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communication

design

GDP

innovation

technology

Transmedia narrative and design of emerging spaces in the economic reality of design

The data presented in this article in relation to the economic weight of design place this discipline in a dimension with possibilities to face new challenges, given its strong quantitative and qualitative increase in recent years. At the same time, this growth shows that, since 1986, in Catalan design there have been three key causes that explain the disruptive changes that have transformed its behaviour and positioning and that, therefore, provide an understanding of the process of design in which we are immersed. The sum of these factors reveals that Catalan design is in a good position to successfully take advantage of the expectations for development, innovation and technological change that the transmedia universe entails. A space in which interdisciplinary design can bring creativity and centrality.

Introduction

Today, creative and productive processes are changing, and new fields of creation, beyond the traditional disciplines, are emerging. In addition, the interrelations of design with other social, economic, technological, informational and leisure fields are being emphasised. The formats of the products and the services are evolving, as are their distribution and the way they are communicated. The change in customer perception and participation and in their interaction with creators and the programmers is a fact, as is the change in the companies and the organisations, in production and intermediation processes and in the profiles and the roles of designers.

We move in an environment of accelerated change, largely driven by the continuous technological and digital revolution, which is the cause, and also the consequence, of new ways of doing and approaching design. It is also the consequence of every aspect of our daily lives: from work to education, from leisure to information, from public life to social relationships and domestic life.

Reflecting on transformations and permanent innovation in the world will help us to understand where the future of design is headed, which will undoubtedly become more creative, transversal and plural.

Transmedia narrative and interactive design

Within the context of this changing reality in which the process of technological change and the development of the world of design are moving, the transmedia narrative universe appears to adopt technological change and the development of the world of design. And it does so on the internet, sharing different media¹—and after going through the visual, sound, audio-visual and interactive stages, as a new reference that tries different models of communication²—, as an emerging space for design in the digital era.

This universe enables projects to be undertaken in which design transforms and innovates the uses as well as the preferences and the forms of perception that have transformed into a showcase.

The transmedia space is composed of narrative processes in which design plays a central and creative, but complex, role. It is a space where the way stories are explained is supported by the transmission of content through various platforms or channels of communication with the unique nature of each of them. Each publication transmitted in one medium is complementary to the others: it is not considered a single narrative, it is different fragments of the same, more diverse and more complex narrative. For this reason, total understanding of the story can only be achieved if the different media in which it has been explained are traversed.

Some projects develop the narrative thread in different media: blogs, television, social networks, video games, books, etc. and with the added uniqueness of being represented from the design perspective. It is not only a matter of explaining a story in multiple media and communication platforms, but of establishing a deeper strategy with the objective of attracting viewers' attention, keeping them waiting and trying to follow the whole story to the end, generating their interest and encouraging their interaction with the narration or brand. So it seeks that consumers take an active role in this process.

Therefore, we are dealing with communication processes in which viewers are no longer passive and become active receivers, who decide not only whether or not they want to participate in this story, but also to what extent they are involved (follow the narration until the end or only look at some fragments). This makes the viewer the protagonist, since, without being involved, the story could not be explained.

1. Cinema, video games, animation, graphic narrative, etc.

2. Interactive, multipurpose, interdisciplinary, creative, technological, etc.

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From the perspective of the process, transmedia projects must have content that “hooks” the public. This requirement is achieved through the use of different techniques that permeate their daily life, as well as developing stories through different media formats to release unique pieces of content for each of the channels that are used [1]. These pieces of content may be open or subtly linked to each other and also require the existence of a narrative synchrony between them. In this framework, design uses all available means to convey a coherent message, taking advantage of the strengths inherent in the chosen structure and responding to the characteristics of the environment.

On the other hand, in this context, social networks give a lot of play to the transmedia narrative, since they not only serve as media or support for communicating the story, but are also key elements of the viewer's interaction with the same story, through comments, tweets, etc., which can even change how the story develops.

Getting closer to transmedia projects provides an understanding that their execution and their success revolve around the fact that the content conveys a message that responds to the interests of the audience and the prowess of creative innovation in the field of visual narratives. At the same time, this consideration requires that the value that connectivity and access tools bring to the development and innovation of these projects is not underestimated.

Transmedia narrative is a field that continues to evolve rapidly and adapts to the changing communicative and technological context. And, in this context, the concept of interaction design [2] is strengthened. These

are projects that have gone from playing a circumstantial role in communication to being at the centre in terms of innovation in communication as well as in the relationship between media and audience, and the market possibilities in the context of digital culture. They are also projects that encourage user participation in interactive communication experiences through new digital media.

Interaction design draws on very different sources, although its scope of influence tends to centre around the interaction between person and computer, design and digital creation. We are talking about the discursive innovation associated with what may be called “experimental author interaction”, as part of audio-visual communication: author projects and digital art with a strong component of innovation in interface design and the use of audio-visual possibilities in interactive speech.

The diversity and breadth of the characteristics that are assimilated in the area of interactive communication reaffirm the emergence of needs that are more linked to the digital area and to design.

As Carlos A. Scolari³ says, the transmedia concept may go out of style, as has happened with multimedia, but transmedia narrative logics are here to stay.

A sample of the complexity and the evolution of the concept of transmedia narrative is evidenced in recent research⁴, which suggests the possibility that these narratives are not an invention of (or exclusive to) the XXI century, but that before this time the expanded stories had already circulated among different types of media and that there were already so-called ‘prosumers’⁵ who contributed to the expansion of these stories with diverse contributions.

This reflection merely hints at the intrinsic development potential of interactive communication. A space in which interdisciplinary design contributes creativity and centrality. Therefore, a new and suggestive challenge for Catalan design is proposed.

3. Researcher of expert communication in digital media, interfaces and communication ecology. Educated in the tradition of mass media theories, since 1990 he dedicated himself to study the new forms of communication arising from the proliferation of the Red de Extensión Mundial (a system for distributing hypertext or hypermedia documents interconnected and accessible over the internet).

4. Works by Paolo Bertetti about *The Story of Conan The Barbarian*, Matthew Freeman who investigates the *genesis of Superman* and his expansion in different media (Scolari, Betetti y Freeman, 2014).

5. It is the well-informed consumers who are active in the dissemination of a certain product by recommending it to family, relational or professional groups. In addition, they collaborate on developing and improving the product through its communication channels.

Evaluating the contribution of design to the economy is an indispensable step toward understanding, promoting and developing, for the benefit of all, the many potentials that this discipline entails.

Economic reality and design

By understanding design as the creation of elements for interaction between individuals and the environment in which functional and technological values as well as communicative, symbolic and emotional aspects come into play, and by observing the heterogeneity, polyvalence and transversal nature that the activity and the incidence of design manifest—which means it cannot be identified as a natural economic sector, but as a field of activity—, the difficulty of objectifying its behaviour, its dimension and, consequently, its economic reality is revealed.

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Moving forward in this direction requires a set of key design-related data such as productivity, turnover, gross domestic product and labour. This information is available in industrial sectors and in much of the services sector, although it is practically non-existent in the design activity present in most companies. This is because design is not seen as a branch of economic activity *per se*, but as the aggregation of different spaces of activity that share the set of sectors that make up the economy. It is also revealed that consulting in design⁶ is, in terms of sectors, reduced, dispersed and poorly structured, which means that it cannot be used as an economic reference of the design space.

The lack of consistency of design activity as a consolidated sector has led to the various studies aimed at measuring its economic impact, including the re-

6. See Note 39 (Section 3.2.- Gross domestic product of design).

search work that the *Design Council*⁷ has promoted and published, being focused on observing, analysing and assessing the impact on its areas (business, social, cultural, creative, communicative, innovation, etc.). Therefore, the perceptual contour of design has been taken as reference and, consequently, everything that the economic agents consider it to be has been considered as a design space.

In this article, and with the aim of assessing the current contribution of design to the economy and to reflect on the expectations for development that are insinuated, it has been opted to interpret that design is the area that groups the set of professional activities and works that designers develop. This option provides access to a significant part of design students' and graduates' data from recent years, as well as their opinions about the behaviour of the labour market.

This information from so close to the source has helped to establish a closer link to the gross domestic product of the design space⁸ and to reaffirm the interest that its impact would have on productivity⁹ and development in the sector.

Placing the professional activity of designers as an economic reference in the field of design has meant interpreting that the vast majority of them go through an academic process of learning, and that the educational offer of this discipline adapts quickly to the interests and needs of the students, companies and society in general.

In this context, *design* is understood as the degree of penetration and acceptance that society has of design, a concept measurable through variables such as the number of designers, the gross domestic product of design, the offer of design studies and the use that companies make of it to qualify their identity¹⁰.

7. Some examples are: *The Value of Design to the UK Economy*, published by The Design Economy Report (2015), *The Value of Design in the UK Automotive Sector*, Published by the Design Council, The Coventry University and The Automotive Council UK, *The Economic Effects of Design*, published by the Danish Design Council in 2004 and *The DMI Design Value Scorecard: A new design measurement and management model*, published by DMI and Motive Strategies.

8. See Notes 27 and 28.

9. The Total Productivity of the Factors (TFP) is defined as the increase or decrease of yields in the variation of any of the factors involved in production: labour, capital or technical, among others.

10. Not quantified in this article.

Theoretical collective of designers

In this context, the “theoretical collective of active designers” includes graduates in university studies¹¹, higher graduates in design (ESD)¹² or vocational training¹³, graduates in other disciplines who, because of their professional or motivational situation, choose to approach the field of design through continuous training in design¹⁴, and students who took the various unregulated design studies prior to the 2003-2004 academic year. Therefore, this is the group of design professionals that theoretically exists in the Catalan market.

From this perspective, and taking a period of 44 years as a reference (from 1972-1973 to 2015-2016), which is the estimated standard professional life time¹⁵, demand and design studies have been analysed and evaluated¹⁶ from the perspective of student behaviour.

Thus, during this period, 65,920 designers¹⁷ graduated in Catalonia, who together represent the “theoretical collective of designers”¹⁸ existing in 2016. This group of professionals has grown an average of 9.7% per year since the 1975-1976 period. Although at the same time, this increase tends to decrease, as indicated by the fact that the annual average of the last five years is around 7.5%. This becomes, therefore, a first indicator of the quantitative weight of design.

It should be noted that the number of university students enrolled in design, from the academic year 2004-2005 to 2015-2016, increased by 2.7%¹⁹ per annum, with an average increase of 4%²⁰ over the last three years. This percentage is 2.5%²¹ higher than that of university

11. Dependent of the Ministry of Education. Public and private. (From the 1998-1999 academic year).

12. Dependent of the Catalonia Regional Government. Public and private. (From the 2003-2004 academic year).

13. Middle and higher education training cycles. Dependent of the Catalonia Regional Government (from the 2003-2004 academic year).

14. From the 1998-1999 academic year.

15. From 22 to 65 years old.

16. See Table 01. Evolution of the “theoretical collective of designers” and Table 02. Growth of the “theoretical collective of designers”.

17. From the university and higher degrees in design, master's and post-graduate students from other disciplines, cycles of middle and higher degree and various design studies in force until 2003-2004.

18. Before discounting the impact of mortality and unemployment.

19. $(1574 : 1141 = 1,380) // ((1,380)^{0,0833} - 1) * 100 = 2,72 \%$.

20. $(1574 : 1.401 = 1,1235) // ((1,235)^{0,333} - 1) * 100 = 3,96 \%$.

21. $(52\,392 : 50\,195 = 1,0438) // ((1,0438)^{0,333} - 1) * 100 = 1,44 \%$. $3,96 - 1,44 = 2,52\%$ Students enrolled in Catalan universities. Office of access to the university. Catalonia Regional Government, 2015.

Table 1 Evolution of the “theoretical collective of designers”
Number of professionals. Period: 1976-2016.

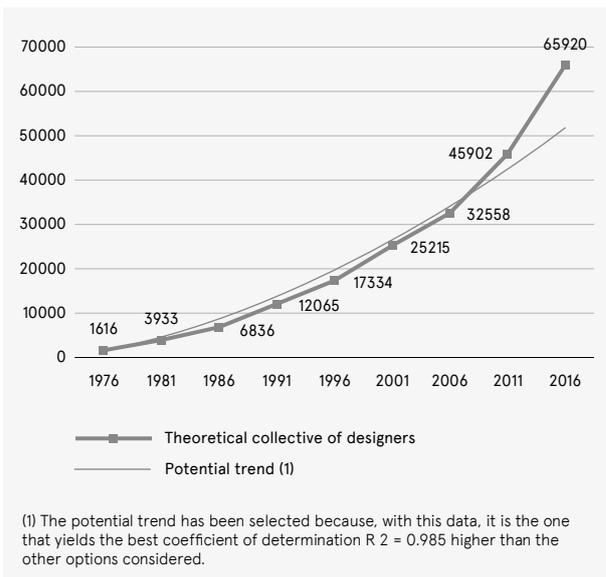


Table 2 Growth of the “theoretical collective of designers”
Average annual growth over the last five years (in %). Period: 1976-2016.

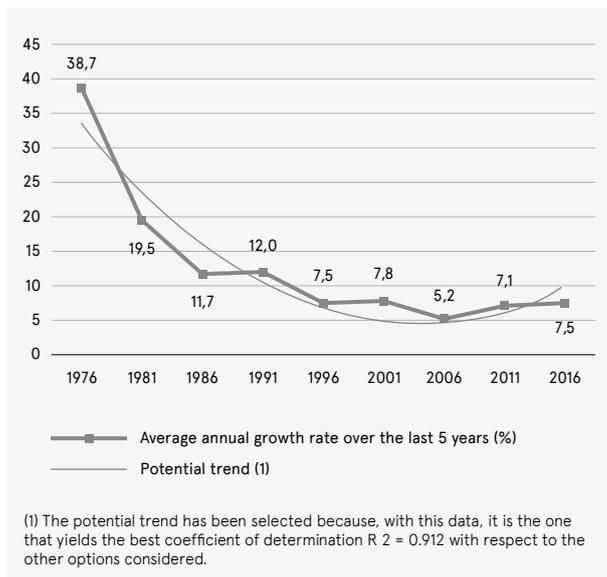


Table 3 Situation and trend of the “theoretical collective of designers”
according to academic qualifications.

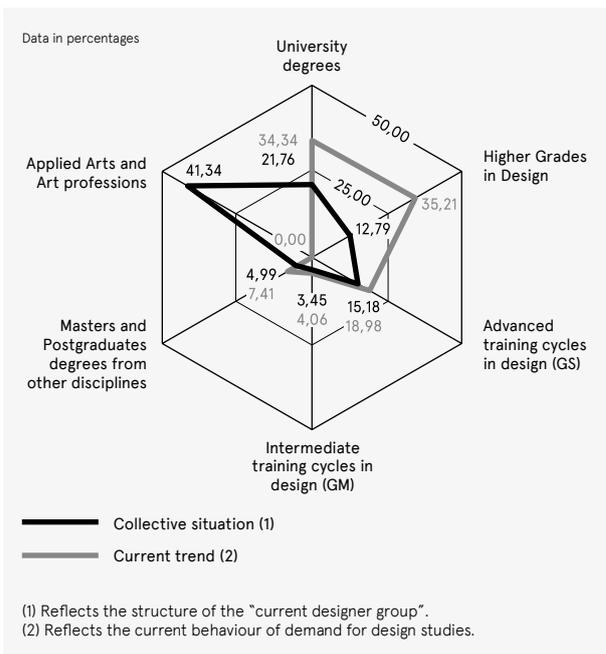
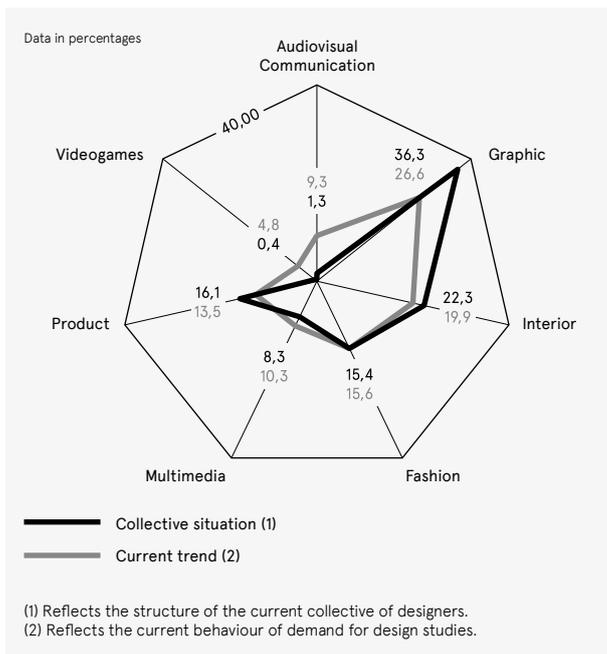


Table 4 Situation and trend of the “theoretical collective of designers”
according to specialisation.



students as a whole during the same period. These data highlight the interest that design studies arouse in today's students.

Although the growing number of design students in recent years is significantly influencing the origin of the "theoretical collective of designers," it still includes 41.8% of professionals from the extinct studies of Applied Arts and Design Crafts (including the Fashion specialisation, where university degrees and higher design studies represent 21.8% and 12.8% respectively). The total of the latter grades is 69.6%²² of the annual graduates, a behaviour that is consolidating as a trend.

It should also be taken into account that approximately 80%²³ of the students in the formative design cycles (GS) extend studies in the university area and that 75% of public school students of formative design cycles (GM) do not finish their studies²⁴, which means that, at this time, they cannot be considered graduates.

The composition of the theoretical collective of designers, from the perspective of academic specialisations, also reflects significant changes in recent years.

Its composition still maintains a classic profile, characterised by 36.3% of professionals in the field of graphic design, 22.3% interior design, 16.1% product design and 15.4% fashion design. A profile that occupies 90.1% of this structure as a whole.

The current trend, however, is a reduction in the choice of graphic design by 9.7%, interior design by 2.4% and the product design by 2.5%. By contrast, fashion design remains unchanged at 15.4% and the demand for the new areas of specialisation and knowledge that technological innovation is driving is growing. Thus, 10.4% of students choose the multimedia specialty, 9.3% audio-visual communication, and 4.4% video games. This is 24.4% overall, with a growing structural tendency²⁵ that shows the strength of change that these new areas of specialisation with a strong technical and innovation component are driving. There is a significant presence, above 30% non-stable, of non-attended teaching.

22. 34.34% (university degrees) + 35.21% (higher design studies) = 69.6%.

23. Data extracted from 20 qualified interviews.

24. Data extracted from 20 qualified interviews.

25. An increase of 10.6% on average since the 2004-2005 academic year.

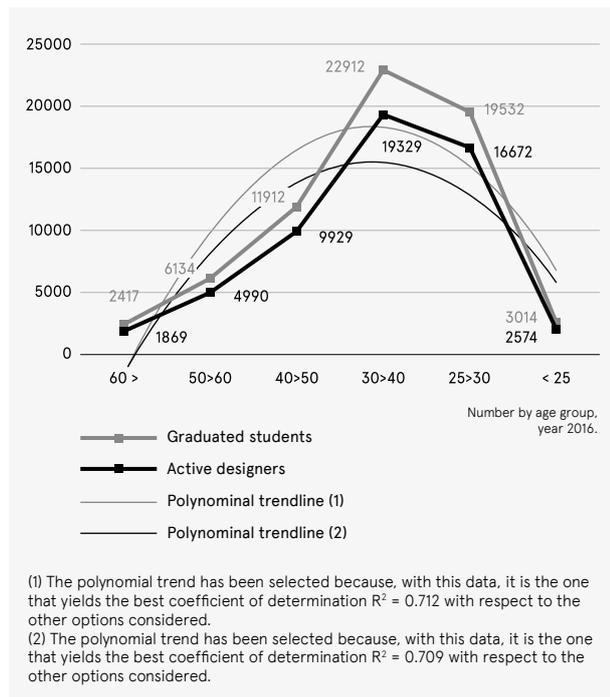
Gross domestic product of design

GDP²⁶ is an indicator that enables the economic activity of a sector during a given period, usually one year, to be evaluated and compared with that of other sectors and countries. In the context of this work, the GDP enables estimations and comparisons to be made of the economic contribution of design and its impact on the Catalan economy.

It has been chosen to evaluate the gross domestic product of the design sector, taking its protagonists, designers and the values of global, sectorial and specific GDP by employed population as a reference.

Applying the impact of mortality²⁷ and unemployment²⁸ (14.6%) to the aforementioned "theoretical collective of designers" (65,920), it is estimated that the

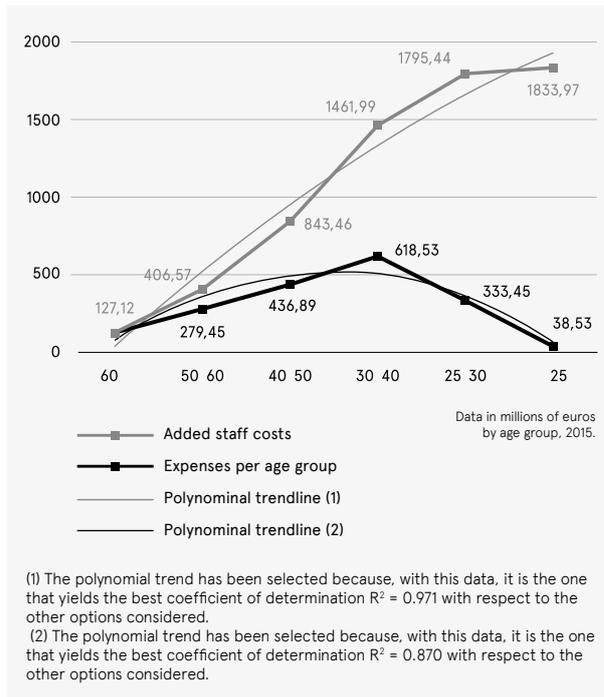
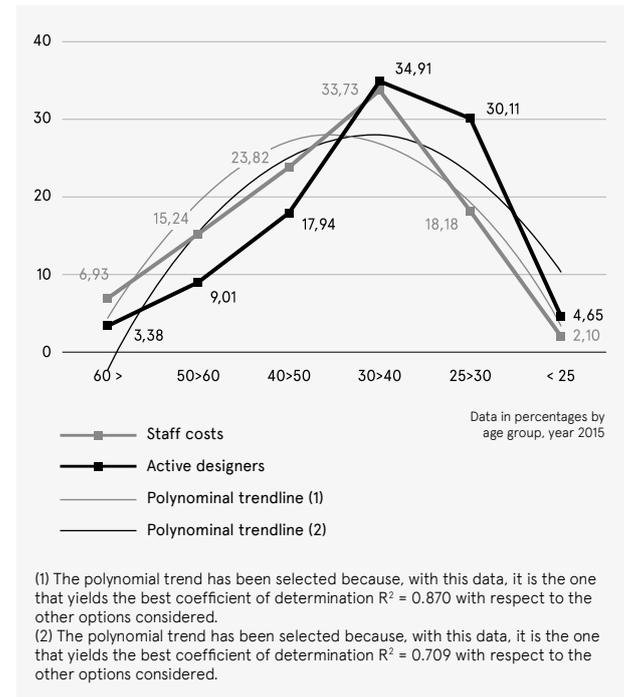
Table 5 Graduated students and active designers.



26. GDP, which aims to measure the same as the GVA (Gross Value Added), differs from this by the fact that it includes net taxes on products.

27. > 60 years 8%, between 50 and 60 years 4% and between 40 and 50 years 2%.

28. Activity, occupation and unemployment indices. Idescat 3rd quarter of 2016.

Table 6 Active designer personnel expenditure.**Table 7** Active designers and personnel expense.

number of active designers is currently 55,363²⁹ professionals, 16.1% lower than the estimated theoretical collective of designers.

At the same time, the number of professionals in active design in 2016 was 1.7%³⁰ of the employed population³¹ of Catalonia and 1.8%³² of the employed population in the industrial and services sectors (2,938,400 persons) in which they prefer to carry out their professional activity.

Taking the Labour Force Survey salary data³³ as a reference for the year 2015 on the average of salaries in gross terms, the salary expense by sections and overall of the collective of designers in active has been evaluated.

In this respect, the collective of design professionals has, as a whole, an overall wage bill of €1,833,970,000,

representing an average wage cost of 33,126³⁴ euros per designer.

The structural and functional typology of design, characterised by the transversal nature of its activity, means that it revolves around a small group of companies that offer design services³⁵, to a considerable number of professionals who carry out this activity from simple organisational structures, studios and offices (the latter use Economic Activity Tax³⁶ and the personality of self-employed as an administrative reference) and a large number of (salaried) designers who are part of the many companies that include design in their development processes.

In this framework, the number of active designers was evaluated (55,363), taking into account that in 2015 the Catalan GDP was €211,215.59M³⁷ and the employed population was 3,223,900³⁸ people, it can be estimated

29. See Table-05.- Graduated students and active designers. $(1,869 + 4,990 + 9,929 + 19,329 + 16,672 + 2,574 = 55,363)$.

30. 53,363: 3,223,900 of the employed population = 1.7%.

31. Idescat. Structure of population occupied by sectors of activity. 3rd quarter of 2016.

32. 53,363: 2,938,400 of employed population in the industrial and services sectors = 1.8%.

33. Labour force survey. NIS, National Institute of Statistics.

34. €1,833.970 M: 55,363 designers = €33,126 per designer.

35. In 2014 there were 325 companies in Catalonia (CNAE 7410 Specialised Design Activities), which together totalled €179,711 M, with an EBITDA of €19,187 M, personnel costs of €51,849 M and write-downs of €3,405 M, figures that provide an indication of their actual weight.

36. Tax on Economic Activities.

37. Idescat.

38. Idescat.

that, on average, each employed person in Catalonia contributed €65,516 of GDP and concluded that design GDP was, in a first approach, €3,627.14 M, or 1.72% of overall GDP.

If a first breakdown of GDP and employed persons in the four major sectors of the economy (agriculture, industry, construction and services) is considered, and the average GDP of each employed person and sector, it is observed that this varies from €42,210 to €71,380. And given that design activity is essentially developed in industry and services, a second valuation of design GDP would be €3,807.24 M or 1.8% of GDP.

Ultimately, if the study data is taken into account *The value of design to the UK economy* [3], which assesses the productivity increase (41%) of professionals working in a design environment, the GDP of design would be €5,141.26 M, 2.42% of GDP³⁹.

These data, therefore, place design activity at between 1.72 and 2.42% of GDP, values comparable to that which represent the set of artistic, recreational and entertainment activities of Spain. These figures, which place the economic weight of design in a dimension with possibilities to face new challenges and reflect the strong growth, quantitative and qualitative, experienced in recent years, also explain the process of *design* in which we are immersed and insinuate the development expectations that must be harnessed.

Disruptive impacts on the evolution of the design sector.

This approach to the economic evolution of the design sector has enabled the observation to be made that, since 1986, in Catalan design there have been three key causes that explain, to a large extent, the changes that have transformed the behaviour and the positioning of design.

Legislative change

From Law 11/1983, 25 August, on University Reform⁴⁰, the doors opened to design as an academic discipline which, until then, was sheltered around the concept of Applied Arts and Artistic Crafts⁴¹. This area is where active design professionals are from. On the other hand, Royal Decree 596/2007, 4 May, establishes the general ordering of the teachings of Plastic Arts and Design, and Decree 284/2011, 1 March, General Ordinance of Initial Vocational Training opens a period of changes and inspiration in the sector and also orders, schedules and places the educational offer in terms of design into value.

In this context, design becomes an academic discipline, a new field of study and knowledge. University curricula are also created, teachers' offices are set up and a new educational offer is presented, which easily reaches high levels of credibility.

Technological change

Digitisation, with its potential for growth, innovation and transformation, is driving a new stage, a new culture of its own that affects how people, companies and society are informed, communicated to and behave.

Increasingly, most people and companies live connected to the network and are part of a permanently open communication system. We realise that we are immersed in the process of creating the digital culture, where limits and behaviours are still being defined.

From this evolution, new interests and challenges, other ways of relating, living and seeing things are emerging:

The internet has changed the paradigm, and has enabled a leap from *the local environment to the global world*. It has also led to the democratisation of the design sector, but at the same time, it has forced us all to have more technical knowledge and to be much more

39. In *The value of design to the United Kingdom economy* (The Design Economy Report 2015), the weight of design in the United Kingdom is estimated at 7.2% of the total Gross Value Added. It should be taken into account that the United Kingdom is the country where design activity has a more relevant role.

40. Better known as the University Reform Law (LRU) and effective until 13 January 2002.

41. Including the fashion specialisation.

rigorous. The designer (in all disciplines) is now more technical, and the technician is more designer.

3D printing⁴² is leading the change in the world of design as it has been understood so far and enables thought to be reproduced in unprecedented volumes and times and with progression that as yet has no bounds.

The inclusion of new materials such as graphene⁴³ is opening chartering unknown territory that points to a new technology revolution.

Digital animation enables moving images to be created using computers. The graphics created are 3D. The objective of the animation is the computation itself, and the media are infographic diagrams⁴⁴ and movies, among others. Now, designs are made with the help of design, modelling and rendering programs.

The multimedia world stands as a system that uses multiple means of expression, physical and digital, to present or communicate information. The media can be varied, from text and images, to animation, sound and video. An interactive multimedia environment is where the users have free control over the presentation of the content, what they want to see and when they want to do it. This technology enables integration of text, names, still or moving images, sounds, etc. and at the same time offers a high level of interactivity and navigation.

All these tools are configuring the natural environment of the generation born since the eighties, which has coexisted with the digital world from the outset. For this reason, in this generation these new patterns of behaviour are manifested and related more clearly. This generation is also the one that has a fundamental role in the very process of change that digital culture symbolises and that the world of design projects.

At the same time, new technologies are forcing us to redefine how we relate to artefacts, so that interaction with them becomes essential, and usability, user experience and design of the information are increasingly important. In this sense, interaction is not a new paradigm, but a relation to the object that must now be designed in this way.

Olympic Games

The Olympic Games represented, as Jordi Berrio [4] says, the definitive emergence of the complex movement of Barcelona and Catalan design. They also meant that Barcelona was recognised internationally as one of the most active and original nuclei in the field of architecture and design.

In this context, the Games [5] were not only a magnificent opportunity to carry out the projects, but to do so before a qualified audience. Design thus facilitated the argument of a great representation of Barcelona's ability to combine creativity with industrial and professional competition, which was indispensable for placing the city on the new competitive map of modern Europe.

In economic terms, but also in terms of design, the Games involved at least two different types of interventions: those directly related to their organisation, which were absolutely necessary, and those that favoured better organisation.

One or another of them determined a multiplicity of design actions. Among the first, for example, consider the design of the Olympic torch or the symbol of Barcelona '92; among the second, the construction of the airport and the Olympic Village or the design of new public lighting fixtures.

To these industrial design actions, extraordinary of graphic design activity related to the great promotional and communicative activity characteristic of the modern Olympic Games must be added. Within the framework of this activity, the design of the symbols and the definition of their cultural and market value must be emphasised. The Josep Maria Trias symbol resolved, in a more than fortunate way, one of the main cultural challenges of Barcelona '92: to present itself to the world as a city of design and creativity, in accordance with its humanist tradition and its prestige as an urban cradle of avant-garde art.

The Olympic Games were, therefore, a key event for society to internalise the value of this discipline. And the phrase *Barcelona design capital*, a recurring thread for all those managing the various Olympic Games organising committees, recognises the will, interest and differentiation with respect to previous models.

42. Extrusion: Fused Deposition Modelling (FDM); Spinning: Electron Beam Freeform Fabrication (EBF); Granulated Direct Metal Laser Sintering (DMLS), Electron Beam Melting (EBM), Selective Heat Sintering (SHS), Selective Laser Sintering (SLS) and Direct Shell Production Casting (DSPC); Laminate: Laminated Object Manufacturing (LOM); Photochemicals: stereolithography (SLA) and Solid Ground Curing (SGC), etc.

43. Discovered by two Russian scientists, awarded Nobel prizes in 2010, (Andre Geim and Konstantin Novoselov).

44. Dynamic and interactive diagrams that integrate computer generated images and appear, that inform, sequentially and didactically, on complex phenomena in a summarised way.

Compendium

Nowadays, society is immersed in a dynamic process in which the frontiers of design are increasingly diffuse and transmedia narrative and interactive communication become emerging and paradigmatic spaces of their potentials. The data presented in this article in relation to the economic weight of design place this discipline in a dimension with possibilities to face new challenges, given its strong quantitative and qualitative increase in recent years, and explains the process of design in which we are immersed, a conjunction that makes us think of the good position in which the world of Catalan design is to successfully take advantage of the expectations of development, innovation and technological change that the transmedia universe entails.

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