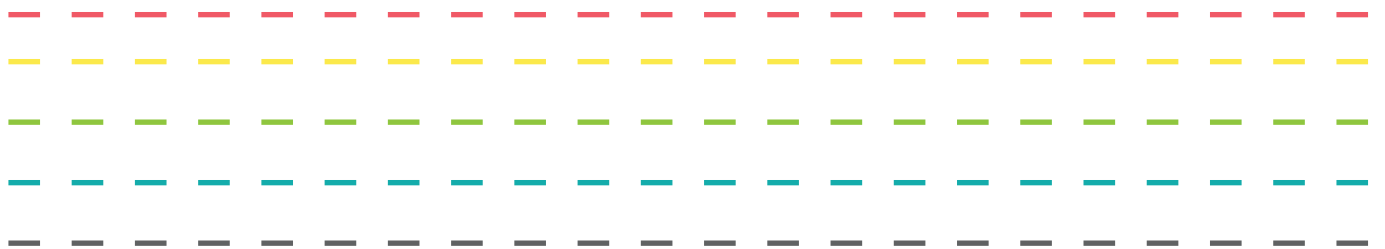




**Politecnico  
di Torino**

Department of Architecture and Design  
Corso di Laurea Magistrale in Design Sistemico  
Academic Year 2021/2022  
Master Thesis

A Systemic Analysis Of The Relationship  
Between **Consumer Durables And The  
Financial Independence Of The Young  
Adult** To Evaluate Possible Open Design  
Opportunities.



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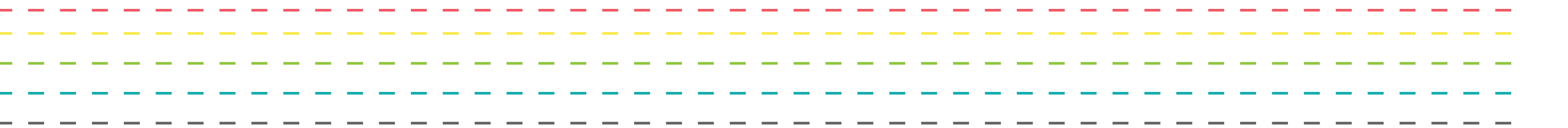
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# Dedication & Acknowledgement

*To my dear family, who has embraced and inspired me every day to give it my all at everything I do.  
And to my beloved flatmates who supported me during this process.*

*I would also like to acknowledge my tutors during this process and the academics and colleagues who provided me with much-needed information, guidance, and insight..*



# Abstract

Young Adulthood is a term often thrown around to describe an age period of life yet the ambiguity to what ages it relates to is connected in achieving certain milestones to fit our roles of adults in a society, the main one being financial independence. This is a more difficult task lately than in previous years, and when dealing with their wealth, it turns out most of it is invested in consumer durables, although they can dedicate around 10% of their spending on these products. The research exposes how the system has evolved in order to offer more affordable durables for young adults to purchase but in terms of changing the goals of the market to more low-quality products with short life cycles which has also changed the warranty policies of products that should last at least three years to just 2. By doing so, the amount of waste produced by this product has elevated when new policies and systems can be put into place to prolong and reduce this waste. The study showcases terminology research on the terms of financial independence, young adults, and consumer durables as well as their correlation. It also dives into the qualitative values of the relationships of young adults and consumer durables in regard to the territory of the city of Turin which shows to have high consumption rates regarding these products, as well as a lot of opportunities. These are all analyzed in a systemic design approach to see how the current system can be replaced with new actors, like makers and the waste management entities that can regenerate, reuse, upcycle and reduce this waste. Finally, 8 case studies are examined, local and global, to understand the difficulties of establishing these new systems in the market and changing the paradigms. In the end, the role of open-source and open design shows to be an important factor for the viability of this kind of project as well as reduction of cost, the formation of communities around these systems are what allows them to succeed in the long run.

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# Introduction

## Chapter 1



# 1.1

## Thesis Topic & Elaboration

The following Thesis showcases the work of thorough research regarding the relationship between young adults, their financial independence, and the role of consumer durables in this aspect of life from a design standpoint. The purpose is to understand the current system of stakeholders, products, and users to see what can be the issues in struggling economic modernity that is prolonging the ability for independence and self-reliance as well as a path to contamination and low quality.

The topic is born from patterns of struggles identified in the day-to-day living of young adults as many of them seem to need these products yet are constantly met with economic setbacks that prevent them from obtaining what they want or are forced to rely on low-quality. This in terms generates future waste and less wealth. The pattern cycle is prolonged and many recur to different methods in order to achieve their financial independence.

This problem becomes a curiosity that evolves into academic research for the identification of the challenges of the current system portrayed by the young adult, its consumer durables, and their economy. The study comes from the Master's degree in "Systemic Design" in the Politecnico di Torino through the academic year of 2021-2022, which introduces the methodology and the terms for a holistic view of the whole process and analyzes

the system in place and what are the actors and data. This later helps us identify the challenges to take into consideration and what can be the possible opportunities that can be born out of it, to later become systemic projects. As well as it introduces another topic touched on in the systemic design course, which is "Open Design" for the purpose of generating opportunities that can be replicable in other places and because of the collaborating nature of these approaches.

The research paper in question does not have the purpose of elaborating and corroborating a systemic project but to analyze extensively, in a holistic way, the territory of the study, in this case, the city of Turin, in regards to the consumer durables market. On top of that, it also analyzes the so-called products that conform to the categorization of consumer durables and what is their relationship with Young adults.

As the paper evolves, the bases for the terminologies (Chapters 3-4) are formed, and the groundwork for a field study is taken. From a sociology approach, the study proposes a survey of 100 young adults in the city of Turin, to understand different viewpoints on their relationship with consumer durables (Chapter 5), as well as to corroborate hypotheses generated during the theoretical framework of the project. With the analysis of the territory, the market (Chapter 6), and

the user a map can be generated with the connection between the issues at hand to generate the challenges (Chapter 7) of the system.

Before proposing opportunities of its own the study also analyzes some current case studies and state-of-the-art born out of these same challenges (Chapter 8). This takes into consideration local cases being applied, and international cases to, later on, produce more fitting opportunities for the territory. The research nature of the paper makes a deep analysis into new issues born from some of the case studies and provides some inside knowledge into one of the cases through an interview done with the owners of two of the case studies.

At last, the systemic methodology provides us with 2 main open design opportunities and propositions to be later developed into a more elaborated project. The study provides the following research to be taken as the basis for systemic projects that can be put into action and invites others to look into the issues from a holistic approach to generate their own opportunities from the data of this paper.

# 1.2

## Objectives And Hypothesis

The main objective of the thesis is for the analysis of the current system of the obtention of consumer durables by the young adult in the city of Turin to understand where can an open design systemic project be developed in order to help this age group achieve financial independence in new ways, the study is delimited by the territory and the user age group and does not try to propose an economic plan nor a specific or unique solution but to generate a framework and a base to which other can later use for the elaboration of projects that can help this life stage all humans pass through.

### General Objective

Identify possible opportunities for consumer durables obtention in which open design can be applied in order to help young adults achieve financial independence.

### Specific Objectives

- ◆ Analyze the correlation between the young adult, consumer durables, and financial independence.
- ◆ Understand the territory's pros and cons in relation to the consumer durable market
- ◆ Identify the variables and challenges that affect the current system.
- ◆ Evaluate case studies of possible solutions with the variables encounter in the challenges.

As for the expected results of the study, the analysis will give a deeper understanding of the acquisition, use, and waste of consumer durables from the Young Adult viewpoint. This in relation to the current economic struggles of this age group can generate the following hypothesis.

The expected results for this analysis if another matter as from this hypothesis of the research many opportunities can be identified and that is where the case studies come into consideration, to evaluate what is being done in regards to these issues and propose open design opportunities for them to be applied at different local situations, meaning the opportunities will rely heavily on the open design aspect to achieve local replicability in other communities.

The thesis can provide different paths for the future and as for the expected results due to the systemic approach and theoretical knowledge of both fields of design, open and systemic, the research will provide interconnected problems that can be solved therefore it does not propose a Null hypothesis.

### Study Hypothesis

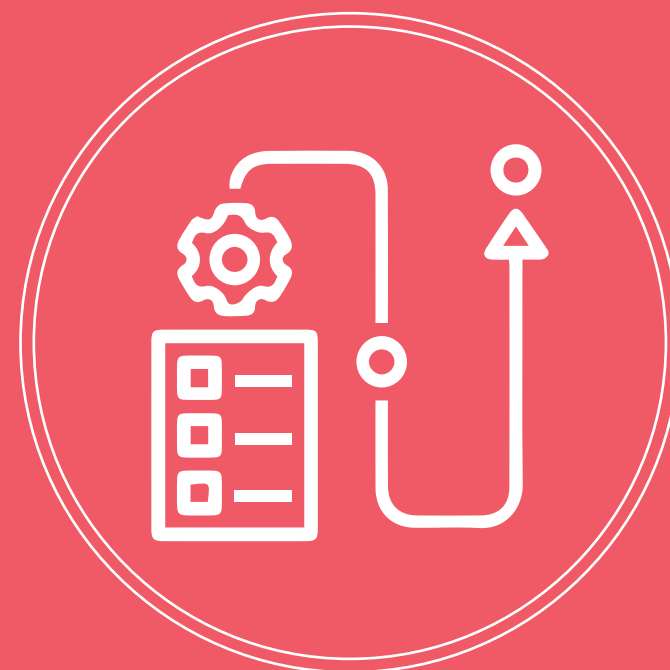
The economic struggle of the young adult drives them to obtain low-quality consumer durables and only at moments of need, this foments a market of low-quality production and a high percentage of waste.

### Opportunities Hypothesis

- ◆ Open design can play a massive role in the production of low-cost, high-quality consumer durables for young adults yet is constrained by the emerging technologies capabilities and therefore the type of consumer durables it can provide.
- ◆ Emerging technologies can repair consumer durables and be replicated in different communities to provide longer-lasting products in terms of reducing waste.
- ◆ Open Design can add value to consumer durables in order to elevate the wealth of the young adult who possesses it.

# Methodology

## Chapter 2



## 2.1

### Systemic Design & Open Design Approach

The methodology for this thesis was established with the original purpose of this research which at the parting moment implied a systemic project. Due to the topic of the master's degree, The Systemic Design Methodology was proposed for the elaboration of the project as portrayed in the academic year of 2022. Not satisfied with this approach, the syllabus of the masters offer other theoretical approaches to design that could complement the outcome of a systemic project, therefore a new approach was added to the methodology to be considered for the final output, which was Open Design, as seen during the course of Design by Components in 2021.

It has already been established that the purpose of this thesis is not to present a project but a research work, therefore some new approaches were taken to redirect the study into a research output. For this matter, we dive into how these methodologies and approaches work to explain what was taken from them in order to elaborate a cohesive research work.

For starters, the Systemic Design methodology is the main guideline used. This Methodology has been used in the course for over 2 decades and was first established by the founder of the master's degree Luigi Bistagnino. In his guidelines (Bistagnino, 2011) he offers a 6 step process:

- ◆ **Holistic diagnosis (HD)** with field and desk research: An analysis and visualization of all the components that define the current scenario, considering both the surrounding context and the flow of energy and matter;
- ◆ **Definition of problems and leverages for change:** With the complex data collected in HD, it is possible to underline the criticalities and potentialities, and gather eco-guidelines, for the definition of new complex systems;
- ◆ **Design of a system;** the new production model: The goal is to obtain zero emissions. S system is created based on relationships between processes and actors, optimizing the energy and material flows and valorizing the waste as resources;
- ◆ **Study of the outcomes:** Preliminary evaluation of the benefits given by the system at an environmental, economic, and social level;
- ◆ **Implementation:** Realization of the system in the specific context and the evaluation of the feasibility of the new business plan;
- ◆ **Analysis of the results and feedback:** The inputs coming from the implementation improve the project and enable the discovery of new opportunities, making it autopoietic.

The course in SD for the year 2022 also proposes a 6 step plan for the elaboration of a systemic project, yet it expands on Bistagnino's first 3 steps into a more elaborate 6-step methodology as follows:

- ◆ **Holistic Diagnosis of the territory Context**
- ◆ **Holistic Diagnosis of the company**
- ◆ **Identification of the challenges**
- ◆ **Identification of the opportunities**
- ◆ **Systemic project**
- ◆ **Study of the outcomes**

For delimitation of the study and a proper elaboration of the research the following steps were taken:

The Holistic Diagnosis was proposed as a whole in the way Bistagnino portrays it as well as the steps for the Challenges and opportunities yet the subdivision of these fields made it easier for more organized micromanagement of the task to be done during the 6-month work put into this thesis. Cutting out the final systemic project and study of the outcomes left the Thesis as groundwork for future systemic projects that could go the extra mile into real implementation, and it also allows the incorporation of the next approach given to the study, open design.



**Figure 1.** Structure of the Systemic Design methodology modified for the study

First of all, we have to introduce the concept of open source, since it was its ideals that lead to OD. The concept of Open Source software is often attributed to Richard Stallman, who published its manifesto in 1985, which focused on:

- ◆ freedom of distributing software with its source code
- ◆ the source code can be freely modified and re-distributed by anybody
- ◆ it is about rights assignment, not automatically market-oriented
- ◆ the software is not anymore a product only, because it has no implicit
- ◆ economical value
- ◆ the focus is on the author and his skills
- ◆ it can be applied to any human idea

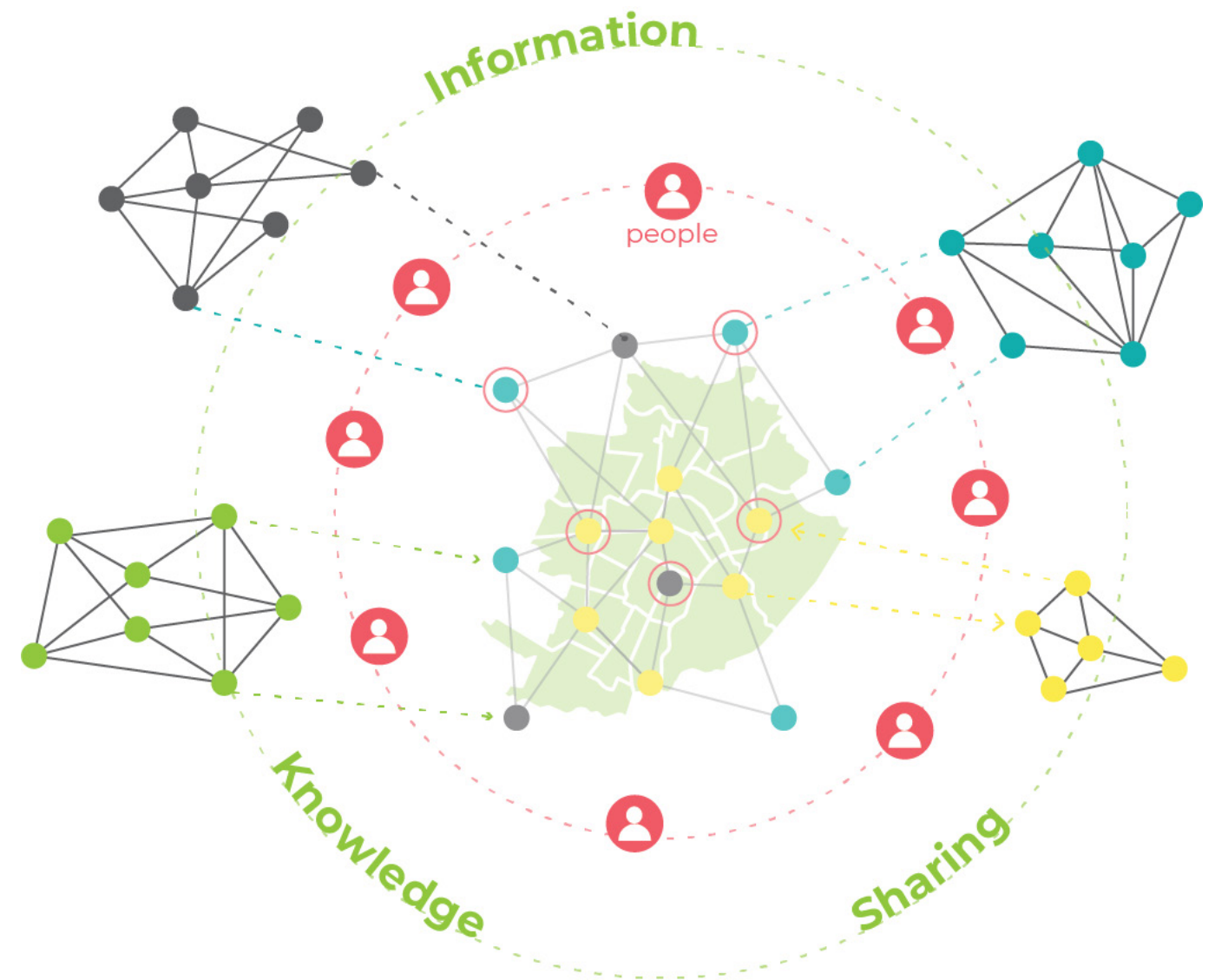
These principles were later applied to the concept of design, which is an ever-changing and evolving concept but the principles on which OD works can be applied to whatever the outcome or definition.

Open design enables collaborative efforts by providing incentives and methods for freely sharing information. Design documentation (e.g. CAD data, FEA analysis, spreadsheets, simulations) and performance data (e.g. reliability, precision, accuracy, yields) are freely shared. Furthermore, the documentation can be freely modified, and artifacts

produced using original or modified documentation can be distributed. If the modified design is distributed or artifacts are sold for profit, then design documentation must be publicly disclosed. (Vallance et al., 2001)

For that matter, the results obtained by the holistic diagnosis and the challenges can now be evaluated with current case studies from outside the region to interpret if they can work, what can be applied, what is being applied at the moment, and what can be the problems with which these case studies are struggling at the moment or can struggle with if applied in the region.

In the end, the Research proposes 2 main opportunities which deeply work on systemic projects (networks) inside of them the new generation of design is obtained and shared as in the open design approach proposed (with the due regulations, Creative Commons). That is not to say that by also publishing the work all of the groundwork can be used as an open source for their own projects.



**Figure 2.** Implementation of the Open Design Concept to the Systemic Design methodology applied for the study.



# 2.2

## Techniques and Organization

The organization for the elaboration of the thesis was based on research and data obtention methods, through fieldwork and tertiary data. The recollection of the information was mainly established by a base work around the area of research proposed by the study. This meant first diving into the necessary terminologies of Young Adulthood, Consumer Durables, and financial independence. This in combination with whatever tertiary knowledge that could be obtained about the correlation between these terminologies was established as the Theoretical Frame of the study, and are expressed in chapter 3 and 4.

For the next stage, the implementation of fieldwork was proposed as the Holistic Diagnosis started, which meant not only recollecting data but also starting to connect the point and as in the systemic design course, some techniques were used for data visualization and connection, via the use of Giga maps (Chapter 6). In order to corroborate some information and obtain some specific data surrounding the subjects of the study, a survey was proposed, with the help of professor Luca Davico, which we dive deeper into in chapter 5.

Last but not least, the analysis and development of the challenges (Chapter 7) were met by the analysis of the case studies related to the topic and issues brought forth by the previous chapters. At this stage,

other techniques for data recollection were used as in data visualization and Interviews, which were performed in two of the case studies, one local and one international (Chapter 8). This allowed for the elaboration of the opportunities to present for further development and conclusions. (Chapters 9-10)

The following figure represents the different stages of the research organized in the time span of the study.

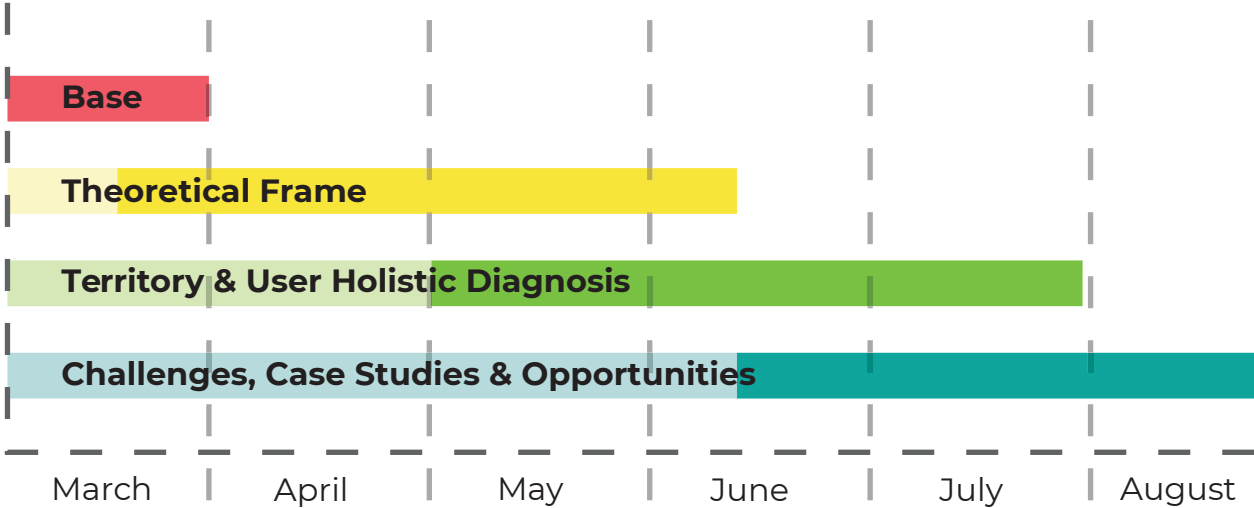


Figure 3. Organizational schedule of the thesis workload



**Bibliographic research**

Over 20 sources



**Survey**

100 surveyed



**Interviews**

2 Interviews

## Chapter 3

# The Young Adult and Financial Independence





# 3.1

## The Young Adult

When defining the variables of the thesis we need to first define the 3 main subjects we are dealing with. As it's the nature of systemic design, one of the principles is human-centered design, meaning the human is the parting point for evaluating and creating in order to suit human needs. This meant that at first the term to define was to also be the human subject, in this case, the Young Adult.

This turns out to be an ambiguous term as there are many variables to take into account and depending on the area of research this might vary. Propositions have been made around the fields of economy, literature, sociology, and health. As a Holistic approach, none of the previous fields was to be discarded, meaning an overall investigation was to be made to propose a definition suited for the study structuring a good base and also generating some hypothesis around the terminology to be confirmed or not by the field research later on.

We start with the literature approach in which it is said that young adults are defined as those who think they're too old to be children but who others think are too young to be adults (Ellis et al., 1980). This mostly portrayed a more ambiguous terminology than expected but imparted the first variable which talked about society and inner perception of the self, which is something dealt with in other studies.

An important field to consider is if the health system approach to age division, which in part correlates to the biology of the being, for that matter we have the structures of adolescence and youth, in Elena Higley's "Defining Young Adulthood" she discusses that the major health organization tend to join both of the terms into a single group between the ages of 10 to 24, World Health Organization (2014). This study also brought forth other visions of the terminology as adolescence is discussed and discarded from this particular age group of young adulthood. The theory of emerging adulthood is introduced by Jeffery Arnett (2000) He argued that this timeframe is a distinct phase of transition for those aged 18 to 25 years, who are neither adolescents nor adults. The transition from emerging adulthood to adulthood occurs when young people obtain stable housing, complete schooling, establish a career, form a committed romantic relationship, accept responsibility for one-self, and gain financial independence. This introduced a well-established set of variables/Milestones to take into consideration when defining emerging/Young Adulthood, one in particular of great importance to the study being financial independence. Arnett follows his theory in future studies also pointing out that the phenomenon of delayed entry into adulthood is seen mostly in industrialized countries, with great variability between countries due to cultural norms (Arnett, 2011).

### Emerging Adulthood Milestones

- Stable housing
- Complete schooling
- Establish a career
- Committed romantic relationship
- Responsibility for oneself

#### Financial independence

This gave us the first age delimitation to look into, but it also presented a dilemma, as of the moment of the study, the author is at the age of 25, meaning the border of the delimitation of the age group, yet he does not present many of the milestones aforementioned before, therefore a deeper understanding of this age group was done. The same study by Higley also presented the perception variable as an identity formation and it talked about the dilemma of how it is now occurring in young adulthood as opposed to adolescence.

We turn to Higley's study of "Defining Young Adulthood. DNP Qualifying Manuscripts" (2019) explained a meta-analysis done by Kroger, Kroger, Martinussen, and Marcia (2010). It presented the examination of 72 research articles and cross-examined them to generate a pattern of identity formation. Identity formation fluctuates from adolescence all the way to 36 years of age. From the transition of adolescence to young adulthood, people experience a transition from identity

diffusion to identity achievement. The transition is explained as follows, at age 18 the individual experiences a decrease in identity achievement then it steadily builds up until the age of 22. After this point, the individual suffers slightly decreased identity achievement during the age range of 23 to 29 years (Kroger et al., 2010). Finally the identity achievement rate increases between the ages of 30 to 36. This led Kroger and company to compare it with the pattern of life changes in adults life, making a clear relationship between the decrease in identity achievement and periods of transition, a decrease is experienced when the individual finishes tertiary education and again when finishing graduate education, these changes vary from individual to individual yet the patterns of change in the society correlate to these particular events. This explains how the young adult can be determined by his identity formation which incurs to be low up until the age of 29 afterward identity formation is increased due to people feeling more settled in their adult roles.

This in terms reflects a more relatable approach for

the author as it divides into age groups, 18 to 22 and 23 through to age 29. Which proposes a more realistic study group by combining them into a single one.

With this in mind, as the variable presented had economical features related to them, the field research passed to a more political and economical view. Many of the factors involved in emerging adulthood dealt with regulation and law delimitation, such as the common establishment of lawful adulthood at the age of 18 in some countries and 21.

This meant diving into the laws and regulations of the territory in question, in this case, Italy, which define the term “Young” as those who are no longer children, but who are not even considered fully adults from the point of view of roles and responsibilities (M.E.F., 2022). It takes its age group from a voluntary association of 56 independent and equal countries called The CommonsWealth, which establishes the age group of youth from the ages of 15 to 29.

With all of these studies, we were able to construct our own age delimitation for Young adulthood, starting at the age of 18, since the territory in question establishes laws of adulthood after this age, meaning anything below this age couldn’t be considered for the emerging adulthood milestones since legally

they can’t accept responsibility for oneself. The end of the age group was taken by the perception and economic delimitation of the studies from the MEF and Kroger, Martinussen, and Marcia (2010), as the other studies presented issues and dilemmas with the economical characteristics around the end of the age group, being more visible for the author who is surrounded by people between the ages of 24-25 that are no arguably closed to fulfilling the milestones.

Later on, the project proposes a restricted age group for a survey (chapter 5) due to the correlation between the subjects and a study found. This survey also helps corroborate the right selection of the age group by evaluating Financial Independence as described in the next subchapter.

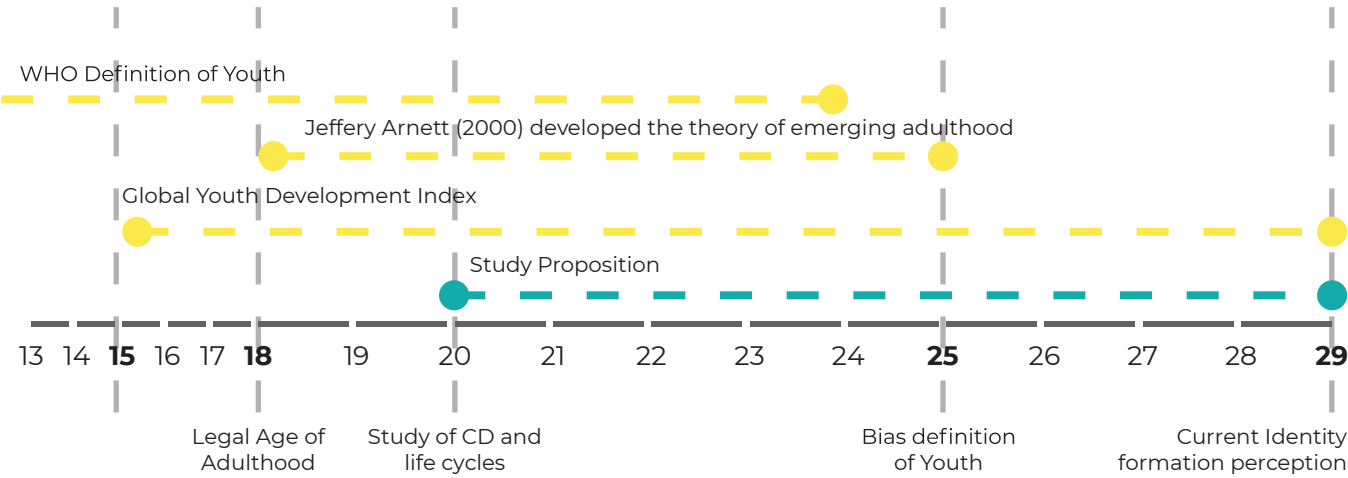


Figure 4. The different age delimitation according to the bibliographical research of the definition for Young Adult

# 3.2

## What is Financial Independence?

Financial Independence is a term that many young adults tend to hear yet can't fully grasp what it means. It may vary from person to person since there is no legal standpoint for financial independence since it is linked to the economic variables of the context you are located. Taroza's study in "Determinants of young adults' financial independence" helps us not only in broadening our horizons on the different perspectives of financial independence but also how it may affect the achievement of it. In this case, he talks about the determinants being divided into 3 categories of economic, psychological, and family-economic. Since our study focuses more on the determinant of consumer durables, we are not proposing these variables for the research, and later will dive deeper into the correlation with the subjects of the thesis. Instead, we value more the possible definitions that come out of Taroza's research to bring forth a strong base to define and corroborate later on in the field research.

Many of the examples expressed in Taroza's thesis describe financial independence as a final goal to which to arrive, yet many differ. One approach discussed in a study about financial independence by Hemmesåker and Nelfelt is FIRE, or financially independent and retiring early, meaning financial independence is not really achieved by young adulthood but by your whole adulthood, therefore it doesn't connect to the milestones aforementioned in

the previous subchapter. A similar approach is "the ability to manage your money in such a way that you have sufficient funds to live your chosen lifestyle without assistance from others. In other words, enough money to meet all your needs whether you work or not, because a job is really assistance from someone else as your employer."(The Myths & Realities of Achieving FINANCIAL INDEPENDENCE, 2021). This is similar as it may be applied to the previous meaning yet it starts talking about the dependency on others as a source of income, and meeting all your needs. This side is more into the extremes of the theory and does not really help us in our study case. The one approach that I'm more inclined to further use in this bachelor thesis is that a person is covering his daily expenses, planning for the future, and is able to meet his basic needs (Caldwell, 2019). A more plausible option for the aforementioned age group.

A Dilemma in establishing a definition like this can mean that a user can only tell you if he is or not financially independent, which leaves behind the steps he is taking in order to achieve it and how close it is, if he is working, if he is saving money, or if he can treat himself. Taroza discusses the issues at hand for a young adult to achieve financial independence, since this world proposes exponential growth for the economy (as most countries relate to this model) our financials need to adapt, and with it the market

and prices. For this reason, many believe the goal of financial independence as unreachable during this age period. That is why the number of people pursuing higher-paid jobs and even postsecondary education is related to higher incomes that can stay afoot with today's economy and assure financial independence. But first, it is important to understand that financial independence shouldn't be seen as a

single goal. There is no fast or easy way of achieving financial independence at a young age but the most important thing to do is to change the way you manage your finances. J.D. Roth in his web article about achieving financial independence states that there are six stages to reaching it (Roth, 2018):

**Dependency** - your lifestyle depends on others for financial support.

- 1 Solvency** - the ability to meet financial liabilities.
- 2 Stability** – not having bad debt, acquired some savings.
- 3 Agency** – the ability to live and work where you want and how you want.
- 4 Security** – investments profits can pay for your basic needs.
- 5 Independence** - investment income is sufficient to fund the current standard of living for the rest of your life. more over time.
- 6 Abundance** – passive income does not only fund the current standard of living but also helps to save more and reinvest

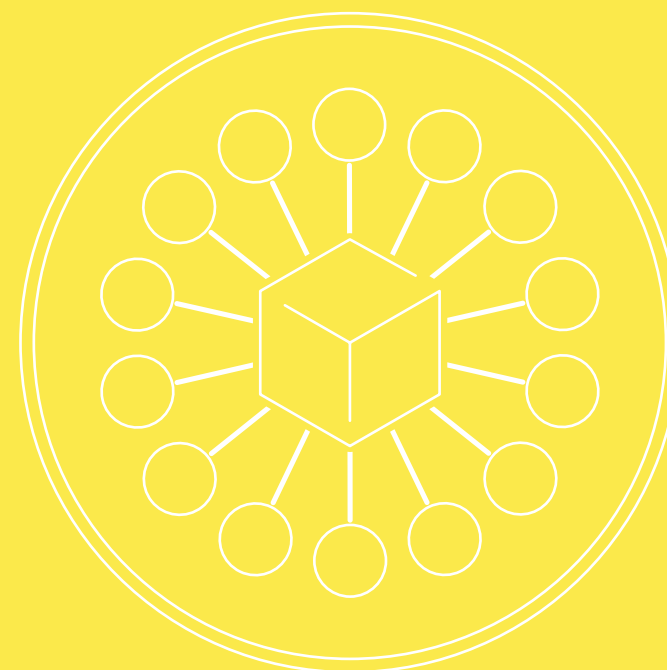
Figure 5. The six stages of Financial Independence according to J.D. Roth, 2018.

With this in mind, we are now able to understand a spectrum in the process and asses from this in order to see how each stage might think in relation to the subject of the study, being in this case consumer durables. It can also be assumed that most young

adults might achieve at the most Solvency and Stability, through the research we can conclude on what possible stages can the young adult be at.

## Chapter 4

# Consumer Durables



# 4.1

## What are consumer durables?

With the conception of the study, a question came to mind, is there a classification technical term for the products that are being considered to be studied. Reason is that in order to properly delimitate the study an assessment of the products had to be made. We were talking about household appliances but it also expanded to others since the needs of the user through products tend to be done a huge variety. A good way into relating products to the economical aspects of the young adult was by looking into the terms the field of economy gives to them. First of all, we start with Consumer Goods.

Consumer goods are products bought for consumption by the average consumer. Also called final goods, consumer goods are the end result of production and manufacturing. Clothing, food products, and dishwashers are examples of common consumer goods. (Consumer Goods, 2022)

Inside this general term their subclassification of Consumer Goods which are durable, nondurable, or service goods. And its inside the definition of consumer durables that the wide variety of products was able to be classified. As expressed in Investopedia “Consumer Goods That does not wear out quickly, and therefore do not have to be purchased frequently. They are a part of core retail sales data and are known as “durable goods” because they tend to last for at least three years.” (Durables Definition, 2022)

A great mark that will be later analyzed is introduced, which is the minimum life expectancy of the products categorized inside this definition. As important for the study is the economical view, Consumer durables, or durables consumption is always on the lookout since it is considered a sign of sustainable economic growth, this is because an individual’s wealth is preserved by spending a high proportion of their income on durables, capital, or investment goods. (Durables Definition, 2022)

There are a lot of keen observations to take into account before categorizing consumer durables. The world of products is constantly evolving and something can be left to open interpretation. There are some guidelines to differentiate and assign the goods. Durables vs Consumables is the first one, it is based on the fact the consumables are as expressed, consumed, that are used up as you realize value from them. Then there are the nondurables, which are those that last less than three years, which can be tricky since they can be considered depending on the quality and life expectancy of the product, for example, shoes and clothes tend to be considered as nondurables, yet for the purpose of the study and the application of a systemic project, an object that could be recycled, upcycled, revitalize and or repair for that matter, are to be considered. Lastly and most important for the reasons of financial independence is the capital, which is a property that can reasonably be expected to generate future

value: Buildings, companies, land, and gold. This is of particular importance since it is being said that durables, while they last, tend to lose value through time (differently depending on the subcategory), it is what is called depreciation, and for this matter, young adults which invest their hard-earned money into one of these products are to be expected that at the end of the life cycle the return is going to be less or zero since its value is depreciated by the use. As mention, before this is not a general rule, durables can become capital depending on cultural context as they might gain historical and or symbolic value, by collections and uniqueness.

Finally, for the purpose of the study, we establish some general subcategories of durables:



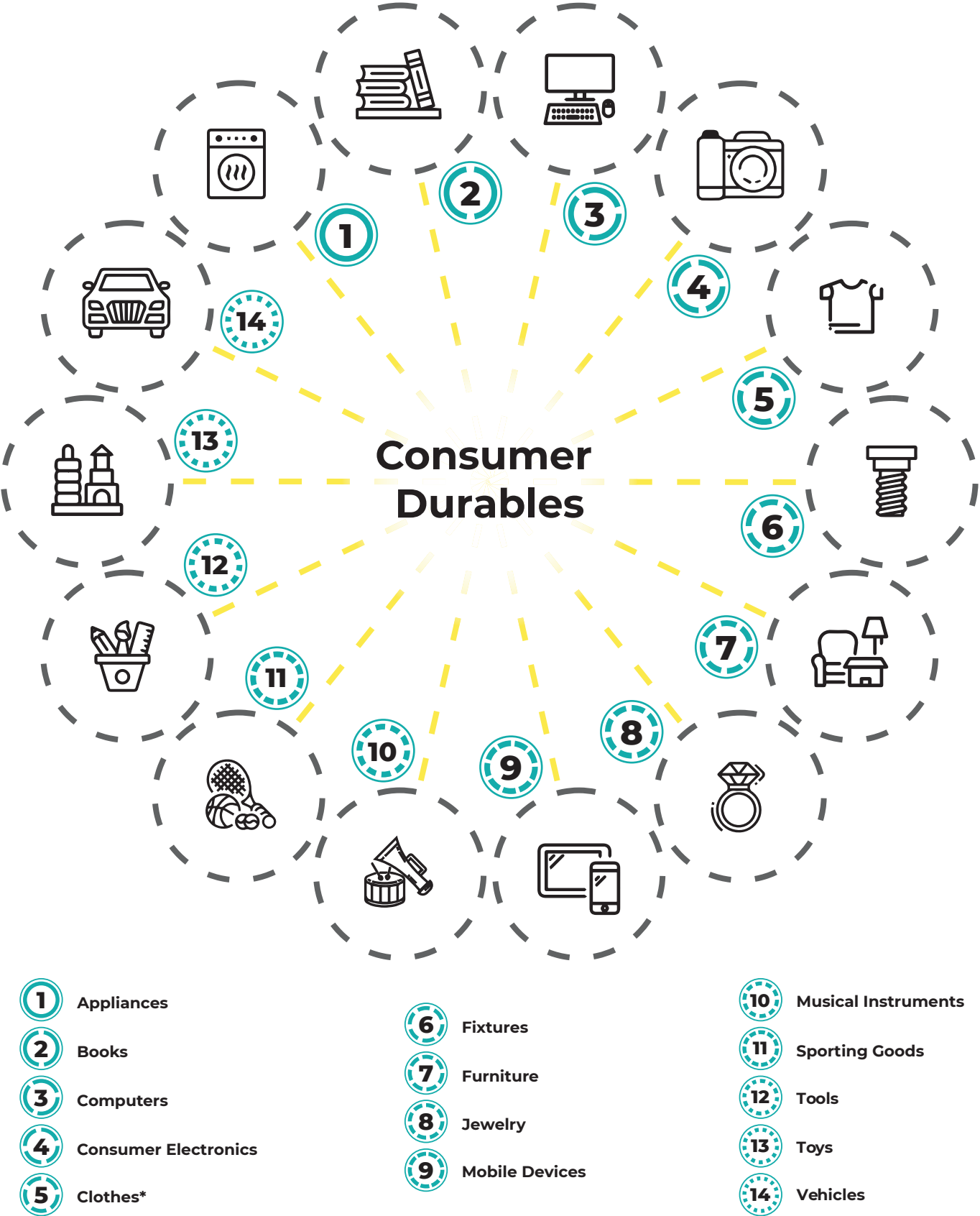


Figure 6. The Subcategories of Consumer Durables choosen for the Study

# 4.2

## How do consumer durables affect the financial independence of the Young Adult

### 4.2.1 The budget of the young adult.

Before explaining how consumer durables relate to the overall life cycle wealth of the individual and its importance at this stage of life (young adulthood), we dive into the budget, the wallet, of the young adult, as it can corroborate the hypothesis of low availability of capital for this kind of products, yet still show a viable percentage destined to the acquisition of them.

As far as assumptions might go, it can be said that as age progresses the individual found himself in a better economical situation, as new opportunities are presented for his retribution. This is not entirely true, as nothing stops you from working at age 18 (being the legal age for full-time labor) yet in the study by Taroza in 2020, it is expressed that young adults in different countries of the world are taking longer periods of time to become financially independent from their parents, the main factor being that because of the current economy, more and more high paying jobs are being pursued therefore a higher percentage of high school graduates are attending college or university these days. This also relates to postgraduate studies, which means longer periods of life in which the majority of young adults study, putting them in a dependent situation.

With this in mind, we are able to assume that more than half of the young adult population (later confirmed in the survey and data from ISTAT) are at the mercy of their sponsors, in most cases parents. This does not mean that their budget is strictly used for housing, food, and education since life needs to expand outside of just these 3 spectrums yet their preferences vary, and it is key for the study of consumer behavior to understand what percentage is the individual willing to spend according to the type of good.

This is not a new field of study as it exists The Classification of individual consumption by purpose, abbreviated as COICOP, a “classification developed by the United Nations Statistics Division to classify and analyze individual consumption expenditures incurred by households, non-profit institutions serving households and general government according to their purpose. It includes categories such as clothing and footwear, housing, water, electricity, and gas and other fuels.”(Glossary: Classification of Individual Consumption by Purpose (COICOP) - Statistics Explained, 2018). This is organized and categorized under the following classifications:

- 01: - Food and non-alcoholic drinks
- 02: - Alcoholic drinks and tobacco
- 03: - Clothing and footwear
- 04: - Housing, water, electricity, gas and other fuels
- 05: - Furniture, articles and services for the home
- 06: - Health services and health expenditure
- 07: - Transport
- 08: - Communications
- 09: - Recreation, entertainment and culture
- 10: - Education
- 11: - Hospitality and catering services
- 12: - Other goods and services

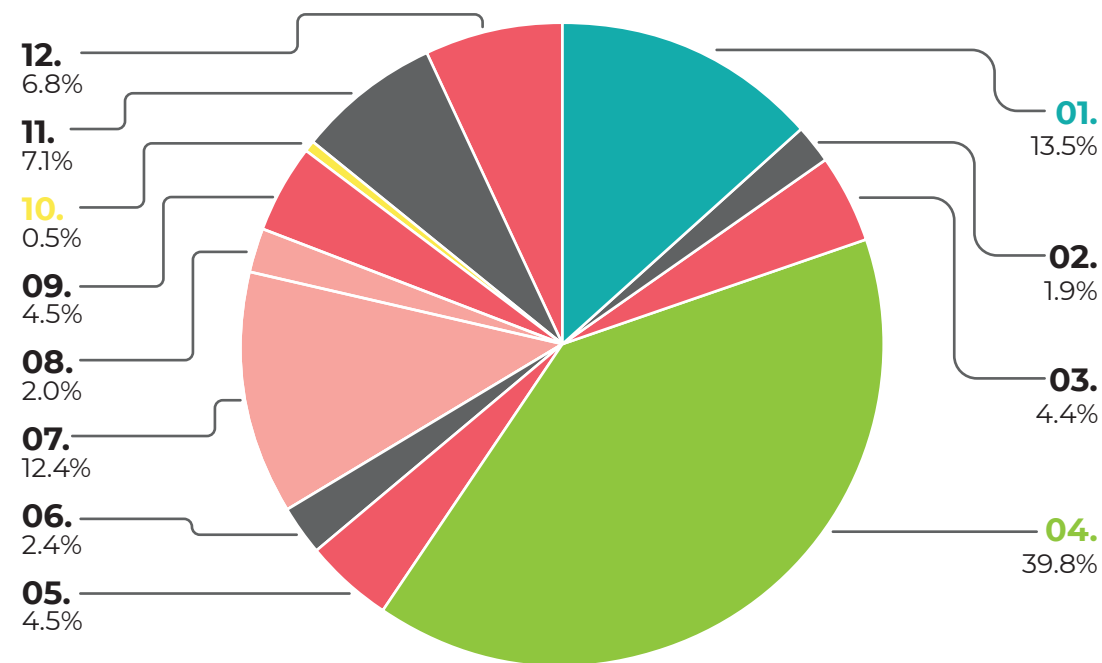


Figure 7. Average monthly household expenditure COICOP. Single person 18-34 years (ISTAT, 2021)

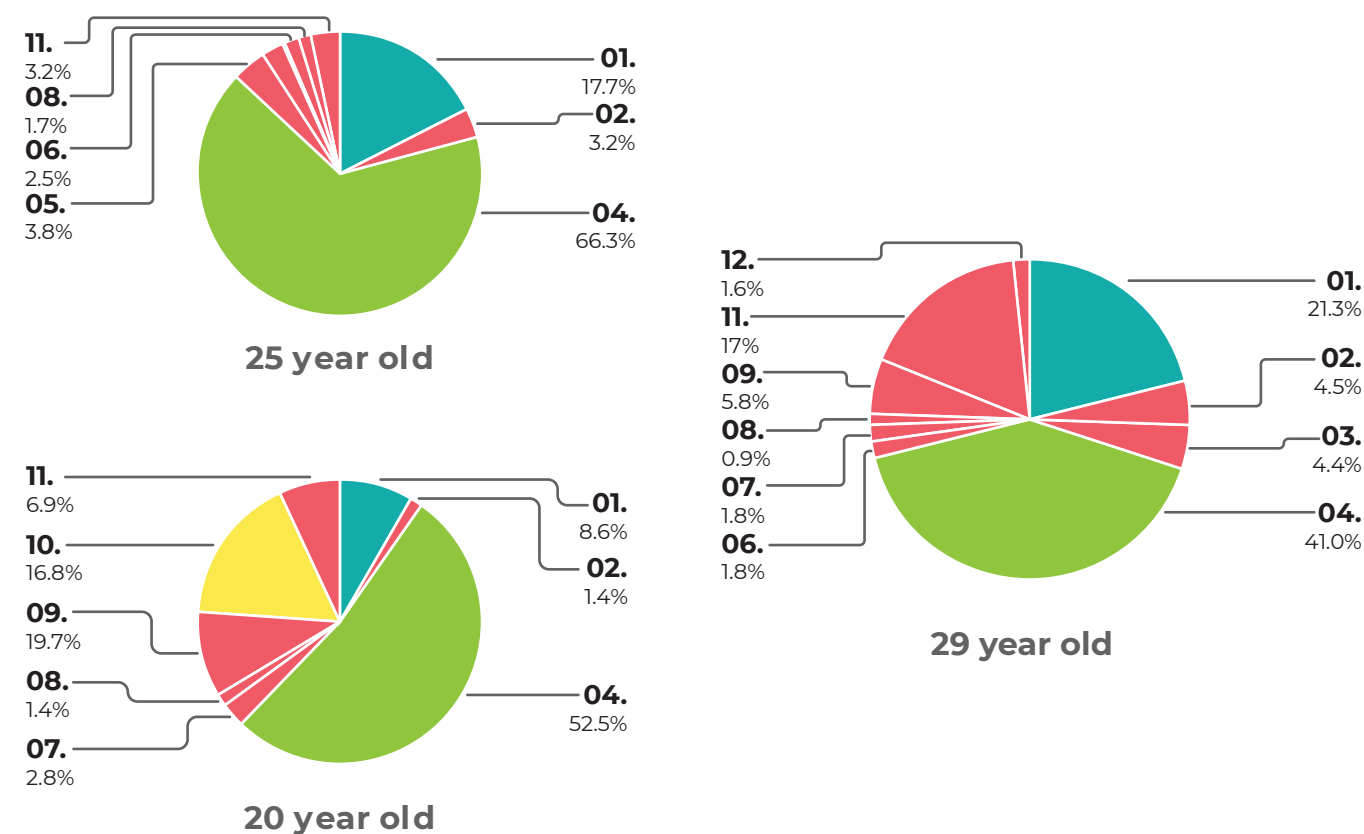


Figure 8. Average monthly household expenditure COICOP. single person ages 20 - 25 - 29 (Survey)

In the case of Italy the ISTAT is in charge of collecting this data and categorizing it to which they have different COICOP categorization. For the purpose of this study, we extracted the household consumption of a single person under 34 years in the northern part of Italy, as this was the closest to the study definition of the young adult of Turin between the ages of 18 to 29.

As can be seen in the figure on the right, the young adult under 34 holds out around 53.8% of his expenses for what can be related to housing, food, and education, leaving some space for the possibility of acquiring durables. This does not mean that the remaining 46.2% are all spent on durables, at the most 32.7% of what is left is considered to be spent on durables, which cannot be completely certain, as some durables fall into categories that are shared with consumables, or non-durable goods, at the most 8.9% are guaranteed to be durables between clothes and furniture and appliances, yet this can be the higher percentage as computers, mobile devices, and sporting goods fall into other categories.

With more than 10% established for durables expenses, we decided to take a look at some examples to see how much of it might be true when dealing with younger samples. In the same figure of this subchapter, you can find 3 different pie charts relating to the percentages of expenses, by COICOP

classification, of a 20-year-old, a 25-year-old, and a 29-year-old, in order to see which one approximates the average. As it can be seen the 29-year-old gets closer to the average expenses, and the younger sample which is related to dependent individuals showed to spend around 80 to 90% on what can be assumed as housing, food, and education. Although these are mere examples and not profound studies with a high sample as the Istat it does give us some insight. This means the original 10% stipulation for durable consumption can be lower for dependent younger individuals all the more expressing the importance of cheap yet high-quality solutions which we will explain in the challenges and opportunities section of the thesis.



4.2.2 How do consumer durables affect young adults' wealth.

As mentioned in the previous chapter, the consumption of durables are an important sign of sustainable economic growth. Along this an individual's wealth is preserved by spending a high proportion of their income on durables, which beg to differ, what is this proportion, and how is the young adult affected by it?

The term to discuss is **Wealth**  
-“Wealth measures the value of all the assets of worth owned by a person, community, company, or country. Wealth is determined by taking the total market value of all physical and intangible assets owned, then subtracting all debts. Essentially, wealth is the accumulation of scarce resources.” (How Is Wealth Measured?, 2022)

For this matter consumer durables are physical possessions that depreciate through time, therefore when investing your money in these types of products, you are producing wealth by saving that money on a physical product. Even though the value depreciates it is still worth something which can later be sold/liquidated<sup>1</sup> for meeting end meet. Looking into our daily consumptions, we are more bothered by the acquisition of consumables and nondurables, since they require a more immediate expenditure for our survival, yet those do not produce wealth. Durables are an investment, therefore are more

carefully though, even though some are purchased in a fast fashion, due to need, it is still very much considered as can be the case of buying a blender. We do the comparisons between a blender on the market in the city of Turin, we are faced with many options, prices, and places to go for this acquisition. For a young adult that depends on a strict budget (depending on which level of independence they are) the usual consumer behavior leads them to buy the cheapest, which can vary between the good brands with high discounts or low-quality Chinese knock off sold at a bargain. At the minimum, we are talking of 20-25 euros on the current market, which can be easily compared to a weekly grocery run for one individual. The young adult spends the same amount on groceries without much questioning because of basic needs. If the user has the need of acquiring consumer durables he takes into account price, use value, and quality.

We now make reference to a study done by Jesús Fernandez-Villaverde and Dirk Krueger for the university of Pennsylvania. The study takes subjects over 20 years of age, its purpose is to understand consumption and saving during the life cycle, regarding most of all Consumer durables (tangible consumer goods that have a useful life of more than 3 years). Through a series of studies and surveys, they recollect and express via charts how people establish

their wealth through the years and the reasons for this. The important aspect to take into account for the study of the thesis are the ones referring to that age group between 20 and 30, yet there are other relevant and interesting aspects regarding consumer durables that may provide insight. It is important to denote that the study assumes labor income starts at 20 and ends at the age of 65

logical since this is the parting point for acquiring capital. This is denoted via multiple graphs that show the stock of consumer durables during the years. The relation between wealth and consumer durables according to age and the relationship between consumer durables and income according to age.

The study establishes that for young adults wealth is mainly stored in consumer durables since their capacity for long-term debts, high savings, or high investments are scarce at the beginning, which is

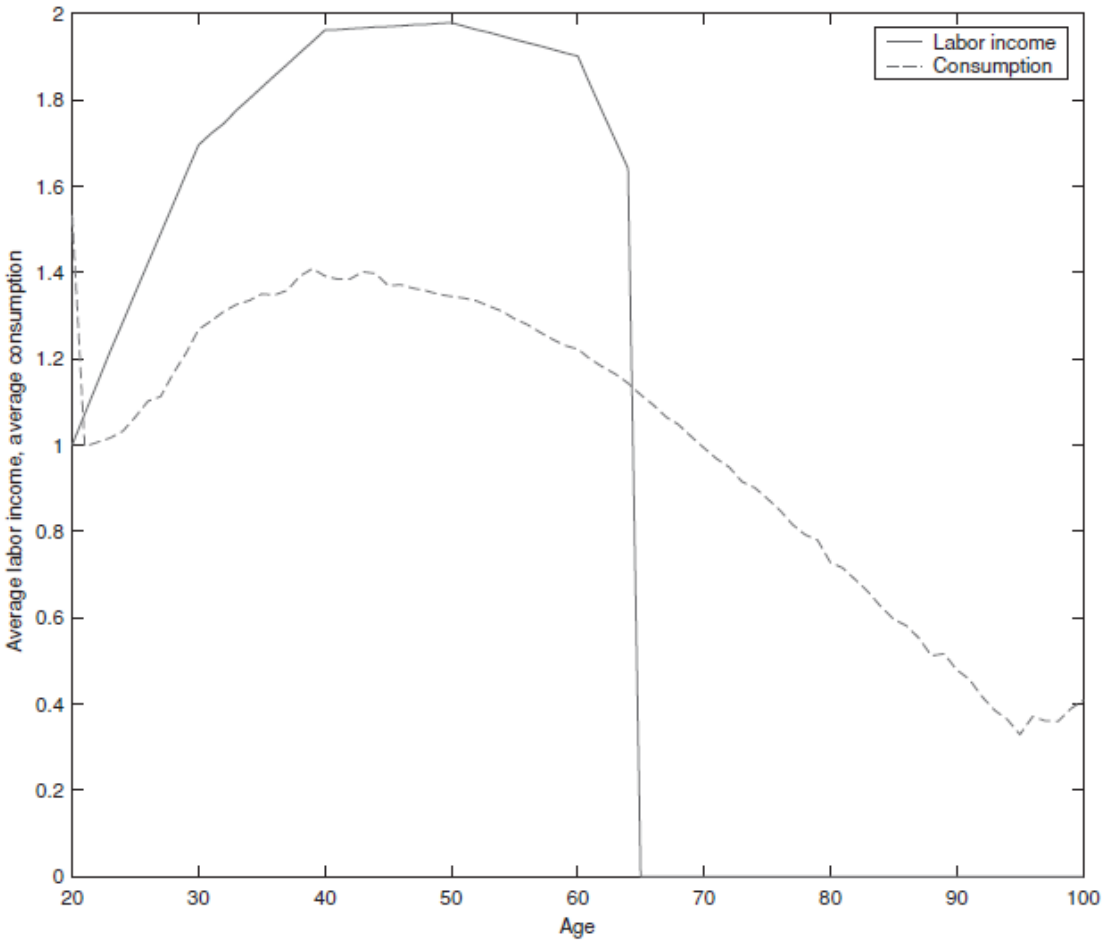


Figure 9. Life-cycle pattern of labor income and nondurable consumption. Fernández-Villaverde, J., & Krueger, D. (2011)

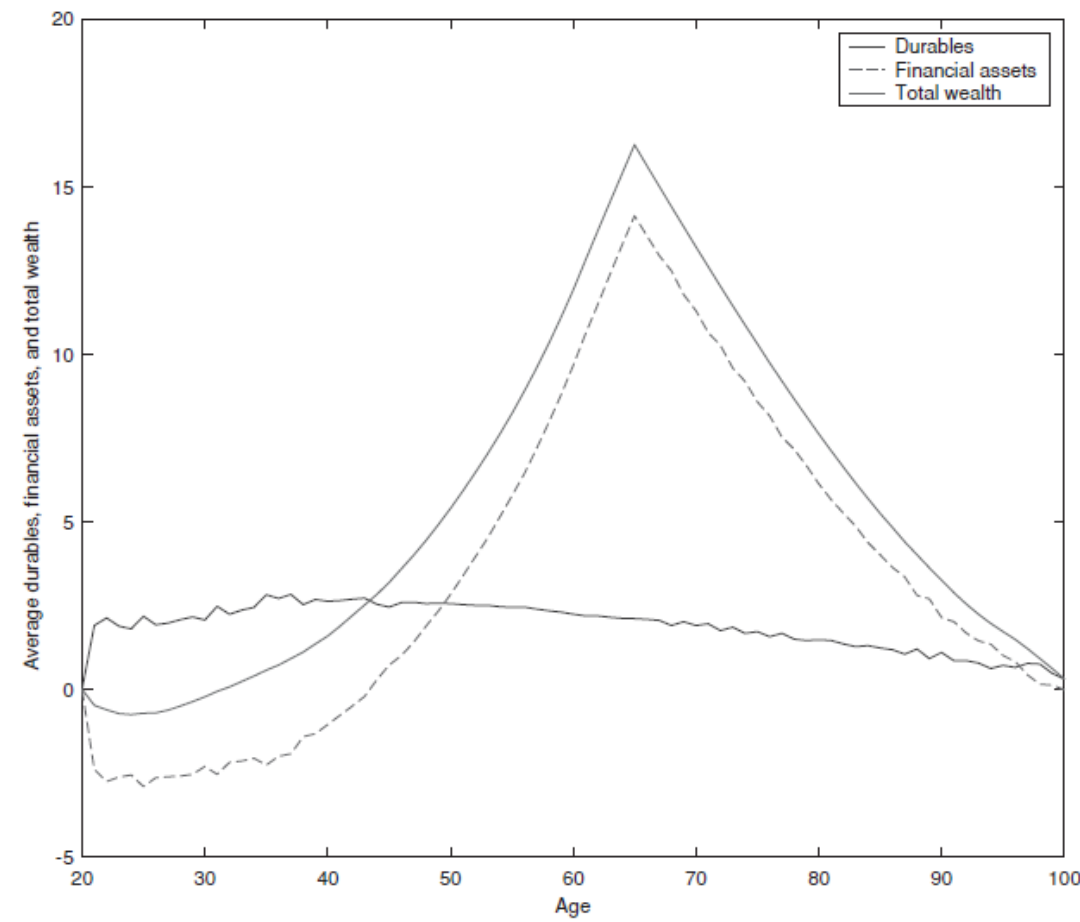


Figure 10. Life-cycle pattern of consumer durables, financial wealth and total wealth. Fernández-Villaverde, J., & Krueger, D. (2011)

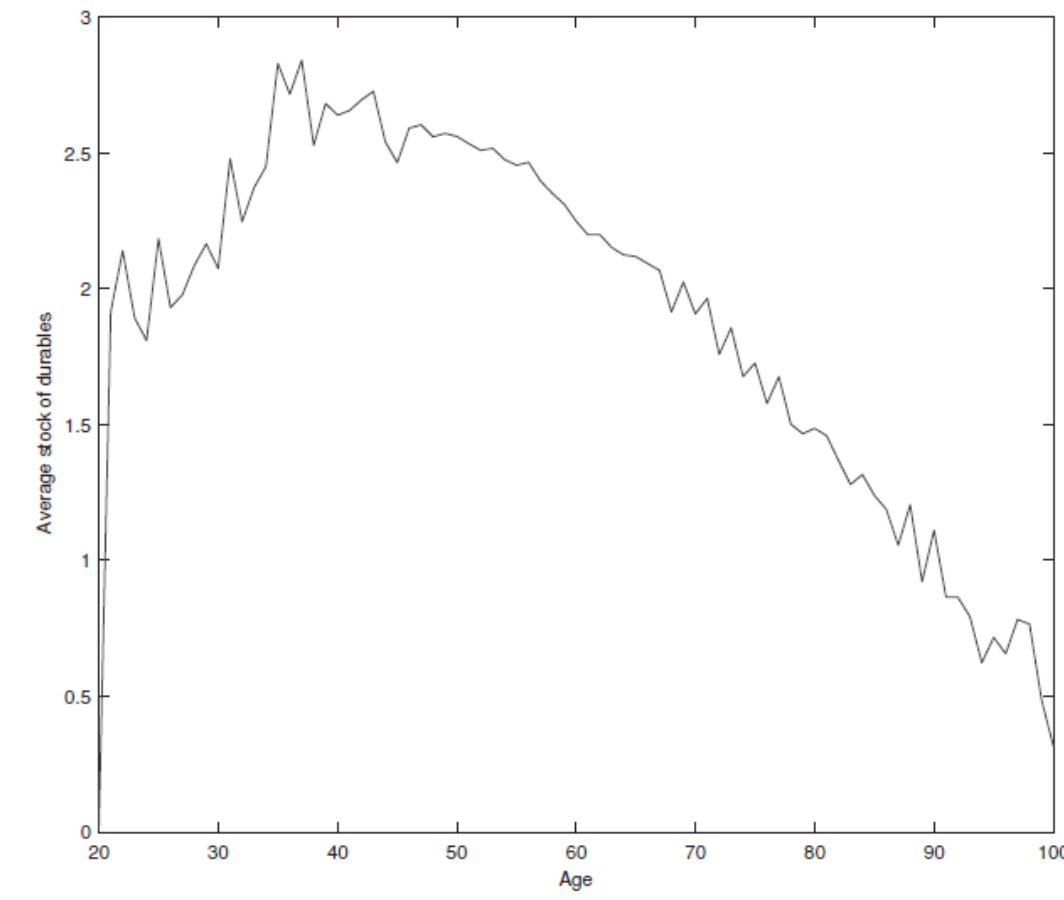


Figure 11. Average stock of durables . Fernández-Villaverde, J., & Krueger, D. (2011)

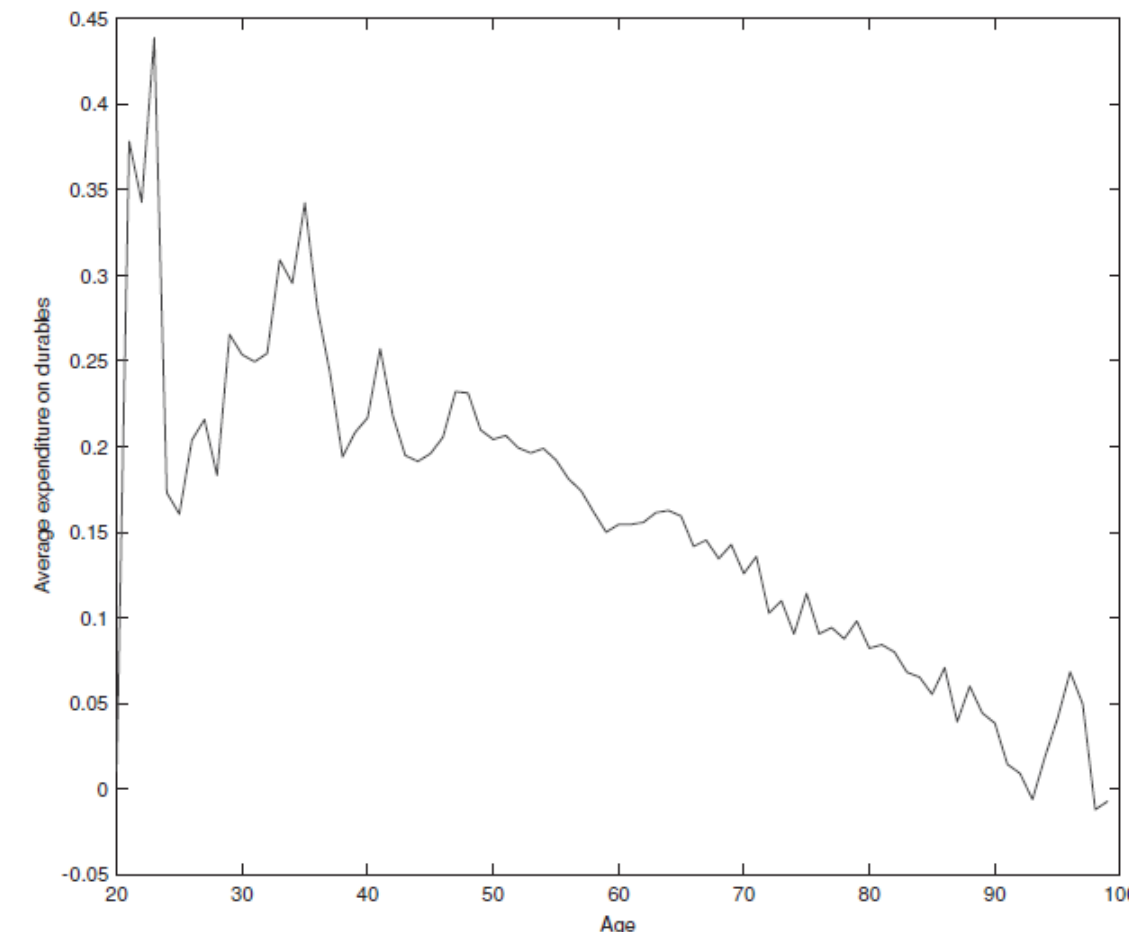


Figure 12. Average expenditure on durables. Fernández-Villaverde, J., & Krueger, D. (2011)

Through these 4 graphs we can already see the importance of consumer durables for the young adult since they are the main breakpoint in the life cycle of consumption and even though the consumption and stock lower diminish through the years, the average of their value remains almost the same, which can imply that a long-lasting good consumer durable, of quality, can be of significant importance to the economical status of a person. It is important to clarify that because the study implies the parting point for the labor force is at 20 the real-life scenario might be shifted by a couple of years, regarding

the study of economical independence by Lukas Taroza, this expresses that between the ages of 18 to 25 more than 50% are not capable of financial independence, yet it was shown that those close to the age of 25 were at this point. This gives us a better reason into considering the establishment of a new system that cares not only for the acquisition of good consumer durables but also for sustainability not only at the economical level but also at the social and ecological by going local.

## Chapter 5

# The Young Adult and Consumer Durables



# 5.1

## Scope of the study

With the definitions already settled and established, the study went ahead with its premise of understanding the relationship between young adults and consumer durables. Since the objectives specified a systemic analysis for the identification of opportunities, we needed to really understand some qualitative data that pertains to a very specified age group, therefore for obtaining this data we opted for the investigation technique of a survey.

The limitations of the survey were clear, the study focuses on the territory of the city of Turin and young adults, therefore the sample was to be young adults currently living in the city. This also meant the production of the survey in the Italian language as it is the local language at facilitates interaction and a clearer understanding of the questions. It was made through a google forms file to use the internet and social media in order to obtain a larger sample.

When building the questions, help was sought in order to produce a more accurate result and be as clear as possible for the user to respond. With the help of Politecnico's sociology teacher for the component of sociology inside the course of innovation for the Systemic Design master's degree, Luca Davico, the survey was revisioned and approved for publication (Appendix 1). The survey was divided into sections, one which described the person doing the survey, and more demographic data,

in order not only for understanding the young adult but also to verify some hypotheses made between age and financial independence. Regarding this last statement, it was decided that imposing a single question with the totality of the stages of financial independence could be too complex to process by the users, therefore the 7 stages were resumed into 4 described scenarios:

- ◆ Dipendente (almeno in parte) da un'altra persona per coprire le spese per bisogni primari.
- ◆ Riesco a far fronte a tutte le spese essenziali
- ◆ Riesco a risparmiare qualcosa
- ◆ Ho profitti da investimenti che mi permettono un buon tenore di vita

The first one clearly states dependency as the financial stage, and the last one expressing a financial independent scenario as a person is covering his daily expenses, planning for the future, and is able to meet his basic needs. The two stages in between relate more to Solvenc, Stability, and Agency, or better get logical steps between stages 1 and 4.

The second section relates to the consumer durables perception and needs, which ones they prefer, which ones are they currently able to buy, what was the last thing they bought if they associate, and visualize the value of what they bought. These were all proposed with the categorization of CD explained in the

previous chapter. Inside this section, there was also the perception of the waste of these products, and the dealing of the end cycle of their products, as well as cost-related purchase or repair decisions, this easy a clearer picture could be formed for the formation of future systems.

As the survey was published the responses came, and for a more efficient approach the author took it upon himself to bring the survey to the people. He identified two big hot zones for the age group in question and for incentivizing a response or interaction a reward was offered for the completion o the survey. The survey obtained 100 responses in 2 days of fieldwork around the hot zones of the Valentino Park and Cultural Association Comala, and candy was offered as the incentive. This way the users were more inclined to a more thoughtful response which gave a deeper insight, as well as to a more controlled sample, by approaching a 50-50 in gender difference and a varied age spectrum. For the last one, it is imperative to clarify that the ages accepted for the study were not 18-29 but instead 20-30, this is because when looking for financial independence it is logical to expect that those surrounding the beginner ages of adulthood are not at this stage, even though there might be cases, they would be more extraordinary samples. On the other hand, it also mirrors the age group in Fernández-Villaverde & Krueger's study.

5.2

The Young Adult of Torino

The first section of the survey yielded the demographic results to identify and later group the results of the second section according to the financial stage. We were also able to determine if the sample was good for an analytic result. The following figures correspond to the main graphs extracted from this section.

Figure 13 expresses the age range of the 100 people surveyed, for the study the two main hot zones were chosen for being general gathering points for all ages, yet the Comala association is generally more frequented by students, this does not discriminate age difference since there is no age restriction for studying but it is commonly found to be up to 25 years of age around this kind of gatherings. In our case, at least 77.4% of the surveyed sample was between the ages of 20-25, and the remaining 22.6% corresponded to the ages of 26-30, with 29 having the most presence of them.

Figure 14 expresses the general gender percentage of the sample taken which as aforementioned was set as equally as possible, which can be seen as the result of obtaining surround an almost equal response by both genders.

As mentioned in previous chapters, the scope of many young adults for obtaining financial independence is by pursuing secondary up to

tertiary levels of education for obtaining higher paid salaries. This can be corroborated by the figure 15 which evidence a 62.4% of the sample took to more than the primary level of education which goes with today's percentage expectations for people seeking secondary levels of education.

We also wanted to see where could the young adults be located in general terms so we mapped out their responses to the locations, and it gave us the figure 16. This can show a high agglomeration of young adults around the neighborhood of the center, and it dissipates the farther away you get from there until the primary and secondary neighboring municipalities tend to frequent the center for their entertainment, and social life, which can be also related to shopping. This relates to the next chapter in the section about consumer durables in Turin.

Work is a huge factor in obtaining financial independence therefore it was also graphed by the survey to understand if the young adults are capable of working, which was accompanied by their occupation. Figure 17 shows that 60.8% of the sample is currently not working, and by the occupation responses it can be shown that their focus on their studies is their main concern. This leaves us with the remaining 39.2% that do work, which, as expressed before, does not mean or guarantee financial independence but does relate to other stages. This is where figure 18 comes in,

100  
Surveyed  
( 20 - 30  
Years old )

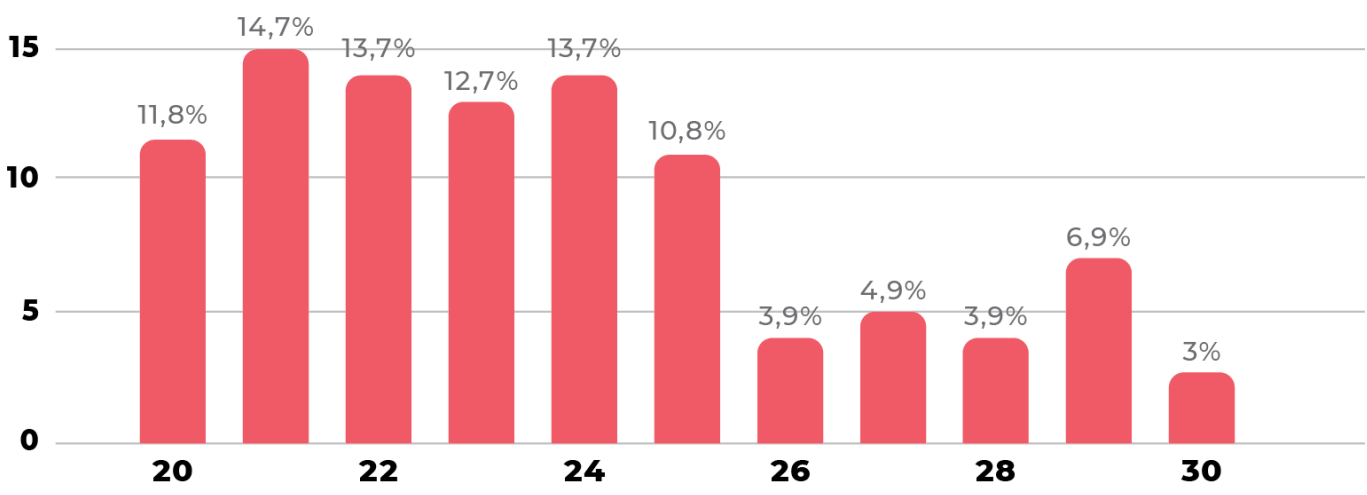


Figure 13. Age Distribution of the Surveyed Sample

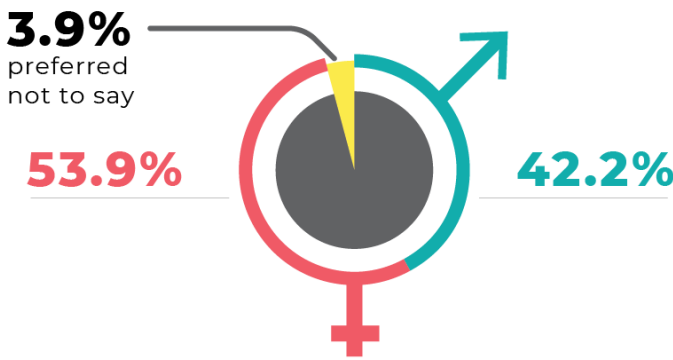


Figure 14. Gender Percentage Distribution of the Surveyed Sample

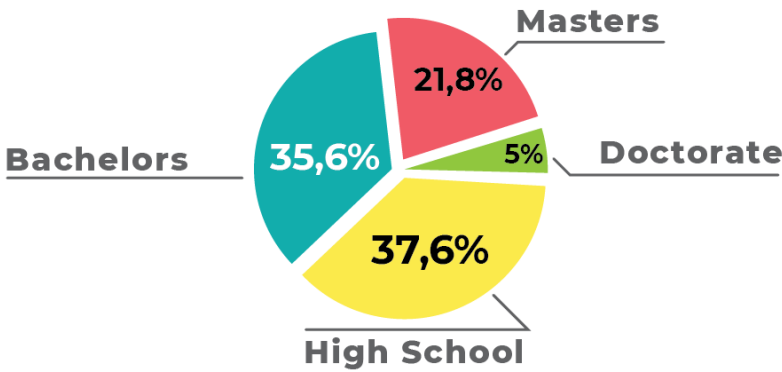


Figure 15. Level of Education achieved of the Surveyed Sample



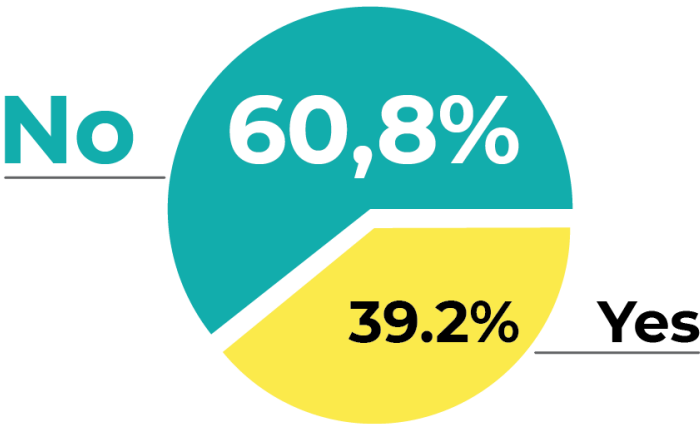


Figure 16. Work Status of the Surveyed Sample

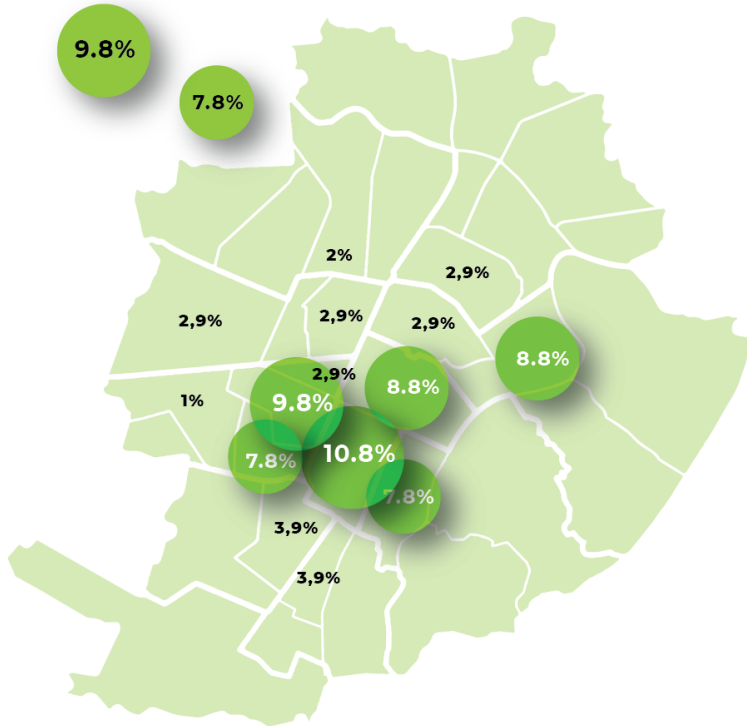


Figure 17.. Geopolitical distribution of the Surveyed Sample

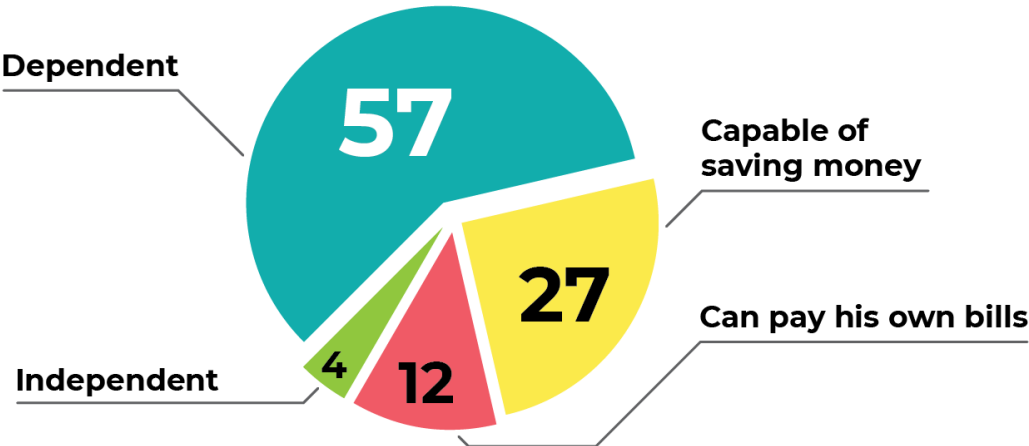


Figure 18.. Financial stage of the Surveyed Sample

which charted the financial stages of the surveyed sample as mentioned in the scope of the study. The result is shown as 57 dependent users, 12 that Can pay their bills, 27 who are able to save money, and 4 that considered themselves independents. This comes to show that even though 39.2% of the people surveyed work, it does not guarantee their financial independence, but it does mean climbing up the stages for achieving it.

This Results can be compared with the Ministero dell'economia e delle finanze 2022 report that showed a 37.8% of employment rate in the north of Italy between the ages of 15-29, close to the 39.2% found in this study, which can vary because of the expansion of the age sample of the report. While in other aspects the result differs from the report, like

the dependency rate, as the report does not specify this we rate the percentages of people living with their parents between the ages of 16-29 to be around 85.4%. This does not mean complete dependency as many could be covering some expenses with the help of their father yet paying out of their own pocket for others, meaning that out of the 96% of non-independent individuals in the study, a great percentage live with their parent which in terms also lands them in the financial stage they are at the moment. The one that really differs is the level of education pursued, as 53.9% of the youth population strive for university routes, and the study showed a higher rate of 62.4% of the sample, almost a 10% difference which might be due to the availability of students at the places of the survey.

Results of the Study

The following subchapter is divided into the four stages proposed by the survey, each developing the results regarding the second section of the survey in which the consumer durables are analyzed in relation to the individual. With this, we expect to obtain some insights and mapping regarding which products they prefer, which they value, and which are they able to buy. Also, we try to understand if they have indulged in making them themselves, their consideration for local production, the waste of this product, and their circular economy.

- ◆ Dependent - Dipendente (almeno in parte) da un'altra persona per coprire le spese per bisogni primari.
- ◆ Can Pay His Own Bills - Riesco a far fronte a tutte le spese essenziali
- ◆ Can Save Money - Riesco a risparmiare qualcosa
- ◆ Independent - Ho profitti da investimenti che mi permettono un buon tenore di vita.

The graphs provided are out 11 questions, of which 3 are going to be shown in the next subchapter as a general aspect shared by all stages. The subcategories for stages are translated the following way:

5.2.1

Dependent

As mentioned in the previous chapter the majority of those surveyed shoed to be inside this category representing 57%. Out of this sample, the results were gathered and processed together to develop the graphic you see at your left, containing the overall examination of what the dependent Young Adult of Turin thinks in relation to consumer durables. The results can be seen in more detail in the appendix section of the thesis.

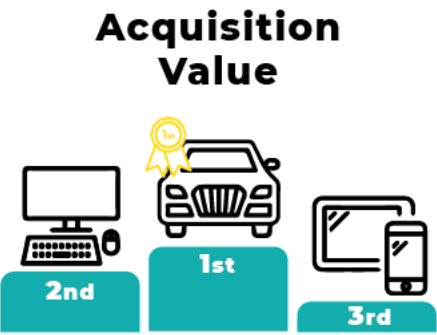
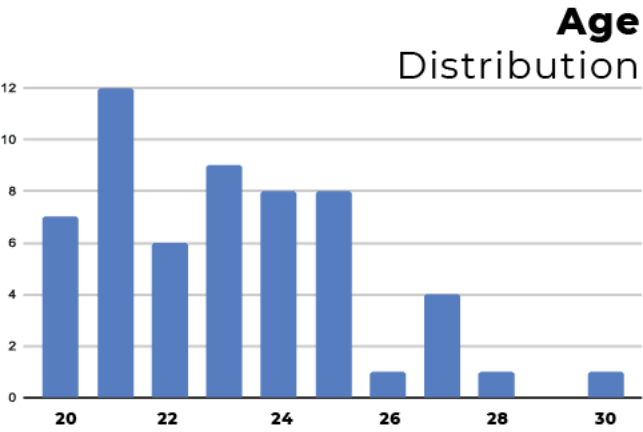
The first thing that pops out is the unemployment rate of this population which has a lot in relation to this categorization as a lack of steady income is the main reason one can be in a financially dependent situation. With this is the group age distribution among the surveyed which show a majority of them being between the ages of 20 to 25 but still showing the case to be persistent in their 27-28 years of age, allowing us to put two in two together into what age population is currently most unemployed and are this stages of dependency.

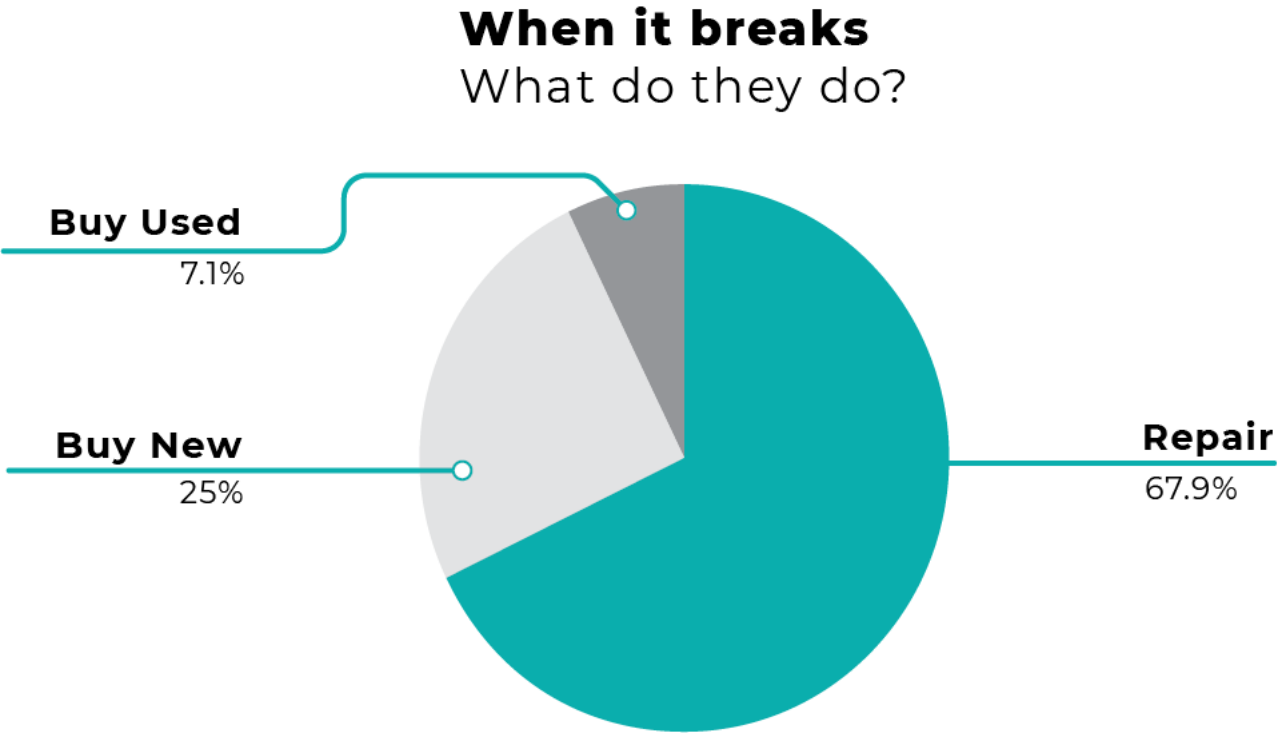
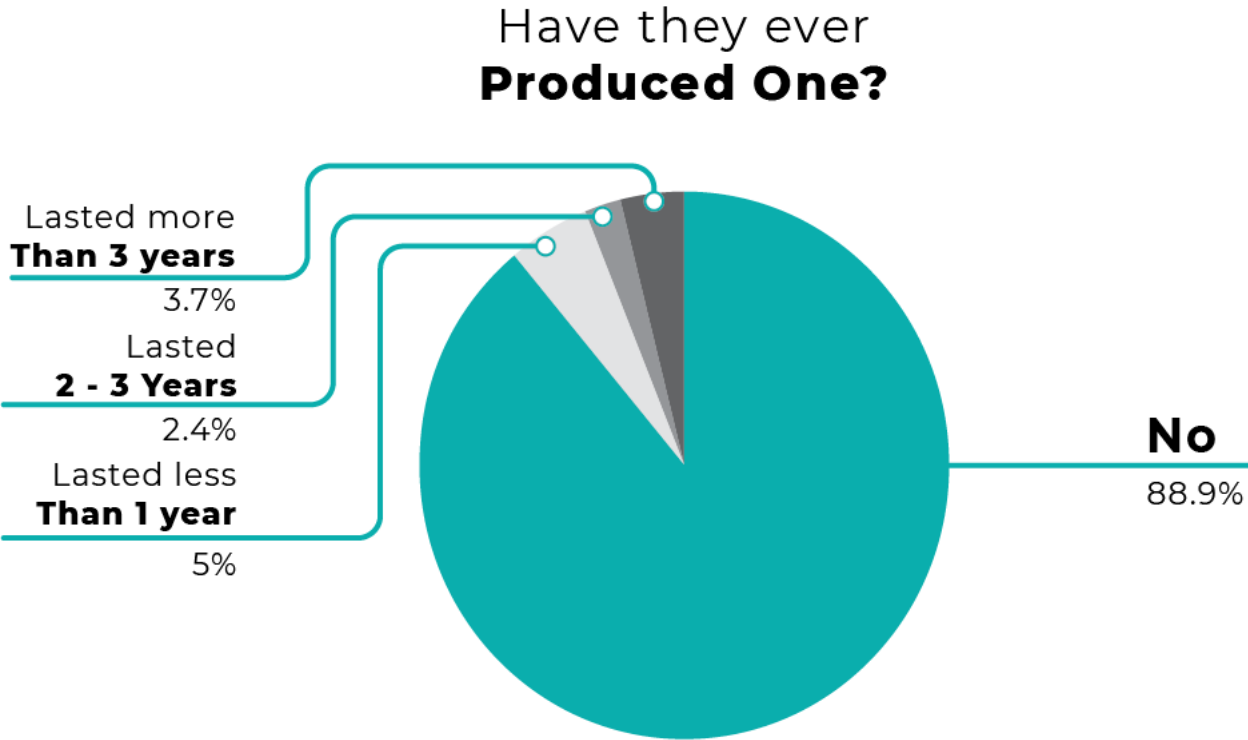
As for the consumer durables section, there are 6 main points extracted. Their preference of acquisition is not to say what can they afford but they would prefer to buy if in the financial capabilities of allowing themselves of doing so. The top candidates are books and clothing in both sections, showing a correlation of thought in which the financially dependent individual does not aspire to big-ticket

consumer durables but to more obtainable ones. For their importance, our technologically driven modern world is exposed as is not a surprise many put their cellphones and computers in this section, yet in this case, the importance of clothes is at the top. Regarding acquisition value, the vehicles top the list as an obvious expensive choice with a lot of premeditation, yet instead of other expensive consumer durables being in this list, their electronics follow in 2nd and 3rd place as they are a huge premeditated acquisition that runs their daily life, and represent a high investment regarding need at this stage of financial independence.

Their last acquisition shows a pattern of essential needs in their daily routine being so that most of them acquire clothes, computers or mobile devices as their last purchases, allowing us to infer that being so they are the kind of objects you interact with the most, and might be the ones who wear off the quickest and therefore require the most immediate replacement, why in term connects to the section of their main reason of acquisition, Need. It might also open the debate to the problems surrounding these Consumer Durables, like quality, warranty, and planned obsolescence.

Inside the section, we also extracted data regarding some future opportunities and sustainable choices





which relate to these products. As their need does not imply that they always have the money to buy such a product (which in this case is probably not their money) some alternative solutions might be found in the obtention of such products. As one can recur to DIY, Do It Yourself, to fulfill your needs or pleasures for functions these products might have in your life. Almost 90% of the participants showed to not be involved in the elaboration of such products, out of the 4 subcategories they are the highest in the production of their own consumer durables but being so the percentage is so low, the difference is not notable, as many of them lack the skill, knowledge, and resources of producing a product, let alone a durables one. At this point dividing the longevity of their handcraftsmanship is purely based on the type of durables and use.

As for the replacement of the durables, some reasoning was expected to answer in a qualitative way evaluated later to why they prefer mostly to repair, which also goes along with the research regarding the sustainability of this area, showing a high 67.9% of favoritism towards repairing. An important aspect is the low interest for new acquisitions and can be related to their lack of capital, as their lack of can be a reason for which they shy away from such high investments, and incline more into acquiring them the cheapest way possible, A point that will be exposed in later chapters.



5.2.2

Can Pay His Own Bills

For this subcategory the next stage is to evaluate, those who can currently pay their own bills. A noticeable change can be seen already in the unemployment rate of this sample, as the percentage drops by more than 12% but still being in the high 50s. This can relate to an irregular inflow of capital to which they are forced to administer as possible to make ends meet. As 50% can say they have a paid job to which they can organize and pay their dues, the remaining population still shows this capability with the status of employment, which can also be related to many matters, but is mostly associated to saved up capital for this purposes, meaning this group probably works by periods or do informal labors, to obtain the money they save up to pay their future bills and may or may not be dependent at some stages for other kinds of acquisitions. The age distribution, in this case, can be an insight to this theory as they almost evenly distributed among the age sample, with a high peak at 23, a common age for those who seek secondary levels of education to finish up their studies and therefore starting to look for jobs more related to their area.

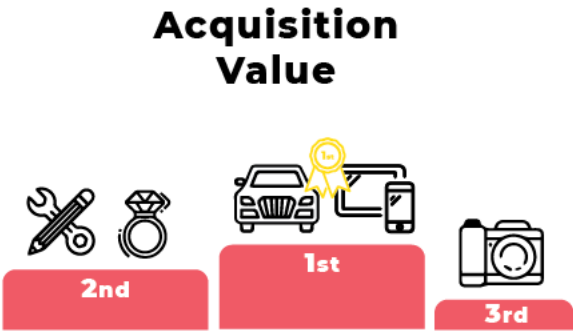
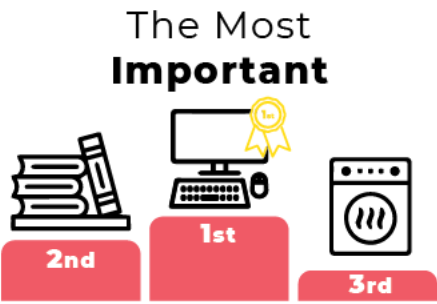
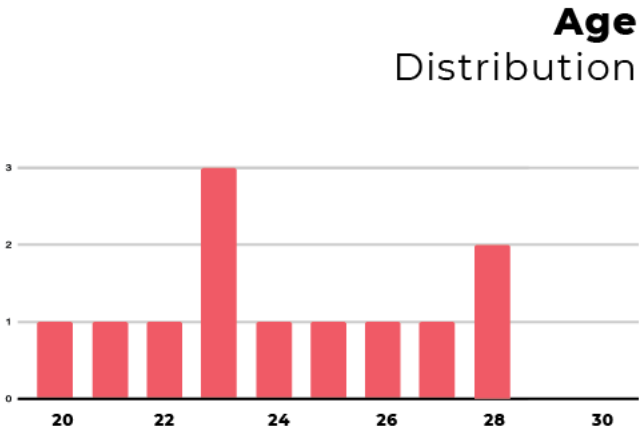
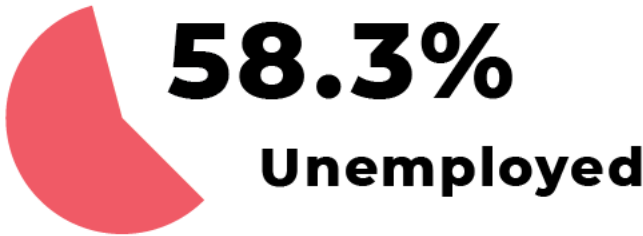
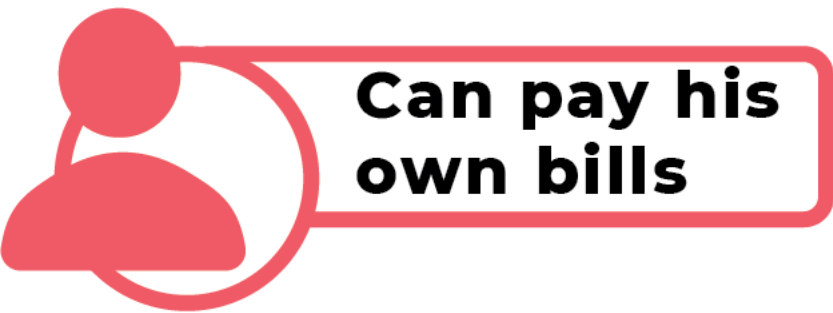
The consumer durables insight differs from the others as it represents an early stage of independence. The individual still is in tight financial situations are still exposes their capabilities of acquisition to be more related to books and clothes, yet furniture appears as a preference, showing he is now looking to acquire

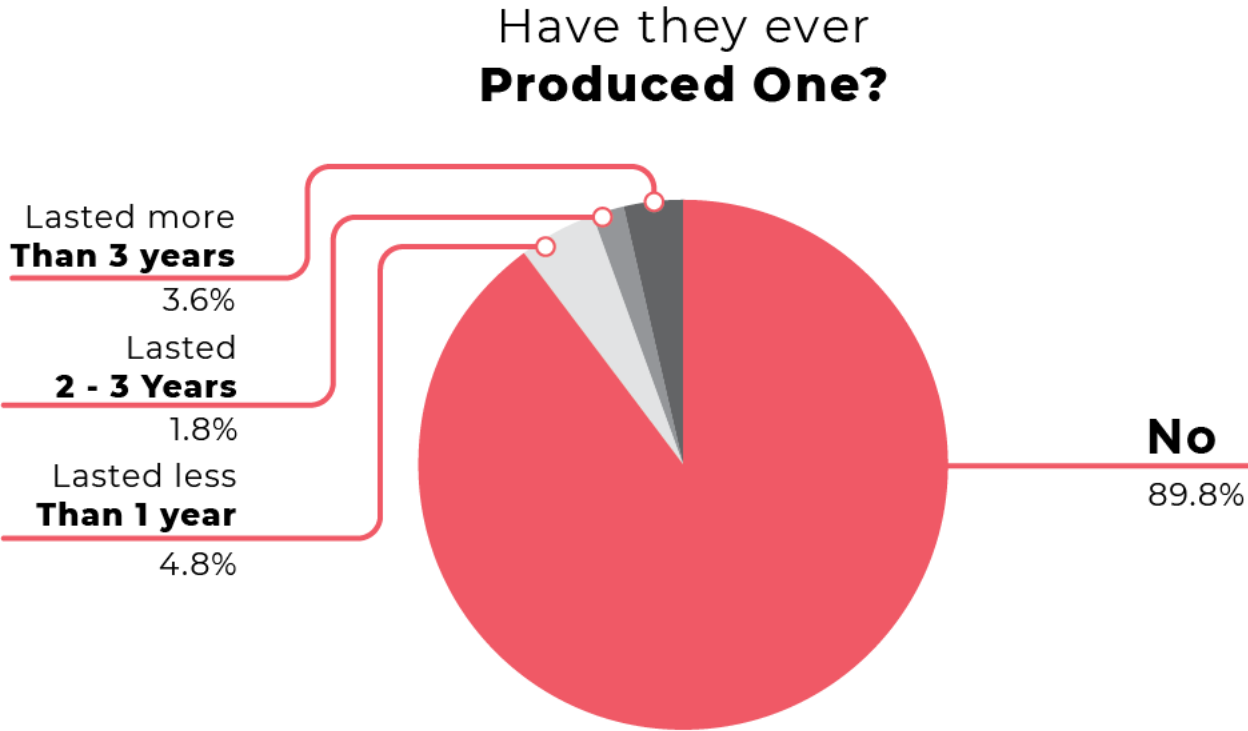
bigger and more long-lasting durables for the next stage of his life, that requires him to start investing on these kinds of products. This is backed up by the importance category, as electronics still head on this list, the appearance of another long-lasting high investment durable like appliances relates to the progression of the financial stage.

Their acquisition value starts to diversify as with a flow of income more reasonable investments can be done and a bigger indagation into the value of these products is done, still, vehicles are an obvious choice, yet jewelry start making an appearance and things like tools and other consumer electronics are shown to be of value as well.

Their last bought still portrayed the previous sanction as for the main reason of acquisition is still need, and is connected to the previous statements of why products like clothes, books, and computers are a huge part of the daily routine and as such wear off quickly or are design with short life cycles to increase revenues in their respective market, fast fashion (Niinimäki et al., 2020).

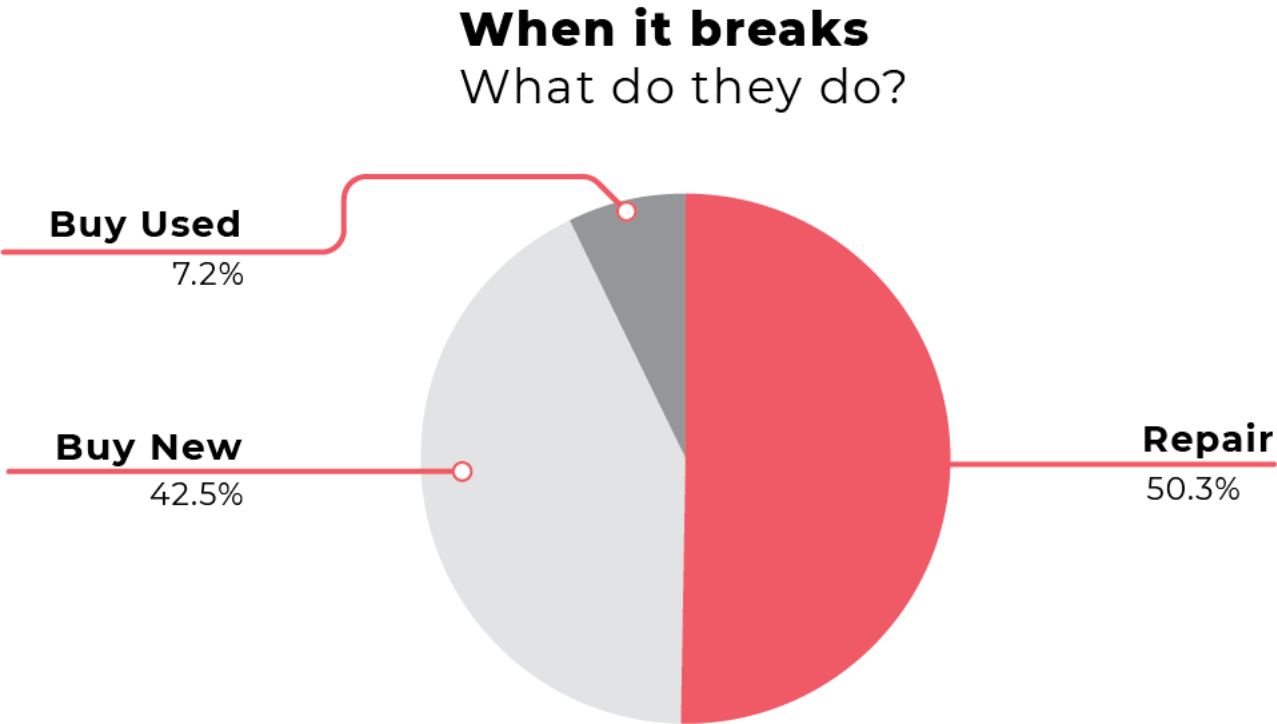
Their production of consumer durables resembles the same as the previous subcategory showing a slick 1% difference, which still is more connected to lack of skill, knowledge, and resources and not to their need for them. Many of them express their





reliance on the quality that can be obtained from industrial-made consumer durables.

The difference comes in the replacement of the products, as still repair heads the list, is in a low 50% percent, low in relation to the other subcategorize and studies found to the willingness of this process. This is better understood in the fact that buying new has a high 42.5%, then again related to what was previously stated that since they are starting to build a durable portfolio and investing in long-lasting durables they are more inclined to buy new as this is related to quality and warranty guaranteed and means a later replacement for which individuals as such look forward to at another stage of financial independence approaches, this is not to mean this highly price durables, or of high quality, more so related to the fact that can be a higher quality of those used. Repair is mostly related to those they already have to which it is inferred that by slowly becoming independent their durables stock is low therefore there is not that much to repair yet.



5.2.3

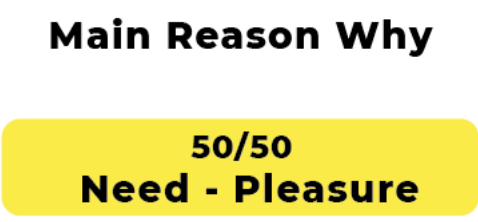
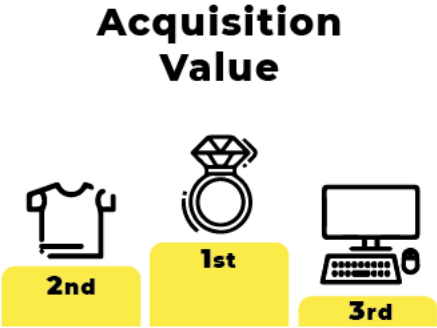
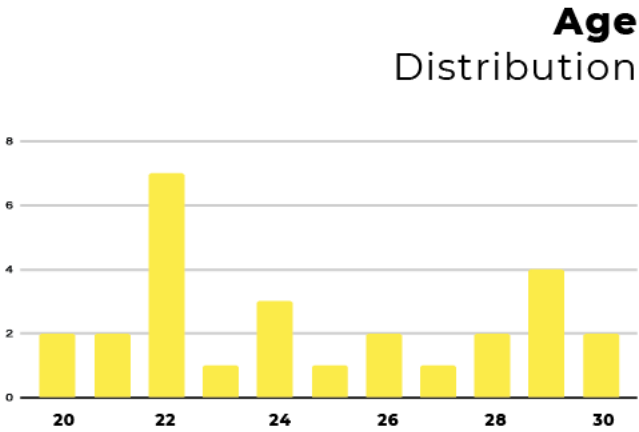
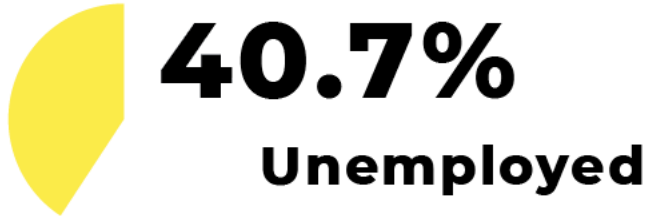
Can Save Money

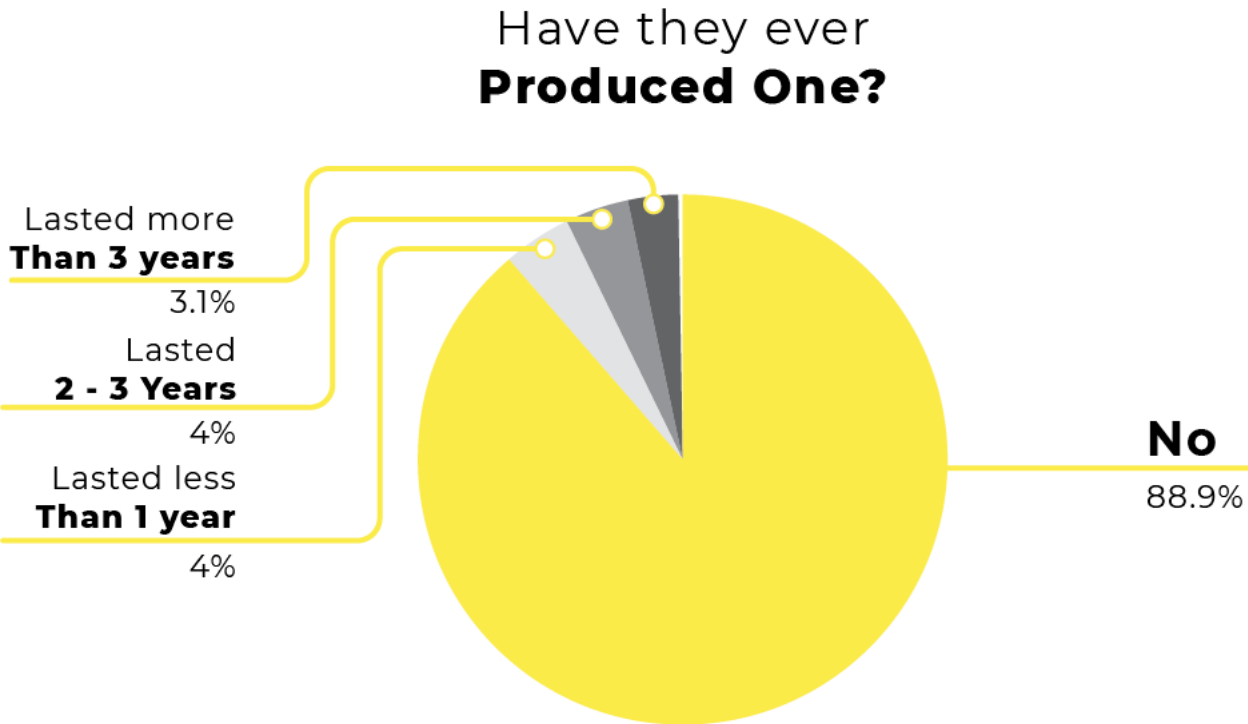
The next subcategory represents the second largest sample of the study with 27%. It portrays those who can not only pay their bills but can start saving up money. There is a fine line between these two groups as previously mentioned those who can pay their bills are expected to save money for periods in which they are unemployed, noting the action of saving money, yet in this case, the particular exercise is related to things other than need. It means they are at a similar stage as the previous one but with a higher capability of capital saving that allows them to treat themselves with goods outside their day-to-day needs. This can be shown in the employment and age distribution, as it drops again by more than 18% yet showing not an even distribution through the years but spikes at 22 and 24, and at later ages of young adulthood of 28 through to 30. As most of them start to obtain steady jobs or can start being paid more generously this can relate to the aforementioned article by Taroza that secondary education is pursued to obtain higher incomes, leading us to theorize that this group is capable of such savings due to their respective titles, which is confirmed by the study as more than 60% have at a minimum a bachelors degree.

Their importance, and last bought fall into the same category as the dependent one, yet again nothing a pattern of need between them in the modern day routine. Yet the appearance of sporting goods, also

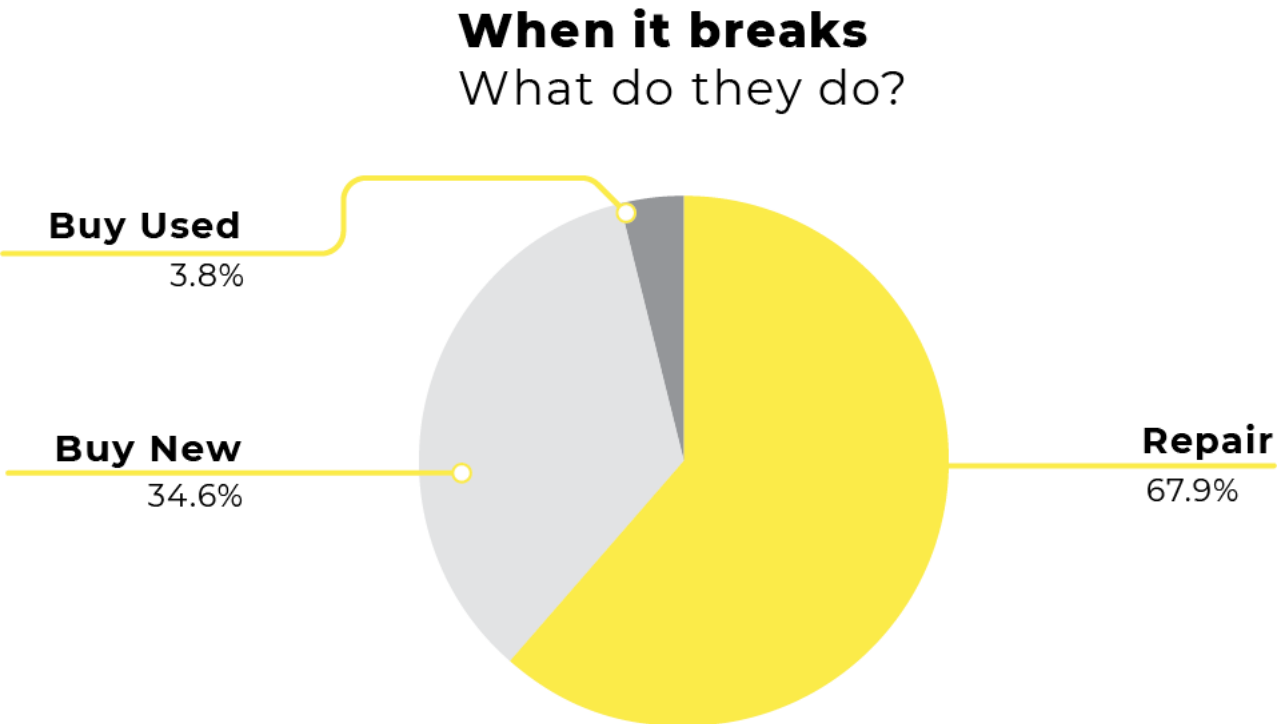
shown previously, can be justified by different reasons. As the preceding group expresses an aspiration to stock build-up, the reason for buying such good are related to need, yet here a new reason takes appearance, as the pleasure becomes a term of discussion, thing like sporting goods, used for exercising can be seen as a thing of need (health) or pleasure (stress relief and recreation). This is shown to be the case as when asked for the reason for the acquisition many expressed this issue. The preference still shows aspiration for the increasing of Consumer Durables stock as furniture still has a role in the list. A noticeable difference is that even though it is a high sample of the study vehicles did not top the acquisition value in this case, still is well considered as can be seen in the annex section of the thesis but at the same levels as other common durables like books, appliances, furniture, and mobile devices. Jewelry and clothes led the list to which can only be associated with aspiration, as the capability of saving money allows you to look more into acquiring products not only for need but for pleasure, they can allow themselves to splurge on fancy items rather than commons ones, therefore, assigning value to these subcategories of consumer durables that have both spectrum and are commonly associated with fashion.

When it comes to the replacement and the making of this product the patterns don't change as many still





prefer to obtain their durables that are on the market rather than getting their hands dirty, that is not to say the 10% of those who do get left behind as they can be an important population for the generation and or opportunities of consumer durables, more so if they have the capability of saving money meaning easier access to resources.



As for the replacement of such products, the percentages level themselves to average among the high 60's yet buying new does not drop down to the '20s as their capability for such actions is higher and the reasoning for the acquisition of some durables are more related to buying new rather than repairing, expressed in the qualitative part as the balance between the cost, the time and the difficulty of the repair. As the cost of the repair approaches that of the cost of a new item or used one, or discounted one, the individual opt-out from repairing and justifies the acquisition of a new one. This is also the case with the time, as the individual needs it with more urgency if the repairing of the product takes too much, the individual will opt again with buying new, same is the case with difficulty, which is more related to the cost, the more difficult it is to repair, the higher the cost, the most probability of ending up buying new, and example expressed were with Electronic goods.

5.2.4

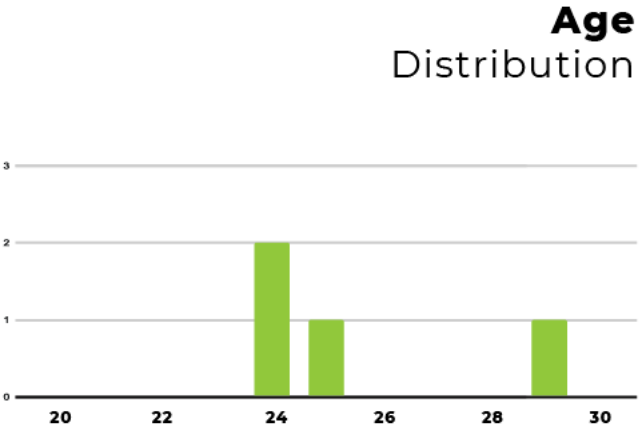
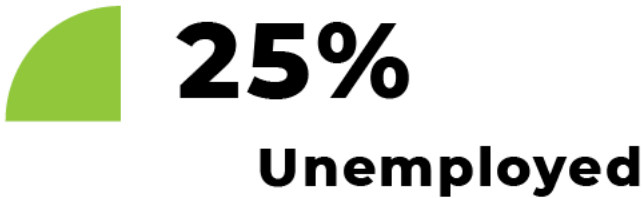
Independent

The last subcategory encompasses those who declare themselves as financially independent, described as such with the prompt that said “I have investment profits that allow me a good standard of living” meaning that those who assign themselves under this category could be in theory capable of acquiring any kind of durables if needed, that is not to say they can always do so but by being in this situation reasoning for acquisition can be more lightly than with the previous stages. It is not surprising, as the bibliographical study talked about the delaying of this stage up until the 30s instead of what is expected which is around 25. The results in this section are less reliable as the final sample is a low 4% which could represent particular cases instead of the real situation with current financially independent individuals. This can be seen when looking at the age distribution, as it shows a higher portion at 24 and 25 rather than the expected later 20s such as 28, 29, and 30. Of course financial independence does not relate to age but to a financial capability able to obtain at any age, yet is more closely associated with these transitions as backed up by the bibliographical research. Although the sample can be questionable the result does express some expected theories, as the unemployment is significantly lower than the others and their capability of acquiring them is as expected related or not if they needed or want it at the moment because of their wealth. Books are shown to still be the preferred items which beg the

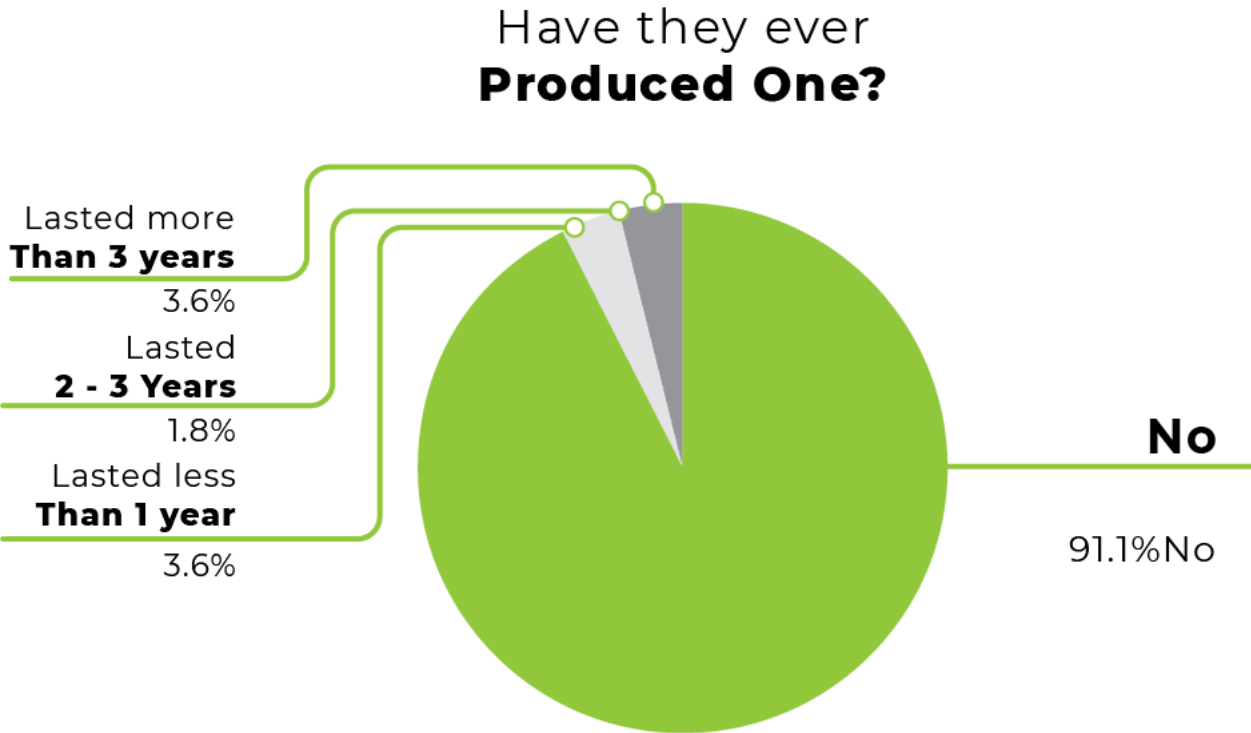
question of the importance of knowledge among the young adults of Turin, as they also are in the top 3 in the importance category. Jewelry makes an appearance in preferences yet can be due to the low sample (better seen in the annex section) yet their role in the acquisition value assigned to them is high and is probably referred to the high class or luxury items and not the artisanal or symbolic kind. Furniture is seen as important, as maybe at this stage the individual is capable of owning or renting by long terms a living arrangement, where furniture plays a bigger role in the space you assign them and how you express yourself through the look of your home, something more in relation with the interior design branch and can go all the way to personalize items, which at this stage of financial independence can be considered.

They most likely have all the items they need therefore saying the last they bought was out of necessity means more as a replacement, while in the other stages the acquisition could be driven by the lack thereof of such objects.

And when it comes to the replacement of such items yet again the do-it-yourself investigations fall to 8.9% which could be associated with their capability of acquisition, but as shown before this is not the issue, for a large difference would have already been noticeable. This falls into an issue of pleasure and

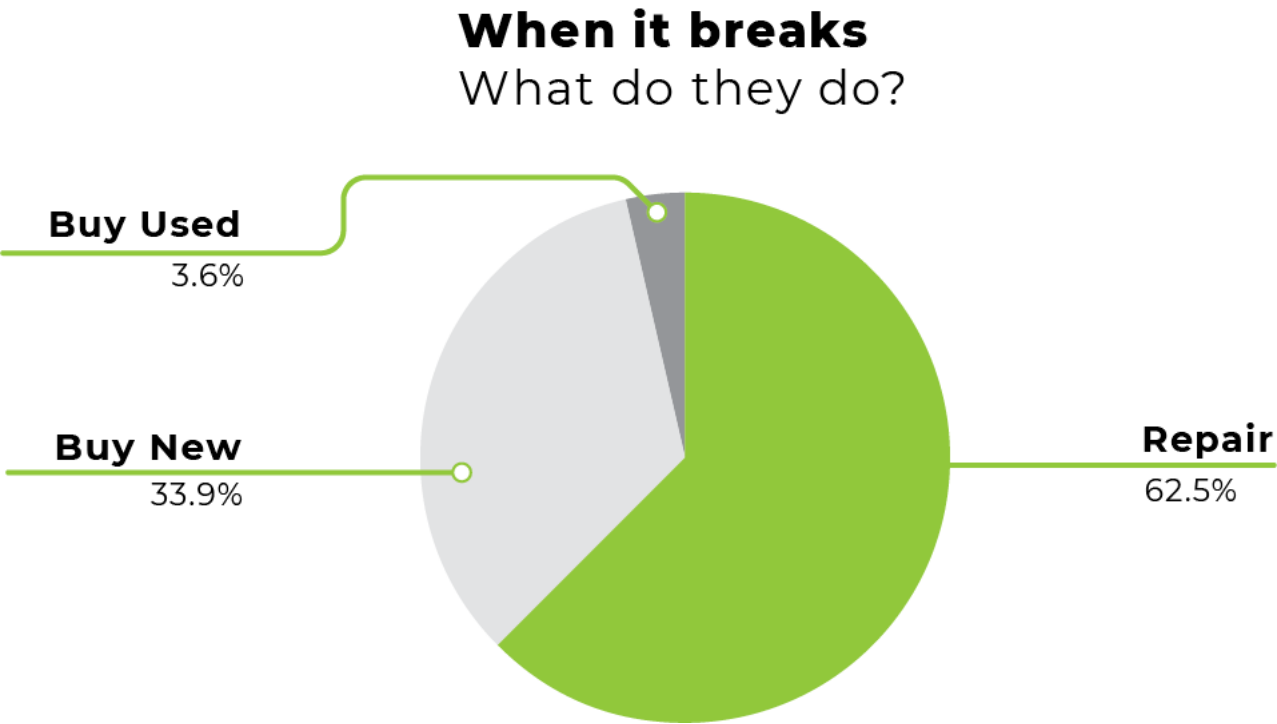






satisfaction of incurring in such activities, which relates again to knowledge, skill, and resources, yet in this case, the latter one is less of an issue.

When it comes to their choice in replacing them still repairing is the way to go as the percentage is at the average between 60-70% which at this point the question can be asked, does it relate more to a sustainable issue or an emotional bond between the individuals and the object, two things that are later going to be explored when dealing with the challenges and opportunities. The percentages for new acquisitions remain at 30 to 35 percent as in the previous stage which is safe to say it among these percentages for the next age group of adulthood since the issues brought up were more related to logical thinking rather than just a financial situation (indicating than in later stages of life one can still fall from financial independence but yet in previous stages it is still shown to be the case of reasoning). Another issue expressed in the qualitative part is reliance. Many products have a particularity of complexity to their inner workings or it is perceived this way, such as can be the case with electronics, many of them can represent a high investment but as such when dealing with complex functions and their reliance in their day to day life, the investment for acquiring new is justified, as a safe bet.



5.3

Analysis of the Study

The survey allows us to expand the data related to his particular age group as more studies than not categorize young adults inside the bigger spectrum of adulthood, and don't differentiate them when talking about consumer behavior which is clearly limited by the financial capabilities of the individual that thanks to the study we can see more clearly.

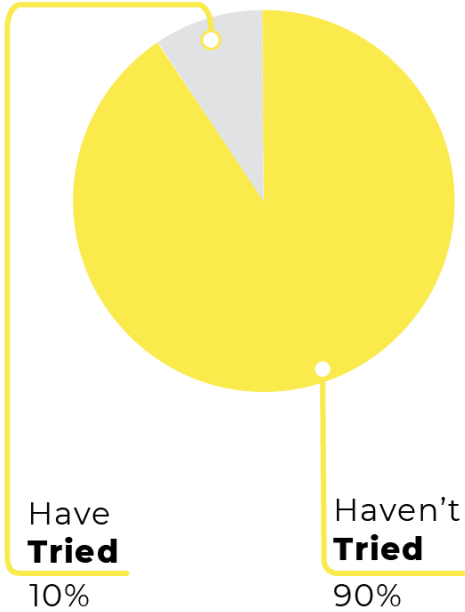
Our daily routines play a huge role in our consumer goods acquisitions which can be seen as clothes, books, and our devices, being so computer and mobile devices, yet some patterns can be shown in the progression of stages. It is clear that luxury is well considered by its acquisition value yet it varies from stage to stage, and since the purpose of the thesis is to propose opportunities in which the young adult can obtain these products to achieve financial independence, we have a more clear vision to which items can this be and which are also affected.

First talking about the common items, computers, mobile devices, and clothes, a huge portion describe them as their last acquisition, assign them importance and capability of buying them. Some of them represent a high investment for a young adult who is in need of them and the reality that can be seen in the next section of the holistic diagnosis of the territory is that more often than not, these items have a short life cycle, also due to the fast fashion and planned obsolescence making them a high-

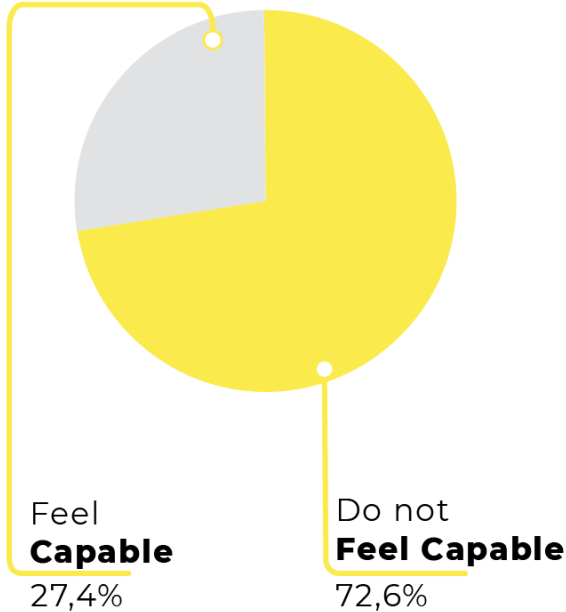
interest point for opportunities in this field, more so if we considered the territory in which the wastes regarding R.A.E.E (Rifiuti di Apparecchiature Elettriche ed Elettroniche).

The other issues are in those which the young adults found themselves investing when transitioning between stages which are the bigger type of consumer durables and represent an availability for space, and high investment. This of course is furniture and appliances which represent a significant decision since they are commonly thought to be a long period investment, their life cycle is commonly thought to be more than 10 years yet warranty around them, if not bought directly from a big brand, can be around 2 years (by law requirement). When bought at a big brand store the cost surpasses what the young adult is commonly capable of, unless is the case with places like Ikea, which many enterprises fall into this type of market of low-cost furniture at a reduction of assembly and cheap production, though more to be at a shorter life cycle than others. Some opportunities rise to the occasion regarding these issues and durables which are later analyzed in the case study section. All of them are hit by the factors of quality, warranty, price, and value, to which we have a factor of depreciation, which as aforementioned drives the initial investment down, yet with these products, the value of the acquisition is not considered as shown in the survey, which

Have they ever  
**Produced a consumer durable?**



Do they feel capable  
**Of making one?**



Which ones do they believe to be  
**Good quality, Done locally**



Which one are they  
**Willing to buy locally?**

When it breaks  
**What do they do?**

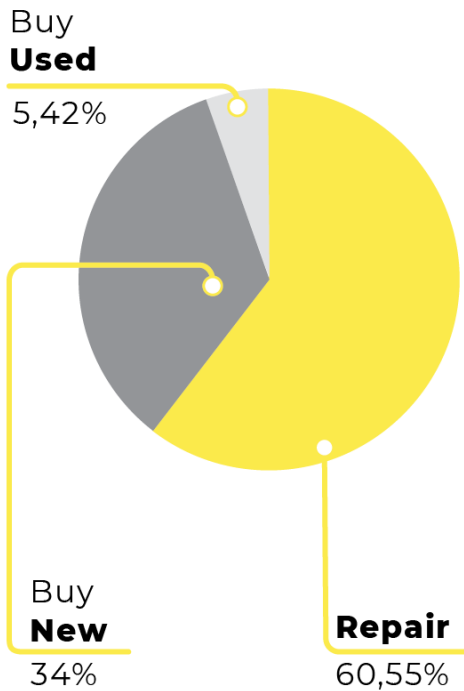


Figure 19.. Financial stage of the Surveyed Sample

opens the possibility to designing opportunities that can change this thinking model or take advantage of the disregards of the individual and have design models around the lack of interest for this issues, such as can be the case with Ikea.

finally comes the issues that regard the DIY of it all. When dealing with design, consumer goods, young adults, and financial situations, many designers might be driven to make their own products, yet they are also confronted with the problem of resources even though they might have the know-how and the skills. This is exponentially so with non-designers, as seen in the low 10% of people who have indulged in these practices. More so if you consider that 72.5% do not feel capable of doing so, even with having the resources as seen in figure 19, leaving the production to the industrial sector and big brands. There is an appreciation for locally made products that are related in so to the products they also believe to be capable of replicating (expressed by those who said to feel capable of doing so) yet there is about a 20% difference to those who have actually produced one, which opens the question “what if there was a palace that facilitated this?” or better yet a place that though how-to, an important argument, considering that a stronger emotional bond can be seen between the object and the creator than the object and the buyer, leading not only to a higher percentage of willingness to repair but also to having to knowhows

of doing so. Furniture, toys, clothes, and jewelry are among these items and when considered for locally bought, books and tools fall into the mix, even at a high-quality grading. It is important to point out the fact that no electronic good is expressed to be considered for locally made and acquire, which opens again the field for opportunities as mentioned before due to the R.A.E.E waste Turin has.

The next stage will dive more into the territory as the young adult of Turin in order to explore more possibilities surrounding what was found through the survey.



## Chapter 6

# Holistic Diagnosis

## Territory of Turin



# 6.1

## Demography

Turin is the capital of the administrative division known as the Metropolitan City of Turin, inside the region of Piedmont. It was briefly assigned as the capital of Italy during the 1800s. As of 2022, the current population in what is considered the city proper is 847,287, according to ISTAT (Istituto Nazionale di Statistica Piemonte e Valle d'Aosta). The urban area, which refers to neighboring municipalities that surround the city, has 1.7 million inhabitants, while the Metropolitan City area has an estimated population of 2.2 million. For the purpose of the study, we delimited what the proper city is. The following data was obtained through the compilations of the sites: ISTAT, Tuttaitali.it, and Statista.

Turin's population gender I predominantly female, with 52.27% and 47.72% male. The instruction level of its citizens is at 95%, and its employment rate is at 68.1%. It is the fourth region in Italy with the largest percentage of people over the age of 65%, a possible consequence of the large immigration patterns the city saw during the industrial era, in which many families moved to the city. Yet, now the economy has been driven to a more service oriented. This leaves us with the percentage of young adults to evaluate. There are 96,806 people between the ages of 18 to 29. They represent 11.2% of the population, a low percentage, considered as a city can be evaluated by this kind of number which

can be indicators of development and progression; instead, the largest concentration can be seen by the figure X1 to be between the ages of 40-65.

Some essential data related to young adulthood is the rate of youth unemployment at a low of 24.6%, which, compared to the other regions of Italy, is well positioned as the 7th among the lower youth unemployment rates.

Also, point out that in the country, the amount of Young unmarried people living in a household with at least one parent in Italy in 2020 was 6.7 million. People aged between 20 and 24 represented the largest group, while young adults aged 30 to 34 made up the smallest group. (Italy: Young Adults Living with Their Parents 2020 | Statista, 2020) representing 59% of this age group.

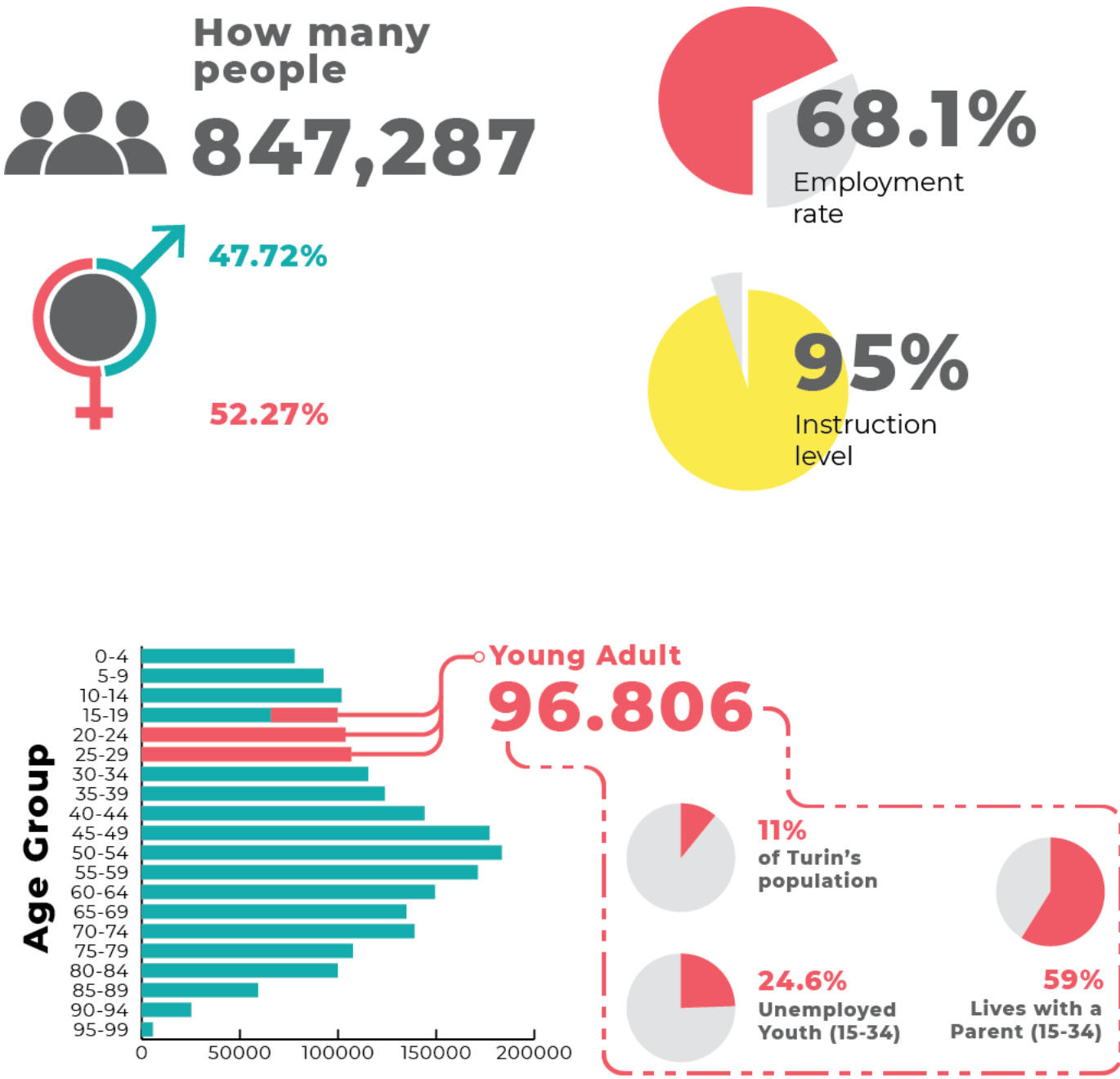


Figure 20.. Demography of Turin

6.2

Geography

As stated before, Turin is the capital of Piedmont, one of the northwest regions of Italy, and is located at 239 meters above sea level, at the confluence of the Dora Riparia with the river Po. Its surface is about 130.2 Km².

The city is located at the western limit of the Po Valley (latitude 45 ° 04 ‘north), between the Alps surrounding it to the west and the hills to the east. Turin is located in an excellent geographical position, near the mouth of the great roads from the Alpine tunnels and the passes. In the past, it has been a substantial commercial and strategic center. The morphology of the metropolitan city of Turin, however, is 52.43% Mountain, 26.66% Plains, and 20.91% hills. As can be seen in figure X1 the city of Turin is located in a predominantly plains area with a small delimitation of hills, the start of the western alps and the Superga hill.

The Territory is geopolitically divided into 8 municipalities and 34 neighborhoods. That can be shown in figure 21. And are the following:

- 1. Centro - Crocetta
- 2. Santa Rita - Mirafiori Nord - Mirafiori Sud
- 3. San Paolo - Cenisia - Pozzo Strada - Cit Turin - Borgata Lesna
- 4. San Donato - Campidoglio - Parella
- 5. Borgo Vittoria - Madonna di Campagna - Lucento - Vallette
- 6. Barriera di Milano - Regio Parco - Barca - Bertolla - Falchera - Rebaudengo - Villaretto
- 7. Aurora - Vanchiglia - Sassi - Madonna del Pilone
- 8. San Salvario - Cavoretto - Borgo Po - Nizza Millefonti - Lingotto - Filadelfia

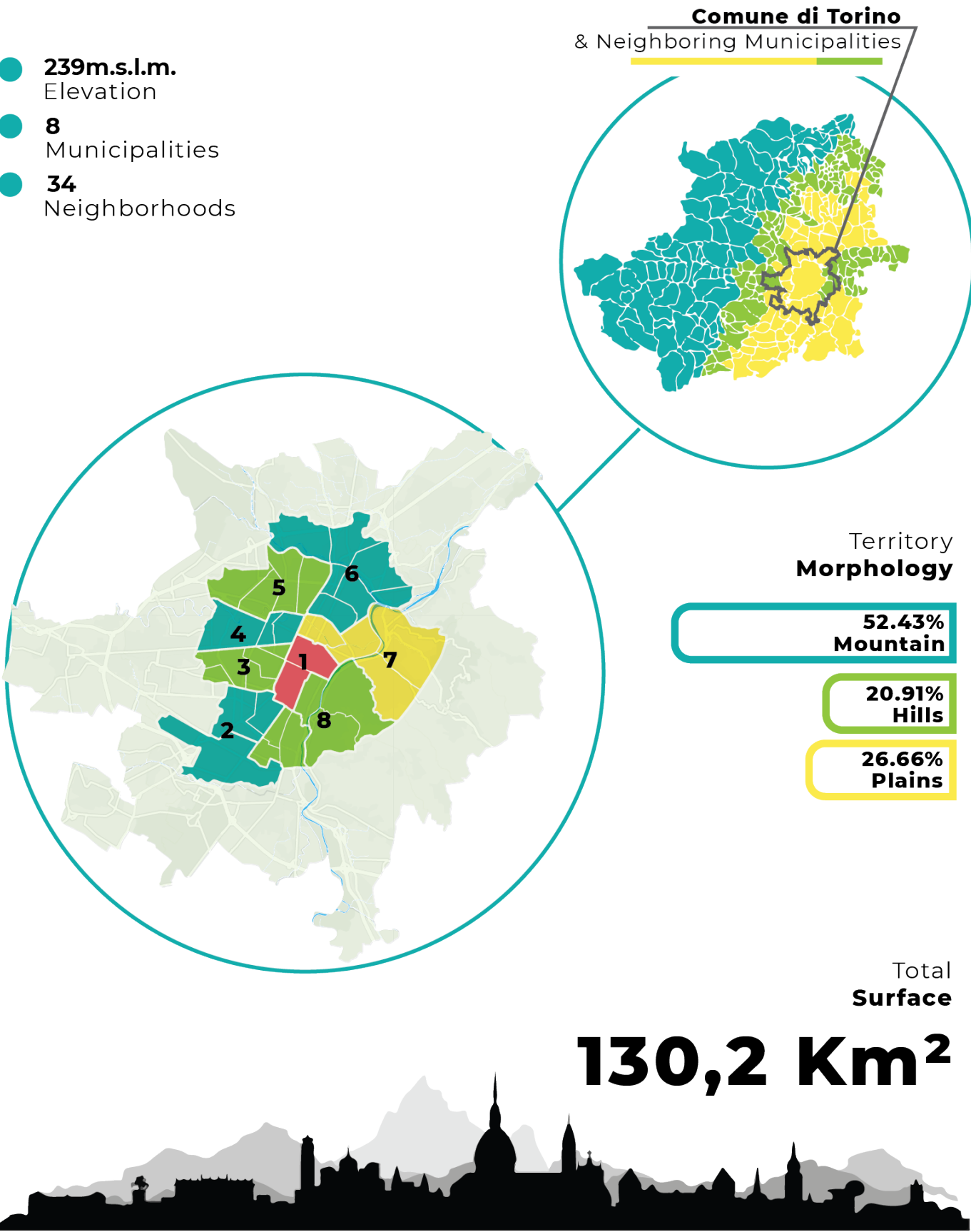


Figure 21.. Geography of Turin

6.3

Economy

Turin is the third Italian economic center for Gross Domestic Product, with 37.6 billion euros and a municipal debt of 3.2 billion euros(2011), making it the second most indebted municipality in Italy after Milan and the one with the highest debt per capita (Wayback Machine, 2015). In 2014, after the serious recession that hit the city, the GDP from 2007 to 2013 suffered a reduction of 11.5%, stabilized at 36 billion, while the debt fell below 3 billion euros. (Repubblica.it, 2014).

Looking at the metropolitan city of Turin, 170,940 enterprises comprise the three sectors of the economy. A mere 124 relate to the first sector, which represents 9,060 Agricultural holdings as of 2019. Then there are 34,396 enterprises related to the second sector, in which the main activity is the manufacturing of metal products. Last, there are 136,420 enterprises associated with the third sector of the economy, which makes it the most significant industry of Turin’s economy. As said before, this has changed during the years as Turin once was an industrial capital with a more significant second sector; this is not to say that it is no longer a high-producing sector as many industries produce their goods in the Metropolitan City (different from the proper city).

The second sector is where the development and production of some consumer durables take place.

In the case of Turin, the industries are those of Computers and consumer electronics, Clothes, furniture, and appliances. This is not surprising when seeing the industries that treat raw materials like metal, plastic, and wood.

For the third sector, this relates to the selling of these products, and this can be specified to those inside the proper city as 218 relate to small neighborhood businesses, 68 medium structures, ten significant structures, and 26 shopping centers.

An important type of structure relating to the selling of consumer durables is the Household stores (casalinghi), which are composed of formal sellers like Ikea and Kasanova all the way to retail stores like Koko and punto 73. All of these compete with each other in a capitalist economy. An important aspect is the correlation between these stores and the concentration of the young adult of Turin shown in the results of the study section of the last chapter, as they overlap each other.



Industries related to the making



Consumer Durables Sector

Industries related to selling

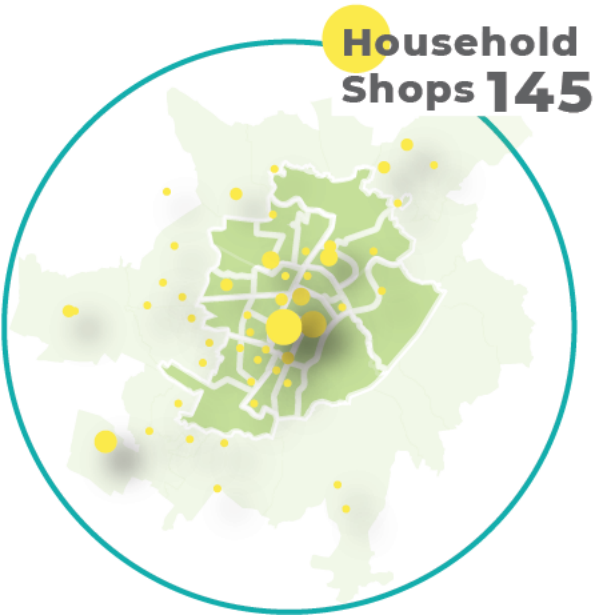
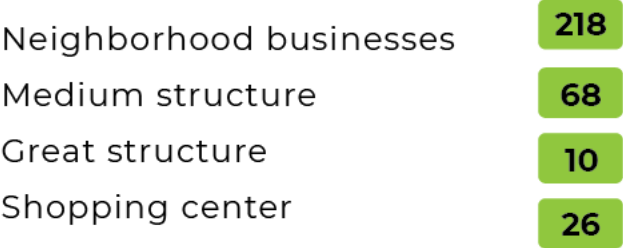


Figure 22.. Economy of Turin

6.4

Consumer Durables in Turin

As for a better understanding and correlation between the territory and the consumer durables, we dive into this section of the market in which institution like Osservatorio Findomestico gives some insights into the tendencies.

in Piedmont in 2021, spending on household durable goods increases by 13.5% for a total expenditure volume of 6 billion and 131 million euros (which is worth fifth place in Italy after Lombardy, Lazio, Veneto, and Emilia-Romagna )in first place among the regions of the North West, as noted by the Findomestico consumption observatory.

In the provincial analysis Turin (+ 14.7%) and Asti (+ 13.8%) are the only provinces with an increase in the consumption of durable goods higher than the regional and national average (+13.6%). According to the Observatory, in 2021 a Piedmontese family allocated 3,075 euros to the purchase of durable goods (356 euros above the national average). Of course, this relates to groups of families, not young adults, as that amount might be non-existent in the cases of dependent individuals, yet it expresses a flow of the market. This is better expressed by the predominance of some household goods, which among them are furniture (112 million, + 18.9%), followed by telephones (42 million, + 6.6%: the second highest increase in Piedmont), household appliances (31 million, + 14.4%), consumer

electronics (16 million, + 41.5%) and finally Information technology (15 million, + 3%). (La Stampa, 2022).

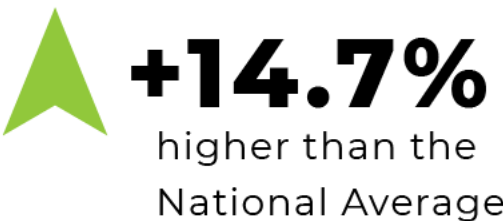
This paints the picture of the strong influence of consumer durables in the piedmont market even more in a city like Turin, which opens the discussion to the following subchapter if the consumption is high, wouldn't their waste be an issue? This is addressed by the territory, and yet there are some case studies and initiatives to produce and control the waste and be more sustainable; that is why some research was also put into the tendencies of the willingness of the population to spend on sustainable options. In general, 74% replied that they would pay more, but 35% said they wanted to spend "up to 5% more", 27% "from 5% to 10%" and only 1% said they would be willing to accept an increase that can even reach 20%. So yes, to the green, but with an eye on the wallet (Tendenze Di Consumo, 2022). This is brought forth as many "green" products tend to cost more than their regular counterparts, which can become an issue when developing businesses with which we will analyze case studies.



In consumer durables Acquisition in Italy (Piedmont)

- 1. Lombardia
- 2. Lazio
- 3. Veneto
- 4. Emilia-Romagna
- 5. **Piedmont**

**3075 Euros**  
356 more than the average Italian household



Market Dominance (Piedmont)



Figure 23.. The Consumer Durables market of Turin



6.5

Waste of Consumer Durables in Turin

When it comes to waste, systemic design always has its eye on it since it is embedded in its principles that the outputs of a system can become the inputs of another. The European Union has some initiatives regarding the reproduction and management of waste for which it implements various normative, as well as the Italian government for the treatment of this. First of all, the Waste hierarchy promotes the prevention of waste production, in hand with what systemic design proposes. It is followed by reuse, recycling, recovery, and in the end, disposal.

The European Parliament has been trying to impose some new regulations regarding wastes related to consumer durables, one of them called the right to repair (European Parliament, 2022), which plans to prolong the life of these consumer goods as they have been subject to planned obsolescence and high repair cost. It proposes:

- ◆ Make repairs more attractive to consumers, like bonuses for repairing a faulty device or receiving a replacement device for the duration of the repair
- ◆ Oblige manufacturers to grant free access to repair and maintenance information and guarantee software updates for a minimum period
- ◆ Ensure devices are more durable,

easier to repair, and include removable and replaceable parts

- ◆ Offer better consumer information regarding the reparability of devices
- ◆ Extend guarantees

In Cirie, inside Turin’s province, CISA consortium has a project called La Sostenibile Leggerezza, which involves 82 commercial establishments. It is comprised of four projects, of which one is Scelgo-Eco (Case-Study) which involves 50 businesses that are committed to waste reduction: the network aims to promote companies and commercial activities engaged in waste prevention through the sale of draft products, drinks, or loose foods, washable diapers, goods used, repair or rental of durable goods. (Ciriè (Torino): 82 Esercizi Commerciali Del Territorio CISA Scelgono La “Sostenibile Leggerezza” - ECO Dalle CITTA’, 2017).

Another player in the scene is, of course, Amiat as the stakeholder who handles most of the waste management in the territory of piedmont with 406,162 tons of urban waste, of which 4,524 tons are of R.A.E.E processed in their Volpiano Facility and 25,521 tons of bulky waste which translate to big structure that can be defined as big appliances of furniture.

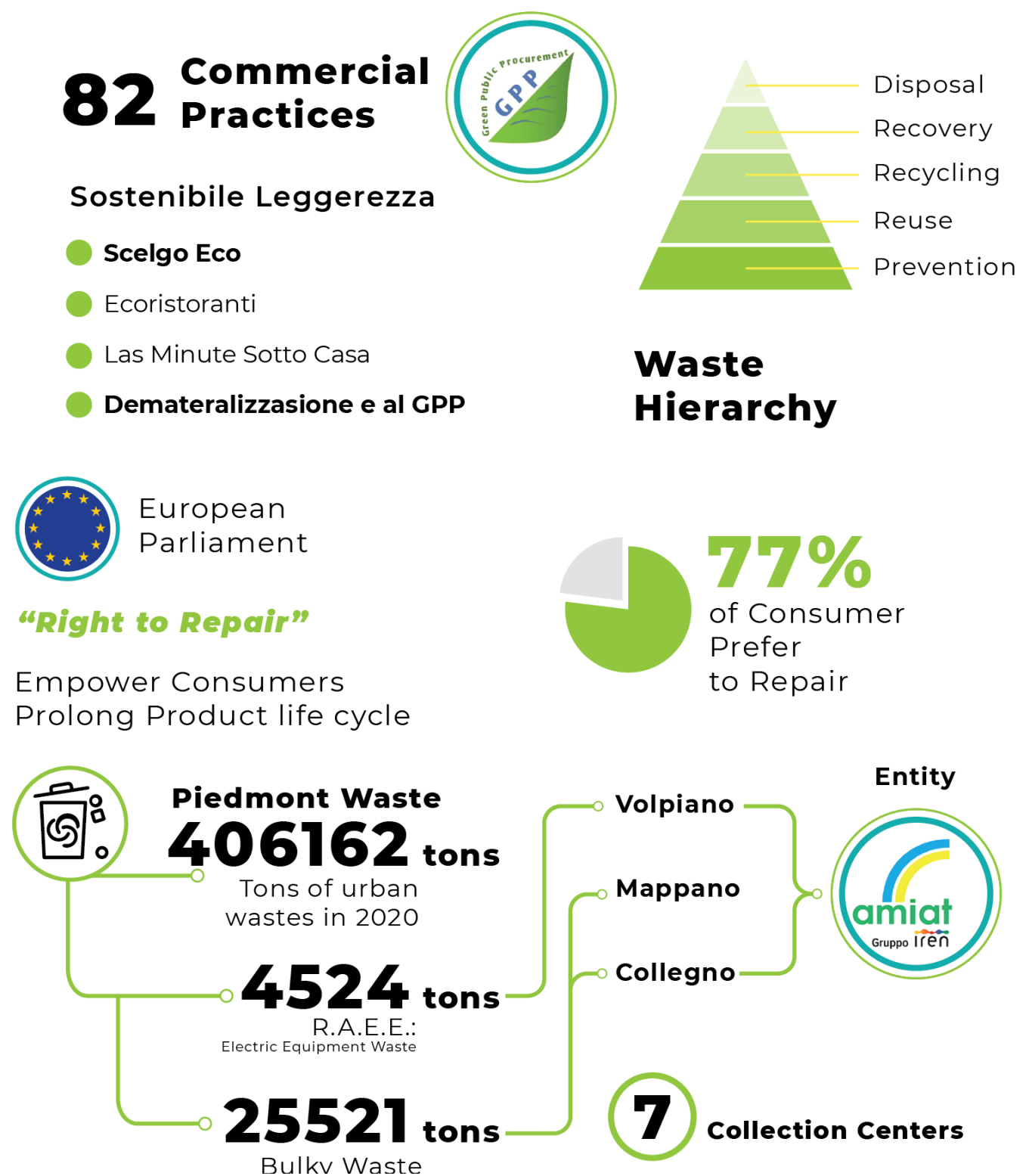


Figure 24.. Waste Management of Turin



6.6

Maker Culture

Makers culture or Makers movement pertains to a particular group of people who describe themselves as Makers. Many makers are hobbyists, enthusiasts, or students (amateurs!)—but they are also a wellspring of innovation, creating new products and producing value in the community. Some makers do become entrepreneurs and start companies. (Maker Movement - Maker Faire, 2013) it has become a global phenomenon and community well involved with the principles of open design and open source to which they have created their own maker ecosystem to which they’ve introduced new products and services thanks to the collaboration and ingenious ideas shared and the use of innovative technologies such as the Arduino microcontroller and personal 3D printing. It has made major breakthroughs in manufacturing, engineering, industrial design, hardware technology, and education. It is a considerable culture to take into account when dealing with consumer durables as some initiatives have sprung surrounding makers to deal with the repairing or innovation of old consumer durables; therefore, a more careful look is taken to the ones in the territory.

We start with FabLab Torino, a cultural association, a digital manufacturing laboratory, and a maker space. All of which proportions a fabrication laboratory (FabLab) for makers, in which traditional DIY meets emerging technologies like 3d printers, laser cut,

numerical control milling machines, and workshop spaces with tools. FabLab is a global association that makes part of the maker movement; therefore, many of the projects developed at one can be introduced as part of the market ecosystem created by them and be impulsed to thriving industries. The laboratory is permanently established in the post-industrial spaces of Toolbox Coworking. An innovative and lively reality, in continuous evolution, which turns out to be the ideal size to host the maker space. (FabLab Torino | Associazione, 2012).

Then there is Hackability which, as popularity goes, is the biggest one in the territory. Although it does not categorize itself as a FabLab, it is full of makers and embraces the open-source culture it comes with to creatively co-design new, customized solutions capable of improving people’s life, mainly people with disabilities, the elderly, and children. (Hackability | Digital Fabrication, Tecnologia E Design A Impatto Sociale, 2019).

Other smaller makers spaces in Turin are the future maker, which deals with workshops and the formation of young makers, mainly children, and Kubo lab Torino.

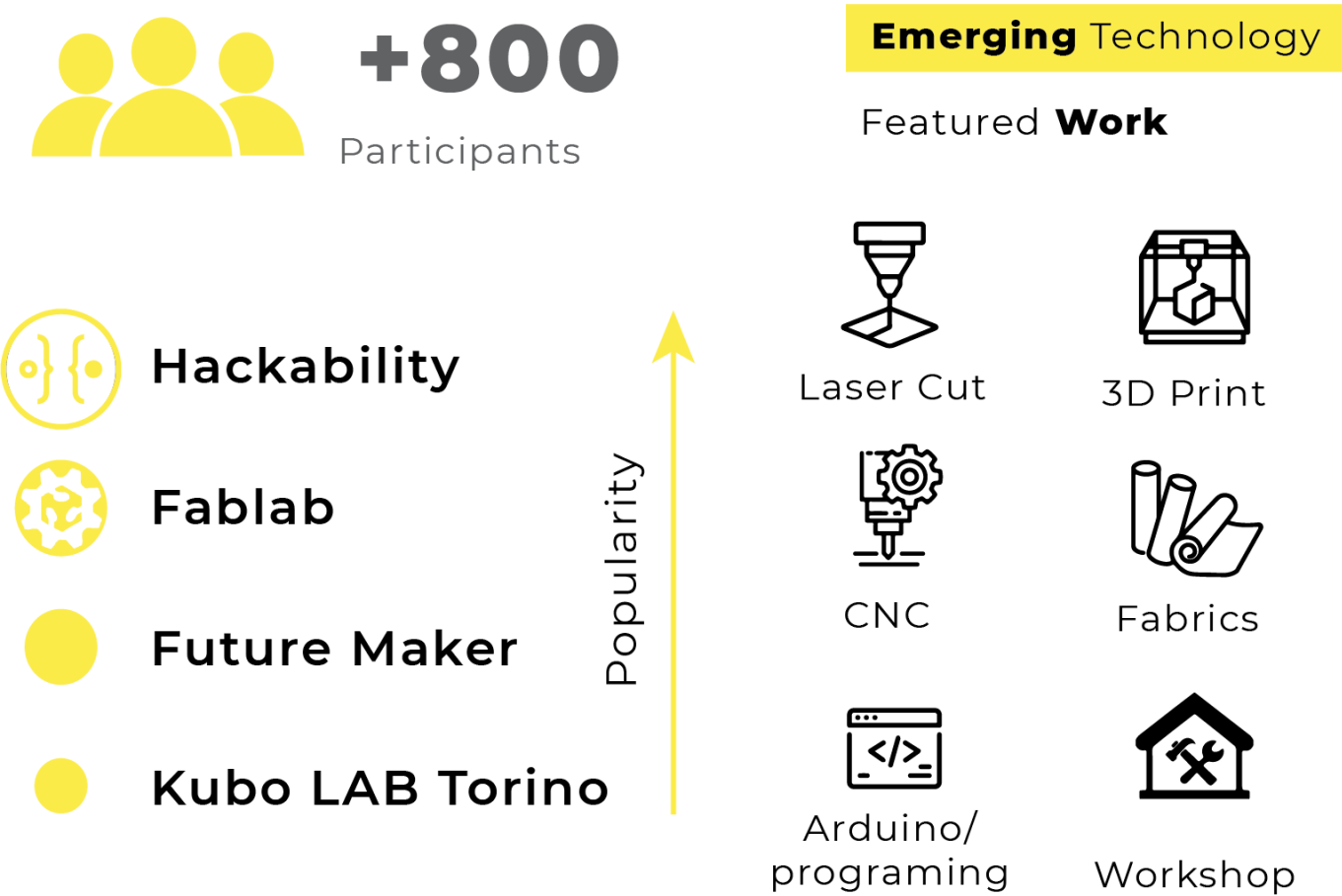


Figure 25.. Makers Culture in Turin

# 6.7

## Giga Map

The Giga map is one of the tools used in the systemic design methodology for data visualization. Although the data regarding these general aspects of the territory is vaster than the ones exposed here, here we show that which relates to the project to generate connections. This, in connection with the previous survey, allows us to develop a complex map of interconnections that show the point of entropy and opportunity inside the research. For the territory, many arguments can be taken, especially those related to the waste of consumer durables and their consumption in the area, as it is evident that Turin is a city with a thriving economy which has a particular investment in consumer durables, non-satisfy with this, the industries related to the production are also the ones shown to be of more relevance by the sample surveyed.

Even though the sample is a low percentage of the total young adult population of Turin, it draws a picture into the mind of the 10% of the population and, as expressed before, a critical point of the economy of a city, if dealt with properly this data can convey into the development of many opportunities that can reduce waste, impulse the economy, ease the stages for financial independence and guarantee a young productive population to the city. Of course, many issues are to be dealt with at a policy level since some of the connections between the issues brought forth are caused by the lack of control in some industries and markets that push low-quality items into the market with short life expectancies.

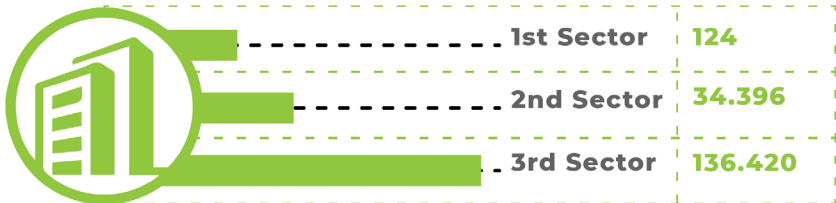
# The City of Turin

## In regards to Consumer Durables and the Young Adult

Nicolas Mondelli  
Politecnico di Torino  
Laurea magistrale Disegno Sistemico

### Economy

There is a total of **170.940** Enterprises



#### Industries related to the making

Computers/ Consumer Electronics	902	Metal	7263
Clothes	1296	Plastic	1111
Furniture	738	Wood	1188
Appliances	885		

### Consumer Durables Sector

#### Industries related to the selling

Neighborhood businesses	218
Medium structure	68
Great structure	10
Shopping center	26

Household Shops **145**

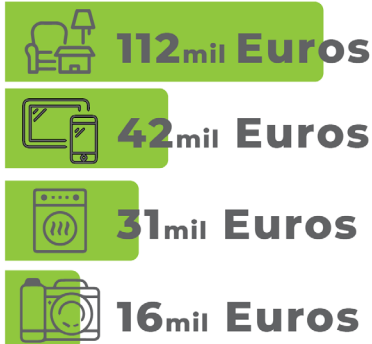
**#5** **+13.5%**

#### In consumer durables Acquisition in Italy (Piemonte)

1. Lombardia
2. Lazio
3. Veneto
4. Emilia-Romagna
5. Piemonte

**3075 Euros**  
356 more than the average Italian household

#### Market Dominance (Piemonte)



**#1** **Turin**  
city in durables Acquisition

**+14.7%**  
higher than the National Average

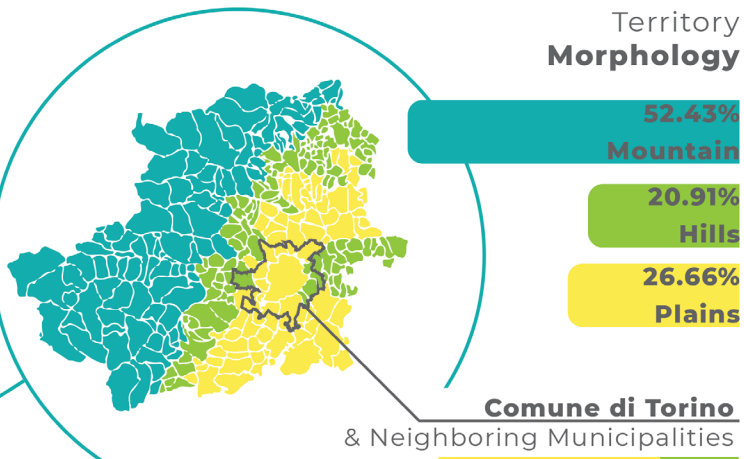
**1 in 10**  
Willing to pay more than **10%** extra cost (sustainable Products)

### Geography



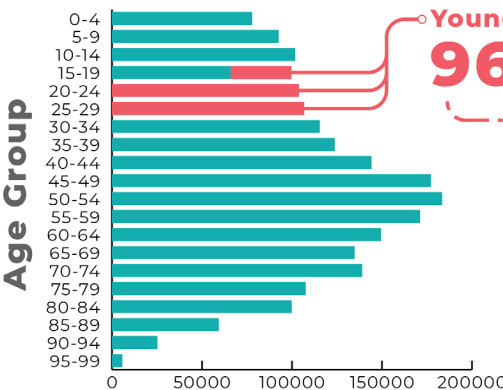
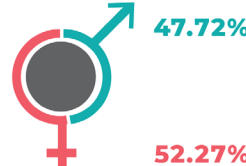
Total Surface **130,2 Km<sup>2</sup>**  
Elevation **239 m.s.l.m.**  
Municipalities **8**  
Neighborhoods **34**

### Territory Morphology

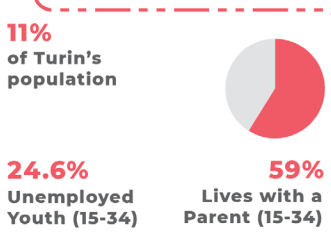


### Demography

How many people **847,287**  
**68.1%** Employment rate  
**95%** Instruction level



Young Adult **96.806**



### Waste Management

#### Sostenibile Leggerezza

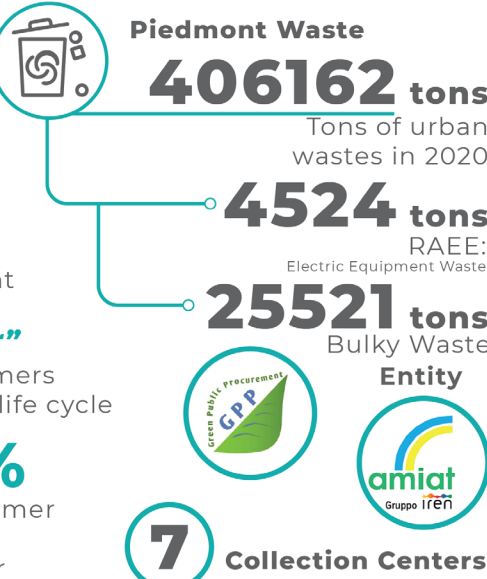
- Scelgo Eco
  - Ecoristoranti
  - Las Minute Sotto Casa
  - Dematerializzazione e al GPP
- 82** Commercial Practices

#### Waste Hierarchy



**"Right to Repair"**  
Empower Consumers  
Prolong Product life cycle

**77%** of Consumer Prefer to Repair



### Makers Culture

**+800** Participants

**Hackability**

**FabLab**

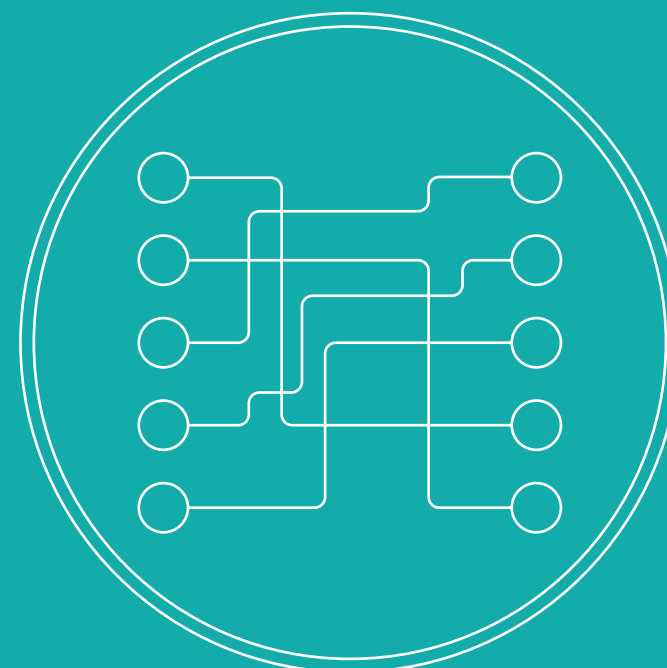
**Future Maker**

**Kubo LAB Torino**

**Emerging Technologies**

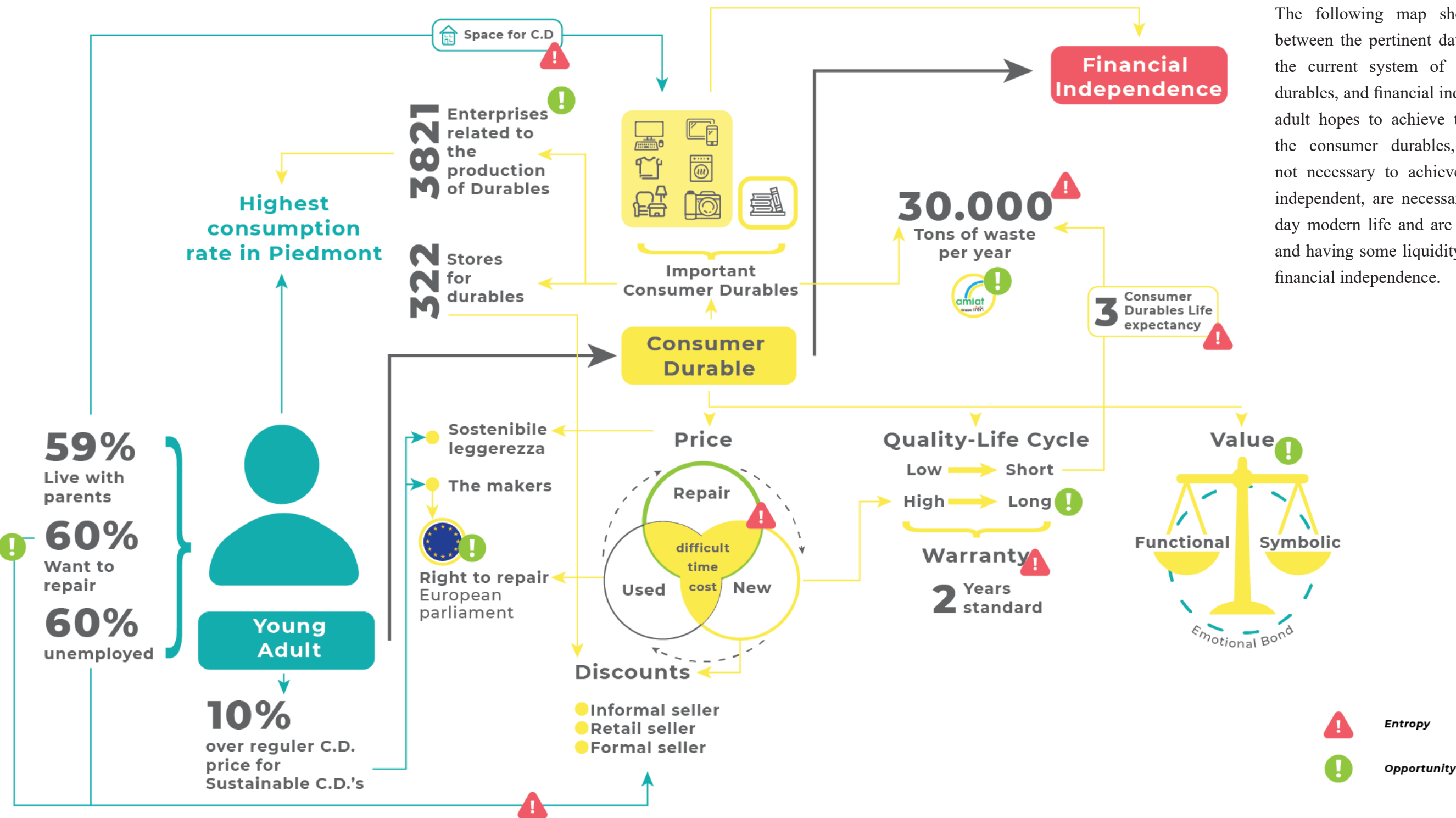
# Challenges

## Chapter 7



7.1

Visualization of the Challenges



The following map showcases the connection between the pertinent data collected that generate the current system of young adults, consumer durables, and financial independence. As the young adult hopes to achieve this, a tool is presented, the consumer durables, which, although it is not necessary to achieve the title of financially independent, are necessary objects for the day to day modern life and are a tool for storing wealth and having some liquidity later on in life maintain financial independence.



7.2

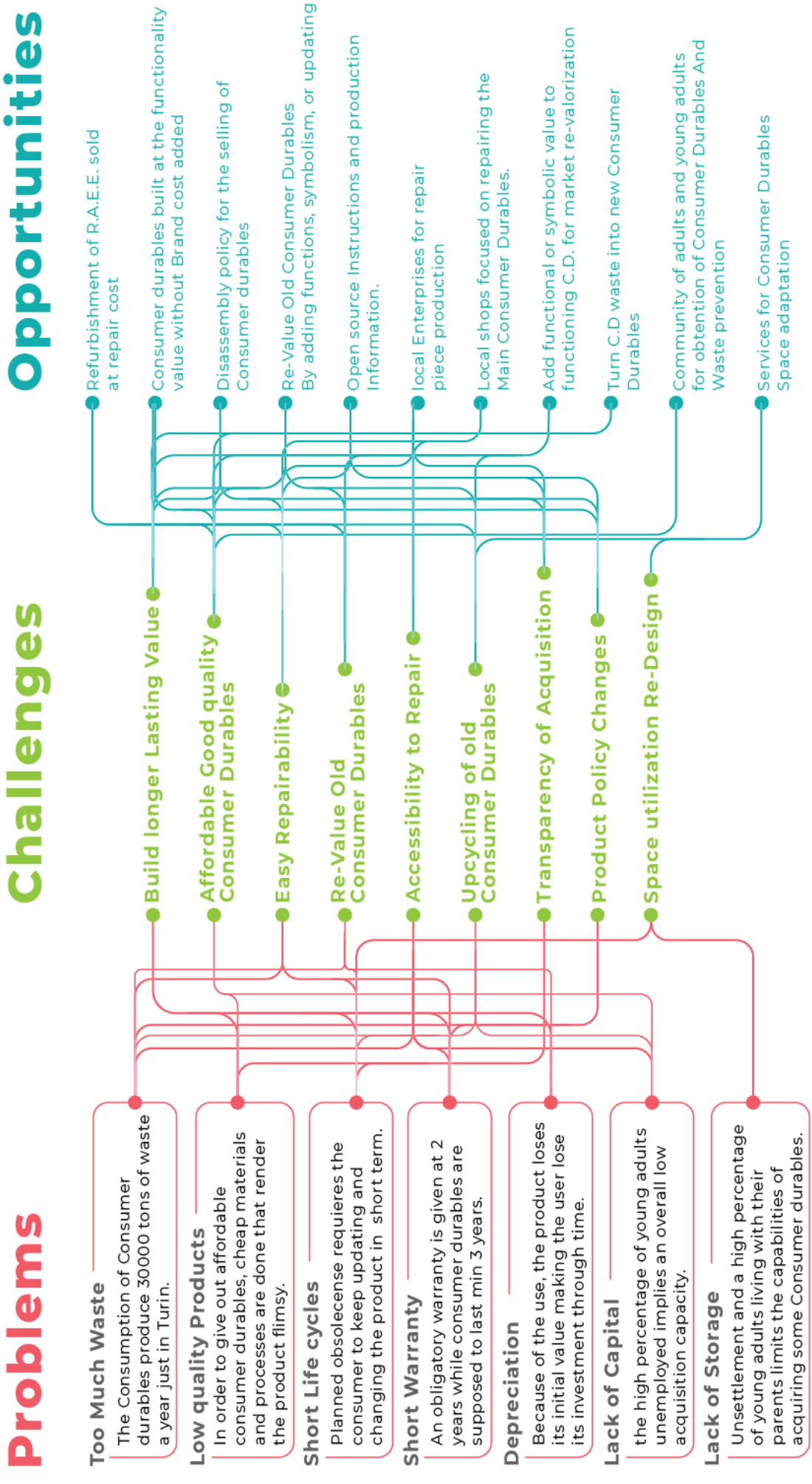
Problems, Challenges & Opportunities

The current systems propose many problems to deal with, many relating to the consumer durables themselves and the way the economy and fast fashion have shaped their consumption and, therefore, their production. Young adulthood is when the acquisition of these products starts, this is a group that has increasingly faced with more and more economic adversity during the years as for the last 20 years; the economy has been hit time and time again with crises, recessions, devaluation, and inflation. Nowadays, there is a high population of them living with their parents; therefore, a lack of space for new consumer durables, are in their vast majority unemployed a lack of capital, and which they can buy have to be balanced between four aspects: Value, Price, Quality and warranty.

As young adults look for consumer durables, they add value to them; their need creates functional value with the durables as it is the use of it that is really acquiring; some of them present symbolic value and have a particularity that of which can survive depreciation, but because of how the market works, most of them are sold merely by function. Then comes the price, to which there are different levels. First, we hold out for repairing, then comes new or refurbished, and finally, we opt for used, separated by the variables of time, cost, and difficulty. After that choice, you come to terms with the quality and the warranty offer, as they are the last aspect to

consider in the acquisition decision. All of this has generated a system in which, because of the lack of capital and the need for these products, the young adult search for functional, low-price, new and low-quality with almost no warranty objects, that at the end of 2 to 3 years will become waste when durables are supposed to last more than that.

Of course, there is still a market for high-quality products with extended warranties, mainly for those with financial independence, and there are the fashion and stock factors that drive huge discounts on high-quality goods, which only accelerate the depreciation of young durables, as more new items enter the market into low prices the old ones are compared to them. These factors generate in terms challenges and opportunities to take advantage of the purpose to thrive for more accessibility to repair, new policies, re-valorization and longer lasting durables can be done and still help the young adult achieve its financial independence, as the figure on the right showcases the interconnection between problems, challenges, and some opportunities.





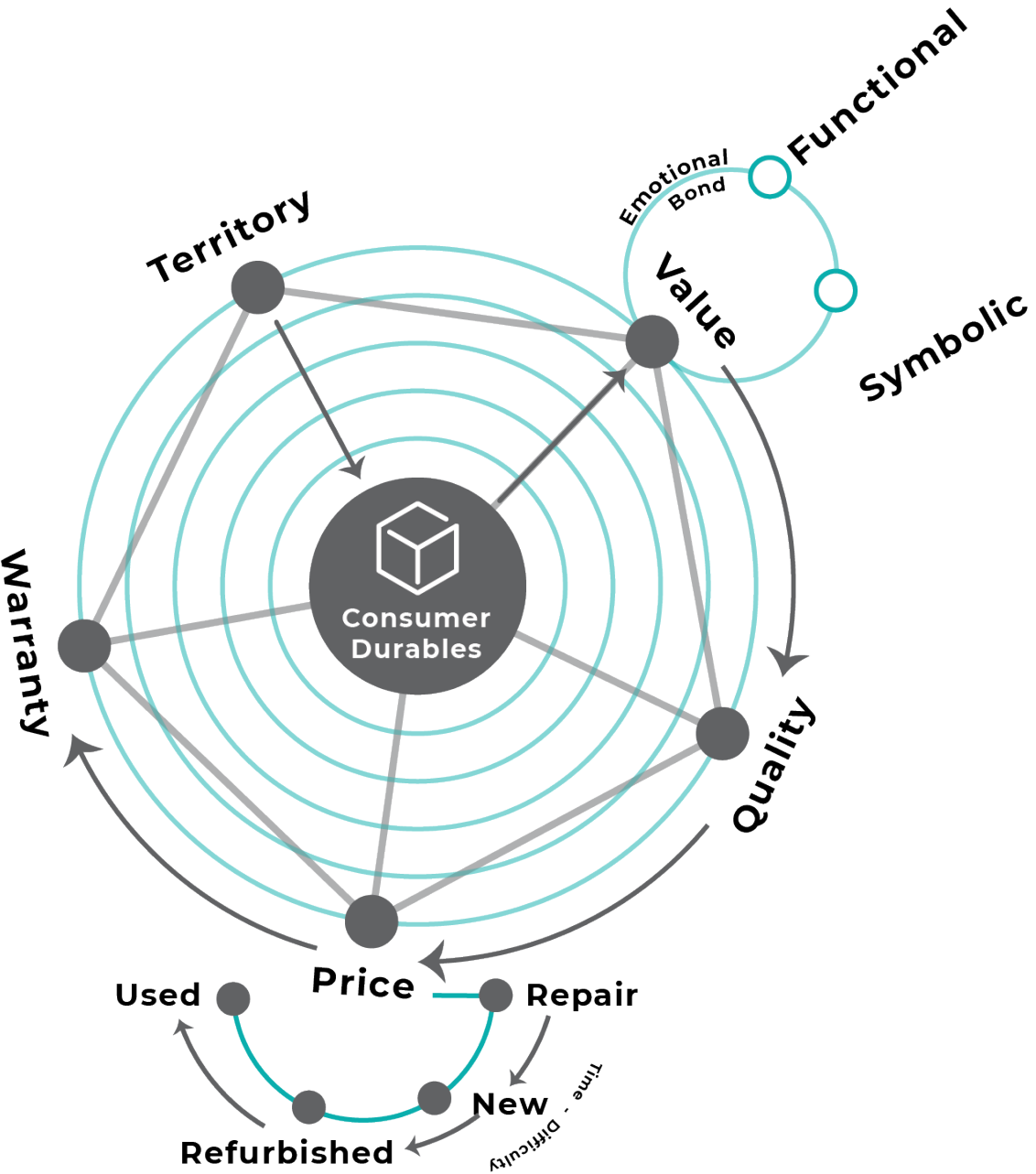
7.3

Opportunity Matrix

As some opportunities can be generated in the correlation of challenges drawn from this study, this does not mean they are unique not all of the possible outcomes of the research so far. As mentioned at the beginning, the purpose is also to provide this data for new opportunities to arise. As exposed, the existence of some of these issues has been addressed in the past as it pertains to the nature of our need for a sustainable future and the constant initiatives to establish some sort of circular economy; therefore, many opportunities have been developed around some of the challenges. In line with the objectives settled at the beginning, this data can be used in order to evaluate the case studies of possible solutions to the problematics. Therefore we look into the problem to design a matrix for evaluating any case study that pertains to an opportunity related to these issues.

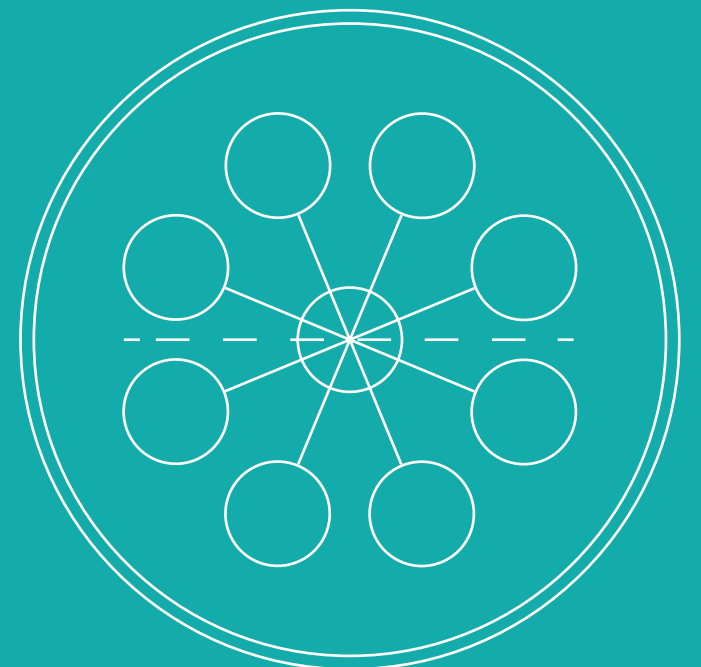
The matrix consists of a radar chart that exposes five main issues surrounding the consumer durables presented in the opportunity, yet it follows a flow, first starting with the territory, as it should be the parting point for any systemic project to settle a strong, sustainable base, passing through to value, that as mentioned before, is given before the moment of purchase. Passing on to the quality of the product/service, then to the price, which is evaluated differently depending on what the opportunity suggests as buying new not necessarily

generate an issue as long as the price is in line with what the young adult can afford, as to remember that the evaluation is oriented to the young adult and the obtention of such products. The four levels start at repairing as it should be the priority (according to the prevention of waste and the right to repair) passing on to new, which are the preference and the settlement for new wealth in young adults, later going to refurbishment and finishing at used. Last but not least, the warranty, which is the guarantees and policies around such services, and if they go in line with the goals set by the Right to repair.



# Case Studies

## Chapter 8



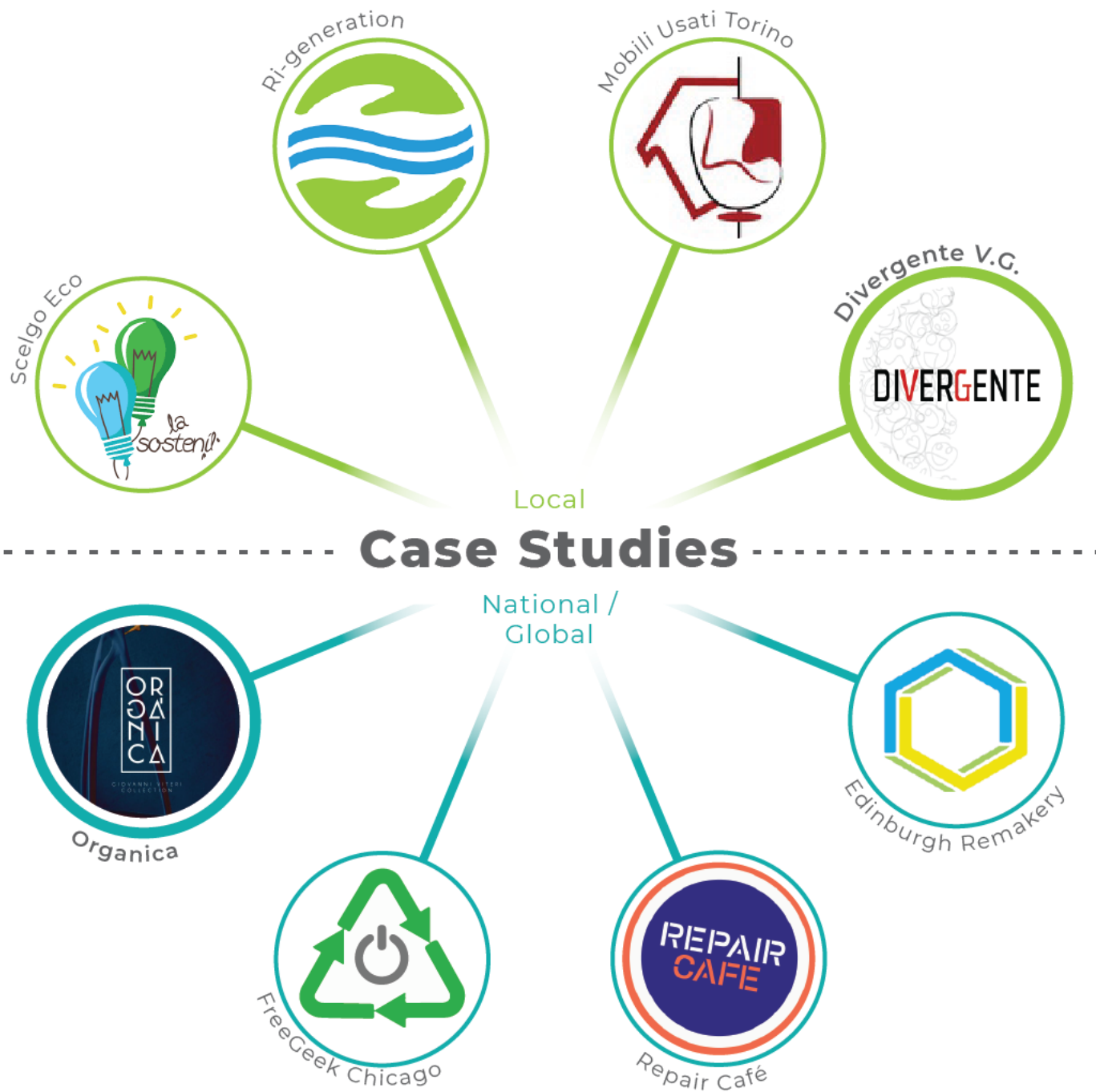
At this stage, the search for case studies related to the thesis needed its own delimitation. The first step was to evaluate some “state-of-the-art” at a global level and then dive into what was being done locally as a border view can help determine if there are solutions that could be put into place and, if so, why they are not yet implemented. Once the global cases were found, we recur to looking for similar projects that could enter the matrix of the study. In the end, four cases were proposed for local and non-local case studies. For the purpose of a fair evaluation, all case studies were studied before evaluation so as to hold to the same level of standard, and in some cases, some economic evaluations were done to the ones who could give some market comparisons, which are found in the local case studies. In one instance, an interview was granted to understand better the challenges encountered by this type of opportunity when tried to be implemented in the market, which gave a deeper understanding of what to take into consideration when developing a future project.

The following case studies were proposed for the local case study:

- ◆ Ri-Generation: Refurbishment of R.A.E.E and selling of them
- ◆ Mobili Usati Torino: Resell of used Furniture at competitive prices
- ◆ Scelgo-Eco: network of waste prevention
- ◆ Divergente VG: Revitalization of old cloth

The Non-local Case studies are as follows:

- ◆ Repair cafe: Workspace for volunteer repairs
- ◆ FreeGeek Chicago: selling of recycled electronics
- ◆ Edinburgh Remakery: diverting waste by repair and reuse
- ◆ Orgánica: revalorization of furniture



# 8.1

## Local Case Studies

### 8.1.1 Rigeneration

Ri-Generation, as the name describes, is a commercial activity related to the regeneration of washing machines and dishwashers that have been discarded by their respective owners or, as mentioned in the paper, an R.A.E.E.

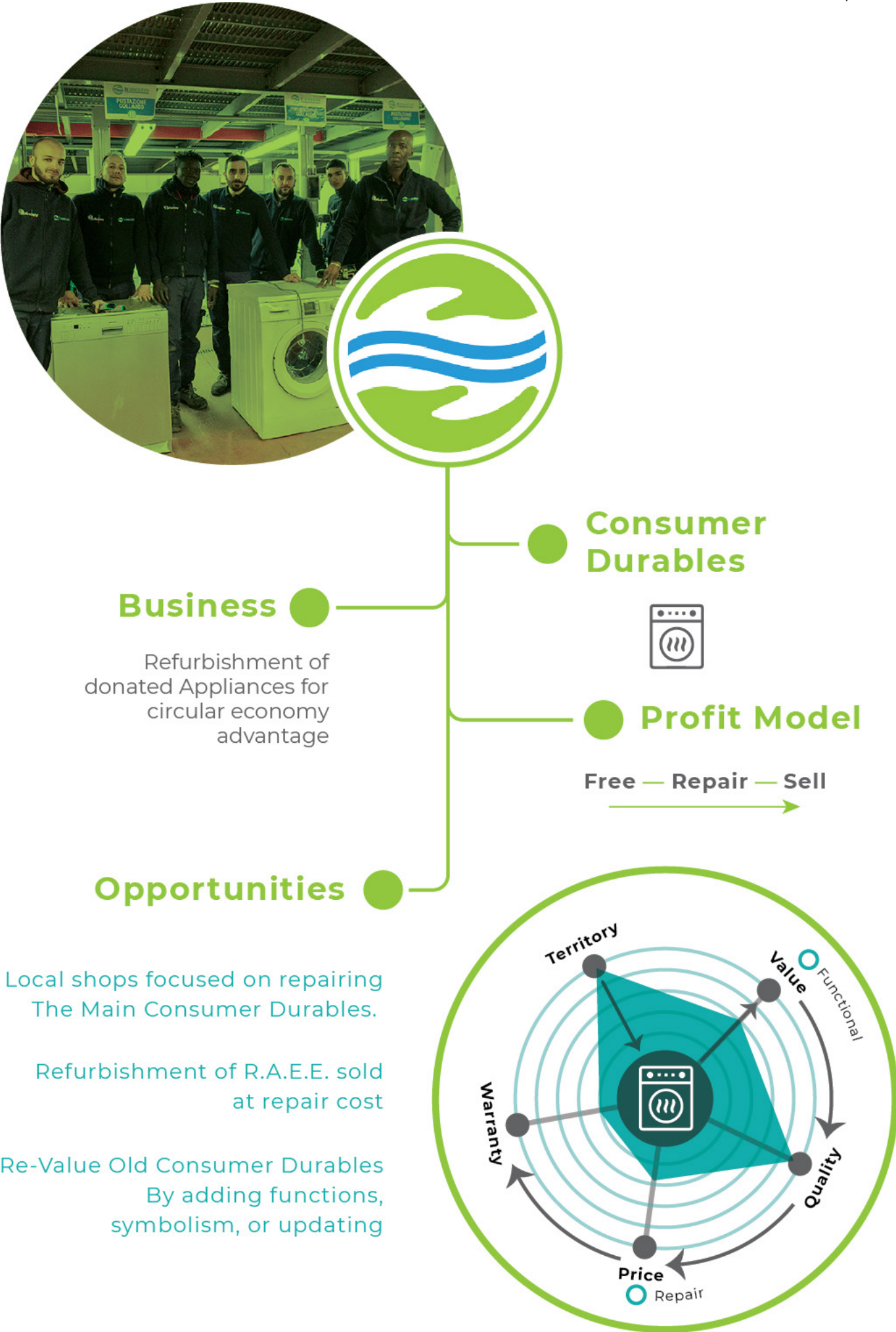
It practices a Circular economy as what was once considered waste that would have ended up in a landfill, taking away from the production sector valuable recyclable materials and generation cost and pollution, can now be repurposed into new life cycles.

The way these practice works is by generating jobs for otherwise outdated technicians and looking out for discarded goods inside their niche of products, mainly looking for donations from former owners rather than digging through garbage, as it makes their process easier. The contribution is rewarded with a green certificate, and they do have policies around what they can accept, like the functionality of the device to recent before the donation and less than ten years of use (important note for the warranty policies). After all, the device is put back in operation and resold at what they claim to be “advantageous conditions”, which they claim help “the less well-off groups, both temporary residents for work or study reasons, both families born from

cohabitation, and second homes, etc, etc.” (Ri-Generation, 2022)

Their collaboration with local stakeholders generates a very grounded and socially sustainable practice that focuses on the territory, yet other aspects of the problem with consumer durables rise up when looking into the economic aspects of the equation. As said before, these play a huge role in the production of the product since they can drive the price of the product and ultimately make being sold. As they relate to any kind of dishwasher or washing machine, they are limited by the initial quality of the appliance donated, which with their good crafting techniques, can leave the product at its original state, making the quality of their end product at high levels.

The value, which, as expressed before, refer to that which we give the product even before the acquisition since it is our need for it that generates it, is drawn backward by the other components. As it is not an already possessed object, your emotional bond has not been generated, and your value to their particular products falls into the functionality, which again is not consistent because they relate to the stock they might have at the moment, yet they do generate value at some point for the individuals. Now when dealing with pricing, we fixate on their claim of “advantageous conditions” and went on





with market research in which the initial price of the good being sold can be found by the formal seller, at a next price, and what the market has to offer (in the territory) being new, use or defected. This lands their evaluation for pricing at such a low place since, compared with the retail sellers, their prices are no longer competitive. Yes, the product might have a green consideration, but as expressed before, people are not willing to spend over 10% of what the market offers, which in these cases happens, or at least it happens to some of them. An LG washing machine, with an enormous amount of features, when compared across multiple platforms (maintaining the same model through the platforms), yielded a disadvantageous condition for purchase, yet the case does not represent the whole picture. In the case of the SanGiorgio washing machine, the most advantageous price was found to be ri-generation, which was considered since it was the lowest price on their platform. With this in mind, many factors come into play, including the inconsistency of the products that can be offered and the proper offers other sites might have at the moment.

Many sellers drive up their earnings and stock management through discounts, which is the case for these appliances, so in some cases, you might get the cheapest option at ri-generation, which, although it doesn't consider a discount, does have the capability of offering lower prices since they gain by repairing cost and not retail or production costs, and in other, the retail stores can be the obvious choice, it all depends on what is being donated.

At last, we talk about warranty, as previously stated this is a big issue, as these kinds of products must last more than three years as they are stated to be durable goods, and in particular with appliances, their life cycles is around more than ten years, which

is why when bought directly from the producer, which is the highest price in both cases, you get a correspondent warranty of 10 years, yet all the others offer at the most two years, and ri-generation even does so at 1-year warranty with some of their products. Leaving us with a low qualification since it either means they can't guarantee their proper functionality for more than the time proposed or, because of liabilities and earning purposes, prefer not to offer a longer warranty. Needless to say, all the prices and data were obtained from the correspondent sites of Unieuro, Ri-generation, PrezzoForte, LG and Sangiorgio during the month of august of 2022.



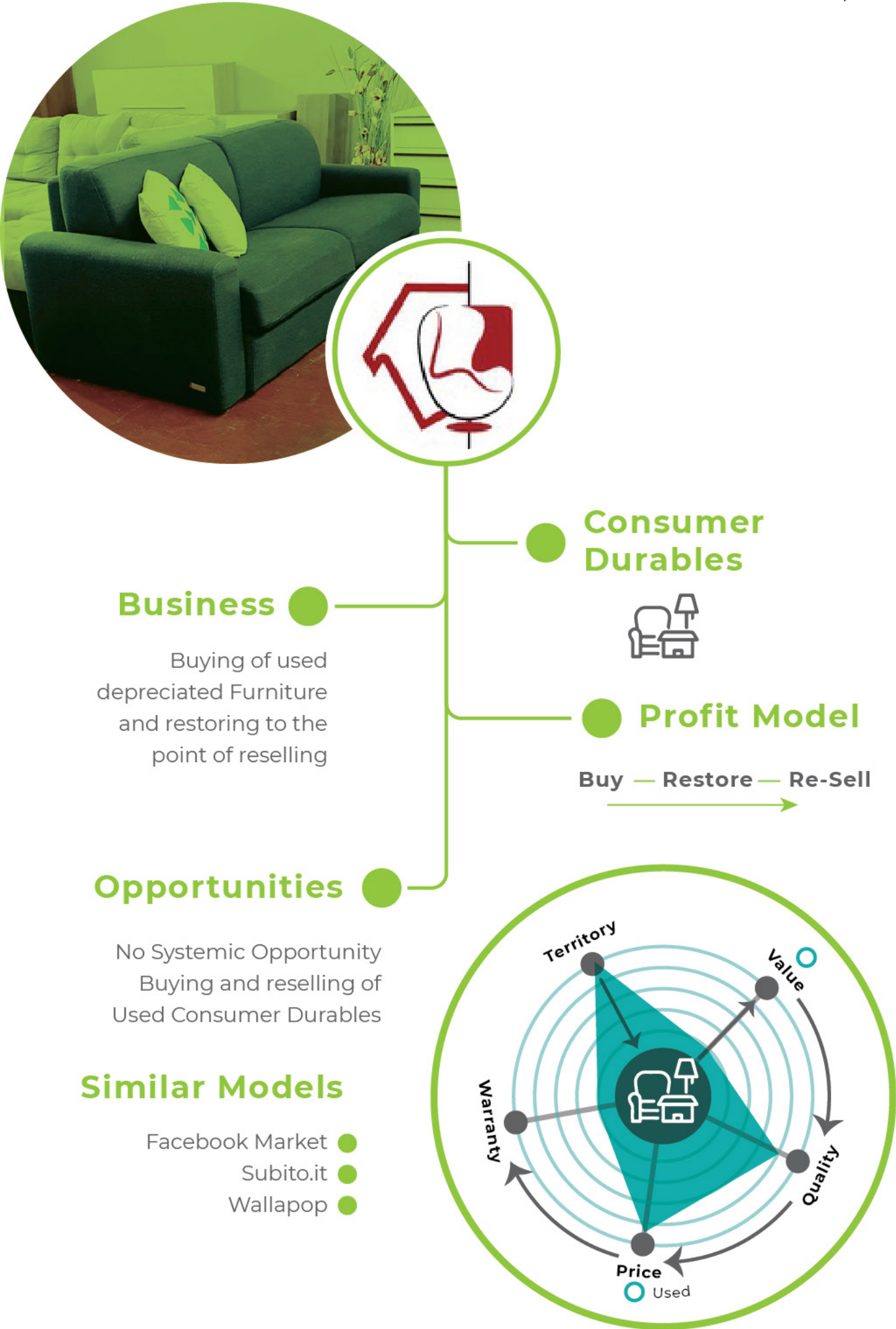
8.1.2 Mobili Usati Torino

Mobili Usati Torino (Used furniture in Turin) is a physical and digital commercial practice where people from the proper city of Turin can “find furniture in excellent condition at very advantageous prices, much lower than those imposed by the sellers of new furniture, discovering the advantages of this new way of furnishing the house is easy and safe.” (Chi Siamo :: Mobili Usati Torino, 2021) a proposal encouraged by their opening statement of the current state of the economy, which leads to fewer resources for acquiring this kind of objects and that sometimes the need becomes imminent to which you can not wait for discounts. They pitch a problem very similar to the one that has been analyzed, proposing an opportunity for people with lesser resources to acquire the durable good they need, proclaiming high quality over them. This covers three huge aspects of the evaluation matrix as their prices are lower than those of the sellers’ counterparts, they obtain high-quality products (but it is necessary to note that it also fluctuates on what they are sold), and do deal with territory problems.

The way they obtain their stock is by appealing to those who either have lost the value of their furniture (being an emotional bond) or do need to get rid of it because of reasons of space or renewal. With this, they ask for pictures and technical details

for which they propose a selling price that is agreed upon, the store takes care of the collection of the item, also clear to note that they ask for the location to guarantee local market but also to save up on transportation costs.

At this point, it portrays a good local initiative to prolong the life cycle of furniture, yet it begs the question, what is the real market value of the product they are selling and if it helps in the quest for financial independence for someone like the young adult. As established by them, the practice helps those who need it and are in a thight economical spot, which fits the bill for most young adults as expressed in chapters 4 and 5, but it is not clear how it might help the achieving of financial independence. As previously stated, depreciation plays a huge role when acquiring these products since these are liquid assets that can be sold later on in order to obtain needed capital and the reason for this is that value is lost through the use of the product. So we present an example found on site, a Poltronésoba Sofa-bed that seats 3, a recognizable local brand found in a used furniture store. At first glance, the bargain it presents is appealing to anyone looking for a cheap, high-quality solution, yet an analysis is done to really calculate the true value. As its counterpart presented at the formal store, poltronésoba, was on the discount we took the retail price of 908 euros (a 50% discount) and also the original price, with





this a depreciation chart was done through the years to compare it to the price given by the case study in question. The Sofa-Bed has a depreciation rate between 7 to 15 percent depending on the duration of its life cycle, which in this case, is connected to the duration of the product (When Should You Replace Your Furniture?, 2018). Yet the way it is calculated is presented as such: 20% for the first four years, and later it becomes 5% for the following years (How to Calculate Furniture Depletion, 2020).

With this calculation, we were able to establish that at the minimum, the product being offered was around seven years old, which implies it can be at the end of its useful life cycle, and for it to actually be profitable, it had to be bought at a lower price, meaning either they propose wrong values former owners to obtain products with remaining useful life cycle, or they bought it at the real depreciated price, meaning the sofa-bed is probably older than seven years.

All of this proposes a conundrum, if I am a young adult who needs the product but is looking for it to help me in my financial independence, would it be a smart choice to buy a product that, even though it is high-quality, would either last me as a low-quality product. Add to this that when the moment of liquidation comes, the sale price would be even lower than that of the depreciated calculation of your initial purchase. Add to this the fact that by

being an informal seller, they can't guarantee any kind of warranty.

The case study does present the opportunity for the obtention of good quality product for someone like the young adults but presents a dilemma when dealing with it actually helping him achieve financial independence, bringing forth a consideration for future opportunities, how does your opportunity deal with the depreciation in order to maintain liquidity or even gain it.

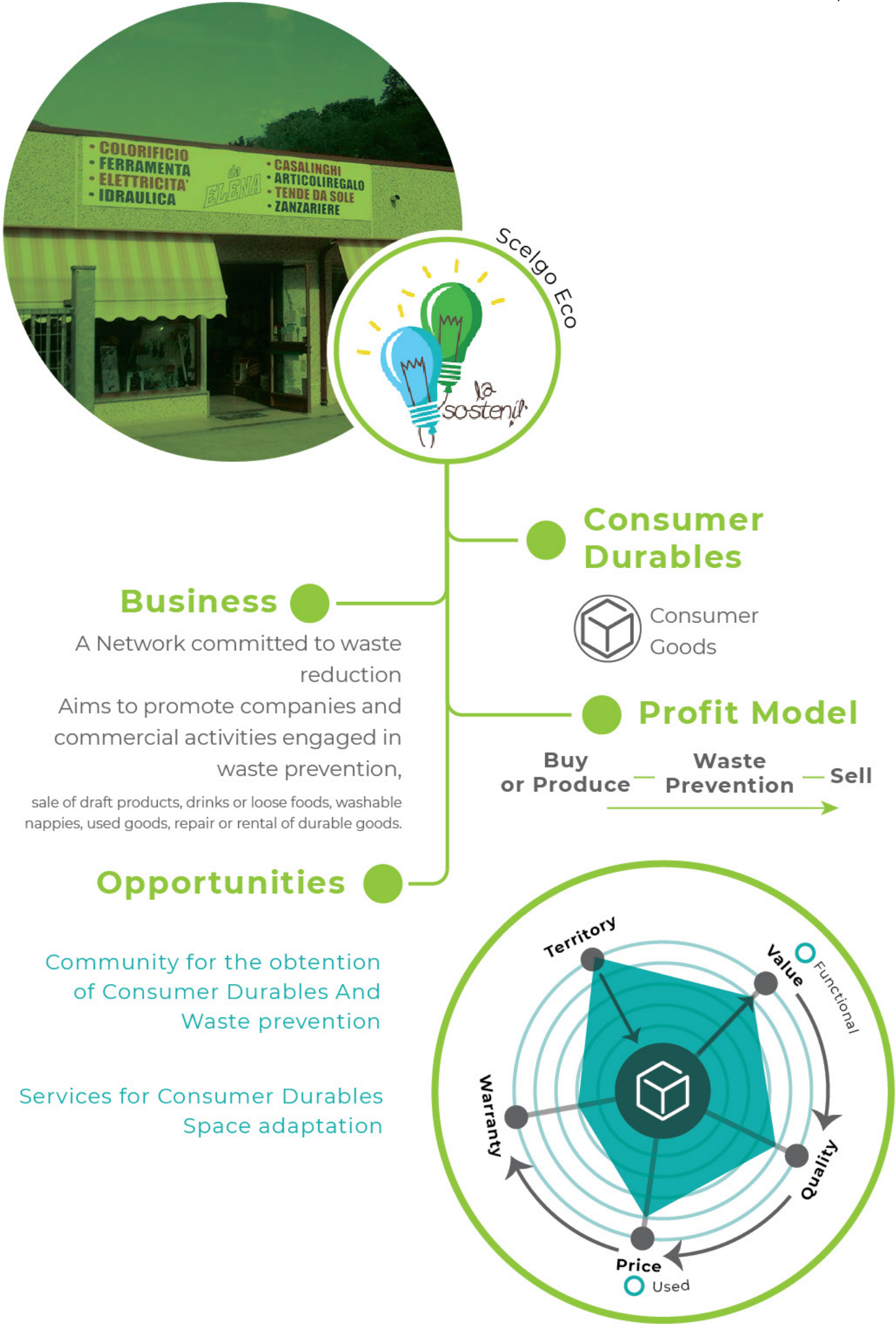


8.1.3 Scelgo Eco

As one of the problems regarding this study relates to waste, it is not uncommon to see initiatives that focus on this topic since, as previously explained, the European territory has been adamant about the sustainable future of its countries. This has led to the development of many programs to reduce the amount of waste produced and create the waste hierarchy pyramid shown in chapter 6. The issue not only works at an international level, but countries and even local communities have been dealing with this for years. This is the case for Consorzio Cisa, a Basin consortium established pursuant to L.R. n. 24/2002 to which the government manages the urban waste of n. 38 Municipalities.(CISA - Consorzio Intercomunale Di Servizi per L'Ambiente, 2022). As the year progressed, many solutions and programs developed, one of them being “la Sostenibile Leggerezza” which is the agglomeration of 4 smaller projects done in the year 2017. Many of them relate to the management of food waste as it is an important issue, and one of them deals with the product base waste called Scelgo Eco (Choose Eco). It involved 50 businesses that are committed to waste reduction: the network aimed to promote companies and commercial activities engaged in waste prevention through the sale of draft products, drinks or loose foods, washable nappies, used goods, and repair or rental of durable goods. (Ciriè (Torino): 82 Esercizi Commerciali Del Territorio CISA Scelgono La “Sostenibile Leggerezza” - ECO Dalle CITTA', 2017).

The way it helped reduce durables waste was by the usage of its network of businesses to promote repairing, upcycling, and the buying of used products. As it also relates to the promotion of products done or with the stamp of being eco, it also tried to give the public access to repairing to reduce this kind of waste.

As evaluations go, promoting repairing means prolonging a product that might have a high emotional bond and value. Quality and price are affected as the more technical it is, the higher the cost and difficulty, so it might vary, as well as the quality of the repair center. The only guarantee is coming out with a working product at a relatively low repair cost. As consistency goes, even though a good network was generated, the perduration of this project lasted so little; as it might be the cases with small government initiatives, they are subject to trial and error, and as it does not relate to a direct earning to the stakeholders involved, some initiative is left behind, which is linked to the warranty, non can be offered since there was no one establishment responsible or able to assume responsibility, nor was the consortium in the position of giving it.





8.1.4 Divergente VG

It is a local initiative born out of a hobby. As the fashion for used and vintage clothes has become a trend in the current market, and the importance of recycling, upcycling, and green/sustainable options are recurring issues, it is not unusual to see an opportunity rising from it. As reselling used items still helps the circular economy and prolongs the life cycle, it could be seen as a sustainable opportunity ad in itself, yet we are dealing with young adults' economy. Normally the resell value of used clothes is really low, as it has a huge depreciation rate to the constant usage of this kind of items. Used clothes markets pop up every now and again in different communities, but they relate to more vintage items or high-quality gems one can find in this kind of places since the trends for fast fashion have led to the production of a huge amount of low-quality items that normally don't live the chance of being resold as used do to the easy wear and tear.

Divergente starts as a hobby of the founder. As the need for sustainability in this world becomes a more urgent matter prolonging life cycles is a reasonable option; what is more, add a creative person with this medium and art can be created. The activity started as a personal activity in which she modified her old clothes or even old clothes from friends and acquaintances most of the time for her, but as the product took to a liking for the people around her, she started modifying other people's cloth. It was then implied it could become a business, to which,

with the help of other friends, the activity has been growing. The brand has even collaborated with local initiatives in which clothes are given new life through personalization, yet nowadays, they mostly fall back to Instagram selling and local fairs that pop up.

The initiative has great promise to help the young adult acquire good quality durables that actually acquire value and is sold at good prices, yet much-needed market studies are of the essence in order to push off into a real business as the current procedures do not guarantee a consistent input nor viable earnings. The activity relates to either donating clothes or very low price items that are sold at the cost of work labor by the artist and the materials used, adding the initial cost of acquisition if needed. The market can be shifted thanks to the high-quality novelty items of luxury brands that are sold at cheap used prices because, in the end, the connotation of the final product is being sold as a used item. With the value art can give to these pieces and the opportunity for repairing the initial canvas/ clothes, the product could achieve good market competition and be a great local opportunity, yet is their lack of establishment, market knowledge, and capital investment that are keeping them behind, as it also reveals a lack of warranty that legally only formal sellers can provide.



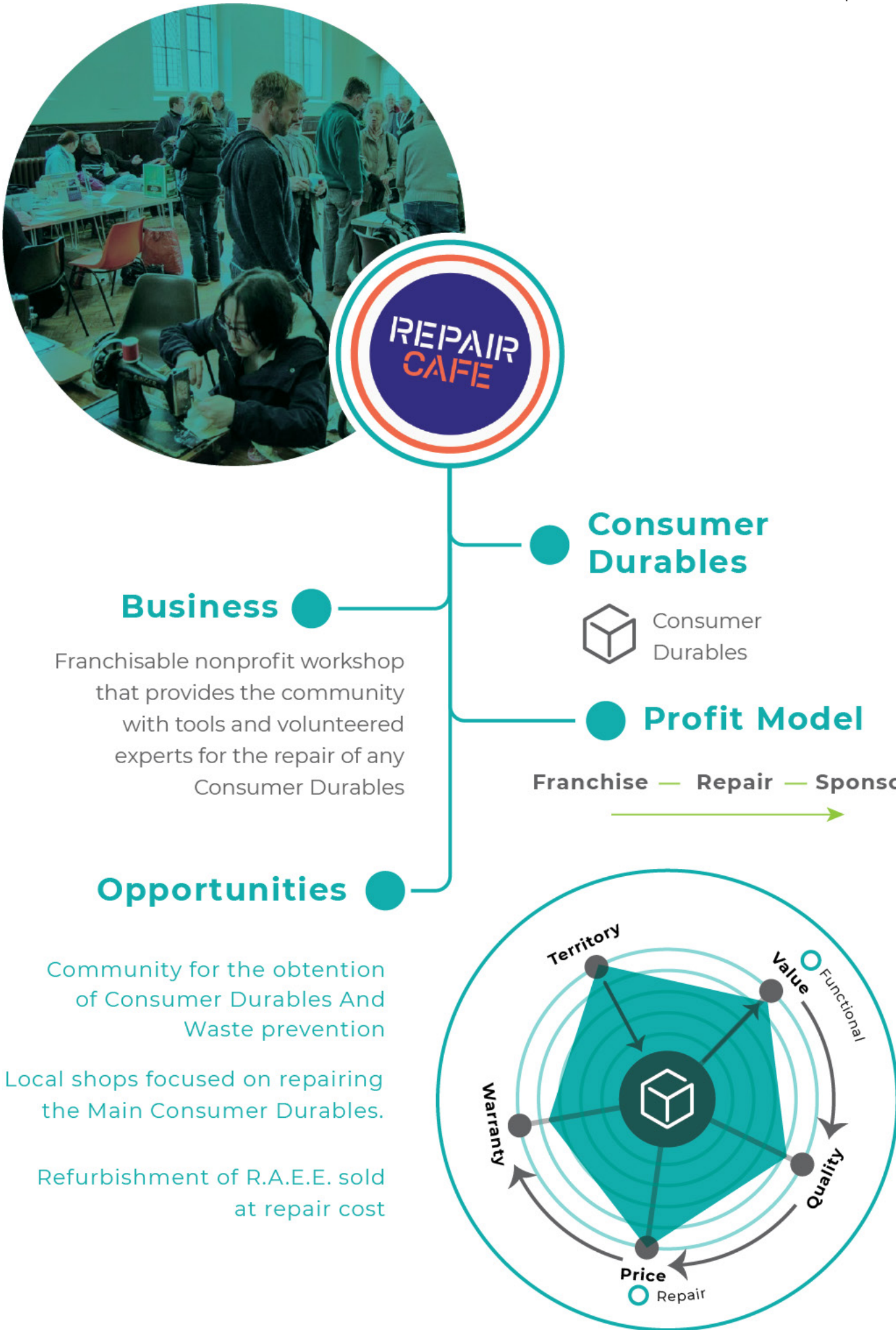
# 8.2

## National & Global Case Studies

### 8.2.1 Repair Cafe

This first international case study brings up a common system and modus operandi of many international opportunities surrounding the problematics. As the name implies, repairing is at the core of this activity, and it has been proven to be of great help in communities to prolong the life cycle of durables. Repair Cafés are free meeting places that generate a community surrounding the repairing activity. They are franchisable spots at a cost of 49 euros per inscription, which allows you to use the brand and be registered on their official site in order to create awareness of the existence and start providing repair for your local community. This place has to have the tools and materials in order to help others to repair: clothes, furniture, electrical appliances, bicycles, crockery, appliances, toys, et cetera. This is accompanied by the help of expert volunteers with repair skills in all kinds of fields. The way it works is through local donations and sponsors inside your community to provide a free service, as the franchise works as a non-profit foundation. The general objective is not only to repair your item but to generate awareness and teach the user how to repair it. This makes a great connection to places where the maker community is active, as many of them are mixed with open-source culture and are good handymen which can lead to collaborations. This kind of gathering is not strictly for those who need repairing as it tries to generate

a community, so people are allowed to come and learn, enjoy and help others. This is not a permanent activity as the funds for these gatherings are limited by the pocket and sponsors of the franchise owner; even so, it does have a regular consistency of activity and allows a free market in which it does not overshadow the local repair business, it actually drives forward that part of the economy. As evaluation goes, the values are strictly connected to the territory by the community, the sponsors, and the places. In terms of value, it provides the prolongation of those items to which you have an emotional bond. In quality, it is subject to what the franchise owner can provide; as these are pop-up events, many places do not have a great extent of tools needed for some repairs, so the quality and possibility of repairing some things are limited. In terms of price, there is no discussion; the service is provided free, and there is the whole side of the donations and sponsors, but as events come, they give back to the community, and in terms, they obtain deductible taxes due to it, a win-win situation. This is connected to the warranty, as they can not offer an official warranty; this section is mostly related to the consistency of the events, as by being free and existing, it allows you to come back as many times as needed to repair your item, of course under the advice of the experts and the actual duration of the durables being treated, it is only subject to some criticism because they might not pop-up at the time of need.





8.2.2 FreeGeek Chicago

Going along the last topic, FreeGeek Chicago provides a service to its community, which the name clearly denotes as the city of Chicago. It was a not-for-profit community organization that sold and recycled desktops, laptops, and computer parts. Its motivation comes from one of the problems in waste treatment which is the R.A.E.E section, as these electronic components can be recycled and put into good use.

FreeGeek Chicago did most of its work with volunteers, who disassembled and tested the components, which were either recycled as electronic scraps or reused in refurbished systems. (Freegeekchicago.org, 2022)

As stated before, it was a not-for-profit organization, yet it worked without patrons, their business model revolved around the selling of refurbished electronics or recycled scraps; this way, they could maintain a physical workspace and pay staff members. Its operation consisted of serving the Chicago training, affordable computer systems, e-waste recycling, and a safe place for all technology and non-technology enthusiast to meet. Due to the declining sales and covid pandemic, the organization was no longer able to maintain its operation, and it permanently closed on June 30 of 2022. This opens up the picture of the influences of the market into good-hearted opportunities in the pro of a community as a business model can present you with many challenges when running an operation.

An advantage point of this specialized activity is the quality of repairs that can be offered as it drove a specific workspace to which the right tools for the job could be found, giving them a range of repairs. Their value still gave new life to old durables but was not strictly owned previously by the consumer, as well as its activity related to the recycling of scraps, so as value goes for the end user, it is divided by the goals of the commercial activity. A difference to the previous case is the pricing since this service was not offered for free, yet their commitment to helping the community and being non-profit meant that their services were offered at really advantageous prices. Warranty is another deal here; as the service is no longer in operation, it is impossible to come back to them with the durables they sold, yet a community was born out of it, and the same repairmen still hang around to help as they can.



8.2.3 Edinburgh Remakery

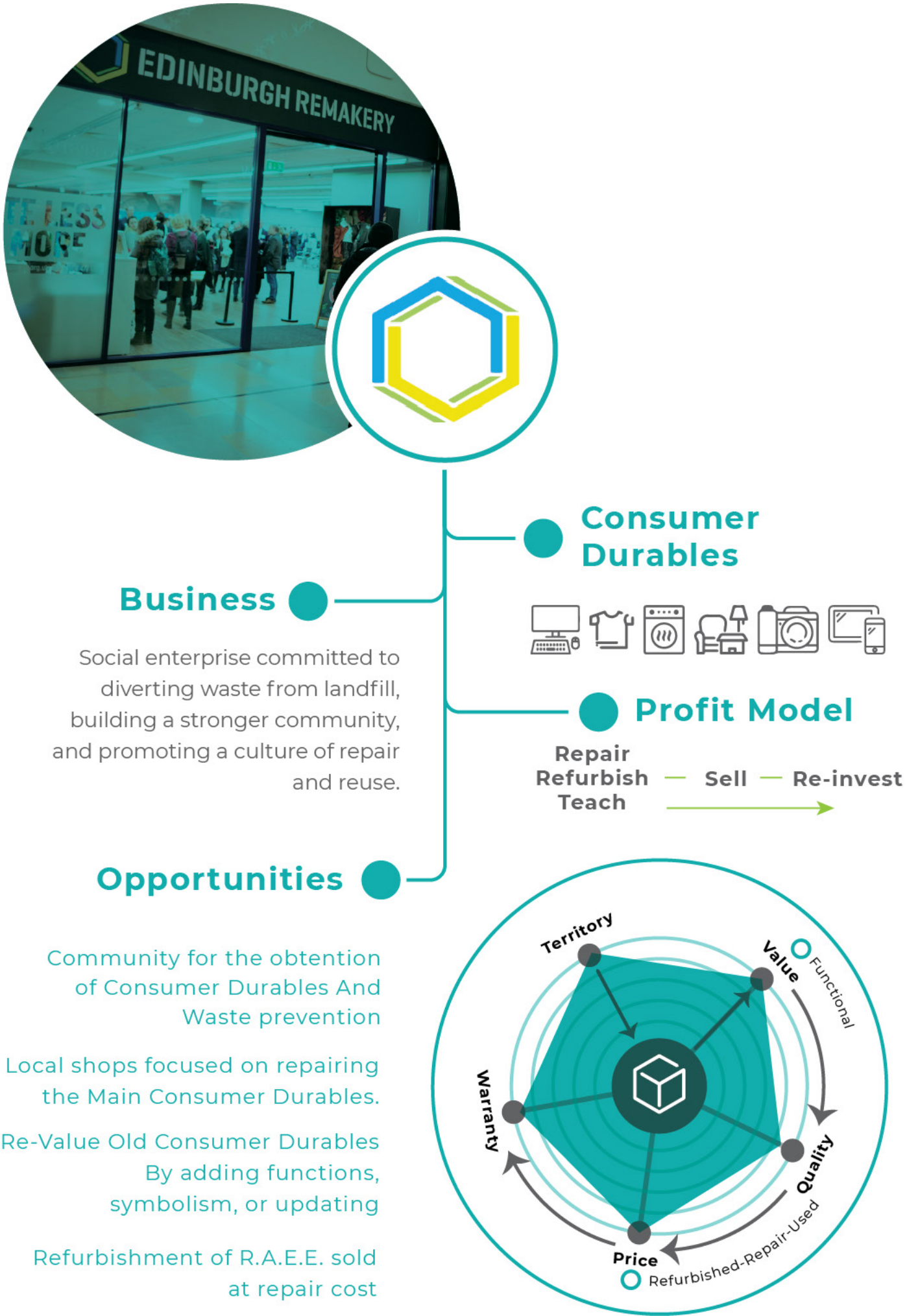
Last in the list of case studies related to repairing initiatives is the award-winning environmental and social enterprise called Edinburg Remakery. Its commitment to diverting waste from landfill, building stronger communities, and promoting a culture of repair and reuse has landed them in the top spot for this kind of initiative as they leave no stone unturned for the services they provide and are a great example of a local opportunity that cares, prologues the life cycle of durables as it also prevents its waste and reduces it.

The way their practices differed from the last two is their commitment and expansion of activities while still remaining local. They have not only physical workspaces which are not only held for events but to day to day activity, but they also provide digital interactions and services, as they take the definition of building a repair community to another level in which they guide you through the repair instead of doing it in front of you.

As put by Ocean Terminal, the waterfront commercial area in which the workspace is located: “They host a range of workshops teaching people how to mend their own belongings and become more sustainable, and they take in donations of secondhand electronic devices to prevent these from going to waste. Refurbished electronic devices are then sold affordably and can be purchased from their online shop. A portion of these refurbished devices is also passed on to marginalized groups across Edinburgh through their Tech Gifting Project, helping those who suffer from social isolation and digital poverty

get connected. They also run free workshops and offer work placements to those experiencing financial hardship or facing barriers to employment, to teach them valuable, transferable skills.” they expand the range of durable obtention into almost all the fields, from buying new(refurbished) buying use, repairing and even offering renting services for your own repairs once you obtain the knowledge on how to do it by yourself.

The evaluation of this case study marks them at a high point in almost all the fields as they touch almost all of the problems at hand and are able to remain active and constantly invest in their goal of reducing waste. Quality is the only one affected as the repair goes by the hand of the individual who might not be the best craftsman at first, yet they offered the possibility of an expert hand, and it is strictly linked to choice, and due to the day to day open activity, the guarantees and warranties they can give makes the quality just an aspect of choice.



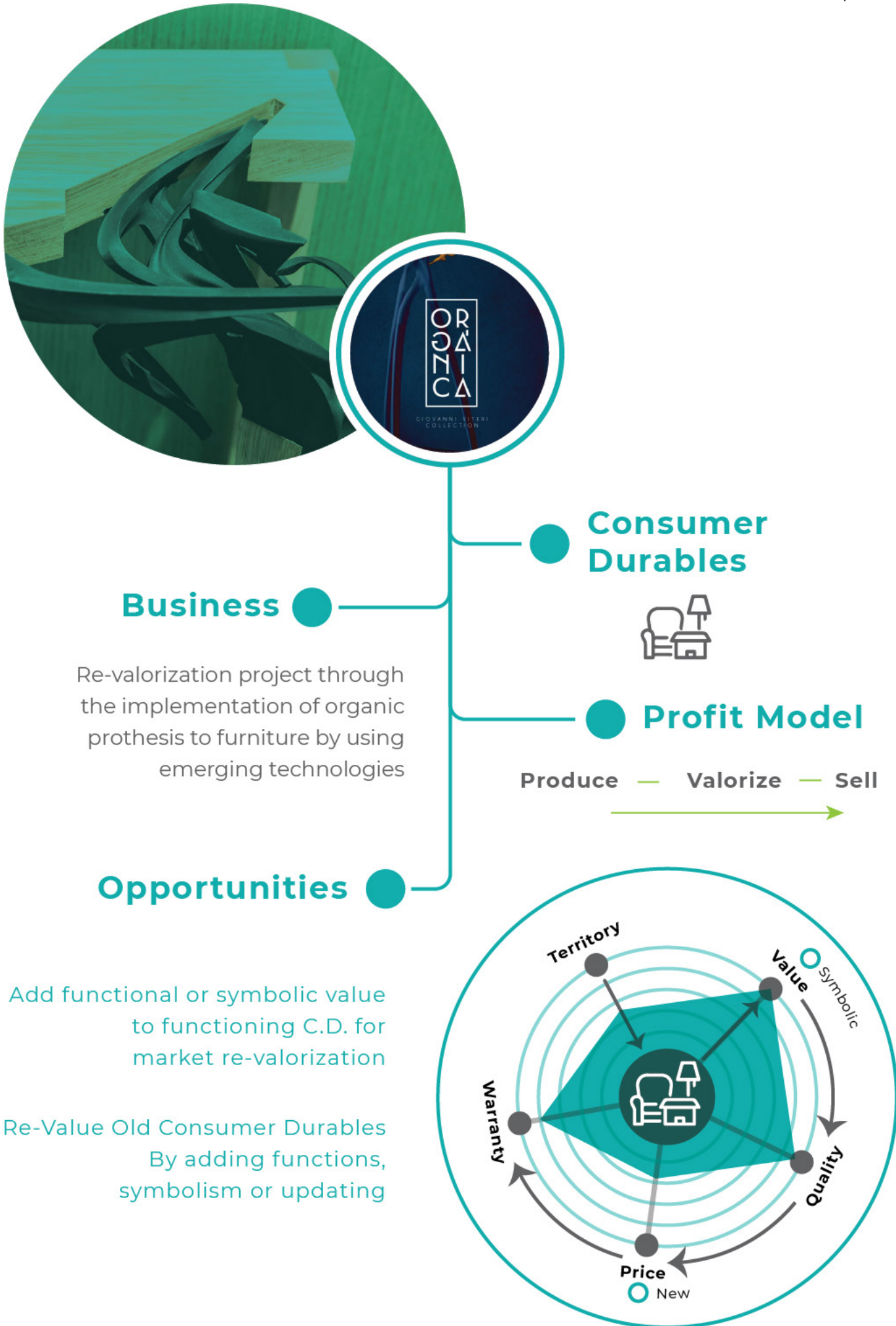


8.2.4 Orgánica

The last case study provided a lot of market sustainability insight that was later addressed in an interview with the founder. He explained to us the reason for the creation and business of this case study as well as the challenges and knowledge from his experiences as a designer and his product. Organica is a furniture brand born in Colombia, driven by the limitations of the current production technologies and the inspiration of the range of design forms unexplored. As we look into the other side of the world, this innovation draws from the indigenous roots and its appreciation of nature, and how it provided some incredible shapes which were not being explored by the traditional production of objects. For this reason, the value explored was more of a symbolic nature, and it needed to be tested and therefore was proposed for research for many years. His exploration brought forth the complexity emerging technologies in the production sector were able to produce, and the combination of the CAD abilities he possessed and the reproduction of complex shapes. It concluded that the combination of wood and plastic as 3d printing show to be a viable option for the commercial production of these organic shapes. The way they were developed passed through a high range of software in which parametrization and nodes have been explored, yet he concluded on the scanning of existing organic structures to be placed into traditionally produced structures. It became a project that was explored with the students as the object organic prototype, which later dropped out the inconsistency of the furniture shapes and was later developed into a star-up of furniture produced and designed entirely

from scratch with the added value of the symbolic structural 3d printed organic piece.

The evaluation of such opportunity shies away from the territory criteria, as it was inspired by the influences of the territory but was not imposed on local businesses, which will later show problems. The value factor explore in this case study goes along the lines of Divergente as the product obtains a newfound symbolic value that can increase over time, yet it does not propose the refurbishment of old products. This in terms affects the pricing as it is sold as a new high-quality product on the market which competes with other brands making them not affordable for young adults, but landing it a good criteria evaluation for high-quality and warranty of the final product.





### 8.2.5 Interview with Giovani Viteri

Giovani Viteri is a Colombian industrial designer who works as the Director of his own design studio “Viteristudio” and is currently a professor at the Escuela Superior de Arte y Diseño of Andalucía in Spain. For many years he developed his career in Colombia, where he built a network of contacts and experts who influenced and helped him achieve great things as well as he provided this knowledge to his students during his work and passion for teaching at the Pontificia Universidad Javeriana. As a former teacher of the author, he granted us the interview to better understand his path through design and what were the challenges the previous case study, *Organicá*, dealt with, which will provide greater insight into the market complications of this kind of opportunity.

As mentioned, Viteri built a network around him in Colombia, which allowed him to establish his name inside the design community as well as to ease his workflow with the multiple contact and providers inside of the network. Is when the project was moved to Europe that the real challenges became evident. When changing from one community to another, the stakeholders change, and it can take a while before getting to know all the players on the field who can help you drive the costs down while maintaining the desired quality. This also meant getting to know your new customer as society changes so does the taste, and when bringing these issues together some technologies were changed which augment the costs and therefore the prices, but the quality and finishes of the pieces. The result was received with negative feedback in Spain, as he tried to implant the innovation in the Spanish market where he is residing. He understood that some cultures value

more the functional than the symbolic aspects of design, to the point where companies like Ikea even offered a shadowing and evaluation process of the product to determine later that it was more perceived as art than design, even though the whole process proposes a functional industrial product. This did not stop him from looking into other markets of Europe, which he found to be more easing as cultures like the danish and the Italian do value the symbolic nature of *organicá*, for which he concluded that a market analysis was needed beforehand in the Spanish community.

With this, many questions were asked surrounding the sustainability of the kind of opportunities being explored, to which he gave some key points:

- ◆ Market analysis: when dealing with the Value factor, you need to understand what he values the most. Italians showed to have a great appreciation for the functional and symbolic.
- ◆ Innovation requires investment: as the project becomes more innovative, the greater the investment is needed not only to develop it but also to impose it in the market.
- ◆ Systemic design provides you with adaptable products: As this was not considered at the time he was not able to pinpoint that some problems and patterns could be interconnected to which slicked adaptations could have offered a better introduction to the market.
- ◆ A good Team: this kind of opportunity requires a lot of work that goes outside the range of expertise of a designer; surrounding yourself with a good time can make not only the dream possible but also a more enjoyable ride.



In the end, the Prothesis project was brought forth as it showed to be a stage of *Organicá* that could provide a great opportunity for the problematics at hand, and with these issues analyzed and the implementation of systemic design and open design, a new project could be born out of it (Further developed in the next chapter). It is clear from the insight pointed out that in a later stage of this project, a great amount of work is required in order not only to implement any kind of project but to truly see its value through time and study the outcomes of it all.

## Chapter 9

# Open Design Opportunities



# 9.1

## The Role of Open Design & Consumer Durables

Before explaining how open design can play a huge role in a new systemic project for the obtention of some consumer durables, we should recap on the factors and systems currently affecting this activity. As previously explained, Young Adults can be defined between the ages of 18 to 29 years old, and it can better be defined as emerging adulthood; it is a period that has been prolonged due to one of the key milestones imposed by society which is financial independence. As it also portrays a wide array of definitions, for this reason, it is expressed as “a person is covering his daily expenses, planning for the future, and is able to meet his basic needs.” with all of this in mind, we now note that consumer durables relate to at least a 10% of the expenses of the young adult yet determine their wealth through this whole period of time. As they slowly acquire other assets and capital, they obtain liquidity on Consumer durables, yet their obtention has been eased by fast fashion, which has lowered the quality and duration of them, leaving young adults and adults alike as they pass from the stage of life with the same durables, with no return for investment form this part of life and producing huge amounts of waste in the process.

All of it said factors that surround this object play a huge variable; as said before, the quality is affected, and therefore the prices, as well as bad policies around the warranties and repairability of it all.

We also consider the value given to these objects by the user and their connection to the territory as it provides social and environmental sustainability. In the end, we evaluate the case studies which showed new issues to consider when applied to the real world, which come with depreciation, good practices and policies, the demand, and the business model surrounding it, as well as the systemic design, providing better integration.

As design goes, opportunities can relate to adding value to products, making them intuitively easier to repair, making relationships between providers, production, and users inside a community, as well as designing for long duration and good quality. Of course, this factor drives up the work hours as well as the cost of running such a system; that is why many of the successful cases try to expand to different aspects and build around a networks of services that prevent waste, giving themselves an inexpensive input, like a waste to produce profit or rentability. The thing is another huge aspect of design that can drive the cost down is the open source and creative commons licenses; as good practices, ideas, and techniques evolve, the sharing of this knowledge instead of profiting from its exclusivity can not only reduce the high investment required for innovative ideas but also evolve activities and methods in a faster way which in terms can also lower production costs.

Consumer durables represent a huge factor in our economy as well as a big part of designers’ influences in our daily life; by sharing more freely the knowledge, we obtain, we can achieve sustainability by different methods. It is already being shown in the maker community as many open-source, and design platforms share projects, ideas, and techniques that are developed all around the world to help people, as many of them are driven to help more affected communities. A good example is the Toowheels, the project done by Fabrizio Alessio, which proves that design can also be open source by sharing the plans for a cheap yet good quality solution for a sportive wheelchair that can be replicated at workshops around the world, with the emerging technologies that are popping up. As this provides an example of a Durable, we see the impact it can have in our communities as accessibility for high-quality products becomes more affordable. This can do not mean a lack of earnings for those who share their ideas as they can be shared through different policies and earned from it; many recur to selling the plans, giving away the production, the materials, and the knowhow at a small token of appreciation instead of imposing huge design rates in the price. The young adult can acquire low-price, high-value, high-quality durables, and the designer can earn in the process and become part of a bigger community with the users.

The warranty of the durable no longer becomes an issue as the division of the user, the product, and the maker is thinned down by the communication and transparency of the projects as well as the ongoing sharing of techniques and ideas. Other cases can be seen in the maker community, not only in projects but in their tools; as 3d printers have become more accessible many makers indulge in investing for one, and therefore a community is formed where, whenever someone has a troubleshoot, other makers, come by with the solution.

Territory-wise, the open design can be adaptive, as expressed before, surrounding yourself with a good team of essential to survive in today’s market, a community of problem solvers can not only help you adapt a product to your local context, it even does so naturally without asking, as good ideas are looked to be done around the world, your idea might get to a place before you, and improvements and changes can be made to make relate it more with the local context (of course following the policies impose by the original maker).



# 9.2

## Open Design Opportunities

### 9.2.1 Open Durable System

The Open Durable system is proposed as an opportunity regarding an open design platform for the production of certain durables. There are currently many platforms that share open-source files for the maker to produce their own objects or reproduce other people’s projects, yet they are focused on makers. As shown in the survey, the majority of young adults do not indulge in the creation of their own durables, not even when faced with scarce resources; therefore, these platforms present a problem for the obtention of a durable for the regular joe. This is where the system comes into play; by developing a network of makers and designers and collaborating with local workspaces like FabLab and Hackability, a system can be presented in which young adults looking for the production of durables can find those who can do it for them. This does not mean free labor, but it does present the chance of acquiring durables at production cost and getting away with a high percentage of value not thrown into the price.

By generating a community, as shown to be a great response in the international case studies, you can develop a system in which doe switch means can afford the production of new ideas, and those without can afford the replicability of them, at the end young adults can afford lowered price, new high-

quality products, designer and makers can obtain a side-hustle or even live out of such inputs and more transparency can be evolved in the creation of this products, making their warranty and repairability easier and cheaper in the future, prolonging the life cycle and reducing waste.

There are things to consider; as products hit the market, there are some regulations imposed by the governmental policies of the trade and acquisition of these items, but as the pricing relates more to the handiwork, many bypasses can be taken yet not ruled out, like the freelance status of those who decide to participate as makers and designers.

A local opportunity can be formed that can be expanded and replicated in other communities as the design bank is opened, and the stakeholders change from system to system, but their roles remain the same, making it an open design system. The real-life application is proposed for a future project in order to evaluate the present opportunity matrix as well as it incorporates the new market factor expressed through the case studies.

“ An **open design platform** for people to look for consumer durables designs that can be produced locally by a maker or designer. Financially Independent people can pay more for a **personalized or unique design** which can later be acquired by Dependant users at just the production cost, **becoming cyclical**. Later in life, they do the same for the next generation, good quality with longevity at a fraction of the cost thanks to open design. ”



9.2.2 Prosthesis Valorization of Durables

As explored during the interview with Giovanni Viteri, the prosthesis project was found to have a lot of potential for a systemic solution to the refurbishment of old durables. As the name implies, the goal is to repair durables, in this case, furniture thanks to its high impact in the territory, by implanting new appreciative technology into the reconstruction process of the original piece, making it a new object on its own. While talking about the nature of such a project, he implied that the solutions and shape weren't the difficult part, as he explained how 3d scanning allows you to make a perfect fit that, in his experience, even attached to the original part without any kind of adherent.

The project proposes a system of repair and refurbishment with old durables in which instead of donating your old durable, you can re-valorize them and re-born them as new, this is not only a case of prevention, but also it works as a means to reduce the current waste as already discarded products can enter the system. It would work as a franchisable chain like a repair cafe, as it allows it to be developed in other territories for the benefit of the general young adult, but it would work more as a local FabLab, while this helps you explore ideas and provide a workspace and tools for makers, this project proposes a formal repair center, this way

the investment for the necessary tools can be made. This is plausible as the tools needed are reduced due to working with just one specific durables category. The project is proposed to be profitable in the same way Edinburgh Remakery reinvests its earnings into improving the service rather than just maintaining it.

The way it helps young adults is that thanks to the technology used, the cost, time, and difficulty of repairing are reduced, yet give a unique aesthetic which, in the end, results in a durable repair cost, but with the value of a new product.

Open design plays a huge role; as different people join the community, more and more scans and solutions come into play, sharing between each other and driving the cost lower as others decide to get existing solutions. The inconsistency of the shapes might seem like a problem, but scanning introduces the possibility of a systemic nature in which any furniture can be fitted for prostheses of different shapes.

As the project expands, the role of the stakeholders remains the same, only the player change, like in the case with Turin, collaborations with FabLab, and amiat, as well as those that provide the material and initial funding, yet as any franchise, guide are established to ease with the foundation of a new chain.

“ The **prosthesis project**. A step back from the resolution of Organicá, settling franchise system to repair furniture via scans to produce prostheses for broken furniture to **add symbolic value**. An open design bank of solutions and scanned shapes that can be used and **introduced to multiple products**. A bit higher cost, but an even higher reward. ”

# Conclusions

## Chapter 10



As the concept for this thesis was built, the main idea was to develop a project, yet the paradigms and overall insights of the system were related to personal experience. A designer during his young adulthood could have established systems or projects that might have been viable for other young adults, yet reality would have been far from what was projected. As the research began, it was clear that first, we needed to understand the current system in place, and how it affected young adults, and their financial independence.

When the bases were settled, the data came pouring in. Turns out that the consumption of durables is considered a sign of sustainable economic growth in society, as well as it plays a huge role in the creation of wealth and is the main source of it for young adults, yet when dealing with the numbers only 10 to 20% of their spendings were assigned to this consumption, which turns out to be even lower for younger ages. So the picture was getting clearer, young adults do not have that much capital to spend on consumer durables yet is of importance for their wealth and financial independence, which can be explained as a reason for their late arrival at this stage.

Looking at the product they could buy and those they deemed important, the day-to-day items appeared, which meant that value was not assigned

just by the price but by the need the use them, as well as a pattern of growth and development into what were the products they desired in buying through the stages, mainly associated with farther independence.

All in all, the whole system was finally painted with data from the territory and the case studies. As designers, we often have a deceived notion of product design and production, which is not a lack of creativity but the fact that this is driven by a market, as the common denominator is not able to afford expensive durables yet need them, many cheap (for their low quality) fill up the market and consequently the amount of waste produced has gone up. This market has lowered warranties for products way below what their life cycle should be, as their life cycles have also been affected by quality.

Not only that, young adult invest in these items only to lose value quickly, delaying even further their financial independence. As countries look to stop this waste, policies are being put into place, and some of them are being changed. It has shown that by prolonging the life cycle of durables, an indicative value creation of an annual 7.9 billion EUR is feasible within the EU after five years as a result. (Montalvo et al., 2015)

Systemic Desing digs the way to transforming the waste of a damaged system and places in new key players that enforce a new way of living for the greater good. In the case of young adults, the change of the paradigms is possible; they look for what is convenient, is our job as designers to create and generate convenient options that are sustainable for society, the environment, and of course, the economy. Open design pushes forward the interconnectivity of these new systems, making them even more affordable and generating value throughout. Not all market values are the same, but by setting communities around activities that benefit the individual and the society, many examples have shown to be successful, always with an eye on what your society values. As new projects and initiatives start, we need to remind ourselves to question the systems they are being placed on to achieve a greater impact; the thesis proposes the implementation of the opportunities proposed; as the path is set, hard work follows.

## Chapter 11

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A Systemic Analysis Of The Relationship  
Between Consumer Durables And The Financial  
Independence Of The Young Adult To Evaluate  
Possible Open Design Opportunities.

# Appendices



# Il Rapporto tra Beni di Consumo Durevoli e Indipendenza Economica dei Giovani Adulti - Indagine

La seguente indagine anonima fa parte dello studio della tesi di laurea magistrale che cerca di comprendere il ruolo dei beni di consumo durevoli (beni di consumo tangibili che hanno una vita utile superiore a 3 anni) e l'indipendenza economica del giovane adulto. In questo modo si può valutare il sistema attuale per proporre un nuovo progetto di Design Sistemico che possa proporre uno più sostenibile.

\* Required

Tempo di compilazione del questionario 15' circa; chi risponde deve avere un'età compresa tra 20 e 30 anni - Anonimo.

Il sondaggio è composto da 20 Domande brevi che sono rivolte a persone di età compresa tra i 20 e i 30 anni, quindi se non appartieni a questa fascia di età ti chiedo gentilmente di astenerti dalla compilazione di questo sondaggio. È diviso in 2 sezioni

## Prima Valutazione

Questa Prima Sezione è composta da 7 domande al fine di ottenere alcune informazioni demografiche dai nostri utenti e vedere se esiste una correlazione tra dati demografici e opinioni.

1. 1. Quanti anni hai?

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2. 2. Qual è il tuo Genere?

Mark only one oval.

- ☐ Maschio
- ☐ Femmina
- ☐ Preferisco non specificarlo

3. 3. Qual è il tuo livello di istruzione?

Mark only one oval.

- ☐ Non applicabile
- ☐ Nessun titolo
- ☐ licenza elementare
- ☐ Licenza media
- ☐ Licenza media /avviamento professionale
- ☐ Diploma scuola superiore
- ☐ Laurea triennale
- ☐ Laurea
- ☐ Dottorato/specializz. Post-laurea

## 4. 4. In che zona di Torino vivi? \*

*Mark only one oval.*

- ☐ Aurora  
☐ Barriera Milano  
☐ Borgata Vittoria  
☐ Borgo Po  
☐ Cavourto  
☐ Cenisia  
☐ Centro  
☐ Cit Turin  
☐ Crocetta  
☐ Falchera Villaretto  
☐ Lingotto  
☐ Madonna Camp.  
☐ Madonna Pilone  
☐ Mirafiori Nord  
☐ Mirafiori Sud  
☐ Nizza Millefonti  
☐ Parella  
☐ Pozzo Strada  
☐ Regio Parco B.  
☐ San Donato  
☐ San Paolo  
☐ San Salvario  
☐ Santa Rita  
☐ Vallette Lucento  
☐ Vanchiglia  
☐ Comuni confinanti  
☐ Comuni di seconda corona

## 5. 5. Di cosa ti occupi?

\_\_\_\_\_

## 6. 6. Lavori in questo momento?

*Mark only one oval.*

- ☐ Sì  
☐ No

## 7. 7. Quale delle seguenti definizioni rispecchia meglio la tua attuale situazione economica?

*Mark only one oval.*

- ☐ Dipendente (almeno in parte) da un'altra persona per coprire le spese per bisogni primari.  
☐ Riesco a far fronte a tutte le spese essenziali  
☐ Riesco a risparmiare qualcosa  
☐ Ho profitti da investimenti che mi permettono un buon tenore di vita

**Relazione  
Con gli  
Oggetti**

Nella prossima Sezione parleremo di un termine specifico che andremo a descrivere con attenzione al fine di ottenere risposte più chiuse e precise.



**"Beni di Consumo Durevoli"**

"Beni di consumo durevoli" ci si riferisce a beni che non si consumano rapidamente, durano almeno 3 anni e quindi non devono essere acquistati frequentemente

- Elettrodomestici
- Libri
- Computer
- Elettronica di consumo
- Abbigliamento
- Infissi: sono cose che sono fisicamente attaccate a una struttura come: vasche da bagno, pareti, finestre, ecc.
- Mobili
- Gioielli
- Dispositivi mobili (tablets, Cellulari e simili)
- Strumenti musicali
- Articoli sportivi
- Attrezzi di lavoro (generalmente si intende uno strumento meccanico semplice adoperato per eseguire una determinata lavorazione manuale: lavoro in ufficio (penna, ecc.), lavoro in ferramenta (martello, ecc.), lavoro in cucina (spatola, ecc.)
- Giocattoli
- Veicoli

8. 8. Delle seguenti categorie di prodotti. Quale acquisti più volentieri? (massimo 3)

*Check all that apply.*

- ☐ Elettrodomestici
- ☐ Libri
- ☐ Computer
- ☐ Elettronica di consumo
- ☐ Abbigliamento
- ☐ Infissi
- ☐ Mobili
- ☐ Gioielli
- ☐ Dispositivi mobili
- ☐ Strumenti musicali
- ☐ Articoli sportivi
- ☐ Attrezzi di lavoro
- ☐ Giocattoli
- ☐ Veicoli

9. 9. Dopo aver ottenuto un "Beni di Consumo Durevoli", hai mai pensato al valore economico che questo oggetto rappresenta nella tua ricchezza. (nel senso che conosci il costo e il prezzo che l'oggetto ha e che vendendolo o scambiandolo puoi far quadrare i conti). Rispondere per ogni categoria

*Mark only one oval per row.*

	Ci penso e lo considero	mai lo ho pensato
<b>Elettrodomestici</b>	<input type="radio"/>	<input type="radio"/>
<b>Libri</b>	<input type="radio"/>	<input type="radio"/>
<b>Computer</b>	<input type="radio"/>	<input type="radio"/>
<b>Elettronica di consumo</b>	<input type="radio"/>	<input type="radio"/>
<b>Abbigliamento</b>	<input type="radio"/>	<input type="radio"/>
<b>Infissi: sono cose che sono fisicamente attaccate a una struttura come: vasche da bagno, pareti, finestre, ecc.</b>	<input type="radio"/>	<input type="radio"/>
<b>Mobili</b>	<input type="radio"/>	<input type="radio"/>
<b>Gioielli</b>	<input type="radio"/>	<input type="radio"/>
<b>Dispositivi mobili</b>	<input type="radio"/>	<input type="radio"/>
<b>Strumenti musicali</b>	<input type="radio"/>	<input type="radio"/>
<b>Articoli sportivi</b>	<input type="radio"/>	<input type="radio"/>
<b>Attrezzi di lavoro</b>	<input type="radio"/>	<input type="radio"/>
<b>Giocattoli</b>	<input type="radio"/>	<input type="radio"/>
<b>Veicoli</b>	<input type="radio"/>	<input type="radio"/>

10. 10. Tra le seguenti categorie di prodotti quali sei in grado economicamente di acquistare in questo momento?

Check all that apply.

- ☐ Elettrodomestici
- ☐ Libri
- ☐ Computer
- ☐ Elettronica di consumo
- ☐ Abbigliamento
- ☐ Infissi
- ☐ Mobili
- ☐ Gioielli
- ☐ Dispositivi mobili
- ☐ Strumenti musicali
- ☐ Articoli sportivi
- ☐ Attrezzi di lavoro
- ☐ Giocattoli
- ☐ Veicoli

11. 11. Tra le seguenti categorie di prodotti, quali sono per te più importanti nella tua vita quotidiana? (massimo 3).

Check all that apply.

- ☐ Elettrodomestici
- ☐ Libri
- ☐ Computer
- ☐ Elettronica di consumo
- ☐ Abbigliamento
- ☐ Infissi
- ☐ Mobili
- ☐ Gioielli
- ☐ Dispositivi mobili
- ☐ Strumenti musicali
- ☐ Articoli sportivi
- ☐ Attrezzi di lavoro
- ☐ Giocattoli
- ☐ Veicoli

12. 12. Pensi di avere le capacità per produrre un oggetto che rientri nella categoria degli oggetti di consumo durevoli? Se no scrivi solo con "No" altrimenti scrivi gli oggetti che sei in grado di produrre grazie alle tue capacità manuali ed economiche.

13. 13. Hai mai realizzato uno dei seguenti articoli? Se la risposta è sì indicarla con il tempo che è durato detto oggetto, altrimenti segnare "No, non l'ho mai fatto"

Mark only one oval per row.

	No, non l'ho mai fatto	Durato Meno di 1 anno	Durato 1-3 anni	Durato più di 3 anni
<b>Elettrodomestici</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Libri</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Computer</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Elettronica di consumo</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Abbigliamento</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Infissi: sono cose che sono fisicamente attaccate a una struttura come: vasche da bagno, pareti, finestre, ecc.</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Mobili</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Gioielli</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Dispositivi mobili</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Strumenti musicali</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Articoli sportivi</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Attrezzi di lavoro</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Giocattoli</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Veicoli</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. 14. A quale categoria appartiene l'ultimo bene durevole di consumo che hai acquistato di recente?

Mark only one oval.

- ☐ Elettrodomestici  
☐ Libri  
☐ Computer  
☐ Elettronica di consumo  
☐ Abbigliamento  
☐ Infissi  
☐ Mobili  
☐ Gioielli  
☐ Dispositivi mobili  
☐ Strumenti musicali  
☐ Articoli sportivi  
☐ Attrezzi di lavoro  
☐ Giocattoli  
☐ Veicoli

15. 15. Perché l'hai comprato?

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16. 16. Dal seguente elenco di categorie, quale saresti disposto ad acquisire da un produttore locale anziché da un grande marchio?

Check all that apply.

- ☐ Elettrodomestici
- ☐ Libri
- ☐ Computer
- ☐ Elettronica di consumo
- ☐ Abbigliamento
- ☐ Infissi
- ☐ Mobili
- ☐ Gioielli
- ☐ Dispositivi mobili
- ☐ Strumenti musicali
- ☐ Articoli sportivi
- ☐ Attrezzi di lavoro
- ☐ Giocattoli
- ☐ Veicoli

17. 17. Tra le seguenti categorie, indica se ritieni che un prodotto locale possa essere realizzato con la stesso livello di qualità di un prodotto industriale.

Mark only one oval per row.

	si	No	forse
Elettrodomestici	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Libri	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Computer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Elettronica di consumo	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Abbigliamento	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Infissi: sono cose che sono fisicamente attaccate a una struttura come: vasche da bagno, pareti, finestre, ecc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mobili	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gioielli	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dispositivi mobili	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strumenti musicali	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Articoli sportivi	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attrezzi di lavoro	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Giocattoli	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Veicoli	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



18. 18. Quando uno di questi prodotti (beni di consumo durevoli) si rompe, cosa scegli di fare? (Rispondere per ogni categoria)

Mark only one oval per row.

	Riparalo/ripristinalo	Compra nuovo	Acquista Usato
<b>Elettrodomestici</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Libri</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Computer</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Elettronica di consumo</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Abbigliamento</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Infissi: sono cose che sono fisicamente attaccate a una struttura come: vasche da bagno, pareti, finestre, ecc.</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Mobili</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Gioielli</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Dispositivi mobili</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Strumenti musicali</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Articoli sportivi</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Attrezzi di lavoro</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Giocattoli</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Veicoli</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. 19. Per favore indicare il ragionamento generale per cui hai scelto le risposte della domanda scorsa (opzionale)

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Grazie Mille

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Google Forms

**Google Sheets data base of the Survey**



<https://docs.google.com/spreadsheets/d/1tJPsNxLiZq0majUQGhBOqLtNgWz0UsSBRbzI5mCxwME/edit?usp=sharing>

# Did you know?



*Toys are one of the Consumer Durables that tend to accumulate monetary value over time, more so depending on the conditions they can be found. As toys form part of a collection, people will pay good money for them; as a toy retires from the market, its value skyrockets.*

