

## LIGAM, GUIDELINES FOR A NEW SYSTEMIC PRODUCTION MODEL IN THE MONVISO VALLEYS



Supervisors:

Tamborrini Marco Paolo  
Valpreda Fabrizio





# POLITECNICO DI TORINO

Corso di Laurea Magistrale

in Design Sistemico

Tesi di Laurea Magistrale

Ligam, guidelines for a new systemic production model in the Monviso valleys



Relatori:  
prof. Tamborrini Marco Paolo  
prof. Valpreda Fabrizio

Candidati:  
Davide Chiolini  
Giacomo Vivalda

Anno Accademico 2020/2021

INDEX

INTRODUCTION

A NEW PERSPECTIVE	13
-------------------	----

1. THE CRAFTSMANSHIP IN ITALY

1.1 THE VALUE IN HISTORY	17
1.2 THE CURRENT SITUATION, SOME NUMBERS	18
1.3 THE ARTISANS TODAY, BETWEEN PAST AND FUTURE	21
1.4 INTERVIEWS	22
1.5 THE HANDMADE PRODUCTION JOURNEY	25
1.6 IN CONCLUSION	26

2. THE INDUSTRIAL PRODUCTION MODEL

2.1 ANALYSIS OF THE CURRENT INDUSTRIAL PRODUCTION MODEL	29
2.2 IDENTIFICATION OF CASE STUDIES	30
2.3 ORGANIZATIONAL STRUCTURES OF THE CASE STUDIES	32
2.3.1 FURNITURE MERCHANT	32
2.3.2 CUSTOMIZATION-DRIVEN PRODUCER	32
2.3.3 DESIGN-DRIVEN PRODUCER	32
2.3.4 INNOVATIVE MAKER	33
2.3.5 SUSTAINABILITY-DRIVEN PRODUCER	33
2.4 ENVIRONMENTAL CERTIFICATION TOOLS	33
2.4.1 ECOLOGICAL PRODUCT CERTIFICATIONS	33
2.4.2 ECOLOGICAL PROCESSES CERTIFICATIONS	34
2.4.3 LIFE CYCLE CERTIFICATIONS	34
2.5 CONSTRAINTS AND ADVANTAGES OF THE INDUSTRIAL PRODUCTION MODEL	
2.5.1 ADVANTAGES	35
2.5.2 CONSTRAINTS	36

3.ENVIRONMENTAL IMPACT OF WOOD BASED PRODUCTS AND PROCESSES

3.1 THE ENVIRONMENTAL ISSUE	39
3.2 ROUNDWOOD LIFE CYCLE	40
3.3 DATA ON WOOD PRODUCTION IN PIEDMONT	41
3.4 WOODEN PRODUCTS IN COMPARATIVE LCA	41
3.4.1 SOLID WOOD PANEL (HARDWOOD AND SOFTWOOD)	41
3.4.2 PLAYWOOD	42
3.4.3 PARTICLEBOARDS	42
3.4.4 FIBERBOARDS	43
3.4.5 CROSS LAMINATED TIMBER (CLT)	43
3.5 SYSTEM BOUNDARIES OF FUNCTIONAL UNIT ANALYZED	44
 4. HOLISTIC ANALYSIS OF THE AREA	
4.1 THE CHOICE OF THE AREA	47
4.2 INTERPRETATION OF THE AREA	48
4.3 MOBILITY AND TRANSPORT	50
4.4 SEARCH FOR THE ACTORS INVOLVED	51
4.5 ANALYSIS OF THE DATA	60
4.6 IN CONCLUSION	61
 5. DEFINITION OF THE SYSTEM	
5.1 WHAT IS A SYSTEM?	63
5.2 FUNDAMENTAL PILLARS OF THE SYSTEM	64
5.2.1 DESIGN	65
5.2.2 EFFICIENCY	65
5.2.3 STANDARDIZATION	66
5.2.4 COMMUNITY	66
5.2.5 SPECIALIZATION	66
5.3 ANALYSIS OF SIMILAR PROJECTS	67
5.3.1 ETSY	67
5.3.2 INTERNOITALIANO	68
5.3.3 CREATIVE MEDITERRANEAN	69
5.3.4 PRONTOPRO	70
5.4 SOME CONSIDERATIONS ABOUT LIMITS AND OPPORTUNITIES	71
5.5 GUIDELINES APPLIED TO THE PROJECT	71
5.5.1 DESIGN	72
5.5.2 EFFICIENCY	72
5.5.3 STANDARDIZATION	73
5.5.4 COMMUNITY	73

5.5.5 SPECIALIZATION	74
 6. THE CRAFTSMEN APPROACH TO A DIGITAL PLATFORM	
6.1 THE CRAFTSMEN POINT OF VIEW	77
6.2 WHO ARE THEY? APPLICATION OF THE PERSONAS MODELS	78
6.3 THE SURVEY	80
6.4 INTERACTION WITH THE CRAFTSMEN	82
6.4.1 FIRST INTERVIEW	82
6.4.2 SECOND INTERVIEW	83
6.5 SALIENT ELEMENTS AND TRANSPOSITION INTO THE SYSTEM	84
6.5.1 THE CUSTOMER OF ARTISANAL PRODUCTION	84
6.5.2 CRAFTSMAN	85
6.5.3 TRANSPOSITION OF THE CUSTOMER ELEMENT	85
6.5.4 TRANSPOSITION OF THE ARTISAN ELEMENT	85
6.6 RELOCATION OF THE MAIN ELEMENTS OF THE HPJ WITHIN THE SYSTEM	86
 7. A NEW SYSTEMIC ORGANIZATION PROPOSAL	
7.1 ORGANIZATION OF THE SYSTEM	89
7.2 ORGANIZATION OF THE STRUCTURE	90
7.2.1 INTERNAL AREAS	91
7.2.2 EXTERNAL AREAS	93
7.3 SUPPLY CHAIN BOUNDARIES	94
7.4 THE CONSEQUENTIALITY OF THE OPERATIONS	95
7.5 CREATION OF A COMMUNITY TO SUPPORT THE SYSTEM	96
7.6 THE CORPORATE IMAGE	98
 8. THE DIGITAL PLATFORM	
8.1 THE STRUCTURE OF THE PLATFORM	103
8.2 FUNCTIONAL STRUCTURE OF PLATFORM	104
8.3 DEFINITION OF THE SECTIONS OF THE PLATFORM	105
8.3.1 FINAL CUSTOMERS AND SHOPS LOGIN	105
8.3.2 SUPPLIERS LOGIN	106
8.3.3 CRAFTSMEN LOGIN	107
8.3.4 WORKERS LOGIN	108
8.3.5 BRAND LOGIN	108
8.4 DEPENDENCE AND MUTUAL INTERACTION OF THE SECTION	112
8.5 HOME MOCK UP, USER POINT OF VIEW	114
8.5.2 CUSTOMIZATION MOCK UP, USER POINT OF VIEW	115

8.5.3 LCA MOCK UP, USER POINT OF VIEW	116
8.5.4 JOB ACQUISITION MOCK UP, CRAFTMAN POINT OF VIEW	117
8.5.5 FILES ACQUISITION MOCK UP, CRAFTMAN POINT OF VIEW	118
8.5.6 WALLET MOCK UP, CRAFTMAN POINT OF VIEW	119
8.6 MANAGEMENT OF THE IDENTIFICATION CODE THROUGH THE VARIOUS SECTIONS	120
8.7 THE CREDIT SYSTEM	121
9. DEFINITION OF THE CATALOG	
9.1 HISTORICAL AWARENESS AND MODERN TECHNIQUES	125
9.2 CUSTOMER PERSON MODELS	126
9.3 VALLE VARAITA FIGURATIVE CULTURE	128
9.3.1 DESIGN ON A HUMAN SCALE	129
9.3.2 TECHNICAL CULTURE	129
9.3.3 FIGURATIVE CULTURE	129
9.4 CHOICE OF ELEMENTS	129
9.4.1 CHAIR	130
9.4.2 TABLE	130
9.4.3 BED	130
9.5 TRANSPOSITION OF TECHNICAL CHARACTERISTICS	131
9.5.1 TENON AND MORTISE	131
9.5.2 ENGRAVINGS AND SYMBOLISMS	132
9.6 BRIEF SYSTEM	134
9.7 TECHNICAL DRAWINGS AND RENDERS	138
10.ECONOMIC EVALUATION OF THE PROJECT	
10.1 THE NUMBERS SUPPORTING IDEAS	163
10.2 THE WORK BREAKDOWN STRUCTURE	164
10.3 BUSINESS MODEL CANVAS	166
10.4 THE ESTIMATED COSTS OF IMPLEMENTATION	170
10.5 FEASIBILITY STUDY OF THE PROJECT	176
10.6 BENCHMARKING	180
ANOTHER STEP TOWARDS THE FUTURE	184

11.1 FUTURE DEVELOPMENTS	185
11.2 CREATING DIFFERENT WORK HUBS	186
11.3 COLLABORATIONS WITH OTHER DESIGNERS	186
11.4 STRENGTHENING THE IDEA OF THE COMMUNITY	187
12 CONCLUSIONS	
12.1 THE END OF THE PROJECT STUDIED	189
BIBLIOGRAPHY	194
SITOGRAPHY	197
THANKSGIVING	203

# INTRODUCTION

00

## A NEW PERSPECTIVE

The thesis addresses the issues of sustainable development of small local businesses and their future linked to the creation of a furniture design company.

This work is the meeting point of different needs, the need of small artisans to find new jobs to allow the development of their business, the desire to repopulate an area that in recent years has seen its population disappear and the hope of allowing new ways for young designers to emerge and establish themselves in the world of work.

As Gunter Pauli says in "The intelligence of nature", globalization has done everything to slow the circulation of money at the local level and this has marked the end of several local economies.

However, the best solutions to local problems emerge with local opportunities and with these also a sense of power and of strengthening the conviction that the community can progress. (Pauli, 2017) Starting from this premise, the goal that was pursued during the drafting of this thesis was to involve small companies

and local craft businesses, well aware that much of the success of the project would depend on their collaboration.

The question that has been asked is how the idea of a brand that proposes and manufactures furniture complements could be realized in the future, remaining competitive on the market but not at the expense of the quality of its products.

The research question, on which the project focused, was to understand how the idea of a furniture design company could materialize in the near future. By defining as key points a production based on a cluster of artisans, the support of a community and the desire to create competitive products on the market.

The answer to this question lies in the hands of the craftsmen, capable of transforming raw materials into finished design pieces, and in the mind of an organization capable of supporting and managing a cluster of the latter.

After the territorial analysis, in order to identify the potential of the area and understand its social fabric, the attention was focused on the search of the actors to be involved in the project, with whom there were more comparisons during the development phase, to find the best possible solutions to all the questions that inevitably arose.

The result is the formulation of a series of guidelines to be followed, both during the design and production of the products, and during the design and organization of the brand.

The entire project, from its embryonic phase up to the realization hypothesis, embraces different disciplines and design variations.

The scope of “product design” is surveyed with the design of the catalog, while that of service, inevitably relying on interaction and user experience, manifests itself in the development of the platform that will serve as a meeting point between artisans and end users.

The combination of these three macro design fields gives rise to a solution that is responsible for solving all the problems that emerged during the implementation of this work, from logistical to ethical.

In conclusion, the economic feasibility assessment was carried out, a tool that highlighted how the systemic structure at the basis of the entire study allows the success of the project.

# THE CRAFTSMANSHIP IN ITALY

01

## 1.1 THE VALUE IN HISTORY

If you search on the Treccani encyclopedia the term “craftsman” you can easily read the following definition: “who exercises an activity (also artistic) for the production (or even repair) of goods, through the own manual work and a limited number of workers, without mass processing, usually carried out in a workshop”(Treccani, 2020).

If one were to highlight the key terms of this definition would surely stand out the words “goods” and “manual” that, if read side by side, would be sufficient to explain the quality and dedication that are hidden behind each artifact.

The artisan activity has ancient origins and has also played a fundamental role in the flowering of the new social fabrics that have been created over the years and with the advancement of scientific and technological knowledge.

In ancient Greece the craftsman figure contributed to the definition of an artistic style, the neoclassical one, providing the necessary means for the description and

concretization of an ideal of absolute beauty.

It is in that time that the artistic creations of the handicraft offer a decisive contribution to the development, material and not, of that historical period, representing the search for a stylistic perfection coherent with a context socio-economic.

It is very much linked to a sometimes even spiritual vision of their culture.

Around the eleventh and twelfth centuries the guilds of artisans assume critical importance in society not only as an artistic and operational contribution, but especially in the representation of the role in the choices of development of society.

This historical period lays the foundations for the construction of our artistic heritage and consolidates the gene of creativity that makes the Italian people unique.

This uniqueness is guaranteed by a resistance to the uniformity that is typical of the craftsman’s work and the thought

that guides his hand.

As Fabrizio Pezzani explains in “The moral and economic value of craftsmanship in Italy”,

the realities of the individual territories are the result of millennial stories and therefore the real objective is not a uniform model for all societies but that of being able to combine principles and methods of collaboration and coexistence that by the difference between states, society and civilization can find in time a path of progressive unification capturing the best of the various contributions (Pezzani, 2011).

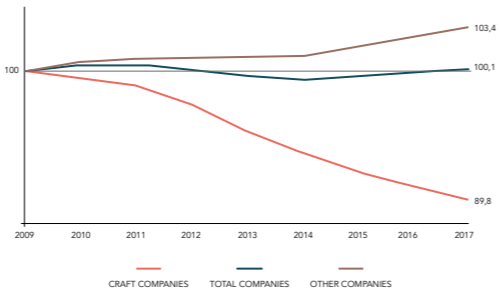
1.2 THE CURRENT SITUATION, SOME NUMBERS

According to the sector studies carried out by the CNA, National Confederation of Crafts and Small and Medium Enterprises, carried out in 2018 with reference to the previous year, in December 2017 the artisan enterprises registered in the Albi of the Chambers of Commerce were 1,327,180, with a decrease compared to 2016 of -1,1%.

The most significant decrease has been recorded above all from the fields of the constructions and the manufacture, where both have marked a decrease of the -1,8%, and that together they represent 60.9% of the entire productive base of the handicraft

Only four provinces have been saved from this decrease: Milan (437 enterprises, +0.6%), Bolzano (88 enterprises, +0.7%), Reggio Calabria (82 enterprises, +0.8%) and Taranto (13 enterprises, +0.2%). In the rest of the peninsula the most obvious losses were charged to the provinces of Turin (-1,379 companies, -2.2%) and Bari (-1,104 companies equal to -3.9%), Terni (-6.0%), Oristano (-5.9%) and Trento (-3.3%) where the companies lost between 2017 and 2016 are respectively 291, 185 and 417.

If the time frame of reference is widened, taking into account the data dating back to 2009, the reduction of artisan enterprises told in the previous lines is part of a long-term dynamic. Since 2009, in fact, the contraction of the artisan production base has been continuous and can be quantified in a total loss of 151,044 units (-10.2%).



Pic. 1.1: Total registered enterprises and registered craft enterprises

It is evident the contrast with the figure relating to the birth of non-industrial companies that, from 2009 to 2017, recorded an increase of 3.4% (+156,420 units) at the expense of an average daily loss of 52 companies per day.

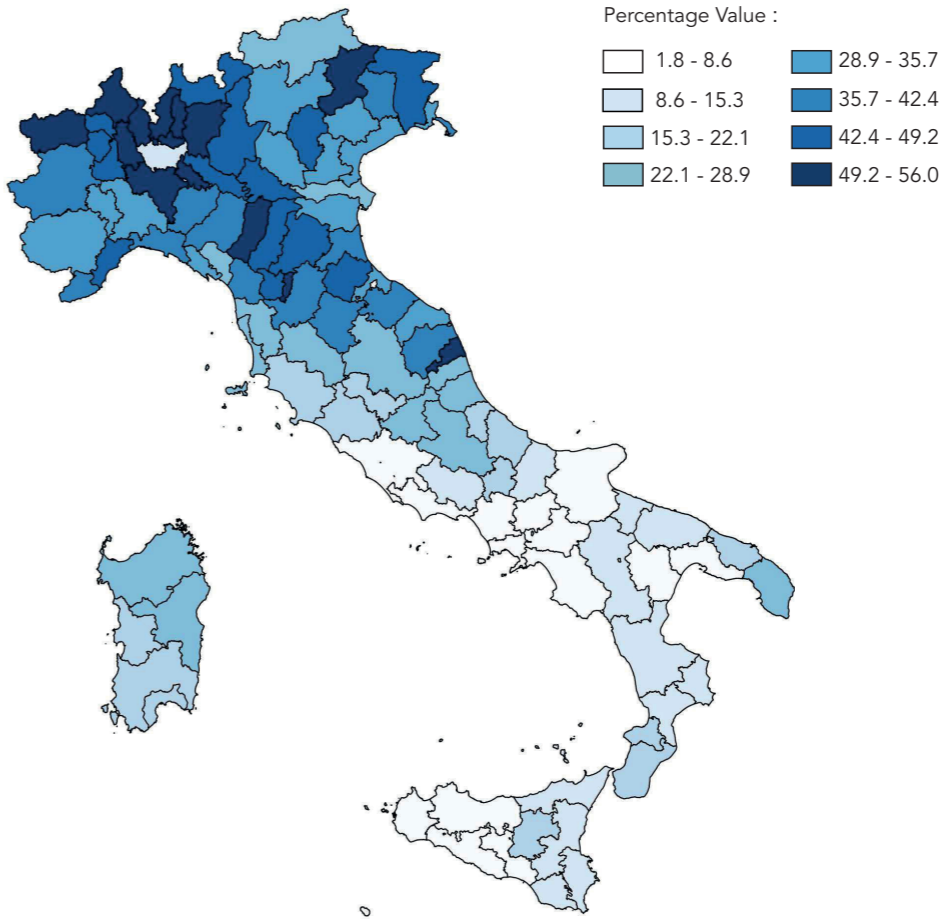
At local level, with the exception of the provinces of Bolzano and Monza-Brianza, in which between 2009 and 2017 the number of craft enterprises increased by 2.2% and 1.7% respectively, the decline in enterprises has invested all other territories, while following different dynamics at sectoral level. Important are the losses, in absolute value, in the provinces of Turin (7,404 less artisan enterprises) and Bari (5,852 less artisan enterprises), while in percentage terms the widest variations were recorded in the provinces of Lucca (-21.6%), Crotone (- 19.5%), Oristano (-19.0%) and Pesaro-Urbino (-19.0%).

If part of these losses can be attributed to the economic crisis that has hit Italy and beyond, however, it must be

specified that in some cases it was mainly the artisan model that did not hold out.

In the transport sector, for example, with a large reduction in the number of craft enterprises, there is an increase in

of the Chambers of Commerce of the relevant regions and their incidence, in terms of the region to which they belong, the enterprises themselves on the entire production base.



Pic. 1.2: Impact of craft enterprises on total

the number of non-craft enterprises. It is likely that in this context, the crisis has led to a reorganisation of the sector, in particular favouring larger companies (CNA, 2018).

In order to make the current situation on the distribution of craft enterprises more comprehensible, the following two graphs show the number of craft enterprises registered in the registers

It is evident the contrast with the figure relating to the birth of non-industrial companies that, from 2009 to 2017, recorded an increase of 3.4% (+156,420 units) at the expense of an average daily loss of 52 companies per day.

At local level, with the exception of the provinces of Bolzano and Monza-Brianza, in which between 2009 and 2017 the number of craft enterprises increased by

2.2% and 1.7% respectively, the decline in enterprises has involved all other territories, while following different dynamics at sectoral level.

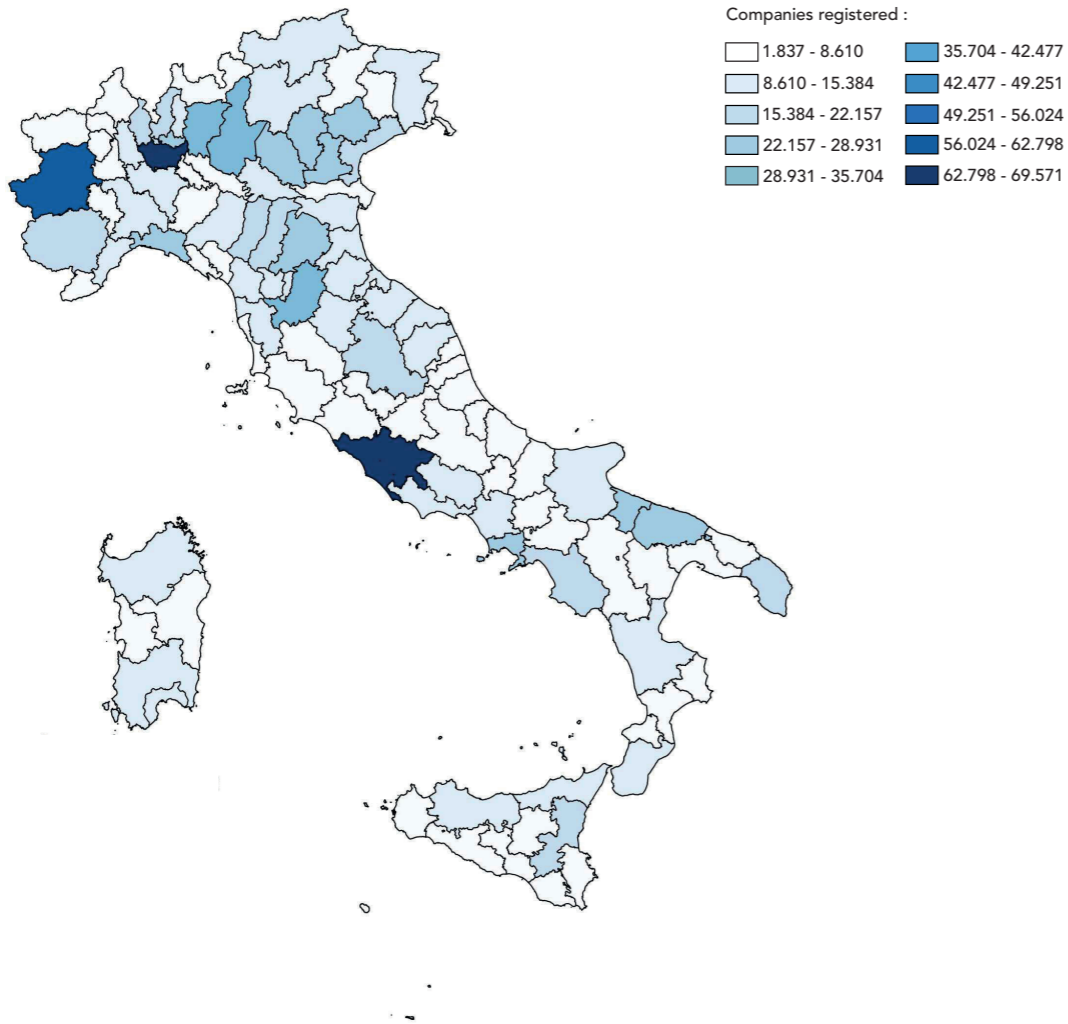
Important are the losses, in absolute value, in the provinces of Turin (7,404 less artisan enterprises) and Bari (5,852 less artisan enterprises), while in percentage terms the widest variations were recorded in the provinces of Lucca (-21.6%),

Crotone (- 19.5%), Oristano (-19.0%) and Pesaro-Urbino (-19.0%). If part of these losses can be attributed

to the economic crisis that has hit Italy and beyond, however, it must be specified that in some cases it was mainly the artisan model that did not hold.

In the transport sector, for example, with a large reduction in the number of craft enterprises, there is an increase in the number of non-craft enterprises. It is likely that in this context, the crisis has led to a reorganisation of the sector, in particular favouring larger companies (CNA, 2018).

In order to make the current situation on the distribution of craft enterprises



Pic. 1.3: Number of craft enterprises in the Italian provinces

more comprehensible, the following two graphs show the number of craft enterprises registered in the registers of the Chambers of Commerce of the relevant regions and their incidence, in terms of the region to which they belong, the enterprises themselves on the entire production base.

1.3 THE ARTISANS TODAY, BETWEEN PAST AND FUTURE

We are currently living an emblematic period with regard to the characterization of the types of craftsman available on the market.

If on the one hand we find who, for purely personal reasons, is still tied to a traditional application of its own techniques for the creation of an artifact and can be considered to all intents and purposes as one of the survivors of the digital revolution of the last decade, on the other we find who, instead, has ridden this revolution.

Contemporary artisans are small entrepreneurs who use new technologies and digital innovation both in production processes and in communication and sales processes.

According to Confartigianato, the first investment item for artisan companies in the textile sector in 2017, was commerce, chosen by 31.1% of companies higher than 22.8% of manufacturing.

The percentage of those who sell on marketplace is 38.3%, against 30.9% of Italian manufacturing while the percentage of those who use at least a social media is lower, 34% of companies compared to 38% overall.

The network therefore seems to be more a sales tool than a channel of communication or contact with its customers, from which it is also possible to obtain valuable information and data useful for a competitive orientation of its production offer (Chiara Beghelli, 2019).

The concept that is repeatedly expressed by Stefano Micelli ( 2001) in "Future Craftsman", is that this new version of the profession is in the hands of those who want to continue to update and study, not only with regard to construction methods and design, but above all with a view to communication and differentiation of its proposal.

The mixing of craft skills with industrial skills can mark a decisive change in the direction of economic development and, why not, also sustainable future.

For too much in fact it was thought that the technological research decreed the end of the handicraft and that it could be the only guide towards a durable and long-lived production.

The feeling that is spreading instead is that the key can be represented by the mixture between these two worlds only in appearance so distant from each other.

Who fully corresponds to this identikit, although it is not by definition completely superimposable to the figure of the craftsman, is definitely the maker.

This term encompasses an infinite variety of people and activities, but if we were to draw a generic profile of this figure we could surely say that makers use digital tools, design on a screen and use desktop manufacturing devices.

They generally belong to the web generation, so their relationship with sharing and with the virtual world could be defined as almost symbiotic.

As Chris Anderson explains in "Makers, the new industrial revolution", the Makers Movement, recognized by Obama in 2012, shares three characteristics:

- people who use digital desktop tools to create designs for new products and make prototypes;
- a cultural norm that involves sharing projects and collaborating with others in

online communities;

- the use of standard project files that allows anyone, if they wish, to send their projects to commercial production services to be realized in any quantity.

This particularly reduces the path from idea to entrepreneurship, just as the web has done in terms of software, information and content (Anderson, 2014).

The maker, although in Italy is seen more as a hobbyist or a enthusiast than as a real professional, can represent the link between a traditional craft production and a more modern, contaminated by digital and industrial thread.

Considering, therefore, the different techniques as well as the different approaches to work which inevitably manifest themselves during a research such as this, in order to make the description of the world revolving around handicraft as detailed and accurate as possible, some questions have been asked to the protagonists of this universe, so that their words can be the key to the success of our project.

## 1.4 INTERVIEWS

The interviews were carried out on the two faces of craftsmanship just described. On the one hand, the responses of traditional artisans were collected, on the other we find those who have made innovation their battle horse, the makers.

### VAUDAGNA INOX

The company Vaudagna Inox, which boasts a total of three workers, has achieved a fair success at local level thanks to the processing of stainless steel, its current owner is Vaudagna Luigi, an artisan born in 1934 and a steelmaker since he was only 13 years old.

*How did you start this job?*

I joined the company when I was just 13 years old, during the years of the war no steel was worked, we like most companies, we had to convert our production to support the army. So we started making radiators for trucks and then, when we finished it all, we started working stainless steel mainly but also iron, brass and copper.

*What are the works that have given you the greatest satisfaction?*

Every work in its own way has given me satisfaction, being a craftsman engages you in three hundred and sixty degrees, it is not only work but dedication, care and love for what you do.

I had the pleasure of working with many architects, such as Tozzini for example, we realized the interior decor of the Egyptian Museum of Turin, before the last renovation of course, but in our environment we have become famous thanks to the realization of ice cream counters as well as for the furnishing of bars and clubs.

*What tools do you use to work?*

We are still tied to a purely manual machining, apart from the most common power tools, a shear, a band saw and a pneumatic bending machine we do not use anything that is mechanical.

So no latest generation machines like CNC milling machines, for example? None of that, I wouldn't be able to use anything like that, other than having prohibitive costs.

*About the communication and sales channels, do you entrust yourself to someone, or do you manage them independently?*

Apart from the website with all the useful information we do not use communication channels of any kind.

As for the sale instead we are tied to our old customers who often still entrust us with their projects, in addition to them we rely on word of mouth, well aware of the limits that this system involves.

*So how do you get a job?*

It's all on commission, usually word of mouth publicity. Once received the request from the customer, and when necessary after having carried out an inspection, we proceed to make a quote that if accepted starts the work.

### WHITE GHOST

White Ghost is, by definition, a maker. In September 2011 he opened his Youtube channel, thus starting to share his projects and to interact with thousands of people, enjoying considerable success, as evidenced by the current 76.700 subscribers on his channel.

*How was born the passion for DIY and how did you approach this world?*

The short answer and I think most common is "for necessity", the channel's motto is "...build what you need ..." (I know, it's in English... I had international ambitions at the time eh eh)

Anyway, coming back to us: I played in a blues band and I fell in love with Cigar Box Guitar, the next step was to build one.

To do so I undertook several searches on the net and youtube became a fixed stage of my days.

The CBG are very close to the world of carpentry and youtube is full of American videos in which in the garage of the house are set up real workshops... needless to say that I was ecstatic and starting from emulation I then spent time to create my own way to do things, Which, apparently, works.

*What, in your opinion, is the difference between a maker and a craftsman?*

I never considered myself a craftsman, this figure in my unconscious recalls a professional figure, while a Maker (as I see it) is something much closer to the hobby world.

However, today the word "Maker", especially in the Anglo-Saxon world, is associated with a handyman present on the net, someone who is not limited to a sphere of expertise, but ranges between many subjects, producing interesting content and consequently appealing to various brands; In this sense then also the Maker is a professional figure.

*Would it be possible, in your opinion, to carry out your activity without the use of social media?*

Without social media I would still be in my laboratory, I would call it "cellar" and I would take a third of the time to achieve everything, simply because I should not film every step, edit videos at night, follow social media during the day, etc etc

So the answer is no, I would just be someone who as a hobby builds things.

*How did you do your business before becoming "White Ghost Shop"?*

I am part of the group of people who have not made this a real activity, I simply have a job that I do in the classic hours 8-17 from Monday to Friday, a family that I do not neglect and above all support me.

*So where do I get the social media time?*

If you analyze all the moments in which we "waste time" during the day, you will find the answer, in any case it takes dedication, constancy, study and some sacrifice.

*How would you define yourself if you had to describe your professional figure? Do you feel more like a maker or a carpenter?*

I think the definition that suits me best is

“popularizing”.  
I discover new things every day, I try them, I’m wrong, I try again and when I think I’ve understood them I take them online making my journey public, in short, it’s a sort of “big brother of DIY”.  
The carpenters with a capital F are very different.

*The maker, if you would define yourself, also plays an ethical role within society or is he just a professional figure?*

Anyone who becomes a public figure has an ethical responsibility in my opinion.

*What future do you see for makers at the level of work and diffusion in Italy?*

If by Maker you mean who owns a Youtube channel, I think it’s just a stage to the other for most of us;  
the catchment area of a channel “in Italian” is really small and at the moment I feel like saying that it is now close to saturation.

Those who remain confined to the digital world and want to make it a profession, must always be ready to follow the novelties of various social networks, diversify its proposal, be updated, in short, almost more a video-maker than a maker in the strict sense.

For everyone else it depends on the business idea they have, whether there is a project behind the youtube movies and then the idea of exploiting the popularity achieved in some creative way, or if it is simply a hobby also  
that of filming, you do some collaboration with the brand on duty, you get some free tool and you become man image ...  
So in that case, in my opinion, there’s no big future around the corner.

STEFANO IL FALEGNAME

Stefano is a carpenter by profession but over the years his business has evolved

into a digital craftsman.  
Since 2015 he has started to devote himself to videomaking and has landed on Youtube, where today he has 142.000 members and more than 24 million views.

*How long have you been a carpenter and where did you learn this craft?*

The first time I approached this job I was twenty years old. I did it for a few years then I changed a lot of jobs. I worked as a gas station attendant in a technical design studio, then I started working in the carpentry industry, then the construction carpentry and then I decided to go back to the carpentry shop.  
I took the opportunity to take part in training courses which were recognised at European level, where a qualification was awarded for joinery in general and one for joinery applied to the nautical sector, so for almost two years I attended these courses that were theoretical-practical.

*How long have you been using social media and what role do they play in your work?*

I started using social media for almost 5 years and they play an important role because they are now an integral part of my work. I am no longer just a carpenter or a craftsman, but I am a digital craftsman.  
I could also be called influencer if compared to my niche industry even if I don’t like this term.  
It must be said that the fact of showing me online has also brought me an online market that I am trying to develop.  
Often you get in touch with companies that want to promote their products on one of my channels or companies that ask you for collaborations of various kinds.

*How did you work before opening your social media channels?*

I worked as a classic craftsman, therefore exclusively on the territory. The works were carried out by order, that is, you are contacted by a customer, you make a quote and, if this quote is accepted, then then the work begins.  
However I have never been a traditional craftsman, as soon as I opened my business I remember that I started to do flyers here in the country where I live.  
Thanks only to three days of leaflets, where I distributed about 5,000 leaflets, I managed to create my own customer base.

*Has your business volume increased since you decided to use the internet as a means of communication?*

It has increased, or rather it has diversified.  
Now I can afford to say no to certain jobs, so a job that I don’t want to do because I know it requires too much manpower or where the earnings are very low, or where they ask me to work mdf, chipboard or materials that I consider poor, I’ll throw them out right away.

*In your experience, how important is the use of new technologies such as 3D printing or the use of a CNC milling machine and internet as a showcase for your work?*

Although I have two 3D printers I rarely use them, because I see them as toys.  
I think I will consider the 3D printer seriously when metal printing will be accessible to everyone.  
The CNC milling machine is very useful instead, in fact I have equipped myself with a large machine that I will combine with a smaller one that will have to work continuously.  
The use of these machines allows me to avoid making estimates since I can work in a more serialized way.

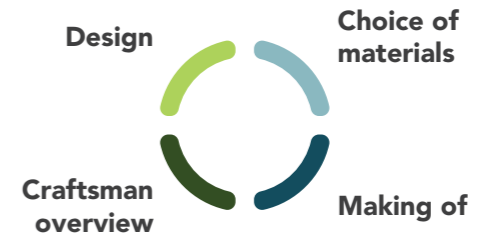
*How would you define yourself if you had to describe your professional figure?*

*In your opinion, has the term “craftsman” taken on a different value today?*

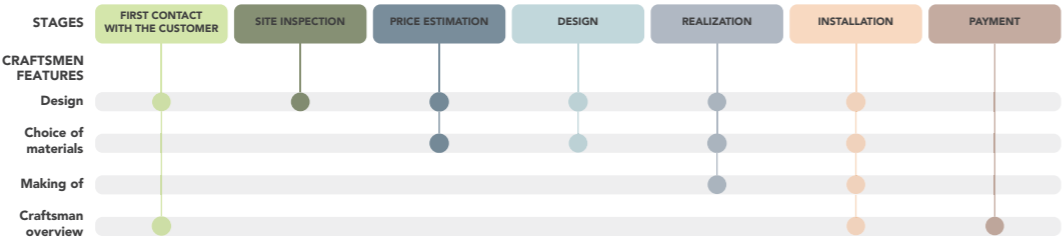
For the skills that I possess today joiner - artisan or digital craftsman are those that come closest to identifying my figure.  
To be a digital craftsman you not only have to be a craftsman, which is different from being a maker, but you have to be registered in the chamber of commerce as a “craftsman” and then use social media and new technologies.  
Then of course there is also all the talk about the videos, I could easily be a videomaker for the experience I did and with the courses I attended.  
The term craftsman today but maybe it is a bit ‘abused, I do not mean it with malice but the craftsman is a profession, as can be the plumber or electrician.  
A craftsman in fact is registered in the Chamber of Commerce a hobbyist no, even if he dedicates to his hobby six days a week.

1.5 THE HANDMADE PRODUCTION JOURNEY

Through meetings and interviews with the different artisans we have come to define the production method used by the latter. This operation was necessary to understand how to relocate the four fundamental elements of craftsmanship within our project.



We then divided this model into seven main steps, from the first meeting with the customer to the assembly of the artifact. We have decided to define this scheme under the name of Handicraft Production Journey (HPJ).



Pic. 1.4: Hpj graph

The formulation of this scheme has allowed us to understand the functioning of each step in the production process, and in particular it has served to clearly understand which of the four main characteristics of the craftsman came to the surface in the different phases.

Contact with the customer, the customer chooses the craftsman to turn to in relation to two main reasons, either by word of mouth or because he already knows it. It is therefore important for the craftsman that his customers are always satisfied with the work performed and that they speak well to their contacts. In this first contact the guidelines of the project and the timing of the craftsman are defined.

Inspection, at this stage the craftsman heads in person to the place where he will perform the intervention. Not for all the works this phase is present, but the artisans interviewed report that very often it happens. At this moment the craftsman realizes the actual work.

Estimate, once accepted the work the craftsman performs a estimate of the work. Only at this stage can the customer have a clear idea of the actual cost of the project, cost that however can still be subject to changes, in relation to project updates. The moment in which the customer accepts the estimate coincides with the signing of the "contract". In the event that there is not a sufficient level of mutual trust, the craftsman can ask for an advance on the total cost of the work.

Design, at this stage the project is clearly defined for the first time. This phase consists of several moments of confrontation between craftsman and customer to try to combine the experience of the first with the wishes of the second.

Realization, is the moment in which work begins that will lead to the final project. The craftsman orders all the necessary items from his trusted suppliers, so he is sure of the quality of the materials he will use. This phase can also be composed of several moments. In fact, the craftsman has a tendency to keep the customer informed about the progress of the work, this almost inevitably leads to further modifications of the initial project.

Once the artifact is finished, the craftsman transports it to the place where it will be installed and here he mounts it. Depending on the precision of the craftsman in the previous production of the piece, this phase may take more or less time.

Payment, the last stage is that of payment, which may concern the price in full or only a part, if they have already been given of the advances during the various stages.

### 1.6 IN CONCLUSION

At the end of this first analysis several considerations emerged. In the first place, if you consider the artisans more closely tied to tradition, it is

immediately evident that the realization of their artifacts is closely linked, and therefore inevitably dependent, by an initial commission, which then results in mere execution.

As Claudio Germak suggests in "Artigiano Design Innovazione, the new proposals of know-how":

the designer completes himself with the craftsman giving motivation (meaning and value) to the artifact, orienting it to contemporary consumption patterns and increasing its quality at both project and process level (Germak, 2015).

A solution could therefore be represented by the application of research and design refinement even before the realization, which would strengthen the identity of each individual processing.

A second step to overcome is certainly the development of communication and sales channels.

With the advent of social networks and the widespread dissemination of and commerce, the world of craftsmanship has found itself in a short time having to play an anachronistic role, often ending up the victim of a consumerist logic.

The logic of "everything and immediately" and of "less costs and better is" that by no means marry with the cult and dedication of manual labor, have sunk the craft market, victim even of production costs necessarily higher. At the question "can you work in a global market while remaining artisans?" is Stefano Micelli to give an answer:

To answer this question it is necessary to put order in the complicated debate on the size of the company and on the processes of internalization [...]  
It is not said that being on the global market means competing with large Chinese companies on the price of a jacket or a pair of pants [...]

Today, production chains are increasingly transitional: the new information and communication technologies allow a division of labour that rewards the integration of skills

and skills located in very different national and regional contexts. If you exit from a mercantile vision you immediately discover opportunities so far underestimated, certainly changes the type of product that is offered and changes the relationship that is established with the market (Micelli, 2011).

The key to the revival of craftsmanship could therefore be the recovery of local identities and research on how to make them attractive, through production, rebirth that can then be entrusted to design.

# THE INDUSTRIAL PRODUCTION MODEL

02

## 2.1 ANALYSIS OF THE CURRENT INDUSTRIAL PRODUCTION MODEL

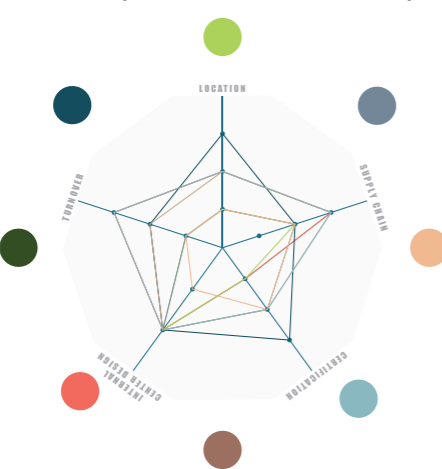
Along with the investigation of the production model, it was also important to analyze industrial production, in order to understand the strengths and limitations of this model.

The research on the area of mass production was conducted starting from the analysis of some case studies of companies in the furniture sector. The phases of this first analysis were: identification of the case studies, some of which are local, some national and some international; definition of four main types of companies; analysis of environmental certifications.

Later a broader reflection was made on the advantages and limitations of mass production.

2.2 IDENTIFICATION OF CASE STUDIES

The research focused on a group of 8 manufacturing companies, chosen by their location. In order to obtain an effective data return, the case studies were chosen in a heterogeneous manner, for this reason 3 companies come from the area under consideration, 3 from the national panorama and 2 from the international one. For privacy reasons the company names have been replaced by the color names used to represent them in the graphs.



Location
Within 100 km
Between 100 and 1000 km
Beyond 1000 km
Certifications
None
Product + Process
Product + Process + Environment
Turnover
Within 1 Million
Between 1 and 50 Millions
Beyond 50 Millions
Internal Design Center
Si
No
Supply chain
Within 1000 km
Between 1000 and 5000 km
Beyond 5000 km

Pic. 2. 1: Case studies tab

Atlantis, it is a company with deeply artisan origins, a factor that still persists in current production. "Our identity resides in the carpentry shop: craftsmen by birth, we have chosen to remain faithful to our origins to give you furnishings out of the ordinary. This is why we have completely renewed ourselves: speeding up production, safeguarding craftsmanship, allows us to obtain excellent results and to offer them in the utmost convenience. "

Light Slate Gray, has undergone a change over time, in 1921, the year of its foundation, the company was divided between the production and sale of furniture, however today they have become only furniture retailers. In addition to selling furniture from large manufacturing companies, they have a design department that commissions products, specific to the customer's requests, to local artisans.

Mandys Pink, the company was founded in 1894 in Villanova Solaro (CN), as a manufacturer of windows and doors for farmhouses. Over time it has identified its soul in the production of furniture. Nowadays, the three main sectors that it deals with are the design, construction and sale of custom furniture for each customer.

Shadow Green, is a family-run company that has conquered the Italian kitchen market in the last 50 years. Over time, the management of the company has passed from an entrepreneurial model to a managerial one. "Shadow Green's mission: to produce kitchens by placing craftsmanship at the service of innovation in taste and making design an accessible value."

Toast, the company bases its production on a catalog of standardized home furniture. The production of the products takes place in an industrial way. "The person put back at the center of

everything. This is how we understand design."

Burnt Sienna, the company, founded in 1967 in Treia (MC), passes from artisan production to industrial production in a very short time, becoming, at the present time, the first company in its sector in terms of productivity.

Dark Cerulean, is a recent company that combines a production made with the greatest possible respect for the environment with traditional Danish design. "Our goal is to make design matter and reducing our environmental footprint in the making, therefore we design furniture that will both stand the test of time and inspire the consumer to cherish and savor them."

Army green, born in 1982, offers a catalog of products, handcrafted with the support of industrial machinery, whose strength is durability and customization. Since production is handled in an artisanal way, it is in fact possible to obtain important changes on the pieces, in order to make them as adaptable as possible to the customer's furniture. "We have a deep personal connection to our work. We care about what we do and how we do it, and we inspire others to care too. When these values or our perspectives are in conflict, we aspire to act in the best long-term interest of Army green. "

Case context	Atlantis	Light Slate Grey	Mandys Pink	Shadow Green	Toast	Burnt Sienna	Dark Cerulean	Army green
Location	Brossasco (CN)	Saluzzo (CN)	Villanova Solaro (CN)	Treviso	Villa del Conte (PD)	Treia (MC)	Copenhagen	Portland (OR)
Primary activities	Semi artisanal production	Resale	Semi artisanal production	Industrial production	Industrial production	Industrial production	Industrial production	Semi artisanal production
Establishment year	1970	1921	1894	1967	1976	1967	2015	1982
Employees (domestic)		<10		228	200	550	<10	48
Turnover (Euro)		1 Million (2019)		204 Million (2019)	35 Million (2019)	205,3 Million (2019)	<1 Million	9 Millions

Pic. 2.2: Case studies production tab

### 2.3 ORGANIZATIONAL STRUCTURES OF THE CASE STUDIES

The analysis of the case studies was useful for understanding the panorama of industrial furniture production. To have a clear view of the identified data, it was decided to group the case studies into some categories, based on the company mission. To do this, the work conducted by a group of Italian researchers, Giulio Buciuni, Giancarlo Coro' and Stefano Micelli, was fundamental, as part of a research on the role of direct control of production and innovation with respect to the competitiveness between companies producing furniture. Although their research focused on how offshoring may deprive firms and their domestic ecosystems of critical knowledge for innovation development, (Buciuni et al., 2013), the researchers came to define 4 types of companies divided according to the four major issues that drive the furniture production: sales, customization, design, innovation. For our work these typologies have been used, and they have been reworked to follow the direction of our research. It was therefore decided to add a fifth category based on the theme of sustainable production.

#### 2.3.1 FURNITURE MERCHANT

The term "furniture merchant" refers to a type of firm whose core business has shifted from manufacturing to distribution activities (Buciuni et al., 2013). This category includes, for example, Light Slate Gray which in the years of activity has seen in the sale of furniture the way to base its business. The production department, over time, has been dismantled with a consequent strengthening of the sales and administration departments. In the interview with the owner of this company it was confirmed that the reasons behind

this shift are mainly economic, maintaining internal production meant tying to large investments, with respect to which it was not possible to foresee the return of expenses and the consequent profit. By removing this limit, they have become a leaner company able to better support fluctuating market trends.

#### 2.3.2 CUSTOMIZATION-DRIVEN PRODUCER

This category includes those companies that identify their main direction in customized production. These firms are also characterized by a semi-artisan aspect and short delivery times. They are aimed at a medium-high market segment. Altantis and Mandys Pink are part of this category, both have maintained the production department over time and use it as an advantage over their competitors. The workers who work for these two firms have a high level of technical skills and, thanks also to equipment suitable for different types of work, I can produce highly customized furniture. As regards the design phase, both companies have an internal center, however the function of this department is mostly to manage the design of customer requests.

#### 2.3.3 DESIGN-DRIVEN PRODUCER

The term "design-driven producer" is used to describe a type of firm which is highly innovative in its product development, despite the fact that its control over production is not as high as that of "innovative makers" (Buciuni et al., 2013).

This category includes those companies that have an internal design center whose role is of extreme importance compared to other departments. They base their production on a standardized and mass-produced product catalog. Often these companies make use of

projects created by leading edge external designers. This happens to give value to the standardized product, it is no longer only the aesthetic value of the furniture that counts but also the intellectual value deriving from the bond with a famous person. The Shadow Green and Toast firms fall into this category.

#### 2.3.4 INNOVATIVE MAKER

An "innovative maker" is a type of furniture producer that generates product innovation through the direct control of manufacturing activities (Buciuni et al., 2013).

It is part of this category Burnt Sienna. The analysis carried out showed that one of the main features of this company lies in the constant work of the design center, which allows constant innovation of the products marketed. The level of innovation is also linked to the use of digital tools to communicate more fluidly both directly with customers and with architects looking for furniture to furnish their projects. Another important aspect of this category is the proximity between the design center and the operations center, the dialogue between these two departments is in fact the basis of innovation.

#### 2.3.5 SUSTAINABILITY-DRIVEN PRODUCER

To complete the work it was decided to add this category to the work of Buciuni et al. The main direction of the companies, which are placed in this category, is the environmental and social sustainability of their production. The Dark Cerulean and Army Green firms belong to this category. The design center loses its importance while the system that manages the

environmental and social level acquires importance. Thanks to their efforts in this field, these two companies have become part of B Corp.

### 2.4 ENVIRONMENTAL CERTIFICATION TOOLS

After the analysis of the case studies, the work focused on environmental certification tools. The reason for this direction is to be found in the increasing importance that respect for the environment has and must have in our lives.

The work carried out so far has highlighted how the impact of production activities on the environment is one of the main elements to be taken into consideration for future production. In addition, the aspect of consumers was also taken into consideration, increasingly aware and eager to fully understand the background to their purchases.

Since the 1990s, a series of regulations have been developed to ensure environmental protection. To facilitate understanding, they have been divided into three classes: the certifications concerning the processes, those concerning the products and finally those concerning the product life cycle.

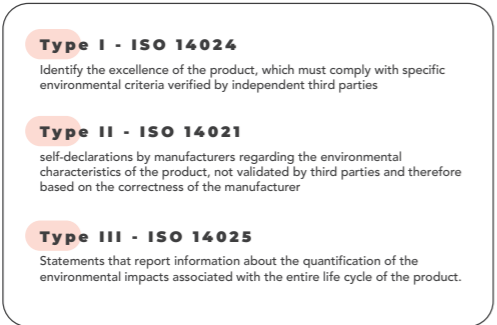
#### 2.4.1 ECOLOGICAL PRODUCT CERTIFICATIONS

In this category you will find those specific ecological labels relating to products. These certifications serve to guarantee the characteristics of eco-sustainability of the asset. Specifically, the ISO 14020 standards belong to this category. The main reason for obtaining these certifications lies in the differentiation from competitors, in a "business to

consumer” approach. Other reasons that push companies to seek these certifications are:

- allow consumers to distinguish similar products from different companies;
- offer companies the opportunity to differentiate their products;
- they are important marketing tools for companies wishing to Promote Their image;
- stimulate companies to invest in maintaining or improving the quality of Their products;
- can facilitate the Obtaining of funding and participation in public tenders.

Within the group of ISO 14020 standards, it is possible to distinguish three main types of ecological labels, in relation to the existence of certification bodies.

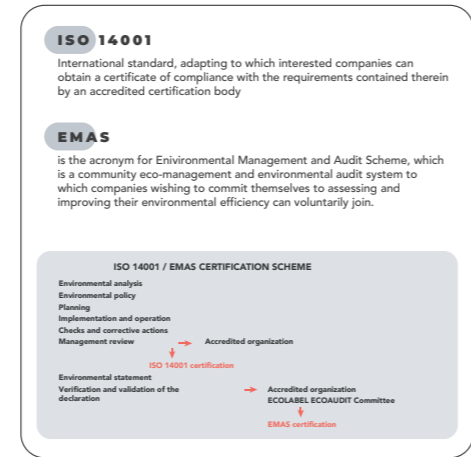


Pic. 2.3: Iso 14020 tab

In the context of the wood supply chain, it is important to remember that the ecological labels FSC (Forest Stewardship Council) and PEFC (Program for Endorsement of Forest Certification Schemes) are part of Type I. Below is a table that contains the three main types of ecological labels.

2.4.2 ECOLOGICAL PROCESSES CERTIFICATIONS

The category of process certifications includes those brands that guarantee the ability of a company or organization to manage certain parameters regarding its production and processes. The parameters are defined in advance. To promote sustainable environmental policies, companies can choose to adopt an Environmental Management System, in this way they conform to



Pic. 2.4: Iso 14001 tab

the international standard provided by ISO 1401 or the EMAS Community Regulation. Using an Environmental Management System means using the support of a tool that allows you to manage all the activities and processes of an organization in a coordinated and systematic way. Below is a summary table of ISO 14001 and EMAS certifications.

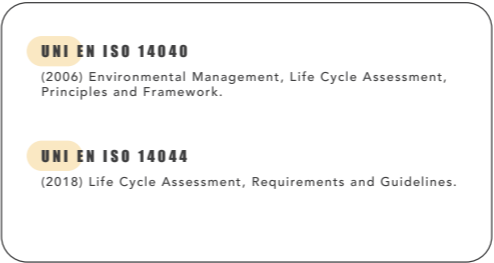
2.4.3 LIFE CYCLE CERTIFICATIONS

It is possible to evaluate and interpret the environmental impacts of any good (product or service), during its entire life

cycle, thanks to the Life Cycle Assessment (LCA) tool. CSQA issues a validation of the LCA studies. The LCA structure is divided into four main moments:

- Definition of the objectives and scope of the study: which products are studied, the functional unit, the boundaries of the system to whom the study is addressed;
- Inventory analysis (LCI): consists of data collection and calculation procedures aimed at quantifying the relevant inflows and outflows of a product system;
- Impact Assessment (LCIA): Life Cycle Impact Assessment aims to assess the extent of potential environmental impacts;

- Interpretation: it is a systematic procedure aimed at identifying, qualifying, verifying and evaluating the results of the inventory and impact assessment phases, in to draw conclusions and recommendations.



Pic. 2.4: Iso 14040 tab

2.5 CONSTRAINTS AND ADVANTAGES OF THE INDUSTRIAL PRODUCTION MODEL

The analysis conducted on industrial production and on the types of companies has brought to light some necessary aspects to be taken into consideration for the work that follows. These elements have been divided between advantages

and limitations. In order to be able to propose an innovative production method it is important to understand how the current one works, in order to define the points to be implemented and at the same time those to be avoided. It should be noted that, for the writing of this subchapter, the support of the article written by researchers Mary K. Hendrickson and Harvey S. James, Jr. in which they discuss the relationship between the economic pressure of the farms, due to industrialization and unethical behavior. Indeed, researchers argue that industrialization leads to constrained choices. The collected elements formed the basis for defining on which “pillars” to base the project.

2.5.1 ADVANTAGES

COST CONTAINMENT

This aspect is linked to several elements. First of all, the presence of an administration and control center useful for managing all business processes in the most efficient way possible. This means eliminating repetition and waste and aiming for the leanest results possible. Another important aspect, which affects cost containment, is standardized production. With the term standardized production we mean the realization of a large quantity of goods having characteristics that fall within defined parameters. The creation of an automatic assembly line requires a whole series of fewer factors, first of all manpower, which reduces its costs. Higher levels of efficiency.

Cost containment is closely linked to production efficiency. Mass-produced products are linked to various factors that lead to greater efficiency. The first element identified is that mass-produced items can be assembled more easily and in less time, thanks to the system of standardized characteristics

through which they are produced. They are not unique products that differ from each other, but they are components that respect parameters and tolerances so as to be interchangeable and reproducible, always identical.

The second parameter, which leads to a high level of efficiency, is that many actions that in an artisan production must be repeated at each creation of a new product, in industrial production are performed only once upstream. This leads to a reduction in timing.

### HIGH LEVEL OF ACCURACY

In the previous point, reference was made to compliance with precise parameters and tolerances. In fact, the use of machinery, specifically a numerical control machine, has led to an increase in the level of precision. Furthermore, the components made through industrial production have a high degree of replicability. The components can be made in different production centers, but once assembled they fit together.

### CAPITAL SUPPORT FOR SECONDARY ACTIONS

Another extremely important element of mass production is the movement of important capital. In the 20th century we saw how industrialization changed the flow of the market's monetary volume, from a multitude of small independent companies to a few big names that hold most of the market.

This means that the big names have large capital available for production. Part of these capital can therefore be used for secondary activities. Advertising and corporate identity represent activities that do not produce income directly, however they are of fundamental importance for the company. They define the characteristics and serve to acquire new customers.

## 2.5.2 CONSTRAINTS

### ECONOMIC PRESSURES

Although industrialization has led to an increase in productivity, in the last century, at the same time it has increased the level of economic pressure. The business cycle, which leads to a lowering of production costs, but which is linked to large investments, has imposed limits to which companies must comply. There are no longer any light productions that adapt to the fluctuating model of the market, but the productions require the market to be constantly expanding.

Economic pressure led to what Cochrane (1958) defined as a technological treadmill, or the cycle of improving technology, reducing the cost of production, and increasing factory sizes. The two main consequences of this process are: the products made cannot undergo major variations. Once the project direction has been established, the investments necessary for the realization mean that the direction must remain almost unchanged; who makes the decisions regarding what must be produced is imposed. The economic pressure that led to the appearance of a few big names has reorganized the possibility of choosing the design direction in the hands of a few. In this way, small producers, in order to keep up with the market, must adapt to this direction.

### LOSS OF A COMPETITIVE MARKET

Another important element, linked to the technological treadmill and the appearance of a few large companies, is that of the loss of competitiveness on the market. When four or fewer firms control 40 percent or more of an industry's market, that sector loses characteristics

of a competitive market. (Hendrickson & James, 2004)

### LOSS OF KNOWLEDGE AND SKILLS

The standardization of production towards a specific sector leads to the loss of knowledge related to the area. As an illustration, when firms specialize in making a standard product, the manual skills involved in making an artisanal product are lost. This factor leads to a reversal on the final customer, who gets used to an international style that no longer reflects the knowledge and skills related to a specific place.

Another factor that contributes to the loss of knowledge is specialization. The term specialization means the acquisition of a high level of experience and skills relating to a specific field of work. The specialization of production towards a specific sector leads to the loss of knowledge related to the area. One of the easiest examples is that of technology linked to production techniques (Llosa, 2012).

### LOSS OF LOCAL CULTURE

A very similar argument also applies to the loss of local culture. Culture, as defined by Llosa (2012), claiming a heritage of ideas, values and works of art, of historical, religious, philosophical and scientific knowledge in constant evolution, the incentive to explore new artistic and literary forms and research in all fields of knowledge, it has always played the role of dividing lines between groups. It defined the distinction between those who dedicated themselves to enriching it and those who despised it, and above all between the different places in which she was born. The creation of a standardized international style is leading to the annihilation of this type of culture.

Increased Capitalization Requirements

Hendrickson and James (2004) argue that manufacturing requires large sums of capital, something the cooperative movement recognized long ago. Those who can obtain capital, and those who have access to capital at a lower cost, are in a more advantageous position relative to those who cannot.

### ETHICAL IMPLICATIONS

The industrialization that led to a market made up of a few large companies meant that these were the only ones to be in a position to decide the direction of production. This factor is at the basis of two types of ethical problems, on the one hand the resolution of those disputes whose answer is not obvious, on the other hand, on the other hand, those problems in which groups of people have incentives to choose directions that they or others believe they are wrong.

# ENVIRONMENTAL IMPACT OF WOOD BASED PRODUCTS AND PROCESSES

03

## 3.1 THE ENVIRONMENTAL ISSUE

We have seen how, from the nineteenth century onwards, the consumption of resources related to food production, construction and the energy market has increased exponentially. Already in 1972, Donella and Dennis Meadows together with researchers Jørgen Randers and William Behrens III, had shown the world how predictions of demand for raw materials and population growth were not compatible with the levels of the world we live in.

Resources from forests provide renewable construction materials (especially for buildings), pulp and paper, energy, bioproducts and more. Forests sequestering carbon and wood products storing carbon have the greatest potential to mitigate climate change (Canadell et al., 2008).

Despite the abundant amount of forest resources, it is important to know the value of the global demand for wood to understand how indispensable it is to

apply sustainable forest management practices. Specifically, in this chapter, the research will focus on the timber sector.

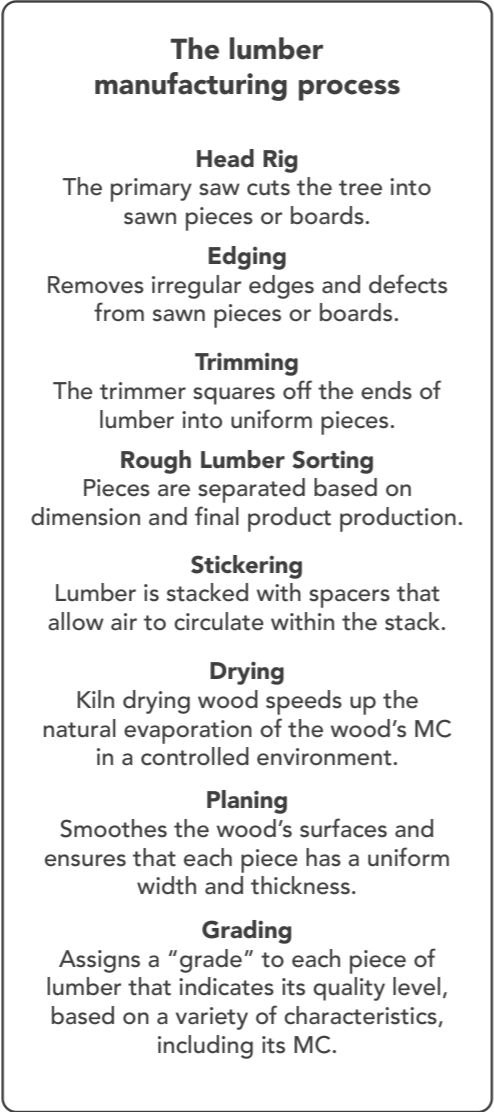
3.2 ROUNDWOOD LIFE CYCLE

The life cycle of wood is characterized by some crucial phases:

- the first phase is that of harvesting, usually carried out by forest utilization companies;
- then we move on to the first transformation phase. The actors of this phase are the sawmills together with the paper industry;
- the last phase is that of the second processing, carried out by the furniture industry, by artisanal and industrial carpentry shops and by other wood products.

Harvesting starts from forests, both natural and planted. Plantation forest is defined as an intensively managed planted forest that at maturity is composed of one or two species, has one age class, and has regular tree spacing. (Food and Agriculture Organization of the United State, 2020)

The point of contact between the collection phase and the first processing phase is to be identified in the transport. The processes that make up the first transformation phase are mainly the cutting of the logs into slabs, the slicing for the creation of wooden sheets, the grinding, both mechanical and chemical, to transform the wood pulp into wood chips or fibers and seasoning. , both natural and with hot air. The size of the collected logs determines, in the first phase of processing, the final product. The products obtained from this first process are wooden packaging, sawn timber for carpentry, sawn timber for joinery, wooden panels and other products. The products are again transported and arrive at different companies that deal with the second processing.



Pic. 3.1: The lumber manufacturing process

3.3 DATA ON WOOD PRODUCTION IN PIEDMONT

Piedmont has a forest heritage of about 1 billion trees. Among the tree species, broad-leaved trees prevail and in particular chestnut, beech and black locust. Larch is the most common conifer. 70% of Piedmontese woods are privately owned, half of which are farmers. The fragmentation of private property is one of the factors that most limits forest management. (Piedmont Region, n.d.) Most of the forest companies (80%) are represented by individual micro-enterprises or family-run, formed by the entrepreneur assisted by one or two permanent workers, sometimes joined by the support of seasonal workers. (Piedmont Region, n.d.) The Cuneo area gathers 20% of Piedmont's forest companies.

The main production of wood processing companies is made up of mostly industrial wood packaging but also for the fruit and vegetable sector. Overall they represent 38% of Piedmontese production. The wood-based panels and the sawn timber for carpentry follow with comparable values, representing respectively about 27% and 22%. The other productions (saws for joinery and other products) cover the remaining 13%. The productions are mostly destined for the Piedmontese and Italian markets; only a small part is destined for foreign countries and these are mostly wood-based panels and wooden floors.

The joinery and carpentry represent the production sector of the Piedmontese wood system with the largest number of companies. Within this category there are also the restoration and production of wooden furniture. The peculiar characteristic of these companies is the possibility of carrying out different processes that allow them to be flexible and more adaptable to the changing

needs of the market.

3.4 WOODEN PRODUCTS IN COMPARATIVE LCA

Starting from the reference literature, a research was conducted to evaluate the environmental impact of the different wood panels used in the production of furniture. The tool used to support this analysis was the Life cycle Assessment or LCA. LCA is the internationally accepted standard method for assessing the environmental impacts of products (ISO, 2006). LCA is a tool capable of estimating the environmental impact of the entire life cycle of a product in a holistic way, this research also includes the count of resources used and emissions. Five types of wood panels were considered: solid wood (hardwood and softwood), plywood, particleboards, fiberboards and cross laminated timber (CLT).

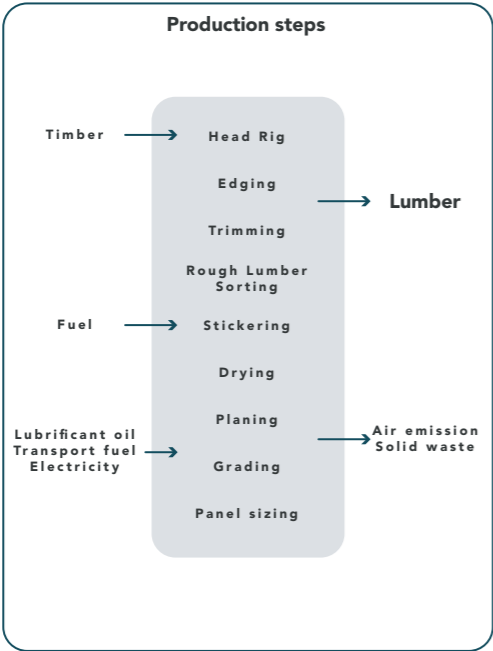
3.4.1 SOLID WOOD PANEL (HARDWOOD AND SOFTWOOD)

The term solid wood indicates any portion of wood obtained solely from the trunk of the tree, specifically from the innermost and densest part of the tree called heartwood. Among the panels taken into consideration, it is the one that requires less processing, as it is sufficient to cut the timber into slabs. Subsequently it only needs to be seasoned, a step necessary to eliminate the humidity of the fresh wood and to increase its resistance to attack by molds, which can occur naturally or can be accelerated through the drying process.

Solid wood panels find application in many fields, in particular in the production of artifacts. Before the introduction of engineered panels, the use of solid wood

completely covered the furniture market. Today, however, a large part of this market is made up of engineered panels.

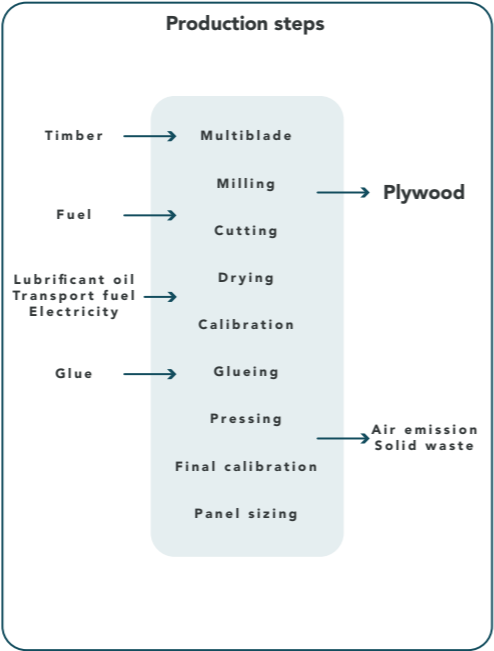
3.4.2 PLAYWOOD



Pic. 3.2: Plywood production process

Plywood is part of the family of wood panels defined as engineered wood. It is a material obtained by gluing thin layers or “plies” of wood veneer. In the construction phase it is important that the different layers are arranged with their wood grain rotated with respect to each other. This alternation of the grain is called cross-graining and has several important benefits: it reduces the tendency of wood to split when nailed at the edges; it reduces expansion and shrinkage, providing improved dimensional stability; and it makes the strength of the panel consistent across all directions.

In interior furniture manufacture the use of plywood is increasing in importance as



Pic. 3.3: Plywood production process

an alternative to other wood materials.

3.4.3 PARTICLEBOARDS

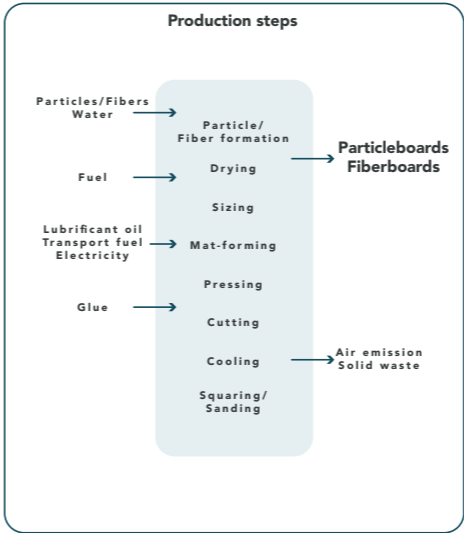
Particle board, also known as chipboard, is an engineered wood product manufactured from wood particles combined with synthetic resin or natural adhesive. (Wilson, 2010) Particleboard originated in Germany. It was first produced in 1887, when Hubbard made so-called “artificial wood” from wood flour and an adhesive based on albumin, which was consolidated under high temperature and pressure. (Rowell, 2013) Particle boards, starting in the 1950s, have played a large role in the manufacture of furniture and kitchens. The use of these panels allows you to obtain excellent results at a lower price, the laminate finish allows you to obtain the features of what you want, from fine woods to modern finishes.

**3.4.4 FIBERBOARDS**

Fiberboard is a type of engineered wood product that is made out of wood fibers. Types of fiberboard (in order of increasing density) include particle board or low-density fiberboard (LDF), medium-density fiberboard (MDF), and hardboard (high-density fiberboard, HDF). Fiberboard, particularly medium-density fiberboard, is heavily used in the furniture industry. For pieces that will be visible, a veneer of wood is often glued onto fiberboard to give it the appearance of conventional wood.

together and oriented at right angles to one another (Karacabeyli et al., 2013).

3.4.5 CROSS LAMINATED TIMBER (CLT)



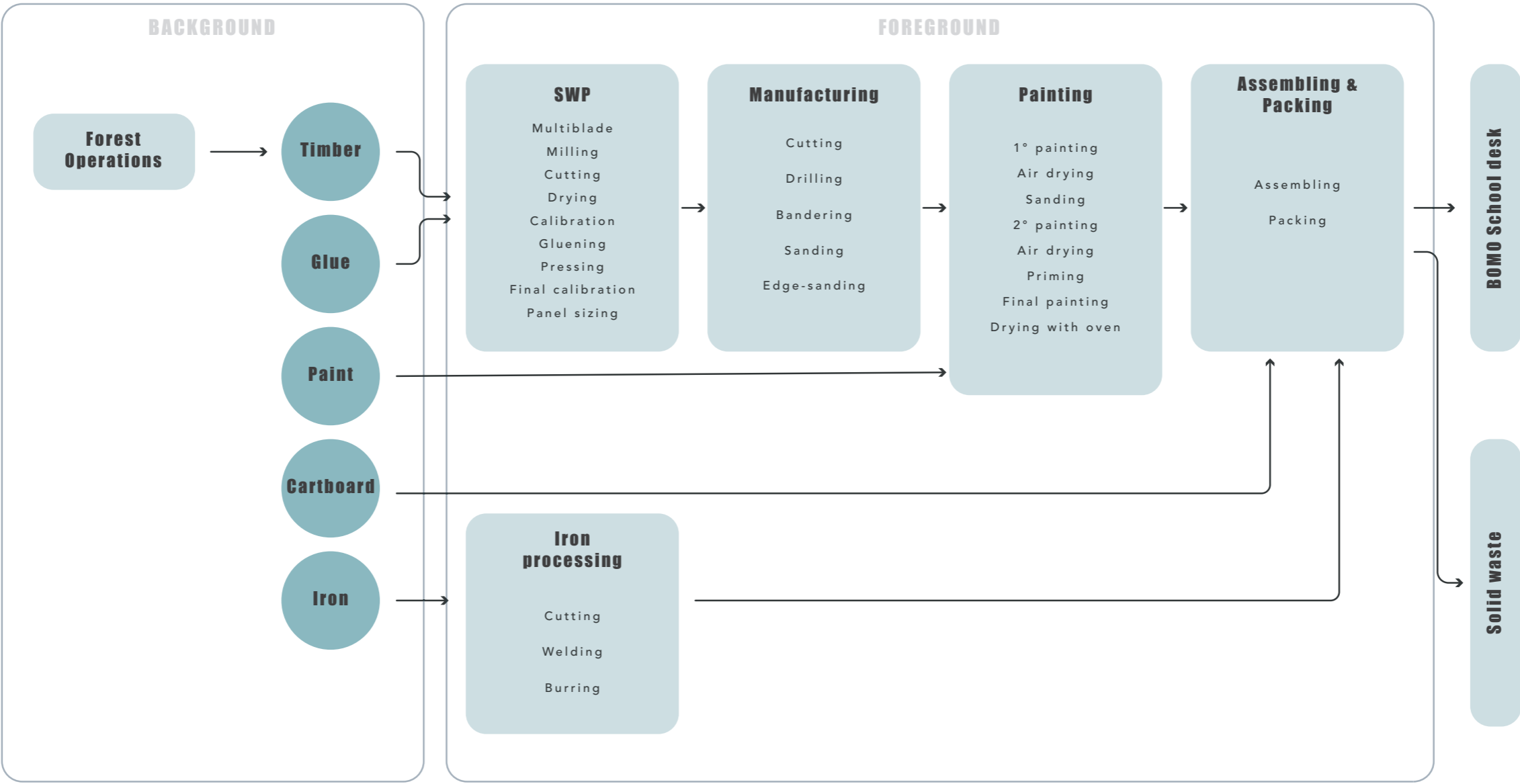
Pic. 3.4: Particleboards production process

The method to make CLT and similar perpendicular engineered wood products dates back to the early 20th century in the United States. (Walch et al., 1923) CLT is part of the engineered timbers, these are wood panels obtained by gluing layers of solid wood together. It is a solid structural wood panel made of 3, 5, 7 or 9 layers of solid-sawn lumber or structural composite lumber glued

3.5 SYSTEM BOUNDARIES OF FUNCTIONAL UNIT ANALYZED

It was decided to analyze the work, carried out by the Italian researchers Nadia Mirabella, Valentina Castellani and Serenella Sala, concerning the application of eco-design strategies and forest wood short supply chain to a case study of design supplies.

In their work they define the system boundaries of the process chain. This system was used as a reference for the project.



Pic. 3.5: System boundaries of functional unit analyzed

# HOLISTIC ANALYSIS OF THE AREA

04

## 4.1 THE CHOICE OF THE AREA

Based on the data collected by the CNA and recounted in the previous chapter, it is indisputable that the Piedmont area is among the protagonists concerning tradition and artisan culture.

Focusing on the graph about the craft enterprises on Italy production and about the number of craft enterprises in the Italy provinces, it is clear that the most highlighted areas concern northern Italy (in general) .

The data show how north east Italy represents the most steeped area from the point of view of craftsmanship. This is a territory saturated with more or less large companies, with little space for the positioning of a new company.

For the reasons listed above it was therefore decided to place the project in the north-west of Italy, to be precise in the Monviso valleys.

These factors represent an excellent starting point to succeed in weaving the necessary plots for systemic development

because, the attention to tradition and the need for innovation, represent the right mix to start the design machine. By further narrowing the field of action, our focus has been on the Varaita Valley and the upper Po Valley.

The history of this area has always been linked to that of craftsmanship, in particular to that of the wood sector mainly engaged in the production of furniture and windows. The local woodcraft can boast realities and business models from small businesses to medium-sized enterprises, along a chain that goes from the sawmill to the finishing, passing through manual and non-manual processing.

After living in the 70s in the illusion of an economic success linked to the winter tourism sector, the Valle Varaita is one of the largest provinces in the area of Cuneo.

The most complete and precise summary of the recent history of this area, from

the manufacturing point of view, is provided by Claudio Germak, Deputy Director of the Architecture and Design Department (DAD) at Politecnico: "In 1999, the local Comunità Montana, with the collaboration of Agenform

- Consortium, access to a European economic project whose main objectives concern the updating of technology and business logistics, activities entrusted to the Wood Agency. Research goes the way reinterpretation in the project, with substantial investments in process planning.

In 2000, the new interior design lines were launched to combine innovation and tradition with sustainable manufacturing processes.

In 2005, the creation of the Centro Servizi di Lavorazione Leggera del Legno, unique in Piedmont, conceived as a campus with production units specialized in CNC machining, a design laboratory coordinated by the Politecnico di Torino Design, a documentation centre on alpine furniture, training areas, conference activities and business incubators.

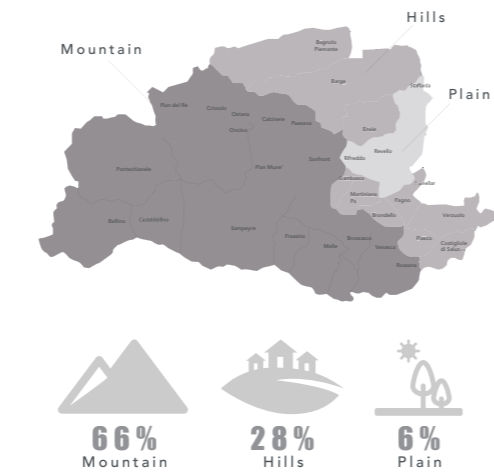
In 2010, again new lines of furniture, but for outdoor, with the brand Estbois, that see the use of solid wood and galvanized steel following the trend of materials of contemporary alpine architecture and produced in collaboration between artisans of the Valleys of Monviso and a local business incubator.

The result is a real catalogue of references, upgradable and interpretable, set up with the aim of making the expressiveness of the product declinable on a modular basis. The further differentiation of the product also contributes to the use of solid wood, an extraordinary living and mutant material, proposed in native species (pine, larch, oak, cherry and ash), which is not dyed but treated only with ecological products for indoor products

and with nanotube based impregnators for outdoor products." (Germak, 2015)

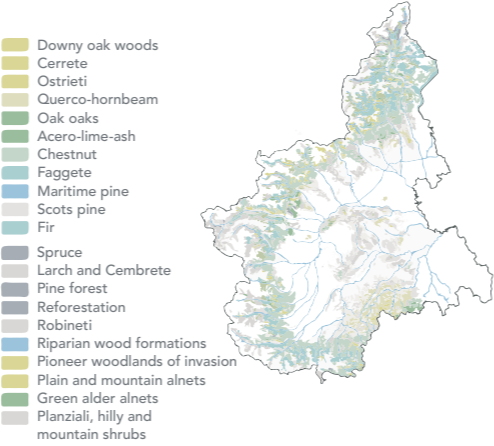
4.2 INTERPRETATION OF THE AREA

Characterized by the birth of the Po River that in addition to giving the name to the entire area also becomes its largest



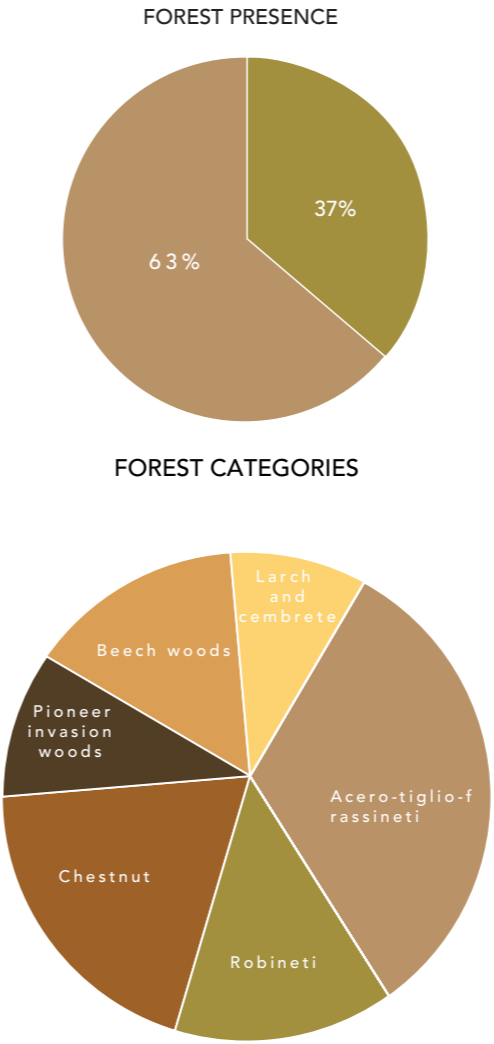
Pic. 4.1: Land conformation

symbol, the upper Po Valley and the neighboring Bronda Valley, Valle Varaita and Valle Infernotto, constitute an area rich in history, traditions and landscape varieties, as evidenced by the high presence of mountains, equal to 66% of the surface, alternated by 28% of the hilly



Pic. 4.2: Quality variation

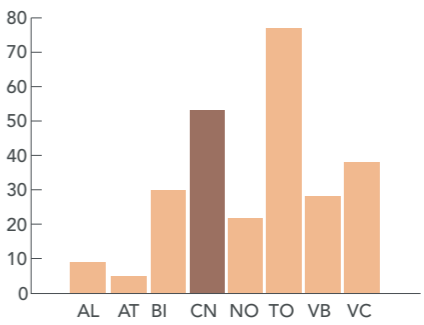
presence from a 6% plain (Parcomonviso, 2020).



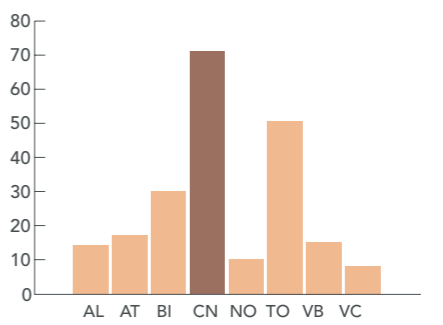
Pic. 4.3: Forest presence and categories



WOOD COLLECTION COMPANIES



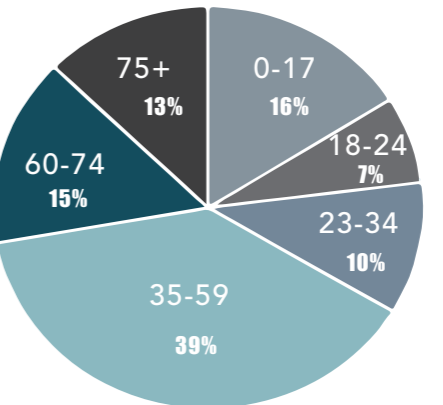
FIRST TRANSFORMATION COMPANIES



Pic. 4.4: Wood sector in the area

The factor that unites all these geographical variations is undoubtedly the high presence of forests, equal to 63% of the entire area, which also boasts excellent biodiversity.

AVERAGE AGE



Pic. 4.5: Average age

Moreover, the presence of a wide variety of wooded areas makes this area one of the first for the number of companies that work timber in the entire Piedmont district.

The high productivity of the area is also guaranteed by a relatively young average age, open at about 45 years, which was calculated by considering a number of inhabitants of 587,000, which also guarantee a population density of 85 inhabitants per km2. (Istat, 2019)

4.3 MOBILITY AND TRANSPORT

NON LOCAL TRANSPORT

- Airport
  - Levaldigi: Ryanair, Air Arabia, Ernest, Albawings
  - Caselle: CAI, Air France, Lufthansa, British Airways, Turkish Airlines, Brussels Airlines, Iberia, Lot Polish Airlines, Air Dolomiti, Ryanair, Blu Express, Windget Meridiana, Air Italy, Air Vallee, Luxair, Tap Portugal, Belle Air

- Railway stations
  - Saluzzo, Fossano, Savigliano, Cuneo Pinerolo: Trenitalia

- Taxi

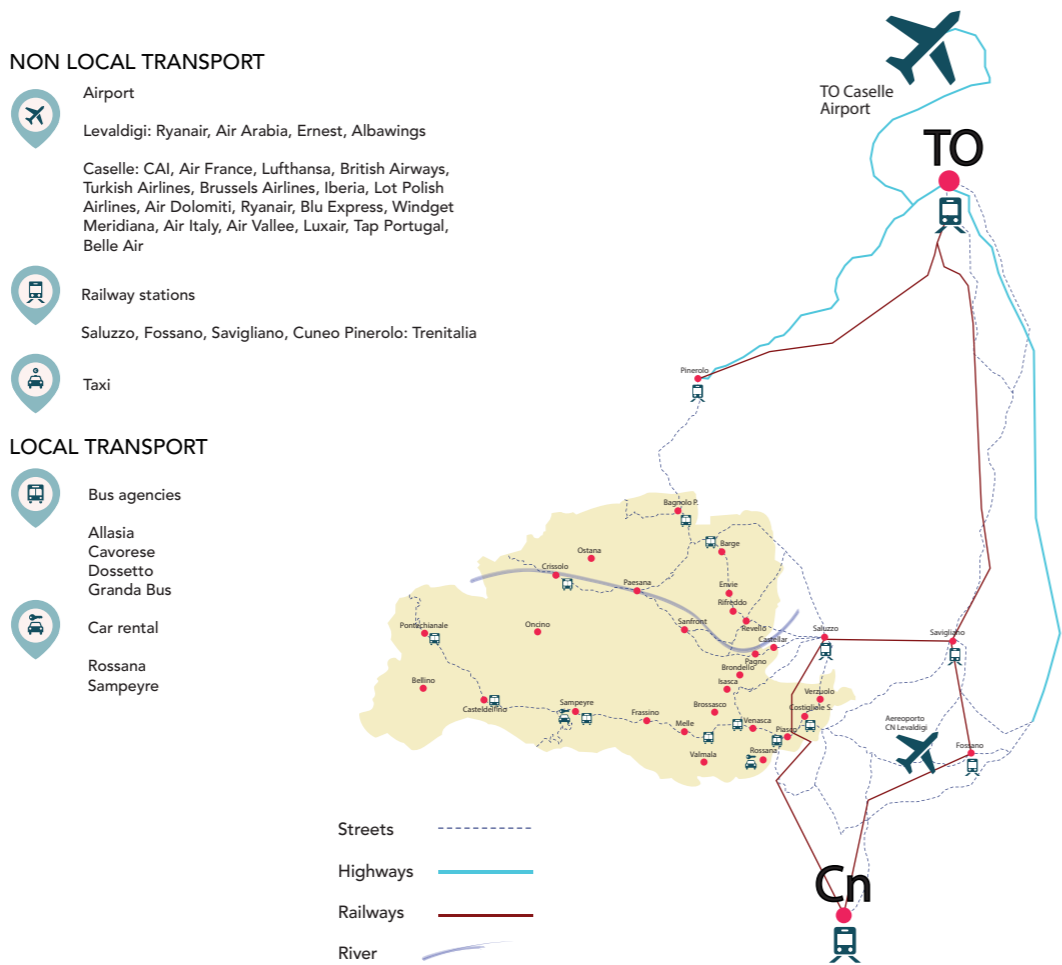
LOCAL TRANSPORT

- Bus agencies
  - Allasia
  - Cavorese
  - Dossetto
  - Granda Bus
- Car rental
  - Rossana
  - Sampeyre

About the description and the possibilities of movement inside and outside the area we realized a graphic solution.

In the figure below, you can see how the various junctions and the fundamental elements have been reported to reach the area that goes from Valle Varaita to the upper Valle Po.

The types of transport have been divided into non-local, such as airports and railway stations, and into local, such as bus companies or car rental services. Besides, the map shows, in addition to the railway network, also the highways and roads connecting municipalities. (Azienda Turistica del Cuneese, 2020)



Pic . 4.6: Transport and actors map

4.4 SEARCH FOR THE ACTORS INVOLVED

After describing the territory and the geographical area where we intend to work, all the actors who would potentially be involved in the project have been identified.

To succeed in having a credible sample, we relied on the data collected by Confartigianato Cuneo with the help of Regione Piemonte, ATL Cuneo and Unioncamere Piemonte.

The collected list has been arranged in a single table, which contains several entries:

Under the words "name" and "place", are reported the names of the activities and the respective countries of the lease, under the heading "profession" correspond instead to the sectors of belonging, with "size of the activity" refers basically to two types, or the small shop or medium-sized enterprise.

Unlike the first, the second can rely on more efficient and modern machines as well as offering services such as lacquering or the setting through rendering.

These data are found under the words "services", where the use of industrial machinery alternates with manual work, and "notes", under which are reported the presence or not of shops, web channels or equipment and specific activities.

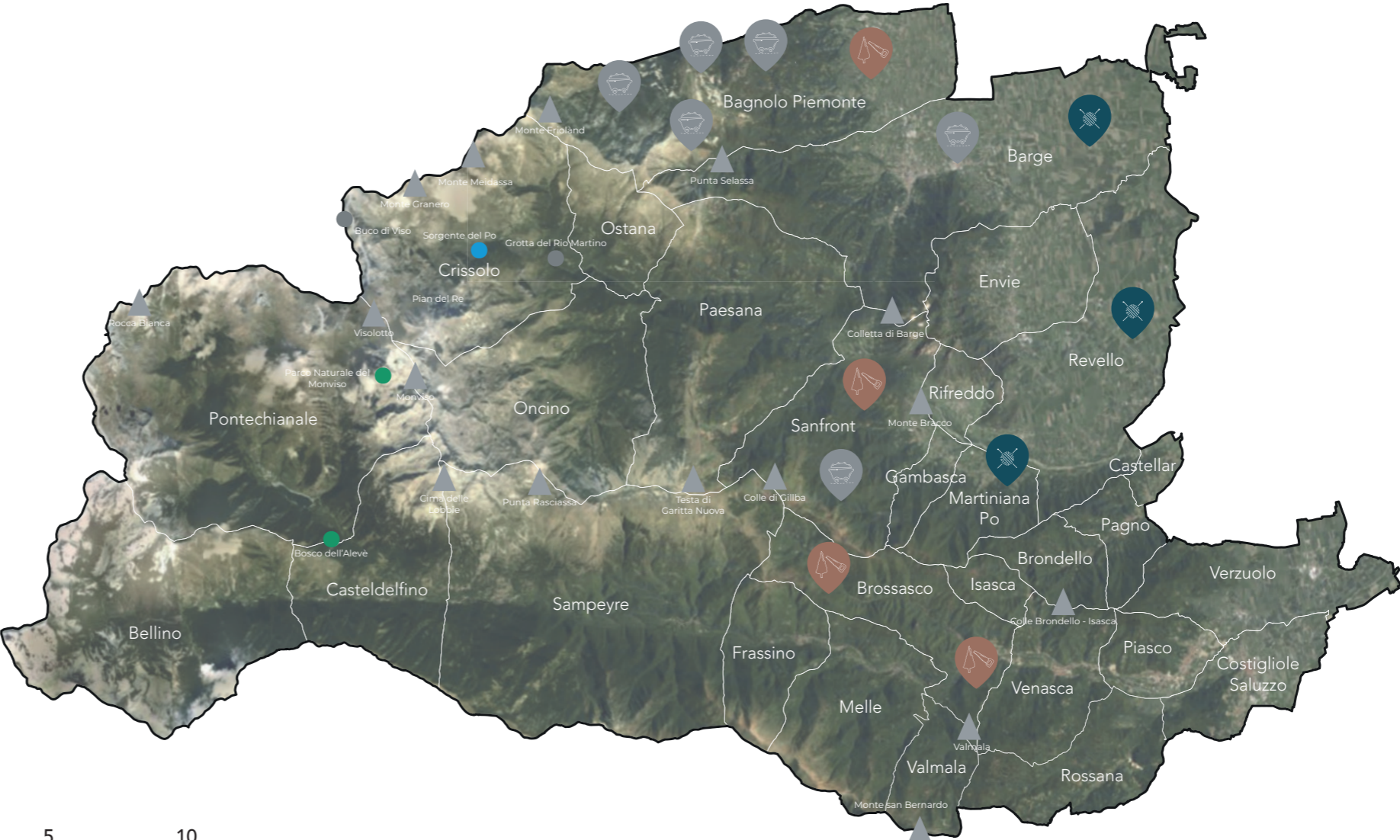
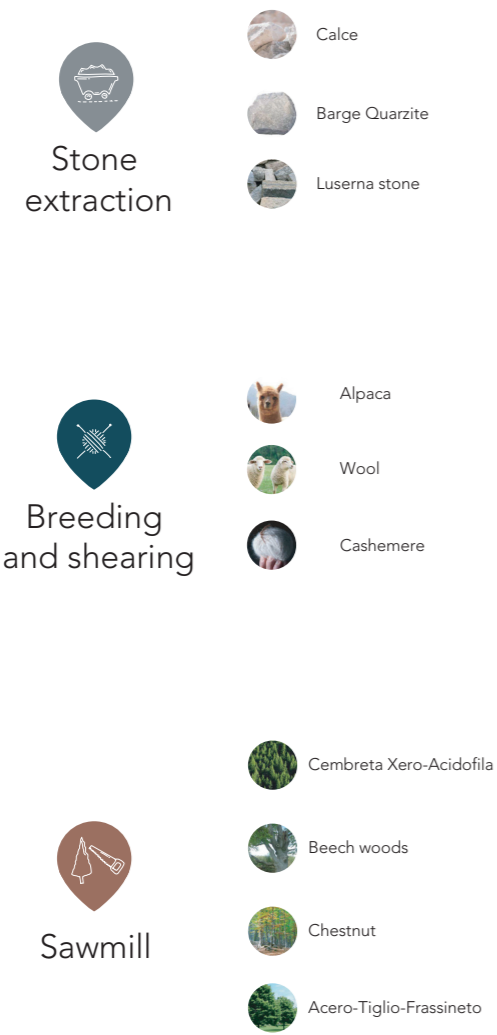
NAME	PLACE	PROFESSION	BUSINESS SIZE	SERVICES	NOTES
Barra Romano	Sampeyre	Woodcrafter	Laboratory	Traditional handwork	Web site
Garnero	Sampeyre	Woodcrafter	Medium enterpise	Traditional handwork	Web site
Botta Gio Battista e figli	Sampeyre	Woodcrafter	Medium enterpise	Industrial machinery	Web site Sustainable vision
Falegnameria Martino	Sampeyre	Woodcrafter	Laboratory	Traditional handwork	No web site
Fratelli Lantermino	Sampeyre	Woodcrafter	Laboratory	Traditional handwork	No web site
L'artigiano del rustico di Boero Giuseppe	Sampeyre	Woodcrafter	Laboratory	Traditional handwork	No web site
La madia	Sampeyre	Woodcrafter	Laboratory	Traditional handwork	Web site Rendering service Shop
Rostagno Alessandro	Sampeyre	Woodcrafter	Laboratory	Traditional handwork	No web site
Arredamenti rustici Valle Varaita	Brossasco	Woodcrafter	Medium enterpise	Industrial machinery	Web site Rendering service Shop
Barbero Franco	Brossasco	Woodcrafter	Laboratory	Traditional handwork	No web site
Degiovanni	Brossasco	Woodcrafter	Medium enterpise	Industrial machinery	Web site Rendering service Shop
Durbano Giacomo	Brossasco	Woodcrafter	Laboratory	Traditional handwork	No web site
Fino Valter	Brossasco	Woodcrafter	Laboratory	Traditional handwork	No web site
Martina Milvio	Brossasco	Woodcrafter	Laboratory	Traditional handwork	No web site
Mobile Rustico di Fratelli Munari	Brossasco	Woodcrafter	Laboratory	Traditional handwork	No web site
R.B.B S.A.S. di Bastonero e Bonetto	Brossasco	Woodcrafter	Laboratory	Traditional handwork	No web site
Rinaudo Ugo	Brossasco	Woodcrafter	Laboratory	Traditional handwork	No web site
Val Varaita SRL	Brossasco	Woodcrafter	Medium enterpise	Industrial machinery	Sawmill
Tapparello Omar	Brossasco	Glassworker	Laboratory	Traditional handwork	No web site
Legnami 2000	Brossasco	Woodcrafter	Medium enterpise	Industrial machinery	Sawmill
Aimar Firmino	Costigliole Saluzzo	Woodcrafter	Laboratory	Traditional handwork	No web site
Fraire Silvio	Costigliole Saluzzo	Woodcrafter	Laboratory	Traditional handwork	No web site
Garnero Giuseppe	Frassino	Woodcrafter	Laboratory	Traditional handwork	No web site

L.M.G.	Bagnolo	Stone worker	Medium enterpise	Industrial machinery	Stone extraction Web site
Bertone	Bagnolo	Stone worker	Medium enterpise	Industrial machinery	Stone extraction Web site
Boagli Luigi	Bagnolo	Stone worker	Medium enterpise	Industrial machinery	Web site
Salusso fabrizio	Bagnolo	Stone worker	Medium enterpise	Industrial machinery	Web site
Vottero Placido	Bagnolo	Stone worker	Medium enterpise	Industrial machinery	Web site
Lo.Pi.Ca.	Bagnolo	Stone worker	Medium enterpise	Industrial machinery	Web site
Alberto Adriano	Barge	Woodcrafter	Laboratory	Traditional handwork	No web site
Chiri Arredamenti	Barge	Woodcrafter	Medium enterpise	Industrial machinery	Web site Rendering service Shop
Doc Legno	Barge	Woodcrafter	Laboratory	Traditional handwork	Web site Shop
D.B.D. di Barotto Dario	Barge	Woodcrafter	Laboratory	Traditional handwork	No web site
Serim di Fantone Secondo e Mauro	Barge	Woodcrafter	Laboratory	Traditional handwork	No web site
Serramenti Bagnesi	Barge	Woodcrafter	Laboratory	Traditional handwork	No web site
Italpietre S.N.C.	Barge	Stoneworker	Medium enterpise	Industrial machinery	Web site Waterjet cutting
Viso PLast S.N.C. di Artusio Carlo	Barge	Plastworker	Medium enterpise	Industrial machinery	Web site CNC technology
Moresco Snc	Barge	Mechanical worker	Medium enterpise	Industrial machinery	Web site CNC and high precision machinaries
Beltramo fratelli	Barge	Stone worker	Medium enterpise	Industrial machinery	Stone extraction Web site
Domenino Giuseppe	Barge	Stone worker	Medium enterpise	Industrial machinery	Web site
Perotti Livio	Barge	Smith	Laboratory	Traditional handwork	Web site
Alberto Ivo	Paesana	Woodcrafter	Laboratory	Traditional handwork	No web site
Allio Fratelli Bruno e Franco	Paesana	Woodcrafter	Laboratory	Traditional handwork	No web site
PF Mobili	Paesana	Woodcrafter	Laboratory	Traditional handwork	No web site
Rossi Oscar	Paesana	Woodcrafter	Laboratory	Traditional handwork	No web site
Amleto Bertoni	Paesana	Woodcrafter	Medium enterpise	Industrial machinery	No web site
Ceirano Flavio	Pagno	Woodcrafter	Laboratory	Traditional handwork	No web site
Giusiano Lionello	Pagno	Smith	Laboratory	Traditional handwork	No web site
A.P.R.	Revello	Woodcrafter	Medium enterpise	Industrial machinery	Web site

L.M.G.	Bagnolo	Stone worker	Medium enterprise	Industrial machinery	Stone extraction Web site
Bertone	Bagnolo	Stone worker	Medium enterprise	Industrial machinery	Stone extraction Web site
Boagli Luigi	Bagnolo	Stone worker	Medium enterprise	Industrial machinery	Web site
Salusso fabrizio	Bagnolo	Stone worker	Medium enterprise	Industrial machinery	Web site
Vottero Placido	Bagnolo	Stone worker	Medium enterprise	Industrial machinery	Web site
Lo.Pi.Ca.	Bagnolo	Stone worker	Medium enterprise	Industrial machinery	Web site
Alberto Adriano	Barge	Woodcrafter	Laboratory	Traditional handwork	No web site
Chiri Arredamenti	Barge	Woodcrafter	Medium enterprise	Industrial machinery	Web site Rendering service Shop
Doc Legno	Barge	Woodcrafter	Laboratory	Traditional handwork	Web site Shop
D.B.D. di Barotto Dario	Barge	Woodcrafter	Laboratory	Traditional handwork	No web site
Serim di Fantone Secondo e Mauro	Barge	Woodcrafter	Laboratory	Traditional handwork	No web site
Serramenti Bagnesi	Barge	Woodcrafter	Laboratory	Traditional handwork	No web site
Italpietre S.N.C.	Barge	Stoneworker	Medium enterprise	Industrial machinery	Web site Waterjet cutting
Viso PLast S.N.C. di Artusio Carlo	Barge	Plastworker	Medium enterprise	Industrial machinery	Web site CNC technology
Moresco Snc	Barge	Mechanical worker	Medium enterprise	Industrial machinery	Web site CNC and high precision machinaries
Beltramo fratelli	Barge	Stone worker	Medium enterprise	Industrial machinery	Stone extraction Web site
Domenino Giuseppe	Barge	Stone worker	Medium enterprise	Industrial machinery	Web site
Perotti Livio	Barge	Smith	Laboratory	Traditional handwork	Web site
Alberto Ivo	Paesana	Woodcrafter	Laboratory	Traditional handwork	No web site
Allio Fratelli Bruno e Franco	Paesana	Woodcrafter	Laboratory	Traditional handwork	No web site
PF Mobili	Paesana	Woodcrafter	Laboratory	Traditional handwork	No web site
Rossi Oscar	Paesana	Woodcrafter	Laboratory	Traditional handwork	No web site
Amleto Bertoni	Paesana	Woodcrafter	Medium enterprise	Industrial machinery	No web site
Ceirano Flavio	Pagno	Woodcrafter	Laboratory	Traditional handwork	No web site
Giusiano Lionello	Pagno	Smith	Laboratory	Traditional handwork	No web site
A.P.R.	Revello	Woodcrafter	Medium enterprise	Industrial machinery	Web site

Biestro Bartolomeo	Revello	Woodcrafter	Laboratory	Traditional handwork	No web site
Fratelli Balangero	Revello	Woodcrafter	Medium enterprise	Industrial machinery	Web site Online shop
Fratelli Barra	Revello	Woodcrafter	Laboratory	Traditional handwork	No web site
Interni Mobilarte	Revello	Woodcrafter	Medium enterprise	Industrial machinery	Web site Rendering service Shop
Vetreria Peracchia Fratelli S.N.C.	Revello	Glassworker	Medium enterprise	Industrial machinery	Web site only
Bela	Revello	Tissue worker	Medium enterprise	Industrial machinery	Web site only
Vincenti società	Revello	Plastworker	Medium enterprise	Industrial machinery	Web site CNC and high precision machinaries
Farina Renato	Rifreddo	Woodcrafter	Laboratory	Traditional handwork	No web site
Fratelli Farina	Rifreddo	Woodcrafter	Laboratory	Traditional handwork	No web site
Lammardo Fabrizio	Rifreddo	Woodcrafter	Laboratory	Traditional handwork	No web site
Arredamento Belviso	Sanfront	Woodcrafter	Laboratory	Traditional handwork	No web site
Arredo Legno di Mulatero Maurizio e Fenoglio Luca	Sanfront	Woodcrafter	Laboratory	Traditional handwork	No web site
Barra Riccardo	Sanfront	Woodcrafter	Medium enterprise	Industrial machinery	Sawmill
Berrino Marco	Sanfront	Woodcrafter	Laboratory	Traditional handwork	No web site
Boassi S.A.S	Sanfront	Woodcrafter	Medium enterprise	Industrial machinery	Facebook page
Brondino Ezio e Mirko	Sanfront	Woodcrafter	Laboratory	Traditional handwork	No web site
De.Pa. di Lino Passeri	Sanfront	Woodcrafter	Laboratory	Traditional handwork	No web site
Falegnameria Chiabrando	Sanfront	Woodcrafter	Laboratory	Traditional handwork	No web site
Martino Bruno	Sanfront	Woodcrafter	Laboratory	Traditional handwork	No web site
Mobili e serramenti Demaria	Sanfront	Woodcrafter	Medium enterprise	Industrial machinery	Facebook page
Eco Pietre	Sanfront	Stone worker	Medium enterprise	Industrial machinery	Stone extraction Web site
Cashemere e alpaca	Martiniana Po	Tissue worker	Medium enterprise	Traditional handwork	Facebook page

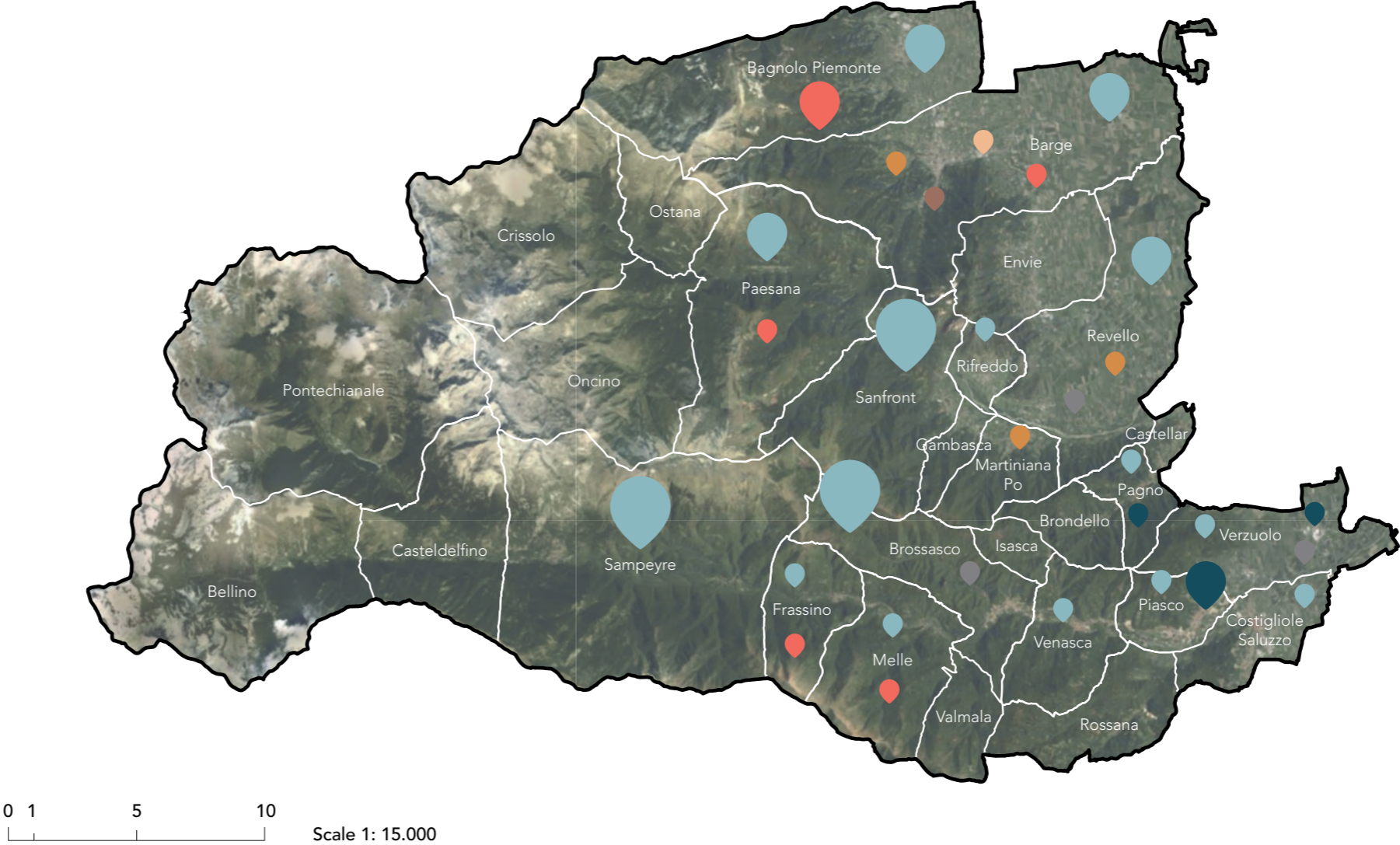
To better identify the role of the actors, these were placed on two different maps. In the first one were placed all those actors who are at the beginning of the supply chain. We have decided to consider and consequently deal with the processing of raw materials. We can therefore find three different types of workers: the world of wood, represented in this case by sawmills, that of stone working, represented by the companies that deal with the extraction process and finally those who are in charge of the breeding of sheep and alpacas to obtain wool and cashmere.



Pic. 4.6: Raw materials map

In the second map, however, the activities were subdivided according to their work sector. Subsequently, they were positioned conforming to the area of competence.

Each business model has been attributed a color. To facilitate the map's reading, also placeholders were assigned. Their size varies depending on the number of activities present at that particular point: the larger the size of the placeholder, the more numerous the activities will be.



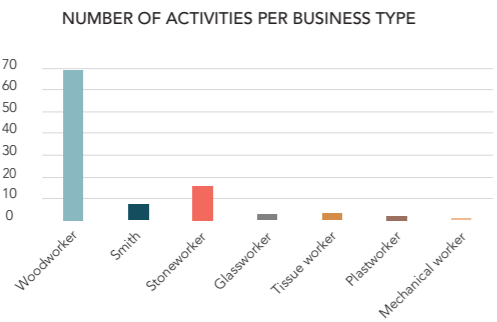
Pic. 4.7: Actors map

The result obtained allows the reader to immediately identify the most productive districts and on which it is advisable to concentrate its research. Besides, having associated a color to each category allows the reader to understand what are the activities most carried out and the sectors most involved.

4.5 ANALYSIS OF THE DATA

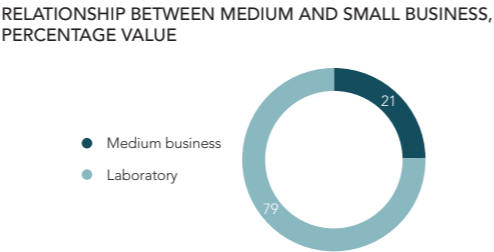
Taking again in consideration the table precedence and analyzing the present activities inside it has been possible to extract of the data useful for the planning purposes. In the first place, the activities relating to the processing of wood, metal, stone, glass, textiles, plastic and precision engineering have been counted. It is clear that the woodworking sector is the first category listed is the richest of actors, counting even 69 activities.

It is followed by the stone-working sector, at an altitude of 13, and the blacksmiths who, unable able to count on the contribution of local foundries, stop at an altitude of 8. Further back, we find the workers of glass, textiles, plastic and precision mechanics, but they do not exceed the three activities. It is also clear that, given of the scale of the activities, there is a large majority of small laboratories at the expense of medium-sized enterprises, with the



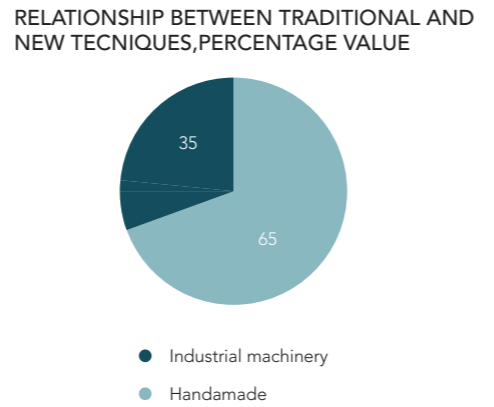
Pic. 4.8: Number of activities per business type

logical consequence that it foresees substantial majority from the part of the traditional job to hand to disadvantage of one that it is entrusted to the machinery of the last generation.



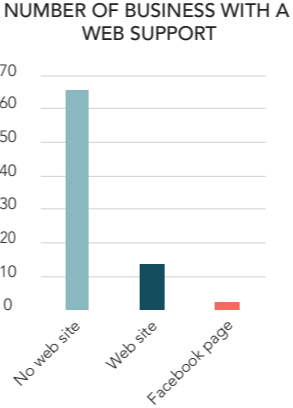
Pic. 4.9: Medium and small business

In addition, the number of activities that use the web as a tool of communication and promotion is minimal, as evidenced by the following chart, which finds further

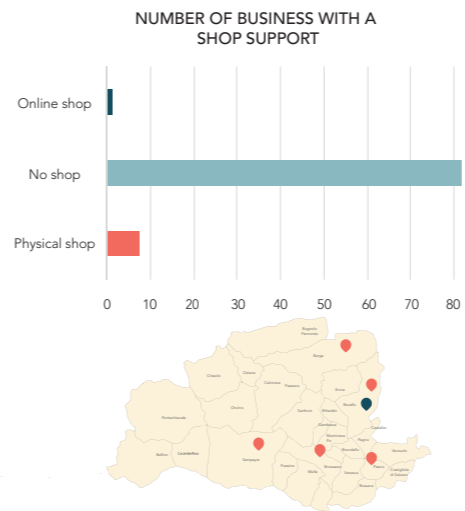


Pic. 4.10. New and traditional techniques

support from the following analysis, where the number of online stores is at 1.



Pic. 4. 11: Business and web support



Pic. 4.12: Business and shop support

on the lats two graphs, is still local work on commission, which inevitably reduces the profit opportunities of individual companies. In addition, the presence of activities offering the same type of services, such as the construction of furniture or windows, does not offer the end user a differentiated proposal, risk of remaining anchored to tradition without adding any element of innovation able to relaunch the entire production sector. The presence of the designer in this perspective would be valuable because it would be able to combine the old with the new through a targeted design choice that often proved to be a strong deficit for different activities.

4.6 IN CONCLUSION

The data collected and subsequent analyses confirmed what had been highlighted during the initial phase of research and then remarked during the interviews. If you consider the data relating to the use of the web as a useful platform for increasing the visibility and profit of individual craftsmen, it is clear that this is still considered little in relation to the large number of activities on the territory. The most used working method, relying

# DEFINITION OF THE SYSTEM

05

## 5.1 WHAT IS A SYSTEM?

This chapter defines the end of the initial analysis and the beginning of the project. The holistic analysis conducted up to this point has the role of support for the subsequent design phases, it was necessary to investigate the main points of the different components of the project. The main elements, resulting from the research and divided between advantages and limitations, were used as tools for defining the fundamental pillars of the project.

This chapter also introduces a new element among the most important of the work, namely the concept of system. A system, as argued by Forrester (1968), is a grouping of parts that operate together for a common purpose.

From this moment we will refer to the project as a system. The reason for this choice is to unequivocally define the work as a complex set of parts that collaborate with each other and with the external elements of the system, rather than imagining a project in its own right that

tries to place itself in a world of its own. external.

It is necessary to realize that the current production model cannot continue into the future without undergoing mutations. It is necessary to implement the complexity of the level of thought with which one faces the creation of a new production model.

The world we have created today as a result of our thinking thus far has problems which cannot be solved by thinking the way we thought when we created them (Albert Einstein, 1946).

A system is a set of things or people that are interconnected in order to produce their own behavioral pattern over time.

As Donella Meadows (2008) said, a system is an interconnected set of elements that is coherently organized in a way that achieves something. A system must consist of three kinds of things: elements, interconnections and a function or purpose.

If even a single element of these is missing or changes, then the system can no longer

be defined as such, or in other cases, gives life to a new system. Systems can also be defined as open, if they interact with other systems, or closed if this interaction is minimal or even absent.

Following these definitions we can find numerous examples that allow us to clearly illustrate how systemic logic is the common thread that governs the dynamics that surround us: if a sports team, a school or a factory represent systems, the same is true for humans. , for its cellular composition, for its interaction with the external environment and for the external environment itself which, in turn, can boast different subsets (Peruccio, 2020).

By following the balances that are dictated by a systemic approach, it is therefore possible to create more or less innovative models, able to involve different actors on different levels. This has the direct consequence of opening new horizons with new opportunities, both for the internal subjects who are part of this system and for those who interact with it from outside. Systems design is a discipline that has its roots in cybernetics and the complexity of systems and it regards the study of industrial and agricultural processes with an eye to transforming the output of a process in a chain mechanism whose goal is the total elimination of manufacturing waste (Peruccio, 2020).

## 5.2 FUNDAMENTAL PILLARS OF THE SYSTEM

This paragraph defines what are the "fundamental pillars" on which the system is based. These five elements derive from the elaboration of the advantages and limits extracted from the analysis of the previous chapters. The structure in the picture number 5.1 through which the pillars are

represented is not casual, but recalls an anthropomorphic structure. The "design" represents the head of this figure, or the section dedicated to the processing of system information and the translation of this information into products understandable by the other parties; At the torso level there are the two operational elements of the structure, namely "efficiency" and "standardization"; finally, at the base are the elements that must support the structure, these elements are the creation of a "community" to support the brand and attention to avoiding "specialization".

The three elements that have influenced and must influence the design direction are shown in the center of the graph number 5.1. These elements are:

- the social level, represented by the people who revolve around the project, the members of the management, the artisans and the customers. It is important to design for people (Germak, 2008):
- the environmental level, in the wake of the most recent financial crisis, corporations have been criticized as being self-interested and unmindful of their relationship to society (Janine S. Hiller). It is important to understand that companies, like all other components of society, must produce solely with a view to zero impact;
- the last level is the economic one. To survive, every project must guarantee profit margins. We must evaluate the market in which we want to place ourselves and design the system in order to be able to place ourselves in this market.

The graph 5.1 shows, by means of arrows, the relationships between the fundamental pillars and the elements of design direction. Below are specific descriptions of the

The graph 5.1 shows, by means of arrows, the relationships between the fundamental pillars and the elements of design direction.

Below are specific descriptions of the

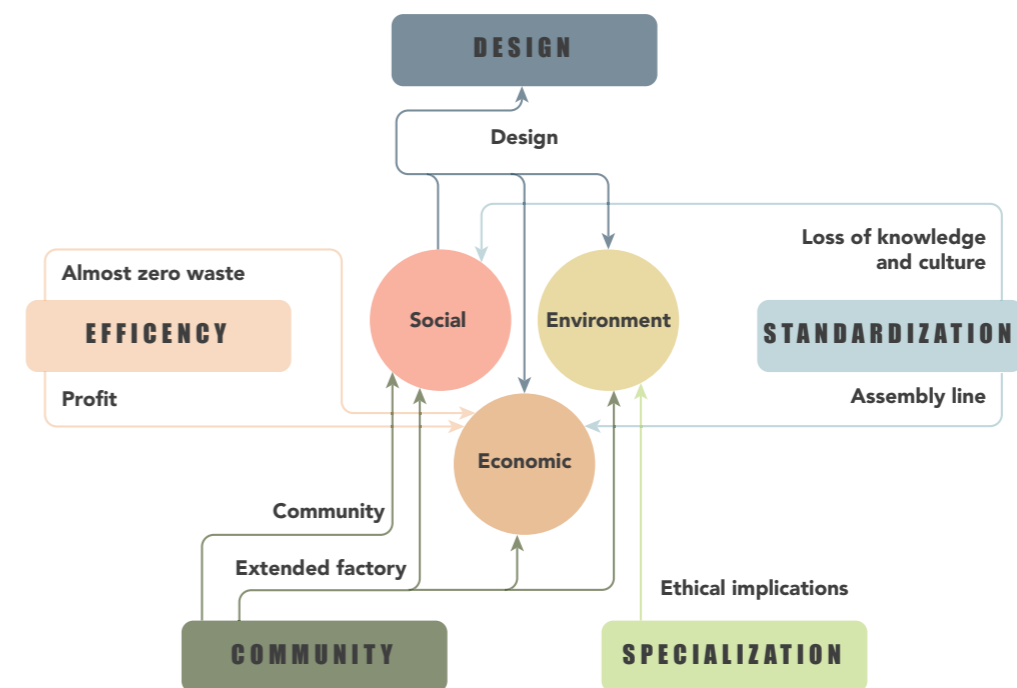
five pillars.

### 5.2.1 DESIGN

At the head of these elements we find design, understood as planning. The results of the analysis show the importance of design in each phase of the project, so this phase must be included before each element of the system.

creation phase of each new production model, during which every aspect is defined and written. At this time, every step of the system that you want to create and all the aspects

concerning the landscape in which you want to insert it must be analyzed. As for the products, it is crucial to include the characteristics of economic and environmental feasibility already in the design of the components.



Pic. 5.1: Fundamental pillars scheme

Each element must first be designed and then implemented, this means that not only the products to be made are designed but also all the other components of the system.

From the supply chain to the sales network, passing through the production network and the management of all the various departments. There must be a moment, during the

### 5.2.2 EFFICIENCY

The term efficiency refers to two aspects of the system, on the one hand the production plan, on the other the environmental footprint. In fact the cost of production is what allows a company to survive in the global market. Most of the costs must be linked to respect for the environment. We talk about production efficiency

when an excellent balance is reached between the costs of making a product and the profit that is derived from it, that is, when one reaches such a level of productivity that, to be increased, requires the reduction of the production of another good (Dialog, 2020). With regard to environmental efficiency, we mean the creation of a supply chain and a production structure that can reduce the environmental footprint of work.

5.2.3 STANDARDIZATION

As previously mentioned, standardization, together with efficiency, defines the operating elements of the system. However, it is a double-sided medal. On the one hand, care must be taken to avoid producing following an international direction without local culture and knowledge. It is not good to produce a single international design, but rather to enhance local cultures and knowledge by transposing them into current products. On the other hand, it is necessary to enhance those characteristics that enhance the efficiency of the process. An example of these features is the assembly line, a structure that manages operations according to pre-established parameters. These parameters guarantee the tolerances of the products.

5.2.4 COMMUNITY

At the base of the system we find the community. The term community is meant to describe two different groups of people. On the one hand there is the community of producers, which is also referred to as the extended factory. All roles that do not need to be in a specific place in order to perform their work properly can be decentralized. Specifically, it is important that the production section is not composed of direct employees of the company but of freelancers who can interact with the system.

When people share a purpose and have established roles, responsibilities, and modes of communication, it's easy to make things happen. You simply turn to the person in the next cubicle and ask them to do their job (Anderson 2012, 144).

On the other hand, there is the customer community. It is important to understand how a B to C model that ends the relationship with the customer when the sale ends is no longer current, but it is important that the system is dedicated to the development of useful features to create and strengthen a network of customers who revolves around the company.

5.2.5 SPECIALIZATION

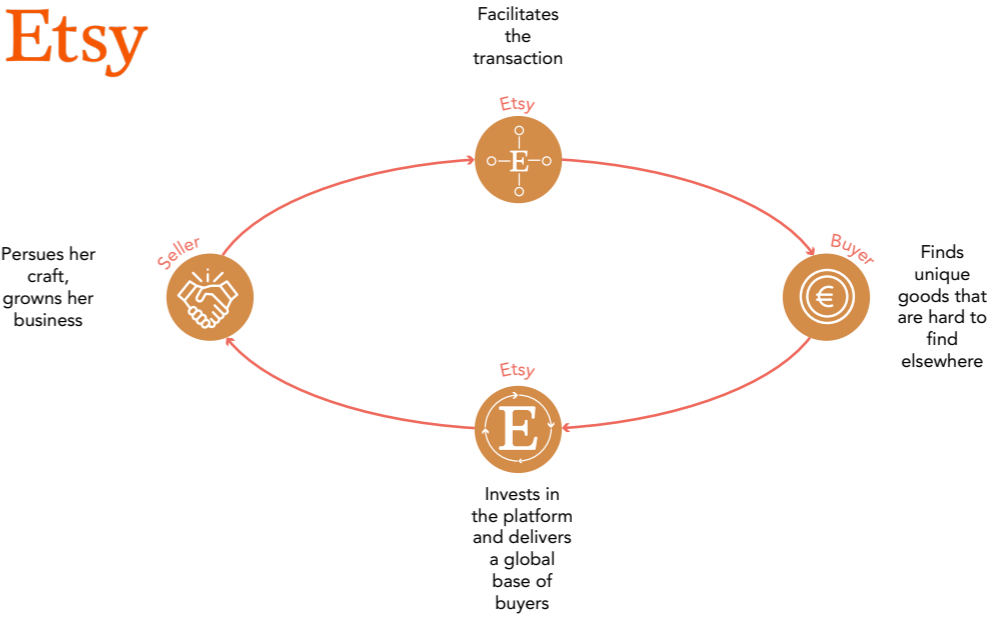
The last pillar of the system is specialization. In recent years we have seen an unimaginable technological advance. This development, however, is dictated, for the most part, by specialization, an advancement in a specific direction which however loses sight of the complex. As argued by Mario Vargas Llosa (2012):

the specialist sees and reaches far in his particular sphere, but he does not know what is happening around him and does not distract himself to verify the damage that his conquests could cause with his conquests in other spheres of existence, foreign to his own.

It is therefore necessary to create a system based on culture, on the ability to design elements and, at the same time, understand all the characteristics linked to these elements.

5.3 ANALYSIS OF SIMILAR PROJECTS

5.3.1 ETSY



Pic. 5.2: Etsy business system

Etsy, founded in 2005, is one of the largest world marketplaces that allows you to sell vintage or handmade products by hobbyists or artisans to its members. Etsy's focus is on the creation of new business relationships which, however, must not prevail over human ones, effectively distinguishing itself from the rest of its competitors. It should also be noted the strong sensitivity of the company towards the environmental issue, as demonstrated by the "Etsy Solar" initiative which aims to balance the Co2 emissions emitted during product shipments or during the movement of its employees, offering advantageous discounts for the installation of solar panels in the homes of its employees and vendors. The reason for Etsy's success is certainly

to be found in its ease of use: in fact, anyone can register for free on the platform and start selling their products.

Etsy provides that each seller must donate to the platform a contribution of 20 US cents for each product offered for sale, on which the platform will then apply an additional 3.5% commission for each item sold. In addition, to recreate direct contact with the customer, Etsy offers sellers a special section where they can receive questions and dispel all doubts of a potential buyer. In addition to this, we also find a reviews section to ensure maximum transparency for end users, while in the "team" section the craftsman has the opportunity to interact with other sellers to address common topics or develop new collaborations. A system like the one proposed by Etsy, however, also highlights several limits, such as the inability to customize your online store or the management of feedback, but above all a large offer of

similar products, which pushes sellers to lower the request. of money to be competitive.

Furthermore, in the event of high demands, the seller risks not being able to satisfy the demand, thus leaving the customer dissatisfied and compromising the image of the entire platform. (Zaineb, 2016)

5.3.2 INTERNOITALIANO

Internoitaliano was born in 2012 from an idea by Giulio Iacchetti. The intent is to create a furniture line

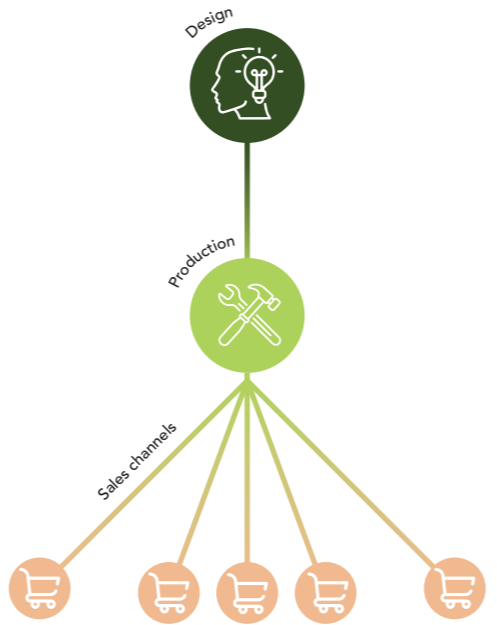
internouitali

that retraces the footsteps of the Italian tradition, relying on a network of skilled artisans, each with their own abilities to make it. It is Iacchetti himself who tells about his project:

In 2012 I trace on a sheet of paper a series of objects, accessories, pieces of furniture all along a line that describe a sort of my imagination of an Italian interior. This is the beginning of the Internoitaliano project. It is a scenario related to the world of Italianness, of the furniture of the Italian home that distances itself from a certain international style of design that does not interest me because it has little connection with the normal life of people, and also distances itself from the excesses of design, which we see every year at the Salone del Mobile in Milan, very strange objects of little recognition, which require a sort of professional and artistic competence that marks a detachment between them and people. So the Interno Italiano project is a project that was born close to people, all the objects of Interni Italiano must be readily recognizable in their function, possibly close to an archetype, mono-material or tending to mono-materiality and a sort of classicism must resonate, the classicism Italian and also Roman, as well as a vein of irony that always characterizes the objects of Italian design. All these objects here by whom are they

created? by whom are they conceived and made? Designed by designers and made by a beautiful team of Italian artisans. Italian craftsmanship is at the heart of the Interno Italiano project, we have a very high quality craftsmanship in Italy, divided by districts and distributed throughout Italy. With these artisans we have established a very fruitful, very profound dialogue of respect and mutual listening. Interno Italiano talks a lot about artisans, says who they are where they live, where they work, and with them and we create these objects that are happy, because they are made in a situation of harmony, recognition of professionalism, skills, projects that are born in respect, in "listening and paying attention to create objects in real materials, solid wood and iron, glass, all the materials that our craftsmen use with skilled hands. The Internoitaliano project tells a lot about a spirit of Italianness that is open to the whole world (Iacchetti, 2020).

The project turns out to be immediately successful both in the proposal and in the production solution, leaving an indelible mark in the history of made in Italy.

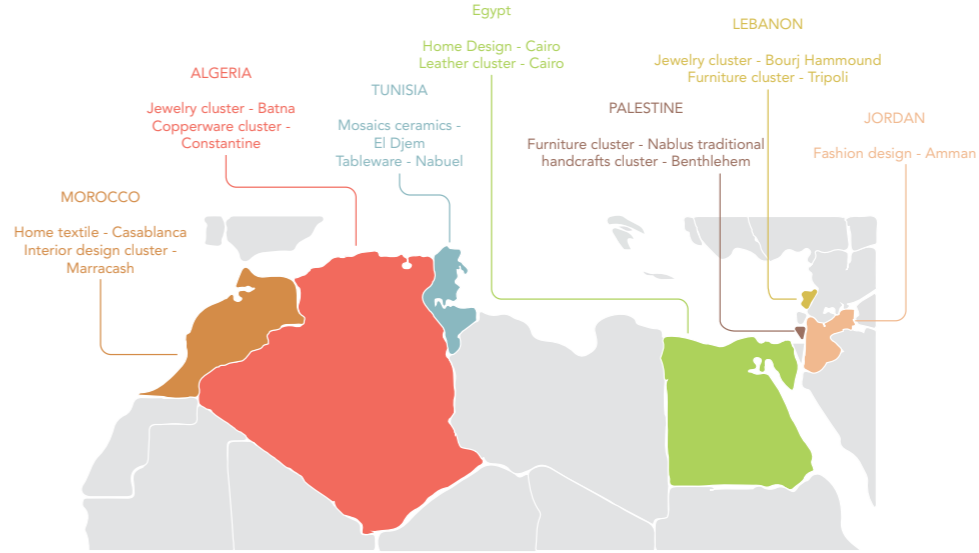


Pic. 5.3: Internoitaliano business scheme

5.3.3 CREATIVE MEDITERRANEAN

Creative Mediterranean is not just an economic-productive initiative but makes the social issue its own pillar. The initiative, born in 2017 and concluded in 2019, was carried out by the designer Giulio Vinaccia who involved seven southern Mediterranean countries and envisaged the development of fourteen clusters of creative industries.

We do not intervene only with the aim of creating finished products, the important thing is that we create an economy locally. Some objects can become series for the global market, others can be spent in collecting and others can only be conveyed in the local market. The essential is continuity. There is no unique way to intervene as much as a common purpose: to recognize local know-how and stimulate people's curiosity to reread, through new functions, what they have always done and with the stimulus of looking for new business. First, there is a period of study of local culture and approach without doing design, to be accepted by people.



Pic. 5.4: Crearive Mediterranean business area

The creations are different and the materials treated are multiple: from the Algerian jewelry manufacturing, to the Moroccan wood carving, the aim is to use design as a means of resistance in those areas where the threat of terrorism looms and weighs on people's lives. , compromising its future. The project was developed by UNIDO (United Nations Industrial Development Organization) with the financial support of the Italian Cooperation Agency and the European Union.

As Vinaccia himself explains:

We often had a limited budget which forced us to work with what was in the area, ultimately achieving the sustainability and replicability of the projects (Marc, 2017). After conducting in-depth surveys on the territory to identify the most productive districts, the Creative Mediterranean brand was created to make marketing possible. The most important data are those concerning the results of initiatives like this: 25% of the communities involved in this type of project have returned to doing what they did; 40% partially modified production; 30% radically changed their lives. And this result is

extraordinary when compared to the 5% success rate of operations conducted by international organizations (Scarzella, 2017).

5.3.4 PRONTOPRO

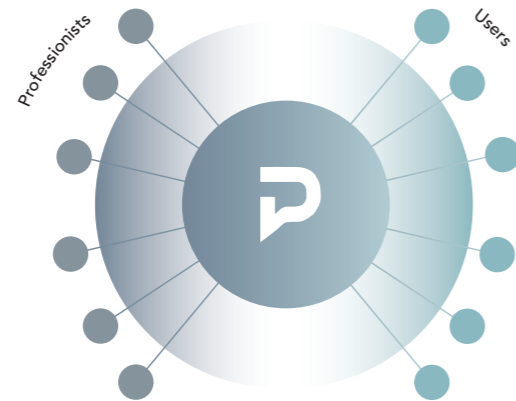
Prontopro is a digital platform that allows professionals working in different fields to expand their customer base, serving as an online showcase for those who cannot interact independently on the web with their target audience. Professionals can register for free on the platform and describe the services they intend to offer to the public.

Through the function of “direct contact” these can be contacted directly by users who are interested in their profile, alternatively they can be contacted via generic request, later receiving a

It should be specified, however, how on Prontopro you pay to get a contact but that the contacts obtained will not necessarily turn into a job.

Credits are therefore a key element in the platform’s operating dynamics. Their value is 2.25 euros (including VAT) and can be purchased in packages directly on the platform, and have a maximum duration of 24 months from the date of purchase. The credit claim required to proceed with the interaction with the potential customer is indicated by the same platform and is calculated on the basis of

the value of the work to be commissioned. The advantages of using Prontopro are numerous. In addition to the fact that there are no geographical limits, no



Pic. 5.5: ProntoPro business idea

notification from the platform. The interaction with the customers previews the expense from part of the offeror of a quota of credits, that it varies to second of the chosen modality: in case of direct contact the credits will be scaled every time that a customer contacts the interested one. In the case of a general request instead, credits are scaled only if you decide to interact with the customer.

fee should be charged by any person involved, and a formula other than the traditional subscription should be proposed. (Prontopro,2020)

5.4 SOME CONSIDERATIONS ABOUT LIMITS AND OPPORTUNITIES

After analyzing the case studies mentioned in the previous paragraph and comparing the design ideas with the limitations found in chapter 1 relating to the artisan world in Italy, the time has come to make some brief considerations.

If we have already mentioned Etsy’s limitations in the management of large orders and its redundant offer due to the lack of a designer, it should also be noted that this problem is not found in the case study of Internoitaliano, which sees in Iacchetti and in his team of designers a design reference figure.

However, the project presented by Iacchetti appears to be a closed system, where interaction with the end customer occurs only thanks to the traditional sales relationship, effectively giving up the creation of an idea of a community outside the project willing to support the initiative.

As far as the Creative Mediterranean initiative is concerned, the problem is the same, with an absence of communities able to interact with the main actors.

If we add to these considerations what emerged regarding the limits of the artisan system, it is evident that a system, to be innovative and functional, must make up for some obvious gaps.

The first is certainly the absence of a designer. A possible solution to compensate for this lack involves a figure able to propose, through a careful study of the territory, a new clearly visible and recognizable design identity, able to differentiate themselves from the competition.

The second concerns the administration of sales and communication channels. It has emerged several times that this is a sore point in the management of an

artisan company, which often does not include disclosure and promotion of its services.

To fill this gap with the serialized industry, we need a system capable of opening a new sales channel, quick and immediate, as learned from the Etsy case study, but which unlike this and Internoitaliano, can count on the support of a community willing to make its own contribution by customizing products or participating in various initiatives.

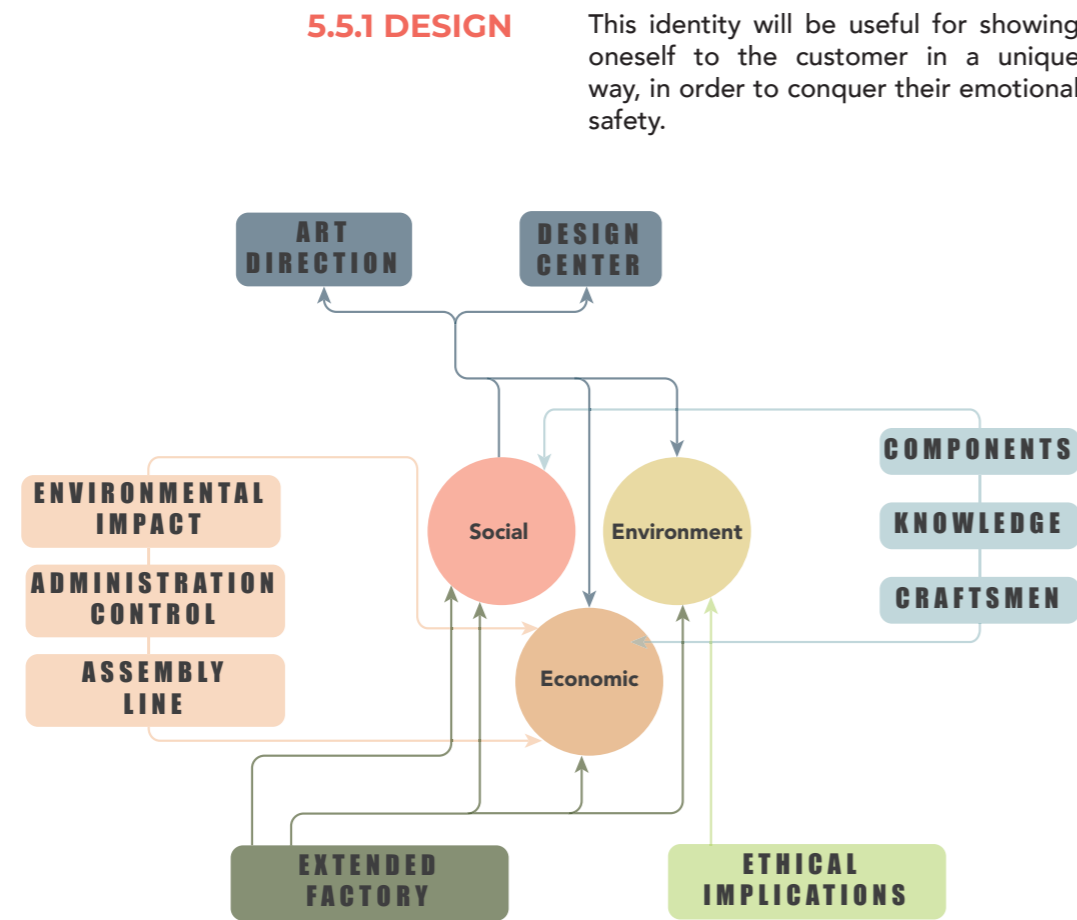
A more fluid and less binding system facilitates the search for potential collaborators who will be able to decide freely, according to their availability of time, whether or not to accept a precise assignment, without having to pay for a service which they do not intend to use even temporarily.

Finally, to be innovative and at the same time be able to compete with the standardized industry, it would be necessary to rely on a new highly specialized production chain, made up of artisans from different sectors but, if coordinated correctly, able to work for a common goal.

5.5 GUIDELINES APPLIED TO THE PROJECT

Once the general principles of the new production system were defined, the next step was to translate them into guidelines for a real company. It was decided that the company’s production area was furniture design. The reason for this choice derives from the propensity of the candidates to the world of furniture combined with the tradition of the Monviso valleys area for the “Val Varaita style”.

Below are the company guidelines, divided according to the five fundamental pillars.



Pic. 5.6: The fundamental pillars applied

## DESIGN CENTER

Or rather the creation of a department entirely dedicated to design. The importance of design is expressed through the creation of a department, called the design center, with the aim of defining each phase before it is completed. In addition to this, the design center represents the place where all the products that will be put in the catalog are designed.

## ART DIRECTION

Among the first elements to be defined is the artistic direction. It is very important that the company is born with an identity that is immediately well defined.

## 5.5.2 EFFICIENCY

### ADMINISTRATION AND CONTROL

Together with the design center, the administration and control department will be at the top of the system's organizational structure. The function of this department is to manage all the interactions between the various actors and check the correct functioning of the processes.

costs related to the reduction of the environmental footprint justified by transparency.

Designing the environmental impact, it is one of the foundations of the system.

To continue producing it is necessary to work following the parameters that allow production to be sustainable in the future. These parameters are established by environmental regulations and are applied to the system through the coordination of the administration and control department with the design center.

## ASSEMBLY LINE

To keep products on the market, production must be as efficient as possible. One of the production models to be applied is that of the production line, where once the processes and roles have been studied, they are applied without uncertainty.

## 5.5.3 STANDARDIZATION

### NOT PRODUCTS BUT COMPONENTS

The assembly line described above will lead to the transition from products, intended as finite elements that require the intervention of all stages of production each time, to components, which allow a redistribution of the production stages to avoid repetitions. The components have the advantage of being made by different craftsmen, within certain tolerances, and in any case being assembled at the end. In this way, production is not slowed down by problems that can arise during the work of a craftsman.

### LOSS OF KNOWLEDGE AND CULTURE

It is important to enhance the local culture that resides in the manual skills and tradition of the places. It was decided to avoid an international style that follows certain universal canons of beauty, to move towards a production that enhances the territory and culture.

## CRAFTSMAN

To enhance local knowledge and culture, an abandonment of the figure of the worker in exchange for that of the craftsman takes place. Manual skills and knowledge will be enhanced

## 5.5.4 COMMUNITY

### EXTENDED FACTORY

The production department will be made up of artisans who work in their workshops. The professional figure who occupies the role of production will no longer be composed of workers but of craftsmen. In this way a productive district will be generated, or in other words a community.

Quoting the work of Chris Anderson (2012):

Take even the best company you can think of, say Apple, and consider how it hires. First, it's based in the United States, and most of its employees are in Cupertino, California. So there's a bias toward those who are already in the U.S., or can legally work in the country, as well as toward those who live in the San Francisco Bay Area or are willing to move there. (It's lovely in Cupertino, but if your spouse doesn't want to leave her family in Rome or Chang Mai, that may matter more.)

Like all companies, Apple favors people with experience in the industry it's hiring for, and it likes to see degrees from good universities as an indication of intelligence and work ethic. Even though Steve Jobs was a genius teenage dropout, there aren't many others like him at Apple. The company may "think different," but these days it hires pretty much like every other good company: based on professional qualifications.

It also can only hire people who want to be hired. [...] Communities tend to be more egalitarian, in part because they typically don't have the same legal obligations and risk as a company. They don't have to check references and get people to sign contracts before they participate, the way a company typically must. They can afford to take more chances with participants, because the consequences of things not working out are so much smaller when you're not promising people a wage (not to say they can't get paid for work done, but any rewards tend to come after the fact, not

as a salary).

5.5.5 SPECIALIZATION

ETHICAL IMPLICATIONS

The enhancement of local cultures and their productions must serve to lead to a 360 ° design, which in addition to designing the image object all the implications of the product chain.

# THE CRAFTMEN APPROACH TO A DIGITAL PLATFORM

06

## 6.1 THE CRAFTMEN POINT OF VIEW

After defining the guidelines of the project, a survey was conducted to understand the point of view of the artisans with respect to the project. It was considered important to understand how these actors would approach the system. The key points that have been investigated are:

- the use of a digital platform for interaction with the system;
- the realization of commissioned projects, for which the artisans have no control over the design phase;
- the types and use of artisanal production techniques.

The results obtained in this chapter therefore derive from interviews and surveys addressed to a group of local artisans, whom we thank for their precious help.

This chapter could be imagined as a repetition of the chapter number two,

however the difference lies in the fact that, while in the first one the research was conducted in a general way on the world of craftsmanship and the approach to production, in this chapter they were collected the specific results of the point of view of local artisans with respect to the hypothesized system.

6.2 WHO ARE THEY?  
APPLICATION OF THE  
PERSONAS MODELS

For privacy reasons, it was decided not to publish the names of the people contacted, it was also considered that greater usefulness and ease of reading could be obtained by filtering the results through the "Person Model" tool. In this way the data returned does not refer to any specific person but derives from recurring factors that have been brought together to form two imaginary people. In this way we can therefore describe the two personas models created: Giorgio and Gabriele.

GIORGIO

Age

Occupation

Status

Location

Archetype


37

Freelance

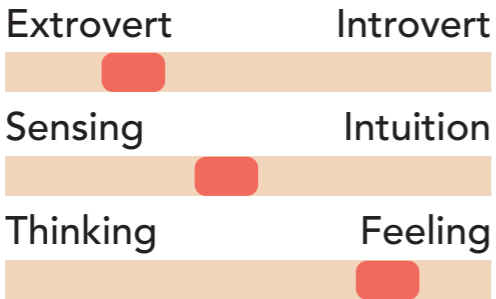
Engaged

Paesana (CN)

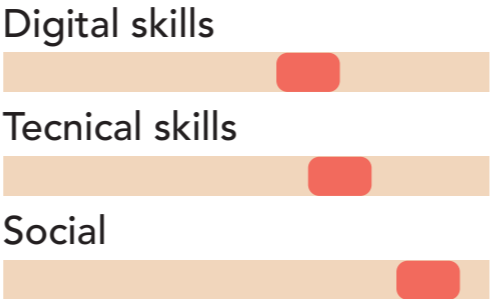
Carpenter with a passion for sport



Personality



Skills



Pic. 6.1: Persona number 1

He is 37 years old. His laboratory is located at the entrance to the Varaita valley. He has been working as a freelancer for 5

years, before he did other jobs and was employed by a carpenter for some years. Regarding his work as a carpenter, Giorgio has a broad knowledge of basic working techniques, however he lacks a drive to seek information on innovative production methods. He has basic machinery, in particular a set of portable tools, which allows him to carry out his work directly in the installation sites. It has a relationship of deep knowledge and respect with its suppliers. His passion is nature, especially the mountains. The sports to which he dedicates himself

He is a person with a strong but kind character, it is possible to identify this aspect in all areas of his life. It has a medium to high level of interaction with technology. He uses the internet on a daily basis, which is accessed mainly through smartphones and tablets. He has a page relating to his work on the two main social networks of the moment, with an almost weekly frequency he offers updates to provide information on the progress of his artifacts.

GABRIELE

He is 52 years old. He lives at the bottom of the Po valley. His laboratory is next to his house. His background consists of different types of work carried out over time, all united by the constant presence of the

for more than 10 years. Over the years he has managed to enlarge the company and to hire some employees who work with him. He has a deep knowledge of production techniques, linked to the long period spent in this area. He is always ready to experiment with new techniques to try to best satisfy the customer's requests.

His passion is his work, to which he devotes most of his energy. The level of interaction with technology is medium, it makes use of digital means but not constantly. The means by which he approaches the digital world is his smartphone. Over time he has created a website for the company, however, not being one of the main means of contact with

Age

Occupation

Status

Location

Archetype


52

Entrepreneur

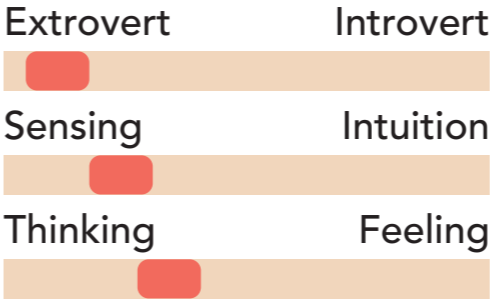
Married

Saluzzo (CN)

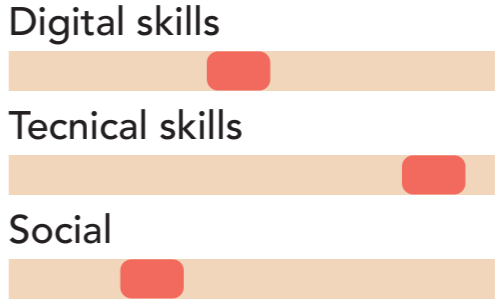
Self-made man



Personality



Skills



Pic. 6.2: Persona number 2

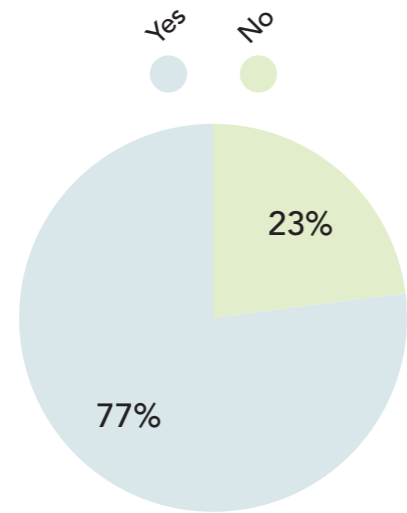
manual aspect. After working for several years as a carpenter for a large furniture factory he decided to set up his own business. I have now been self-employed

customers, he does not devote much energy to it, so it is not very up to date.

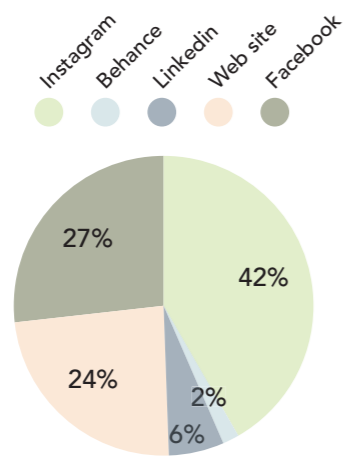
6.3 THE SURVEY

In order to better understand how concrete the possibility of a collaboration with the craft world could be, a survey was sent to several local actors. The questions and results of the survey, children of the involvement of 27 different realities, are reported below.

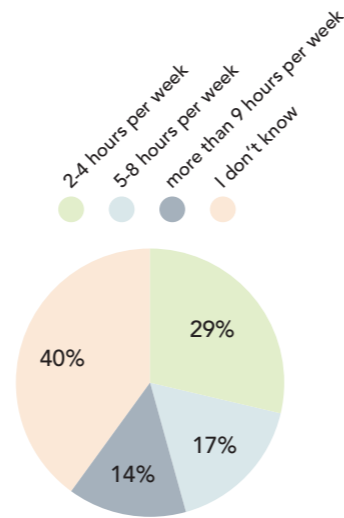
1. Do you use social channels to advertise your work or business?



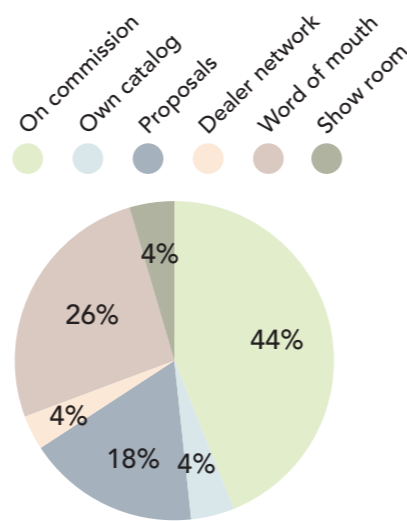
2. If so, which one



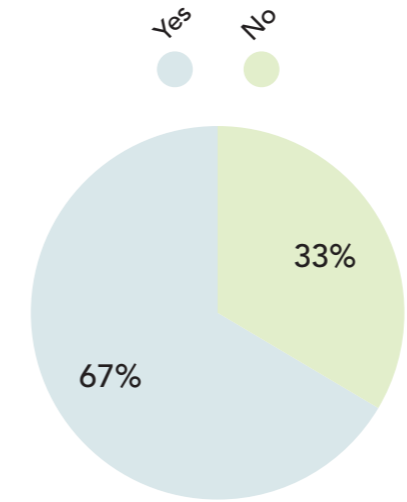
3. How long does it take to look for a new job?



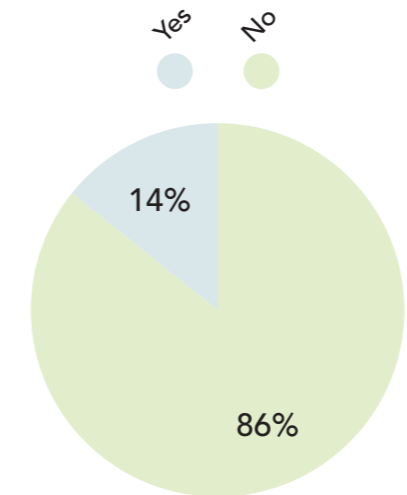
4. Through which channels do you procure the work to be done?



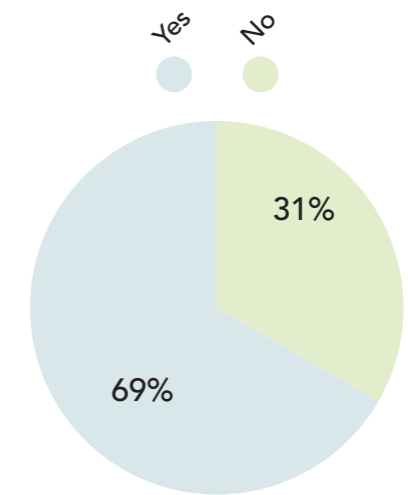
5. Has your business been affected by the effects of Covid-19?



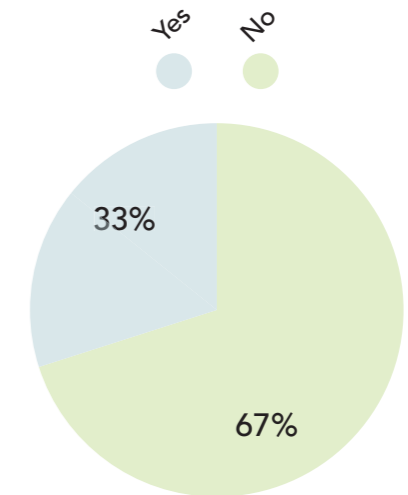
6. Could its business volume increase?



7. Would you use a free digital platform with the aim of increasing your turnover?



8. Would you be willing to carry out projects conceived and designed by third parties?



## 6.4 INTERACTION WITH THE CRAFTSMEN

During the entire process of ideation of the system we, had a continuous discussion with several experts in the sector. Every time the debate follows the same scheme:

- the first element was to briefly present the project, focusing in particular on the explanation of the pillars of the production model, on the organizational structure and on the advantages that could derive from this type of system;
- we later described how the interaction between the project actors would be managed by a digital platform;
- after having listened to the interviewee's opinion, with respect to the main theme we moved on to technical questions about the products. It was important for the project to clarify, together with the craftsmen, which aspects of the design were to be reviewed.

### 6.4.1 FIRST INTERVIEW

The first observation was an appreciation of the project, he had understood the functioning of the system and was positively interested. He pointed out how the work of the craftsman is characterized by different moments, in certain periods the work abounds while in others the requests are few. This aspect is due to the fact that commissions always come from direct customers, and not from the market. However, the craftsman has invested in the purchase of machinery and is subject to fixed costs, these aspects weigh particularly in times of lack of work.

The interviewee therefore suggested that this project could fill the shortage with short-term commissions. Subsequently, the interviewee expressed

his doubts.

The first was related to the movement of some elements, such as the idea and the choice of materials, from the craftsman to the company. The project proposes, in fact, to have the company manage these two aspects, with a view to efficiency and serial production.

After a moment of reflection on this topic, the interviewee expressed his opinion, namely that in his specific case he would have accepted to make products not designed by him, however he would have liked to keep the choice of materials to work with. The reason for this decision lies in two factors, the belief in having the certainty of the quality of the material only by going to choose it in person, and the relationship of great trust, almost of friendship, that he has with his suppliers. With this in mind, the interviewee suggests basing the project on the simplest system of estimates by the craftsmen.

The second doubt taken into consideration was that of the relationship that is created between the craftsman and the customer. This relationship of trust and esteem is based on different moments of confrontation between the two parties, in these moments the customer explains his needs and the craftsman imagines and proposes ad hoc solutions. The interviewee therefore wonders if this type of relationship would disappear. Like other aspects, even this relationship would not disappear but would shift towards the company, and would change, thus adapting to the new characteristics.

Another aspect, which appeared in the conversation, was the importance of transparency towards the customer. The interviewee told how important it is for him to keep the customer updated at every advancement. In this way, the awareness that is generated in the

customer means that the final price of the product is willingly accepted, because the customer has a full perception of what and how many were the costs to get to the finished product. At this point in the interview, the craftsman pointed out another aspect to be taken into consideration was that of the type of customer. In fact, its regular customers are part of that category of people who are looking for handcrafted but custom-made furniture.

The interviewee spoke of his furniture as pieces that, once installed, become an integral part of the furniture. This is because they are built exactly to be inserted in a specific place and could not be moved elsewhere, if not undergoing changes. Customers who come to him are looking for this type of furniture. In the case of our project, we would turn to customers who are looking for handcrafted furniture but produced in series, and therefore adaptable.

### 6.4.2 SECOND INTERVIEW

After the presentation of the project, the craftsman immediately showed interest and complimented the level achieved. The interviewee explained how his company may have similar points to our project, but argues that among the reasons behind the correct functioning of his system there is the direct control he has over his employees, both from a working point of view, being inside his premises, he can personally check the progress of the work, both from an organizational point of view, being his employees he can be sure of the work they do and in case of failures he can immediately take measures.

The craftsman therefore has strong doubts as to whether to base our production on external laboratories, towards which the degree of control is much more limited. The second observation was on the

feasibility of the system, his opinion was that there were the conditions for it to work but only with a view to moving on a slightly different terrain from that of crafts, thus heading towards an industrialized system. The interviewee claims that in order to be able to implement the project, it is necessary to have a production that aims at large numbers. However, he points out how craftsmanship today survives almost only thanks to ad hoc productions for each customer, where therefore the mass-produced piece could not arrive.

At this point, to explain his point of view, the craftsman explained how his production works. The interviewee describes how its production is based on a very close relationship with the customer, the idea behind this system is to provide a complete service for the creation of every element that can be handcrafted. The examples he made are of clients for whom he made more structural parts of the house, such as the false ceiling or the floor, up to the creation of furniture such as the kitchen. With this in mind, the interviewee argues that nowadays it is important to please all types of customers, thus avoiding having a personal style but adapting to the best style for each project.

However, this aspect does not fall within the guidelines of our project and on the contrary is in contradiction. Another important aspect, pointed out to us, is the importance of the role of the estimate. The interviewee explains how, in his company, the estimate plays a role of fundamental importance, as it allows the customer to have precise data on the cost of labor and at the same time provides the craftsman with data on expenses and earnings. A correct estimate allows you not to have to re-discuss the price of work during production, in this way the relationship between customer and craftsman is not undermined.

At this point we showed the drawings of some elements hypothesized for our production, and asked the interviewee for his opinion. The comments on the product were for the most part positive, the craftsman appreciated the design and the attention to feasibility details. However, he pointed out how elements of that type, made in an artisanal way, have far greater costs than the same pieces made in an industrial way. He then asks us how we plan to position ourselves in a market made up of competitors who can afford lower selling prices while still guaranteeing earnings.

The last observation, derived from the interview with the craftsman, was the importance of the architect's role in acting as a link between the craftsman and the customer. The interviewee claims that more and more architects are contacting artisan workshops to commission the creation of furniture items, rather than directly the end customer.

6.5 SALIENT ELEMENTS AND TRANSPOSITION INTO THE SYSTEM

Right now the guidelines are like a piece of cloth ready to be adapted to a person's proportions, to create a dress. On the one hand, there are well-defined general elements that create the outer appearance of the dress. However it is to adapt these elements to the client's proportions, only in this way will you get a dress that fits perfectly. Interviews with artisans and data relating to the territory are part of this second series of elements. Once the interviews were concluded, an accurate phase of analysis and reflection on the collected data began. These reflections are collected in this paragraph, and are divided according to two main topics, on the one hand all the aspects related to the figure of the customer, while on the other these aspects that gravitate around the craftsman.

Once these elements were identified, the consequent transposition within our system was defined.

6.5.1 THE CUSTOMER OF ARTISANAL PRODUCTION

The customer of the craftsman is the customer who wants to be followed, constantly, during all stages of the HPJ. He wants to have the handmade product built inside his home, and for this he is willing to spend.

MARKET

It is a high-end market, the customer can afford to spend more but in exchange he wants to be followed in all aspects.

PRODUCTS

They are an integral part of the furniture, they are made to measure for the house that welcomes them and if they were moved they would not fit, and should be modified.

STYLE

There is no single identifying style but it adapts to the type of project. The only element that remains unchanged is the production quality.

CONNECTION WITH CRAFTSMAN

There is a strong connection between customer and craftsman, through which the first talks about his needs and the second uses his experience to solve them.

AWARENESS

The more the craftsman keeps the customer informed about the progress of the work, the more the customer has

the information necessary to understand what he is buying.

6.5.2 CRAFTSMAN

The craftsman has high manual skills, he is used to working closely with the customer. For each commission, in addition to creating the product, he mainly studies ad hoc solutions for the customer.

DESIGN

He is used to making commissioned works, but usually he is the one who carries out the project. From the interviews it emerged that however he would be willing to carry out projects of others.

SUPPLIERS

The appearance of suppliers is extremely important for artisans, they have a bond of trust and friendship with suppliers. They would like to keep control of this. Innovations  
Being used to working with precise rules, they are afraid to accept projects of which they do not have the flat awareness of the necessary processes. Stability  
They carry out a profession which is subject to fixed costs but which does not have a constant demand for work.

6.5.3 TRANSPOSITION OF THE CUSTOMER ELEMENT

The customer wants high-level craftsmanship, but has more confidence in the standardized product.

MARKET

The customer is willing to pay more because he has confidence in the brand and the idea of the style of the products.

PRODUCTS

They come from a catalog of projects. They are based on a serial design but handmade, so the possibility of customization remains high.

STYLE

There are guidelines that define the style, so the customer can find himself in the direction.

CONNECTION WITH CRAFTSMAN

The connection with the craftsman is replaced by the creation of customer communities. In the customization section he can adapt the chosen product to his home and in the community section he can have a comparison of ideas.

AWARENESS

Finally, thanks to the information provided by the company, regarding the life cycle of the product, he is able to have full awareness of what he is buying.

6.5.4 TRANSPOSITION OF THE ARTISAN ELEMENT

Enhance the manual skills of the craftsman in an area in which there is a difference in value between the machine product and the handmade. High-end but serial production.

DESIGN

The design is studied by the design center, however, in the first phase of conception, interaction with craftsmen is envisaged to evaluate together how and what to produce.

SUPPLIERS

The suppliers will be chosen by the administration and control department, and the raw materials by the design center. This is to keep the level of efficiency as high as possible and not add hours of work to the craftsmen.

INNOVATIONS

By breaking down the products into components, and explaining in a precise way the necessary processes, the craftsmen will be more inclined to accept the job. The components do not contain a high degree of complexity.

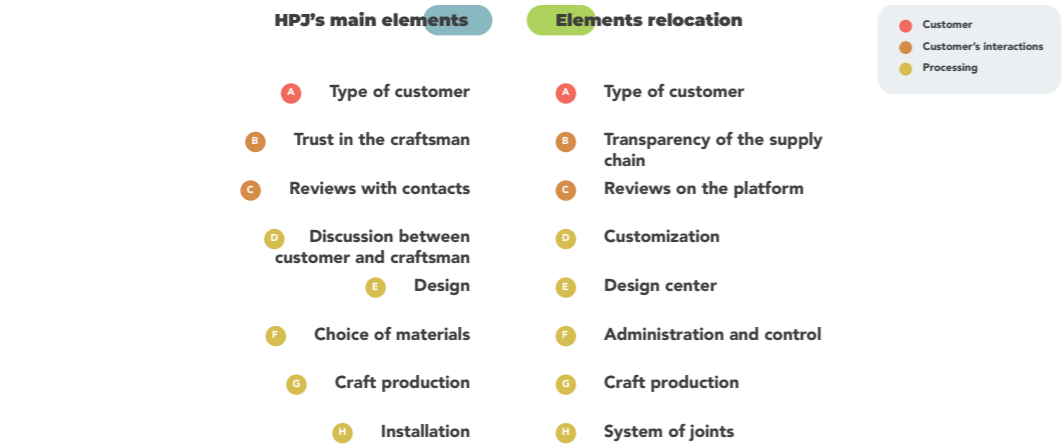
STABILITY

The system devised is based on many small work requests, with a low degree of complexity and quick to implement.

In this way, this system can be integrated in a complementary way with respect to the ordinary work of artisans.

6.6 RELOCATION OF THE MAIN ELEMENTS OF THE HPJ WITHIN THE SYSTEM

To complete the chapter, it was decided to rework the HPJ model and relocate the elements within the designed system. The purpose of this relocation is to begin



Pic 6.3: Elements relocation scheme

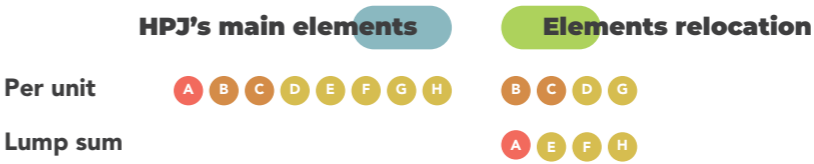
to outline a new process journey model related to the system. The first element analyzed and relocated was the customer. The type of customer varies, as previously mentioned, from a customer who seeks the highest level of interaction with the craftsman to a customer who wants high-level craftsmanship, but has more confidence in the standardized product. The element of trust in the craftsman is converted into the transparency provided through the LCA and supply chain data. Customer reviews within their contacts are replaced with reviews made on the platform. Reviews come from the quality control department and customers. The moment of confrontation between customer and craftsman is overcome through the creation of the customization section. The design carried out by the craftsman

has changed the design center the choice of materials and suppliers instead, is destined for administration and control, the artisan production remains so.

The installation is overcome by creating the interlocking system in this way the time of installation can be eliminated. Below is a diagram summarizing the relocation of the elements.

Finally, a scheme has been created that

defines, with respect to each new creation of a product, which elements must be repeated and which ones must not. It is clear how in the artisanal organization each element is repeated for each new creation, with a consequent increase in timing. In our system, on the other hand, only some elements are repeated at each new production, while the others are carried out only once upstream. This results in a considerable saving of time with a view to producing large numbers.



Pic. 6.4: Counting elements

# A NEW SYSTEMIC ORGANIZATION PROPOSAL

07

## 7.1 ORGANIZATION OF THE SYSTEM

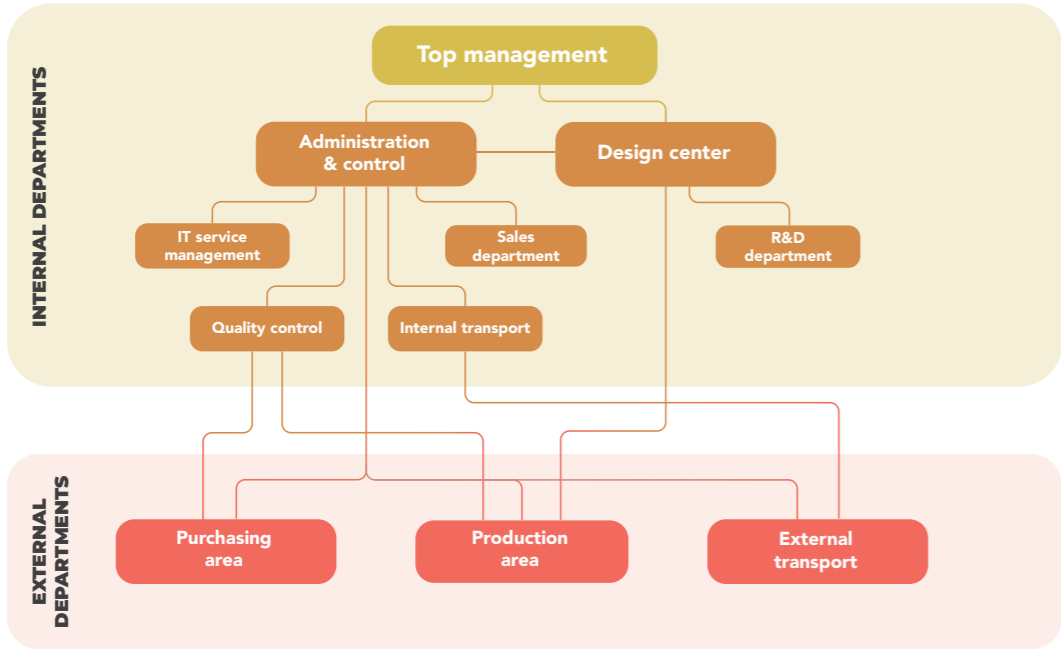
This chapter provides a detailed description of the organization of the system, in all its parts.

The first paragraph is dedicated to defining the organizational structure, starting from the top with the management up to the most external departments. The organizational structures are made up of a group of people who, once an objective has been identified, create a formal system of tasks, relationships and authority. They coordinate and control the way in which activities are developed and the resources available to them are used (Jones, 2007). The importance of organizational planning is underlined by Professor Maria Zifaro (2017), who argues that it allows you to select and manage the different aspects of the structure in order to achieve the set objectives, taking into account the environment with which it must relate, seize opportunities and pay attention to the threats that arise from it.

7.2 ORGANIZATION OF THE STRUCTURE

The organizational structure of the system is graphically represented through an organization chart (picture 7.1) which highlights the logical-functional scheme of the company, showing the various parts and the way in which they are connected. This representation allows you to identify the ways of dividing tasks and implementing a fair degree of coordination of activities.

along the hierarchical line, which do not depend on each other but which carry out their work in close collaboration. This hierarchical level is the one made up of the Administration and Control and Design Center departments. The set of authority relations constitutes the corporate hierarchy. Specifically, the structure has been divided into two main parts, towards the top, highlighted by the blue color, the internal actors of the system are represented, while towards the bottom, red, the external actors are shown.



Pic. 7.1: Structure scheme

The organizational structure is subdivided by hierarchical levels, the various levels of grouping correspond to levels of authority, exercised by the higher command body in relation to the bodies of the immediately lower level (subordinates) whether they are in turn operational bodies or command bodies of organizational units. It is important to underline the existence of a large hierarchical level, that is, a level consisting of bodies of equal rank, placed in parallel

With internal actors we mean those departments composed of people subordinate to the company, that is, all those who work by producing value and perceive their earnings directly from the company. On the other hand, however, the external actors are those people who own their own business and who, however, work for the company during specific periods of time. A further level of reading of the

organization chart is that of the communication flows present within it. Through these flows it is possible to understand the type of interdependence, the degree of centralization / decentralization of decision-making power and specialization of functions.

7.2.1 INTERNAL AREAS

TOP MANAGEMENT

Also defined as the top, has the task of defining the global strategies of the organization, allocates the resources available between the divisions in relation to individual objectives, coordinates, plans, evaluates the work of the divisions through the definition of the performance control system (Zifaro, 2017). This hierarchical level includes the president, the board of directors and the general manager.

The second hierarchical level is that formed by the administration and control departments and the design center. This hierarchical level is defined as management staff, specialized according to a functional logic, provides support to top management in the formation of strategies and interacts with the divisions by providing common services and activities, among which we recall, by way of example, finance and legal services.

It was decided that this level was not occupied solely by the Administration and Control department, as is the case with the classical organization, but by the relationship of this department with the Design Center. In this way, the importance of the role of the Design Center is emphasized, which covers the management functions of the functional departments.

ADMINISTRATION AND CONTROL

This area plays a decisive role within the

company, making sure that the processes comply with current regulations, taking care of the preparation of the financial statements and also managing the financial dimension.

In particular, this complex corporate function oversees the preparation of financial statements, accounting documents, controls financial flows, verifies the correct allocation of resources and follows budget, general accounting and analytical and industrial accounting operations. Each of these functions, if carried out with the help of integrated management systems, becomes fluid and easily measurable (Real Time, 2020).

It has direct control over the purchasing department, production department and sales department. It has the task of verifying that all procedural steps are carried out correctly, both by the original user and by the other actors involved. It also coordinates the shipping and delivery times of the various items before they are assembled and shipped and delivered to the end user.

DESIGN CENTER

Is the company area dedicated to design, in the broadest sense of the term, that is the set of planning and programming phases of a set of activities that will lead to an expected result. The Design Center, in the classic organization of companies, refers to an operational department that does not have management roles. However, in the case of the designed system, more importance is given to this design area. The idea is to be able to incorporate design into the most internal phases of the company.

The design center therefore has two faces, on the one hand it deals with the creation of the supply chain and production processes, on the other

hand it is responsible for creating and providing all the technical drawings necessary for the realization of the artifacts to be delivered to the artisans . It deals with the technical and graphic representation of the catalog and its declination on various digital media, such as formats. pdf or. dwg, downloadable by the craftsman who intends to make the artifact from the appropriate section of the platform.

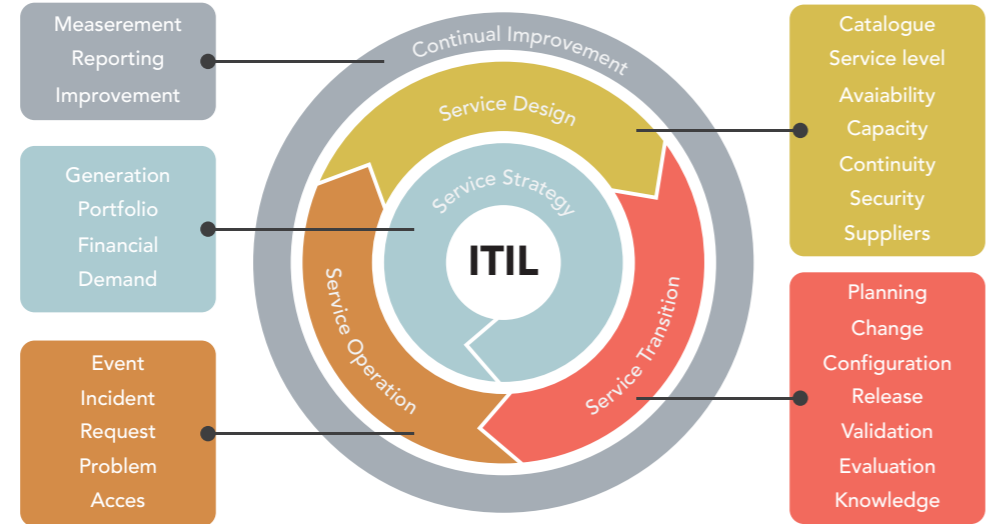
The actors listed below are part of the functional management, i.e. those departments that operate within the powers granted by the various managers, coordinate, plan and evaluate the work of the operating units that represent the operational arm of the division.

IT SERVICE MANAGEMENT

Information Technology Service Management (ITSM) is the activities that are performed by an organization to design, plan, deliver, operate and control information technology (IT) services offered to customers.

It is the department that deals with the company's digital services, in particular it is dedicated to the development and management of the platform and

the site. Given the importance of the platform, it was decided to place this internal department. In this way we are sure of a continuous supervision of the digital aspects, to offer a continuous service to customers, avoiding possible bugs and problems. IT service management is based on the theory of Information Technology Infrastructure Library (ITIL). ITIL offers a systematic approach to the delivery of quality of IT services. It gives a detailed description of most of the important processes in an IT organization, and includes checklists for tasks, procedures and responsibilities which can be used as a basis for tailoring to the needs of individual organizations (Van Bon, et. Al., 2008 ).



Pic. 7.2: ITIL grap

RESEARCH AND DEVELOPMENT

the Research & Development department helps direct the future of the business providing essential information and ideas that support strategic decision-making. By investing in R&D, a company is investing in technology and future capabilities, transforming these into new processes, products and services. The main task of this department is to support the design center for the implementation of the catalog in relation to market trends.

SALES MANAGEMENT

is the department that focuses on the practical application of sales techniques and the management of a company's sales activities. The main task of this department involves the preparation and application of sales planning. This planning involves the definition of sales objectives based on profitability, forecasting, demand management and the drafting and execution of a sales plan. This is that document that outlines the business objectives, resources and sales activities.

QUALITY CHECK

This department is made up of direct employees of the company, whose role is to verify that the products manufactured meet the characteristics and specifications provided. To guarantee the quality level of the finished product, it is important to insert a bottleneck that guarantees certain characteristics. One of the most important aspects of this department is the indirect administration of the craftsmen. In fact, it is the duty of the quality control department to provide updated feedback on each work produced. These feedbacks will compose a section of the personal page of each craftsman, and will be used by

the company to decide whether or not to continue the collaboration with that craftsman. The quality control department therefore plays a role of fundamental importance within the company organization chart. At a hierarchical level it is managed by the administration and control department and is closely related to the design center, which is responsible for providing all the technical specifications of the products.

INTERNAL TRANSPORT

there is an area for the internal transport of materials. The transport of raw materials between producers and the production department is managed by this internal area. The reason behind this choice is to make this type of transport as fast and functional as possible.

7.2.2 EXTERNAL AREAS

In the external areas are positioned those actors who are not directly subordinate to the company but who collaborate with it in order to produce value. From the perspective of lean management, there are no administration departments in these areas, but management will take place entirely through the platform.

PURCHASING AREA

All those players who produce useful raw materials for the company's production are part of this area. Specifically, forest firms and sawmills were analyzed. These actors are the first steps in the supply chain, and must therefore be precisely defined according to company management. The Design Center is responsible for planning the supply chain and therefore defining which companies can be part of this group of actors, while the administration and control department will take care of the management. As previously mentioned, there is no

department for the management of these actors but the interaction with the company is managed through the platform.

PRODUCTION AREA

This is the core area of the project. The decentralization of the production department is in fact one of the strengths of the project.

This area will be made up of a cluster of artisans, defined with respect to a geographical area. It is important to remember that the artisans will not be directly subordinate to the company, but will remain freelancers with the ability to rely on the platform to increase their income.

The main interaction between the company and the production area will take place through the platform, the Design Center will take care of providing all the drawings and technical details of the product and, finally, the Administration and Control department will manage the economic aspects of the relationship.

The main function of the production area is to make the components according to the supplied drawing, without worrying about any other aspect, such as supplies or the relationship with customers.

The products are designed in such a way that each craftsman, who has the characteristics that fit into the project, can make them without problems. In this way the continuity of production is guaranteed, it is not important who creates but only that the instructions provided are followed.

At each finished processing, and passed to the scrutiny of the quality control department, feedback will be provided on the craftsmanship that took care of the creation of the piece. This feedback will be useful and will complete a section of the craftsman's personal page and will help the company to understand whether to continue or stop the collaboration.

EXTERNAL TRANSPORT

the transport of materials between the last quality control and the final customer will be entrusted to an external transport company. The reason behind this choice lies in the belief that a company focused on transport is able to achieve a higher level of process optimization than a company that moves into another area.

7.3 SUPPLY CHAIN BOUNDARIES

Below is a table showing the supply chain boundaries of the designed system. For each step the actors and the product being processed are defined. This chart presents multiple levels of reading.

Through the use of red and blue colors are defined which actors, present in the supply chain, are internal and which external. It is possible to see how almost all the actors are external, except for the quality control workers, the last actors to interact with the product before it is sold.

Supply chain steps	Wood harvest	1° transform
Product	Timber	Semifinished
Actors	Forest firms	Sawmills
2° transform	Finishing	Quality control
Raw components	Finished components	Finished products
Woodcrafters	Woodcrafters	Workers

Pic. 7.3: Supply chain

7.4 THE CONSEQUENTIALITY OF THE OPERATIONS

In order to correctly identify the consequentiality of the operations that characterize this system, it is now necessary to describe how all these elements interact with each other.

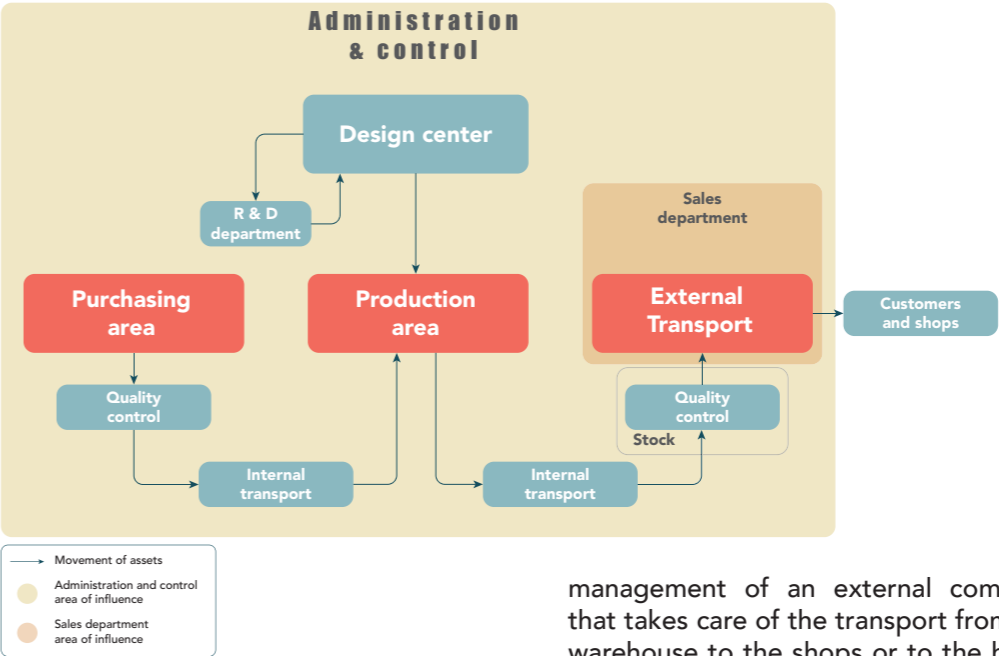
Through the requests for raw materials, managed by the application, the various players in the purchasing area provide the required products.

The movement of raw materials takes place thanks to internal transport. The operators, in charge of internal transport, also take care of carrying out an initial quality control on the semi-finished

craftsman comes into possession of all the drawings and technical specifications useful for producing a certain element. These technical documents are produced and provided by the Design Center.

It is important to underline that the items in the catalog derive from a collaboration between the Design Center, the research and development department and some craftsmen.

Once the product has been completed, further internal transport is carried out in the area, which sends the components made to a warehouse where a final quality control and packaging takes place. From this moment on, the finished products are entrusted to the



Pic. 7.4: Consequentiality operational scheme

products purchased.

The semi-finished products, useful for completing the various required jobs, are transported to the workshop of the artisan in charge. The craftsman will therefore not have to waste time finding the material but can start processing directly as soon as the semi-finished products are received. Simultaneously with the arrival of the semi-finished products, the

management of an external company that takes care of the transport from the warehouse to the shops or to the home of the end customer.

All these operations take place under the direction of the Administration and Control Department.

7.5 CREATION OF A COMMUNITY TO SUPPORT THE SYSTEM

As Chris Anderson (2012) suggests, we can no longer afford to design a company that sees product sales as the only interaction with the customer. It is necessary to use strategies to increase contact between the company and customers, and, when possible, try to undertake those policies aimed at developing a community.

But where does the need to create a support community come from? There are a number of reasons behind this choice, specifically they are described and explored in a book called Makers written by journalist and essayist Chris Anderson (2012).

The main reasons are briefly listed below:

- members of a community have a motivation, in terms of work, extremely stronger than most employees, this is because they are contributing to the realization of something they feel part of and which reflects their desires;
- people who make up these communities are part of a very broad category, certainly much wider than the hiring pool that companies can count on;
- Anderson claims that once you promote/reward enough community members, for doing a good job of constructive community-building, you'll find that they typically help each other, saving you the work. In particular, once an open-source community has been created, you get a faster, better and cheaper R&D model than any other company. Therefore, once the importance of the community was established, it was then decided to work on the characteristics that will support the creation of the community. Specifically, it was decided to establish two different communities.

On the one hand, the community of producers, which is also referred to as the extended factory, on the other, there is the community of customers. The first step to be able to outline what strategies were useful to support community development was to define what a community was. Sense of community is a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members needs will be met through their commitment to be together (McMillan, 1976).

Through the work of researchers McMillan, D. W. and Chavis, D. M. (1986) four main elements have been identified that define the creation of a community:

- the first element is membership. Membership is the feeling of belonging or of sharing a sense of personal relatedness;
- the second element is influence, a sense of mattering, of making a difference to a group and of the group mattering to its members;
- the third element is reinforcement: integration and fulfillment of needs. This is the feeling that members' needs will be met by the resources received through their membership in the group.
- the last element is shared emotional connection, the commitment and belief that members have shared and will share history, common places, time together, and similar experiences (McMillan, D. W. and Chavis, D. M., 1986).

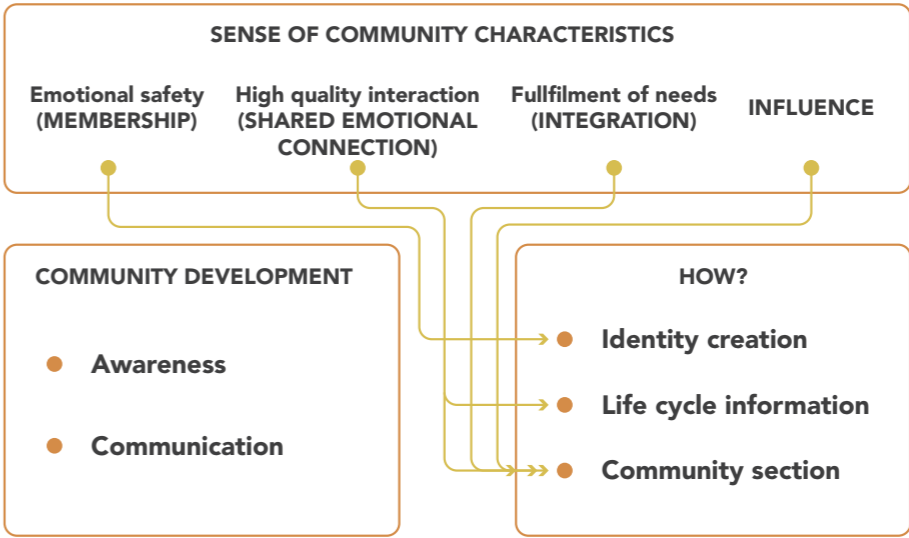
These elements were used as a starting point to define the features to be implemented in order to develop a community. The next step was the definition of the two characteristics to be implemented

for community development. The first feature is awareness. Make the customer aware of what they are buying and what they are doing through their purchase. Transparency and awareness help justify the costs of the products. This point is related to the establishment of the customer community. The second characteristic, however, is communication. Open a direct communication channel between the system, customers and craftsmen. In this section you can ask your doubts and propose new solutions. At this point the last thing to define is how to put these features into practice within the system. Three main ways have been identified to achieve the intended purpose.

The first method is the creation of a specific identity that identifies the system. Unlike craftsmanship, the production of this system will have a precise and defined identity, which will help the customer to find himself.

The identity will support the customer's emotional security, making it possible to identify the latter as part of the system.

The second point, to ensure customer awareness, is the creation of a communication line that provides precise data on the life cycles of the products in the catalog and on the related supply chain. In addition, the customer can see the progress of the project in the personal section. It is necessary to create a system to make the data on the environmental impact of products understandable. With the creation of this communication line, the shared emotional connection is guaranteed. The third way, to implement the characteristics of the community, involves the creation of a section dedicated to the community, within the platform. This section has two purposes, to create a dialogue aimed at mutual support between the customer, the system and the artisans. Furthermore, always in this section, the possibility will be given to present ideas, periodically the best ones will be put in the catalog. Through this section, the last two elements are respected for the creation of a community, namely the fulfilment of needs and influence.



Pic. 7.5: Community generation scheme

7.6 THE CORPORATE IMAGE

The next step, therefore, is the definition of the identity of the system.

This definition, known as the construction of the corporate image, in our case can be extremely synthesized and concretized in the realization of a logotype, in its declination in icon for the digital version of the platform, and in the definition of one or more fonts.

The logotype is the characteristic element of the identity of a company, product or service and must always be correctly visible and recognizable. Its application, like its construction, must therefore be regulated by precise, as flexible, rules of application. Before proceeding with the construction of the brand, however, the research work that supports it must be emphasized. To be able to identify in the best way, under the aspect of visual impact, the mark with the area taken in analysis, A moodboard consisting of several images depicting the Monviso Valley at different times of the year and at different times of the day was created at first. The range of colours extracted has therefore dictated the line to be followed in order to best represent our working environment.

As for the name of the brand, the term "Ligam" was chosen, which in Occitan dialect means "ties". It is useless to deny how the reference to the tradition found in the drawings that give life to the catalogue, combined with the constructive methods and the actors involved, suggested a noun that acted as a bridge between times, places and people.

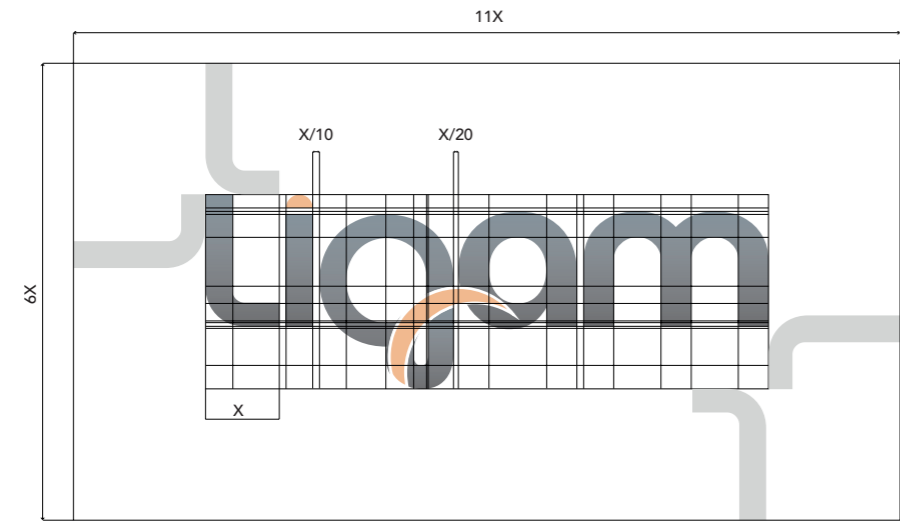
This concept is expressed again by the leg of the letter "g" which embraces the letter "a" in a continuous but evident stroke. The word ligam in fact is composed of

five elements for which the letter "g", located in the center of the word itself, represents the junction ring between the first and the last two letters. It is his task, therefore, to keep the word united and to bind it together so that it may exist and have a meaning. As for the proposed color, it was chosen a shade ranging from a cyan blue, up to an intense gray.

The intent is to incorporate within the outlines of the letters the colors of the sky and the rocks that best represent the sheepfold landscape, leaving a space to a warm orange that fills the junction arch and the above-written point of the letter "i" which is voluntarily reduced to a semicircle. The reason is to be found in the desire to represent the hues of a sun that sets and that is reflected on the slopes snowed during the winter, leaving an almost pink mark that even warms the snow.



LOGOTYPE BUILDING



LOGOTYPE OPTIONS



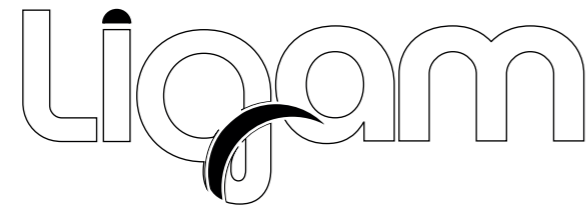
First color option  
for logo, color used:

- C. 0. Y. 0  
M. 0 K.70
- C. 47 Y. 28  
M.32 K.8
- C. 4 Y. 44  
M. 30 K.0



First uncolor option  
for logo, color used:

- C. 91 Y. 62  
M. 71 K.97
- C. 0 Y. 0  
M. 0 K.0



Second uncolor  
option for logo,  
color used:

- C. 91 Y. 62  
M. 71 K.97
- C. 0 Y. 0  
M. 0 K.0

APP LOGOTYPE OPTIONS



Options of  
application design.  
The App is  
coomposed by the  
two essential  
elements of the  
logotype

FONTS

Avenir Medium

ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz1234  
567890,;:-\_!"£\$%&/'()=?^+°#§@ièéòàù  
ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz1234  
567890,;:-\_!"£\$%&/'()=?^+°#§@ièéòàù

Font used in to  
compose all texts  
messages or  
description

Rounded Elegance

ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz123  
4567890,;:-\_!"£\$%&/'()=?^+°#§@ièéòàù  
ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz123  
4567890,;:-\_!"£\$%&/'()=?^+°#§@ièéòàù

Font used to build  
the logotype

COLOR USED IN THE SYSTEM

- |                             |                             |                              |
|-----------------------------|-----------------------------|------------------------------|
| ● C. 0 Y. 0<br>M. 0 K.90    | ● C. 93 Y. 42<br>M. 54 K.35 | ● C. 75 Y. 100<br>M. 44 K.45 |
| ● C. 0 Y.0<br>M. 0 K.70     | ● C. 56 Y. 27<br>M. 36 K.9  | ● C. 36 Y. 83<br>M. 0 K.0    |
|                             | ● C. 47 Y. 28<br>M.32 K.8   |                              |
|                             | ● C. 46 Y. 21<br>M. 14 K.1  | ● C. 0 Y. 61<br>M. 73 K.0    |
| ● C. 28 Y. 53<br>M. 51 K.21 |                             | ● C. 14 Y. 81<br>M. 49 K.3   |
| ● C. 4 Y. 44<br>M. 30 K.0   |                             | ● C. 16 Y. 81<br>M. 20 K.2   |

# THE DIGITAL PLATFORM

08

## 8.1 THE STRUCTURE OF THE PLATFORM

The system described up to this point sees its greatest complexity in managing the interaction between different groups of actors. Unlike those companies that have direct control over all departments, this company is in the position of having to interact with actors who do not directly depend on the central core. A prime example of this is the purchasing area and the production area which have a relationship of collaboration rather than dependence towards the company.

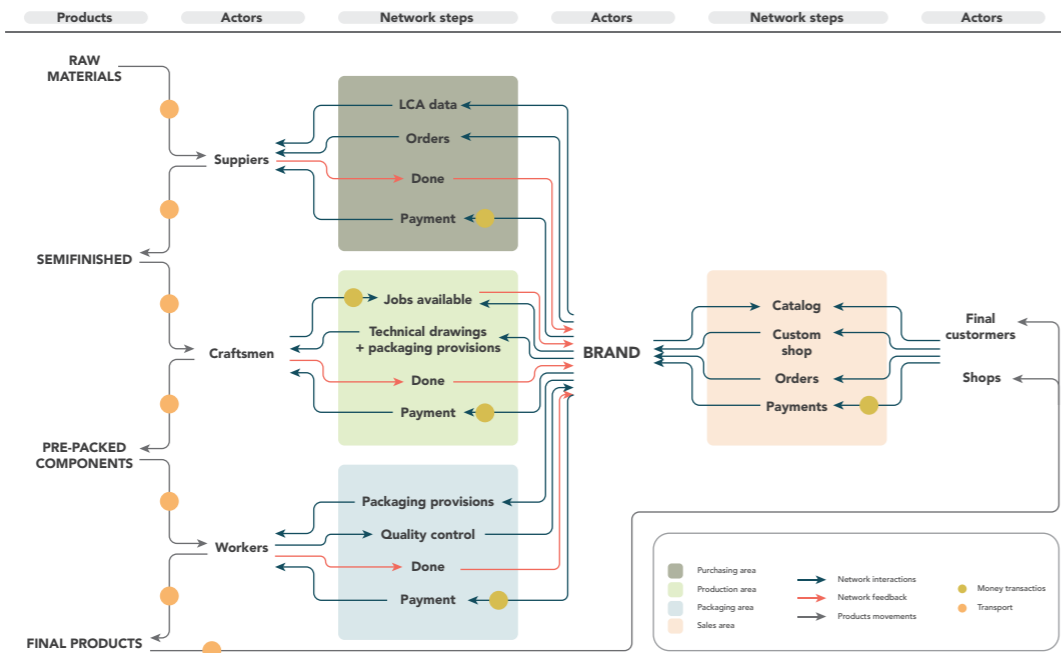
The problem becomes understanding how to manage the interaction between all departments in a functional and agile way. It was decided to use a digital medium or a platform. Digital platforms can be defined as purely technical artefacts where the platform is an extensible codebase, and the ecosystem comprises third-party modules complementing this codebase (Tiwana et al., 2010; Boudreau, 2012). A digital platform can, however, also be characterized as a sociotechnical assemblage encompassing the technical elements (of software and hardware) and

associated organisational processes and standards (Tilson et al., 2012).

The platform is responsible for managing the interaction between the actors.

In the following pages the structure of the platform will be described, trying to deepen every detail.

8.2 FUNCTIONAL STRUCTURE OF PLATFORM



Pic. 8.1: Structure of the platform

The functional diagram of the platform is shown in the graph (insert figure number). Starting the analysis from above, the first reading level that is encountered is given by the division into columns of the graph. The different elements that make up the diagram have been divided into columns to facilitate reading. The first column from the left refers to the products and their handling between the different stages of production, starting from the raw materials up to the finished product. The second column contains the first three actors who interact with the platform. They are the suppliers (i.e. the purchasing area), the artisans (who make up the production area) and, finally, the employees of the company (in charge of quality control and assembly of the various components). The third column shows the various ations

that the platform will have to manage.

All operations are grouped, through the use of colored boxes, in relation to the different actors who interact with them. The fourth column, located in the center of the diagram, shows the main actor of the system, that is the brand. In the fifth column we find the second group of operations managed by the platform. These operations are those related to the sale of products. These operations are also contained in an area that manages the interaction between the brand and the customer. The last column shows the last group of actors in the system, i.e. customers, intended both as final customers and as shops and resellers. The second reading level of the graph is that given by the graphic signs used. Through colored arrows, the various interactions between the various actors and the operations of the platform were indicated. These interactions are further

divided into actual interactions and feedback. Throughout the description of the platform structure, particular importance will be given to feedback. Feedback occurs when outputs of a system are routed back as inputs as part of a chain of cause-and-effect that forms a circuit or loop. The gray arrows, on the other hand, are used to represent the movement of materials between the various actors.

Another graphic sign used is that of the positioning of colored dots on the flows. The yellow dots refer to flows that involve movement of money, while the orange dots imply a transport.

8.3 DEFINITION OF THE SECTIONS OF THE PLATFORM

In this paragraph we are going to define the role and function of each section of the platform. To make the reading more understandable, it was decided to group the various sections according to the different actors. Next to each section there is a code consisting of a number and a capital letter. The numbers refer to the generic section of the platform, ranging from 1 to 25. In this paragraph some numbers will be repeated twice, in fact, in this chapter, we are not talking about generic sections but about the interaction of each actor with a certain section.

Some sections have a double interaction, with an external actor and with the brand. Adding the letter after the number serves to make it clear that we are no longer talking about the generic section but about the interaction of a particular actor with that section:

- Final customers and shops
- Suppliers

- Craftsmen
- Workers
- Brand

8.3.1 FINAL CUSTOMERS AND SHOPS LOGIN

ABOUT US 1.A

Description of the company mission and vision (manifesto). Photos that allow the user to empathize with the company system created.

CATALOG 2.A

The different products sold are divided by type, to facilitate the user in finding the desired piece. The availability of the products is shown, along with the production times of the piece will also be disclosed. A description of the product will be provided by sec. 3 (INTERNAL CATALOG). The main points that this description will touch will be the link with the local culture and the material chosen together with the necessary processes. Finally, information will be provided regarding the supply chain that produces that particular piece, sec 10, LCA PROCESSING). If you do not want to customize your piece of furniture, you can add the product to your cart (sec. 6) and continue shopping. The accurate planning carried out by the design center will provide precise estimates of the timing for the delivery of the finished product. In the products available for immediate delivery, information deriving from the sec. 25 (FINISHED GOODS), will be reported directly.

CUSTOM SHOP 4.A

In this section of the network it will be possible to define how to customize your mobile. The furniture in the catalog derives

from a transposition of characteristics, deriving from a specific local culture. This section gives the user the possibility to choose features to implement the contextualization of the furniture, with respect to the user's taste and his world. The types of customizations will not be random but will be designed upstream, like everything else, and will be provided by the sec. 3 (INTERNAL CATALOG). Once the customization operations have been completed, it will be possible to add the product to your cart (sec. 6) and continue shopping.

ACCOUNT 5.A

This section is the personal profile of the user registered on the platform. In this area the orders placed, the status of the deliveries, the most viewed products and other typical subsections of the personal profiles of customers will be reported. The importance of this section lies in the desire to create a community of customers around the system. In fact, the account section is the transposition of the customer into the digital world of the platform. All applications aimed at community creation (sec. 8) will go through this section. Furthermore, this section receives updates on the realization of the products, these updates mainly derive from the sec. 13 and 19 (SUPPLIERS DONE and CRAFTSMEN DONE), and finally from the sec. 25 (FINISHED GOODS). This section also contains information regarding the life cycle of the product, deriving from the sec. 11 (LCA PROCESSING) and the Design Center.

CART 6.A

This section will show all the products selected and ready for purchase. It will be possible to proceed with the purchase or remove any unwanted pieces. The workflow of the orders passes through this section, after the customer has made the payment the orders go to

compose an internal catalog in the sec. 7 (INTERNAL ORDERS).

COMMUNITY 8.A

This section will be used to implement the policies useful for the establishment of the customer community to support the system. The idea is to be able to involve customers as much as possible with the system. The contact between this sec. and the sec. 3 (INTERNAL CATALOG), the reason lies in the fact that some ideas coming from this section may end up in the company catalog.

SUPPORT 9.A

This section will be used as a direct point of contact between the brand and end customers. From here it will be possible to find the technical drawings of the furniture, to provide for any repairs. It will be possible to submit suggestions for any changes to products or processing.

CONTACTS 10.A

A section where you can find references to contact the company.

8.3.2 SUPPLIERS LOGIN

LCA PROCESSING 11.B

This tool will be used to help sawmills, and forest companies, in the LCA analysis of their processes. From this section will be taken the data useful to fill in the supply chain in sec. 2 (CATALOG) and sec. 5 (ACCOUNT).

SUPPLIERS ORDERS 12.B

In this section, the list of necessary semi-finished products will be provided to the sawmills. When accepting an order, the

sawmills must also provide an estimate of the time to complete the work.

SUPPLIERS DONE 13.B

Upon acceptance of an order, a feedback containing the order identification code and the estimated date will arrive in sec. 14 (INVENTORY A). When the suppliers have fulfilled the order placed, a feedback will arrive at the sec. 15 (SUPPLIERS PAYMENT) starting the payment.

SUPPLIERS PAYMENT 15.B

In response to placing the order in the inventory, the payment for that order will start.

8.3.3 CRAFTSMEN LOGIN

CREDITS WALLET 16.C

In this section the artisans will be able to buy the credits useful to accept the job. It will also be possible to view the amount of credits available. The presence or absence of credits will make it possible to purchase new works in the century. 17 (AWC).

AVAILABLE WORK CATALOG 17.C

The available jobs will be displayed in this section. Along with the type of job, some information will be indicated such as the time it takes to finish the job. From this section it will be possible to accept the works, in order to accept them the craftsman will have to read the contract and accept the terms.

WORKSHOP 18.C

After the craftsman has accepted a job, it will no longer be available in the jobs section but will automatically be moved to the private section of the workshop. In this section the craftsman will find

the cards of all accepted works. Each sheet will report the type of work, all the technical drawings necessary for the realization and the processing instructions. In addition, the date of arrival of the necessary material and the date of collection of the components will be reported.

CRAFTSMEN DONE 19.C

Through this function the craftsman will communicate the end of a job. At this time a new identification code is assigned for prepackaged components, and these products will become part of a specific section of the inventory.

CRAFTSMEN PAYMENTS 20.C

Payments will be deposited into the current account linked to the craftsman's account. Payments will take place when the quality control is passed.

FEEDBACK 21.C

In this section, all feedback relating to the work of the craftsman will be reported. The feedbacks will be divided into the following categories:

- Components compliant with the drawings supplied, compliance with the required tolerances, materials and finishes;
  - Ability in processing, any errors that require the supply of additional raw material;
  - Compliance with deadlines;
  - Communication, how the communication between the brand and the craftsman is managed.
- This section will therefore be updated with respect to the data coming from quality control and data obtained from the interaction with the brand.

8.3.4 WORKERS LONGIN

INVENTORY B 22.D

This section contains all the identification codes of the pre-packed components. Workers refer to this section for managing incoming orders.

QUALITY CHECK 23.D

This section is used to report the results of the quality control on the products coming from the artisans. There are two possibilities:

- Passed, the products fall within the required characteristics. Tolerances have been respected as well as the use of materials and finishes;
- Failed, the products do not meet the required characteristics. The feedback derived from this area reaches the administration and control department, and at the same time updates section 3.F (feedback) of the network. Products that pass the quality controls receive a new identifier and become part of the catalog section.

WORKERS DONE 24.D

Through this function the craftsman will communicate the end of a job. At this time a new identification code is assigned for prepackaged components, and these products will become part of a specific section of the inventory.

8.3.5 BRAND LOGIN

ABOUT US 1.E

Description of the company mission and vision (manifesto). Photos that allow the user to empathize with the company system created.

CATALOG 2.E

The different products sold are divided by type. This division is made to facilitate customers in the search for products. Product availability derives from the sec.25 (FINISHED GOODS), while production times are estimated by an algorithm that adds the average order acceptance times to the duration necessary to complete the work. A description of the product will be provided sec. 3 (INTERNAL CATALOG). The main points that this description will touch will be the link with the local culture and the material chosen together with the necessary processes. The supply chain relating to the products derives from the data taken from sec. 11 (LCA PROCESSING) and from the information held by the brand relating to the origin of the raw materials and processes.

INTERNAL CATALOG 3.E

This section contains all the products available in the catalog and the related customizations. Each product is identified by a code, as well as any additional processing. Each product has a personal file which contains:

- the product description;
- technical drawings and information relating to production processes;
- packaging information.

CUSTOM SHOP 4.E

This section will provide the list of possible customizations for the chosen furniture. They will depend on the style of the furniture. Orders placed in this section will automatically update sec. 4 (CART).

CART 6.E

This section will manage orders placed by customers and payments. Once the order confirmation is received, an identification code for the products purchased will be created. This code will be sent to sec. 7 (INTERNAL ORDERS), while the customer will be redirected to the payment page, in relation to the banking circuit to which the direction of operations will be entrusted.

INTERNAL ORDERS 7.E

This is the first section of the road trip of product identification codes, where the order codes are generated for the first time. These codes will be used to generate two requests:

- order of semi-finished products in sec. 12 (SUPPLIERS ORDERS);
- creation of a work request to be included in sec. 17 (AVAILABLE WORKS CATALOG). This request uses information from section 3 (INTERNAL CATALOG).

COMMUNITY 8.E

This section will be used to implement the policies useful for the establishment of the customer community to support the system. The idea is to be able to involve customers as much as possible with the system. One of the strategies they will use will be to use this section as a point of comparison between the needs and requirements of customers and the company. You want to try to build a point of contact that allows customers to submit ideas to the company. After an initial filtering of projects, some will be chosen and carried forward as business projects. In this way, some customer ideas can become marketed products. To encourage the sending of projects and participation in the choice, discounts will

be granted to the profiles with greater interaction. Much importance is attached to personal profiles. The aim is to support the birth of a community around the brand.

SUPPORT 9.E

This section will be used as a direct point of contact between the brand and end customers. From here it will be possible to find the technical drawings of the furniture, to provide for any repairs. It will be possible to submit suggestions for any changes to products or processing.

CONTACTS 10.E

Here it will be possible to find all the contact details of the various departments of the brand.

LCA PROCESSING 11.E

This tool will be used to help sawmills, and forest companies, in the LCA analysis of their processes. From this section will be taken the data useful to fill in the supply chain in sec. 2 (CATALOG) and sec. 5 (ACCOUNT).

SUPPLIERS ORDER 12.E

In this section, the list of necessary semi-finished products will be provided to the sawmills. The delivery time is used in section 5 to inform the customer.

SUPPLIERS DONE 13.E

Upon acceptance of an order, a feedback containing the order identification code and the estimated date will arrive in section 14 (INVENTORY A).

INVENTORY A 14.E

This section is used as an inventory of

semi-finished for processing. All the products in this section are identified by a code. The utility is to provide a tracking of the semi-finished products relating to a specific product, before they reach the craftsman.

**SUPPLIERS PAYMENT 15.E**

In response to placing the order in the inventory, the payment for that order will start.

**CREDITS WALLET 16.E**

This section will be used to manage the system of credits for the artisans. To allow artisans to acquire new credits, this section must be connected to an online banking.

**AVAILABLE WORKS CATALOG 17.E**

The available jobs will be displayed in this section. Along with the type of job, some information will be indicated such as the time it takes to finish the job. From this section it will be possible to accept the works, in order to accept them the craftsman will have to read the contract and accept the terms.

**WORKSHOP 18.E**

After the craftsman has accepted a job, it will no longer be available in the jobs section but will automatically be moved to the private section of the workshop. Here all the information relating to each job is collected in a sheet. The primary information is the technical drawings, identification code and the processing instructions. In addition, the date of arrival of the necessary material and the date of collection of the components will be reported.

**CRAFTSMEN DONE 19.E**

Through this function the craftsman will communicate the end of a work. At this time a new identification code is assigned for prepackaged components, and these products will become part of a specific sec. 22 (INVENTORY B).

**CRAFTSMEN PAYMENTS 20E**

Payments will be deposited into the current account linked to the craftsman's one. Payments will take place when the quality control is passed.

**FEEDBACK 21.E**

In this section, all feedback relating to the work of the craftsman will be reported. The feedbacks will be divided into the following categories:

- Components compliant with the drawings supplied, compliance with the required tolerances, materials and finishes;
- Ability in processing, any errors that require the supply of additional raw material;
- Compliance with deadlines;

- Communication, how the communication between the brand and the craftsman is managed. This section will therefore be updated with respect to the data coming from quality control and data obtained from the interaction with the brand

**INVENTORY B 22.E**

This section is part of the inventory. The function is to organize all pre-packed components, identified by a code, and manage them for the quality control phase.

**QUALITY CHECK 23.E**

This section is used to report the results of the quality control on the products coming from the artisans. There are two possibilities:

- Passed, the products fall within the required characteristics. Tolerances have been respected as well as the use of materials and finishes;
- Failed, the products do not meet the required characteristics. The feedback derived from this area reaches the administration and control department, and at the same time updates section 21 (FEEDBACK) of the network. Products that pass the quality controls receive a new identifier and become part of the catalog section.

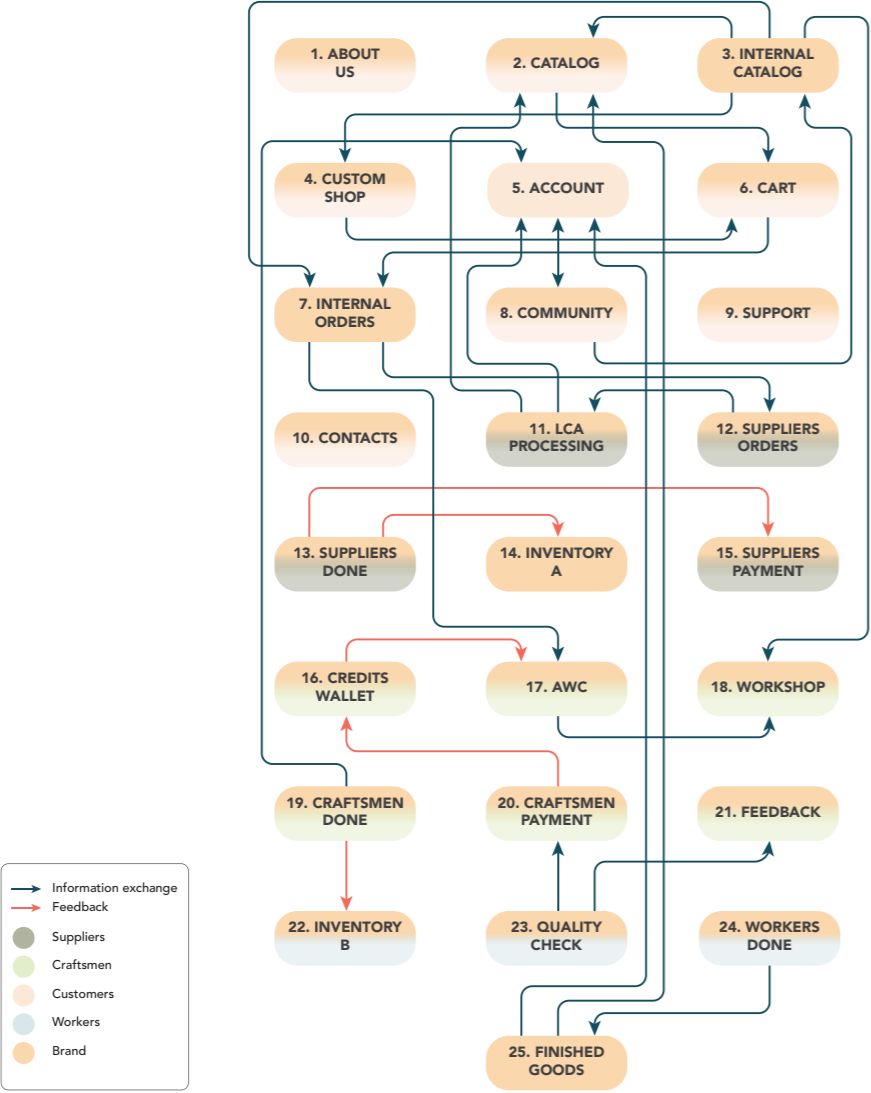
**WORKERS DONE 24.E**

Through this function it is communicated to the system that the orders have been processed and that the identification of each packaged product is found in the sec. 25 (FINISHED GOODS).

**FINISHED GOODS 25.E**

This section contains the codes of all the products available for sale, therefore including the products already sold but not yet delivered. It is used to manage deliveries to customers.

8.4 DEPENDENCE AND  
MUTUAL INTERACTION OF  
THE SECTION



Pic. 8.2: Interection scheme

In the previous paragraph all the sections of the platform have been described. In describing them, reference was also made to the dependencies and mutual interactions that exist between the different sections. In this paragraph, a

graphic has been shown that makes it easier to understand these dependencies. Through this graph (pic. 8.2) the dependencies between the various sections of the platform are represented. Within the diagram there are different

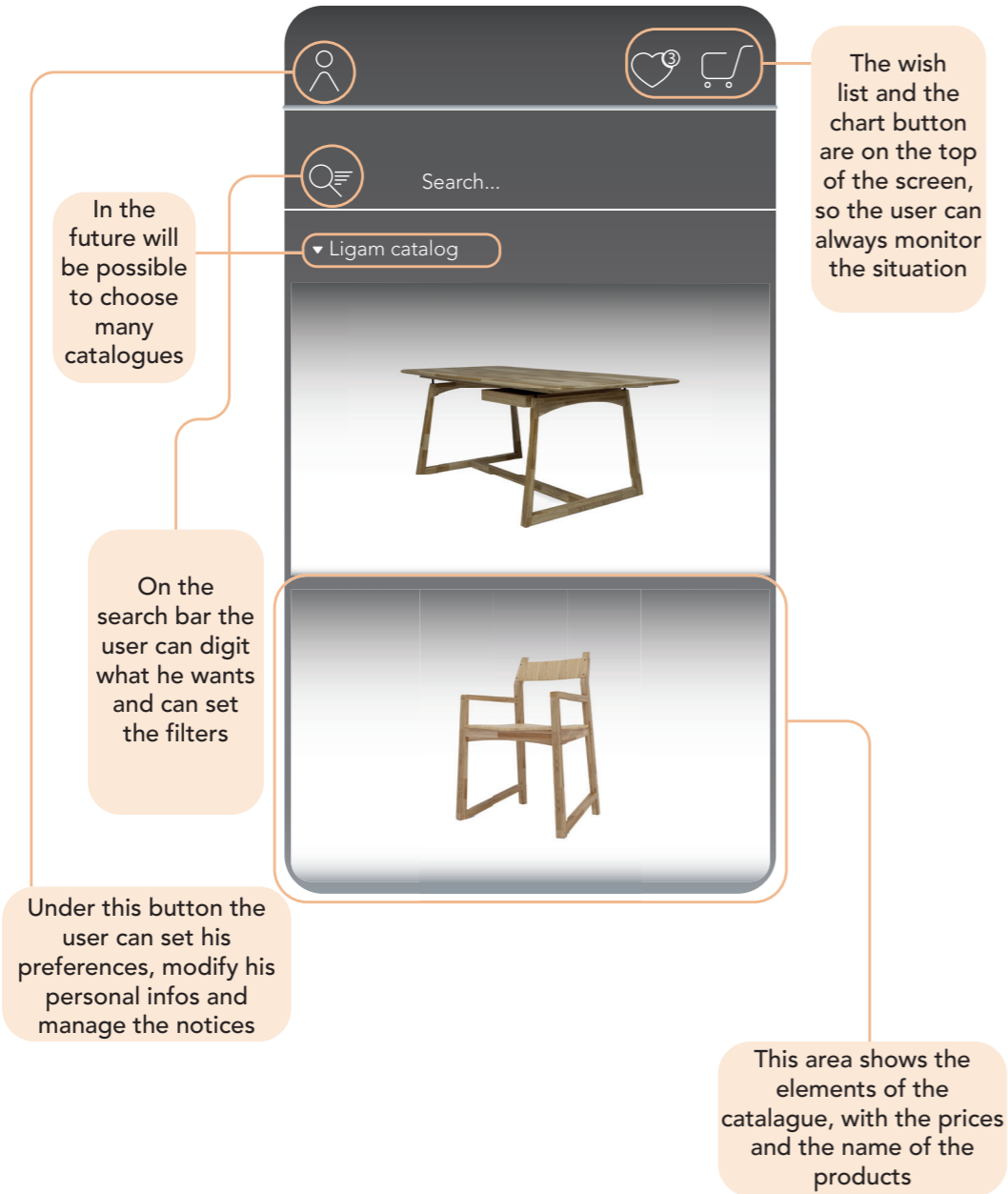
levels of reading.  
The first level is the one created by the use of different colors in the area around the name of the sections, these colors are used to identify the type of actor who has access to the area:

- Purple, final customers and shops
- Dark green, suppliers
- Light green, craftsmen
- Light blue, workers
- Yellow, brand

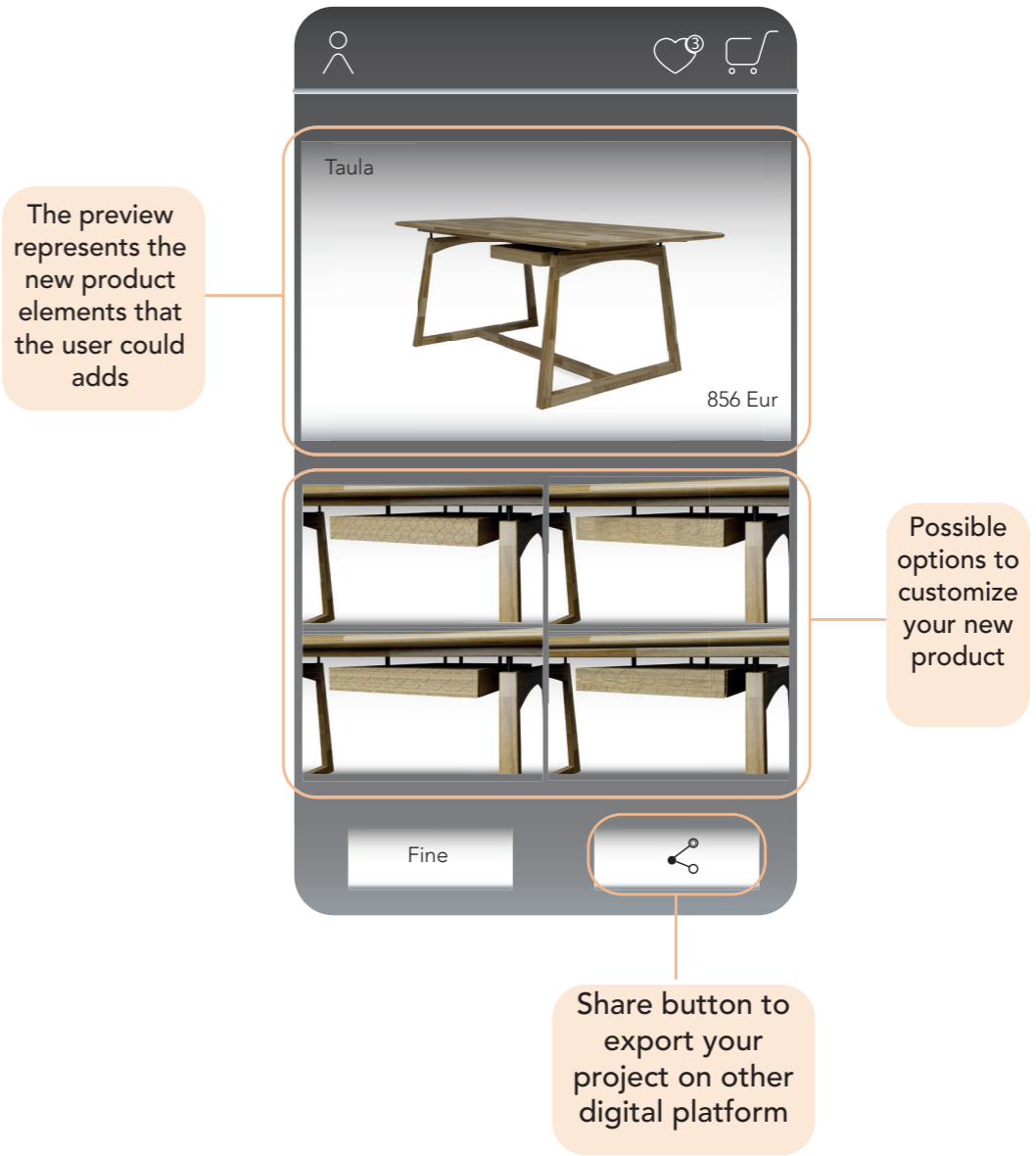
Since the platform is structured as a communication channel between the company and external actors, almost all sections always see the access of two actors, on the one hand the brand and on the other the user with whom you are talking. Exceptions to this rule are the sections that are solely internal to the brand, and the personal section dedicated to the customer.

The second reading level is given by the arrows, which indicate the type of relationship between the sections. The blue color indicates the exchanges of information, for example the connection between the internal catalog and the catalog will involve the information related to the products sold. In red, however, the feedback interactions are represented.

8.5 HOME MOCK UP, USER POINT OF VIEW



8.5.2 CUSTOMIZATION MOCK UP, USER POINT OF VIEW



8.5.3 LCA MOCK UP, USER  
POINT OF VIEW

The app follows all the step, from the sawmill to the shipping.  
The idea is to empower the user using a conscientious path that provides all the information necessary to verify the environmental impact to produce the individual object

The locator shows the correct position of the parts before the end of the realization process

8.5.4 JOB ACQUISITION  
MOCK UP, CRAFTMAN POINT  
OF VIEW

The two buttons shows how many credits you should spend to obtain the job, and the and the gain when the work is completed

The wallet button shows how many credits you have

	QUANTITY	COMPONENTS	CREDITS
<input type="radio"/>	4	Leg dx	3
<input type="radio"/>	4	Leg sx	3
<input type="radio"/>	2	Table	1
<input type="radio"/>	2	Drawer	5
<input checked="" type="radio"/>		Entire project	24

Accept !

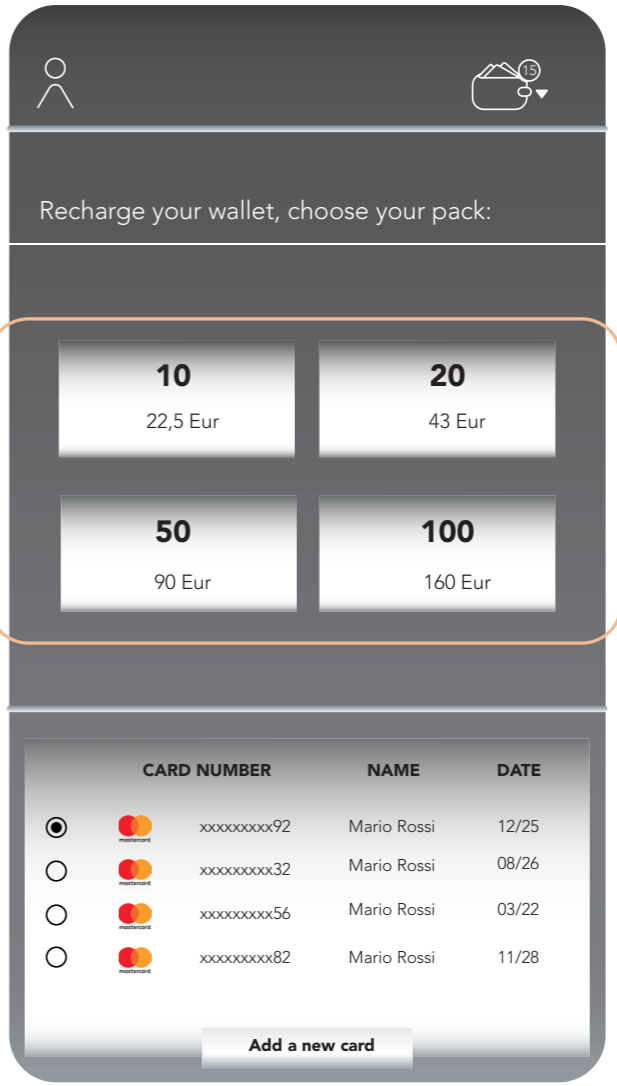
This window permits to choose what elements the craftman want produce and the relative credits he spends.

8.5.5 FILES ACQUISITION  
MOCK UP, CRAFTMAN POINT  
OF VIEW



The craftman can download all the file he needs to realize the the project, in different formats

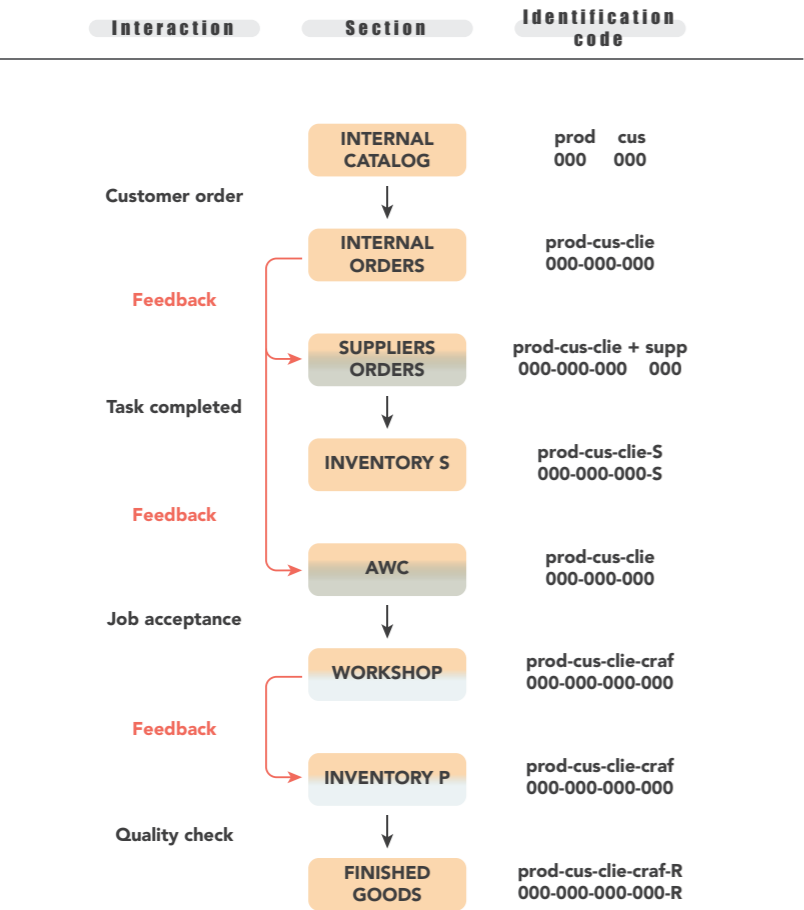
8.5.6 WALLET MOCK UP,  
CRAFTMAN POINT OF VIEW



The craftman can choose the pack he want to charge his wallet.  
All the credits are stored in the wallet and is possible to pay with the all digital system

8.6 MANAGEMENT OF THE IDENTIFICATION CODE THROUGH THE VARIOUS SECTIONS

any possible customization of the main product. All the codes of the products available in the catalog are collected in the INTERNAL CATALOG section.



Pic. 8.3: Code generation scheme

The following diagram (pic. 8.3) traces the stages of creating and using the identification code of the products sold on the platform. The purpose of this diagram is to make it clear how through the use of this digital component the entire life cycle of the product can be managed in a lean and easy way.

When each new element is introduced into the internal catalog, a code is created to identify this product. Small lines of code are also associated with

After customer's order the main identification code is generated. With main identification code we mean the code formed by the union of product and customization strip, moreover the customer related data are added. This code is tracked within the INTERNAL ORDERS section, and is sent to the SUPPLIERS ORDERS section and to ATW.

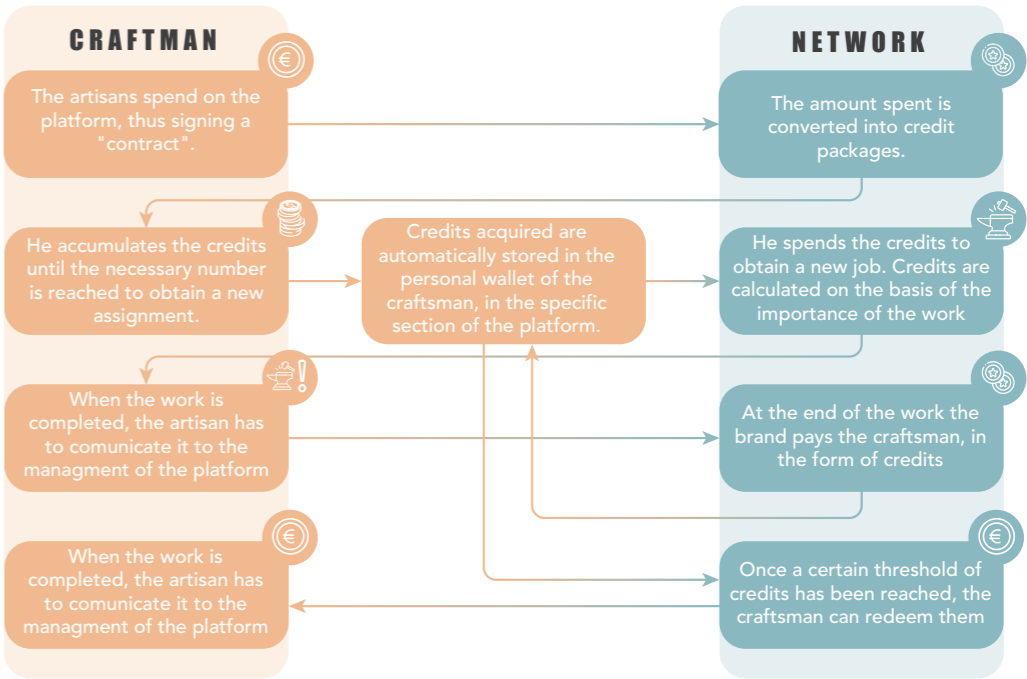
Suppliers receive the prod-cus-cli code together with the codes of the desired semi-finished products. These codes are

automatically generated in relation to the ordered product. Once the order is fulfilled, the supplies code disappears and an S (supplies) is simply added to the main code. Each available job is identified by the main code. When the craftsman accepts the work, a part relating to the data of the craftsman is added to the main code. When supplies reach the craftsman, the latter must compare the codes to be sure to use the right material assigned to the job. Once the work is completed, pre-packed components are transferred to the control center. The identification remains the same, to provide data on the origin of the pieces. Once the products pass the quality control they become part of the FINISHED GOODS database. At this stage the code adds an R (ready) at the end.

Having concluded the description of the sections of the platform, let's move on to analyze the methods of payment of employees. As far as suppliers and internal employees are concerned, there are no problems, as it is enough to rely on the existing standard. However, the system devised, as mentioned above, bases its production on a cluster of people. This factor brings the management of contracts and payments to a higher level of complexity.

The need was to find a type of agile contract, which on the one hand would guarantee the certainty of the completion of the work undertaken, and on the other allow to deal with the dynamic reality of the cluster. The answer derives from an elaboration of the methods used by different companies working in similar environments. In conclusion, it was decided to use a credit system for the payments of the production department. The operating steps of the system are as follows:

8.7 THE CREDIT SYSTEM



Pic. 8.4: Credits system scheme

each work made available to the network of artisans has a value, which is expressed in credits, in order to be taken over; any craftsman wishing to take on a new job must pay its value in credits.

The credits represent an imaginary value and have their currency exchange against the euro of;

Credits are purchased in the specific area of the platform, from the moment they are purchased they become part of the craftsman's portfolio and can be spent immediately or when purchasing a new job;

at the time of completion of the work and after the elements created have passed the quality control, the craftsman will see the payment of the work credited to his wallet.

The scheme (pic. 8.4) is a detailed representation of the various steps of the credit system.

The use of the credit system, in particular the initial investment of money in a project, will guarantee the completion of the work on time. In the event of non-compliance with the terms, the craftsman will not be refunded the initial value of the work.

The advantages of the system of using the credit system are many, in particular they lead to a reduction of costs.

The craftsman, who relies on this system, has no expenses for the purchase of the raw material, as it is supplied directly by the company, and above all he does not have to put money into those secondary activities useful for finding new work.

The company, for its part, does not eliminate all the expenses related to the creation and maintenance of a production department made up of employees.

# DEFINITION OF THE CATALOG

09

## 9.1 HISTORICAL AWARENESS AND MODERN TECHNIQUES

The definition of the catalogue represents the physical and concrete portion of our project.

His conception is the result of various studies and considerations, such as those related to the target audience that is intended to achieve or to the techniques of realization and production.

In order to make all this possible, we started from the style of the Valle Varaita, defining it and identifying it in all its facets. The choice of materials, the joints and the symbology linked to the aesthetic and decorative aspect, have marked the path to follow while, for their transposition to the present day, we have relied on the experience of local artisans who, Once again, they made themselves available and showed themselves involved in our project.

Before the realization, however, it was necessary to define the project brief, establishing the guidelines to be followed to give the brand its own identity.

The analysis of the context and the scenario was followed by the technical part, where the experience and dialogue with the artisans, in particular with the team of Giobergia Arredamenti, has proved to be as fundamental as ever to avoid technical errors and to try to optimize the use of resources, thus limiting waste and costs.

9.2 CUSTOMER PERSON MODELS

To better identify our target audience, the technique of the personas models already illustrated in the previous chapters has been used again. In this case, two completely different models have been proposed in order to be able to embrace the widest possible audience without neglecting some common characteristics.

Giulia

Giulia is a 30-year-old girl who lives in Milan and has decided to move in with Luca, her boyfriend. Giulia, after graduating in law, began to gain experience as a lawyer in a firm, before becoming a business consultant at a multinational.

After a couple of years, she managed to earn a leading role in the upmarket, finally being able to fulfill her dream of buying a house in her beloved city. Always passionate about design and modern art, she paints in her free time and practices yoga. She got to know about the Ligam app thanks to the advertisement she saw on Instagram and convinced Luca to buy the table to put it in the living room. Before completing the purchase, however, he insisted on reproducing on the front of the drawer a triangular pattern to make his artifact unique.

Age

Occupation

Status

Location

Archetype


30

Consultant

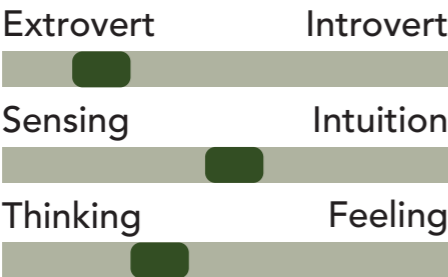
Engaged

Milan

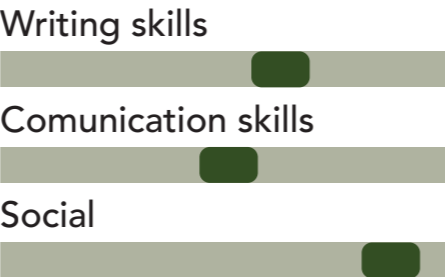
Young woman with passion for design



Personality



Skills



Pic. 9.1: Persona model number 1

Ludovico

Ludovico is 40 years old, lives in Turin in a residential area with his wife Cecilia and has two children aged 11 and 13. After years of study and sacrifices he decided to resign to become his own and open with his partner a new communication agency. The research work of a study where he could start his new activity has required a considerable expenditure of energy. Ludovico does not want to leave anything to chance, his work has taught him that the image he gives of himself plays a fundamental role. So once he found the venue for his new office he decided not to spare himself even as far as furniture is concerned.

To a modern and minimal taste he chooses to combine two chairs of Ligam on which to make comfortable the customers who will come to commission the work. Ludovico decided not to customize the chairs so as not to contaminate their clean line, convinced that their presence alone will be enough to give the customer the image he wants to convey.

Age

Occupation

Status

Location

Archetype


40

Entrepreneur

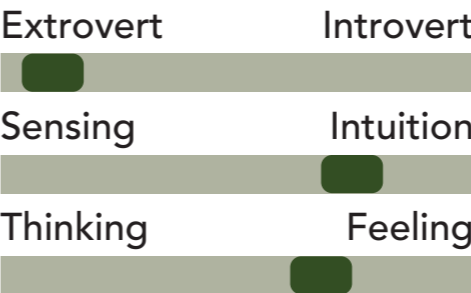
Married

Turin

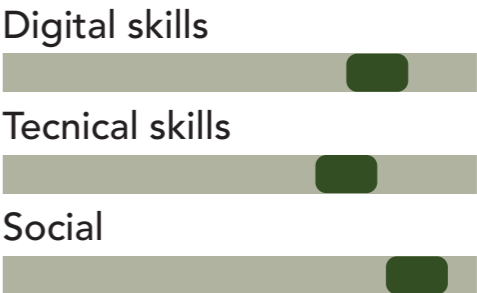
Self-made man



Personality



Skills



Pic. 9.2: Persona model number 2

9.3 VALLE VARAITA  
FIGURATIVE CULTURE

The Valle Varaita style has its roots in the Middle Ages, in the periods in which the men of the valley lived under the banner of precariousness and pure survival (Dematteis et. Al., 2006). At first, therefore, the furniture made was simple and served as a support for the essential activities of the inhabitants of the valley. Among these objects, the most iconic was certainly a chest-shaped piece of furniture, used to store clothes and other few belongings. This type of furniture was particularly convenient to facilitate the movements of families as a result of periods of crisis and wars.

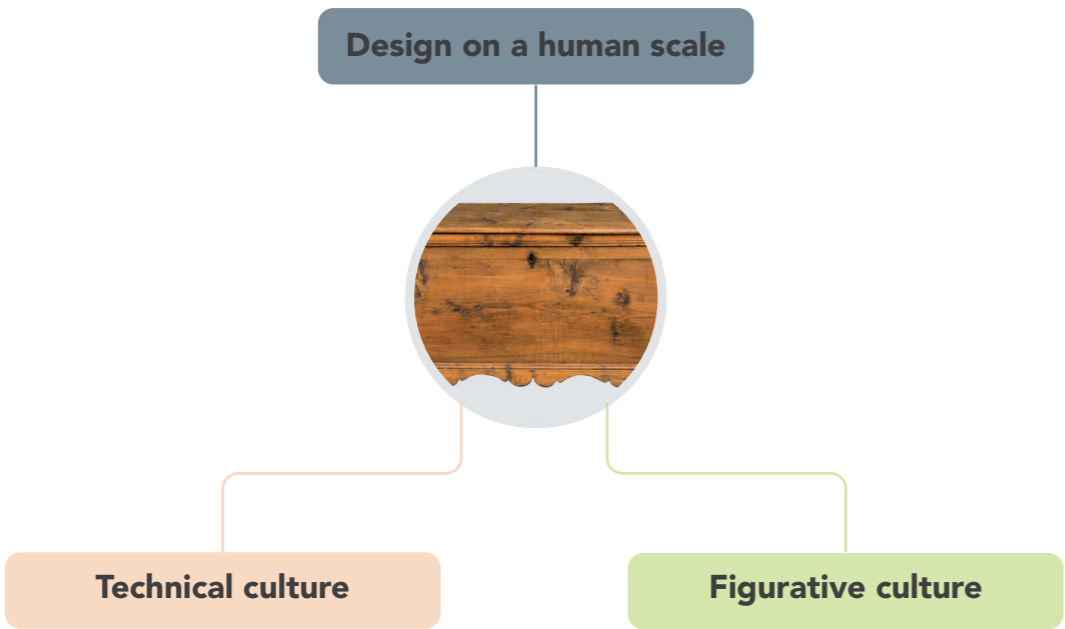
With the passage of time, the colonies of men of the valley became more sedentary and with the change of habits the features and construction techniques of the furniture also began to evolve. The element that most of all represents the symbol of this passage is the sideboard. The various containers, built in a more

rudimentary way to store flour and wheat, and the chests with many functions were flanked by sideboards, which became the symbol of kitchens and the home (Dematteis et. Al., 2006).

The life of the inhabitants of the valley flowed marked by the rhythm of the seasons and the relative work. The events that interrupted the cycle were the celebrations that involved the whole community, these were mostly of a religious nature or to signal the arrival of an unborn child. There was furniture specially made for these special events. The analysis work focused on the books and collections of those authors who told about life in this area. The result of the research was the definition of the main canons of the valle Varaita style, for the production of furniture.

In order to better define this style, it was decided to divide the different characteristics, which emerged from the analysis, into three macro categories:

- Design on a human scale
- Technical culture
- Figurative culture



Pic. 9.3: Macrogroup scheme

9.3.1 DESIGN ON A HUMAN  
SCALE

It was decided that one of the main groupings represented the link between this style and man.

The first feature is linked to the austerity of the lifestyle in the valley, this aspect translates into the creation of furniture that responds to human needs. Furniture is not born to furnish the home but to support man in his daily chores. Furthermore, the cyclical perception of everyday life has certainly had an effect on the construction of furniture, influencing techniques and traditions.

The second feature is due to the mountain environment and its shortage of easily usable resources. The result is a prudent and thrifty use of the wood obtained for the construction of the furniture. Never was more material used than necessary, and indeed the technique was refined in order to use only the necessary wood. In this way each piece of furniture takes on the intrinsic value of a reference to human life.

9.3.2 TECHNICAL CULTURE

The second grouping is linked to the culture and technical ability of carpenters. The wood used came solely from the area's forest reserves. Mostly, therefore, it is made of larch wood for its structural characteristics flanked by poplar panels for ease of processing. Sometimes the woods used were more valuable and the choice fell on essences such as beech, oak and walnut.

One of the main characteristics linked to the structure of the furniture concerns the use of logs. The wooden panels were obtained through a vertical scan of the trunk section, defining rigid and functional forms. The final shapes of the furniture were not designed to be pleasing to the eye but to avoid wasting precious material.

Once the components were obtained, the main type of joint was the use of the tenon and mortise. In particular, this joint was often reinforced through the use of a wooden pin fixed transversely in the tenon.

9.3.3 FIGURATIVE CULTURE

Finally, the last grouping defined is that which concerns the figurative culture linked to furniture.

There are two types of decoration, in the valle Varaita style, on the one hand that carried out by making geometric cuts on the furniture panels, in particular on the top or lower parts of the furniture, on the other those decorations obtained through the carving technique.

The decorations are created to express the author's family hopes. The symbolism used is simple and recalls the aspects of life in the fields and nature, the themes are flowers, plants and animals. Sometimes some aspects of life were represented with geometric shapes, such as the spiral. In addition to describing the hopes for the future, the decorations were also used as the author's signature. In conclusion, it is possible to say that the human relationship with nature, in the tradition of the place, is subject to a predominantly magical rather than realistic interpretation.

9.4 CHOICE OF ELEMENTS

Before being able to define the project brief and therefore the catalog it was necessary to establish which objects to start the design from. The choice was made following two tracks, on the one hand the functional one and on the other the formal stylistic one.

From a functional point of view, the reasons behind the choice are:

- the products listed in the catalog must represent standard modules, i.e.

products that communicate optimally with numerous contexts, without having to undergo changes in shape;

- the elements must be capable of being sold disassembled and must be easily reassembled on site;

- based on the thread studied, the area and the relationship with the craftsmen, it was decided to focus on products that could be made entirely of wood.

From a stylistic / formal point of view, however:

- it was decided to start with the design of the main elements of the tradition of the Varaita valley.

Listed below are the three elements that the design has focused on.

9.4.1 CHAIR

The chair represents one of the first elements dedicated to rest inside the house. It is not the chair to eat seated at the table, the tradition was to sit at the entrance to the house and have your meals there. The function of the chair was to rest in front of the fire after a day's work. This function is represented by the presence of the armrests, the backrest and the larger and more comfortable seat.

The only components of the chair that have organic shapes are those that come into contact with the body of the person sitting. The shape assumed is the mirror image of that of the human body, to allow for a higher level of comfort. The other components have rigid and simple shapes due, as mentioned above, to the woodworking. The only semi-decorative element of these shapes is the tapering upwards. The processes used for the production of the seat are basic and obtained with simple tools.

The decorations are primitive and serve the author of the artefact to characterize

his product.

9.4.2 TABLE

The table is the central element of the house, however it is not used for eating as much as for preparing meals. In fact it is equipped with all the comforts to allow the maximum level of usability. Elements such as drawers, cutting boards and rolling pins are placed inside the table structure.

The edges of the table plank are rounded to prevent it from being damaged during use. The structure is guaranteed by a longitudinal beam placed in the center of the table

9.4.3 BED

In ancient times, the population of the valley used to rest on straw mattresses, beds formed by layers of straw, as the name suggests, wrapped in a cloth sack. There was no reason to spend time and effort in making an object which, due to the nomadic character of its inhabitants, could have been abandoned and replaced by a new one. Over time, with the arrival of stability, the idea of making a piece of furniture that would incorporate the straw mattress, improving the hygiene and comfort of the latter, took hold more and more. Thus the first beds were born, in the single-square versions, for the children, and one-and-a-half beds for the spouses. The mobile bed gained its space in homes.

The bed is raised off the ground to avoid that the humidity of the floor could compromise the hygiene of the mattress, while allowing greater comfort.

The two characteristic elements of the Val Varaita style bed are the tread and the headboard. The presence of an ergonomic headboard to allow the possibility to lean on it during rest.

The use of wooden panels appears clear in the decorations. The two-dimensional

silhouette of a spiral is drawn on a panel and subsequently cut. The components of the bed are divided into two categories, the structural ones and the infills. There is a skeleton of beams which gives the bed its structure. The gaps between the beams are filled with thinner soft wood panels.

Decorations recall nature and its cyclical nature. They represent a deep feeling and a poetic vision of life.

9.5 TRANSPOSITION OF TECHNICAL CHARACTERISTICS

In order to fully understand the style of Val Varaita, in addition to an analysis of the stylistic language, it is also necessary to address issues related to the technical solutions adopted.

What is evident after the vision of catalogues and representations dating back to the historical period examined, is how the technical solutions adopted guaranteed an excellent resistance against daily wear.

9.5.1 TENON AND MORTISE

The typical joint used, as was confirmed by the team of Giobergia Arredamenti, provided for the coupling of two complementary parts, called tenon and mortise, and the introduction of a wooden plug, placed perpendicularly to both elements mentioned, to stop the interlocking.

Typically this joint is used in the joints at 90 degrees, where the vertical uprights usually accommodate the mortar holes and on the horizontal ones instead we find the tenons.

Usually the tenon size corresponds to 1/3 of the thickness of the elements to be worked, while the length must correspond to the depth of the mortise,

although with a minimum deviation to ensure its tightness.

Once the joint has taken place, we proceed with the realization of a hole through both pillars and the insertion of a wooden plug that, after being hammered, is cut from both ends to obtain the desired finish.

Today there are several tools that you can use to reproduce this technique, and it is always the team of Giobergia Arredamenti to illustrate which.

In addition to the use of milling cutters to be mounted on a special workbench, it is possible to reproduce the mortar hole also thanks to a vertical milling cutter, applied to a milling machine or a screwdriver drill.

Another method is made possible thanks to special tips able to make square holes to be applied to the drill, whether it is this column or battery.

The realization of the mortise instead can be realized by removing the excess material thanks to a saw, whether it is this manual or applied to a special workbench.

There is also the possibility of using a cutter to be applied to different power tools or work machines as an alternative. The system patented by the company Festool, called "domino", should also be mentioned.

This system replicates the spinature technique, but is inspired by the "tenon-mortise" joint.

To do this, an electric milling machine is used that drills two mortar holes on both mounted to be used.

Subsequently, a parallelepiped-shaped wooden dowel is introduced with corners beveled to 45 degrees.

The dowel is beaten inside the first mortar hole and then, acting as a tenon, allows the coupling with the second mounted, ensuring excellent stability and solidity

but greatly reducing processing times. Finally, to remove the ends of the wooden plug that has the task of making the graft indissoluble, a manual saw called a break-even saw is used.

9.5.2 ENGRAVINGS AND SYMBOLISMS

The style of Val Varaita is characterized not only by the technical solutions adopted for the realization of the furniture, but also by the presence of different decorations that are repeatedly engraved on the wooden surfaces. These engravings recall a strong symbolic value of natural inspiration and good luck, like the interlacing of the spirals enclosed within a circle, which represent optimism, fertility and hope.

The concepts of life and death are represented by entire or broken lines that dictate their own meaning thanks to their direction: if they are ascending they bring in dowry the concept of life, that of death if instead they are descendants. However, the latter can also represent the flames of hell for the damned. The crossed lines upwards represent the bonds of marriage, while the trees, characterized by a natural vertical propensity, are the essence of nature itself.

The floral decorations instead represent the wish of good luck, while the triangular representations represent the flows of water that flow.

The feeling of observing these symbols is that you are faced with an almost fairy-tale rather than realistic description of nature.

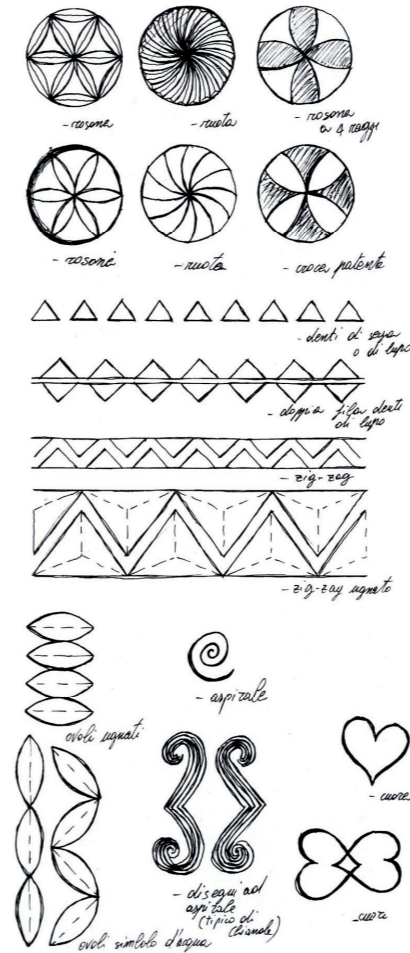
However, it would be reductive to attribute to these decorations an exclusively aesthetic value.

Their presence is witness to a common and local vision of life that despite daily difficulties and also acts as a signature. (Dematteis et. al., 2006).

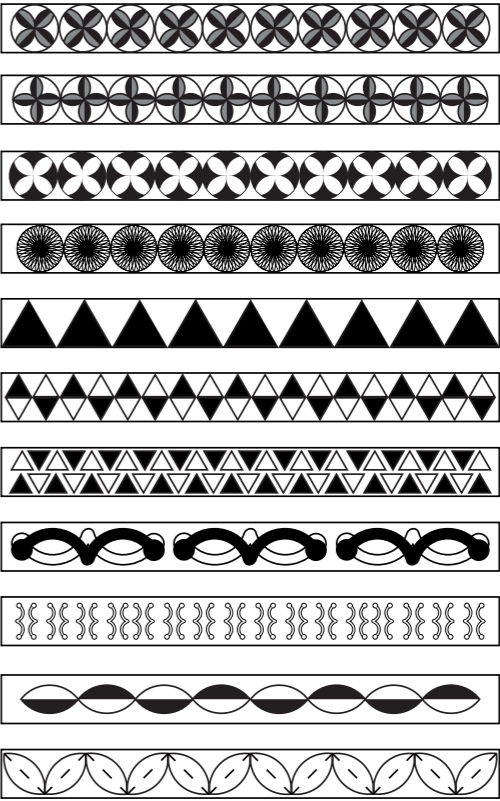
Our intention is to re-propose these engravings so as not to lose the link with the local tradition and culture, but proposing a more modern technical solution to limit production and sales costs.

Where before we relied on the expert hands of a carpenter able to engrave the representations with the chisel, we foresee the use of a milling machine with numerical control, a solution that would allow the end user to customize the artifact at will without forcing the craftsman to a demanding work of stylistic reproduction.

By providing the necessary patterns to the person in charge, previously created thanks to a vector design, the design center will be able to guarantee the reproduction and satisfaction of each customer.



Pic. 9.4: The symbols of Valle Varaita, in Dematteis, P., Ruata, L., Paseri E; (2006); Mobili tradizionali della valle Varaita; Fusta Editore; p.125.



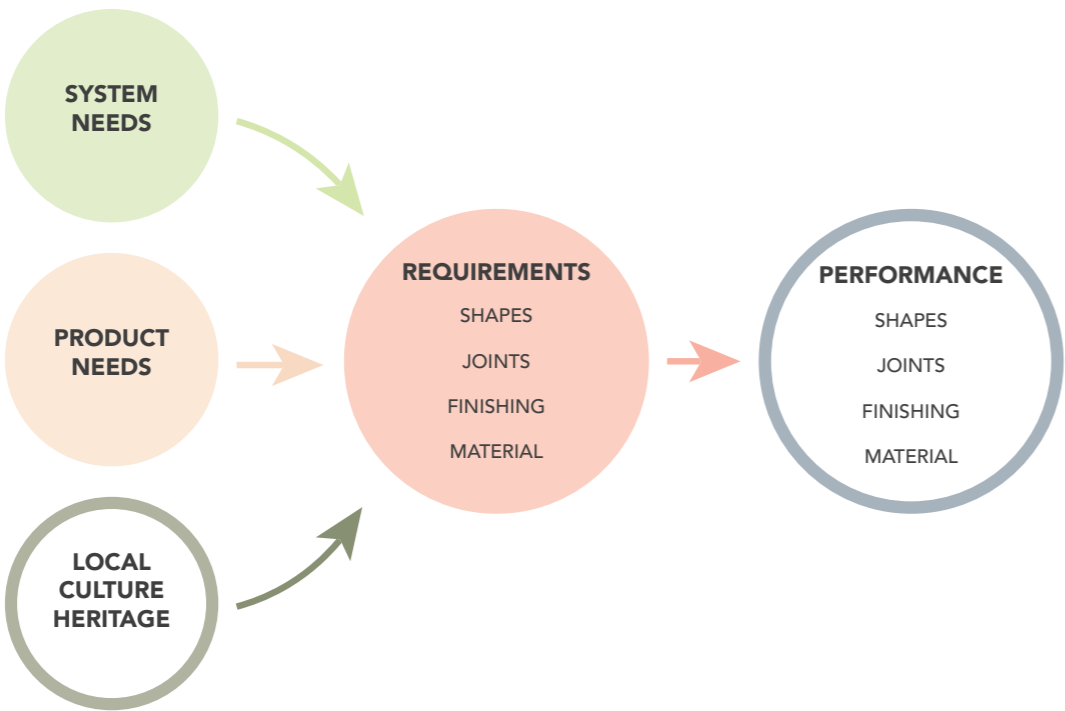
Pic.9.5: The modern engravings proposal

9.6 BRIEF SYSTEM

After breaking down the style of the Varaita valley, it was possible to outline the elements that make up the brief system. In the diagram it is possible to see how the components considered are the needs of the system together with those of production, the Local culture heritage, requirements and performance.

While the needs remain almost unchanged, the Local culture heritage varies in relation to the area taken into consideration (in this case the Monviso valleys).

These three elements enter the requirements group and form the performance. Since the latter group derives from variable elements it is also variable in relation to the geographical area in which the project is applied.



PIC. 9.6: Brief system graph

PRODUCT NEEDS:

- Form elements
- Ease of transport
- Single materiality of wood
- Main elements of the tradition
- Elements transposition

LOCAL CULTURE HERITAGE:

- DESIGN ON HUMAN SCALE**
- Austere life
  - Response to human needs
  - Cyclical perception of everyday life
  - Lack of resources
  - Precise use of materials
- TECHNICAL CULTURE**
- Typical essences: larch, oak, walnut
  - Vertical scan of the logs
  - Use of basic tools
  - Mortise and tenon joints
- FIGURATIVE CULTURE**
- Geometric cuts
  - Pattern
  - Family hopes
  - Natural world
  - Signature of the author
  - Magical interpretation

REQUIREMENTS:

SHAPES

- The shape must be designed by the Design Center, it must be consistent with the current cultural moment without leading to international taste
- The shape must follow the lines dictated by the style
- The shapes of the structures must be studied in order to have the least possible waste of mater

JOINTS

- The products must be easily assembled in order to be shipped disassembled and reassembled on site
- The components must be able to be replaced relatively easily, allowing to increase the end of life of the product
- The joints must be studied in order to be easily replicable, durable and disassembled in order to allow repairs capable of lengthening the end-of-life of the object

FINISHING

- Use of symbolism with a natural appeal, adapted into patterns that embellish certain areas of the product
- The finish conveys the values of style

MATERIAL

- Use of certified wood from the short supply chain

PERFORMANCE:

SHAPES

- The components are cut out of laminated wood planks. In the lateral scan the pieces will be two-dimensional while in the front scan they are tapered
- The shape of the components derives from the application of the rule of thirds with respect to the tenon used. The shape is strictly functional to the need to which it responds
- Rigid shapes alternating with organic finishes that recall the use of basic tools
- The tapered shapes of the components fit together in order to have the least possible waste of material

JOINTS

- There are two types of joint, fixed joint made by craftsmen and mobile joint to be made on site
- The fixed joint, made by artisans, is carried out by means of a dry plug with a tenon function and a glued pin fixed transversely

FINISHING

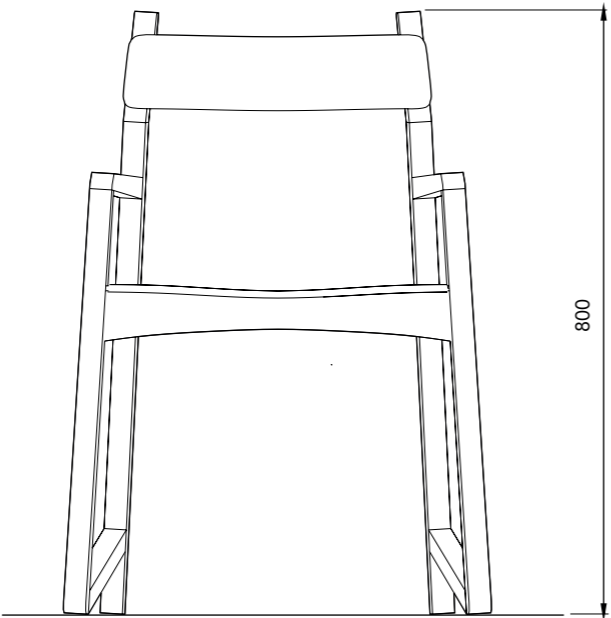
- The repetition of traditional patterns is carried out with the aid of a CNC milling machine
- The rough finish, carried out by brushing the wood, conveys the values of austere life. The weave of the fibers is a clear reference to the cyclic nature of nature
- The finish is carried out with a zero effect impregnating agent that does not change the color of the wood but embellishes the texture

MATERIAL

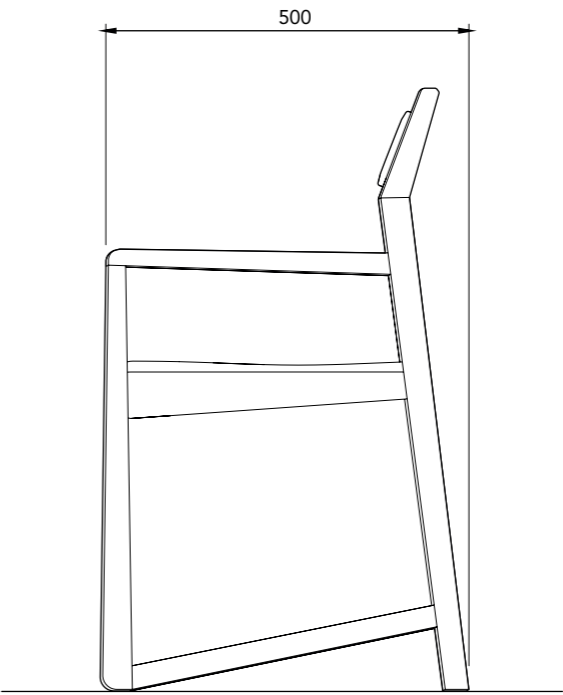
- To enhance the furniture it was decided to use noble wood essences such as oak combined with beech. The panels used are of laminated wood

9.7 TECHNICAL DRAWINGS  
AND RENDERS

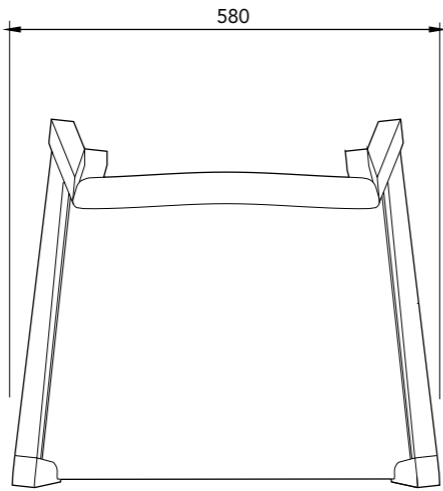
FRONT VIEW



SIDE VIEW

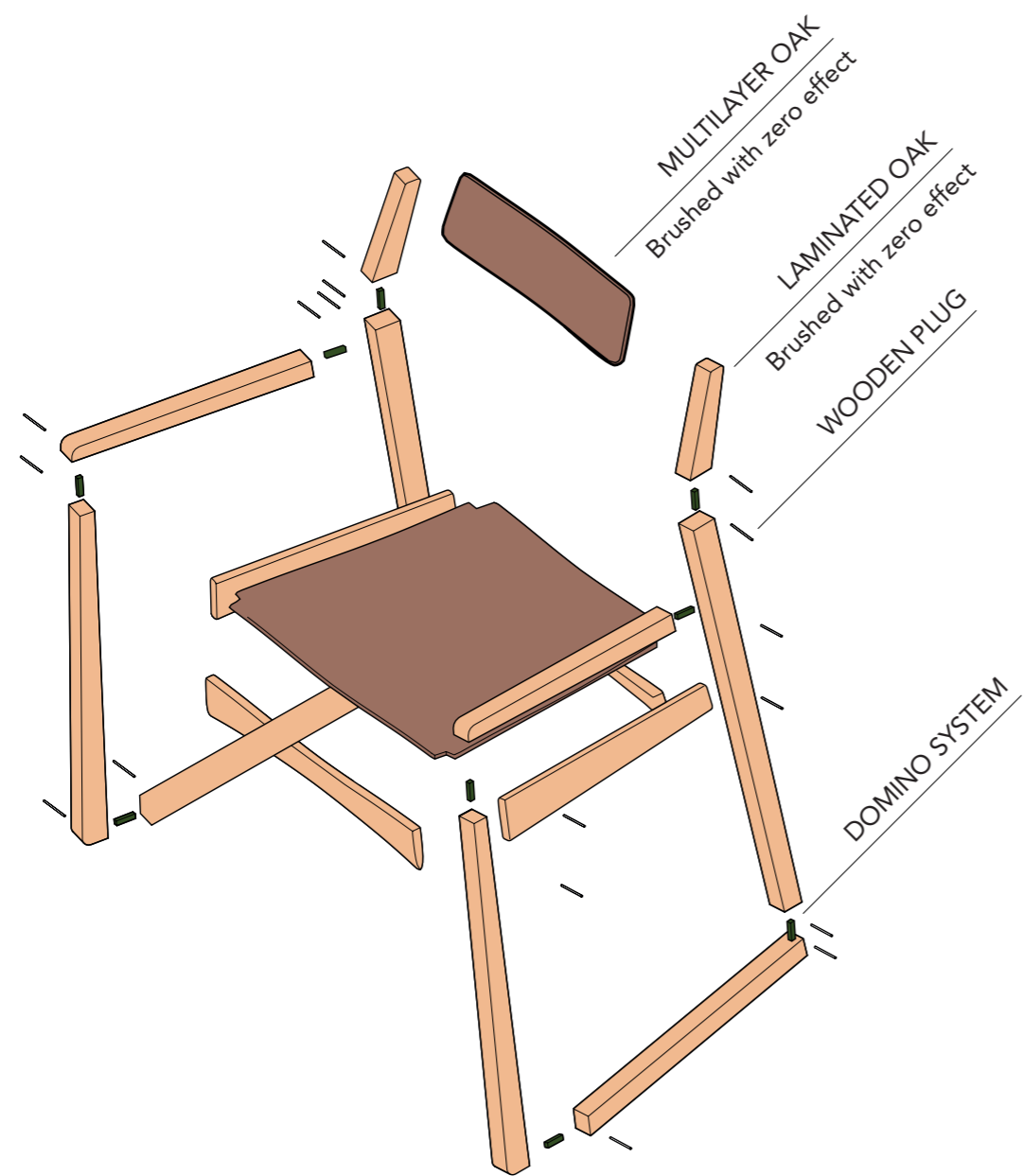


TOP VIEW



Dimensions in mm

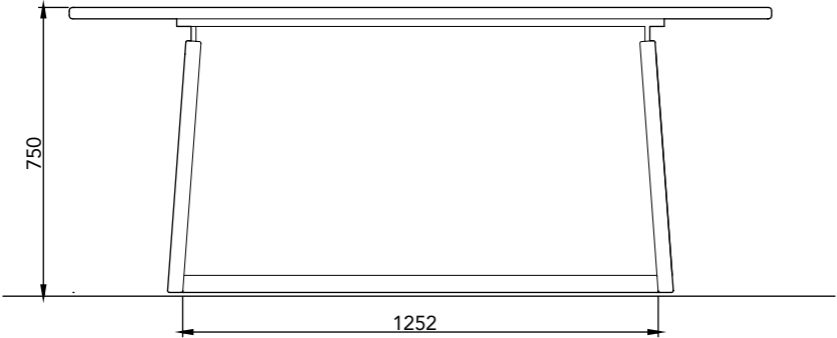
Scale 1:10



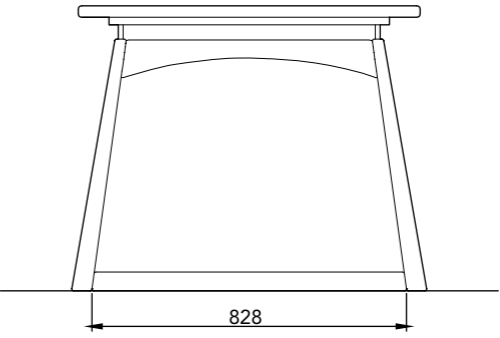




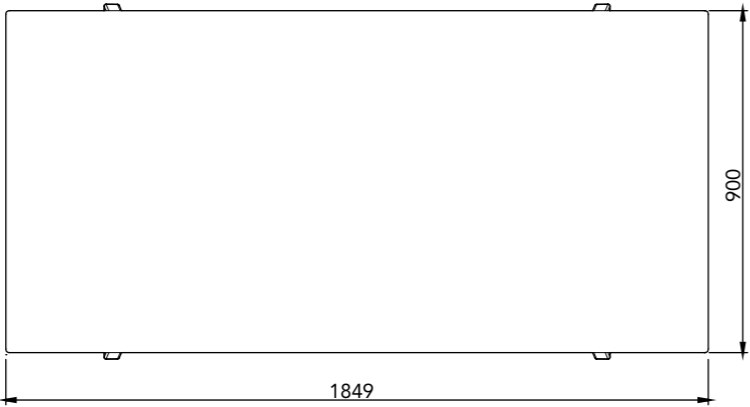
FRONT VIEW



SIDE VIEW

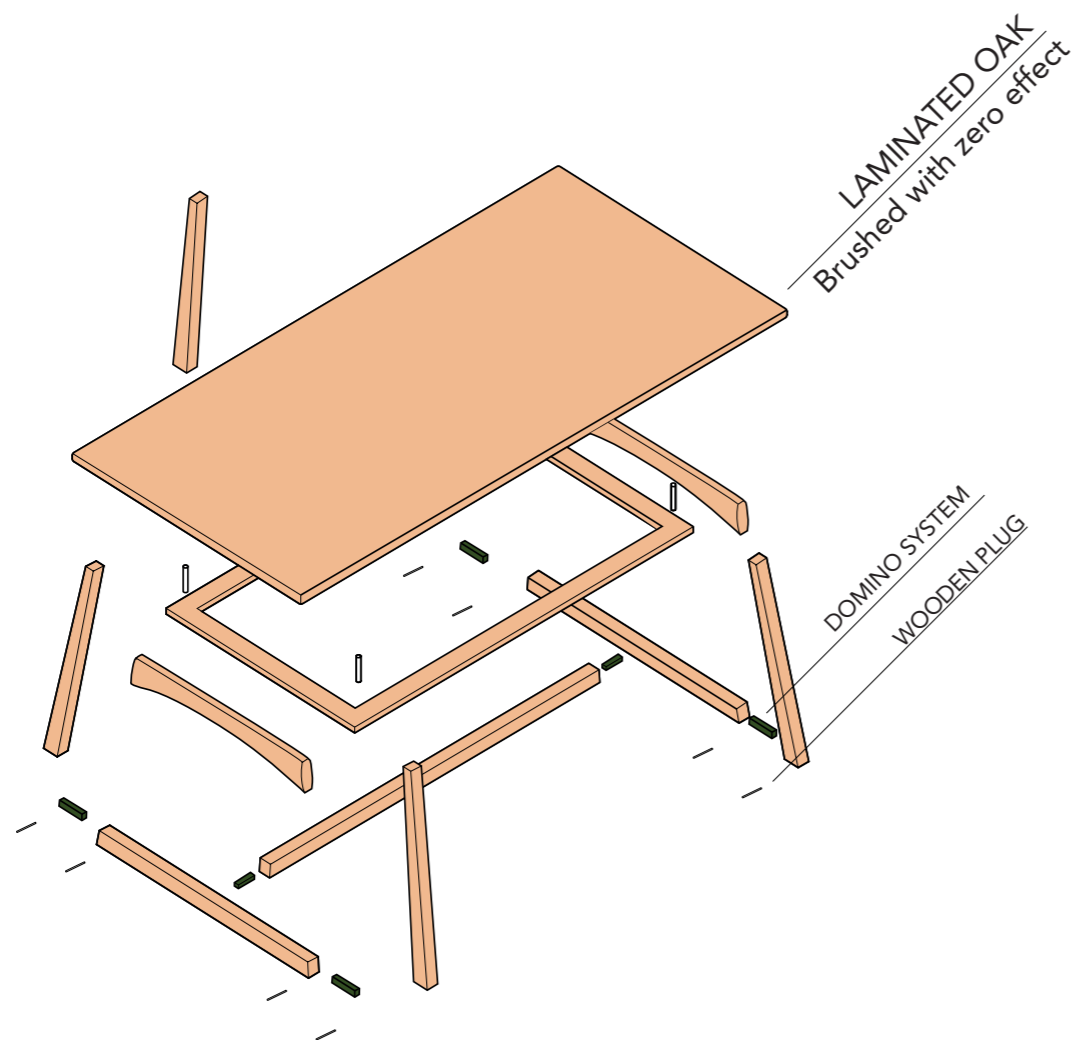


TOP VIEW



Dimensions in mm

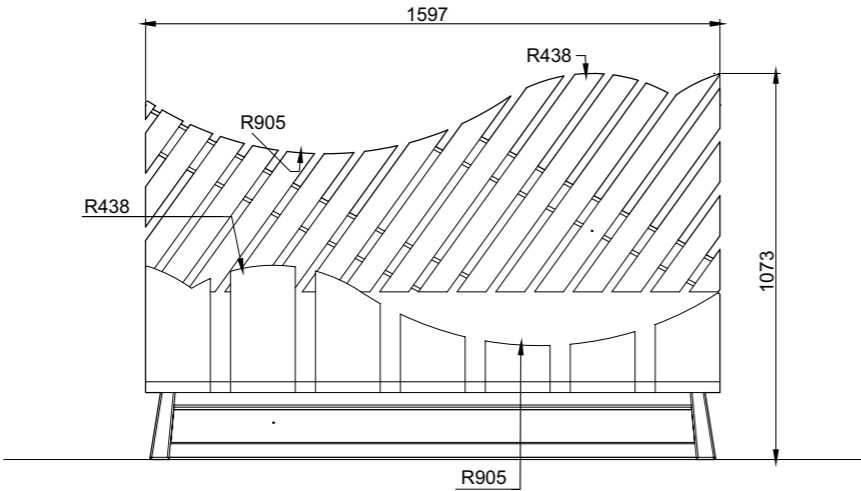
Scale 1:20



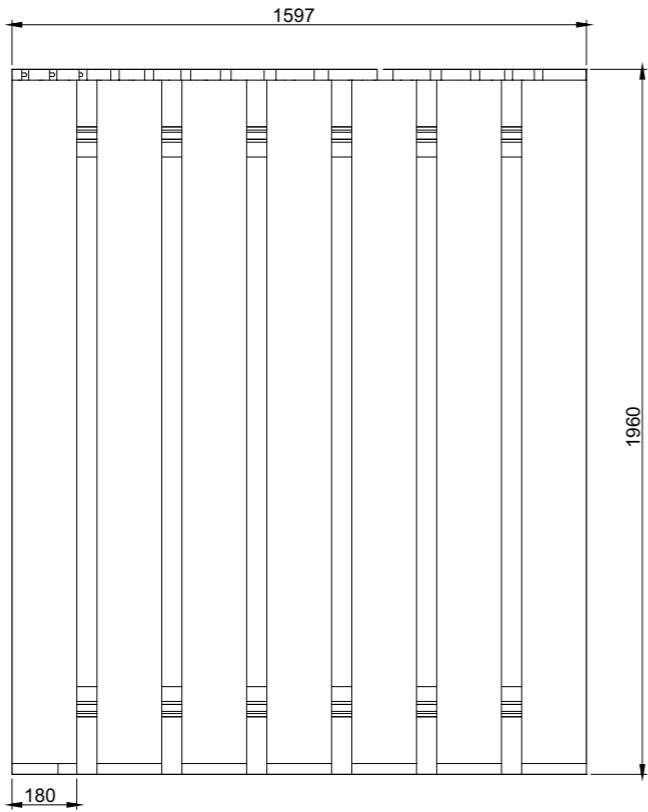




FRONT VIEW



TOP VIEW

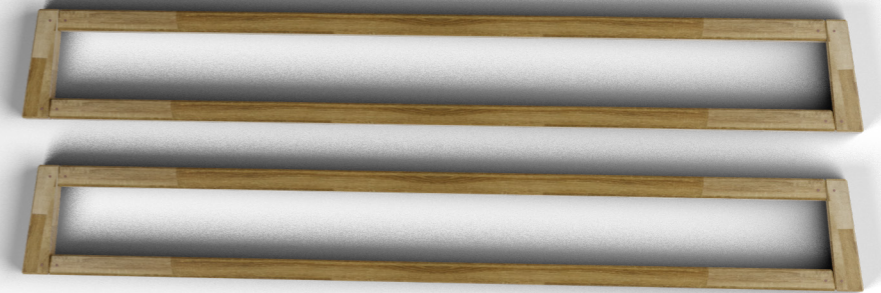
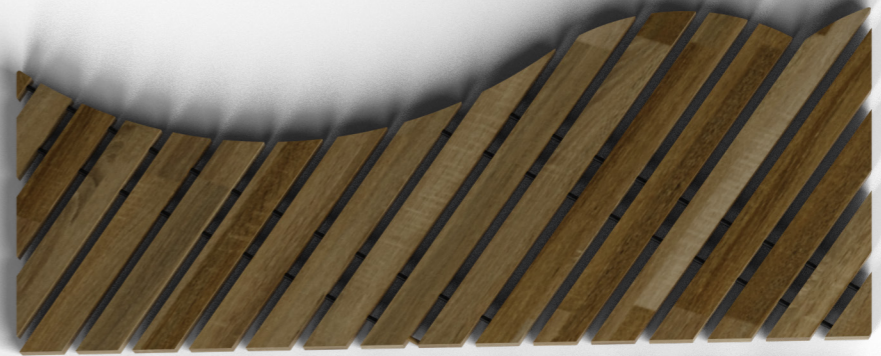
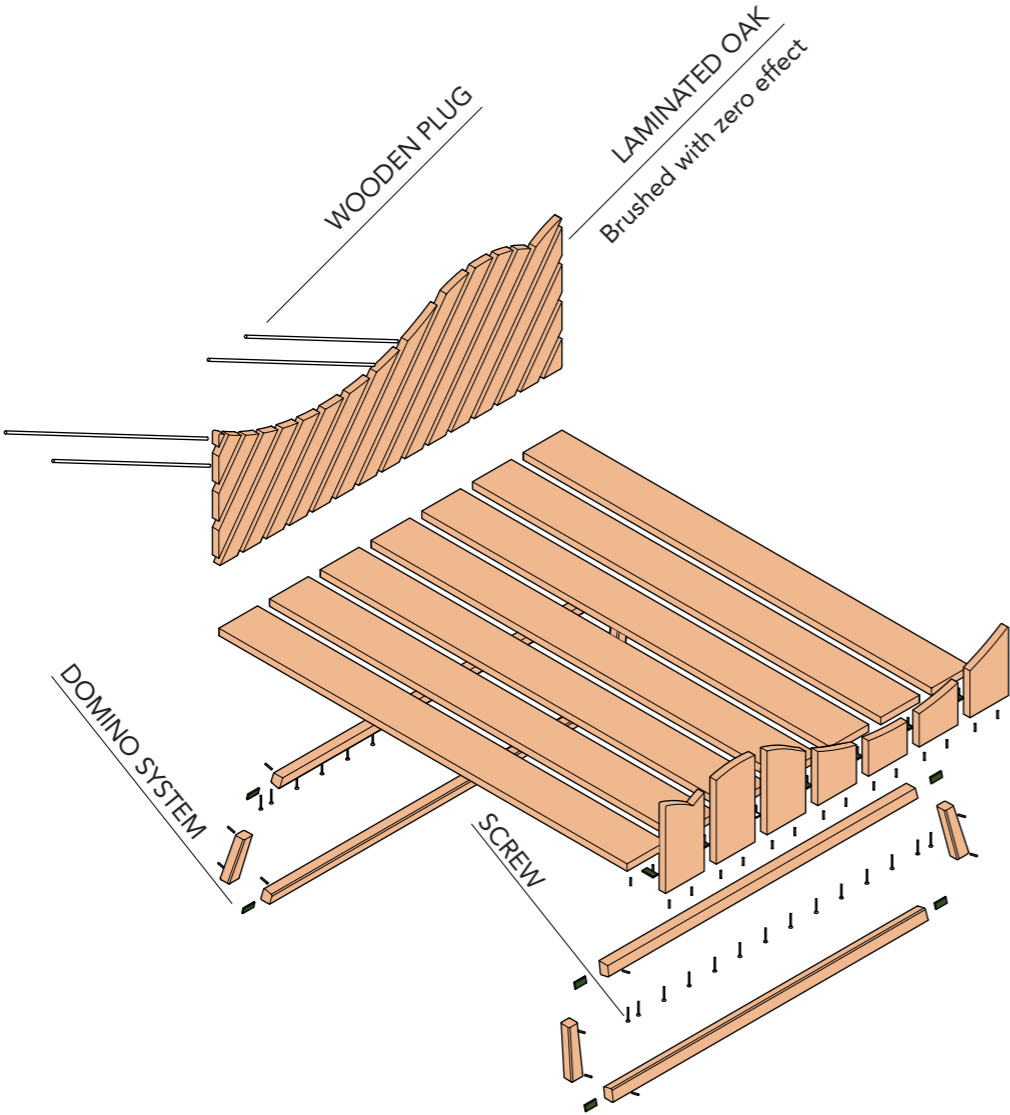


SIDE VIEW



Dimensions in mm

Scale 1:20







# ECONOMIC EVALUATION OF THE PROJECT

## 10

### 10.1 THE NUMBERS SUPPORTING IDEAS

At this point in our design process it becomes inevitable to compare the ideas born and developed up to now with the reality of numbers, which often takes the role of judge and sentence on the success of a project.

A project has always needed to be able to assert itself and be classified as “realizable” and our intention, in order to have the confirmation that what has been done so far has a practical and concrete value and not only theoretical, is not to evade this last preliminary examination.

It becomes difficult to establish when design and the concept of economic development began to mix and influence each other. To date, however, their blending becomes a valuable tool that can be used to be able to bring innovation in different fields of application.

If we want to rely on a definition, probably the one that best identifies what we are about to do, it describes the concept of Business design as “the strategic approach for the design of an entrepreneurial

idea (or for the review of a consolidated company), centered on the innovation of the business model to maximize the impact on the market of an activity, applicable to any company, even to micro-enterprises.” (Hospitality Team, 2018)

This definition, which goes well with what is described in the previous chapters, implies an analysis of the context and the project field of action to be able to discover the flaws or any weaknesses to be improved through a new approach that generates profit.

If the business model to be applied has already been illustrated, as well as the innovation that is generated as a result in the craft sector, it remains to show how the profits that are generated can support the entire business.

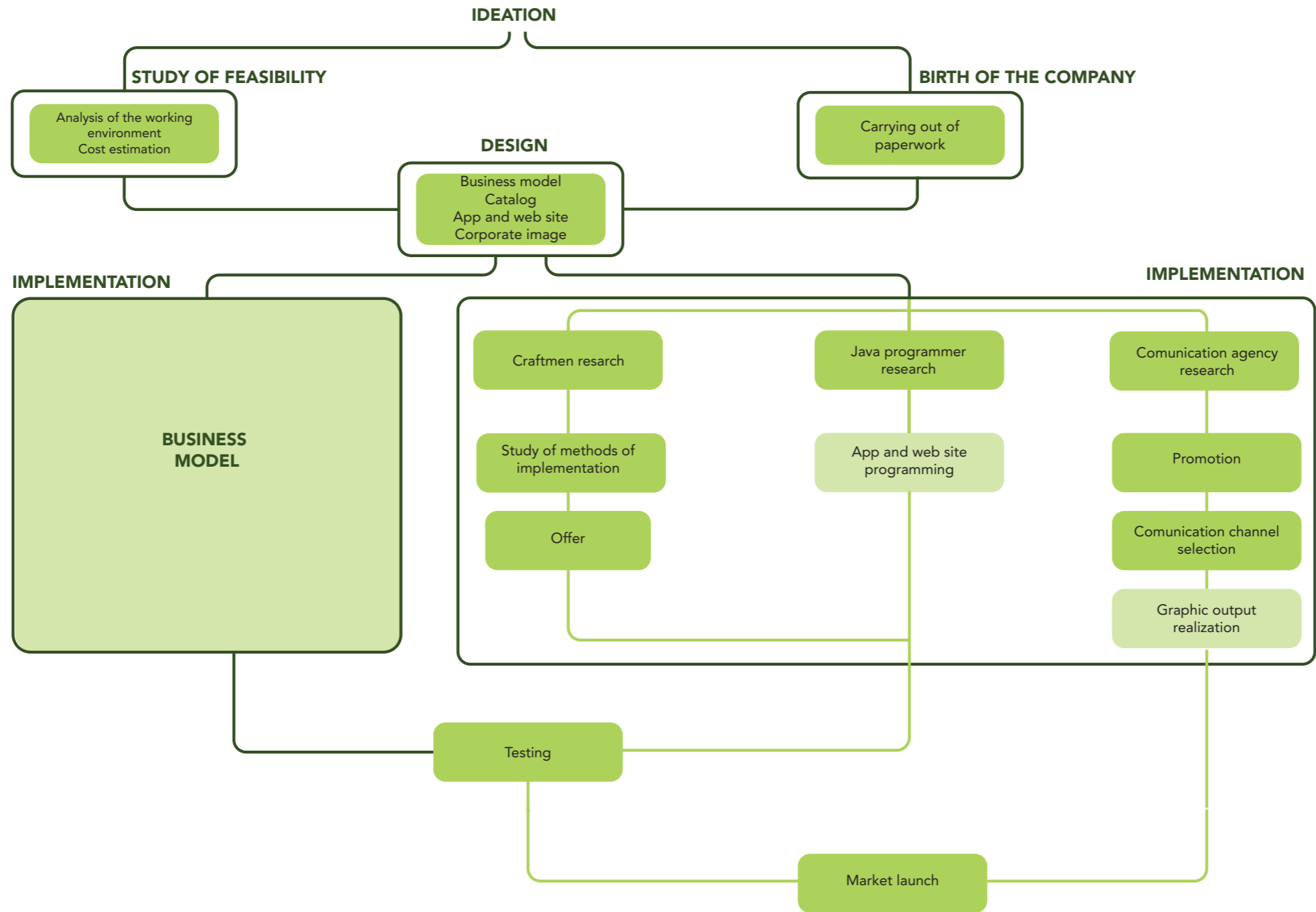
10.2 THE WORK  
BREAKDOWN STRUCTURE

The first tool used to reach our goal was a diagram process.  
This tool lists all the activities of a project in a hierarchical way and is

oriented to the realization of deliverable, but taking into account the material, software, services, data and all the equipment that compose it.

This diagram defines the elements to be developed or produced and relates the final output and the working elements that are necessary for its implementation.

In the diagram the boxes are made of two different shades of green. The darker represents the macro operations.



Pic. 10.1: WBS scheme

These operations are subdivided in different boxes that contain more specific informations and are light green. in the diagram there are also green boxes in a different gradient of opacity.

Those boxes represent actions that are assigned to external actors and their executions don't depend by the project team.

### 10.3 BUSINESS MODEL CANVAS

Before proceeding with the analysis of the necessary costs and of the possible revenues from the activation of our activity, a model business canvas has been realized with the intent to represent in the simplest way possible and at the same time schematic our idea of business.

The BMC is a tool able to visually represent a precise business idea, considering the way it creates, captures and distributes value.

The obvious advantage that makes the BMC one of the most used tools in the field of business design is related to its intuitiveness and its completeness, since it allows you to consider all the aspects that make up the business model that you intend to propose, even the most complex.

The BMC consists mainly of nine business elements, each of which represents one of the pillars that constitutes the enterprise and is identified with a color.

#### SEGMENTS OF CUSTOMERS

This box describes the different groups of people that the company in question intends to reach and serve.

In other words, it represents the target on which you want to build your profit.

#### VALUE OFFERED

This article describes the offer that

you want to propose to the public and therefore the solution to the problem of your target.

#### CHANNELS

This term refers to the sales and communication channels that you intend to follow in order to convey your product or service.

#### RELATIONSHIP WITH CUSTOMERS

Under this heading we describe the types of relationships that we intend to establish with our target group.

The intention is to acquire customers and increase sales.

#### REVENUE FLOWS

It represents the flow of money that a company derives from each segment of customers, and provides the possibility of a payment in a single solution or a continuity of payments.

#### KEY RESOURCES

It defines the goods needed to be able to create a value, that is, those elements without which it would be impossible for the activity to succeed in achieving its goal.

#### KEY ACTIONS

It represents the most important activities to be carried out to allow the proper functioning of the service.

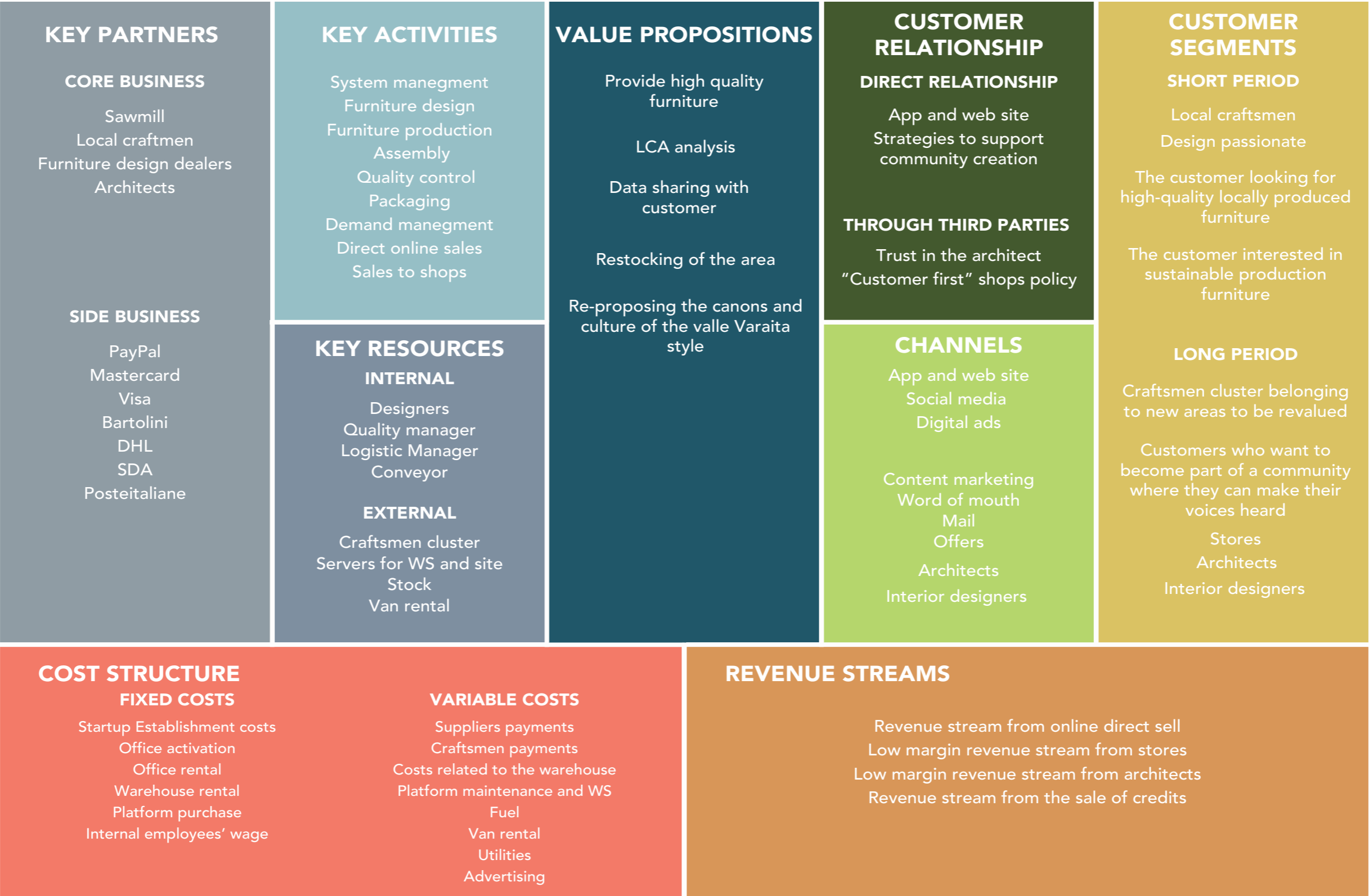
#### KEY PARTNERSHIP

Indicates the networks of suppliers and partners that revolve around the service or company and allow its operation.

### STRUCTURE OF THE COSTS

In this section we intend to identify all the costs that must be incurred to allow the business model to work.

The costs are mainly divided into fixed, if they remain unchanged over time, or variable, if they vary according to the volume of goods or services produced. (Spaziospin, 2019)



Pic. 10.2: BMC scheme

10.4 THE ESTIMATED COSTS OF IMPLEMENTATION

After having identified and classified, thanks to BMC, the topics to be investigated to demonstrate the feasibility of the project, the first step was to draw up a cost estimate for each

element of the catalogue. To make a correct estimate of the costs we turned to Giobergia, well-known furniture company that operates in our area of interest. The design office made available to us the figures relating to the costs of its own production, thanks to which it

was possible to hypothesize in a completely similar way the cost to be faced for our design proposal. The data provided were then compared with those of the sawmill Fusero and Val Varaita Legnami regarding the estimation of the costs of the wood panels to be used, and

with Alessio Bolla, another local artisan, for an estimate of the cost of labor. Then an average cost was found between all the elements involved, so as to be as precise as possible for a possible placement on the market.

Bed quote										
Material										
Description	Material	Thickness [mm]	Width [mm]	Depth [mm]	Single area [m²]	Quantity	Total area [m²]	Price m² [€]	Total price [€]	
Base	Lamellar oak panel	30	2000	170	0,34	6	2,04	112,6	229,704	
Foot	Lamellar oak panel	30	2000	40	0,08	4	0,32	112,6	36,032	
Headboard and tread	Lamellar oak panel	30	1700	80	0,136	12	1,632	112,6	183,7632	
Fitting										
Description	Material	Quantity	Unit price [€]	Total price [€]						
Hardware	Screws			5						
Glue	Bostik 10917, 400 ml	0,09	5,8	0,53						
Painting										
Description	Material	Quantity [l]	Total area [m²]	Unit price [€]	Total price [€]					
Transparent		5,89	3,12	9,5	56					
Catalyst	il 20 %	2,91	3,12	3,85	11,2					
Diluent	il 50%	1,17	3,12	24	28					
Labor										
Description	Hours	Price [€/h]	Total [€]							
Main cuts	2	30	€ 60,00							
Secondary cuts	1,5	30	€ 45,00							
Holes	1,5	30	€ 45,00							
Stave assembly	1,8	30	€ 54,00							
Finishing	3,5	30	€ 105,00							
Main cuts	2,7	30	€ 81,00							
Foot assembly	1	30	€ 30,00							
Finish	2	30	€ 60,00							
		Tot	€ 480,00							
Wood template										
Description	materiale	Material price [€]	Total [€]							
Shape	mdf	4,12	€ 19,12							

Chair quote												
Material												
Description	Material	Thickness [mm]	Width [mm]	Depth [mm]	Single area [m²]	Quantity	Total area [m²]	Price m² [€]	Total price [€]			
Sides + supports	Lamellar oak panel	30	160	1500	0,24	1	0,24		112,6	27,02		
back + seat	Plywood covered in c	4	950	600	0,57	1	0,57		14,7	8,38		
Fitting												
Description	Material	Quantity	Unit price [€]		Total price [€]							
Hardware	Screws											
Glue	Bostik 10917, 400 ml	0,29	5,8		1,71							
Painting												
Description	Material	Quantity [l]	Total area [m²]		Unit price [€]		Total price [€]					
Transparent		1,19	0,65		9,5		11,3					
Catalyst	il 20 %	0,59	0,65		3,85		2,26					
Diluent	il 50%	0,24	0,65		24		5,65					
Labor				Internal labor								
Description	Hours	Price [€/h]		Total [€]		Warehouse worker	1 piece	3 pieces	Price [€/h]		Total [€]	
Main cuts	0,6	€ 30,00		€ 18,00		Taking charge	0,08333333333	0,25	€	9,30	€	2,33
Secondary cuts	1	€ 30,00		€ 30,00		Quality check	0,2	0,6	€	9,30	€	5,58
Holes	0,5	€ 30,00		€ 15,00		Packaging	0,3	0,9	€	9,30	€	8,37
Side assembly	0,4	€ 30,00		€ 12,00		Storage	0,1	0,3	€	9,30	€	2,79
Sides finish	0,7	€ 30,00		€ 21,00		tot	0,6833333333	2,05			€	19,07
Main cuts	0,5	€ 30,00		€ 15,00								
Seat bonding	0,4	€ 30,00		€ 12,00								56,32
Back bonding	0,3	€ 30,00		€ 9,00		Conveyor	1 piece	3 pieces	Price [€/h]		Total [€]	
Secondary cuts	0,5	€ 30,00		€ 15,00		Transport	0,08333333333	0,25	€	9,30	€	2,33
Finish	0,5	€ 30,00		€ 15,00								
	5,4	Tot		€ 162,00								56,32
Wood template												
Description	materiale	Material price [€]		Total [€]								
Back and seat	mdf	4,12		34,12								
								Total [€]		252,43		

Table quote

Material									
Description	Material	Thickness [mm]	Width [mm]	Depth [mm]	Single area [m²]	Quantity	Total area [m²]	Price m² [€]	Total price [€]
Principal board	Lamellar oak panel	30	1850	900	1,665	1	1,665	112,6	187,48
Legs	Lamellar oak panel	42			0		0,1688	134,8	22,75
Drawer	Lamellar oak panel	19	1100	500	0,55	2	1,1	84	92,4

Fitting				
Description	Material	Quantity	Unit price [€]	Total price [€]
Hardware	Screws			5
Glue	Bostik 10917, 400 ml	0,56	5,8	3,24

Painting					
Description	Material	Quantity [l]	Total area [m²]	Unit price [€]	Total price [€]
Transparent		6,95	3,53	9,5	66
Catalyst	il 20 %	3,43	3,53	3,85	13,2
Diluent	il 50%	1,38	3,53	24	33

Labor				423,08
Description	Hours	Price [€/h]	Total [€]	
Main cuts	0,5	30	15	
Secondary cuts	0,5	30	15	
Holes	0,5	30	15	
Assembly	1	30	30	
Finishing	1,5	30	45	
Main cuts	0,8	30	24	
Drawer assembly	1	30	30	
Finishing	0,5	30	15	
	6,3 Tot		189	

Total [€]	612,08
-----------	--------

10.5 FEASIBILITY STUDY OF THE PROJECT

The first item to consider in order to draw up a feasibility study of the project, after having prepared the estimates of the costs for the realization of the manufactured products, regards the volume of sales that the company is able to realize in a year.

The numbers assumed in the following table, which will necessarily influence subsequent data, have been estimated based on the idea of entering a European-scale market.

In fact, although the cluster we have suggested works in a limited radius of kilometres, nothing prevents their products from being exported and compared in a wider market.

In addition, in the tables the names of the products were replaced with the words “product A” to indicate the chair, “product B” to indicate the bed and “product C” to indicate the table.

Volume of sales	First year	
	January - June	July - December
Product A	100	100
Product B	50	50
Product C	70	70
Tot.	440	

	Production cost	Mark up	Sales price	Net labour	Mark up platform	Net earn platform	Raw materials
Product A	€ 252,43	40,00%	€ 353,40	€ 162,00	25,00%		40,5 € 90,43
Product B	€ 1.049,35	40,00%	€ 1.469,09	€ 480,00	25,00%		120 € 569,35
Product C	€ 612,08	40,00%	€ 856,91	€ 189,00	25,00%		47,25 € 423,08

Subsequently, consideration was given to the production costs to which a mark up was applied, useful to generate a good profit, and a mark up relating to the platform, generated by the payment

of the credits necessary for the craftsmen to credit themselves with the work.

After taking into account the profit margins it was possible to assume the revenues obtained from sales and from the revenues generated by the credits.

Sales	First year	
	January - June	July - December
Product A	€ 35.340,20	€ 35.340,20
Product B	€ 73.454,44	€ 73.454,44
Product C	€ 59.983,84	€ 59.983,84
Platform revenue	€ 13.357,50	€ 13.357,50
Tot.	€	364.271,97

Now it is necessary to make an estimate of the costs to be faced in order to succeed to undertake our activity.

Among the items taken into analysis is also the cost related to the creation of the platform.

To estimate this figure, a quote was requested from the company YeePLY, specifying the characteristics to be respected in order to be as precise as possible.

Purchases	First year	
	January - June	July - December
Raw material	€ 67.126,06	€ 67.126,06
Platform purchase	€ 35.000,00	€ -
Platform maintenance and WS	€ 3.000,00	€ 3.000,00
Packaging	€ 2.000,00	€ 2.000,00
Tot.	€	175.252,12

The following table shows the other cost items that need to be addressed.

To be able to have credible numbers were compared the rental prices of warehouses on different real estate sites, such as “Immobiliare.it” and “Idealista.it”, while, as for the transport service, were considered sites such as “Area renting” and “Go renting”.

Other costs	First year	
	January - June	July - December
Startup Establishment costs	€ 700,00	€ -
Office activation	€ 7.000,00	€ -
Office rental	€ 2.400,00	€ 2.400,00
Warehouse rental	€ 2.000,00	€ 2.000,00
Warehouse and office utilities	€ 1.500,00	€ 1.500,00
Warehouse equipment	€ 150,00	€ 150,00
Advertising	€ 3.500,00	€ 3.500,00
Van rental	€ 2.100,00	€ 2.100,00
Fuel	€ 700,00	€ 700,00
	Tot. €	26.100,00

The costs considered subsequently are those relating to the contractual obligations towards the employees of the activity, which have been calculated also by virtue of the amount of time that each employee has to face.

Staff	First year	
	January - June	July - December
Net wage	€ 21.388,60	€ 27.888,60
TFR	€ 1.604,15	€ 2.091,65
INPS	€ 6.416,58	€ 8.366,58
INAIL	€ 213,89	€ 278,89
Craftsmen payments	€ 53.430,00	€ 53.430,00
	Tot.	€ 175.108,92

Staff schedule	First year	
	January - June	July - December
Craftmen	981	981
Internal staff	2640	2640

In the light of all the items taken into account up to now, it was therefore possible to estimate the potential gains of this activity, taking into account all the liabilities and financial commitments to be met.

Profit - loss account	First year	
	January - June	July - December
Revenue	€ 168.778,48	€ 168.778,48
Contributions for the activation of the initiative	€ 13.357,50	€ 13.357,50
Fundings	€ 15.000,00	€ 15.000,00
Total revenue		€ 394.271,97
Purchases	€ 105.126,06	€ 70.126,06
Other costs	€ 20.050,00	€ 12.350,00
Staff	€ 83.053,21	€ 92.055,71
Total costs		€ 382.761,04
Net gain		€ 11.510,93

## 10.6 BENCHMARKING

In order to be able to identify the market where we want to fit in, we have adopted a benchmarking process.

In this process we intend to compare our proposal, considered as a whole, with that of the best companies on the market.

The criteria that have been taken into consideration are the method of production of the artifact (craft or industrial), and the price range of sale to the public (high or low).

Before finding the set for our brand we identified the price range of the product of our competitors.

After that we considered the medium price for each category of product to find exactly our price point.

The following are the companies considered followed by a brief description.

### PIANCA

Pianca creates systems and furnishing accessories for the residential area - night and day - and for the contract. Our approach to design is oriented to the customization of products and environments, so as to meet the needs of a lifestyle marked by flexibility, mobility and change, but with the desire to "feel at ease as at home".

Respect for the history and identity values of the brand - territory, Italy, family, ingenuity - and the pursuit of a real sustainability of products and processes, allow us to enhance the human side of the company (Pianca, 2021).

### LUBE

Cucine Lube is the second Italian manufacturer of modular kitchens. In addition to modular kitchens, its

production also includes furniture, tables and chairs.

The production takes place in the Treia plant, which occupies an area of 110,000 m<sup>2</sup> and employs over 500 people. It exports to over 60 countries and has a commercial network of over 1,600 stores, mostly concentrated in Italy where it has a market share of almost 11%. Revenues exceeded 198 million in 2018. (Cronache maceratesi, 2019)

### LAGO

He designs and manufactures furniture, proposing furniture with a modular design, suitable for the furnishing of homes, hotels and places suitable for the community, such as restaurants or work spaces. (Lago, s.d.)

### OGGIONI

Oggioni is an Italian company famous for making beds- containers.

Each bed-container is entirely Made in Italy, made through a "short supply chain", which keeps intact the high quality that has always characterized our products. In the company are created with sartorial care all the coatings and textile accessories of our beds.

Craftsmanship is expressed in the skillful dexterity and continuous creativity that leads every year to new and interesting workings of fabrics, leathers and faux leather of our rich collection (Oggioni, 2021).

### ETHNICRAFT

Ethnicraft creates beautiful furniture and decorative objects that are the basis for people's homes, to inspire the stories of their lives.

Today, artisanal excellence is at the heart of our brand, and behind the simplicity of their pieces there is a constant drive

for innovation. Incorporating advanced techniques into the creation process, every new design is revised and reworked down to the last detail. Their collections return to the essence of what we believe is a good design: pieces full of character, made with quality materials that age beautifully (Ethnicraft, 2021).

### TONIN CASA

The products range from tables, coffee tables, chairs, armchairs and armchairs, up to beds, cupboards, bookcases, as well as lighting and many other accessories and furnishings.

A synthesis of passion, craftsmanship, functionality and new trends in the design sector, Tonin Casa brings the beauty of 100% Made in Italy products and Italian design to the world. (Tonin casa, s.d.)

### BOLZANLETTI

International brand that combines craftsmanship and industrial logic. All the products of their collection are finished in an artisan way, taking advantage of the opportunities offered by the industry. (Bolzanletti, s.d.)

### ALTA CORTE

Alta Corte is an Italian company that produces handcrafted wooden furniture. Far from the obvious production of furniture in ordinary, standard and all the same sequences, the artisanal production of wooden furniture is a real ancient art whose secrets are handed down from father to son.

Like any craft activity, the production of wooden furniture is dedicated to achieving exclusive results (Alta Corte, 2021).

### INTERNOITALIANO

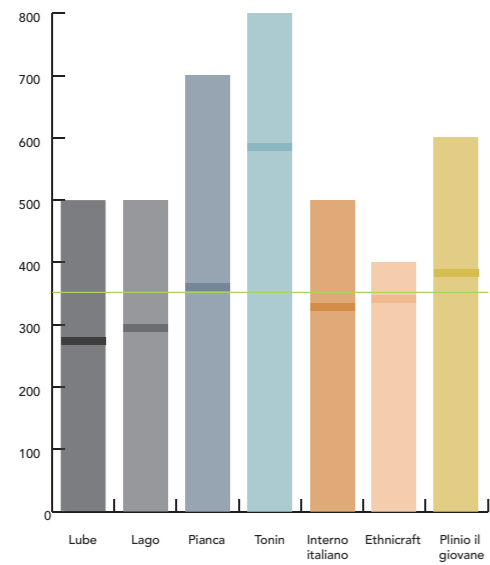
The brand, presented in the previous

chapters, bases its business model on an entirely handmade network for the realization of its products.

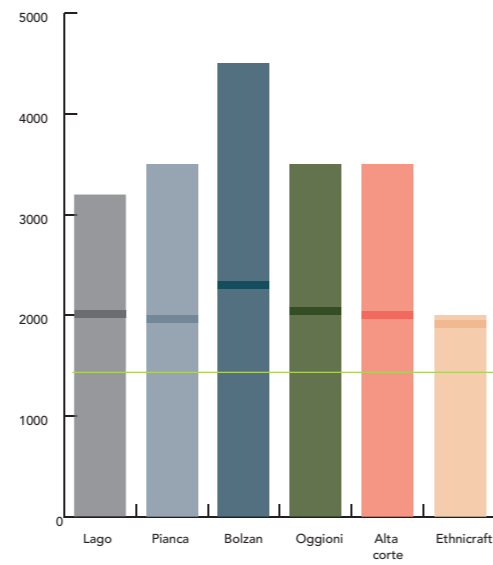
### PLINIO IL GIOVANE

The company specializes in the creation of convertible furniture with the aim of optimizing spaces and raw materials, furniture space-saving design.

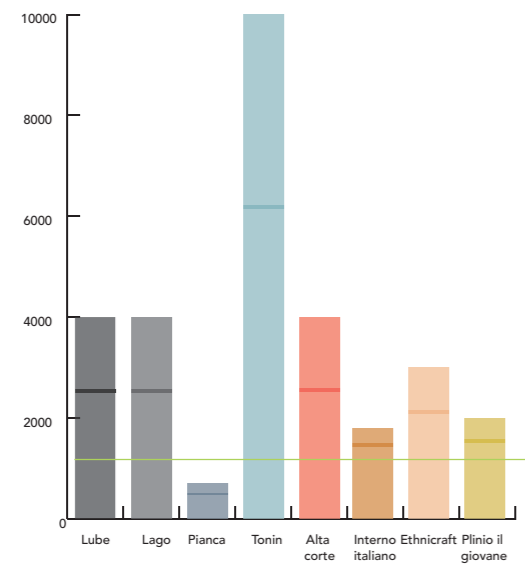
The aim is to create unique products, furniture tailored that only the company itself is able to do. (Pliny the Giovane, s.d.)



Pic. 10.4: Chair price range competitors graph



Pic. 10.5: Bed price range competitors graph



Pic. 10.6: Table price range competitors graph

— Ligam price  
— Competitor medium price



Pic. 10.4: Benchmarking graph

# ANOTHER STEP TOWARDS THE FUTURE

## 11

## 11.1 FUTURE DEVELOPMENTS

Arrived at this point of our work and, having now outlined and described a theoretical and practical model of possible company engaged in supply design, we are preparing to describe what could be possible future developments practicable in a system like ours.

The work done so far has allowed us to measure ourselves with the artisan reality from different points of view, from the theoretical to the practical, even through humanitarian and relational.

In the preface to Roberta Tassi's book "Service designer, a designer dealing with complex systems" by Anna Meroni, There are several points that are listed and that serve a designer not to get lost in the thousand pitfalls that are hidden behind the success of a project.

Most of these have been touched and addressed in order to be able to outline what has been done so far and have become its pillars (Rates, 2019).

The understanding of the working

environment and the available technologies, combined with the search for a behavioural change to succeed in having an innovative and winning proposal, inevitably bring in dowry a last fundamental element, namely the ability to predict.

This is not only a forecast based on the analysis of the data and on the preventive solution of possible problems related to the use of our system, but a broader forecast, to predict further developments to be applied to the system, to make it more open and usable by users.

11.2 CREATING DIFFERENT WORK HUBS

The first possible expansion concerns the creation of different work hubs located in different geographical and social contexts, in Italy and in the rest of the world.

The intention would be to repeat what was done in the Valleys of Monviso expanding the basin of craftsmen involved.

This would lead to two advantages: the first is the possibility of being able to satisfy more customers, while the second is the consequent expansion of the catalogue available to customers.

Creating different hubs would inevitably involve different cultures and experiences able to provide a rich technical, material and realization.

Each hub would have its own version tied to the design supplies offering in fact a line and a unique style available to users.

From the productive point of view, in order to optimize the tied environmental impacts to the transport, the orders would be taken in cargo from the nearest

hub to the address of delivery, covering always therefore the shorter distance to follow.

11.3 COLLABORATIONS WITH OTHER DESIGNERS

The proposed catalogue includes, for educational reasons, a small number of elements.

To expand it, in addition to involving artisans able to model different materials to provide alternative technical solutions, a possible solution would be the involvement of different designers or designers.

In the case of established professionals, the platform would enjoy visibility and notoriety, while in the case of projects carried out by emerging, could be an interesting test for these.

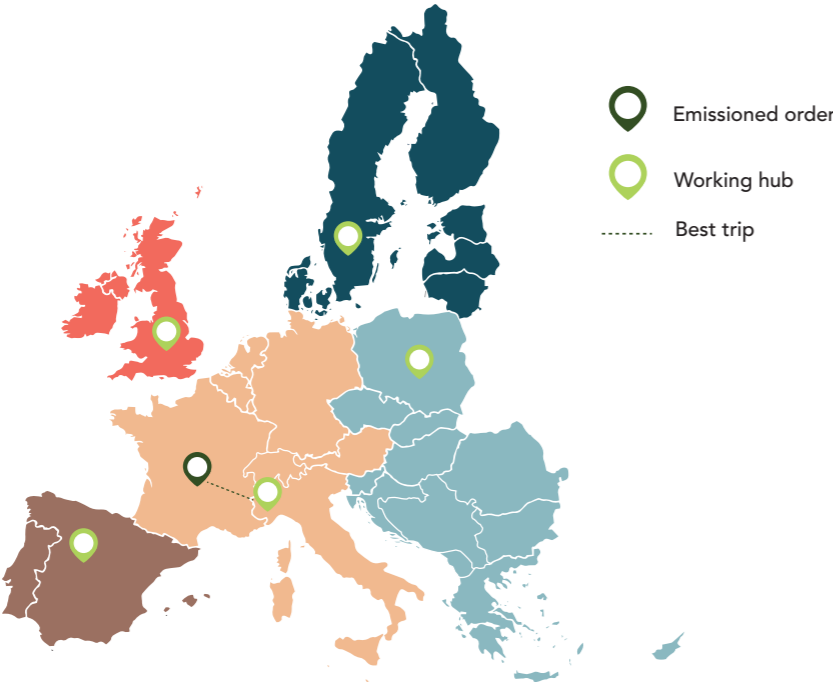
In both cases the collaboration with the Design Department would play a fundamental role in ensuring the success of the project.

The new employees would also have an economic return based on a percentage of the revenues related to their project, effectively facilitating the way to a good profit.

11.4 STRENGTHENING THE IDEA OF THE COMMUNITY

To further strengthen the sense of community that binds users, a winning idea could be the possibility of allowing direct interaction between the buyers themselves and the heart of the platform. It would be interesting to develop a channel, accessible from your account upon registration, where users can respond to surveys, related to the creation of new models, participate in contests and proceed to upload some personal proposals.

It is not to be excluded the idea that in a future is given the opportunity even to users who do not work in the design field to be able to make their own personal proposal that must obviously be first viewed and discussed with the Design Department and then eventually Made producible and then inserted catalago. All this will lead to exchanges of ideas, needs and desires by users who will dictate, more or less consciously, a line to follow to always have a success assured.



Pic. 11: Future european map

# CONCLUSIONS

## 12

### 12.1 THE END OF THE PROJECT STUDIED

In order to clearly delineate the conclusions, let us take up the research question that guided all the work. The question was whether it was possible, and how, to create a new production model based on three main characteristics:

the completely external production entrusted to a cluster of artisans;  
the creation of a company support community, made up of customers and craftsmen;

and the creation of competitive elements on the market, which through their production could re-evaluate a specific local culture that was being lost.

The research carried out in this direction has led to several results. It should be remembered that for personal and time reasons, the entire survey was conducted solely in the field of the production of design supplies and in particular taking the wood supply chain as a reference. The first goal achieved was the delineation

of the guidelines on which a production model of the type just described should support. These guidelines allow the creation of a system that has the following main characteristics:

- ability to base company production on a cluster of external people, specifically artisans;

- structured production model to be able to produce parts in a semi-industrial way, without however having to submit to the limits dictated by industry;

- strategies to develop a community of people to support the company;

- enhancement of the local cultural heritage and in this way revaluation of areas otherwise subjected to depopulation.

The second major milestone was the structuring of the workflow of a platform with the aim of being able to manage the network of producers effectively. The

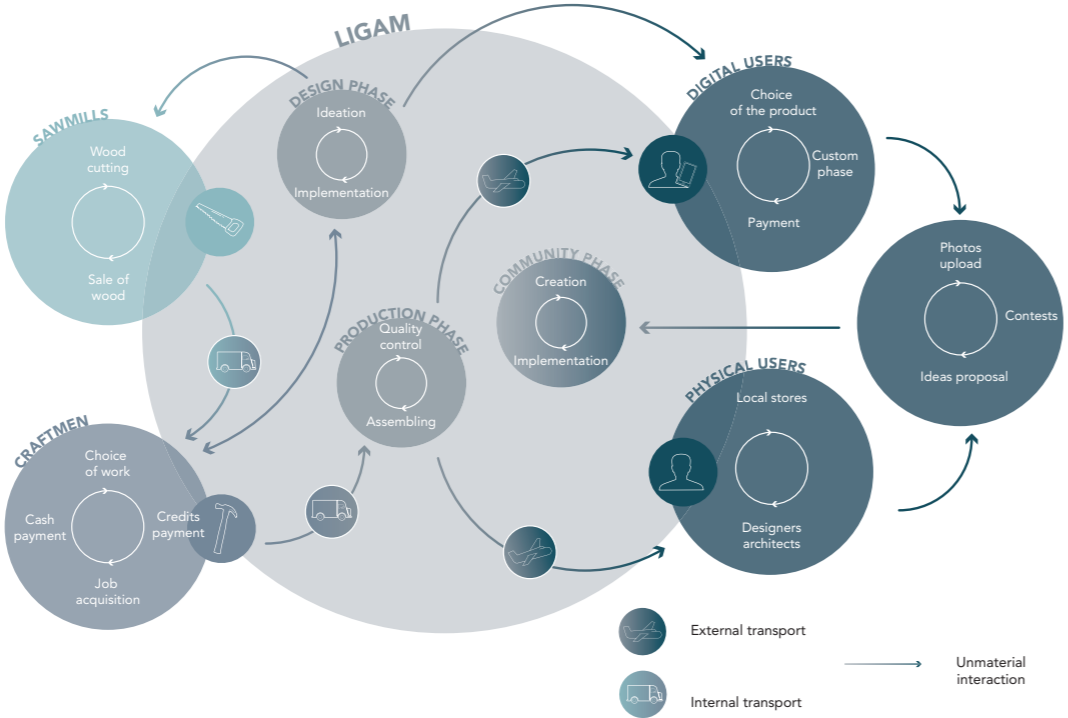
machine designed works only when the producers respond actively and continuously to job requests. The fourth milestone achieved is derived from the positive response obtained from comparisons with artisans. The interviews have brought to light the existence of a large percentage of people interested in the project and willing to be part of it when it becomes a consolidated reality.

Another important factor derived from the research was learning about the importance of effective design. If the first element that contributes to the success of the project is the turnout in production, the second is the design. In fact, the need for an internal design center has established itself and this department has been given fundamental importance.

Once the conditions for the creation of the system were highlighted, an economic evaluation was carried out aimed at estimating the costs of the company. The costs present in the evaluation derive from real values of raw materials and values estimated through the support of sector experts. However, it should be made clear that this economic evaluation of the project represents only an estimate of the company's revenues, as the actual revenues depend on various factors linked to the real market. Among the first factors, not entirely predictable, is the acceptance of the brand by consumers, and the relative demand.

At the end of the work it is possible to draw a graph that represents the interactions that take place between the different actors involved. In addition to the consequentiality of the actions, the types of ties that bind the different elements were also illustrated, highlighting how the hypothesized platform acts as a binder. The activities that are born and feed the proposed system then end up in two channels: the first sees the satisfaction of the customer and the artisans who took part in the work, the second instead provides for the creation and nutrition of the community.

The milestones achieved with this work outline the possibility of implementing the guidelines determined in a future project. However, it should be noted that before being able to establish a company based on these assumptions, there is the need to pass the project to the scrutiny of a team with business management and economics skills.



Pic. 12.1: Systemic system graph



# BIBLIOGRAPHY AND SITOGRAPHY

## BIBLIOGRAPHY

Mirabella, N.; Castellani, V.; Sala, S. (2014). LCA for assessing environmental benefit of eco-design strategies and forest wood short supply chain: a furniture case study: Springer-Verlag Berlin Heidelberg

Pambianco design. (26/06/2020). Gruppo lube, +4% di fatturato nel 2019. Pambianco design magazine, Edizione online.

Pauli, G. (2017). Economia in 3D, l'intelligenza della natura. San Giuliano Milanese: Edizioni Ambiente.

Pezzani, F. (2011). Il valore economico dell'artigianato in Italia. Este.

Project Management Institute. (2006). Practice Standard for Work Breakdown Structures. Project Management Institute.

Regione Piemonte. Il sistema foresta-legno Piemontese

Righi, S. (05/11/2019). Daniele Lago: per l'impresa ho fatto ordine (in casa mia). Corriere della Sera, p. Edizione online.

Rowell, R. (2012). Handbook of wood chemistry and wood composites. Wisconsin: CRC press.

Sahoo, K.; Bergman, R.; Alanya-Rosenbaum, S.; Gu, H.; Liang, S. (2019). Life Cycle Assessment of Forest-Based Products: A Review. MDPI.

Soroka, W. (2008). Illustrated Glossary of Packaging Terms. Institute of packaging professionals. Anderson, C. (2014). Maker, il ritorno dei produttori. New York: Rizzoli.

Anonimo. (n.d.). Veneta Cucine punta sull'export e parte da Londra. La Repubblica, p. Edizione online.

Anonimo. (n.d.). Veneta Cucine, fatturato oltre i 200 milioni di euro con la crescita dell'Asia. La tribuna di Treviso, p. Edizioni Online.

Anonimo. (25 May 1946). Atomic Education Urged by Einstein, New York Times

Canadell, J.G.; Raupach, M.R. (2008). Managing Forests for Climate Change Mitigation. Science 320, 1456–1457. PubMed

Chiara Beghelli, M. C. (n.d.). L'artigiano contemporaneo è sempre più un manager 4.0. Il sole 24 ore, p. ed. online.

CNA. (2018). Le imprese artigiane in Italia, province e settori.

Dematteis, P., Ruata, L., Paseri E; (2006); Mobili tradizionali della valle Varaita; Fusta Editore; Saluzzo (CN).

Donella H. Meadows [and others]. (1972). *The Limits to growth; a report for the Club of Rome's*.

FitSM Part 0: Overview and vocabulary. Itemo. 24 August 2016. Archived from the original on 18 April 2019. Retrieved 27 November 2018.

Ford A. (2010). Chapter 9: Information feedback and causal loop diagrams. *Modeling the Environment*. Island Press. pp. 99 ff.

Forrester, J. W.(1968). *Principles of Systems*.

Germak, C. (2015). *Artigiano Design Innovazione, le nuove proposte del saper fare*. Firenze: DIDA Dipartimento Architettura Firenze.

Hiller, J. S. (2012) *The Benefit Corporation and Corporate Social Responsibility*. Springer Science.

ISO (2006). *Environmental Management: Life Cycle Assessments*. In *Requirements and Guidelines*; International Standardization Organization: Geneva, Switzerland.

Jones, G. R. (2007). *Organizzazione. Teoria, progettazione, cambiamento*; Edizione Italiana a cura di Giuseppe Soda, Milano Egea.

Karacabeyli, E.; Douglas, B. (2013). *Binational Softwood Lumber Council: Point-Claire, CLT Handbook* FPInnovations; Canada.

Llosa, M. V. (2012). *La civiltà dello spettacolo* Giulio Einaudi editore s.p.a.

Mancini, G. (25/07/2019). *Lago punta sui mercati esteri con il marketing digitale*. Il sole 24 ore, p. Edizione online.

McMillan, D. W.; Chavis, D. M. (1986). *and Theory*; Journal of Community Psychology.

McMillan,D. (1976). *Sense of community: An attempt at definition*. Unpublished manuscript, George Peabod College for Teachers, Nashville, TN.

Meadows, D. (2008). *Thinking in Systems*. Chelsea Green Publishing.

Micelli, S. (2011). *Futuro artigiano*. Venezia: Marsilio editori.

Tassi, R. (2019). *Service Designer, un progettista alle prese coi sistemi complessi*. Milano: Franco Angeli.

Tilson, D., Sørensen, C. and Lyytinen, K. (2012). *Change and Control Paradoxes in Mobile Infrastructure Innovation: The Android and iOS Mobile Operating Systems Cases*, In: 45th Hawaii International Conference on System Science (HICSS 45), Maui, HI.

Tiwana, A., Konsynsky, B., and Bush, A.A. (2010). *Platform Evolution: Coevolution of Platform Architecture, Governance, and Environmental Dynamics*, Information Systems Research 21(4): 675–687.

Van Bon, J., de Jong, A., Kolthof, A. (2008). *Service Transition Based on ITIL*. A

*Management Guide V3*; Van Haren Publishing.

Walch, F.; Watts, R. (1923). *Composite Lumber*.

Wilson, J.B. (2010). *Life-cycle inventory of particleboard in terms of resources, emissions, energy and carbon*. Wood Fiber Sci. 42, 90–106.

Zifaro, M. (2017). *Riflessioni sulle strutture organizzative*; Università di Macerata

## SITOGRAPHY

Alta Corte. (n.d.). Alta corte. From Alta Corte.it: <https://www.altacorte.it/> (accessed on 25 October 2020).

Binderholz. (n.d.). Product. From da Binderholz.com: <https://www.binderholz.com/en-us/products/solid-wood-panels/> (accessed on 1 November 2020).

Bolzanletti. (n.d.). Bolzan letti, azienda. From Bolzanletti.it: <https://www.bolzanletti.it/azienda> (accessed on 30 September 2020).

Calosso. (2020). Icribis, elenco aziende. From Icribis.it: [https://www.informazione-aziende.it/Azienda\\_CALOSSO-SRL](https://www.informazione-aziende.it/Azienda_CALOSSO-SRL) (accessed on 23 September 2020).

Confartigianato Cuneo, Regione Piemonte, ATL, Provincia di Cuneo, Unioncamere Piemonte. (n.d.). From Artigianato e Turismo nelle terre del Cuneese: <http://www.turismocn.com/ur/VALLEPOBRO/SANFRONT/ARTIGIANATO/comuneAreaView.html> (accessed on 10 October 2020).

Creo Kitchens. (26/01/2016). Creo Kitchens, news. From Creo Kitchens: <https://www.cucinecreo.it/it/news/2016-01-26-stupezacenti-performance-del-gruppo-lube-nel-2015/> (accessed on 11 October 2020).

Cronache maceratesi. (21/03/2019). Gruppo Lube, fatturato in crescita: superata quota 198 milioni. From Cronachemaceratesi.it: <https://www.cronachemaceratesi.it/2019/03/21/gruppo-lube-fatturato-in-crescita-superata-quota-198-milioni/1226950/> (accessed on 7 November 2020).

Dialog. (06/01/2020). dialog, cosa si intende per efficienza produttiva. From dialog.it: <https://dialog.it/cosa-si-intende-per-efficienza-produttiva-e-come-si-calcola/> (accessed on 7 January 2020).

Ethnicraft. (n.d.). Ethnicraft, about us. From Ethnicraft.de: <https://www.ethnicraft.com/it/en/about-us> (accessed on 13 September 2020).

FAO. Planted Forests: Definitions. Available online: <http://www.fao.org/forestry/plantedforests/67504/en/> (accessed on 23 September 2020).

Hospitality Team. (19/09/2018). Il Business Design, Business plan e strategia news. From Hospitality Team: <https://www.hospitalityteam.it/2018/09/19/il-business-design/> (accessed on 27 September 2020).

Lago. (2019). Lago, content. From Lago.it: [https://www.lago.it/wp-content/uploads/2019/02/LAGO\\_COMPANYPROFILE-2019\\_ITA.pdf](https://www.lago.it/wp-content/uploads/2019/02/LAGO_COMPANYPROFILE-2019_ITA.pdf) (accessed on 23 October 2020).

Lago. (n.d.). Lago azienda. From Lago.it: <https://www.lago.it/azienda/> (accessed on 23 September 2020).

Ministero dell'ambiente e della tutela del territorio e del mare. (n.d.). minambiente,

certificazione ambientale. From minambiente, certificazione ambientale: <https://www.minambiente.it/pagina/certificazione-ambientale> (accessed on 17 October 2020).

Oggioni. (n.d.). Oggioni chi siamo. From Oggioni.it: <https://www.oggioni.it/chi-siamo> (accessed on 27 January 2021).

Pianca. (n.d.). Pianca identità. From Pianca.it: <https://pianca.com/identita/> (accessed on 23 January 2021).

Plinio il giovane. (n.d.). Plinio il giovane, mission. From Plinioilgiovane.com: <https://www.plinioilgiovane.com/plinio-il-giovane/> (accessed on 20 November 2020).

Realtime, business navigator. (n.d.). Realtime, business navigator, amministrazione, finanza e controllo. From Realtime, business navigator.it: <https://www.rtol.it/amministrazione-finanza-controllo> (accessed on 20 November 2020).

Spaziospin. (07/2019). Business Model Canvas: come compilarlo. From Spaziospin: <https://www.spaziospin.it/blog/business-model-canvas/> (accessed on 10 September 2020).

Tonin casa. (n.d.). Tonin casa, chi siamo. From Tonin casa.it: <https://www.tonincasa.it/site/it/about/> (accessed on 14 October 2020).

Treccani. (n.d.). From Treccani, l'enciclopedia del piacere: <https://www.treccani.it/vocabolario/artigiano/#:~:text=%5Bder,lavorazione%20in%20serie%2C%20svolta%20generalml> (accessed on 13 November 2020).

Wagner meters. (1/2020). Wagner, forest production. From Wagner meters.com: <https://www.wagnermeters.com/forest-products/industry-info/wood-manufacturing-kiln-drying/> (accessed on 23 September 2020).



# THANKSGIVING

Although a good designer makes curiosity and hunger for knowledge the engine that drives him to innovate and renew himself, this work inevitably marks a point in my formative experience.

The aspects investigated include not only topics and themes next to me, but also an entirely personal approach that I hope leaves a small trace, or at least inspires someone to do better than I did.

Personally I was never the model student, I always left that record to someone else who seemed to have something more than me.

The desire for revenge after difficult years, characterized of inexperience and insecurity, came later, when I finally understood what could be my place, at the center of my life before that in society.

The university, as a place of aggregation and comparison before institution, has collected and trained me, allowing me to demonstrate, to me above all, that some goals can be achieved by anyone, provided that the will and determination accompany the tenacity and the desire for revenge.

I confess that it was not easy, but the trip is definitely more pleasant when you are in good company.

So, while I write these few lines and I think back to what I lived in these five years, the first one is definitely dedicated to those who accompanied me, to those colleagues of studies, who first became group friends and then friends.

Those who, even if you don't see so much anymore, always feel the need to have a beer with them, especially during a pandemic.

Over the years, they have joined the ones you've always had, the ones you grew up with, the ones you laughed with, the ones you've transgressed with and fought with.

Those who have listened to you, have seen you cry and can read between your silences and your smiles.

Those who have taken different paths over the years but always feel beside you, because you don't necessarily need to embrace to show affection.

I thank those who wanted to give me an opportunity and gave me confidence even if he did not know me, allowing me to test myself.

I thank my colleagues at work, who keep the mood high during the long days in the lane, you have been a valuable resource for me even though you may not know it.

Each of you has taught me something and, if I am about to cross this milestone as a student and a worker, some of the credit is yours too.

I thank my thesis partner, perfect study partner and valuable problem solver, you are the best Jack!

I thank everyone who has spent a minute of his time listening to us, understanding us and helping us in the realization of this work, because ideas remain just ideas if they do not find legs to walk on.

I thank my relatives, a term somewhat opaque but suddenly became familiar and crystal clear.

I thank my parents, this little success is yours more than it is mine.

You were the push and the slap I needed when I was ready to give it all up when i was 16, then 20 and 24 again.

I dedicate it to every drop that has scratched your face, whether it has been of sweat or of a tear, because you have taught me that it is not who begins well but who perseveres that in the end makes the most way.

I love you guys.