

# BREATHING LIVING HALL

**Interior design  
base on  
Creative &  
Sustainable  
Lifestyle**



**A project curated by**  
Yang Jinnuo

Double Master Degree in Interior & Spatial Design at Politecnico di Milano

**Under the tutorship of**  
Davide Fassi

PhD,  
Associate professor at Politecnico di Milano ,  
Coordinator of GIDE  
Member of the international coordination at DESIS Network  
Adjunct professor at Tongji University.

ID Number | 10673239  
AY 2018/2019



**POLITECNICO**  
MILANO 1863

**A project curated by**

Yang Jinnuo

Double Master Degree in Environmental Design  
at Tongji University

**Under the tutorship of**

Xiaocun Zhu

Master of Architecture  
Master of Design  
Associate Professor at Tongji University &  
Politecnico di Milano  
Master Instructor

ID Number | 10673239  
AY 2018/2019



## ABSTRACT

The development of sustainable lifestyles plays an important role in the environment and people's lives. By analyze various of reasons of unsustainable behaviors( such as over-consumption), and the environmental and economic impact they caused, and then I propose viable strategies. The design focuses on "eating" and "wearing" habits, which are two of the most basic needs of human. The physical space is located in Monza Market in Nolo community, Loreto, Milan. It is designed as an incubation for a variety of sustainable activities. Space promotes activities, and the continuous improvement of lifestyles and sustainable development.

In the next 30 years, the Monza market will become a breathing life hall gradually, where the input and output of food and clothing resources are largely balanced, and people learn better to eat and wear more sustainably. People from different nationalities still maintain their habits, but live more resource-friendly. The Monza market will become a core of the community and will continue to spread its impacts on lifestyles to other residents.

### Key words

Sustainable lifestyles; Eating habits; Wearing habits; Resource balance; Breathing

Lo sviluppo di stili di vita sostenibili svolge un ruolo importante nell'ambiente e nella vita delle persone. Analizzando varie ragioni di comportamenti insostenibili (come il sovra-consumo) e l'impatto ambientale ed economico che hanno causato, e poi propongo strategie praticabili. Il design si concentra sulle abitudini di "mangiare" e "indossare", che sono due dei bisogni più elementari dell'essere umano. Lo spazio fisico si trova nel mercato di Monza nella comunità di Nolo, a Loreto, Milano. È progettato come incubazione per una varietà di attività sostenibili. Lo spazio promuove attività e il miglioramento continuo degli stili di vita e dello sviluppo sostenibile.

Nei prossimi 30 anni, il mercato di Monza diventerà gradualmente una sala di respirazione, dove l'input e l'output delle risorse di cibo e abbigliamento sono ampiamente bilanciati, e le persone imparano meglio a mangiare e indossare in modo più sostenibile. Le persone di nazionalità diverse mantengono le loro abitudini, ma vivono più favorevoli alle risorse. Il mercato di Monza diventerà un nucleo della comunità e continuerà a diffondere il suo impatto sugli stili di vita agli altri residenti.

Stili di vita sostenibili; Abitudini alimentari; Indossare le abitudini; Bilancio delle risorse; Respirazione



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# CHAPTER

## 1 SUSTAINABLE LIFESTYLE

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**1.1.** Definition of sustainability

**1.2** Current situation of sustainable development

**1.3** Research on methods to guide sustainable life



# 1.1 DEFINITION OF SUSTAINABILITY

Sustainability is a process or state that can be sustained for a long time. The sustainability of human society consists of three inseparable parts: ecological sustainability, economic sustainability and social sustainability. I mainly studied on ecological sustainability, specifically the impact of human activities on ecological sustainability.

With the development of the agricultural revolution and the industrial revolution, people continue to exploit resources in nature for production, and then give back to natural garbage, waste, and harmful substances. Environmental changes are constantly being affected by all aspects of human activity. Specifically, clothing, food, housing, transportation, medicine of human system that affect the air, water and soil in the natural system. We need to find ways and choose the direction and strategy of design to repair or regenerate the ruined environment.

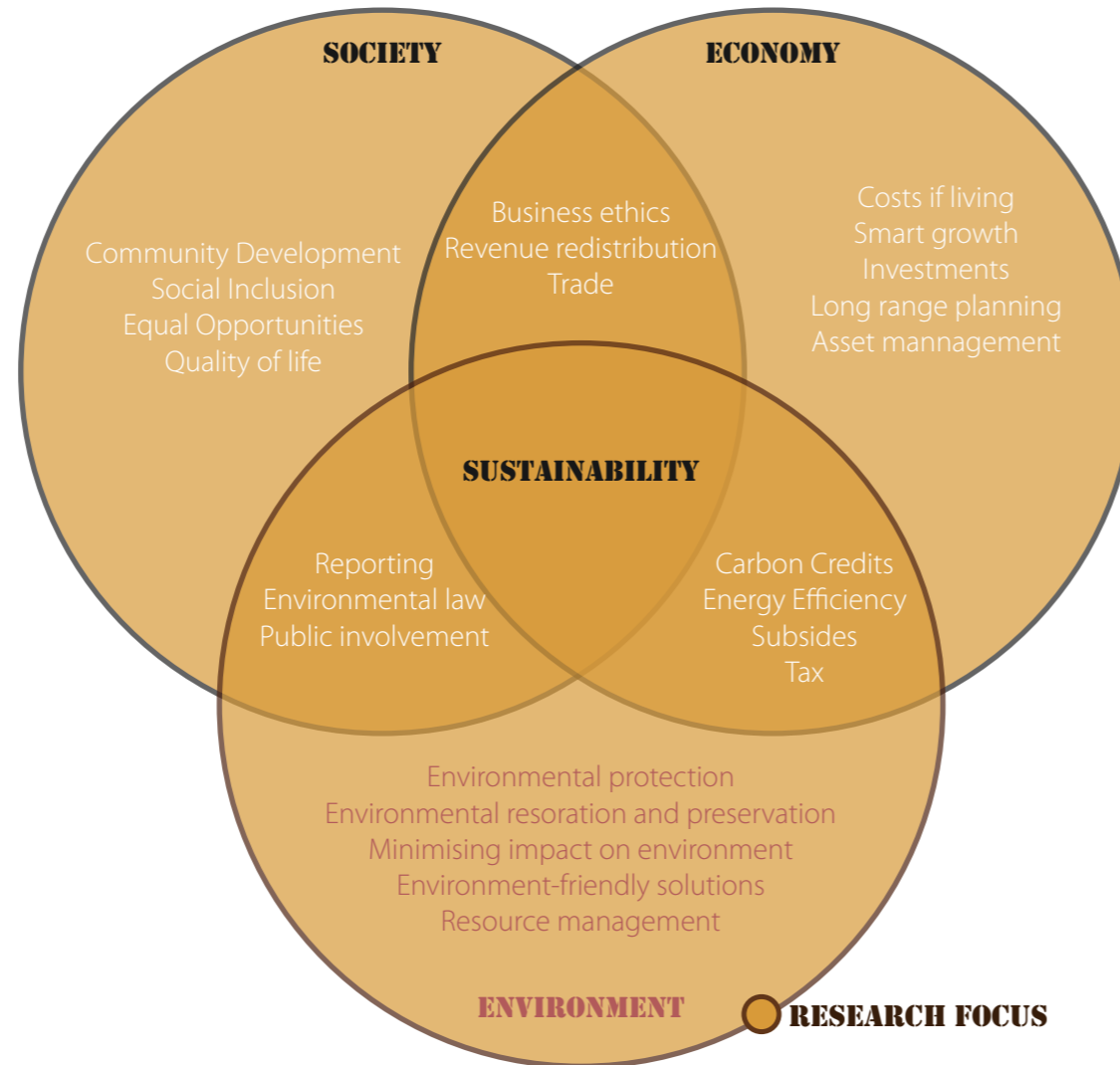


Figure 1. Definition and relationship of sustainability  
<https://www.mdpi.com/journal/sustainability>

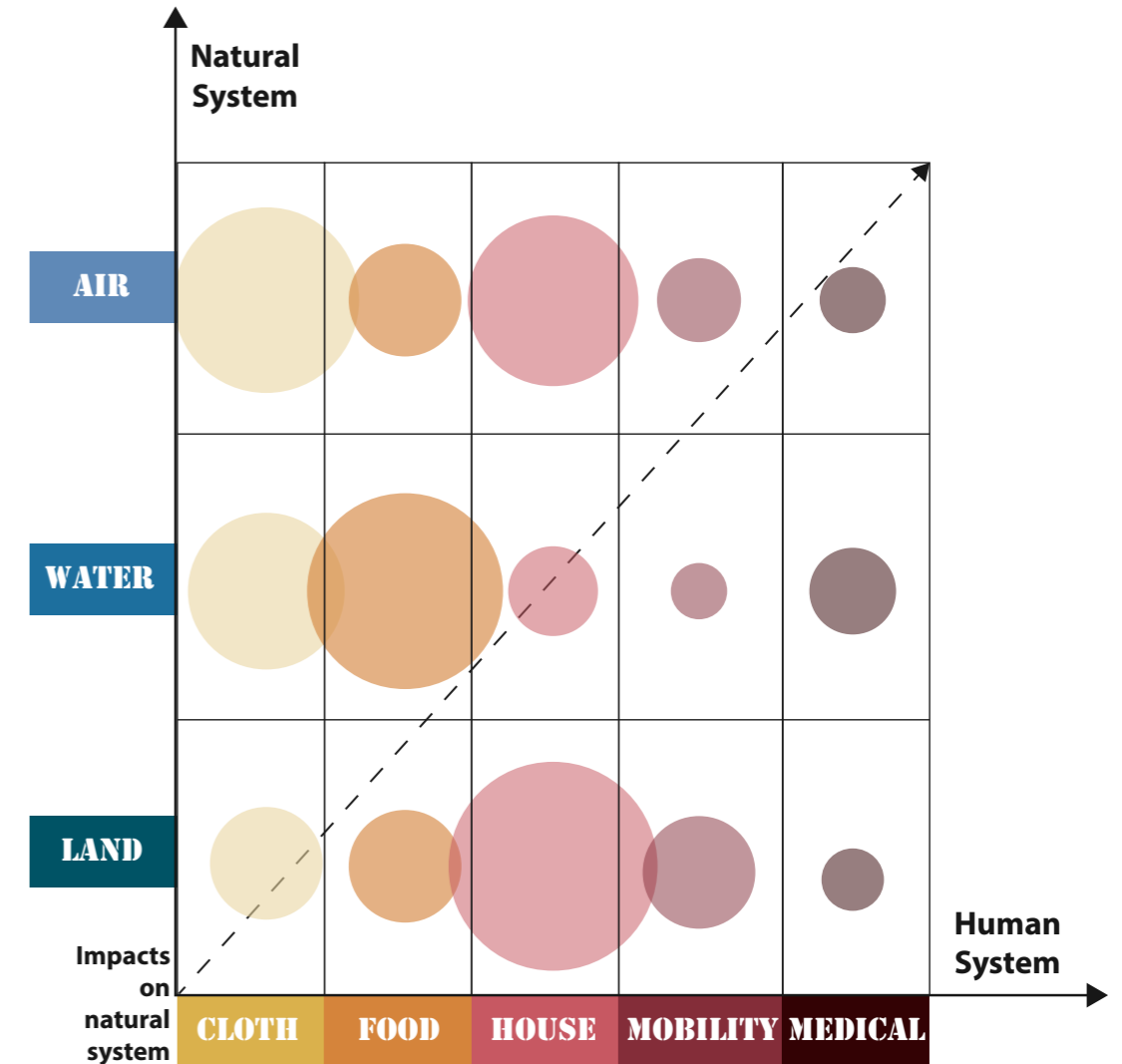


Figure 2. Relationship between natural and human system  
 Created by Pro. Zhu Xiaocun, Tongji University, China.



# 1.2 CURRENT SITUATION OF SUSTAINABLE DEVELOPMENT

## 1.2.1 WHITE LIE OF HUMAN

It's difficult for people to realize that their consumption and lifestyle are not sustainable, because most of us don't understand the relationship between the items we buy and our own behavior and the resulting adverse effects on environment . To put it simple, it is impossible to make a specific connection between the two aspects.

For example, due to the effects of global warming, the snowfall of mountain below 1500 meters has been reduced by 20% , compared to a decade ago (SLF, 1996), but the demand for ski resorts has not decreased. It means that people must artificially snowfall to create a perfect ski resort for skiers. In the process, snowmaking machines consume a lot of energy, but skiers only care if this snowfield can allow them to have a perfect adventure. <sup>12</sup>.

In addition, for example, phosphate in phosphorus containing detergent powder is builder for washing powder. At the same time, phosphate is also a growth promoter for algae, which cause a sharp reduce of oxygen in the water. Hypoxia can cause fish to die, which can lead to blackening of water when the body of the fish rots, causing serious environmental pollution. But people don't know about this hazard. If they wear a swimsuit washed with phosphorus-containing detergent and come to the beach surfing and swimming, the phosphate will be washed down flows into the sea. On the contrary, if we know the harm to the body and the environment caused by the phosphorus washing powder when purchasing washing powder , we will avoid buying such washing powder to avoid this hazard from the source.

Another important reason why people are not sensitive to unsustainable lifestyles is that people often create "white lies" (Henrik Ibsen) to self-deceive and deceive the public in order to cover up the terrible truth. "Greenwash" is one of the typical examples: many fast fashion brands have created a sustainable banner in an attempt to gain more consumer groups, but still burned unsalable clothing in the back which has caused enormous damage to the environment.

Taking recycled waste as an example, people think that they insist on taking old newspapers and discarded bottles to the recycling station, and taking their own shopping bags when shopping is a real sustainable lifestyle.

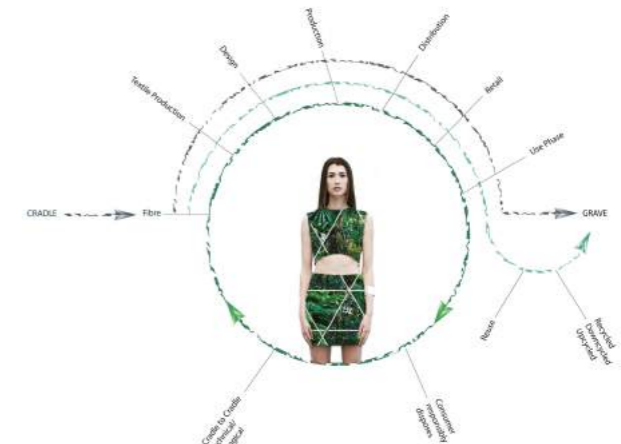
Indeed, this is a good attitude towards sustainable living style, but in fact it can only create a "green illusion" (Ecological Intelligence, 2016). <sup>12</sup>When you get the

waste from the recycling bin, you just transfer them from a dump to a larger dump. Maybe part of them can be reused, but most of the rubbish will eventually go to the grave.

However, if the full recycling of waste is achieved, the life cycle of the product is not only extended, but also continuously circulated. All the parts in the product thus sent to the recycling station can be recycled for secondary use or decomposed into molecules that are completely absorbed by the land. This is a true "cradle to cradle" <sup>14</sup>sustainable process (Mark Donner, 2005)



<http://www.jestina-george.com/2012/04/h-red-carpet-conscious-collection-hits.html>



Clothing lifecycle from seed to grave.  
©Photo comes from undressrunways

<sup>12</sup>. Daniel Goleman, "Emotional intelligence", 11 May 2016

<sup>14</sup>. Michael Braungart, William McDonough, "Cradle to Cradle: Remaking the Way We Make Things", 2002.

# 1.2 CURRENT SITUATION OF SUSTAINABLE DEVELOPMENT

## 1.2.2 CURRENT SITUATION OF CONSUMER AND MARKET

With the innovation of technology and the advancement of society, the level of people's consumption has relevantly increased. The rise of industry has facilitated people's lives, but it has also affected people's living habits, and erodes the ecological environment and people's health. People tend to enjoy the habits they have already formed, although it's not sustainable, the brain often chooses to ignore the threats outside its senses. For example, people in the city are rarely aware of the changes that garbage incineration brings to everyday life, although the astounding figures show the amount of waste incineration per year. Because the threat of the ecological environment needs to be seen for a long time, it is outside the sensitive senses of people.

Therefore, under the premise that the ecological environment is seriously damaged by human activities, most people still maintain the original unsustainable lifestyle. For example, the huge amount of vehicle exhaust emissions in the city every day, because people still choose cars as their main transportation; and for example, millions of tons of clothes are burned every year because people still pursue fashion and pursue new clothing (this lifestyle is often doesn't take the impact of the environment into account). The annual consumption of clothing and the amount of incineration remain high.



©AP Images / European Union-EP



[http://www.sohu.com/a/233078456\\_479806](http://www.sohu.com/a/233078456_479806)

Once people's living habits formed, it will affect each other and wide spread. As time goes on, a "trend" will be formed, more and more people will pursue unsustainable consumption regardless of environmental damage. You love to buy new clothes, and others love them too. Then, in the end, they will deal with the clothes they don't want in the same way. The accumulated amount of harmful clothes will increase and the global warming will become more serious.

But we know that it's difficult to change the consumption habits that many people have formed over time by one of us. However, is there any way to make consumers enjoy the same level of consumption as before, under the premise of improving the environment affected by consumer behavior? The consumer market often directly reflects the current needs of consumers, that is, the production model of the market is always affected by consumers. Therefore, if we make some changes, from consumption habits to life habits, we can improve the market model and move it toward a more environmentally friendly direction. Therefore, we need to raise awareness and especially subtly improve our living habits. Actions to improve consumers' ecological wisdom are imminent.

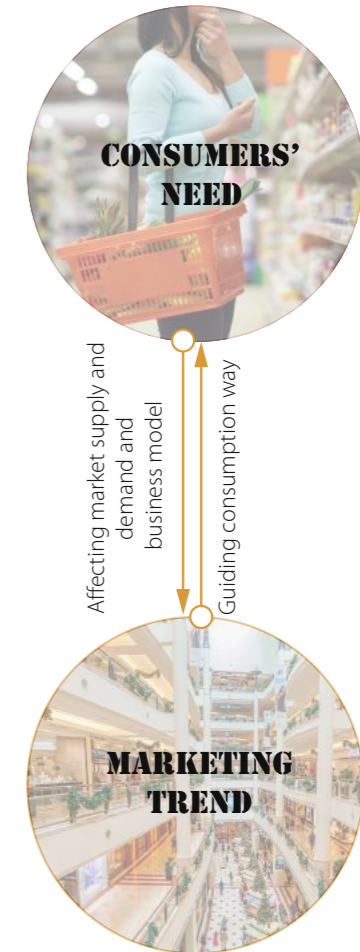


Figure 3. Relationship between market and consumers

Photos from /www.pinterest.com/pin/76209418680285217/

# 1.3 RESEARCH ON METHODS TO GUIDE SUSTAINABLE LIFE

## 1.3.1 ECOLOGICAL INTELLIGENCE

In the past, people were able to find the simplest and most natural way to solve problems when they faced natural challenges due to backward technology. They use the wisdom of nature, they solve problems under the premise of adapting to nature. However, with the development of science and technology, people began to solve the survival challenge brought by nature by confrontation with nature, because we think it's the faster and more efficient way. Therefore, we have consumed a lot of natural resources, seriously undermined the ecological environment, and greatly shortened the natural life we depend on. As Emotional Intelligence said, we should return to the truth, learn about nature, and then improve our ability to adapt to the natural environment, rather than destroy it to obtain a comfortable life. This is an expression of improving ecological wisdom.<sup>12</sup>

In order to enable people to actively change their living habits, they will subtly improve people's ecological wisdom. We need to develop a way to improve our ecological vigilance, so that we know which behaviors are unsustainable, harmful to the environment, and how we need to change to reduce harm when we consume.

After improving our personal behavior, we need to think about how to connect people around us, family and friends, our company, school, life circle, and even the whole society, to awaken their environmental awareness, and use everyone's wisdom to improve their lifestyles. People can continuously optimize the entire environment to improve the environment by sharing knowledge and methods. At the same time, changes of each person's behavior also remind others of environmental awareness.



ancient terraces from Inca civilization  
©Photo comes from the author



ancient Salt field from Inca civilization  
©Photo comes from the author

<sup>12</sup> Daniel Goleman, "Emotional intelligence", 11 May 2016

# 1.3 RESEARCH ON METHODS TO GUIDE SUSTAINABLE LIFE

## 1.2.2 LIFE CYCLE ASSESSMENT

How to live a sustainable life? We need to track the source of processing from production to consumption to each life cycle to find the threat of environmental pollution. In this way, we can adapt to the remedy of the case and propose a solution.

Life Cycle Assessment (LCA, ISO 14040) is an important environmental management tool developed since the 1960s. It refers to the entire process, including the process of obtaining raw materials, from production, use to disposal, from cradle to grave. We need to assess the environmental factors and potential impacts at each stage.

However, if we want to evaluate all lifecycles of our products, we need professional methods and huge database support. For example, assessing the life cycle of a garment includes: the production of the fabric: picking cotton, spinning the yarn, and then dyeing. Next, you need to cut and sew into finish cloth.

There are also molding, polishing and painting processes for the hardware components on the garment. Then we combine the finished cloth and components. During use period, people need to constantly wash and repair them. After that, the clothes will be recycled, reused, or directly into the landfill.

This complex assessment method is difficult to spread to consumers. Therefore, we need a quick and easy way to help consumers understand the source of product contamination and to understand more about the impact of our shopping habits on the environment than before.

In this way, we can know how much pollutants are emitted at each stage of the life cycle and how much is emitted? And how to effectively reduce this emissions? This is the problem that we needs to guide people to solve in the future.

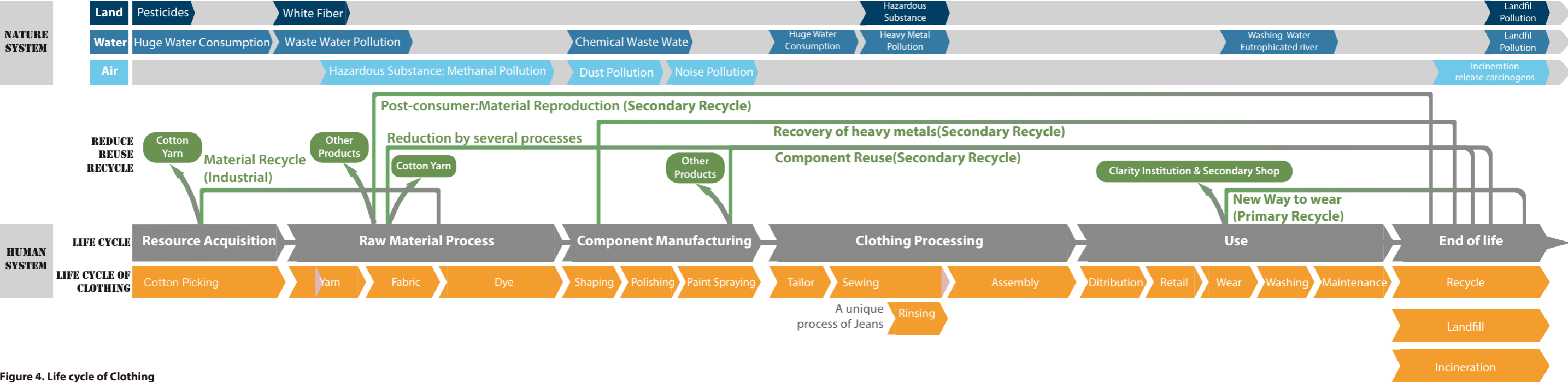


Figure 4. Life cycle of Clothing  
Graphics are created by the author.

# CHAPTER

## 2 BACKGROUND ANALYSIS

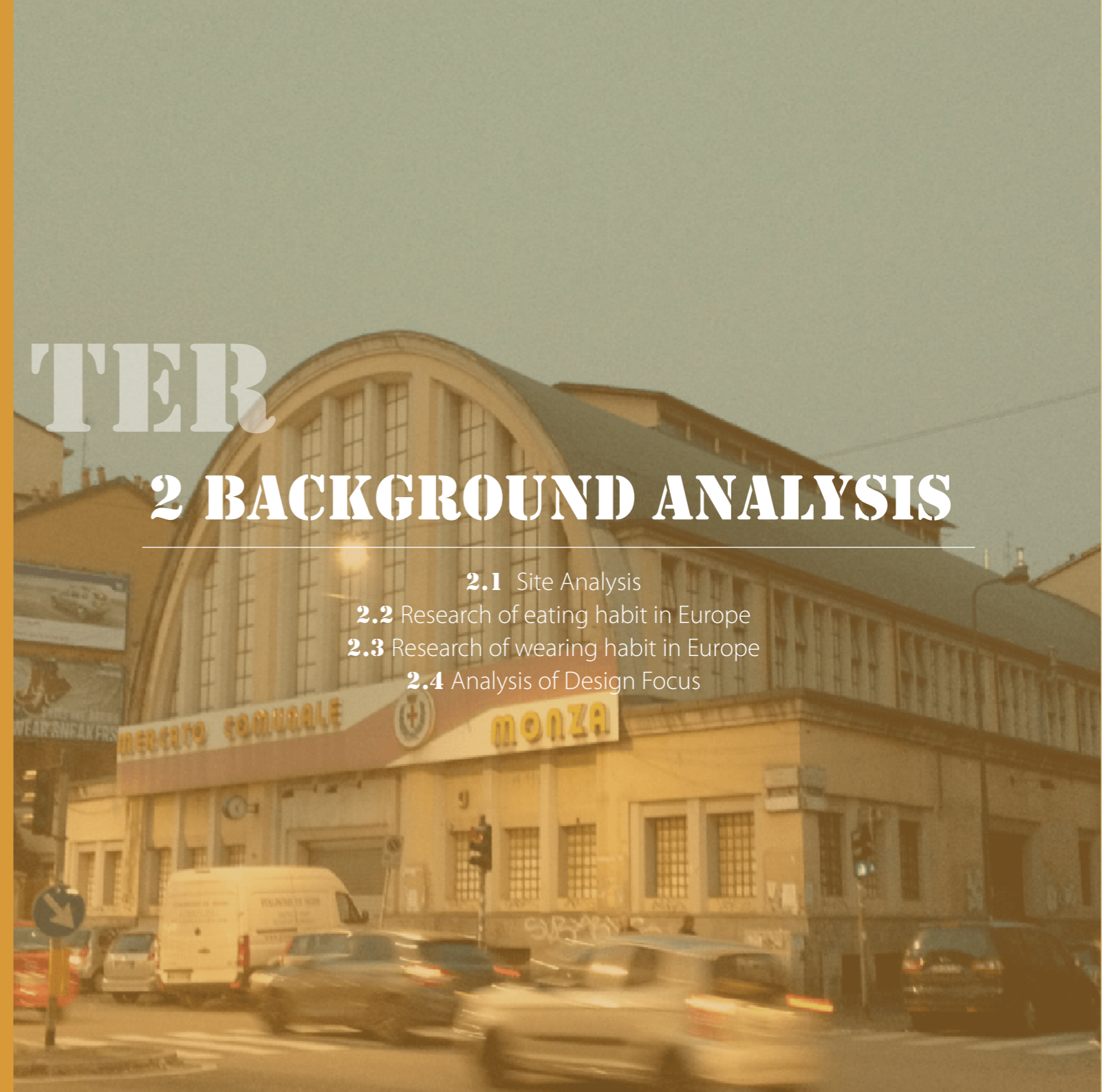
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2.1 Site Analysis

2.2 Research of eating habit in Europe

2.3 Research of wearing habit in Europe

2.4 Analysis of Design Focus





# 2.1 SITE ANALYSIS

## 2.1.1 BACKGROUND OF NOLO COMMUNITY

The thesis is based on NOLO Community in Milan, the north of Loreto, which has a particular neighborhood identity. Because this strong immigration flow inside this area lead to a cultural integration inside which brought both trouble and opportunities. The community is home of historical immigrants, locals and their children.

The multiple nationalities and cultural backgrounds, and residents in different ages create the diversity of the community. Because a large group of people with completely different backgrounds live together, they organize different social, academic, artistic and cultural activities. The vitality of the community was constantly improved.



Photos and Graphic come from Contest Design Studio, by professors Davide Fassi, Laura Galluzzo, Anna Meroni, and Assistants Martina Mazzarello, Francesco Vergani.

**NORTH OF LORETO**



# 2.1 SITE ANALYSIS

## 2.1.1 BACKGROUND OF LORETO

Loreto, where NOLO community located, is a multiethnic community, people from different countries live and are active here, bringing different business which make it very dynamic whatever in ordinary time or special days. There are also some following special areas that shape strong identity of Nolo community.

*Magazzini Raccordati* make the border between Nolo and Centrale, the adjacent area. They consist in a sort of barrier: a strict delimitation that demarcates two geographical areas and two different identities.

*Viale Monza* is the street that runs over Nolo in its middle, where Monza Market located. It is not just a geographical peculiarity. This street splits the neighborhood into two different areas with quite different identities.

*Via Padova* is a known street in Milan with a variable reputation. It is the most multiethnic street of the city and has a very strong personality. How could this solid identity be matched with the others of the neighborhood? Near to Via Padova, it is the folkest and free-rangest part of the neighborhood

In the northeast of Loreto, there is a open park, where a kindergarten, built inside, *Parco Trotter*, lots of children from different races and their parents are active in this park, especially in weekdays. There are also some public services related to kindergartens, such as catering cars. Therefore, the format of the park is very rich. It's a typical venue that serves the community well.

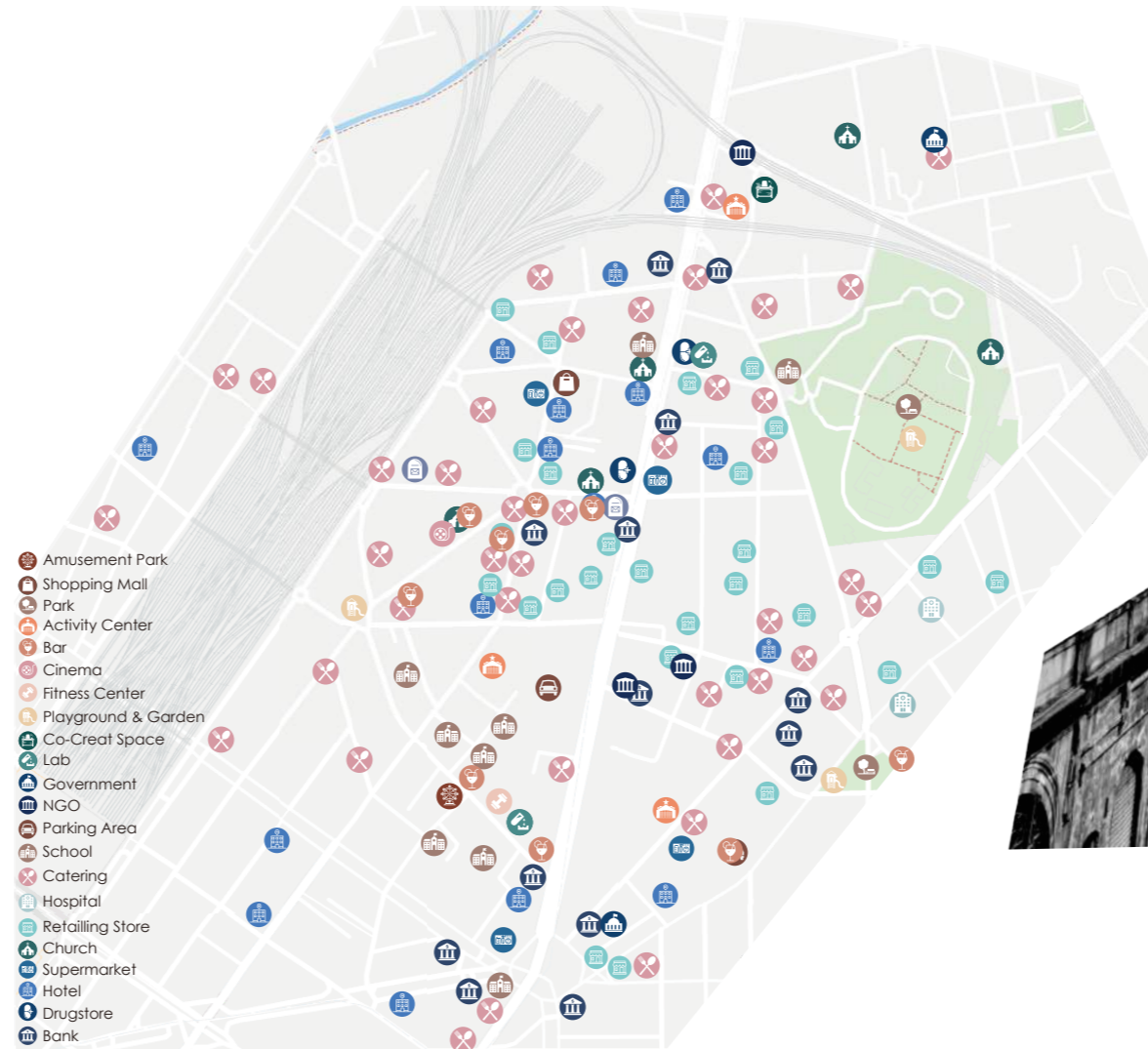


Figure 5. Distribution of public services and institutions in NOLO.

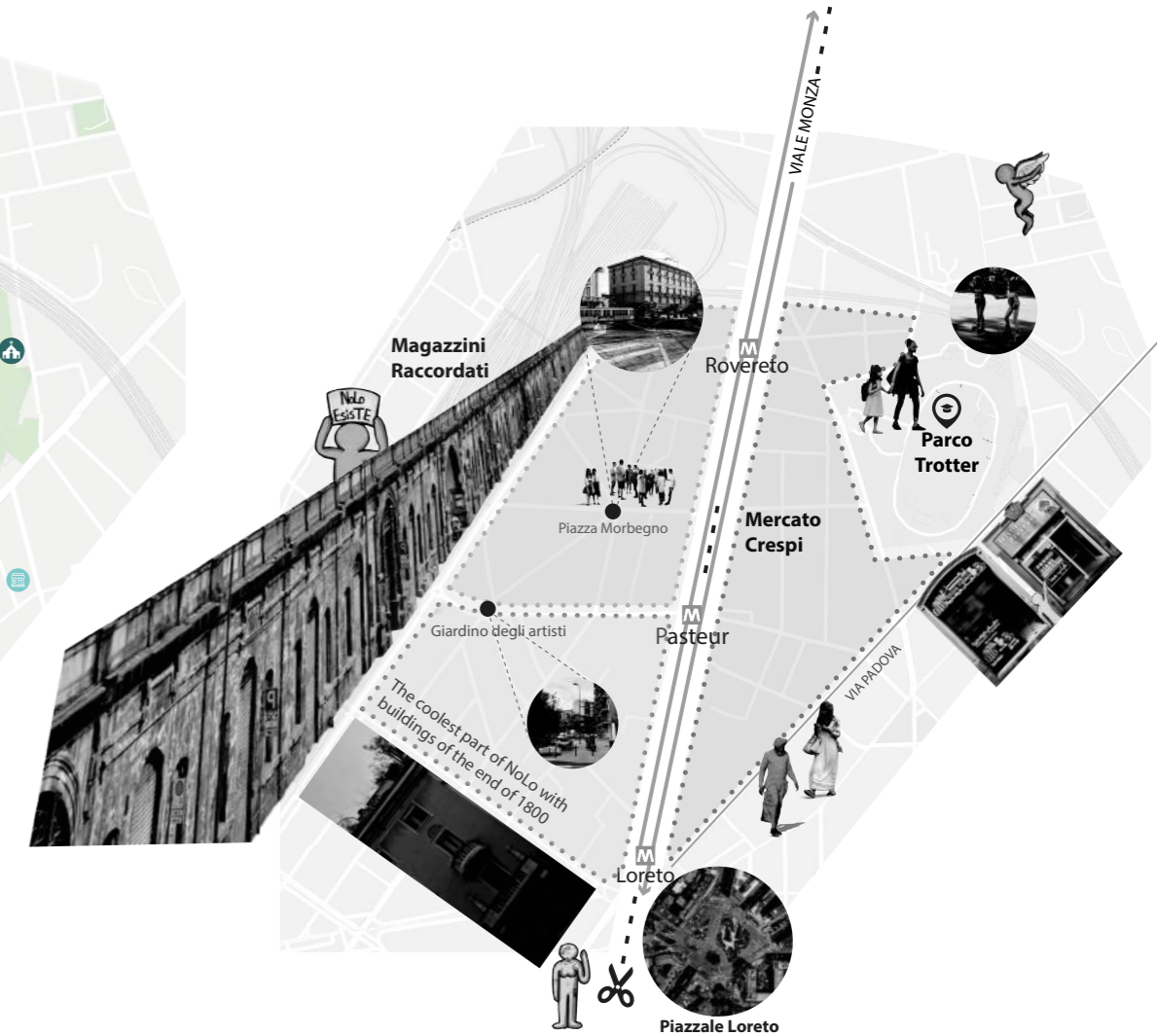


Figure 6. Diagram of identity of NOLO

Map and Graphics come from Group 10 of Desgin Contest Studio, drawn by Xun Ran, Tiziana D'Amico, Luca Antonio Dondi, Giorgia Gaggiato.



# 2.1 SITE ANALYSIS

## 2.1.2 DESCRIPTION OF MONZA MARKET

**Location:**

Viale Monza municipal market in Milano

**Character:**

A shopping mall (Since 1933)

**Area:**

1,322 square meters.

**Events:**

1933 > Crespi Market was built in reinforced concrete according to the project of the engineers Massari e Secchi

1960s > A suspended ceiling was built so that the big vault is no longer visible from the inside. The global lighting was sacrificed for the insulation goal. The airy benches where people used to work were turned into closed spaces.

2010s > Lots of associations started organizing events and exhibitions in the market so that it could become alive also during the night

**Construction:**

The market is entirely in reinforced concrete with vaulted roof. The structure is made with ribs and quadrangular pillars, also in reinforced concrete. The roofing vault in 16 meters high, is closed at the sides by a system of windows obscured by metal frames to generate a system of buttresses.

**Potential role:**

The position makes it become an important place for community cultural exchanging and communication among different ethnic groups. In the meanwhile, some artists and studios have been settled in the nolo community in recent years, bringing fresh blood and providing new opportunities for community innovation.



Graphics are created by the author and Tiziana D'Amico, Luca Antonio Dondi, Giorgia Gaggiato, based on Contest Design Studio.

# 2.1 SITE ANALYSIS

## 2.1.3 COOPERATIVE ORGANIZATIONS



<http://www.polisocial.polimi.it/en/home-en/>

The social responsibility program at POLIMI, which promotes social initiatives that involve students, faculty and administrative staff in strengthening a culture of engagement and responsibility. The goal is to foster a responsible attitude and develop skills, expertise and new values, in future generations of professionals and citizens, increasingly aware and prepared to handle ethical challenges.



<https://www.desisnetwork.org/>

The DESIS network initiates international events such as the European Study EMUDE (2005); the UNEP Programme CCSL (2008) and the International Conference on Change Change within the Turin World Design Capital Framework (2008). These activities have introduced the concepts of creative communities and social innovation in different design institutes around the world in different ways and created favorable conditions for creating international networks for these themes.

The main idea behind this is that social innovation can be a powerful driving force for sustainable development, and design schools can help support and accelerate this process. Since September 2014, DESIS has become a non-profit and cultural association that promotes socially innovative design of higher education institutions through design disciplines to work with other stakeholders to generate useful design knowledge and create meaningful social change. .



<https://radionolo.it/>

Radio NoLo is a non-profit community radio station where a group of neighbors meet on social streets. This is a community radio station that actively engages citizens in creating shows, and they want to tell the story between the streets of NoLo and the people who live there. It is also a media education experiment that transcends language, age and social barriers and speaks for neighbors. In the nolo community where different cultures meet, we can hear the daily stories from the most ordinary people through radionolo and discover interesting things.



# 2.1 SITE ANALYSIS

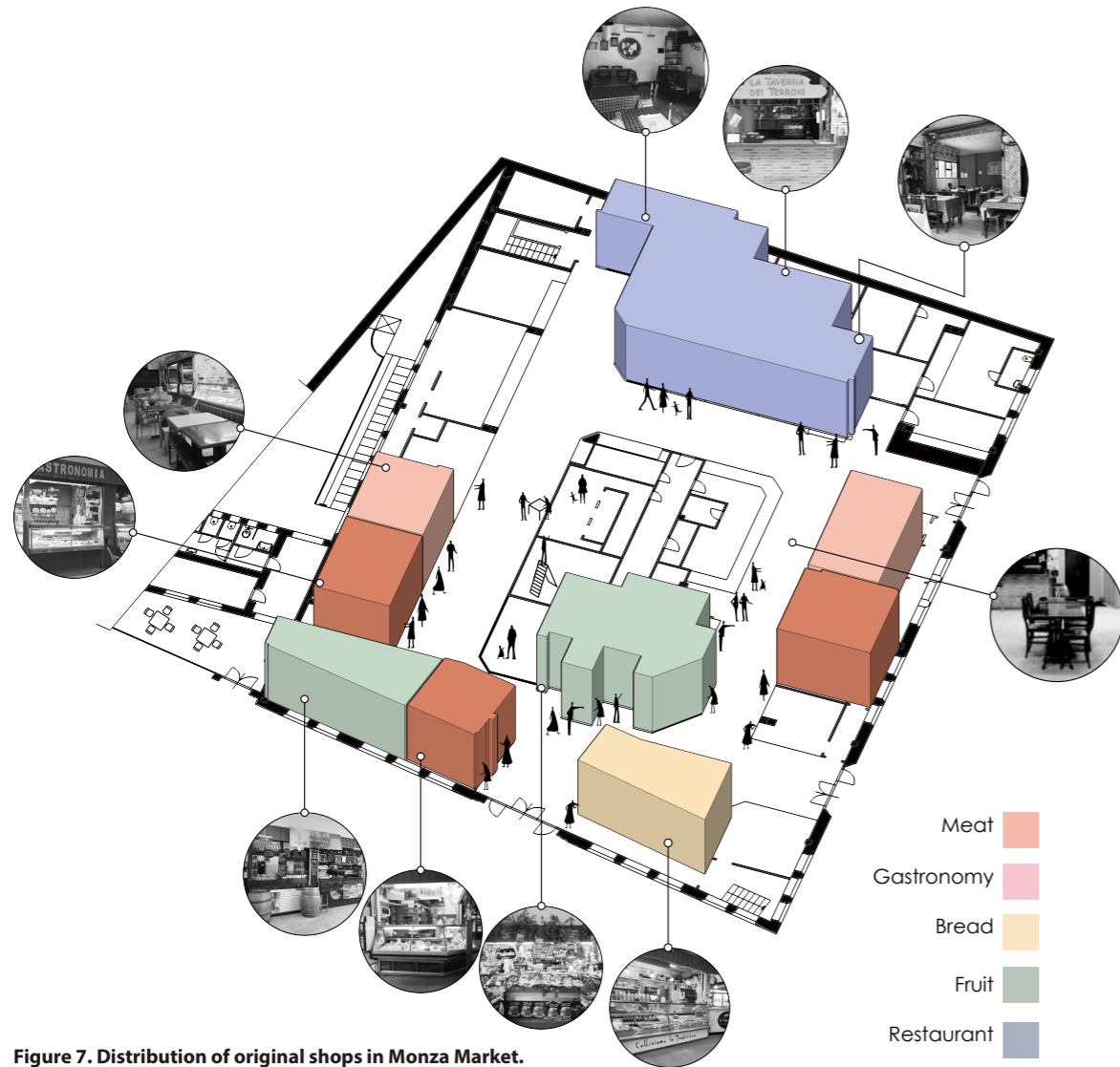


Figure 7. Distribution of original shops in Monza Market. Graphics are created by the author, based on Contest Design Studio.

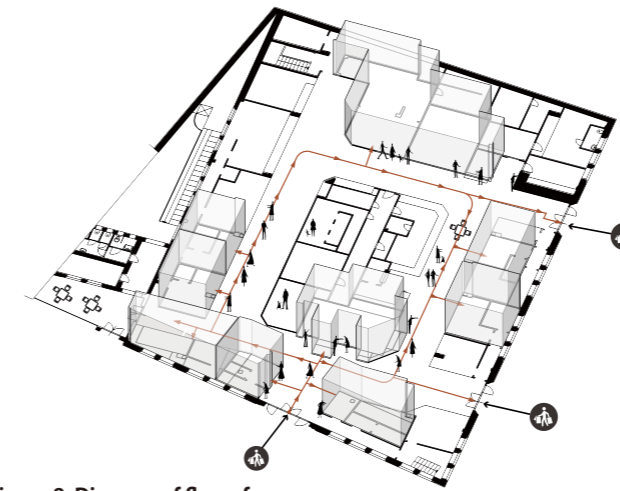


Figure 8. Diagram of flow of consumers

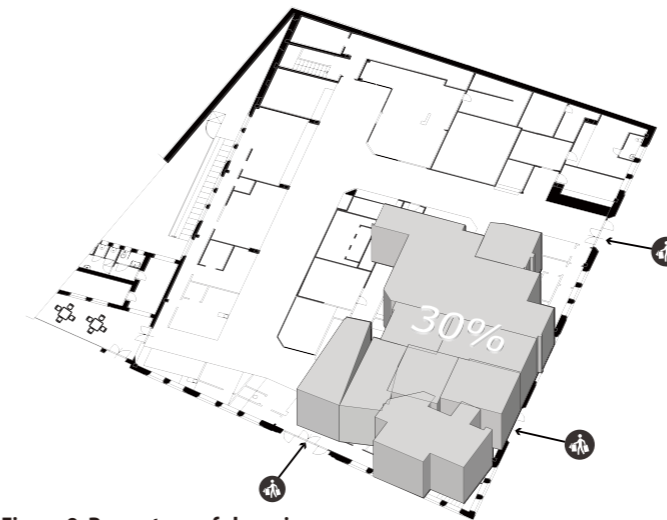


Figure 9. Percentage of shops in use

## INSIGHTS FROM MARKET SPACE

### 1. ASSOCIATION:

Associating closed shops and public space in the market; temporary shops outside the market for activities and bring liveliness back.

### 2. ALTERNATION:

Same place can be used as different function in different period.

### 3. VARIETY OF TARGETS

Organizing events which attract users from different ages, professions and nationalities.

## REASON OF SITE CHOOSING

In order to alleviate this unsustainable phenomenon of eating and wearing, I choose a suitable space in Milan as a design incubator to better integrate the existing cloth and food brand into this physical space, educate sustainable and creative lifestyle in wearing and eating aspects. Monza market in Nolo community is exactly this incubator. Because there are lots of immigrants from Asia, Philippines, and other countries, it is a mixed culture and ethnic group. Their lifestyles of wearing and eating are correspondingly diverse. So that survey based on this community will not only target locals but also people from other countries except Italy. In this way, the type of investigation will be broaden, which is benefit global promotion of my design.

# 2.2 RESEARCH OF EATING HABIT IN EUROPE

## 2.2.1 GENERAL DATA

EU FUSIONS shows that 88 million tons of food are wasted annually in the EU before 2016, with associated costs around 143 billion euros (FUSIONS, 2016). Research shows that up to 50% of food is wasted in EU households, supermarkets, restaurants and along the food supply chain – while more than 16 million people in the EU depend on food aid from charities.

Waste of food is not only a moral and global economic issue, but it also exhausts the environment of limited natural resources. It's directly linked with environmental (e.g. energy, climate change, lack of water resources, availability of resources), economic (e.g. resource efficiency, price volatility, increasing, food costs, consumption, waste management, commodity markets) and social (e.g. health, equality) impacts. Different studies show that between 1/3 and 1/2 of the world food production is not consumed but waste (Gustavsson et al, 2011; Bio Intelligence study, 2010), leading to negative impacts throughout the food supply chain (including households).

## 2.2.2 ENVIROMENTAL IMPACTS

According to survey, in 2013 approximately 24% of EU citizens wasted between 6% to 15% of the food they purchased, 10% of citizens wasted more than 15% of food and approximately 1% of individuals threw away more than 50% of the food purchased. On the other hand, 61% of EU-27 citizens declared that they throw away up to 5% of the food they buy, while approximately 5% of the respondents replied that they do not waste any food they purchase.<sup>7</sup>

Due to lack of technology, natural disasters, lack of proper infrastructure and bad practices, food losses mainly occur in the production stage, and in the later stage also happen in consumption. Food waste occurs after consumers deliberately discard food. They fail to properly plan meals and store food until they deteriorate or exceed expiry date. Sometimes, food waste can occur due to oversupply in the market. More than 50% of the waste occurs in the "upstream" or production, production processing and storage stages, with the remainder occurring in the processing, distribution and consumption stages or "downstream" stages.<sup>7</sup>

Therefore, Undoubtedly, the subsequent food waste along the food production chain has a greater impact on the environment, because we must also consider the energy and natural resources consumed in processing, transporting, storing and cooking. Food waste that is dumped into landfills produces large amounts of methane (greenhouse gases that are more powerful than carbon dioxide). These excess greenhouse gases such as methane, carbon dioxide and chlorofluorocarbons absorb infrared radiation and heat the Earth's atmosphere, causing global warming and climate change.<sup>16</sup>

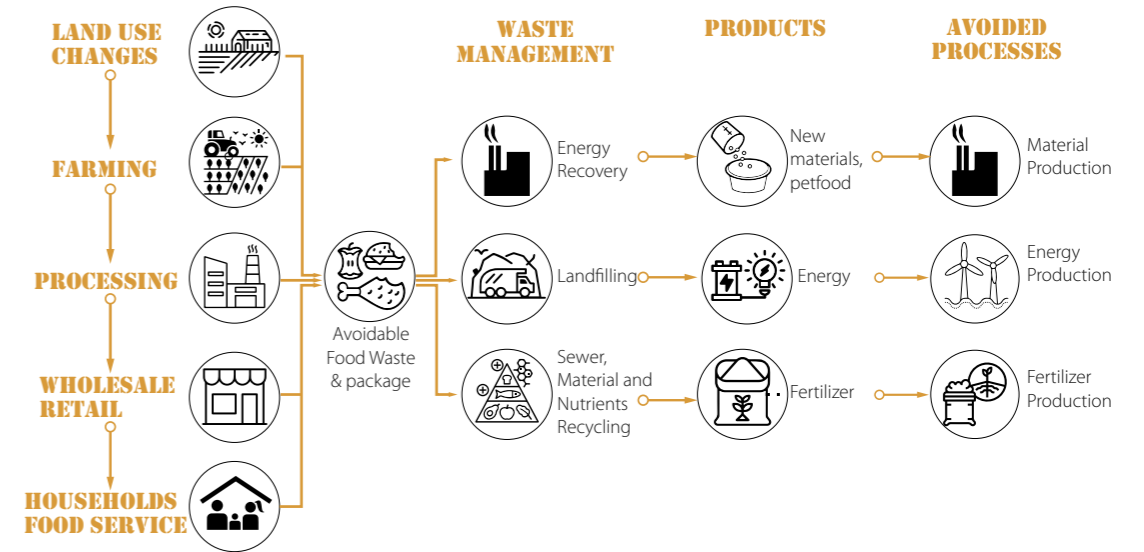


Figure 10. Diagram of food waste LCA



Photos from <https://www.moveforhunger.org/the-environmental-impact-of-food-waste/> & <https://www.theguardian.com/cities/2016/oct/16/m-lan-fight-against-food-waste-ugly-fruit-grassroots-world-food-day#img-3>

<sup>7</sup> Asa Stenmarck (IVL), Carl Jensen (IVL), Tom Quedsted (WRAP), Graham Moates (IFR). "Estimates of European food waste levels", 31 March 2016.  
<sup>16</sup> Luca Secondi, Ludovica Principato, Tiziana Laureti "Household food waste behaviour in EU-27 countries: A multilevel analysis"  
<sup>16</sup> Dana. "https://www.moveforhunger.org/the-environmental-impact-of-food-waste/", May 11, 2015

# 2.2 RESEARCH OF EATING HABIT IN EUROPE

## 2.2.3 FOOD WASTE: HOUSEHOLD LEVEL

Food waste from household contributes the most to food waste (47 million tonnes) with 70% of food waste arising at household, food service and retail (FUSIONS, 2016). These sectors account for 72 percent of EU food waste. In addition the differences in the normalized food waste amounts between the countries were great. Of the remaining 28 percent of food waste 11 million tonnes (12%) comes from food service, 9 million tonnes (10%) comes from primary production and 5 million tonnes (5%) comes from wholesale and retail.

Household food waste is therefore a big problem, that we can briefly divide household food waste into (1) avoidable and possibly avoidable waste referring to “edible” food thrown away and (2) unavoidable food waste which is waste deriving from food preparation that is not and was not edible (WRAP, 2009; Parfitt et al., 2010) <sup>1</sup> such as bones, shells and skins. Thereinto the avoidable and possibly avoidable waste of food has various serious environmental, economic and social impacts, which include water pollution, climate change, or other environmental threaten that mentioned above.

And from an economic point of view, loss of food in the consumption stage represents a cost for households which was estimated as being equal to £420 a year for an average UK household or approximately €454 in the case of an average Italian household (Segrè and Falasconi, 2011).

Avoidable food waste in the UK, Norway and Sweden is about 4 kg per week<sup>2</sup>. Avoidable waste refers to food that is consumed sometime before disposal (Quested and Johnson, 2009) To some extent, the cause of food waste was investigated. A study in the UK found that about 40% of food waste is due to home cooking, preparing and supplying more food than food (Quested and Johnson, 2009). More than half of the food is wasted because the food is not used in time. There are several reasons for food waste: “lack of planning” or “changing plans”, “buy too much”, “do not want to eat leftovers” and “no” know how to do it or “highly sensitive to food hygiene.” About two-thirds The family with children said that a lot of food waste is caused by children.

From purchase, to storage, to consumption, to treatment, the family wastes food through

uncontrollable reasons: 1. Kitchen garbage is difficult to completely empty; 2. Buying wrong; 3. Missing shelf life; 4. Food deterioration (rot, Moldy, etc.); 5, preserved leftovers are not eaten in time; 6, prepare too much food .<sup>2</sup>

Furthermore, the avoidable reason is the lack of awareness and knowledge about the recyclability and availability of food waste has always been largely ignored, due to the lack of proper handling way of food waste and methods of waste classification. Most of households do not feel bad for arbitrarily discarding avoidable food waste. Daily food consumption is also excessively hoarding, which is an important reason from household.

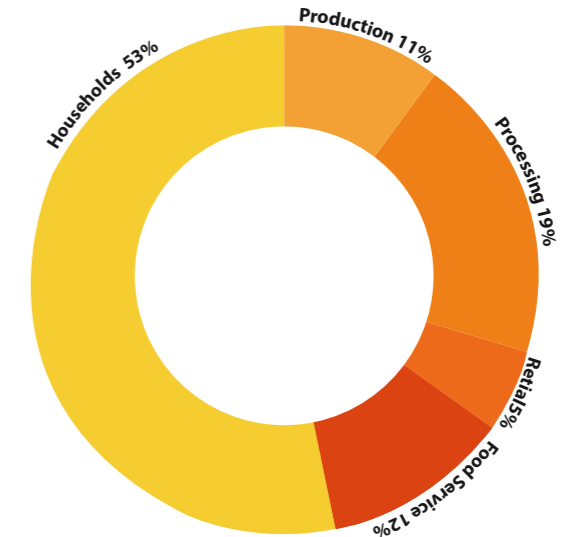


Figure 11. Percentage of reason of food waste in

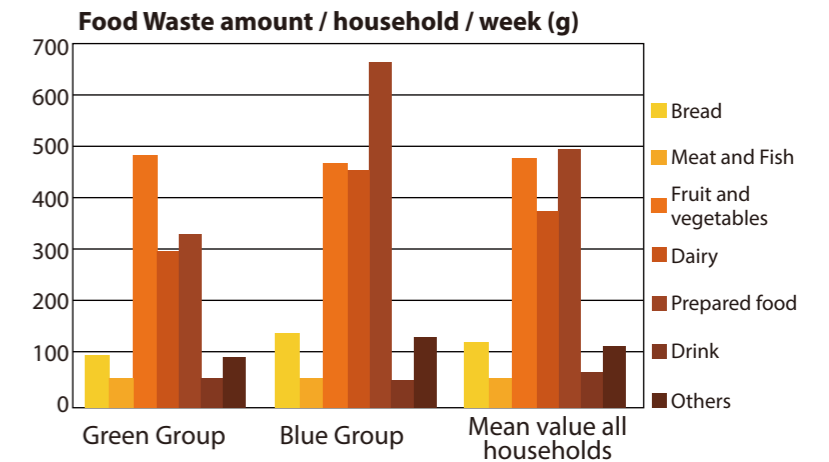


Figure 12. Categories of household food waste

<sup>1</sup> Åsa Stenmarck (IVL), Carl Jensen (IVL), Tom Quested (WRAP), Graham Moates (IFR). “Estimates of European food waste levels”, 31 March 2016.

<sup>2</sup> Helén Williams a,\*, Fredrik Wikström a, Tobias Otterbring b, Martin Löfgren b, Anders Gustafsson b,c. “Reasons for household food waste with special attention to packaging”, 2 December, 2011

## 2.3 RESEARCH OF WEARING HABIT IN EUROPE

### 2.3.1 OVER-PRODUCTION & OVER-CONSUMPTION OF CLOTHING INDUSTRIAL

According to EEA( European Environment Agency), about 5 % of household expenditure in the EU is spent on clothing and footwear, of which about 80 % is spent on clothes and 20 % on footwear. It has been estimated that in 2015 EU citizens bought 6.4 million tonnes of new clothing (12.66 kg per person).

From 1996 to 2012, the total amount of clothes bought per person in the EU increased by 40 %. At the same time, more than 30 % of clothes in Europeans' wardrobes have not been used for at least a year. Once discarded, over half the garments are not recycled, but end up in mixed household waste and are subsequently sent to incinerators or landfill.<sup>3</sup>

According to data of the World Bank's Global , the apparel industry chain has become the world's second largest polluting industry (World Bank) after the petrochemical industry. In the past few decades, the number of clothes purchased by the EU has increased by

40%, the price has fallen and the speed of fashion delivery to consumers has increased, and clothing accounts for 2% to 10% of the environmental impact of EU consumption. production material Materials, spinning into fibers, woven fabrics and dyeing require a large amount of material water and chemicals, including pesticides used to grow cotton and other raw materials. Consumer use Because of the water, energy and chemicals used in washing, the environmental footprint is also great, tumble drying and ironing, and micro-plastics that flow into the environment. Less than half of the used clothes can be reused or recycled when they are no longer needed, only 1% recycling new clothes, because technology can recycle clothes to the original fiber is just beginning to appear. The environmental problems of clothing production areas have become increasingly difficult to ignore. It has produced huge waste of resources and environmental pollution in the processing of raw materials, garment processing, and consumption and processing.

In particular, in recent years, European fast fashion industry has quickly occupied the market by simplifying the optimized supply chain and low cost. **FAST FASHION** is a fashion sales model in Europe in the 1950s. The ability to quickly give back and imitate luxury brand, and push the product to the retail shop with the shortest design and production period. However, in order to pursue high efficiency, its dependence on synthetic fibers, industrial production methods with high water consumption and high pollution have become the main factors for increasing environmental burden.<sup>13</sup>

Unfortunately, fast fashion has inspired girls' desire keep on purchasing new clothes. Such high clothing consumption has led to the waste of clothing, and inappropriate way to dispose discarded clothes. Milan is a fashion capital which fast fashion is popular here, so this phenomenon is deeply rooted in this city.



©Photo comes from Redress



©Photo comes from <https://www.15mins.today>

<sup>3</sup> Nikolina Šajin, "Environmental impact of the textile and clothing industry", January 2019.

<sup>13</sup> Mark Tungate, "Fast Fashion: Branding Style from Armani to Zara", 2005, 2008

# 2.3 RESEARCH OF WEARING HABIT IN EUROPE

## 2.3.2 RESEARCHES ON TEXTILE AND FABRIC

In order to meet sustainable development while maintaining the non-recession of the apparel industry, the fashion industry has embraced the challenge of sustainable innovation. Innovative design requires new apparel designs and more aggressive systems to achieve sustainable, environmentally friendly materials. First of all, it is the study of natural materials (eg, green natural fiber, green recycled fiber, ecological organic cotton, bamboo fiber, natural silk, soy fiber, milk fiber, corn fiber and recycled fiber), can these be ecological garments? Raw materials. They must meet the requirements of being both non-toxic and environmentally friendly to the human body. Secondly, with the development of science and technology, new synthetic high-tech materials have emerged. These new materials make up for the shortcomings of traditional green fibers, making clothes more comfortable and breathable. <sup>9</sup>

There are several suggestions for addressing unsustainable clothing consumption:

1. Development of environmentally friendly materials, new synthetic high-tech materials. (See Chapter 3 case studies: Nike),

For example, a. Plastic clothing can be dissolved into water, which is a way to reduce the pollution and waste caused by discarded clothing being sent to landfills. b. "Contacting reaction clothing": use the surface of the clothes to control pollution and purify the air.

2. Return to the combination of traditional crafts and modern technology, encourage people to use natural dyes, hand-dyed fabrics (See Chapter 3 case studies: Cara Marie Piazza), by weaving, knotting, embroidery, wrinkling, open lines, netting, beading, tie dyeing, batik Traditional decorative handicrafts such as bonding, splicing, hollowing, etc., but the problem is that such work is inefficient, costly, and not easy to promote.
4. Help change public attitudes: it involves awareness education and knowledge education
5. Develop green aesthetic value, because the design of the clothes itself will be considered in the fast fashion production chain. In order to meet the market demand, sustainable clothing consumption still needs to satisfy the aesthetic, but the aesthetics based on environmental friendliness.



©Photo comes from <https://www.textileschool.com>



©Photo comes from Bibico



©Photos come from Cara Marie Piazza

<sup>9</sup>Rajeev Kumar, "Prospects of sustainable fashion design innovation", 31 Oct , 2017;

## 2.4 ANALYSIS OF DESIGN FOCUS

The NOLO community is a very diverse living community. "Eating" and "wearing" are the two basic needs of the community. The production and consumption of food and clothing also occupy most of the residents' resources. According to the previous research, first of all, food waste occurs most frequently in the retail sector and households. This corresponds exactly to the Monza Market: the retail sector, and the family of the nolo community: households. The existing food stores in the market are good cases for improved design, focusing on food waste issues that have been studied before, as well as in food stores and restaurants in the Monza Market.

Secondly, wearing habit, there is no clothing industry chain in the market yet, but there has been some second-hand clothing stores in the Nolo community (for example, Sharing), which means residents already have attempt to extend the life cycle of clothing by selling second-hand clothing.

Also there are some attempts of integrated spaces in NOLO community, like the combination of Bicycle repairing and bar.

Therefore, we should continue the impact of these attempts and integrate them more completely and systematically with the market. In other words, we will give approaches to address unsustainable wearing habits, and cooperate with the existing sustainable development of the Nolo community, in order to further change people's original wearing and eating habits.

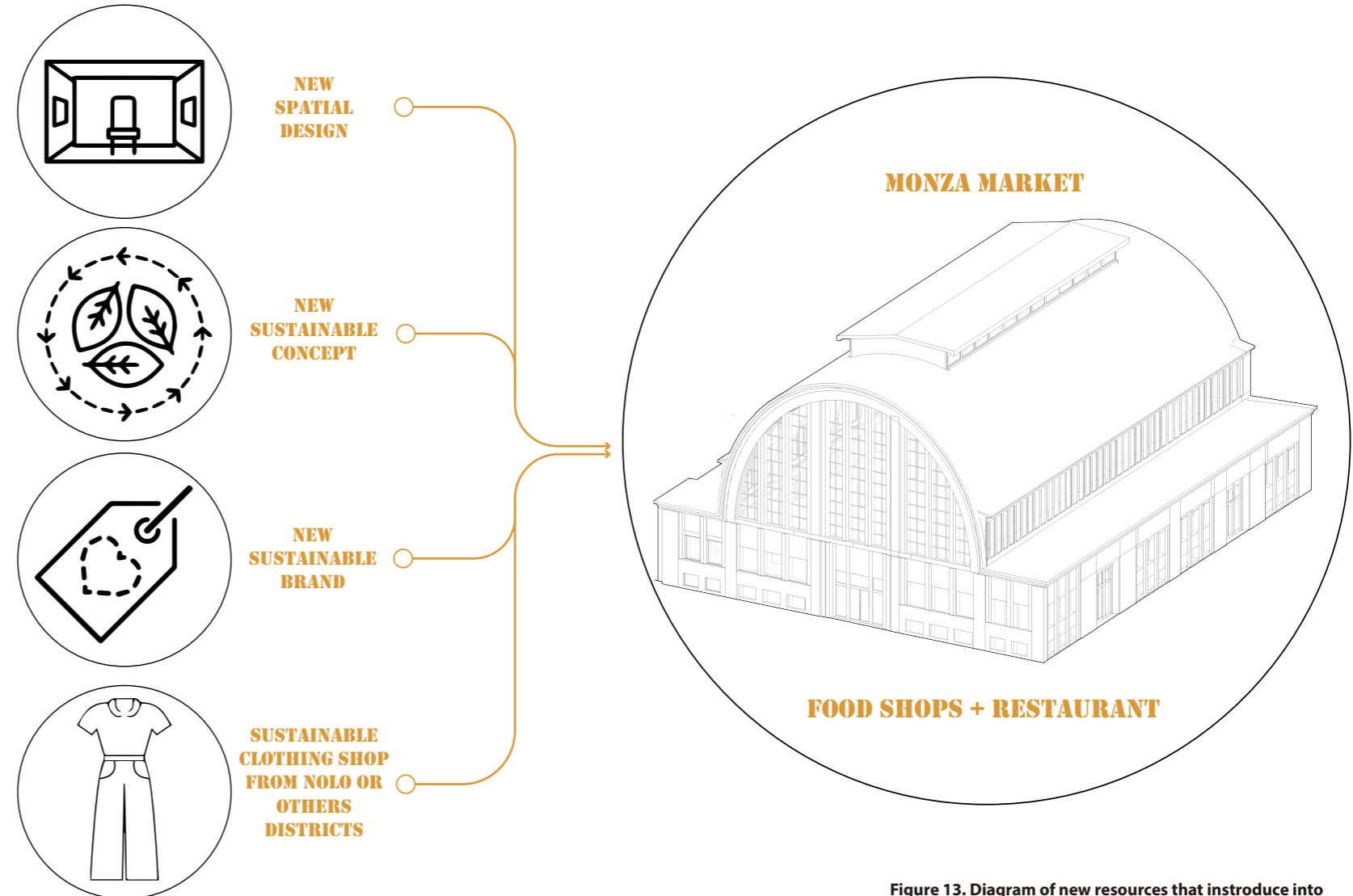


Figure 13. Diagram of new resources that introduce into



# CHAPTER

## 3 CASE STUDIES

3.1. Second-hand Vintage Shops

3.2. Researches of New Fabric

3.3. Integrated Stores with clothing and food



# CASE STUDIES

---

## **3.1** Second-hand Vintage Shops

Second-hand clothing stores are used to sell personal clothing for secondary treatment. It's not the same as recycling, it doesn't require secondary processing, so it won't produce more waste and pollution. Second-hand clothing only needs to be cleaned, sorted and resold. This is a very sensible way to extend the life cycle of your clothing. And because all the second-hand clothing in Europe has a strong vintage style, which is very popular among Europeans, so it also encourages them to live in a sustainable lifestyle.

# 3.1.1 BIVIO

<https://biviomilano.it/>



## TYPE OF STORE

Integrated second-hand shop for Luxury and normal fashion brands. (50% luxury & 50% normal brand.)

## SOURCE OF SUPPLY

**Normal Individuals:** Private individuals can provide clothes and accessories that they have no longer wear. They need to make a reservation on Bivio's website, and then sell their clothes in Bivio's retail stores. As return, providers from Bivio set the price, from that price, suppliers can choose to immediately receive 33% in cash, or 50% in a voucher valid for one year in all BIVIO stores.

**Staff in Luxury store:** They will take samples and off-season products for sale. Such as, sunglasses from Dolce Garbana or scarves from Gucci.

## TIME OF COLLECTING

Bivio will collect and buy second-hand clothes in season *spring&summer* and season *autumn&winter*. Spring&summer season is before April, and autumn & winter is probably from September to November.



Figure 14. Operating model of Bivio Shop



# 3.1.1 BIVIO

<https://biviomilano.it/>



## CLASSIFICATION DISPOSAL

**Online wish list:** On bivio's official website and other public accounts, they will upload a wish list for the quarter. In order to tell people who want to sell their clothes in bivio, what style of the clothes Bivio want to buy, as well as their brand preferences.

**Offline retail store:** In the offline store of bivio, the second floor is used to classify and dispose the clothes collected in each season. Clothes will be classified according to *brand level, style, type, and size*. They will also reduce the price of unsalable clothes by 25% for a period of time or transfer them to Bivio store in Duomo center. Because it's larger and the consumer groups are more.

## MAIN PURCHASERS

Young girl and boy  
Senior people  
There are people who love vintage styles and vintage brands come to buy them often.

## SPACE FEATURE

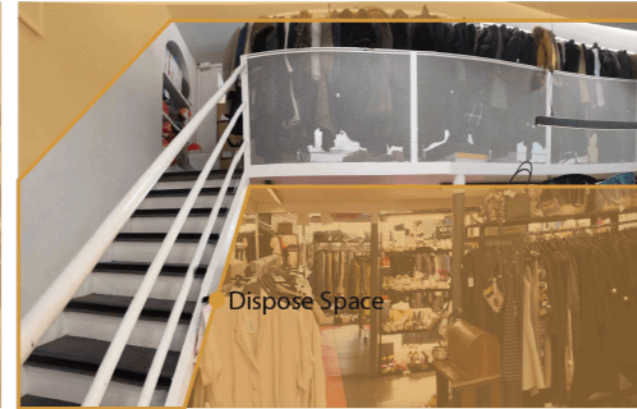
Layout is more tidy, reasonable, orderly.  
Because normal second-hand clothing stores only display clothes according to types. Instead, Bivio carefully categorized from *brand level to different brands, to the styles, types and sizes* of clothes. This allows buyers who like different brands and styles to quickly buy clothes they like.

## Independent disposal space

On the second floor and at the checkout counter, there are spaces for classifying and handling clothes. This allows employees to efficiently sort out the second-hand clothes and show them on shelf as quickly as possible.

## CASE EVALUATION

Due to the over-consumption of luxury brand clothing, many expensive but unsalable clothes can be taken over for sale in Bivio, which makes these clothes can be used more for purchase, and those who pursue branding personalization are being subtly influenced by sustainable clothing consumption.



# 3.1.2 HUMANA

<http://www.humanavintage.it/humana-vintage-milano/>



## TYPE OF STORE

This second-hand shop is very different because it is a retail store affiliated with a nonprofit organization. They sell second-hand clothing for the purpose of supporting public welfare activities in the southern hemisphere and creating opportunities for the unemployed people.

## NUMBERS

32 organizations in the world, 6 in Italy.

## SOURCE OF SUPPLY

**Donations:** Humana has set up recycling bins on the streets of major Italian cities, and nearly 2 million people donated their clothes to humans through clothing recycling bins. Humana collects clothes regularly from the collection bins, and the collected clothes are sent to the factory for sorting, cleaning and ironing. Then they will be sent to retail stores for sale.

## MAIN PURCHASERS

Young girl : 50%  
 Young boy: 20%  
 Senior people: 30%

## ORGANIZATION DISTRIBUTION



Humana has 32 organizations in 43 countries around the world, including 6 in Italy.

## TRANSPARENCY OF SUPPLY CHAIN



Donors can view humana's work on website at each stage of the clothing life cycle and related data, and what are this money used for, that allows us to see exactly what we are contributing to and contributing to the project.

## CLOTHING PROCESSING



1. In the area with Humana, people can put their unwanted clothes into the collection box that Humana set up on the street.



2. Humana managers regularly ship clothes to the their factory.



3. At the factory, they pick out clothes that can be sold in Humana retail store. Then classify them, wash, iron.



4. According to the amount of various types of clothing recycling. In the factory, clothes are divided into four categories: summer dresses, winter clothes, accessories and recycling cloth.



5. 70% clothes for reuse and 30% clothes for recycling



6. Finally, the finished clothes will be sent to the retail store for sale.

# 3.1.2 HUMANA

<http://www.humanavintage.it/humana-vintage-milano/>



### SPACE FEATURE

Relatively simple, straightforward in space layout.

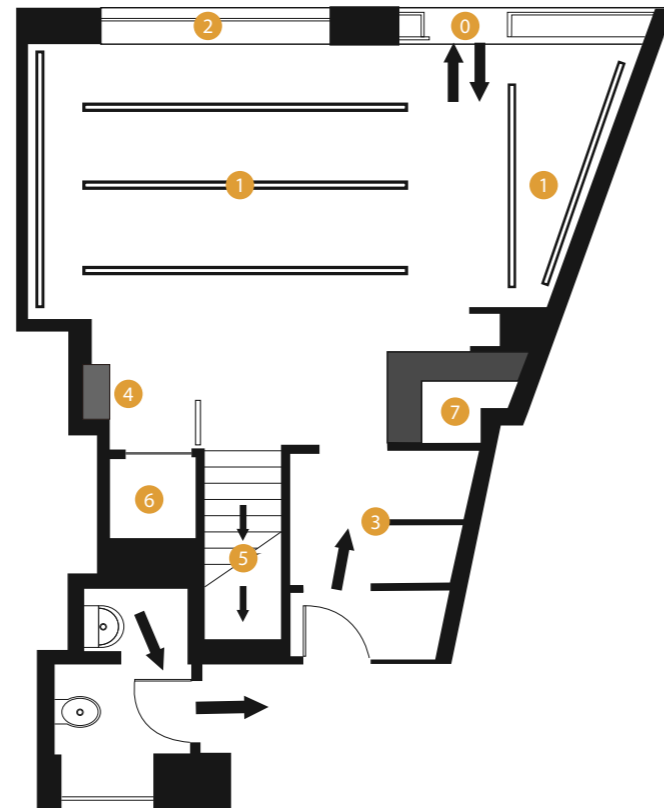
The employees classified clothes according to type of clothes: dress, pants, tops, jackets and so on. The first floor is women's clothing, and the second floor is mostly men's suits and trousers. Because it is clothes donated from all over the country, there is no clear classification of clothes in colors and patterns.

However, the overall clothing features are bright colors, a wide variety of fabrics, and a distinctive vintage style. Due to vintage fashion trend, humana's clothes are very popular among young people. At the same time, the elderly also like to buy clothes here.

### CASE EVALUATION

The recycling process extends the life cycle of millions of ordinary clothing, and donors are also contributing to improving the environment. This is an indirect way to improve people's ecological intelligence.

*However*, these second-hand clothes will eventually into the landfill. This still makes a process from the cradle to the grave. I need to think about better method to get clothes from the cradle to the cradle.



- 0 ENTRANCE
- 1 SALE AREA
- 2 WINDOWS FOR EXHIBITION
- 3 FITTING ROOM
- 4 BAG AREA
- 5 STAIR EXHIBITION
- 6 STAFF ROOM
- 7 CHECKOUT DESK

Figure 15. Plan of Humana shop



# CASE STUDIES

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## **3.2** Researches of new fabric

There are now many brands, such as Nike, Adidas and the north face, which are pursuing sustainable fashion innovation. One of the important research directions is the innovation of materials. Included technological innovation as well as in design. They are looking for materials that are more eco-friendly and harmless for human body.



# 3.2.1 NIKE

<https://news.nike.com/sustainability>



## NIKE GRIND

Nike has been committed to sustainable innovation, especially material innovation, to the impact of the environment. Among them, the material named "Nike Grind" accounted for 71% of Nike footwear and clothing.

Nike Grind materials are created from Nike's recycled surplus manufacturing materials and athletic footwear. **Rubber, foam, fiber, leather and textile blends** are separated and ground into a wide range of granules. Different Nike Grind materials are incorporated into performance products ranging from new Nike footwear and apparel to sports and play surfaces. Nike Grind materials can provide points toward LEED certification for environmentally conscious projects.



**RUBBER**



**FOAM**



**FIBER**



**LEATHER**



**TEXTILE**

## DERIVATIVE PRODUCT OF NIKE GRIND

Pdd\_kicks, as assortment of climbing holds for rock climbing walls made from NIKE GRIND.



A modular stool: made with NIKE GRIND fiber fluff, rubber granulate and blend cork.



Yoga accessories developed with assortment of NIKE GRIND.



Inshape Mattress is a vacuum mattress for people suffering from neurodevelopmental disorders, it is filled with NIKE GRIND and rubber materials.



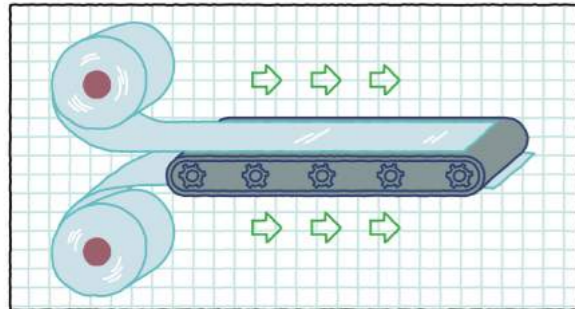
# 3.2.1 NIKE

<https://news.nike.com/news/sustainable-innovation-air-bag-manufacture>

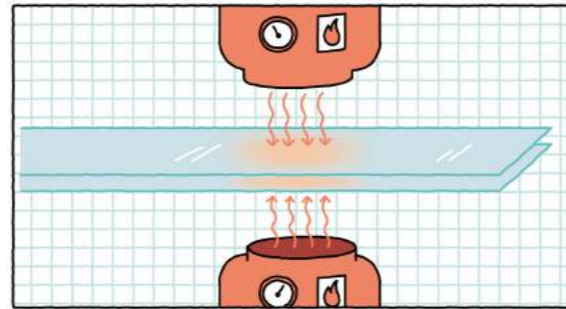


## AIR SERIES

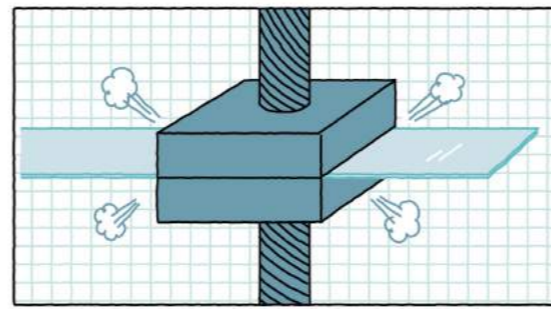
Air Series replaces the synthetic rubber material in traditional soles by filling the recycled polyurethane airbag with pressurized air. The sole is not only more elastic, but also has a stronger cushioning force, like walking in the air. Filling the recycled material with air also puts less stress on the environment.



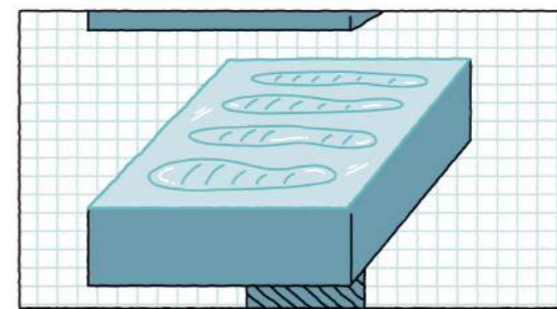
1. Thermoforming Thermoplastic Polyurethane (TPU) film, which is done by feeding two sheets into a thermoforming machine.



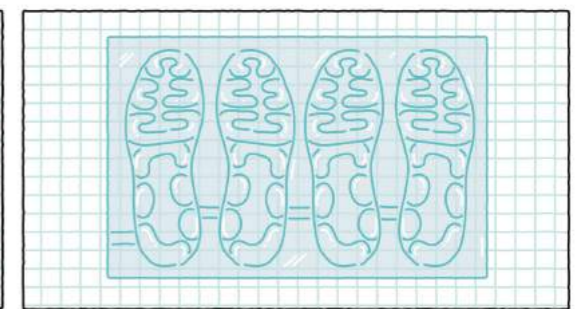
2. Then, a series of heaters passes through the sheets.



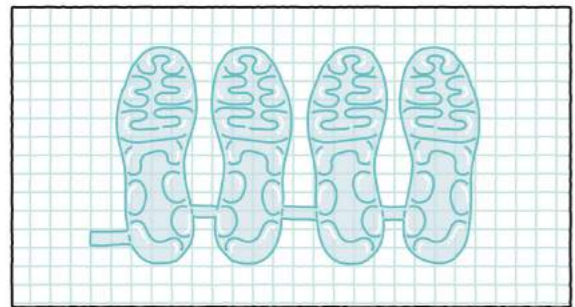
3. When the sheets reach the desired temperature, molds clamp them together.



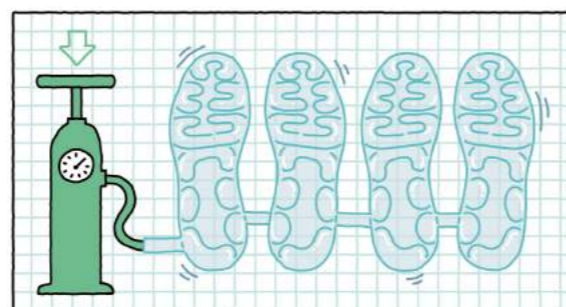
4. These molds are used to create the shape of Nike's air soles.



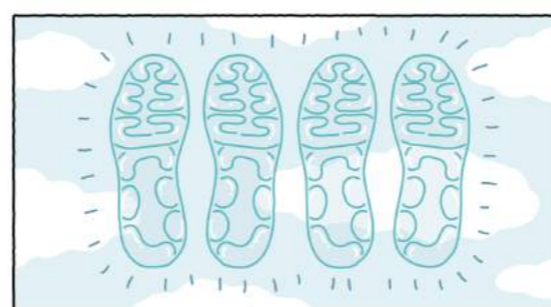
5. Next, the molds need to be trimmed.



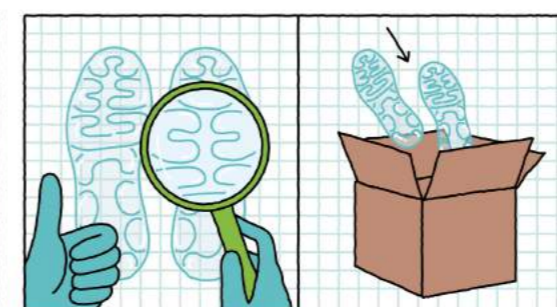
6. After they are trimmed to the correct shape, the molds are inflated with nitrogen gas.



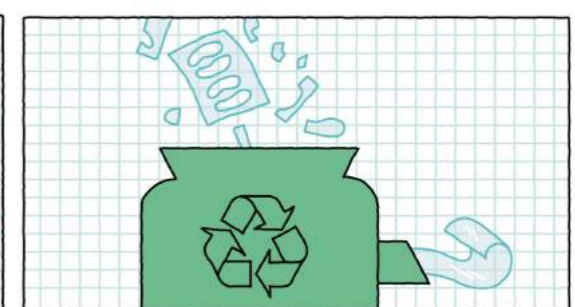
7. Nike Air technology consists of pressurized air (nitrogen) inside a tough, yet flexible bag.



8. Once inflated, the air bags are ready for inspection.



9. They are visually inspected then prepared for shipment to Nike's contract footwear factories.



10. Nike continues to salvage more than 90% of excess scrap material, which will be reground and turned into new film to start the process all over again.

# 3.2.2 CARA MARIE PIAZZA

<http://www.caramariepiazza.com/>

## NATURAL AND ARTISANAL DYER

Cara Marie Piazza is a Natural Dyer who works in New York City. She creates a textile that uses only *natural dyes* such as **plants, flowers, minerals, non-toxic metals and food waste**. She processes her fabrics with alchemy dyes, ancient shibori techniques and strap dyeing, transforming each textile into its own story.

## FABRIC CHARACTERISTICS

There is no special design in the clothing itself, it is a very basic style. Her innovation in fabrics is the biggest highlight. For example, she crushed the red pomegranate on a white silk skirt and crushed a bunch of flowers on a cotton cloth. All the patterns are randomly generated, but the pattern that is formed each time is surprising.

## CASE EVALUTION

Designers realized that the synthetic dye industry used in general clothing is seriously polluting the world's water resources, and that standard dyes use heavy metals to fix the color of the fabric and are not biodegradable, and may take more than 300 years completely disintegrate, which seriously destroyed the ecosystem and drinking water where dyeing mill is located. This means that the original dye makes it completely unfriendly to environment.

Conversely, if we dyed clothes with natural dyes from plants, food waste by-products and animal-based dyes, it is a sustainable way to reuse food waste and reduce environmental stress.

## INSPIRATION

In general, fashion and environmental friendliness are always contradictory. But we can create a connection point that allows people to dress more sustainably while enjoying fashion. Natural dyeing is a good connection point, because natural dyeing can present random but unexpected beauty on the fabric. The clothes made in this way are more innovative than the synthetic dyed clothes. Therefore, natural dyed clothes may become a fashion trend. What we have to do is exactly to **turn sustainable clothes into a fashion trend**.<sup>5</sup>



<sup>5</sup>Rodica Harpa, "Analysis On Green Knitted Fabrics Made Out Of Organic Cotton Yarns, And Natural Dyed", 25 – 26 September 2014

# CASE STUDIES

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## **3.3** Integrated stores with clothing and food

In addition, I need to integrate existing food stores in Monza market and subtly combine them into newly designed spaces. Therefore, research on integrated stores for food and clothing is also essential.

Nowadays, food has become a very important part of the business model. In the fashion field of clothing, catering helps to create a good atmosphere and experience. Therefore, in order to enhance the consumer's shopping experience, attract customers and increase brand impact, many brand add food-related services to the clothing store.

# 3.3.1 ONE BLOCK DOWN MILANO

<https://www.oneblockdown.it/en>

## TYPE OF STORE

One block down is a chain store specializing in sports shoes. But this one block down near the Duomo in Milan is especially different. It is an integrated store, a mix of food bar and shoes store.

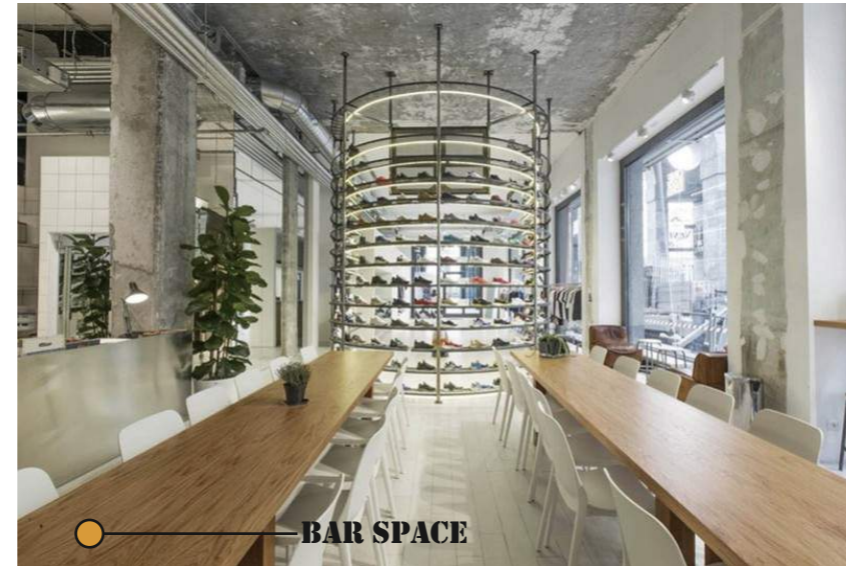
## SPACE FEATURE

The space is very transparent, and the location near the entrance is a spacious juice bar that gives people afternoon tea. The space inside is a space enclosed by a giant wire-shaped shoe rack. Since the shoe rack is transparent and has a large gap, the entire space is transparent.

## CASE EVALUATION

The two spaces are functionally complementary.

On the one hand, people who eat and drink here can see shoes through the transparent shoe shelves during their rest. This is a subtle sales promotion. On the other hand, people who shop here can rest while they are tired and drink something. This is a good shopping experience.



## 3.3.2 BIOLIVING 百武西

[http://www.sohu.com/a/190254571\\_159000](http://www.sohu.com/a/190254571_159000)

### TYPE OF STORE

Founded in Hong Kong in 2008, BIOLIVING is a designer original brand. In the retail store in Shanghai, it is based on the oriental vintage literary style, and all relevant styles from catering to clothing are integrated into this space.

### SPACE FEATURE

In terms of space design, the introductory wood and white walls serve as the main tone of space, and the thin frame is used for decoration. The space is divided into a clothing area, a tea sales area, and a refreshment bar.

What is more interesting is that the table and chairs for eating are placed in the clothing area, which allows people enjoy afternoon tea in beautifully decorated costumes, giving consumers a stronger buying hint than the previous case.

### CASE EVALUTION

Under Chinese background, such an integrated shopping space with strong literary atmosphere is what young people are pursuing now. Under the premise of giving the whole space a theme, it integrates some consumer goods that modern young people need, making this shop more attractive and shopping experience better.



# CHAPTER

## 4 PROJECT: BREATHING LIVING HALL

- 4.1. Concept Generation
- 4.2 Space Functions
- 4.3 Personas
- 4.4 Spatial Journey
- 4.5 Clothing Journey
- 4.6 Conclusion
- 4.7 Plans





# 4.1 CONCEPT GENERATION

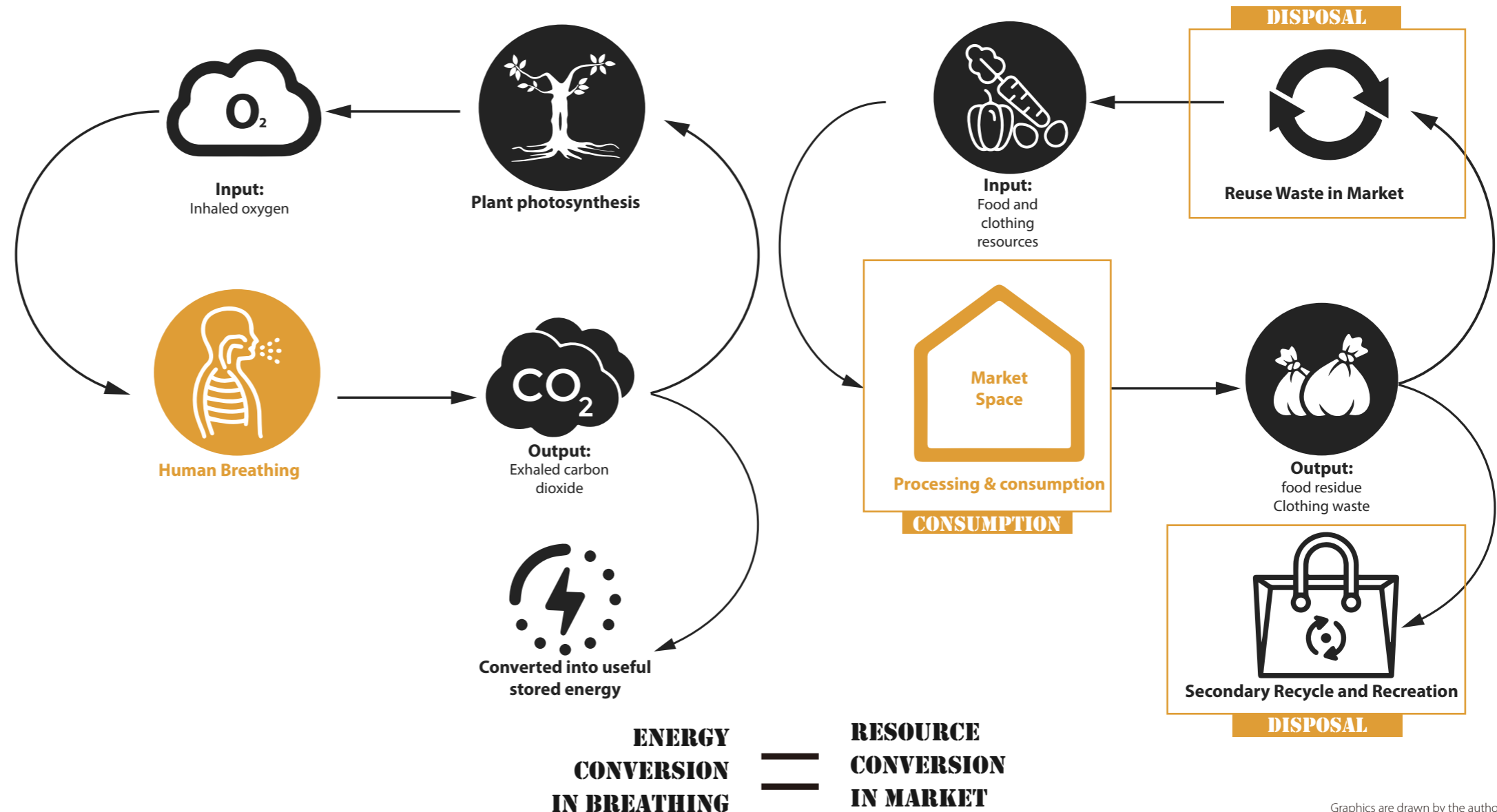
## 4.1.1 BREATHING LIVING HALL:

In order to convey the concept of sustainable lifestyle, the concept of interior space is a living hall that can breathe.

I hope to achieve the balancing of input and output of resources in Monza market, and even influence surrounding community in the last stage, which means that the food and clothing resources imported from outside can be recycled, reused or recreated after first consumption. The life cycle of resources would be extended. This process is like respiration of human. People need to balance exhalation and inhalation in order to maintain the survival of the living body. In addition to the concept of Breathing living hall, the space design is embellished with bright blue and yellow and green water-grown vegetables, which also expresses the green, eco-friendly and sustainable nature of this space.

This concept will support me to design the interior space base on two important aspects of sustainable lifestyle:

**Wearing habits** and (second-hand cloth, creation of new fabric, etc. ) **eating habits** (food waste, food recycle, etc.). And the design will focus on making improvement in the **process of consumption and disposal.**



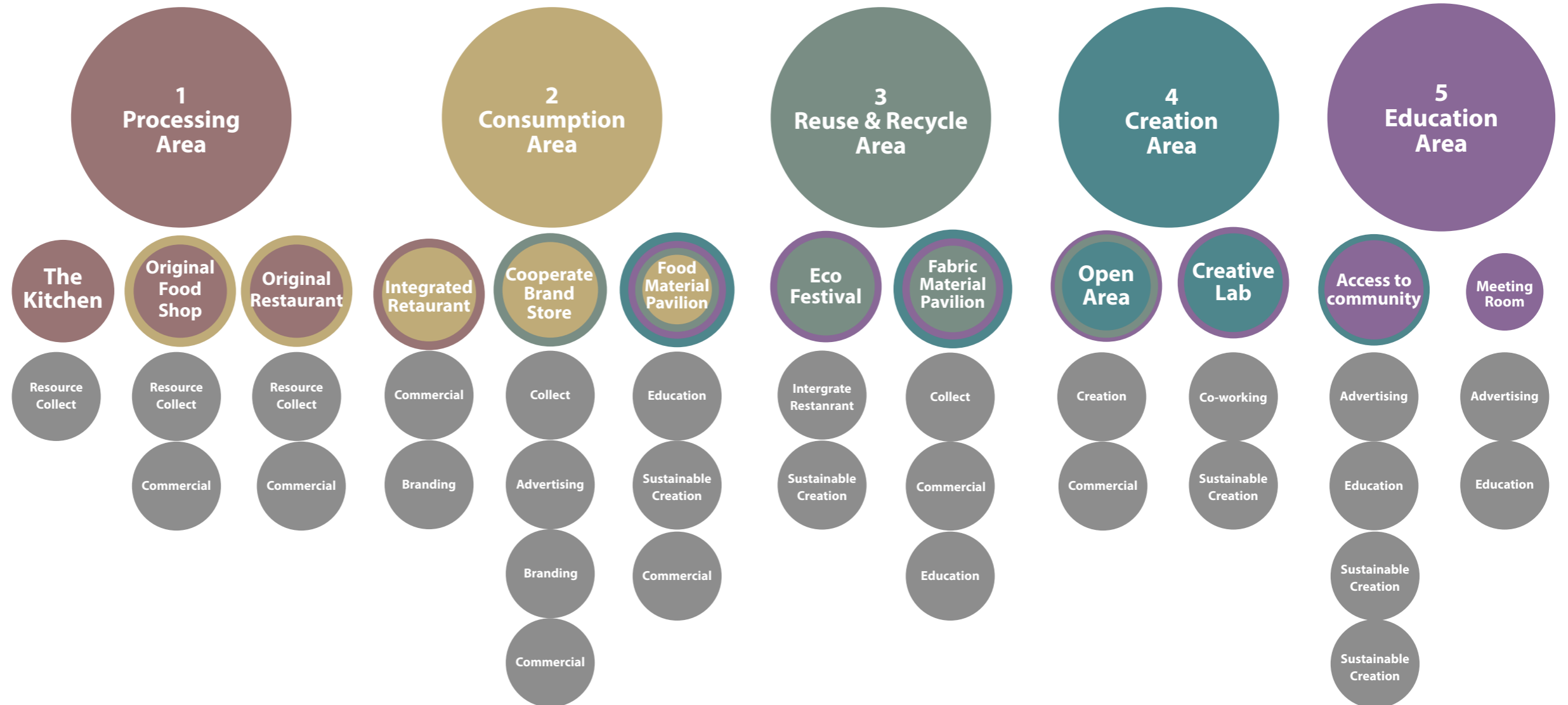
Graphics are drawn by the author.

# 4.2 SPACE FUNCTIONS

## 4.2.1 BUBBLE DIAGRAM

Bubble diagram is an important design working process to help author figure out functions of each space including original and new spaces. And what the relationships among these spaces.

In addition to that, by following the concept diagram, all spaces can be classified according to processes of resource conversion that happen in market: Processing area; consumption area; Reuse& Recycle area; and creation area, as well as education area. People will possess a spatial journey which involve all spaces that mentioned above, because the a chievement of a sustainable activity need cooperation of more than one space.



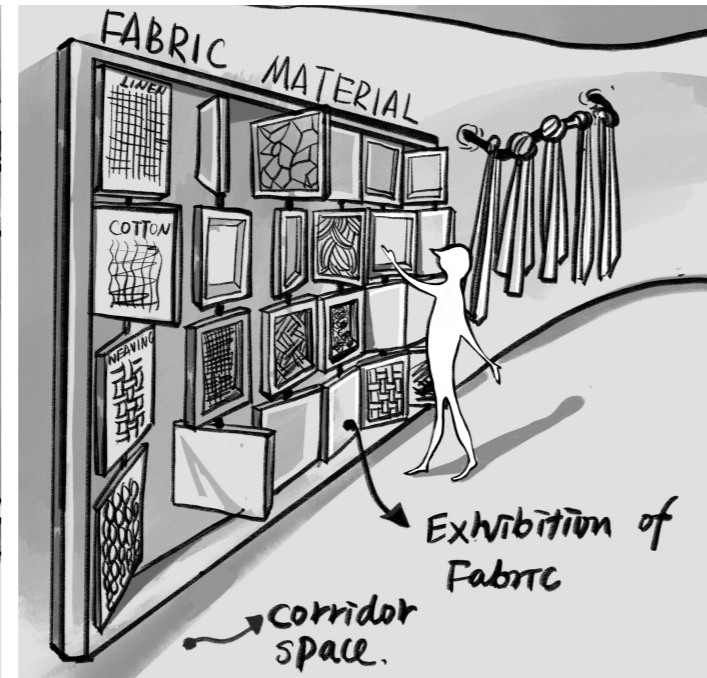
# 4.2 SPACE FUNCTIONS

## 4.2.1 SKETCHES OF GENERAL PROPOSALS



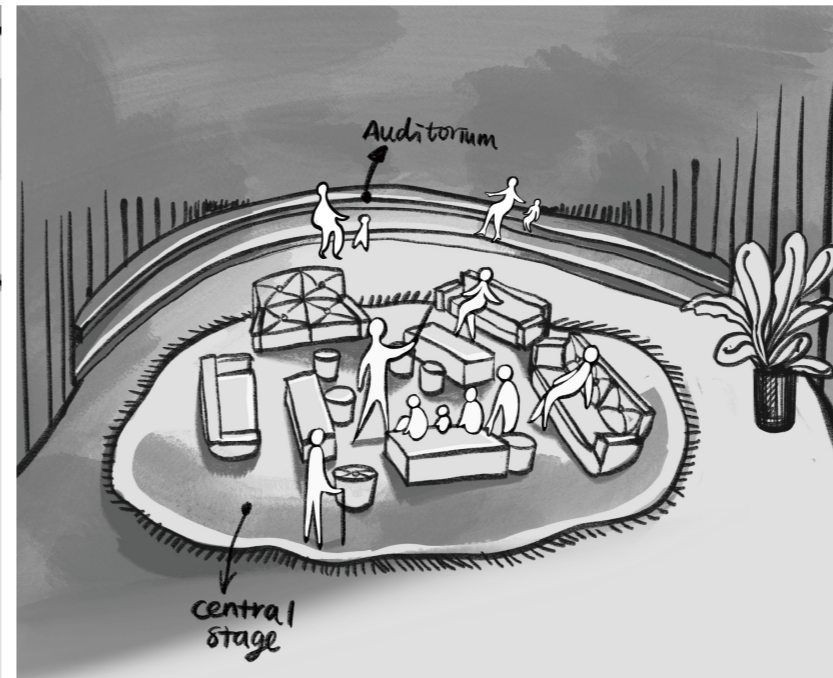
### CO-BRAND STORE

In Monza Market, there would be a Brand Store, which cooperate with existing brands above (include second-hand brand & Luxury Brand) to sell second-hand clothes. In meanwhile, we organize periodical activities. (such as second-hand fashion show, recreation of second-hand Fabrics etc.)



### MATERIALS PAVILION

The space is designed for helping people understand raw materials of food and clothing as well as production process from raw materials to finished products. At the same time, the raw materials displayed will also be sold as commodities.



### CENTRAL STAGE

It a sinking stage, which is also a large open space to hold Eco-friendly Festival in certain period. We hold the following two type of festival every year. 1. Eco-friendly food festival calls together the food store's shopkeepers, community artists, and other participants into the market they'll use to recycled grain and peel from the market to make food art and other food creative activities (such as plate art). 2. Eco-Friendly Fabric Festival call together experts in creative dyeing and weaving, where participants can learn how to use recycled fabrics and cloth to dye interesting clothes, as well as educate them to create more eco-friendly ways of dyeing and weaving. A temporary T-stage will be set in the center of stage, to show the design affect of clothing creation.



### CREATIVE LAB

In the market, public office space, radionolo's office and the artist's private office, as well as a more open event room will be set up. To meet the needs of different kinds of co-working activities.

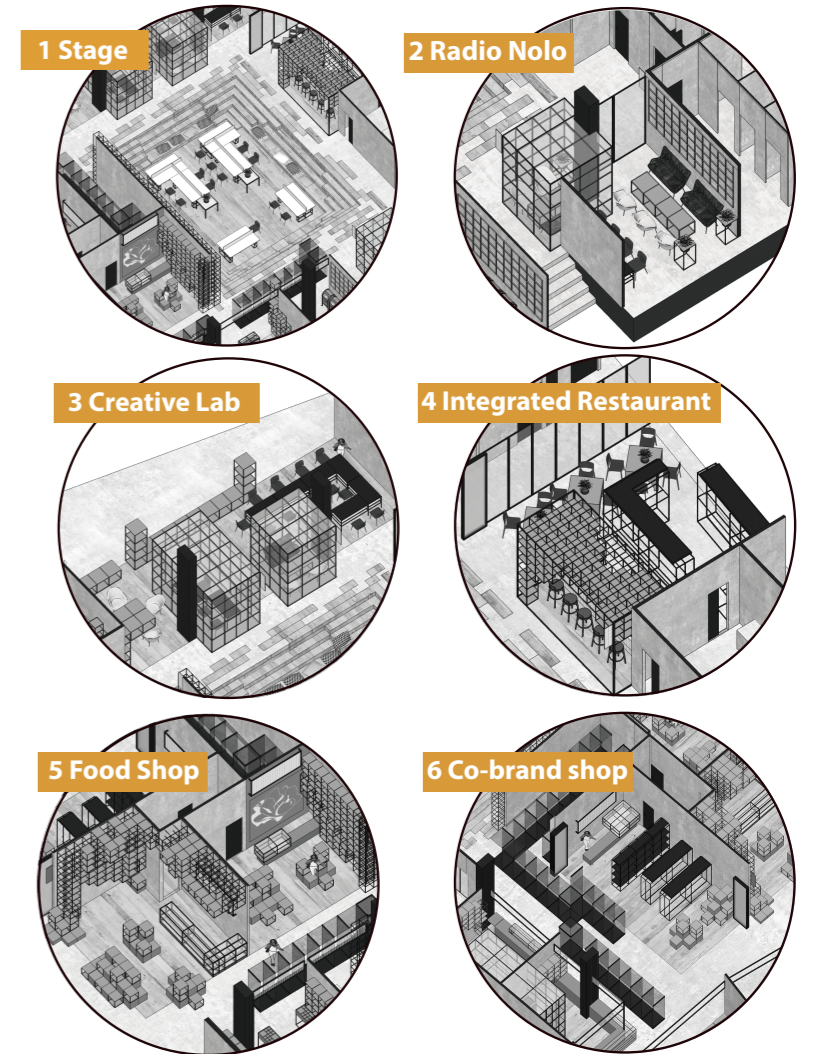
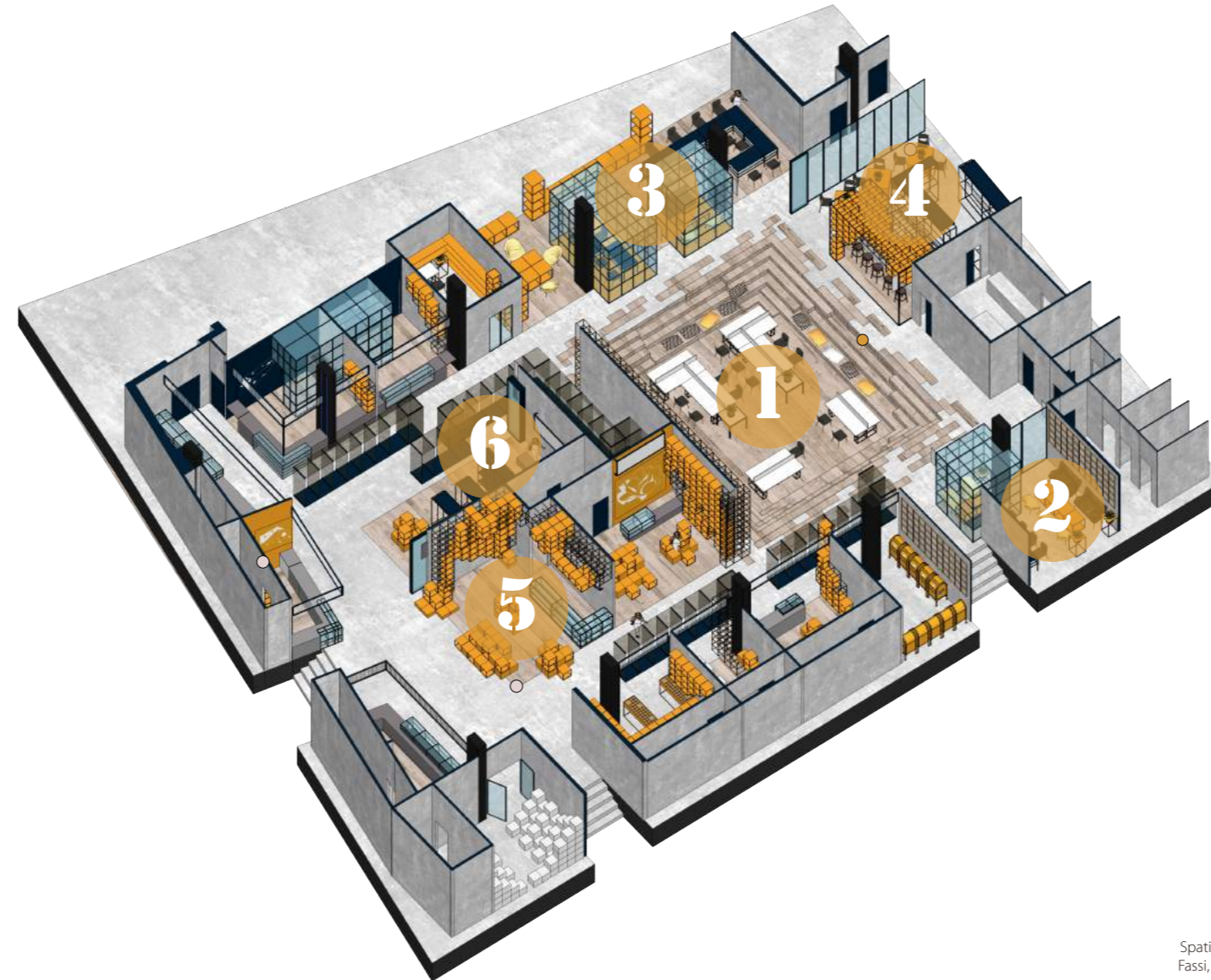
Sketches are drawn by the author.

# 4.2 SPACE FUNCTIONS

## 4.2.1 DESIGN BRIEF

The Monza market will be transferred into the first experimental breathing living hall in NOLO community.

First of all, original stores are endowed with sustainable operating features, their spatial style will be redesigned, and the co-working space plays different roles at different times. Secondly, Radio Nolo studio helps record what happened here, like a variety of sustainable lifestyle activities that help people continue to improve this lifestyle. Thirdly, material pavilion is a space to help residents grow their knowledge of sustainable materials. Fourthly, second-hand clothing stores help extend the life cycle of second-hand clothing. This shop will also introduce existing Milan second-hand clothing store brands and work with them to increase its influence. Fifthly, integrated restaurant is a comprehensive venue that integrates the functions of clothing shopping and restaurants, which is now a new type of commercial space. It is distributed close to the central stage. When an important festival held in stage, integrated restaurant can drive up atmosphere and provide a good service for participants of festival. The most important is the stage in the back middle of the market, which carries a variety of festivals and functions. Stakeholders in all other spaces gather here to witness and improve the way these activities operate.



Spatial Design is based on Group 5 of Contest Design Studio, guided by Contest Design Studio, by Professors Davide Fassi, Laura Galluzzo, Anna Meroni, and Assistants Martina Mazzarello, Francesco Vergani, redesigned by the author.

# 4.2 SPACE FUNCTIONS

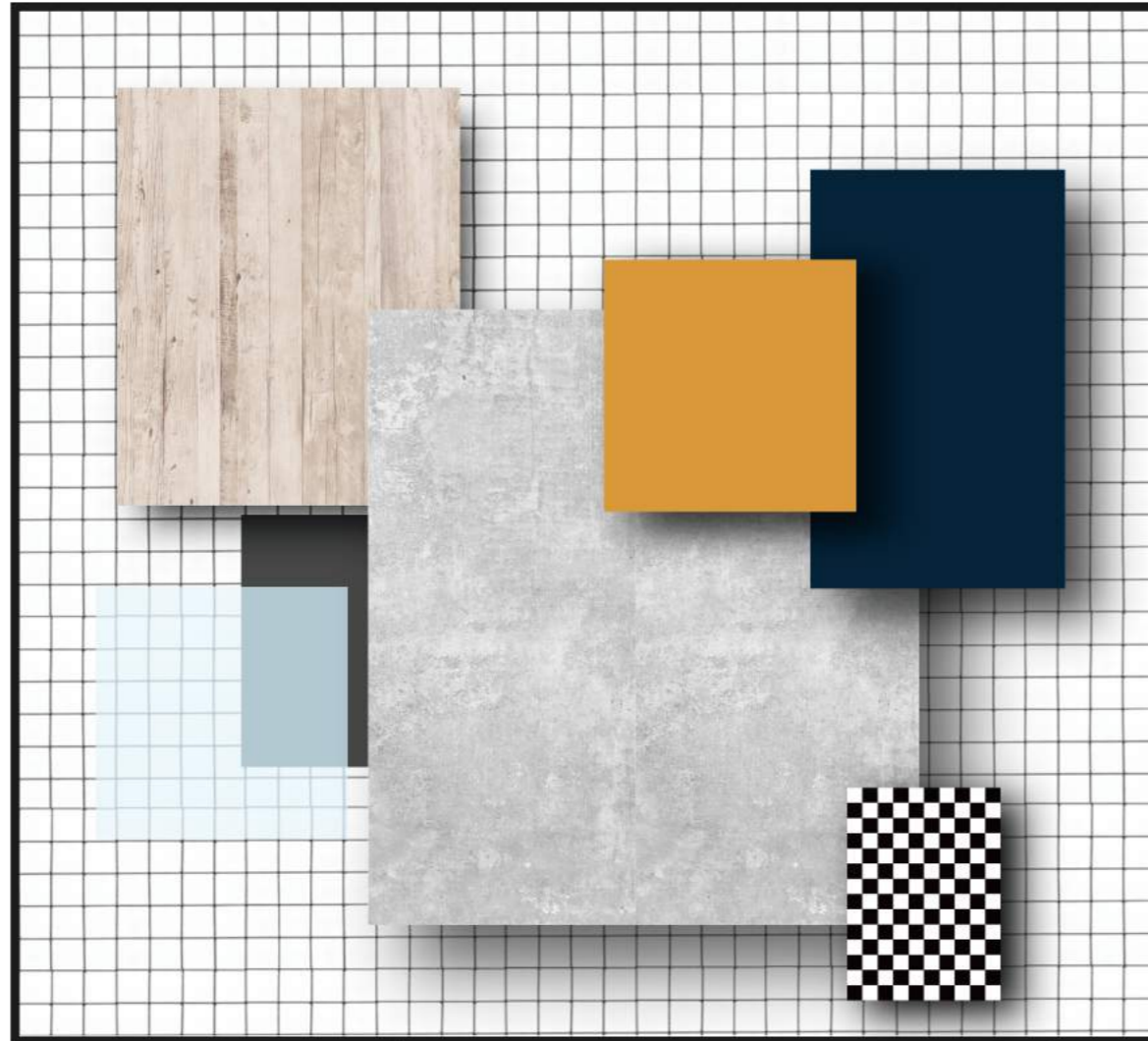
## 4.2.1 DESIGN ELEMENT

The main space element is a bright yellow 40\*40 (cm) square grille, which is used as a basic module to carry out various combinations to meet the functional requirements of different spaces. The main functions are display, storage and farming vegetables and plants.

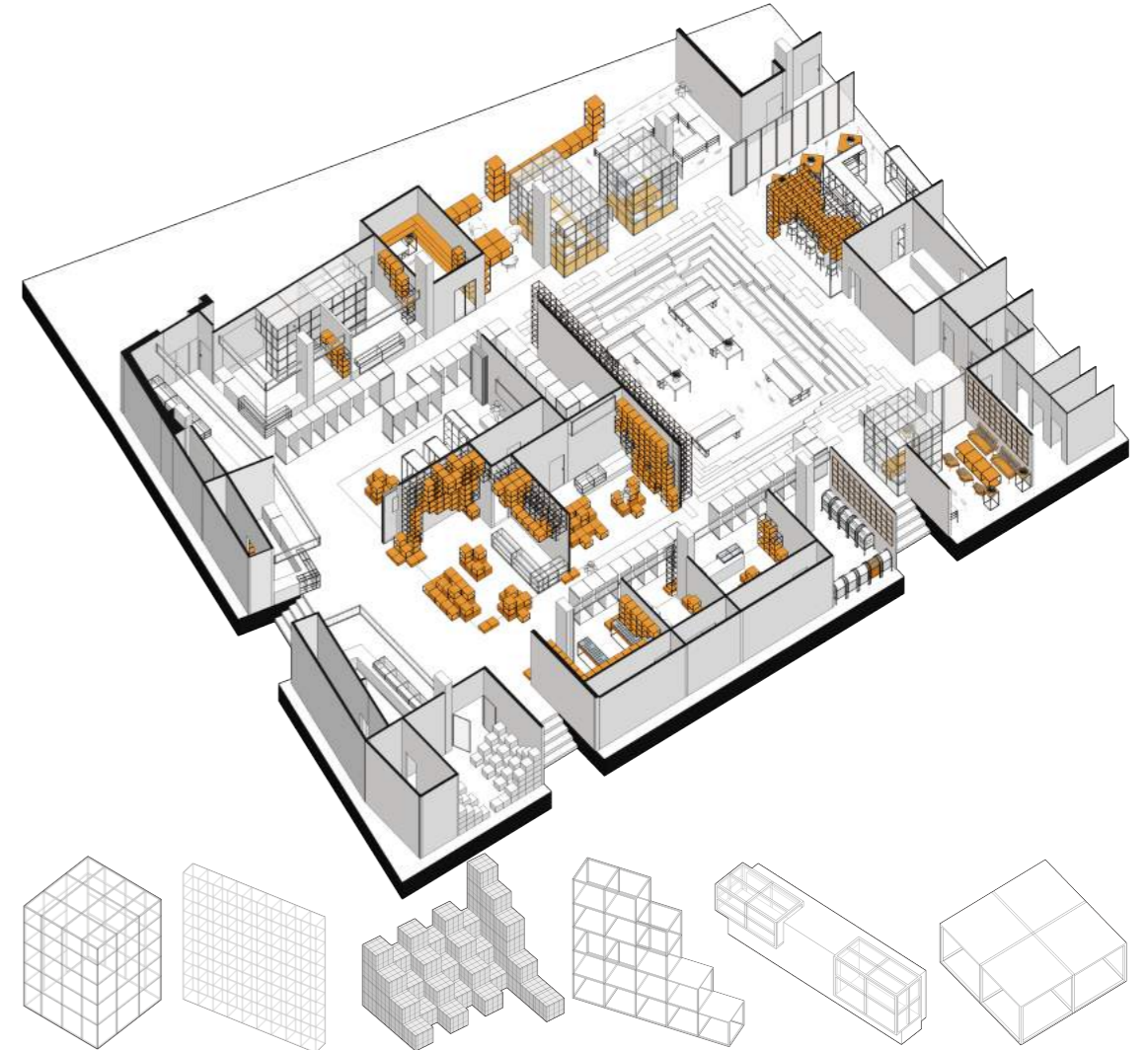
In order to extend this design element, in the office space, the square grille is also used as furniture (such as cabinets, tables, etc), it is also installed as a decoration on the ceilings of corridors, shops and restaurants.

The material of the entire space is mainly made of bare concrete, which is the main material of the floor and the wall. Secondly, the bright blue and yellow tones are used in space too, yellow is the main color of the square grille, and blue emphasizes some important spaces. There is a light wood material that used to emphasize shop area. And correspondingly, a small number of black and white grid material will be used to highlight some showcases.

## MATERIAL BOARD



## SHOWING | STORAGE | FURNITURE | PLANTING

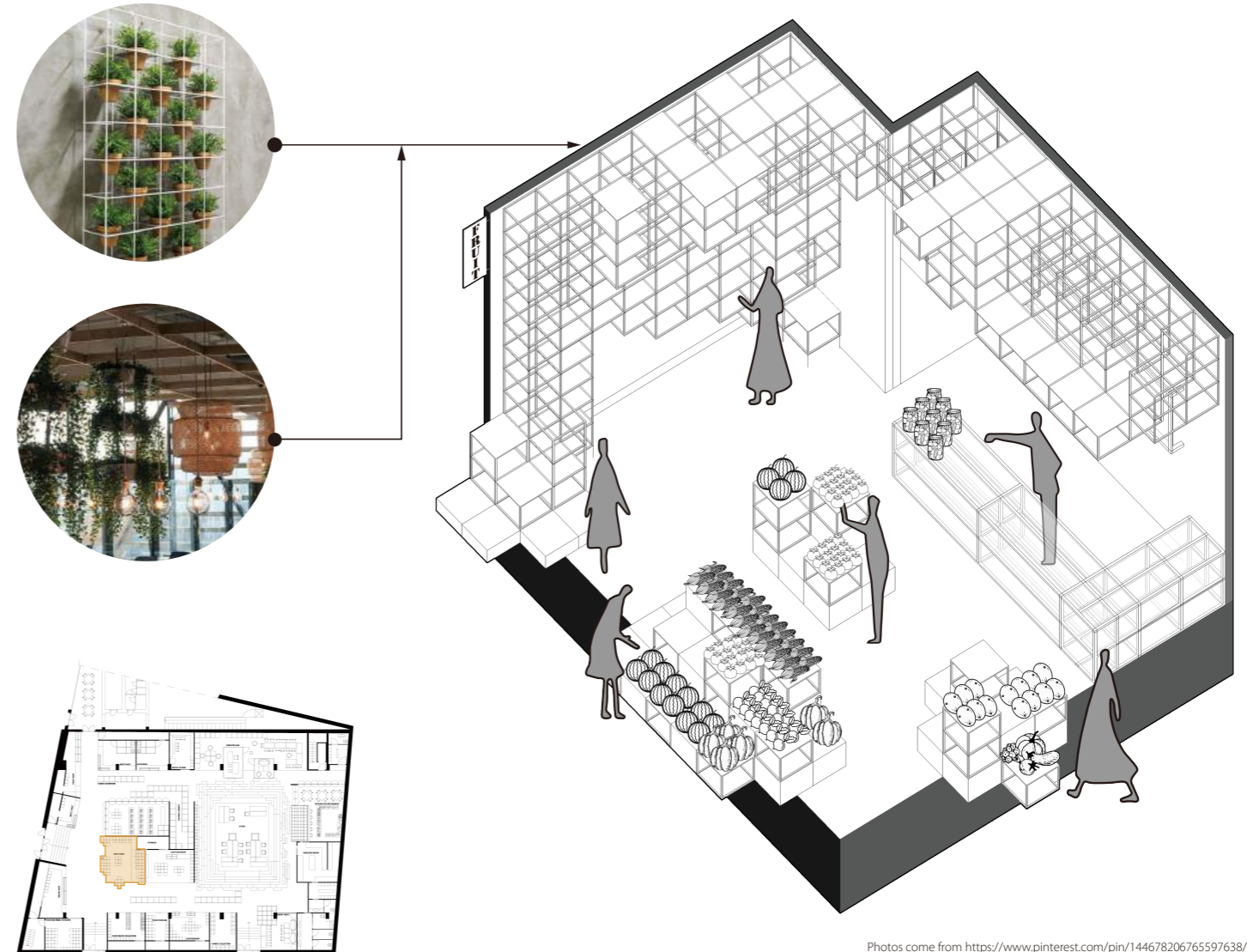


# 4.2 SPACE FUNCTIONS

## 4.2.2 ECO-FOOD SHOP

The part of the space design, first of all, the original shop was designed in unique way, with the design elements of the yellow grille, so the yellow grille is not only a showcase but the extended expression of design style.

Scindapsus aureus spreads on the upper part of those shelf and the compost residue of the food is the nutrients to help it grow. People could shop normally in these stores as usual, and the only change is that these shops have become a part of sustainable living, making a contribution to the recycling of resources as well as the advertising of sustainability.

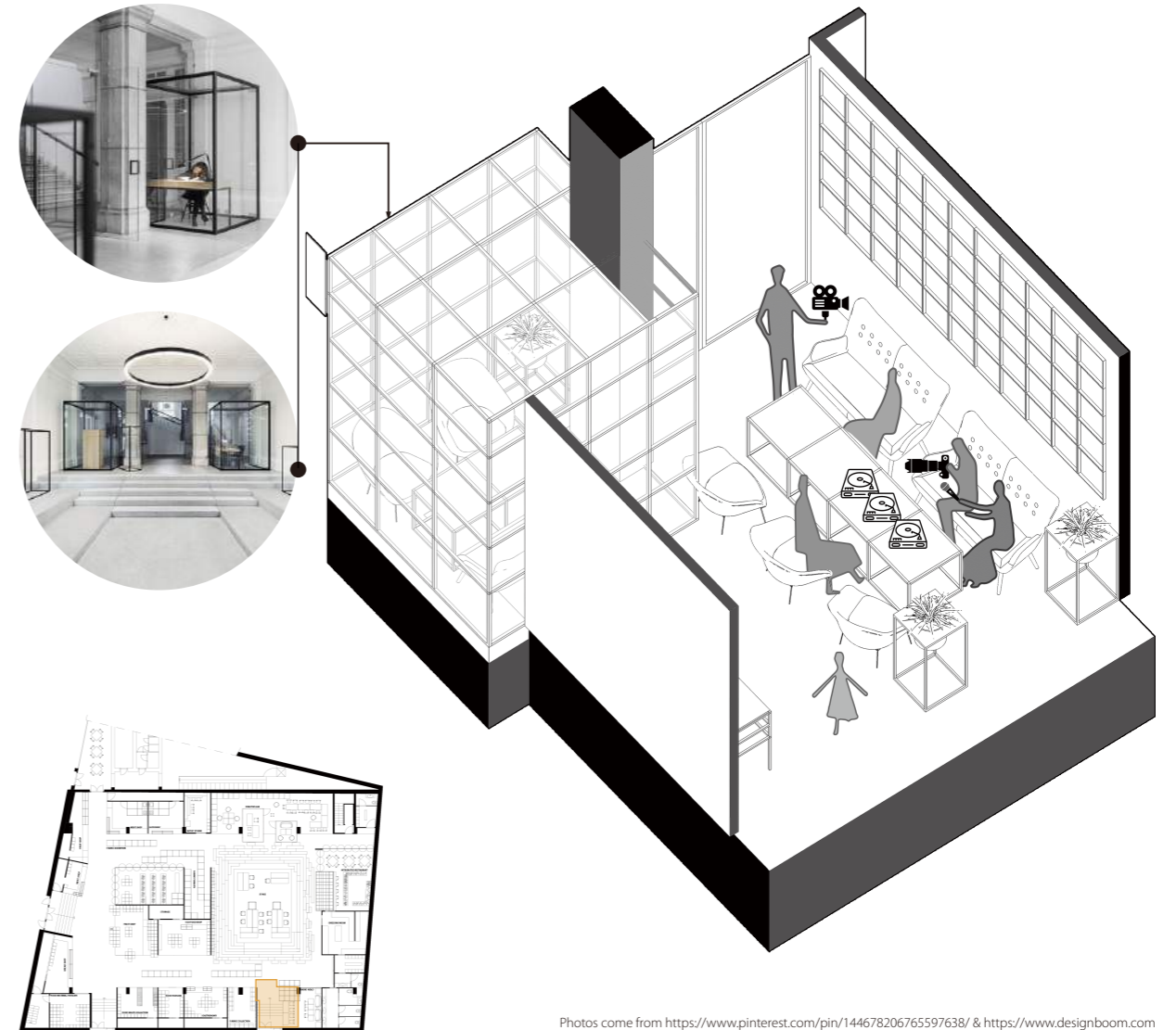


Photos come from <https://www.pinterest.com/pin/144678206765597638/>

# 4.2 SPACE FUNCTIONS

## 4.2.3 RADIO NOLO

As the only community organization that is stationed in the Monza Market. It carries important responsibilities. It records everything that happens in the market, whether in ordinary time or an important festival. It also documents the innovations people have gained in the market about how to improve sustainable lifestyles. It visualizes the changes and advances in the market's sustainability process as an important accessible space.



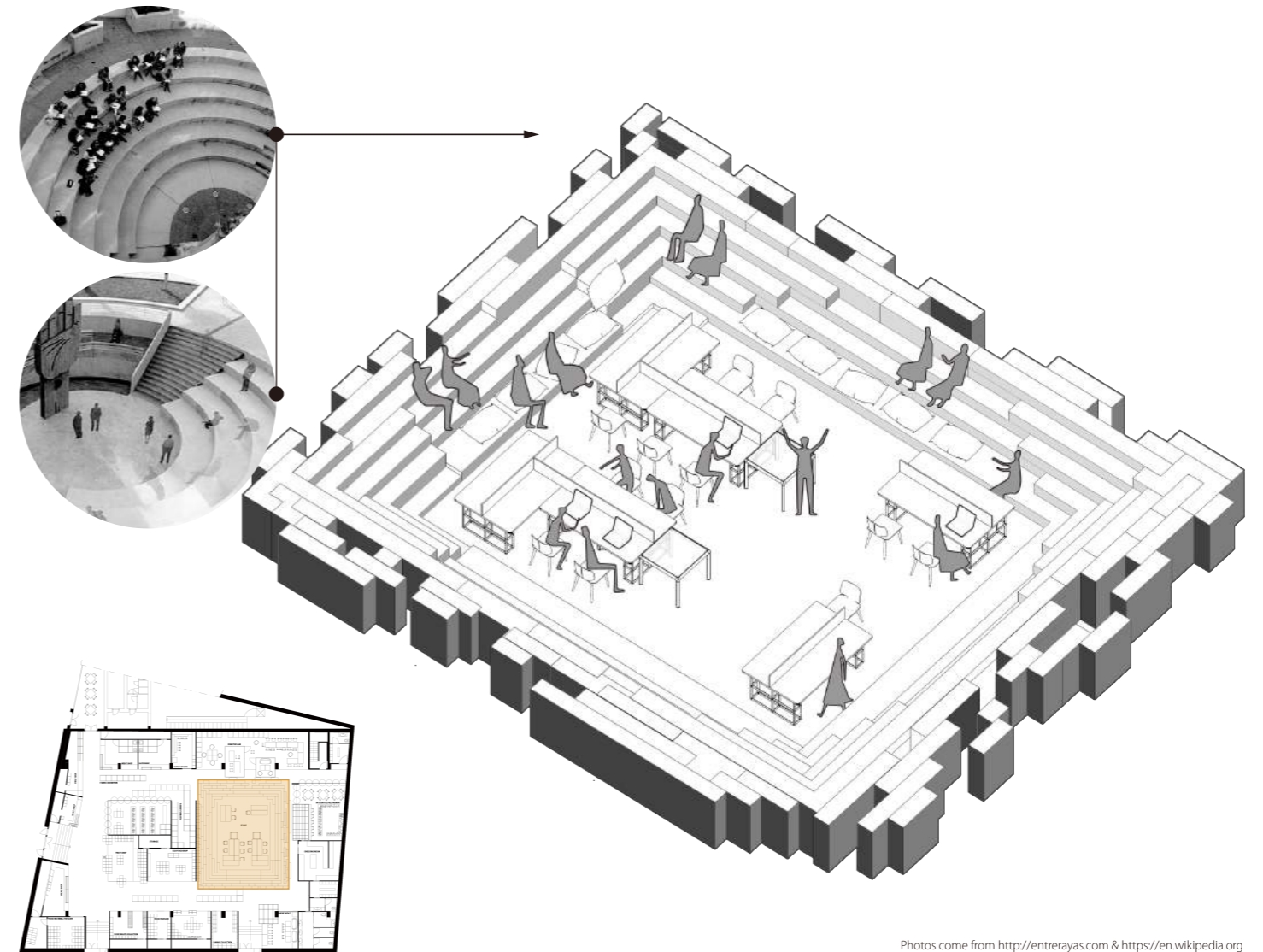
Photos come from <https://www.pinterest.com/pin/144678206765597638/> & <https://www.designboom.com>

# 4.2 SPACE FUNCTIONS

## 4.2.4 STAGE | ORDINARY TIME

The stage is the core of the market, and all stakeholders in other spaces will participate activities taking place in stage area. It is the carrier of many sustainable innovation activities (eg, clothing dyeing and weaving workshops, second-hand clothing shows) and also has different functions at different times. The stage is mainly divided into two type of time: ordinary time and festival time. In normal times, it is an open co-working space, it welcomes anyone to come here to work. In the meanwhile, there will be also some community activities periodically, such as community creative dyeing and weaving activities, food art activities and so on.

In terms of space design, it is a sunken stage, so the entire space is raised by 125cm, in order to create this sunken stage. The steps are both a medium of passage and a seat for rest, and can be used as an auditorium for the event.



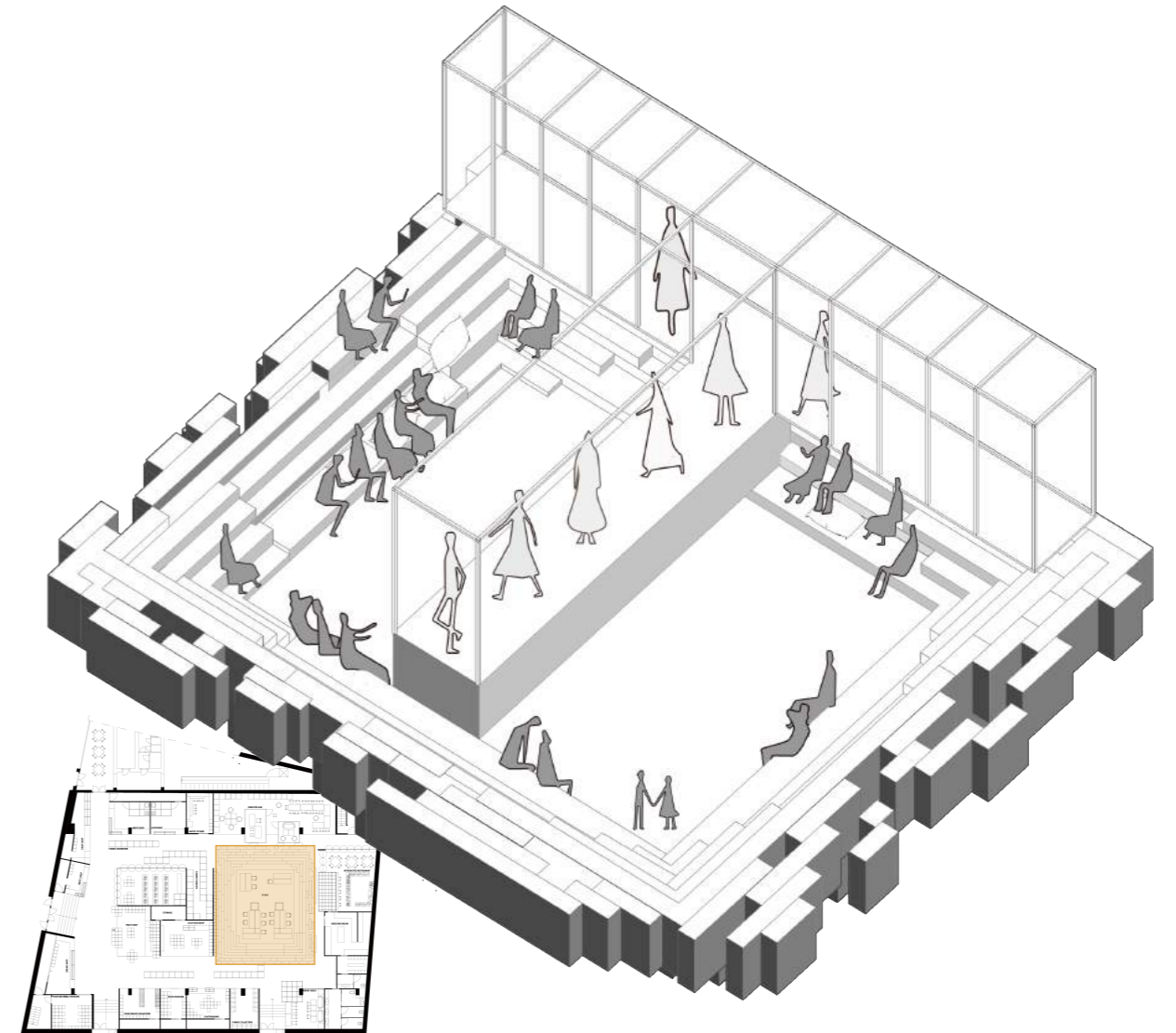
Photos come from <http://entrerayas.com> & <https://en.wikipedia.org>



# 4.2 SPACE FUNCTIONS

## 4.2.5 STAGE | FESTIVAL TIME

During the Eco-fashion Festival, the stage will look very different. It will be a place to build a temporary show, building a T-type stage in the center of the stage, which will hold creative second-hand clothing shows, as well as other sustainable clothing shows. The original stage staircase is the auditorium for all audience so that the T-stage is surrounded by auditoriums, allowing the audience to enjoy the beauty of sustainable clothing in a close distance.

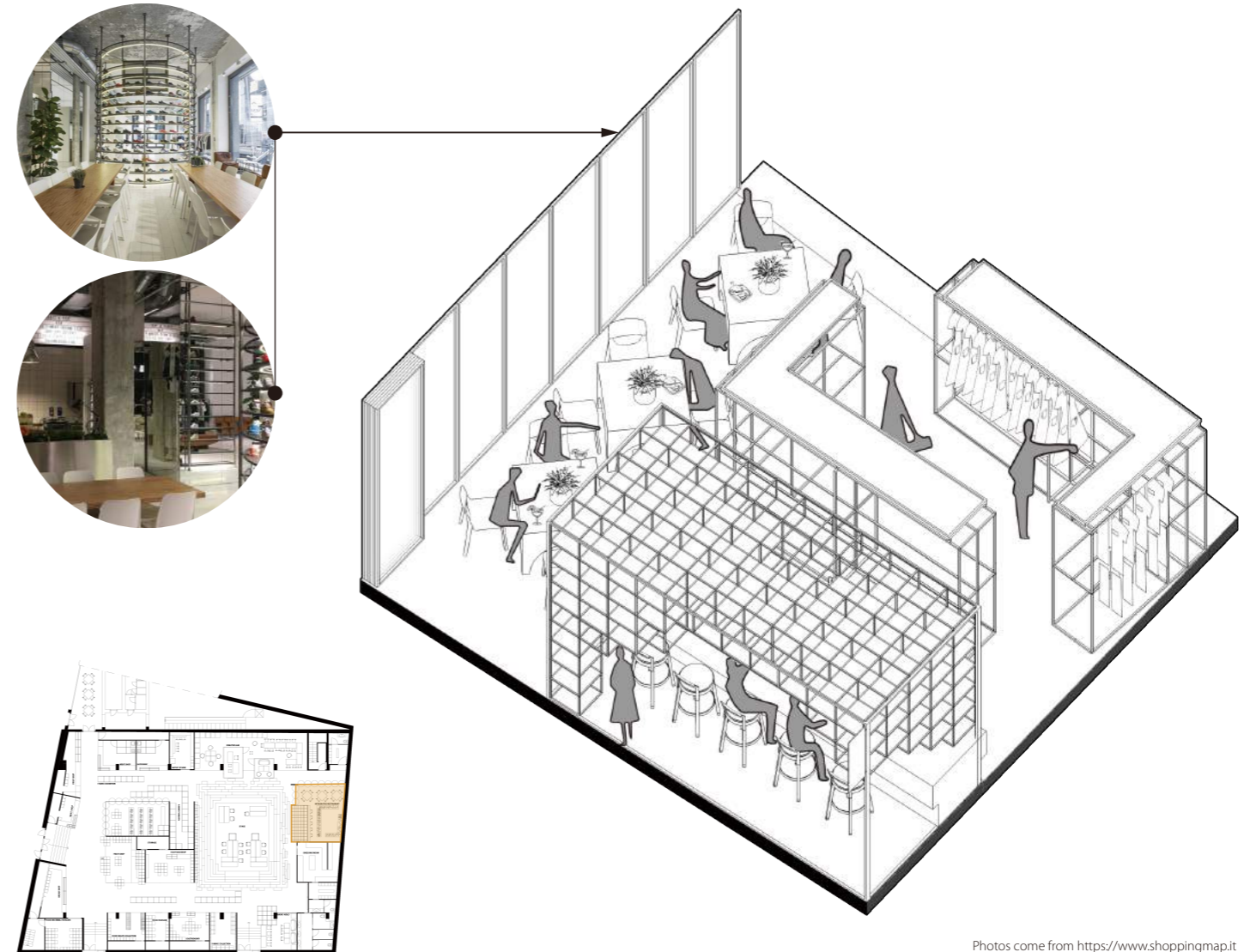


# 4.2 SPACE FUNCTIONS

## 4.2.6 INTEGRATED RESTAURANT

The design of the integrated restaurant draws on an existing case of catering and clothing integration (see case study in Chapter 2: one block down Milano). The restaurant section includes a cafeteria and bar, and there is a display stand with second-hand vintage clothing. This is a design that implies consumption. When people are eating, the eyes will unconsciously look at the clothes rack and observe those used clothes to purchase, that contribute to extend the life cycle of the garment.

In terms of spatial design, I still introduce these yellow grilles as the storage shelf of bar, also it builds up the atmosphere of green space by spreading plants on the shelf.



Photos come from <https://www.shoppingmap.it>

## 4.2 SPACE FUNCTIONS

### 4.2.7 SECOND-HAND CO-BRAND SHOP

In addition, there is a complete second-hand clothing store in the space. I hope it will cooperate with bivio( *see in Chapter 2 Bivio*) to collect second-hand luxury brand clothes according to the previous case. For example, in Bivio, employees of luxury brand clothing often take samples to sell in the store, so like bivio, these luxury brand stakeholders can help us expand the influence of sustainable clothing in the market.

In term of space, there is also the grille elements which are used to show second-hand shoes. Simple dark blue aluminum shelves are designed to hang clothes, these clothes are classified according to type, level of brand as well as size.

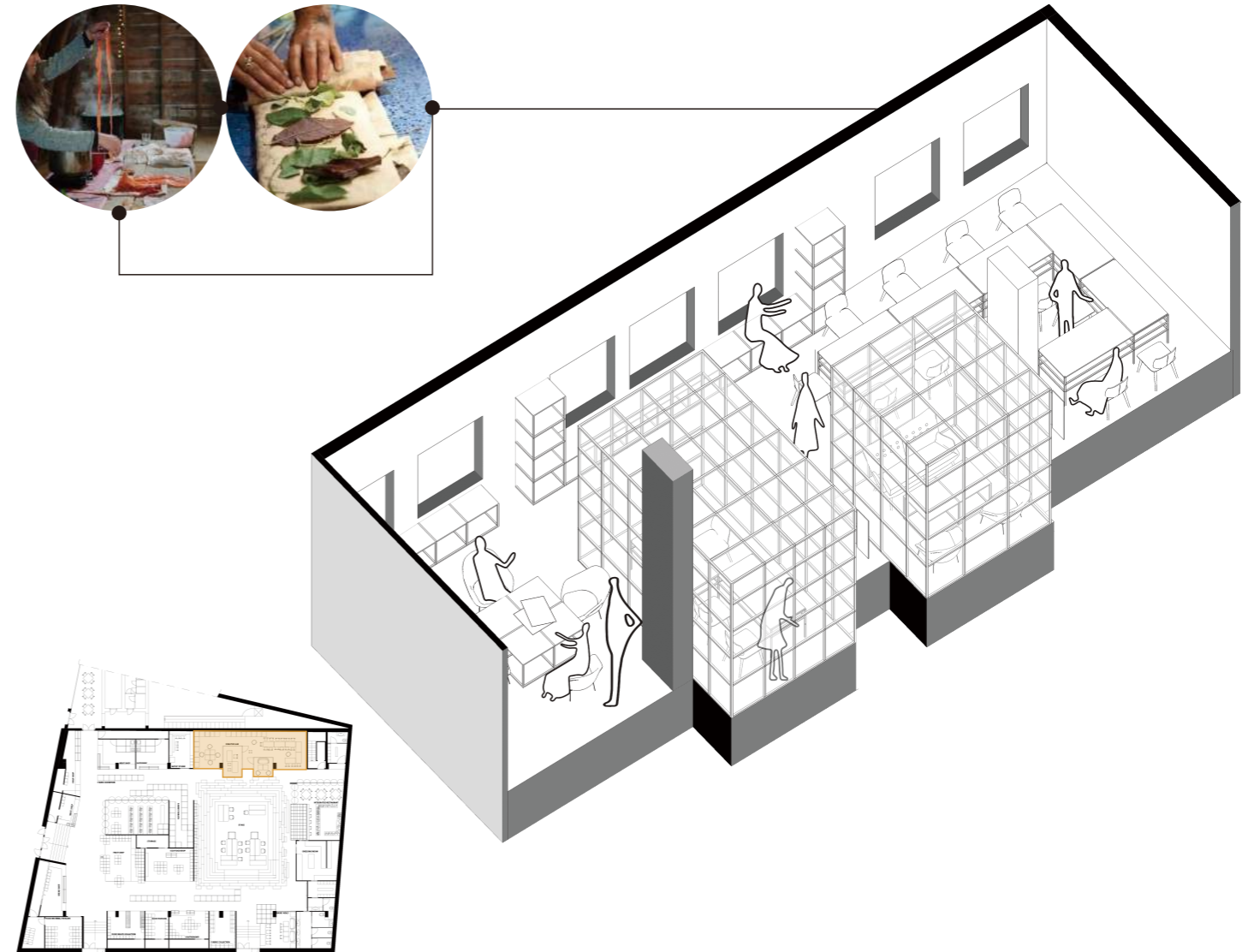


# 4.2 SPACE FUNCTIONS

## 4.2.8 CREATIVE LAB

Compared to the stage, the function of the creative lab is more specific and private. It is a studio for researching sustainable fabrics (such as the process of plant weaving and dyeing fabrics), it is also a space that allow community residents and artists creating new fabrics. These two transparent glass grille rooms are for more intimate meeting , also used to negotiate program or exhibition with artists and curators.

The space outside is more open for participants of regular events and for the artist's daily work. Therefore there is no door or any other boundary, only distinguish with wooden floor. Because, in festival time, the space of cretive lab will be combined with the stage area.



# 4.2 SPACE FUNCTIONS

## 4.2.8 CREATIVE LAB



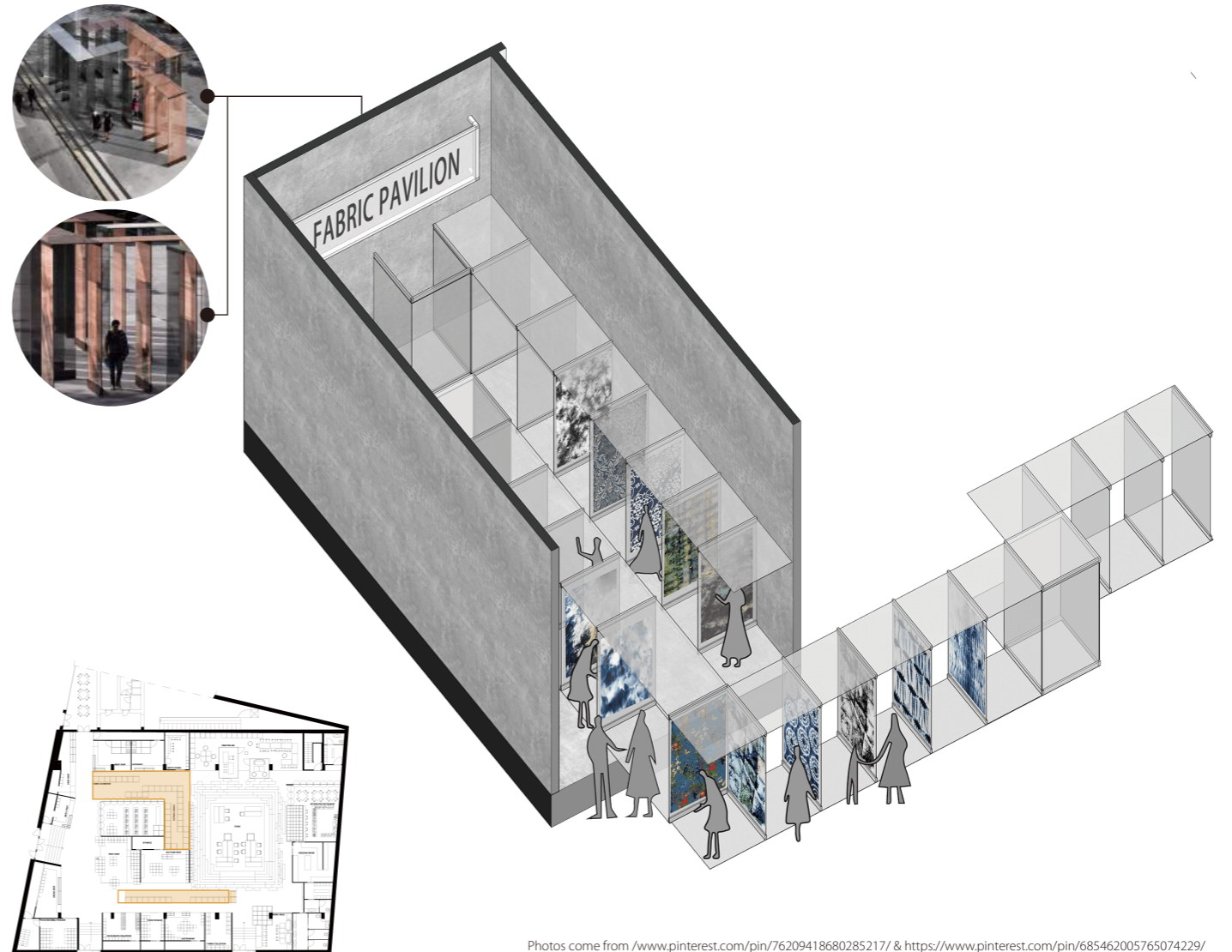
# 4.2 SPACE FUNCTIONS

## 4.2.9 PAVILION

First of all, Fabric Pavilion cooperates with artists to showcase their unique and innovative dyeing and weaving process to the public. It is also a process of showing the public how to reuse waste fabric. These displayed fabrics can be learned as well as sold. Therefore, it is both a propaganda space for knowledge and making profit. Secondly, since the creative lab will hold some community activities on a regular basis (for example, fabric dyeing activities: inviting families in the community, parent-child to participate), the creative achievements will also be exhibited in this space.

In terms of space design, I used a transparent rectangular display rack, which extends from the interior to the public space of the corridor, creating exhibition atmosphere in the Market. The second-hand shop next to it has also involved with these displays. If you want to buy an artist's exhibits, they can go to the counter of the second-hand shop.

This open exhibition space greatly promotes the knowledge of second-hand fabric recreation, and also allows them to see the combination of art and second-hand clothing, and encourages people to reuse used clothes instead of discarding them.



Photos come from [/www.pinterest.com/pin/76209418680285217/](https://www.pinterest.com/pin/76209418680285217/) & <https://www.pinterest.com/pin/685462005765074229/>

# 4.3 PERSONAS

After clarifying the various spatial functions, I need to create several key personas to simulate the real scene in order to observe user behaviors. Depending on differences of the space, there may be several key stakeholders (except for stakeholders inside the market).

I have selected five key stakeholders. These five personas all have their own characteristics, and they also communicate with each other in spatial journey. Their behaviors will clearly explain the functions of space and the meaning of mutual existence. In conclusion, these personas can be called test groups for the availability of space.



### 1. BARBARA

Gender: Female  
Statue: Students in Fashion design of polimi  
Age:24,  
Daily life: She is doing a graduation project to study sustainable fabrics, do some researches & experiments of sustainable fabrics.



### 2. MARCO

Gender: Male  
Statue: Fabric artist  
Age:36  
Daily life: He often holds his individual fabric art exhibitions in Milan and Europe. He has a lot of research and ideas on fabric art. Usually he creates art with waste cloth or fabric pieces in his studio.



### 3. CLAUDIO

Gender: Male  
Statue: Nolo resident, retired  
Age: 65  
Daily life: He is now living in the Loreto area. He likes to participate in community activities. Generally, he buys food in Monza Market and goes to Bar in the market to have a drink with friend.



### 4. LUCA

Gender: Male  
Statue: Curator of show and exhibition.  
Age: 40  
Daily life: He has taken over various art exhibitions and fashion show in Milan, and has rich experiences of curation. He and his team are responsible for all food and clothing materials exhibitions in the Monza Market, as well as periodical second-hand clothing shows.

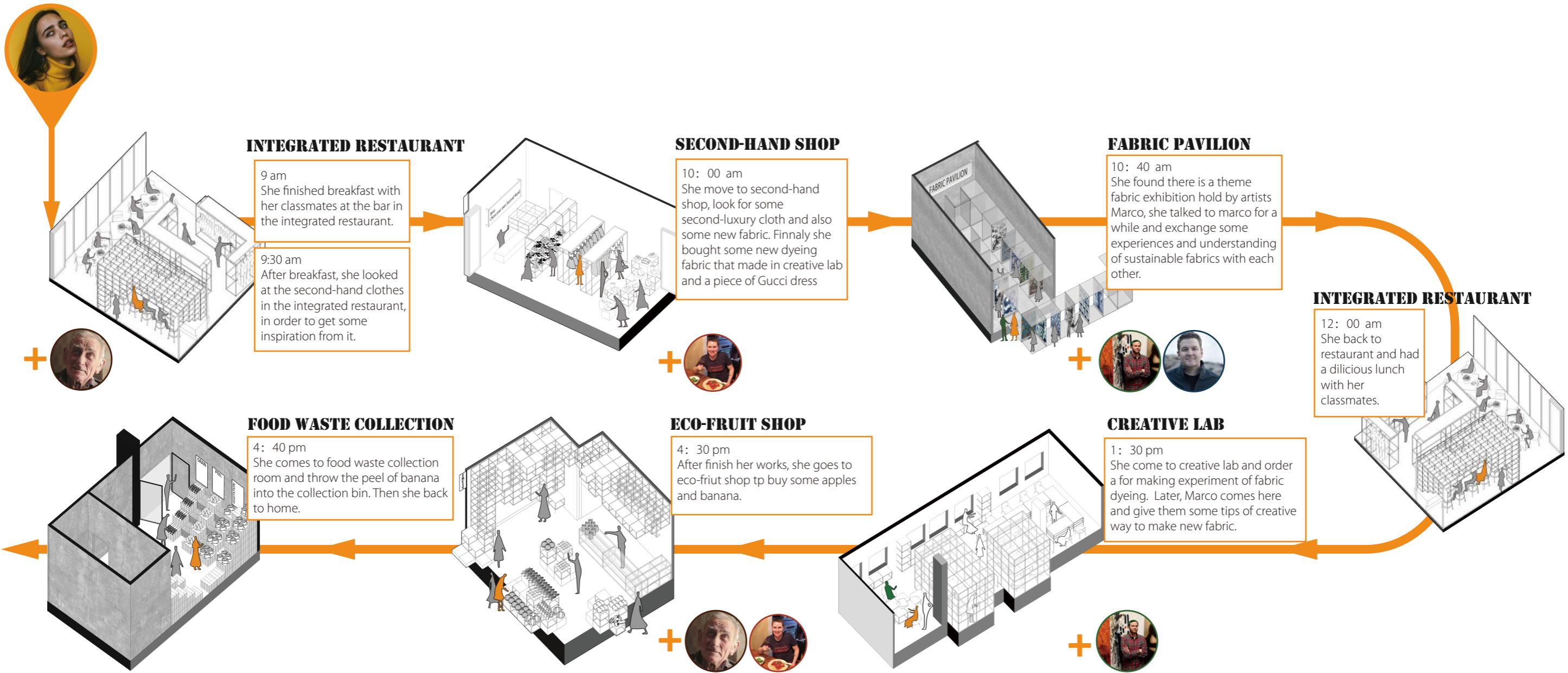


### 5. PALOMA

Gender: Female  
Statue: Housewife who live in Nolo  
Age: 32  
Daily life: She has a 5-years-old daughter, she often take her to Monza Market for shopping or participating various of sustainable and creative activities. She like more Parents-child Campaign happened in this community.

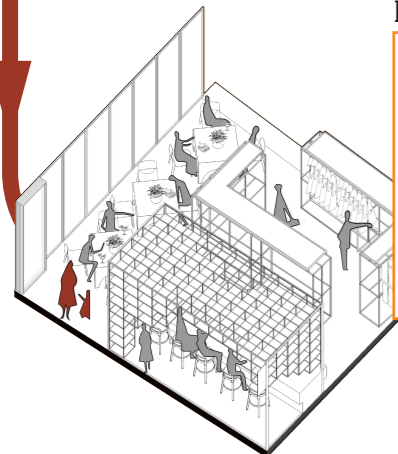
Portraits come from Pinterest

# 4.4 SPATIAL JOURNEY



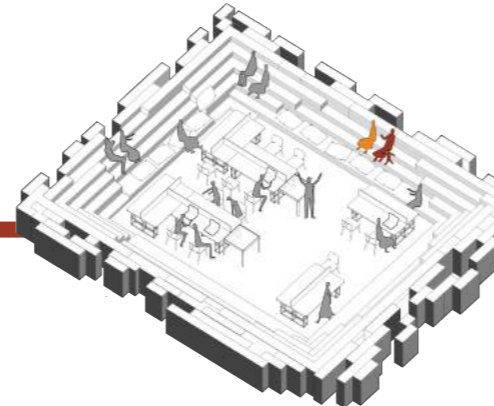


# 4.4 SPATIAL JOURNEY



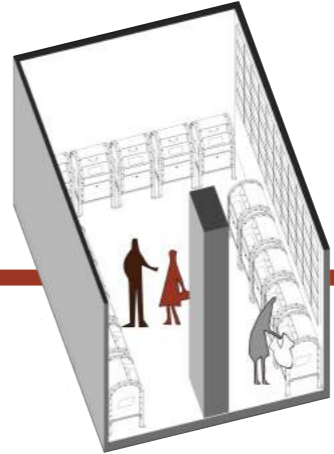
**INTEGRATED RESTAURANT**

9: 00 am  
Paloma needs to throw her waste clothes today, and by the way buy some food in Monza Market. Firstly, she comes here and has breakfast with her daughter in restaurant.



**STAGE**

9:30  
She sit on the stair of stage to have a rest with her daughter, here she meet **Babara**, who is woking in the stage with her classmates for graduation design.



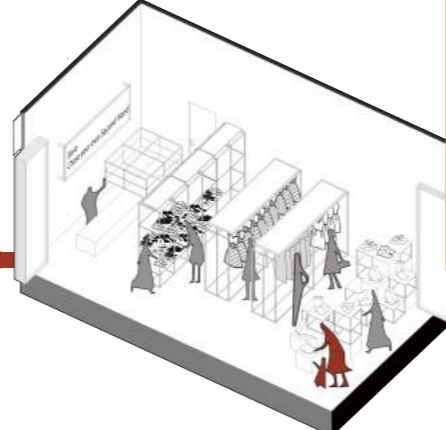
**FABRIC COLLECTION**

10:30  
Then she comes to fabric collection room, and throws some of her own and her daughter's discarded clothing and fabric pieces here, and sorted them according to the tips on the wall. She meet **Claudio** here, who is also throwing his family's clothes.



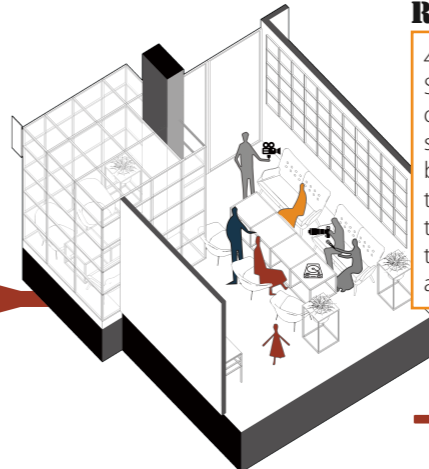
**STAGE**

1: 00 pm  
After having lunch, she back to the stage, There is happen to be a second-hand clothing show on the stage , so she sits down to watch with her daughter. At the end of the show, she sees the curator of the show, **Luca**



**SECOND-HAND CLOTH SHOP**

2: 00 pm  
After watching the show, she feels that these second-hand clothes became very stylish after re-design, so she decided to go to the second-hand clothing store to buy a few pieces.

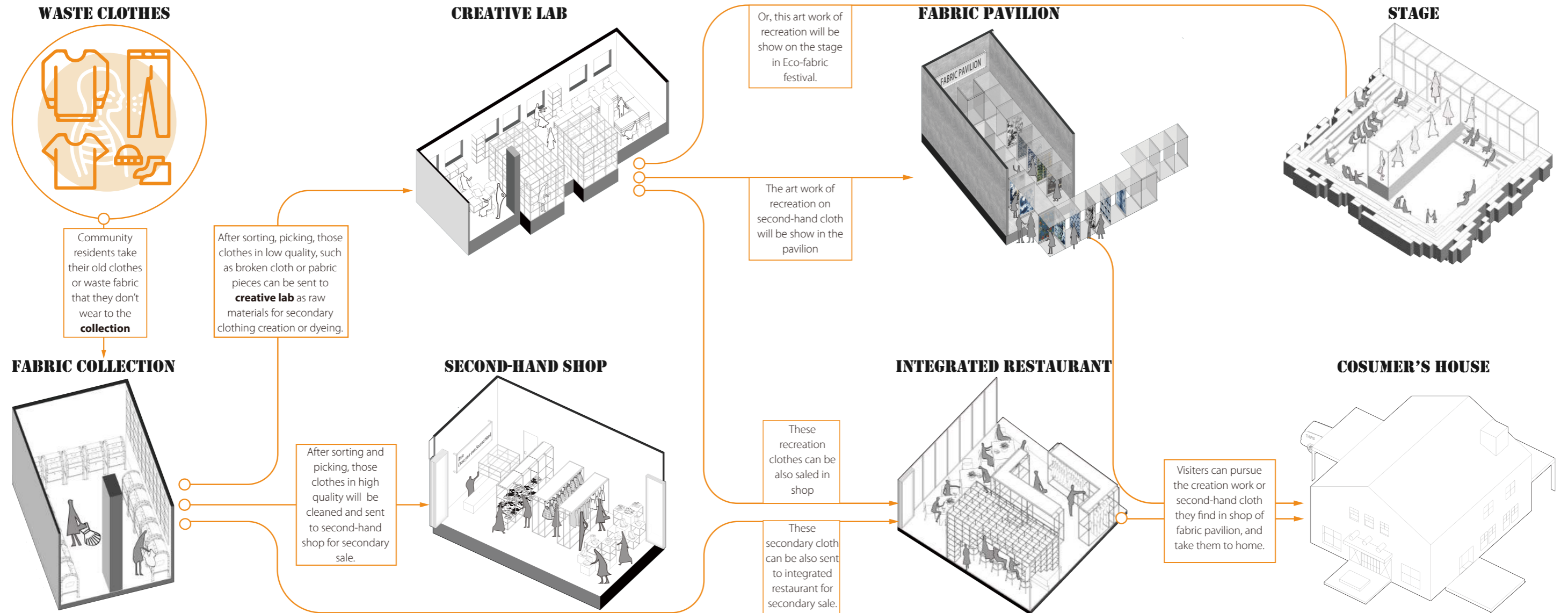


**RADIO NOLO**

4: 00 am  
She is going to take her daughter home. When she left, she was invited by the Radio Nolo staff to talk about the feelings of the events in the Market today. **Babara** and **Luca** are also invited.



# 4.5 CLOTHING JOURNEY



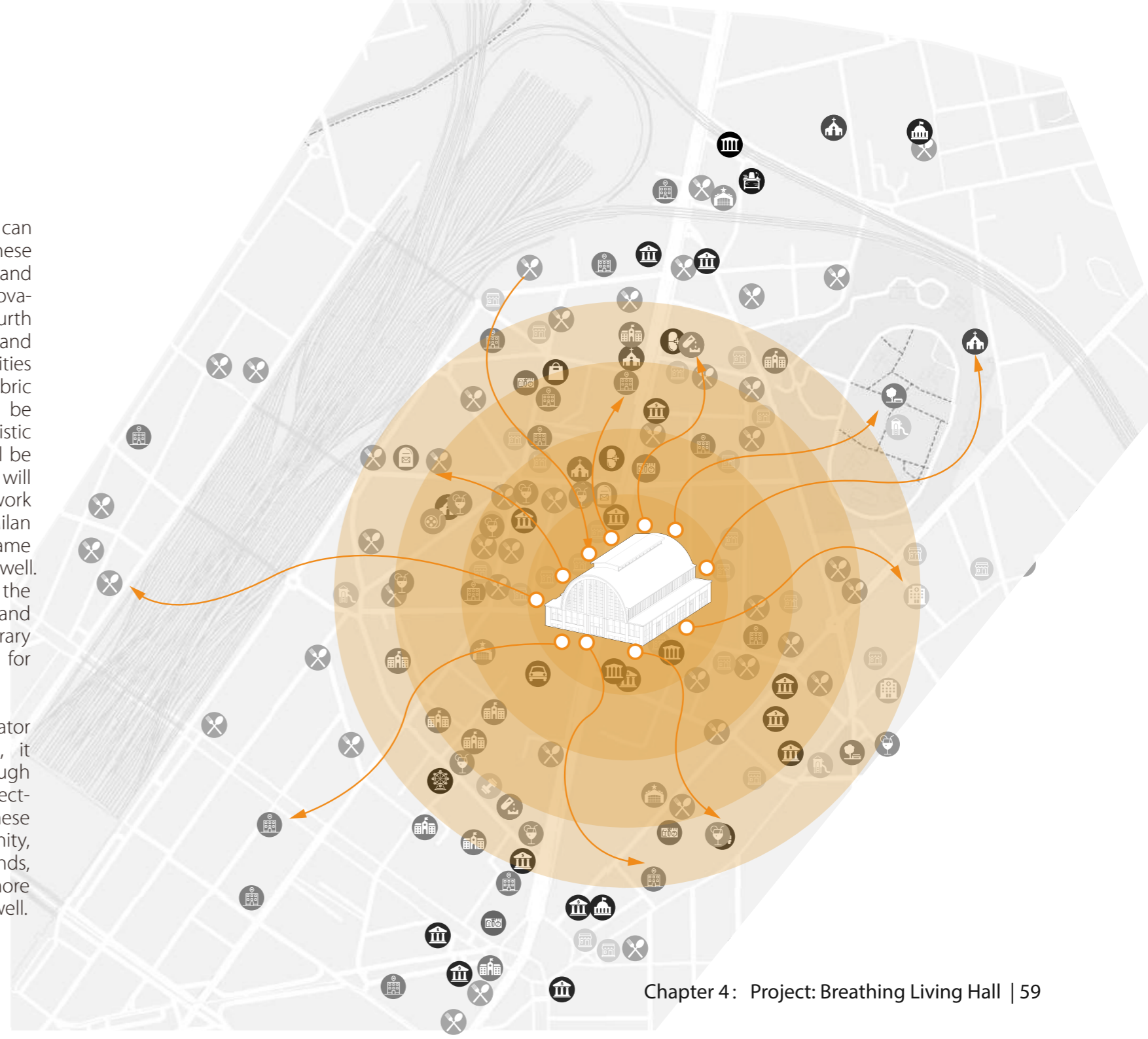
# 4.6 CONCLUSION

In planning, all spaces will be completed in the next 10 years, before 2030. Different spaces will be built activities and festivals will also be held in succession. Since in the market, the function of a certain space is affected by another space (for example, the fabric collection space provides raw materials for second-hand clothing store, as well as fabric dyeing activities in creative lab.) These spaces need to be set up in order, instead at the same time. Timeline therefore helps to sort out the activities and spaces that have emerged from 2019 to 2030, and what relationships between spaces set up before and later. The cooperation between them plays an effective role in the development of sustainable lifestyles.

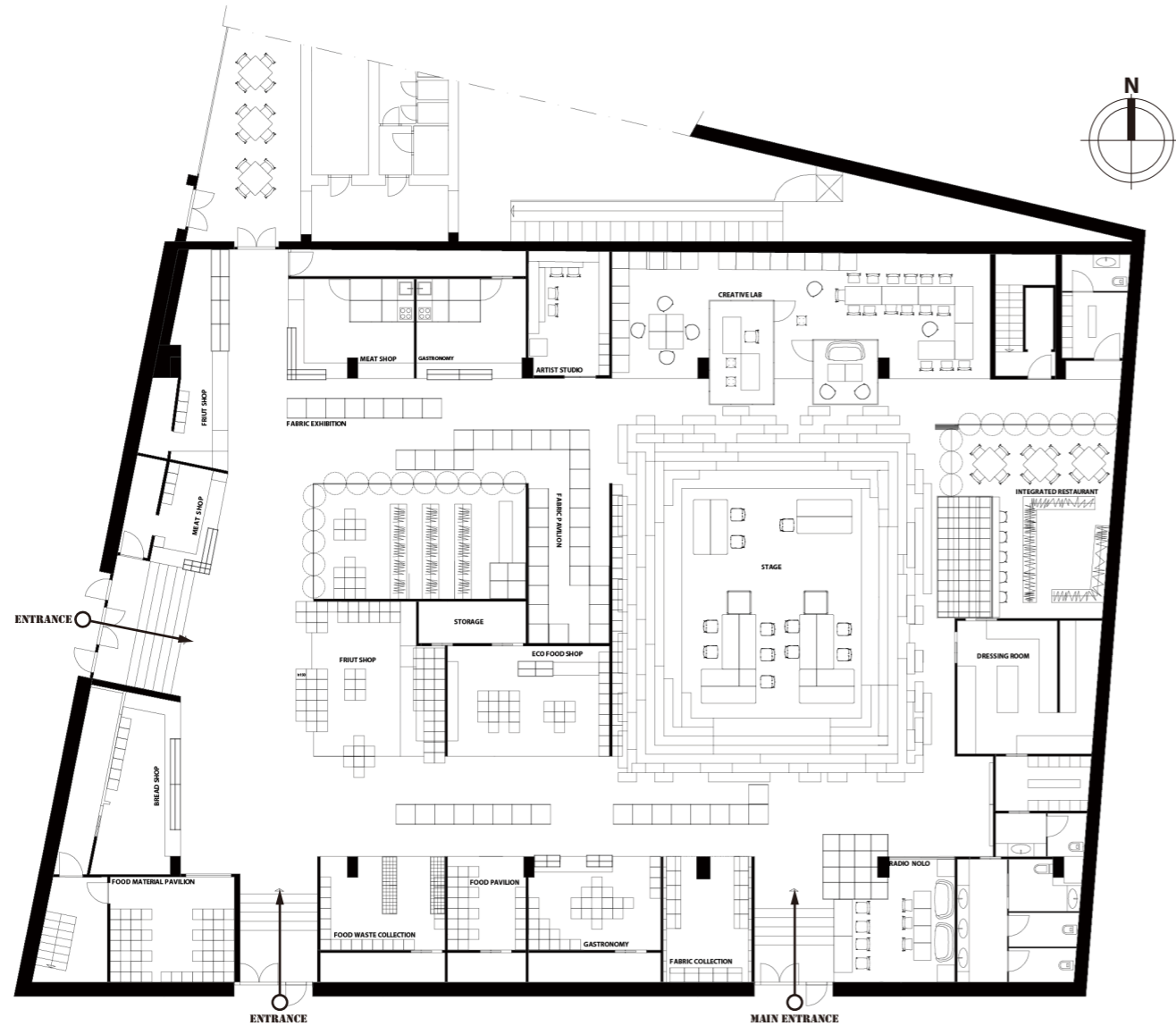
Specifically, at the first stage of breathing living hall, the space of the entire Monza market was first redesigned: the whole space will be raised by 125 cm, in order to build a sunken stage as a central area. The stage at this time only provides co-working space and rest. The ordinary food store has been redesigned to use uniform yellow design elements. At the second stage, Radio nolo settled into the Monza Market as the representation of the Nolo community institution, to record the growth of the Monza Market and some interesting activities that will take place later. At the third stage, collection rooms for fabrics and food waste will be set up, and people could throw their undressed clothes or discarded fabrics into the fabric collection room, and grains and peels of

fruits, and other foods that could be reused can be thrown into the food waste room, and these collections will be the source of the second-hand clothing store and the raw materials for innovative activities in the creative lab. At the fourth stage, the creative lab will be established and began to carry out various innovation activities for recycling waste. In the same year, the fabric pavilion and the food material pavilion will be established one after another, and the artistic achievements created in the creative lab will be exhibited in the pavilion. At the fifth stage, we will introduce second-hand clothing stores and work with other second-hand clothing brands in Milan (such as Bivio) as a co-brand shop. In the same year, the integrated restaurant will be built as well. At the sixth stage, Eco festivals will be held on the central stage, including clothing festivals and food festivals. There will be some temporary stages built here, such as the T-stage for second-hand Fashion show.

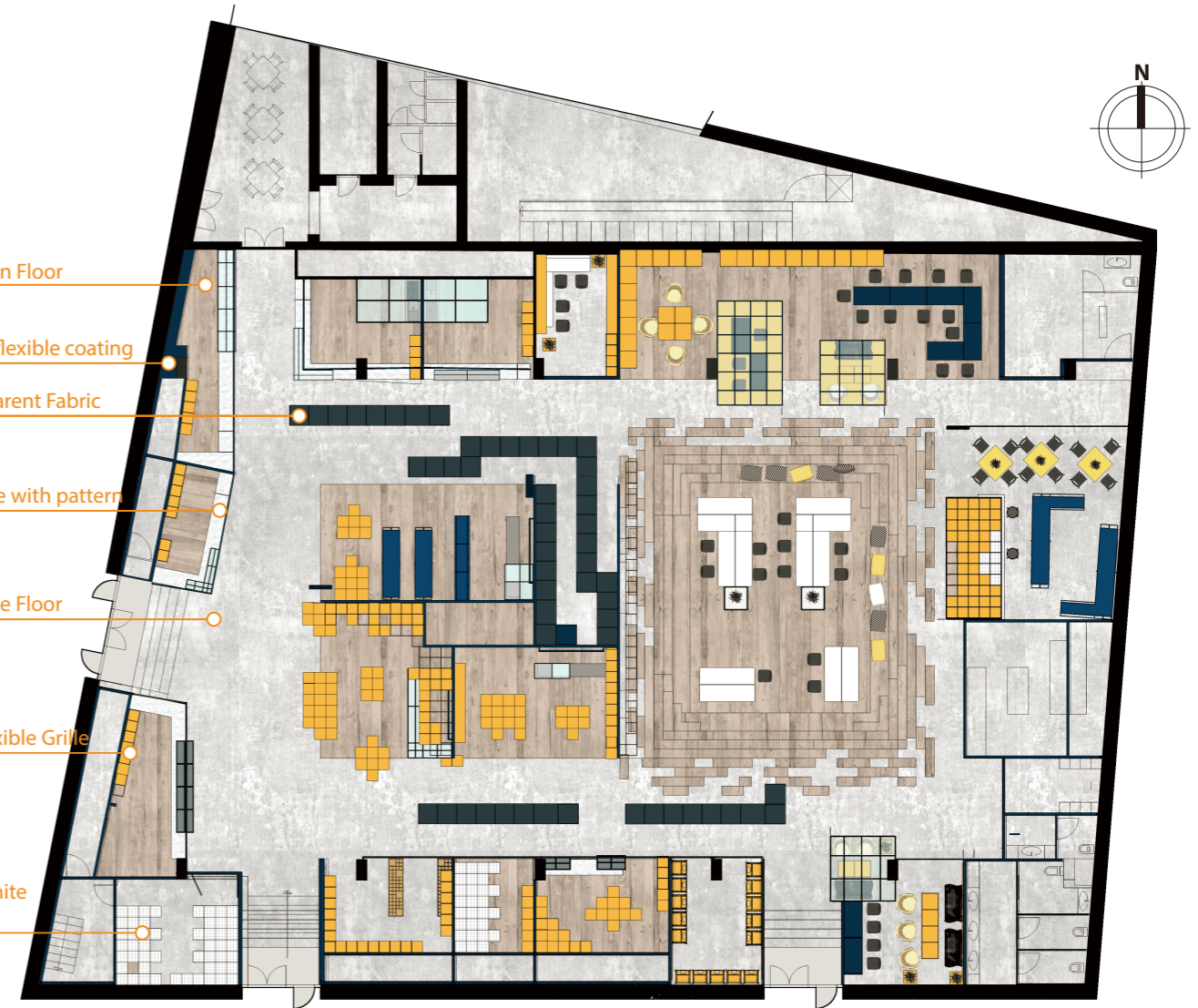
In conclusion, Monza Market acts as an incubator for sustainable lifestyles within 10 years, it provides services in sustainable way through space functions and activities, thus subtly affecting community residents. Residents bring these influences to other parts of the Nolo community, the impact of Monza Market therefore expands, and sustainable lifestyles are expanded more widely into other parts of the community as well.



# 4.7 PLANS



General Plan 1:250



Material Plan 1: 250

# ACKNOWLEDGEMENTS

The research part of this project is extended from the author's graduation project in Tongji University, and is directed by Professor Xiaocun Zhu.

The design part is based on Group 5 from Contest Design Studio, thanks works of team members: Xun Ran, Tiziana D'Amico, Luca Antonio Dondi and Giorgia Gaggiato, based on Contest Design Studio, directed by Professors David Fassi, Laura Galluzzo, Anna Meroni, and Assistants Martina Mazzarello, Francesco

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