

DESIGN CULTURE(S)

Cumulus Conference Proceedings Roma 2021

Volume #2

ARTIFICIAL ARTIFICIAL
LANGUAGES
LIFE LIFE
MAKING MAKING
NEW NORMAL
MULTIPLICITY
PROXIMITY
RESILIENCE
REVOLUTION
THINKING THINKING

**Design Culture(s)
Cumulus Conference
Proceedings Roma 2021**

Volume #2

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DESIGN CULTURE(S)

Cumulus Conference Proceedings Roma 2021

Volume #2

Cumulus Conference
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Rome 2021

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TRACK CHAIRS

DESIGN CULTURE (OF) MAKING
PROCESS | MANUFACTURING | POST-INDUSTRY



Mario Buono,
University of Campania “Luigi Vanvitelli”, Italy
“Design culture and “project making” intercept unexpressed needs satisfiable through flexible and adaptive processes in order to configure and create customizable and evolving artefacts.”

Eujin Pei,
Brunel University London, United Kingdom
“This track aims to explore how digital technologies such as Additive Manufacturing (3D Printing) offers designers with benefits, and why we should continue to preserve our understanding of craft making and working with materials.”



Andreas Sicklinger,
University of Bologna, Italy
“In the timeless and spaceless digital world of today, making still distinguishes the homo faber: Design is more and more seen as a process rather than as a result, yet the result is the product we use.”

Oscar Tomico,
ELISAVA Barcelona School of Design and Engineering,
Spain
“Digital production technologies have the potential to transform current socio-technical systems of production towards a more sustainable future.”





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JUNE 08.09.10.11, SAPIENZA UNIVERSITY OF ROME

Design culture of playing. The musical instrument industry: an important culture of made in Italy

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Abstract | The production of musical instruments is an industry where Italy is one of the acknowledged world leaders.

A musical instrument is a product with a high degree of technology and design, where historical tradition and cultural roots have been handed down, together with the necessary incremental innovations: it has all the features to be considered a very “Made in Italy” product.

In any book, conference, exhibition about Italian design it can be easy to find many small traditional companies that produce furniture, accessories, bathrooms, kitchens, tiles, handles, shoes, clothes, glasses, food, wine, and cars: Ferrari is immediately identified as Made in Italy; on the contrary, it could be very hard to find excellent products as a Fazioli piano, a violin from Cremona, an accordion from Castelfidardo, a Harp from Cuneo, cymbals from Pistoia. Why is the Italian musical industry still not present in the spotlight of Italian design?

KEYWORDS | MUSIC, MADE IN ITALY, PRODUCT, TECHNIQUE, TRADITION

1. Economic data

Some economic data can help to understand the importance of the Musical design industry in Italy: 1.021 enterprises are operating in the production of contemporary musical instruments with an export amount of 116 million euros (source: Registro Imprese and Istat, 2015). We are talking about micro and small enterprises and in some cases medium ones: 85% of active enterprises are of artisan production, 15% (144 enterprises) are industrial ones, with an average of 6 workers. Despite the dimension, the Italian musical instrument industry is important in international markets, and in some cases (Fazioli piano and other) it represents excellence. The export trend is increasing so that Italy is the 9th biggest exporter of musical instruments in the world. If we consider big countries like the USA and China and technological excellence like Japan, we can assume that it is a good position. Approximately 70% of Italian enterprises are located in 6 regions: Lombardy, Marche, Emilia Romagna, Veneto, Piedmont, and Trentino Alto Adige. This is mainly due to the deep connection between the artisan tradition, local materials, the history of music and the history of Italy in general. Districts and supply chains are fundamental in our musical production: some famous examples are the Recanati – Loreto – Castelfidardo district, with its keyboards and accordion (fisarmonica) production, the district of Cremona with one of the most important string instrument production, the North-Eastern part of Italy with its excellence in raw materials such as the red conifer of Val di Fiemme and Panaveggio forest (the one used by Stradivari for his violins). (Antoldi et al., 2016). It is curious that those 6 Regions with the highest concentration of musical industries also are the Italian Regions with the highest number of Design schools, universities, and academies. Many of the most important design congresses and exhibitions are held there, many times about “Made in Italy” but rarely about musical design.

2. Deep roots in the Italian culture

The contemporary “design made in Italy” has many opportunities in the field of musical production, starting from the very deep and ancient roots of the Italian musical culture.

The name which is currently in use for the seven notes was invented shortly after the year 1000 by Guido Monaco from Arezzo, by taking the initial syllables of a Latin ode to Saint John. During the following centuries, the study of music and acoustic phenomena from a mathematical point of view became a fundamental part in the work of great Italian thinkers like Leonardo and Galileo, who contributed to the birth of the scientific method. Moreover, until then, the basic education of the medieval scholar included Music in the Quadrivium, which is the area of mathematical disciplines (arithmetic, geometry, astronomy, music) and not in the Trivium of philosophical ones (grammar, rhetoric, dialectic). Music was science even prior to art.

In the 1700s, in Italy, the scientific aspect (related to study of acoustic and building of big theatres) and the artistic one (for example the great authors, musicians, and singers) were at a very high level. As a consequence, with the diffusion of opera and melodrama, not only the name of notes but also the standard reference lexicon of sheet music was in Italian, and it still is: dynamic (*pianissimo, piano, forte, fortissimo, ...*), pattern (*allegretto, andante, adagio, moderato, ...*), and, more in general, all the words related to agogics, that is the interpretation of a music sheet.¹ Italian is known worldwide as the language of opera: to learn Italian is a fundamental step for any opera singer.

Therefore, the Italian musical cultural scenario, together with the Italian craftsmen's ability to build musical instruments, could be an invaluable source of supply for storytelling, input, and idea in the field of Made in Italy musical-related products.



Figure 1. Ancient violin arch tips – (Author: Anoise)

3. Several records of Italian musical design

When the right scenario conditions are combined (culture, society, technology, economy), certain design products can trace the history of a specific market field, for example, the Ford Model T. By connecting many cultural, social, technological and economical inputs, it gave a strong push to the automotive industry and its spread and improvement. It was the right

¹ Except some modern terms derived from black music, that are in English: Blues, Swing, Ballad, ...

product at the right time, such as the Vespa Piaggio that characterized the Italian boom-years after the second world war. In a similar way, in Italy, the atmosphere of great concern and ferment about music, musicians, operas, songs, authors, performers, theatres provided the right conditions for the development of extraordinary inventions in musical design.

The inventor of the piano was the Italian Bartolomeo Cristofori (Edwards, 2015): by changing the existing harpsichord (clavicembalo) to allow a dynamic modulation of the sound, he invented his arpicembalo, then pianoforte (his first recognizable piano can be dated at 1720) at the end of a decennial research and development path that took him from his native Padova to the Florentine court of Medici. This extraordinary invention allowed the introduction of the possibility to play gently and loudly on the same instrument as opposed to the harpsichord, lack of dynamic expressivity. Even today, the key feature of the contemporary piano industry, in Italy and abroad, is the same concept of dynamic sound modulation proposed by Cristofori. To focus on the importance of the piano, it is crucial to consider that, among all the musical instruments, the piano is one of the most popular and widespread and in every school, it is propaedeutic to the learning of other instruments.



Figure 2. Double-action pianoforte built by Bartolomeo Cristofori in 1720; in the Metropolitan Museum of Art, New York City. Source: Encyclopædia Britannica - www.britannica.com/biography/Bartolomeo-Cristofori

Another fundamental Italian invention was the modern violin: the first preserved model, dated in 1564, was realized by Andrea Amati from Cremona. Starting from the 16th century in the triangle Cremona-Brescia-Venezia the lutherie art developed (Baroncini, 1994) whose construction techniques are still actual today.

The Italian input was fundamental in the development of another popular and diffused instrument, the guitar: the Neapolitan luthier families (Vinaccia, Fabbricatore, ...) started to release the first guitars with six single chords, instead of 'cori' (couples of chords) formerly used. Those gave origin to the modern concept of guitar (Ravalli, 2018).

4. Made in Italy: stories of territories, materials, and culture of technique.

4.1 Pure design

If we consider the perfect relationship between the function and the shape, between the engineering and the ergonomics, between the aesthetic value and the playability we can say a musical instrument is a pure design. Since many of them have an ancient history, they become archetypes in their use, sense, and meaning: this implies an optimization in their materials, technology, and usability. All the components must be optimized for a structural resistance or the transmission of the vibration, for this reason, industrial machinery is not always effective, often a manual working action is necessary: the typical sound of many acoustic musical instruments, especially the more complex ones, is due also to their production technique that, despite a company's industrial structure, still requires craftsmanship expertise in many cases. (Mancini, 2019).

Design products, local materials, expert craftsmen, long-time tradition and attitude to innovation are important ingredient of what is called "Made in Italy" and, in the best tradition of "Made in Italy" products, the history of Italian musical instruments starts from craftsmen with fine technique deeply connected with the materials of their regions, where creativity and talent are important features, too.

4.2 The sound of materials

According to a study commissioned by CNA (Antoldi, et al., 2016), it appears that in Trento province there is a high export value (€ 8.66 million in 2015) due to enterprises that select, season and work the local red fir tree, a wood which is unique in the world for its sounding features, used in the production of soundboards and other resonance components of top-quality acoustic instruments. European, Asian, American luthiers are faithful purchasers of Val di Fiemme red fir (*Picea Abies*), known as "the music tree" or "the resonance tree", the same used by Stradivari for his unique violins. Today, about 60.000 luthier instruments, 15.000 harps and 180.000 pianos in the world are made with some of these components.

The strong export-asset and the excellence level are the main reasons for the success of these enterprises, which apparently don't know international crises.

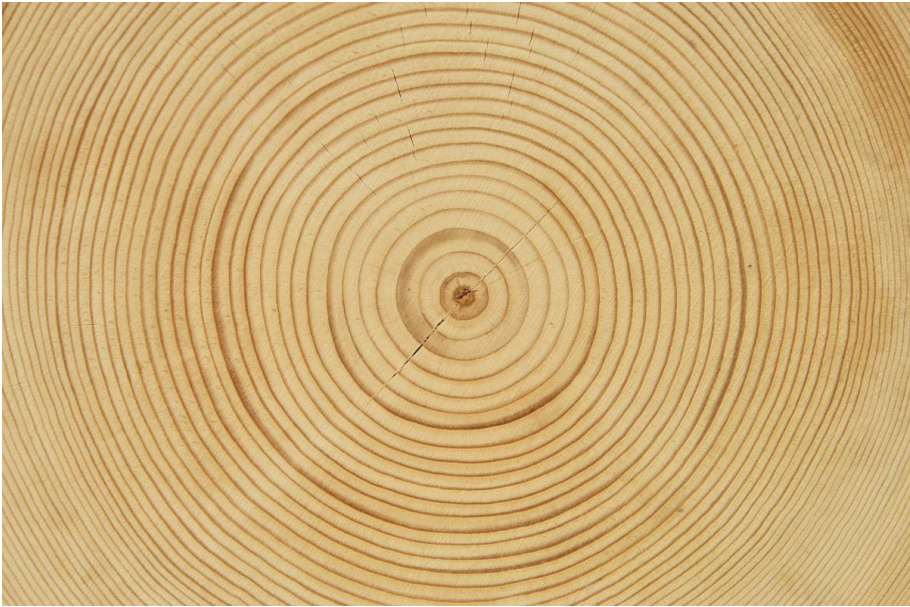


Figure 3. The perfect structure of a Trentino “Resonance Tree” – source: Archivio fotografico della Camera di Commercio I.A.A. di Trento (legnotrentino.it).

As often happens in the production of objects in many industrial sectors, local materials give the input for the birth of artifacts (i.e.: the alabaster of Volterra, the travertine of Rapolano, ...). Also, in the musical field, many instruments are built according to the natural sound of local materials: for example, in Budrio (Bologna), the local terracotta (pottery clay) is used to produce ocarinas, an ancient Italian wind instrument whose origins are lost in time, improved in the 800s by the local musician Giuseppe Donati who started the “modern era” of ocarina production, for which Budrio is famous.

4.3 Materials and manufacturing

Many histories of design products are related to the ability of craftsmen to work a specific material, derived from a long-time technical tradition: i.e., the ability to work the leather and the famous made in Italy shoe enterprises. In the musical industry, an important Italian tradition is derived from the millenary art of metalwork. In Agnone (Isernia), the *Pontificia Fonderia* (exclusive pontifical foundry since 1924) *Marinelli Snc* has a long tradition in bells

production (on the factory website they say about 1000 years of tradition) and today is famous worldwide in this specific production field.



Figure 4. UFIP – Est 1931 series cymbals. Courtesy UFIP – Pistoia, Italy

Another common feature of many Italian enterprises is the small dimension. Sometimes factories are family-owned as is the case of Pistoia, where in the 18th century the family enterprises able to work metal started to build church organs. Then the ability in the lamination processes was successfully applied to the production of cymbals. During an economic crisis, in 1931 four of these small enterprises decided to join, establishing the *Unione Fabbricanti Italiani di Piatti musicali e tam tam* (Italian cymbals and tam-tam united factories), called UFIP. The deep connection with its origin, that is the ability to work metal, led UFIP to innovate the cymbals production by patenting the *Rotocasting*[®], a unique centrifugal casting system that allows the elimination of all the impurities of the bronze alloy. Today UFIP is known worldwide for the top quality of its cymbals, an Italian made in Italy excellence of design.

4.4 Manufacturing and culture

The knowledge of a working process can be another important factor in the development of a specific industry, on a regional basis, as it happens in many industrial districts (as Udine and its production of chairs, Florence and its leather products, ...). In the musical field, the case study of accordion could be representative. The accordion is an instrument that was not invented in Italy and that is not necessarily built with local materials. The accordion probably was first built in Austria and from the mid-XIXth century was diffused in Italy, in the Marche region, above all by the work of Paolo Soprani. Today a great part of Italian popular musical culture is based on songs and rhythmic patterns played on the accordion. Especially in summer, there is no local festival (*Sagra*) without an accordion player in the live band. In the

Tuscan countryside until the 80s, the accordion could often be identified as “the” musical culture. This extraordinary diffusion, in Italy, of an instrument which is not native Italian (for materials or birth), was due above all to the great ability of Italian craftsmen: in 1924 93 accordion factories in the national territory were recorded. Today the most famous are produced in Marche (Castelfidardo and Macerata), Lombardy (Stradella, Cremona), Piedmont (Vercelli, Leini) and Tuscany.

As before reported about UFIP, an economic crisis was the occasion for a union of different factories: in 1946 the *Fabbriche riunite di fisarmoniche* (united accordion factories) was created, with the name FARFISA, an excellent company whose experience was based on the production of keyboard instruments (accordion, keyboards, electric organs, ...). It started the development of the Italian most important musical production district - the Marche district. A famous FARFISA product was the Compact, one of the first electric organ produced on an industrial basis, widely diffused in the 60s and co-responsible (together with the Vox Continental) of the sound of the rock and psychedelic music of those years. An electric organ is an instrument based on a simple concept: the pressure applied to a key generates a sound through electro-mechanical internal components. It is the same concept of an intercom: by taking advantage to its achieved know-how, today Farfisa is an internationally known company that produces intercom and videophone all over the world. Another story of made in Italy.



Figure 5. Navini accordion. Courtesy G. Navini snc – Castiglion Fiorentino (AR), Italy

Differently from other product categories, where industry replaces small artisan factories, in the musical field, this substitution is rarely possible because the quality of certain components can be guaranteed only by manual work. Moreover, a big industry is not often able to provide the possibility of fixing damaged instruments. This particular attitude of Italian small enterprises is important because in music there is no programmed or forced obsolescence as in other industrial sectors: a good instrument is expected to last for decades, so the maintenance service is still fundamental. This is both the reason of excellence of Italian musical instruments and the reason why small familiar companies still survive, as G. Navini snc, established in Tuscany in 1936 (Castiglion Fiorentino), which still today is a reference point for accordions and maintenance service for many musical instruments.

4.5 Highly skilled enterprises and craftsmen

Many small enterprises in Italy are famous for their musical instruments, thanks to the extraordinary ability of their craftsmen.

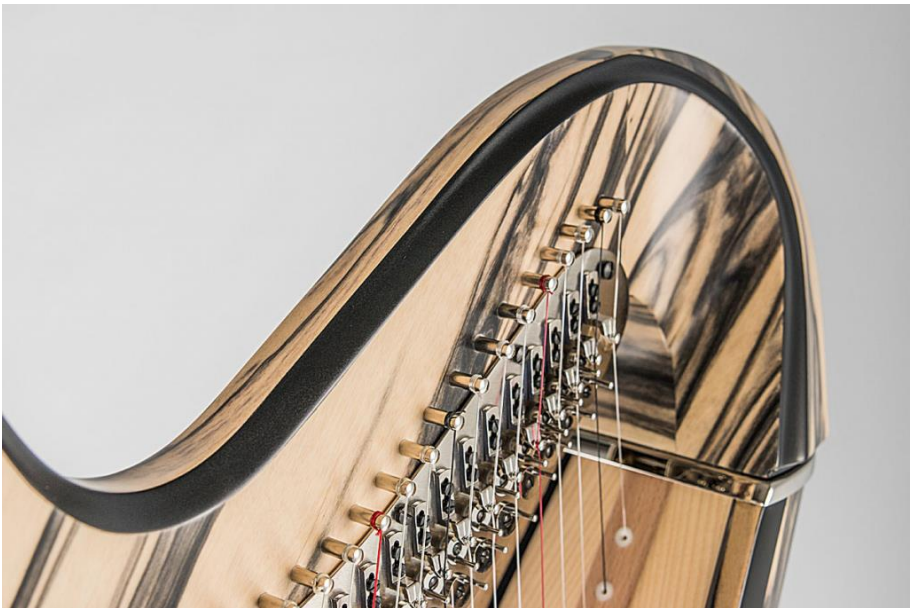


Figure 6. Salvi harp – model Whitney, with white ebony veneer. Courtesy Salvi Harps – Piasco (CN), Italy

Salvi harps is one of the most important harp producers in the world. Since the first appearance of a harp in an orchestra, thanks to the Italian composer Monteverdi (in the first year of XVIIth century), the harp and its soundboard had to adapt the volume to the

increasing dimensions of orchestras and auditoriums: for this reason, the research for materials with the best resonance features was fundamental, together with the study of optimal shape for the sound boards. The use of the best resonance material (the red fir of Val di Fiemme, used as the main component of the soundboard) and the continuous search for innovation (the company has its R&D department inside) are some of the reasons why this company located in Piasco (CN) exports its instruments worldwide. Its long tradition, started in the mid of the XIXth century, permitted them to train generations of artisans: today the high expertise of the workers makes the difference and Salvi can be considered as an excellent Italian company.

Rampone & Cazzani is an Italian company located in Quarna Sotto (VB) that has produced saxophones since the invention of the instrument (by Adolph Sax in the second half of XIXth century). Today it is considered a niche market manufacturer, thanks to the great sound of its instruments, the perfection of details, the possibility of customization.



Figure 7. Rampone & Cazzani – model R1 jazz. Courtesy Rampone & Cazzani – Quarna (VB), Italy

5. Fazioli, a made in Italy brand of excellence

In New York, in September 2003, during the celebration for the victims of twin towers destruction, a concert for 21 grand-pianos was played: they were Fazioli pianos; at the White

House, in 2016, during the celebration for the International Jazz Day, Aretha Franklin and other international stars played a Fazioli grand-piano (AGI, 2016). Fazioli is an Italian piano factory whose concert grand-pianos are famous worldwide and appreciated by many important pianists. The company was established in Sacile (Pordenone) nearly 40 years ago, from a spin-off of the main family factory, a wood working factory, and since then it shuns the production derived from an industrial nature but, on the contrary, it pursues a strategy that combines an absolute technical perfection – derived from in-depth studies of materials and sound engineering – with a traditional handicraft production. These factors combined with the choice of the best woods from the Val di Fiemme trees are the carriers of technological innovation and absolute quality. In a Fazioli piano, there are several patents: the exclusive three-layered soundboard, the unique fourth pedal, but beyond these innovations what matters is its recognizable sound, a strong brand value. The annual production is of about 140 pieces, 95% of which are exported all over the world: they are the numbers of a small company of excellence if we compare it with the biggest piano factory in the world, the Chinese Pearl River that produces 150.000 piano/year (Stefanato, 2018). The choice of the founder (Paolo Fazioli) was to create a high-level object with a special focus on a contemporary Italian sound that was different from the other famous brand (Steinway, Yamaha, ...).



Figure 8 – A Fazioli piano – Credits: © Fazioli Pianoforti spa - Foto Roberto Zava / Studio Step

Today we can say that, if Fazioli is called the “Ferrari of pianos”, this ambitious goal was achieved (it is curious to notice that, similar to a car, a piano is a mechanical engineering product): many great pianists like Herbie Hancock or Angela Hewitt, in some interviews declared that they preferred Fazioli grand pianos instead of Steinway for their concerts.

6. The districts of the Italian musical production

In the field of design, the concepts of districts and supply chains are well studied. Even in the musical field the same features applicable to the definition of a district can be found: when companies use local materials, when they share competences, when they optimize their know-how, when they create a network for promotion and marketing, in these cases real sites of production born and music-related industries can develop. In Italy, two districts of musical production can be identified: Cremona and the Marche district.

In Cremona, the roots of the art of lutherie can be dated in the XVIth century with the products of the Amati family. Then, in the golden era of Italian music, the XVIIth century, Guarneri and Stradivari defined the archetype of arch instruments, today still in use worldwide. People in Cremona were able to take advantage of this long tradition of made in Italy, through structured actions regarding both the enhancement of existing asset (material and immaterial) and the promotion of “new”; actually in Cremona we can find: the Stradivari foundation, the international lutherie competition, the international lutherie school “A. Stradivari”, the Superior Institute of musical study “C. Monteverdi” and the academy “W. Stauffer”, the violinmakers and archmakers (liutai & archettai) consortium “A. Stradivari”, the international exhibition Cremona Mondomusica with more than 300 exhibitors per year², the innovative Violin museum, the “Laboratory of musical acoustics” by Politecnico of Milan, the Arvedi laboratory for non-invasive diagnostic analysis of University of Pavia. A strong component of innovation is the key to the enhancement of tradition. The institution of the “Cremona Liuteria” trademark based on a specific production regulation was set up to prevent industrial standardization and to preserve and guarantee the Cremonese musical instruments³. In 2012 the “traditional violin know-how in Cremona” was declared Intangible Cultural Heritage by UNESCO. The result of this organic approach is a strong growth in the sales, above all in exports: in 2015 the export of musical instruments in Cremona was € 4.225.170,00, + 11,85% as compared to 2014, +553,23% as compared to 1995; those data demonstrates that the excellence market is still able to grow, despite international crises, even because it doesn’t follow temporary trends. An interesting fact is also that 42% of the total of 154 luthier artisan workshops have a foreign owner: the attractiveness of Cremona is very high especially outside Italy, not only towards students but also towards entrepreneurs (Antoldi, et al., 2016).

² <http://www.cremonamusica.com/en/>

³ <http://www.cremonaviolins.com/il-consorzio/il-marchio-il-regolamento-la-tutela/>

The Marche musical district is the biggest area of musical production in Italy, with the highest value of turnover. While in Cremona the district is connected with the specific production of arch instruments and its related technologies, in Marche the district is hybrid and not focused on a specific kind of instrument. All started with the production of accordions (see above about FARFISA), an instrument with keys where the sound is generated by a blower; during the following years the local factories could adapt to new technologies and the market changes: by electrifying the harmonium (where keys and blower are the same components of the accordion) in the 60s the electric organ was introduced, then the first keyboards (electric piano) were produced together with the first Italian electric guitars (Eko). Today many fields of music production are active in the Marche district: keyboards, electronics, amplifiers, speakers, ... and many international industries such as Korg and Roland take advantage of the ability of local craftsmen and factories. Today Eko Music Group Spa, Fatar Srl, Korg Italy Spa are some of the enterprises with the highest turnover (ICRIBIS, 2020).

7. Some opportunities

The word design is paired with the word music in a very few cases, most of them referred to home acoustic speakers that are considered pieces of furniture to be put in a living room or in a bedroom: in this specific field, the good design seems to be considered a value for the product and is also used for advertising campaigns.

Among the musical instruments producers, few companies consider design as an essential feature of their products (on the contrary, in other market fields, in certain products the word design is shouted and exhibited, sometimes out of proportion, sometimes without any good reason). In musical instruments, Design seems to be an additional feature, that comes after all the main product qualities: tradition, materials, sound, prestige. Even amongst the companies mentioned in this paper, it is hard to find the word design in any of their websites. In the academic world, some books regarding design and music can be found (i.e. in Italy the recent book of Marano, 2019), but they are far too few to be considered as effective literature on the topic.

Another area with a lack of design-driven attention is the world of exhibitions or expo. In big design events as Salone del Mobile in Milan or 100% Design, visitors are not only operators, sellers, designers or entrepreneurs: a large part of public is made of curious people or people not directly involved in the topic of the expo; in those big fairs, however, musical products can rarely be found. In music fairs it is just the opposite, that is only a few are curious people amidst the majority of insiders.

Deep cultural roots, long-time tradition, fine materials, excellent craftsmanship, brand value, product durability, attention to innovation: many Italian musical industries possess all of the qualities usually related with the Made in Italy, a heritage that could represent a real opportunity to open new roads in the wide meanings of design.

Design related to musical instruments and accessories could be the topic for research projects, academic courses, workshops, conferences, fairs, and papers. Designers, professors, and students could be involved in this specific field and, for example, producing a structured survey of the Italian musical industries: each one of the factories, just mentioned in this paper, would deserve a wider discussion for the wealth of their technical know-how, their ability to work local materials, the durability of their products.

Italy always expresses high cultural value in music, both at an international level and at local and regional ones; this is another point of view to start from, for an inclusive approach to music design and its preserves.

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