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THE ANTICIPATORY CRAFTSMANSHIP

LABORATORY OF THE FUTURE OF WORK

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2

What is it? This is a scientific dissemination website that studies the impact of new technologies on the world of work. Changes today are very fast and exponential. Professions are not static but very dynamic, so the ongoing evolutions can make them obsolete, transform them, or create entirely new ones. What skills will be necessary to face all this? Upskilling and reskilling, but not only.

Why? After 25 years of research, I have realized that to go beyond the boundaries, numbers are not enough. Traditional approaches are obsolete and tied to the old way of doing research. Today, we need to study the weak signals that are right before our eyes but that we see without really noticing. Stopping to consider these signals and imagining multiple possible futures will be the task of Frontiere. Traditional sources respond in real-time but only photograph the present. Today, however, there is a need to make predictions at least five years ahead, without neglecting the past and without forgetting that every topic addressed has a history to consider.

Who is it for? It's easy to make long-term predictions that cannot be verified. I am convinced that the research world needs an immediate confrontation with the world of education and orientation, and with young people who risk studying for professions that may not exist in a few years. They will be here to exchange opinions with the undecided, the disoriented, and those who intend to start over. Young people need to understand that there is a world above and a world below in the job market. A world of those who program algorithms (few and well-paid) and those who work for algorithms (many and poorly paid). We need to understand what to do to escape a job market that risks condemning young people to €1,000 per month salaries for life.

How is it? Each topic is treated with light publications and a special focus on the aspect of temporal depth. The publications will be accompanied by short videos that get to the point quickly. Frontieretecnologia.com positions itself as a space for information, guidance, and discussion precisely on these themes.



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Anticipatory Craftsmanship.

Laboratory for the Future of Work

Index

Summary

1. Work, craftsmanship: laboratories of the future
2. A paradox that opens up scenarios
3. Who Italian craftsmen are
4. Workers in craftsmanship
5. Being entrepreneurs when freedom is an illusion
6. But why don't young people choose craftsmanship?
7. The drivers of change
8. Technologies serving personalization: solving the Fordist paradox
9. Fab Labs: laboratories of the future already present
10. The metamorphosis of trades
11. The skills for the craftsman of tomorrow: much more than "knowing how to do"
12. What anticipatory craftsmanship is?
13. The scenarios that open up: three possible futures
14. Possible futures for Italian craftsmanship

Conclusions

Summary.

Another story of Italian craftsmanship. Usually, when people talk about Italian craftsmanship, they tell a story of decline. A sector that ages, companies that close, young people who do not want to know, crafts that disappear. It is a true story, partly. But it is also a partial story that does not capture what is most interesting happening inside the shops, laboratories, Fab Labs of our country. This study proposes a different reading. Italian craftsmanship is not a sector in crisis to be saved: it is a living laboratory in which transformations destined to touch the entire production system in the decade 2030-2035 are being experimented with, first and better than elsewhere. The message is not "save the craftsmanship", but "learn from it how to turn exception into norm".

The paradox that opens up scenarios. The starting point is a paradox that seems absurd: 59.2% of craft businesses cannot find staff, while the total number of enterprises is declining (400,000 units lost in a decade). How is it possible that workers are missing while companies close? The answer is that we are not facing a temporary crisis, but a systemic transition. There are not missing workers in absolute terms: missing workers with the right skills and expectations. There is work, but the system struggles to match supply and demand. It is the same paradox that other sectors will soon experience, when technologies and new generations collide with traditional models.

Three signals that must be read together. Three fundamental dynamics tell the story of the transformation.

First, the historic overtaking of employees over the self-employed (50.3% vs 49.7%): the myth of the solitary entrepreneur ends, a more structured craft business is born.

Second, the boom of artisan SRLs (from 5% to 8.7% in ten years, with +41,000 enterprises): a craft that chooses more modern legal forms to protect assets, access credit and attract partners. Third, the decline of sole proprietorships (-83,829) and partnerships (-62,969): not aging, but reinvention.

The hybrid craftsman. At the center of this reinvention is a new figure: the hybrid craftsman. Someone who combines manual know-how and advanced digital skills – CAD, CNC, 3D printing, augmented reality, artificial intelligence – where green and digital become two sides of the same coin. Craftsman like the CNC carpenter, the digital tailor, the 3D goldsmith, the builder's craftsman emerges. Thanks to these figures, a century-old stuck issue is dissolved: the Fordist paradox that opposed mass economical production yet uniform and customized but costly crafts. Accessible mass customization now allows producing unique objects at reasonable prices.

The period 2025-2035 is the critical window of intervention. A window made even narrower by an irreversible demographic fact until 2050-2060: today's 25-year-olds are about half of the twenty-fives at the baby boom peak (1964), and still one third less than the cohort of 1969.

The problem is not lack of work, but poor synchronization between demand and

supply, generated by four mismatches: demographic, skill, cultural-narrative, infrastructural. To respond, three simultaneous intervention axes are needed: enhanced training (with ITS Academy enrollees that will need to grow further from 41,000 to 200,000 students), a territorial network of interconnected Fab Labs, a new cultural narrative that transforms the artisan from a 'fallback choice' to a hybrid professional of 2030.

Three possible futures. Looking at the next 5-10 years, three scenarios open up. The first, desired, is that of the "diffused augmented artisans": the majority of businesses make the hybrid transition. The second, to be avoided, is the "competence polarization": an elite of advanced companies and a long tail of traditional micro-enterprises without prospects. The third, realistic and desirable, is that of the "territorial collaborative ecosystems": local networks where companies of different sizes collaborate with schools, Fab Labs, universities and institutions. These scenarios will be populated by three emerging profiles: the augmented worker, the network hybrid professional, and the micro-entrepreneur of services. Four decisive questions remain open: how to scale successful models? (as ITS with 84% employment); how to convert the 4 million interested youths into actual choices? How to maintain global competitiveness? How to ensure an inclusive rather than selective transition.

A concrete agenda. The final balance weighs urgency and hope. On one hand the irreversible demographics, skills that disappear, the limited time window. On the other a creative heritage intact, skills required by the system, growing youth interest (+25% compared to 2022, with 4 million potential interested people). The policy agenda proposes concrete actions: debureaucratization and financial support; updating the Framework Law on craftsmanship stagnant since 1985; reform of school orientation; expansion of ITS Academy; incentives for apprenticeships and training; territorial hubs with shared Fab Labs. The future of Italian craftsmanship will not come by itself: it will be the result of the choices we make now.

1. Work and crafts: laboratories of the future.

Change perspective on an ancient world. When we think of craftsmanship, the mind almost automatically runs toward images of the past: village workshops with wooden signs, crafts passed from father to son, tools hung on the walls, smells of glue, paint, sawdust. It is a romantic image, often tinged with nostalgia, that carries with it a dangerous undertone: craftsmanship is something that is ending, a world to save before it disappears. But what if this image were wrong? If, instead of viewing craftsmanship as a crisis sector, we looked at it as a natural laboratory where dynamics destined to affect the entire production system in the next ten or fifteen years are already being experimented with? Changing perspective is not an intellectual game: it is the starting point of this entire study.

The signals that tell the future. Italian craftsmanship is undergoing transformations profound that anticipate those that will soon touch the entire world of work. Some signals are already clearly visible, even though they often remain under the radar of public debate. The first signal is a real and historical overtaking: for the first time in history, employees of artisanal enterprises have surpassed self-employed workers. According to Unioncamere-Camera of Commerce of Romagna data, in 2023 for the first time in history employees of Italian artisanal enterprises surpassed 50% of total sector employment, with a share of 50.3% compared to 49.7% of self-employed workers.

This is not just a statistical figure: it is the end of a myth, that of the solitary entrepreneur who makes it on his own, and the beginning of a new phase in which artisanal businesses become more structured, more organized, more collective. The second signal is the boom in artisanal joint-stock companies: today they represent 8.7% of the total, while ten years ago they were at 5%. There are almost 41,000 more enterprises, a staggering figure when compared to the 83,829 sole proprietorships lost and the 62,969 partnerships that disappeared in the same period. The third signal is the growth of the "new digital artisans": ICT specialists in the sector increased by 5.4%, a sign of ongoing hybridization between manual knowledge and digital knowledge. Next to them, the wellness sector grows (estheticians +10.4%), female and foreign-owned enterprises grow, while some traditional trades retreat (carpenters -10.9%).

Three parallel stories. The data on legal forms over the last decade are not cold balance-sheet numbers: they are three parallel stories, which together tell the great transformation of Italian craftsmanship. The first story is that of SRLs that keep growing. It is not a fad, it is a structural transformation. Artisans choose the limited liability company for three very concrete reasons: protect the family patrimony from business risks, access credit on better terms, attract partners and investors to grow the business. The SRL thus becomes the tool of the artisan looking to the future. The second story is that of sole proprietorships that are declining. Here the decisive factor is one, and it has the force of a physical law: the demographic collapse. The twenty-somethings of 2025 are one third fewer than 1969. Even if by a miracle every young Italian chose craftsmanship, we would still have half the enterprises of fifty years ago. And it is an irreversible factor at least until 2050-2060. The third story is that of partnerships that disappear. SNC and SAS are in a "gray area" that is becoming increasingly unattractive: they do not offer the protection of the SRL but impose

greater complexity than a sole proprietorship. Thus, slowly but inexorably, they disappear, surviving only in rare traditional family situations.

Not aging, but reinvention. What emerges from these three stories is not the portrait of a declining sector, as the nostalgic narrative of newspapers would have it. It is the portrait of a sector that is reinventing itself before our eyes. The craft businesses that survive and thrive are the ones that move away from the model of the lone shopkeeper –romantic but unsustainable – to embrace more structured, equity-based forms, open to collaboration. These are businesses that use the SRL as a strategic tool to grow, innovate, and expand internationally, without losing that craft identity which remains their true competitive advantage. Because it is precisely that identity – mastery, attention to detail, customization, quality – that the market seeks and rewards.

Therefore, the numerical decline is not necessarily bad news: it is rather the sign that Italian craftsmanship is leaving behind a 20th-century organizational model in order to build one suited to the 21st century. A model that must deal with demographics, of course, but can draw on a wealth of skills and creativity that has made “made in Italy” famous around the world.

The challenge: to support the transformation. The real question is not whether craftsmanship will survive, but how we will accompany this transformation. How will we help craftsmen who want to make the leap to the SRL but are held back by costs and bureaucracy? How will we facilitate generational handover in family businesses that risk closing with the founder? How will we attract young people to a sector that, despite having a lot to offer, struggles to communicate its appeal? It requires a forward-looking perspective: able to read the signals of change before they become obvious to everyone, able to build strategies for the future that is knocking at the door, rather than for the past we regret. The future of Italian craftsmanship will not be in quantity, but in quality. Not in number, but in value. And the legal forms that entrepreneurs are choosing are already the first sign of this awareness.

2. A paradox that opens up scenarios.

A contradiction that makes you think. There is a piece of data about Italian craftsmanship that, at first glance, seems to make no sense: 59.2% of businesses say they cannot find the staff they are looking for, yet the total number of businesses is steadily declining, with almost 400,000 units lost (individual owners) over a decade. In fact, according to the Confartigianato Research Office based on data from the Excelsior Information System by Unioncamere–Ministry of Labour, in 2024 Italian craft businesses reported difficulties in finding staff in 59.2% of the planned entries, versus a national average for all businesses of 47.8%: a gap of +11.4 percentage points. Compared with 2023, the figure increased by 4 points (it was 55.2%).

How is it possible that workers are missing precisely while businesses are closing? Let's pause for a moment on this contradiction. In an economically "normal" world, when a sector is in crisis there are few jobs and many unemployed people waiting. When a sector is expanding, there are many jobs and workers become hard to find. In Italian craftsmanship, both things are happening at the same time: businesses are declining and workers are missing. It is an apparent contradiction that actually hides a profound truth

about our time.

Not a crisis, but a transition. This paradox is not a conjunctural phenomenon, a temporary crisis that will be resolved with the next economic upturn. It is a signal of systemic transition: a moment in which the old economic model is dying, but the new one is not yet fully born. In this transitional phase the signals we receive from the labor market appear contradictory, precisely because they measure the distance between what was and what is emerging. The paradox tells us one fundamental thing: there are not workers in absolute terms, there are workers with the right skills and the right expectations missing. Work exists, but the people companies seek seem to have disappeared. And it is the very same paradox that other sectors will experience when technologies and the expectations of new generations collide with traditional production models. Craftsmanship, once again, anticipates.

Digging into the causes. When we analyze the reasons for the difficulty of recruitment, we find a complex picture. Regarding apprentices, 41.9% are not found because there are simply no candidates, while 18.1% are deemed inadequate for insufficient training. For craft enterprises in general, the recruitment difficulty reaches 59.2%, a full 11.4 points above the national average of 47.8%. But the most revealing data emerges when we look at which professional roles are truly hard to find. Generic workers are not missing: specialized skills are missing. The figure of specialized technicians in metal carpentry records a recruitment difficulty of 70.5%. Construction technicians at 69.9%, while those related to plant and machinery operators are at 56.6%. Not to mention workers with advanced digital skills: for the 61,000 figures required in craft with high capacity to apply digital technologies, recruitment difficulty rises to 63.4%.

Not simple trades. Here lies the heart of the problem: these are not trades that anyone can learn after a short training. These are professions that require a sophisticated mix of traditional manual skills, specific technical knowledge, and field experience. In 71.7% of cases, craft enterprises require specific sector-related experience. We are facing a qualitative gap, not a quantitative one. We do not only need "more workers": we need workers with different skills, acquired through training pathways that today either do not exist, or do not produce enough graduates, or are not recognized by the dominant culture as noble paths to pursue. The paradox will not be solved with policies of pure quantity—increasing the supply of generic work—but with quality policies: building training chains capable of producing the skills that are really missing.

What scenarios open up? In front of this 'critical moment', foresight analysis allows us to identify three directions of change, not mutually exclusive, which we will explore in the next chapters. The first direction is the acceleration of automation and collaborative robotics: companies that cannot find staff invest in cobots and intelligent machines that work alongside humans, redefining the very nature of craft work. The second direction is the redefinition of the concept of manual work itself: purely executive skills are automated, while new hybrid figures emerge that combine expert manual skills, digital mastery, creativity, and relational intelligence. The third direction is the construction of new training agreements between school, enterprises, and territories: it is no longer enough to train young people "in general", it is necessary to build concrete alliances between those who

train and those who produce, to adjust skills to the market needs in real time.

A window that opens. The apparent paradox of craftsmanship, companies closing and workers hard to find, is therefore not a dead end: it is a window opening onto broader transformations. It is a forward-looking signal that tells us something precious about the future of work in general, not only in Italy and not only in craftsmanship. Whoever knows how to read this signal can turn the paradox into an opportunity: can understand that the future belongs to those who will build bridges between the skills that are lacking and the people who could learn them, between the companies that are looking and the young people who are looking, between tradition and innovation. Italian craftsmanship, with all its contradictions, is the place where these bridges are already being built—often painstakingly, sometimes with extraordinary success. Understanding how these bridges are formed is the red thread of our entire journey through forward-looking craftsmanship.

3. Who are Italian artisans: a family portrait.

A people of one million and two hundred thousand people. If Italian craftsmanship were a city, it would be almost as big as Milan. We are talking about more than one million and two hundred thousand businesses, which provide work for millions of people and together form one of the steadiest—and most underestimated—pillars of the national production system. Yet when we try to describe "the Italian artisan," we realize that there is not just one figure: there are many, very different from each other, held together by a thin thread that keeps them together. There is the sixty-year-old artisan who keeps open the workshop where his father worked in the 1960s. There is the thirty-year-old who opened a ceramics workshop with a 3D printer next to the potter's wheel. There is the baker from a town in Molise who has been baking the same bread for thirty years, and there is the Turin designer who creates custom furnishings for customers in Dubai. All artisans, all different.

A sector that is aging (but not only). Let's start with a piece of data that sparks debate: Italian craftsmanship is an aging sector. Only 9.7% of craft businesses are led by under 35s, and in 2011 craft businesses with owners under 30 were 150,000, while ten years later they had fallen to 87,000 (Almost half fewer in a decade). This figure, however, tells only part of the story. If it is true that many artisans are approaching retirement without anyone to take over their legacy, it is equally true that where young people enter, they do so with new ideas, new tools, new markets.

We are not losing artisans at random: we are losing above all a certain type of artisan—the small traditional shopkeeper—while we are gaining, even if in smaller proportion but with different quality, a new figure: more structured and more technological.

Italian female artisans: a silent revolution. One of the most beautiful and least told stories in Italian craftsmanship is that of women. For centuries, the image of the artisan has been expressed in the masculine—the carpenter, the blacksmith, the mason— but for the past twenty years, something has changed deeply. Female craft businesses are growing steadily, especially in the sectors of wellness, fashion, food, and communication,

but also in traditionally male fields such as design carpentry or 3D jewelry-making. Women often bring a different perspective: more attentive to customer care, communication, sustainability, and networked work. They also bring a different model of entrepreneurship, less solitary and more collaborative. It's not a matter of quotas for women: it's a matter of the future. If craftsmanship has a tomorrow, an important part of that tomorrow will speak in the feminine.

Foreign craftsmen: the new lifeblood of the industry. Another important story is that of craftsmen of foreign origin. In a country that is aging and has always fewer young people, in many cases they have been the ones to keep entire trades alive. The cook of a neighborhood restaurant, the tailor who repairs your trousers, the barber downstairs, the builder who renovates your apartment: more and more often these are people who arrived in Italy from other countries, who chose to go into business for themselves and invest their future here. The data point to steady growth in artisan businesses with owners born abroad, a phenomenon that tells of a dual process: on the one hand, Italy continues to attract people who want to build an independent business, and on the other, many traditional trades would have disappeared without this new energy. This is something to read with clarity, without rhetoric: Italian craftsmanship is increasingly multicultural, and this is a resource.

A historic turnaround: employees overtake the self-employed. There is one figure that deserves a paragraph of its own, because it marks a cultural turning point. For the first time in the history of Italian crafts, employees of artisan businesses have surpassed self-employed workers: 50,3% versus 49,7%. It may seem like a statistical nuance, but it's much more. For decades, the artisan has been identified with the self-employed worker par excellence: his trade, his workshop, his client, his risk. Today, this model is changing. Successful artisan businesses hire staff, set up teams, and build more complex organizations. The "solo" artisan does not disappear, but becomes one figure among many, no longer the norm. It's the end of a myth—of the individual entrepreneur who makes it on his own—and the beginning of a new awareness: to meet the challenges of the global market, you need to work in groups, build structures, and share responsibilities.

Where Italian craftsmen live. Italian craftsmanship is not distributed uniformly across the country. There is a very strong concentration in the North, in particular in regions such as Veneto, Lombardy, Emilia-Romagna and Piedmont, where artisan districts are an integral part of economic identity. There is a Central Italy—Tuscany, the Marche, Umbria—where artisan tradition intertwines with tourism and luxury. And there is a South where, although less structured, crafts often represent the last line of defense against youth unemployment and emigration. These regional differences are not details: they define different opportunities, problems, and policies. A Fab Lab that works very well in Milan might not make sense in Campobasso without adapting to the context. A training path designed for the mechanical district of Modena should be reconsidered if you want to apply it to the goldsmith district of Valenza or to the ceramics of Caltagirone.

Trades: those that grow, those that decline. Within the great family in crafts, jobs that are growing coexist with jobs that are declining. The boom in beauticians (+10,4%)

tells us about a country that is aging and looking for quality of life. The growth of ICT specialists in the artisan sector (+5,4%) tells us that digital hybridization is already a reality. The decline in carpenters (-10,9%) indicates that some traditional trades are suffering—not because the market doesn't demand them, but because there are not enough people willing to learn them. It's a complex mosaic that cannot be reduced to a simple narrative. It's not true that "craftsmanship is dying," and it's not true that "craftsmanship is fully back in the spotlight." The truth is that some trades are reinventing themselves, others are disappearing, and still others are being born before our eyes, often with names that did not exist fifty years ago.

A family in motion. If we try to pull the threads of this portrait together, what emerges is the image of a large, diverse, moving family. A family that has its grandparents—the traditional craftsmen, guardians of ancient knowledge that we risk losing—and its grandchildren—the hybrid youth, women, craftsmen of foreign origin, and small business owners with an SRL who think big. The challenge, for those who make public policies and for those who represent the sector, is to keep this family together without forgetting anyone. Protect the knowledge of older master craftsmen before it is scattered. Support the new generations that choose crafts despite cultural obstacles. Recognize the contribution of women and foreign craftsmen without confining them to niches. Rethink territories as living ecosystems, where each trade finds its place. Knowing who Italian craftsmen are today is the first step to understanding who they may be tomorrow.

4. People employed in crafts: who really works in our workshops.

Behind the counter, behind the lathe, behind the cash register. When we talk about "craft Italian" we risk thinking only of the title holders, the owners, and the names on the signs. But behind every shop, every workshop, every small business, there is a group of male and female workers who rarely make it into the newspapers. They are the ones who keep the sector going every morning, when they open the shutters, turn on the machines, and serve the first customer of the day. Understanding who these workers are is essential, because the future of crafts depends on them as much as it does on the title holders. And the figures tell of a transformation deep, silent but radical.

The big overtaking: employees outnumber the self-employed. We already hinted at it in the previous chapters, but it is worth coming back to it because it is the most important piece of data of all: for the first time in the history of Italian crafts, employees have surpassed the self-employed. Let's pause for a moment to reflect on what it means. For generations, the craftsperson has been the symbol of the independent worker: "I set up a shop, I work for myself, I am the master of my time." Today, within craft businesses, more people work with an employee contract than people working on their own. It is the end of a myth and the beginning of a new normal. This overtaking tells two things together. On the one hand, the craft businesses that survive are increasingly the structured ones, with employees, organizational charts, and pay slips. On the other hand, the model of the "small solitary craftsperson" is losing ground, because fewer and fewer people—especially young people—are willing to accept the risks, the bureaucracy and the loneliness of setting up on your own.

Apprenticeship: the main route (used far too little). In crafts there is a tool that works really well when it is used: apprenticeship. In the last six years, more than half a million young people under 30 have received training through apprenticeship in craft businesses, and apprenticeship accounts for almost 11% of the hiring expected in the sector, almost twice as much as in other economic areas; it also works. Nearly half of apprenticeship contracts turn into an ongoing relationship: the apprentice is not a low-cost workforce to use and then drop, but an investment that often becomes a stable part of the workforce. It is the most effective way to train the skills the sector needs, because it combines theory and practice, school and workshop, formal teaching and tacit knowledge. The problem is that in Italy apprenticeship is still used far too little compared with its potential. Many small businesses see it as too complicated from a bureaucratic point of view, and many families still view apprenticeship as an option of "Plan B" compared to university. Both of these beliefs are wrong, but as long as they persist, the tool that could really make a difference will remain underused.

Rising youth employment. There is positive news that often is not told: youth employment in Italy is growing, and growing well. Between 2021 and 2024, those employed under 35 increased by almost half a million, with an increase of 9,2%, which is significantly higher than the European average; and in January 2025, youth employment grew again by 0,9%. Within this growth, skilled trades (craftsmanship) play a leading role in silence. Many of those new jobs are held by young people who have chosen – or accepted – to work in a craft business, perhaps as employees, perhaps as apprentices, perhaps as collaborators of an older owner. They do not always get there out of vocation: often they get there because that is where work can be found. And this is the point: there is work in the crafts. The paradox, which we discussed in the previous chapters, is that businesses struggle to find staff while young people struggle to find the "right" job. If we could match demand and supply better, craftsmanship could be one of the main drivers of youth employment in the coming years.

Women at work in the crafts. Alongside the female owners we discussed in the previous chapter, there is a workforce of employed women who sustain entire sectors of the crafts. In beauty, in wellbeing, in fashion, in food, in communication, and in personal services, women are often the ones keeping day-to-day operations running. These workers face specific challenges: balancing work and family life in contexts where hours are often long, accessing career paths in small businesses where roles are not very formalized, and achieving pay parity in a sector that has historically been male-dominated in many areas. Specific policies for female craft workers are not a luxury, but a necessity if we want the sector to retain talent and skills.

Foreign workers: indispensable but invisible. If it is true that many craft owners are of foreign origin, it is even more true that very many employees and collaborators are as well. In construction, in restaurants, in services, and in maintenance, whole segments of the crafts rely on the work of people who came to Italy from other countries. Too often these workers remain invisible in official statistics and public narratives, when they are not even instrumentalized in political debate. The reality is simple and hard to ignore: without the work of foreigners, many sectors of Italian crafts would not survive. Recognizing this is the first step toward building employment policies that value this contribution instead of hiding it.

Quality of work: employment is not enough. There is a question we must ask ourselves honestly: is work in the crafts good work? The answer is not unequivocal. In some cases, yes: an apprentice who becomes a skilled worker and then a workshop manager can build a solid, well-paid, and rewarding career. In other cases, no: there are sectors where hours are exhausting, pay is low, workplace safety is neglected, and contracts are precarious. If we want young people to choose the crafts, it is not enough to tell them that "there is work." We must make sure that the work we offer is dignified, paid fairly, and respectful of health and personal time. Otherwise, we will keep asking ourselves why young people do not choose the crafts, ignoring that in some cases the answer is simply: because the conditions we offer are not acceptable.

The knot of continuing training. One last topic, often overlooked: the continuous training of workers who are already employed. The technological transformations we discussed in the previous chapters – CAD, CNC, 3D printing, artificial intelligence, sustainability – do not concern only new hires. They also involve, and perhaps above all, people who have already been working for years in craft businesses. A fifty-year-old carpenter, who has always worked with traditional tools, cannot be left behind when a numerically controlled machine arrives in the workshop. A hairdresser who has built their profession on a direct relationship with the customer must be supported when social media becomes the main marketing tool. Continuing training is not a bonus: it is the condition that ensures today's workers will still be working ten years from now. Yet small craft businesses struggle to invest in continuous training, due to lack of time, resources, and tools. It is one of the areas where targeted public policies can truly make a difference.

5. Being an entrepreneur: when freedom is an illusion.

The dream of freedom. "I go into business for myself so I'm free." Who hasn't heard this sentence, perhaps said by a friend tired of wage work, by a family member looking for a way to make things right, by a young person who dreams of building something of their own? It's an ancient dream, perhaps the quintessential dream of those who live in a country like Italy, built on the myth of the small family business, the workshop, the "do-it-yourself." Yet, all you have to do is ask those who truly went into business for themselves to discover an uncomfortable truth: the freedom of the craft entrepreneur, especially the lone small craftsman, is often an illusion. A beautiful illusion, which has kept the Italian economy going for decades, but still an illusion.

The five constraints that turn freedom into a cage. Anyone who goes into business for themselves imagines being able to decide everything: working hours, customers, prices, holidays. The reality, for many craftsmen, is very different. There are five structural constraints that turn the promise of freedom into a cage that is often invisible.

First constraint: time. Many craftsmen work ten, twelve, fourteen hours a day, seven days a week. Not because they want to, but because they have to: because if they don't work, no one works; because an urgent order cannot be refused; because competition doesn't wait. The freedom to manage their own time turns into the obligation to devote all of it to work.

Second constraint: the customer. The employed craftsman has a boss. The self-employed craftsman has many bosses: all his customers. The customer who demands, who doesn't pay, who changes their mind at the last moment, who calls on Sunday evening, is the new master. And unlike the company boss, you can't contest it: you have to satisfy them, because survival depends on them.

Third constraint: bureaucracy. Electronic invoices, tax requirements, safety regulations, local rules, mandatory communications: the small Italian craftsman is crushed by a bureaucratic burden that is out of proportion to his size. The time taken away from the trade to handle paperwork is time taken away from freedom.

Fourth constraint: the bank. The craftsman who wants to invest needs credit. And anyone who needs credit is not free: they are bound by the bank's terms, the repayment plan of amortization, to personal guarantees that often involve the home and family savings. The failure of a craftsman-owned business often means the failure of an entire family.

Fifth constraint: loneliness. The solitary craftsman has no colleague to consult, no human resources office to turn to, no union to defend him. When something goes wrong – an illness, a divorce, a bereavement, a client who does not pay – he must face it alone. And loneliness, in the long run, may be the highest price of entrepreneurial freedom.

Why do so many still choose this path? If the freedom of the craftsman is an illusion, because every year many Italians – though increasingly fewer – choose this path? The reasons are multiple and never reduce to a single one. There are those who come to it by family tradition: father, grandfather were artisans, and continuing is almost a moral duty. There are those who come to it out of necessity: there is no employee work, or it is too precarious, and going independent is the only alternative. There are those who come to it out of passion: they love the trade so much that they are willing to pay the price in terms of time, stress, and risk. There are those who come to it out of ambition: they want to build something of their own, leave a mark, become a real entrepreneur and not just a small artisan. All these motivations are legitimate. But it is important that those who choose this path do so with awareness, without illusions, knowing what they will face. The romanticism of the "free craftsman" has done a lot of damage, pushing people to go into business without the tools to do it, resulting in finding themselves more imprisoned than before.

The way out of the illusion: the collective dimension. If the solitary artisan's freedom is an illusion, is there a possible freedom? Yes, but it passes through a radical transformation: abandoning the individual model to embrace collective and cooperative dimensions. The growing artisanal SRLs – which we discussed in previous chapters – go exactly in this direction. They are not just a tax choice: they are the overcoming of the solitary model. An SRL with two or three partners is a business where risks, decisions, hours, and responsibilities are shared. Where no one is forced to work on Saturdays because someone else does it. Where you can go on vacation without closing shop. Where, in case of illness, someone keeps the business running. The same applies to artisanal cooperatives, to consortia, to business networks. Every form of aggregation breaks loneliness, shares the

load, multiplies available skills. And, paradoxically, increases the real freedom of each, because no one is enslaved by their own individual business.

The role of public policies. Transforming the model of the solitary craftsman into a more collective model cannot be only an individual choice: it requires targeted public policies. Real bureaucratic simplification is needed – not just announced – to reduce the burden of compliance for small businesses. Facilitated access to credit is needed for those who choose associative and cooperative forms. Welfare dedicated to the self-employed is needed, with protections in case of illness, maternity, crisis. Entrepreneurial training is needed, because starting a business is not a natural instinct: it is a skill that is learned. Updated regulations are also needed. The Framework Law on Italian craftsmanship dates back to 1985 and is designed for a world that no longer exists, that of the solitary artisan with at most a few employees. Updating it means recognizing that the artisan of 2030 is often a partner in an SRL, part of a network, a member of an ecosystem and needs tools different from those of forty years ago.

The generational handover: the hardest test. There comes a moment when the issue of entrepreneurial freedom becomes dramatic: the generational handover. When the artisan grows older and has to decide what to do with their business, the limits of the individual model emerge in all their harshness. Many Italian craft businesses do not survive the founder's retirement. The children do not want to continue – and almost always have good reasons, having seen their parents' lives – and there are no tools to sell or transfer the business to third parties. So, after thirty or forty years of work, the pool of skills, clients, suppliers, and reputation simply gets dispersed. Building tools for the generational handover—within the family or outside—is one of the most urgent priorities for the sector. It means giving businesses the chance to outlive their founder, turning personal assets into collective assets. And it also means giving real freedom to the older artisan: the freedom to stop when he decides, knowing that what he has built will continue to live on.

Redefining freedom. Let's go back to the initial question: is the artisan truly free? The honest answer is: it depends on what we mean by freedom. If by freedom we mean "not having a boss," maybe yes. If we mean "being able to choose how to live one's own life," often no. True freedom, for the artisan of 2030, will not be the romantic freedom of a man alone with his workshop. It will be the freedom of someone who chooses the entrepreneurial path consciously, knowing what lies ahead, equipped with the right tools, embedded in support networks, and able to ask for help when needed. It will be freedom that is perhaps less mythical, but more real. And it will also be the freedom of a society that stops telling its young people a fairy tale—"go it alone and you'll be free"—to tell them a more complex but more useful truth: "you can build your own business, and it's worth it, but only if you do it with the right tools, in the right conditions, within a context that supports you." It's a less captivating narrative, but it's the one we need if we want Italian craftsmanship to still have a future.

6. But why don't young people choose craftsmanship?

According to the 4th Artigiano Radar Censis-Confartigianato (June 2024), in Italy there are 4.06 million young people between 18 and 34 years old—equal to 39.3% of this age group, about four out of ten—who would like to work in craftsmanship or pursue one of the craft professions. Among them, there are also 836,000 graduates under 35 (37% of the total number of graduates in this age group).

This is a scene that gives cause for optimism. Now let's imagine the next scene: out of those four million, only one in ten will actually end up choosing craftsmanship as a profession. The others will take different paths, even though in their hearts they can feel that the passion was there. This is the great paradox of Italian craftsmanship today: a sector made of real but unexpressed interest, concrete but invisible opportunities, and dreams that run into cultural rather than economic obstacles.

An interest that grows, not a flash in the pan. The most important thing is that interest in craftsmanship is not stable: it is growing. A clear sign that something is moving in the way new generations perceive a world that for decades was considered "second-rate".

What young people are really looking for today. To understand why craftsmanship is appealing, we must first understand what young people are looking for in work. Here an important fact emerges: the new Generations have flipped the relationship with work compared to their parents. 80% of young people between 18 and 35 no longer see work as the center of their own existence. 91% put leisure time first. Six out of ten see work mainly as a tool to meet material needs, rather than as personal fulfillment. Yet when they look at craftsmanship, they recognize characteristics that perfectly match what they are looking for. 87% see in it the possibility to express creativity, to create something unique. 87% value the autonomy in managing schedules. More than eight out of ten feel the appeal of making tangible products, of literally touching the results of their work in an increasingly virtual world. 80% are drawn to the mix of expert hands-on skills and digital technologies. Three out of four recognize in craftsmanship a strong commitment to the environment. In other words: young people see in craftsmanship almost everything they are looking for. So why don't they go there?

Where are the young artisans really? If 4 million young people are truly interested in craftsmanship, we should find them everywhere—in shops, in workshops, in Fab Labs. But the data tells a different story. Only 8.5% of Italian businesses are run by under 35s, and just 9.7% of craft businesses have young owners. What's worse, this percentage isn't growing: it's falling. In 2011 there were 150,000 craft businesses led by under 30s; in 2021 they had dropped to 87,000, almost half as many. In the last ten years, Italy has lost nearly 400,000 artisans. This is not a temporary crisis: it's a steady bleeding. The paradox peaks in the job market: on the one hand, millions of young people interested in craftsmanship; on the other, businesses that can't find anyone to hire, with 59.2% reporting difficulties in finding candidates. Six out of ten positions remain unfilled not because there isn't money to pay them, but because no one with the right skills can be found.

The invisible obstacles. If there is interest and opportunities are there, what prevents

them from meeting? Obstacles are almost never economic: they are cultural, organizational, and symbolic. Let's try to list them.

The bias of the "back row." Despite the stated interest, craft professions continue to be seen as second-tier compared to university paths. It's a cultural legacy that's hard to die out: better a child who graduated in law and is unemployed than a craft child with a business already up and running. A boy who, after middle school, chooses a vocational school is still looked at as if he has "failed" something.

The fear of risk. More than half of young people (51.5%) see starting a business as a "forbidden dream." Bureaucracy, upfront costs, and economic uncertainty are frightening. Better a renewable fixed-term contract than going into business for oneself that could make you lose everything.

An out-of-sync training system. 36.5% of employed people in Italy work in sectors different from their training. One in three studied one thing and does another. The education system struggles to keep up with the real needs of the craft labor market. Over 60% of middle school students do not receive real guidance support, and over the last ten years enrollment in vocational schools has dropped by 18%, precisely while businesses desperately look for certified surveyors, technicians, and qualified artisans.

The "first study, then work" model. In Italy, the idea persists that education and work are two separate, sequential phases. School-work alternation, apprenticeship, training Dual education is still seen as fallback choices for those who "don't feel like studying". Technical and manual knowledge enjoy little value in the school system.

Working conditions in small businesses. The children of artisans see their parents working 10-12 hours a day, seven days a week, with enormous responsibilities and constant stress. They understandably choose different paths. Many traditional artisanal businesses, especially family ones, struggle to offer the conditions that young people today ask for: flexible hours, recognition of contribution, and clear career prospects.

The loss of manual skills. A World Economic Forum figure is alarming: manual skills and physical endurance in new generations have fallen by 24%. Young people grown up in the digital age have developed extraordinary technological skills, but have lost those practical ones that were natural for those who preceded them. A company wanting to hire a young person today often has to teach them the basics as well: holding a tool, reading a technical drawing, understanding basic applied physics.

When the system works: good news. Not everything is black. In fact, where the system is well structured, results are excellent and show that the potential exists and is enormous. ITS Academy is a European success: 84% of graduates find work within a year, with 93% of them in positions aligned with their studies. In the mechanical and sustainable mobility sectors, it exceeds 90%. These are numbers of absolute excellence, but they involve 41,000 students compared to 750,000 at university. Apprenticeships work: in the last six years, over half a million under-30s have trained

through apprenticeships in artisanal firms, which account for almost 11% of planned hires, double that of other sectors. Almost half of these contracts become permanent. Youth employment grows: between 2021 and 2024, the number of employed people under 35 rose by nearly half a million (+9.2%, significantly above the European average). Italy maintains European leadership in the number of entrepreneurs under 35, many of whom are in artisanship.

A potential waiting to be unleashed. The relationship between youth and artisanship Italian can be summarized like this: there is enormous potential waiting to be unleashed. Interest exists and is growing. Training tools, when well-structured, work very well. Artisanship offers exactly what new generations seek: creativity, autonomy, meaning, innovation, sustainability. But between this potential and its realization lie obstacles more cultural than economic.

The reputation deficit of manual professions. The risk perception entrepreneurship is amplified by bureaucracy, by a training system that struggles to update, and by a culture that continues to privilege traditional paths even when they do not guarantee employment or satisfaction. The solution is not simple, but the direction is clear. Concrete mentorship paths are needed, regulations that facilitate rather than complicate, a communication that changes the narrative. Artisanship must be told for what it has become: not a fallback choice for those with no alternatives, but a modern and concrete opportunity where tradition and innovation coexist, where hands and head work together, where digital technologies empower manual work rather than replace it, where it is still possible to build something of one's own, sustainable, meaningful. When this narrative takes hold, those 4.1 million interested young people can finally turn interest into concrete choices.

7. The drivers of change: the forces rewriting craft.

Understanding change before suffering it. When we talk about the "drivers of change" we use a technical expression to describe something very concrete: the deep forces that are transforming the world around us, often without us noticing day by day. They are underground currents that, like those of the sea, can take us where they want or allow us to navigate with awareness, depending on how well we know them. For Italian crafts, knowing how to read these drivers is not an intellectual luxury: it is a matter of survival. Those who ignore them risk being taken by surprise by the transformations. Those who understand them can anticipate them and, in many cases, derive advantage.

The demographic driver: the great contraction. The first driver, and perhaps the most relentless, is demographic. Italian twenty-somethings of 2025 are one third less than twenty-somethings of 1969. It is not a reversible fact: the kids of tomorrow were born yesterday, so the missing births of yesterday will never come back. This is the first certainty on which to base any reflection on the future of craftsmanship. But the demographic driver is not only the decline of the young. It is also the aging of the population, which transforms demand: more personal services are needed, more beauticians, more physiotherapists, more maintenance workers of homes inhabited by the elderly, more artisans of wellbeing.

It is also the arrival of new Italians of foreign origin, who bring trades, tastes, and different sensitivities. It is also the reduction of large families, which changes the products requested: fewer large dining tables, more small design objects, fewer traditional furnishings, more personalization.

The technological driver: the double revolution. The second driver is the technological one, and today it is in a phase of unprecedented acceleration. We are talking about two revolutions happening simultaneously. The first is the revolution of productive digitalization: CAD, CNC, 3D printing, collaborative robots, augmented reality. They are tools that enter workshops and change the way design, production, and quality control are done. The diffusion of robots in Italian small manufacturing enterprises is already at 19.1%, a figure above the European average. The second is the revolution of artificial intelligence, which affects not only production but also design, marketing, and customer relations. A small artisan today can use AI to generate product images, translate descriptions into twenty languages, analyze customer data, personalize offers. What until yesterday was the prerogative of large companies is today within reach of a workshop of three people.

The environmental driver: the planet sets the agenda. The third driver is environmental. It is no longer only a matter of ethics or personal sensitivity: it is a force that changes the rules of the game. European regulations impose increasingly stringent standards on materials, emissions, and supply chains. Consumers, especially the youngest, choose based on sustainability. Banks and investors evaluate companies also based on their environmental impact. For craftsmanship, this driver has a double nature: on one hand it is a challenge, because it imposes costly and rapid adjustments. On the other hand, it's a huge opportunity: craftsmanship, by its nature, produces less, produces better, produces locally, produces durable objects. It is structurally more sustainable than mass production. The problem is knowing how to communicate and certify it.

The cultural driver: values that are changing. The fourth driver is more subtle, but just as powerful: people's values are changing. The young people we described in Chapter 3 do not have the same priorities as their parents. They look for meaning, not just a paycheck. They look for balance, not just a career. They look for quality of life, not just product quality. This shift in values has deep consequences for craftsmanship. On the work side, because companies must offer different conditions if they want to attract young people. On the market side, because customers reward those who communicate authentic values, true stories, transparent supply chains. On the communication side, because nostalgic narratives no longer work: the ones that combine tradition and the future, roots and innovation do.

The economic driver: the long transition. The fifth driver is the economic one. We are living through a long transition phase, marked by inflation, high interest rates, instability in global supply chains, and the return of protectionism. For small craft businesses, this means greater difficulty accessing credit, raw material costs that fluctuate, and more complicated export markets. At the same time, however, the crisis of large global supply chains reopens space for local, nearby, and traceable production. The artisan "made in Italy" can become competitive again not only in terms of quality, but also in terms of logistical reliability. Those

who have offshored in the last twenty years begin to look around and discover that Italian craftsmanship is still there, ready to resume its role.

The regulatory driver: rules that weigh. The sixth driver is the regulatory one. The Italian Framework Law on craftsmanship is stuck in 1985: it's like still using a phone from forty years ago to work in 2026. Rules designed for the small shopkeeper no longer work for the craft SRL that exports, does research, and collaborates with the university. At the European level, by contrast, regulations are multiplying rapidly: sustainability, digitization, certifications, e-invoicing, and transparency requirements. The Italian artisan finds themselves squeezed between an outdated national framework and a hyperactive European one, and pays the price for this mismatch.

Updating the rules is one of the top priorities, if we want the sector to compete on equal terms with European competitors.

The drivers interact: the play of interconnections. The most important thing to understand about the driver is that they do not operate in isolation: they interact with one another, often amplifying each other. The demographic driver meets the technological one: fewer available workers push companies to automate. The environmental driver meets the cultural one: young people's green values connect with sustainability regulations. The technological driver meets the economic one: new technologies reduce some costs, but create others—especially training-related ones. For those who run a craft business, this means you cannot tackle one driver at a time. You have to keep them all in mind together, understand how they intertwine in your specific sector, and build strategies that respond to multiple challenges at the same time. It's difficult, of course. But that's precisely where the added value of the anticipating artisan comes from: the ability to see the big picture while working on the details. What we can do with the drivers. Knowing the drivers is not enough: you need to know what to do with them. We can imagine three different approaches in the face of the forces of change: A resigned approach: pretending that the drivers don't exist, carrying on as always, hoping it will pass. This is the most widespread—and the most dangerous—path, because sooner or later reality will present the bill. An adaptive approach: noticing the drivers once they have already produced effects and reacting by trying to limit the damage. It's better than the previous one, but it still leaves initiative to external change. An anticipating approach: studying the drivers before they produce effects and build strategies that anticipate them, transforming threats into opportunities. It is the most difficult path but also the only one that truly allows us to govern the future rather than suffer it. The proactive craftsmanship we discuss in this study is, first of all, craftsmanship that has chosen the third attitude.

8. Technologies at the service of customization: solving the Fordist paradox

A paradox a hundred years old. To understand the full revolutionary potential of proactive craftsmanship, we must take a step back, to 1913. In that year, Henry Ford introduced the assembly line in his Detroit factory. For the first time in human history, it

became possible to produce millions of identical objects at very low costs. Mass production was born, and with it the middle class of consumers. But the Fordist revolution had a price: uniformity. The famous quote attributed to Ford – 'the customer can have any color car, as long as it is black' – captured the essence of the compromise. You could have low-cost products, but you had to accept them all the same. If you wanted something personalized, you had to pay much more: it was the realm of craftsmanship, accessible only to the well-off. This is the 'Fordist paradox': the dichotomy between economically mass-produced but uniform products and personalized but expensive handcrafted production. For a century, this paradox has seemed a natural law, inescapable. Today, for the first time, digital technologies allow us to dissolve it. And this is precisely the heart of the proactive craftsmanship revolution.

Why it is also an economic revolution. Accessible mass customization is not just a technological fact: it is an economic revolution that changes the balance of power in the market. For a century, large mass-production companies had a crushing competitive advantage over small artisanal firms: they could produce at much lower costs thanks to economies of scale. Today this advantage is eroding. A small workshop equipped with digital machinery can offer levels of customization that large companies cannot achieve without distorting their processes. Moreover, it can do so at costs that are no longer prohibitive. The competitive advantage shifts: it is no longer size that counts, but the ability to combine flexibility, creativity, and technology. This is good news for Italian craftsmanship, which has always had the distinctive value of quality and customization, but has suffered from difficulty in maintaining prices. Accessible mass customization finally allows it to play on a fairer field.

The five technologies that change everything. Let's take a closer look at the technologies driving this revolution. We can identify five main ones: CAD (Computer-Aided Design): Allows designers to create objects on the computer, modify them endlessly, try variants at no cost, and communicate with clients by showing realistic renderings—even before production starts. It is the entry point to every digital process. Computer Numerical Control (CNC) machines: Milling machines, lathes, laser cutters, and digital sewing machines are all tools that automatically translate a digital drawing into a physical object with precision impossible to achieve by hand. CNC does not replace the craftsperson; it frees them from repetitive operations so they can focus on the creative and qualitative parts of the work. 3D printing: Adds a new dimension, as it allows building objects layer by layer, creating shapes that would be impossible with traditional techniques. From plastic to metal, from ceramics to lost-wax casting for jewelry, 3D printing is making personalized objects possible that were previously inconceivable. 3D scanning: Allows capturing the precise shape of a customer or an existing object and using it as a base for custom production. Scanning the body for clothing and footwear, scanning a space for furniture that fits perfectly, scanning an ancient object to replicate or restore it—these are concrete applications that are already widespread. Generative artificial intelligence: It is the newest technology, but it is spreading rapidly. It allows generating ideas, variations, patterns, and decorations starting from simple textual descriptions. A small workshop can today offer customers hundreds of possible product variants in a few minutes without needing to hire a designer.

Not technology against manual work, but synthesis. A widespread misconception is to think that the introduction of these technologies reduces the role of manual work. In reality, the truth is the opposite: digital technologies make manual work more valuable, not less. See why. When a CNC machine does the repetitive work, the craftsman can devote his time to the high-value-added phases: finishing, qualitative control, customer relations, creative ideation. His hands are not less important, but they are used better, for what only they know how to do. The skilled gesture, the tacit knowledge embedded in experience, the sensitivity to materials; all this is not replaced, it is freed from having to perform lower-level operations. Secondly, accessible mass customization often requires high-quality manual finishing. A 3D-printed object, for example, always needs a manual touch to reach the final quality the customer expects. The technology produces 70% of the value, but the final 30% – the part that makes the difference – remains in the hands of the craftsman. And it is precisely that 30% that the customer perceives as "art" and justifies the higher price compared to the industrial product.

How skills change. All of this has important implications for the necessary skills. The craftsman who wants to exploit these technologies must know how to do things that were not needed before: using design software, programming machines, managing digital files, collaborating with the client through digital means. At the same time, he must maintain – and often deepen – traditional manual skills, because they are the ones that make the difference in the final product. The result is the figure of the hybrid artisan, one who fuses manual know-how and digital mastery in a new way, not juxtaposed, but integrated. Training these people is the main challenge of the next ten years, and it is the reason why in the chapters on skills and training we stress the importance of new pathways, that mix workshop and classroom, material and code, tradition and innovation.

Attention to risks. It would be wrong to present this revolution only in its positive aspects. Accessible mass customization also carries risks that it's important to know.

The first risk is sector polarization: only companies that manage to make the digital transition will be able to compete in accessible mass customization. Others risk being squeezed between mass-produced industrial products and technologically advanced craftsmanship. Without transition-support policies, many small businesses will fall behind. The second risk is the loss of traditional know-how that is not digitized before it's too late. When a master craftsman retires without training successors or without codifying their knowledge, a unique heritage is lost. Fab Labs, as we have seen, can be useful tools for this task of archiving and transmission as well.

The third risk is technological dependence: if skills and software are concentrated in a few global companies, the Italian craftsperson risks becoming a passive user of others' technologies, rather than a protagonist. Supporting the development of digital skills and tools in our country as well is a strategic matter, not just technical.

A window for Made in Italy. The Fordist paradox has dominated the world economy for a century and has kept craftsmanship in a niche position, reserved for wealthy clients. 9. Unraveling it means opening a historical window for Italian craftwork, which has always focused on customization and quality, but has never managed to reach truly large markets. Today, for the first time, it is possible to imagine Italian craftsmanship capable of offering

quality customization at affordable prices and thus expanding into global markets that were previously off-limits. The window is open, but it will not stay open forever. Other countries are moving quickly and whoever arrives first will take the largest share of this market. Italy has the skills, creativity, and tradition to play this leading role. What is needed is the ability to rapidly build the infrastructures – training, Fab Labs, finance, regulations – that allow our companies to seize the opportunity before others do.

9. Fab Labs: laboratories of the future already present.

Enter a Fab Lab to understand tomorrow. Imagine entering a large laboratory. It is not a factory, not a school, not a traditional artisanal workshop. It is something that contains all three and transforms them into something new. In one corner there is a 3D printer that works quietly, layer by layer, shaping an object drawn on the computer. A little further, a computer numerical control milling machine carves a wooden panel following a digital design. Next to the laser cutter, a young person is programming a prototype of a sensor for precision agriculture. At the back of the room, an elderly cabinetmaker explains to a girl how to read the wood fiber while she photographs the piece to upload it to modeling software. This is a Fab Lab. And it is one of the few concrete answers to the question with which we opened this study: how can Italian craftsmanship anticipate the future rather than suffer it?

What are Fab Labs really? The acronym Fab Lab stands for "Fabrication Laboratory", fabrication laboratory. They were born at MIT in Boston in the early 2000s at the initiative of Neil Gershenfeld, with a simple yet revolutionary idea: give anyone – not just engineers – access to machines that until then were exclusive to large companies. 3D printers, CNC milling machines, laser cutters, electronics kits, design software. The idea spread rapidly worldwide. Today there are hundreds of Fab Labs in Europe and Italy, from Piedmont to Sicily; 150-200 units were registered in 2025. They are not all the same: some are inside universities, others are run by Chambers of Commerce, others are private companies, others are nonprofit associations or municipal initiatives, but they share a common philosophy: democratizing access to digital fabrication.

Why Fab Labs are laboratories of the future. The reason we dedicate an entire chapter to Fab Labs is simple: they are the physical place where the future of the craftsmanship we are describing is already present. Inside a Fab Lab you see, all together, the elements that elsewhere exist only on paper.

Concrete hybridization between hands and digital. In a Fab Lab you design on the computer, produce with numerically controlled machines, finish by hand. It is the model of the "hybrid artisan" we described in chapter 8, but translated into everyday gestures. Anyone spending an afternoon in a Fab Lab immediately understands that manual skill and digital are not opposed: they are two sides of the same coin.

Generational contamination. In Fab Labs, people of very different ages share the same space. The seventeen-year-old boy teaches the sixties-year-old how modeling software works; the master craftsman shows the young how the quality of a material feels. It is the

most natural—and perhaps the only realistic—way to transmit the tacit knowledge we spoke of earlier before it is lost.

Open networking. Fab Labs are not islands: they are part of international networks. A project born in Turin can be realized in Seoul, a prototype designed in Palermo can be printed in Berlin. This network dimension also allows the small Italian workshop to access global resources and collaborations.

Low-risk experimentation. In Fab Labs you can make mistakes without consequences. A craftsman who wants to test a new product or a new material can do it in a Fab Lab before investing in his own workshop. A young person who does not know if the trade is right for them can try it for a few weekends without committing for life.

What really happens in a Fab Lab. To avoid remaining in abstractions, here are some concrete examples of what happens every day in Italian Fab Labs. A small leather goods craftsman enters a Fab Lab with a problem: a client asks for a collection of customizable bags with initials engraved, but manual engravings require long and costly times. In the Fab Lab he discovers that with a laser cutter he can engrave ten bags in the time it took to do one before. He returns to the workshop with a new productive capacity without having to buy the machinery. A young designer has an idea for a line of nature-inspired jewelry, but does not have the money to make them. In the Fab Lab, she can design them with free software, print them in lost-wax casting with the laboratory's 3D printer, cast them in the shared furnace. The prototype cost drops from thousands of euros to a few tens. A high school brings a class to the Fab Lab for a technology education project. Students design and build a small robot that moves autonomously. Some of them, at the end of the course, will discover that that trade is for them and will choose technical and professional paths, instead of the generalist high school they were oriented toward. An association of elderly artisans uses the Fab Lab to digitize the knowledge patrimony that risks disappearing: old technical drawings, processing patterns, recipes for varnishes and glues. The Fab Lab thus becomes a living archive of the territorial craft memory.

An underestimated strategic infrastructure. Despite their enormous potential, Fab Labs in Italy remain an undervalued infrastructure. They are funded in a fragmented way, often depend on the enthusiasm of individual people, are not systematically integrated with public policies for crafts, training and territorial development. In other European countries, instead, Fab Labs have been recognized as strategic infrastructure. France launched a national plan that provides for a Fab Lab in every medium-sized territory. Germany has integrated them systematically with its dual education system. Spain is using them as a tool for economic regeneration of the inward areas in depopulation. In Italy we are behind, and we will pay for this delay if we do not recover it quickly.

A proposal: a Fab Lab in every territory. If we were to translate these reflections into a concrete proposal, we could imagine a national program for the diffusion of Fab Labs that guarantees every mid-sized territory at least one well-equipped Fab Lab, connected with schools, businesses, ITS academies, and universities. Large investments are not necessary: a network of one thousand Fab Labs spread across the national territory, with a moderate

average cost for setting up each one, would cost far less than a major infrastructure project and would produce lasting effects on the country's innovative capacity. This program should be accompanied by three key elements: training of Fab Lab managers, who must be able to foster community engagement as well as technical management; integration with school curricula, so that every Italian student spends at least a few weeks in a Fab Lab during their educational journey; and support for craft enterprises that want to use Fab Labs as external research and development laboratories, without bearing the investments of a facility of their own.

The Fab Lab as a metaphor. The Fab Lab is much more than a physical place: it is a powerful metaphor of what Italian craftsmanship could be in the future. A place where hands and technologies coexist. Where different generations meet. Where the local and the global speak to each other. Where experimentation is encouraged and failure is not a condemnation. Where knowledge circulates instead of remaining confined in individual workshops. If we could bring this spirit into the tens of thousands of Italian artisan enterprises, we would have taken the decisive step to transform our crafts from a struggling sector into a driver of innovation. Fab Labs already exist, they are among us, they are working. The task is to recognize them for what they are: not a romantic alternative to traditional craftsmanship, but the concrete bridge that can carry it toward the future.

10. The metamorphosis of trades.

The changing words. Try an experiment. Close your eyes and think of the word 'carpenter'. What do you see? Probably a man in an apron, surrounded by shavings, holding a plane or a chisel. It is a powerful image, built over centuries of painting, literature, cinema, Nativity scenes. It is also an image that, for a large part, no longer corresponds to reality. The carpenter of 2026 may still resemble that image, of course, but it can also be a woman who designs on a computer and supervises a computer numerical control milling machine, a person who works in a communal Fab Lab and an entrepreneur who runs a small SRL with three employees and a 30% export. The word is the same – carpenter – but inside there are professions deeply different. It is the 'metamorphosis of trades' we discuss in this chapter.

Not dead, but transformed. One of the most widespread narratives about artisan crafts is that death is imminent. 'The shoemaker no longer exists', 'tailors have disappeared', 'no one makes the blacksmith anymore'. It is a seductive narrative, but largely misleading. These crafts are not dying, they are changing skin, sometimes radically. The traditional neighborhood shoemaker, who repaired shoes for a few euros per pair, has indeed almost disappeared. But today there are bespoke shoemakers who use 3D foot scans, 3D-printed soles, and make unique shoes for clients willing to pay significant sums. The tailor of fifty years ago, who dressed the client from shirt to coat at various prices. contents, today it exists in new forms: digital tailors who use 3D avatars, studios that combine bespoke production and global e-commerce, specialists in technical clothing for athletes or particular professions. We are not losing crafts, we are losing ancient forms of crafts and gaining new forms. The total may be numerically down – and often is – but the sector does not disappear: it transforms in ways that statistics struggle to grasp, because new roles do not always fit

the official classifications built decades ago.

Three types of metamorphosis. Looking closely at how artisanal crafts are changing, we can distinguish at least three types of metamorphosis. The first is technological metamorphosis. The craft remains recognizable at its core – sewing, shaping wood, working metal – but it changes radically in tools and processes. The blacksmith who today cuts metal with a CNC plasma instead of the traditional forge still forges, but in a way his grandfather would not recognize. The gesture of a thousand years of tradition coexists with a digital panel. The second is hybrid metamorphosis. The craft incorporates skills that did not exist, becoming something new. The baker who manages the social media of his workshop, who organizes in-shop courses and sells online is no longer just a baker, but has also become a communicator, trainer, and digital entrepreneur. His craft has not only digitalized; it has been enriched with new dimensions. The third is service metamorphosis. The craft is no longer tied to a product, but to a complex service. The builder no longer builds only walls, but designs and builds intelligent, energy-efficient homes integrated with smart home systems. The electrician no longer just pulls wires, but installs photovoltaic systems, charging stations for electric cars, and complete home networks. The craft expands, absorbs adjacent skills, and becomes a 360-degree service,

Some concrete cases of transformed crafts. To avoid staying at generalizations, let's look closely at how some specific crafts are transforming, through examples that combine data and trends observable in Italian companies.

The carpenter. The decline in recent years (-10.9%) captures the disappearance of the traditional generalist carpenter. In his place, specialized figures emerge: the CNC carpenter who works with digital milling machines, the wood designer who designs customized furniture, the restorer who combines ancient techniques and digital diagnostics. The craft does not die; it is articulated into more specific and technological roles.

The goldsmith. From manual wax modeling to 3D design and lost-wax 3D printing, the transformation is profound. But artisanal value does not disappear; it concentrates in finishing, polishing, extreme customization—in that 20-30% of the process that no machine can replicate.

The tailor. From the neighborhood workshop to the digital atelier, the path is clear. Today there are tailors who take measurements with 3D scans, design on the computer, produce with intelligent fabrics, and sell online worldwide. The total number has decreased, but the average value per company has grown significantly.

The esthetician. One of the fastest-growing crafts (+10.4% in recent years). It is no longer only facial treatments, but wellness consulting, nutrition, laser technologies, non-invasive treatments, and aesthetic medicine at the frontier. The craft has expanded and become more technological, driven by demand for quality of life and an aging population.

The construction technician. A craft with extremely high recruitment difficulty (69.9%). It is no longer only masonry; it is energy efficiency, home automation, bio-building, and renovation of historic heritage. Those who choose it today find enormous opportunities, but the required training path is much more articulated than that of the mason of the past.

The artisanal cook. From the neighborhood trattoria to author cuisine, from food trucks to dark kitchens, from fine dining to food education. The craft of the cook has multiplied into dozens of variants, many of which were unimaginable thirty years ago. The hybrid cook-entrepreneur-communicator figure has become the norm in successful restaurants.

Where new trades are born. Alongside the transformation of existing trades, we are witnessing the birth of completely new trades that did not exist ten or fifteen years ago. Some examples:

- The Human-Machine Manager, who manages the integration between human workers and cobots in small artisanal laboratories.
- The digital tailor, who combines body 3D scanning and customized production.
- The jewelry CAD designer, halfway between jewelry making and digital modeling.
- The technological restorer, who uses non-invasive diagnostics, 3D printing, and traditional techniques.
- The artisan of bio-construction, who integrates natural materials, energy efficiency, and home automation.
- The micro-entrepreneur of personal services, who offers personalized services for an increasingly elderly and demanding population.
- The maker food specialist, who combines artisanal gastronomy, innovative preservation technologies, and digital communication.

These trades are not marketing labels; they are real roles that already earn well today and are in demand.

The problem is that our educational system—and also our collective imagination—struggles to recognize them. A 17-year-old who wanted to become a "jewelry CAD designer" in Italy would struggle even to find the right training path and even more to explain to parents what he will do when he grows up.

The metamorphosis seen by the youth. This metamorphosis of trades has an impact. enormous on the way young people choose – or do not choose – craftsmanship. If trades are still told in their nineteenth-century forms, young people do not recognize themselves. The boy who loves designing on the computer does not think of the carpenter when he sees only the image of the shopkeeper with an apron. The girl passionate about design is not attracted to jewelry if it is told to her as a dusty world of benches and rasps. But if trades are told in their current form – with software, 3D printers, scans, Fab Labs, international networks, digital markets – they suddenly become attractive, even trendy. Many of the 4.1 million young people interested in craftsmanship whom we mentioned in chapter 3 are indeed looking for this: not a return to the past, but a concrete future where you do things with hands and head, using all the tools of 2026 and not only those of a hundred years ago.

The narrative challenge is decisive. If we continue to tell artisanal trades as were, we will lose the generation that could save them. If we learn to tell them as they are and as they will be, we can reopen a season of new vocations.

The metamorphosis as a training challenge. The metamorphosis of trades imposes a. radical rethinking of education. School pathways built on trades from fifty years ago do not produce the skills needed today. A vocational institute that continues to train "generalist carpenters" when the market asks for "CNC carpenters" is an institute that condemns its students to irrelevance. Updating curricula does not mean merely adding a few hours of computer science: it means rethinking disciplines, mixing subjects, building well-equipped laboratories with updated technologies, involving local companies in defining programs. It also means accepting that today's trades have a shorter life than in the past: a training path that works today could be surpassed in ten years, so we must train people capable of

continual updating, not just people who know how to do one thing for life. Here the concept of lifelong learning, continuous education, and microcredentials that allow updating skills throughout a career returns as central. In a world where trades change rapidly, the only truly stable profession is learning how to learn.

A metamorphosis to accompany, not to endure. Let us close this chapter with an awareness. The metamorphosis of trades is not a neutral phenomenon: it can produce widespread well-being or dramatic exclusions, depending on how we accompany it. If we let it happen on its own, it will reward only those who already have the resources to update themselves and will leave everyone else behind. If we accompany it with smart policies, it can be an opportunity for shared wealth. Accompanying the metamorphosis means investing in ongoing training even for artisans already in business, not just for young entrants. It means economically supporting transitions, because changing machinery and updating skills costs. It means building public narratives that help citizens recognize the value of new trades. It means updating statistical and legal classifications to make visible and regulate roles that today escape official maps.

The metamorphosis is already underway. We cannot stop it, nor would it be desirable to do so. What we can do is decide whether to go through it as passive spectators or as conscious protagonists. The anticipatory craftsmanship mentioned in this study is, in essence, the craftsmanship that has consciously chosen the second path. And it is from that choice that a future can emerge in which trades — old ones, new ones, those that still have no name — continue to be one of the best ways to live, work, and create value in our country.

11. The skills of the artisan of 2030: much more than knowing how to do

Hands, head, and something more. For centuries, when people spoke of artisans, they thought of a pair of skilled hands. Hands that knew wood, leather, metal, fabric. Hands that could fix, shape, create. It was the 'know-how' in its purest form, handed down from father to son, from master to apprentice, through repeated gestures a thousand times until it became natural. Today those hands are no longer enough. Or rather: they remain indispensable, but on their own they are not sufficient. The artisan of 2030 increasingly resembles a hybrid figure, almost cinematic: a person who in the morning starts a 3D printer, at mid-day finishes by hand a detail no machine could do, and in the afternoon responds via social media to a client on the other side of the world. Hands, head, heart and a computer: all together. The World Economic Forum has sounded an alarm that makes you think: by 2030, almost half of the skills we need today to work will be surpassed. And the new generations, grown up with a smartphone in hand, have seen their manual skills fall by 24%. The paradox is evident: we are losing the 'know-how' precisely when we would need it more than ever, enriched by everything that digital technologies allow us to do.

An European compass to not get lost. Before diving into the skills needed for the artisan of the future, let's take a step back. We are not inventing anything: Europe has for

years been asking what the skills of a 21st-century citizen are and has built four compasses useful for orienting oneself. The first is called DigComp and concerns digital skills, from data use to online security, from communication to content creation. The second is EntreComp, dedicated to entrepreneurial spirit, recognizing opportunities, managing risks, and turning ideas into reality. The third, GreenComp, talks about sustainability: thinking systemically, envisioning desirable futures, acting to. The fourth, LifeComp, touches personal and social skills, those that help us learn throughout life. These four compasses are the reference within which to place the discussion on craft competencies. They are not bureaucratic cages, but useful maps to understand where we are going and to speak the same language across Europe.

The know-how of the hands: a treasure not to be missed. Let's start from the ancient heart of craftsmanship: the know-how of the hands, knowing materials, feeling the wood's texture under the chisel, understanding by touch if a fabric is of quality, reading a technical drawing as you would a book. These competencies are not "outdated"; they are the reason why, when we buy a handcrafted piece of furniture or a handmade leather bag, we are willing to pay more. There is a philosopher, Michael Polanyi, who described this heritage well and called it "tacit knowledge". It is that knowledge that lives in the fingers, that cannot be transmitted in words nor written in a manual. The reason why Made in Italy is so valuable worldwide is precisely this: it is embodied knowledge, hard to copy and impossible to delegate completely to a machine. The problem? This treasure risks dispersing. Masters age, the young people learning beside them are increasingly fewer. If we do not build pathways that connect those who know how to do with those who want to learn, in twenty years we will realize we have lost something precious and irreplaceable.

The digital world knocks on the door. If the first pillar is hands, the second is undoubtedly digital. And here the numbers tell a story that cannot be ignored: Italian craftsmanship seeks 61,000 people with advanced digital skills, but almost two in three cannot be found (63.4% recruitment difficulty). What do we mean by digital skills for a craftsman? Being able to design on the computer with CAD software, program a numerically controlled machine, use a 3D printer, sell online through a site or marketplace, communicate on social media, understand how generative artificial intelligence works. We are not talking about science fiction; we are talking about tools that today allow a small workshop to compete with much larger entities. The good news is that these skills can be learned. The less good news is that the Italian educational system does not produce enough of them, and those who have them are contested like a Serie A footballer.

The artisan and the planet. There is a third dimension that is often treated as an extra and which has become central: sustainability. Young people, who will be customers and workers of tomorrow, are much more environmentally conscious than their parents were. And three out of four young people recognize craftsmanship as a sector aligned with sustainability values. Knowing how to choose low-impact materials, design objects that last over time and can be repaired, reuse scraps, tell your own supply chain transparently: all this is part of green skills. And these are not skills in opposition to digital; on the contrary, digital technologies allow measuring impacts, optimizing consumption, tracing the origin of materials. Between 2019 and 2023, green investments by micro and small enterprises grew

by over 23%, and in small enterprises by as much as 45.9%. It is not a trend, it is a structural shift.

Where magic happens: hybrid skills. We come to the heart of the chapter, the most interesting part. The real skills of the future are neither only manual nor only digital nor only green, but those that arise from the meeting of all these dimensions. We call them "integrated hybrid skills" and they are the rarest and most valuable on the market. Here are some concrete examples. The carpenter who designs a custom piece of furniture on a computer, cuts it with a CNC machine and then finishes it by hand with the patience of a meticulous monk. The goldsmith who models a unique piece of jewelry in 3D, prints it in wax, casts it and chisels it using techniques handed down for centuries. The tailor who scans a customer's body with a sensor, designs the garment on a computer and then sews it by hand. These profiles are not born by chance, by adding a carpentry course and a computer course together. They are born when we rethink training, combining workshop and classroom, gesture and code, tradition and innovation. And they solve what in other chapters we called the "Fordist paradox," because they make it possible to produce customized goods at affordable prices, combining the best of the factory and the best of the artisan workshop.

Not only technical: thinking, communicating, leading. None of us would want to deal with a professional who is technically brilliant but unable to listen, explain, or handle an unexpected situation. For this reason, to technical, digital and green skills we must add the entire world of so-called soft skills: critical thinking, creativity, problem-solving ability, emotional intelligence and relational skills.

Then there are true entrepreneurial skills. Today's artisan more and more often is not only a skilled worker but a small entrepreneur who must manage an LLC, negotiate with banks, choose partners, plan investments, and build networks with other artisans. These are skills that used to be learned "by necessity" growing up in the workshop; today they must be taught, because contexts are more complex and mistakes are costly.

New roles: who they are and what they can do. Bringing all these ingredients together produces new professional figures, some with almost exotic names. The table below attempts to map the most important ones, indicating where more manual skill, more digital ability, more sustainability or more relational capacity is required

It's not a definitive classification, but a simple way to help a young person, a family, or a teacher understand that the word "artisan" today encompasses very different worlds.

EMERGING FIGURES	TECHNICAL SKILLS	DIGITAL SKILLS	GREEN SKILLS	HYBRID SKILLS	SOFT SKILLS
Carpenter CNC	High	High	Medium	Very high	Medium
Digital tailor	High	Very high	Medium	Very high	High
3D Goldsmith	Very high	High	Low	Very high	Medium
Man-Machine Manager	Medium	Very high	Medium	High	Very high
Restorer technological	Very high	High	High	Very high	High
Craftsman of the green building	High	Medium	Medium-high	High	High

Micro-entrepreneur of services	Medium	High	Medium	Medium	Very high
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The problem of the “pieces of paper”. There is an issue that is often neglected but is decisive: how are these skills certified? A boy who learned CNC in a neighborhood Fab Lab or a girl who learned to design 3D jewelry by watching tutorials on YouTube, how can they prove what they can do? Here tools come into play that have somewhat bureaucratic names, but simple ideas: the Labor Atlas, the National Qualifications Framework and especially European micro credentials. The latter are a kind of "small certificates" that attest to specific competencies, even those acquired outside traditional routes. They are useful because they allow valuing unconventional paths, which in the artisan world are often the norm. Investing in these tools means making visible a heritage that today remains hidden and also helping young people build a resume even when their path has not been linear.

Where are the skills that are needed learned? The last question is the most concrete: if these are the necessary skills, where are they learned today? The answer, honestly, is not comforting. Every type of skill has dedicated training channels, but no channel covers the whole necessary range.

COMPETENCE CLUSTER	CHANNEL EDUCATIONAL PREDOMINANT	CURRENT GAP
Traditional techniques	Apprenticeship, Workshops, IeFP,	Transmission generational interrupted, masters not recognized
Advanced digital	ITS Academy, Specialist courses	Insufficient coverage (20,000 Students vs estimated demand for 200,000)
Green and sustainability	Continuing education, Academy corporate	Fragmentation, absence of shared standards
Integrated hybrids	Fab Lab Value Chain4+2,dual	Network territorial underdimensioned
Soft skills and entrepreneurial	University Chambers of Commerce Net	Work territorial underdimensioned
Certification	QNQ, microcredentials	Low use in craftsmanship, cultural resistance

The message is clear: no one, alone, currently produces complete artisans. The challenge of the coming years is not to create yet another new pathway, but to connect those that already exist, making them dialogue and recognize each other.

The artisan that awaits us. If we had to draw a portrait of the artisan of 2030, they would resemble neither the old shopkeeper with an apron nor the young nerd shut in front of a computer. They would look like a new figure: someone who knows how to use both hands and mind, gesture and code, tradition and the future. Someone who knows materials, but can also tell the story of their work on Instagram. Someone who can make things and also knows why they make them, for whom, and with what impact on the planet. Training these people requires overcoming many twentieth-century separations: between school and work, between theory

and practice, between "those who study" and "those who work with their hands." It's a cultural change even before an organizational one. But there is one thing worth saying clearly: the skills needed by the artisan of 2030 are not niche skills. They are, for the most part, the skills that each of us will need in the decade ahead. The artisan, once again, is a laboratory of the future.

12. What is anticipatory craftsmanship?

A new word to understand a new phenomenon. 'Anticipatory craftsmanship' is an expression you will not find in dictionaries. It is not a statistical sector, not a legal category, not a type recognized by the Chambers of Commerce. It is, rather, a concept: a new way of reading what is happening inside a part of the Italian artisanal world. The term arises from the meeting of two words. 'Artigianato' recalls a millennial tradition, made of hands, materials, craftsmanship, quality. 'Anticipante' comes from futures studies and the discipline of anticipation, which for years has studied how organizations can read the weak signals of change to prepare for the future rather than endure it. Bringing these two words together means performing a precise operation: not viewing craftsmanship as a world to save, but as a laboratory where the future is already being experimented with.

It is not all of craftsmanship; it is a part of it. Before moving on, let's clarify an important point to avoid confusion. When we talk about 'anticipatory craftsmanship' we do not mean all Italian craftsmanship. We are talking about that portion — today minority but growing — of artisanal enterprises that are experimenting, before and better than other sectors, with transformations destined to touch the entire productive system in the coming decade. It is a bit like what happened in 20th-century research laboratories: small realities, apparently marginal, where solutions were developed that would later spread everywhere. Today certain digital carpentry shops, certain goldsmith labs with 3D printers, certain provincial artisan Fab Labs are performing the same function: they are vanguards that anticipate the direction of change.

The Three Distinctive Traits of Anticipatory Craftsmanship. What makes an artisanal enterprise "anticipatory"? It is not enough to be modern, digital, or innovative. Three specific traits are needed that must coexist:

The First Trait: Hybridity between Manual Skills and Technology. The anticipatory artisanal enterprise does not choose between tradition and innovation: it makes them coexist within the same production process. The carpenter who designs in CAD and finishes by hand, the goldsmith who prints in 3D and engraves using ancient techniques, the tailor who scans the client's body and sews with needle and thread. It is not juxtaposition; it is fusion.

The Second Trait: Long-Term Vision. The anticipatory enterprise does not merely react to crises when they arrive. It seeks to read the weak signals of change—demographic, technological, cultural, environmental—and builds strategies that look five, ten, fifteen years ahead. It is not futurology: it is deliberate planning in contexts of high uncertainty.

The Third Trait: Openness to the Network. The anticipatory artisan does not work alone. They collaborate with other artisans, with schools and universities, with Fab Labs and research centers, with customers and suppliers, following an ecosystem logic. The closed

shop gives way to the open laboratory, where ideas circulate and skills are exchanged.

Why is it precisely craftsmanship that is 'anticipatory'? Someone might ask: why craftsmanship and not other sectors? Why specifically the workshops, and not the large industries or the digital startups, should they be the "laboratories of the future"? The answer lies in some structural characteristics of the sector. Craftsmanship has small sizes and therefore is more agile: a craftsman can change technology, supplier or market in times far faster than a multinational.

Craftsmanship has a direct relationship with the final customer and therefore perceives changes in needs and desires earlier. Craftsmanship has always combined manual know-how and technical knowledge, so it is naturally predisposed to integrate new skills. Craftsmanship is rooted in the territories, so it can build local innovation ecosystems based on trust and proximity. For all these reasons the transformations, which elsewhere arrive with years of delay, in craftsmanship manifest themselves immediately, in embryonic form, but already recognizable. Those who know how to read these signals today can anticipate what they will see in the rest of the economy tomorrow.

How to Become a "Forerunner"? Four Concrete Steps. Anticipatory craftsmanship doesn't happen by chance. It arises from conscious choices that any artisanal business can make, regardless of its size. We can identify four concrete steps:

Invest in digital skills, even just starting from a basic course for the owner or an apprentice, then gradually expand the use of digital tools in product and commercial processes;

Build relations with the education system, welcoming apprentices, hosting internships, collaborating with ITS academies and local professional schools to train the skills the company needs;

Join collaborative networks, participating in consortia, Fab Labs, innovative districts, and industry initiatives to escape isolation and share opportunities;

Design the future, dedicating time – even if only a little, but regularly – to imagining where the company wants to be in five or ten years, instead of just managing daily emergencies. None of these steps require large initial investments. All require a change of mindset. And this is the real obstacle, more than costs: moving from the logic of survival to the logic of anticipation.

The numbers of anticipatory craftsmanship today. How many, today, can we define as "anticipants"? Estimating the phenomenon is difficult, because there are no official statistics, but we can build an approximation by cross-referencing some indicators.

Artigian SRLs grew from 5% to 8.7% in ten years, with an increase of almost 41,000 units, a sign of a structuring that goes in the direction of anticipation. ICT specialists in craftsmanship grew by 5.4%, highlighting the ongoing hybridization. The spread of robots in Italian small manufacturing firms is 19.1%, higher than the European average, which stands at 17.6%. It is not yet a majority, but the curve is clearly rising and the task of public policies is to accelerate this transition, not wait for it to happen on its own.

The risk of rhetoric: what is NOT anticipatory craftsmanship. Because the concept of "anticipatory craftsmanship" is useful, we must also clearly say what it is not. It is not every artisan who opens an Instagram profile. It is not someone who buys a 3D printer without truly changing the way of working. It is not someone chasing technological fashion

without a broad vision. It is not someone who uses the word "innovation" as a marketing label. Anticipatory craftsmanship is a deep transformation, touching how goods are produced, how staff are trained, how relationships with the market are built, how the future is imagined. It is about substance, not appearance. Distinguishing truly anticipatory enterprises from those that are not they limit displaying symbols of innovation is one of the most delicate tasks for those designing policies to support the sector.

A bridge to the future. We end this chapter with a reflection that will accompany us in the following ones. accompany us in the following ones. Anticipatory craftsmanship is not just an interesting niche to study. It is a model that can inspire an entire economy. If we manage to understand how these companies are facing demographics, digital transition, environmental crisis, transformations of work, we obtain valuable indications even for much larger sectors. In this sense, craftsmanship again plays a role that in Italian history has always had: to be a laboratory of productive civility.

Yesterday it was for the quality of Made in Italy. Today it is for the hybridization between human and technological. Tomorrow it could be for an idea of a more sustainable economy, rooted in the territories, based on people. It is worth, for this reason, to look at it with new eyes.

13. The scenarios that open up: three possible futures.

Not a forecast, but three directions. Faced with the paradox described in the previous chapters—companies that cannot find staff, young people interested but absent, a sector that reinvents itself but struggles to communicate—it is natural to ask: what next? What directions can Italian craftsmanship take in the next ten or fifteen years? The anticipatory analysis does not pretend to provide deterministic predictions, but helps identify three possible directions, not mutually exclusive, that are already taking shape before our eyes. Knowing these scenarios is not an academic exercise: it is the way to understand where we are going and, above all, where we want to go.

First scenario: automation acceleration. The first scenario sees artisan enterprises respond to the labor shortage with a massive investment in automation and collaborative robotics. At the center of this transformation are cobots, collaborative robots, designed to work side by side with the human operator without the need for physical barriers. Unlike traditional industrial robots, cobots have characteristics that make them suitable also for small artisanal workshops: they are flexible – easily reprogrammable even by non-specialist operators – they are accessible in terms of cost and installation, they are safe thanks to sensors that regulate their movements in the presence of people, they are scalable and suitable for small laboratories. In this scenario, by 2030 human-machine collaboration becomes the norm in evolved craftsmanship. The robot handles repetitive, dangerous, or extremely precise operations (welding, painting, machine tending, assembly), while the artisan maintains control of the creative process, qualitative supervision, and the stages that require intuition and human sensibility. Enterprises that manage this technological leap will survive and grow, while others will close, intensifying the qualitative selection of the sector. However, this scenario requires artisans with hybrid skills, able to work with hands but also to program, manage digital interfaces and interpret data. It is not enough to buy

the cobot: you must know how to use it, and above all you must know how to integrate it into your way of working without undermining artisanal identity.

Second scenario: the redefining of manual work. The second scenario is even more radical: manual work as we know it undergoes a profound transformation. Purely executable skills are progressively delegated to automation, and what becomes crucial are higher-level qualities such as innovation and problem-solving, critical thinking and creativity, emotional and relational intelligence—all hybrid skills that combine tradition and digital mastery. In this scenario, new professional figures emerge that unite craftsmanship and technology in ways that until recently seemed unimaginable: the human-machine manager who facilitates collaboration between humans and robots, finding the right mix of skills; the digital tailor who personalizes clothes using 3D scans of the client's body and avatar databases; the jewelry CAD designer who combines traditional jewelry making and 3D modeling; the technological restorer who preserves works with ancient techniques enhanced by digital tools; the bio-construction craftsman who works with natural materials, integrating sustainability and energy-efficiency skills.

In this scenario, artisanal work does not disappear; it rises to a new qualitative level. Those who manage to master manual knowledge and technological know-how together become a rare and highly sought-after professional figure. But this requires completely new educational paths, able to intertwine subjects that until now have been kept separate: art and engineering, hand and code, tradition and innovation.

Third scenario: new educational partnerships. The third scenario – the most ambitious, the one that could really solve the paradox we discussed – envisions a revolution of the education system through new partnerships between the world of education, the business sector, and territories. The tools, in fact, already exist; they only need to be enhanced, networked, and scaled up to an adequate level. For example, the ITS Academy (Higher Technical Institutes) offers highly professionalizing post-diploma training, with employment rates of 84% one year after graduation. The reform of ITS and the creation of the 4+2 supply chain (four years at a technical-professional institute plus two years at ITS Academy) aims to strengthen this path, but a radical leap in scale is needed, bringing enrollment to at least 200,000 students. However, today the progress they have made is evident: enrollments went from 11,000 in 2021 to 41,000 today.

Dual apprenticeship training: perhaps the most undervalued tool. It allows young people to learn by working, earning a salary and acquiring concrete skills. In Italian craftsmanship, it works well – half of contracts lead to stabilization – but it is still underused relative to its potential, mainly due to bureaucratic burdens for small businesses. This is why Fab Labs and territorial hubs are very important, serving as digital fabrication laboratories where young people, artisans, students, and researchers meet and experiment together. They are precious places because they do what no school and no company alone can do: connect different worlds and generate cross-pollinations. Equally important are territorial alliances, which foster understanding between chambers of commerce, trade associations, educational institutes, universities, and businesses, to build training pathways tailored to the real needs of each territory. Because the skills needed in the Modena mechanical district are not the same as those needed in the Valenza goldsmith

district or in the Caltagirone ceramic district.

Scenes that intertwine. The most important thing to understand is that these three scenarios are not alternatives: they are complementary. The future of Italian craftsmanship will not be "only automation" or "only new skills" or "only new training", it will be the weaving of all three elements. The artisanal enterprise of 2030 will use cobots (first scenario), will have hybrid roles inside such as digital tailors or CNC carpenters (second scenario) and will have hired these workers thanks to ITS paths or dual apprenticeship built together with local schools (third scenario). Whoever develops only one of these three aspects will be left halfway. Those who know how to join them together will prosper.

The difference between suffering and anticipating. The scenarios we described are possibilities, not certainties. They will happen or not depending on the choices we make today regarding public and private investments, regulatory reforms, training policies, the choices of individual companies and family decisions about their children's paths. There is a fundamental difference between two ways of facing the future. The first is to endure it, waiting for things to happen, reacting only when it is no longer possible to do without it. The second is to anticipate it, interpreting signals, building strategies and acting before need becomes an emergency. Italian craftsmanship has a limited time window ahead of it – the decade 2025-2035 – to choose which attitude to adopt. The three scenarios described in this chapter are, in essence, an invitation to choose, not to endure the future, but to build it; to view craftsmanship not as a world of the past to protect, but as a laboratory of the future to populate. Because what will happen in craftsmanship in the next ten years will tell us, far in advance, what will happen in the entire Italian economy in the following twenty years.

14. Possible futures for Italian craftsmanship.

Not a single future, but many. One of the most important lessons of future studies is that there is no singular "the future," but there are "futures." Tomorrow is not written yet: it depends on the choices we make today, on the drivers we let prevail, on the policies we build. For Italian craftsmanship, we can imagine at least three very different scenarios for 2035. They are not forecasts, they are "possible futures," coherent representations of directions the sector could take. Comparing them helps understand which choices bring us closer to the future we want and which lead us where we would not want to go.

First scenario: widespread augmented artisans. The first scenario, the more positive one, is called "widespread augmented artisans." In this future, the majority of Italian artisanal enterprises have completed the hybrid transition, using advanced digital technologies, integrating sustainability into processes, working in networks, welcoming apprentices, pursuing ongoing training. In this scenario, the four million young people who say they are interested in craftsmanship find concrete paths to get involved. The ITS Academy system has grown to the 200,000 students needed per year. The Framework Law has been updated. Fab Labs are widespread across all territories. artisanal enterprises reach 1.5 million units, turnover 450 billion, export 75 billion. It is a desirable but not easy scenario: it requires massive public and private investments, a reform of the training

system, a change in cultural narrative. It is not automatic. But it is possible, and it is the direction public policies should aim for.

Second scenario: the competence polarization. The second scenario is dystopian, the one to avoid. We call it "competence polarization." In this future, Italian craftsmanship splits into two increasingly distant halves. On one side there is a minority of highly technological artisanal enterprises, structured as SRLs, embedded in international networks, with significant turnover and high margins. They are the elite of the sector: a few thousand enterprises that concentrate most of the value, often led by owners with university education and rare hybrid skills. On the other side is a long tail of traditional micro-enterprises, surviving with difficulty in local niches, with tight margins, lacking access to credit, lacking capacity to invest in technologies, lacking prospects of generational succession. When the owner retires, the business closes. The artisanal fabric drastically reduces in numbers, while wealth concentrates in the few anticipating businesses. It is the scenario that unfolds if we let drivers act without corrective policies. It is, unfortunately, the most probable scenario if we do nothing.

Third scenario: territorial collaborative ecosystems. The third scenario is realistic and desirable at the same time. We call it "territorial collaborative ecosystems". In this future, Italian craftsmanship does not transform uniformly, but organizes into local ecosystems where enterprises of different sizes and sophistication collaborate with each other. In every territory, networks are built that include: traditional artisanal businesses custodians of manual knowledge, digital artisanal businesses bringing technological skills, Fab Labs and maker spaces that act as experimentation incubators, ITS Academy and professional schools that train the young, universities and research centers that offer advanced knowledge, local institutions that support the network. In this scenario no one is left alone. The old village carpenter does not close up shop without heirs, but finds a young person trained at the Fab Lab who collects his know-how. The small family business does not succumb to red tape: it accesses shared consulting and support services. The young creator does not have to emigrate to find opportunities, because he builds them in his territory, together with others. It is the most complex scenario to realize, because it requires coordination among many different actors. But it is also the most coherent with the Italian story of districts and with the values that inspire the sector.

The profiles of the future: three emerging figures. Alongside the scenarios, we can imagine three professional profiles that will become increasingly common in the coming years.

The augmented worker is the employee of an artisanal firm who combines traditional craft and technological skills. They can operate CNC machines, read data, collaborate with robots, but maintain qualitative control of the human gesture. They are the figure that allows craftsmanship to expand production scale without sacrificing quality.

The network hybrid professional is the artisan who does not work alone, but in a network with other professionals. They design together with designers, produce with other workshops, and sell together on shared platforms. They are the figure that enables small companies to access markets and skills otherwise out of reach.

The service micro-entrepreneur is the new service artisan, who provides personalized

high-value services, from smart home maintenance to personalized elder care, from custom design to expert consulting. They are the figure that widens the very concept of "artisanship" to new sectors, where manual skill meets relationships and knowledge.

The four open questions. Looking at these scenarios, four decisive questions remain for those who must build the future of Italian craftsmanship. How to scale the models that work? ITSs achieve 84% employment: how to move from 41,000 to 200,000 students without losing quality? Does artisanal apprenticeship work: how to triple it? How to convert the 4 million interested youths into real choices? There is interest, but it does not translate into enrollments, apprenticeships, or businesses. How to close this gap? How to maintain global competitiveness? Italy competes with countries that invest much more in innovation and training: how to defend artisanal leadership without falling behind? How to ensure an inclusive transition? How to prevent the future of craftsmanship from being only for the youngest, the most educated, the most equipped, leaving others behind? Answering these questions is the job of public policies in the coming years. No answer is simple, no answer is free, but ignoring them would condemn the sector to one of the two worst scenarios.

What is needed to achieve the best scenario? If we wanted to condense into a few priority actions what is needed to approach the scenario of "diffused augmented artisans" or of "territorial collaborative ecosystems", we could indicate at least six directions:

- Update the Framework Law on craftsmanship, stuck since 1985, adapting it to the reality of artisanal SRLs and the digital economy.
- Grow ITS Academy from 41,000 to 200,000 students per year, recognizing them as a parity training channel compared to university.
- Build a capillary network of Fab Labs and territorial hubs, accessible to all artisanal enterprises even in peripheral areas.
- Simplify bureaucracy for small businesses, reducing the burden of disproportionate compliance for their size.
- Support generational succession through dedicated tools, inside and outside the family, to prevent the dispersion of the artisanal heritage.
- Change the cultural narrative about craftsmanship, transforming it from a "fallback choice" to a modern, creative, technological and sustainable profession.

A future to choose, not to wait for. We close this chapter – and this course – with an awareness. The future of Italian craftsmanship will not arrive by itself: it will be the result of our choices, the choices of young people who decide which path to take, the choices of artisans who decide how to invest, the choices of institutions that decide which policies to build, the choices of citizens who decide what to buy and from whom. Italian craftsmanship is not a sector to be saved; it is a living laboratory where the future is already being tested. The question is not whether it will survive, but which future we will choose to build with it. Among the three scenarios described, there is one that delivers a richer, fairer, more creative country. And there is one that delivers a poorer and more divided country. The choice is in our hands and the time to make it is now.

Conclusions. A future to choose together.

What we have seen. We have reached the end of a long journey into Italian craftsmanship. We have seen a sector that is transforming deeply, often in ways public narrative ignores. We have discovered that behind the declining numbers there is a reinvention: more structured, more digital, more feminine, more multicultural, more hybrid. We have met the anticipating artisan, a new figure who unites hand skills and mastery of digital technologies, environmental sensitivity and entrepreneurial capacity, territorial rooting and global openness. We visited Fab Labs, laboratories where the future is already present. We have understood that the Fordist paradox, stuck for a hundred years, is finally melting thanks to mass personalization accessible.

What we know for certain. Some things, at the end of this journey, we can say with certainty. The sector is not dying, it is changing skin. Young people are not indifferent; 4.1 million are interested, but cultural and bureaucratic obstacles between interest and actual choice are still too high. Skills are the central issue; there are not shortages of workers per se, but there are missing people with the hybrid skills the future requires. The time window is short: the decade 2025-2035 is the time we have to build the infrastructure – training, regulatory, cultural, technological – necessary to leave no one behind. Demographics are unavoidable, since the 25-year-olds of 2030 are already born, or rather, have not been born, we must design a craft sector capable of producing more with fewer people, without sacrificing quality.

What We Can Do. This study has proposed an agenda of concrete actions. These are not abstract ideas, but feasible interventions: some at zero-cost, others with limited investments compared to the resources absorbed by other sectors. We summarize them here in seven priorities:

- Update the Framework Law on Craftsmanship, which has been unchanged since 1985, to adapt it to a sector that has changed its face;
- Increase ITS Academy students from 41,000 to 200,000 per year, recognizing them as a channel equivalent to university;
- Relaunch dual apprenticeships, reducing bureaucratic burdens for small businesses;
- Build a national network of Fab Labs, with at least one well-equipped laboratory in every medium-sized area;
- Support generational transition with dedicated tools, both inside and outside the family, to avoid the dispersion of artisanal heritage;
- Simplify bureaucracy for small businesses, with real interventions and not just announcements;
- Change the cultural narrative about craftsmanship, transforming it from a "fallback choice" to a modern, creative, sustainable profession.

A Message to Readers. This study addresses different audiences and wants to leave a message to each.

To artisans: You are more protagonists of the future than the public narrative tells you; you are already experimenting, on a small scale, with what the rest of the economy will soon

experience. Because you are not a sector of the past, you are a laboratory of the future. So demand to be heard, organize yourselves in networks, and look beyond your own workshop.

To young people: If craftsmanship attracts you—and four million of you say so—don't let an old narrative stop you. The craft trades of 2030 are almost nothing like those of fifty years ago. Look into ITS academies, visit a Fab Lab, try an apprenticeship; many of the most interesting professions of the coming years are there, even if they often don't have a name yet.

To families: Stop considering artisanal professions as "second-class" choices. ITS employment rates exceed 84%; many craft trades are well-paid, creative, and meaningful. Not all your children need to graduate to have a future; some will be happier and more fulfilled by choosing different paths.

To public decision-makers: The window is open, but it won't stay open forever. The reforms proposed by this study cannot be postponed, since every year lost is a piece of the future that other countries take instead of us. There is no need to invent anything new; just make the existing tools work, bringing them to the necessary scale.

To trainers: You are the first architects of this transformation. The paths you design today will train the artisans of 2040. Don't settle for inherited programs; update them, hybridize them, connect them with businesses, Fab Labs, and territories.

To all citizens: Every time you choose what to buy and from whom, you are also making a choice about the future of craftsmanship—a choice that can count at least as much as a vote at the ballot box.

The last word. Italian craftsmanship is not just an economic sector, but an important part of what makes us who we are, that is, a country where know-how, quality, beauty, and personalization are cultural as well as economic values. Losing it would mean losing a part of ourselves. Transforming it into something new, able to exist in the 21st century without giving up its identity, means building a richer, more creative, fairer country.

The future of Italian craftsmanship is not written anywhere. It has not already been decided by technologies, markets, or demographics. It depends on the choices we make all together: entrepreneurs and workers, young people and families, teachers and institutions, citizens and consumers. Every shop that opens, every apprenticeship that starts, every ITS pathway that activates, every Fab Lab that is born, every law that is updated is a piece of this future. Each day that passes is a day in which the future is already choosing itself. It is worth choosing it with awareness, together.

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Massimo Tamiatti

I have always been involved in the study and dissemination of topics related to new technologies, new jobs, and new skills. I do this in a completely new and different way compared to traditional research approaches because, in addition to consulting traditional sources, I consult sources from major strategic consulting firms, which do not have a static but dynamic vision of reality, as they focus on the future. I systematically use the web to search for the most up-to-date content, perhaps through webinars with privileged witnesses on the subject of the investigation or through some important influencer specialized in the topic being addressed. Obviously, today, I use Generative Artificial Intelligence tools. I do not neglect the present; I try to interpret the signals that we have before our eyes, which we are often used to looking at and not seeing, and which suggest what could happen. I do not neglect the past, that is, history, but in reality, many disciplines are mixed: economics, statistics, sociology, psychology, anthropology, and above all, I use imagination anchored to the facts that happen every day in the world. I consider numbers very important, but they are not everything; at the center, there must always be a particular attention to the privileged witnesses of the things that happen and their personal stories. Frontiere does not have the gift of foresight, but our team can make hypotheses, and among these hypotheses, I have realized that it is very likely to encounter the future. Spreading the culture of anticipation helps people understand what is happening in the world, especially in the world of work, helps them prepare, elaborating strategies, and organizing themselves to make very important conscious and correct choices for the effect they will have on their lives.

Institutional Profile

I was Chief Research Officer at the Piemonte Lavoro Agency, where I coordinated research groups focused on labor policies and vocational training until June 30, 2023. Since July 1, I have been part of the staff of the "Riccardo Revelli Laboratory" as an honorary member. I am an expert in public employment services and currently teach in the Human Resources Master's program at the University of Turin. I am a member of the Scientific Committee of ISMEL and serve on the Scientific Committee of Polis policy, an Academy of Advanced Training. Since 2022, I have been the founder and director of the online scientific dissemination site frontieretecnologialavoro.com and a member of the Association of Italian Futurists founded by Roberto Poli. I specialize in the use of forecasting techniques applied to local labor markets, collaborating with the start-up Skopia, which focuses on futures studies and anticipation to help organizations develop forward-looking strategies in support of complex decision-making under high uncertainty. I hold a degree in Literature and Philosophy with theses in Contemporary History and Political Science, both completed at the University of Turin, and I am the author of numerous publications related to the labor market, particularly on new labor market scenarios, emerging professions, and new skills.

The following collaborated with me on this project: Gabriele Lamberti, Benjamin Dafku, Ivan and Federico Giacobino e Fabio Prettico.