YOUNG TALENT AWARD

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PRINT PRODUCTS IN THE CIRCULAR ECONOMY AND THEIR SUSTAINABLE FUTURE

- How do you see print products (graphics and packaging) in the circular economy?
- What is your vision for print for a sustainable future?

A constant increase of the world population lead to a higher demand of raw materials necessary to reach the market request for products. The combination of these factors brings the awareness even more on the fact that raw materials are limited, and the consistency of their exploitation will make the new generations face a huge crisis. This, without even considering the environmental pollution created by the savage extraction of raw materials and the economic and political pressures that are generated from the inter-dependencies between countries that are poor in raw materials and the ones naturally rich in raw materials.

The solution is the implementation of a circular economy. In fact, the goal of the circular economy is to reduce or eliminate the waste production thought prolonging the life of a product. How the print products such as packaging can participate in a circular economy and have a sustainable future? I strongly believe in and support the European Union new circular economy action plan, that was published in March 2020. It has been presented by the European Commission as a new industrial strategy belonging to the European Green Deal, the Europe's new agenda for sustainable growth. Additionally, in February 2021 the European Parliament demanded extra action to achieve by 2050 a fully circular economy that is toxic-free, carbon-neutral, and environmentally sustainable. In fact, the main goal is to move from a system that creates waste, uses energy from finite sources and has like procedure the take-make-dispose model, to a system that eliminates waste, uses energy from renewable sources and has like philosophy the make-use-recycle model. Indeed, the goal here is to extend the life cycle of products to minimize as much as possible waste production and the exploitation of raw materials. To achieve this, a comprehensive and complex system has been thought through from the very initial state of a product, starting from its design to its production or

remanufacturing, to its lifetime, distribution, consumption, use, reuse or repair, collection, recycling, residual waste, incorporating logistics as well.

Another relevant aspect that I consider can´t be ignored it is about people mindset. In fact, this is an important step from where to start, challenging the old mindset of the linear economy, that has been applied by the old businesses for more than a century. In this case start-up companies together with fresh-minded and young enthusiastic people will become part of the engine that will move the whole economy towards a change. The benefits of implementing a circular economy are many, and this include less pressure on the environment, a more secure raw materials provision, an increase of competitiveness on the market, stimulating innovation, boosting economic. A circular economy can be seen also as very promising in creating new jobs in the society. The European Parliament is estimating that this will consist in the creation of about 700,000 new jobs in the European Union by 2030. As a sense of consequence, it is logical to deduce that the printing industry will be affected by this forecast, both by new employment and by a new business approach. Considering the waste production, the packaging industry has not been facing a hard time neither during the Corona Pandemic crisis.
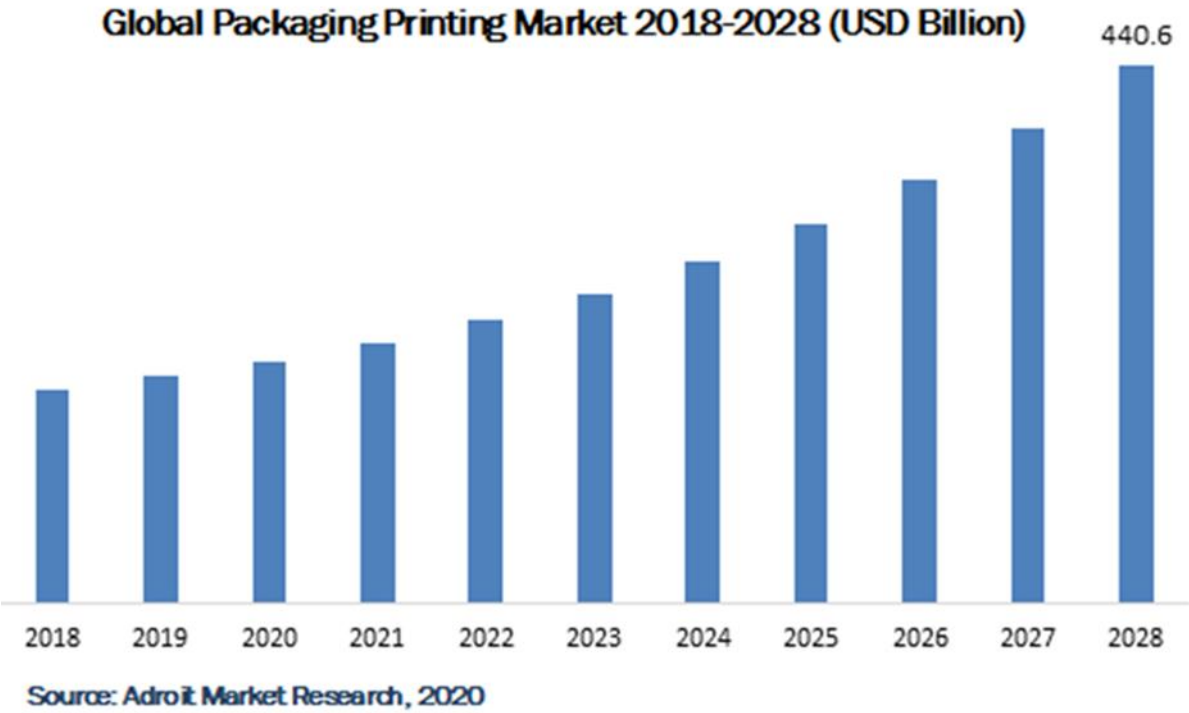
Global Packaging Printing Market 2018-2028 (USD Billion) 440.6

Source: Adroit Market Research, 2020

Figure 1: Global packaging printing market 2018-2028 (USD Bilion)

The impact of the packaging on the environment, how much CO_2 has been produced for its manufacturing, how well can be recycled have become one of the main concerns for the

consumers when purchasing goods. Therefore, this is also creating pressure on the companies to increase their concern about these matters if they want to stay competitive on a market where buyers are more and more educated about environmental problems and climate change. Packaging printing is one of the main revenue incomes in the printing market, and it is expected to expand from USD 320.6 billion in 2019 to USD 440.6 billion by 2028, approximately at a CAGR of 5.7% according to Adroit Market Research 2020 (figure 1). This positive factor rises at the same time the demand for packaging material, that must correspond to the requirements of the new European rules, and to the design and values that customers desire.

Some company's leaders belonging to the global printing industry like Canon, Epson, HP, and Xerox are leading by example and working on offering many sustainability benefits in future, such as creating much less waste and using less chemicals in production environment. It is obvious, that a global corporation has a much bigger environmental footprint than a small printer. To become more sustainable, manufacturers, vendors and their customers could be implementing recycling programs, machine upgrading offers, software for a smoother production with less waste, energy-efficient machinery, and many other options. An important change will only happen, if the printing industry is determined to invest in making more sustainable business models, like seriously considering using sustainable and recycled materials and inks as well as energy-efficient processes in manufacturing and printing itself, allowing therefore the production of goods (e.g. in packaging and in the graphic industry) that can be highly recyclable. The companies should work their way towards eliminating dangerous chemicals and substances wherever possible. The parts used in the manufacturing could be recycled within the industry to create re-furbished machinery. There is also a specific section in the New Circular Economy Action Plan dedicated to plastics, largely used in the packaging industry, urging the reduction of over-packaging, a re-use and recyclable design friendly approach and a reduction of the complexity of materials to facilitate their disposal. The global market leaders in the printing industry, as the names mentioned above, can be a source of inspiration for other printing companies to work towards a sustainable printing future. In fact, this can build an optimistic vision that there is a high probability to reach the goals of the European Union new circular economy action plan on time, by 2050.

Nowadays despite of our awareness about the huge amount of waste produced by the packaging, we still get our goods fully packed as there is no option available (besides, of

course, having a cow at home and get the milk directly to the glass). After opening the package, it goes straight to the dustbin as there is no point in collecting it at home. Although, it is possible to change the non-sustainable system. I believe that in the future the concept of reusing packages to refill them, already adopted by the cafeteria and canteen of the University of Stuttgart and Hochschule der Medien University, is a wining approach that can be largely expanded to many fields. A concrete example of how the packaging waste could be reduced, and the correlated shopping philosophy, will be presented in the following text (figures 2-6).

Imagine the grocery store where the products are not wrapped into a package as each customer has its own box or bottle to fill it up with the necessary food products. How would it look like?

Figure 2: Containers with the food products (self-painted).

The shop would have multiple huge containers with the taps in the middle of it so that the customer can come with the own box/bottle/package or get those from the shop, which can be used for many years, and fill it up with the desired food product. On the right down corner of the figure 2 we can see the labels which customer must stick on the box. The labels provide

the product and a company information as well as have a bar code. The labels can be easily attached and detached. Therefore, after the product is used the customer should return the labels to the shop and get some money for it. The same with the worn-out boxes. Monetary remuneration and awareness of sustainability would motivate the customers to do so. Afterwards, the boxes and labels would be recycled and start their new life cycle again after the remanufacturing. The process is illustrated on the images below (figure 3-6):

Figure 3: The customer comes to the shop with the reusable boxes/shopping containers(self-painted).

Figure 4: Old labels and boxes can be returned at the stand at the entrance of the shop(self-painted).

Figure 5: Customer uses his own packages to fill them up with the goods (self-painted).

Figure 6: The old labels and packages go to the recycling stage (self-painted).

This strategy will contribute into sustainability and the reduction of the waste dramatically.

Although, to implement this idea strong support from the customers as well as from the government is required.

As already mentioned above, young generations play a relevant role in the transition from the linear economy to the circular one. Therefore, I would like to mention in the next paragraphs a questionnaire that I was conducting together with my classmates within the course "Supply chain management", hold by Professor Dr. Thaler Klaus at Hochschule der Medien between December 2021 and January 2022, involving many students, but also people of various backgrounds. The goal was to assess the overall sustainability of the print industry and investigate more on what new generations think about the printing industry and its future. Out of 114 participants, 54% were students, 41% in the age range between 18 and 24, 65% of the participants were interested in the printing industry and 69% consider that the printing industry has a future. To the question "In your opinion is the printing industry attractive for young people?" there was a positive trend of answers, with 40% yes and 32% maybe, stating that there is a predominant interest. Some of the reasons the participants to the questionnaire gave to justify why they consider the printing industry attractive are: "Printing makes an idea alive. All digital forms shapes and drawings can become real through printing they become something that you can touch you can see in real life", "There are certain areas where the print industry is booming, for example packaging, but on the other hand commercial printing and the advertising market is declining as there is more positive approach and growth for E - marketing", "Printing industry can be a form of joining art with engineering and therefore be attractive to young people".

In the questions on the environmental sustainability of the print industry, the answers received have a tendency towards uncertainty, compared to other areas in the survey (economic, technological growth etc.), as seen in figure 7 and 8. Reasons for participant's answers include intensive amounts of resources and energy consumption, large water consumption, harmful compounds within inks, companies unable to afford more sustainable solutions and excessive paper wastage. When asked for solutions, participants answered that renewable materials, environmental management of individual areas of the industry, using recycled paper, affordable sustainable options, cheaper ecological energy, and consolidation of supply processes should be seriously take in consideration.
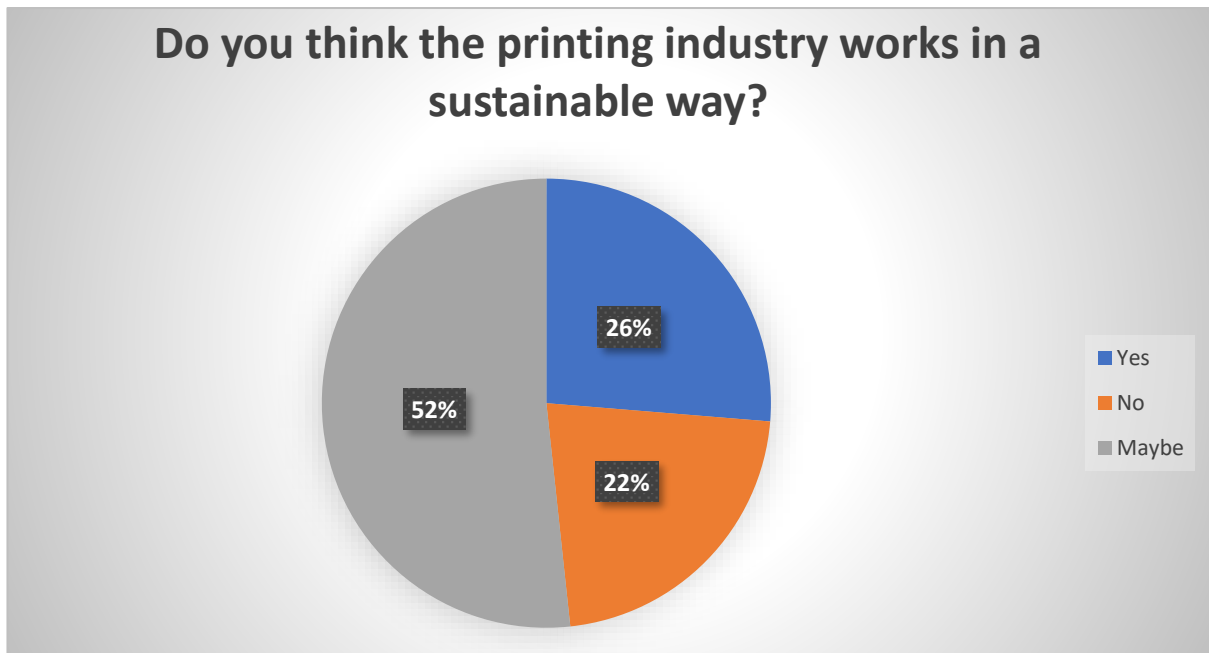
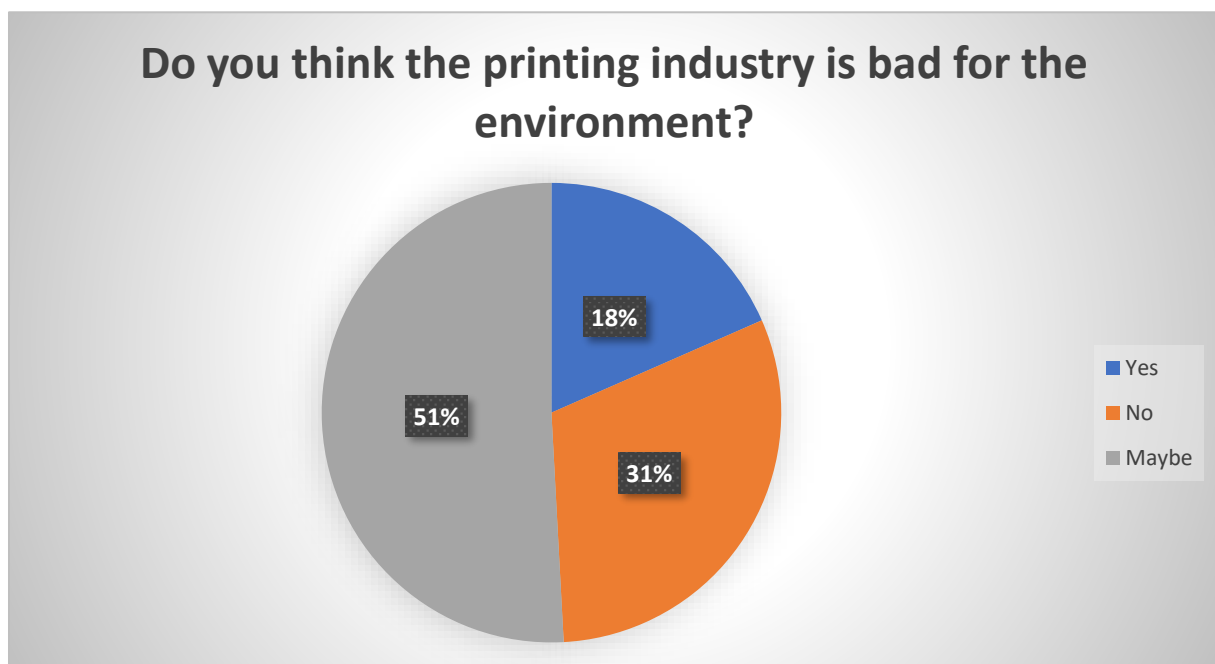*Figure 7: Survey results – sustainability of the printing industry*

Figure 8: Survey results – printing industry and the impact on the environment

Additionally, by analysing the results of the survey, we could immediately realize that the interest of young people towards the printing industry exists for different reasons. These same reasons can be used as an inspiration to promote the printing industry to the new generations, by directly pointing at the aspects that meet their interests, like a combination of art and engineering, technological developments, environmentally friendly future perspectives. In

fact, 86% of the participants think that the printing industry is diverse, 93% that is high-tech and automated, but the majority is uncertain if printing is bad for the environment.

Therefore, the printing industry should seriously take in consideration the opinions of the young generations and start to increase awareness about the industry strengths, as well as focusing on understanding the needs and visions of young people and match them to their own. I also think that the future of the printing industry depends on how the printing businesses will react and adapt to circular economy and sustainability. Consequently, if printing companies, and especially the leaders in this field, make strong decisions to have as philosophy sustainability and circular economy in their business model, it could be an additional important factor to attract young people in the industry. Indeed, this can be seen as an advantage for both parties, since the industry needs engaged, enthusiastic and creative minds to deal with the new challenges and changes for a greener system, while young people will be motivated and willing to achieve these goals and perform accordingly.

As a conclusion I strongly believe that we, the next generation of print professionals, are driven by the desire to make a change. We are enthusiastically looking for a space in the industry where we can express our innovative ideas, our creative solutions and realize our dreams within a working environment that has an open mindset and appreciate our motivation to make a change, working together towards a sustainable future and a circular economy model.

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