over 6 trillion cigarettes are produced around the world, resulting in 1.2 million tons of toxic waste dumped into the environment (Kaszubska, 2020). This makes cigarette butts to be among the most frequently littered items.

The plant tobacco contains mainly nicotine, cellulose, ammonia, and protein. "For tobacco to be suitable for human consumption, the tobacco leaves are dried and cured after picking them at the plant and separating them from their stems" (Shahbandeh, 2021). After processing the dried leaves, they manufacture various tobacco goods including cigarettes, cigars, chewing tobacco, pipe tobacco and shisha tobacco. The stimulant nicotine makes it a predominantly consumed product.

For the tobacco to grow a mild and sunny climate is needed, that is why production is primarily concentrated in regions with those characteristics suitable for its cultivation. China, India and Brazil were rated among the leading producers worldwide, followed by the United States. Producing around 2.61 million metric tons of tobacco converted China in the biggest tobacco producer worldwide in 2019 (Shahbandeh, 2021) (see Appendix C, Figure 8).

Tobacco is not a particularly green crop. Because it is very sensitive to disease, it requires many pesticides; in the United States alone, tobacco farmers use 27 million pounds on a yearly basis (Rastogi, 2009). Although it is not a big number compared to the total, it indicates that growing tobacco results in the use of more pesticide per acre than raising most other crops.

Tobacco contributes to deforestation, because "the most common method of drying out tobacco leaves, called flue-curing, requires an external heat source. In the developing world, where 85 percent of the world's tobacco is grown, that is usually a wood-burning fire" (Rastogi, 2009).

Over 4000 chemicals are present in a cigarette, from which seventy-two are known to be cancer-causing carcinogens. The main toxic agents include carbon monoxide, aromatic hydrocarbons, hydrogen cyanide, phenol, nitrogen oxides, formaldehyde, acetaldehyde, acetone, benzene, ammonia, and pyridines. The filter of a cigarette is made of cellulose acetate fibers, with poor biodegradability as they can take up to 10 years to decompose under normal environmental conditions. Therefore, when cigarette butts are thrown in the environment, they represent a critical problem in terms of toxic waste for urban and aquatic life. Aquatic animals regularly consume CBs (cigarette butts hereinafter) confusing it for food and they have been found in the stomachs of fish, birds, sea turtles, and other creatures, leading to serious digestive issues. (Mohajerani et al, 2020).

The reason behind choosing this topic is that I consider it is a latent issue in many countries, and I strongly believe that educating about this problem can protect people who are exposed to these chemicals in their daily life, either if they consume tobacco products or if they drink contaminated water, deal with smoke-filled air, visual contamination, etc. Protecting natural life is also crucial, as polluted with tons of cigarette waste oceans influence greatly not only our present, but also our future as humankind. By investigating further about the components of these products and possible biodegradable alternatives, a clearer path towards reducing the impact on environment can be found, digging into different perspectives: from the consumer side, the manufacturers and producers, and the governments.

The objective of this study is to contribute with sustainable ideas and feasible solutions from each stakeholder, reduce contamination and propose an organic production of tobacco derivatives.

2. Data Collection Methods

This study contains both primary and secondary collected data. On one hand, it represents a review of the literature documenting the impact of cigarettes´ chemicals on the environment, how consumers behave (if recycling or throwing cigarettes away), and possible recycling options. Document searches include data from the scientific literature, academic journals, chemical experimental studies, statistics, etc. This review is constrained by limited data on tobacco manufacturing impacts.

On the other hand, the stidy relies on an online survey and a brief online interview with Gabriel López Libardi, an ex-employee of a big tobacco company in Argentina. Although the latter did not show much specific quantitative data, it helped to understand better the topic by bringing insights from someone who worked at a tobacco plant. The interviewee approached me after completing the survey and offered his knowledge from his experience in 2011. A particular set of predetermined questions were asked, making the interview structured. The interview was held in Spanish and translated into English.

A survey form was filled in mainly by students, but also by individuals belonging to different social media groups where the survey was distributed, mainly on Facebook. An online Google form was used, after considering it the most effective in these pandemic times. It was shared in different groups for three days. It consisted of ten questions in total, out of which three were about personal information such as age, country of origin and actual residence place; two were general simple-choice questions to know how many are consuming tobacco and if yes, how often; one about littering; other three related to the companies´ perspective, asking if they do know a recycling place, then if they believe organic filters can be produced, and an open question asking why do they think unsustainably-produced cigarettes are still nowadays being sold in enormous quantities. Lastly, there was a multiple-choice question asking to choose among seven possible solutions, with the option to add more in case of having another idea.

A hundred and twenty-five people filled out the survey. The participants are mostly students of Budapest Business School. Almost half of the participants are aged between 20 and 25 years old, consisting of 44% of the surveyed (see Appendix B, Figure 6). Using the weighted average method, the average age is 26.44 years. The participants are both males and females, and coming from thirty different countries (see Appendix B, Figure 7). Twenty-nine percent were from Argentina and twenty percent from Hungary. Despite the participants are residents in 46 different cities in 18 countries, most of them live in Hungary (67.58%), and 43.86% in Budapest. All of the participants' answers were handled anonymously to make sure that their answers were given honestly.

Moreover, the research analyses a case study of a recycling company founded in the United States named TerraCycle, whose process is detailed and utilized as a possible guide for establishing similar recycling centers in Hungary. In addition, the nonprofit organization "Keep America Beautiful" is considered into the research, counting with millions of volunteers and dozens of researches made since 1968, providing as well helpful guidance to copy their initiatives in other countries around the globe.

3. Findings

Companies perspective

Production

In the tobacco planting process, there is no rotation with other crops. An amount of 11.4 million metric tons of wood are required annually for tobacco curing (WHO, 2017). Furthermore, this creates a loss of biodiversity, describing it as an environmentally damaging activity. In low and middle-income countries, tobacco cultivation and curing are one of the most destructive agricultural practices.

Tobacco companies admit that manufacturing is the most environmentally damaging step of tobacco production, but these firms are reluctant to provide data, hindering to perform a deep calculation about such environmental impact. The China National Tobacco Company, for instance, has no publicly available environmental reports (WHO, 2017), whereas China produces nearly 44% of the global tobacco.

One possible solution to validate the statements of the industry increased efficiency and sustainability would be to hire independent environmental auditing of tobacco companies overseen and paid for by the government.

The tobacco industry is known for shifting its operations away from countries in order to avoid facing the consequences of its activities, including environmental harms. Tobacco manufacturing is extremely water-intensive. Water is used in areas where tobacco-manufacturing facilities are located, making inks and dyes for packaging, and tobacco pulp processing. This may generate a severe stress on local water reserves in case these of dry areas.

Many tobacco manufacturing plants are now located in countries with few environmental regulations or a solid law system with an active judicial power able to act when necessary against unsustainable practices. The tobacco industry tends to move plants or factories when social conditions and environmental regulations have become too strict for them to be willing to bear, proactively shirking their responsibilities instead of absorbing the price of complying with higher labor standards or reduced environmental harms. The only way to avoid this is to harmonize global standards for reporting and regulation, so that the tobacco companies have nowhere to run.

According to the Toxic Release Inventory Database, over 456 000 kg of toxic chemicals were released in 2008 from tobacco manufacturing plants, including ammonia, nicotine, hydrochloric acid, methanol, and nitrates, which affects drastically the environmental well-being. (WHO, 2017).

In the survey, the first reason for keep producing massively without adapting to the demands for being socially and environmentally responsible was related with cost-efficiency; with more than 60% of the participants writing down answers mentioning this issue. Below we can find the open question itself with the most answered sentence.

Why do you think unsustainably produced cigarettes are still being sold in enormous quantities?

- **Because it is cheaper and easier (60.52%)**

The results showed an extended awareness about the economic interests behind the producers, demonstrating a general public opinion that companies prefer to save cost rather than enhance sustainable practices throughout the entire process.

Filters are supposed to reduce the harshness of inhaled smoke, being usually made from no biodegradable cellulose acetate. However, some recent studies assure that filters are not avoiding health issues at all, as they are also hazardous and part of the marketing strategy of the big companies (Hiscock, 2021).

International tobacco companies can play an important role in changing behaviors and encouraging consumers to dispose of their cigarette butts responsibly through information campaigns and the distribution of portable ashtrays. They must reduce greenhouse gas emissions, not only in factories, but also across the whole supply chain. Statistics reflect that these companies conform a multimillionaire business, and they count with the financial means to invest in research. For instance, Marlboro was by far the most valuable tobacco brand in the world in 2020, with a brand value of almost 33 billion U.S. dollars. L&M, which ranked second, had a brand value of just over 6 billion U.S. dollars that year (see Annex C, Figure 9 and 10). The company, headquartered in New York, sells its products in over 180 countries. (Statista, 2021).

Companies should also reduce the environmental footprint of the smoke-free products' manufacturing process, promoting crop diversification among tobacco farmers. The IQOS are an option without combustion, less air pollution. This is because IQOS heats tobacco instead of burning it, generating no fire, no ash and no smoke. According to Gabriel López, they are "the future".

One biotech company, Stanelco, developed a filter made of carbohydrate polymer found in foods like potato and rice; this could make filters biodegradable and ready for composting. "Even with starch-based composition, these filters may take two months to biodegrade, and they would still release toxic filtrates into the environment when they do so" (Novotny, 2009). We should regard this with caution, as biodegradable filters would still contaminate the environment with harmful chemicals if discarded improperly. Moreover, it is likely that the tobacco industry will use biodegradable filters as both a Corporate Social Responsibility and a marketing opportunity. The reputation rehabilitation and common social belief that filtered cigarettes are less harmful are consequences of this. "Tobacco companies are already marketing their filter innovations to retailers in a way that connotates health benefits, biodegradable filters are likely to be no exception and the filter fraud will be enabled to adapt and persist once more" (Hiscock, 2021).

The survey showed that only 50.4% of participants believed it is possible to produce organic filters, 45.6% voted for "Maybe" and 4% voted "No". This proves how misinformed is the overall population regarding scientific upgrades on the environmental framework, especially when big financial interests are at hand. Gabriel López states in the interview, "the organization is going to adapt, as profitably as possible, to what the market forces it, not what society thinks".

Recycling

A number of studies have been realized on recycling cigarette butts with encouraging results, and several methods have been studied, including recycling of cigarette butts in asphalt concrete and fired clay bricks, as a carbon source, sound-absorbing material, corrosion inhibitor, biofilm carrier, and many more.

RMIT University researchers found that “incorporating 1% cigarette butt content would reduce the energy required to firebricks by 10%” (RMIT University, 2020). Butts can also be added into asphalt concrete. They specified steps for the implementation of recycling CBs in fired-clay bricks:

1. For the collection of CBs, it is important to develop a close relationship with CB collection companies to facilitate the delivery of CBs to manufacturing sites. These CBs are normally collected from modern bins or receptacles.
2. Once the CBs are collected, they use a sterilization method to clean the CBs from bacteria, generating a strong odor. When using mothballs containing naphthalene, they should be put into the bags containing CBs to inactivate any bacteria that may be present. The collector or the workers can be responsible to do this. They should be careful to not breathe in fumes when the bags are opened. The CBs will then be stored on-site.
3. When ready, they incorporate CBs into the brick clay mix through a specific method. Once the CBs have been incorporated, the remaining steps that are common within the brick manufacturing process can be followed.
4. They always have to ensure that relevant OH&S standards are followed, the correct PPE is worn, and the fumes are not breathed.

As mentioned before, CBs consist of cellulose acetate, which it is demonstrated by the study of De Fenzo and others that it can be recovered through extraction and purification processes. Considering that cellulose acetate is the main component and it is soluble in acetone or ethyl acetate, they propose a methodology to purify this polymer-based on several solid-liquid extraction steps using solvents with different polarity. The recycling of CBs and turning this waste into a resource can be a solution to cigarette butt pollution. They reached the conclusion that we can obtain a transparent film from acetate cellulose recovered by cigarette butts using a green extraction method. (De Fenzo et al, 2020).

In the research performed by Rahman and others, CBs have been pre-processed and mixed with bitumen classes C320, C170, and PMB A10E as a fiber modifier. They performed comprehensive laboratory investigations, including a penetration test, softening point test, and viscosity test, along with a binder drain-off test to evaluate the performance of the modified samples. “The results of the CB-modified samples were compared with the sample with cellulose fiber and fresh bitumen (0% fiber). The results show that the physical and rheological properties of bitumen incorporating CBs improve significantly, and CBs could be used instead of virgin cellulose fiber as a fiber modifier” (Rahman, 2020).

TerraCycle Case Study

The startup was founded in 2001 by Tom Szaky in the USA. Now it is present in 21 countries, with over 80 million people engaged in different programs. TerraCycle is a company that is able to recycle the butts, turning the plastic into industrial-grade products like plastic pallets. “Vancouver, where people litter a million cigarette butts a day, was the first city to pioneer this partnership with TerraCycle, installing 110 cigarette butt recycling bins in its downtown area in 2013” (Orso, 2018). Participating is completely free. The program for tobacco recycling accepts this waste: all parts of extinguished cigarettes, cigarette filters, cigar stubs, outer plastic packaging, inner foil packaging, rolling paper and

ash. They do not accept the cardboard packaging of a cigarette box. Instead, this can be recycled through a municipal recycling program. (TerraCycle, 2021).

The rectangular receptacle used is called a TerraCycle "zero waste" box. It can hold hundreds of cigarette butts before they are shipped to New Jersey, where they will be processed and recycled into such things as ashtrays, fence posts, industrial supplies, and park benches. “The receptacles themselves must be weather-resistant and flame-resistant and something must draw smokers' attention to them, whether a bright color or a sign.” (Orso, 2018).

“TerraCycle's global vice president of research and development, Ernel "Ernie" Simpson, was part of the team that spent a year developing the recycling process for cigarette butts and said the company is the only one in the world recycling them that way” (Orso, 2018). Simpson said that the process took years to perfect.

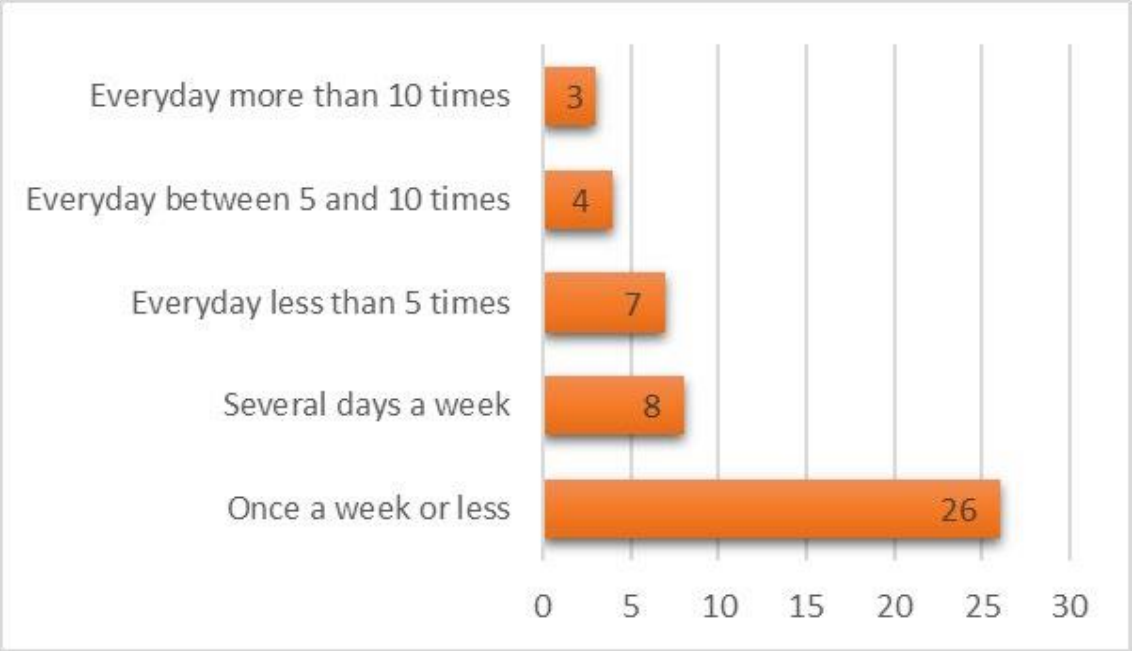
The process consists of these steps:

1. Once collected, they separate the cigarettes and packaging by composition and melt into hard plastic that can be remolded
2. Organic compounds such as tobacco and paper are composted and used to create specific types of fertilizer, while inorganic components such as the filters are cleaned and shredded.
3. Then, it is transformed again into tiny granules of plastic that TerraCycle sells to other companies that use them to build new items, everything from picnic tables to decking materials.

Consumers´ perspective

After studying different ways how producers can improve the material in a more eco-friendly approach, and how the recycling centers can reuse cigarette butts for a wide range of products, it is essential to include a deeper understanding of the consumers’ behavior. The survey yielded the following results: 24% are social smokers (when partying), 16% are regular smokers and 62% of participants stated they are no smokers (see Appendix B, Figure 5). This matches if we consider the statistics for smoking rate in Hungary, where the main part of surveyed is living in, which is 30.6%. The “increased risk of smoking predominantly affects the 25-34 age group among men (41%) and the 45-54 age group among women (31%)” (Cselkó, 2018). From those who affirmed they do smoke, the following graph shows how often they do it:

Figure 1- Frequency of Smoking Among Surveyed Smokers (2021)



We can observe that more than half of the smokers in the survey affirmed they smoke once a week or less, which coincides with the answers from the question "Are you a smoker?" where 24% said they are social smokers. During the past twenty years, there has been a gradual decrease in tobacco smoking rate in both Hungary and Argentina (Macrotrends, 2021), but at a global level it was more slightly (The Tobacco Atlas, 2016). Knowing the consumption trends helps to forecast the environmental consequences of littering these products.

In the survey, apart from saving-cost strategies, the participants wrote down the following answers to the open question:

Why do you think unsustainably produced cigarettes are still being sold in enormous quantities?

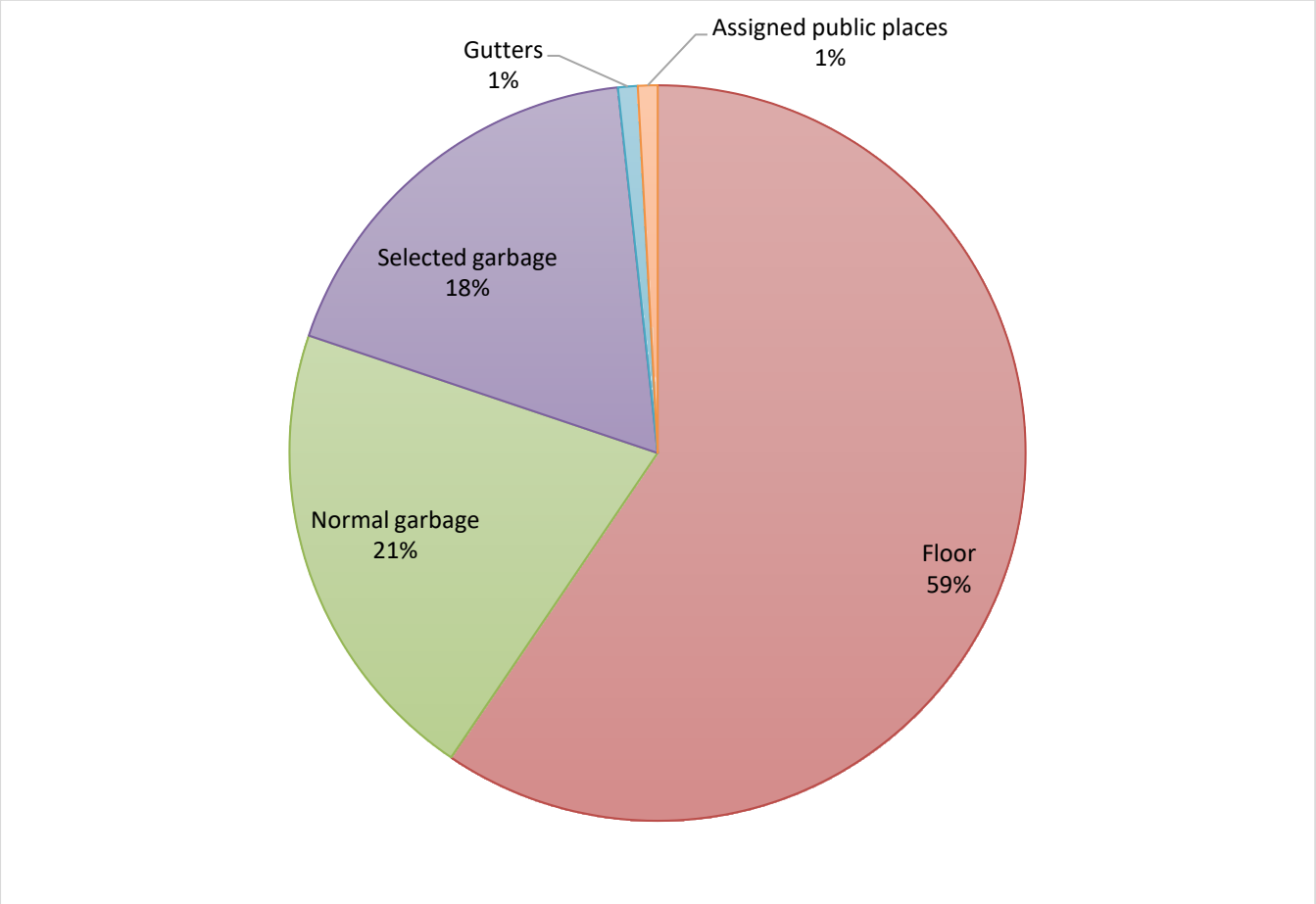
- **Resistance of consumers to change (25.44%)**
- **No idea (14.91%)**

This supports the idea that a profound analysis of consumer behavior is essential to implement changes in bad habits. In addition, almost 15% answered that they do not have any idea, which also means that there is a lack of education and general knowledge about this issue, combined with a lack of visibility.

According to the 2009 National Visible Litter Survey and Litter Cost Study made by the organization Keep America Beautiful, the littering rate in the US is 65%. Smokers are more likely to litter if the environment contains any type of litter. They also found that "For every additional ash receptacle, the littering rate for cigarette butts decreases by 9%" (KEEP AMERICA BEAUTIFUL, 2020).

In the figure below, we can observe how much percentage of the surveyed believes each of these options as the most common destination for post-consumption cigarette waste.

Figure 2-Destination of Cigarettes in The Street (2021)



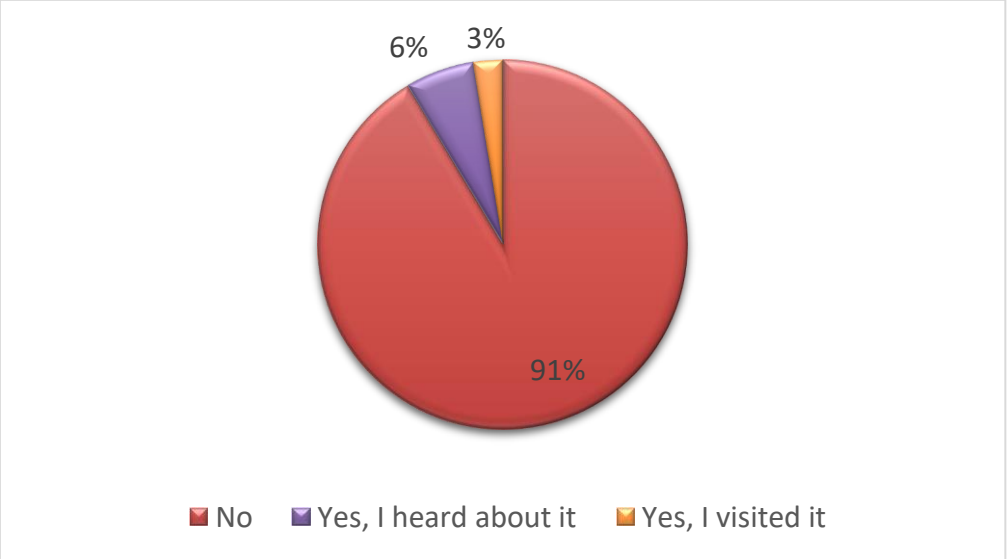
These results support the proposal of facilitating exclusive receptacles for cigarettes in each street, as many consumers (59% shown in the survey) tend to litter directly to the floor, and one cause could be the absence of trash bins at a certain distance that ensures their visibility.

Butt littering is for the most part an ignored behavior among smokers; it may even be a part of the smoking ritual. Added to this is the now widespread regulation of indoor smoking, which causes smokers to retreat to the street and sidewalk where there may be no butt receptacles.

A growing public concern about pollution could boost a change. Increased publicity about 'green' behavior may affect the littering behavior of smokers.

The amount of available places to treat cigarette waste affects consumer behavior, as there are very few around the world. There was not data about such place in Hungary. The graph belows the percentage of people who heard or went to tobacco recycling sites.

Figure 3- Percentage of Surveyed People That Know About Tobacco Products Recycling Places (2021)



Another reason behind the very low recycling rate among consumers is precisely the lack of recycling sites for tobacco products. Only 3% stated they know one and visited it, another 6% just heard about it and 91% do not know any place as such. This gives room for the government to encourage the formation and maintenance, maybe with financial aid and incentives, of centers that collect, process and transforms the waste into numerous items, as described in the case of TerraCycle.

Government intervention

To raise awareness of the butt litter problem, governments shall increase the regulatory activity at the state and local level. Increasing fines, fees, and other economic disincentives contribute for a reduced consumption and therefore, pollution.

Some countries like the United Kingdom, Australia, and Brazil had reduced significantly their smoking rates, great part due to the implementation of the most advanced tobacco control laws. Unfortunately, their efforts are almost entirely offset by the increasing consumption in many countries with weaker tobacco control regulations. (The Tobacco Atlas, 2016). Hence, cigarette consumption is predicted to increase in many low- and medium-HDI countries due to dynamic economic development and continued population growth.

Despite the rhetorical commitment of some in the tobacco industry toward a smoke-free world, all major tobacco companies continue to aggressively advertise cigarettes and vigorously fight tobacco control efforts around the world. A ban on the sale of single-use plastic cigarette filters would be resisted vehemently by the tobacco industry as it challenges the deception it has perpetuated in marketing manufactured cigarettes. According to Hiscock, the industry mounts large-scale lobbying activities to divert attention from its health-damaging products and from the pollution caused by butts. “Unlike manufacturers of some other polluting post-consumption waste products, such as refrigerators containing fluorocarbons, it has never been held accountable for the cost of the waste it generates” (Hiscock, 2021).

In the United Kingdom, they are taking already some measures to address this issue. The Environment Minister Rebecca Pow said “cigarette butts are a blight on our communities, littering our streets or ending

up washed down the drain and polluting our rivers and oceans. We must all take action to protect our environment. We are committed to making sure that the tobacco industry plays its part. That is why we are exploring how cigarette companies can be held fully accountable for the unsightly scourge of litter created by their products." (Mirage News, 2021).

Government officials are taking action to reduce litter. In 2015, the city council of Philadelphia approved a plan "requiring corner stores and restaurants to place trash and recycling bins within 10 feet of their entrances in an effort to reduce litter. The bill is modeled on the Walt Disney Co.'s determination that if trashcans are more than 25-30 steps apart, people will litter. Violators will face fines of up to $100" (Keep America Beautiful, 2020). In recent years, Hungary introduced significant measures to curb smoking: it is restricted in enclosed and in certain open public areas, the number of tobacco points of sale had been drastically reduced and the legally binding increase of excise tax has resulted in rising prices. (Cselkó, 2018).

It may even be possible to ban the sale of filtered cigarettes altogether based on their adverse environmental impact. This option may be attractive in coastal regions where beaches accumulate butt waste and where is prohibited to smoke indoors. It is needed additional research on the various policy options, including behavioral research on the impact of banning the sale of filtered cigarettes altogether. Enforcing tobacco companies to change the content is still under review.

The current industry approach (as with its historical approach to the direct health consequences of smoking) is basically to 'blame the victim'. In this context, the smoker is the litterer and thus it is his or her responsibility to take care of the butt disposal.

The study performed by Mohajerani and others considered the combined risks from hundreds of highly toxic chemicals and possible pathogens in cigarette butts. They proposed to prohibit the littering of this waste anywhere in cities and the environment, and to fine heavily the offenders. This strategy should be supported by appropriate education, guidelines, and advertising. "Our cities, parks, waterways, beaches, and oceans have been contaminated for many years, with millions of tons of unsightly and toxic cigarette butts. Effective and strong laws and guidelines by governments for solving this global pollution problem are overdue and urgently need to be established. This action should be supported by an adequate number of receptacles installed at critical locations in cities and public places by local governments for the collection of CBs for recycling. The sincere, effective, and urgent support and cooperation of smokers, governments, educators, and waste management industries are essential for ending the littering of cigarette butts in the environment" (Mohajerani, 2020).

To date, most litigation against the tobacco industry has focused on the health costs that others (individuals, insurance companies, states) end up paying because of cigarette consumption. Similarly, the industry must be held responsible for environmental impacts associated with the sales of their product. There were some cases where some communities pursued a litigation against manufacturers of products that damage the environment. These cases are typically based on two theories: negligence and nuisance. The first one allows someone who is injured by another's unreasonable conduct to recover money damages. "The primary element of a successful negligence case is proof of the defendant's wrongful conduct, or failure to take reasonable steps to prevent the harm. Nuisance is a tort theory that protects someone's right to use and enjoyment of his or her real property" (Novotny, 2009).

“In 1997 the World Bank, in partnership with the World Health Organization, began a global study on the economics of tobacco control. They concluded that tax increases are the single most effective intervention to reduce demand for tobacco (tax increases that raise the real price of cigarettes by 10% would reduce smoking by about 4% in high-income countries and by about 8% in lower-income income countries). Tax comprises about two thirds of retail price of cigarettes in most high-income countries but is less than half of the total price on average in lower income countries” (Jha, 2000). This is supported by the comment of Gabriel López saying, “Profit, at a unitary level, is very low. It is a market for volume, not margin. There is a lot of tax burden, and without a doubt, the more "developed" the country economically, the lower the profit.”

Governments and local authorities should not borne the clean-up and disposal of tobacco use, but either producers or users of tobacco products. “To solve this, the environmental “precautionary principle” should be employed, meaning the use of preventative measures to avoid harm to the environment and human or animal health in the first place” (WHO, 2017).

4. Discussion & Conclusion

These key research findings indicate that that the most effective ways to address cigarette butt littering include increasing the availability of ash receptacles and portable ashtrays, decreasing the amount of existing litter through clean-up activities, and educating the public with motivational messages that target individual responsibility and obligation. Since indoor smoking bans have pushed smokers outdoors, they need better infrastructure to collect the waste and keep butts off the street. Smokers should avoid littering and should dispose of their cigarette butts responsibly. Cigarette filters are from a non-biodegradable plastic, so consumers should recycle whenever they can. Recycling cigarette boxes can be done through different programs, that is why consumers should contact a recycling company that accepts tobacco products. Receptacles are perfect for standardizing cigarette recycling in small or large-scale outdoor environments.

Governments must take the following actions:

-Cooperate through environmental regulation. Strengthen regulation of tobacco agriculture to prevent deforestation and land degradation. Enacte laws that make tobacco manufacturers financially responsible for cleaning up and safely disposing of tobacco product waste, with programmes and other activities. Innovate, improve and enforce new and existing environmental regulations and agreements that may apply to tobacco manufacturing, transport, consumption and post-consumption waste.

-Create recycling programs in each country. Pilot new programs and initiatives like zero plastic waste cities and green zones.

-Decrease the amount of existing litter through clean-up activities.

-Educate the public about individual responsibility and obligation. Reach, inform, and engage all people, from diverse backgrounds and from all age groups. In order to further reduce the rate of smoking and consequent littering, particular attention should be paid in the coming years to support and disseminate health promotion programs, specifically aimed at groups with increased risk of

smoking, that combat habituation, as well as educate smokers about the harmful effects of smoking and cessation methods.

- Support more frequent litter research and analysis of big data sets.

Tobacco producers can do the following:

-Replace existing filters with biodegradable and non-toxic ones.

-Invest in innovation and next-level solutions for reducing litter, including litter prediction models, other AI techniques to prevent litter including remote sensing and image classification, litter tracking maps, and public interfaces for these solutions.

Businesses in general can contribute in this way:

-Change the environment to reduce littering. Make proper disposal convenient and accessible. Provide sufficient trash, ash, and recycling receptacles inside and outside your establishment.

-Ensure consistent and ongoing cleanup, as littered environments attract more litter.

-Make the most of motivational messaging. Encourage customers to properly dispose of litter through direct engagement or on-package messaging.

In the survey, several solutions were proposed, from which participants could choose which are the most effective in their opinion. More than 61% agreed with changing the product itself into a more eco-friendly one, and almost 58% agreed that education is key. First two options were added by the participants, that is the reason why they only received one vote each (see Figure 4 below).

Figure 4-Support of Surveyed Towards Different Solutions to the Negative Environmental Impact of Tobacco Products (2021)

Encourage and help smokers to change their lifestyle	0.8%
Promote anti-smoking campaigns to decrease smoking overall	0.8%
Impose import quotas towards these products	7.2%
Make campaigns against unsustainable practices by the big companies	31.2%
Increase its price by increasing taxes so demand lowers	32%
Provide a budget to install special trash bins in every street for cigarettes	38.4%
Promote the recycling and reutilization of cigarettes in, for instance, bricks	48%
Educate the population about this issue	57.6%
Develop a more eco-friendly solution, from cultivation to manufacturing and distribution	61.6%

We can observe how accountable the companies producing tobacco and the government should be, according to the surveyed public.

In conclusion, tobacco producers should be responsible for liability, economic costs, and providing information on environmental impacts of tobacco use. Other stakeholders, including governments, citizens' groups, green businesses, distributors, and academic researchers, shall engage in complementary activities to help reduce, prevent, and mitigate environmentally harmful and unsustainable practices in tobacco growing, manufacture, transport, consumption, and post-consumption waste disposal.

References

Cselkó, Z., Kovács, G., Horváth, I. (2018). The smoking situation in Hungary. Tobacco Induced Diseases, 16(1), 265. https://doi.org/10.18332/tid/84120

De Fenzo, A., Giordano, M., & Sansone, L. (2020). A Clean Process for Obtaining High-Quality Cellulose Acetate from Cigarette Butts. Materials, 13(21), 4710. https://doi.org/10.3390/ma13214710

Hiscock, R., Lauber, K., Evans-Reeves, K. (2021). The 'filter fraud' persists: the tobacco industry is still using filters to suggest lower health risks while destroying the environment. Tobacco Control. http://dx.doi.org/10.1136/tobaccocontrol-2020-056245

Jha, P., Chaloupka, F. J. (2000). The economics of global tobacco control. BMJ 2000; 321 :358. doi: https://doi.org/10.1136/bmj.321.7257.358

Keep America Beautiful (2020). Litter in America. [PDF] Retrieved from: https://kab.org/wp-content/uploads/2019/11/LitterinAmerica_FactSheet_LitterOverview.pdf

Macrotrends (2021). Hungary and Argentina Smoking Rate 2007-2021. [Online Journal] Retrieved from: https://www.macrotrends.net/countries/HUN/hungary/smoking-rate-statistics

Mirage News (2021). UK Government explores next steps to clean up tobacco litter in England. [Online] Retrieved from: https://www.miragenews.com/uk-government-explores-next-steps-to-clean-up-536938/

Mohajerani, A., et al (2020). Implementation of Recycling Cigarette Butts in Lightweight Bricks and a Proposal for Ending the Littering of Cigarette Butts in Our Cities. Materials 2020, 13(18), 4023; https://doi.org/10.3390/ma13184023.

National Geographic (2015). Turning Cigarette Butts Into Park Benches | National Geographic. [Youtube] Retrieved from: https://www.youtube.com/watch?v=7VxMwKETtUg&ab_channel=NationalGeographic

Novotny, Lum, Smith, Wang and Barnes (2009). Cigarettes Butts and the Case for an Environmental Policy on Hazardous Cigarette Waste. Int. J. Environ. Res. Public Health 2009, 6(5), 1691-1705. [Online Journal] Retrieved from: https://www.mdpi.com/1660-4601/6/5/1691

López Libardi, G. (2021). Personal communication [Interview].

Orso, A. (2018). Turning Philly's cigarette butts into park benches. [Online] Retrieved from: https://www.inquirer.com/philly/news/cigarette-butts-litter-terracycle-trenton-recycling-20180330.html

Rahman, M. T., Mohajerani, A., & Giustozzi, F. (2020). Possible Recycling of Cigarette Butts as Fiber Modifier in Bitumen for Asphalt Concrete. Materials, 13(3), 734. https://doi.org/10.3390/ma13030734

Rastogi, N. (2009). Can cigarette smoking ever be green? [Online] Retrieved from: https://slate.com/technology/2009/03/can-cigarette-smoking-ever-be-green.html

RMIT University (2020). How cigarette butts can be recycled into bricks: A step-by-step plan. [Online] Retrieved from: https://sciencebulletin.org/how-cigarette-butts-can-be-recycled-into-bricks-a-step-by-step-plan/

Statista (2021). Leading tobacco companies worldwide in 2019, based on net sales (in billion U.S. dollars). [Online] Retrieved from: https://www.statista.com/statistics/259204/leading-10-tobacco-companies-worldwide-based-on-net-sales/

Shahbandeh, M. (2021). Leading tobacco producing countries worldwide in 2019 (in 1,000 metric tons)*. [Online] Retrieved from: https://www.statista.com/statistics/261173/leading-countries-in-tobacco-production/#:~:text=This%20statistic%20shows%20the%20worldwide,metric%20tons%20of%20tobacco%20produced.

TerraCycle (2021). Cigarette Waste Recycling Program. [Online] Retrieved from: https://www.terracycle.com/en-US/brigades/cigarette-waste-recycling

The Tobacco Atlas (2016). Consumption. [Online] Retrieved from: https://tobaccoatlas.org/topic/consumption/

World Health Organization (2017). Tobacco and its environmental impact: an overview. [PDF] Retrieved from: http://apps.who.int/iris/bitstream/handle/10665/255574/9789241512497-eng.pdf;sequence=1

Appendix A- Interview transcripts

1) What are the components of the filters, and what are traditional cigarettes wrapped in.

Well, there are many, and I do not remember all. I remember in the induction process, they explain in detail the components and operation of the filter (you can imagine that this is confidential information, it is not available online).

I remember that they are made of carbon, but the most important thing is how thin the "fibers" are, generating the ability to retain a large part of the toxic components generated by combustion. It is worth clarifying that a large part, if not most, of the "harmful" of smoking is a consequence of combustion, since carbon dioxide (CO) is released and when entering the body it affects oxygenation. This is key. In these pictures, it is shown better:

Paper is a big problem, because it burns, there is "combustion", which is a big part of the problem in terms of health.

The paper has "delays" of burning, they are like "rings" (you can see them if you look at a cigarette closely), which makes the paper not burn so quickly and the cigarette lasts longer. I think something like 7 minutes per cigarette was stipulated.

It is worth clarifying that, as I understand it, and it is quite logical, there are no "additives" or "chemicals" that "make the cigarette more addictive", it is not necessary. Nicotine by itself is very addictive.

What I do remember is a very interesting process to "expand the volume" of the tobacco strands, and to fill the cigarette with less tobacco. The volume expanded but with much less density. Very interesting.

2) Sales: in which country the most quantity is sold, and in which one is the most profit generated.

It is very difficult to answer this, since I did not have access to another country other than Argentina. I can tell you that Masalin Particulars (Marlboro, Philip Morris, Next, among others), when I left,

produced an average of 110 million cigarettes a day, and had a 70% market share, so you can estimate the daily production average in Argentina in 2011. Today, without a doubt, the volume has fallen.

Profit, at a unitary level, is very low. It is a market for volume, not margin. There is a lot of tax burden, and without a doubt, the more "developed" the country economically, the lower the profit. Except for exceptions like some European countries, where you could still smoke in closed public places, or Indonesia, where you can "advertise" almost anywhere, as I recall.

3) Do the companies allocate a percentage of their income to scientific research on how to produce in a more sustainable way?

The IQOS are the future. The cigarette is "heated", there is no combustion. It is another story. There is certainly a tendency to use smokeless tobacco. Do you know snooze in the Nordic countries? (It is ultra-addictive, and you don´t have to smoke it. It is like a tea bag with flavored tobacco inside, you put it between your lip and gum, and have to chew it.

4) Is there a change in the culture of the organization with regard to caring for the environment and social responsibility? Are there numbers that can demonstrate it?

No, in my opinion, they do not care. They will adjust if the market asks for it, and they will do what generates the most profits. Everything else is verse. I remember when I went to work I asked if the legal department was very big. No, the big one is the corporate affairs department. If it comes to justice, they have failed, it must be negotiated before.

Therefore, the organization is going to adapt, as profitably as possible, to what the market forces it, not what society thinks.

5) In your opinion, what are the consumption trends in the last 5 years?

Well, a bit what I have commented, the key is to reduce combustion, smoke. The smell, the hangover from the smoke, etc.

A few years ago, they smoked less, but for many years. Now you see a more aggressive trend, you start smoking when you are young, you smoke a lot, and you try to quit smoking after the age of 30, let us say.

In conclusion, the cigarette is poison. However, my best work and professional experience, the "best professionals" that I met, the best and highest standards of work, I saw them in a tobacco factory. Very contradictory, or not?

Appendix B- Survey results

Figure 5- Percentage of Smokers, Social Smokers and Non-smokers among surveyed (2021)

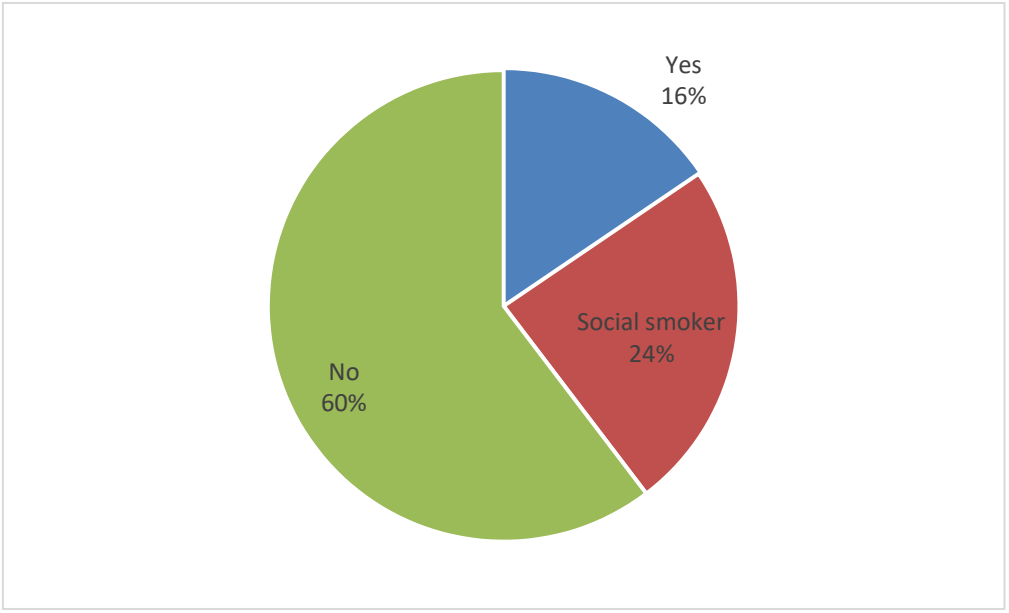


Figure 6- Age Of Surveyed in Years (2021)

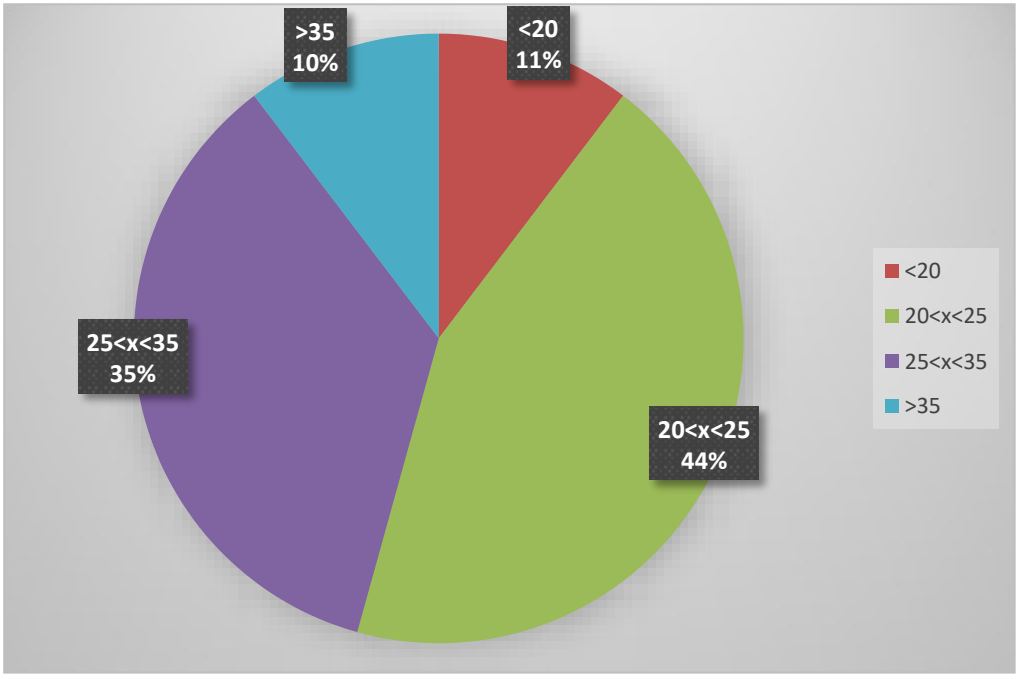
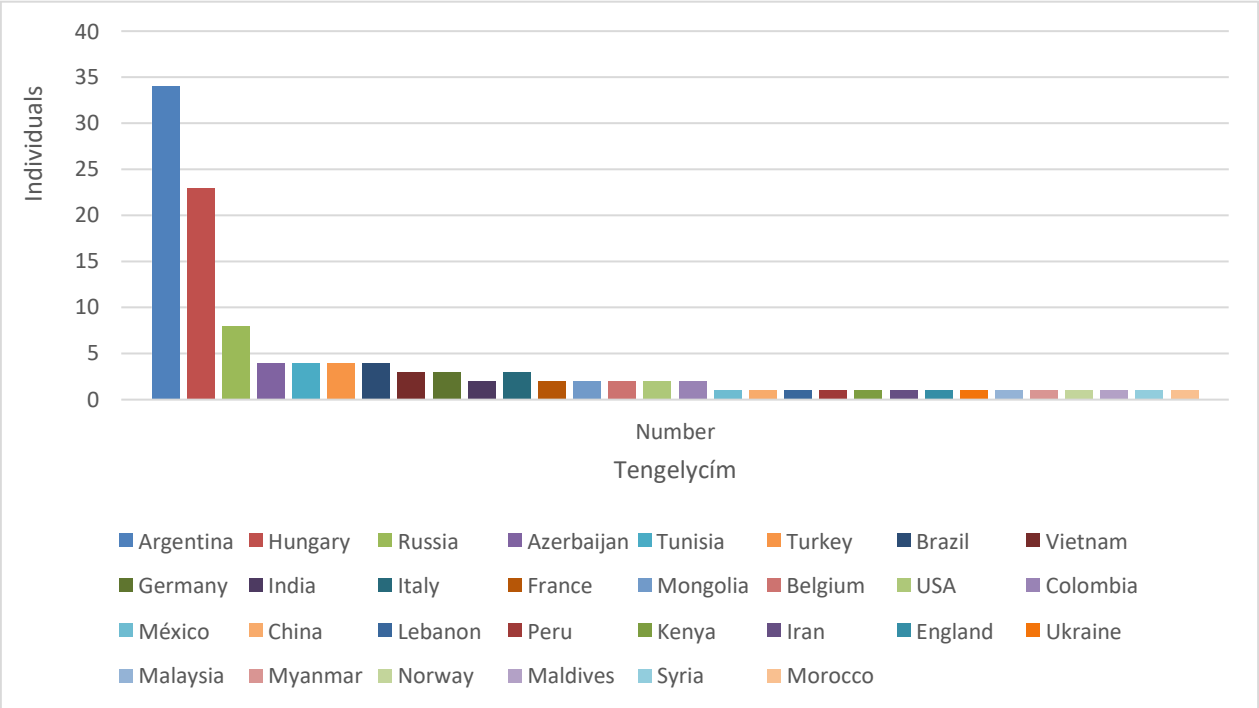
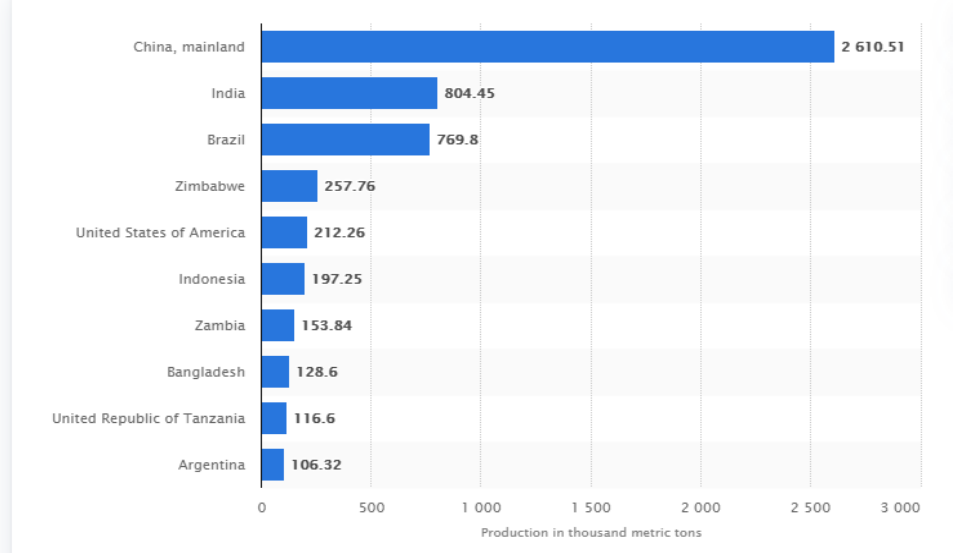


Figure 7-Participants Country Of Origin (individuals)



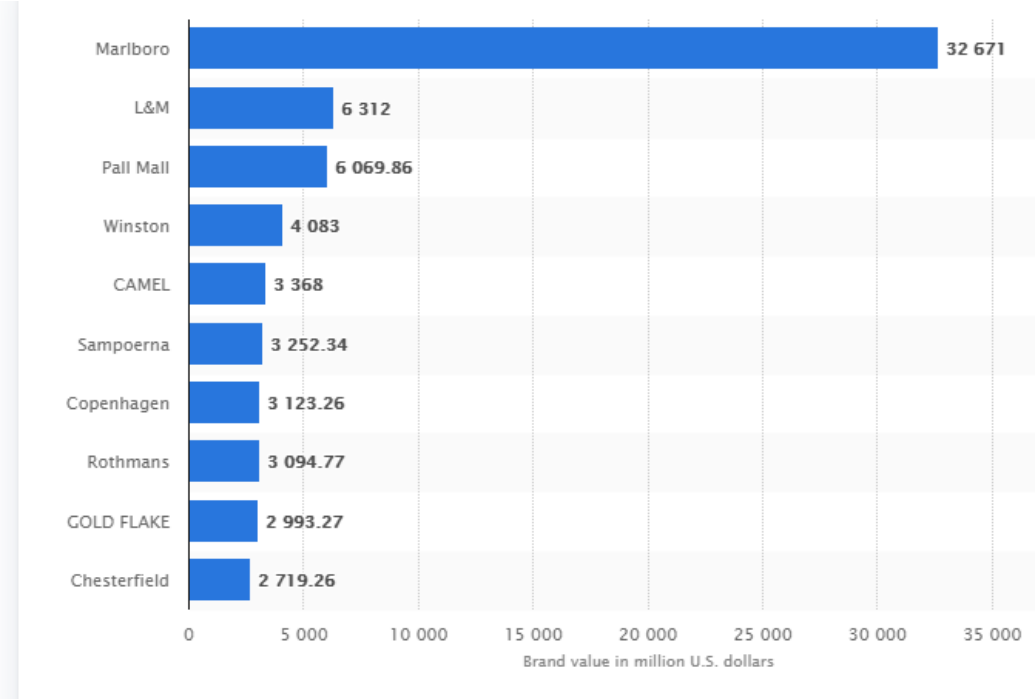
Appendix C- Other tables and figures

Figure 8- Leading Tobacco Producing Countries Worldwide in 2019



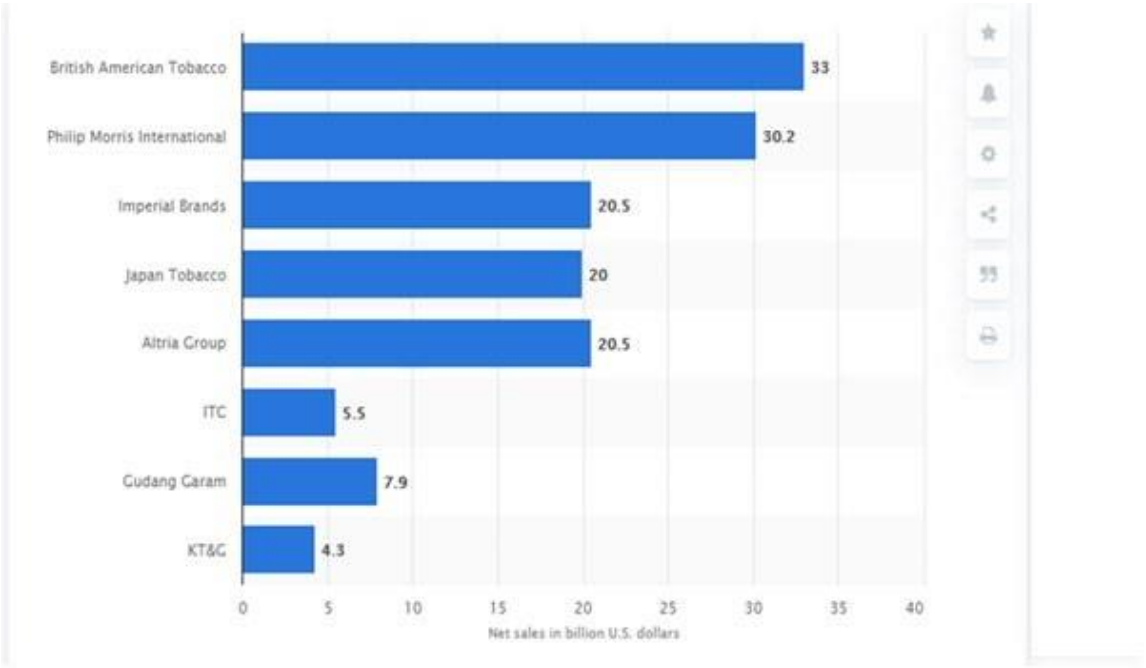
Source: *Shahbandeh, 2021.*

Figure 9-Most Valuable Tobacco Brands Worldwide in 2020



Source: Statista, 2021

Figure 10- Leading Tobacco Companies Worldwide in 2019, Based on Net Sales (in billion US dollars)



Source: Statista, 2021.

The impact of animal welfare violations on the tourist's decision making process - Case study: Marrakech – Morocco

AUTHOR

EZZALLAT Achraf

Strategic Tourism Management

DOI: 10.29180/9786156342218_7

Tourism represents a major and global economic sector, in 2013 the industry was worth over one trillion US dollars, representing 9% of global GDP, and covered 1 in 11 jobs all over the world. On an international level, the number of tourist arrivals have increased continually from an approximate number of 25 million in 1950 to more than 1087 million in 2013, and 1.8 billion predicted by 2030. Although there are no global reliable and imposed measures regulating the impact the industry, and more specifically, wildlife tourism (tourism attractions based on interactions with non-domesticated animals), on wildlife, taking in consideration that It is, in some countries, the leading foreign exchange source, and the dominant tourist activity and in many cases, wildlife tourist attractions can be a prime tourist travel motivation. This research is to study the tourists' perception of the animal welfare violation and its impact on their behavior and decision making process as well as how it contributes in building toward an ethical framework of the activity and promoting conscious consumption.

This descriptive-analytical study was conducted on 120 foreigners who have visited Marrakech in the last 5 years, and members of the Facebook group dedicated for touristic attraction in the same city. Data were collected by a valid and reliable questionnaire, consisting of four sections divided into two parts: Demographic information and questions about the experience and its different aspects related to the participant decisions and perception, and an open questions experimental interview analyzing the tourists perception before and after watching content on social media showing clearly different animal ethics violations in a touristic destination. Collected data sets were analyzed by Excel software. In total, the majority of the respondents stated that they make personal considerations. These considerations include understanding the perceived quality of the destination offer, the high or low involvement of animal ethics in their experience and the utility value of the shows as part of the general offer. The study showed that most of the participants felt that their satisfaction about the shows was negatively impacted, as they considered witnessing animal cruelty as a negative and unexpected experience, but this impact can definitely not impact their overall satisfaction about the case study city, as a tourism destination, this impact could neither change their opinion about the city nor their decision to visit the city, and therefore could not impact negatively the brand image of such a big destination. The study could also develop a new buyer decision process schema based of Kotler's taking in consideration the influence of such practices on the tourists perception of the destination and their behavior in the different scenarios.

1. Introduction

Tourism represents a major and global economic sector, in 2013 the industry was worth over one trillion US dollars, representing 9% of global GDP, and covered 1 in 11 jobs all over the world . On an international level, the number of tourist arrivals have increased continually from an approximate number of 25 million in 1950 to more than 1087 million in 2013, and 1.8 billion predicted by 2030. Although there are no global reliable and imposed measures regulating the impact the industry, and more specifically, wildlife tourism (tourism attractions based on interactions with non- domesticated animals), on wildlife, taking in consideration that It is, in some countries, the leading foreign exchange source, and the dominant tourist activity and in many cases, wildlife tourist attractions can be a prime tourist travel motivation. In 2006 only, about 2.2 million of Australia's inbound tourists declared that they have visited at least on wild life attraction, which represents 43% of all Australia's international tourists, and in 1988, a study showed that wildlife tourism represented 20%–40% of international tourism worldwide, which means wildlife tourism market represents a large proportion of a huge global market and its size is predicted to increase more in the coming decades.

Wildlife tourism attractions are diverse, but we can divide them into four main categories: watching or interacting with non-domestic animals; watching animals in an artificially-made environment such as zoos, aquariums and parks, hunting and fishing tourism. Wildlife tourist attractions types can be divided into two categories non-consumptive and consumptive, non-consumptive attractions involving bird, whale and dolphin viewing, aquariums and wildlife parks, or consumptive, which includes all animals being killed or removed, or cached to use their body parts such as hunting and fishing.

Wildlife tourism market, can provide opportunities and create jobs for the local population, which impacts positively their livelihood and can also help preserving wildlife and wildlife habitats with the right ethical framework and practical preservation efforts by volunteers and actors, local bottom-up socio-economic initiatives with goal of preservation of wildlife and its component (9), and tourist awareness raising, which may create positive attitudes towards the used animals, preservation of the species, and development of animal welfare However, the improperly managed wildlife tourism practices worldwide can have an important negative impact on both the preservation and welfare of animals, whether in the wild or captivity. These impacts consist of unmanaged captivity, injuries, disease and death, short- and long-term animal negative changes in term of behavior, stress and negative physiological responses, malnutrition signs and spices loss.

All wildlife tourism attractions through their attitude toward animal welfare is relted to visitor satisfaction and and decision making. Tourists' individual perspectives and awareness will define what they are willing to accept but animal ethics respect or violation may have impacts that may be difficult to detect but may definitely be interacting with the different steps of the tourist decision making process. Based on the present situation—and expected future—global wildlife tourism is increasing worldwide, there is a pressing and urgent need to control the diversity of the animal-based attractions and their impacts, positive, neutral or negative on the customers, on the destination brand image through understanding tourists' perceptions of wildlife tourism attraction in relation to an objective assessment of the impacts, to reach as result the highlight areas in which tourist awareness raising may be beneficial, and on what basis an ethical framework may be build.

Several recent studies have studies and reviewed the different impacts of individual wildlife tourism attraction types made by the tourists on the wildlife or on the local population, but no attempt has been made to describe impact of witnessing animal ethics violations on tourists, either directly or through the different channels as well as its impact on the brand image of the destination, Similarly, while studies have examined levels of visitor satisfaction and the number of interactions with wildlife tourism attractions, tourist feedback has not been considered in relation with the decision making process and the brand awareness.

We here present a preliminary study of non-consumptive wildlife tourism attractions that currently exist worldwide, the perceptions and expectations of the visitors, the reaction of tourist to what they witness and the impact of it on the different steps of their decision making process, depending, on their backgrounds, ideologies and point of views toward the practices.

2. Animal Welfare discussion – Literature revie

Since the first sapiens ever lived on earth, we humans use animals. we eat tem, play with them and wear their skins, but we most importantly use them as subject of medicals and innovative experiments in the Medical field; and not only one spice, but we use a variety of animals – rabbis, dogs, pigs, monkeys, but most of the cases that are raising the debate, we use mice and rats in advancing medical research.

Such research has saved so far millions of other animals and humans thanks to scientific and medical discoveries of new drugs or therapy, or the new vaccine safety testing before release. However, animals serving this way ends up with an overwhelming proportion of dead animals, and can be in most of the cases considered inhuman and unjustified, but the good that it has done can not be undertaken.

The medical field is the one using the most animals for human's interests, yet it is not the only one, animals are used in agriculture, Fashion, film industry... But most importantly in the Tourism Industry, that's why, whether animals do have rights may be a provocative question and raises the question whether it is of practical importance? or it is a set of quarrels so academic, so philosophical that it does not really concern most ordinary folks, after all great industries and tens of thousands of jobs that depend on animal use, hundreds of millions of humans that rely on animals in their daily food set. Animal use is so pervasive, so deep and complete and dispatched all over the Maslow's hierarchy of needs.

About this morality debate, and the continuity of the current animals' use, a crusade was opened by an Australian professor of philosophy, Peter Singer, who was deeply troubled by the spreading of animals welfare violations, especially animals raised for slaughter.

His 1975 article, Animal Liberation, went viral with a strong widespread agitation to cover other animal uses as well., Singer believes that humans are obliged to stop experiments using animals for moral reasons, as well as stopping all productions using animals for food because of the horrendous cruelties and violations on helpless and innocent creatures.

The benefits we obtain from animal use, he contends are rightly weighed, but they cannot justify the inhumanity our use of them impose on the other hand, the animal Liberation movement has never made claims about the rights of animals.

Singer is a utilitarian in philosophical method, in an explicit way, what count for him the most are consequences. The campaign that derives its name from his experimentation in the book does more harm than good. The pain caused by experimental experimentation using them on animals is so severe, the liberationists argue, that it outweighs any positive results that these experiments can create.

3. Animal Welfare discussion - Gray L Francione & Robert Garner

In his book The Animal Rights Debate, Gray Discussed in the first chapter some very important point in the Animal Exploitation Debate, this discussion was divided to three sections, in the first section Gray rejected the fundamental premise of the animal welfare approach- that animal life has lesser moral value than human life and that, therefore, as long as animals are treated "humanely", using them for human purposes can be morally justifiable. Gray argues that, for the purpose of being used as human resources, all sentient nonhumans have the same moral value as humans that we have a moral obligation to stop animal use regardless how "humane" our treatment of animals may be.

In the second section, Gray responds to the claim that the regulation of animal use provides significant protection for animal interests, he argues that because animals are human's property property, the regulation of animal rights provides very limited protection for animals and does not effectively minimize animal suffering in addition, there is certainly no scientific evidence that, as some suggest, welfare regulation would either lead to a reduction or the cessation of the use of animals. However, the animal rights approach makes people feel more comfortable about animal exploitation; actually, it is an explicit purpose of many major organizations for animal advocacy. And finally in the third section, Gray responds to claims made by welfarists that the animal rights position is unrealistic because it rejects the notion of incremental change to reduce animal exploitation and does not provide any practical guidance for what we should do now to help animals. Gray argues that the animal rights position does offer a plan for practical incremental change that has ethical veganism, or the rejection on moral grounds of the consumption of animals as food, clothes, entertainment and other uses, as its foundation. The elimination of animal cruelty inevitably involves a philosophical change away from the property rights of animals and to the position that animals are moral individuals. Right to life, though "humane," is compatible with the property status of animals and with all animal use. Ethical veganism is itself a celebration of animals' moral personhood.

When a consumer is required to make an individual decision by choosing one product between other possibilities and alternatives, it is called consumer decision making according to Sproles & Kendall, 1986, as well as it is considered as one of the most studies aspects of consumer oriented research and lately it has become an attractive field of study for consumer science researchers thanks to the important and noticeable topics it can offer, as a result, Consumer decision making was defined as finding solutions and solving consumer's problems, which is referred to as *"a discrepancy between a desired state and an Ideal state which is sufficient to arouse and activate a decision process"* (JOBANPUTRA, 2009, P3).

The following Figure 1 diagram highlights the five steps of the consumer's decision- making process. The diagram outlines the first step as "the problem recognition" which simply means identifying the need or the problem, which can be triggered due to an external or internal event. Nevertheless, it is still not very clear how much need is triggered from the stable state until the point on which the

consumer might take actions, nor what defines the type of action or what influences it. *"problem recognition occurs when a perceived discrepancy developed between an actual and a desired state of being".* MOWEN & MINOR (2000).

Figure 1: Buyer Decision Process by Kotler et al.2005, P21)

4. The General Model of Traveler Destination Choice

In a classic Tourism customer decision making process, the main decisions made are whether to travel, the destination, activities, the travel season and the duration and budget of the stay.

Destinations marketers are generally interested in understanding this process better and have a good idea on how do tourists make theses decisions, however the most important decision is always the destination choice, as the tourists in most of cases make the decision about the destination to visit, and then having made that decision, they may make the rest of choices (experiences, stay, budget...)

In this matter, the mental image a tourist has about a particular area, or the destination itself has an important role in the destination choice process, which takes in account the interests, the beliefs, the attitudes of the customer and whatever comes due to the influence of the common beliefs and the public image of this destination.

According to DAN (1981), destination attributes are highly important for every destination to be successful and performant and attract the maximum of tourists, as in order to choose a destination, tourists base on their needs and desires, then get influenced by the destination 'attributes before making their decision about where to go on the next vacation.

WOODSIDE AND LYSONSKI DEVELOPED in 1989 introduced a general schema model of what the destination decision process looks like, which does consider perception and preferences as a central role.

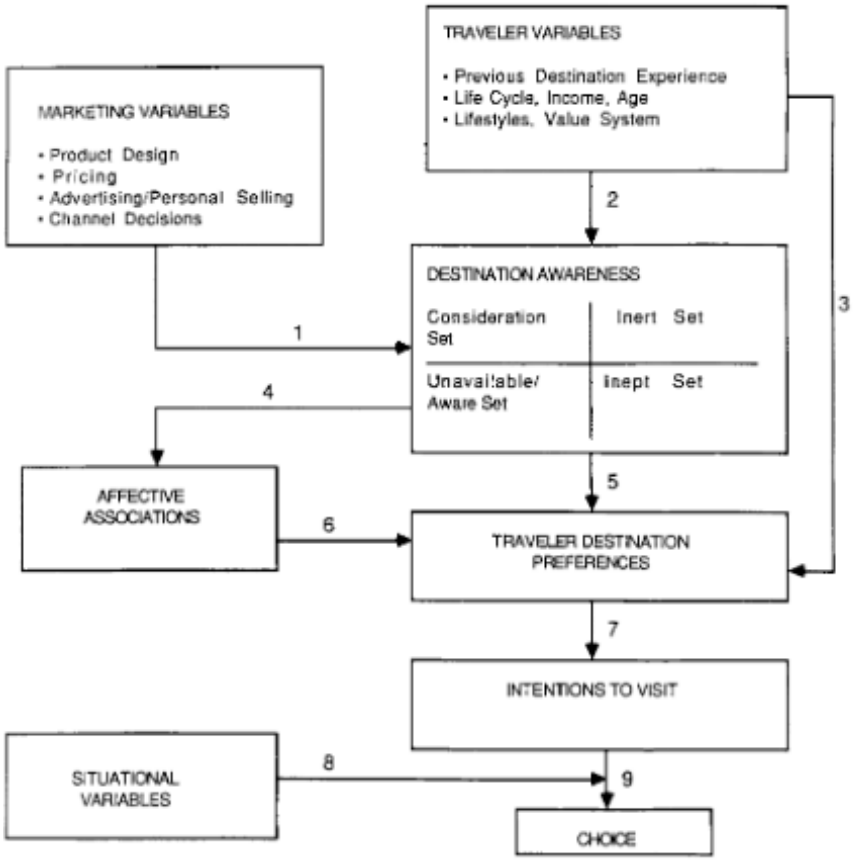


Figure 2. General Model of Destination Choice, WOODSIDE AND LYSONSKI'S, 2015, P13)

Figure 2 represents the WOODSIDE AND LYSONSKI'S General Model of Destination Choice and travel leisure awareness, it shows eight variables and 9 links including exogenous variables, traveler characteristics and marketing variables, which influences the destination awareness of travelers. The model also divides the destination into 4 categories: consideration set, inert set, unavailable set and inept set, which are 4 different mental categories of destination perception of a traveler. The model shows also what it is named affective associations, in other words, the specific positive or negative feelings toward the destinations, for example: beach, sun and music can be linked to Colombia while the same travelers can link pageantry and theatre with London.

Each traveler assigns a mental category a to a destination, which influences the linking of positive or negative associations with that destination. Which is called the affective associations, and we refer by positive to destinations a traveler would consider visiting and negative for destinations the traveler would not or has decided definitely not to visit (a destination in the consumer's inept set).

Learning to make associations between specific affective concepts such as "too expensive, not safe, adventurous..." and a specific destination defines how the destination image in positioned in the traveler's mind. Mast travelers require evaluation judgments in order to make a category judgment which means positioning a destination may occur simultaneously with how it is associated.

In figure 2, however, categorization appears in the destination awareness set as one direction influence on affective associations as destination recognition, categorization and memory recall are often important in order to activate positive, negative or neutral affective associations.

A nationwide research study conducted by the Canadian federal government on Americans (TAYLOR 1986) concluded that the majority of Americans had neutral or weakly positive affection associations about Canada as a travel destination, some of them even reported that they did not see Canada as a vacation destination.

The major conclusion of this study defined Canada as not an actively considered destination by most Americans as a vacation destination which places Canada for Americans in the inert set.

The traveler decision-making style and manner are two important processes that researchers try to understand more, and hoped to have a significant correspondence between, pre-visit knowledge, experience and product image.

In order to identify tourists' attitudes and opinions on animals taking part in tourist attractions, a quantitative and qualitative exploratory study was conducted with a focus group of tourists who visited Marrakech. The combination of the two methods aims to test positioning of the participants' ethical perceptions of animal-based tourist attractions on the three hierarchically ordered layers: general justifications, a belief in the driving forces leading to an ethical operation, and the specific conditions required for the ethical operation of animal-based tourist attractions.

During the data collection process, some profiling distinct sections of data collection instruments and instrumentation were taken in consideration, which covers the primary and the secondary data collection instruments and instrumentation. The chapter then detailed the methods and techniques for data processing used to get the results. Following these parts of the chapter were short examples and explanation of ethical questions, reliability and validity problems.

5. Research objectives and methodology

The traveler decision-making style and manner are two important processes that researchers try to understand more, and hoped to have a significant correspondence between, pre-visit knowledge, experience and product image.

In order to identify tourists' attitudes and opinions on animals taking part in tourist attractions, a quantitative and qualitative exploratory study was conducted with a focus group of tourists who visited Marrakech. The combination of the two methods aims to test positioning of the participants' ethical perceptions of animal-based tourist attractions on the three hierarchically ordered layers: general justifications, a belief in the driving forces leading to an ethical operation, and the specific conditions required for the ethical operation of animal-based tourist attractions.

During the data collection process, some profiling distinct sections of data collection instruments and instrumentation were taken in consideration, which covers the primary and the secondary data collection instruments and instrumentation. The chapter then detailed the methods and techniques for data processing used to get the results. Following these parts of the chapter were short examples and explanation of ethical questions, reliability and validity problems.

The interview was designed as an opinion analysis interview, in which we don't define the way the participant should answer, such as scales, multiple choice question... but the questions are open and the time frame for each answer is adequate for long answers, 10min each, enough for the participant to freely express his/her point of view, the interview contains 3 categories of questions, the first category is regarding the participant's demographics, brief examination of the destination awareness, experience with wildlife attractions and religious and philosophical background, the second category, is asked after watching the content about the animal ethics violation in the city, and contains four open questions directly related to the opinion of the participant about the thesis hypotheses.

The variables are put to the test using hypothesis, In the present study, we are testing two dependent variables "decision making" and "overall satisfaction" using 4 hypotheses:

1- Trip planning type: We will test if the decision of whether to attend the shows or not is related to the trip way of planning, in other words, we want to test whether marketing and sales techniques of a planned trip by travel agencies may push the travelers to buy or take part of included animal-based show more. On the other hand, we will test if there is a difference between the overall satisfaction or animal-based satisfaction of a traveler who fully or partially booked his trip and a traveler who bought a fully planned trip with animal-based activities included.

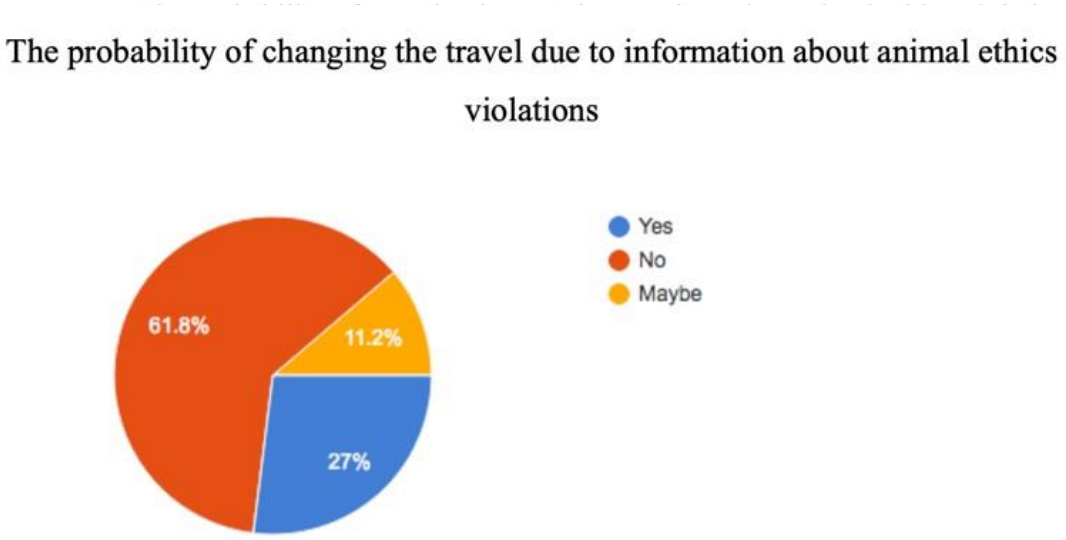
2- Interaction with animals in a tourist attraction: Our hypothesis here is that tourists who had an interaction with animals or attended an animal-based show for the first time and rated it below the average, might have a change on their decision on whether they will attend them again in the future. On the other hand, we will put to the test the difference between the tourists' satisfaction about the destination offer of those who had an interaction with animals or attended any of the animal-based activities or shows, and those who had not.

3- Previous view about animal welfare: We will test the hypothesis which suggests that the the tourists may have a too bright vision about the animal welfare in animal- based activities and are ignorant of the dark side of it, we will collect information about that and also build knowledge about how witnessing violations onsite may affect the satisfaction, destination image and future decision of the travelers.

6. Findings

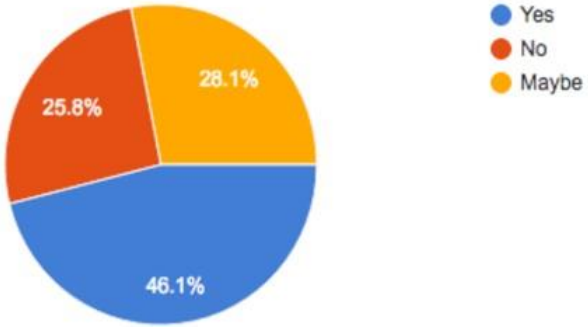
A total of 120 responses were submitted, 16 questionnaires were disqualified, for different reasons, either general information was not matching the target, locals who are members of the group... Also the total number of 104 responses were accepted and taken into analyzing consideration of this thesis. This sample needed to be more analyzed, therefore the 3rd section of questions conducted a brief overview on some relevant demographic information of the respondents, which will help deduct conclusions later on, related to each tourist's background, believes or way of thinking. The 3rd questions section divided the participants according to age range, region, religion and political view, on the other hand it ignored the gender, social category and other demographic factors as irrelevant.

The pie chart shows that 31.5% of the participants strongly agreed with the statement which confirms that witnessing animal welfare violations during the shows impacted negatively their overall satisfaction in Marrakech, as well as 32.6% who agreed also with the same statement but with lower degree, which gives us a group of 64.1% of the total participants, who are agreeing with the statement, while only 13.5% of the participant denied the statement, and affirming that witnessing animal welfare violations during the shows did not impact negatively their overall satisfaction in Marrakech. And the rest 22.5% stayed neutral in this regard.

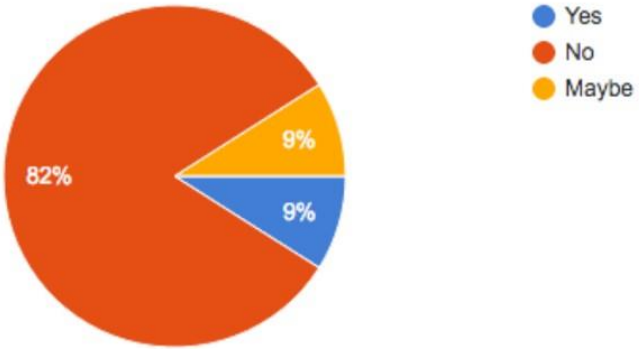


The pie chart shows that 61.8% of the participants have never changed their decision, whether to go to a tourist destination based on information about animal ethics violations in a that destination, as well as 11.2% shoed doubts and did not give an exact answer to the previous question, on the other hand, 27% of the participants have changed their travel decision based on information related to animal ethics violations in that city or country. In the same context, and regarding our case study city, and based on the pie chart of Q32, 46.1% of the participants had no problem returning to Marrakech in other occasion regardless the existence or absence of animal ethics violation in the city, which 25.8% decided not to come back to the city as tourists because of what they witnessed of animal ethics violation, and 28.1% of the participants who were not sure about their future decision.

The probability of returning to Marrakech after witnessing animal ethics violations

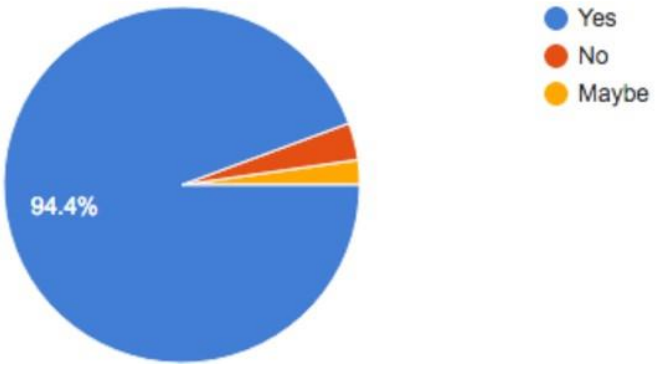


The probability of attending animal-based shows again, if returned to Marrakech



On an other level, we asked the participant about an other aspect of their decision making, which is: in case they returned to Marrakech, would they attend the animal based shows again of not to explore

The participants believe about whether the animal welfare should be taken in consideration in tourism attractions



the deeply the impact of witnessing the animal ethics violations in the city and to what level it can reach. The graph shows that 82% of the participants will not attend the animal-based shows in Marrakech again, as well as 9% are not sure if they will, and only 9% of the participants would attend again the animal-based shows if they came bac again to Marrakech.

The believe and the opinion of the customer is built on several aspects, that's why it is an important pillar in the decision making process, and in the previous question we have been trying to build knowledge about the different points related to animal ethics and tourists, which contribute in creating the tourists' opinion in this matter, and drive them to create an image or destination awareness in their mind and then make a a buying decision about the decision and its products and services. Yet, we also asked the tourists about their opinion with a direct question to help us compare and drop conclusion out of the study, and based on the answers, 94.4% of the participants thought that animal welfare should be taken into consideration for the animals used in the shows, regardless their decision differences while only 3.4% of the respondent thought that animal welfare does not matter when It comes to tourism attractions. On the other hand, one of the main pillars of this study is to investigate the possibility of existence of any Social, philosophical or Religious bases which build the perspective of the tourist about the importance of animal ethics in tourism industry, and creates the difference in opinions between them, and therefore impact their satisfaction as well as brand awareness of the destinatio.

7. Interview findings

The interview was conducted with the 5 participants in the same day, on the 30th November 2020, 3 interviews were voice recorded and two participants insisted on notes only. All the participants confirmed that Marrakech is their first destination to visit in the next travel opportunity they will get, on the other hand, and regarding the second question, 4 out of 5 participant described Marrakech based on the information sources like social media, word of mouth, ads... as an historical city, reference of culture, architecture and traditional life, as well as a destination of nature and landscapes, and the other participant described it as a modern city, and none of the participants described the city as a wildlife tourism destination. Regarding the 3rd question, 2 participants affirmed that they will consider attending animal shows attractions while visiting Marrakech, one of them did not know about them, and affirmed that she just got informed during the interview introduction, and yes she will consider them as a very possible plan, on the other hand, 3 participants, considered animal shows as not attractive idea and affirmed that they will not consider them as part of their travel plan.

All the participants think that animal ethics in wildlife tourism are important, and they justified their answer by considering animal as beings and if we are going to use them for such shows, we should at least consider their welfare, and in the same context, 3 participants have heard about animal cruelty in many destinations around the world, but none of them was informed about it in Marrakech, which makes out sample a perfect sample for measuring any impact or changes on their decision making due to watching, reading or hearing about animal ethics violations in Marrakech.

After watching the pictures and the article, 3 participants rated the violation as 5 out of 5, one participant rated 4/5 and the last participant metaphorically, rated 10/5 to describe her disappointment in what she witnessed, in this regard, the participant described what they seen as cruel, and definitely

a big issue to solved in the close future, as well as they affirmed that the pictures had a negative impact on their mood. Yet in the next question, all the participants confirmed that they condemn the act of cruelty and maltreatment of animals, but this does not change their opinion about the city, and they still have the same desire to visit Marrakech, we should also mention that, two participants jumped to voluntarily answer to the last question, saying that once in Marrakech they will not attend any animal shows, as the other participant did later when asked about it in the 4th question. The last question investigated the background of the participants for have such opinion about animal ethics, and 3 participant confirmed that they have no religious or philosophical background for their opinion and they based entirely on their personal opinion, while the 4th participant declared that he is religious and his opinion is related to what his religion says, on the other hand, one participant affirmed that he does not have any religious or philosophical backgrounds, but during his way of expressing the said: *" It's totally my personal opinion, I mean... animal have souls too.."* ad I found that his answer is compatible with the views we described in the literature review.

8. Data analysis

8.1. Examining the Relationship between Travelers' Decision-Making Styles and witnessing animal ethics violations.

While studying customer satisfaction in general and tourists' satisfaction in particular, it is important to take in consideration the brand or the destination awareness created based on before visit knowledge which can be found on the internet, through word of mouth, books or magazines etc... Which creates expectations about the different aspects of the destination's offer, moreover, when tourists are asked to evaluate the offer after the visit they may rely on their expectations to make a comparison for the evaluation. In our case, the findings showed that our participants draw their pre-visit destination awareness from friends and relatives , word of mouths, in other words, and then after calculating the average destination rating before the visit, it was 4.13, then calculating the average satisfaction rate after the visit it was 3.96, which means a decrease of 0,17, which illustrate a slight disappointment of tourists in the offer of the destination if we consider both their satisfaction and expectations.

In the same context, more specific findings were introduced, figure 19, such as the average satisfaction rate regarding the cultural exhibitions in the Jemaa El Fna Square and Medina only which was 3.76 which is above the neutral rate or the median 3 and also the trending rate was 5/5 which means the satisfaction about the cultural exhibitions was more or less positive unlike the overall satisfaction about Marrakech. This results should be backed up with more specifications about the role of the attending animal-based activities, as the satisfaction about the cultural shows cannot be applied on the animal-based shows, and the cultural shows in the square are very diverse and the satisfaction about them can vary from one to another which impacts positively or negatively the satisfaction of tourists about the whole cultural shows experience, therefore, figure 20, showed that the majority of tourists who rated 3 or lower did not attend the animal-based shows, which means the shows had did not impact neither positively nor negatively the satisfaction of tourists about the cultural shows, as well as, figure 21, shows that almost half of participant who rated 4 or more attended the shows and they were satisfied, either because they have not witnessed any animal ethics violations or they did but this did not matter

to the point of impacting their satisfaction, and the other half were satisfied of the cultural shows but did not

attend the animal-based shows, which makes their satisfaction in relation with animal ethics violations non conclusive. On the other hand, the number of participants who rated more than 4 is larger than the number of participants who rated lower than 3, which refers to more satisfied participants about the cultural shows. Based on all the presented facts and findings, we can say that the participants were satisfied about the cultural shows, and the remarks about the role of the animal-based shows in the participants' satisfaction was not conclusive whether it has a considerable impact or not and whether this impact is positive or negative.

The figure 22 showed that the majority of the participants agreed in different levels with the statement affirming that witnessing animal ethics violations during the animal-based shows impacted negatively their whole experience with cultural shows, which explain the illogical results presented earlier and inconclusive remarks drew from the previous findings, and shows that even if some participants were not satisfied about the animal-based shows they were satisfied about the rest of the shows which compensated their negative opinion and drove them to rate 4 or more. We can conclude than witnessing animal ethics violations in Marrakech does definitely have a negative impact on the overall satisfaction about the cultural shows satisfaction, which can in some cases drive the tourist to give a negative rate impression about the shows, but this impact can definitely not impact the tourists' overall satisfaction about Marrakech as a destination.

In term of decision making, and considering all the fact mentioned above and the findings of the figures 23, 24, that shows that the majority of the participants have never changed their decision about a destination including their decision about visiting Marrakech, due to information about animal ethics violations, which means regardless their opinion toward the importance of animal ethics, this does not impact their decision making to the point of cancelation or changing of buying decision, as well as the majority of participants would come back to Marrakech in a future occasion regardless if they witnessed animal violations or not, and whether, in case of witnessing, it impacted their satisfaction or not. Based on that we can conclude that the impact of witnessing animal violations in Marrakech does not raise to the level of impacting the decision making process of a traveler neither as a first time visitor nor as returning visitor, yet we should definitely mention an important remark about the rest minority, since the figure 25 shows that more than 80% of the participants who decided not to return to Marrakech agreed with the statement affirming that their

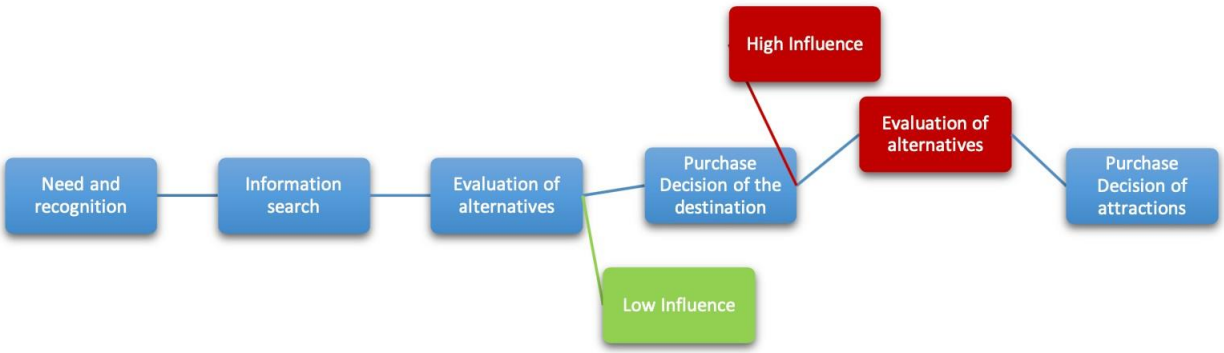
experience was negatively impacted by witnessing animal ethics violations, which may or may not be an important reason of their decision, we cannot conclude based on such fact that this negative impact have influence on the decision making process of all tourists, but in the upcoming year and with more movements of animal ethics preservation as mentioned in the literature review, the impact might raise to interact with some steps of the decision making process and the judgment about the same hypothesis may change.

On another level, the figure 26, shows that the vast majority of the participants would not attend the animal-based shows again if they have ever been back to Marrakech, and taking in consideration that the shows are freely accessed, in open space, in a main square in the most touristic spot in the city which makes them almost an avoidable and require absolutely no effort to attend them, this can only

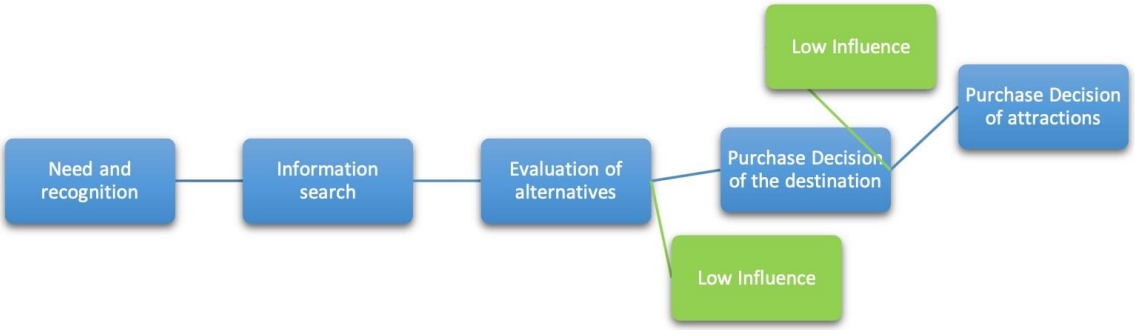
mean that the negative impression of their first experience with animal-based shows, created the idea or the decision of not attending them again and shifted the product from consideration set to the int-set category for the majority of the participant, which means the negative impact of witnessing animal ethics violations in Marrakech could impact the decision making of the travelers about attending the shows.

Our hypothesis 2 suggested that tourists who had an interaction with animals or attended an animal-based show for the first time and rated it below the average, might have a change on their decision on whether they will attend them again in the future, considering all the remarks and conclusions above, we can conclude that the first part of the hypothesis suggesting that witnessing animal ethics violation in Marrakech will impact the decision making process of the travelers negatively and cause a change for the visitors visiting the first time or returning is FALSE, while on the other hand the second part which suggest that this negative impact can reach the decision making process about attending the shows and cause a shift in consideration categories, and by that a change in the tourists' decision is TRUE.

The influence of witnessing animal ethics violations on the decision making process of the returning tourists



The influence of witnessing animal ethics violations on the decision making process of the tourists



Witnessing animal ethics violations either directly or through the different sources such as Social media, word of mouth... does not have a strong impact on the decision making of the tourists visiting the first time, they do take it in consideration, and do not support it, a well as they consider animal welfare as an important aspect in such activities, yet, it is impacting their buy decision about the destination and the attractions on site. On the other hand, witnessing animal ethics violations directly presented a strong impact on the tourists planning to return to the city in the future, this impact did not show in the level of the buying decision of the destination but made the tourists be more selective on the level of buying the attractions on site, which create a new step of "searching for alternatives" in the decision making process.

8.2. Examining the Relationship between Travelers' Decision-Making Styles and Trip Planning

Trip planning is generally considered as an essential step since it reduces uncertainty and risk, as well as it can increase tourists' satisfaction about the destination by adding excitement, expectations, foreseeable enjoyment, and anticipation. Professional Trip planning can hide flaws of the destination from the sight of tourists as well as it can promote and sell the destination in a totally different and brighter image from what it actually is. In this context our second hypothesis suggested that satisfaction of tourists who visited that city and experienced animal based activities with a travel agency may be different positively or negatively from the tourists who planned their own trips. We compared the two group on 3 phases and the results showed that in the first phase, the average satisfaction of the group sample who bought their packages was **4.06** which definitely refers to highly satisfied tourists, while the average satisfaction of the group sample who fully planned their trip is 2.78 which refers to non satisfied tourists about the animal based shows, which leads us to say than when it comes to satisfaction, and for reason that cannot be determined conclusively in this research, the tourists visiting Marrakech with travel agency are more satisfied with the animal-based shows than tourists visiting alone, and based on our literature review, we can assume that this difference can be related to the attitudes of the animal masters toward tourists with a guide and tourists visiting alone, or due to the extra freedom of tourists visiting anole to observe and have more chance to detect animal ethics violations, or other reasons related to the tourists persona. In the second phase figure 30, we examined the degree or observation of the two categories of the respect of animal ethics during the shows, and the results showed that tourists who bought packages from travel

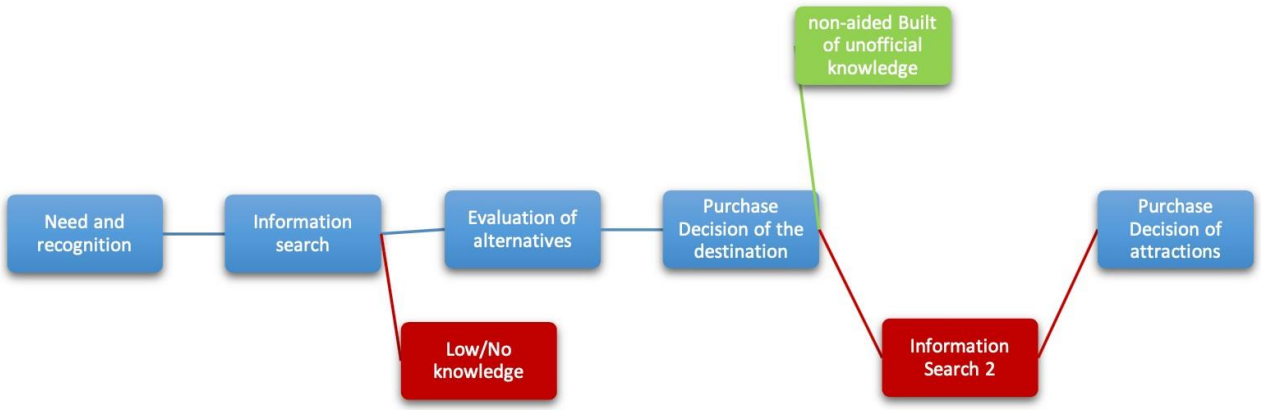
agencies answered “YES” when asked about observing the respect of animal ethics during the shows, but at the same time more people from the same group answered “NO” to the same question, while a large number of the tourists who fully planned their trips when for sometimes as an answer, which indicates that the style of trip planning does not represent an influencing factor defining whether the tourists tend to observe the animal ethics violations or not. In the third and last phase we asked the participants to evaluate the different levels of animals welfare of the animals used in the shows, and the results showed that both the two group were not satisfied about the animals welfare and conditions, even if the group of travelers who bought packages rated slightly higher than the other group, which indicates that regardless the type of trip planning, the tourists still can observe the animal conditions if they were asked to.

We conclude from the 3 phases that the trip planning style does not define the degree of freedom of tourists visiting Marrakech to observe any animal ethics violations during the shows, as well as it does not impact the will of tourists to observe or just focus on the show and ignore anything else, on the other hand, the travelers with travel agencies are more likely to be satisfied about the shows as whole for reasons related to the differences between the experience each group gets, that were not examined in this thesis work and by that they cannot be defined. Based on that and all the facts mentioned above we can conclude that there is a difference in the two groups' satisfaction which makes the hypothesis suggesting that the trip planning style can impact the satisfaction of the tourists about the animal-based shows is TRUE.

8.3. Examining the Relationship between Travelers’ Decision-Making Styles and Trip Planning

The pre-visit knowledge about ethics, regulations, laws violations or any kind or illegal or unethical practices related to a tourist attraction, that tourists come with is very important to study, because more knowledge they have about the practice, the most likely they will tend to focus on it, observe and witness it by themselves. In our case, figures 32, 33, the majority of the participants have previous experiences with regulated animal-based activities such as zoos and aquariums, in which the high satisfaction probability is high, as the violations are hard to spot and the animal welfare are often taken in consideration, which makes our participants create their expectations by projecting their previous positive experience on the one in Marrakech and don’t feel the probability of any animal ethics violations, moreover the respondents did not come with previous information about animal ethics violations in Marrakech, figure 35. Based on all that we can conclude that the majority of tourists coming to Marrakech, come without previous knowledge about animal ethics violations happening in the city, nor with suspensions and desire to observe and confirm, yet based findings (Phase 3), the majority of respondents did observe different factors related to animal ethics violations, including treatment, hygiene, psychological state of the animals... and could evaluate it in other questions of the same questionnaire. For all the mentioned analysis, we can conclude that the majority of tourists coming to Marrakech come indeed without previous knowledge about any violations related to animal ethics in the

The impact of the previous view about animal welfare on the returning tourists



city, as well as they did not consider animal-based shows as a main activity to do once in Marrakech, figure 34, but instead, they either learned about it from friend or relatives or discovered it on site, figure 35, which means they are ignorant or low informed about the dark side of wildlife tourism in Marrakech, yet they still observe and collect information about how much ethics are respected in these shows and their satisfaction get impacted negatively in case of witnessing violation as we concluded previously, our conclusion makes the third hypothesis which suggests that the the tourists may have a too bright vision about the animal welfare in animal- based activities and they are ignorant of the dark side of it, is partially TRUE. And based on that, we can forecast some changes on the decision making process, with a new step added after the purchase of the destination, as the tourists gather knowledge before attractions purchase, which was not very important until we showed a correlation between the negative impact and the purchase of animal-based attraction.

8.4. Examining the impact of Religious/philosophical backgrounds on tourists' decision making process.

Using animals is a vast expression when examining the perspective of tourists, considering that tourism industry is one of the industries that causes the biggest people movement around the globe carrying their cultural, social, philosophical and religious backgrounds with them wherever they chose as a travel destination, which often cause

clash of cultures, habits, opinions... To be more specific, we should consider that the opinions depend on each practice and how is it related to the tourist's original environment with all the loads of backgrounds, as found in the literature review, tourists are not always objective and tolerant in their opinions about the practices in the destination, for example, Cattles are considered sacred in many religions such as Jainism, Hinduism, Buddhism, and others, it is a big ideological challenge to convince a tourist with one of the mentioned religions to have a positive opinion about a tourist show male-exploiting a cattle.

The figures 36, 37 and 38 shows that tourists visiting Marrakech believe that Ethical treatment of animals is an important factor when visiting a wild animal attraction, as well as they agree with statement affirming that they would, indeed, avoid an animal attraction because of media reports of unethical treatment of the animals and they even confirmed that they more likely to book a trip with a tour operator

who had an animal welfare policy, which means that they believe that animal ethics in tourism industry matters... to confirm that, the figure 39 is related to a confirmation question about the same fact, and indeed, the vast majority of the participant gave a positive answer... with that in consideration, the figure 40 shows that the the majority of the participant do not have religious backgrounds or reasons for their opinion about animal ethics, and from that we can conclude that religious background do not create or highly influence the tourist opinion regarding animal ethics in tourist entertainment.

On the other hand the figure 41 shows that the majority of tourists who felt offended by witnessing animal ethics violations in Marrakech, and their overall satisfaction about the city was negatively impacted, do not have any religious backgrounds, as well as, the figure 42 shows that the majority of tourists who have changed their travel destination before due to information about animal ethics violations are those who have no religious background, which leads us to conclude that the religious background has no impact on the satisfaction of tourists in Marrakech or with their decisions. Yet the figure 43 shows that the majority of tourists affirmed that they have philosophical backgrounds for their opinion, which clearly confirms that philosophical views can influence a tourist's opinion which leads to an impact on their satisfaction, which may cause a change of their decision. For the above mentioned facts, we conclude that the hypothesis suggesting that religious background has an impact on the tourist's decision making process is WRONG, on the other hand the other half of the hypothesis suggesting that philosophical views can have an influence in the decision making process in TRUE.

9. Conclusion and recommendations

In conclusion, the tourists' perception and buying behavior in Marrakech can be addressed based on a number of persona factors. These include the factors like age, gender, and the intentions of purchasing the destination.

Decision-Making in tourism is among the main drivers linking visitors to local governments and tour operators in the sector. Most models have been developed and variables considered. It would examine current models and make parallels to post- modern hypotheses. The way visitors book their holidays has changed and it is important to consider customer behavior in order to benefit from this. The value of the Internet and social media, which are involved in this thesis, should also be carefully considered and studied in almost every step in 21st century decision-making.

The value of travel agents and hard-copy brochures in promoting, maintaining and managing the desired destination image will quickly become outdated, and crucial considerations that are new and updated will have to be implemented. The goal is to emphasize these crucial factors and provide an effective approach to understanding tourist destination decision-making and as a result, to present a new decision-making paradigm through social media and the Internet.

According to the survey majority of the respondents stated that they make personal considerations. These considerations include understanding the perceived quality of the destination offer, the high or low involvement of animal ethics in their experience and the utility value of the shows as part of the general offer. Majority of the respondents in this survey di believe that animal ethics represent an important aspect in the shows. This can be explained as normal as they consider animals as beings, which have feeling and can be heart be hurt in case of cruel treatment. The study showed that most of the participants felt that their satisfaction about the shows was negatively impacted, as they considered

witnessing animal cruelty as a negative and unexpected experience. Witnessing animal ethics violations in Marrakech did definitely have a negative impact on the overall satisfaction about the cultural shows satisfaction, which can in some cases drive the tourist to give a negative rate impression about the shows, but this impact can definitely not impact the tourists' overall satisfaction about Marrakech as a destination. this impact could not change their opinion about the city or their decision to visit the city, nor negatively impact the brand image of such a big destination, as we could also feel that the participants considered the amount of violations, and the number of media content about it is not enough to face the marketing brand and content about the city.

On the other hand, the rating of cruelty was definitely negative for both the questionnaire and interview participants, yet, we noticed that the participants who have not visited the city considered the shows as horribly cruel, as they only based on the articles, pictures and videos which in many cases add more drama describing what is going on. In this context, the interaction and witnessing animal shows had more of less a positive impact in the favor of the city, as it can prove that the media content was exaggerated and that can turn the feeling of dissatisfaction and disappointment toward the media instead of the shows or the destination.

In term of decision making, it is true that the study showed that witnessing animal ethics violations in Marrakech, does not impact the tourists' opinion about visiting or returning to the city, and in the worst case scenario, they only decide to avoid the shows, yet, they participants showed also they desire to stick change their decision to stick with a service or products with an ethical policy and framework, which refers to the possibility of an important positive impact on the customer decision making process, which will drive more to tourists toward the destination in case the destination is promoted to have an ethical framework and their service offers introduce some policies preserving animal welfare. The first step could be a starting from a group of the shows responsible, which will differentiate them from the others, and as result, it will create a competitiveness leading to a generalization of the new ethics preservation trend, which will reflect of the destination brand definitely in an international level.

Animal welfare in tourism industry can really benefit from more studies considering the attractions as any other services with the aim of understanding better the consumers' perspectives and reactions toward them, on which we an expect their behaviors and develop the product and marketing strategies based on the results, beside that, we could note thought-out this thesis that tourists treat the subject of animal welfare with emotions, which open a large studies possibilities related to sensorial marketing applied on tourism industry and not only fight to save or maintain a good destination brand image but also create a new positive one by using sensorial marking tools, and meeting the tourists emotional expectations. On a managerial level, the industry can benefit from a well created and easily applied ethical framework which can guide the practices and define limits and obligations as well as guarantee a basis to edit on flexibly in case of flaws which lead to violations.

Given the substantial difference between our examination and the tourist's subjective reviews, as well as the large numbers of tourists visiting the city and attending the attractions with almost no welfare policies, tourist feedback appears insufficient to regulate and manage the use of animals in such attractions. The vast number of animals and visitors involved, as well as the anticipated potential growth in global tourism, suggest an immediate need for legislation in the form of accreditation or qualification schemes, government policies (e.g. taxes or limit fixing; or agencies to nationally audit and sanction the violations.

References

World Tourism Organisation (UNWTO). UNWTO Tourism Highlights, 2014 Edition 2014 [23/12/2014].

Ballantyne R, Packer J, Sutherland LA. Visitors' memories of wildlife tourism: Implications for the design of powerful interpretive experiences. Tourism Management. 2011;32(4): 770- 9.

https://doi.org/10.1016/j.tourman.2010.06.012

https://doi.org/10.1016/j.tourman.2010.06.012

https://doi.org/10.1016/j.tourman.2010.06.012

Reyolds PC, Braithwaite D. Towards a conceptual framework for wildlife tourism. Tourism Management. 2001;22: 31-42.

https://doi.org/10.1016/S0261-5177(00)00018-2

https://doi.org/10.1016/S0261-5177(00)00018-2

https://doi.org/10.1016/S0261-5177(00)00018-2

Freese C. Wild species as commodities: managing markets and ecosystems for sustainability. Washington, DC: Island Press; 1998.

Higginbottom K. Wildlife tourism: an introduction. In: Higginbottom K, editor. Wildlife tourism: impacts, management and planning. Altona Vic, Australia: Common Ground Publishing Pty Ltd; 2004. pp. 1-11.

Karanth KK, DeFries R, Srivathsa A, Sankaraman V. Wildlife tourists in India's emerging economy: potential for a conservation constituency? Oryx. 2012;46(03): 382-90.

https://doi.org/10.1017/S003060531100086X

https://doi.org/10.1017/S003060531100086X

https://doi.org/10.1017/S003060531100086X

Higginbottom K, Northrope C, Green R. Positive effects of wildlife tourism on wildlife. Queensland, Australia: CRC for Sustainable Tourism Gold Coast; 2001.

Kontogeorgopoulos N. Wildlife tourism in semi-captive settings: a case study of elephant camps in northern Thailand. Current Issues in Tourism. 2009;12: 429-49.

https://doi.org/10.1080/13683500903042873

https://doi.org/10.1080/13683500903042873

https://doi.org/10.1080/13683500903042873

Filion FL, Foley JP, Jacqemot AJ. The economics of global ecotourism. In: Munasinghe M, McNealy J, editors. Protected Area Economics and Policy: Linking Conservation and Sustainable Development. Washington, DC: The World Bank; 1994. pp. 235-52.

Zeppel H, Muloin S. Conservation benefits of interpretation on marine wildlife tours. Human Dimensions of Wildlife. 2008;13(4): 280-94.

https://doi.org/10.1080/10871200802187105

https://doi.org/10.1080/10871200802187105

https://doi.org/10.1080/10871200802187105

Powell RB, Ham SH. Can ecotourism interpretation really lead to pro-conservation knowledge, attitudes and behaviour? Evidence from the Galapagos Islands. Journal of Sustainable Tourism. 2008;16(4): 467-89.

https://doi.org/10.1080/09669580802154223

https://doi.org/10.1080/09669580802154223

https://doi.org/10.1080/09669580802154223

Powell RB, Kellert SR, Ham SH. Antarctic tourists: ambassadors or consumers? Polar Rec. 2008;44(03): 233-41.

https://doi.org/10.1017/S0032247408007456

https://doi.org/10.1017/S0032247408007456

https://doi.org/10.1017/S0032247408007456

Green R, Higginbottom K. Negative effects of wildlife tourism on wildlife: CRC for Sustainable Tourism Gold Coast; 2001.

Constantine R. Increased avoidance of swimmers by wild bottlenose dolphins (Tursiops truncatus) due to long-term exposure to swim-with-dolphin tourism. Mar Mamm Sci. 2001;17(4): 689-702.

https://doi.org/10.1111/j.1748-7692.2001.tb01293.x

https://doi.org/10.1111/j.1748-7692.2001.tb01293.x

https://doi.org/10.1111/j.1748-7692.2001.tb01293.x

Constantine R, Bejder L. Managing the Whale-and Dolphin-watching Industry: Time for a Paradigm Shift. In: Higham J, Lück M, editors. Marine wildlife and tourism management: Insights from the natural and social sciences. Wallingford, UK: CABI; 2008. pp. 321-333.

https://doi.org/10.1079/9781845933456.0321

https://doi.org/10.1079/9781845933456.0321

https://doi.org/10.1079/9781845933456.0321

Lundquist D, Gemmell N, Würsig B, Markowitz T. Dusky dolphin movement patterns: short- term effects of tourism. N Z J Mar Freshw Res. 2013;47(4): 430-49.

https://doi.org/10.1080/00288330.2013.778301

https://doi.org/10.1080/00288330.2013.778301

https://doi.org/10.1080/00288330.2013.778301

Ballantyne R, Packer J, Hughes K. Tourists' support for conservation messages and sustainable management practices in wildlife tourism experiences. Tourism Management. 2009;30(5): 658-64.

https://doi.org/10.1016/j.tourman.2008.11.003

https://doi.org/10.1016/j.tourman.2008.11.003

https://doi.org/10.1016/j.tourman.2008.11.003

Bejder L, Dawson SM, Harraway JA. Responses by Hector's dolphins to boats and swimmers in Porpoise Bay, New Zealand. Mar Mamm Sci. 1999;15(July): 738-50.

https://doi.org/10.1111/j.1748-7692.1999.tb00840.x

https://doi.org/10.1111/j.1748-7692.1999.tb00840.x

https://doi.org/10.1111/j.1748-7692.1999.tb00840.x

Fernandez EJ, Tamborski MA, Pickens SR, Timberlake W. Animal-visitor interactions in the modern zoo: Conflicts and interventions. Appl Anim Behav Sci. 2009;120(1-2): 1-8.

https://doi.org/10.1016/j.applanim.2009.06.002

https://doi.org/10.1016/j.applanim.2009.06.002

https://doi.org/10.1016/j.applanim.2009.06.002

Zhou Y, Buesching CD, Newman C, Kaneko Y, Xie Z, Macdonald DW. Balancing the benefits of ecotourism and development: The effects of visitor trail-use on mammals in a Protected Area in rapidly developing China. Biol Conserv. 2013;165: 18-24.

https://doi.org/10.1016/j.biocon.2013.05.007

https://doi.org/10.1016/j.biocon.2013.05.007

https://doi.org/10.1016/j.biocon.2013.05.007

Knight RL, Cole DN. Wildlife responses to recreationists. In: Knight RL, Gutzwiller K, editors. Wildlife and recreationists: coexistence through management and research. Washington, DC: Island Press; 1995. pp.51-69.

Peters KJ, Parra GJ, Skuza PP, Möller LM. First insights into the effects of swim- with- dolphin tourism on the behavior, response, and group structure of southern Australian bottlenose dolphins. Mar Mamm Sci. 2013;29(4): E484-E97.

https://doi.org/10.1111/mms.12003

https://doi.org/10.1111/mms.12003

https://doi.org/10.1111/mms.12003

Orams MB. The effectiveness of environmental education: can we turn tourists into 'Greenies'? Progress in tourism and hospitality research. 1997;3: 295-306.

https://doi.org/10.1002/(SICI)1099-1603(199712)3:4<295::AID-PTH85>3.0.CO;2-D

https://doi.org/10.1002/(SICI)1099-1603(199712)3:4<295::AID-PTH85>3.0.CO;2-D

https://doi.org/10.1002/(SICI)1099-1603(199712)3:4<295::AID-PTH85>3.0.CO;2-D

Hunter LTB, White P, Henschel P, Frank L, Burton C, Loveridge A, et al. Walking with lions: why there is no role for captive-origin lions Panthera leo in species restoration. Oryx. 2012;47(01): 19-24.

https://doi.org/10.1017/S0030605312000695

Conscious consumption in clothing - How to increase the awareness of conscious consumption

AUTHORS

Yeboah Elizabeth, Bolormaa Khongorzul

FFA, Budapest Business School

khongorzulb0320@gmail.com, yeboahnanaafia9@gmail.com

DOI: 10.29180/9786156342218_8

ABSTRACT

This research paper considers ethical behavior which is depicted as conscious consumption in the clothing industry. Conscious consumption is the social movement based on the increased awareness of how conscious purchasing and consumption effect society at large. It is concerned with the impact of purchasing decisions by consumers on the environment and the economy. This paper discusses the level of awareness of conscious consumption amongst people, the amount of sustainability in clothing companies, does not consider sustainability in other industries (food, road, etc.). There is previous study entitled "Consumers' Attitudes towards Sustainability and Sustainable Labels in the Fashion Industry" by Lina Forsman and Denise Madsen in 2017, which has been done by qualitative method between Generation Y . However, this research paper has done quantitative survey between mostly generation Z. We noticed less consciousness on the part of consumers in the garment industry in a quantitative method by the survey of 44 people undertaken and as forecasted candidates revealed they do not take into consideration the sustainability of a company before purchasing the clothes. The reason behind this behavior is the deficiency of information about the concept. This text offers empirical research on how consumers can assist in achieving sustainability through their conscious purchasing. It adds on how individual consumers are more interested in the prices than the sustainability of a good. This paper outlines some practical suggestions that consumers should be more conscious of the usage of certain garments and the impact of their purchasing decisions on the environment and the economy. This paper is purposed to change the mindset of people into being more conscious about what they are consuming and being more environmentally friendly.

Keywords: Sustainability, Conscious consumption, Clothing, Fast fashion

1. Introduction

Do you think you are a conscious consumer? According to New York Times, 2019, conscious consumption is defined as "An umbrella term that simply means engaging in the economy with more awareness of how your consumption impacts society at large". This means that a conscious consumer is aware of what he purchases and consumes and what effects his consumption is going to have on the environment and the economy. It involves being careful, taking into consideration the social, economic, environmental impact of the products and services they purchase before making any choices

whatsoever. (Julius Baer, 2020). Currently, there is a higher chance of people growing to be more conscious by becoming “flipside shoppers”, obsessively checking the back of the packaging for provenance and artificial additives and contents, due to the Covid-19 pandemic. Even the one who is not interested in climate change is observing the impact of careless production and consumption and is expected that the global crisis is going to increase the number of conscious consumers all over the world. (Joeri Van Den Bergh, Co-founder and Future Consumer expert, 2020). Generation Z(people who were born between 1997-2012/15) for example, care more about assisting local farmers and communities, demanding fair wages for everyone, and restoring and replenishing natural resources, producing less waste. (World Research, 2020). As a result of this, the conscious consumer side of sustainability is more likely to be fulfilled.

2. Theoritical background

2.1. Conscious producer

In terms of the producer side, taking look at famous brands, nowadays, more and more companies are altering their production process and supply chains to reach sustainability goals. They consider more about recycling, reducing the packaging and CO2 emissions, preserving and restoring biospheres, and avoid using chemical and artificial ingredients in the production. We can take into consideration the car industry diverting from the use of diesel and combustion engines instead of using electric/hybrid technology, and the clothing retailer H&M has decided to go for sustainable cotton for its production. Consequently, the conscious consumer triggers many innovations. (Julius Baer, 2020). Companies such as Levis are focusing on processes that reduce the number of liters of water used in the production of jeans by 96% since the production of jeans requires over 1000 liters of water consumption. Also, H&M and Unilever are pushing themselves and their suppliers to bring more carbon positivity by 2030 or 2040. Companies most specifically fashion brand should reconsider their systems and business processes to restore and replenish what the environment has lost as a result of their activities. This paper is not going to point out to you particular fashion companies are producing without being environmentally conscious, but also going to make individuals understand the actual need of being “a conscious consumer”. The purpose of this circumstance is that, if we were to make a list, Company A may be on the list of companies who are environmentally friendly but may end up on the list of companies whose employees are unfairly compensated. The garment industry as interesting as it may look has a catastrophic impact on the environment and the fact that the environmental damage continues to escalate as the industry continues to grow. (Matilde Charpail, 2017).

2.2. Fashion and pollution

The World Economic Forum in collaboration with the Boston Consulting Group in a recent study reported (page 12) that the fashion industry contributes to up to 5% of global emissions. Could it be carbon emissions? Or water pollution? Maybe it is waste accumulation? The fashion industry has been pointed out to be a great polluter in all these areas mentioned and probably even more. In underdeveloped countries where fashion textiles are manufactured and produced, untreated toxic substances from the production of these textiles for our clothing are directly deposited into waters destroying the lives of the aquatic creatures in such rivers. In some cases, these rivers serve as a source

of water for other activities of the indigenes of that location. These untreated toxic substances contain lead, mercury just to mention a few which are said to be extremely hazardous to the health of over a million people and aquatic lives as well. According to a report by the World Bank in 2019, the garment industry is responsible for one-fifth of global pollution. This is as a result of water being used for most of its production processes: bleaching, scrolling, and dyeing, the residues of these processes are then deposited into water bodies. As if the release of these toxic substances is not enough, the pollution of waters caused by the excess use of fertilizers in the production of cotton for textile production is another to talk about. Cotton production constitutes about 2.8% of global water consumption because it consumes up to 20,000 liters of water to produce just 1kg of cotton and is equally dependent on the constant use of pesticides and insecticides. This demonstrates that as numerous textile products are made with cotton the effect is going to grow. Clothing has been disposable and the global production of clothes doubled between 2000 and 2014 (McKinsey report). And as a result of textile waste has doubled. 85% of all textiles produced go to the dump each year. In 2020 an estimated number of 18, 6 million tons of clothing ended up in a landfill. An average person throws 60% of his clothing each year, with that being said, a western family each year dumps an average of 30kg of clothing. What is the exact reason behind these numbers? Fast fashion. The mass production of cheap and disposable clothing is fast fashion. The familiar fashion seasons have been shortened and there has been a frequent and consistent release of fashion items from 2 seasons per year to about 52 micro-collections per year making the average time someone wears the garment before dumping it be just seven times. The garment industry is not only a water polluter and a waste polluter but also accounts for 10% of carbon emissions more than international and maritime shipping all together due to all the energy the industry uses in production and transportation. Polyester, nylon which is used in the majority of clothes produced are made from fossil fuels also most of the dresses we put on are produced in countries powered by coal which is the worst type of energy in the terms of carbon emissions. Estimated carbon emissions by the apparel industry are expected to surge more than 60% by 2030 at this pace.

2.3. How consumers can help in sustainability through conscious consumption in fashion?

Although the producer (fashion industry) has been studied in detail considering their activities and how their activities disrupt sustainability, insufficient attention has been paid to the consumption aspect of fashion. There are current studies covering consumer practices and habits towards fast fashion considering social media (Elram Michaela and Steiner Lavie Orna, 2015) but this academic study focuses on consumer concentration on prices of fashion items other than sustainability. It is generally assumed that producers are only focusing on the money aspect rather than the sustainability side of production. However, this paper suggests that consumers can also play an important role in maintaining sustainability by being environmentally conscious of what fashion items they consume rather than taking into consideration how low they can get an item for regardless of the impact it is going to have on the environment at large. This study sets out to answer the following question: how can consumers help achieve sustainability through their conscious purchasing of fashion items. It was hypothesized that people are more focused on the prices of what they intend to purchase rather than any other factor.

Consumers can be conscious about what they wear the same way they are developing the consciousness of what they eat. Taking the “flipside” attitude for instance, where consumers check the products for content and expiry dates of consumable goods before purchasing can also be applied in

the sense of fashion. This does not necessarily mean checking for expiry dates of clothes but checking the companies themselves and their behavior toward sustainability and ignoring how cheap the clothes are going for. Buyers should incorporate sustainability issues into their consumption processes. More often than not, we consider consumption as just an economic activity to satisfy our never-ending wants, it is also a physical activity that consumes resources and this, in the long run, has an impact on the environment. When an individual identifies his or her need for a new set of clothes the next common thing he/she does is look for how much he/she is going to spend. Why not evaluate the environmental risks, cost, and benefits before making a decision? Consumers should always, in this case, trade the environmental benefits off for any other factor being its higher prices, lower prices, better brand, and better design. Considering the number of clothes dump yearly, consumers should additionally change their maintenance behavior towards clothing (reusing, recycling, and careful dumping). Conscious consumer purchasing is going to determine the success or failure of products marketed based on their sustainability performance because of the role of consumers in determining the sustainability impacts of what they purchase.

3. Methodology

In our study, we conducted a quantitative survey amongst young men and women with a majority being university students with an average age between 19 and 25 in Europe and Africa on their idea of conscious consumption and their behavior in purchasing fashion items. In addition, the survey included options to choose from and open-ended questions as well.

The survey consisted of 11 questions, 3 of which were open-ended, 1 Likert scaled question (Responses to scaled items were measured from 1 to 5, with 5 =strongly agree and 1 =strongly disagreeing), 6 multiple choice questions, and 1 yes or no question The data used in this survey was collected through Google doc and answers were collected online taking all participants about two days to acquire complete results. The aim was to conduct a survey with 50 participants of our sample population. The sample was defined as a group of young adults in the university. The candidates were given about 5 minutes to complete the survey anonymously and a total of 44 responses were received. A total of these 44 responses were further used for the conclusion and discussions.

We concluded that conscious consumption is not a theory young people, who are the majority consumers of fashion, are familiar with and associate with fashion although they are interested in sustainability and environmentalism. Online surveys usually produce the result that cannot be generally justified beyond the sample population but they usually provide a more depth of the knowledge, understanding, and emotions of the candidates this is why it was considered the most effective method of collecting results for this particular research.

4. Results (Appendix A)

Most participants of our survey were female 32 (72, 7%), while 10 male (22, 7%), and prefer not to say 2 (4.5%) out of a total 44. We can conclude that the people who answered the questions concerning conscious consumption in terms of the clothing industry were mostly young adults, people between

19-25 years old 39 (88,6%), 25 and above 4 (9,1%), while only one individual between 15-18 years old. Remarkably majority of the contestants were university students who were born in generation Z.

Figure 1. The percentage shows how often people purchase new clothes.

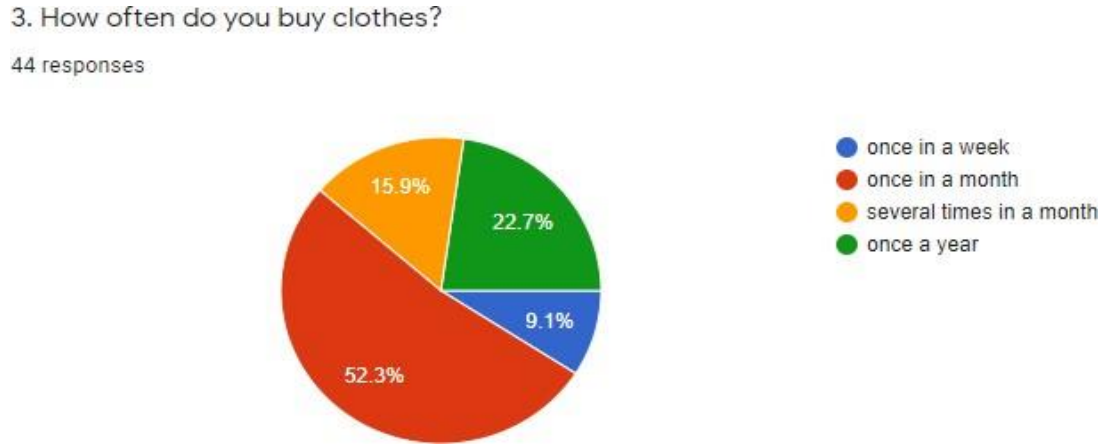
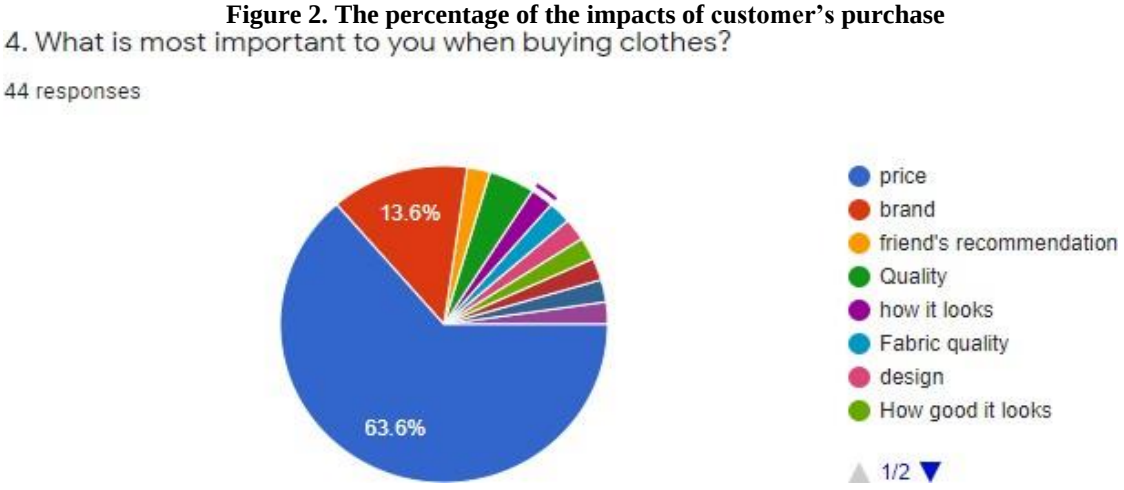


Figure 2. The percentage of the impacts of customer's purchase



According to figure 1, most of our participants 23 (52,3%) buy clothes monthly, while 10 (22,7%) yearly, 7(15,9%) several times in a month, and the least 4 (9,1%) people more frequently once in a week. To conclude, more than half of the young adults prefer to purchase new clothes once a month, which means each individual will utilize around 12 brand new outfits annually. One of the things worth mentioning is less than 10% of the people who participated in the survey buy clothes weekly.

If we take a deep look at figure 2, showing the factors of buying a specific dress, 28 individuals (63,6%) focus on the only price of the product, and 6 people (13,6%) concern about some kinds of fashion brands, while a small number of participants (up to 22.8%) have different preferences (design, conscious consumption, friend's recommendation, etc.) when it comes to purchasing. It can clearly state the main factor of purchasing a new outfit is mostly the price of the item, unfortunately not enough percentage for conscious consumption.

Figure 3. The percentage showing important factors in terms of selecting clothing brand

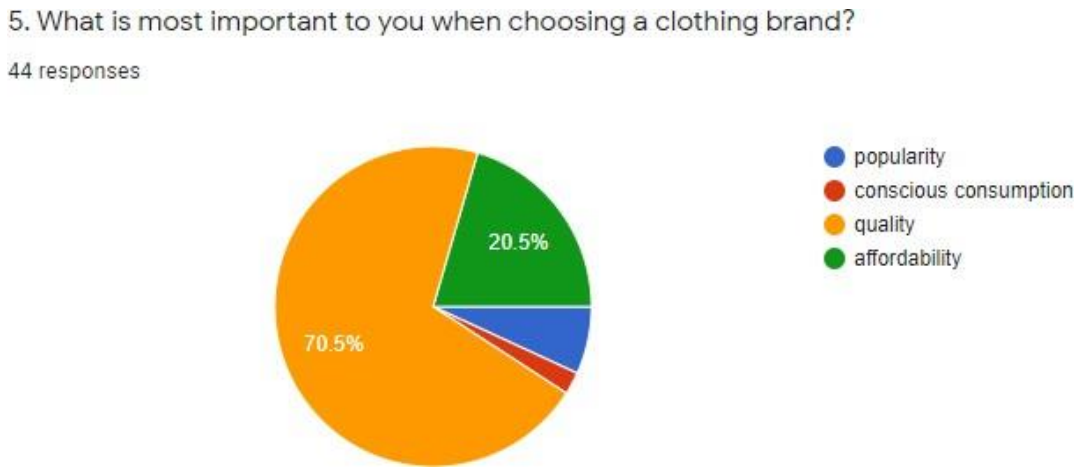
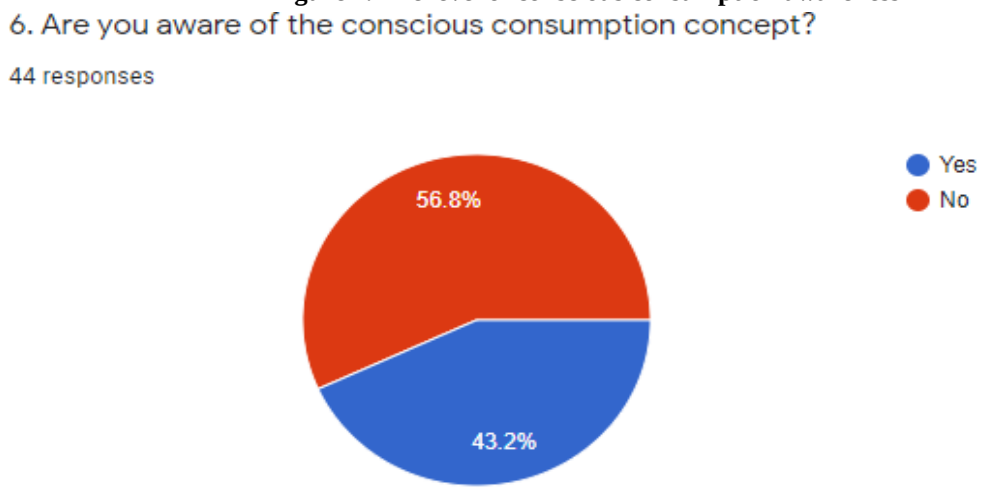


Figure 4. The level of conscious consumption awareness



In terms of figure 3, it is quite a contrast to figure 2 (presenting the price is the main factor),31 people (70,5%) answered quality, 9 (20,5%) reported affordability, while 3 (6,8%) of the contestants informed popularity, and only 1 (2,3%) individual chose conscious consumption, comes first when selecting the right fashion brands of their clothes. According to figure 4, more than half of the people 25 (56,8%) do not know about the concept of conscious consumption, while 19 contestants (43,2%) are aware of the topic. To sum up, more than 80% of the people do not care much about conscious consumption of specific famous brands, one of the reasons behind it can be lack of awareness of it. In addition to this, even though 19 people (43,2%) answered they know about conscious consumption when it comes to choosing the right garment brand only 1 person (2,3%) selected conscious consumption. It can illustrate although the specific person is aware of the conscious consumption, it is more likely to be ignored.

Figure 5. Level of consciousness when purchasing new goods

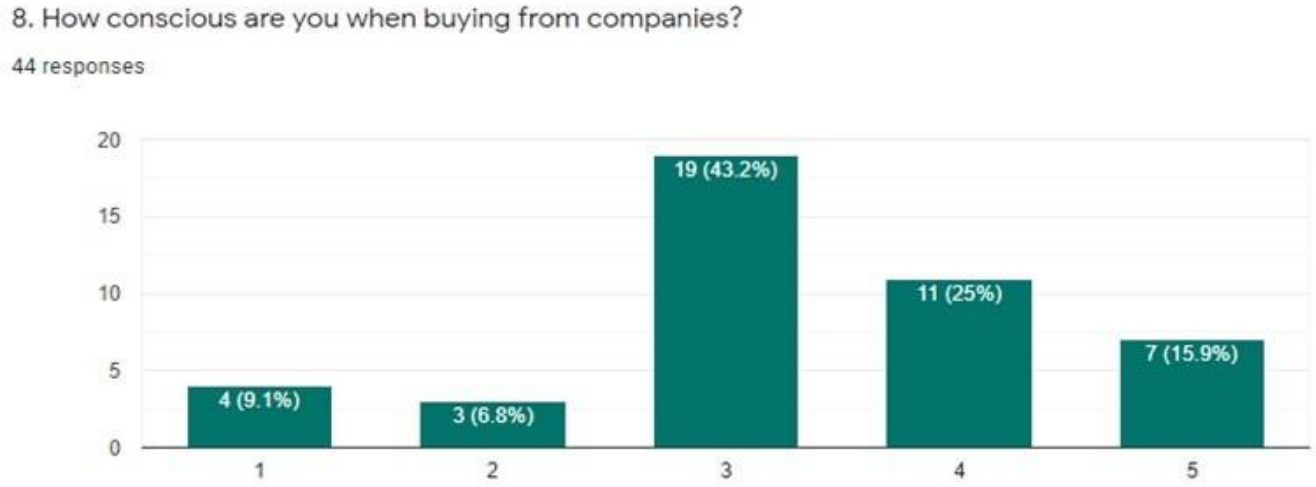
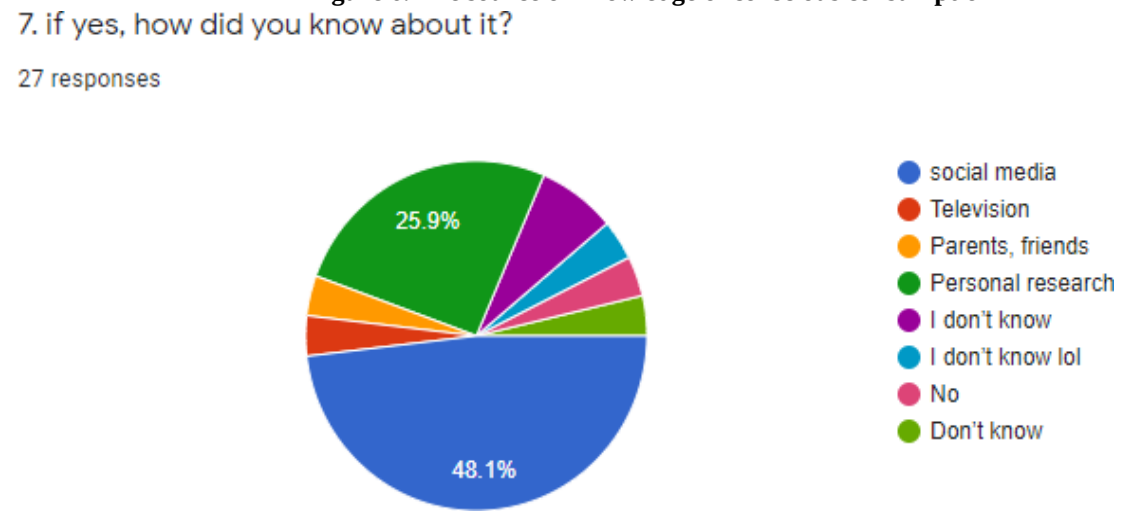


Figure 5 describes the percentage of customers' consciousness during shopping. Most (19- 43,2%) of the contestants answered -3 (medium) , 11 (25%) people gave 4 , 7 (15,9%) evaluated 5, while 4 (9,1%) people described themselves as 1, lastly 3 (6,8%) consumers answered 2. It is highly notable that when we use the word only conscious consumption in the question people are responding more positively towards it, for example, more people think of themselves as a conscious consumer, even though when we ask about the priority of purchasing outfit, only a few people answered they care about conscious consumption. To sum up, customers' decisions depend on how the product is promoted during the shopping.

Figure 6. The source of knowledge of conscious consumption



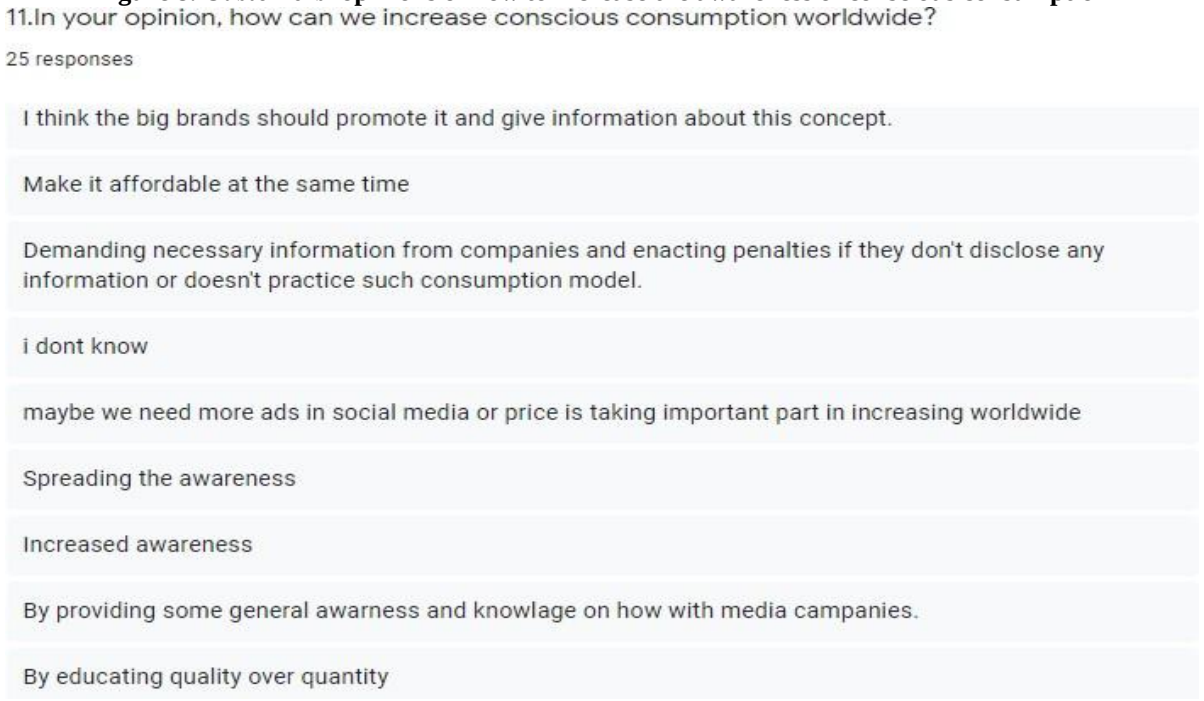
From figure 6, social media (Facebook, Instagram, etc.) has invaded most of the place by 48.1% (13 customers), while 25.9 % (7customers) by personal research, 3,7% (1 person) by television, again 3,7% (1 person) by parents and friends, and rest of it by other sources. In conclusion, nowadays the social media is the strongest influencer towards young adults, and it can be a powerful tool to enhance the awareness of conscious consumption worldwide. It is also admittable that if we make the concept

of conscious consumption more eye-catching, the customers are willing to do their own personal research and get to the point.

Figure 7. The reason behind many non-conscious consumers

In terms of figure 7, it was an open question that was purposed to collect as much as information possible to find out the real reason behind of less popularity of conscious consumption among consumers. By looking at the key points, it is clear that most of the contestants are lack the information of conscious consumption.

Figure 8. Customers' opinions of how to increase the awareness of conscious consumption



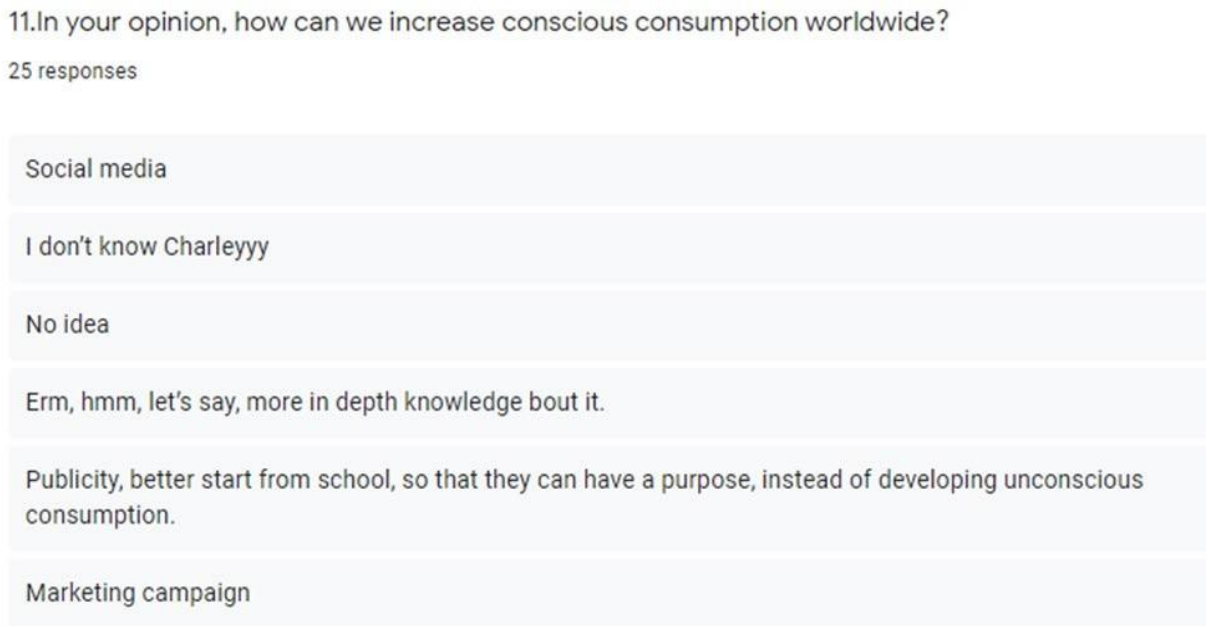


Figure 8 shows the result of the open question of how to spread conscious consumption throughout the entire world. To sum up, the main methods that people assumed the most effective were promoting it through social media and increase knowledge by teaching conscious consumption from primary school and generate rational future consumers. One more interesting solution was demanding necessary information from the companies and enacting penalties if they do not reveal the information or do not practice such a consumption model. One of the most crucial things of conscious consumption is to prepare former conscious consumers, the latter the conscious producers. The reason behind this is if there are no conscious customers, the producers are not going to produce consciously, instead if there are many rational customers, to survive in the market, the producer side will not have any choice except to be more conscious.

5. Discussion

As mentioned previously, the survey's main purpose is to identify the opinions and level of awareness of the conscious consumption in the clothing industry among generation Z by quantitative method. There was a total of 11 questions provided, within them 2 personal questions (age and gender), 2 open questions, and 7 more exactly related to conscious consumption and sustainability questions. Before we conduct the survey, we have already expected that the conscious consumption volume cannot be high enough, however, we did not know the real reason behind this.

- ✓ **What do the customers care about most while purchasing new clothes?**

According to our survey, it is revealed that consumers are (in our case Generation Z) 63.6% dependent on price, 13.6% chose the brand of the specific dress, 2.3% followed friend's recommendation, quality 6.8%, the appearance of the product 4.6%, design 2.3%, and other small percentage indicated were modesty and style. Unlike the previous literature such as Solomon, Bamossy, and Askegaard (2006), customers prefer being mostly emotional more than being rational when purchasing new outfits, the

term ‘emotion’ has not occurred in the survey even once. On the other hand, this survey result matched with the previous literature of Carrington, Neville, and Whitwell (2014), which informed that consumers consider themselves as an ethical and sustainable customer, however, it seems that that is rarely shown when actual purchasing happens. Compromises and unethical purchases will constantly occur when purchases are not ethically planned and made into habits (Carrington, Neville & Whitwell, 2014). Likewise, 43 people out of 44 participants did not even mention or choose the word ‘conscious consumption when we first asked about the most important factors that affect the purchasing decision. In stark contrast, when we ask them to evaluate themselves between 1-5 points how conscious they are, 19 people (43.2%) gave 3, 11 contestants (25%) chose 4, while 7 participants (15.9%) evaluated 5 points. As a result of this question, it is seen that around 84.1% of the total participants consider themselves as a conscious buyer in enough or more than enough level, while in real life make the decision mostly based on price and brand, etc.

- ✓ **What is the main reason behind insufficient conscious consumption?**

On the report of the survey question, 25 people around 56.8% reported that they are not aware of the concept of conscious consumption, while the rest 19 (43.2%) people answered they are. The contestants who answered they know about the topic reported that they found out this from 48.1% of social media, 25.9% personal research, 3.7% parents and friends, 3.7% television, and the rest of them answered they do not know. The following question asked about the main reason why they are not conscious consumer yet, we received only 11 responses out of 44 contestants, within it, 6 responses illustrated that it is because they do not know about the entire topic, while 2 of them included they think they are conscious consumer, 1 of them reported conscious consumption was expensive, 1 said due to lack of information, while 1 person included nothing. To conclude, more than half of the total participants are not aware of what exactly conscious consumption is. Furthermore, the lack of information about this concept can be the main reason behind this. Nowadays, the price is the main priority to consider when making the purchasing decision of the specific clothing. Therefore, compared to previous studies Lina Forsman and Denise Madsen (2017), the motivations of customers have to be altered from price to prioritize the sustainability of the certain products, plus Bjørner, Hansen, and Russell (2004), which conclude that the society can be changed by the prioritization of the consumers.

To spread the knowledge of the whole sustainability and conscious consumption, 25 participants provided the data, 8 people answered through social media and marketing companies, 4 people answered that they do not know, 1 offered to use more sustainable materials, decrease the price, spread the awareness, 1 answered to make it affordable at the same time, while 2 said to increase awareness somehow, the others reported mainly to educate people properly spreading the concept starting from school intensively.

6. Conclusion

The purpose of this study is to increase the awareness of conscious consumption in the clothes industry among people in order to encourage sustainability all over the world. It is new from other research papers because the quantitative method of the survey between generation Z in terms of conscious consumption has not been made enough. It can be noticed that some fashion companies are starting to

emphasize conscious consumption, and trying to reduce the carbon emissions and excess water usage caused by the clothes industry, being more environmentally friendly. This leads to thinking of the producer side is getting improved, however, the consumer side is unknown. To begin with, it is crucial to know the exact level of the people's opinion regarding this topic, so that quantitative method of the survey has been made between totally 44 young adults. To summarize the key points of the survey results:

- More than half of the customers buy clothes once in a month
- When it comes to purchasing dress price and brands are more important to people than conscious consumption
- Quality is crucial when selecting a fashion brand
- More than half of the customers do not know about the concept behind conscious consumption
- Even though less than 50% of the individuals are educated about conscious consumption, still when purchasing outfit it can be easily ignored
- Product promotion can easily affect on purchaser's decision
- It is beneficial to use social media for promoting conscious consumption idea
- Make requirements for the companies to provide enough data about their conscious consumption can be one of the solutions
- Make conscious consumption affordable can be one of the solutions
- Educating people in terms of conscious consumption since primary and secondary school can be the solution.

The research result came out mostly what we have expected before, the reason behind irrational trade is usually because of lack of awareness of sustainability and conscious consumption. The results indicate that it is obvious that the whole idea of sustainability and conscious consumption has to be promoted more to the people. Consequently, we strongly believe educating people from a young age is more beneficial. For example, it is better to teach about this topic even since kindergarten, rather than high school or college. For the adults who do not study in the university or high school, using social media for the informative purpose can be one of the solutions as well. If the conscious consumer side can be built up successfully, the conscious producer side has to follow the trend eventually. In conclusion, regarding survey result the level of people's concern of sustainability and conscious consumption is not enough to create an environmentally friendly and sustainable world, so that the whole idea behind this has to be promoted effectively, beginning with providing basic knowledge of how important the conscious consumption itself is since an early age of the lives and preparing the next generation as an environmentally- friendly individuals. In addition to this, using social media to spread the concept can be recommended.

This research paper can help everyone concerned or going to care about sustainability and conscious consumption, regarding the clothes industry. Further studies can be conducted when it comes to determine the effectiveness of educating people from an early age (especially from kindergarten) and to figure out exactly how to educate.

References

Bjørner, T.B., Hansen, L.G. & Russell, C.S. (2004). Environmental labeling and consumers' choice - An empirical analysis of the effect of the Nordic Swan. Journal of Environmental Economics and Management, 47(3), 411-434.

https://doi.org/10.1016/j.jeem.2003.06.002

Boston Consulting Group, World Economic Forum (January 2021). Net-Zero Challenge: the supply chain opportunity. Insight report. Pg12

Carrington, M. J., Neville, B. A. & Whitwell, G. J. (2014). Lost in Translation: Exploring the Ethical Consumer Intention-Behavior Gap. Journal of Business Research, 67, 2759-2767.

https://doi.org/10.1016/j.jbusres.2012.09.022

Isabelle Szmigin, Marylyn Carrigan, Morven G. McEachern (2009). The conscious consumer: taking a flexible approach to ethical behavior

https://doi.org/10.1111/j.1470-6431.2009.00750.x

Lina Forsman and Denise Madsen, (2017), Consumers' Attitudes towards Sustainability and Sustainable Labels in the Fashion Industry, PG (41-45)

Solomon, Bamossy and Askegaard (2006),. Consumer behavior a European perspective. Harlow: Financial Times/Prentice Hall.

https://www.fibre2fashion.com/industry-article/8736/fashion-waste-is-rubbish-yes-but-this-is-not-the-issue#:~:text=In%202020%20an%20estimated%2018.6,is%20piled%20into%20a%20landfill.
https://www.nytimes.com/2019/10/01/smarter-living/sustainabile-shopping-conscious-consumer.html

https://en.wikipedia.org/wiki/Sustainable_consumer_behaviour#:~:text=Sustainable%20consumer%20behavior%20is%20the,issues%20into%20their%20consumption%20behavior.
https://www.sustainyourstyle.org/old-fast-fashion https://www.sustainyourstyle.org/old-environmental-impacts

https://www.diva-portal.org/smash/get/diva2:1143596/FULLTEXT01.pdf

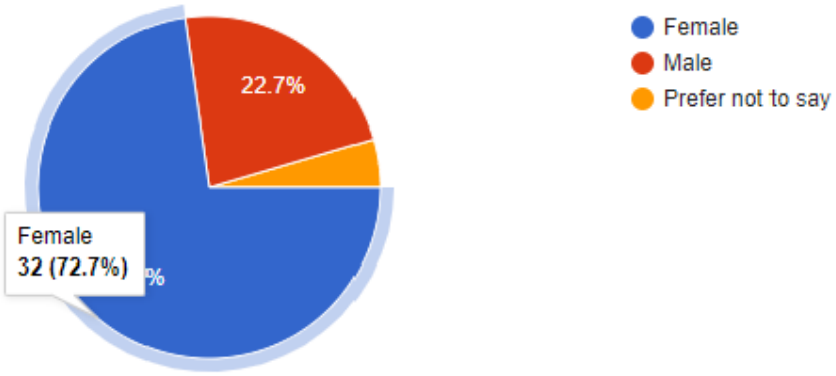
https://www.mdpi.com/2071-1050/11/17/4597/htm

Appendices

APPENDIX A- FULL RESEARCH QUESTIONS WITH ANSWERS

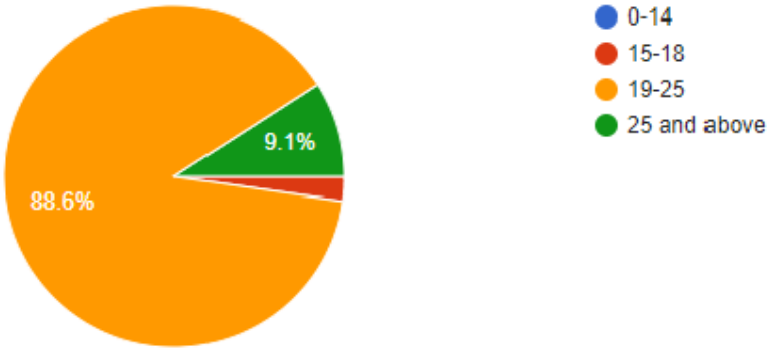
1. Your gender

44 responses



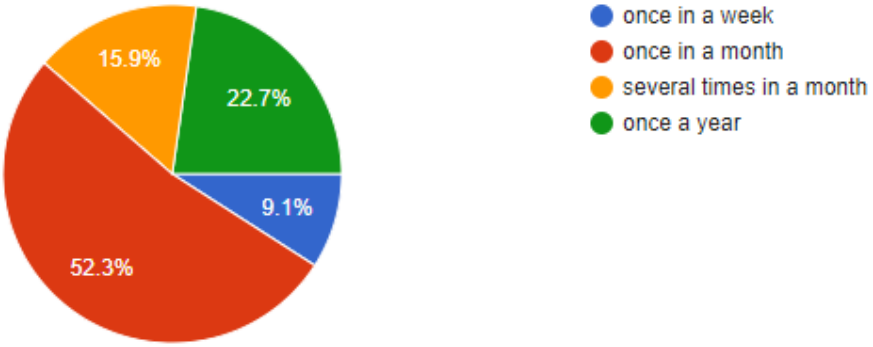
2. How old are you?

44 responses



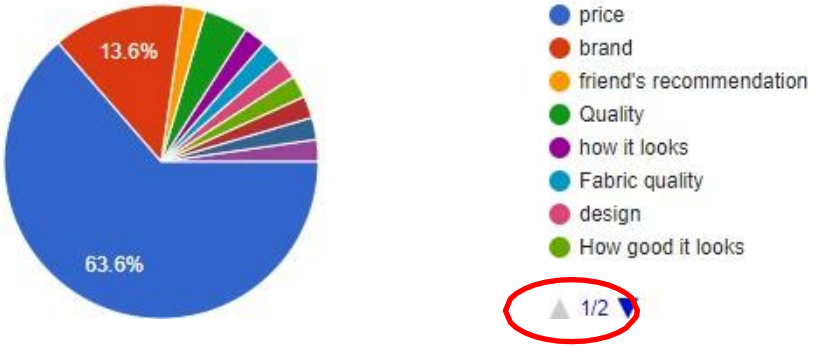
3. How often do you buy clothes?

44 responses



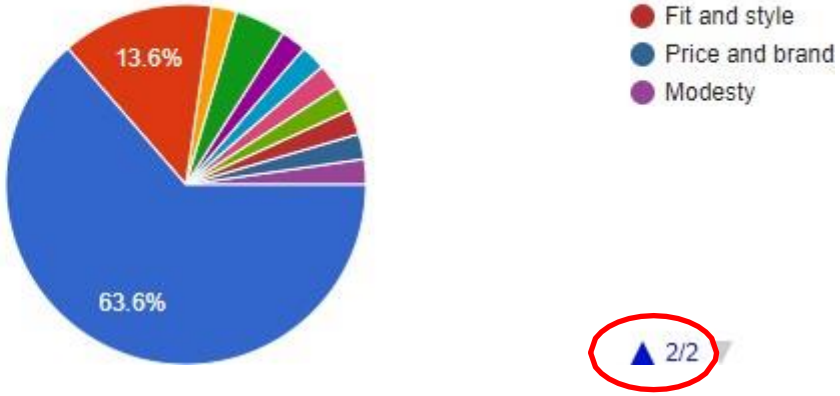
4. What is most important to you when buying clothes?

44 responses



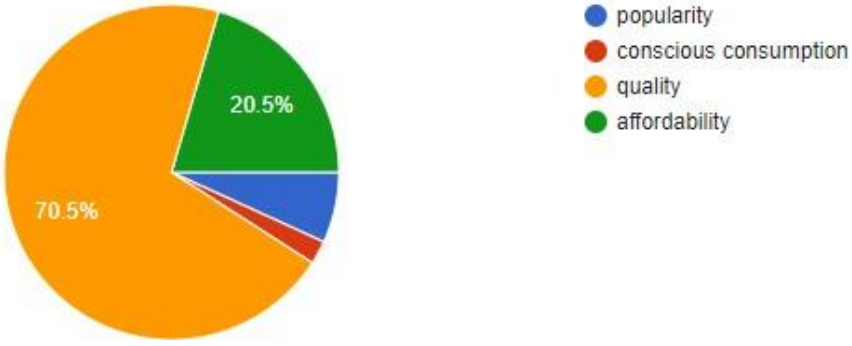
4. What is most important to you when buying clothes?

44 responses



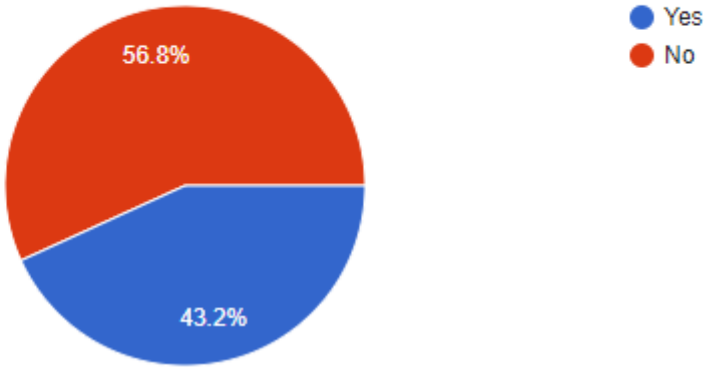
5. What is most important to you when choosing a clothing brand?

44 responses



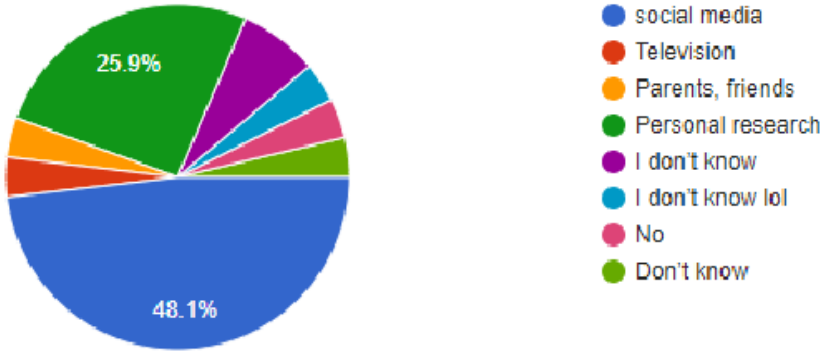
6. Are you aware of the conscious consumption concept?

44 responses



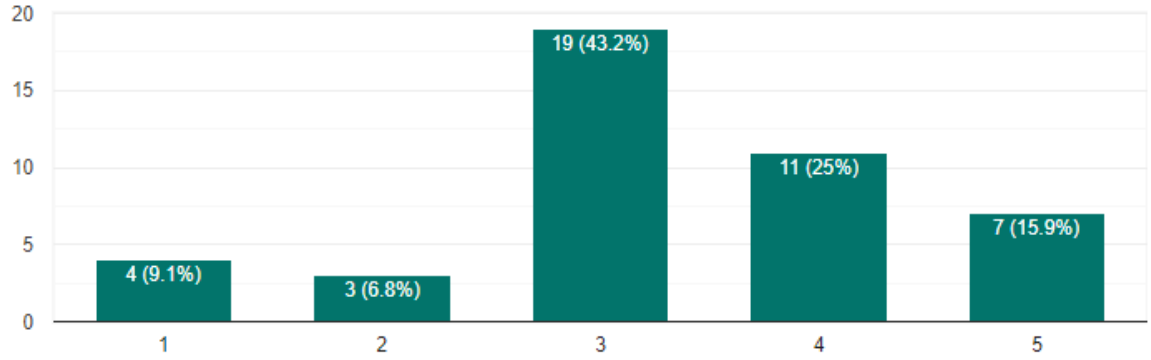
7. If yes, how did you know about it?

27 responses



8. How conscious are you when buying from companies?

44 responses



9. If you are not conscious consumer yet, what is the reason?

11 responses

I am

Idk what is it

Because conscious consumption is expensive

Does not make sense

I didn't know it exists

i kind of am

Honestly, I didn't know what it does mean. However, I don't have any specific reason behind this. It may be because I'm careless. However, I loved the idea behind this concept.

i dont know

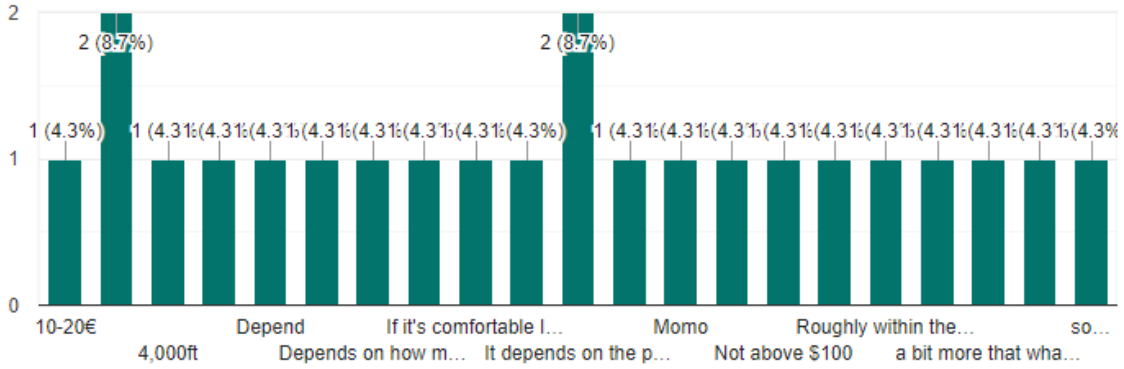
Lack of information

Didn't know this was a thing

/

10.How much will you pay for a product produced by a company practicing conscious consumption?

23 responses



11.In your opinion, how can we increase conscious consumption worldwide?

25 responses

Social media

I don't know Charleyyy

No idea

Erm, hmm, let's say, more in depth knowledge bout it.

Publicity, better start from school, so that they can have a purpose, instead of developing unconscious consumption.

Marketing campaign

Use more sustainable materials, decrease price, spread awareness

MKT campaign

By creating awareness through digital marketing and TV campaigns

More education, circulating the right information around and showing people that it is still possible.

Advertisement

Through intensive promotion

not sure

I think the big brands should promote it and give information about this concept.

Make it affordable at the same time

Demanding necessary information from companies and enacting penalties if they don't disclose any information or doesn't practice such consumption model.

i dont know

maybe we need more ads in social media or price is taking important part in increasing worldwide

Spreading the awareness

Increased awareness

By providing some general awarness and knowlage on how with media campanies.

By educating quality over quantity

Games for the Planet: Analysis of environmental games for reinforcing pro-environmental behaviour

AUTHORS

Aleksandra Živanović, Orsolya Kovács-Magosi

Corvinus University of Budapest, Sociology and Communication Science Doctoral School

DOI: 10.29180/9786156342218_9

ABSTRACT

Millennials and Generation Z are the most environmentally conscious generations, but a positive attitude does not always translate to environmental actions. A possible solution could be environmental games that promote conscious behavior. This study is analyzing five environmental games and investigating the opinion of both generations on environmental games. The results show that both generations are open to trying environmental games and willing to pay for them if the profit goes to a specific environmental issue. The potential of environmental games is not explored, and this study could be an excellent basis for future academic research and business implications.

1. Introduction

In 2019 the influential magazine Guardian decided to use "climate emergency" or "climate crisis" instead of "climate change." Editors and journalists of the magazine believed that climate change is no longer considered to reflect the overall situation's seriousness accurately. Ice melting, the rise of the sea level, ozone, Amazon Fire, and single-use plastics are just some of the words closely connected to the phenomenon of the climate crisis.

When it comes to pro environmental behavior consumer behaviour is driven by the paradox often coined as 'attitude-behaviour gap' (Han, Seo & Ko, 2017; Niinimäki, 2010). Attitude-behaviour gap or intention-behaviour gap is defined as a gap that occurs when individuals' values or attitudes do not correlate to their actions.

The PAT formula. I=P×A×T (commonly pronounced “eye-pat”) is a formula, describing the factors that cause environmental degradation. In this formula, I stands for impact; P stands for Population; Astands for Affluence (or amount consumed); T stands for Technology. This formula is crucial as it demonstrates that to make a real change for our planet, we need to change our consumer behavior.

How can the young generations be well-informed and, most importantly, engage with pro-environmental behaviours? A possible answer can be gamification, that is, the application of game design principles. It is hypothesised in this paper that games can promote environmentally conscious behaviour.

For answering this question, we will be analysing the top 5 environmental games focusing on the different elements from visual identity to communication styles. After the analysis is completed, the games would be presented to Millennials and Generation Z through online survey to understand better

why they would engage with such games and if the awareness level for the environmental games is high.

The research could serve as a guide for creating novel games and investigate which elements would encourage younger generations to engage with environmental games that could eventually lead to pro-environmental behaviour.

2. Literature revie

In recent years, climate change has become one of the most significant challenges the world has to face, meaning threats to life, ecosystems, health and wellbeing, states The World Health Organization (2020) along with the latest IPCC report (2020). Besides the extreme weather conditions that we globally experience, climate change started to have diverse impacts on the society as well. In the last few years, a significant number of studies has begun to concentrate on the ever-growing impacts that climate change makes on our mental health (Hrabok & Delorme & Agapont, 2020). Such new phenomena as ecological grief and climate anxiety occurred and strengthened, meaning that some people are living in fear and worrying about their lives on a daily basis because of the unforeseen consequences of environmental degradation. This could also influence their willingness on such demographical questions as establishing a family.

Another important aspect when we come to talk about the issue of climate change is the generational perspective. Results are quite diverse on which generation seem to be the most concerned about environmental degradation. Some state that despite the fact that younger generations are in a good position to adapt sustainable behaviours – for example, they use social media platforms well to gain and spread information –, they are far less committed to do real action compared to the older age-groups (Fielding & Head, 2012). The main reason behind this could be that climate change is usually not perceived as a personally relevant issue, it feels quite distant both in time and space. However, the appearance of such famous environmental icons as the Swedish climate activist, Greta Thunberg is, does lead to changes on the youth's attitude to get involved more into the question. The results of a recently conducted survey that was conducted in 23 European countries with 22 thousand participants, shows that climate change ranked first over other social problems (poverty, racism, sexism etc.) (EEA, 2020). The same report introduces the phenomenon of 'thunbergig" meaning that environmental consciousness has become a crucial aspect in finding the best partner or mate.

Despite of this openness and growing involvement of the youth, it still remains an unanswered question how to reinforce pro-environmental behaviour so that it will lead to concrete and sustainable action. From a generational aspect, two age groups need to be introduced: The Millennial generation and Generation Z. The Millennials involve people who were born between 1980-1995, whereas those who were born after 1995 (in Hungary) belong to Generation Z. The dates usually vary on regions or continents. Members of the Millennials are close to be leaders in the near future, that is why it is utterly important to educate them on sustainable behaviours. Generation Z is usually referred as digital natives, as they grew up in the era of the Internet and new technologies. Several studies show, that these young adults spend most of their time in front of the screen and use these technologies for work, communication, entertainment, gaining primary information and for playing games (Székely, 2020). Today, environmental and climate activists are using the full suite of social media platforms to collect

followers and Generation Z is quite active in this process (Cox, 2013:189). New ways of climate communication are required to be found in order to increase the engagement of public.

In fact, in the digital age, not only social media means a powerful tool. Digital and online games are also effective devices to reach a large number of people. Needless to say, that the concept of playing games is as old as humanity itself. Based on the very idea – that is to say the love of games – was the concept of "gamification" constructed. By gamification we mean an approach to "inspire, motivate and change behaviour through a certain play or gameful experience" (Rajanen&Rajanen, 2019:245). Gamification techniques are already in use in education and the workfield. It has been proven that it could improve both the motivation and engagement towards performance.

In the last few years, game designers in cooperation with large environmental organizations such as WWF, Greenpeace and UNESCO started to implement the issue of climate change into board games, digital games and online games as well. The aim of this was to raise the players' awareness, make them feel that their decision could change the future. On this way, the so far psychological distance issue of climate change becomes near (Dulic et al. 2011:228).

Environmental games belong to the so called "serious games" category. The purpose of a serious game is more than entertainment, it aims to educate the players on a certain problem. They can relate, besides the climate change issue, to a wide range of fields: healthcare, politics, military etc.

3. Method

Academic research can be approached from many different angles. Traditionally, research methodology is divided into qualitative and quantitative (Bhati, Hoyt, & Huffman, 2014). Some questions can only be answered on the grounds of quantitative research, while others require qualitative data (Ponterotto, 2006). To understand better the current market and the general opinion of Millennials and Generation Z on environmental games, the study combined both qualitative and quantitative methods. The qualitative method consisted of the content analysis of 5 environmental games, while the quantitative research included an international online survey. The original study had a focus group of 15 members of both generations. Questions used during the focus group interviews were modified into survey questions to get more representative results and compare the focus group results with a larger sample.

3.1. Content analysis

The content analysis aims to compare five environmental games that are targeting Millennials, and Generation Z. Games were compared based on the theme of the game, google play ratings, the role of the player, and most importantly, communication and visual representation.

Games were chosen based on the following criteria:

- All the games had to be maximum five years old
- All the games had to be free
- They had to be mobile-friendly both for the Android and iOS operative system
- They had to be created by a credible organization, either an NGO or university
- They had to target Millennials and Generation Z

All the listed criteria were essential to ensure that the study analyzes only the most relevant games for both generations. Video games have been around for decades and as technology continues to improve, so do video games. Therefore, it was critical to choose the most recent environmental games, and the study draw excluded all the games coming after 2016.

The study decided only to include so-called free-to-play games as they make the experience of gaming more accessible. It is more likely to give something a try if it is free, as it eliminates the risk factor in potentially paying for something you might not like. The more players try the game, the more likely they are to recommend it to friends, keep playing it and even get into it long term, which is essential for the games that promote pro-environmental behavior.

According to the latest NDP Group report (2020), mobile is the most popular platform in the video game industry. It is widespread across all age groups, and its strength comes from accessibility, availability, and a wide range of offers. Statista (2021) shows that the leading smartphone vendors are Samsung, Apple, and Huawei. Combined, the three technology companies account for about half of all smartphone shipments worldwide. Therefore, it was crucial to include mobile-friendly games that support an Android operative system and include iOS that is only used on Apple devices, as those games have the potential to reach a wider audience. An important factor was the credibility of the game maker.

Environmental issues are well known today, but it is essential to get credible, and fact-checked information. Therefore, to ensure the credibility of the game, the study checked the organizations behind the creation. Only the most well-known organizations that tackle or research environmental issues were selected.

Finally, as the study focuses on Millennials and Generation Z, the games that target younger and older audiences were excluded.

3.2. Sample

Based on the criteria mentioned above the following environmental games were chosen:

Morphy! (2016)

Platforms: iOS, Android, Web

Morphy! is a game starring Morphy, an alien who has crash-landed on an unknown planet and needs to find his missing crew members.

The aim of the game is to teach the fundamentals of animal adaptation. Players need to scan and obtain animal traits that can then be added to Morphy's abilities, which will help him navigate better in the unknown environment. Players learn more about specific wildlife behaviors, endangered species, and how they apply different traits in the real world.

The game was developed by the Smithsonian Science Education Center and Filament Games.

WWF Free Rivers (2018)

WWF Free Rivers is an augmented reality game that offers learners the ability to observe and interact with five diverse river habitats.

The aim of the game is to teach how ecosystems depend on healthy, flowing rivers.

World Wildlife Foundation's game teaches players how different actions can affect the flow and the health of the river and through interactions with the people and wildlife that inhabit it.

Ice Flows (2016)

Platforms: iOS, Android, Web

Ice Flows is a scientific simulation game that focuses on the impact of climate change on the Antarctic Ice Sheet. Players are responsible for controlling the size of the ice sheet and help the penguins get to their destination.

The game combines fieldwork and computer modeling to investigate the correlation between the atmosphere, the ocean and the ice sheet in this region. Scientists use these simulation models to understand how the ice behaves and to make projections for future.

The game was funded by the Natural Environment Research Council (NERC) as part of a project that investigates the future of Weddell Sea Region of Antarctica and what kind of impact could the changes in ice sheet have on global sea-level.

Bleached Az (2019)

Platforms: iOS and Android

Bleached Az is a mobile arcade game based on the 2008 Aussie cartoon, Beached Az. The game uses humor to promote ocean health awareness and motivate players to contribute to environmental conservation.

The aim of the game is to save the hopeless coral from the dangers of plastic pollution and overfishing. 20% of the revenue from ads goes to the Carbon Neutral 'Plant-a-Tree' Program.

World Rescue (2017)

Platforms: iOS and Android

World Rescue is inspired by the Sustainable Development Goals of the United Nations.

The game is set in Kenya, Norway, Brazil, India, and China, where players meet five young heroes and help them solve global problems such as displacement, disease, deforestation, drought, and pollution.

World Rescue was created for the first international Gaming Challenge organized by UNESCO Mahatma Gandhi Institute of Education for Peace (MGIEP). The game was chosen as the winning game design document.

3.3. The codebook

The games were analyzed based on the following criteria. The first division was based on the theme of the game. The study included games that cover different environmental issues, from water management to ecological education. The theme of the game was defined based on the central problem a player needs to solve or the primary lesson the game is trying to convey. For example, Morphy! does not try to solve an environmental issue, but the purpose of the game is to learn more about different animals and their traits. Therefore the theme of the game was coded as wildlife education. On the other hand, players in Bleached Az must save corals from a wide range of ocean-related issues. Therefore the theme was coded as Ocean pollution.

The second criteria were Google ratings on the Google play store. Having a positive grade is essential for several reasons. An excellent rating and positive reviews can impress a potential user. According to the Apptentive (2017) report, 59 % of users usually or always check ratings before downloading a new app. Finally, the more positive reviews and grades your application has, the more visible it is on the Google Play store, which is an important aspect for the competitive environment such as mobile games.

The third criteria were communication style. The communication was divided into two parts. First, we checked if games contained only educational facts, facts on environmental issues, or contained solutions and advices on how we should tackle different environmental issues. Traditionally, when it comes to the environmental communication the strategy was to provide lay audiences with information-based appeals to trigger pro-environmental concern and behavior. More recent studies have demonstrated the insufficiency of purely informational communication strategies (Whitmarsh, O'Neill, & Lorenzoni, 2011) when it comes to environmental issues. Action-related knowledge, meaning communication that offers which behavioral options and possible courses of action (Kaiser & Fuhrer, 2003, p. 601), may be a more vital determinant of pro-environmental behavior than knowledge about the causes of environmental problems. (Smith-Sebasto & Fortner, 1994). Therefore, games that contained information-based communication were simply coded as facts, while the games that included action-based communication were coded as a solution. The second part was the game's tone, which was divided into positive, negative, and natural. The tone represents the communication style. The negative style represents a catastrophic image of the current status of our environment, while the positive style emphasizes that there is still time to change.

The following criteria were visuals. Visuals were divided into simple and complex. It is because simpler animation is more mobile-friendly as it contains less details, why complex visuals might be overwhelming for a consumer, which could lead to giving up on the game. WWF Free Rivers is an augmented reality game that contains complex visuals, while Bleached Az is a mobile arcade game with simple visuals.

Lastly, the characters were divided into role-playing and decision-maker. We defined role-playing has players assuming the roles of characters in a fictional setting (Grouling, 2010). An example of Morphy the player is the one that embodies Morphy, a lost alien, while in the Bleached Az, the main charters are the corals, and you are decision-makers, the one who needs to protect them from the ocean pollution. Role-playing is a typical tactic used in games to make players more engaged with the story.

3.4. Survey

Besides content analyses, an international survey was conducted to examine the familiarity of Millennials and Generation Z with environmental games, willingness to play, and willingness to pay for such games. The survey consisted of 82 participants. 52,3 percent of Generation Z, 47,7 percent of Millenilas, from which we had 54,5 percent of female participants and 45,5 percent of male participants. The goal was to have a balanced number for both sex and generations. Participants were primarily Europeans (more than 70%), but we obtained answers also from North America, South America, Asia, and Africa. The survey was spread in several Facebook and Reddit groups that consist of Millennials and Generation Z to obtain participants.

Survey was divided into five parts. The first part was dealing with general information such as generation, sex, country. The second part was dedicated to environment. Participants had to express through Likert scale their concerns about the environmental issues in general and concrete environmental issues such as air pollution, plastic waste, and others. The next part was dedicated to games, how much time they spend in front of the screen, how often they play any games, and are they familiar with the concept of environmental games. In the fourth part we presented 5 environmental games that were analysed in terms of description and visuals. The explanation for the games was directly taken from the Google Play store, and they had to indicate how likely is that they would try a presented game. The visuals were also taken from the Google Play store as we wanted to achieve the scenario as if they would go to the Google Store and scroll through the available games. The last part was dedicated to a willingness to pay. Are they willing to pay in general, and are they willing to pay if the profit of the games goes to a good cause, such in the case of Bleached Az.

4. Results

Content analysis

The following table summarizes the results of the content analysis.

Content analysis	Morphy!	WWF Free Rivers	Ice Flows	Bleached Az	World Rescue
Theme	Wildlife Education	Ecological Education	Climate Change	Ocean Pollution	Global Management
Organization	Smithsonian	World Wildlife Foundation	NERC	Carbon Neutral	UNESCO
Rating	4,5	4	4,6	4,9	4,5
Communication	Facts Neutral	Facts Negative	Facts Neutral	Facts + Solution Positive	Facts + Solution Positive
Visuals	Simple	Complex	Simple	Simple	Complex
Characters	Role Playing	Decision Maker	Role Playing	Decision Maker	Role Playing

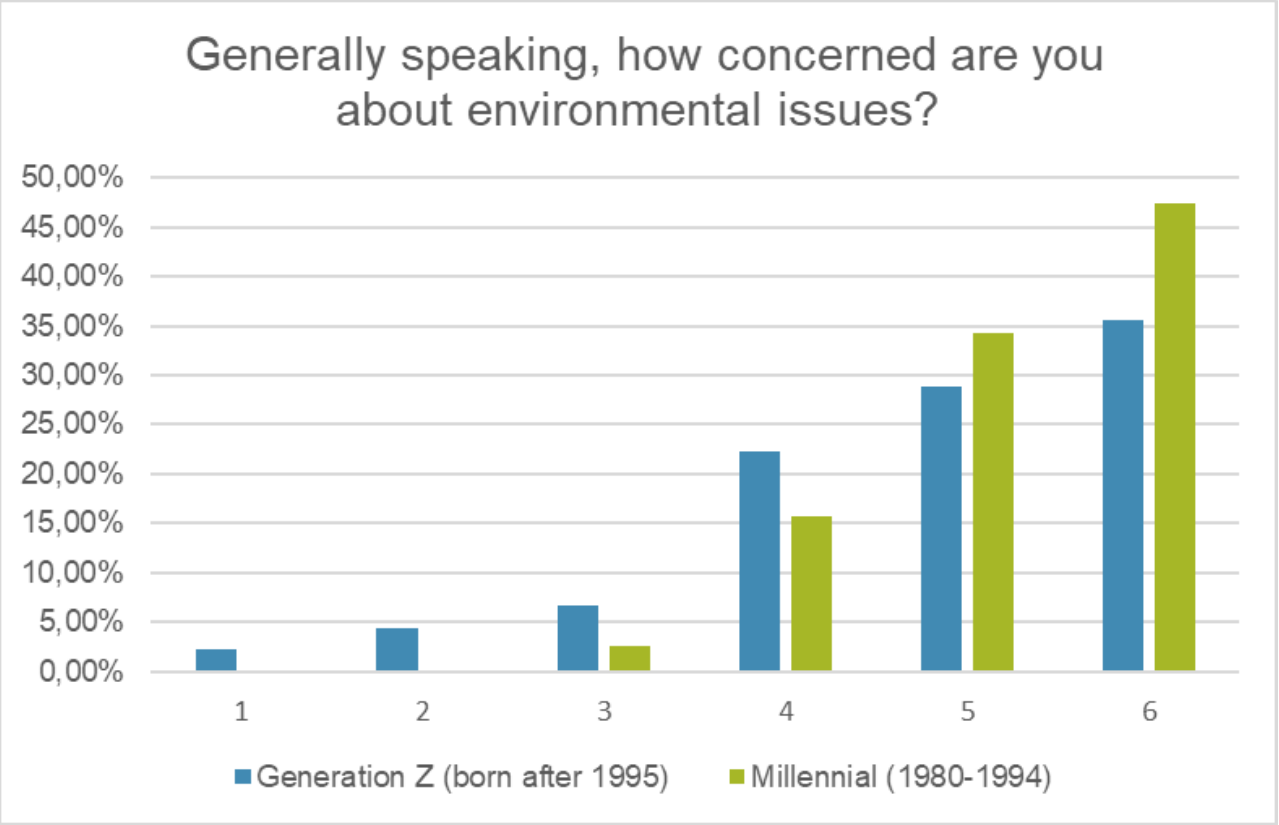
The table displays themes, organizations behind the game, Google ratings, communication style, visuals, and characters. From the table, we can see that the highest ratings on Google are given to the Bleached Az, while the lowest score goes to the WWF Free Rivers. The reason for the lowest score could be answered by communication style, visuals, and characters. The WWF Free Rivers uses Facts and Negative communication style to talk about Ecological Education. The visuals are too complex for the mobile devices as it uses augmented reality, which leads to frustrations of the plays, which could be also seen in the comments on Google Play as customers experienced the app crashing. Another point is that you are not the main charter of the game but rather a decision maker, leading to less engagement. On the other hand, Bleached Az uses positive communication style, presents both facts and solution and it is easy to use as the animation is very simple. When it comes to the character, you are again a decision maker, but this game has a unique selling proposition that is humor. It is the only game out of 5 that uses humor to talk about the environmental issues, making it enjoyable, entertaining, and leading to longer play and a bigger number of users. Users left comments such as it is unique, hilarious, informative, and fun. It was interesting to see that only 2 games containedaction-based communication, one of the main aspects of enforcing pro-environmental behavior.

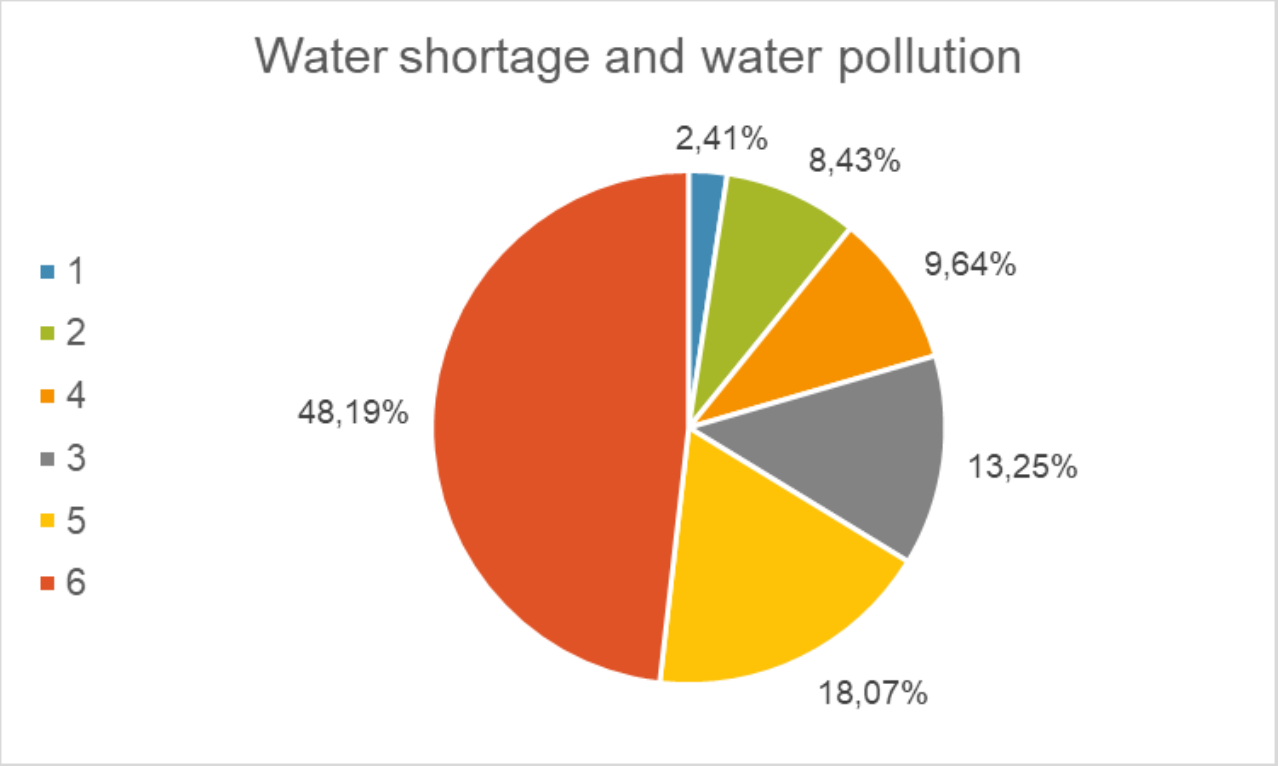
Online survey

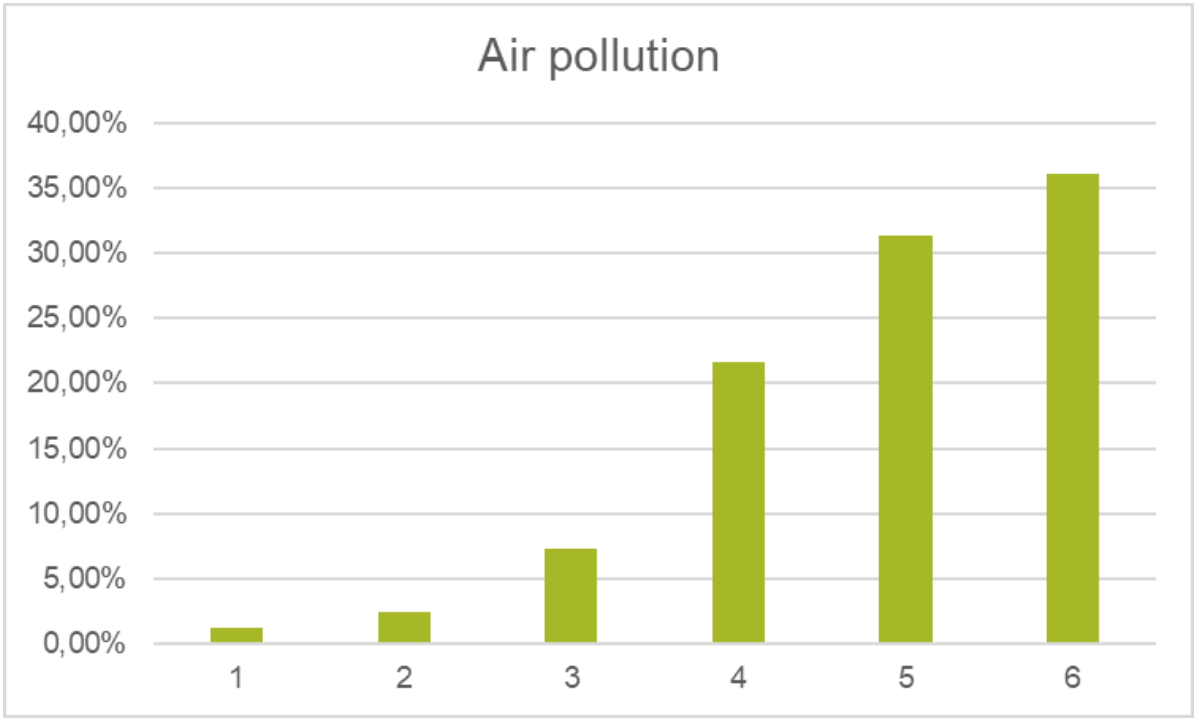
In this section, the survey results are presented which show the extent of concern and interest of the two generations, the willingness on trying out environmental games and the motivating factors regarding paying for a certain game.

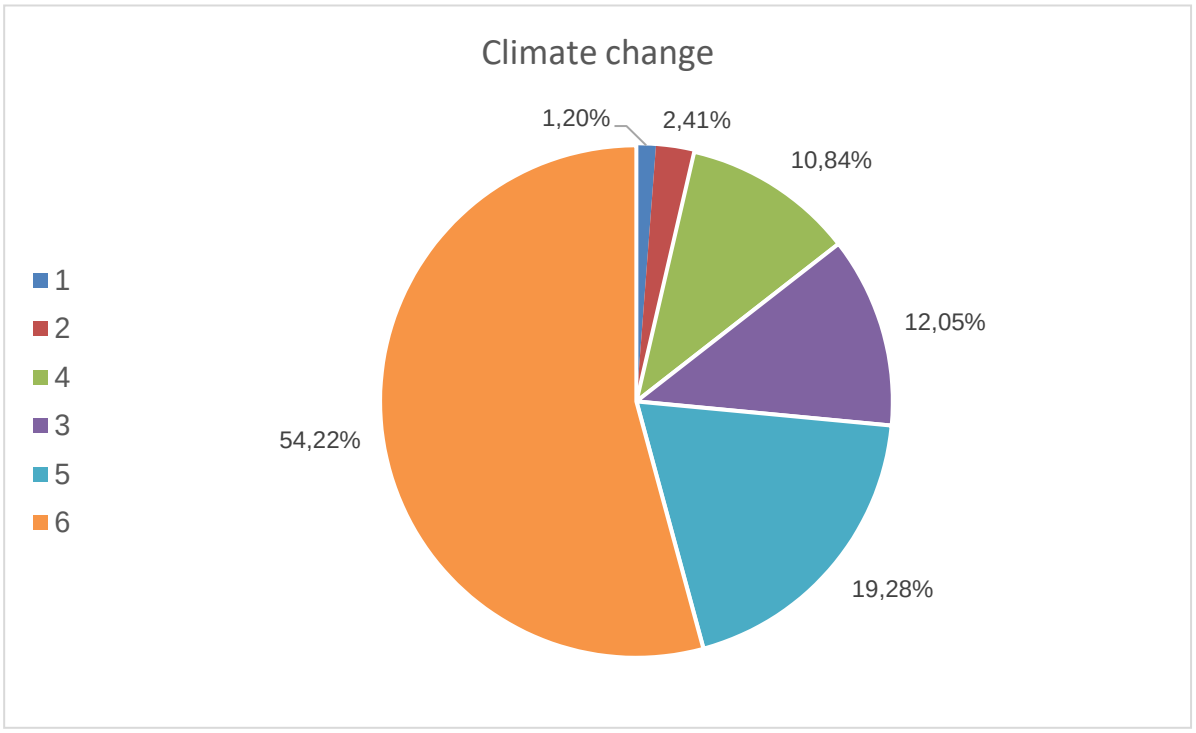
We were interested in what extend the participants are concerned about the environment in general. It turns out from the results that the vast majority of the participants are extremely concerned. However, surprisingly, from a generational perspective the Millennial generation is more affected by the question than Generation Z which proves the diversity of previous results when the generational aspect is integrated.

Considering a specific environmental problem, for example chemicals and pesticides, water shortage and water pollution, nuclear waste, climate change, genetically modified foods and air pollution, the results are quite concurrent. Independently on which generation one belongs to or where he/she lives, the majority of people regard air and water pollution, and climate change as the most important environmental problems their country faces. A possible explanation for this tendency could be that almost all of these things can be experienced in our everyday life. The quality of air and water influence or health to a large extent, whereas a majority of people also recognize change in the weather conditions: extremely hot summers, tepid winters and frequently alternating weather fronts. At the same time, climate change is the most popular topic in the worldwide mainstream media over the loss of biodiversity or waste collection. It certainly has a strong influence on what people think to be important.

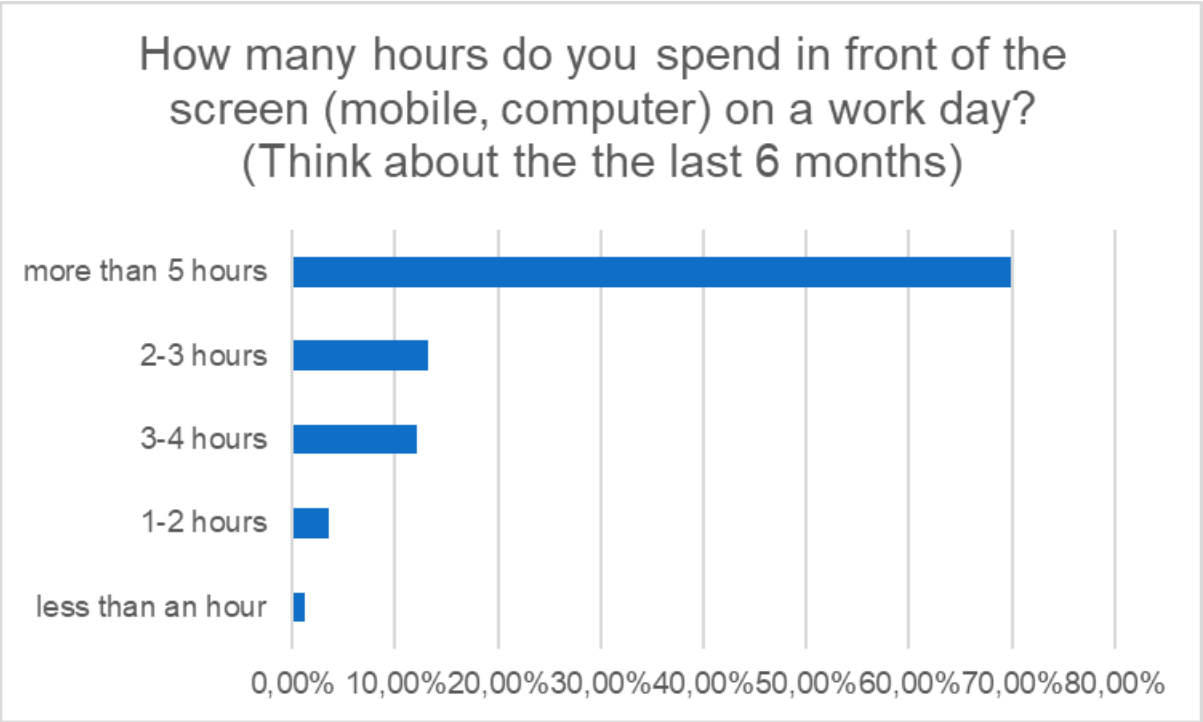

Generally speaking, how concerned are you about environmental issues?
50,00%
45,00%
40,00%
35,00%
30,00%
25,00%
20,00%
15,00%
10,00%
5,00%
0,00%
1
2
3
4
5
6
Generation Z (born after 1995)
Millennial (1980-1994)


Water shortage and water pollution
1
2
4
3
5
6
2,41%
8,43%
9,64%
13,25%
18,07%
48,19%

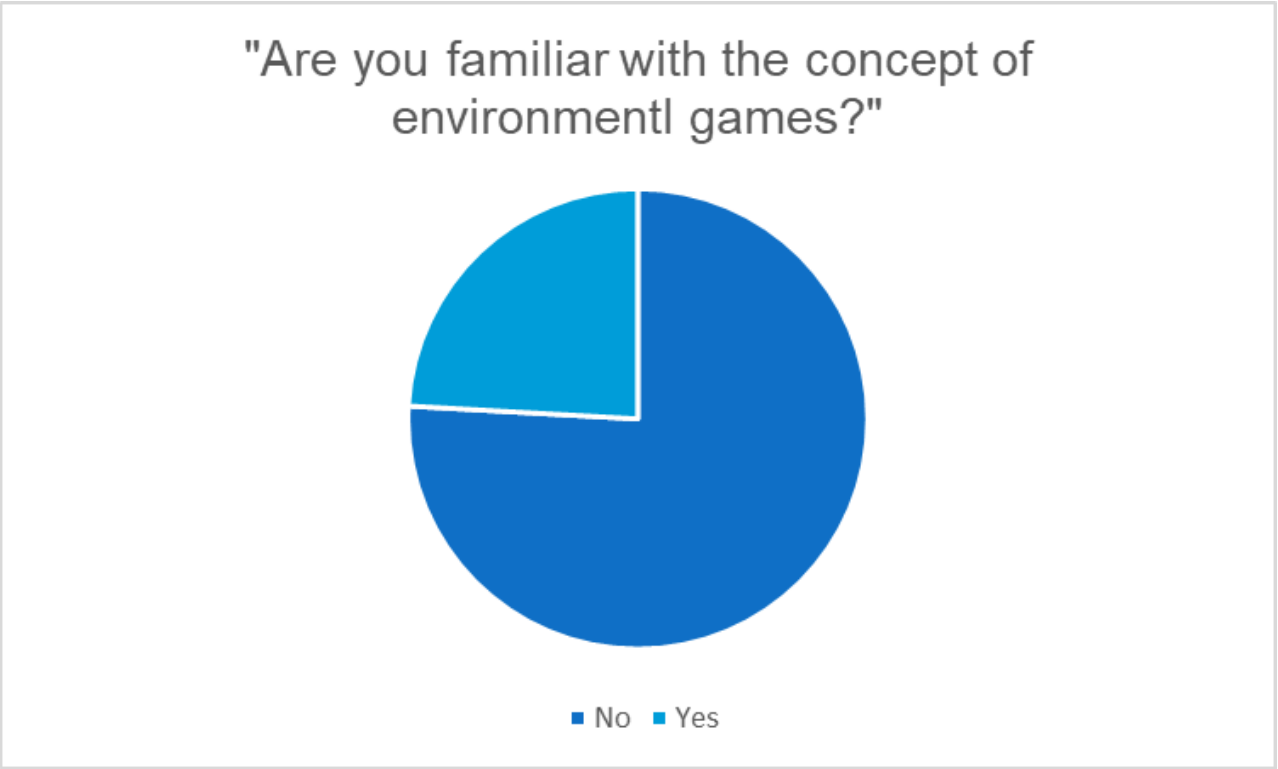




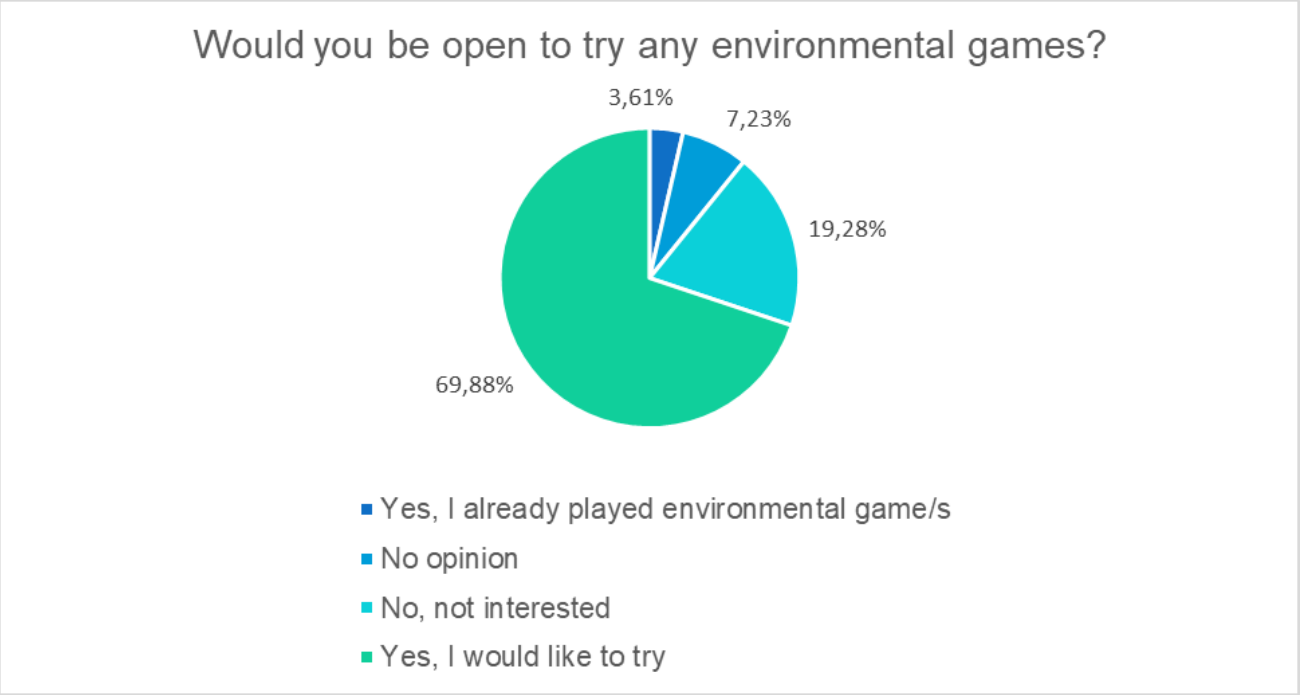
Taking into account media consumption patterns and time, spent in front of the screen, it turns out that the vast majority – 70% – spent more than five hours in front of the screen on a work day in the last six months. More than half of them play a game or more games on his/her devices either once or twice a week or every day, nevertheless, the remaining 40% of them do not play any games on his/her device at all.



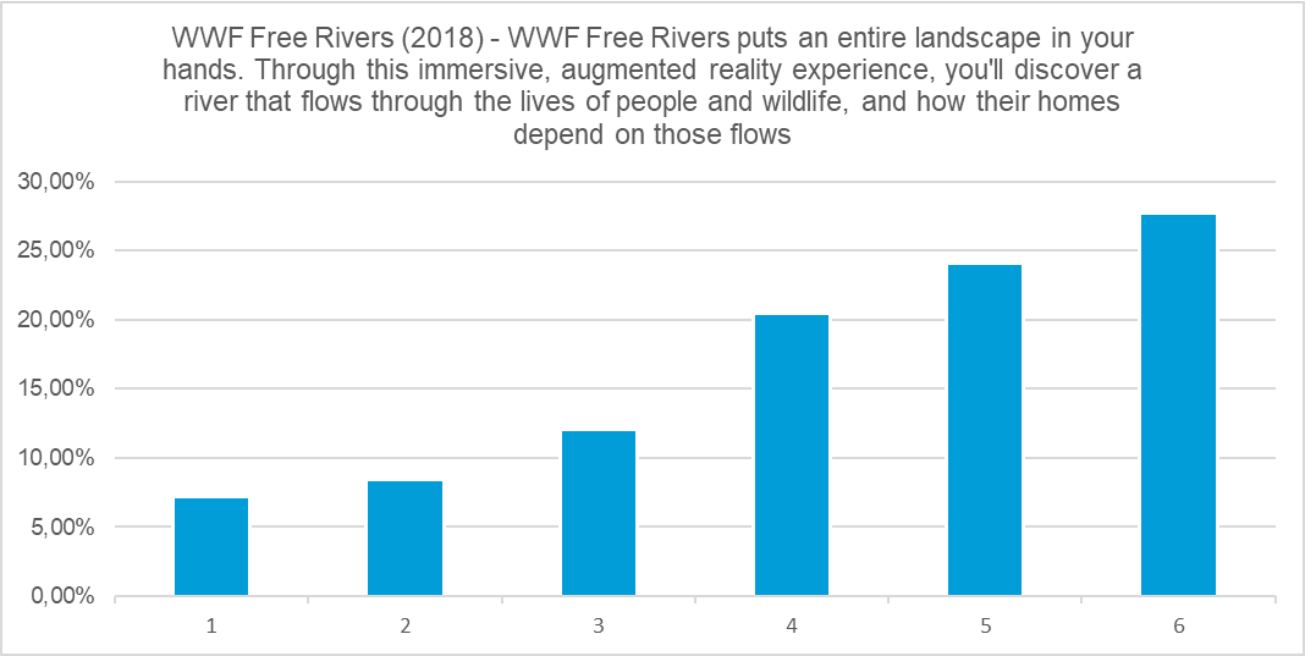
Despite of the popularity of digital and online games, most of the participants never heard about the concept of environmental games. It suggests that the marketing of such games are quite weak, even if lot of them are designed by world known green organisations.



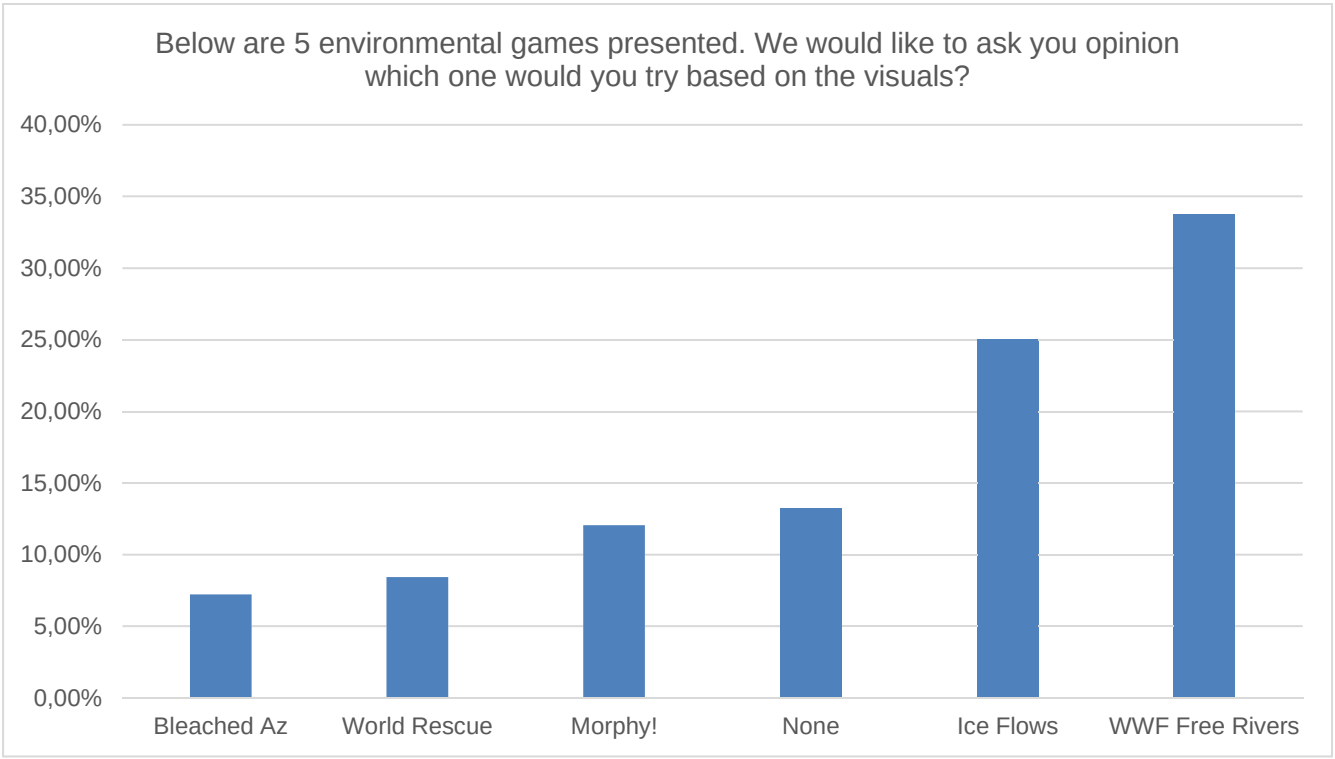
From the aspect of willingness to try out an environmental game, almost 70% of the respondents answered that he/she would give a chance for a game.



The online survey contained questions relating to the Google description and visuals of each five games. The WWF Free Rivers (2018) was the most popular both by its description and visual characteristics.



A possible explanation for this dominant popularity is based on two things, namely that even the title of the game contains the organisation (WWF) that invented the game itself so people have prior knowledge on what to expect. Also, the augmented reality experience, that the game offers is a strong buzzword.



The question of paying for an environmental game divides the participants into two groups, half of them would not pay for a game, whereas the other half show willingness to do so. None of them would pay more than 10 EUR for a game. This tendency changes, if it is about a very specific environmental problem. If giving money for a game would help to save endangered species (orangutan, panda,

elephant etc.) or improve the air quality, almost 60% of the responders would be willing to give 1-10 EUR.

5. Discussion and implications

One of the key findings is that users are not familiar with the concept of environmental games. This shows that this type of game is not popular or highly advertised and needs a better marketing strategy. It could also mean a lack of environmental games available for both generations. What is encouraging to see is that younger generations, Millennials, and Generation Z are willing to try them out. Still, they are also willing to pay for them, especially if a certain percentage of the profit goes into a good cause.

The research also confirms that younger generations are very much concerned with the environment, and as the survey shows, they do engage into gaming and spend a significant amount in front of the screen, which could mean that environmental games could be a good tool for education and entertainment of younger generations.

Additionally, this study contributes to the very limited number of papers on the topic of environmental games, and it can serve as a good starting point for future research.

Besides theoretical implications, this study also has practical implications. Based on the survey and the content analysis, we can see that the following features would make an engaging game:

We can see from the content analysis and from the reviews coming from Google Play that users prefer simple design as it is more mobile-friendly. It is crucial for the game to have action-based communication with a positive communication style to get users engaged, entertained, and educate them on important environmental issues. It is also important to communicate from the start what is the aim of the game as in some cases it was not clear from the beginning. As the survey demonstrated games should contribute to the concrete noble cause that effects participants. It is important to have a unique selling proposition as in Bleached Az, which uses humor, which makes it stand out from the competition on the market. Finally, a good description of the games is needed as we could see from the survey that Bleached Az did not have such a high result based on the visuals and narrative.

6. Limitations and future research

The study is an excellent basis for future research on environmental games. Unfortunately, not many studies focus on the concept of environmental games, even though there could be a great potential in using them to reinforce pro-environmental behavior.

The limitations of this study are, firstly, the size of the sample. The bigger size of the sample could point out additional trends but most importantly, if we are comparing the initial results obtained from the focus group that consisted of Europeans with the international survey, we can see that culture could play an important aspect when it comes to the results. Different regions have different environmental issues, which could influence their willingness to pay for a certain environmental issue. The closer the issue is to them, the more likely is that they would want to fix it.

When it comes to content analysis, this could be a good starting point. The new elements that need to be analyzed could be added, but future research could also extend on the numbers of games. It would be interesting to compare environmental games to other serious games that have an aim to educate

consumers besides entertainment. Possible research could compare environmental games that target different generations, in this case, children and adults.

Another issue when it comes to environmental games is the lack of longitudinal studies. The real question remains: Are environmental games eventually leading to pro-environmental behavior? Therefore an extensive longitudinal research is needed in order to demonstrate the potential of the environmental games.

References

Bernardes, J. P., Ferreira, F., Marques, A. D., & Nogueira, M. (2018). Millennials: is 'green'your colour?

COP24. (2020). COP24 Special report: Health & Climate Change Accessed February 10, 2020 https://www.who.int/publications-detail/cop24-special-report-health-climate-change

Cox, R. (2013). Environmental Communication And The Public Sphere. Sage.

Dahlstrom, Michael F. (2014) "Using narratives and storytelling to communicate science with nonexpert audiences." Proceedings of the National Academy of Sciences 111.Supplement 4

Dulic, A., Schroth, O., Shirley, M., Sheppard, S.(2011): Future delta motivating climate changeaction grounded in place. In Int'l Conf. on Entertainment Computing. Springer, Berlin, Heidelberg

European Environment Agency (EEA) (2020). Now What? Climate Change & Coronavirus. Source: https://www.eea.europa.eu/themes/climate

Fielding, K., & Head, B. W. (2012). Determinants of young Australians' environmental actions: The role of responsibility attributions, locus of control, knowledge and attitudes. Environmental Education Research, 18, 171-186.

Harrigan, P., & Wardrip-Fruin, N. (2010). Second person: Role-playing and story in games and playable media. The MIT Press.

Hrabok, M., Delorme A. & I.O. V. Agyapong (2020). Threats to Mental Health and Well-Being Associated with Climate Change. Journal of Anxiety Disorders. 76.

Rajanen, D. & Rajanen, M. (2019) Climate Change Gamification: A Literature Review. In Proc. of Gamifin 2019 Conference pp. 253-264

Székely, L. (2020). Szürke hattyúk. Enigma Kiadó. Budapest

Whitmarsh, L., O'Neill, S., & Lorenzoni, I. (2011). Climate change or social change? Debate within, amongst, and beyond disciplines. Environment and Planning A, 43(2), 258-261.

The advantages of electric vehicles that their current consumers can highlight in order to inspire other consumers to choose a sustainable option.

AUTHOR

Mansoor Ekrami

Faculty of International Management and Business

DOI: 10.29180/9786156342218_10

ABSTRACT

Electric vehicles have a number of advantages that help people live a more sustainable lifestyle, but the role of their users in encouraging others to embrace them has not been studied. Recent studies have identified three major motivations for people to embrace electric vehicles as a sustainable mode of transportation: personal benefits, moral standards, and hedonic. In this study, we focused on the key benefits of electric vehicles to see what motivations they elicit among car buyers, so that current owners of electric vehicles could highlight them while encouraging other groups of consumers to select electric cars over conventional ones. We noticed that reducing GHG emissions and ownership costs motivate at least two of the key motivations, increasing the likelihood of persuading people to accept EVs to join the consumers with responsible lifestyles.

Keywords: Electric vehicles, motivation, benefit, sustainable lifestyle, conscious consumption

1. Introduction

An unsustainable way of life has resulted in wide-ranging environmental problems, including poor air quality, climate change, and ocean pollution. As a response, businesses manufacture and sell sustainable goods that have less negative environmental effects, with some government support. Consumer acceptance of sustainable products, on the other hand, is slow (Bodur et al., 2015; Prothero et al., 2011). Understanding the underlying motivations for adopting sustainable goods is crucial to intervening and accelerating the adoption of sustainable products (Testa et al., 2015). Green businesses can benefit from this knowledge by tailoring their company and marketing strategies to the motivations of their target customers.

The reasons why consumers adopt sustainable goods have been studied from various theoretical perspectives. Integration of three key motivations has been established as a determining cause for sustainable consumption in one study (Steg & Vlek, 2009). First and foremost, the personal benefits from sustainable consumption have been identified as a significant motivator. If consumers believe that the benefits of sustainable products outweigh the costs, then they are more likely to buy sustainable products (Bamberg et al., 2015). Consumers can see these financial advantages not only during the purchasing process but also during the maintenance process as well. Second, previous studies have indicated that normative motives, or individual perceptions of moral correctness and incorrectness (personal moral norms), play an important role in the purchasing of sustainable goods (Jansson, 2011;

Jansson et al., 2010). If consumers agree that buying sustainable products is the right thing to do, the likelihood of making a green purchase rises. Third, hedonic motivation, or whether sustainable consumption enhances one's emotions, is an important explanation for consumer purchases of sustainable products. Expecting satisfaction and excitement from the purchase of sustainable goods will increase the probability of selecting a green purchase (Onwezen et al., 2013; Rezvani et al., 2017). Rezvani et al. (2018) investigated the interplay and importance of gain, normative, and hedonic incentives for sustainable product consumption in an environment where social norms are also at play. Their findings revealed that while all three motivations are significant in consumer electric vehicle adoption intentions, the direct impact of hedonic motivations on behavioral intention is greater for consumers who perceive high social norms regarding sustainable consumption (Rezvani et al., 2018).

Conscious consumers who now own electric vehicles believe they have a responsibility to the environment and strive to use sustainable goods to improve people's quality of life. Many studies have been undertaken to determine what is most significant to them when purchasing an electric vehicle. According to the results of a study conducted by Peters et al. (2014), enhancing electric vehicles' environmental benefits and offering financial incentives for purchase are essential factors in EV promotion (Peters & Dütschke, 2014) ,therefore, to get more people to purchase electric cars, it appears that emphasizing the environmental advantages of EVs is essential.

Many investigations have been performed to determine what motivates people to purchase electric vehicles; however, few of them have looked at how EV owners can persuade others to do so. The aim of this study is to look at how people who live in a sustainable manner can encourage other customer groups to make environmentally friendly decisions while buying products. In this research work, we are attempting to emphasize the factors that EV owners can highlight in order to assist other groups in choosing a sustainable way of life. To achieve this goal, we use the most recent research results to demonstrate that raising public consciousness about the source of electricity used in the charging process of electric vehicles would result in a substantial reduction in CO2 emissions. Furthermore, we show that electric vehicles have lower maintenance costs than traditional cars, which should be stressed by EV owners to inspire people to buy environmentally friendly vehicles. Through categorizing these aspects and their consequences in one of the above-mentioned motivations, buyers of electric vehicles can better understand why these benefits can be used to persuade other groups to buy a sustainable vehicle. In the last section of this paper, we propose several ways to effectively deliver these motivations by sharing the experiences of people who use electric vehicles and attempting to increase the number of people who live in a sustainable manner.

2. Theory

The contribution of electric vehicles to reducing greenhouse gas (GHG) emissions is the primary reason for public interest in their adoption and use. Owners of electric vehicles must consider how effective their choice is in terms of improving air quality and reducing emissions, which is the primary cause of global warming. Only in this way would they be able to persuade other vehicle owners to select a sustainable vehicle as part of their buying process, since, as previously mentioned, environmental benefits are one of the most important factors in convincing people to purchase an electric car. We also need to talk about how electric cars are more cost-effective in terms of

maintenance after purchase, which helps to offset their higher purchase price, which is a barrier to purchasing a sustainable form of transportation.

1. Emission reduction from electric cars

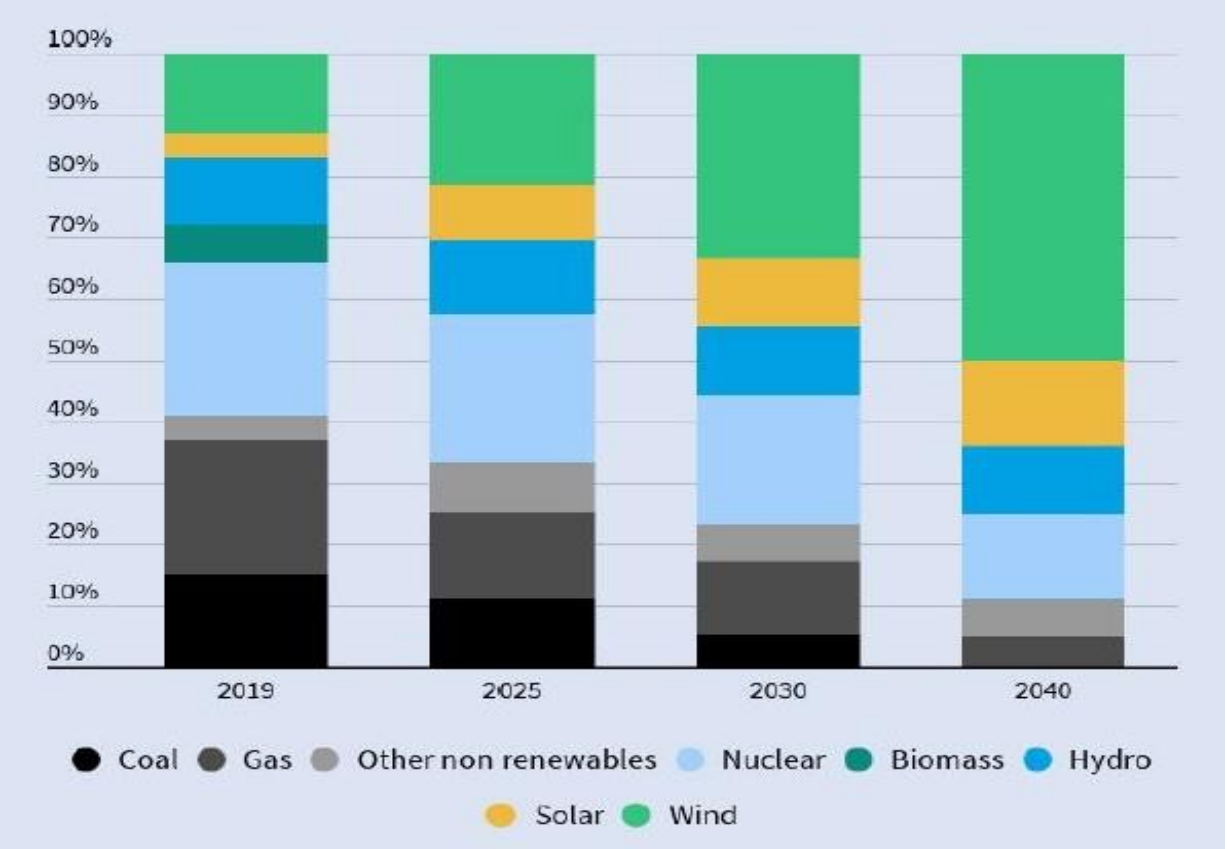
One of the reasons why the number of electric vehicles on the road is still small is that customers' expectations of their benefits in terms of mitigating climate change by lowering GHG emissions have not yet matured (Rezvani et al., 2015). As a result, it's important that existing and future electric vehicle users have a greater understanding of how clean EVs are and how they help to reduce emissions not only in current time but in the future.

1.1. Evolution of Emission factors

Many reports suggest that diesel and petrol cars emit no more greenhouse gases than electric cars, making many potential customers hesitant to buy a sustainable vehicle, despite recent meta-studies showing that EVs emit significantly less emissions (Hall & Lutsey, 2018). Some life-cycle assessments that show no noticeable difference in emissions reduction between EVs and conventional vehicles are based on outdated or inaccurate assumptions and study theories for electric vehicles that do not represent the current state of the technology or its recent or future developments (Transport & Environment, 2020). For example, according to a research, electric vehicle batteries are now three times cleaner than they were two years ago (Emilsson & Dahllöf, 2019). Other incorrect assumptions included the assumption that the power grid would not decarbonize during the use of electric vehicles that emission values for conventional vehicles were unrealistic, and that battery evolution in terms of long-distance efficiency was not taken into account.

It is important to take a look at the evolving factors determining EV life-cycle emissions in the near future in order to provide up-to-date details on their contribution to reducing CO2 emissions. One of the important factors in the assessment of electric cars' emissions is the calculation of the carbon intensity of a country's electricity grid. This can be done by bottom-up calculation based on realistic electricity generation mix evolution, factors of emission for different energy sources, and electricity transmission and distribution losses (Transport & Environment, 2020). According to the T&E report, electricity output mixes in EU countries will adjust based on some scenarios describing the European energy future up to 2050, which show renewable electricity generation increasing from 35% in 2019 to 43% in 2025 and 55% in 2030 (Figure 1). This rapid adoption of renewables has a major consequence: an EV purchased today will continue to get cleaner over time, which is something that previous studies have not taken into account. To reflect the correct understanding of reducing emissions, the carbon intensity of the grid should be estimated based on total life cycle CO2 emissions. For example, the calculated EU countries' average carbon intensity of the electricity grid is 319 gCO2e/kWh in 2020, 168 gCO2e/kWh in 2030, and 84 gCO2e/kWh in 2040.

Figure 1: Electricity generation mixes in the EU (ENTSO-E 2020 TYNDP)



Another significant factor in evaluating electric vehicles' contribution to a sustainable environment is battery production emission, which is often debatable when it comes to whether or not EVs are successful in reducing emissions. Since the electricity used to manufacture batteries will change in the future, emissions from the battery manufacturing process should be forward-looking. Furthermore, scientific evidence from recent battery plants indicates that by improving the heating source, emission ranges can be reduced from 150 to 200 kgCO2e/kWh (2017) to 61 to 106 kgCO2e/kWh (Emilsson & Dahllöf, 2019).

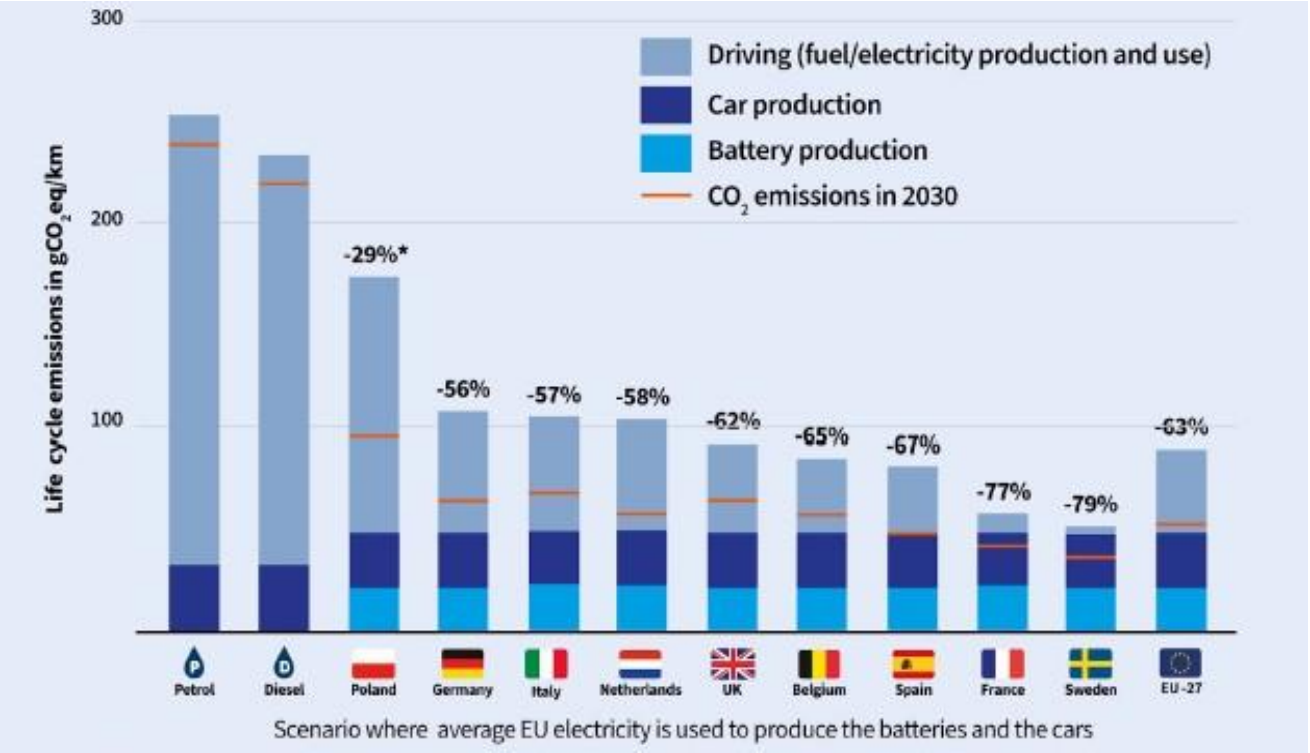
1.2. Amount of Emission reduction by electric cars

A medium-sized EU-average electric car emits about 90 gCO2e/km over its lifespan, while a diesel car emits 234 gCO2e/km and a gasoline car emits 253 gCO2e/km, including upstream emissions, for cars sold in 2020. Therefore, EVs, diesel cars and gasoline cars emit 20 tons, 53 tons, and 57 tons of CO2 over their lifetimes, respectively. Consequently, on average in the EU, electric cars emit 2.7 times less CO2 than conventional cars in 2020.

As previously mentioned, the carbon intensity of the electricity used to charge electric vehicles has the greatest impact on EV CO2 emissions over their lifespan. In this circumstance, assuming that electric cars used in the EU have batteries made with EU average electricity, the only difference is the electricity used to charge the vehicles, which varies from country to country. For example, if an EV is

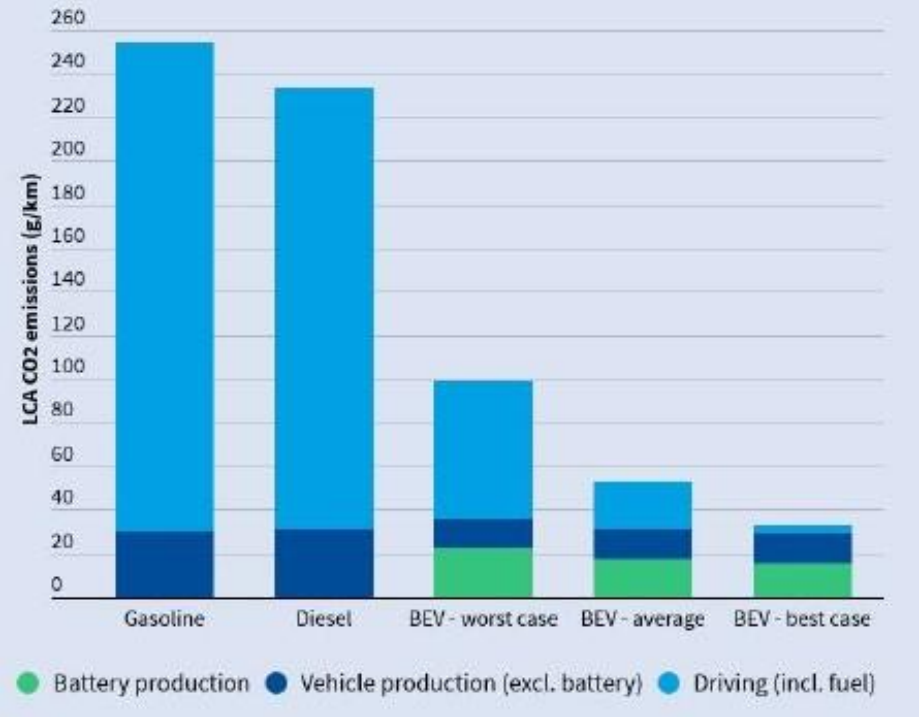
recharged in Poland, the country with Europe's most carbon-intensive electricity grids, it emits 26% and 31% less carbon than diesel and gasoline vehicles, respectively. Electric vehicles can be more than two times cleaner than conventional cars if they are charged in the Netherlands and Germany.The cleaness amount of EVs in France and Sweden is four to five times (Figure 2).

Figure 2: Lifetime CO_2 emission savings from electric cars in key EU countries



To highlight the lower emission caused by electric vehicles, we should look at the lifecycle emissions of EVs sold in 2030, which shows how EVs can continue to get cleaner. As shown in Figure 3, EV emissions are significantly lower in 2030 compared to 2020, accounting for 41% lower on average of electric cars. Because of rapid energy decarbonizing until 2030, an average EU medium EV is 4.2 times cleaner than a diesel car and 4.5 times cleaner than a gasoline car.

Figure 3: Lifetime CO_2 emissions of an electric car in 2030



2. Reduction in costs of the electric vehicle ownership

When purchasing a car, many people underestimate the importance of maintenance and repairs. Fuel and maintenance costs can add up to much more than the original purchase price of a conventional gas-powered vehicle over its lifetime. However, even though EVs have higher upfront costs, they can save consumers a lot of money in the long run on operating expenses.

2.1. Resale value of electric cars

The electric vehicle market is rapidly evolving, owing to significant reductions in battery costs over the last decade. The expanded driving range is one of the most notable improvements. The sharp improvement in range delivers far more utility for many consumers which is likely to be reflected in higher resale values. According to a study that looked at how the values of electric cars will hold up over time, existing longer-range battery electric vehicles (BEVs) are expected to hold their value almost as well as comparable internal combustion engine (ICE) vehicles over the next five years. Furthermore, over the same time span, plug-in hybrid electric vehicles (PHEVs) are expected to keep their value almost as well as conventional hybrids in the same vehicle segment (Harto, 2020).

2.2. Maintenance costs of electric vehicles

Since electric motors and other drivetrain components have less moving parts than internal combustion engines and do not require fluid changes, electric vehicles (EVs) are supposed to be less expensive to maintain. According to Consumer Reports, pure electric vehicles need less maintenance and are less expensive to maintain than gas-powered vehicles. While the higher purchase price of an electric

vehicle could deter some buyers, converting from a conventional gasoline-powered vehicle to an electric vehicle can be a great way to save money over the vehicle's lifetime (Preston, 2020).

The findings of the report, which included hundreds of thousands of EV users, indicate that electric vehicle owners spend half as much on repairs and maintenance. As opposed to a gasoline-powered car, consumers who buy an electric car can expect to save $4,600 in repair and maintenance costs over the life of the vehicle. According to vice president of marketing and sales at RepairPal, EVs cost about $900 a year to repair and maintain by the time they hit their fifth year, which is when costly things like tires wear out, while equivalent gasoline-powered vehicles cost about $1,200.

The reason for this lower cost of maintenance for EVs is that ordinary maintenance items in EVs include the cabin filters, tires, braking pads, and suspension components, such as shock absorbers, steering tie rods ends, and ball joints. Cooling system in EVs is similar to gasoline engine's radiator system in using antifreeze but because contamination by engine oil or combustion byproducts has a zero chance, it rarely needs to be changed. Since EVs and some hybrids use the resistance from the electric motors to slow the vehicle, brake pads aren't used as much as they would be in a gasoline-powered vehicle. On the other hand, the relative simplicity of electric vehicles eliminates the need for oil changes and engine tune-ups that we are all familiar with in gas cars.

Based to the results of an analysis in the Consumer Reports website, repair and maintenance costs per mile for two types of EVs and traditional cars have been measured, and it has been proven, as shown in table 1, that on average, conventional car costs are nearly double those of electric cars over the course of their lives, though this amount is slightly higher for conventional cars in the first 50000 miles.

Table 1: Estimated Per-Mile Repair and Maintenance Costs by Powertrain. BEV (Battery Electric vehicle), PHEV (Plug-in Hybrid Electric Vehicle), ICE (Internal Combustion Engine Vehicle)

Powertrain Type	0-50K Miles	50K-100K Miles	100K-200K Miles	Lifetime Average
BEV	$0.012	$0.028	$0.043	$0.031
PHEV	$0.021	$0.031	$0.033	$0.030
ICE	$0.028	$0.060	$0.079	$0.061

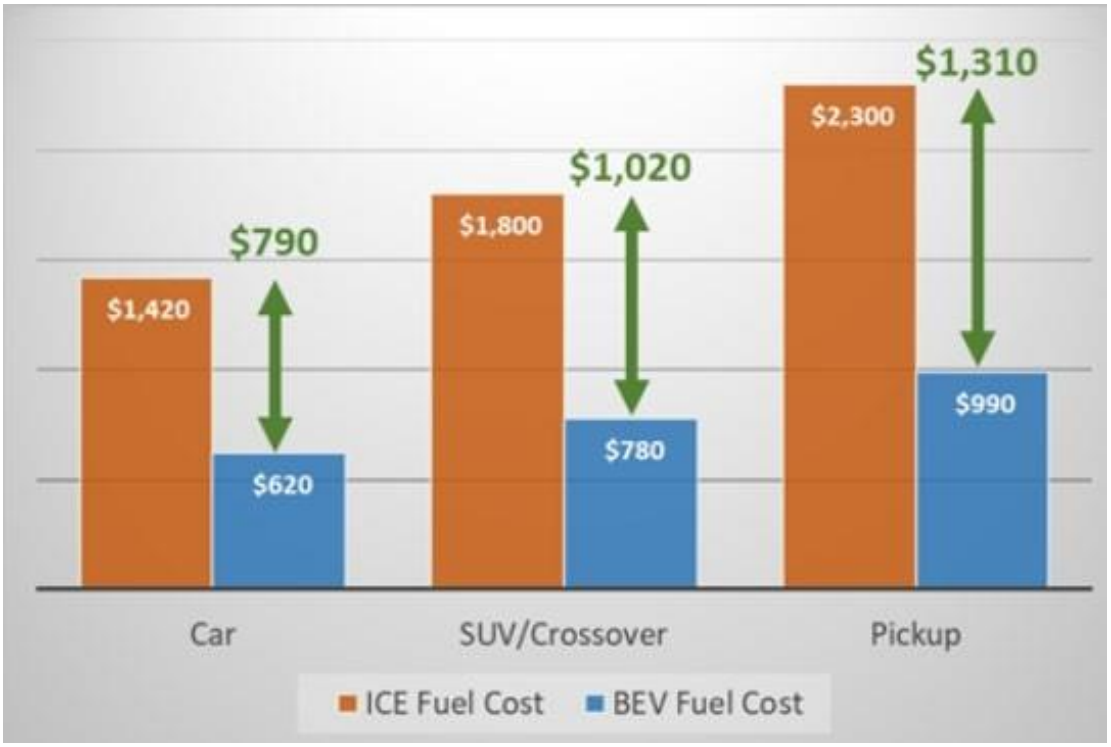
2.3. Fuel cost savings

Consumers of EVs will benefit from home charging in a variety of ways, one of which is the ease of not having to stop at a gas station several times per month. Furthermore, charging a BEV at home is far less costly than paying for fuel.

Figure 4 illustrates the estimated fuel savings a buyer would realize by purchasing an EV, comparing the cost of fuel for ICE vehicles versus BEV vehicles over 15,000 miles, the projected average annual

mileage for new vehicle owners. Even when charging at comparatively costly DC quick chargers is factored in, BEVs are estimated to cost around 60% less to fuel than comparable ICE vehicles, resulting in annual savings ranging from $800 to $1,300, depending on vehicle class (Preston, 2020).

Figure 4: Estimated Fuel Cost for 15,000 Miles by Vehicle Class

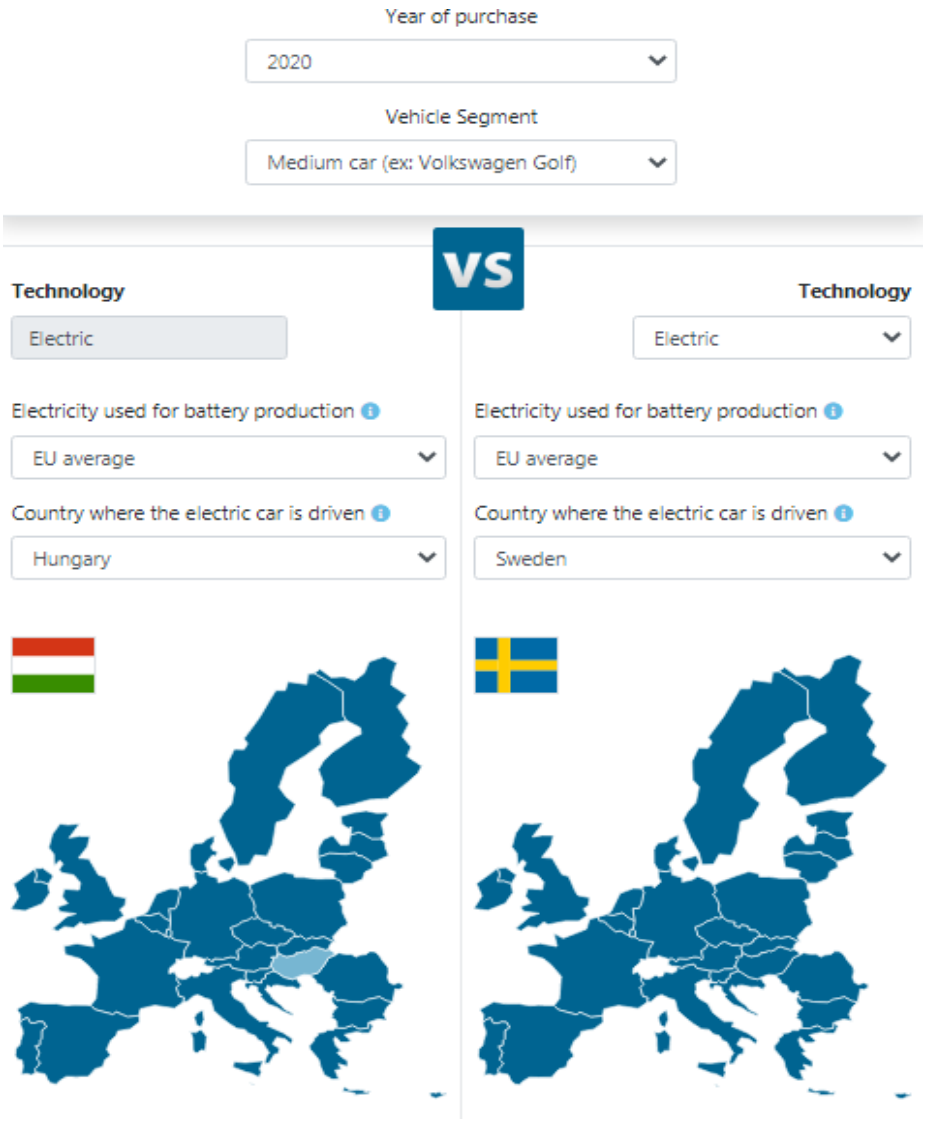


3. Methodology

We based this study on the findings and data from previous studies and credible reports available on the internet about CO2 emissions and maintenance savings from switching from conventional cars to electric vehicles. We used two developed tools on Transport and Environment, as well as the CHARGEVC websites, to obtain a greater understanding of how to reduce emissions and costs of usage and maintenance. These two tools, by providing precise amounts of reduced emissions and fuel savings, help people better understand the effect of electric vehicles on their quality of life.

The tool developed by Transport and Environment website complies with the most up-to-date data on CO2 emissions linked to the use of an electric, diesel, and petrol car. It takes into account all possible criteria such as the amount of CO2 emitted when electricity is produced or fuel is burnt, as well as the carbon impact of resource extraction for batteries or of building a power plant. In this study, we used this tool to compare lifetime CO2 emissions of an electric car is being used in Hungary with lower use of renewable energy in its electricity grid (high carbon intensity) and Sweden as a country with high use of renewable energy in its grid (low carbon intensity) as two electricity generation scenarios for cars are purchased in 2020 in medium-sized vehicle segment (figure 5).

Figure 5: Compare the lifetime CO2 emissions of an electric car in Hungry with another electric car in Sweden, Purchased in 2020 and Medium-sized segment.



To use the CHARGEVC website's tool to provide a distinct amounts of expenditures when driving a gas car and an electric car, we set the distance traveled to 30 miles per day.

In order to answer to the research questions, we will find a relation between any of these advantages of EVs with the motivations are mentioned in the introduction part that conscious consumers of EVs can elaborate on to inspire other groups to promote their life style to a sustainable way of life.

Findings

The results from CO2 emissions in consequence of using an electric car in Hungary and Sweden are 80gr/km and 51gr/km respectively, showing the difference of emissions in their lifetime will be equal to approximately 11 tons of CO2.

The amount of money would be saved by changing to an electric car from conventional one which uses gasoline as fuel per year, is equal to 798 USD based on the result came out by using CHARGEVC website's tool as shown in Figure 6.

Figure 6: Yearly savings on fuel when using an electric car instead of a gas car for daily 30 miles travel

4. Discussion and Conclusion

The features of electric vehicles that can be highlighted by their owners as conscious consumers to encourage other groups of people to choose sustainable options when buying a car were investigated in this study. To achieve this target, we first searched for motivations that would influence car buyers' decisions to select electric cars over internal combustion engine cars, resulting in a sustainable transportation, and avoiding global warming and climate change. Finding connections between the benefits of electric vehicles and motivations that would encourage people to use sustainable products will provide strong ideas for conscious electric vehicle consumers to effectively invite other consumers to adopt a sustainable lifestyle.

Electric vehicles, as we learned from the theory, can reduce emissions dramatically in any situation where electricity is produced. However, when using a clean energy electricity grid, this reduction in GHG emissions would be much greater than if a high-carbon intensity grid is used. This fact may indeed be related to the normative and hedonic motivations of people looking to purchase a new car or replace their current vehicle. People would feel morally right if they purchase a product that will improve their environment's state. Their sense of satisfaction would be heightened as a result of their commitment to improving environmental quality and, as a result, their own lives.

Knowing that using electricity generated from renewable energy will reduce emissions even further would encourage EV owners to charge their cars with a cleaner source of energy. As a result of getting

a thorough understanding of how EVs reduce greenhouse gases, electric vehicle owners may be assisting themselves in becoming a responsible community of consumers who prefer a sustainable way of life by joining those who already use renewable energy sources to meet their electricity needs. This goal, however, is contingent on the government's actions and intentions to build the necessary infrastructure for people to use renewable energy-generated electricity.

In this research unlike previous studies, we want to see whether, in addition to being cleaner, other aspects of electric vehicles, such as the key elements of lower EV ownership costs emphasized by their owners, would inspire other groups of customers to embrace EVs. One of the biggest worries of people who want to adopt EVs is that they think electric cars will lose their value more and faster than their conventional peers. Knowing that the electric cars will keep their value same as conventional cars would provoke their gain and hedonic motivations. The personal benefits and hedonic motivations of electric vehicle consumers will be enticed by their lower maintenance costs because it is self-evident that it saves EV owners money on repairs, resulting in a higher level of satisfaction with owning such a car. Moreover, a lower budget spent on fueling EVs will inspire consumers by all three key motivations: gain, moral norms, and hedonic motivations. Spending less on fossil fuels gives people the impression that they are doing something morally right and beneficial for society and the environment. Furthermore, saving money on gas provides customers with personal benefits and therefore satisfaction. We compiled all of the results in table 2 to summarize the relationships between these electric vehicle benefits and the determining motives.

Table 2. Relationship between selected electric car benefits and motivations of EV adoption

Motivations / **EV Benefits**	**Personal benefits**	**Moral norms**	**Hedonic**
Reducing emissions	------	X	X
Holding resale value	X	------	X
Lower maintenance costs	X	-----	X
Fuel costs reduction	X	X	X

Other benefits for EVs can persuade people to choose them, but current consumers who want to help other groups of consumers become more motivated should concentrate on the benefits we described in this study because, as we can see, they induce at least two key motivations to embrace EV transportation, while other benefits may only inspire one such as buying and using electric cars as luxury goods.

Aside from emphasizing the advantages, current consumers can help improve other consumer groups' knowledge of electric vehicles, thereby increasing their interest in adopting them, by joining any EV user associations. This will give the organizations enough bargaining power to affect government decisions in favor of those who have chosen a sustainable lifestyle. As previously stated, EV-related research suffers from a lack of reliable data, so EV owners can record any data about electric vehicles, such as costs and technical issues, and then share it with others looking to purchase one. This information can be shared with others via social media, apps, or in person. Participating in any electric vehicle research survey can also be one of the best ways to improve other consumers' knowledge and encourage them to buy an environmentally friendly car in order to live a more sustainable lifestyle.

When it comes to content analysis, this could be a good starting point. The new elements that need to be analyzed could be added, but future research could also extend on the numbers of games. It would be interesting to compare environmental games to other serious games that have an aim to educate consumers besides entertainment. Possible research could compare environmental games that target different generations, in this case, children and adults.

Another issue when it comes to environmental games is the lack of longitudinal studies. The real question remains: Are environmental games eventually leading to pro-environmental behavior? Therefore an extensive longitudinal research is needed in order to demonstrate the potential of the environmental games.

References

Bamberg, S., Rees, J., & Seebauer, S. (2015). Collective climate action: Determinants of participation intention in community-based pro-environmental initiatives. Journal of Environmental Psychology, 43, 155–165. https://doi.org/10.1016/j.jenvp.2015.06.006

Bodur, H. O., Duval, K. M., & Grohmann, B. (2015). Will You Purchase Environmentally Friendly Products? Using Prediction Requests to Increase Choice of Sustainable Products. Journal of Business Ethics, 129(1), 59–75. https://doi.org/10.1007/s10551-014-2143-6

Emilsson, E., & Dahllöf, L. (2019). Lithium-Ion Vehicle Battery Production, C444, IVL Swedish Environmental Research Institute (Issue C). https://www.ivl.se/download/18.14d7b12e16e3c5c36271070/1574923989017/C444.pdf

Hall, D., & Lutsey, N. (2018). Effects of battery manufacturing on electric vehicle life-cycle greenhouse gas emissions. ICCT Briefing, February, 12. https://www.theicct.org/sites/default/files/publications/EV-life-cycle-GHG_ICCT-Briefing_09022018_vF.pdf

Harto, C. (2020). Electric Vehicle Ownership Costs: Today's Electric Vehicles Offer Big Savings for Consumers. Consumer Reports. https://advocacy.consumerreports.org/wp-content/uploads/2020/10/EV-Ownership-Cost-Final-Report-1.pdf

Jansson, J. (2011). Consumer eco-innovation adoption: Assessing attitudinal factors and perceived product characteristics. Business Strategy and the Environment, 20(3), 192–210. https://doi.org/10.1002/bse.690

Jansson, J., Marell, A., & Nordlund, A. (2010). Green consumer behavior: Determinants of curtailment and eco-innovation adoption. Journal of Consumer Marketing, 27(4), 358–370. https://doi.org/10.1108/07363761011052396

Onwezen, M. C., Antonides, G., & Bartels, J. (2013). The Norm Activation Model: An exploration of the functions of anticipated pride and guilt in pro-environmental behaviour. Journal of Economic Psychology, 39, 141–153. https://doi.org/10.1016/j.joep.2013.07.005

Peters, A., & Dütschke, E. (2014). How do Consumers Perceive Electric Vehicles? A Comparison of German Consumer Groups. Journal of Environmental Policy and Planning, 16(3), 359–377. https://doi.org/10.1080/1523908X.2013.879037

Preston, B. (2020). Pay Less for Vehicle Maintenance With an EV. Consumer Reports. https://www.consumerreports.org/car-repair-maintenance/pay-less-for-vehicle-maintenance-with-an-ev/#:~:text=Jill Trotta%2C vice president of,powered cars cost about %241%2C200.

Prothero, A., Dobscha, S., Freund, J., Kilbourne, W. E., Luchs, M. G., Ozanne, L. K., & Thøgersen, J. (2011). Sustainable consumption: Opportunities for consumer research and public policy. Journal of Public Policy and Marketing, 30(1), 31–38. https://doi.org/10.1509/jppm.30.1.31

Rezvani, Z., Jansson, J., & Bengtsson, M. (2017). Cause I'll Feel Good! An Investigation into the Effects of Anticipated Emotions and Personal Moral Norms on Consumer Pro-Environmental Behavior. Journal of Promotion Management, 23(1), 163–183. https://doi.org/10.1080/10496491.2016.1267681

Rezvani, Z., Jansson, J., & Bengtsson, M. (2018). Consumer motivations for sustainable consumption: The interaction of gain, normative and hedonic motivations on electric vehicle adoption. Business Strategy and the Environment, 27(8), 1272–1283. https://doi.org/10.1002/bse.2074

Rezvani, Z., Jansson, J., & Bodin, J. (2015). Advances in consumer electric vehicle adoption research: A review and research agenda. Transportation Research Part D: Transport and Environment, 34, 122–136. https://doi.org/10.1016/j.trd.2014.10.010

Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. Journal of Environmental Psychology, 29(3), 309–317. https://doi.org/10.1016/j.jenvp.2008.10.004

Testa, F., Iraldo, F., Vaccari, A., & Ferrari, E. (2015). Why eco-labels can be effective marketing tools: Evidence from a study on italian consumers. Business Strategy and the Environment, 24(4), 252–265. https://doi.org/10.1002/bse.1821

Transport & Environment. (2020). How clean are electric cars? 1–33. https://www.transportenvironment.org/sites/te/files/downloads/T%26E's EV life cycle analysis LCA.pdf

Sustainability in SMEs – how the business deals with these challenges

AUTHOR

Mbali Ayanda Sithole

Faculty of International Management and Business, Budapesti Gazdasági Egyetem

ayanda92022@hotmail.com

DOI: 10.29180/9786156342218_11

1. Introduction

Small and Medium Enterprises (SME's) are the backbone of economies within the EU because approximately 99 % of the enterprises are SMEs. Additionally, they have created approximately two thirds of the jobs within the economic block (Szennay, Sziget, Beke & Radacsi,2021). The large number of SMEs illustrates that it is pivotal to study the impact of their business operation on the environment (Franco & Rodrigues,2021). These researchers' further reason that between 60 to 70 percent of the total air pollution is produced by SMEs. It has been a challenge for SME to adopt environmental systems that would help them to become more sustainable. Some of these challenges are caused by SMEs limited financial resources, human resources inadequate business processes and the lack of technology. Researchers such as Langwell and Heaton (2015) explain that there still isn't a sufficient number of studies evaluating the impact of a SMEs human resource activities on the SMEs ability to instill sustainability initiatives.

Research Objectives

To evaluate whether that SMEs financial resources, human resources and ecological footprint help it to overcome the challenges of sustainability

Research Questions

- The SMEs financial resources and or function aids SMEs to overcome the challenges of sustainability?
- The SMEs human resources helps SMEs to overcome the challenges of sustainability?
- The SMEs ecological footprint would help the SME overcome the challenges of sustainability?

Research Problem

The term sustainability came to rise at the United Nations conference in 1972 (Burlea-Schiopoiu & Mihai,2019). The 1972 conference persuaded some business to evaluate how they may integrate these goals of sustainability into their vision and mission (Burlea-Schiopoiu & Mihai,2019). According to Eikelenboom & de Jong (2019) the three pillars underpinning sustainability are social, environmental and economic objectives. SMEs may have some challenges implementing these objectives into their busines because of the lack of financial resources, human resources and limited time (Eikelenboom &

de Jong ,2019). Furthermore, some SMEs may be reluctant to adopt practices and or tools that would make their businesses more sustainable because of the lack of information and skills pertaining to sustainability issues (Johnson & Schalteffer,2016). This study will evaluate the challenges that SMEs face by adopting sustainability.

Research Methodology

This study will be a quantitative study. The data on these SMEs will be acquired from the relevant databases.

Expected Findings

At first adopting the tools of sustainability may be costly for the company. However, being more sustainable will be a competitive advantage for these SMEs. In the long run adopting the tools of sustainability will make the SME more profitable.

Practical Implications

The SMEs will be more efficient because its adopted the tools of sustainability

Social Implications

The company will decrease its ecological footprint.

2.1. Literature Review

A literature review is conducted to analyse and synthesis previous research (Snyder,2019). A literature review may help the researcher to address the study's research questions (Snyder,2019). Additionally, this author argues that a literature review is conducted to evaluate the study's research area and explain the study's research questions and hypotheses. This study's literature review has explained the importance of sustainability and or corporate sustainability. Additionally, it has also discussed the factors that hinder SMEs from adopting sustainability. It has also discussed the factors that have motivated SMEs to adopt sustainability. Lastly, it has discussed how some SMEs overcame the challenges that emerged from adopting sustainability.

2.2. Sustainability

Small medium enterprises (SMEs) are a pivotal for the growth of developing economies and industrialized countries (Prasanna et al., 2019). SMEs aid in the regional and local development of the country and they help quicken its industrialization (Hasnah, Saniza, Jayarman& Ishaik,2013). Additionally, these authors reason that SMEs help to create jobs within the country and contribute to their GDP production. Langwell and Heaton (2015) contend that literature that focuses on corporate sustainability is mostly concentrated on large companies, thus corporate sustainability in SMEs is under researched. Sustainability has been defined as the ability of companies to use resources in a manner that does not hinder the consumption of future generations (Langwell & Heaton,2015). The purpose of corporate sustainability (CS) is to aid companies and or SMEs to improve their economic, social and environmental performance (Bos-Brouwers,2010). China continues to be one of the largest emitters of greenhouse gas (Weber,2017). In China MNCs and SMEs are influenced to adopt

sustainable practices because of the pressure from their government, economic incentives and access into international markets (Sommer,2017). Thus the Chinese government has created and implemented programs such as Green Credit Policy (Weber ,2017). SMEs in Brazil are driven by the high market demand for products that are environmentally friendly. Additionally, in Brazil Sommer (2017) argues that the entrepreneurial awareness towards sustainable practices is relatively high. The laws in Brazil also compel SMEs and MNC's to adopt sustainable practices and or standards (Sommer,2017). This is beneficial for SMEs and MNC's in Brazil because it grants them access to international markets. Bos-Brouwers (2015) concludes that SMEs may be inclined to adopt corporate sustainability because of the benefits that they may acquire. For example, these SMEs may acquire a competitive advantage which differentiates them from their counter-parts. Bos-Brouwers (2015) further reiterates that the SMEs reputation and the pressure exerted by the stakeholders may also persuade these SMEs to adopt corporate sustainability. Lastly, the SME may be required by law to achieve and or acquire a specific level of environmental performance. Sommer (2017) argues that there are a few barriers that make it difficult for Brazilian SMEs to adopt sustainable practices such as:

- Costs (It is very expensive for SMEs to acquire certification and to implement sustainable practices)
- Scalability (The technology and processes that help companies to be more sustainable are usually designed for large companies and thus make them unsuitable for SMEs)
- Communication and a lack of supervision (SMEs may partner with larger companies, this helps the to be more competitive however there have been instances where SMEs are not properly supervised and consequently fail to implement the sustainable costs).
- A lack of adequate infrastructure.

The adoption of sustainable practices is pivotal within MNC's and SMEs. Researchers such as Sommer et. al (2017) have identified some of the factors that hinder the adoption of corporate sustainability and or sustainable practices within SMEs. However, researchers such as Szennay et al., (2021) have also discussed some of the factors motivate and or persuade SMES and MNC's to adopt sustainability.

2.3. What implication will adopting the tools of sustainability have on the SMEs ecological footprint?

Environmental sustainability is one of the targets of the 2020 European Union strategy (Szennay et al.,2021). The need for environmental sustainability emerged because the world has been demanding and consuming more ecological resources in a year than the earth can regenerate (Szennay et al.2021). Franco and Rodrigues (2021) found that between 60 to 70 percent of the total air pollution is produced by SMEs. This has urged scholars and practitioners to study and or assess the environmental performance of SMES. Environmental performance was a phenomenon created to measure the impact of business operations and their consumption of natural resources on the environment (Szennay et al.2021). Thus, some SMEs have become more attentive of how their daily practices may and or have impact/ed the environment (Franco & Rodrigues,2021). For example, some SMEs have been dedicated to reducing their waste by decreasing the amount of harmful substances that the SME utilized. They

have additionally decreased the amount of energy and water the SME consumes (Franco &Rodrigues,2021).

3. What implication will adopting sustainable development initiatives have on the SMEs human resources?

Some researchers have contended that some SMEs do not have the necessary human resources (HR) and financial resources to successfully adopt sustainability within their enterprises (Langwell & Heaton,2015). Human resource management within an enterprise is essential because it is a practice that affects the employees attitudes, the behavior of the employees and the performance of the employees within the SME (Hernita, Surya, Perwia, Aubakar &Idris,2021). Additionally, the HR department is pivotal because it helps communicate throughout the organization its goals and thus it may play a pivotal role in instilling the organization's sustainability initiatives (Langwell &Heaton,2015).Thus, to improve the productivity and performance of the SME it is important that they improve their HR (Hernita et al.2021). Some challenges that SMEs may encounter whilst trying to implement sustainability within their SME is the misunderstanding of policies that are intended to help implement sustainability within the SME. Secondly, some HR practitioner within SMEs are not adequately informed about the environmental issues of the area they operate in. Subsequently, they are not informed about the initiatives of sustainability that they may adopt that may help alleviate this challenge (Langwell& Heaton,2015). Hernita et al., (2021) reasons that to help SMEs overcome the challenges of sustainable development within their enterprise they require the following factors:

- Support from the government in terms of a change in government policies and actions;
- Mentoring for the SME's owners and employees;
- Working with Universities may help provide SMEs with the relevant data and guide the SMEs process of resource allocation;
- Improving the SME's technology may help improve the skills of its employees

It is essential that SMEs improve their HR capacity because it will improve its competitiveness, it will help improve the SMEs ability to access new markets, it may allow the SME to diversify its product and or service offerings and lastly, it may strengthen the production capability of the SME (Hernita et al.,2021). Additionally, Munoz-Pascual, Galenda & Curado (2021) reasons that the development of HR within the SME will improve the innovativeness of the SME and its sustainability initiatives. Additionally, to help further the SMEs sustainability practices the finance department plays a central role because sustainability has become a business function (Kimanzi &Gamede,2020). Sustainability has become a business function for SMEs because the governments of many countries have imposed laws that compel business to instill sustainability principals and secondly sustainability has cost effects on the business thus it is an integral part of the SME's budgeting process (Kimanzai &Gamede, 2020).

4. What implication will adopting sustainable development initiatives have on the SMEs financial resources?

The finance department of the SME is responsible for its performance. It is responsible for budgeting for all its functions and operations (Kimanza &Gamede,2020). These researchers' further reason that the finance department is responsible for functions such as developing metrices, tax planning incentives, risk management and internal and external management reporting processes of the SME (Kimanza &Gamede,2020). Al Breiki and Nobanee (2019) explain that the SMEs sustainability issues are critical factors that affect the financial decision of an SME and influence the amount and type of value the SME creates. Scholtens (2008) as cited by Weber (2017) also argues that corporate sustainability is affected by the company's financial performance.

The Chinese government has initiated programs such as Green Credit Policy (Weber,2017). This policy was designed to help integrate environmental issues into businesses financial decision making in a standardized manner (Weber,2017). This researcher further explains that this policy also helped to make the economy greener faster by persuading banks and its financial markets to support this policy, to support green innovation in the financial sector and the companies that adopt it (Weber,2017).

This section of the literature review has mainly discussed how SMEs overcome the challenges that have emerged as a result of adopting sustainability practices. The Chinese government has highlighted how it helps its business overcome the financial challenges. The focal point of Green Credit Policy is providing industries who are committed to sustainable practices access to finance at cheaper interest rates (Weber,2017).

5. Research Methodology

Research methodology is the procedure that the researcher used to obtain data and knowledge that was necessary to answer the study's research questions (Kivunja & Kuyini, 2017). This procedure refers to the research philosophy, research design, research approach, research strategy, data collection methods and data analysis utilized by the researcher to answer the study's research questions (Kivunja & Kuyini, 2017). This study has used questionnaires to collect quantitative data to assess how SMEs handle the challenges that they have experienced as a result of adopting and or implementing sustainability practices.

6. Sampling

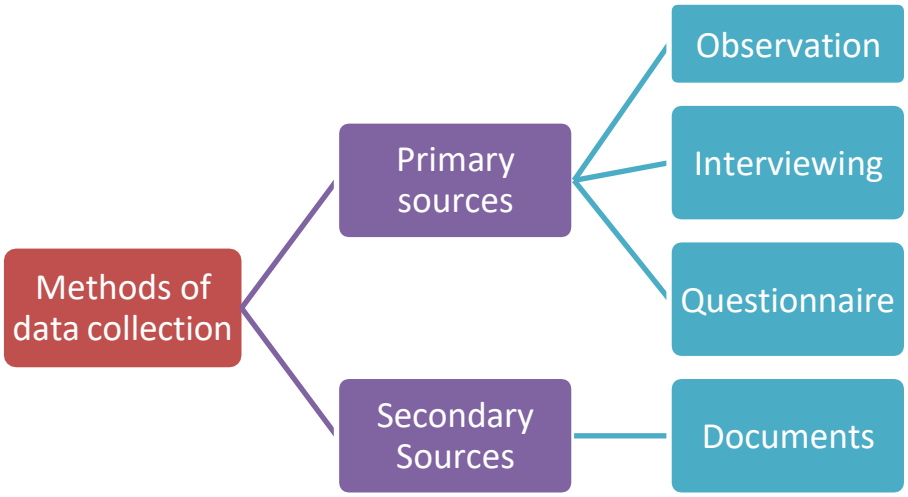
This questionnaire was distributed to 10 SME owners in South Africa and 10 business management students based in Hungary.

7. Data collection Method

Data collection methods are pivotal because it communicates how the researcher will systematically collect data and the instrument that will be used (Sadan,2017). Kumar (2011) and Fowler (2014) reason that the data collection method employed by researchers is influenced by the objectives of the study, the study's sampling frame, and the resources and skills obtainable by the researcher. There are

different methods and sources, which may be employed by researchers to collect data, for example, primary sources like interviews, observations and questionnaires may be utilized (Kumar, 2011). Figure 1.1 is used to illustrate the different methods of data collection.

Figure 1. 1: Different methods of data collection



Source: Kumar (2011)

The figure above illustrated the different methods of data collection. The researcher may primary and or secondary sources such as documents (Kumar, 2011). Some researchers use questionnaires to collect data from both a large or small population (Rowley, 2014). Questionnaires are efficient to use in quantitative studies because they limit researchers bias and they help to collect data quickly (Nardia, 2018). Additionally, this researcher argues that questionnaires may be used to assess the opinions of the respondents pertaining to a specific phenomenon (Nadia, 2018). This study has utilized a questionnaire to collect data, to enable the researcher to achieve the objectives of the study and adequately answer the study's research questions (McGuirk & O'Neill, 2016; Nardi, 2018).

8. The design of the questionnaire and its questions

The design of questions within the questionnaire is paramount because it focuses on ensuring that participants' answers are reliable and valid (Collis & Hussey, 2014). The design of the questionnaire was influenced by the type of data that was required to answer the study's research questions. This questionnaire made use of closed-ended questions, which produced numerical data which was statistically analysed using SPSS.

The creation of questions and the design of the questionnaire was guided by the following factors:

•The researcher must be mindful of the length of questions within the questionnaire as Rowley (2014) contends that shorter questions may improve the respondents understanding of the question and

•To improve the response rate of questions within the questionnaire, the researcher must be mindful of the wording within the questionnaire (Lietz, 2010).

•Rowley (2014) reasons that researcher must use jargon that the respondents understand when asking questions. The researcher must also be mindful of the access to information that the respondents have as this also affects the response rate of questions

•The response rate of questions is negatively affected when researchers make use of double-barrel questions, as a result, Nardia (2018) argues that it is essential to ensure that a single question does not assess two different concepts as this may lead to confusion

•Lietz (2010) argues that the order in which questions are placed affects the response rate of the questionnaire

The questions from the questionnaire have been adapted from the following researchers:

- Kimanzi & Gamede (2020)
- Langwell & Heaton (2015)

	Finance	Mean	Std.Deviation	Mode
A1	Finance function plays a key role in decision-making of sustainability programs	3.15	1.13671	3.0
A2	Finance function plays a key role in tracking progress of sustainability programs	3.05	1.39454	2.0
A3	Finance function plays a key role in developing a cost benefit analysis on sustainability programs	3.5	1.000	4.0
A4	Finance function plays a key role in developing tax planning strategies related to sustainability (incentives, tax breaks)	3.55	.99868	3.0
A5	The finance function is involved in developing metrics for measuring sustainability practices	3.4	1.3536	4.0

9. Data Analysis

This study used the Statistical Package for the Social Sciences (SPSS) software to process the data. This software was effective for statistical testing. It was used to analyse the mean (average), mode (most frequent number in the dataset) and median (midpoint of the dataset) (Puteh &Ong,2017).

10. Results and Findings

Section A of the questionnaire focused on how the finance department of the SME aided and or supported it to overcome the challenges of implementing sustainability programs and or practices. This study found that to a moderate extent business scholars and SME owners felt that the finance department played a moderate role in the decision-making process of sustainability programs. Additionally, it found that the finance department also played a moderate role in tracking the progress of its sustainability programs. The participants of the questionnaire felt that to a moderate extent the finance department played a role in tracking the tax planning strategies related to its sustainability programs. Lastly, data from the

questionnaire illustrated that to a moderate extent the research participants thought that the finance department was involved in developing the metrices for measuring its sustainability practices and or programs

	Human Resources	Mean	Std. Deviation	Mode
B6	To what extent are your sustainability initiatives discussed in orientation with new hires	3.5	1.31389	3.0
B7	To what extent have your retention rates increased in relation to the SMEs sustainability initiatives	3.5	.82717	3.0
B8	To what extent have you encountered obstacles as a result of implementing sustainability initiatives	4.0	.99472	4.0
B9	To what extent has implementing sustainability required you to change the processes within your organization	4.0	.78640	4.0

Section B of the questionnaire focused on the human resource department of the SME. This questionnaire found that to a moderate extent the SME hired people according to its sustainability initiatives. Secondly, the research participants felt that to a moderate extent the SMEs retention rates had an impact on the SMEs sustainability initiatives. Thirdly, research participants felt that to a large extent they SMEs experienced many obstacles as a result of implementing sustainability initiatives. Lastly, the research participants felt that the SMEs sustainability initiatives had an impact on the processes that the SME used to implement change

	Ecological Footprint	Mean	Std. Deviation	Mode
C10	To what extent is environmental sustainability a priority for the SME	3.5	1.10024	4.0
C11	To what extent does the government provide support for SME to be more sustainable	3.5	.94591	3.0
C12	To what extent does the financial sector provide support for SME to be more sustainable	3.900	.96791	4.0

Section C of the questionnaire analysed the SMEs ecological footprint. This study's research participants felt that to a moderate extent environmental sustainability was a priority for SMEs. Secondly, the research participants also felt that to a moderate extent the government provided support that enabled it to be more sustainable. Lastly, to a large extent the research participant were of the opinion the financial sector provided support for the SMEs to be more sustainable

11. Recommendations per research questions

The SMEs financial resources and or function aids SMEs to overcome the challenges of sustainability?

Data from the questionnaire illustrated that the SMEs financial resources may help the SME to overcome the challenges of implementing sustainability. China created the Green Credit Policy , this policy made it easier for industries that are not heavy pollutants to have access to loans at a lower and or cheaper rate (Weber,2017). I recommend that more countries should influence their financial sector (banks) to provide loans to companies that are aligned to country's sustainability goals. This effort will influence green innovations and persuade more SMEs and MNC's to become greener.

The SMEs human resources helps SMEs to overcome the challenges of sustainability?

Data from the questionnaire illustrated the SMEs human resource may help the SME to overcome the challenges of implementing sustainability. The human resource department is essential because it is responsible for communicating the sustainability goals of the SME. The research participants felt that to a moderate extent the SMEs retention rates had an impact on the SMEs sustainability initiatives. This study has recommended that to overcome the challenges of sustainability it should involve its human resources

The SMEs ecological footprint would help the SME overcome the challenges of sustainability?

The SMEs environmental performance should be used by the stakeholders such as the government to help evaluate the amount of support the SME will need. The government should also develop policies such as the Green Credit Policy which promotes the SME going greener.

References

Al Breiki, M and Nobanee,H (2019). The Role of Financial Management in Promoting Sustainable Business Practices and Development. Accessible from [https://doi.org/10.2139/ssrn.3472404]

Bos-Brouwers,H.E.J. (2015). Corporate Sustainability and Innovation in SMEs: Evidence of Themes and Activities in Practice. Business Strategy and the Environment, 19, pp 417–435

Burlea-Schiopoiu, A & Mihai, L. S (2019). An Integrated Framework on the Sustainability of SMEs. Sustainability ,11 (6026) pp 1-22. [https://doi.org/10.3390/su11216026]

Collis, J & Hussey, R (2014). Business Research: A practical guide for undergraduate and postgraduate students. United Kingdom: Palgrave

Eikelenboom, M & de Jong, G. (2019). The impact of dynamic capabilities on the sustainability performance of SMEs. Journal of Cleaner Production ,235, pp 1360-1370. [https://doi.org/10.1016/j.jclepro.2019.07.013]

Fowler,F.J .(2014).Survey Research Methods 5th Edition. London: Sage

Franco, M &Rodrigues,M. (2021). Sustainable practices in SMEs: reducing the ecological footprint. Journal of Business Strategy 42 (2) pp 137-142 [https://doi.org/10.1108/JBS-07-2019-0136]

Hasnah, H., Saniza, S., Jayarman, K., & Ishak, I. (2013). Factors Influencing Small Medium Enterprises (SMES) in Obtaining Loan. International Journal of Business and Social Science, 4(15), 182-195.

Hernita, H., Surya,B ., Perwia,I., Aubakar,H &Idris, M.(2021). Economic Business Sustainability and Strengthening Human Resource Capacity Based on Increasing the Productivity of Small and Medium Enterprises (SMEs) in Makassar City, Indonesia. Sustainability, 13 (3177) pp 1-36 [https://doi.org/10.3390/su13063177]

Johnson, M.P & Schalteffer,S (2016). Two Decades of Sustainability Management Tools for

SMEs: How Far Have We Come? Journal of Small Business Management, 54(2) pp. 481–505

Kimanzi, M.K & Gamede, V.W (2020). EMBRACING THE ROLE OF FINANCE IN SUSTAINABILITY FOR SMES. INTERNATIONAL JOURNAL OF ECONOMICS AND FINANCE STUDIES 12(2) pp 453-465

Kivunja, C & Kuyini, A.B (2017). Understanding and Applying Research Paradigms in Educational Contexts. International Journal of Higher Education, 6(5): pp 26-41. [https://doi.org/10.5430/ijhe.v6n5p26]

Kumar, R (2011). Research methodology: a step-by-step guide for beginners. New York: Sage

Langwell,C & Heaton,D .(2015). Using human resource activities to implement sustainability in SMEs. Journal of Small Business and Enterprise Development, 23 (3) pp 652- 670 [https://doi.org/10.1108/JSBED-07-2015-0096]

Lietz, P. (2010). Research into questionnaire design: a summary of the literature. International Journal of Market Research, 52(2), pp. 249 [https://doi.org/10.2501/S147078530920120X]

McGuirk, P. M. & O'Neill, P. (2016). Using questionnaires in qualitative human geography. Faculty of Social Sciences - Papers. 2518.

Munoz-Pascual, L., Galenda, J & Curado, C. (2021). Contributions to Sustainability in SMEs: Human Resources,Sustainable Product Innovation Performance and the Mediating Role of Employee Creativity [https://doi.org/10.3390/su13042008]

Nardia, P.M. (2018). Doing survey research: a guide to quantitative methods. New York: Routledge [https://doi.org/10.4324/9781315172231]

Prasanna,R., Jayasundara,J., Gamage,S., Ekanayake,E., Rajapakshe,P & Abeyrathne, G.(2019).Sustainability of SMEs in the Competition: A Systemic Review on Technological Challenges and SME Performance. Journal of Open Innovation: Technology, Market and Complexity 5 (100) pp 1-18. [https://doi.org/10.3390/joitmc5040100]

Puteh, F & Ong, M.H.B.A (2017). Quantitative Data Analysis: Choosing Between SPSS, PLS and AMOS in Social Science Research. International Interdisciplinary Journal of Scientific Research .3 (1) pp 14-25

Rowley, J. (2014). Designing and using research questionnaires. Management Research Review 37(3), pp 308-330 [https://doi.org/10.1108/MRR-02-2013-0027]

Sadan, V (2017). Data Collection Methods in Quantitative Research. Indian Journal of Continuing Nursing Education 18 (2) pp 58 -64

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. Journal of Business Research 104, pp 333–339 [https://doi.org/10.1016/j.jbusres.2019.07.039]

Sommer, C. (2017). Drivers and constraints for adopting sustainability standards in small and medium-sized enterprises (SMEs). Accessed on [https://www.econstor.eu/bitstream/10419/199511/1/die-dp-2017-21.pdf]

Szennay, Á.; Szigeti, C.; Beke, J.; Radácsi, L . (2021). Ecological Footprint as an Indicator of Corporate Environmental Performance— Empirical Evidence from Hungarian SMEs. Sustainability , 13 (1000) pp 1-17 [https://doi.org/10.3390/su13021000]

Weber, O. (2017). Corporate sustainability and financial performance of Chinese banks. Sustainability Accounting, Management and Policy Journal, 8 (3), pp. 358-385 [https://doi.org/10.1108/SAMPJ-09-2016-0066]

Annexure A: Questionnaire

Finance	No Extent	Small extent	Moderate Extent	Large extent	Very large extent
Finance function plays a key role in decision making of sustainability programs					
Finance function plays a key role in tracking progress of sustainability programs					
Finance function plays a key role in developing a cost benefit analysis on sustainability programs					
Finance function plays a key role in developing tax planning strategies related to sustainability (incentives, tax breaks)					
The finance function is involved in developing metrics for measuring sustainability practices					

Human Resources	No Extent	Small Extent	Moderate Extent	Large Extent	Very Large Extent
To what extent are your sustainability initiatives discussed in orientation with new hires					
To what extent have your retention rates increased in relation to the SMEs sustainability initiatives					
To what extent have you encountered obstacles as a result of implementing sustainability					
To what extent has implementing sustainability required you to change the processes within your organization					

Ecological Footprint	No Extent	Small Extent	Moderate Extent	Large Extent	Very Large Extent
To what extent is environmental sustainability a priority for the SME					
To what extent does the government provide support for SME to be more sustainable					
To what extent does the financial sector provide support for SME to be more sustainable					

Sustability and Circular economy

Blockchain solutions

AUTHOR

Alina Plyassulya

Bsc "International Business"

DOI: 10.29180/9786156342218_12

1. Introduction

The ultimate goal of the circular economy is to achieve decoupling economic growth from the depletion of natural resources by creating positive value loops with each use or reuse of the material or product before final destruction. It is inspired by the functioning of natural ecosystems, and their expertise acquired throughout evolution to combine the efficiency of the use of resources, the creation of economic value, cooperation, the well-being of individuals and protection of biodiversity.

It emphasizes innovative public policies new modes of design, production, consumption, the extension of the useful life of the products, the use rather than the possession of the good, the reuse and the recycling of the components. The circular economy is an alternative to the paradigm of the so-called linear economy: The circular economy is presented as a more sustainable path. It targets the sober and efficient management of resources.The general principle is to move from a classic model of linear economy which is expensive in resources to a circular model which makes better use of resources and recovers waste to loop them back into a new production cycle. = less withdrawals in nature and less polluting discharges.

However, a truly circular economy is not just a system of trade and production

aimed at increasing the efficiency of the use of resources. It constitutes a global alternative vision meaningful, ambitious, mobilizing and which offers the opportunity for populations to regain a certain level of control over their environment at the local level.

Among these many meaningful assets, we present the advantage of being compatible with the 3 pillars of the sustainable development model:

Macroeconomic:

The potential of the circular economy is a minimum net saving of 380 billion dollars per year in raw materials in Europe to which is added the creation of positive value, based on relocated consumption, support for industrial and agricultural activity on territories and the development of new channels dedicated to repair, reuse and recycling. (A. KALT- 2012).

Each percentage point decrease in the use of primary resources in Europe is equivalent to approximately € 23 billion in savings for companies with the potential for job creation of between 100 and 200,000 jobs.

Microeconomic:

The model is soluble in a regulated market economy, through the multitude

initiatives that activate it and the free creation of the innovative business models it promotes (eco design, functional economy, collaborative economy, sharing).

Social:

By establishing close contact between actors in the territories, by their mobilization on

themes of respect for the environment (rational consumption, waste management, societal responsibility requirement), through employment sources that cannot be relocated

in the fields of the green economy strongly anchored in the Social and Solidarity Economy ESS.

Environmental:

The drop in the level of waste thanks to the effects of sustainability and the dynamics of local loopback positively and interactively leads to a series of reactions: reduction of resource extraction, rational use of local resources, revitalization of local agriculture, reduction of pollution, resilience of communities who find a multitude of resources locally.

2. Interactions between growth and the environment

The various assumptions made about the nature of the interface between economic activity and the environment play an important role in studying the relationship between growth and environmental degradation. The first meaning goes from the environment to the economic system characterizing natural resources (exhaustible or renewable), either for productive use or as an amenity value. The second meaning goes from the economic system to the environment which releases pollutants and acts on the quality of the environment. In order to study the interactions between economic growth and the environment, it is useful to examine them. fundamental characteristics of the dynamics, economic and ecological, and to specify their links. Economic activity is conceived as a system in which rational agents interact in search of their private interests. Able to be represented by a general equilibrium model, this system determines the aggregate order, aggregate demand, and market structure under which the production and allocation of resources are ... fixed. This system therefore determines the rate of exploitation of natural resources and the level of pollution generated. Environmental degradation is in this sense intrinsically linked to economic activity; although investment creates new capital goods and consequently offers new opportunities for economic growth, the exploitation of a resource or the pollution associated with it causes a deterioration in the quality of the environment. Such a deterioration constitutes a loss in the well-being and / or in the productivity of the factors of production. We can quickly conclude that there is a contradiction between growth and the quality of the environment. However, such an assertion must be qualified as long as possible changes in the productive sphere are taken into account. In fact, our way of producing has known and is undergoing recurrent and fundamental changes which have manifested themselves in the adoption of new

production technologies that are less dependent on natural resources or less polluting. These mutations can be assimilated to “borderline technologies” to use the terminology of Nordhaus (1973). Like electric, solar or nuclear energy, a “borderline technology” would be able to solve the environmental problems associated with forms of fossil fuels. It is often accepted that the issue of natural resources is relatively different from that associated with pollution. While the exploitation of natural resources constitutes a physical limit to economic growth, pollution is generally conceived of as

a anthropogenic limit with regard to the loss of well-being or productivity that it generates. In this presentation, we are only interested in pollution as a phenomenon of degradation of natural environments which originates in economic activity. are aware of the fact that their behavior can be at the origin of polluting emissions. However, each agent seeks his interest private and does not take into account the social consequences of pollution. It is thus defined as an external effect which acts on the well-being or on the productivity of individuals. The theory of external effects therefore provides an adequate analytical framework to study the optimal behavior of a polluting economy.

3. Pollution as an economic phenomenon

As the main source of pollution is economic activity, it is necessary to take it into account in the economic analysis. Public economics is the preferred discipline of economic theory for analyzing the phenomenon of pollution. The concept of reference, in this context, is that of "external effect".

According to Pigou (1920), there is an external effet or an externality in all cases where the well-being of a consumer or the production possibilities of a firm are directly affected by the actions of another agent without let the market intervene. An externality can be positive, if it improves the well-being of the agent concerned, or negative if it deteriorates its well-being (which is the case with pollution). environment imposed itself as a sub-discipline of public economics, dealing with these problems and proposing a range of economic measures to reduce the costs associated with them. Environmental economics was generally confined to the instruments of microeconomic analysis in a framework of partial equilibrium. The problems of depletion or scarcity of certain natural resources were the subject of a separate discipline. the economics of natural resources. Since the 1970s, environmental degradation and its links with economic growth have attracted the attention of many economists. Economists have introduced environmental concerns into the model general equilibrium dynamic which forms the microeconomic basis of optimal growth models. Environmental macroeconomics thus arose from the meeting between traditional environmental economics and growth theory. The optimal growth model has been modified by introducing environmental degradation as a negative external effect. However, this model considers macroeconomic variables in the form of aggregates (production, consumption, investment, etc.) whereas pollution is a disaggregated phenomenon which groups together several forms of pollutants with multiple origins and impacts. Thus, it would be futile to establish a pollution aggregate grouping together all forms of pollution. For this reason, most authors use a hypothetical indicator of the quality of the environment that intervenes as an argument in the utility function or in the production function.

Forms of pollution

Pollution can take the form of a flow or a stock of pollutants. When viewed as a flow (in the case of unwanted noise or certain toxic and non-persistent volatile organic compounds), the quality of the environment can improve rapidly when the sources of polluting emissions are reduced.

On the other hand, when it comes to pollution stock (accumulation of SO2 or CO2), the quality of the environment is gradually affected by the effects of pollution, insofar as it deteriorates its regeneration capacities.

Note that taking into account the pollution accumulation process calls for a complex modeling of the bio-physical phenomenon of environmental degradation. This modeling can only be specific to each type of pollutant. In the literature on growth models with a pollution stock, we most often retain simplified linear forms separating the process of creating pollution from that of natural regeneration. Gradus and Smulders (1996) show, in the case of 'an endogenous growth model with linear production technology, that the deterioration of the well-being of agents resulting directly from pollutant flows or from a pollution stock, does not in any way modify the qualitative conclusions of the model. In this paper, we consider that the quality of the environment deteriorates due to pollution flows which are fatal products of productive activity. We are also considering the possibility of reducing these pollutant flows through an economic decontamination activity.

4. Blockchain and circular economy

The blockchain is a ledger of public accounts that can store transaction records or any other data. It does not belong to anyone and a copy is stored on many personal computers around the world. Anyone can use it and help run the network, eliminating the need for middlemen and allowing users to interact with each other, peer to peer (P2P). Blockchain technology can also reduce transaction costs and increase the efficiency of the service processed (money transaction, signing of a contract, sale of goods, etc.) by automating it. By being inherently public and owned by all, this type of network is virtually impossible to dismantle or tamper with.

Once a data record is made (a money exchange for example), it cannot be changed and remains in the ledger forever. A new data record can only be added after it has been validated by multiple computers. This makes the data reliable without resorting to a third party. The ledger is secured by advanced cryptography which aims to anonymize users' personal data (contact details, personal information, type of device used, etc.) which makes it difficult to handle.

Initially, this technology can make it possible to optimize resources by automating and facilitating transactions and therefore flows, but also by integrating new players.

If we take the example of the electricity market, a complex sector with many players (producers, distributors, consumers ...), we can consider that it is fertile ground for blockchain. Indeed, it offers the possibility of eliminating intermediaries by making the system less expensive and more efficient. In combination with smart meters, the blockchain system can be used to transmit payment transactions, record these transactions safe from manipulation and control the flow and storage of electricity, thus managing payment through deployed smart contracts. within the blockchain. In addition, "peer-to-peer" exchanges - a technology allowing the direct exchange of data between computers connected to

the Internet, without going through a central server - are becoming possible. Local energy producers, like households that also produce electricity, can therefore sell their energy directly to their neighbors without an intermediary. Thus, the flow of electricity can be directed more efficiently to consumers over short distances, reducing energy transmission losses and the need for storage.

There are already examples of interesting solutions dedicated to the energy market. SunContract for example is a blockchain-based peer-to-peer energy trading platform for solar power and other renewables.

A blockchain-based platform could therefore enable institutions, businesses and individuals to achieve better productivity by investing directly in renewable energy production facilities.

It could also increase energy exchanges and reduce waste with the aim of facilitating the transition to a system of sustainable electricity consumption, as proposed by the German “energy transition” which aims to cover 60% of electricity consumption. national energy by renewable energies by 2050.

The goal of blockchain technology is also to create new opportunities. In particular, companies can use it to change current uses in order to have more sustainable habits. Today, we are seeing more and more products appear as a service, we pay a yearly subscription according to our consumption.

Companies can therefore offer products as a service using sensors to understand their use. Users pay a subscription based on their consumption while businesses retain ownership of the product. This is a mutually beneficial partnership: companies receive a continuous source of revenue and are incentivized to design their products for a longer period of time, while consumers pay only for what they need. The use of products is therefore optimized, which reduces waste and environmental impact, especially when we know that on average, in France, a car is used 7h12 per week, which corresponds to 5% of the time. .

Besides the electricity market, the sharing economy can also become a big beneficiary of blockchain technology. For example, companies like Uber or Airbnb can become useless, because the blockchain system allows two entrepreneurs or intermediaries (P-2-P) to interact directly. In the case of decentralized carpooling, the advantage is that the drivers have the possibility to work independently of a central institution like Uber, while the users benefit from reduced prices. The first decentralized carpooling start-ups, such as ArcadeCity or Lazooz, are working on the development of applications.

More and more people want to buy ethically produced products, but this information is often difficult to verify. A product passes through many hands before it arrives at the store. It's very easy for companies to lie about how their products are made, the materials and chemicals they use, where they dump their waste, or how they treat their employees.

Blockchain can be used to track products from manufacturer to shelf and help prevent waste, inefficiency, fraud and unethical practices by making supply chains more transparent. They can also help consumers be better informed about how each product has been manufactured and shipped so they can make greener choices.

If we were to track food, for example, it would allow shoppers to buy local produce knowing that it is actually grown locally. It would also reduce carbon emissions due to the fact that food does not have to travel long distances. Lock chains can ensure that a fish sold at a fish market is from an artisanal fisherman or verify that a bag of coffee has been purchased at a fair price for the producer.

For example, the startup Provenance intends to design a system capable of tracking in real time all the materials used, including qualitative and quantitative aspects, throughout the supply chain. They seek to obtain a digital passport for any product, which allows consumers and producers to follow the entire production process. Thus, it becomes possible to obtain digital certifications, such as emission quotas or proof of origin. Guarantee the validity of certificates and empower consumers to choose their purchases.

5. Conclusion

The circular economy is therefore emerging as a necessary paradigm shift to preserve resources and guarantee the future of our societies. However, while the transition to the circular economy is a collective imperative, its achievement will also be based on individual initiatives to transform companies' economic models.

I would like to present to you the solution to improve the situation in the field of circular economy.

We can see that new technology like blockchain can solve the pollution problem. Blockchain can be an important support in our circular economy. On the one hand, the circular economy provides the framework for offering alternatives to traditional economic systems. On the other hand, the blockchain offers solutions to facilitate certain key circularity principles such as the optimization of resources or their pooling. Nonetheless, although it can theoretically serve a more circular economy, its functioning and its heavy dependence on energy and technological resources seems to go against the principles of sobriety necessary for natural ecosystems.

At the same time, the blockchain facilitates the transition to a circular economy, and a circular economy would allow the blockchain to be more virtuous.

It therefore seems interesting to combine the two subjects, already popular with certain organizations, in order to develop business models and the management of resources - tangible or intangible.

References

Brieuc Saffré, Nicolas Buttin, Flora Sifflet (2019) Activate the Circular Economy: Reconciling Economy
and Nature

Barro R. J. et X. Sala-i-Martin (1996) La Croissance Economique

den Butter F.A.G. et M.W.Hofkes (1995) Sustainable development with extractive and non-extractive use of the environment in production",Environmental and Resource Economics , p. 341-358

van Marrewijk C., F. van der Ploeg et J. Verbeek (1993) Pollution abatement and endogenousgrowth: Is growth bad for the environment ?, The World Bank, 1993

Pearce D. W., E. Barbier et A. Markandya, (1990) Sustainable Development: Economics and Environment in the Third World , Edward Elgar

Solow R.(1991) Sustainability: an economist's perspective, Departement of Economics,Massachusetts Institute of Technology

Lim Hong Hin, Blockchain Economy : The New Era of Digital Economy, International Journal of Scientific Research in Science and Technology (IJSRST)

Green Hotels – business potential and market advantage

AUTHORS

Botond Sikó, Richárd Vetró

Hungarian University of Agriculture and Life Sciences

Doctoral School of Economic and Regional Sciences

sikoboti@gmail.com, vetro.richard@phd.uni-szie.hu

DOI: 10.29180/9786156342218_13

ABSTRACT

The trend for green hotels is becoming more widespread in the global hotel. There is an increasing emphasis on environmental protection and social responsibility globally, with tourism and hotels taking an share of this. Some of them put sustainability at the heart of their business policies, while in others the 'green' pursuit appears as a complementary activity. More and more hotel companies are also realizing this as a business potential.

We analyze the sustainability efforts of individual global hotel chains and smaller local hotel companies. Do these contribute and, if so, how do they increase guest loyalty? Is it important for a large hotel chain to exercise and promote responsibility? What are the opportunities for smaller hotels in environmental protection and CSR (Corporate Social Responsibility)? What are the most common manifestations of these, what are their prospects and their untapped potential?

Our sources include responsible publications and marketing materials of individual companies, critically analyzing them and searching for existing and further opportunities. Primary sources include personal experiences and professional examples.

In our view, environmentally conscious behavior has tremendous marketing value for all companies, including hotels. A positive attitude not only protects the Earth and its inhabitants, but also acts as an attraction for guests and a market advantage. In addition, an environmentally conscious attitude will be essential for the Planet, so the social impact of the aspirations is unquestionable. That is why we consider it important to have the most comprehensive, extensive and up-to-date research of the topic.

1. The situation of the Budapest hotel market and green hotels

The number of green hotels in the capital is growing year by year, along with the volume of green and public procurements (www.hah.hu). Green ideas were mostly adopted by the larger hotel chains (they dominate the green hotel market in a 3/4 proportion), the Accor Group also stands out with the Planet21 program (www.hah.hu/zoldszallodak). The rise of the greening market can be explained by the phenomenon of overtourism that has reached our capital. Excessive tourism consumes Budapest's resources, and recovery from here is only possible through the implementation of quality, sustainable tourism.

The number of foreign guests shows a very nice increase in terms of hotels in Budapest (between 2010 and 2017, their number increased by almost 1.3 million). It is true that their average length of stay is still low (2.4 nights), but the number of guest nights spent by foreigners has doubled during this period. Between 2010 and 2017, the number of domestic guests (by 183 thousand people) and guest nights (by 302 thousand) in commercial accommodation establishments also increased, the length of stay is still very low (1.9 nights).

With regard to other accommodation, both the number of foreign guests and the number of guest nights spent by them also show a doubling compared to 2010. The length of stay was the highest in 2012, which is an enviable figure for even the largest tourist countries (4.3 nights).

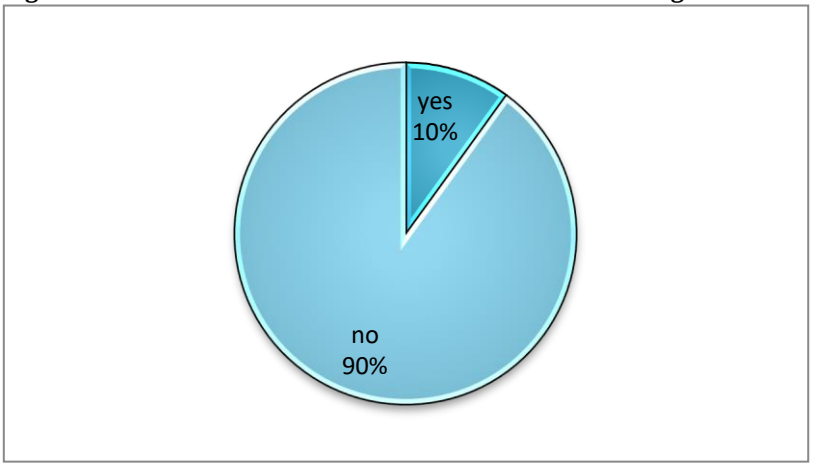
The number of domestic guests started to grow strongly in other accommodation establishments, especially the year 2017 is outstanding (from 138 thousand in 2016 to 211 thousand in 2017). However, the average length of stay here has also fallen back to the national average (2.5 nights), which shows that tourists come to the capital several times but spend a short time there (long weekends).

The number of operating commercial accommodation establishments shows a significant increase compared to 2010, if we add the 15 hotels to be handed over in the near future, 56 new hotels have been handed over in Budapest in the last nine years. Similarly, the number of rooms available for rent next year will increase from 20,000 to 24,000, which would mean that 5,000 new rooms have been created in the capital in 3 years as a result of overtourism.

According to the data of the KSH, there are 13885 rooms among other accommodation establishments, according to the Association of Hungarian Hotels and Restaurants, 9000 of them are Airbnb rooms and 4885 are apartment houses. According to other surveys (Jancsik A.-Michalkó G.-Csernyik A. 2018) 19498 Airbnb and 10576 users deal with renting private homes. It is a fact that not all Airbnb are registered with local governments, however, by the end of 2019, the new NTAK database also requires them to register with the Hungarian Tourism Agency. The number of beds, rooms, catering and beds shows a very dynamic increase compared to 2010.

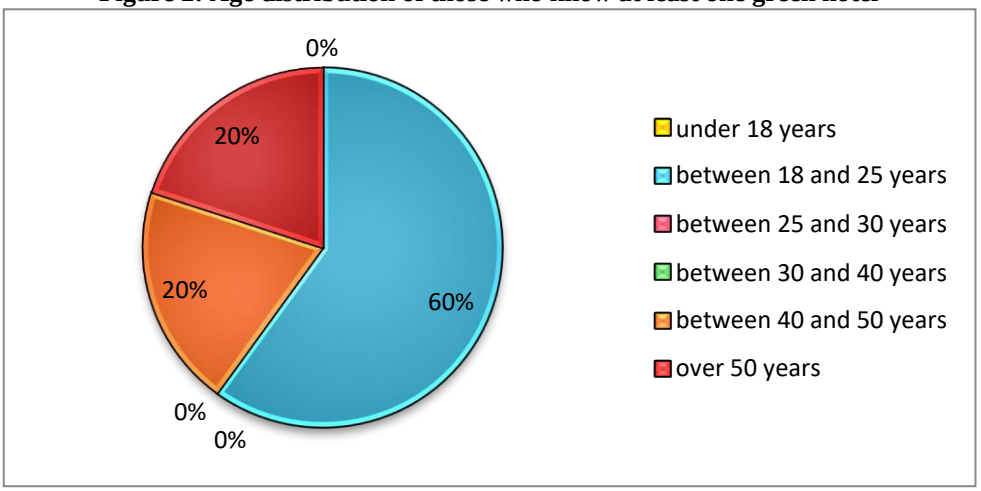
Based on the data, it might seem that the creation of quality tourism would be essential for our capital, but according to our surveys, only 10% of tourists who came to Budapest heard about green hotels (Figure 1).

Figure 1: Distribution of those who know and do not know green hotels



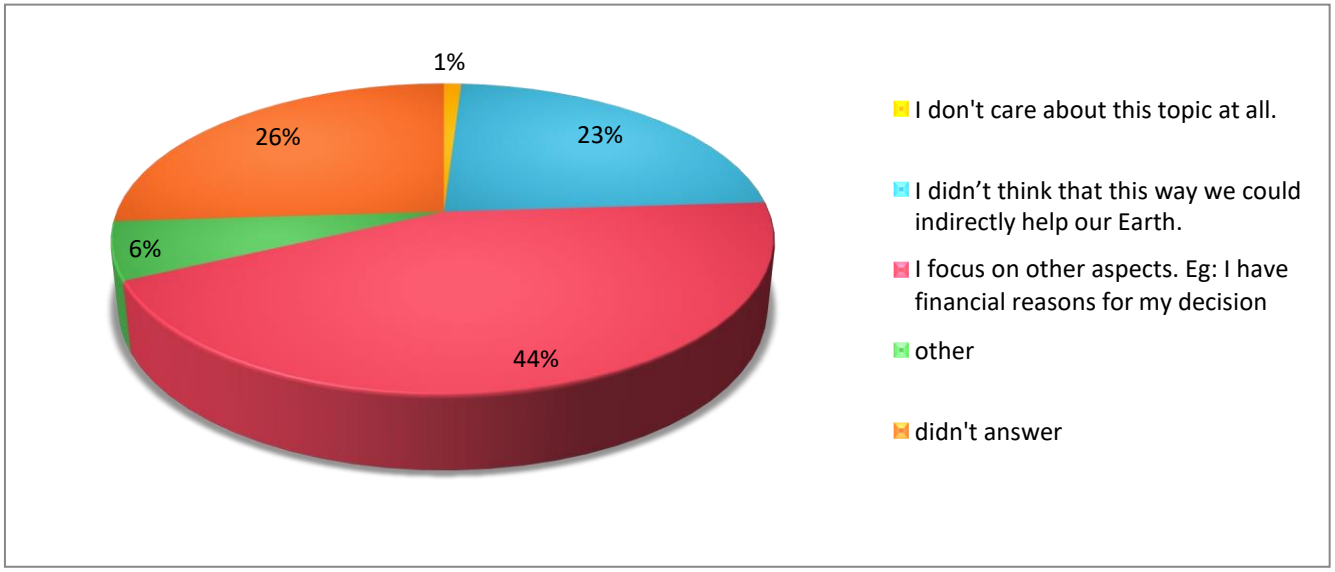
Tourists aged 18-25 and over 40 are familiar with green hotels and what the thoughts they represent really mean. The high 60% distribution shows that the Y and Z generations are already thinking much more environmentally consciously than the older generations (Figure 2).

Figure 2: Age distribution of those who know at least one green hotel



When asked why they do not choose environmentally friendly accommodation, visitors to Budapest mostly indicated the most unfavorable price-value ratio. It was surprising that 90% of respondents considered the appearance of green hotels to be a marketing ploy (Figure 3).

Figure 3: Reasons why respondents do not consider whether an hotel is environmentally friendly when choosing accommodation



2. The role of eco-labels in green procurement

The green hotel trademark is an eco-label that implements the design of “responsible hotel, responsible tourism”. The implementation of various environmental measures can be facilitated by so-called environmental management tools, such as: environmental management systems, eco-labels, or the

procurement of environmentally friendly products. The Environmental Management System, or EMS, has been developed to improve the market competitiveness of companies. The EMS is based on the ISO 14000 family of standards. (Odor, K. 2007).

In addition to the ISO 14000 family of international standards, the European Union has had the EMAS regulation in force since 1993, which is the environmental auditing system of the EU member states.

EMAS, known as the Eco-Management and Audit Scheme, has become known as the Eco-Management and Audit Scheme. (Ódor, K. 2007). The purpose of the system is to support the assessment and improvement of environmental performance and to inform the public. Its main features are that it is voluntary and a system in force in the European Union. The comprehensive environmental assessment and ecological assessment is carried out on the basis of pre-determined conditions, focusing primarily on the environmental effects, ie it prescribes continuous development and the prevention of environmental impact. In terms of its form, EMAS is not a standard, but a European Union regulation that is directly applicable in all countries. Its principles include the prevention of pollution, compliance with environmental legislation, and continuous improvement to improve environmental performance. (Ódor, K. 2007).

In Hungary, EMAS is applied in accordance with Government Decree 74/2003 (V. 28.), as amended several times. Pursuant to this legislation, the National Inspectorate for the Environment, Nature Conservation and Water Management registers, inspects, possibly suspends and deletes organizations. It does all this in cooperation with the environmental inspectorate at the site of the organization applying for registration. In Hungary, this rating is primarily recommended for companies whose parent company is in the member states of the European Union. (Green Capital Zrt. 2010).

The Hungarian eco-label was launched by the Association of Hungarian Hotels and Restaurants in 1993 to protect the environment. From the energy and water savings to waste management, reduction and recycling, to informing guests, the "Do Not Disturb" package included detailed aspects that allowed hotels to form their own environmental teams and start working according to their own capabilities. (www.hah.hu).

In Hungary, the first decision on environmentally friendly products was made in 1993. The Ministry of Environment and Regional Development has established the Environmentally Friendly Product Public Benefit Company to coordinate and operate the certification-certification system. The aim of eco-certification is to strengthen the sense of responsibility for the environment, to inform consumers about certified products and to encourage distributors to purchase environmentally friendly products.

By using the qualification-certification system, self-qualification was avoided, i.e. the manufacturer or distributor of the product could not call his product environmentally friendly. In Hungary, the legal basis of the qualification-certification system is 9/2004. (V. 25.) as amended by Decree 29/1997 of the Ministry of Environment and Water. (VIII. 29.) KTM decree. The environmentally friendly product certification and certification organization is the Ministry of the Environment and Water, whose work is assisted by the Environmentally Friendly Product Nonprofit Ltd. The qualification and other tasks related to the use of the trademark are performed by the Ltd., i.e. it coordinates the operation of the system. (Green Capital Zrt. 2010). The use of the eco-label may be awarded to tenders for any product or service other than food and drink or medicinal products.

There are a number of benefits to using the label, such as lowering the cost of using eco-friendly technology, less environmental damage in the wider environment, and higher sales of distinctive branded products in the market.

According to surveys, in 2017, 53 companies had eco-friendly product ratings for 349 products. (www.kornyezetbarat-terem.hu).

Eco-labels encourage entrepreneurs to pay more attention to the requirements of environmental, social, cultural and economic sustainability in their activities, and to behave responsibly towards their environment. Ecolabels are able to differentiate products and services that meet higher environmental, social and economic standards than required by law. This distinctive label allows consumers to make an informed choice about a certified product, and companies that manufacture and sell it can gain a competitive advantage (www.unwto.org).

3. Green procurement

The existence of eco-labels is very important for green procurement..Procurement is centralized within the Accor hotel group, so individual hotels do not have to pay special attention to this. However, during central procurement, all goods are required to have an environmental certificate, so the group only operates with environmentally friendly products. For green procurement, the hotel company favors local producers, which is also included in the Planet 21 program.

The Mercure hotel, part of the hotel chain, works with environmentally friendly products on a daily basis. Not only for cleaning products, but also for office equipment. The headmistress noted that the green office is very important to her, so she pays special attention to it. There are various plants in the office premises, which are known to help bind harmful substances, also improve the humidity of the air, and also have a positive effect on the well-being and mood of the employees. To reduce CO2 emissions from office equipment, unused equipment, such as a computer and printer, is turned off.

As a result of the operation of the hotel, a total of 216,290 kg of carbon dioxide is released into the air each year, approximately half of which comes from electrical equipment. (www.accor / mercure.com)

The rooms feature eco-design elements and a variety of eco-friendly furnishings. The carpets are flame-retardant and contain 70-30% cotton. The rooms are decorated with wooden furniture. (www.accor / mercure.com).

Large international hotel chains seek to achieve CSR (Corporate Social Responsibility) objectives through projects built into their own standards. In this, environmental and climate protection is just one slice, the responsibilities of each chain mention a number of other areas among their goals, such as condemning the exploitation of children, working with local communities or avoiding overfished fish in their restaurants. Such a corporate trademark has become the Planet21 program of Accor Hotels or the Green Engage system of the IHG hotel group.

Novotel hotels, for example, have FCS wooden beds and bedding made from recycled bottles, but the cleaning products as well as the bathroom soap come from an environmentally friendly source. The IHG has divided the Green Engage program into four levels. The first level is mandatory for all 5,500 hotels in the group and involves planning for energy consumption efforts. This includes monitoring energy costs and building energy-efficient lighting. Hotels that reach the second tier are already seeing

the benefits of sustainability and, for example, have introduced sustainable sourcing into their day-to-day processes. The third level requires sustainable building management and energy management. The fourth, and hotels with the highest levels were able to reduce their energy consumption by 25% with their modern and thoughtful efforts. “From smart design and the use of innovative systems, every single thing our hotels do for sustainability can make a big difference to our planet. Staying in our hotels means you are part of a global effort to protect our environment. ” - adds as a conclusion the description of the IHG program (IHG website, 2018). The program includes a web interface accessible to hotels where you can track and report energy, water and garbage measurements, calculate the unit's carbon footprint, and make recommendations to make the hotel greener.

The Accor hotel group aims to use healthy and high-quality ingredients from local producers in its restaurants, as well as to reduce the amount of food waste. (Accor Hotels website, 2018)

The Planet21 program pays attention to eco-friendly products (by 2015, 85% of Accor hotels used eco-friendly products, including environmentally friendly cleaning products (51%), wall paint (23%) and flooring (10%)), water use is important reduction. According to the survey, an Accor hotel uses about 15,000 cubic meters of water per year, 86% of which is flowing in the kitchen, and Accor hotels have reduced their water consumption by 15% by 2015 compared to 2011. In 2015, 91% of hotels collected and recycled batteries, 91% of them also used the same with fluorescent tubes, and 73% of hotels collected and recycled paper and cardboard. By 2015, 85% of hotels had recovered their own waste. (Planet21 program)

Through the “Plant for the Planet” “Plant for the Earth” program, the group has committed to a unique reforestation project. The principle is that guests can reuse towels, which equates to saving half the cost of washing. This amount of money saved is invested in seedling plantations. According to the rule, “5 reusable towels = one sapling”. In 2015, 60% of hotels participated in the “For the Earth” reforestation project. (Planet21 program) Accor has so far planted two million seedlings within the reforestation program with the support of the United Nations.

4. Return on green investment

The green investment of the Mercure hotel started on 22 September 2014. It took just over two months to build the technology. From 1 December 2011, they could use their newly installed renewable energy sources.

An important aspect of the decision was that they also received support for the investment under the New Széchenyi Plan. 50% of the investment costs had to be covered by own resources and the other 50% received non-refundable aid.

The exact object of the investment was 8 solar collectors with a total area of 20.5 m2 and the associated two 720 liter storage tanks, as well as a 160 kW pellet boiler and the corresponding 5,000 liter buffer tank. Investment costs developed as follows:

- Installation of a solar collector system: HUF 5,076,860
- Implementation of heating with biomass: HUF 26,173,700
- Total investment cost: HUF 31,558,560

The annual capacity of the solar collectors is 16,350 kWh, which is enough to produce 350,000 liters of domestic hot water. Experience has shown that the annual energy demand for domestic hot water production in the hotel is 25,550 kWh, ie approximately 547,000 liters of hot water per year. From the quotient of the annual amount of energy produced by solar collectors and the annual energy demand for domestic hot water production, it can be easily calculated that solar collectors can produce 64% of the domestic hot water demand (16.350 / 25.550 = 0.64). According to the statistics of previous years, the annual electricity consumption of the building is 149,254 kWh, if we take this as a basis, then solar collectors produce almost 11% of the annual electricity consumption (16,350 / 149,254 = 0.109)

The pellet boiler has been selected directly to be able to supply the entire heating of the hotel. Thus, the heating energy is covered only from renewable energy sources, the pellet boiler is able to produce 100% of the energy needed for heating. As a result, the hotel saves on the full district heating fee. However, the material requirements of the pellet boiler must not be forgotten either. According to the executive, 740,000 MJ of energy will be used to heat the building in one year. Dividing this value by the calorific value of the pellet (18 MJ / kg), we obtain that approximately 41,111 kg of pellets are required per year (740,000 MJ / 18 MJ / kg = 41,111 kg). Multiplying this by the price of the pellet, which is a net HUF 40 per kilogram, it turns out that the annual material requirement of the boiler is HUF 1,644,444.

At the Mercure Hotel, the savings from the use of renewable energy sources are as follows:

- In the case of solar collectors, we calculate the amount of savings by multiplying the annual electricity consumption by the unit price of electricity (HUF 35,125 / kWh), so the electricity fee would be 149,254 * 35,125 = HUF 5,242,547 if a solar collector were not used. In turn, the solar collector produces 16,350 kWh of “free energy” per year. If we subtract this from the annual consumption, then multiply the resulting amount by the unit price, and finally take the difference between the two results, we get that the hotel saves HUF 574,364 per year. [(149,254-16,350) * 35,125 = 4,668,183; 5,242,547-4,668,183 = 574,364]
- In the case of heating, the hotel fully saves the basic heating fee, which has been HUF 1,232,961 per year, as well as the heat fee, which is HUF 2,557,440. Adding these two, it turns out that the hotel has spent HUF 3,790,401 per year so far. for heating. If we subtract the costs for pellets from this, it is clear that the savings of the hotel are HUF 2,145,957 / year.

From the data it is easy to see that a significant cost reduction has been achieved, especially for heating. Electricity costs were reduced by 11%, while heating costs were reduced by almost 57%. If the two are combined, the total energy cost reduction in the hotel is more than 30%.

Calculated with a static return, the payback time can be calculated as follows: investment cost / annual savings = payback time in years. Based on these, the exact payback time is shown in the following table.

Table 1: Development of return on investment Source: Own chart

	Solar panel	Pellet boiler
Investment (HUF)	5,076,860	26,173,700
Savings (HUF / year)	574 364	2,145,957
Static return (years)	8.84	12.19

The construction of a solar collector system thus pays for itself in 8 years and 10 months, while the payback for the construction of biomass heating takes 12 years and 3 months. In addition, if we take into account that 50% of the investment costs were covered by the subsidies, the payback period will be even more favorable, up to half of the above.

Responding to the questions asked in the interview, the executive said he was completely satisfied with the performance of the equipment and the extent of the reduction in energy costs. No unexpected problems and costs were incurred during either installation or operation. Due to the construction of the technologies, there were no extra costs in other areas of the hotel, the machines do not require special maintenance, and there is no need for additional manpower.

Prior to the investment, the energy rating of the building was better than the requirement ("B") and after the investment it became more energy efficient ("A +").

Green public procurement

Point 6 of the National Cooperation Program, published on 22 May 2010, set out the concept of green public procurement: "By green public procurement we mean the environmental aspects taken into account in the procurement of products, services and works. A green public procurement system that favors domestic businesses and a series of state, community measures that put society and the economy on a sustainable development path and integrate environmental considerations into national development policy. "

In October 2010the New Hungary Development Plan EEOP tender - Complex promotion campaign to increase the awareness and recognition of the Hungarian Eco-Friendly Product and the European Union eco-label schemes. The environmentally friendly Product Nonprofit Ltd. has published the publication: Environmental Labeling and Green Public Procurement.

The National Action Plan begins the development of Hungarian green public procurement practice by making centralized public procurement greener, and then the environmental aspects gradually appear in all public procurement.

The regulation regulating centralized public procurement may provide for the implementation of certain designated product groups in an environmentally friendly manner, so that organizations subject to centralized procurement and those that voluntarily join it can enforce environmental aspects when procuring these products.

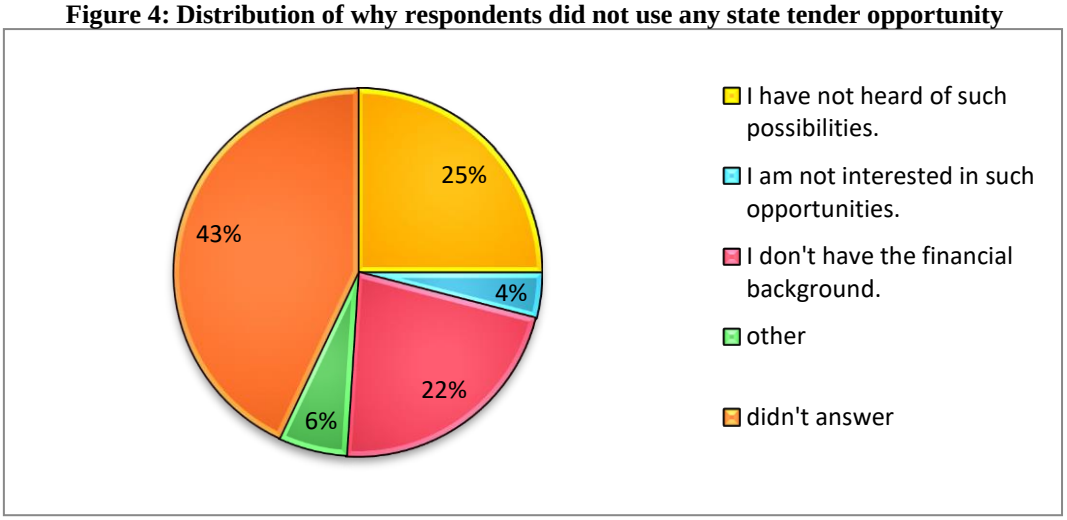
In addition to regulating mandatory use cases and preparing the materials needed to implement them, the Action Plan places great emphasis on ensuring an adequate flow of information, which can be achieved by creating the necessary knowledge base, training professionals and preparing application aids.

The medium-term objective of the Action Plan was, in line with the EU, to achieve 50% of green public procurement by 2011.

About half of the green investments in the hotel industry in Budapest can be said that environmental considerations do not apply at all. There were no responses to the environmental aspects to be fully taken into account, and the directors of the newly built hotels gave a good rating (Figure 4).

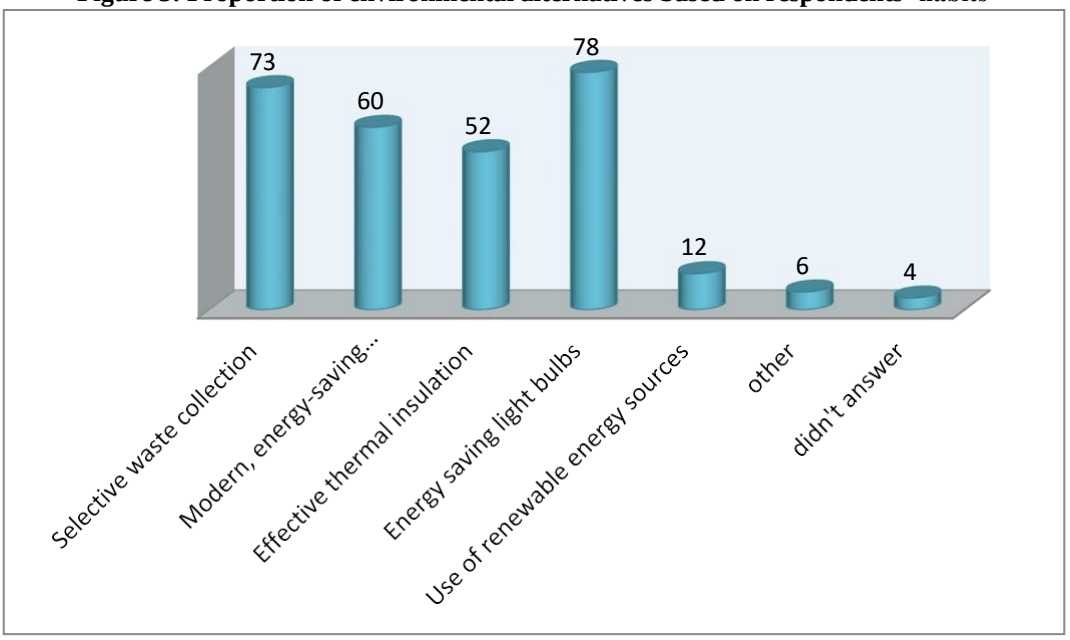
When asked why they did not participate in the tenders announced by the state, most of them did not answer such a question.

Figure 4: Distribution of why respondents did not use any state tender opportunity



With regard to green procurement, the procurement of energy-saving light bulbs, energy-saving boilers, thermal insulation systems and renewable energy sources was identified as the most important.

Figure 5: Proportion of environmental alternatives based on respondents 'habits



References

interview with hotel manager Gyula Kanel, November 2018

Blacksmith, Gy. (2013): Investigation of sustainability among Hungarian restaurants. Modern Geography, 2013 / I. pp. 37-50. Pécs:Publikon Publisher, http://www.moderngeografia.eu/wp-content/uploads/2013/03/2013_I_04_kovacsgyongyi.pdf, downloaded 12.03.2021

Blacksmith, Gy. - Mrs. Kerekesné Dr. Mayer, Á. - Dr. Domjánné Dr.Nizhalovsky, R. (2017): Responsible corporate governance, or "star-based CSR" in the Hungarian hotel industry, tendon: Responsible Tourism, conference volume. Békéscsaba: Szent István University, Faculty of Economics, Agriculture and Health Sciences, http://www.gff-bekescsaba.hu/files/files/bekescsaba/kiadvanyok/Felel%C5%91s%20turizmus.pdf, downloaded 12.03.2021

Green Capital Zrt http://docplayer.hu/2435543-Ori-istvan-vezerigazgato-green-capital-zrt-2010-majus-6.html, downloaded 12.03.2021

HOTREC (2018): Overtourism position paper, https://www.hotrec.eu/overtourism-hotrec-position-paper/, downloaded 12.03.2021

Odor, K. 2007: Sports Ecology. Budapest.

Remenyik, B. - Tóth, G. (2015): Tourism tendon the European Union and tendon Hungary. Saarbrücken: Lambert Academic Publishing

Accor Hotels website: https://www.accorhotels.com/gb/sustainable-development/index.shtml, downloaded 15.04.2021

Association of Hungarian Hotels and Restaurants website: http://www.hah.hu/csr/zold-szalloda, downloaded 06.04.2021

Continental Group website: https://continentalgroup.hu/, downloaded 10.03.2021

IHG website: https://www.ihg.com/content/us/en/about/green-engage, downloaded 16.04.2021

www.kornyezetbarat-terem.hu, downloaded 12.03.2021

www.unwto.org, downloaded 05.04.2021

Trash to Treasure:
How indoor food waste and composting projects can gain momentum in Educational institutions

AUTHOR

Bence Szabó

International Business Economics

Budapest Business School – University of Applied Sciences

Research conducted for the International Scientific Student Conference on Sustainability within the framework of the Day of Hungarian Science.

DOI: 10.29180/9786156342218_14

ABSTRACT

This research aims to find answers on how Budapest Business School can manage to intertwine sustainability ambitions with the everyday lives of dormitory students. Moreover, how students and the institutions can find the appropriate stakeholders to apply these ambitions.

This paper details the composting awareness and willingness of the students from the Mátyásföld hall of residence of Budapest Business School through an independent questionnaire. The survey is looking for possibilities of application of university composting. In addition, it seeks to find what cultural differences there are in the views about composting and the limits within which it can be promoted in the university dormitory.

Furthermore, the study gives an analysis of educational institutions from all over the world successfully incorporating sustainable composting aspirations within the respective cultural background.

The research expects to find successful precedents of cooperation between students and the institutional leadership of high schools and universities in sustainable composting projects worldwide, with possible external entities to promote sustainability projects.

This study can connect the csr interest of the educational institutions with the green ambitions of the student society and further promote the idea of the circular economy.

Key words: composting, culture, dormitory, student life

1. Introduction

Topic and motivation

Budapest Business School to this day has accomplished several major achievements of the field of sustainability with special focus on student involvement. Such initiatives include the International Scientific Conference on Sustainability - A sustainability conference based on the research results of the international community of students who wish to present their unique views on how we as a society could positively influence our natural environment.

Following the sentimentality of this conference in 2019, a group of students living in the Mátyásföld hall of residence, the dormitory for the Faculty of International Business Management (FIMB) in the 16th district have taken steps to establish and maintain a regular food waste composting site in the proximity of the dormitory. Starting from May 2019, the local municipality has granted two wooden composting containers for the students, which, up until the outbreak of pandemic followed by the reduced dormitory capacity, have constantly received donations of food waste.

This initiative has now been active for almost two years and has encountered several challenges in its short lifetime. The special international nature of the dormitory requires bilingual communication to allow for intercultural dialogue between the Hungarian and foreign residents. The appropriate education about composting has faced cultural, as well as language barriers in the past years. Furthermore, maintaining continuity and boosting student morale for the composting project has constantly been in the focus. Finally, one of the key challenges of this campaign is and will be to make composting a relevant aspect of the dormitory life and on a larger scale, in the university life.

For a successful future for the dormitory composting, there was a need to look beyond the frames of my own university to see how several other educational institutions managed to successfully integrate this green concept into the student life.

2. Theory

Food waste trends

The basis and relevance of composting lies in the following data of the Food and Agriculture Organization of the United Nations (FAO), 30% of food is wasted, which amounts to nearly 1.3 billion tons per year ((FAO), 2011). If we wish to analyse the trends within the borders, according a study of the European Commission, Hungary produces close to 2 million tons of food waste annually. (Association H. F., 2018) However, Hungary differs in the fact that most food goes to waste in the processing and production stages (62%), while household consumption and retail amount for the remaining 38%. (Bori, 2018) According to a recent food waste research in Hungary, 165 participant households provided data for an estimated annual food waste “production” of 65.49 kg, out of which, nearly half of the amount could be avoided and saved from wastage. (Gyula Kasza, 2020) Based on the data presented in Figure 1 originating from the aforementioned research, it is visible that the participants received either high school or higher education and still, they produced this large amount of food waste with such avoidable amount.

It must be noted that this research cannot be generally interpreted concerning the Hungarian population. However, it sheds light on the importance of education. It is crucial to raise individual awareness of the immediate and long-term effects of food waste management strategies for the environment, particularly in universities, as they can be considered "small worlds" which lay the foundations for an environmentally conscious society.

Age of the person generally responsible for food purchasing	
Under 30 years	11.52%
Between 30 and 39 years	20.61%
Between 40 and 59 years	50.91%
Above 60 years	16.97%
Qualification of the person generally responsible for food purchasing	
Elementary	6.0%
High school graduation	38.2%
Higher education	61.2%
Income level of the household	
Low	1.21%
Below average	14.55%
Average	65.45%
Above average	16.97%
Very high	1.82%

Figure 1 Socio-demographic information. Quantification of Household Food Waste in Hungary, p.7, (165 participant sample) source: https://www.mdpi.com/2071-1050/12/8/3069/pdf

Schools as models of society

For the successful implementation of a composting campaign in the university framework, it is crucial to understand the underlying conditions of this framework. Based on a research of the Federal University of Technology in Akure, Nigeria, the institutional theory by Philip Selznick serves as a "theoretical framework for analyzing social and organisational phenomena. This theory links the social world around us with the institutions we as a society have built up with its rules, practices, and structures. As these manmade units consist of individuals, the unit itself, however solid it may become is subject to the influences of the inside members and the outside environment. By understanding the flow of social life in. Institutions with its inherent societal rules and accepted codes of conduct, we can understand how success and failure of a local green initiative can imply the efficiency of that initiative in the larger pools of the society. (Rutherford, 1996) For stakeholders that wish to achieve great success in the society must adapt the societal rules into the institutions and they need to cater for these rules within the organisational unit and the external environment (Rowe & Whermeyer, 2001) The theory further emphasizes the relationship between organizational behaviors and institutional pressures. Stakeholders play a critical role in this relation since they elevate concern about issues to a level at which organizations feel such pressures. It is their responsibility and main source of legitimacy that institutions must flexibly adapt to the needs of the outer world.

In a more specific sense, a campus or more narrowly, a dormitory culture can truly be a mirror for larger society issues if look at how hazardous chemicals and pesticides used for sanitization in the campuses could pollute the local water supplies. (Syafrudin, et al., 2021) The increasing traffic around university campuses causes congestion problems for the local citizens and the students as well. (Kaplan, 2007) These examples serve as proof for how well a small community can model larger problems.

The institutions' adapting capabilities rely on how they begin to modify their organizational characteristics to conform with others to increase compatibility with environmental characteristics. (Aasa, Jesuleye, & AJAYI, 2020). As of 16 February, 2021, based on decision of the rector's council, Budapest Business School has decided to change the model of the university to train future responsible professionals. (Budapest Business School, 2021) With leaving the regulatory environment that once binded the universities, now the educational institution shall face increased pressures from market environment and the stakeholders, which can include the environmental protection practises.

Barriers of composting[1]

In order to move forward with a university society keen on engaging in composting activities, it is worth mentioning the many obstacles that such green initiatives face in their lifetimes. Greening of Higher Education is the challenge to find the common interest between campus decisions and activities, as well as raising environmental awareness with the citizens of college or university. The purpose of green initiatives in these educational institutions is to teach and demonstrate the principles of how we manage our natural world and how we can establish a habitable environment for our future generations, (Eric Neumayer, Overcoming barriers to campus greening: A survey among higher educational institutions in London, UK, 2001). Therefore, the flexibility of stakeholder to face the sustainability challenges of a university campus will be an internal implementation challenge paired with being reactive to the ever-changing market and societal needs. Individual workers and students on campuses can already be environmentally conscious with their everyday activities, such as switching of light, water usage and the institutions can lay the green foundations with selective waste collection bins, electronic tests rather paper tests, etc.

Based on a survey conducted to measure the environmental awareness of university students in London, the respondents mentioned several barriers to green initiatives. Firstly, the financial resource barriers as to whether a noble green initiative can be feasible as in most cases they require upfront capital (Eric Neumayer, Overcoming barriers to campus greening: A survey among higher educational institutions in London, UK, 2001, p. 21). Secondly, the lack of environmental awareness which could be tackled by the university staff, academics and students potentially working together. The potential motivation for students to focus on extracurricular environmental studies was the offer of extra credits. (Eric Neumayer, Overcoming barriers to campus greening: A survey among higher educational institutions in London, UK, 2001, p. 23)

[1] Composting is a biological process that breaks down organic matter into material. Return of the compost to university grounds can improve the soil structure, and reduce the need for fertilisers. Composting can help avoid adverse environmental impacts associated with landfilling and incineration. Waste that can be the subject of composting is organic matter such as food waste, paper napkins, leaves, grass clippings, and chipped brush (Creighton, 1999, p. 62)

Thirdly, one of the most defining barriers was the cultural one. As the majority of the London students and academics either considered themselves too busy or uninterested when it came to the involvement, it is a difficult situation for a smaller group of green advocates to have an impact on a larger campus society. (Eric Neumayer, Overcoming barriers to campus greening: A survey among higher educational institutions in London, UK, 2001, p. 24) If we look at culture from a national perspective, universities with an international array of students also need to tackle the challenge of social adjustments. In case of an American and international students studying in the USA, at the beginning of their studies, nternational students must overcome a variety of obstacles in order to be successful in the new country. They must adapt thenew university, academic system, culture, and most importantly, the language. Thus, it makes sense that the cultural and social adjustments for international students can be overwhelming. Many of them feel wither isolated from social contact with Americans or the stick with their peers form the same cultural background to maintain social relationships. (Nadia Korobova & Soko S. Starobin, 2015). Adding an additional burden with the focus on composting must be managed carefully if this initiative is to be used as a tool to integrate the visitor students into the hosting culture.

The fourth barrier mentioned in the London university study is the urban location of the campuses. Although only one out of the 6 chosen campuses claimed to have a backyard for waste management, this concept of a barrier was the least emphasised one in comparison with previous elements. The transporting cost associated with waste management is common concern and in these instances, either parking space is utilised for waste treatment or the universities turn to indoor solutions. In the case of such campuses, it highly advised to seek help and cooperation with the local communities for storage of waste. For the urban barrier topic, one of the key reasons why students did not feel connected to the campus greening efforts is that they themselves lacked connection to the campus itself. This was linked to the lack of recreational facilities, and these university buildings were not equipped or decorated with elements to inspire green thoughts. (Eric Neumayer, Overcoming barriers to campus greening: A survey among higher educational institutions in London, UK, 2001, pp. 24-25).

Hungarian scopes of application

In this segment, the several successful food waste treatment projects are listed to find potential partners and examples for the Mátyásföld Hall of Residence’s future composting campaign.

Initiatives in education

The Secondary School Girls' Dormitory in the 14th district of Budapest has launched its green educational project in 2015 designated for the 15-18 year old residents. The main topic for this project is the development the local composting site. The dormitory holds thematically designed weeks of sustainability in October and the actions of this local community include dissemination of knowledge, ecological footprint calculation, questionnaires, “composting in practice” discussions, film screening (Trashed trailer 2012), leaf extraction, composting compilation, compost filling and management. This local community sets precedent to the fact that composting can also be dealt with in dormitory education. An excellent example of this is enthusiastic and complex work of the tutors and educators. On the one hand, they assessed their students ’environmental awareness, and then in the framework of

a session they taught about reducing the dorm's ecological footprint per capita. The students were exposed to composting concept through watching respective movies such as Trashed2. The local practical application of the dormitory's small composting site is to yield valuable fertilizer for growing tomatoes for the caretaker composting and living on the 3rd floor of building who is the third lives on the first floor and composting there, then the finished compost a use it for growing tomatoes. An additional component of the compost education was a group exercise in which the students learned about the functioning of the composter presented from the introductory phase, through the demolition and construction phase, to the ripening stage. Then they were split into other groups. The five people groups had to line up for image association and explanation exercises. The the group that gave the best explanatory text for the pictures won. With this task, the students revived biological and chemical knowledge.

For their internship program, 15 students from the college were asked to keep the project under control at the compost week. The older students that had already received 'compost training', controlled the newcomers how to inoculate compost and what we use it for in the garden. The teachers opened the works to a joint garbage collection. In 2014, they won their compost frames in a tender lubricated with linseed oil and assembled. Waste for compost collection process has also been developed, collection from the kitchen and including the collection of floor waste. Daily composting practice has been further developed as a container has been set aside only for organic waste that is emptied daily. The college horticultural professional students have been composting for two years by now. The institution with their composting program joined the EU Life + program3 of the Environmental Education Association. The initiative's main target goal is to maintain continuity for newer generations of high school students to come. (Nagy, 2020)

The Students for an Environmentally Conscious Approach (EKSZ) at Eötvös Lóránd University sets precedence toward university dormitory composting projects. This initiative started in the summer of 2008. Its goal is active environmental protection, which is based on a network of volunteers and wants to reach individual people with its message, which is the application of individual responsibility and environmentally conscious lifestyle in everyday life. (EKSZ, 2021)The university promotes active participation in discussions about sustainability, environmental activities on campuses and student's hostels at ELTE. These activities include recycling, composting, animal protection, community gardens, workshops, campaigns and Sustainability Days about CO2 reduction. During the organization, the most important task was to organize the regular (daily) emptying of the collectors placed on the levels. This was achieved after a short time of organization: the members of the working group regularly collect the organic waste in a bucket, take it to the garden collector, and wash the indoor buckets with clean water every week to avoid unpleasant odors. (University E. L., 2020)

The institution sought the active help of the Hungarian Hummus Association as civil organisation to provide education for compost management and sustainability. In its first 3 years, the dormitory generated approximately 20000 kg worth of fertiliser hummus, which was used in the local spice garden and flower garden, and the spices could be used by the residents. (Association H. H., 2011)

[2] Trashed movie trailer, Candida Brady (2012): https://www.imdb.com/title/tt2401099/

[3] The LIFE programme is the EU's funding instrument for the environment and climate action. Created in 1992, it has co-financed thousands of projects to promote nature and biodiversity and circular economy development projects. (European Climate, 2021)

International scope of application

This segment is devoted to several major higher education institutions that managed to adapt large-scale composting practises on university campuses and beyond.

Initiatives in education

Texas State University in the USA has achieved groundbreaking results in education institution composting with its Bobcat Blend program, composting has already created a large market of two types: dollar markets and value markets. Dollar markets have the ability to offer the highest price for compost at the lowest volume. These markets generally consist of retail garden centers and nurseries centrally located within a city. Value markets are high volume markets paying a low price per cubic yard. These markets are generally focused on those for agricultural use Research has estimated the compost market value at 518 million tons annually. (Sanders, Waliczek, & Gandonou, 2011, pp. 2-3)

To give a proper definition, Bobcat Blend is a faculty managed student-run and grant-supported research and teaching-oriented waste management campus composting program. The goals revolve around teaching students, faculty and staff through daily operations and development of habits the environmental, economic, and intrinsic values of composting, in the cafeterias and in the classrooms, labs and landscapes on campus. The practical usefulness of the initiative lies in the hands-on experience in compost. The focus is on building a relationship between undergraduate and graduate students diversify collection and operation duties on the compost facility. Graduate students are tasked to responsibly manage and oversee the entire process. (University T. S., 2021)

The university's initiative achieved great results to proper communication with the local stakeholders affiliated with the student center food court. These stakeholders included decision makers from the campus's food service provider and the university student center officials. Through a joint decision, sorting sites were established in the peripheral areas of the campus cafeteria for sorting purposes. Through donations, the students received 95-gal carts for the collection and separation tasks. (Sanders, Waliczek, & Gandonou, 2011, p. 2). The crucial element of the initiative's success was the initial testing audit phases, where student volunteer paired with the cafeteria staff designated midweek days for testing the waste generation from consumption and how the system could operate.

Education of the students on the composting process was carried out through pre-event flyer promotion to inform the citizens well before the implementation took place. The flyers included detailed information about what the Bobcat Blend program stands for, what its goals are and contact information. The program received a unique logo for brand identification purposes. With the help of the student center's marketing team, the university marketing team, three separation bins for organic waste, plastic and paper were set up with unique signs and pictures to help people understand the system. (Sanders, Waliczek, & Gandonou, 2011, p. 3). The composting took place at a nearby farm where the compost supplies were collected through university sources and through a local tree company's cooperation agreement. The great significance of this project is that a sustainable system

of revenue generation was established as the compost generated by the university was sold at the real market value defined by local retail suppliers.

Figure2: Logo design for the university program, source: https://ag.txstate.edu/outreach/bobcat-blend.html#:~:text=Bobcat%20Blend%20is%20a%20faculty,program%20at%20Texas%20State%20University.

The value of finished compost covered transportation, processing ,education costs and the wages of the participating experts and students. It is visible from Figure 3 that through this waste management initiative, the students could make larger and larger cost savings and revenues. Due to the biological nature of compost, the value of the product that students create is partly dependent on their expertise of compost treatment and thus, key educating programs also play a key role in ensuring the financial welfare of this project in the future.

Cost category	Cost computation	Fixed costs (FC)	Total variable costs (TVC)	first yr total costs (TC)	Subsequent yr total costs (SYTC)
Education	Labor-student worker number 1		$1,728.00	$1,728.00	
	Labor-student worker number 2[z]		$384.00		$384.00
Transportation	Truck fuel[y]		$319.20	$319.20	$319.20
	Truck repair[y]		$59.00	$59.00	$59.00
	Truck depreciation[y]	$205.00		$205.00	$205.00
	Truck financing[y]	$93.60		$93.60	$93.60
	Truck maintance[y]	$57.80		$57.80	$57.80
	Student center-labor-student worker number 1		$288.00	$288.00	
	Student center-labor-student worker number 2[z]		$288.00		$288.00
	Wood waste-labor-student worker number 1		$240.00	$240.00	
	Wood waste-labor-student worker number 2[z]		$240.00		$240.00
Processing	Turning piles[x]		$431.68	$431.68	$431.68
	Screener-electricity		$1.90	$1.90	$1.90
	Screener-depreciation[w]	$50.00		$50.00	$50.00
	Screener-labor-student worker number 1		$160.00	$160.00	
	Screener-labor-student worker number 2[z]		$160.00		$160.00
Graduate student stipend		$11,250.00		$11,250.00	
Graduate student coordinator[v]		$6,570.00			$6,570.00
Totals				$14,884.18	$8,860.18
Expected revenue	Value of finished compost			$10,944.00	$10,944.00
	Student center trash compactor reduction in pulls			$198.83	$501.29
Expected return				($3,741.35)	$2,585.11

Figure3: Fixed, variable, first year total and predicted subsequent year total costs associated with the education of student workers, transportation, and processing of the compostable materials during the implementation of the university educational composting program at Texas State University, San Marcos. Source: https://www.researchgate.net/publication/286915611_An_Economic_Analysis_of_a_University_Educational_Cafeteria_Composting_Program-Bobcat_Blend

3. Methodology

Based on the literature review, I conducted a qualitative research with the data collected through a composting questionnaire with special focus on the residents of the Mátyásföld dormitory in the 2021 spring period. The analysis aimed to illustrate the potential volunteers in both the freshman and more experienced segments of the dormitory. Now, the dormitory has 203 registered residents, but only a fraction of this amount resides here due to the pandemic restrictions. The hall of residence hosts 19 international students and for the cultural aspect of the research, all 19 of them were included in the research, alongside with 83 Hungarian students. With 100 submissions, nearly half of the population is involved and thus, the results of the survey can serve as a noteworthy representative date relative to the overall population.

The questionnaire was divided along the lines of nationality, to measure the cultural attitude towards the different culture groups. Here, my main purpose clearly assess what relationships and connections have

Figure4: Questionnaire guide for the international students. Source: self-created

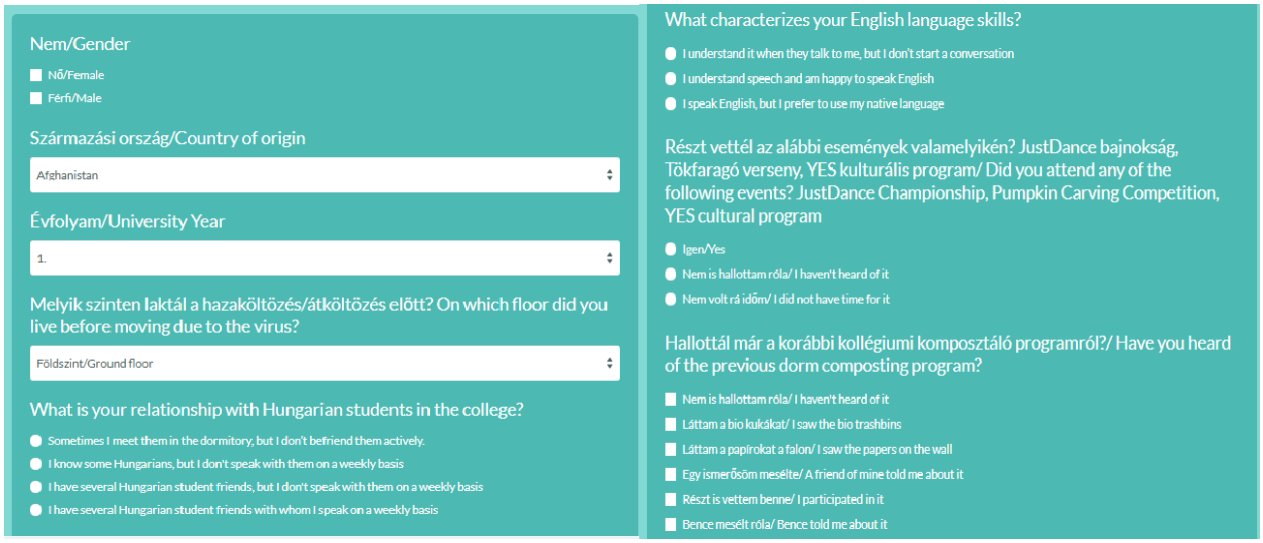
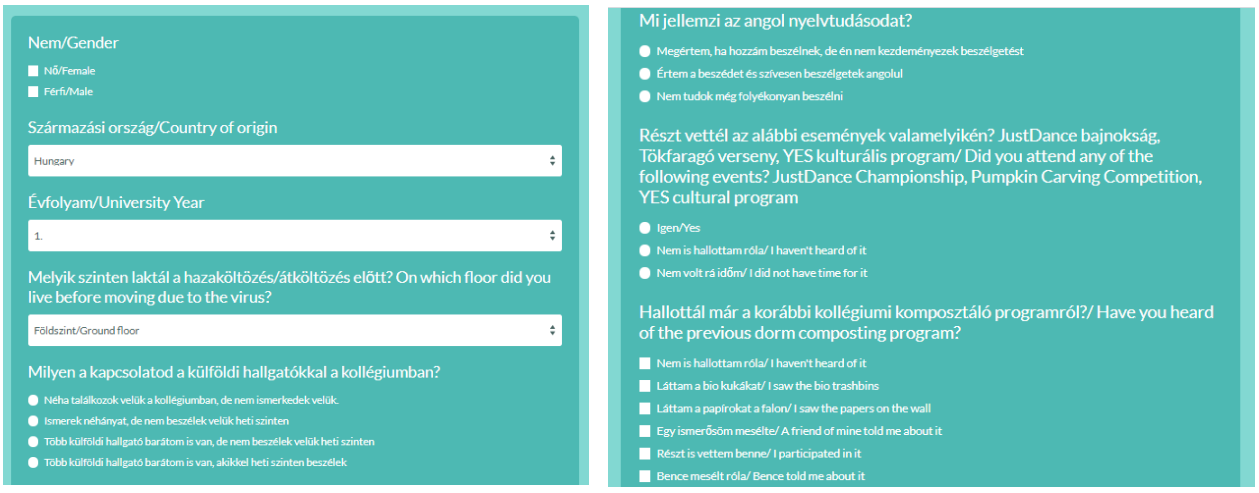


Figure5: Questionnaire guide for the Hungarian students. Source: self-created



been established in the dormitory and how these relationships can contribute to communicating composting effectively. See Figure 5: for interview guide for the international students and Figure 6:.for the Hungarian students.

4. Findings

The question of gender is always a delicate yet important information gathered from these questionnaires. Studies have shown that women are more likely to participate in surveys and mine is no exception from this trend. (William G. Smith, 2008).

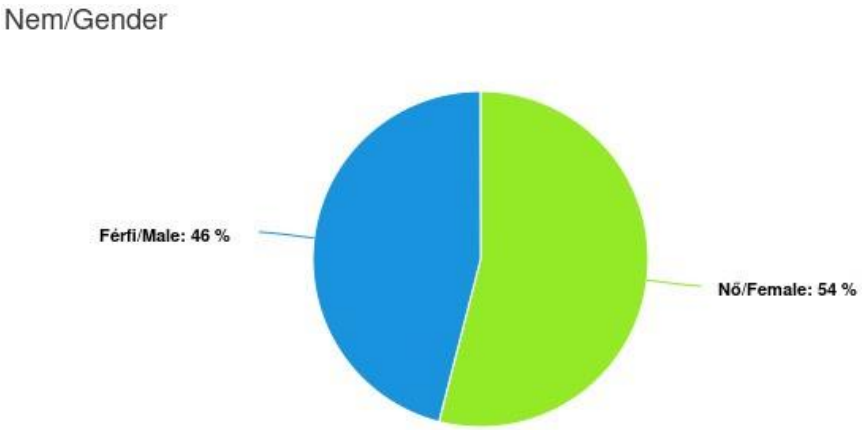


Figure6: Gender distribution out of 100 participants. Source: self-created

Further in the questionnaire, I was trying to find answers to how much more excited freshmen are, for example, in contrast with graduating students in the field of composting. Furthermore, the composition of the survey participants also gives a better view on which segments of the dormitory society shows interest towards this topic and who should be targeted with future recruitment campaigns.

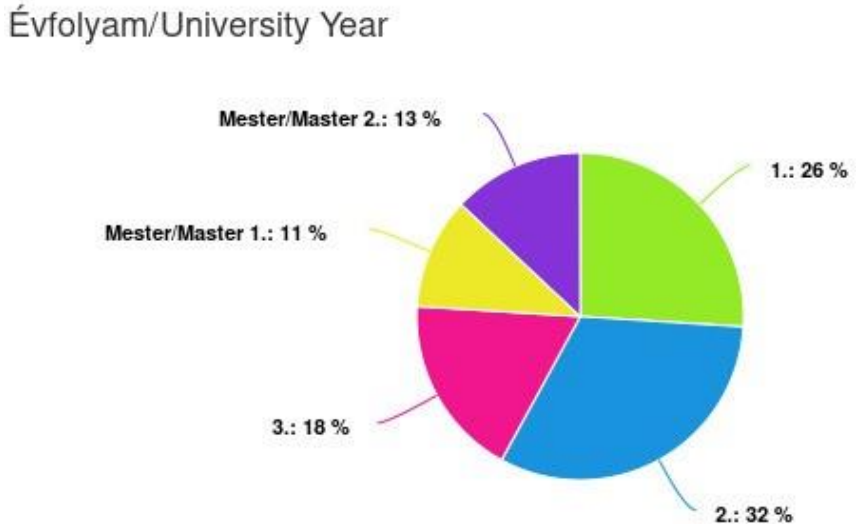


Figure7: Distribution of participants according university years. Source: self-created

Even though freshmen are in general more open to engage in campus activities, it is worth mentioning that students showed increasing tendencies towards high-impact activity participation in the later years according studies conducted in the USA. The reasoning behind that is the fact that the first years are about impressions and establishing their presence in the new society. Once they got used to the new climate, they are more willing to participate projects. (Meg L. Small & Emily A. Waterman, 2017). In our case, the second and third year students gave half of the population in this sample and despite this trend, it worth catering for the freshman audience. The overall distribution of the respondents' years shows promising participation numbers from all segments of the dormitory society, but a clear decline is still notable in the representation as the years progress.

Figure8: Distribution of non-Hungarian participants based on floors of living. Source: self-created

In the dormitory, I noticed a spectacular phenomenon that the majority of international students were assigned to live one the periphery of the dormitory. The female students lived on the 4th floor and male ones lived on the ground floor, which means that they are physically away from where most of the Hungarian students live. This can also contribute to a lack of integration and communication between the cultures, further hindering the possibility of a joint international composting campaign.

Moving forward, the survey contained a question whether the residents heard about the dormitory composting campaign. My purpose with this question was to measure the success and reputation of the previous campaign by how much impact it had on the people from a multi-year perspective. It is clear, that in some form, the overwhelming majority of the students heard about the composting campaign in the dormitory, which is an excellent reflection on the marketing campaign's success. The papers and the presence of the bio bins grabbed the students' attention.

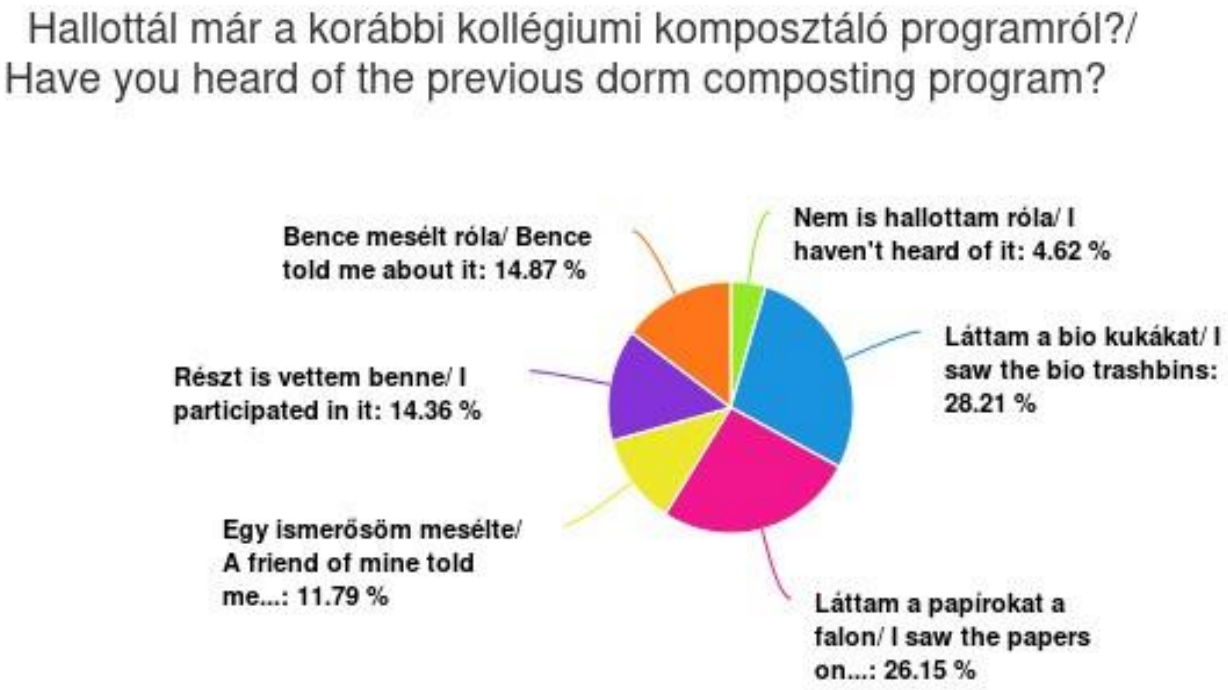


Figure9: Distribution of participants based sources of information. Source: self-created

The cultural dimension can be observed through these two comparative charts, where it is worth mentioning that the Hungarian students acknowledged the presence of the international students, but they don't seem to make any further efforts to befriend them. Meanwhile, the international students, based on their compulsion to conform to the local environment have shown that more of them are actively befriending Hungarian students. (Nadia Korobova & Soko S. Starobin, 2015).

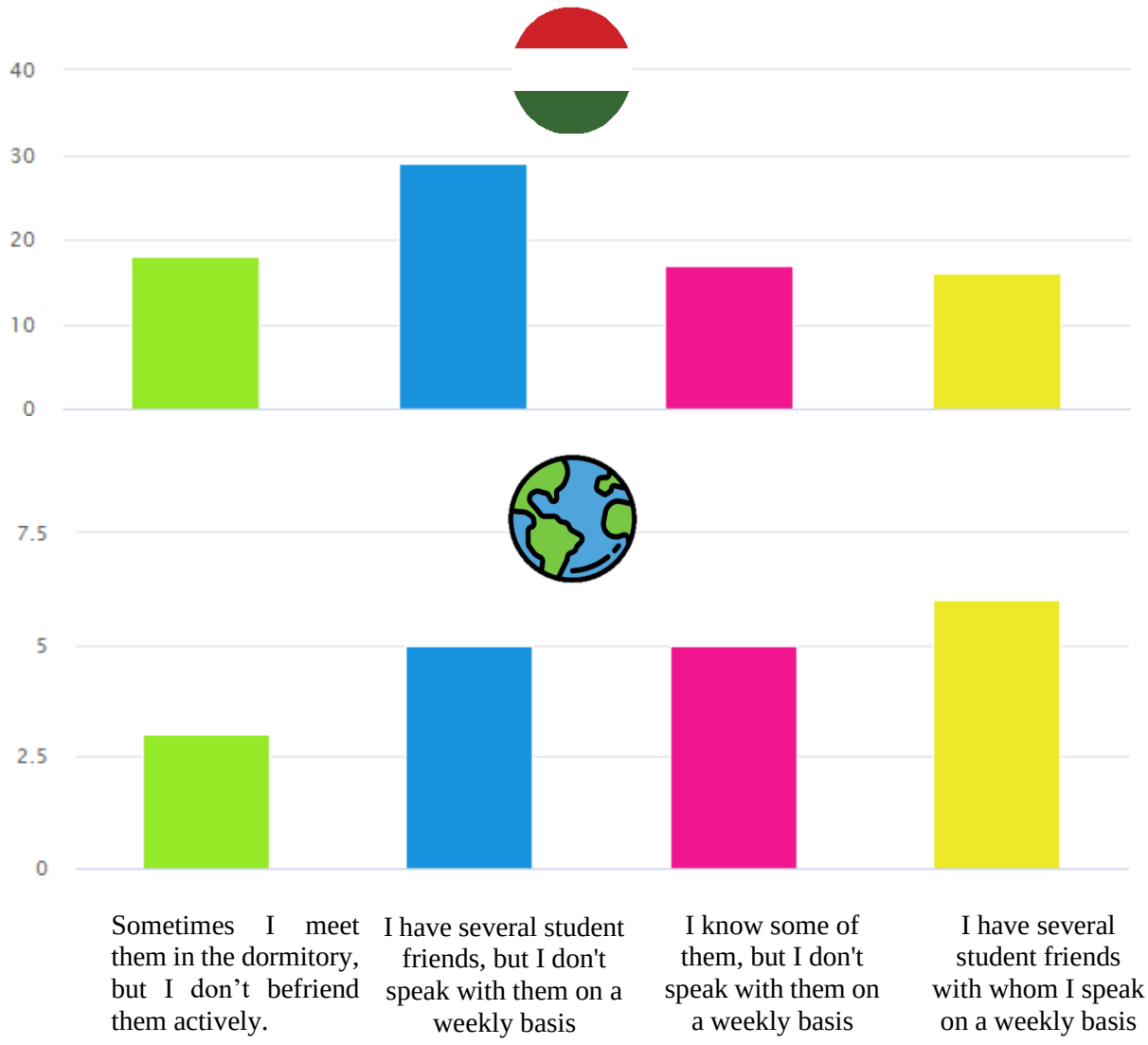


Figure10: What is your relationship with the other students? Above: Hungarian students with the internationals. Below: Internationals with Hungarian students Source: self-created

5. Conclusion

Based on the findings of the literature review and the Compost Campaign survey, I would like to mention several suggestions to combat the challenges of dorm environment:

- International students on the peripheral levels of the dormitory could be offered rooms in the middle floor levels to help cultural integration
- „Composting" is missing from or barely present in the curriculum as concept
- Opportunities to motivate students to engage in such a campaign can be as easy as bonus credits, dorm plus points, offered marks, and other material gifts (t-shirts, badges, notepads). Deeper cooperation with the academics of the university may help integrate composting and sustainability topics into the curriculum and the students' lives.
- For the Hungarian students, the courage to engage in intercultural communication is existing, it seems to need a minor additional boost in the form cultural nights, joint cooperation in green projects and university group projects in general.
- There is an already existing composting structure near Mátyásföld dormitory ready to be cultivated, the promotion of this structure and the establishment for a compost supply system from the building of FIMB, paired with the dormitory supplies could contribute to a financially viably amount of composting material.
- The university could cooperate with the-dormitory to prepare students for the scientific conference based on the local campaign and thus granting them valuable research experience while engaging in a sustainability project
- More significant composting involvement in curriculum with increased educational focus between academics and students helps nourish green thinking,

The Mátyásföld Hall of Residence has vast potential to incorporate composting in the everyday life of the residents and the university with relatively low financial and time investment. Future negotiations between the university leadership and the residents is highly advised.

References

(FAO), F. a. (2011). Global food losses and food waste: Extent, causes, and prevention. Retrieved May 2021, from http://www.fao.org/docrep/014/mb060e/mb060e.pdf

Aasa, O., Jesuleye, O. A., & AJAYI, M. O. (2020). Towards Greening Decisions on the University Campus: Initiatives, Importance and Barriers. SSRN Electronic Journal. doi:10.2139/ssrn.3631692

Association, H. F. (2018). Hungarian Food waste statistics report. Retrieved from https://www.elelmiszerbank.hu/hu/rolunk.html

Association, H. H. (2011). Dormitory Composting. Retrieved May 2021, from https://humusz.hu/nullahulladek/civilek/kollegiumi-komposztalas/9632

Bori, P. (2018). The state of food waste in Hungary. Budapest: Agricultural Team of the Embassy of the Kingdom of the Netherlands in Budapest. Retrieved from https://www.agroberichtenbuitenland.nl/binaries/agroberichtenbuitenland/documenten/rapporten/2018/08/24/food-waste-in-hungary/Food+Waste+in+Hungary+Summary+Report.pdf

Budapest Business School. (2021). Budapest Business School decided for the Model Change. Retrieved from https://uni-bge.hu/en/modelchange

Creighton, S. H. ((1999)). Greening the Ivory Tower. Improving the Environmental Track Record of Universities, Colleges, and Other Institutions. Cambridge: MIT Press,. doi:https://doi.org/10.5860/crl.60.3.292

EKSZ, E. (2021, May). Compost Forum. Retrieved 2021, from https://komposztforum.hu/elte-eksz

Eric Neumayer, E. (2001). Retrieved 2021, from https://www.researchgate.net/publication/230770855_Overcoming_barriers_to_campus_greening_A_survey_among_higher_educational_institutions_in_London_UK

Eric Neumayer, E. (2001). Retrieved 2021, from https://www.researchgate.net/publication/230770855_Overcoming_barriers_to_campus_greening_A_survey_among_higher_educational_institutions_in_London_UK

European Climate, I. a. (2021, May). European Commission's webpage. Retrieved 2021, from EU Cinea: https://cinea.ec.europa.eu/life_en

Gyula Kasza, A. D. (2020). Quantification of Household Food Waste in Hungary:. doi:10.3390/su12083069

Kaplan, D. (2007). Traffic Congestion on a University Campus A Consideration of Unconventional Remedies to Nontraditional Transportation Patterns. Society for College and University Planning (SCUP), 12. Retrieved from https://www.academia.edu/4620044/Traffic_Congestion_on_a_University_Campus_A_Consideration_of_Unconventional_Remedies_to_Nontraditional_Transportation_Patterns

Meg L. Small, P., & Emily A. Waterman, M. (2017). Time Use During First Year of College Predicts Participation in High-Impact Activities During Later Years. doi:10.1353/csd.2017.0075

Nadia Korobova, P., & Soko S. Starobin, P. (2015). A Comparative Study of Student Engagement, Satisfaction, and. ©Journal of International Students , 14.

Nagy, A. (2020). Compostfest in Hungary. Budapest. Retrieved May 2021, from https://humusz.hu/sites/default/files/komposztunnep-2020-humusz.pdf

Rowe, A. L., & Whermeyer, W. (2001). Why does the the talk of positive environmental values not match the walk of environmental accountability in Shanghai. Adelaide.

Rutherford, M. (1996). Institutions in economics: The. doi:https://doi.org/10.1111/j.1467-6435.1997.tb02807.x

Sanders, J., Waliczek, T. M., & Gandonou, J.-M. (2011, October). An Economic Analysis of a University. Teaching Methods. doi:10.21273/HORTTECH.21.5.639

Syafrudin, M., Kristanti, R., Yuniarto, A., Hadibarata, T., Rhee, J., Al-onazi, W., . . . Al-Mohaimeed, A. (2021). Pesticides in Drinking Water—A. doi:10.3390/ijerph18020468

University, E. L. (2020). #practical #studentservices. Budapest. Retrieved May 2021, from https://www.elte.hu/en/dstore/document/65/practical%20matters%20ppt.ppt

University, T. S. (2021, April). Department of Agricultural Science. Retrieved 2021, from Bobcat Blend Team: https://ag.txstate.edu/outreach/bobcat-blend.html#:~:text=Bobcat%20Blend%20is%20a%20faculty,program%20at%20Texas%20State%20University.

William G. Smith, P. (2008). Does Gender Influence Online Survey Participation?:. San José: San José State University. Retrieved May 2021, from https://files.eric.ed.gov/fulltext/ED501717.pdf

Financial instruments in the mirror of energy efficiency among Zala County SMEs

AUTHOR

Károly Szabó

Head of Cabinet, Mayor's Office of Zalaegerszeg

szabokaroly@ph.zalaegerszeg.hu

DOI: 10.29180/9786156342218_15

ABSTRACT

In the recent years sustainability and energy efficiency became more and more important in the life of the companies. As the environmentally friendly thinking spreads worldwide, and more conscious customers appear on the market, companies cannot leave out these factors (EE and sustainability) from their everyday operation. As this trend is likely to continue in the near future, in the current analysis we will try to figure out how manageable are these changes at the SMEs of Zala County. We will study the feasibility of the EE thinking in companies' life from financial side, as it is the usual barrier to introduce a new strategic approach. Regarding this, within the analysis we want to get the answer for the question, how many financial instruments are available for this purpose and how effective are these programs in the county. Within the main topic of "Sustainability in SMEs", we will also identify the potential need of new microfinance products which can be used for the implementation of the EE approach. To achieve these research results, we use qualitative methods. Through semi-structured qualitative interviews with financial experts, we can get an overall picture about the financial situation of the local SME sector and the needs of the EE friendly new products.

Key words: microfinance, microcredit, SME, strategy, sustainability, energy efficiency

1. Introduction

As the environmentally friendly thinking spreads worldwide, more and more companies have to change their everyday business approach. From economic side the only problem with this new type of demand is its cost. To change our strategic planning and being environmentally friendly is not for free, we have to calculate with its cost. According to this, in the current paper we will study that how manageable is this change for the local SMEs in Zala County and how can the microcredit as a financial tool help in this situation? My preliminary assumption is that local SMEs are open-minded to change their everyday life and they would turn into the environmentally friendly operation but there is lack of financial tools to manage this. The other part of my hypothesis is that microcredit would be ideal solution to fill this gap in the county.

On the basis of these preliminary assumptions, my research questions and hypotheses are the followings:

- Q1: How are the financial instruments for the purpose of new strategic approach in EE thinking available in Zala County for SMEs and how can they solute this problem?
- H1: Despite that there were governmental attempts, there is a lack of the "green" programs on the market in Zala County so local SMES used to solute the problem from own sources which causes that only that companies can introduce the EE thinking in the everyday operation who have major financial profit.
- Q2: How can a new type of microcredit product give a solution for the problem of the introduction of EE thinking in the everyday operation of local SMEs in Zala County?
- H2: With the help of a new microcredit product classic SMEs (with lower profit) in Zala County would be also interested in the introduction of the EE thinking in their everyday operation and they would start their projects in this field.

To analyse this problem, the study will make an overall systematic literature review at first in the field of the available energy efficiency aimed products in Zala County. In the second part of the literature review, paper will present the essence of microfinance and previous research results in the county. After the literature review the presentation of qualitative research results follows, finally the paper ends with related recommendations and conclusion.

2. In the name of EE thinking

It's important to clarify what we mean by environmentally support programs. The current paper within this, not just mean the dissemination of EE thinking among Zala County SMEs but the support programs for concrete investments (e.g. purchase of solar panels, wind turbine, insulation etc.). Renewable energy sources are energy sources that do not come from the so-called fossil fuels, but are generated by exploiting energy sources from the sun or the moon. These can include, but are not limited to, solar, wind, geothermal, hydropower and biomass. The programs which foster to cover our energy demand in our company with the renewable energy are the subject of the analysis. (Banász et al., 2018)

From the past decades, it's hard to identify classic EE support programs in the county. There are only a few best practices in this field and those are neither for SMEs. The only notable program was also available exclusively to the local population. Among these programs, the most popular was the so-called "Warm of House" program. The program supported the realization of cost-effective investments to build energy efficiency, condominiums, housing societies and the reduction of carbon dioxide emissions as well as the use of renewable energy sources by providing state budget resources. In order to get the support and to execute the financing quickly, building society used to apply for bank financing. Under the concrete program condominiums with a maximum of 50% support could reach the replacement of outdated heating, hot water and power supply systems and the provision of low-quality heat insulation. Despite the high aid intensity, the targeted user circle had low self-savings, so a solution was made to reduce these burdens which were the house-savings. This type of saving did not mean as dual financing and helped to efficiently finance the transaction. As this program ended in 2015, there was a strong lack of EE support programs for a time – especially for SMEs. (Kókai & Tóth, 2017) (Banga, 2016.)

In 2017, finally a SME related program started in the topic which name was GINOP-8.4.1/B-16 **Sme Energy Loan**. The loan ran with similar characteristics as its twin brother, the 0% Competitiveness SME loan. These programs are similar in that they have no interest rate which makes them sought but their maximum reachable loan amount is 1.000.000.000 HUF which is much more than the classic microcredit limits. It caused that most of the participant companies were medium or bigger enterprises, small enterprises with strong capital and the classic target group (non-bankable SMEs) was pressed out from the program. The two programs ended with an absolute success because the source was allocated. The only problem is that the gap wasn't filled. The classic SMEs have a lack of resources for years. At this point Zala County Government made a survey in Zala County among the local SMEs, in the topic that would they apply for a new type of microcredit in the field of EE support (eg. purchase of of solar panels, wind turbine, insulation etc.). The result was that from the 222 questioned respondents 99.1% answered a new microfinance construction would be needed for the support of EE solutions. In addition, the 92,4% would apply for this new construction. On the ground of this results we can confirm, there is a huge demand for a classic type of EE microcredit in the Hungarian SME sector. The further part of the analysis showed out that against its neglect still the MVA network is the most popular intermediary on the market. (Szabó et al., 2018, pp. 7.-9.)

All in all, within the previous EE support programs, the following characteristics are visible:

- For a long time only just a few EE support programs were available and these were only for general public
- In 2017, finally a SME related EE support program started but its main target group was not the non-bankable SMEs but the companies with strong own capital
- There is a strong demand on the market for a classis SME related EE support program and most of the SMEs would apply for it

On the ground of these characteristics, the only question is that what kind of microcredit program should be issued or what is microcredit at all and how can it help to fill in this gap?

3. Microfinance principles

The original aim of microfinance is the possible assistance for the layer of the population - primarily the poor and the women - who do not have the opportunity to turn to a formal financial sector. In the framework of the approach, these groups should be granted by establishment of microfinance institutions. (Handa, 2012) (Yunus, 1999) This helpful intent led to that a lending system could be formed which allowed the provision of capital, professional and financial assistance to non-bankable poor who can't funded by conventional banks. (Szabó, 2006) If we want to take a closer picture about microcredit then we need to know the definition issued d by Garmeen Bank (one of the first microfinance institutes). In their definition; microcredit (Garmeencredit) is based on the assumption that the poor have skills that are untapped or underutilized. It's not necessarily the lack of skills that makes poor people poor. Grameen believes that poverty was not created by the poor, but by the institutions and policies around them. To eradicate poverty, all we need to do is make appropriate changes in institutions and policies and / or create new ones. Furthermore, according to Grameen, love is not the answer to poverty. It only promotes the continuation of poverty. This creates addiction and

takes away the initiative of the individual to break through the wall of poverty. Unleashing energy and creativity is the answer to poverty for all people. (Grameen Bank, 2018)

Before the 1970s, we couldn't really talk about microcredit as a stand-alone concept, even though there were initiatives as early as the 1700s. There is perhaps still no generally accepted definition of microfinance. The European Commission decided that the EU considers loans under € 25,000 to be microcredit. According to EU terminology, it targets people who are excluded from the banking system and tries to provide them with a satisfactory service for their daily well-being through small disbursements. In addition, it is commonly defined as a means of combating poverty.

From its historical development, in the 1970s Professor Yunus was the first to truly realize that, within a given institutional framework, the poorer people had no chance of breaking out from deep poverty. Accordingly, Professor Yunus coined the terminology of modern microcredit to target people who could do business successfully because of their abilities, i.e., they are creditworthy but do not have any capital to get started, ergo are not bankable. These ideological frontiers also roughly summarize the essence of microfinance. It includes the good faith, which means that - in addition to extracting our salaries and the resources needed for our organization to operate through lending- we work primarily for the people, we try to help them. It includes the social impact which means that we are trying to create a credit product which helps people into employment, we are trying to reintegrate them into the labor market through the product. It includes the economic impact which means by reducing unemployment, people can become self-employed, which not only reduces the burden of social contributions on the part of the state, but also creates solvent demand in the market, not to mention that surviving businesses actively contribute to production indicators of the economy and economic growth. We can rightly say that this is an absolute win-win situation. (Szekfü, T, 2014, p. 5.) The basic essence of microcredit is still the same, but through the past decades microfinance formed a lot. Nowadays, it is used for several purposes like encouraging of self-employment, dissemination of business knowledge and we can also find examples for the use of energy efficiency. (Szegedi et al., 2016.)

4. Microfinance in Hungary

If we are talking about microfinancing in Hungary then we have to mention the domestic stakeholders at first. Among these players without a doubt the most influential is the Business Enterprise Promotion Network (MVA) on national level. The network was established in the 90'-s in the framework of the Phare programs. After its foundation the members of the network immediately become the most important financial intermediaries in the field of Hungarian microfinance. (There are still a few private financial intermediaries in the market but they have only a marginal role.) The network works in a structure that contains a business promotion centre (MVA is the name of network and also the strategic managing organization) located in Budapest, and every Hungarian county have its own business promotion foundation which is absolutely independent from the centre, both from financial and strategic side. In Zala County, this organization is the Zala County Foundation for Enterprise Promotion (ZMVA). Like the network, ZMVA was also established in the early 1990s to promote the enterprises, to mediate the entrepreneurial culture, and to provide information and opportunities for SMEs in Zala County. The operation rights are owned by the Zala County Government and bjectives

set out at the time of establishment have not changed in recent years; to promote the economic development of Zala County, to support the establishment, survival and growth of micro, small and medium-sized enterprises as we previously mentioned. In the framework of ZMVA's long term operation the most important tools were the projects and the combined and classic microcredit to achieve these objectives.

Within the concrete programs, mainly from 2007 to 2013 ran many microcredit-centric tools on a high level in Hungary. In the SME-ralted programs, the so called Combined Microcredit was the most popular which ran in the framework of the New Széchenyi Plan (in short, ÚSZT). The main logic of this financial tool was the following; entrepreneurs could take a loan up to 10 million HUF, of which 10% was self- contribution, 45% was the loan itself and 45% was the state support. In reality, this meant that in the case of a 10 million transaction, the state provided HUF 4.5 million as a non-refundable subsidy with HUF 1 million of own funds, and the remaining HUF 4.5 million was the loan itself with a fixed interest rate (max. 9% per annum, from 2012 - max. 6.5% per annum). The interest rate maximum was obligatory for every financial intermediary involved in the program, they could determine only within the given interest rate ceiling their own interest rate (if the maximum was 6.5%, an intermediary could decide to provide microcredit on 5% interest rate but not more than 6.5%). The combined microcredit also contained social obligations in which the customer had to employ at least one employee and the wage and salary paid to him had to reach half of the non-refundable amount until the end of the follow-up period (3 years). **This example clearly shows how to use a business model on a social field.** All in all, we can rightly say that this was the previous period's success story and an absolute best practice in alternative financial methods. The program helped a wide range of SMEs to expand, survive, start, and resume their business. (Armendáriz & Murdoch, 2007)

Besides the combined microcredit, the classic ÚSZT Microcredit (with no 45% state aid) was also available in this era. This program was as sought as its combined "brother". The secret was that the programs could be applied in the same time, in parallel, so many entrepreneurs choose that they use both financial tools. It's important to highlight that the classic microcredit was also sought during that time when the combined one's financial framework has been exhausted, so it wasn't just popular for being the twin-brother of a high support intensity program but also on its own right. Because the financial framework of combined ÚSZT exhausted quite early, the 2007-2013 period included another era in which the classic microcredit was the basic program and was the most stabile microfinance product. (In this period ran two types of microcredit, ÚSZT and OMA. The basic difference between them was that OMA could be applied from a central recourse while ÚSZT was allocated locally to the ZMVA.)

The classic microcredit with no 45% state aid had various advantages. In the previous period high aid products were a kind of pleasant catalyst for the economy but if we were to base our support system on combined tools for these four years, it could easily lead to that **Hungarian SMEs wouldn't be interested in the repayment and in the success of their own projects.** In a classic microcredit transaction, the interest rate gives back the responsibility to the SMEs' hand to make their project a success. If there is an interest rate on the loan – with no state aid, SMEs are much more interested in the repayment and successful operation of their business. The other advantage was the constancy at the classic microfinance programs. As the system maintenance was given through the interest rates, the resource was constantly refilled, so the program didn't have to end by depletion of the allocation.

In summary, the following advantages made different the classic microfinance programs:

- The classic programs give back the responsibility to the SMEs, they are much more interested in the repayment and also in the successful operation of the project
- The classic instruments are available at a constant time, doesn't need to be ended when the allocation is empty (the resource is refilled by the SME repayment)

If we are planning to introduce a new type of microcredit, both of the advantages are extremely important. This advantages clearly show that classic program can be operated in a sustainable form, continuingly and in a responsible way with many successes. If we want to see some concrete examples about these programs, we have to study the basic characteristics from the previous programs – see the table above.

The classic programs ran with the following requirements;

Table 1. Classic microcredit opportunities at ZMVA

Name	**National Microcredit Fund**		**New Széchenyi Microcredit Program**
Applicants	▪ Max. 10 employee ▪ Turnover less than 200 million HUF (cca. 550 000 EUR)	▪ Max. 10 employee ▪ Turnover less than 200 million HUF (cca. 550 000 EUR)	▪ Max. 10 employee ▪ Turnover less than 2 million EUR
Use	▪ Investment **Or** ▪ Investment + max. 50% Current asset	▪ Current asset	▪ Investment **Or** ▪ Investment + max. 30% Current asset
Credit amount	min. 500.000 HUF max. 10.000.000 HUF	min. 500.000 HUF max. 10.000.000 HUF	min. 500.000 HUF max. 10.000.000 HUF
Own source	0,00%	0,00%	10%
Maximum loan term	10 years	3 years	10 years
Required collateral average (loan amount 100%)	110-250%	110-250%	110-250%
Interest rate	fixed 3,9 %	fixed 3,9%	3,9% - 6,5%

[Source: own editing]

Sadly, the program was ended in 2013 and didn't continue in the 2014-2020 period. Among others, ÚSZT Combined Microcredit and the "classic" ÚSZT Microcredit (with no 45% state aid) have not been resumed, the 0% Competitiveness and 2.5% Growth Loans was introduced to fill their place. The result in this case is also a success story, as the total amount of funds has been evacuated within a very short time. So all in all, we can determine that these programs had the same problems as the 0% Energy Efficiency SME loan. The allocated resource was evacuated quite quickly, the classic SMEs were forced out from the program, the most successful applicants were medium or bigger sized companies with strong own capital.

At this point became clearly visible that the microcredit programs can give a sustainable, constant way of financing and fostering the EE solutions. As we already mentioned there is an existing gap in the

field of SME related EE support instruments, so we can rightly say that the demand is given. As we went through the existing analysing studies in the topic and literature background, we can also state that there is a lack of EE support programs again on the market as the 0% SME loan ended. On the basis of the literature review that also seems clearly visible, a new microfinance instrument can give a sure solution for the priority in Zala County. At the end of the review, we could partly accept H1 hypothesis but we will only accept after the semi-structured interviews.

5. Methodology

As the quantitative research was delivered in the previous local studies, the main task was that to collect all the additional information which can complete or change the results of the literature review. The last studies were implemented 3 years ago in the county so the task was not just that to complete the existing literature but also to analyse the potential changes of the last three year. On the basis of the tasks, I chose semi structured interviews since with this approach, instead of quantitative questions, I got answers to the user insights and the need of potential new products. (Babbie, 2008)

(Horváth & Mitev, 2015)

The main topics of the semi structured interview were the followings:

- How many energy efficiency supports were available in the past in Zala County? (EE programs: concrete purchase of EE solutions like wind generator, solar cell system, geothermal tools etc.)
- How many energy efficiency supports are currently in the past in Zala County? (EE programs: concrete purchase of EE solutions like wind generator, solar cell system, geothermal tools etc.)
- How can those companies give an answer for the customer demand of EE friendly operation who have no access to EE supports (because of the lack of EE support programs or simply they don't receive support)?
- Would it be easier to give an answer for the customer demand of EE friendly operation with a help a of a new microfinance program? Is it needed to introduce a new instrument?

In the framework of the qualitative research, I aimed to collect interviews till that it doesn't include new information anymore but minimum 5 interviews at least. The research framework was given by Zalaegerszeg Local Government database from which I choose the financial experts with the following characteristics (filtration):

- Minimum 3 years experience in business promotion or in financial field
- Independent operation from intermediaries and banks
- Located in Zala County

(Eden&Huxham,1996, pp. 75.-86.)

After the filtration, I chose 30 experts and sent invitations to these advisers. From the potential answers, I planned to make the interviews with the first feedback giving experts. The planned timeframe was 1 month, from 1 March, 2021 – 31 March, 2021. The planned location of research was the meeting room of the Mayor's Office of Zalaegerszeg. The fees of the research were financed by me. During the interviews, I use sound recorder, added with handwritten notes and after the interviews, I made the official transcript of the conversation.

6. Results

The invitations were sent from 15th February, 2021 via emails. After the emails, most of the contacts were asked on phone also. As the invitation process was successful the research proceeded as planned which means from 1 March, 2021 – 31 March, 2021 I made semi structured interview with the first 10 feedback giving expert. I had 12 positive answers for the interview invitation overall but as I mentioned I planned to collect interviews till that it doesn't include new information anymore which situation came at the 10th interview, so due to strategic reasons I didn't continue this part of the research after it. The location of the research was the meeting room of the Mayor's Office of Zalaegerszeg and only I was present as a researcher. In the field of qualitative interviews, I conducted interviews with the same structure with the experts. Among the interviewees, there are experts from several fields: financial advisor, microcredit expert, project manager, investment advisor as well as financial analyst. As explained earlier, we worked with semi-structured interviews that had the same basic questions, but the interviewees were able to answer according to their own responsibilities and jobs. The interview questions were not received by experts before the interview, the questions were only known during the interview. The main elements of the interviews are summarized in Table 2 (in terms of the job of the interviewees and the date of the interview). The timeframe of each interview was different, but was typically between 30 and 60 minutes. I interviewed only one expert at a time. During the interview, I asked the questions in order, after which I recorded the interviewee's answers in writing and sound recorder for each question. Due to the time factor, handwritten materials were created from which I made a transcript. After the personal interviews, an informal group interview was also conducted, which had the great advantage that the interviewees were able to help each other pass on information as well as get to know the area. This time, they were able to nuance previous interview responses, possibly providing additional information. Due to the time factor, we could not go into full detail this time.

Table 2. Interviews with financial experts of Zala County

Number	Job description	Date
1	Financial expert	1st of March, 2021
2	Project manager	5th of March, 2021
3	Venture capital investor	6th of March, 2021
4	Investment advisor	14th of March, 2021
5	Financial expert	16th of March, 2021
6	Microcredit expert	18th of March, 2021
7	Microcredit expert	19th of March, 2021
8	Financial analyst	20th of March, 2021
9	Financial expert	30th of March, 2021
10	Project manager	31st of March, 2021

[Source: own editing]

By the re-reading of the interviews several times, as well as by reviewing the existing literature and local studies, I identified the main financial situation of the county in the energy efficiency field as well as the role of a new potential microfinance product. In addition to review and interviews, we can say that we have obtained a very detailed and complex picture of the energy efficiency supports of the county.

7. Zala County SMEs in the mirror of energy efficiency

As it was visible in the first part of the literature review, there is a strong lack of green programs on the market. As we mentioned till 2017 the only notable program was the so called Warm of House program which wasn't even for SMEs but for general public or local residents and house societies and after the 2017 the only SME related program was the 0% percent SME energy loan which had several problems. The allocation was successful but as it didn't include interest rate, or registration fee, the allocation had no income for the system maintenance so it automatically meant the program will be closed in a given period, which was about 1 and a half year. The other problem was that the maximum amount of the loan was really high, 1 billion HUF, the total resource was 55 billion so the owner of the recourse could allocate the whole amount in 55 transactions. This allocation method automatically meant that the classic micro-SMEs was forced out of the program.

To these results the interviews were absolutely connected so in connection with the first hypothesis we had the following answers and findings during the semi-structured interviews:

- Only one program was available for Zala County SMEs in the past two decades
- This program was available for a very short time (despite that it was a "loan", not a support)
- **Since that there are no available instruments.**

On the ground of the interviews H1 hypothesis was partly accepted which means there is a strong lack of EE support programs in the county. The other part of the hypothesis wasn't accepted as the question of that how can local SMEs give an answer for the global EE demand without support is more complex than we expected. On the basis of the interviews, we got that result in some cases local SMEs really start their own EE projects if the support is not available but in most of the cases they wait until a support become available. So it's not provable that if the support is not available, local SMEs are implementing their EE projects with own resources so only those SMEs can afford EE projects who have strong own capital. It's important to highlight this topic needs more analysis. Among the local SMEs, the motivation of the project starting is an unknown area.

It's also an interesting question that for local SMEs which is the more important, being energy efficient and environmentally friendly or sparing through EE solutions? On the ground of the qualitative research, that image was emerged the financial side is much more important for the local SMEs and being environmentally friendly is an additional advantage for them. It's important to mention, in this case the subject is the SMEs who are on the layer of the business life with lower profit so it's understandable if these enterprises prefer the potential return at such kind of investment. Of course, this question was a smaller part of the current paper so it's needed to highlight this research gap has to study in further researches in Zala County.

In comparison with the first hypothesis, at **H2 hypothesis** the overall picture was much clearer **and we could accept it easily.** Before the current paper, in the previously implemented local studies, it was visible that there is a strong demand for new microcredit products (even in the field of EE). As evidenced by the previous questionnaire surveys the 92,4% of local SMEs would apply for an EE related construction and the interviews gave an evidence for that this rate haven't changed in the past 3 years (as the survey was implemented in 2018). On the ground of the interviewees' answers, local SMEs are looking for EE financial support and microcredit continuously. These experts have concrete inquiries in every month till the last EE support (0% SME energy loan) was ended. So within the hypothesis we can rightly state that **there is a strong demand for a new EE microcredit product for classic SMEs (with lower profit) in Zala County.**

On the ground of the interviews, we got the additional information that this demand is strongly connected to the previous program's disadvantages. As we have known in the literature review, previous support were available for a given period and as it had a high limit in the potential maximum eligible loan amount; smaller SMEs were forced out from the program. These characteristics created together a strong demand for a sustainable, continuous microcredit which is available for a long period and which target group are the classic micro-SMEs.

8. Recommendations

On the ground of the interviews it was visible – as we previously mentioned – there is a lack of "green" support despite that the demand is given but on the basis of the research results, we were also able to build a complete new program which can be introduced. As we saw so far, the problem is consists of three "legs"; 1. No available support, 2. Short-term supports in the past, 3. Wrong target group. So on the basis of the common opinion of the experts, the task is to issue a continuous microcredit program for local classic SMEs in the field of EE. In connection with it the following program description was implemented. (See Table 3. below)

Table 3. ZalaGreen Microcredit

Subsidy rate	0%
Administrative cost/transaction	150 000 Ft (483,4 Euro)
Total allocation	30 000 000 Ft (96 774,2 Euro)
Maximum amount/ 1 loan transaction	5 000 000 Ft (16 129 Euro)
Target group	SMEs located in Zala County
Intermediary	Zala County Foundation for Enterprise Promotion (ZMVA) owned by ZCG
Source	from ZMVA's own capital
Timeframe	from the end of 2021
Coverage	min. 150 % of the amount of the loan
Evaluation criteria	- Order of arrival - Last closed business year - Business plan - Needed coverage
Expenditure	Purchasing of energy efficiency tools: - Wind generator - Solar cell system - Building insulation - Geothermal tools
Brief description	ZalaGreen Microloan Program aims the dissemination of energy efficient thinking between SMEs located in Zala County. In the framework of the program the local SMEs can take a special type of loan, which helps SMEs to get energy efficient/renewable energy tools and helps to run their enterprises in a green way. This program will be a pilot action in Hungary which in the case of success can be disseminated in the whole country with the help of the Hungarian Business Promotion Network (ZMVA is a part of this network).

[Source: own editing]

These conditions are not obligatory of course. The program can be started with other numbers, like the total amount of the allocation can be a lower amount at fisrt, e.g. 50.000 Euro, but in this case the other conditions should be tailored to the new size of the resource. At a 50.000 Euro-sized allocation, the maximum applicable amount per transaction should be 10.000 Euro, which still allows 7-8 transactions at the same time (if not every applicants apply for the maximum limit). If we reduce the central resource, we have to count on that the program will be more and more experimental and there is a chance for not to reach the needed social actions.

The new program would issue by the Zala County Foundation for Enterprise Promotion (ZMVA). The foundation has a long-term experience in the field of financing, SME mentoring and management. Among the stakeholders, Mayor's Office of Zalaegerszeg and Budapest Business School have also a major role. The local government of Zalaegerszeg is an agile and a real cooperative institute with several development plans with a focus of business development so it should be introduced in the promotion of the program. Budapest Business School played an important role in the life of the city and as a business school for years and as this connection remained, the university would be responsible for the management of the mentoring. (After the successful application of the loan, SMEs have an

expanded mentoring in several fields from the foundation. Budapest Business School would be responsible for the elaboration of mentoring materials.)

The only bottleneck of the introduction is the question of own financing. As the national programs ended, in comparison with the previous times, nowadays the issue of a now program is possible from the foundation's own capital, not through a central resource (with the help of drawdown of the loan amount from the central resource). Fortunately, during the interviews it turned out that the foundation has a really strong capital so the issue is absolutely possible. The only difference at the own financing (in comparison with a central program), the question of the risk. It means that when an SME cannot pay back the loan and the transaction turns into financial loss it will be the foundation's own loss (and not the loss of the central resource). In reality at a 10 million HUF transaction, it can mean that the whole amount turns into a financial loss for the foundation (if the coverage is not right). In this case, that can easily happen when the foundation earned cca. 9-10 million HUF through the registration fee and finally they lose the whole profit in one transaction. On the ground of this bottleneck, the solution is the growing of the needed coverage. In usual cases, the average cover is around 110-120% of the whole loan amount but because of the own financing's risks, it's 150% in this case,

The other characteristics of the program are usual in microcredit instruments. It has no interest rate but registration fee ensures the needed income for the system maintenance. Target group is the local classic SMEs, maximum loan amount is the previously mentioned one. The purpose of the loan application can only be hard outcomes like the purchase of wind generator, solar cell system, building insulation and geothermal tools. The dissemination of EE thinking is also important but in the case of a loan, it's much more transparent if we work with hard outputs.

9. Conclusion

In the research the main topic was the basic condition of the energy efficiency (EE) support programs for local SMEs in Zala County. Through the literature review, the previous support programs were identified as well as the microfinance best practices. After the literature review a qualitative research was delivered among financial experts of Zala County. On the basis of the results, H1 hypothesis was partly accepted as we got that answer there are no available SME related EE programs on the market but the SME behaviour in the topic (customer demands for EE solutions) are not clear. The motivation of the starting of an EE project should be analysed in further studies in Zala County. Despite of this, H2 hypothesis was clear and could be easily accepted. There is a strong demand for a new EE microcredit among local SMEs. Furthermore, on ground of the interviews, the structure of a basic microfinance program was also possible.

The paper had several limitations. As I mentioned H1 was only partly accepted and the study of the local SMEs needs further analysis. Besides this, the whole paper concentrated only on Zala County so the study should be also implemented on regional or maybe later on national level.

All in all, - despite the limitations – we got a complex image of the potential new microfinance instrument and at the end of the research we also received a concrete adaption plan. In my opinion this plan should be introduced to local decision-makers beside that the research will continue on regional level in a short time.

References

Armendáriz B.- Murdoch J. (2007): The Economics of Microfinance, Cambridge (Massachusetts) Massachusetts Institute of Technology

Babbie E. (2008) A társadalomtudományi kutatás gyakorlata (6th ed.), Budapest, Balassi Kiadó

Banász Zs. – Gerencsér H. – Kalcsú Z. – Kókai M. – Rakó (2018), I. Energy efficiency support with combined financing tools, Zalaegerszeg Zala Megyei Önkormányzat

Banga, V. (2016): ATM for SMEs Regional situation analysing study Tanulmány, Zalaegerszeg, ZMVA

Böszörményi, L. (2005): Mikro-, kis- és középvállalkozások finanszírozási lehetőségei a Nyugat-dunántúli régióban, Zalaegerszeg, ZMVA

Eden, C. - Huxham, C. (1996). Action research for management research. British Journal of Management, 7(1), 75–86.

Fülöp, G. - Hisrich, R. D. - Szegedi, K. (2000). Business ethics and social responsibility in transition economies. Journal of Management Development.

Handa, L. (2012) A mikrohitelezés hazai és nemzetközi szabályozása, in:Vállalkozásfejlesztés a XXI. században II., Budapest, Óbudai Egyetem, Alba Regia Egyetemi Központ, 219-230.

Horváth D. - Mitev A. (2015) Alternatív kvalitatívkutatási kézikönyv, Budapest, Alinea Kiadó

Horváth, K. – Szerb, L. (2015) Global Enterpreneurship Monitor (GEM) – GEM 2015 Magyarország: Vállalkozások és vállalkozói ökoszisztéma helyzete 2015, Pécs, PTE

Illés, I.– Gyulai, L. – Lauf, L. (2013): A vállalkozásfinanszírozás alapjai, Budapest, Saldo

Kókai M. – Tóth V. (2017) Analysis of the accumulated experience and practices on local level to be transferred to the partner regions, Zalaegerszeg, ZMVA

Lentner, C. - Szegedi, K. - Tatay, T. (2015). Corporate social responsibility in the banking sector. Pénzügyi Szemle/Public Finance Quarterly, 60(1), 95-103.

Szabó, A. (2006.): Mikrohitelek a világban, Budapest, Kis-és Középvállalkozások Egyesülete

Szabó L. – Banász Zs. – Horváth Gy. – Takács T. – Illés O. (2018) Az energiahatékonysági és megújuló energiák használatának gazdasági hozzáadott értékek keretfeltételeinek elemzése Zala Megyében, Zalaegerszeg, Zala Megyei Önkormányzat, 2018, pp. 7.-9.

Szegedi, K., Fülöp, G., & Bereczk, Á. (2016). Relationships between social entrepreneurship, CSR and social innovation: In theory and practice. International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering, 10(5), 1402-1407.

Szekfü, T. (2014.): Hungarian Microfinance in the Light of European Directives lecture, RVA available: gtk.szie.hu/sites/default/files/files/tudomany/mtu/11/4.pd

Szekfü T. – Kókai M., ZMVA Helyi Mikrohitel Program Termékleírás (2017), Zalaegerszeg, ZMVA

Yunus, M. (1999): Banker to the Poor, New York, PublicAffairs

Vecsenyi János (2009): Kisvállalkozások indítása és működtetése, Perfekt Gazdasági Tanácsadó Zrt. Budapest

Manuscript - The Relationship between Industry 4.0 & Circular Economy in the context of Sustainability

AUTHOR

Muhammad Rahim Ejaz

PhD Candidate, Faculty of Business & Economics, University of Pecs

rahim.ejaz@live.com

DOI: 10.29180/9786156342218_16

ABSTRACT

- **Purpose:** The basic aim of this study is to identify the key enablers of Industry 4.0 in order to inter-link them with the concept of circular economy so that the goals related to sustainability can be achieved. These key enablers will help to understand better how Industry 4.0 can be used as a tool to achieve circular economy and eliminating sustainability issues in the process.
- **Design/Methodology/Approach:** An extensive review of the connected literature has been conducted and a framework has been established that connects Industry 4.0 and circular economy. The literature has been synthesized and a connection has been found that helps to lay a foundation of the framework.
- **Findings:** The results from the proposed study are as follows. The use of Industry 4.0 technologies might help organisations to achieve a sustainable competitive advantage at the firm level and on the broader scale it will help to achieve the ultimate goal of circular economy by closing the loop by digitizing all the stake holders present in the economy.
- **Practical implications:** Circular economy brings a radical disruption to the existing system of linear economy. At organizational level, digitization might be a good idea, it will help to low costs, zero waste and increase profits but in the larger picture; it is a radical change.
- **Social implications:** Circular economy combined with Industry 4.0 means less industrial waste, so it will bring positive impact on the environment and improve the quality of life. It will also force governments to revisit their industrial policies.

Keywords: Circular Economy, Industry 4.0, Sustainability and Cleaner Production

1. Introduction

The resource scarcity is one of the threats that have been faced by the world today. More importantly resources are depleting drastically than imagined by the experts. According to Acerbi et al. (2020) by the year of 2060 the usage of resources will reach 167 gigatonnes. Different measures have been introduced so far in order to counter the risk of resource depletion. Among all the introduced measures; the most prominent role was played by United Nations. They have introduced "Sustainable Development Goals (SDG)". There are 17 goals in total and most importantly the 12th goal is described as "responsible production and consumption". Manufactures has to adopt a new manufacturing way that is more economically, socially and environmentally sustainable.

Acerbi et al. (2020) argue that the most promising sustainable paradigm is circular economy (CE). CE has been defined as "an industrial economy that is restorative and regenerative by intention and design." The concept of CE was originated after the realization that present linear economy system is unable to cope with the production and consumption given the amount of limited resources. CE is based on the closed loop principle of the production system so that efficiency of resources could be increased. According to Dantas et al. (2021) the concept of CE explains a paradigm shift related to usage and disposal of resources. CE is based on primarily three principles. First is preservation and enhancement of natural resources, second is optimization of resources and the third is fostering effectiveness of systems. One of the basic purposes of CE is to slow down, narrow down and close the resource loops. CE can be viewed on three different levels. One is micro level; here CE deals at products and organizations level. Second is meso level; here CE operates at the level of network of companies, it can be an industrial cluster. Third is macro level; here CE deals at the level of cities, regions and nations. The adoption of CE will help manufacturers to reduce resource consumption and helps to minimize the toxicity of industrial waste.

According to Piscitelli et al. (2020) CE is a self-regenerative economic system which is designed to reuse resources in order to reduce industrial waste to the minimum. Adoption of CE will bring economic, social and societal benefits to the organizations. In other words this new economic system will help organizations to move towards sustainable development. Now policymakers are also shifting their attention towards the adoption of CE in the future. CE is a system that keeps production and consumption in a circulation order so that the value of the products and components can be created and recreated over a longer period of time. According to Jabbour et al. (2019) CE is restorative, regenerative and disruptive to present economic system and subsequently it introduces changes in the production and design structures. The CE helps to ensure multiple usages of products. CE contradicts the take, make and dispose phenomenon of the linear economy. Kumar et al. (2021) also argue that CE is regenerative system based on the zero waste philosophy. The waste produced by one organization has a potential of being used as a raw material in another organization. Kumar et al. (2021) define CE as "realization of closed loop material flow in the whole economic system." CE is restorative by design and its purpose is to keep products, components and other materials at higher utility rate and value at any given time.

Industry 4.0 presents a concept of smart manufacturing which means the use of digital technologies like cloud computing, additive manufacturing, augmented reality etc. in the manufacturing. These technologies might help to develop a production system with a closed loop. In literature smart manufacturing is also known as sustainable manufacturing. According to Spaltini et al. (2021) there

are 6Rs in sustainable manufacturing unlike traditional manufacturing. These 6Rs are Reduce, Reuse, Recycle, Recover, Redesign and Remanufacture. A sustainable changeover towards CE is necessary to reap all the benefits in terms of environment, social and economy. Adoption of CE means a huge paradigm shift in the industrial practices. It will bring change in the patterns of consumption and production. CE will also help to create new jobs that will help to boost economy.

Chauhan et al. (2021) argue that several studies have proven that the first 3Rs; Reduce, Reuse and Recycle are guiding principles for CE models. The reduction, which explains less usage of materials, electricity and industrial waste generation by the support of efficient consumption patterns. In reuse, a limited number of resources are being used in order to manufacture a new product. The resources can include material, labor etc. In recycling, there is an opportunity which allows using material form the products which are at the end of their product life cycle. It has positive impact on the environment. Recycling is also considered as parallel to CE as it has potential to bring industrial waste to zero level.

1.1 Research Questions

This paper is focused on the circular economy framework supported and backed by Industry 4.0 enabling technologies. It is not clear so far how I4.0 technologies help to achieve CE with respect to sustainable development goals. So the research questions are formulated as follows.

- RQ1: Develop a CE conceptual framework that is embedded with I4.0 technologies so that sustainable development goals could be achieved.
- RQ2: Development of a knowledge base to identify gaps and to identify a roadmap to implement CE framework embedded with I4.0 technologies into organizations.

1.2 Research Design

A thorough review of literature has been done in the first phase focused on the aspect of circular economy. For this purpose, published literature is being reviewed. Databases like Sciencedirect and Scopus has been consulted to gather related scientific literature. A study of existing circular economy frameworks has been done and literature only presents a relationship between circular economy and Industry 4.0 technologies has been studied for the purpose of this study.

2. Circular Economy and Industry 4.0

The technologies associated with I4.0 are required to collect and analyze data in order to improve efficiency and it will eventually lead to sustainable production and consumption which is the ultimate goal of the CE. Spaltini et al. (2021) argue that CE and I4.0 are the two sides of the same coin. CE is based on the regenerative aspect and on the other hand I4.0 is based on the interconnection of technologies and human interface to create a cyber-physical space. These two can help to close the loop with the use of technologies and data. These smart technologies can help to minimize costs and helps in predictive maintenance that will help to enhance product reliability and increase the product life cycle. Hamid et al. (2020) also argue that I4.0 technologies help to reduce manufacturing wastage and monitor manufacturing and operational processes. I4.0 technologies help to balance the social

impact by reducing environmental impacts and by increasing economic benefits. Moreover CE can help to increase the circularity of natural resources in the business operations so that the goal of preservation of natural resources could be achieved.

Shayganmehr et al. (2021) argue that cleaner production (CP) is considered as a prerequisite of the circular economy. The adoption of CE depends on the implementation of CP. For example, the prevention of industrial waste and pollution are the primary concern of CE and it cannot be achieved without CP implementation. Now with the emergence of I4.0 on the global scale, many organizations are transforming themselves in terms of managerial administration and operations. I4.0 technologies help organizations to implement flexible and efficient manufacturing processes so that costs could be minimized, product quality could be enhanced and a competitive advantage could be obtained. I4.0 technologies have a positive impact on the business operations. It optimizes remote connections with the help of robots and computers and minimizes the use of human interaction. I4.0 technologies are necessary to receive maximum output from the business operations. I4.0 technologies like Internet of Things (IoT), Cloud Computing (CC) and Artificial Intelligence (AI) help organizations to increase their product quality, efficiency and decrease their production costs.

According to Shayganmehr et al. (2021) several studies have proven that I4.0 technologies can work as enabling technologies in the implementation process of CE. Now businesses have to implement I4.0 technologies in order to reap benefits of modern technology. One of the primary contributions of I4.0 is that the enabling technologies help to digitize the CE processes. I4.0 enabling technologies offers plenty of opportunities to businesses to create CE system and ethical standards of social corporate responsibility. I4.0 technologies can also be used to monitor and improve the product life cycle of the products. One of the basic objectives of CP and CE collaboration is to achieve sustainable supply chain. If standard business procedure is not followed then I4.0 technologies cannot guarantees sustainable supply chain. So that's why standard procedures should be always followed.

Several studies have indicated that I4.0 technologies can play a vital role in the context of CP and CE. According to a research result mentioned by Shayganmehr et al. (2021) CP and CE develops a business synergy after the inclusion of I4.0 technologies. This business synergy results into sustainable development and production efficiency. Zhou et al. (2020) argue that CE is an economic system that seeks balance between economic growth and environmental protection. That's why it gained popularity in the context of sustainable development. It provides CP, resource efficiency and a sustainable economic structure. Moreover it also provides a product life cycle perspective; from production to consumption. I4.0 enabling technologies also ensure sustainability in terms of smart manufacturing, resource efficiency, new business frameworks and renewable industry structures. From a theoretical perspective, sustainability can be achieved by integrating CE into I4.0 technologies. Khan et al. (2021) argue that sustainability is based on three dimensions. These dimensions are economic, social and environmental, and the main objective of these dimensions to meet the resource gap so that present and future generations fulfill their needs without putting environmental dimension in harm's way. In 2008, China pioneered in devising policymaking related to CE. They have introduced "Made in China 2025" program to enhance the development and adoption of I4.0 technologies having CE as a central theme of the program. According to Zhou et al. (2020) it will help to achieve China's self-sustainability goal and also the enforcement of CE and I4.0 technologies to boost China's economy.

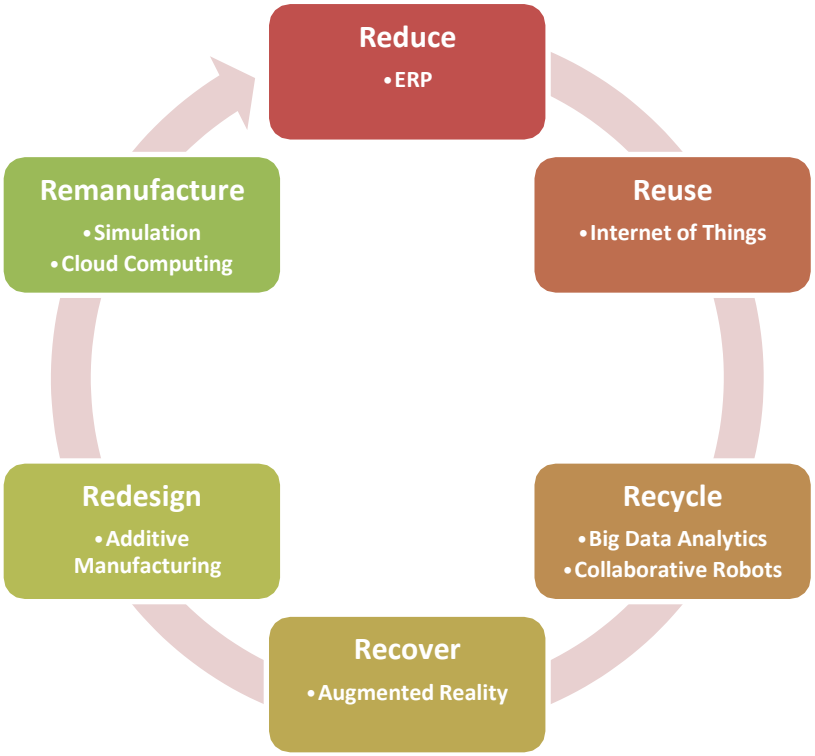


Figure 1: CE Conceptual Framework

As it can be seen that in figure 1 that a CE conceptual framework has been developed with the help of 6Rs which are instrumental for CE. It can also be seen that I4.0 enabling technologies are also used in this framework. These enabling technologies play an important role in the completion of each R. It is being illustrated that these technologies are instrumental in the formulation of CE framework. With the help of ERP software; organizations can reduce the usage of resources. ERP can also help to reduce the extra occupied space in the warehouse by ordering supplies which are required. It will also help to improve supply chain issues in an organization. Technologies like IoT are helping organizations to adopt reutilization of different products and services. With the help of IoT; smart use to products is possible which help organizations to save resources and as well as it also helps to increase product life cycle. Big data provides a platform to do data mining and machine learning. It happens only when large amount of data is being collected and being analyzed by the big data analytics. This technology will help to determine which products require recycling and collaborative robots will also help with the recycling process in order to produce recycled products. It is one small step towards sustainable manufacturing with the use of I4.0 enabling technologies. Augmented Reality is a technology that super imposes a virtual image on the real image. This tool can help to recover reusable materials from the products that are on the end of their product life cycle for the purpose of remanufacturing. Similarly additive manufacturing which is also known as 3d-printing can also help to design and produce new products from used materials in order to conserve natural resources. The last step in CE cycle is remanufacturing, it can be possible only when previous steps has been carried out. With the help of technologies like cloud computing and simulation; a completely new product can be produced and reproduced. These technologies can help to simulate the whole reproduction process on the computers

and help the organizations to understand how to conduct the remanufacturing process. These tools will also help to overcome the challenges that might come in the process of remanufacturing.

It is important to address and explore the complex nature of CE and I4.0 interaction. Numerous amount of work has been in the fields of CE, I4.0 and sustainability. Among them, some researchers focus their research on the implementation of CE in the context of I4.0. Some scholars focus their research on the barriers and driving forces in the adoption of CE in the context with I4.0. Similarly, some literature examines the relationship between I4.0 and sustainability and its connection with CE. In short, the main objective is the achievement of sustainability in the context of the relationship between CE and I4.0. It will bring technological progress, reconstruction of industrial structures, enhanced resource efficiency and suitable economic models. Khan et al. (2021) argue that sustainability is a major driving force behind I4.0 technologies. I4.0 technologies can be integrated with various business operations to obtain real time data of production and consumption patterns. These technologies help managers to monitor these patterns and allow them to make decisions based on the real-time information. These decisions will help to end the linear economy models and persuade organizations to move towards CE.

According to Kumar et al. (2021) I4.0 technologies are the major driving force behind sustainable business operations. I4.0 technologies help to foster sustainable decision making and assist in the smart manufacturing for CE. Kumar et al. (2021) argue that with the integration between I4.0 technologies and sustainable decision making; a sustainable smart manufacturing system can be established. It has been observed that with the help of I4.0 technologies, numerous challenges in CE can be resolved. It has been also noted that several organizations have not tapped the full scale benefits of I4.0 technologies and CE due to lack of awareness, knowledge and skillset.

2.1 CE & I4.0 in context with Sustainable Development Goals

Sustainability cannot be achieved without technology and innovation. Technological progress can play a vital role in the transformation of the industries and communities as a whole. Dantas et al. (2021) argue that I4.0 technologies can help to achieve SDGs, especially ones which are related to Industry. Moreover I4.0 technologies can help organizations to explore new dimensions in CE and other SDG targets in the process. I4.0 technologies are always considered as radical disruptive technologies because these technologies lead to autonomous and interconnected manufacturing which is also known as intelligent manufacturing. The basic aim to implement I4.0 technologies is to create smart interconnected factories which are economical and efficient. It is believed that I4.0 technologies will revamp the whole business operations and transform everything from product design to transportation.

I4.0 technologies are comprised on interconnected technologies for manufacturing enhancement. For example technologies like Cyber-Physical System (CPS), Internet of Things (IoT), Big Data Analytics (BDA) and Additive Manufacturing (AM) are used for production optimization. Some of the other I4.0 technologies include Cloud Computing (CC), Augmented Reality (AR), System Integration, Simulation, Cyber Security (CS) and Autonomous Robotics. These I4.0 technologies can be applied separately or simultaneously so that intelligent manufacturing could be achieved. These I4.0 technologies are not only supportive in the achievement of intelligent manufacturing but these are also helpful in the minimum waste generation. In this way, these I4.0 technologies will push towards less environmental hazardous production and push more towards cleaner production.

Sustainable development relies heavily on the technological development. In this context, I4.0 technologies can excel towards resource optimization, waste management and other sustainable practices. Dantas et al. (2021) argue that only investing in technologies is not enough in order to achieve SDGs. By limiting focus only on technology development might lead to increase in the greenhouse gas emissions which can eventually lead to depletion of natural resources. Bag et al. (2020) argue that resources such as infrastructure, skilled workforce, technical knowledge, domain knowledge, financial support and top management support are required by I4.0 to run sustainable operations smoothly.

3. Conclusion

The main objective of this study is to carry out a thorough review of the literature related to the present status of CE with the context of I4.0 technologies. The other goal includes the study the aspect of sustainability within the context of CE and I4.0 technologies. For this purpose, scientific literature has been collected from reputable sources and examined deeply. Scientific literature focused on CE framework and its relationship with I4.0 being core aspect of the review; it is being noted that there is a strong relationship exists between CE and I4.0 technologies. It is also observed that in recent time; publication of literature related CE has been increased drastically.

Most of the published literature is focused on the benefits of CE system over the linear economic system which includes remanufacturing, enhanced business operations and minimum waste generation. From the practical perspective, it has been analyzed that in order to implement CE framework; different set technologies can be used by different organizations. There is no one standard technology which can be used in order to obtain CE framework. Moreover it is also noted that investing only in technologies will not provide desired results unless organizations also invest in other resources like skilled labour force, domain knowledge and support from the management.

To conclude the discussion, it can be said that CE has a great potential in the future but it is still a less explored area of research. Now a lot of literature is being published regarding CE but more work in this research area is needed to be done. From scientific perspective; this study does not provide as such an original contribution topic but it provides a good review of the topic for a reader. This study also provides a CE conceptual framework embedded with I4.0 technologies which are inspired from the existing literature. This CE conceptual framework can be used as a sound base to extend the research on the same topic for the future researchers and academicians.

It is a definite fact that CE is not possible with I4.0 technologies and a socially and economically sustainable manufacturing system is not possible without advancing in CE system.

References

Acerbi, F. and Taisch, M. (2020). A literature review on circular economy adoption in the manufacturing sector. Journal of Cleaner Production, 273, p.123086. 10.1016/j.jclepro.2020.123086

Bag, S., Yadav, G., Wood, L., Dhamija, P., & Joshi, S. (2020). Industry 4.0 and the circular economy: Resource melioration in logistics. Resources Policy, 68, 101776. 10.1016/j.resourpol.2020.101776

Chauhan, A., Jakhar, S. and Chauhan, C., 2021. The interplay of circular economy with industry 4.0 enabled smart city drivers of healthcare waste disposal. Journal of Cleaner Production, 279, p.123854. 10.1016/j.jclepro.2020.123854

Dantas, T., de-Souza, E., Destro, I., Hammes, G., Rodriguez, C. and Soares, S., 2021. How the combination of Circular Economy and Industry 4.0 can contribute towards achieving the Sustainable Development Goals. Sustainable Production and Consumption, 26, pp.213-227. 10.1016/j.spc.2020.10.005

Hamid, A., Ali, M., Tseng, M., Lan, S., & Kumar, M. (2020). Impeding challenges on industry 4.0 in circular economy: Palm oil industry in Malaysia. Computers & Operations Research, 123, 105052. 10.1016/j.cor.2020.105052

Jabbour, A., Luiz, J., Luiz, O., Jabbour, C., Ndubisi, N., Oliveira, J. and Junior, F., 2019. Circular economy business models and operations management. Journal of Cleaner Production, 235, pp.1525-1539. 10.1016/j.jclepro.2019.06.349

Khan, I., Ahmad, M. and Majava, J., 2021. Industry 4.0 and sustainable development: A systematic mapping of triple bottom line, Circular Economy and Sustainable Business Models perspectives. Journal of Cleaner Production, 297, p.126655. 10.1016/j.jclepro.2021.126655

Kumar, P., Singh, R. and Kumar, V., 2021. Managing supply chains for sustainable operations in the era of industry 4.0 and circular economy: Analysis of barriers. Resources, Conservation and Recycling, 164, p.105215. 10.1016/j.resconrec.2020.105215

Piscitelli, G., Ferazzoli, A., Petrillo, A., Cioffi, R., Parmentola, A., & Travaglioni, M. (2020). Circular Economy Models In The Industry 4.0 Era: A Review Of The Last Decade. Procedia Manufacturing, 42, 227-234. 10.1016/j.promfg.2020.02.074. 10.1016/j.promfg.2020.02.074

Shayganmehr, M., Kumar, A., Reyes, J. and Moktadir, M., 2021. Industry 4.0 enablers for a cleaner production and circular economy within the context of business ethics: A study in a developing country. Journal of Cleaner Production, 281, p.125280. 10.1016/j.jclepro.2020.125280

Spaltini, M., Poletti, A., Acerbi, F. and Taisch, M., 2021. A quantitative framework for Industry 4.0 enabled Circular Economy. Procedia CIRP, 98, pp.115-120. 10.1016/j.procir.2021.01.015

Zhou, X., Song, M. and Cui, L., 2020. Driving force for China's economic development under Industry 4.0 and circular economy: Technological innovation or structural change?. Journal of Cleaner Production, 271, p.122680. 10.1016/j.jclepro.2020.122680

Fashion industry sustainability rating systems from the perspective of fashion SMEs

AUTHORS

Tamara Szabó*, Dorina Körtvési**

* MA Student, Aschaffenburg University of Applied Sciences;

** PhD Scholar, Budapest Business School

DOI: 10.29180/9786156342218_17

ABSTRACT

We have been hearing a lot about the sustainability of the fashion industry lately, it has become a fashionable research topic. Much of the research focuses on what information customers have, what influences their decision, and how they behave in a sustainable way when buying clothing or fashion items. The most conscious customers might be guided by the results of sustainability assessment systems for fashion companies. However, rating systems mostly focus on large companies. To our knowledge, there is no research that maps the views of small fashion companies on fashion rating systems. In this research, we used an interview method to examine how Hungarian fashion SMEs view sustainability assessment systems, how they would create their own system, and what future trends they expect in relation to these systems. The results show that SMEs consider good brand reputation more important than participating in a complex evaluation system.

Keywords: sustainability assessment systems, fashion industry, small- and medium-sized enterprises, CSR

1. Introduction

The fashion industry is one of the largest industrial players, with a global value of $ 1.3 trillion, employing more than 300 million people worldwide (Gazzola, Pavione, Pezzetti, & Grechi, 2020). However, after steady growth in recent years, a slowdown has been projected, beginning from March 2020 due to the coronavirus pandemic (The Business of Fashion and McKinsey&Company, 2019). The global lockdown and restrictions have drastically changed circumstances and consumer demand, forecasting future trends, such as green(er) production, a push towards sustainability, sharing economy, conscious recycling, etc. Why would these changes be crucial for the clothing industry? Fashion is also well-known as one of the most polluting and resource-intensive industries, hence its future success depends on reducing its environmental and social imprint across the entire life cycle of garment production. That means reducing the impacts associated with cultivating and producing textile fibres and establishing and spreading of good practices at all levels (Joy & Pena, 2017). Apparel production is a highly complex procedure, consequently resulting in environmental harm at all stages of the production from raw material cultivation to disposal of fashion items, chemicals, enormous amount of water usage aligned with energy consumption, CO2 emission, etc (Islam, Perry, & Gill, 2021). Companies taking responsibility for a sustainably running business are likely to report their results, – whether it reflects on sustainability or social responsibility achievements - which also

enhances the business owners to enable sustainability objectives, advantages and results for investors and customers as well. Additionally, it might mean showing a comprehensive picture of companies' operation not only for boosting purchase but creating a positive public view, spreading and strengthening the understanding of sustainability (Chan, Creel, Song, & Yurova, 2021). While improving the sustainability level of any organization, the Triple Bottom Line (TBL) concept must be integrated into their operation, meaning they pay close attention to the business's economic, environmental and social impacts (Blagov & Petrova-Savchenko, 2021). By reviewing the literature, evidence and research were found, focusing on sustainability assessment in fashion industry at a global level. Gbolarumi et al. (2020) wrote a comprehensive review of recent studies involving research dealing with the sustainability assessment systems (Gbolarumi, Wong, & Olohunde, 2020). The tendency is that there is a general lack of knowledge on sustainability and information, especially from the consumer side. Many stakeholders believe that there is a lack of applicable and result-driven indicators. Furthermore, some of the literatures investigate just one of the three pillars of sustainability, e.g.: environmental issues only (Zhu, Chen, Wu, & Ding, 2018) or only social (Zamani, Sandin, Svanström, & Peters, 2018), or economic and environmental (Le & Wang, 2017), not emphasizing the TBL approach and the importance of sustainability. Complex and acknowledged sustainability assessment systems are existing, still there is a slight number of literatures examining them, and the context is usually a general view on large companies. Besides, evidence relating to the SMEs sector has not been found. Current research intends to map the Hungarian SMEs' general point of view on the gathered and analysed sustainability assessment systems designed for clothing industry, and reveal whether they consider it as an opportunity, exposing their notion on future fashion business trends.

2. Theoretical framework

Sustainable development as an idea has emerged in the highly industrialized world, where the exploitation of the nature has constantly become more and more explicit, and a social demand occurred to slow down or stop the procedure and address the issues (Stock & Seliger, 2016). When it comes to sustainability as a definition, literature mostly refers to the Brundtland report, in 1987. The report offers two major concepts, as (a) sustainability as the population's common future, and (b) the three pillars of sustainability. Our common future is clearly defined in the report as „meeting our own (present) needs without compromising the ability of the future generation to meet their own needs" (United Nations, 1987, p. 15.). Likewise, the three pillars of sustainability were acknowledged in the report, providing a much wider context, in which economic, social, and environmental concerns are involved. The emphasis on sustainable development in research commenced with environmental issues, and later sustainable development has become associated with the Triple Bottom Line (TBL) concept based on the assumption of John Elkington in 1994. He explained that companies should align their operation with three bottom lines instead of only focusing on the profit and loss account. The methodology deliberates, that businesses must commit themselves to simultaneously taking into consideration social and environmental concerns as much as they do financial gains. It is also called the three P, as its name implies the concept refers to a company's bottom line, which traditionally would be the "profit and loss" for the company. Businesses must take into account two more factors: people and planet. The "people-account" reflects how socially responsible is an organization, while the "planet-account" measures environmental-related consciousness (Elkington, 1997).

(a) Environmental aspect

It is important to mention that environmental aspects are the most concentrated out of the three pillars. Manufacturing industries mostly strive to achieve immediately results for example by cutting their resources consumption, reducing packaging, waste etc.

(b) Social aspect

The social pillar relates to the capacity of a society, country, family and organization to function at a defined level of wellbeing and harmony for an indefinite period which must be preserved in the long term. Community, employees, stakeholder approval and supports are the basis of sustainable business. Furthermore, naturally renewed resources, also the limits of raw materials should be taken into consideration to guarantee a well-sustained society.

(c) Economic pillar

The ecological and social aspects are considered important in the economic movement; however, economic dimensions are the major competitive concerns of many organizations neglecting other dimensions of the TBL, which has sadly caused some organizations to lose their credibility, reputation, and corporate image. Meanwhile, it has been established that sustainable development is based on the integration of economic, social, and environmental views (Baliga, Raut, & Kamble, 2019).

Nowadays, the most comprehensive framework seeking international cooperation, involving NGOs, civil societies, governments, and individuals as well, is provided by the United Nations Sustainable Development Goals, launched in 2015 within the 2030 Agenda for Sustainable Development. All its 17 goals with 169 targets were adopted by each UN member states to address complex social and environmental problems at a global and local scale (United Nations , 2018). Regarding the fashion industry, human rights issues, lack of equal opportunities and fair and ethical working conditions, an enormous amount of exploitation of natural resources, children engaged in forced child labour (Brun, Castelli, & Karaosman, 2017) are only some of those global issues occurring in the fashion industry that are targeted by SDGs to improve, and to achieve this improvement, cooperation from governments, the corporate sector, NGOs and individuals is necessary (Palakshappa, 2021).

Figure 1. – The 17 Sustainable Development Goals launched by the United Nations, 2015

Source: (United Nations, 2021)

CSR in the fashion industry

Sustainable development and corporate social responsibility (CSR) usually walk hand in hand. The first theoretical concept was defined in the late 20th century, USA (Carroll B. A., 2008). Since then, dozens of definitions have attempted to paraphrase its concrete and specific meaning for business community. Literature considers Carroll's four dimensions in his firstly launched book in 1979, which are the following:

- Ethical responsibility emphasizing the business firms' role not only to ensure employees' welfare by creating fair working conditions (e.g. no discrimination based on gender, race, political view, etc.) but also by creating principals for suppliers with fair trade standards.
- Environmental responsibility for paying close attention to reducing pollution and fighting against greenhouse gases emission.
- Philanthropic responsibility regarding vulnerable and needy people mostly in developing and underdeveloped countries, therefore companies should invest their time, money, and resources to sustain them with e.g. educational programs, donations.
- Economic responsibility as the most interconnected field with the three above- mentioned ones, recognizing the corporate sector as the economic engine of the society (Carroll B. , 2016).

In the case of fashion industry, CSR might be interpreted as an umbrella concept, covering a wide spectrum of challenges that occur as social and environmental issues, marketing concerns, management and organisational obstacles (Thorisdottir & Johannsdottir, 2020). Relevant sources in the topic can be grouped according to the following focus areas based on their research directions:

Figure 2. Fashion business activities associated with the CSR concept

Source: Compiled by the authors

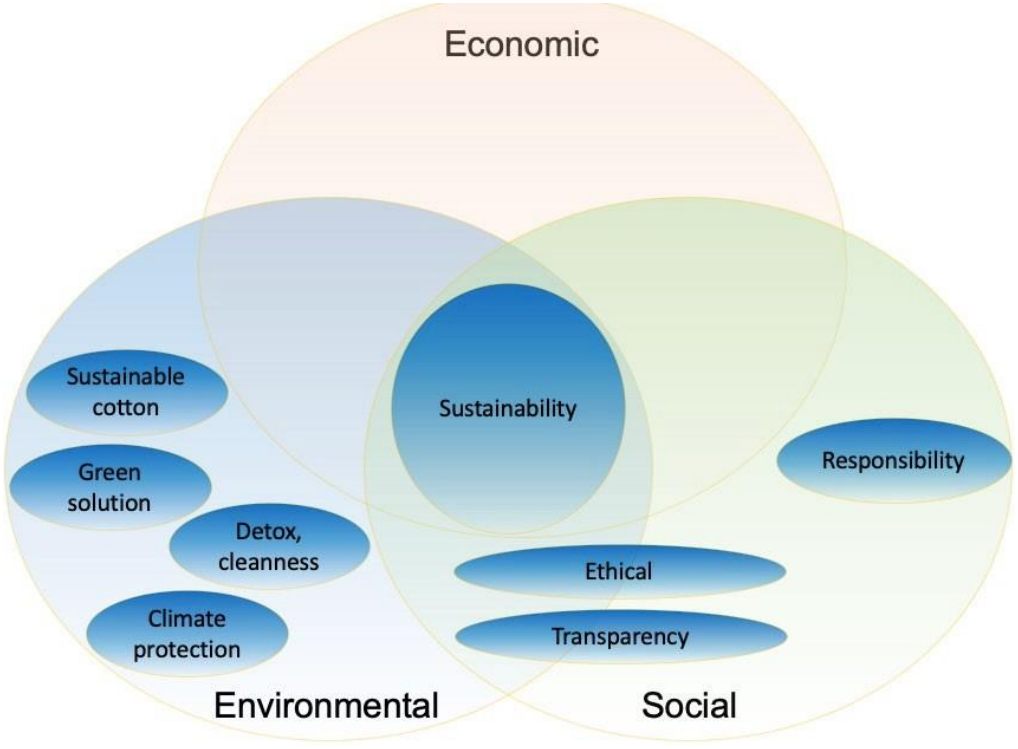
One of the main barriers when discussing sustainability and corporate social responsibility is, that these practices are mostly designed to be applied by large companies (Morsing & Perrini, 2009). However,

SMEs play a significant role in economy and have a great impact on society yet there is little research and empirical findings on how SMEs can contribute in a profitable way to a sustainable future or how are they currently acting and conducting their businesses in a responsible way. It is also observable in the fashion SME sector, that there is increasing awareness and customer demand for more ethical and sustainable fashion (Nayak, Singh, Panwar, & Padhye, 2019).

3. Sustainability assessment systems in the fashion industry

By applying the method of content analysis, we have reviewed literature related to the fashion industry assessing businesses sustainability. As a result, we have identified 13 sustainability assessment evaluation systems in which the sustainability of fashion companies is (also) evaluated. For further analysation, we have classified them into three main groups, namely those systems, which can be considered as (a) complex systems dealing with all the three dimensions of sustainability, (b) systems concentrating on social issues, and (c) systems putting the emphasize on environmental issues. By reviewing them, we identified several keywords linked at least to one aspect of sustainability. Figure 2. illustrates those values that were highlighted as the summarized interpretation on the assessment systems on what they evaluate specifically.

Figure 3. The 13 sustainability assessment systems aspects on economic, social, and environmental issues



Source: Compiled by the authors

The table below briefly introduces the 13 assessment systems based on the some of their features, such as year of establishment as a system, keywords forecasting their ideas about sustainably run businesses,

their main focus areas, how many industries and brands are covered and assessed by them, and also in how many categories they are evaluating companies and brands.

Table 1. Summarizing the 13 sustainability assessment systems in the fashion industry, 2021

System	Year of establishment[1]	Keyword	Evaluated companies (n)[2]	Categories of assessment (n)
Complex systems dealing with all dimensions of sustainability				
Dow Jones Sustainability Indices	1995	sustainability	-	25
Higg Index	2009	sustainable	250	23
The Fashion Transparency Index 2020	2013	transparency	250	5
Ethical Consumer High Street Clothes Shops	1995	ethical	40 000	5
Good on You	2013	ethical, sustainable	2 000	3
WWF: Changing Fashion	2017	sustainability	12	11
Systems focusing on social issues				
The 2019 Ethical Fashion Report	2013	ethical	130	5
KnowTheChain Apparel&Footwear Sector	2013	responsibility, transparency	42	7
Systems focusing on environmental issues				
Sustainable Cotton Ranking	2017	sustainable cotton	77	14
Green Supply Chain CITI (Corporate Information Transparency) Evaluation	2014	green	85	12
Filthy Fashion Climate Scorecard	2019	climate protection	45	6
Greenpeace Detox Catwalk	2013	detox, cleanness	19	3
Changing Markets: Dirty Fashion Disrupted Leaders and Laggards Revealed	2017	cleanness, sustainability	91	6

Compiled by the authors based (Szabó, 2020)

For the analysis we have intended to make the aspects of different systems comparable with each other by counting the similar elements of the evaluation points. During the analysis of the 13 evaluation systems, we have examined the different aspects according to the three pillars of sustainability, economic, environmental, and social pillars, therefore we have aligned both the practice of fashion industry and the theory we have reviewed. The Dow Jones sustainability assessment system was the only system, that was clearly structured around the three pillars of sustainability, so we have accepted those aspects as our main categories. For defining our further criteria (subcategories), we were trying to include all the aspects of all evaluation systems while combining the similar ones to get a manageable data set. Of course, this step included some level of subjectivity. After defining the

[1] Referring to the establishment of the system or scorecard, not to the organisation
[2] Approximate numbers, most of the data are not publicly available

categories, we performed an analysis of the 13 evaluation systems based on these criteria. After this analysis, we could make statements about the fashion sustainability assessment systems (Szabó, 2020).

4. Research methodology

The aim of the research was to map the local SMEs' view and general knowledge about fashion sustainability assessment systems, with particular attention to the 13 examined one. We choose the method of semi-structured in-depth interviews, for which 4 small and medium size enterprises' owners were chosen. Semi-structured in-depth interview is a qualitative research method, applied when the interviewer prepares questions beforehand to guide the conversation with the interviewee and to keep the partner on topic. It encourages a two-way communication, where the interviewee has the chance to answer and express their own personal view or experience on the raised open-ended question. All the 4 interviews were organised via Microsoft Teams, conducted in Hungarian, later on translated into English word by word. It aimed to gain direct information from business founders about the following specific areas:

- Does the SME sector consider sustainability assessment systems important?
- What economic, social, and environmental factors would be considered when assessing the sustainability of a fashion business/company?
- What future trends are expected to occur regarding fashion sustainability assessment systems?

As the result of the above theoretical analysis, we found that most of the research focuses on what information customers have, what influences their decision, and how they can behave in a sustainable way when buying clothing or a fashion item. The most conscious customers can also be guided by the results of sustainability assessment systems for fashion companies. Based on preliminary research, there is no information mapping the views of SMEs on fashion evaluation systems, hence, as these are highly complex assessments, we intend to disclose the Hungarian fashion SMEs awareness, opinion, views, and knowledge relating to these systems.

Interview questions	
I	**Does the SME sector consider sustainability assessment systems important?**
Q1	Have you heard of fashion industry sustainability assessment systems?
Q2	Can you mention some of these systems?
Q3	Which of the 13 assessment systems listed have you heard of?
Q4	In your opinion, what sort of factors are examined by these systems?
Q5	What companies do you think fashion sustainability assessment systems examine?
Q6	Would you undertake an evaluation of your own company according to such a value system?
Q7	If you would do so, why? If not, why not?

II	**What economic, social, and environmental factors would be considered when assessing the sustainability of a fashion business/company?**
Q8	If you would create such an assessment system, what factors would you take into account?
Q9	What economic, social, and environmental factors would you consider?
Q10	Would supply chain management be part of your assessment system?
Q11	Please, indicate your answer and specify how would you integrate it into the system?
III	**What future trends are expected to occur regarding fashion sustainability assessment systems?**
Q12	Would it be realistic to create a standardised sustainability assessment system in the fashion industry? Please, indicate your answer.
Q13	If yes, who's responsibility would it be?
Q14	If no, what other tools would be suggested to evaluate a fashion company's sustainability level'?

5. Research sample

The research sample involves four small and medium size enterprises, all of them located in Hungary, three in the capital, Budapest and one in Debrecen. Based on former content analysis based on their websites, these four enterprises showed responsible and sustainably aware business profiles, therefore they were chosen as interviewees. To obtain suitable background information, our keywords were: *sustainability*, *responsibility*, and specifically *corporate social responsibility.*

Regarding their activities, they conduct diverse businesses, their production activities cover the clothing and accessories sector as well.

Pinkponilo is a sewing and fashion studio located in Budapest, with a designing and producing portfolio. Their green way of thinking is originated from their self-made clothing items, being open to new and innovative fashion technologies and techniques, for example, smart textile or 3D printing, putting great emphasis on education, workshops and zero waste production. They are constantly thinking in further cooperation in order to bridge the gap between fashion designers and manufacturers. Their social responsibility movements are harmonised with the business future goals according to which they attempt to address social issues, such as inequality, environmental issues, protectionism, with transparent-sustainable-trade-network and education in practice with running actual production (PINKPONILO, 2021).

Zöld Gardrób or Green Wardrob's business activity is based on the capsule wardrobe definition, referring to a small and compact, also personal and interchangeable clothing items, with matching styles, colours, etc. (Htef & Shaharuddin, 2019) The enterprise not only provides educational tools and background on how to create capsule wardrobe, but also purchases fashion items of international brands manufactured in an ethical and sustainable way, promoting conscious consumption, and carbon neutrality (Zöld Gardrób, 2021).

The idea of **Mancika Designs** was born in Australia where sustainability and awareness have a long tradition. The company in its present form was founded in 2019, since then, Mancika Designs has been manufacturing hand-made accessories, ensuring complete uniqueness, also striving towards maintaining a zero-waste workshop (Mancika Designs, 2021). Among their basic values, freeness, environmentalism, and individual perception are playing a key role, at the same time their vision is to produce achievable and affordable luxury and elegant fashion items (Not Just a Label, 2021).

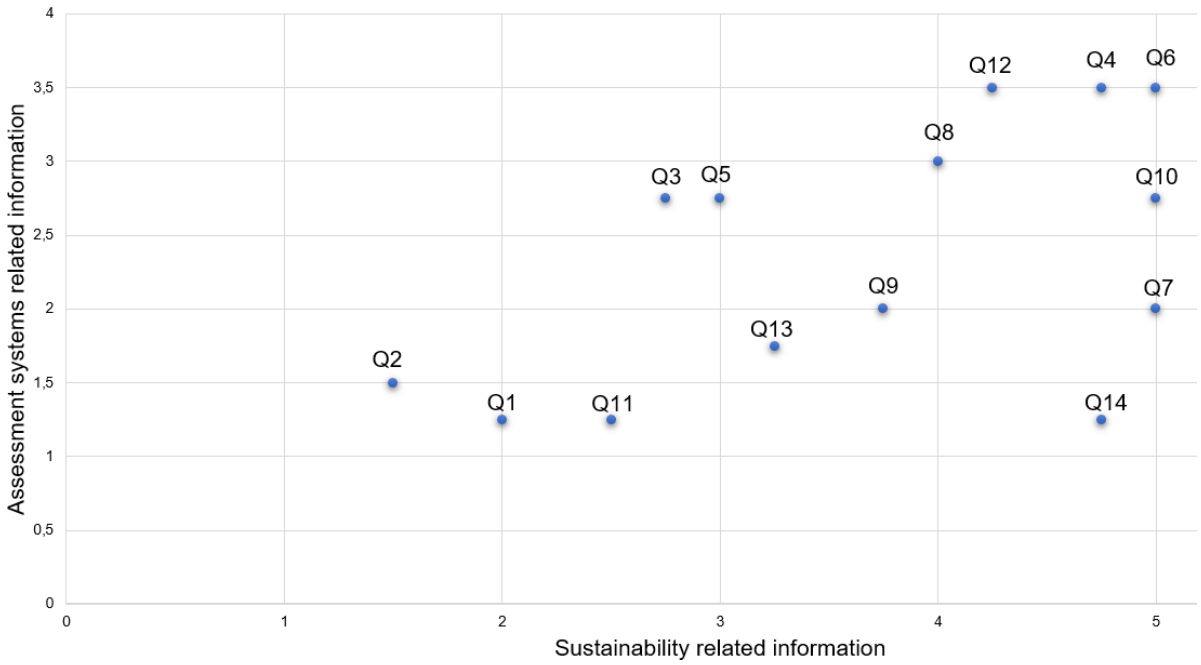
PLANTETHICS also deals with jewellery as an ethical, sustainable, vegan brand creating elegant, minimalist, nature inspired accessories. Similarly to the previously introduced SME, PLANTETHICS brings together the environment and humans, manufacturing home and fashion hand-made pieces to wear. They sacrifice special attention to the resources they use, recycled materials and fair-trade precious metal, furthermore real plants to create the items. The SME launched several interesting collections, such as the FOREST collection – from leaves, VEGANWEAR – bags, shirt and accessories supporting zero waste, TERRA collection – from traditional glass alloyed with plants, ZUZMO, EARTH, ESSENCE collection, etc. (PLANTETHICS, 2021)

Several criteria were taken into consideration during the selection of SME's. The SMEs' vision and mission, based on their websites is strongly linked to sustainability, recycling, preserving the nature, uniqueness, vegan lifestyle, zero waste, and education. These SMEs are also members of the Fashion Revolution, which is an international movement, being present and conducting their activities on all continent, working on cultural, industry and policy change for a more green and transparent industry with spreading and sharing best practices. In this respect, their commitment and awareness of a responsibly running business is unquestionable (Fashion Revolution, 2021).

6. Research results

The interview results have allowed us to set up several statements and assumptions about the SMEs' general aspects, and some critical points were disclosed as well. The descriptive analyses of the manuscripts were conducted from two angles: sustainability related information and answers related to fashion assessment systems. The aim was to get a complex picture on whether SME owners have a unique view, general knowledge, and awareness about the matter, or they have no relevant information. To interpret the provided answers and reduce the bias, we have generated an evaluation scorecard to all 3 sections of the interviews, scoring and indicating the given point. The maximum point achievable was 5 points meaning that the owner has comprehensive, detailed information relating to the raised question, and point 1 is the lowest score, meaning the owner has no information about the question. It is important to emphasize that the evaluation does not reflect the 'right' and 'wrong' answer, it simply shows the level of information that the SME sector might access in the field of sustainability and assessment systems. The results are summarized in Table 2. As it is illustrated, the information on sustainability, its determinant elements, modern trends, technologies, and techniques are well-known by the SMEs, while the assessment systems have less importance in their operations.

Table 2. Interview results scorecard



Source: Compiled by the authors

RQ (1-7): SMEs' general aspects regarding the sustainability assessment systems in the fashion industry

- The SMEs' owners have limited knowledge about sustainability assessment systems. All SME owners heard of some of the listed ones, especially Good on You was mentioned in 3 cases out of 4 interviews as the most transparent and reliable system. All the interviewees mentioned the Fashion Revolution, which is actively engaged in various international movements and information exchange platforms, and through this mediation they have heard about some of the systems.
- All the four founders were convinced that these systems especially focus on those factors which are challenging to address and mean a complex issue at a global scale. Mostly those elements were mentioned by owners which can be identified as the negative impact areas of the industry, such as resource depletion, climate change, animal suffering, water pollution, food insecurity, air pollution, habitat destruction, human rights abuses.
- When it comes to concrete assessment, they all consider the companies' size as a determinant factor, stating that bigger companies, whether they are international or multinational with a strong market reputation, have better chances to take part in such evaluations. One interviewee indicated that smaller businesses also might be involved in these assessments in order to provide a comprehensive picture by including all segments. All four companies would undertake a sustainability assessment

on their own company, however, because of its expenses, they consider an assessment an unaffordable investment.

RQ (8-11): Creating an own assessment system: economic, social and environmental factors

- Diving into the sustainability aspects, the critical point was the economic pillar. 3 interviewees could not mention any economic related factors they would assess, and the social and environmental factors mostly covered the elimination of inequalities, ensuring fair wages, ethical conditions, recycling processes, eventually referring to the negative impact areas. We concluded that there is a general gap between the fashion SMEs sector commitment and business activities.
- One founder was very-well informed and highlighted factors such as, organizational form, cash flow, savings, investment in technology and innovation in new raw materials, wage growth, establishing new economic relationships and textile distributors, charity programs, measuring the water and electricity consumption, etc.
- For all the four founders, sustainable supply chain management would be crucial as part of their own assessment system, indicating its importance in terms of sustainability although they could not provide concrete suggestions on how to integrate it into the system. We also identified a dilemma between theoretical approaches and practical applications.

RQ (12-14): SMEs forecasting future fashion industry trends aligned with the assessment systems

- SME owners do not think it makes sense to create a unified, or one globally interpreted and applied assessment system, since they believe that there are too many influencing factors such as political and economic environment, cultural differences, climate, logistics, local prices, and these are continuously changing. Creating one system would probably put many market players on the periphery or out of competition.
- Furthermore, they have identified the general lack of data, and also the different level of governmental or other grants and financial supports as an issue from an SMEs' point of view.

7. Conclusion

In the first part of the primary research, 13 sustainability assessment systems were gathered, analysed and compared with content analysis method, we found that even though these are highly complex and acknowledged systems, the traditional pillars of sustainability receive unequal attention. Social aspects are likely to be less highlighted compared to the economic and the environmental ones. In its economic dimensions, the publication of the suppliers' list and the examination of risk and crisis management dominate mostly. The most frequently investigated aspects in the field of environmental protection are climate and environmental strategies, environmental policy, management systems, and product care. The social angle covers the human rights assessment of the companies and supply chain management. The 13 fashion industry sustainability assessment systems evaluate companies from various perspectives, but this leads to differing results, therefore in the absence of a universal ranking system, it is problematic for stakeholders to get relevant and proper information about the sustainability of fashion brands. In the second part of our primary research, in-depth interviews with the chosen SME owners have highlighted a meaningful interpretation feature, rather putting the emphasis on the environmental aspect of sustainability and neglecting the economic and social ones, which are also a visible result by analyzing the fashion industry's sustainability assessment systems.

The chosen SMEs are highly committed to sustainability and are generally informed about the assessment systems; however, they feel the pressure from the large companies on the market. They consider the assessment systems important, but they would rather put more emphasis on regional cooperation, local visibility or good brand reputation than participating in a complex system.

Since this pilot research was conducted as a small-scale experimental study, further investigation is needed on the SME sector, focusing on their corporate social responsibility activities and ethical functioning.

References

Baliga, R., Raut, R., & Kamble, S. (2019). Sustainable supply chain management practices and performance: An integrated perspective from a developing economy. Management of Environmental Quality, 1147-1182. doi:https://doi.org/10.1108/MEQ-04-2019-0079

Blagov, Y., & Petrova-Savchenko, A. (2021). The transformation of corporate sustainability model in the context of achieving the UN SDGs: evidence from the leading Russian companies. Corporate Governance, 307-321. doi:https://doi.org/10.1108/CG-01-2020-0047

Brun, A., Castelli, C., & Karaosman, H. (2017). A focused supply chain strategy for luxury fashion management. Journal of Fashion Marketing and Management, 544-563. doi:https://doi.org/10.1108/JFMM-03-2017-0026

Carroll, A. (2016). Carroll's pyramid of CSR: taking another look. Int J Corporate Soc Responsibility. Journal of Corporate Social Responsbility, 1(3), 2-8.

Carroll, B. (2016). Carroll's pyramid of CSR: taking another look. International Journal of Corporate Social Responsibility. doi:https://doi.org/10.1186/s40991-016-0004-6

Carroll, B. A. (2008). A History of Corporate Social Responsibility: Concepts and Practices. In A. Crane, D. Matten, M. A., J. Moon, & S. S.D., The Oxford Handbook of Corporate Social Responsibility (pp. 19-46). Oxford: Oxford University Press.

Chan, S., Creel, T., Song, Q., & Yurova, Y. (2021). Does CSR reporting indicate strong corporate governance? International Journal of Accounting and Information Management, 27-42. doi:https://doi.org/10.1108/IJAIM-07-2020-0099

Elkington, J. (1997). Cannibals with forks – Triple bottom line of 21st century business. Stoney Creek: CT: Newy Society Publishers.

Fashion Revolution. (2021). Retrieved from https://www.fashionrevolution.org/

Gazzola, P., Pavione, E., Pezzetti, R., & Grechi, D. (2020). Trends in the Fashion Industry. The Perception of Sustainability and Circular Economy: A Gender/Generation Quantitative Approach. Sustainability, 2809.

Gbolarumi, F., Wong, K., & Olohunde, S. (2020). Sustainability Assessment in The Textile and Apparel. IOP Publishing Ltd (pp. 1-16). IOP Conf. Series: Materials Science and Engineering. doi:10.1088/1757-899X/1051/1/012099

Htef, M., & Shaharuddin, S. (2019). Adopting C2CAD Model To Eco Capsule Wardrobe Design. International Journal of Scientific & Technology Research, 1224-1233.

Islam, M., Perry, P., & Gill, S. (2021). Mapping environmentally sustainable practices in textiles, apparel and fashion industries: a systematic literature review. Journal of Fashion Marketing and Management, 331-353. doi:https://doi.org/10.1108/JFMM-07-2020-0130

Joy, A., & Pena, C. (2017). Sustainability and the Fashion Industry: Conceptualizing Nature and Traceability. In A. P. Henninger C., Sustainability in Fashion. Kelowna: Palgrave Macmillan.

Le, T. N., & Wang, C. N. (2017). The integrated approach for sustainable performance evaluation in value chain of Vietnam textile and apparel industry. Sustainability, 477.

Mancika Designs. (2021). Retrieved from https://mancikadesigns.com/

Morsing, M., & Perrini, F. (2009). CSR in SMEs: do SMEs matter for the CSR agenda? Business Ethics A European Review, 1-6. doi:10.1111/j.1467-8608.2009.01544.x

Nayak, R., Singh, A., Panwar, T., & Padhye, R. (2019). A Review of Recent Trends in Sustainable Fashion and Textile Production. Current Trends in Fashion Technology & Textile Engineering. doi:10.19080/CTFTTE.2019.04.555648

Not Just a Label. (2021). Retrieved from https://www.notjustalabel.com/mancika-designs

Palakshappa, N. D. (2021). Mobilising SDG 12: co-creating sustainability through brands. Marketing Intelligence and Planning, 265-283. doi:https://doi.org/10.1108/MIP-08-2018-0360

PINKPONILO. (2021). Retrieved from https://www.pinkponilo.com/

PLANTETHICS. (2021). Retrieved from https://www.plantethics.eu/

Stock, T., & Seliger, G. (2016). Opportunities of Sustainable Manufacturing in Industry 4.0. Prcedia CIRP, 536-541.

Szabó, T. (2020). Divatipar és fenntarthatóság - mi van a csillogás mögött? Fenntarthatóságot értékelő rendszerek összehasonlítása. Miskolc : Miskolci Egyetem.

The Business of Fashion and McKinsey&Company. (2019). The State of Fashion 2020. Retrieved 10. 02., 2020, from https://www.mckinsey.com/~/media/McKinsey/Industries/Retail/Our%20Insights/The%20state%20of%20fashion%202020%20Navigating%20uncertainty/The-State-of-Fashion-2020-final.ashx

Thorisdottir, T., & Johannsdottir, L. (2020). Corporate Social Responsibility Influencing Sustainability within the Fashion Industry. A Systematic Review. Sustainability, 12, 1-64.

United Nations . (2018, April 20). United Nations. Retrieved from Sustainable Development Goals: https://sdgs.un.org/goals

United Nations. (1987, pp. 15.). Report of the World Commission on Environment and Development: Our Common Future. New York: UN.

United Nations. (2021). Department of Economic and Social Affairs. Retrieved from The 17 Goals: https://sdgs.un.org/goals

Zamani, B., Sandin, G., Svanström, M., & Peters, G. M. (2018). Hotspot identification in the clothing industry using social life cycle assessment—opportunities and challenges of input-output modelling. The International Journal of Life Cycle Assessment, 536-546.

Zhu, L., Chen, L., Wu, X., & Ding, X. (2018). Developing a greenhouse gas management evaluation system for Chinese textile enterprises. Ecological Indicators, 470-477.

Zöld Gardrób. (2021). Retrieved from https://www.zoldgardrob.hu/

18 57

BGE

IV. BBS International Sustainability Student Conference 2021