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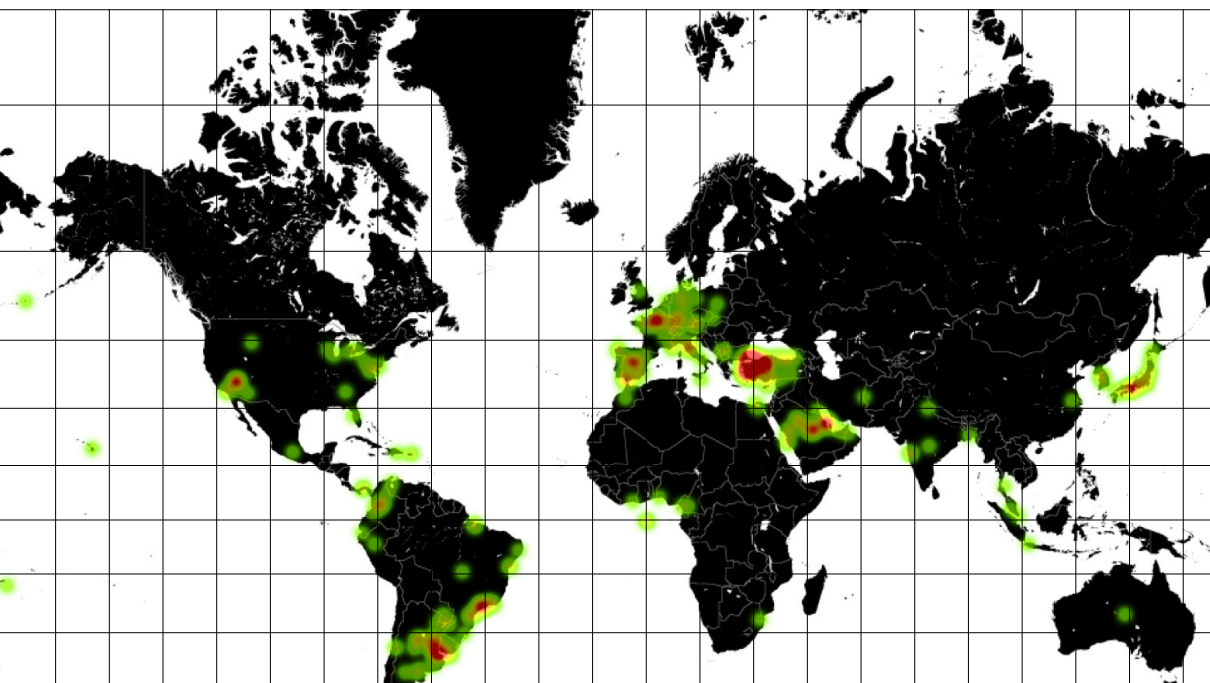
VOTA! RIPARTIAMO DALLE COMUNITÀ
BOLOGNA BP2020
BILANCIO PARTECIPATIVO 2020

16 NOVEMBRE — 5 DICEMBRE 2020
BELLEZZA, EDUCAZIONE, SPAZI VERDI, GIOCH
CURA DELLE RELAZIONI E DELLE PERSON
VAI SUL SITO E VOTA: PARTECIPA.COMUNE.BOLOGNA.

CONSEGNE ETICHE

Colophon

Scientific Board

This issue is dedicated to the memory of Salvatore Iaconesi (1973-2022), remembering and valuing the rich heritage of art, beauty, thoughts, words and actions that represent the fullness that remains after his departure. The design community rallies around Oriana Persico with the aim of generating new rituals for contemporary human beings.

Cover image
One Million Dreams,
Salvatore Iaconesi
and Oriana Persico

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Design for the Music Industry: When the Gap is an Opportunity
Scenario Analysis, Trends in Contemporary Research, Case Study of a New Product

Marco Mancini
Università degli Studi di Ferrara
marco.mancini@unife.it
ORCID   0000-0001-5438-8491

Abstract
Between the academic world, which often represents new expectations and disseminates the latest frontiers of design research, and the sphere of industry, where they are filtered and introduced into the market, there is a relationship of mutual exchange and influence.

In the music industry, this relationship seems to have remained at an embryonic stage: companies are researching and investing in new products, effectively applying many of the contemporary topics of design research (usability, interaction, ergonomics, technology, user-centred) without the academic world, literature, and design exhibitions have truly become aware of the enormous potential of this area, in which the economic interests are strong (the users of music include all the people on the planet) and generate a close competition between companies.

The analysis of case-studies of innovative musical instruments and the project for a new speaker stand thus become an opportunity to demonstrate the advantage of a design approach in this important area.

The Music Industry

The music industry encompasses many different activities: record companies, music publishers, recording studios, authors, performers, artist management, collective management organisations, music radio, music television, digital music services, physical music retail, live music event production, concert venues, manufacturing and retailing of musical instruments and music equipment, music merchandising, and music schools (WIPO, 2015). Each of these activities requires tangible products to carry on its work: musical instruments, microphones, stage accessories, speakers, amplifiers, control systems, professional bags, stands for specific uses and many more.

Despite the great possibilities for a designer to work on this topic (Attali, 1985), the music industry is a largely unexplored theme with regard to academic papers, conferences, design schools, workshops, and exhibitions.

In Europe, this industry contributes many billion EUR Gross Value Added (GVA) annually to the EU (Oxford Economics, 2020). These numbers confirm that it is opportune to explore the theme from the point of view of the design discipline: this area concerns all the fields of design, from service design to product design, from interaction design to sound design, but also exhibit design, light design, and indirectly fashion design, food design, game design, and more.

All these areas come into play in live events (live concerts, festivals, theatrical performances, village parties, small open-air concerts), in dance events (discos, rave parties, DJ sets), in the radio and television sector, in digital platforms (Spotify, iTunes, Youtube, etc.), in ambient and background music (airports, subways, supermarkets, bathing establishments), reaching the ears of all people, whether they are paying and aware listeners, whether they are TV program viewers or outlet shoppers.

As an artistic expression, the world of music has a particular characteristic that can be even more appealing for a designer. More than other areas, it is open to experimentation, product innovation, transdisciplinarity (Nicolescu, 2008) and new technologies: take for example the innovative light shows and installations used decades ago by bands such as Genesis or Pink Floyd, the use of holograms or telepresence to recreate bands or to replace missing or distant elements, as in the virtual reunion of The Beatles (Ransom, 2018), the experimentation of techniques such as silent concerts (organised to avoid disturbing the peace in old towns or crowded places), attempts at a sustainable approach (such as dance floors in discos with piezoelectric sensors, used to produce electricity from the movements of dancers), or the use of self-learning algorithms (i.e. Spotify) that generate custom playlists based on users' previous music choices.

The Economic Value of the Music Industry. The European Market

The Economic Impact of Music in Europe (Oxford Economics, 2020) was the first concrete scientific effort to measure the economic impact of the music industry in Europe. Published in November 2020 (and referred to the year 2018), this detailed report made it possible

to evaluate and disseminate the significant numbers generated by the music industry, which had not been analysed in great depth in the past by national statistical institutes. It showed that the music sector contributed EUR 81.9 billion of Gross Value Added (GVA) in the EU27 and the UK, supporting two million jobs, and exported EUR 9.7 billion worth of goods and services. For every euro of Gross Domestic Product (GDP), the music sector has supported the creation of an additional EUR 1.20 in the rest of the European economy (including other segments of the music industry). This multiplier reflects the high level of investment of record companies in other parts of the music industry value chain. In addition to the direct contribution, the music sector has also contributed to the European economy through its procurement of goods and services (the indirect impact), as well as in terms of wages: it generated EUR 31 billion in tax revenues in the EU27 + UK, that is the equivalent of 19.4% of the entire EU budget for 2018.

If it was previously underestimated, we now know the role that music plays in many areas of our daily life not only at a cultural level (Ernst & Young Global Limited, 2014) but also at the industrial and economic levels (European Audiovisual Observatory, 2019).

Music in the Design Discipline

Those who frequent the design environment out of professional or educational interest, can confirm that the field of music is not considered as one of the possible strategic sectors for design (Sanders & Chan, 2007). Scientific reports on the link between music and design are very rare, and there are few papers or books on the subject, i.e. Marano (2019), Morrow (2020), Raposo et al. (2021). In European universities, there are very few degree courses that propose the theme of design for the music industry and investigate it in a structural manner (such as Falmouth University).

In newspapers or design competitions, the term design is associated with the term music mostly in reference to audio products, such as loudspeakers (which are included in the category of interior design or furnishing accessories for a living room, bedroom, or studio) or headphones/earphones (considered to be products for personal use).

Few musical instrument manufacturers, on the other hand, consider design as a lever for promoting their products. They usually focus on brand values that guarantee the perceived quality of their products as a combination of tradition and typical sound.

If we consider design-related trade fairs, we can observe that, while almost all the product sectors are represented (furniture, automobiles, fashion, games, glasses, food, etc.) there are almost no exhibitors from the music sector. There is great public participation in design fairs such as the Salone del Mobile in Milan, Italy or Design London, UK: in addition to professionals, this audience also includes numerous onlookers or visitors from other fields. This is not the case with music fairs such as Namm in Anaheim, California, or Musikmesse in Frankfurt, Germany, where the public of non-experts represents only a minimum share. The world of music is often seen as elitist and reserved for insiders only, even though music products

demonstrate all the characteristics required to consider this sector to be a fundamental bearer of design values. Culture, tradition, materials, links to the territories, artisanal quality, technical and technological values, the importance of the brand, the export value, the duration of value over time: these are concepts (Trabucco, 2015) that would be worth importing into contexts in which we talk about design (fairs but also education, conferences and publications, seminars and corporate initiatives).

Design Research in the Music Industry

A musical instrument is perfect for research, study, and experimentation in terms of ergonomics and interaction: it is designed to be used by the musician's fingers with an appropriate body posture (Hopkin, 1996). The ability to play an instrument (piano, guitar, sax, drum, etc.) is the competence to interact with it (Kubovy & Van Valkenburg, 2001): many years of study and practice are required to master the technique. In the history of musical instruments, the search for innovation has always focused on expanding the interaction and the expressive possibilities of the instrument, through new materials, new technologies, and new proposals in terms of ergonomic features as well as sound volume. The first modern guitars had six single chords, instead of the previously used "cori" (couples of chords): it is easier to push one chord with one finger rather than two; the improvement in the ease of execution was so evident that it gave rise to the incredible diffusion of guitars around the world. The modern piano (invented by Bartolomeo Cristofori, 1720) introduced the dynamic modulation of the sound, previously unknown in existing harpsichords. This technical invention made it possible to play more softly or loudly by controlling the pressure on each key: today, all the pianos in the world follow that dominant asset (Mancini, 2019).

What about the introduction of new technologies on a musical instrument?

ROLI is a company that built its reliability on the purpose of applying new technologies to existing electric keyboards. Its Seaboard keyboard **Fig. 1** represents one of the first successful attempts to expand how musicians interact with the instrument through the use of innovative sensors and materials and a contemporary approach to design. In this instrument, the keys are coated with a soft silicone surface: the traditional dynamics of varying the pressure on the key can be associated with other actions capable of controlling additional parameters of the sound modulation.

Fig. 1
Seaboard Rise by ROLI.
© ROLI, London.

Fig. 2
Orba: the instrument (top)
and the ten gestures that
activate different sound
controls (down).
© Artiphon.
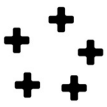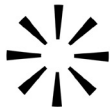
PRESS TAP RADIATE SPIN SLIDE

MOVE BUMP SHAKE TILT VIBRATO

Orba by Artiphon Fig. 2 is a small smart musical instrument weighing 158 grams that uses the latest in mobile and gaming-controller technology to generate sounds with characteristics that change depending on the movement or type of touch applied to the product. Its touch and motion sensors (accelerometer and gyroscope) combine to capture even the most subtle micro-movements, allowing ten core gestures: Tap, Press, Spin, Radiate, Tilt, Shake, Slide, Vibrato, Move, and Bump. Each gesture can be used to control the kind of sound and/or effect of the synth engine or an external music software of choice. The study of the choice of gestures and related functions constitutes an interesting case study of interaction and UX design (Saffer, 2009).

Moving from an ergonomic perspective with the purpose of creating a portable harp, the Salvi company (Italy) developed excellent design work on its Delta electric harp, for which the research on materials and form generated a futuristic, versatile, and innovative instrument Fig. 3.

This solid body electric instrument allows resonant, dynamic performances, with the possibility of using effects processors. The Delta's innovative shape is easy to handle, thanks to its carbon fibre structure, and makes it effortless for musicians to play it in their own way — sitting with its base, standing or even moving around the stage with a strap.

Fig. 3
Delta harp. © Salvi Harps, Piasco (CN), Italy.

If we consider a large musical instrument such as the piano in an interior space, we can assume that the designer should also think of its second life, when it is not being played, in relation to the functionality and the role of that specific room.

Belgian designer Dirk Wynant offers an interesting point of view on the role of the piano: it is both an object for social purposes, aggregation and sharing, and a furnishing product that needs its own space. The SAM piano was conceived to combine both features Fig. 4.

"Since our living spaces tend to get smaller, pianos often lose their central position in the room. An average household does not

have the space for a beautiful and impressive piece of furniture like this. With S.A.M. or Save A Musician (from being lonely), Dirk Wynants includes the pianist in the conversation again. The piano becomes the central piece when people are having drinks together or lovers are enjoying a romantic dinner" (SAM piano website).

The aforementioned purpose reflects a social approach to design, a provocative, realistic view of the role of a pianist and his instrument within a small group of people.

Fig. 4
Dirk Wynants, Sam Piano.
© DWDW.

The Opportunities for Design-Oriented Research
in The Field of Accessories. Case Study: Starman — Stand

In addition to the field of musical instruments and listening devices, an integrated design approach can also qualify the final product even when devices are conceived for a utilitarian and functional purpose (Burdek, 2008).

Starman Fig. 5 is an innovative stand for speakers, conceived with these objectives: to achieve a better aesthetic quality and to improve the structural and safety characteristics, with the possibility of increasing the functionality of the product.
The need for this project arose from the observation of how the category of speaker stands has settled over the years into a standard design, of a dominant asset, often unsuited to the aesthetic level of the venues dedicated to musical performances and, on a structural level, to the increased regulatory sensitivity towards safety issues in the workplace, and performances in which an audience is physically present.

Preliminary Investigation and Benchmark Research

The first phase of the investigation was carried out with in-depth research in two areas: products currently available on the market and brand new concepts registered as patents or designs.

The data revealed that all speaker stands are made of steel or aluminium tubes mounted in the form of a tripod with tie rods applied to each of the legs. A vertical central tube runs up and down to adjust to the desired height, then it is stopped. Manufacturers make these supports in standard colours (mainly black) with few modifications in the thickness of the tubes, in the rod locking system, and in the possibility of inserting cranks or pneumatic systems for lifting.

The investigation into the research databases connected to the World International Patent Organization (2021) revealed that latest requests filed by leading companies in the sector concern minimal variations in some non essential components, such as the logo, the insertion of colored details to be used as a personal mark, rubber feet with a customised design. In essence, it could be confirmed that this type of product has undergone only minimal incremental innovations over time.

Project Objectives

The search for an integrated design solution was conducted with three important objectives: the improvement of the structural and safety characteristics, the achievement of better aesthetic quality, the possibility of increasing the functionality of the product.

The structural problem. Traditional supports have legs hinged with tie rods (consisting of flat metal elements), which can be opened to fit the free space on the ground: this feature, useful for optimising the overall dimensions, is potentially dangerous however when the speakers are too high and too heavy, and the legs are not opened adequately: in this case the speaker can fall at the slightest impact, constituting a real danger for the musicians on the stage and the audience, as well as causing damage to the equipment itself.

The aesthetic problem. Connected with the idea of the temporary nature of any live performance in medium to small scenarios, such as pubs, small theatres, aperitifs, wedding events, presentations, readings, there is also the acceptance of a series of aesthetic parameters that we would normally not accept if the fruition were of a more stable and permanent type. Are we sure that tripods (for speakers, lights, photographic equipment) are the only possible solution for all these situations? In a glamorous event, every detail is studied and designed, from the colours of the wires to the arrangement of the chairs, from the flowers to the towels in the restrooms. The supports for the speakers define the show area, by demarcating boundary lines between the artists and the audience. Why not propose a stand that is also adequate from an aesthetic point of view?

The functional problem. These supports are generally needed in locations that are small or medium-sized, without a permanent stage. In these contexts, all the space on the ground is vital, but the traditional supports, with their tie rods on the inside, neutralise the possibility of using the space under them to place other devices or utilities for the stage, such as monitors, bags, mixers, small cases.

From the beginning of the research, a primary choice was made: the elimination of the tie rods that connect the legs to the central tube. This would generate a cleaner, more contemporary and elegant formal solution (aesthetic problem), free up space inside the stand (functional problem), and impose a new structural solution, respectful of recent regulations (structural problem).

Tripods without tie rods (with the legs locked only at their top) are existing and well-known but they are designed for very light loads, i.e. for smartphones, cameras, small lights. Because the weight of acoustic speakers is significant, it was necessary to think of a new technical solution.

To ensure safety, a five-legged model was chosen, to move the tip-over line (the virtual line that connects the ends of two adjacent legs) away from the centre of gravity of the structure: in the event of a collision, this solution is more stable. This technical choice was also motivated by current regulations for work environments, where five legs are the standard in seats, to avoid overturning. Furthermore, by choosing a pentagon, the footprint could be reduced without affecting stability. The geometrical features were optimised to propose a fixed, non-adjustable open position, to reduce the risk of falling that derives from an empirically assessed, incorrect open position.

With five legs, each leg would bear less weight, and this would facilitate the development of a safer solution.

Fig. 5
Traditional speaker stand (left) vs the new Starman stand (right) designed by Marco Mancini © Starman — Stand, Italy.

Research and Design

The proposed solution is a first-class lever, in which the fulcrum is the pin that connects the leg to the central part of the tripod. The two lever arms are calculated so that the leg stays open thanks to the weight of the support, and the stability increases as the speaker weight increases, too.

The research proceeded by pursuing a technical solution to lock and unlock all five legs simultaneously, ensuring the necessary ergonomic and safety features in execution: the final choice settled on a star-shaped plate, to be positioned slightly lower than the fixing pins, to allow two accommodations for each leg (open or closed). This plate is pushed against the legs by a spring: by pressing and rotating the plate, the legs can be locked or unlocked in a very simple and effective way. Some prototypes were built, to test and optimise the mechanism.

The next step was to improve features and minor details to optimise production: many manufacturers were contacted about the components, for information about production, shipping conditions and costs.

The last phase of the project concerned the choice of colours. The earliest stages of research showed that the chromatic aspect of existing tripods was not taken into sufficient consideration: all the stands on the market are mainly black, with a small percentage of grey anodized aluminium, and very few are available in white. One of the key choices, which also served communication purposes, was therefore to offer chromatic alternatives and the possibility of customization. A stage and in general a show is characterised by iridescent lights and atmospheres that adapt to the context of the song, dance, show, and their moods (energy, sadness, melancholy): the choice of chromatic variations was dictated by a combination of the colours most frequently used on stages (i.e. red or blue lights) and the details of stage equipment (golden jacks and connectors, black amplifiers and rods with chromed details), with the strong personality and characteristics of certain customised instruments (orange or fluorescent). Moreover, a metallic variant with a sparkling finish was proposed to replace the usual matte black, to better reflect contemporary stage lighting, such as moving heads and LED projectors.

Fig. 6
Technical details and chromatic research designed by Marco Mancini © Starman — Stand, Italy.

The Naming

In the literature of innovation, it is well-known that the distance of innovation from a product or a pre-existing process is what also determines the degree of difficulty in the correct communication of the new product (or process). The risk is the partial or complete misunderstanding of the new features of the innovation and, consequently, the failure of the product (Schilling, 2012).

To correctly communicate all the product innovations, the name *Starman* was chosen, for the star shape of the locking plate, for the meaning of a man from other planets and therefore out of this world (in a positive, attractive way), for the association with the famous song by David Bowie (as a tribute to this artist who is fully involved in research of content and aesthetics), and because the use of the word *man* would refer to its strong ergonomic specifications.

Methodology

A particular reflection is necessary, in speaking of the design methodology. A specific design methodology for the music industry cannot be proposed: there is no trace of it in the literature (except for specific methods for the production of certain musical instruments), nor is it possible to find, within the vast theme of the music industry, similarities of approach between very different products such as stage lights and an acoustic piano, hard cases for instruments and stage mixers. The experience of Starman shows that one promising approach is to try not to settle for consolidated dominant models, often generated decades ago, but to apply new research in technology and materials to meet the different demands of shows today, which are increasingly moving towards digital rather than analogue dimensions, in events that require compliance with increasingly stringent safety and health regulations. Adapting to new scenarios and new global transformations, from the point of view of production as well, is undoubtedly fundamental to the possibility of success of a design approach for the music industry.

Conclusions

The previous examples and case study can help to reveal how all the current themes of contemporary design research are considered and applied to real products in the music industry: the user experience (Kuniavsky, 2003) and interaction design (Hendrick et al., 2007) in Seaboard and Orba, ergonomic optimization, and the research into materials for the Delta Harp, the theme of multi-functional interior objects in the SAM piano, the technical research for innovation and the aesthetics of accessory products in the Starman-stand. There are many highly innovative products in this world, which would be worth mentioning in articles, publications, events, or conferences dedicated to the topic. The author's personal experience shows that to explore this disciplinary area in greater depth on an academic, theoretical, and educational level could also be useful from an educational point of view, because students are particularly attracted to music, which is close to their world of values and interwoven with their lives. The music industry is truly a land full of opportunities for designers of all backgrounds, with promising future developments in both product and service design, thanks to the deep connection between research and industrial production.

Marco Mancini
Architect, Ph.D. in Design, his main topics are physical product design, innovation theory, technology, design for the musical industry; on these themes, he holds five patents. He teaches Product Design in universities and schools of art, in Italy and abroad. He is a Lecturer in international conferences. His papers have been published in national and international journals.

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The Open Debate section in issue No. 77 features a selection, curated by professors Erik Ciravegna, Valentina Gianfrate, Roberto Iñiguez Flores, and Laura Succini, of the most interesting and innovative works presented at the 8th International Forum of Design as a Process *Disrupting Geographies in the Design World* held in Bologna in June 2022.

It has been 15 years since the constitution of the *Carta di Torino* Manifesto and the foundation of the Latin Network for the Development of Design Processes. 15 years of intense effort to promote the culture of systems and processes as a "different scientific outlook" compared to the culture of the industrial product destined to the capitalist consumer market.

Emptiness is just as important as fullness (Salvatore Iaconesi, NOT Nero, May 2002).

This issue is also dedicated to the memory of Salvatore Iaconesi (1973-2022), remembering and valuing the rich heritage of art, beauty, thoughts, words and actions that represent the fullness that remains after his departure. The design community rallies around Oriana Persico with the aim of generating new rituals for the contemporary human beings.
Flaviano Celaschi