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ISO ETP ISTANBUL CHAMBER of INDUSTRY
INDUSTRIAL DESIGN and
PROTOTYPING CENTER

İstanbul Design Report 2024

REPUBLIC OF TÜRKİYE
MINISTRY OF INDUSTRY
AND TECHNOLOGY

#NATIONAL TECHNOLOGY INITIATIVE

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ISTANBUL DEVELOPMENT AGENCY

ENDÜSTRİYEL TASARIMCILAR
MESLEK KURULUŞU INDUSTRIAL
DESIGNERS SOCIETY OF TURKEY

COMPETITIVE SECTORS PROGRAMME

İstanbul Design Report 2024

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Abbreviations

BEDA The Bureau of European Design Associations

ETMK Industrial Designer's Society of Türkiye (Endüstriyel Tasarımcılar Meslek Kuruluşu)

GDP Gross domestic product

GVA Gross value added

IoT Internet of things

İSO Istanbul Chamber of Industry (İstanbul Sanayi Odası)

İSO ETP İstanbul Sanayi Odası Endüstriyel Tasarım ve Prototipleme Merkezi

İSTKA Istanbul Development Agency (İstanbul Kalkınma Ajansı)

SME Small and Medium Enterprises

IT Information technology

KOSGEB SME Development and Support Management Directorate (Küçük ve Orta Ölçekli İşletmeleri Geliştirme ve Destekleme İdaresi Başkanlığı)

MoIT Ministry of Industry and Technology

NASAA National Assembly of State Arts Agencies

NGO Non-governmental organization

R&D Research and Development

STEM Science, technology, engineering, and mathematics

TMMOB Union of Chambers of Turkish Engineers and Architects (Türk Mühendis ve Mimar Odaları Birliği)

TURKSTAT Turkish Statistical Institute

UNCTAD United Nations Conference on Trade and Development

UNESCO United Nations Educational, Scientific and Cultural Organization

UX User Experience

XaaS Anything-As-a-Service

Contributors

This research has been conducted within the scope of the project "**Idea4Istanbul (Industrial Design Ecosystem Axis for Istanbul)**" under the Competitive Sectors Programme implemented by the Ministry of Industry and Technology and financed by the European Union and the Republic of Türkiye.

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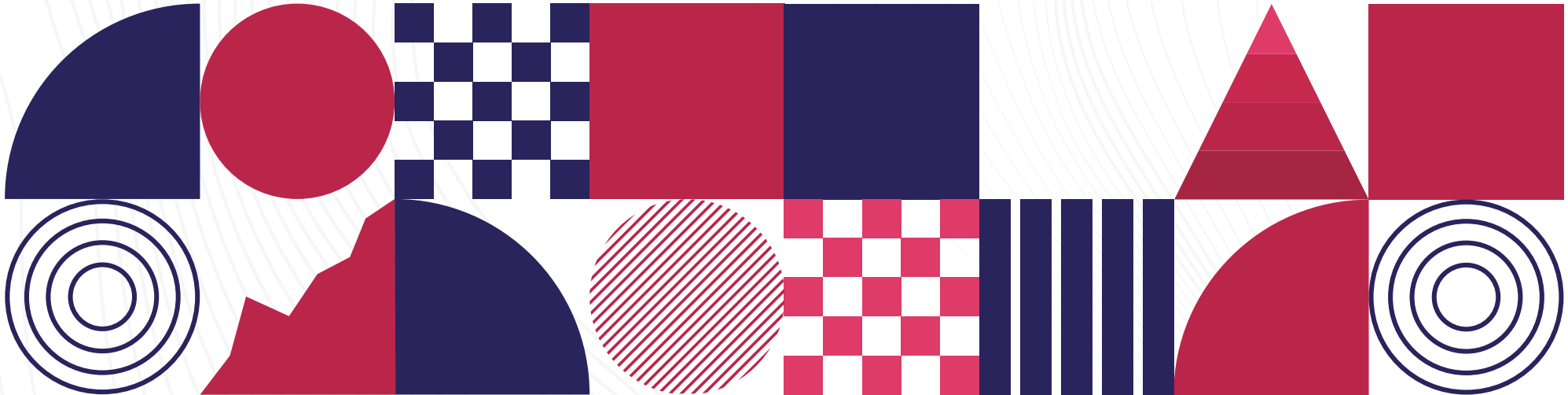

Executive Summary

The Istanbul Design Report investigates the potential of the design economy in Istanbul with up-to-date facts and figures, comparative analyses, stakeholders, and expert views. The design economy is viewed within the larger frame of the creative economy and then focused again on **the potential of Industrial Design to increase Istanbul's Small and Medium Enterprise's competitiveness**, building references to global trends across different sectors and fields.

The report helps the newly established design hub, **the Istanbul Chamber of Industry Industrial Design and Prototyping Center (ISO ETP)**, better understand the structure, interlinkages, and needs of the design ecosystem in Istanbul and the local and global stakeholders of this economy. Therefore, the report provides the knowledge basis to develop the concept of **the hub further and the design strategies that can improve the design ecosystem of Istanbul.**

The research methodology consisted of desk research, and interviews with opinion leaders, industrial designers, and SME representatives within the project region.

The **Creative Economy** and the **Creative Industries** are defined, and worldwide data are presented to understand the overall economic impact. **Within the Creative Economy, a special focus is given to Design activities, segmenting in Social, Service, Media and Digital Products, and Manufactured Products Design**. The importance of design for national wealth is highlighted, and examples of support given in several countries are presented. The strengths of Turkish Design are presented with quantitative data, achievements, and examples of leadership in design. Every state recognizes Design as a key component for the country's wealth.

Trends and contemporary compelling goals, like sustainability, energy efficiency, inclusion, **Human-Centred Design**, and **Circular Economy** require a new design approach, and Turkish Industrial Designers have the potential to ride the wave of new market opportunities.

There are synergies between the different areas of **Design. Art, Media, and Digital Design** help strengthen the brand image. **Service Design** has an impact on Industrial Design as the **Everything-as-a-Service (XaaS)** trend requires manufacturing companies to retain product ownership, with an added focus on the life-cycle cost of their products. **Social Design** creates new expectations and needs for new products.

The Design Ecosystem in Türkiye and Istanbul is described, listing the main actors, and an analysis of the network criticality is proposed. The Research findings highlighted the following issues:

- Lack of unity among Designers and inability to form a real community.
- Misunderstandings between manufacturers and designers, with SMEs perceiving designers as artists rather than production-oriented professionals and designers accusing SMEs of using their ideas without proper compensation.
- Inadequate protection of industrial and intellectual property rights in the design, contributing to the migration of designers to other fields of work or other countries
- SMEs often tend to be informal and weakly structured and usually do not have dedicated designers, user researchers, or R&D specialists; they have little time to prioritize innovative projects over day-to-day tasks and a low appetite for risk: this, in turn, leads to SMEs being more prone to imitation than to developing innovative products.

The ISO ETP Hub's mission is to overcome these criticalities and strengthen the relationship between Industrial Designers and SMEs. The recommendations for ISO ETP operations are:

- Building a "collaboration center" rather than competing with other organizations in the design ecosystem that specialize in their services.
- Partnering and collaborating with specialized organizations and leaders in their field to ensure the highest quality service delivery.
- Organize design events and supporting programs to disseminate the success stories of designers and manufacturers, increasing interest in design and innovation.
- Improve Industrial Design curricula with knowledge about materials, design for manufacturability, product costing, finance, and business proficiency.

Executive Summary

- Provide matchmaking events and a platform for Industrial Designers, SMEs, and other experts required for successful product innovation.
- Provide training on new technologies and design methods.

The European Union's and Türkiye's Design strategies are summarized, and the recommendations about policies for Industrial Design support are collected from Opinion Leaders. The main policy recommendations are:

- Support SMEs to invest in innovation and tap into new markets (especially in neighboring Europe) with ideas emerging from recent trends.
- Leverage the innovation potential of universities and design centers to keep pace with competition from developing countries.
- Contribute to developing a national strategic supply base for new technologies (e.g., powder for 3D printing, advanced technological manufacturing machines, IoT components, etc.).
- Facilitate the development of additional courses on materials, design for manufacturability, product costing, finance, and business skills at industrial design universities.
- Support community-building environments and situations, such as the ISO ETP Hub, with easy access to funding from international, national, and regional programs
- Support the appreciation of human resource skills and recognize their value through appropriate economic benefits and tax policies that facilitate the return of industrial design professionals from abroad.
- Launch a program to build a public database of available high-end equipment in all hubs that are open to external collaboration.

1. Introduction

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1.1. Conceptual Background

What is **Design?**

There are various definitions of design in the literature:
Design is the shaping of ideas.
Design is a plan or drawing produced to show the appearance, function or operation of an innovation before it is made.
Design is the process and mindset of understanding and evaluating whether and how to innovate to meet defined criteria by making choices about what, why and how to change or do. [i]

What is **Innovation?**

Innovation, is the act of changing a defined environment.
Innovation, is the practical application of ideas resulting in the introduction of new goods or services or the improvement of existing goods or services.

What is **Creativity?**

Creativity, is the ability to transcend traditional ways of thinking or acting and develop new and original ideas, methods or objects.
Creativity, gives us the confidence to innovate by challenging the status quo with new options to explore.

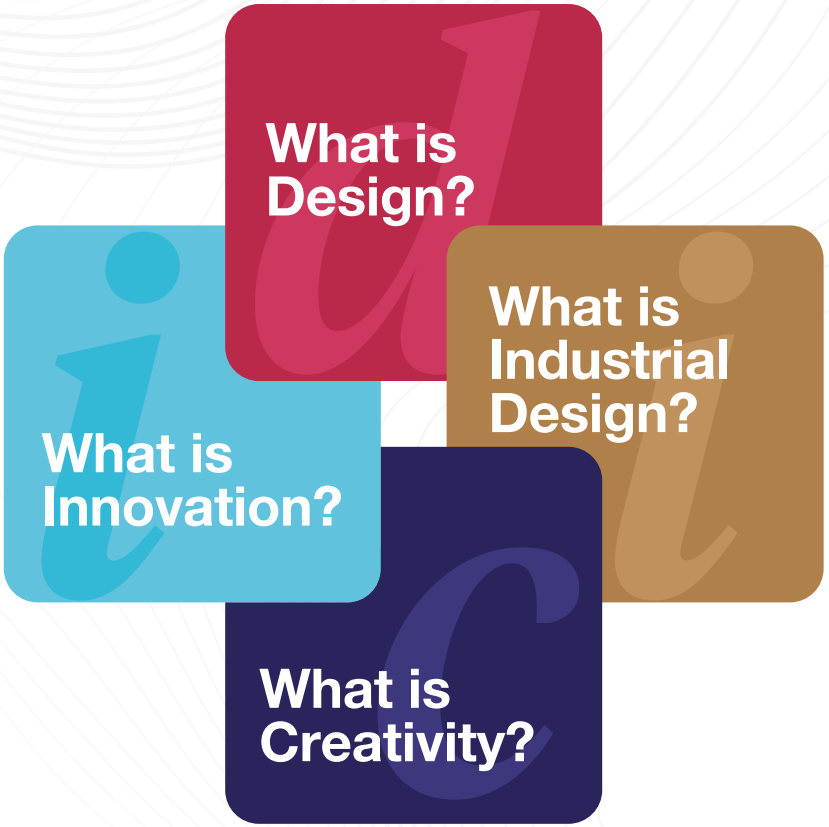
What is **Industrial Design?**

Industrial Design, is the profession that conceptually develops the products produced by the industry for the end user according to criteria such as functionality, target audience's taste, user needs and projects them as new products suitable for production. [ii]

The industrial designer establishes the relationship between human beings and products produced by industrial methods.

1.2. Scope of the Study

The Istanbul Design Report investigates the potential of the design economy in Istanbul with contemporary facts and figures, comparative analyses, and stakeholder and expert views. It locates the design economy within a larger creative economy framework, focusing also on the potentials of design in Istanbul concerning global tendencies across different sectors and fields.



[i] Bootcamp (website), Difference between innovation, creativity, and design, https://bootcamp.uxdesign.cc/innovation-vs-creativity-vs-design-def0c35de283
[ii] ETMK (website) (2021), "Definition", https://www.etmk.org.tr/endustriyel-tasarim.php?d=en

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2. Research Methodology

The four phases of the research process are exemplified in the following figure:

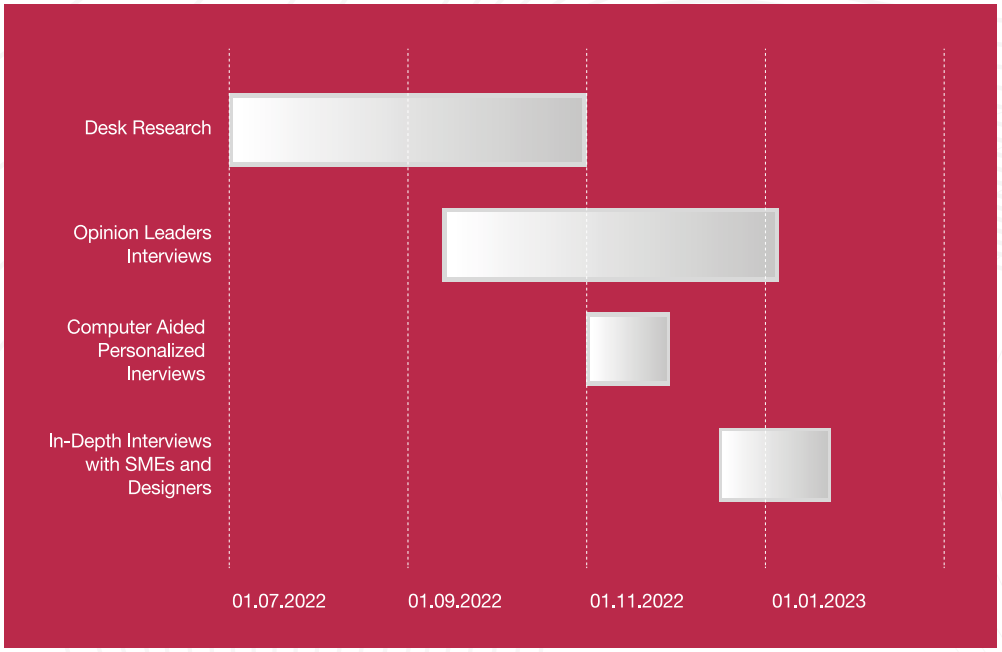

Figure 1 Research Plan of the Istanbul Design Report

The scope and methodology of each stage, together with the interaction rationale between them, are described in the following paragraphs.

2.1. Desk Research

This stage of the research was aimed at compiling data related to the design world in Istanbul and worldwide, identifying design stakeholders, examining the accumulated data and reports published by these stakeholders, and determining the position of the design ecosystem at the national and global levels.

2.2. Opinion Leaders In-depth Interviews

In-depth interviews were conducted with 10 key opinion leaders with experience and extensive knowledge of design and creative industries, hub management, and information on the design/creative industries network. These interviews provided vital information about services needed and not satisfied, the effectiveness of other similar hubs (motivators, enablers, and barriers), gaps, and opportunities in design services to be explicitly met by the ISO ETP hub.

The interviews covered topics such as:

- **Design Economy in Türkiye**
  - Current situation (ways to grow competitively, Türkiye's place in global competition)
  - Design economy at the Istanbul scale
- **Design Economy in the World**
  - Key Actors/Countries
  - Trends and Innovations
  - Processes by Institutions and Sectors
- **Industrial Design and an Overview of Hubs in Türkiye**
- **General Recommendations**

2.3. Quantitative Phase: Computer-aided survey

The researchers conducted Computer-aided surveys with SMEs chosen among the target sectors of ISO ETP. Survey results offered the possibility of performing a quantitative analysis to determine the SME structure, their interest in design, design services, and their expectations specifically on ISO ETP services.

167 SMEs from the sectors illustrated in Table 1 were interviewed. The interviewers joined the SME representatives following a recommendation from the relative Industrial Zone management team.

Table 1 Breakdown of interviewed SME representatives by sector

Sector	Number of SMEs interviewed
Apparel Sub-Industry	4
Precious Metals and Jewelry Industry	6
Metal Tools, Hardware, and Heat Equipment Industry	11
Air Conditioning Equipment Industry	3
Plastic Construction Materials Industry	10
Construction Products Industry	5
Home Furniture Industry	6
Metal Building and Building Parts Industry	10
Electrical, Electronic, IT, and Cable Industry	12
Energy and Electrical Equipment Industry	6
Lighting Equipment Industry	4
General Purpose Machinery and Components	9
Special Purpose Machinery Industry	13

Sector	Number of SMEs interviewed
Metal Home and Workplace Appliances Industry	2
Pharmaceutical, Medical Devices	6
Paper and Paper Products Industry	6
Plastic Packaging Industry	10
Land Vehicles Sub-Industry	2
Marine, Air and Railway Main and Side Industries	1
Aluminium Products Industry	2
Iron & Steel and Hot Rolled Products Industry	2
Metal Forming, Heat Treatment and Coating Industry	5
Metal Machining Industry	11
Rubber and Rubber Technologies Industry	1
Plastic Raw Materials and Plastic Injection Products	16
Fasteners, Wire, and Wire Products Industry	4

2.4. In-depth Interviews with the ISO ETP's Potential Users

Since the participants in the Quantitative Survey were mainly from Non-creative Industries (see Chapter 3 for the definition of Creative and Non-creative Industries), the Qualitative survey was designed to counterbalance with more Creative industry participation.

10 Designers and 10 SME representatives shared their opinions on the design ecosystem in Istanbul. The questions regarded:

- the design process
- the ways design is included in the SME's business processes,
- the importance attributed to design,
- the barriers being created between SMEs and designers,
- what is required to succeed,
- what designers expect in the design ecosystem in Istanbul,
- in which areas support is needed
- what can be done for a more design-oriented production world.

In addition, suggestions were made about a Design Hub: what working model should be adopted, which mistakes should be avoided, and what mechanisms should be in place to facilitate collaboration.

2.5. Data Processing and Analysis Methodology

In the **Quantitative Phase**, a statistical analysis program SPSS was used. The data collected by the CAPI (Computer-Aided Personalized Interviews) was coded and entered into the SPSS system. Open-ended questions were closed while coding the data.

In the **Qualitative Phase**, the audio was recorded, and the transcript was produced. The transcripts were examined in line with the interview guide and brought together according to sub-categories and classifications. Thus, the common and divergent points in the answers given were revealed. With the "Thematic Analysis" method, the focus points emerging from the interviews were determined. In addition, themes such as problems or solutions were classified and analyzed.

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3.1. Creative Economy and Creative Industries

The definitions of **Creative Economy** and **Creative Industries** are well explained by the "creative trident approach" [3] (Higgs, Cunningham, and Bakhshi 2008), which is represented in Figure 2. This approach proposes a cross-classification of employment by industry and occupation that enables the involvement and inclusion of three broad classes of employees, namely, i) specialist professionals or creative individuals working in creative industries; ii) support staff in creative industries providing management, secretarial, administrative or accountancy; and iii) embedded creatives, creative individuals in non-creative industries. The Creative Economy is the sum of the Creative Industry and creative occupations working for Non-Creative sectors.

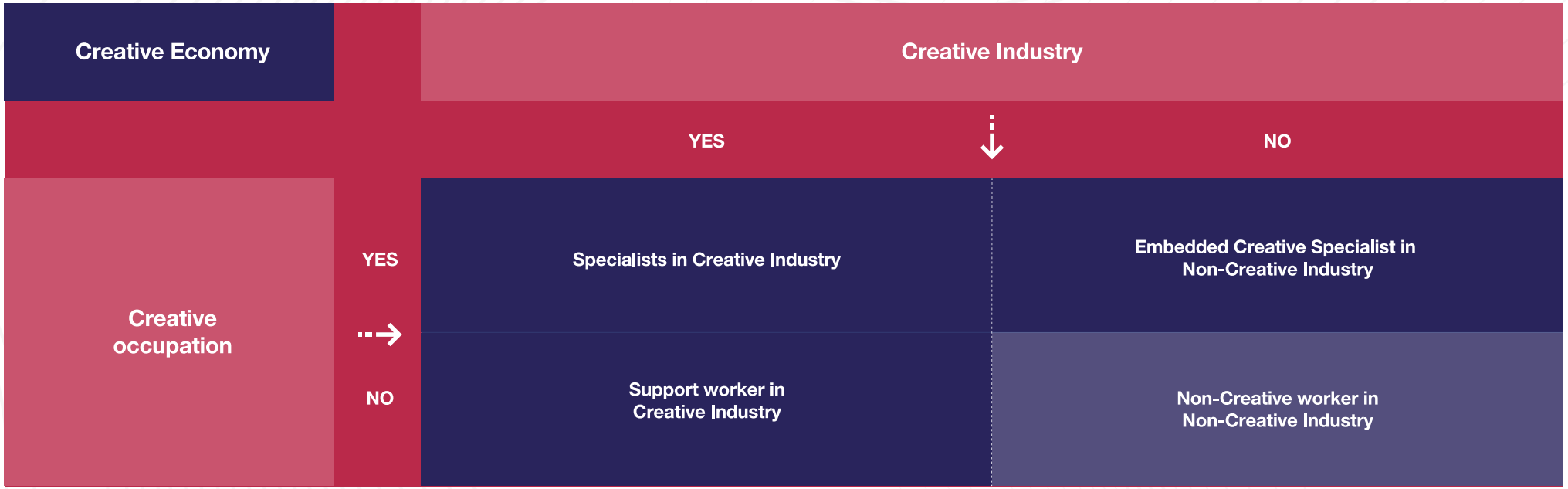

Figure 2 Creative trident approach

3.2. Scope, Facts, and Figures of Creative Industries Worldwide

Several definitions of Creative Industries are used, and each country has its own. The UK Department of Culture, Media, and Sports (DCMS) defined the creative industries as an umbrella term for those industries "based on individual creativity, skill, and talent and have the potential to create wealth and jobs through developing intellectual property" (DCMS, 1998).

The Creative Economy Outlook 2022 from UNCTAD (United Nations Conference on Trade and Development) illustrates different cultural and creative economy concepts:

Table 2 Examples of industries covered in different cultural and creative economy concepts

Canadian culture satellite account	**Culture sub-domains:** archives, libraries, cultural heritage, natural heritage, performing arts, festivals and celebrations, original visual art, art reproductions, photography, crafts, advertising, architecture, design, books, periodicals, newspapers, other published works, film and video, collected information, broadcasting, interactive media, sound recording, music publishing **Transversal domains:** education and training, governance, funding, and professional support
Concentric circles model	**Core creative arts:** literature; music; performing arts; visual arts. Other core creative industries: film; museums; galleries; libraries; photography Wider cultural industries: heritage services; publishing and print media; television and radio; sound recording; video and computer games **Related industries:** advertising; architecture; design, fashion
DCMS creative industries	**Creative industries:** advertising and marketing, architecture, crafts, design and designer fashion, film, TV, video, radio, and photography, IT software and computer service, publishing, museums, galleries, and libraries, music performing and visual arts.
IDB orange economy	**Traditional and artistic activities:** visual arts, performing arts Creative industry: crafts, publishing, audio-visual, phonographic, interior design, graphic arts, illustration, jewelry, video games, advertising, fashion **Activities of creative support:** product design, packaging design, marketing
UNCTAD creative economy	**Creative goods:** art crafts, audio-visuals, design, new media, performing arts, publishing, visual arts. **Creative services:** research and development licenses and services, software licenses and services, audio-visual licenses and services, information services, advertising, market research, and architecture, cultural, recreational, and heritage services
UNESCO cultural economy	**Main cultural domains:** cultural and natural heritage, performance and celebration, visual arts and crafts, books and press, audio-visual and interactive media, design and creative services **Related domains:** tourism, sports and recreation

Source: Creative Economy Outlook Report 2022, UNCTAD [4]

The definition by the Otis College of Art and Design (USA) offers a list of sectors using a pragmatic and comprehensive matrix, as shown in the figure below.

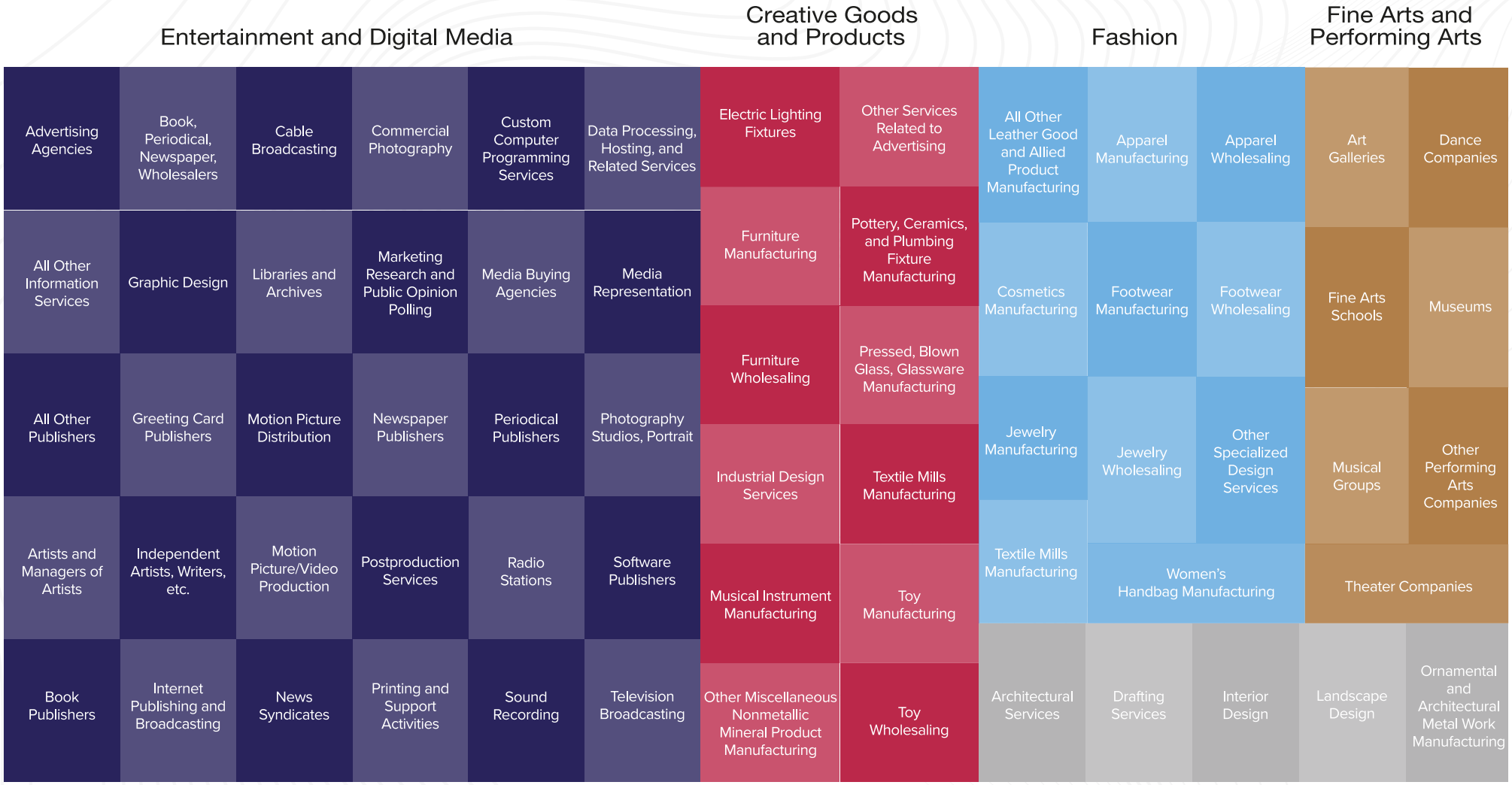

Figure 3 Creative economy treemap
Source: The Creative Economy: 2020 Otis Report On The Creative Economy, OTIS College of Art and Design [5]

2021 was the **International Year of Creative Economy for Sustainable Development.** The Bridgetown Covenant, the Fifteenth session of the United Nations Conference on Trade and Development in 2021, marks that the creative economy has become an essential contributor to the economic growth of the nations and serves as a new prospect for developing countries to diversify their economies and leapfrog into new, high-growth sectors.[6] UNESCO's latest report launched in 2022 also draws the figures of Creative Industries Gross Domestic Product (GDP) worldwide:

Figure 4 Shares of cultural and creative sectors in the global economy
Source : Re|shaping policies for creativity: addressing culture as a global public good, UNESCO [7]

The Creative Economy Outlook 2022 by UNCTAD reports several trade figures showing significant increases in the value of creative services, with a slight decrease due to the COVID-19 pandemic.

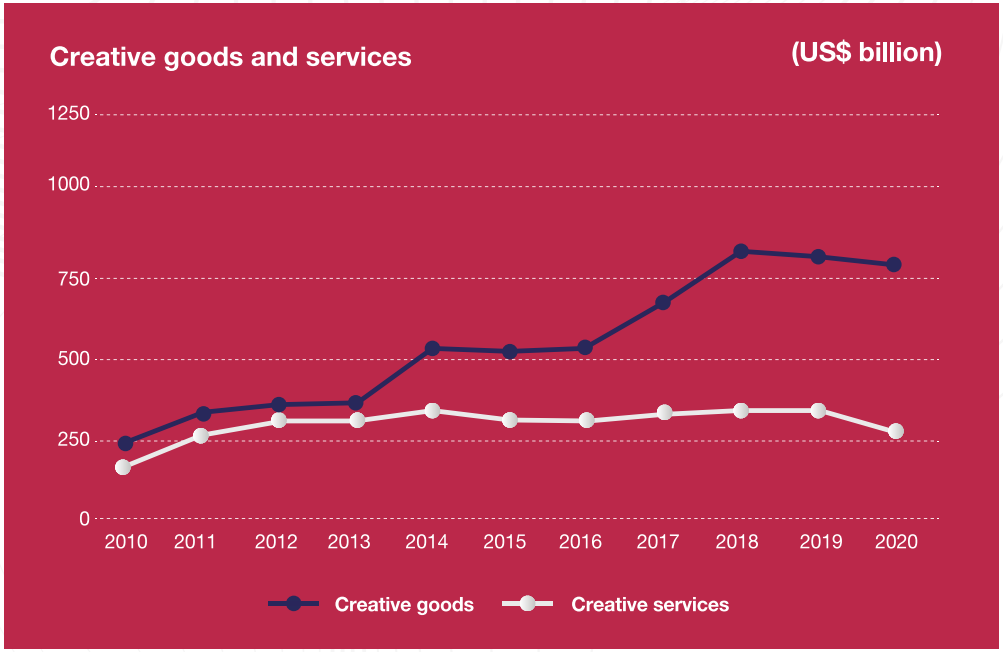

Figure 5 Global exports of creative goods and services, 2010–2020
Source: Creative Economy Outlook Report 2022, UNCTAD [8]

Software services (39.3% of total creative services exports in 2020) and research and development (33.2%) are the most exported creative services. They are followed by advertising, market research, and architecture (14.8%), audio-visual (8.6%), information (3.5%), and cultural, recreational, and heritage services (0.5%). Developed countries dominate exports compared to developing economies: over 90% of global exports of research and development and audio-visual services are accomplished by developed countries.

New and emerging technologies are changing some creative industries. 3D printing, artificial intelligence, augmented reality, virtual reality (AR/VR), blockchain, cloud computing, drones, and the Internet of Things (IoT) drive the fourth industrial revolution. Business models like e-commerce and streaming can reach more consumers globally. Online platforms using artificial intelligence can personalize music and film preferences. Additive manufacturing, or 3D printing, can produce art crafts. Blockchain technology can help certify the originality and ownership of unique digital artworks. Drone technology can impact media production, including advertising, broadcasting, photojournalism, television, and filmmaking. Virtual reality can promote an immersive experience in computer games and performing arts.

3.3. Creative Industries in Türkiye

The definition of **the Scope of Creative Industries** is different in each country.

In Türkiye, neither the Creative Industries nor the Design Sector/Industry scope has been officially defined. However, the Turkish Statistics Institute provides figures about the cultural industries' output in 2020 that can be taken as the foundation to quantify the Turkish Creative Industry.

Table 3 Cultural industries and employment statistics

Sectors	Employment	Number of Enterprises	Turnover Billion TL
TOTAL	**251,232**	**80.241**	**89.94**
Printing and reproduction of recorded media	50,276	11.903	20.80
Architectural activities	**37.336**	**13.448**	**9.01**
Manufacture of jewellery and related articles	27.129	5.557	16.36
Retail sale of newspapers and stationery in specialised stores	25.493	13.579	5.21
Music/video/TV entertainment*	19.569	4.469	8.31
Photographic activities	16.370	9.699	1.31
Specialised design activities	**12.544**	**5.109**	**2.91**
Creative, arts and entertainment activities	11.154	5.367	N/A
Publishing of newspapers	10.534	1.234	2.01
Broadcasting activities	10.093	1.351	6.38
Retail sale of books in specialised stores	8.783	2.143	3.67
Book publishing	6.885	1.413	3.91
News agency activities	3.702	471	1.03
Translation and interpretation activities	3.610	1.974	0.48
Publishing of journals and periodicals	3.139	858	0.73
Libraries, archives, museums and other cultural activities	1.699	112	N/A
Retail sale of music and video recordings in specialised stores	1.493	1.097	0.11
Manufacture of musical instruments	677	255	0.10
Publishing of computer games	618	134	4.61
Renting of video tapes and disks	128	68	0.00

Source: TURKSTAT, 2020 [9]

According to TURKSTAT Cultural Economy Statistics, Türkiye had 60 billion TL of cultural industries output in 2020; the state provides 56% of this, while 44% is provided by the citizens. **Cultural industries constitute around 1.2% of the GDP.**

Table 4 shows the import and export data of cultural commodities and services. Audio-visuals constitute a large part because of the film and TV programs' import and export industry.

Table 4 Export and import data for cultural goods and services in 2020

Billionr TL	Total	Cultural archives libraries	Book press	Visual arts	Performing arts celebration	Audiovisual media	Architecturel design goods	Crafts
2020 Export	41.3	0.0	1.8	0.3	0.1	41.3	41.3	41.3
2020 Import	29.1	0.0	6.0	1.1	0.3	29.1	29.1	29.1

Source: TURKSTAT [10]

The Deloitte report *The Future of Creative Economy* (January 2021) defines the scope of "Creative Occupations" as follows: Advertising and Marketing, Architecture, Crafts, Design (product, graphic, fashion design), Film/ TV/ Video/ Radio/ Photography, IT/ Software/Computer services, Publishing, Museums/ Galleries/ Libraries, Music/ Performing/ Visual arts. [11]

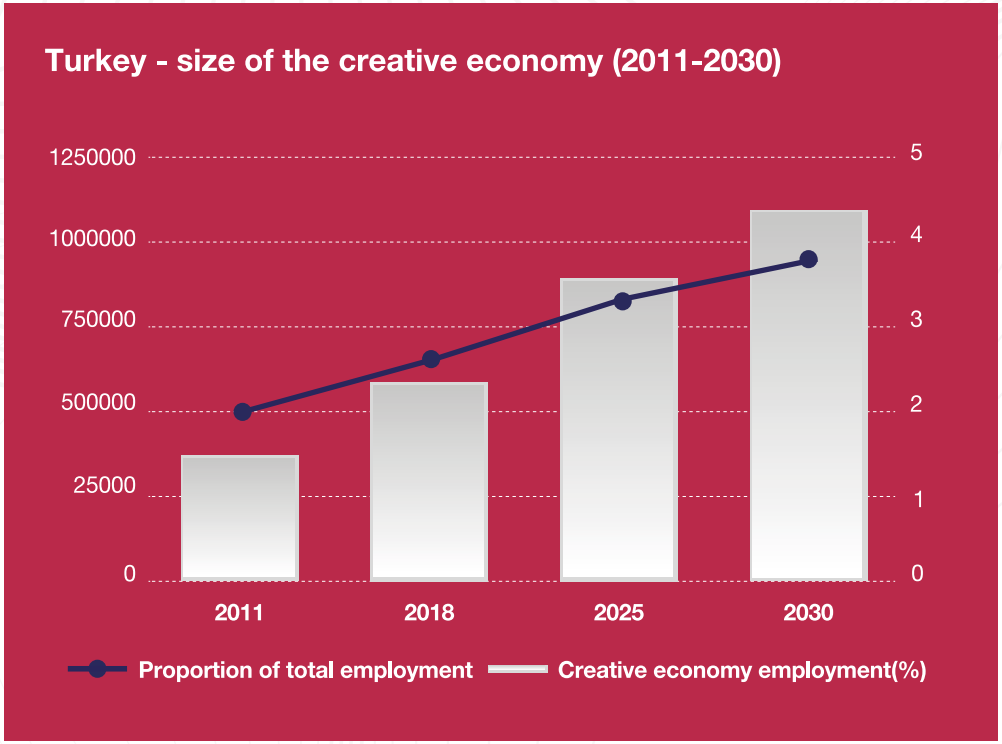

Figure 6 Size of the creative economy in Türkiye
Source: The Future of Creative Economy, Deloitte [12]

The report uses employment as the primary measure and shows that the Creative Economy in Türkiye had around 600,000 workers in 2018. The number of jobs grew by over 200,000 workers from 2011 to 2018.

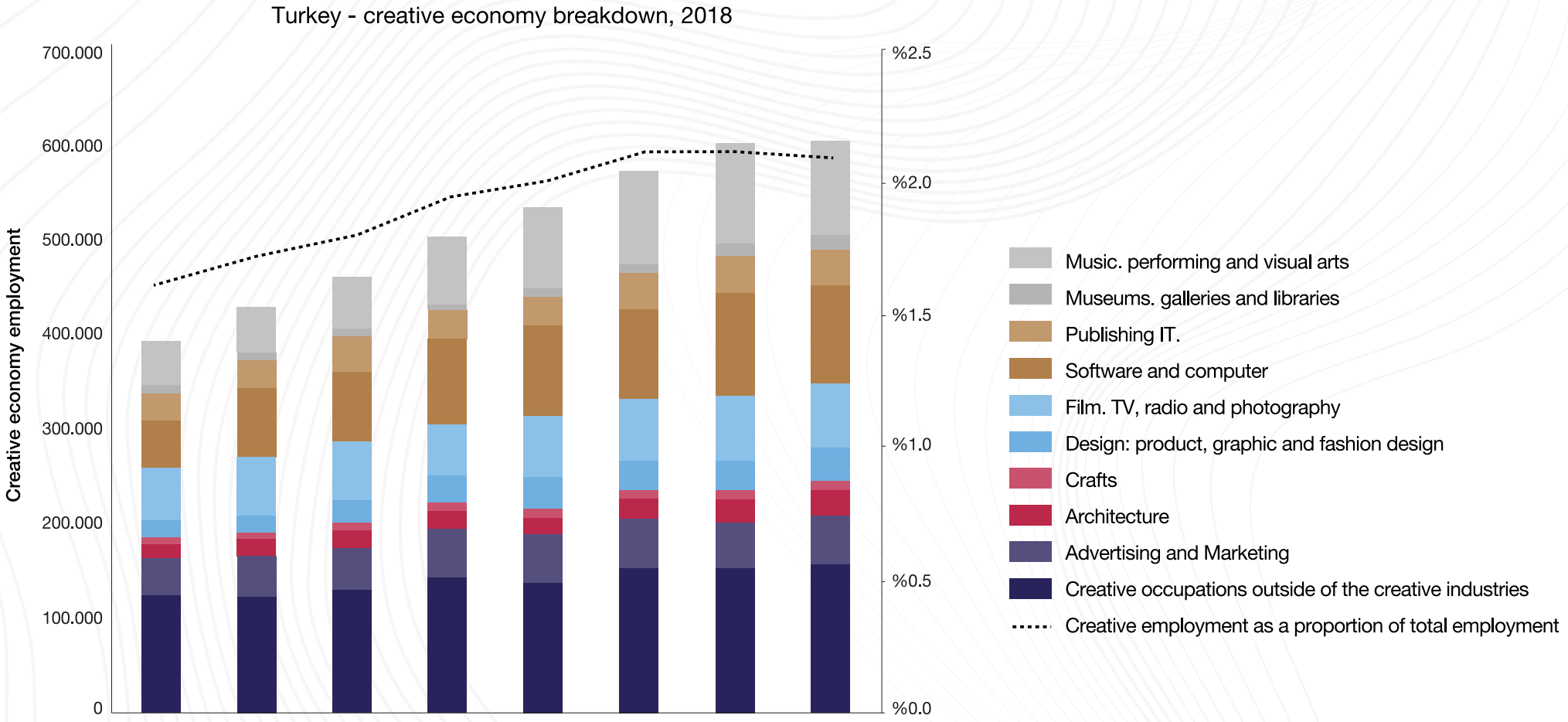

Figure 7 Breakdown of creative economy in Türkiye, 2018
Source: The Future of Creative Economy, Deloitte

Music, software and design-related fields, visual arts such as film, radio and photography, publishing and advertising make up a significant portion of the human resources in the creative economy. However, a large part of the creative workforce works in non-creative industries. The Cultural Creativity Industries Inventory Report defines the scope of cultural industries, which coincides with the Deloitte global report.

Table 5 Creative sector figures in Türkiye and Istanbul, 2019
Source: TOSYÖV 2021 The Cultural Creativity Industries Inventory Report [13]

2019	Number of Enterprises	Number of Employees	Turnover (Billion TL)
Türkiye	48.038	250.028	107
İstanbul	26.255	164.839	81

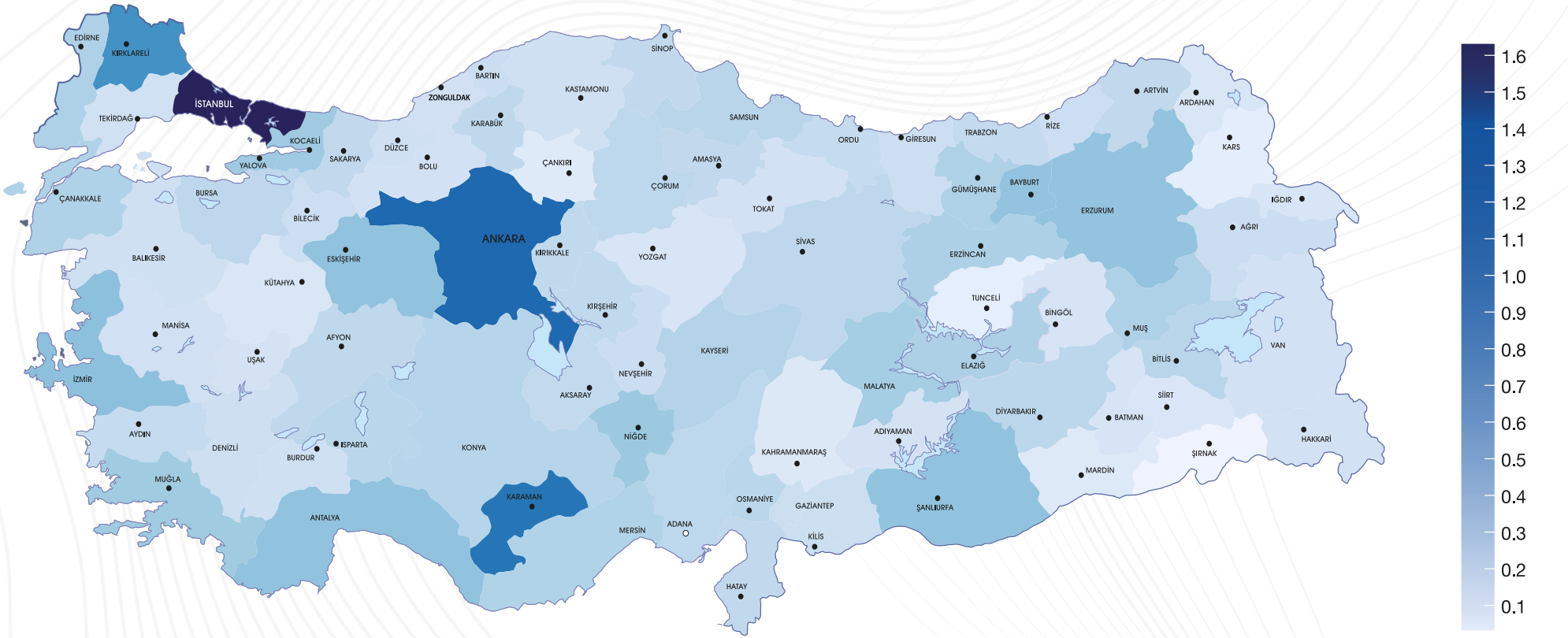

Figure 8 Distribution of employees in cultural creative industries
Source: TOSYÖV 2021 The Cultural Creativity Industries Inventory Report

Istanbul accounts for the largest share of Creative Industries regarding the number of enterprises (79.5%), number of employees (66%), and turnover (75%).

3.4. Creative Industries in Istanbul

Istanbul is a city with a rich history and culture, and this is reflected in its vibrant creative industries. The city has a long tradition of artistic and cultural production, which has helped establish it as a hub for the creative industries in Türkiye and the wider region.

Istanbul has a wide range of creative industries, including film, television, music, publishing, advertising, and design. These industries contribute significantly to the city's economy and have helped to put Istanbul on the map as a creative hub.

The city is home to several museums, galleries, and cultural centers, which provide a platform for artists and creators to showcase their work and engage with audiences.

Another critical factor in the growth of the creative industries in Istanbul is the city's strong **film industry**. Istanbul has a thriving film industry, with several studios and production companies based in the city. The Turkish film industry has a strong international reputation, and Istanbul hosts many festivals, including **the Istanbul International Film Festival**, which attracts filmmakers and film enthusiasts from around the world.

The **music industry** is also an essential contributor to the creative industries in Istanbul. The city has a rich musical tradition and features many music festivals, including **the Istanbul Jazz Festival** and **the Istanbul Music Festival**, and several recording studios and record labels, which help nurture and promote local talent.

In addition to these traditional creative industries, **Istanbul also attracts many emerging industries, such as digital media and technology, promoting a growing start-up ecosystem with incubators and accelerators.**

Istanbul Creativity Network Project of ISTKA

Istanbul Development Agency (ISTKA) Creative Industries Team started a project to support the creative industries ecosystem of Istanbul with a networking database. One crucial problem of the design ecosystem is the question of "where to." **Istanbul Creativity Network** was designed in 2022 to solve this problem. The project built a web-based network and relationship map that includes the creative economy actors who benefit from creativity and design as the primary source of production processes. This interactive map allows filtering by sector, actor, practice area, or financial data such as budget and current evaluations.

According to the map, **the ecosystem has 1,524 Creative Industry-related actors.** Most of this list consists of platforms/areas where creative design activities are held. The largest group is the "Cultural Centers" of municipalities, contributing to the creative design culture with various activities.

Design and creativity are interlinked, and the **Creative Industries** sector includes **Design**. The Project maps about 250 million TL of Creative Industries' total project budget, 91 million TL of which is funded. These tables illustrate the distribution of the projects: [14]

Table 6 Project budgets of creative industries

New Media Art	185	Cultural territories	39
Creative Services	76	Publishing	26
Design	70	Visual Arts	20
Cultural expressions	65	Performance Arts	19
Audio-visual Art	48	Multimedia	2

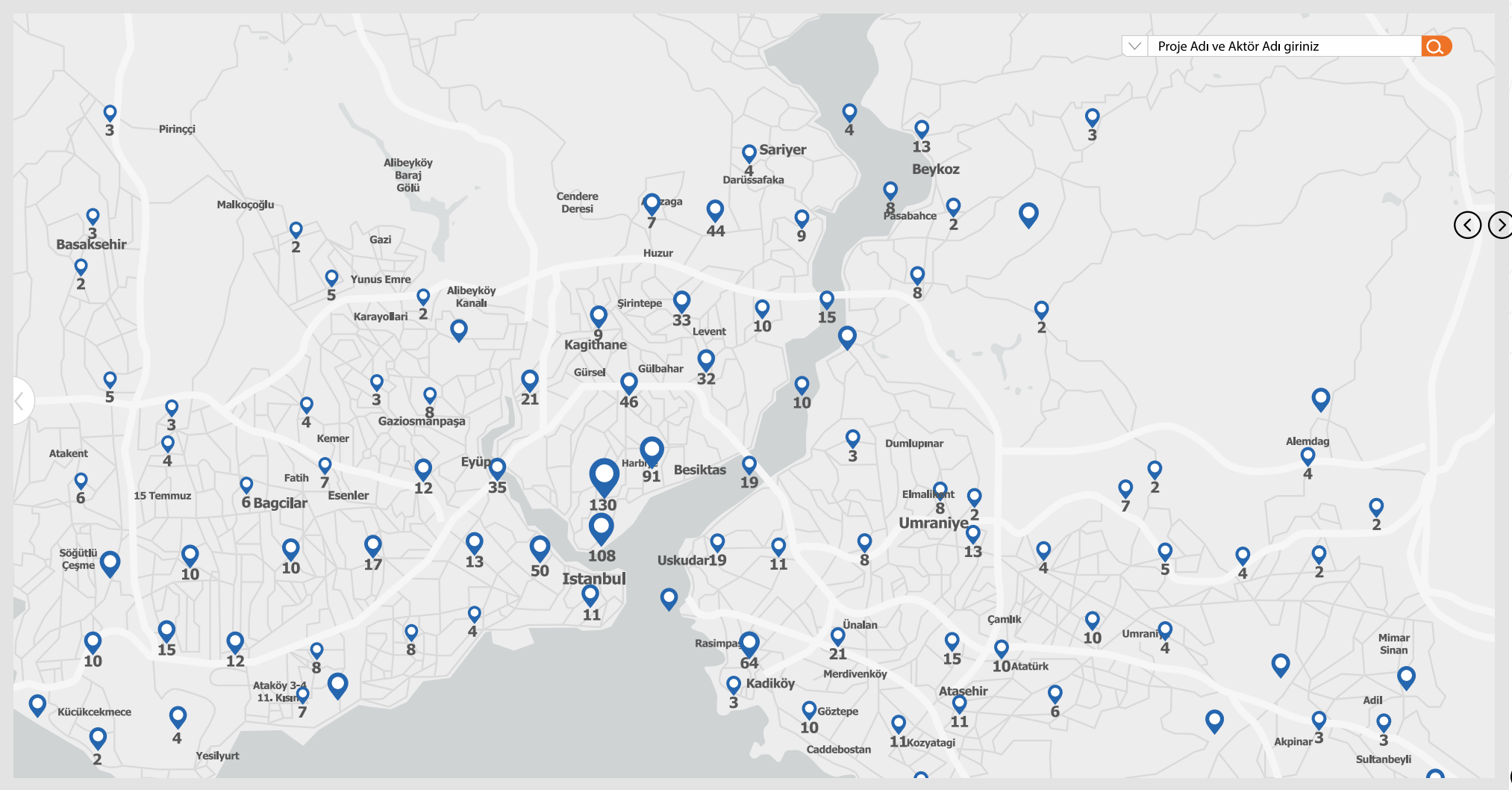

Figure 9 Istanbul Creativity Network Map

Istanbul Regional Plan

The Istanbul Development Agency (ISTKA) prepared the **Istanbul Regional Plan** by identifying the development areas of Istanbul City.[15] The plan follows a holistic approach around the motto "**Unique Istanbul, a city of innovation and culture with creative and free citizens.**" This approach is adopted by all public institutions that deliver services to the city. The plan highly stresses the development and support of the Creative Industries.

Invest Istanbul Platform is the official organization founded specifically to consolidate investment support services in Istanbul, coordinated by ISTKA.[16] It aims to promote Istanbul's investment opportunities and assist international investors throughout all bureaucratic steps necessary for starting their businesses in Istanbul. The platform stresses that Istanbul accounts for 70.5% of Türkiye's Creative industry output of Türkiye.

Istanbul hosts many arts and creative events, and the city has been a member of the **Creative Cities Network** since 2017. According to the network data Istanbul:

- Hosts more than 20 internationally renowned design events annually, such as Istanbul Design Biennial, Design Week Türkiye, EcoDesign Conference, and Fashion Week Istanbul.
- Has a significant cultural infrastructure, including 41 congress centers and 225 art galleries. Istanbul's cultural venues organized 4,315 events in 2016 alone, including international film, music, and theatre festivals, art and design biennials. Istanbul is also home to 27 universities that offer educational programs related to design.

4. 4. Design Economy in the World and Türkiye

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İstanbul Design Report 2024

4. 4. Design Economy in the World and Türkiye

The Design Economy is not only a vital component of the Creative Economy but also the fundamental element to increasing welfare and profitability in nations and non-creative industries.

Design improves the functionality and aesthetics of products and services, leading to increased demand and sales. Design can also be used to improve the efficiency and user experience of systems and processes, leading to cost savings and improved productivity. New products, services, and experiences created by design drive innovation and economic growth: a strong and distinct brand identity increases a company's competitive advantage and value. Design is also a powerful tool for addressing social and environmental issues and improving social and economic benefits.

4.1. Design Categories

The design has been categorized in many ways by several authors. The Design Council published the *Design Economy Report* in 2018 with the categories of **Product, Service, and Digital Design.** [18] The "Design for Public Good" article from the Design Council website discusses the role of Social Design. e of this report, the following categories of Design are defined:

Table 7 Design Categories

Design	Social	Service	Digital	Product
Design Providers	Social Designers	Service Designers	Media and Digital Designers	Industrial Designers
Beneficiaries	Topluluklar	Service Companies	Media and Digital Product Companies	Manufacturers

There are synergies between the different Design categories. The following paragraphs discuss the support of Social, Service, and Digital Design to Industrial (or Product) Design.

Social Design

Social Design aims to improve the quality of life for individuals and communities. It is a holistic approach that considers not only the physical design of products and spaces but also the social, cultural, and economic context in which they are used. **One of the fundamental principles of Social Design is the idea of co-creation, where designers work closely with communities and users to co-create solutions that meet their needs and aspirations.** This participatory approach is based on the belief that the people who will use a product or space will develop solutions that will work for them.

Social Design can be applied to various fields, including architecture, urban design, and service design. In architecture and urban design, this can mean designing buildings and spaces that are accessible to all, including people with disabilities and the elderly. In service design, it can mean designing services that are easy to access and use and that meet the needs of those who use them.

One of the main challenges of **Social Design** is balancing the needs and aspirations of different groups of people. For example, designing a building that is accessible to people with disabilities may also require it to be more expensive to build. **Social Designers** may also face resistance from communities who may be resistant to change. By putting people at the center of the design process and considering the social, cultural, and economic context in which designs will be used, **Social Design** can create more livable, sustainable, and equitable products, spaces, and services.

Social Design may create new ideas for industrial products or support trends that impact Industrial Design. For example, new architectural solutions for the cities or increasing awareness of green and circular economy impact Industrial Design.

Service Design

The **Service Economy** is continuously growing and becoming more complex. New technologies (from smartphones to IoT) are constantly disrupting the playing field. Forward-looking organizations are working to improve their customer journeys and build more resilient internal processes and workflows.

A strong impact of Service Design on Industrial Design is the trend **XaaS (Everything-As-A-Service)**. Increasingly, manufacturing Industries keep ownership of their product and sell services instead: **This trend incentivizes circular economy strategies, fostering long-lasting products, use phase intensification, maintenance, repair, reuse, and remanufacturing.** This, in turn, has a dramatic positive effect on sustainability goals.

Offering Everything-as-a-Service (XaaS) recognizes that people don't need cars but mobility; they don't need washing machines but clean clothes; they don't need pesticides but plant protection or yield. Delivering utility/outcomes/performance changes everything. XaaS examples include models such as turbine power-by-the-hour (Rolls-Royce), Tires-as-a- Service (Michelin), carsharing (ShareNow), Pay-per-Part (TRUMPF), or Lighting-as-a-Service (Signify).

From a systemic perspective, producer ownership is one of the most elegant ways to drive sustainable product design choices. The design and optimization process requires decision-makers to understand the complexity of design choices and their environmental implications – to eventually be able to advance both the economic and ecological potential simultaneously. **The designers must assess all Product and Operating Model Designs, that is, Build phase design (product quality and reliability, material, and manufacturability), Use phase design (energy efficiency and throughput, max utilization, repair, service, maintenance, and updates), and Loop phase design (re-use, refurbish, remanufacture, recycle).**

The switch from a capital asset transaction model to a subscription model also necessitates a new financial design. This is illustrated by the Fisch Model (see Figure 10), showing that the transition from product to service sales requires an investment period, later recovered by higher profitability (known in the literature as “swallowing the fish”). [19]

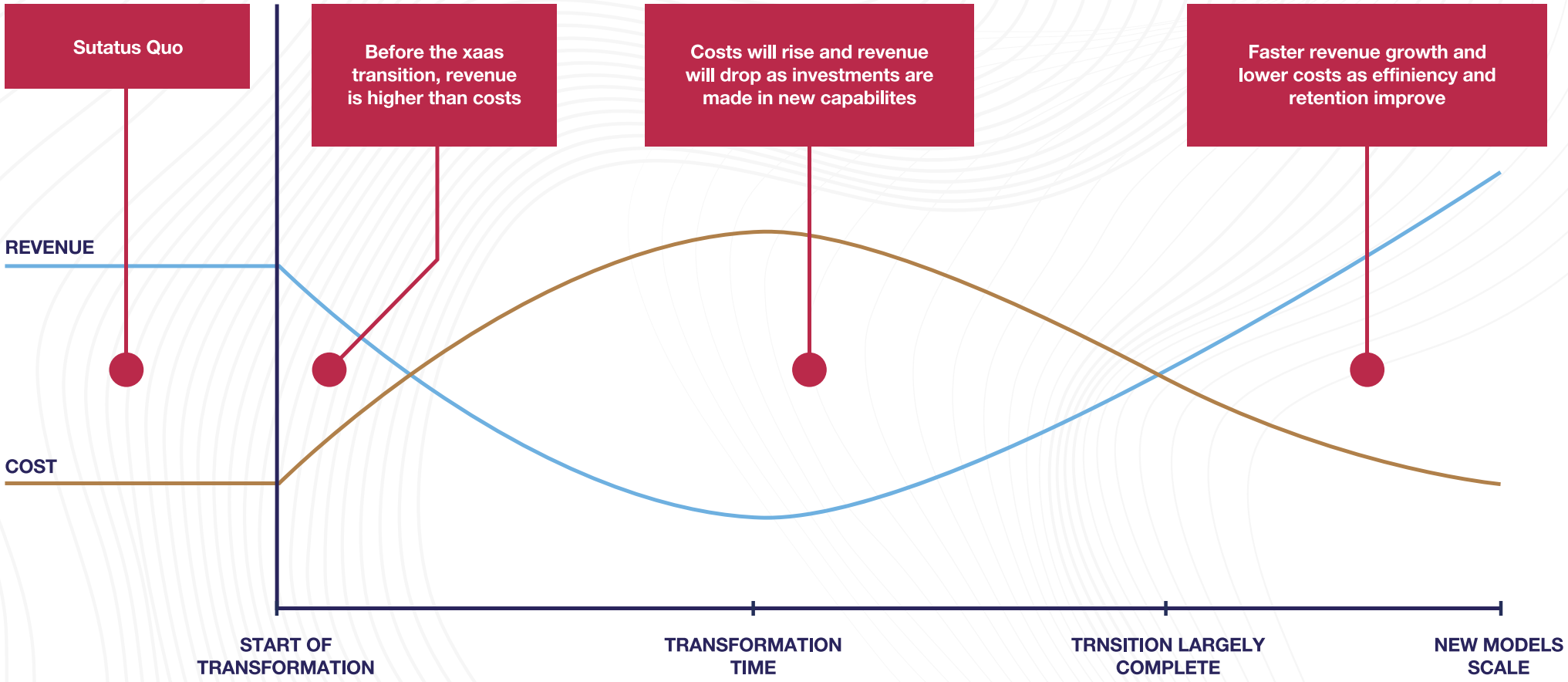

Figure 10 Cost and revenue analysis of the Everything-as-a-Service model
Sourge: Technology Services Industry Association (TSA), 2013

XaaS models can democratize consumption, as costly upfront investments are eliminated. For example, a Hub can facilitate SMEs' access to expensive new technologies by offering a rent contract, or automotive industries can offer to pay for passenger kilometers traveled versus buying a car. When Producers take ownership, consumers are no longer responsible for dealing with waste materials at end-of-use or technical obsolescence. In sum, these effects make high-quality products more accessible and convenient for customers, both B2C (Business to Consumer) and B2B (Business to Business).

Circular XaaS models can benefit regional value creation and employment. Circular product and operating models require local service activities, which imports cannot easily substitute. Services typically are implemented where industrial products are located. Repair or refurbishment and other use-phase services are labor-intensive jobs that contribute to local employment. At the same time, advanced services and digital solutions are at the core of most XaaS models, further increasing the demand for knowledge-intensive activities and jobs. XaaS models are well suited to strengthen localized value chains and onshoring high-quality jobs.

XaaS model can also have a positive environmental impact because a circular economy reduces resource extraction, from mining metals to land-use-related deforestation.

Media and Digital Product Design

Media and digital product design refer to the process of designing and developing digital products such as websites, mobile apps, and software used to create, distribute, and consume media. **Media and digital product design is a multidisciplinary field that draws on skills and knowledge from design, technology, and user experience research.**

One of the key principles of media and digital product design is the **user-centered design approach.** This approach focuses on understanding the needs and behaviors of the users and designing products that are easy to use, accessible, and meet the users' needs. This approach's critical components are user research, usability testing, and user feedback.

Designers in media and digital product design work closely with cross-functional teams of developers, engineers, project managers, and other stakeholders to create visually appealing, functional, and easy-to-use products. They use a variety of tools and techniques, such as wireframing, prototyping, and user interface design, to create interactive designs that are easy to navigate and provide a seamless user experience.

Media and digital product design provide new and innovative ways for industrial designers to engage with their customers. Social media platforms, for example, allow companies to connect with customers, receive feedback, and provide information about their products. This helps to build brand loyalty and increase customer satisfaction. The software content of products provides increased flexibility in industrial design, and User Interface design is becoming an essential element of product success. Media and digital product design help to create a consistent visual identity for the brand through various platforms such as websites, social media, advertisements, interfaces, etc. This consistency in design elements, color, typography, and imagery helps to reinforce the brand's image and make it recognizable to consumers.

Industrial Design

ETMK, the Industrial Designers' Society of Turkey, defines Industrial Design as: "the intellectual development of products produced in the industry for the end user, considering criteria such as functionality, suitability for the target audience and the needs of the user, and projecting them as a new product suitable for production."

Industrial Design is stated to be "a profession aimed at establishing the relationship between objects produced by industrial methods and people," whose aim is "to provide economic growth by optimizing the costs of the products that need to be produced in large numbers, such as material, number of processes and labor."

One of the major trends in Industrial **Design is Design Thinking** or **Human-Centered Design.** Powerful new technologies are rapidly changing human behaviors, and the belief that deep human needs and values are more important than technology or profit is spreading. Many EU programs are aimed at bringing human needs to the center, like sustainability, inclusivity, beauty, and culture (New European Bauhaus, Craft Urban Movement, the NEB Lab, Creative Europe 2021-27, CHARM-EU Winter School Pilot Program, Ecade, The European Conference on Arts, Design& Education, and more).

Human-Centered Design (HCD) or **Design Thinking** is not a new concept: its origins can be traced back to 1958 at the Stanford University design program by Professor John E. Arnold, who first proposed that engineering design should be human-centered. **Customers and users must be involved in new product ideation and improvement, their product experience must generate positive emotions, and their needs and motivations must be deeply understood.** "Design for Manufacturability," "Value Engineering," "Forms follow Function" and all the basic principles that designers and engineers have learned are not sufficient for today's success. New research methods are required to observe customers' experiences. UX Design and applied ethnography are used to record and analyze implicit details. Brand image and style are no longer confined only to the high-end market, sophisticated Communication and Marketing are crucial both in B2C and B2B. Analysis of behaviors, ethnography, customer empathy, emotions, and communication requires psychology, sociology, and art skills.

Art and **Industrial** Design are strongly related but have different goals and applications. Art is typically created to express an idea or emotion, to communicate a message, or simply to be appreciated for its aesthetic qualities. Industrial Design, on the other hand, is the process of creating and developing products, such as furniture, household items, and consumer electronics, intending to make them functional, efficient, and visually appealing. The actors in these two fields often overlap, as many industrial designers are also artists, and industrial design principles inspire many artworks.

We see digital solutions to artistic artifacts or art promoting branding and technological capabilities. Art and design have strong relations, sometimes inverting their functions like in the pop art of Andy Warhol, where the artistic masterpiece is created memorable because it reproduces successful industrial products like Coca-Cola bottles or Campbell cans, in opposition to the art used to make a brand memorable like Fortunato Depero (Futurist) or Alphonse Mucha (Art Nouveau) commercial posters

The schema of Figure 11 helps to rationalize the area of creativity of Industrial Design versus art and straight engineering production.

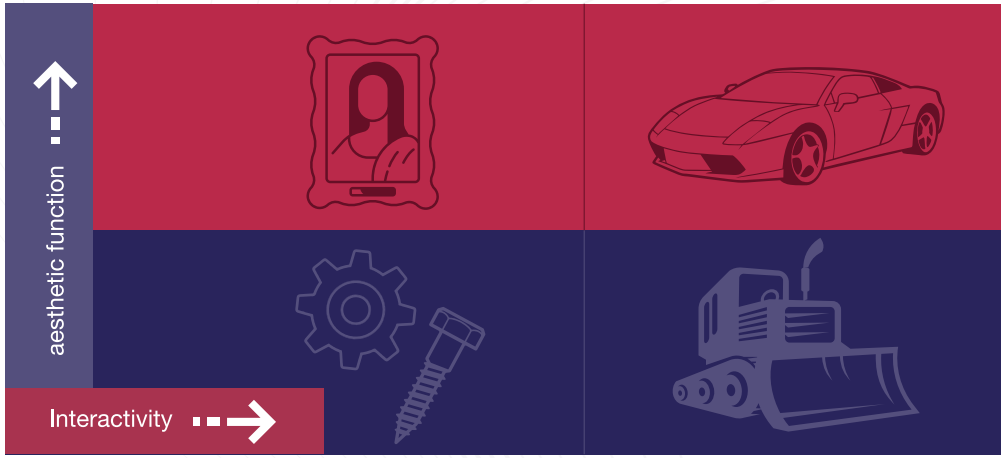

Figure 11 11 User interactivity and aesthetic function in industrial design

4.2. Design in the World

Industrial design is essential to any nation's industrial sector as it influences product functionality, user experience, and aesthetic appeal. **A well-designed product can drive innovation, improve competitiveness, and contribute to the nation's economic growth.** However, achieving these goals requires the involvement of the entire ecosystem, including external support organizations, which can provide valuable resources, such as funding, mentorship, and expertise. By collaborating with such organizations, industrial designers can gain access to a wide range of perspectives, resources, and networks that can help them create innovative and successful products.

Design awards recognize and promote excellence in this field, further driving innovation and competition. Governmental support and design awards help to improve the quality of design and its impact on society, creating a better world.

Table 8 Worldwide design fairs

Fairs	Date
Valencia World Design Capital 2022	All Year
Madrid Design Festival	1 February to 31 March 2022
Stockholm Design Week	7 to 13 February 2022 and 5 to 11 September 2022
Interiors Australia and Denfair	10 to 12 February 2022
Nomad St Moritz	1 to 5 March 2022
Melbourne Design Week	17 to 27 March 2022
Maison&Objet	24 to 28 March 2022
Maison&Objet	8 to 12 September 2022
Milan design week and Salone del Mobile	5 to 10 April 2022
DesignMarch Iceland	4 to 8 May 2022
Object Rotterdam	20 to 22 May 2022
Design Shanghai	9 to 12 June 2022
NYCxDesign and ICFF	10 to 20 May 2020 and 15 to 17 May 2020
Clerkwenwell Design Week	24 to 26 May 2022
Design Miami/Basel	14 to 19 June 2022
3 Days of Design Denmark	15 to 17 June 2022
Oslo Design Fair	31 August to 2 September 2022
Helsinki Design Week	8 to 18 September 2022
Stockholm Furniture & Light Fair	6 to 9 September 2022
Design China Beijing	21 to 23 September 2022
Light + Building	2 to 6 October 2022
Biennale Interieur	20 to 24 October 2022
Dutch Design Week	22 to 30 October 2022
Orgatec	25 to 29 October 2022
Design Miami	30 November to 4 December 2022

Table 9 Worldwide design conferences

Conferences	Date	Conferences	Date
QRCA 2022 Annual Conference [Hybrid]	January	DesignOps Global Conference	June
Defending Your Design System [Webinar]	January	The Global FinTech Design Summit	June
UXDX Community USA WEST	January	UXPA 2022	June
Product World	February	UXDX APAC 2022	June
UX360 Research Summit	February	HCI INTERNATIONAL 2022	June
ProductCon	February	#mtpcon Digital Americas	July
Dave Malouf's webinar about DesignOps [Webinar]	February	An Event Apart	August
Experience Design Conference	February	PDC 2022 [Hybrid]	August
Interaction Week 22	March	UX Australia	August
Advancing Research	March	Product Design Week	August
Design Research by UX Australia [Hybrid]	March	ProductCon	September
Design Matters Pop-up	March	User Research London	September
UX Copenhagen	March	UX STRAT USA	September
UXDX USA 2022 [Hybrid]	March	IxDD 2022	September
CHI 2022 [Hybrid]	April	Design Matters [Hybrid]	September
Information Architecture Conference 2021	April	Impact	October
ProductCon San Francisco [Hybrid]	April	Amuse	October
Confab	April	UXDX EMEA	October
Women in Product	May	An Event Apart	October
From Business to Buttons	May	UX Salon	October
Enterprise Design System: How to Design & Scale [Webinar]	May	UX STRAT Asia	November
ACE! [Hybrid]	May	Clearleft's Leading Design	November
Design2022	May	UX Brighton	November
La Product Conference	June	Product Elevation Conference 2022 [Hybrid]	November
Pixel Pioneers	June	An Event Apart San Francisco	December
UX STRAT Europe	June		

Table 10 Worldwide design awards and competitions

Worldwide design awards and competitions	Worldwide design awards and competitions
LG Life's Good Award	London International Creative Competition
IF Design Award	JEC Composites Innovation Awards
Lexus Design Awards	FIT Sport Design Awards
LIT Lighting Design Awards	Graphis Design Annual Competition
SVIEF Top 30 Innovation Awards	Design Educates Award
Green Concept Award	Airwards (Drone Awards)
Green Product Award	Products by Women Innovation Awards
BIG Innovation Awards	Red Dot Award Product Design
iLuxury Awards	International Design for All Foundation Good Practices
Edison Awards	Awards
The Spark Design and Architecture Awards	Hiiibrand Awards
World Brand Design Awards	The Dieline Awards
The Drum Awards for Design	Cresta Awards
The A' Design Award	IEEE Standards Association Awards
SIT Furniture Design Award	Wallpaper Smart Space Awards
C-IDEA Design Award	MUSE Design Awards
The A' Luxury Design Awards	The 3D Printing Industry Awards
The A' Scientific Instruments, Medical Devices and Research Equipment Design Awards	Simply Open Awards
The A' International Interface and Interaction Design Awards	NY Product Design Awards
The TCT Awards	International Design Awards
Innovation by Design Awards	One Color Award
International Design Excellence Awards (IDEA) K-Design Award	ICIS Innovation Awards (Chemical Industry)
Red Dot Award Design Concept	IEEE Awards
SBID International Design Awards	Global Aquaculture Innovation Award
Amazon Launchpad Innovation Awards	Golden Pin Concept Design Award (Taiwan)
Golden Pin Design Award (Taiwan)	DMI Design Value Awards
IALD Lighting Design Awards	James Dyson Award

Design in the USA

The U.S. Bureau of Labor Statistics (BLS) announced that arts, design, entertainment, and media are expected to make a substantial impact on employment between 2019-2029. [20] The IBIS World report indicates that only graphic designers' market size is 14 billion USD, and 133,551 businesses create 174,483 employees. Like Türkiye, the US design sector is also driven by freelancers or small graphic design company holders with few workers. **National Assembly of State Arts Agencies** (NASAA) report on the USA's creative economy also confirms that workers in the creative sectors are 3.6 times more likely to be self-employed. Moreover, when broadened to the whole Creative Economy, the creative market contributes 877 billion USD to US GDP, and the creative sector ranks second after the retail trade sector.

USA knows creative economic output has an exponential impact on any economy. NASAA report states that this is the reason for 166 billion USD in expenditures on non-profit arts development, which is linked to 28 billion in tax revenue, 64.4 billion in exports, and 36.4 billion in imports. Therefore, its tendency towards arts is from the investment frame. In the US, there were 4.6 million cultural and art jobs in 2020, which makes up 3% of all jobs created in the country. The US government suggests that "just one performing arts organization in rural communities doubles the chance that local businesses will be innovative and design-integrated." NASAA report also states that rural areas with innovative and design-integrated businesses recover faster from economic recessions, seeing faster growth in average weekly earnings.

One of the critical strengths of Industrial Design in the US is its close relationship with technologies. American designers have been at the forefront of incorporating new technologies into their work, from introducing new materials and manufacturing processes to using digital tools and computer-aided design. This allowed US designers to create innovative and highly functional products. Another factor contributing to the strength of industrial design in the US is the country's vibrant economy. The US is home to many of the world's largest corporations and multinationals, providing a steady demand for new products. Finally, the US is known for its supportive and entrepreneurial culture, which encourages creativity and innovation. This attracted many talented designers worldwide and has provided a supportive environment for young designers.

Design in Italy

Promoting cultural development is part of the fundamental principles in the Constitution of the Italian Republic. Statista Report on Italian Cultural Economy indicated that the Italian Ministry of Culture allocated a budget of nearly 2.7 billion euros to finance heritage and cultural activities in 2021, and a significant portion of this support is to the performance of cultural arts. NGO collaboration is also high in Italy. [22] The leading NGO of cultural and design works is Symbola Foundation, which was created to "unite and give strength to businesses, communities, and intelligence that focus on sustainability, innovation, beauty.[23] Italian Union of Chambers of Commerce, Industry, Craft, and Agriculture (Unioncamere) and the Symbola Foundation have developed a "cultural and creative production system" project called CROSSINO to analyze the financial impact of arts and culture in Italy. The system combines two different market components as "core" and "creative-driven" businesses. The core market covers activities strictly related to the arts and cultural industry. The creative-driven market focuses on the economic contribution of creative and cultural professionals operating in industries not directly linked to arts and culture but using creativity.

Crossino's report states that **in 2021, the value added generated by Italy's cultural and creative production system totaled roughly 88.6 billion euros**.[24] When focusing on the "core" market of the cultural and creative production system, the following seven industries are considered: architecture and design, communication, musical and audio-visual, books, printed media and publishing, video games and software, museums, and similar cultural institutions, and performing arts. In 2021, the value added of the video games and software industry in Italy reached nearly 14 billion euros, rising by 11.5% compared to 2019. By contrast, the value added by museums, libraries, and similar cultural institutions fell by roughly 388 million euros over the same period due to the COVID-19 pandemic.

Italy invests in creative, and design related markets, leveraging synergies. Success is also a consequence of NGOs and State collaboration.

In this cultural context, **Italian Industrial Design has a rich and storied history and is widely regarded as one of the most important design traditions in the world**. Italian designers are known for their passion for craftsmanship and attention to detail, and their work is focused on form, function, and aesthetics. Italian design schools and universities are highly esteemed, and they collaborate closely with industry to ensure that their students receive a well-rounded education that prepares them for a career in design. Another factor contributing to the strength of industrial design in Italy is the country's thriving manufacturing sector, particularly in luxury goods brands.

Design in the UK

Design Economy 2021 Research Programme by the **UK Design Council** aims to provide the most comprehensive assessment of the value of design to date. As well as exploring the wide-ranging value of design, this three-year project will also consider the role that design can play in building and creating a more just, healthy, and regenerative world.

The three-year research program is hosted on an interactive digital platform; Design Economy 2021 will be a growing resource for policymakers, business leaders, public sector professionals, architects, and designers. It will explore a range of topics, including [25]

- the social and environmental value of design
- the economic value of design
- business understanding and use of design
- public sector understanding and use of design
- public understanding of design
- regional variations in the use of design
- how the design economy might evolve and change over time.

Design Economy 2021 Research Programme Activities: [26]

- Design for Planet Festival 2022
- London Design Festival

Since 2010, **the UK Design Council** has made significant progress in helping the government, businesses, and communities better understand what design is and the economic, social, and environmental benefits it brings.

Achievements of the UK Design Council: [27]

- 5,000 businesses to demonstrate that every £1 invested in design provides £20 in return.
- 100+ local councils, creating a new market for design in public sector innovation, with 93% of council staff improving their design skills.
- 1,000 unique development schemes in local authorities and NGOs, providing expert design advice to ensure places are inclusive and sustainable.

UK Design Council the People, Places and Economic Value Report

The report is among the outputs of UK Design Economy Research. Some highlights of the report are below.[28]

- In 2019, the design economy contributed **£97.4bn** in GVA to the UK economy, **4.9% of total UK GVA.**
- It grew twice the UK economy's rate
- between 2010 and 2019. The design economy is a major employer.
- In 2020, 1.97 million people were working **in the design economy** – or one in twenty workers in the UK. Of these, **1.62 million were designers.**
- 77% of designers work in non-design sectors such as finance, retail, and construction.
- Both craft and clothing have experienced contractions in their GVA contributions between 2010 and 2019 by 59% and 18%, respectively.

British Council Activities

The British Council invests in defining the scope of creative economies and identifying the growing areas. Its New and Changing Dynamics Report offers a clear timeline of how the creative economy evolves from cultural activities to innovative design. The report says, "in a time of rapid globalization, many countries recognize that the combination of culture and commerce that the creative industries represent is a powerful way of providing a distinctive image of a country or a city, helping it to stand out from its competitors."[29] This is why countries are increasingly interested in defining and investing in creative economies. British Council also launched a start-up toolkit called **The Creative Enterprise Toolkit** [30] to lead creative people into the business and **The Creative HUBkit** to help the independent hubs sustain their activities.[31]

British Council Türkiye also supports a mutual program called Creative HUBs: **The Map and The Territory** project to identify the creative HUB network in Türkiye. [32] Details of the project will be given below under the hubs section.

Many countries have accelerated their design approach in the last five years by first defining the scope of design sector. While UK and Germany are two of the few countries that can clearly define the scope and volume of design economy.

Moreover, it is also important to note that every country has a different way of categorizing 'designers'. Therefore, quantitative comparison between countries is less significant.

Design in Ireland

Ireland approaches design as part of **Job-Talent Creation**. In 2019, the government launched Future Jobs Ireland, a new economic pathway based on embracing innovation and technological change, improving productivity, increasing labor force participation, enhancing skills, and developing talent. Ireland's capability in cutting-edge technological areas must be embraced and facilitated to help companies design, develop, and implement solutions across multiple sectors, such as MedTech, FinTech, Advanced Manufacturing, and AgriFood. To do this, Ireland started the **Together for Design Project**, focusing on three design disciplines: **Digital Design** (including Interactive Media, UI & UX Design, Digital Media, Interaction Design, Multimedia Design, and Web Design); **Product Design** (including Product Design Innovation, Process Design, Industrial Design, Manufacturing Design, Engineering); **Strategic Design** (including Service Design, Design Thinking, Co-Design, Design Management, Design Innovation). [33]

The project consisted of:

- A review of leading trends and drivers of change impacting the industry's current and future skills and competencies.
- A high-level desk-based international policy review to determine best practices in design skills provision in leading countries.
- Building on previous work undertaken to define the current workforce profile of the sector about the digital, product, and strategic design.
- A modeling exercise to determine the future design skills requirements for the enterprise over five years to 2025.
- A supply profile of the current relevant skills from education and training providers.
- A set of recommended responses based on the quantitative and qualitative research results to address any identified gaps in skills provision considering the skills needs requirements of the economy.
- Considering of how any identified gaps in skills provision, including quantity and diversity, may be addressed in both design and enterprise sectors.
- The design and distribution of a structured survey of key informants on skills demand needs.
- An overview of ideas and recommendations arising from three thematic workshops

Design in Germany

The Ministry of Economic Affairs has conducted research and has assessed the key economic indicators of the cultural and creative industries to compile the 2020 Cultural and Creative Industries Monitoring Report. In the report, the markets covered are music, books, art, film, broadcasting, performing arts, design, architecture, press, advertising, and software/games. The twelfth area, entitled "other," includes industries that could not be assigned to one of these eleven submarkets of the cultural and creative industries (e.g., photography labs or freelance interpreters). According to the report on Germany's Cultural and Creative Industries, key figures are as follows [34]

UK includes design in industrial fields in its scope of design sector. Germany on the other hand includes design activities in all industries and in creative sectors like arts.

- 174 billion EUR turnover.
- 299,467 persons in marginal employment.
- 599,511 persons in marginal self-employment.
- 3,1% share of GDP
- 1.8 million workforces
- 1.2 million core (design/creative) workforce
- 258,790 businesses.

Design in the Netherlands

The Netherlands draws the scope of creative industries by making it a leading sector. **The Creative Industry Top Sector** comprises various disciplines, such as architecture, design, fashion, media and ICT, gaming, and pop music. This Top Sector plays an important role in promoting innovation in other sectors and solving societal challenges in such areas as healthcare, security, and energy. The recognition of the creative industry as a Top Sector in 2011 had a major impact. It is not just the efforts of the top team but also the introduction of the term **"Creative Industry"** that has resulted in the sector better organizing itself and creating a feeling of solidarity between the various subsectors.

Netherlands give more focus on the gaming and architecture where the country has a higher presence in the world. Hence its scope is vague, and the country doesn't have a design report public on the internet.

The Top Sector Creative Industry employs 179,000 FTE in the Netherlands, representing 2.56% of the Dutch employment market. The Dutch creative industry, be it design, architecture, fashion, dance, TV formats, or computer games, is experiencing healthy growth and winning considerable international acclaim. In part, this might not be a surprise. The Netherlands has a long tradition of architecture and interior design. Architectural and design ideas such as those of **the De Stijl movement** and **the Amsterdam School of Architecture** in the 1920s have had a profound impact on Dutch architecture and design. These ideas have found their way abroad, and designs for interiors and furniture created by such De Stijl members as Rietveld are world-renowned. This design philosophy is also clearly visible in, for example, contemporary products and graphic design and fashion. Whereas architecture and gaming mainly comprise SMEs, only a few of which will support over 100 employees, media and advertising companies can be significant. Fashion and industrial design support a mix of self-employed designers, SMEs, larger design bureaus, and companies with discrete design departments. The last of these form an essential part of the Dutch Creative industry. [35]

Design in Finland

Finland has a long-standing international reputation for high-quality craft and design and currently leads European countries in human capital in digital skills. Finland's national design policy, the **Design Finland Programme**, built on the success of Helsinki as **the World Design Capital 2012** and the 1999 initiative **Design 2005!** and brings together all stakeholders across supply and demand to put design at the heart of Finnish innovation and industry.[36] From early childhood, design literacy is taught within other subjects through phenomenon-based learning, where students "learn by doing," The vision is that all of Finland's citizens, across different professions, will have and use "diverse basic skills".

Design in Sweden

Sweden has a strong tradition in design - particularly in furniture and textiles. **The Swedish Industrial Design Foundation** (SVID) works with businesses, public services, and researchers to highlight design and disseminate knowledge.[37] As part of this, SVID produces **the Swedish Design Research Journal. Swedish Design Moves**, a global touring exhibition, showcases the work of contemporary manufacturers and designers to reflect Swedish values and expression. Funded by the Swedish government, it promotes international awareness of Swedish design, fashion, and architecture. **The Swedish Centre for Architecture and Design** (ArkDes) is Stockholm's main design center and holds events, exhibitions, education programs, and debates.[38] The annual **Stockholm Furniture and Light Fair** is the world's largest meeting place for Scandinavian design. In 2018, the Swedish Government introduced the **Policy for Designed Living Environment**, integrating sustainability and universal design into design and architecture.[39] **Sweden is ranked second in the European countries for Human Capital in digital skills and aims to be the best in the world in developing opportunities in digitalization**. In 2019, it opened the **AI Innovation Sweden**, a national center of AI research, to support Sweden's industry and welfare.

Design in Singapore

Singapore also follows a similar path to other countries in determining the scope of the design sector and regulating plans and projects to develop for innovation and competitiveness. In May 2015, a 16-member committee comprising leaders from the design industry, business, academia, and the government was established to develop **Design 2025, a new masterplan to grow the design sector and expand the role of design in Singapore**. This effort was supported by **the Design Singapore Council**, together with the Economic Development Board. According to the findings, 86% of design firms are micro-SMEs that lack resources and sufficient business experience to expand internationally. According to a survey conducted by the Design Singapore Council, only 45% of design firms have booked revenue from overseas markets, and constituting about 30% of the total revenue for each firm.[40] In the Design 2025 Master Plan, these strategies stand out:

- Infuse design into the national skillset,
- Expand the role of design in businesses and government,
- Strengthen the competitiveness of design firms,
- Bring design into the community,
- Develop the Singapore Design brand.

Singapore is also at the stage of identifying focus areas and strengthen the SMEs to develop the innovation culture of Singapore especially for exports.

Design in New Zealand

The Value of Design to New Zealand report established that the total contribution of design to the New Zealand economy was **$10.1 billion (4.2% of GDP)** in 2016.[41] The report identifies where design fits in with the broader economy and industry. Product and interactive design were the most significant design disciplines, making up 46% of design's contribution to GDP. Without a national design strategy, this project seeks support from the government to recognize design as a sector that warrants investment. **The Auckland Co-Design Lab**, established in 2015, is a collaboration between local and central Governments to bring together multidisciplinary teams working with the public sector and communities to develop innovative ideas and solutions. It uses service design tools to focus on the complexities of everyday services to understand issues and address problem areas. The New Zealand Government actively supports design thinking. In 2016, it developed **SmartStart**, it is an entrepreneurship program, part of New Zealand's digital transformation, focusing on key events in people's lives rather than how government agencies are set up. The service was developed in 6 months.

Design in Australia

The Queensland Design Strategy 2020 defines design as "the key to unlocking innovation and competitiveness in more of our businesses." [42] Developed alongside **the Smart State Strategy**, it increased university research and development spending. **The strategy aims to strengthen the economy, foster a design culture, build design knowledge, and support public sector innovation by enhancing creativity to meet future challenges across the environment, community, citizens, and cities. The Queensland Design Council** (2010) was established with people drawn from across the sector to promote and develop Queensland as a center of design excellence. Victoria's Creative State 2016-20 [43] "puts creativity at the heart of Victoria's future" to support and develop the creative industries, including the Victorian Premier's Design Awards.[44] **Creative Victoria** supports the wider creative industries, including the **Melbourne Arts Precinct**,[45] and supports indigenous cultures.

4.3. Design in Türkiye

Turkish state treats design and innovation as essential parts of competitiveness. 2008 State Communication on "**Design Subsidies**" announced that among the "export funds," the Ministry of Trade supports the designer companies/design offices and cooperation organizations. **The scope of the support is to pay the expenses of promotion, advertising, marketing, employment, consultancy expenses, expenses related to the units they will open, and the high value-added products of the companies for foreign markets**.[46] In addition, the Ministry also supports the overseas education and living expenses of 60 designers who were ranked during competitions. Moreover, the companies' **Design and Product Development Projects** are supported by compensating the gross salaries, tools, equipment, material and software expenses, travel, and website membership of the designers, modelers, and engineers employed.

The Ministry of Industry and Technology takes many steps to develop design and innovation by regulating the **innovation and design centers** that conduct design and R&D activities in their facilities. Law no 5746 regulates these centers and how they can get subsidies from the state.

Design activities are highly subsidised in Türkiye, but companies are inexperienced in filling application documents for their design projects. List of state subsidies can be found in this document.

Ministries are now focusing on how to encourage SMEs to produce design and evoke creativity by developing an innovation culture. In this sense, **bringing design to SMEs** is one of the targets of the Ministry of Industry and Technology via development centers like ISTKA (Istanbul Development Agency), while bringing the design closer to the public becomes the target of the local governing bodies like metropolitan municipalities.

The Ministry of Education launched its strategy for **Science, Technology, Engineering, and Mathematics (STEM)** education back in 2016, announcing a call for schools to integrate design capacity-building training and bring design closer to kids. This strategy report triggered many public and private schools to open design education and even increased their design capacity with 3D printers, 3D scanners, robotics kits, and 3D design software.

Table 11 Fairs, competitions, summits, and awards in Türkiye

Fairs	Date	Conferences	Date
Architect At Work Istanbul	October	International Congress On Architecture And Design	November
Istanbul Furniture, Home Textile, Design, Decoration Fair	August	UTAK National Design Research Conference	September
Furniture Istanbul	February	International Conference on Design, R&D	December
CNR Furniture	April	International Congress On Engineering, Architecture/Design	December
UNICERA International Ceramic, Bathroom, Kitchen Fair	July	Istanbul Biennial	September
EURASIA DOOR International Door Fair	December	Contemporary Art Festival Istanbul	September
EURASIA Window	December	Turkey Trechnology Summit	September
Aquafun	December		
Host Istanbul	September		
Ideal Homex	September		
Bedding World	March		
Zuchex	September		
Istanbul Light	October		
Fespa Euroasia	January		
Printex	February		
Sign Istanbul	September		
Istanbul Fashion Connection	February		
Intermob 2022	October		
Uxistanbul	April		

Türkiye Designer numbers

The January 2023February 2024 statistics from the website www.sanayi.gov.tr report the following figures:

- 1,2571,301 R&D centers in Türkiye have a total of 75,61082,700 employees.
- 320 327 Design centers with a total of 7,7337,904 employees.

In addition to these statistics, data on the number of designers in different sources are given below:

- European Design Report 2.0 stated that there were 140,000 designers in Türkiye in 2018.
- Industrial Designers' Society of Turkey (ETMK) states that there were 6,500 industrial designers in 2022. The European Design Report reported 5.600 in 2018, a significant increase of 16% in 4 years.

Istanbul Designer numbers

About **45%** of the designers work in Istanbul. They are divided into the following sectors: [47]

- 42% graphic design,
- 10% publishing
- 4% industrial design,
- 4.4% creative industries
- 39,6% other sectors that require design support

Universities with Design Programs

The Yükseköğretım Kurulu organization reports 108 universities offering design programs in Türkiye, divided into:

- 75 Graphic Design programs
- 33 Industrial Design programs [48]

Intellectual Property in Türkiye

Statista, the Hamburg business data platform since 2007, **intellectual property offices in Turkey are ranked 5th out of 20 countries with 47,653 industrial design applications.**[49] This shows that the Turkish industry has great potential to develop towards a higher competitiveness by using its promising design industry.

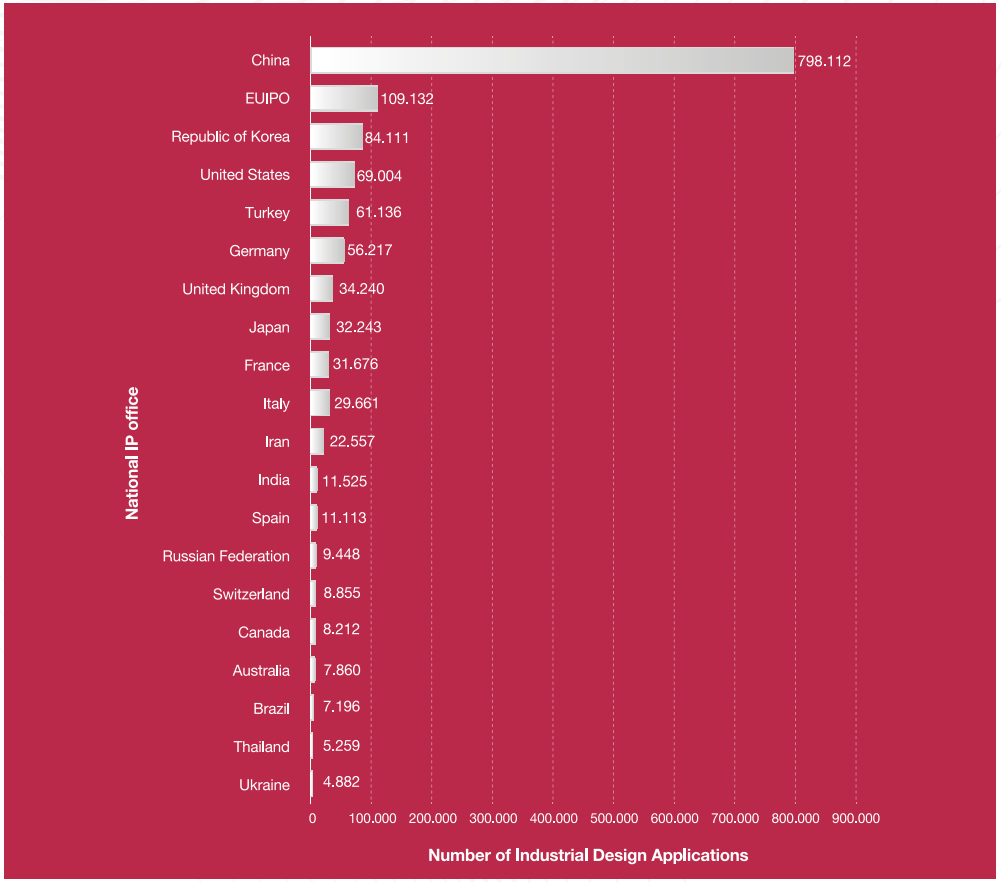

Figure 12 Ranking of the 20 countries with the most industrial design applications 2021
Sourge Statista

LEADING DESIGNERS IN TÜRKIYE IN 2021

Table 12 World Design Rankings based on the number of designers granted the A' Design Award

Rank	Country/Area	Awards	Score	●	●	●	●	●
1	China	4562	16048	130	626	1614	1298	894
2	United States of America	1434	5033	74	231	409	358	362
3	Japan	788	2914	51	138	257	206	136
4	Italy	626	2239	38	98	197	147	146
5	Hong Kong (China)	999	3449	28	139	316	290	226
6	Great Britain	391	1413	21	61	138	88	83
7	Taiwan (China)	2548	7772	19	133	602	997	797
8	Turkey	637	2096	15	90	159	174	199
9	Germany	355	1290	15	59	138	67	76
10	Portugal	182	691	13	43	55	36	35

Source: World Design Rankings [50]

Türkiye is ranked 8th in the world among 114 countries regarding of the number of design awards, as accounted for by the 2021 World Design Ranking website. The World Design Rankings elaborates on the number of designers the A' Design Award: **Turkish designers won 609 awards since 2010.**

Turkish designer Hakan Gürsu of Designnobis is the world's 5th most award-winning designer in 2021. The Vestel Company design team holds the 17th position and the Bien Seramik Company design team holds the 33rd rank.

The Design sector in Türkiye is mastered by successful industrial design pioneers and design departments of leading companies with massive industrial outputs like Arcelik and Vestel. There are also leading banks that have creative user experience projects. **Turkish industrial companies put their marks in design awards, especially in durable goods and architecture**. In the world design rankings list in 2021, 227 award-winning designers and the top 30 are listed in Table 13.

Table 13 Top 30 Turkish award-winning designers/firm in 2021

Rank	Name Surname	Awards	Score
1	Hakan Gürsu	77	279
2	Vestel ID Team	33	141
3	Bien Seramik Design Team	14	49
4	Anadolu Isuzu Design Team	5	25
5	Sarp Yachts	7	29
6	E.C.A. Design Team	6	27
7	Limay Türkkan & Anıl Tontus	2	11
8	Selami Gündüzeri	2	11
9	K.i.d (Kale Design & Innovation)	3	12
10	Digital Panorama	2	8
11	Arcelik A.s	30	112
12	Yasemin Ulukan	12	45
13	SEREL Seramic Factory	11	38
14	Ayhan Güneri	11	36
15	Seda Dundar	5	20
16	Deniz Karasahin	3	14
17	Akbank Design Studio - Staff Channels	3	12
18	Tan Mavitan	2	10
19	Vestel UX/UI Design Group	8	29
20	House of DIV by Gulsah Surel Erdem	4	17
21	Levent Muslular	5	19
22	Musa Çelik	12	31
23	Akif Ekin	3	13
24	Isvea Eurasia	10	28
25	Craft312 Studio	4	15
26	Bora Yıldırım	3	12
27	Serhat Apak & Burhan Özugur	3	11
29	Taris Zeytin A.S	2	9
29	İsil Gencoglu	2	9
30	Akbank	2	9

Source: World Design Rankings

5.5. Türkiye and Istanbul Industrial Design Ecosystem and Network Analysis

5.1 Design and Prototyping Centers, Hubs, Institutions 49
5.2 Auxiliary Centers and Hubs for Innovation and Startups 58
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5.8. Network Analysis of SMEs and Industrial Designers 66

For this report, the organizations working in the ecosystem of design are grouped into the following categories:

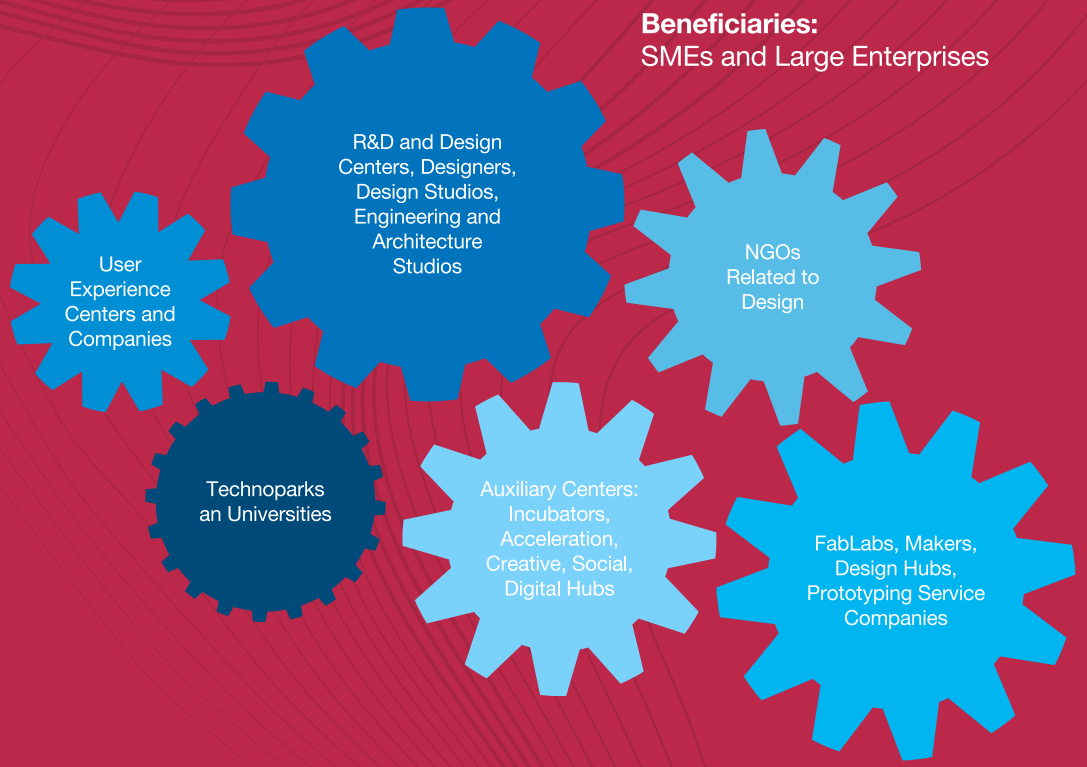

Figure 13 Ecosystem model

5.1 Design and Prototyping Centers, Hubs, Institutions

Design and Prototyping centers, hubs, and institutions are more related to the technical skills of design, whereas **the Auxiliary centers and innovation hubs** are more focused on networking, entrepreneurship, and business for startup and acceleration. A clear distinction between the two categories is not possible, since many organizations run both services: the categorization proposed in this report is based on understanding the institution's main mission.

Maker Movement and FabLabs

The Maker Movement is a cultural and technological trend that emerged in the early 2000s and is centered around the idea of **DIY** (Do-It-Yourself) creation and innovation. It emphasizes the use of technology and digital fabrication tools, such as 3D printers, CNC routers, and laser cutters, to make a wide range of physical objects, from toys and furniture to robots and scientific instruments.

A **FabLab** (short for Fabrication Laboratory) is a type of maker space that provides access to digital fabrication tools and equipment to people who want to make things. The concept of FabLabs was developed by the Massachusetts Institute of Technology (MIT)'s Center for Bits and Atoms and the first FabLab was established in 2001.

Maker Movement

Even though there were some initiatives before, the Turkish maker movement started to take off around 2016. Between 2016 and 2018, **Istanbul Maker Meet-Up** was held as a public gathering on the first Wednesday of each month.[51] This maker meet-up community claims to have reached 50,000 people interested in maker-ship on social media.

Makers avoid identifying themselves with a static definition. Makership is multidisciplinary, and this is the reason of why there isn't a definitive number of makers in Türkiye. Many PROVIDERS support the design ecosystem by nurturing creativity.

The following are examples of early Maker Movements in Türkiye:

GelecekHane 2015-2019 (Private Tech HUB/ThinkTank) defines itself as a think-tank about technology. Founded in 2015 as a private tech hub, it operated like a maker initiative toward digitalization in all areas until 2019. The hub used to be one of the leading private initiatives of the maker movement and HUB culture. Later, in 2019, it started contributing to the design and tech industry through digitalization consultancy and became a leading consultancy firm in this sector.[52]

Makerhane 2016-2017 (Non-profit Tinylab Center), 3D Baskı, prototipleme, endüstriyel tasarım ve robotik için bir alan sunan önde gelen maker merkezlerinden biridir. Mekân birçok eğitim, proje ve maker projesine ev sahipliği yaptı. COVID-19 pandemisinden önce kapatılmıştır.

DENEYAP, TEKNOFEST, and **TBA** are other examples of initiatives initiated by the Maker Movement.

With time the Maker Movement transformed itself into offering space for sharing ideas and equipment on specific themes or helping the development of start-ups and designers to get into innovative products and services. Makers also get together to support companies' innovation culture by offering consultancy, training, and projects that help develop the **innovation culture**. On the other hand, the maker community reached arts and design academy circles, developing innovative ideas to merge design, robotics, technology, and arts.

The Maker-Kids movement developed within schools, private hubs or training centers, hubs under universities, kids-section within existing hubs, hubs owned by municipalities, or similar state organizations. The Maker movement supported the Zero-to-Maker program, offering space and opportunity to kids in 2022, believing that feeding the innovation culture to kids will increase innovation in Türkiye. Table 14 provides an overview of Maker organizations for children in Turkey.

Table 14 Maker for kids in Türkiye

Private	City
Educathub	Istanbul
Maker Kamp	Istanbul
Turuncu Maker Lab	Istanbul
Maker Cocuk	Istanbul
Atolye Visyon	Istanbul
Kadikoy Atolye	Istanbul
Ulutek Maker Cocuk	Bursa
Mag-Net	Adana
Ben Maker	Bursa
Inokids	Istanbul
Maker Robotic	Istanbul
Gelecek Maker Akademi	Istanbul
Kucuk Muhendisler	Ankara

Private	City
Maker Codes	Istanbul
Maker Kids	Istanbul
Atolye Atolye	Kocaeli
Kasif Maker	Istanbul
MegaMaker Lab	Mersin
Temelyapa Cocuk	Gaziantep
Maker Eskiseir	Eskisehir
Global Sinif	Ankara
Inokids	Istanbul
Maker 216	Istanbul
Mucit Atolye	Ankara
Mucit Kids	Bursa
We Do Robotics	Ankara

Public/Schools/Universities/NGOs	City
Uludag University Maker Kids Training (ULUTEK)	Bursa
Diyarbakir STEM Center (Karacadağ evelopment Agency)	Diyarbakir
GAP Genc Portal (GAP and UNESCO)	Sanlıurfa
Mesafe College	Bursa
Refugees Association	Istanbul
Hacettepe University Maker Kids Training	Ankara
TEMA College Maker Atelier	Istanbul
Marmara Bilge College Maker Atelier	Kocaeli
Uludag College	Bursa
KTO Karatay Univesity KARSEM	Konya
Doku Koleji	Bursa
Pelican College	Kocaeli
Atasehir Municipality Workshops	Istanbul
Maker Teknoloji (ÇUBİTED-Association)	Adana
TEGV Atelier (TEGV Association	Various

The Maker movement connects creating art using technological design with any type of art. This “New Medium in Arts” concept suggests that the media used in highly digitalized sectors can also be used by artists. This results in an increasing tendency for maker-ship to enter arts with new technological advances and create advanced art made with sophisticated technologies. However, maker interest in art is limited, and artists and industrial designers utilize New Medium concepts mostly in arts. Some initiatives are listed below:

Istanbul Development Agency Art Maker Lab Project The Art Maker Lab Learning Center at Istanbul Modern offers children and young people the opportunity to produce art with new technologies. [53]

UrbanTank, is a non-profit organization addressing varying topics on different scales and contexts of the urban environment. Based on each project’s nature and participants’ availability, the platform forms teams of academics, design students, architects, and planners. [54]

Turkcell Intelligence Power Project is a social responsibility project carried out in schools affiliated with the Ministry of National Education by Turkcell GSM operator. The project’s primary purpose is to introduce students to technology, arouse their curiosity in this field, and encourage students to develop their own skills. The project holds training for technology in the arts and distributes maker coding kits to children. Within the scope of the project, a total of 70 Intelligence Power Laboratories were established in 42 provinces. These laboratories include the necessary equipment, from 3D printers to sensor kits, from laptops to smart boards.[55]

FabLabs

FabLab are connected design hubs equipped with the latest equipment for design, like 3D printers, CNC machines, microprocessors, scanners, etc. FabLabs are open-source design centers linked globally to share ideas, designs, and techniques. According to the FabLab database,[56] there are more than 1000 FabLabs worldwide, 18 in Türkiye. 14 of these hubs appear to be active.

Table 15 FabLabs in Türkiye

Lab Name	City	Information	Information	Website
Fablab Iztech	Izmir	Public	Izmir High Tech Institute-Faculty of Architecture Lab	https://fablab.iyte.edu.tr/en/home-page/
Atolye Ankara	Ankara	Public	Kanuni Occupational Tech High School Lab	https://www.atolyeankara.org.tr/
Fablab Gaziantep	Gaziantep	Public	Opened in 2022 with Gaziantep University,NGOs and Municipality support	No website
Collaboration Space	Istanbul	Public	Sabancı University Lab	https://cospace.sabanciuniv.edu/
Dijital Çağ Atölyesi	Ankara	Public	Opened with the support of Ministry, Development Agency.	https://dijitalcagatolyesi.com/
Anadolu Fablab	Eskisehir	Public	Anadolu Univesity Lab	https://www.facebook.com/fablabanadolu/
Fablab Istanbul	Istanbul	Public	Kadir Has University Lab	https://fablabist.com/
Open-fab	Istanbul	Public	Ozyegin University Lab	https://openfab.ozyegin.edu.tr/tr
IdeaLab Hisar School	Istanbul	Public	Hisar High School Lab/Has Github	https://hisarcs.github.io/pirobot/index.html
FabrikaLab İzmir	İzmir	Public	Izmir Municipality Lab under Izmir Municipality Meslef Fabrikasi Centre	https://www.ibbmeslekfabrikasi.com
Atolye Uskudar	Istanbul	Public	Uskudar Municipality Lab	https://atolyeuskudar.com/
Inno Fablab	Istanbul	Private	Innovation and entrepreneurship program.	http://innocampus.org/
Maker Atölye	Istanbul	Private	Reached 10,000 kids and 1000 adults via trainings and projects since 2015.	https://www.makeratolye.com/
Atolye Istanbul	Istanbul	Private	Design and art related lab.	https://www.atolye.io/en/home/
Fablab Odemis	İzmir	N/A	Latest info dates back to 2015/Doesn't seem active	No website
Işık Fab Lab	Istanbul	N/A	Latest info dates back to 2015/Doesn't seem active	No website
Fabutopia	Istanbul	N/A	Not much information/Doesn't seem active	No website
Atölye 4x4	Istanbul	N/A	Not much information/Doesn't seem active	No website

Public, Non-Profit, and Private Design Hubs

Design Hubs are the focal point for the Innovation Communities' activity within their focus area. Innovation Hubs build on core partners' existing labs, offices, or campuses, which serve as clusters for a particular region, discipline, or task. The hub concept is to build collaborative communities, bringing together innovators and entrepreneurial individuals at the center. Most new entrants to a hub expect to find a genuine sense of community. Many of the preliminary hubs around the world started to grow around 2014.

In 2021, the Istanbul Chamber of Industry established the **Industrial Design and Prototyping Center (ISO ETP)** to strengthen the industrial design ecosystem in Istanbul and its neighboring cities. **The center is operationalized through the IDEA4ISTANBUL project, helping ISO ETP to achieve its mission of empowering SMEs and entrepreneurs to increase competitiveness through a focus on industrial design with innovative technologies and methods and a collaborative/ collective environment.** The Center, which will increase the contribution of design to the national economy by strengthening the relationship between manufacturing and industrial design, can be classified as a Design Hub.

Many Public and non-profit hubs are owned by universities, NGOs, organized industry zones (OIZ), or industry incubation centers:

- **Basaksehir Living Lab** by Basaksehir Municipality is Türkiye's first Living Lab that opened its doors to the public in 2013. Its focus areas are information–communication technologies and design. Living Lab is a co-creation and application environment where products or services are developed with their users. ISTANBUL [57]
- **Istanbul Design Factory** is in the Basaksehir Living Lab. They call themselves an ecosystem where designers, architects, investors, entrepreneurs, and creative people come together. They also have a creative hub called Hamam Hub. [58]
- **DESIGNHUB-IST** Design, Training and Application Centre is supported by Istanbul Development Agency. The center offers training and consultancy in cooperation with Kadir Has University. [59]
- **SEYTIM-Seyhan Municipality Technology and Innovation Centre** in Adana was established by Seyhan Municipality to serve in education, design, and production. SEYTIM is a center where individuals of all ages can receive education by closely following technological developments and where individuals can produce and implement innovative ideas on every subject. [60]
- **3D Printer and Design Centre** was founded by Izmit Municipality to offer non-profit services to Izmit society that like to learn or use 3D scanning and printing technology. The center aims to help local people implement their designs (besides seminars and course activities); the 3D Printer and Design Centre is a non-profit Education and Culture Centre. [61]
- **Abdullah Gul University Creative HUB** is a design training hub with all design facilities like 3D scanners and printers to teach people and students to design and use the latest design technology. It was founded with a grant from the US Embassy.[62]
- **Kale Design and Art Center (KTSM)** is a private Hub started by Kale Group with the support of İbrahim Bodur Kaleseramik Education, Health, and Social Assistance Foundation and with the financial support of the Istanbul Development Agency (ISTKA). Each Kale Design and Art Centre floor has a different design activity, including a 3D printer open to everyone and workshops with different models and production materials. However, the Kale Design Center's building in Karaköy is temporarily closed at the time of this report's publication due to earthquake-related construction works. [63]

A specific category of design hub focuses on **Robotics and IoT**, which are becoming important topics for all areas of society and manufacturing plants. These hubs typically have an electronic laboratory where Arduino programming is used to build rapid prototypes of electronic products with a maker mindset.

- **Robotik Sistem** is a company that sells the codes, finished robots, equipment, and materials needed in robotics. [64]
- **Robotic Egitim Akademisi** is a robotics training center established to support university and high school students and kids in learning robotic coding to convert maker designs into working end products. [65]

- **Roboturka** is a non-profit robotics training project established to support Yildiz Technical University engineering students. They offer free training materials online. [66]
- **Robotistan** is an important maker hub for robotics, with large robotics and design equipment and supply sources. [67]

A design department of a company may call their own design departments as Hubs, but such places are accounted as design departments of a company.

Prototyping Service Organizations

Prototyping is evolving to rapid prototyping, where the molding technique is rapidly being replaced or supported by advanced manufacturing technologies like 3D printing to speed up manufacturing.

The General Directorate of Sectors and Public Investments, Department of Manufacturing Industry, published a report in July 2019 describing detailed research on 3D printing examining the 3D printing technology, market, and current situation of applications in the World and Türkiye. The research titled *Paradigm Shift in Production, Incremental Production, Three Dimensional Printers,* observed that in 2017, only one-third of the total capacity of these machines was utilized, and the application areas were not sufficiently explored. Turkish industrial companies tend to invest in 3D printing systems instead of working with service providers despite the high system cost. The service market constitutes about 41% of the total 3D printers

In 2017 only one third of the total capacity of 3D printing machines was utilized. The areas of application must be further explored from prototyping to production and repair.

The report reports the map of 3D printing installations in Türkiye:

Institution Type	Number of 3BY
Service Provider	45
Industrial Companies	321
University / Research Institution	85
Public	16
Total	467

Figure 14 Map of 3D printers' installations in Türkiye in 2017

3D printing is mostly used in the following sectors:

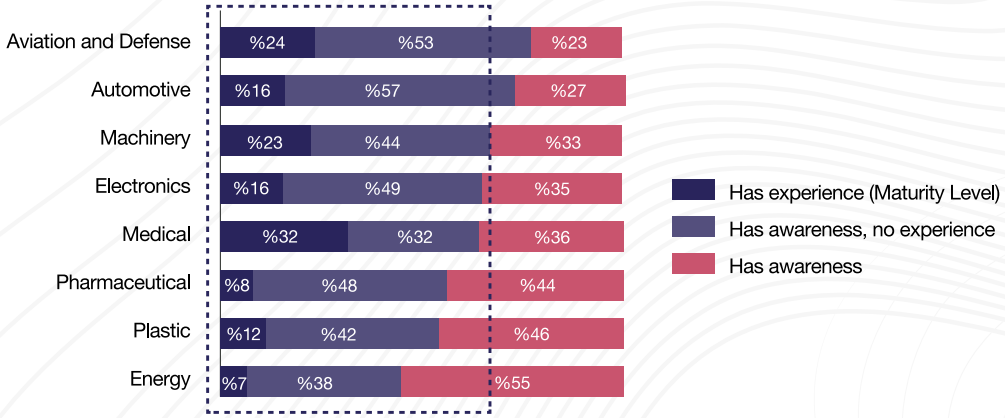

Figure 15 Sectors with most 3D printer applications

Web-based applications for prototyping services are also becoming increasingly popular in Türkiye (for example, Tridi). In these applications, customers request a job by uploading their 3D model and basic specifications. Then, the AI model calculates the quotation, and, if accepted, the job is offered to manufacturing partners who can win the job.

MoIT Certified R&D and Design Centers

R&D and Design Centers are departments, companies, and institutions certified by the Ministry of Industry for conducting product development activities with innovative capacity. Within the scope of the "**R&D Reform Package**" which was published in 2016, many regulations were introduced to improve the R&D and innovation ecosystem of Türkiye. **Law No. 5746 on Supporting Research, Development, and Design Activities** included design activities in the scope of support, just like R&D activities.

According to data provided on the Ministry of Industry and Technology's website, **more than 1,500 Research and Development (R&D) and Design Centers currently employ more than 70,000 people in Türkiye.**

To acquire the Design Center certificate, which is required to benefit from state funding, an organization must have these qualifications:

- Having at least 10 full-time design employees with the status of designer or technician.
- Executing design projects.
- Monitoring mechanisms for the presence and activities of designers in the design center.
- Design activities must be held in Türkiye.
- Design activities must be conducted under a separate department and physical campus.

There are 320 Design Centers in Türkiye, 145 of which are in Istanbul in 2022. Below is the distribution of design centers in **Istanbul** according to their primary activity areas:

Table 16 Design centers in Istanbul

Engineering/Architecture	30	Aviation	3
Textiles	25	Air-conditioning	3
Media and Communication	16	Defense	2
Construction	11	Moulding	2
Machinery and parts	10	Autmobiles	2
Production industry	9	Seramik ve Ceramics and Refractory	1
Furniture	7	Durable Goods	1
Electronics	5	Rubber-Plastics	1
IT	4	Energy	1
Clothing	4	Telecommunications	1
Automobiles spare parts	3	Jewellery	1
Marine	3		

The distribution map of the R&D centers and Design Centers of the Istanbul Chamber of Industry (ICI) associates is presented in Figures 16 and 17.

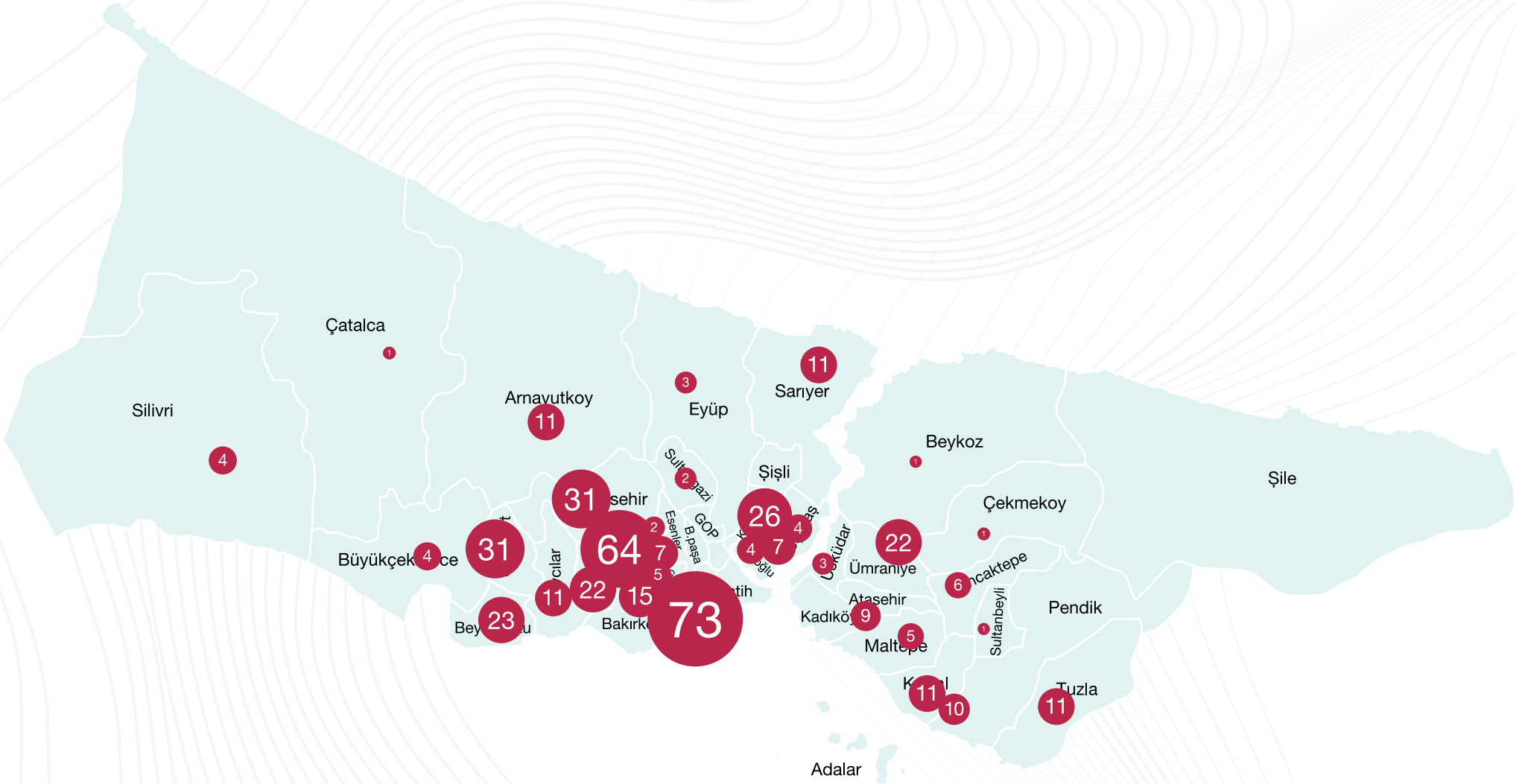

Figure 16 ICI associates with R&D Centers
Source: https://creativecommons.org/licenses/by/3.0/deed.en modified by adding bubble chart.

Figure 17 ICI associates with design centers

Design Companies, Designers, Engineering and Architecture Studios

Design Companies and Designers

Design-related companies that provide design services are mainly assigned to Interior Design, Industrial Design, and Graphic Design. These companies combined constitute the primary professional providers of design services.

The total number of design service provider companies in Istanbul is 3,338: [68]

- Interior Design (NACE 74.10.01): **1,570**
- Graphic Design (NACE 74.10.03): **602**
- Industrial Design (NACE 74.10.02): **1,166**

In addition to designers working in design companies, other designers work for non-design companies or freelance. Designers who work for non-design companies are, in general, the innovators of those companies.

Engineering & Architecture Studios

Engineering and architectural companies play a significant role in developing new products, buildings, and structures. **Design and Engineering** are strongly interrelated, and the separation of the roles sometimes creates misinterpretations. **Design**, in general, involves the development of the requirements to satisfy the customer and other relevant parties (regulations, business stakeholders, etc.) and often, the designer is concerned with human factors like aesthetics, usability, functionality, and fitness for purpose. **Engineering** involves translating these requirements into a technical specification, engineering valid action, and a manufacturing or construction plan.

Table 17 Number of engineering companies in Istanbul

NACE	Engineering Service	Number of Compaines
71.12.03	Ground surface exploration and map making	3.090
71.12.10	Building projects	1.434
71.12.09	Geological, geophysical and related research	1.264
71.12.90	Oil and natural gas extraction projects	720
71.12.08	Transportation projects	620
71.12.01	Water, sewage and drainage projects	326
71.12.06	Industry and manufacturing projects	230
71.12.04	Energy projects	180
71.12.07	Engineering consultancy services	146
71.12.05	Other engineering projects	50
TOTAL	**Engineering Services**	**8.060**

Source: İTO [69]

Table 18 Number of architectural companies in Istanbul

NACE	Architecture Services	Number of Compaines
71.11.01	Architectural activities and consultancy	5.684
71.11.02	City and regional planning activities	236
71.11.04	Landscape architecture activities and consultancy	254
TOPLAM	**Architecture Services**	**6.174**

Source: İTO

5.2 Auxiliary Centers and Hubs for Innovation and Startups

Auxiliary centers and hubs for innovation and startups focus more on **networking, entrepreneurship, business development for new organizations, and acceleration for businesses in need of expansion and new markets**. StartupCentrum also offers a valuable map of the ecosystem of this category of organizations at their website

Pre-Incubator, Incubator, Acceleration

The functions of an **Incubation Center** and a design Hub are intertwined. Incubation Centers tend to be bigger than Hubs because they typically host startups' offices and/or workshops until their business maturity. They offer a wider range of services and facilities for a particular group of companies focusing primarily on technological product design. **Hubs** provide space for designers to make their designs and start their businesses. In the incubation center, transitory and facilitative assistance is given to small enterprises or start-ups. **It is geared towards small business development, innovation, application of technology, and promotion of growth from within local economies, while additionally giving a tool for technology transmission**. Incubation centers differ from start-up programs that distribute funds or provide a network between investors and start-ups. Still, the majority of incubation centers have start-up investment programs. Some incubation centers or programs are also called acceleration centers or technology exchange centers. There are 57 Incubation centers in Türkiye and 37 of which are in Istanbul in 2021.

Table 19 Some incubation centers in Istanbul [70]

Acıbadem University Incubation Centre	Etohum	Kworks Koc Unievrsity
Albaraka Garaj	Founder Institute	Lonca Girişimcilik Merkezi
Bahcesehir Univesity Incubation Centre	Garanti Partners	NishNova
BAU Hub	Girişim Fabrikası	Starcamp Kuluçka Merkezi
Bilgi Sosyal Kulucka Merkezi	imece	Sucool Sabanci University
Bilgiyi Ticarileştirme Merkezi (BTM)	Incubation İstanbul Kuluçka Merkezi	T3 Girişim Merkezi
Bilişim Vadisi Kulucka İşletme Merkezi	INNOGATE	TEB Incubation Centre
Bilişim Vadisi Mobilite Girişimcileri Hızlandırma Programı	INOGAR Kuluçka Merkezi	Türk Telekom PİLOT
BioCube İstanbul	Inovent	Üsküdar Fikir Sanat Merkezi
Bogazici University Technology Transfer Office	ISO KOZA	Viveka
BUBA Campus	ITU Cekirdek	Workup Girişimcilik Programı
Congueror Kuluçka ve Girişim Hızlandırma Merkezi	ITU Magnet	Zemin İstanbul
DreamBU Kuluçka Merkezi		

Non-private

- **InovaTIM** is Türkiye's largest innovation ecosystem, consisting of more than 3000 university students in 72 provinces and 150 universities. Many public institutions support it including the Türkiye Exporters Council (TIM) and Istanbul Technical University.[71]

Private

- **Makers Türkiye** company offers ad-hoc designed training and consultancy projects to transform manufacturers into innovative companies.[72]
- **Ideanest Istanbul** is a platform that helps design and technology start-ups meet the funders of companies that need innovative projects. It is supported by the Türkiye Technology Development Foundation (TTGV). [73]
- **Garage Innovation Hub** acts as a bridge between the ecosystem and Arcelik durable goods company by working as a facilitator to benefit from the knowledge, experience, and connections among ecosystem players such as start-ups, mentors, investors, and relevant non-governmental organizations, private and public institution representatives. [74]

Creative, Social Innovation, or Digital Production Hubs

ATÖLYE and the British Council have been working on a mapping of Istanbul's creative hubs to raise awareness about their contribution to the creative industries, encouraging future partnerships. [75] They identified around 119 hubs operating in Türkiye (update of December 2022). This includes many types of hubs, from co-working hubs and design NGOs to research hubs.

On the other hand, the Istanbul Creative Industry Network identified 39 creative HUBs in Istanbul that are for creative activities like dance, theatre, or design. [76]

Hubs can be public or private, but they are always a collective space for creation and design.

Examples of creative, social, or digital production hubs are:

- **Maker Codes** gives training and consultancy services to companies to enhance critical thinking and innovativeness and develop coding capabilities. [77]
- **Impact Hub Istanbul** is part of a global network of ImpactHubs. Impact Hub is a global movement with more than 16,000 members, operating in more than 100 centers worldwide, where entrepreneurs who make a difference come together. It offers a membership-based co-working space to empower creative people with a focus on social impact. [78]
- **Istanbul Design Centre** is a design training hub founded by Ensar Foundation. It gives training and workshops to people who like to learn digital design. [79]
- **TAK Tasarım**, Research, Collective is an independent organization that provides a space for innovation and creativity where citizens, designers, volunteers, students, and supporters create ideas and share their products with the public by establishing national and international collaborations to solve urban problems. [80]
- **Şehrine Ses Ver** is a participatory design laboratory, a social design initiative that creates and disseminates the culture of co-production in the city. Develops systems to identify public space needs in today's Society 5.0 world and generate design ideas accordingly. [81]
- **Fark Labs Istanbul** is a global innovation and transformation center that aims to build a better future for everyone. It helps start-ups, entrepreneurs, institutions, and investors work together. Fark Labs was established in Istanbul as the R&D Center of Farplas Automotive, expanded to Paris and Seoul, and will soon be in Detroit and Shanghai. [82]

- **Kentsel Strateji Platform** is a collective network that brings various civil and urban design companies together to offer new projects for public houses and urban areas. They are part of the Creative Commons global network. [83]

- **ISKELE Design Platform** was founded by the Türkiye Design Council in Istanbul as a public space that allows meeting, learning, and producing with an interdisciplinary design approach. The platform aims to make design accessible to everyone, thanks to its comprehensive event programs and library. [84]

- **INOGAR Cooperative** was founded to support innovation culture with projects focused on social value design, incubation, acceleration program design, and management, developing and supporting fair trade practices, creative space design, content management, and network management in innovation. [85]

In terms of the Creative Industry and art production, it can be mentioned that there are around 500 art galleries in Türkiye and 66% are in Istanbul. These productions need different disciplines and benefit from specializations. As a result, new media has expanded the field of artworks, while other infrastructures of science such as Audio-visual, Bio-Art, and works made with Artificial Intelligence are entering the production process. The artists' backgrounds are becoming varied: they can come from fields such as **engineering, animation, and electronics**. [86] Some examples of new media initiatives in Turkey:

- The first new media platform initiative in Türkiye was a journal of media art and theory called HAT (Hybrid Arrested Translation) (1998), which could only be published once.

- In an initiative that covers Web art and networking, a branch of New Media art - the Web Biennial - is an international contemporary art exhibition organized entirely on the web since 2003 and repeated every two years by its founder, Genco Gülan.

- Organized in 2006, the TECHNE Digital Performance Platform was the first of its kind in Türkiye regarding new media in Festival format. Later, a group of TECHNE performers established the Body Process Arts Association (BIS) in 2007 with the participation of 11 artists, dancers, academicians, engineers, and researchers at the end of a series of meetings.

5.3 User Experience Companies

User experience (UX) is a dynamic but still an infant area of design and creativity. Its focus remains on digital products, but applications in manufactured products are increasing. The companies operating in the UX business are taking significant steps for development.

UXPA Istanbul Chapter is one of the 50 Chapters of UXPA (User Experience Professionals Association), the largest international non-profit organization in the field of **User Experience Design and Usability**, in 40 countries. **UXPA's primary targets are increasing know-how, exchanging expertise, networking, and contributing technologically to UX design**. Its main activities are building a UX community, holding events and global seminars, and contributing to international standardization of this new design area. The association offers a free introduction to UX consultancy when requested by companies.

One major activity of the UXPA Istanbul Chapter is the annual **UXISTANBUL Conference**, held for nine years. The conference accumulated around 350 attendees in 2018 and increased to 500 in 2022.

The conference is led by a well-known UX company called **UX Services**. UX Services is an international UX Design and Research company that provides consulting and training, organizes conferences, and events, and publishes books and resources. UX Services also helps organizations build Web3 and Metaverse editions of their businesses with frictionless user experiences. The company has many courses, which started to focus on Web 3.0 UX and Metaverse concepts to create a better customer experience (CX), user experience (UX), and employee experience (EX).

UX is getting greater attention, especially from companies that offer technologies like mobile apps or internet sales services. Still, the sector has a small ecosystem, estimated to have around 120-150 companies. The number of people working in UX-related jobs is estimated to be about 1,100.

The first and only UX Master's program in Türkiye is at **Kadir Has University**, known for its specialty in design.

Türkiye Design Council organizes UX workshops and lessons to increase expertise in this field because research indicates that one of the main needs of the sector is qualified UX employees.

In 2018, another important UX company, Sherpa, launched survey research with 303 UX professionals to understand the problems and needs. According to the survey, UX experts are around the age of 30, and most of them have high education. UX experts are not all from UX companies: 31% are from the IT sector, 16% are from advertising, 12% are from e-commerce, 6% from media, 5% are from banks/financial sectors, and 30% are from various sectors. 33% of these experts state that the companies they work for cannot make sufficient UX investments due to limited budgets. Most (71%) of the UX services are user experience research and monitoring. Only 33% of the companies deal with UX jobs in-house; the rest are outsourced to various companies, such as Sherpa and UX Services, and others like Userspots and UTRLab, plus expert freelancers.

33% of UX experts state that the companies they work for cannot make enough UX investments due to limited budgets.

5.4 Technoparks/Technology Development Zones

Incubation centers are usually run by **Technoparks/Technology Development Zones** that bring together academics, businesses, students, designers, engineers, and researchers. They were established with **Law No. 4691/2001** with the aim of production of technological information, commercialization of the produced information, raising the product quality and standard in the product and production methods, developing innovations that will increase efficiency and reduce production costs, ensuring the adaptation of SMEs to new and advanced technologies, providing job opportunities for researchers and foreign capital that will make advanced technology investments. They aim to increase the industry's competitiveness by accelerating the adoption of new technologies in the country. **There are currently 90 Technoparks/Technology Development Zones in Türkiye and 16 are in Istanbul in 2021**. Technoparks are closely linked to academia, therefore, most of the Technoparks are under the umbrella of leading universities.

Tablo 20 Technoparks and technology development zones in Istanbul [87]

İTÜ Arı Teknokent Teknoloji Geliştirme Bölgesi
Yıldız Teknik Üniversitesi Teknoloji Geliştirme Bölgesi
İstanbul Üniversitesi Teknoloji Geliştirme Bölgesi
Boğaziçi Üniversitesi Teknoloji Geliştirme Bölgesi
İstanbul Teknoloji Geliştirme Bölgesi
Finans Teknopark Teknoloji Geliştirme Bölgesi
Marmara Üniversitesi Teknoloji Geliştirme Bölgesi
Sağlık Bilimleri Üniversitesi Teknoloji Geliştirme Bölgesi Sağlık Teknokenti
Dudullu OSB Boğaziçi Üniversitesi Teknoloji Geliştirme Bölgesi
İstanbul Sebahattin Zaim Teknoloji Geliştirme Bölgesi
İstanbul Medeniyet Üniversitesi Teknoloji Geliştirme Bölgesi
Recep Tayyip Erdoğan Üniversitesi ve Türk-Alman Üniversitesi Teknoloji Geliştirme Bölgesi
BAU Teknoloji ve Girişim Vadisi
Esenler Akıllı Şehir Odaklı İhtisas Teknoloji Geliştirme Bölgesi
Cerrahpaşa Teknoloji Geliştirme Bölgesi
Biruni Üniversitesi Teknoloji Geliştirme Bölgesi

The Teknoağ website (https://teknoag.sanayi.gov.tr/anasayfa) reports detailed information on Technoparks, R&D, and Design Centres, like corporate identities, location, sector, projects, and number of employees. [88]

5.5 Universities

Design-related departments are in close connection with technology and arts. In Türkiye, occupational 2-year higher education institutions offer **the highest number of departments teaching design technology, innovation, and creative design**.

35% of all departments in Istanbul are design-related, like engineering, architecture, applied sciences, and health sciences. There are also departments like communication, music, and arts with a creative design focus.

Table 21 Number of design-related universities and departments in Türkiye and Istanbul [89]

	Turkey	Istanbul
Number of all university departments	19.305	3.302
Number of design related departments	6.718	1.171

Table 22 Number of design-related university departments in Istanbul [90]

Name of the Faculty	Number of Departments
Engineering/Technology	419
2-Year Occupational Faculties	279
Arts/Fine Arts/Music/Creative Design	182
Communicationcation technology	68
Acrhitecture	56
Health Sciences	23
Applied Sciences	22
Management	19
Medicine	14
Others	55
TOTAL	**1.171**

Among the programs on Industrial Design, the **Istanbul Technical University** (ITU) Department of Industrial Design (DoID) was established in 1993 as a response to the emerging needs of the industry for creative designers with solid technological, managerial, and entrepreneurial skills. The Department offers design education with international standards at undergraduate and graduate (inc. Ph.D.) levels in both English and Turkish. [91]

5.6 Other Institutions and Organizations in the Field of Design

NGOs in the design sector help to develop the design industry in Türkiye. Their main activities are training, workshops, competitions, and exhibitions. Some NGOs, like the Istanbul Chamber of Commerce and Istanbul Development Agency, play significant roles in the development of the design industry by distributing funds and launching projects that shape and contribute to the design industry.

Table 23 Pioneering Institutions and Organizations Contributing to Design Activities

Istanbul Chamber of Industry	Isik Design SocietyDesign for ITU Club
Istanbul Development Agency	Textile Designers Association
Turkish Exporters Assembly	Iyilik Design Center
Turkey Design Council	Fashion Designers Association
Istanbul Foundation for Culture and Arts	Graphic Designers Businness Association
Union of Chambers of Turkish Engineers and Architects	Design and Accredition Planning Association
Industrial Designers Association	Social Design Platform
Industrial Designers Society	Architecture for All Association
Marmara University Design Club	Design Guides Association
Factory Design Club	Machinery Design and Manufacturing Association
IYYU Design Club	Film and Stage Designer Groups Association
IAU ENTASK	

Istanbul Development Agency: Creative Industries Results-Oriented Program: It aims to support creative and innovative production, as it is one of the three main development axes of the "Innovative and Creative Economy" 2014-2023 Istanbul Regional Plan. The plan also emphasizes the significant role of creative industries in enhancing and promoting Istanbul's urban image. [92] The Creative Industries Results-Oriented Program aims to support companies in increasing their competitive positions in the global value chain by adding high value-added functions to creative industries. It aims to contribute to increasing the share of creative industries, which are among Istanbul's highly competitive sectors, in employment and production.

Türkiye Design Council aims to contribute to Türkiye's social and economic development with design-oriented approaches. It promotes young designers and provides a basis to produce qualified designs. It creates design awareness for a better world.

Industrial Designers' Society of Turkey (ETMK) aims to contribute to ecological, economic, and social sustainability by using the transformative power of design, spreading innovative products, services, systems, and experience design, and leading the development of quality standards of industrial design education and services. The society offers publications, workshops, training, and accreditation services.

Industrial Designers Association of Türkiye (ENTA) is a professional association that aims to maintain the industrial design profession, raise its education-market standards, and create new opportunities, providing employment to the designer and adding value to the manufacturer. ENTA was established by putting forward a new model, including examining all the professional members of WDO (World Design Organization) and CUMULUS (the international umbrella organization of the profession).

The Union of Chambers and Commodity Exchanges of Türkiye (TOBB) Creative Industries Council: The Creative Industries Council of Türkiye is part of the Türkiye Sector Councils Directorate established within the Union of Chambers and Commodity Exchanges of Türkiye (TOBB). The Council has begun efforts to build a common understanding for identifying and solving the problems faced by the sectors.

5.7 Industrial Design Beneficiaries

SMEs

İstanbul'da yaklaşık 22.000 KOBİ endüstriyel üretimde faaliyet göstermektedir.	2022'de yaklaşık 186 milyar TL gelir yaratmışlardır.	1 milyondan fazla işçi istihdam etmektedirler.

(2022 data)

SMEs operating in industrial production most likely need design services: they either hire in-house designers or work with service providers. **SMEs face increasing pressure to become more digitalized to remain competitive in today's market**. Digital technologies can help SMEs improve their efficiency, reach new customers, and increase their revenue. They need to implement digital marketing strategies (creating a website, using social media to connect with customers, and using digital advertising to reach a wider audience) and digital tools to improve their operations and design efficiency and efficacy.

The development of the competitiveness of SMEs in Türkiye is being prioritized. There are many funds and projects to help SMEs improve their innovation culture and design quality.

Table 24 Top 10 industries in Istanbul according to the number of companies

Outwear Industry	2412
Underwear Industry	1266
Electric, Electronics, IT and Cable Industry	1010
Plastic Raw Materials and Plastic Injection Products Industry	790
Special Purpose Machinery Industry	780
General Purpose Machinery and Parts Industry	649
Paper and Paper Products Industry	628
Metal Tools, Hardware and Heating Equipment Industry	619
Printing, Publishing Industry	576
Textile Finishing, Dyeing, Printing Industry	563

Source: İTO

Large Enterprises

Istanbul Chamber of Industry announced the top 500 industry companies in 2021, and 158 of them are in Istanbul. ISO's top 500 industrialists list shows the biggest business holders in Turkish industrial output.

The Istanbul-only companies create around 716 billion TL in industrial production, substantially higher than the 186 billion TL in industrial production of SMEs. They also have approximately 164,493 employees. Large enterprises use the latest technology to develop their designs and have large R&D budgets. Large enterprises can benefit from disseminating their approach to innovation and design to the SMEs working as their suppliers.

The most prominent industrialists lead design and creative industry development and have high competitiveness. Their approach to design and innovation constitutes a model for SMEs. Often, SMEs supply parts or systems to larger enterprises, which increasingly require innovative and creative solutions from their supplier base.

Table 25 Top 10 sectors of top 500 industrial enterprises by number of companies in Istanbul [93]

Outwear Industry	37
Underwear Industry	18
Electric, Electronics, IT and Cable Industry	17
Plastic Raw Materials and Plastic Injection Products Industry	10
Special Purpose Machinery Industry	9
General Purpose Machinery and Parts Industry	9
Paper and Paper Products Industry	8
Metal Tools, Hardware and Heating Equipment Industry	7
Printing, Publishing Industry	6
Textile Finishing, Dyeing, Printing Industry	6

The following maps show the location of Istanbul Chamber of Industry (ISO) associates:

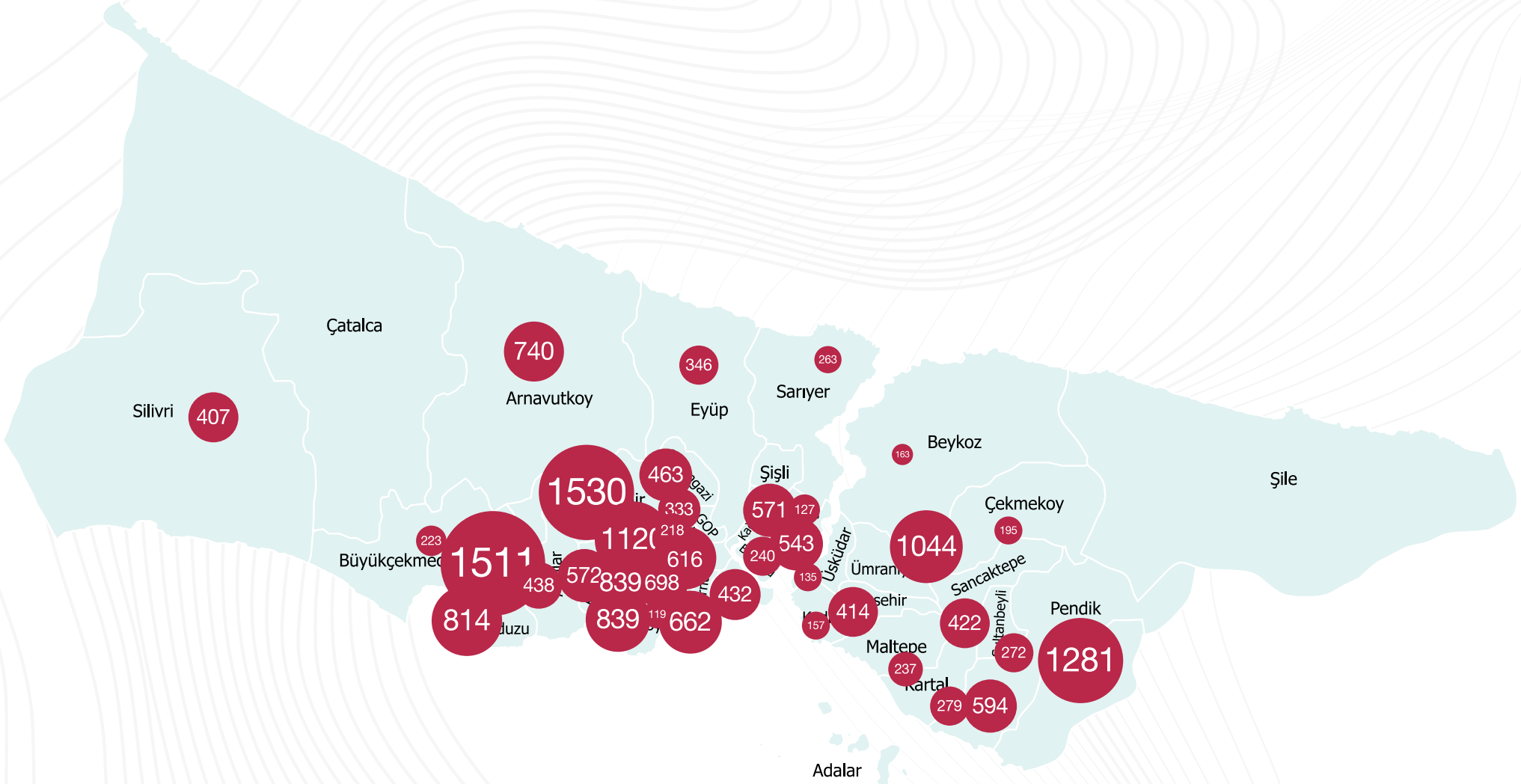

Figure 18 18 ICI associates map
Source: https://creativecommons.org/licenses/by/3.0/deed.en modified by adding bubble chart

5.8. Network Analysis of SMEs and Industrial Designers

The Opinion Leaders of the Research observed that the lack of unity among **Designers** or the **inability to form a real community, the miscommunication with the manufacturers**, and the **SMEs' perception of Industrial Designers as being more artists rather than production-oriented professionals** are fundamental network problems.

The disconnection of Industrial Design education from manufacturing processes is seen as a problem by SMEs, and on the other hand, the designers complain that their work is perceived only as makeup when the manufacturers already make the main decisions about the design.

Designers believe that the **inadequate protection of the design's commercial and intellectual property rights** contributes to designers' migration to other work areas or other countries. On the other hand, the manufacturers see the designer's individualism and **unwillingness to share the risk of a new product launch** as a problem for the collaboration.

Except for limited examples in sectors such as textiles, glassware, and furniture, the inability of "design thinking" to find a place or value with manufacturers creates a barrier to cooperation. **SMEs** are often relatively informal and weakly structured with **no dedicated designers**, user researchers, or R&D specialists. SMEs have **limited time to prioritize innovative projects over day-to-day tasks and a small appetite for risk**. This, in turn, makes SMEs **more prone to imitations** rather than creating innovative products that can strengthen their hands in price competition.

The lack of cooperation and communication within the design economy network is the main problem-solving proposition of the ISO ETP Hub. Both industrial designers and manufacturers need to understand the role and value of each other's profession. This can be achieved through **seminars, workshops, community events, and educational programs. Regular communication between the two parties can help to build trust and understanding**. Collaboration on product development can also ensure the designer's vision is realized in the final product. Industrial designers need to be aware of their intellectual property rights and how to protect them. Manufacturers should also be made aware of their responsibilities regarding the use of design. **Industrial designers should be fairly compensated for their work and their intellectual property rights must be protected** through clear contracts and agreements. Manufacturers and designers should work together to **share the risks involved in new product launches**.

One Opinion Leader noted that without a public catalog of expensive equipment available in a regional design ecosystem, the **risk of redundant or missing capacity** is very high, and the service seeker must go through complex market research for rare-to-find services. All Hubs should take an approach similar to the FabLab organization regarding equipment inventory. Similarly, **matchmaking between industrial designers with specific sectorial skills and SMEs can improve communication** between the two categories, but cross-fertilization between sectors must also be considered. Matchmaking only designers and SMEs is not enough: **teams with professional skills from different areas** might be needed, like marketing, project management, UX, finance, IPR and legal.

Previous Analysis of SMEs and Industrial Designers' Relationship

In her MA thesis, Hale Selek surveyed SME and design relationships in 2008: **only the SMEs applying design are aware of its value, while the rest focus mainly on costs**.[94] Istanbul Technical University, which hosts one of the most extensive technology and incubation centers in Türkiye, has supported projects since 2003 in collaboration with the Istanbul Chamber of Industry to **bring SMEs closer to design by matching design students** with SMEs and teaching design processes from scratch to patents. **Students' lack of real-life business experience caused some communication problems with SME owners.** [95]

Other projects targeted the development of innovation culture for SMEs, like the Habitat Association's Design Centers Thinking for SMEs project. The project is part of the Transforming SME Program, funded by Standard Chartered Foundation, and it partners with Youth Business International and Habitat Association, organizing free training, workshops, and podcasts to increase the resilience of SMEs and young entrepreneurs in technology and finance. SMEs and young entrepreneurs participating in the training are included in the Ideathon, Entrepreneurship Camp, and Accelerator events to be held in the last quarter of each year, with a chance to win grant support for ideas to develop creative scenarios on the coastal spaces, culture, life, and uses of "New Istanbul."

According to the research done by Murat Yulek and Sena Daş, innovation culture is developing with the increasing interest of SMEs in design. Still, these initiatives are less visible in the product design for export markets, where SMEs manufacture only what has been demanded. [96] Subsidies and funds are developed to support SMEs with a certain level of innovativeness in capacity or tendency. Therefore, the authors suggest to open support for SMEs that have no relation with innovation and design by starting from understanding the design usage level of the SMEs.

Another article by Gökhan Karakuş adds another cause for the underdeveloped interest of SMEs in design: the lower opportunities for designers to work with SMEs. The article states that the biggest obstacle to the Turkish design industry is the scarcity of a knowledge-based workforce, which is caused by the lack of skilled and qualified designers in R&D activities in a Turkish economy that is mainly made up of small and medium-sized enterprises (SMEs). The reason for this is that **most of the designers** in Türkiye who are trained in industrial or product design **are unable to pursue design because they cannot find well-paying job opportunities that will allow them to invest in themselves**.[97] Designers seek jobs in high-paid big business or less-industrial sectors like advertising and marketing. This causes severe draining of the talented people in the resource pool.

Another article by Aydın Şık states that not only the SMEs but also the engineers who work in the SMEs may not be prone to innovation via design. There **should be a close collaboration between the industrial designer and the product-production engineers to reach minimum costs** in the design and innovation process.[98] The article states that a weak relationship between engineers and designers discourages innovation due to costs resulting from problems between the different approaches. These problems of the design process discourage SMEs are:

- Costs of delayed market launch
- Costs or re-design for manufacturability
- Low efficiency and higher innovation costs
- Extra costs of production and loss of profit
- Product quality problems

The relationship between industrial design and the financial performance of businesses is demonstrated in the research by Julie H. Hertenstein as follows:

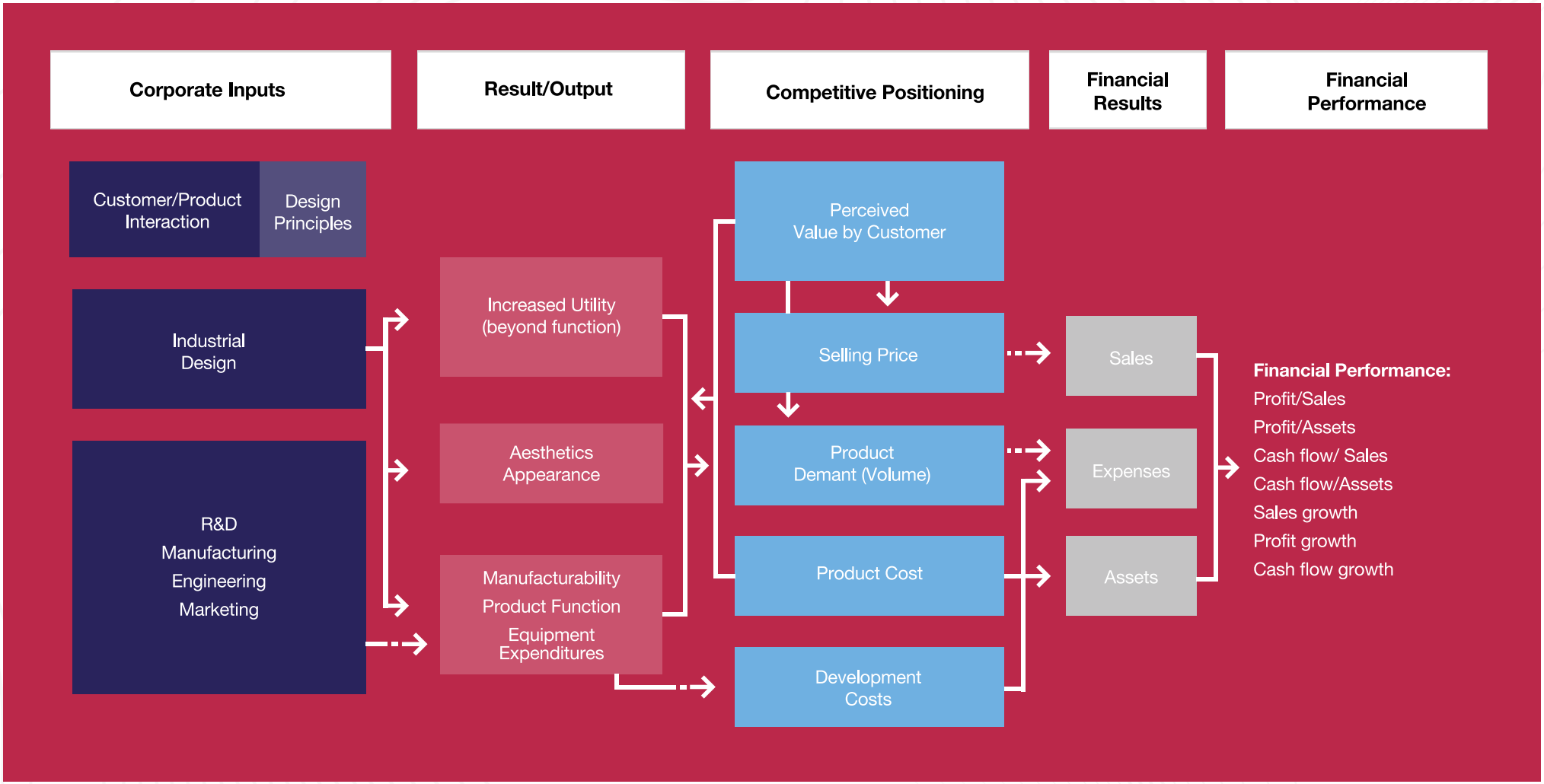

Figure 19 Relationship between industrial design and the financial performance by Julie H. Hertenstein [99]

industrial designers in Türkiye. The research shows that 48.8% of industrial designers work in Istanbul, and the general trend is to work in the biggest cities. 67% of the industrial designers work full-time, 21% are freelancers, and 15% have their own company. 40% of the industrial designers work for manufacturing companies that design their products, and 26% work for manufacturing companies that outsource the activity. 23% work for an industrial design services company.[100] The TMMOB survey also collected the **skills self-assessments presented in Figures 20 and 21**.

On average half of industrial designers have experience in all design-related services. Mechanical design, Quality, and Product Security analysis are the least experienced areas. Fashion, textiles, jewelry, aviation, sea vehicles, sports products, personal care, and medical devices are the sectors where industrial designers tend to show less experience, mainly because these sectors have their own specialized engineering staff and stylist.

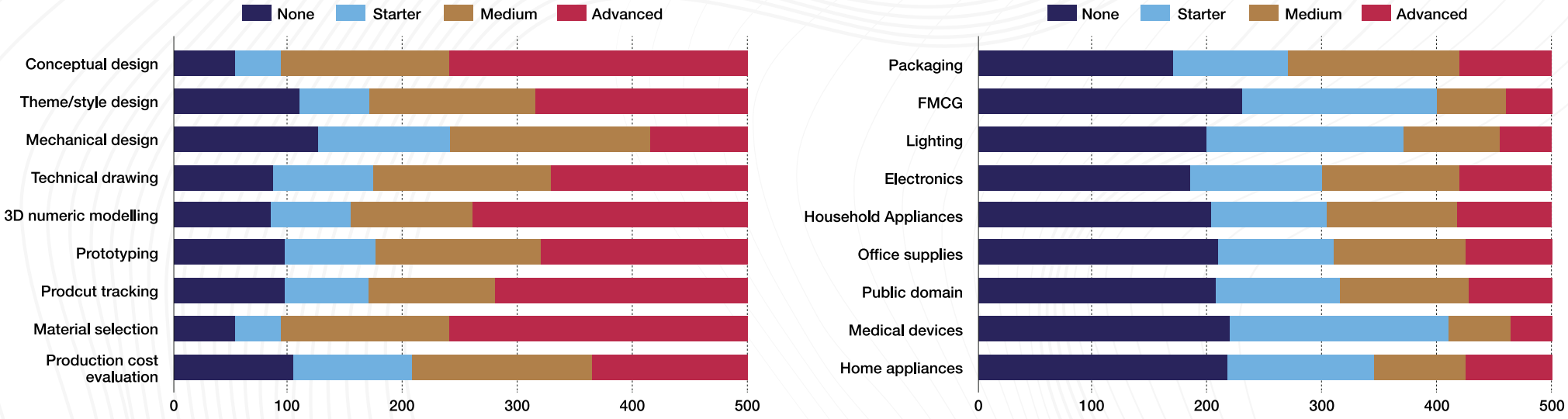

Figure 20 Expertise by sector in Türkiye, by TMMOB

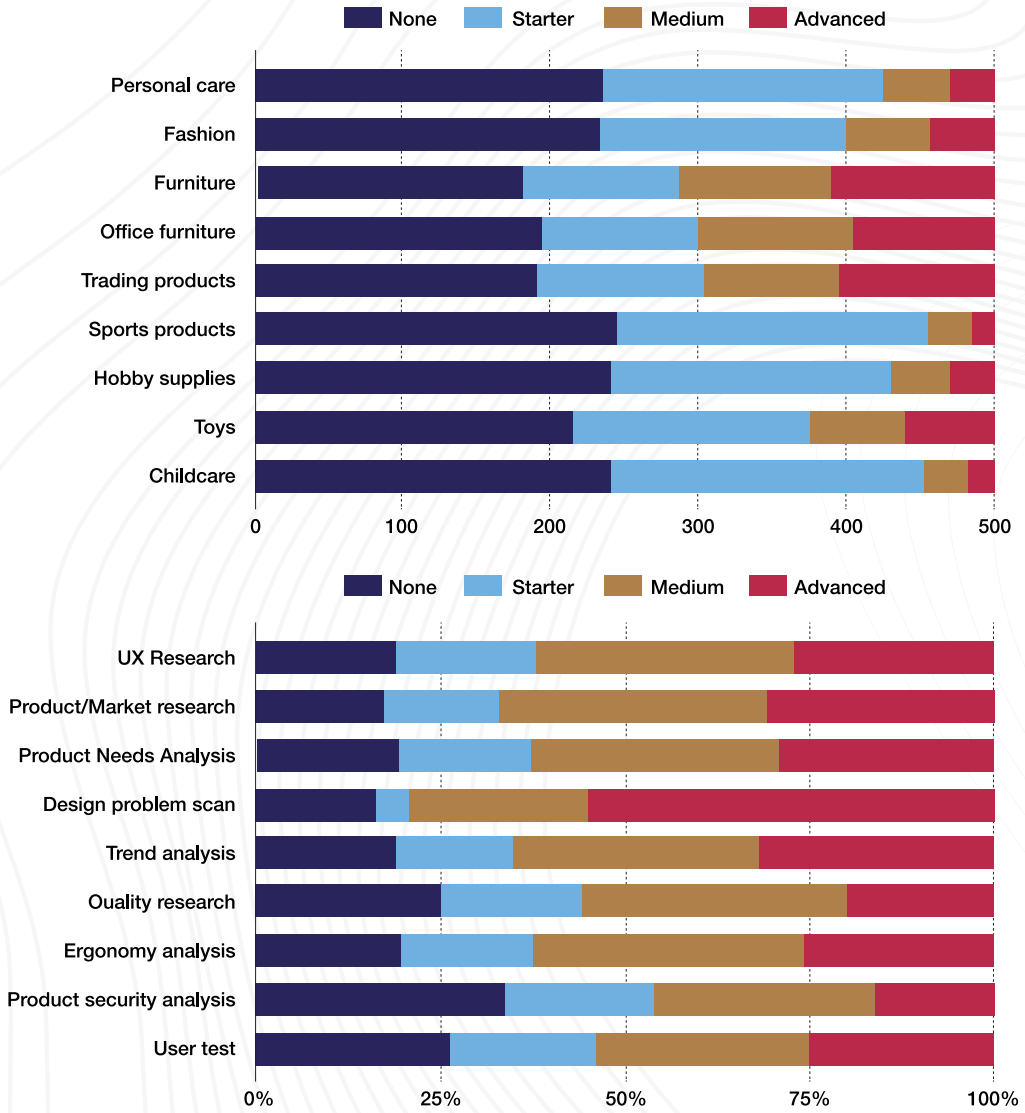

Figure 21 Expertise by design activity in Türkiye, by TMMOB

Recommendations

The ISO ETP Hub's mission is to overcome the criticalities of the design ecosystem network and strengthen the relationship between Industrial Designers and SMEs. The Opinion Leaders' recommendations for the ISO ETP objectives are:

- Building a **collaboration center** rather than competing with other organizations in the design ecosystem that specialize in their services.
- **Partnering and collaborating with specialized organization leaders** in their field to ensure the highest quality service delivery, including hubs focused on entrepreneurship and raising funds for product innovation.
- **Organize design events and supporting programs** to disseminate the success stories of designers and manufacturers, increasing interest in design and innovation.
- **Improve Industrial Design curricula with knowledge about materials, design for manufacturability, product costing, finance, and business proficiency.**
- **Provide matchmaking events and a platform** for Industrial Designers, SMEs, and other experts required for successful product innovation.
- **Provide training on new technologies and design methods.**

6.6. Design Strategies and Policies

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6.1. European Union Initiatives for Design

The EU includes design as a strategic contributor to Europe's innovation agenda called 'Innovation Union, a flagship initiative of the Europe 2020 strategy. **Starting from 2006, the EU has stressed the value of design industries and distributed funds since 2011 to contribute to the design competitiveness** of the EU member states.[101] Six EU projects, co-financed through the Competitiveness and Innovation Programme, were delivered by a total of 46 organizations from 19 Member States throughout 2013. In addition, a larger co-financed project, '**Design for Europe**,' created a web-based platform supporting peer learning, networking, and partnerships and ran a significant program of events promoting design-led innovation across Europe. The European Design Leadership Board has launched its capacity-building project called Design Europe 2021. The Project concluded at the end of 2018 and was co-funded through 'Creative Europe', the European Commission's 1.4bn EUR framework program 2014–2020. **BEDA (Bureau of European Design Associations) Members continue to gain access to EU-funded programs with successful programs like 'Design4Innovation', 'Human Cities,' the new 'Creative Europe' program 2021-2027, and many others**.[102]

On July 5th, 2022, the European Commission adopted the **New European Innovation Agenda** to position Europe at the forefront of the new wave of profound tech innovation and start-ups.

The **New Innovation Agenda** will, in particular:

- Improve access to finance for European start-ups and scale-ups, for example, by mobilizing untapped sources of private capital and simplifying listing rules,
- Improve the conditions to allow innovators to experiment with new ideas through regulatory sandboxes,
- Help create "regional innovation valleys" that will strengthen and better connect innovation players throughout Europe, including in regions
- Attract and retain talent in Europe, for example, by training 1 million deep tech talents, increasing support for women innovators, and innovating with start-up employees' stock options,
- Improve the policy framework through more explicit terminology, indicators, and data sets, and policy support to Member States.

Access to finance. Funding is crucial in supporting innovation projects in small and medium enterprises. Greater funding would allow SMEs time to engage with the entire R&D process in a way they would not usually have the capacity to do.

Regulatory sandboxes are controlled environments where supervised entities and operators can test, for a limited period, technologically innovative products and services. The sandboxes enable the testing of products, services, and approaches in a real-life environment, even if they are not fully compliant with the existing legal and regulatory framework.

Innovation ecosystem and "regional innovation valleys": the efficiency of the innovation processes depends on the quality of interrelated elements of the entire system. The Ecosystem approach looks broader and hinges on the rationale that no given system should operate in isolation from the broader system in the country or region; it should be holistically integrated like biological ecosystems.

Develop and retain talent: The powerful impact of design can help to foster, create, and sustain a robust, positive human- and planet-centered holistic view of the highly diverse and complex EU ecosystem – from engaging actors at various levels and innovation mindset to market growth.

EU and Türkiye approach to innovation is similar.

Better innovation policy-making design has a standing tradition of developing iterative methodology processes, artifacts, and services. Hence, the government supports design across Europe in regulatory processes and policymaking. Adopting a design approach to innovation policymaking would provide a collaborative way to bring together the technology, academia, users, and markets.

The Bureau of European Design Association (Beda) is a source of inspiration for EU design policies.

BEDA published the first Europe Design Report 12 years ago to get reliable and comparable data about design in European countries. As a first step towards drawing the scope of design and an aligned terminology, the report uses NACE Code 74.10 in all European countries with the introduction of the same named subcategories for the different disciplines. Thus, NACE Code 74.10 'Specialized Design Activities' with (aligned) subcategories – up to now only used in 17 (out of 37) countries – allows more accurate measures, comparisons, and benchmarking.

An important problem of comparing design economy data among countries is that there is not one scope of design industry that countries use. Therefore, they define and calculate design economies differently. In this sense Europe Design Report is a fruitful start to limit the scope to one NACE code.

The "Design Europe 2021 – Design for Growth and Prosperity" was conducted by BEDA in 2014-2017. As of November 2017, more than twenty events have been hosted, including seminars and conferences, and around thirty studies and publications have been produced within the four work streams of action. The project was conceived to be the main tool to deliver BEDA's strategy for 2021 that pursues the following Strategic Objectives:

1) Enhance the awareness and understanding of the value of design;

2) Strengthen the capability of the design sector to meet future needs;

3) Build capacity for design among EU businesses;

4) Advocate design for public sector renewal;

5) Promote design as a new approach to policy-making.

Creative Europe 2021-27

This funding program bases its activities on culture and creativity, essential to the European Market. Culture and Creativity employ over 8 million people in 1.2 million companies, most of which are SMEs. "Creative Europe" is the European Union's framework program for the cultural creative, and audio-visual sectors. For 2014-2020, it had a total budget of EUR 1.46 billion whilst for 2021-2027 a significantly increased budget of EUR 2.4 billion has been allocated. 58% of its budget is allocated to the Media sector, while 33% is given to culture. [103]

The program is divided into three strands:

1. Cultural, promoting and enhancing artistic and cultural cooperation at the European level;

2. Media, encouraging competitiveness, innovation, and sustainability of the audio-visual sector;

3. Cross-sectoral, promoting innovative actions and collaborations across audio-visual and cultural sectors.

The New European Bauhaus (NEB) Initiative

This initiative connects the European Green Deal to daily lives and living spaces. It brings citizens, experts, businesses, and institutions together to reimagine sustainable living in Europe and beyond. In addition to creating a platform for experimentation and connection, the initiative supports positive change by providing access to EU funding for beautiful, sustainable, and inclusive projects.

This project bridges the world of science and technology, art, and culture. It is concerned about leveraging green and digital challenges to improve lives. It is an invitation to address complex societal problems together through co-creation while enhancing sustainability, from climate goals to circularity, zero pollution, and biodiversity, enhancing aesthetics, quality of experience, and style beyond functionality and inclusion, from valuing diversity to securing accessibility and affordability. The New European Bauhaus (NEB) initiative constitutes a benchmark for the holistic approach to design and creative industries.

On January 17th, 2023, the initiative released its first report: two years after its launch, the New European Bauhaus has become a catalyst for the European Green Deal transformation. The Progress Report presents the initiative's key activities and achievements since adopting of the Communication on the New European Bauhaus in September 2021. The Report also intends to provide a basis for the continuation of a discussion on the future directions of the initiative. [105]

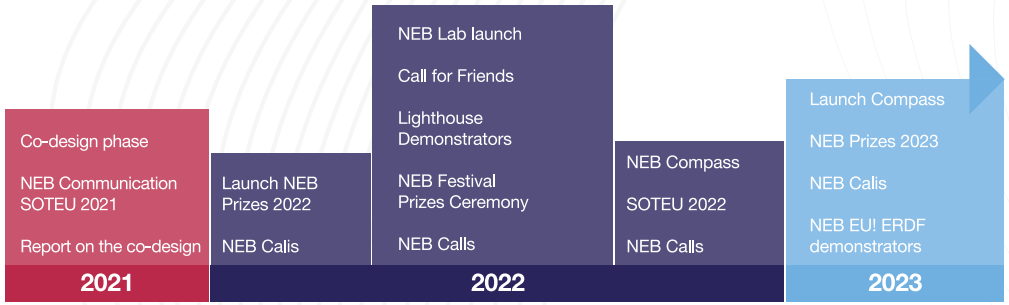

Figure 22 NEB initiative timetable

The NEB Lab is a co-creation space at the service of the New European Bauhaus community. The New European Bauhaus is implemented in the Lab in concrete and tangible projects. The NEB Lab is a project-based structure where teams self-organize to achieve actual change in a specific place or context. The New European Bauhaus Community and EU institutions autonomously develop project proposals for the NEB Lab. Proposals become NEB Lab projects following a process that ensures a clear purpose, transparency towards the community, and well-defined beneficiaries. The NEB Lab does not provide project funding; however, project teams can consider support and financing options, e.g., support in kind, EU, national, regional, or local public funding and sponsorship [106]

EU Initiatives Aimed at a Design Policy Discussion

Inspired by the European Cities Mission and the New European Bauhaus (NEB), several programs were launched:

CrAFt Creating Actionable Futures is a Horizon Europe-funded project with the mission of aligning various groups of stakeholders that would typically not work together, covering different geographic regions of Europe through its partners and stakeholders. The project brings together cities and their citizens, policymakers, arts, and academia to shape the transition to climate neutrality. The community wants to change business-as-usual and share how other cities achieve similar journeys.

CrAFt networked project was launched in May 2022 and achieved the following: [107]

- Engagement with key stakeholders such as citizens and communities, property owners and tenants, cultural, artistic, and creative sectors, universities and schools of arts and design
- Sharing at least 160 NEB-proof collaborative local governance models, tools, examples, and stories
- Showcasing at least 80 local emblematic projects
- Collected more than 30 European universities and schools of arts and design policy briefs to guide European and national decision-making.

The Design Policy Lab is a research lab at the Department of Design Politecnico di Milano. It works on the relationship between design and policymaking. Its mission is to explore how approaches, methods, and tools of the design discipline innovate the practice of policymaking. They work through research projects and training. The Lab creates urban design projects that merge design with social construction. [108]

ECADE-The European Conference on Arts, Design & Education looks at how design shapes and mediates ideas, how the visual arts challenge and question our perceptions, and how education seeks ways to develop our shared understanding and our skills, to listen, and to find different ways to speak and to act together.

This conference could be a benchmark for Türkiye for evoking design culture.

The Organizing Committee of ECADE2022 had these institutions: [109]

- the University of Porto, Portugal
- Kingston University, United Kingdom
- University of Porto, Portugal
- The International Academic Forum, Japan
- the University of Rochester, United States
- ID+ / Unexpected Media Lab, University of Porto & Lusófona University, Portugal
- University of Hawai'i at Manoa, United States
- ID+ / Unexpected Media Lab, University of Porto & Polytechnic Institute of Leiria, Portugal.

The conference aimed to define the scope of Creative Industries and Design by discussing how countries worldwide and Europe have different scopes for creative industries.

6.2. Türkiye Development Plans

Türkiye and Europe have similar concerns about the design development in the industry They both take steps towards bringing design to a more reachable and available level for both SMEs and people. In this sense, both Türkiye and Europe have similar targets and similar paths:

- Ecosystem definition and scope,
- Connecting the stakeholders of design,
- Collaborating between SMEs and designers to work for innovation agenda like sustainability, ecologic design, and smart urban development,
- Investing in future designers and developers of design culture via education programs,
- Supporting the design culture with fairs, competitions, and seminars,
- Offering platforms like HUBs or LABs for stakeholders to collaborate,
- Providing subsidies for design industries.

The Türkiye **State Development Plans** are high-level economic policy documents prepared for 5-year periods. The government creates and implements plans **to guide economic and social development in the country**. They include goals and strategies for various sectors such as agriculture, industry, and infrastructure. The most recent plan is the 12th development plan of Türkiye, covering the period of 2024-2028. It aims to achieve several economic and social development goals.

Since the 8th Development Plan, articles in the field of Intellectual Property Rights have drawn attention to the creation of a culture that values creativity and idea generation. The same expression was preserved in the following Development Plan, and in the Tenth, under the title of education, the main objective was to raise "productive and happy individuals equipped with the basic knowledge and skills required by the information society." The first of the goals listed in the same plan was determined as "Qualified People, Strong Society," the following lines emphasized the importance of "raising healthy individuals with high knowledge, skills, and abilities regarding work and life to strengthen human capital," From this point of view, associating human capital development with welfare in the background of creative industries seems to have been included in the content of Türkiye's development plans approximately twenty years ago.

Ministries develop their strategic plans to achieve the targets stated in the State Development Plans. Ministry of Industry launched its own Strategic Plan 2023. Ministry of Education launched its STEM education roadmap under its 2023 Strategic Plan.

The Twelfth and Eleventh State Development Plan

The Twelfth Development Plan focuses on increasing the design capacity of industries, particularly the defense, automotive, aerospace and machinery sectors. Emphasis was placed on the sustainability of designs by considering the circular economy. The need to establish programs for industrial designers and software developers, which the machinery sector needs, was emphasized. It was also prioritized to design programs to improve the qualifications of R&D and design centers in this sector. [110]

The Eleventh Development Plan stresses the development of Türkiye's design capacity to increase its competitiveness in foreign markets. Some excerpts from the plan follow. [111]

Within the scope of export support for enterprises, institutional capacity for design and branding activities will be improved; fair participation, office, and store opening, branding, and Turquality [112] support will be continued (p. 39).

The elements of competitiveness at the global level are rapidly transforming, and the roles between capital and labor in production are reallocated. While the intensity of the competition based on cheap labor is decreasing, high technology-based, faster, flexible, and innovative production, design, and branding, along with the active diplomacy and solid commercial channels that are strengthened with logistic infrastructure and marketing strategies, stand out as the main factors that increase the competitive advantages of countries. Productivity gains in these factors have a special place in integrating technological progress with production processes and competitively into the global value chain (p. 54).

The Report stresses the value of SMEs and puts SMEs on target for subsidies and support. The main target is to increase SMEs' share in exports and R&D projects.

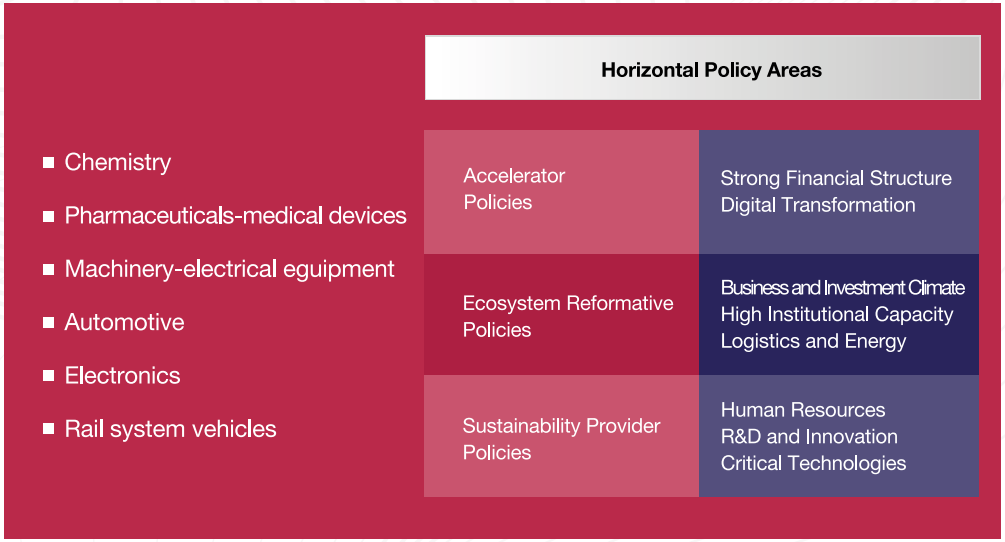

Figure 23 Priority Sectors to Increase Competitiveness

Table 26 SME data on Export and R&D expenditures

	2018	2023
Share of SMEs in Exports (96)	56.2[1]	60.00
Share of SMEs in R&D Expenditures (90)	19.6[1]	25.00

MoIT Strategic Plan 2023

The Ministry of Industry and Technology Strategic Plan 2023 states that support programs will be designed for engineering and consultancy firms, and local engineering firms will be given priority for integrated machine park design.

The general **Targets** of the Ministry can be summarized as follows:

- To **increase** Gross domestic expenditure on Research & Development **(GERD)** as a percentage of Gross Domestic Product (GDP) to 1,8 %
- To **increase** the number of **Full-Time Equivalent (FTE) R&D and researchers** to 300.000 and 200.000 by 2023, respectively
- To **increase** the share of **medium-high and high technology products** in manufacturing industry exports to 44.2% and 5.8%, respectively
- To have 23 Turkish companies ranked among the top 2500 companies which have the highest R&D expenditure,
- To participate in the "Leadership Table in R&D (R&D Scoreboard)" prepared by The European Union.
- To increase the number of software development professionals to more than 500 thousand in 2023
- To **raise the number of "Turcorns"** (Turkish technology-based start-ups - Unicorns with a valuation over $1 billion) to at least 10 by 2023

To reach this target, the ministry stresses the importance of R&D support and targets a marginal increase in R&D subsidies. On the other hand, it highlights:

- Higher project support for Technology Development Zones and Techno Parks
- Creating a higher number of start-ups rising from these areas
- Encouraging a higher number of academic supports for technology and design
- Higher digitalization of SMEs/training for digital literacy
- Easing subsidy/funding procedures for R&D and innovation

The Ministry of Industry and Technology also stresses that Regional Development Agencies are crucial to delivering services equally to SMEs in creative industries and design. Istanbul, Ankara, and Izmir development agencies lead in providing ministry strategy plans to the companies via funding projects.

Table 27 Example of the creative industries and design projects conducted by the agencies

Year	Subject
2010	İSTKA, Creative Industries Financial Support Program (Two separate sub-programs for businesses and non-profit institutions)
2012	İSTKA, Creative Industries Development Financial Support Program (ForBusinesses)
2013	İZKA, İzmir Cultural Economy and Cultural Infrastructure Inventory and Izmir Cultural Economy Development Strategy
2013	İSTKA, Creative Industries Development Financial Support Program (For Businesses)
2015	İSTKA, Innovative and Creative Istanbul Financial Support Program (For non-profit institutions)
2016	ANKARAKA, Digital Game Industry Report
2016	İSTKA supported report, Film Industry in Turkey
2017	İSTKA supported report, Situation Analysis of the Film Industry in Istanbul and Future of the Industry Analysis Report
2017	İSTKA, Innovative and Creative Istanbul Financial Support Program (For non-profit institutions)
2018	ANKARAKA, guided project, Establishment of Creative Industries Design and Training Center and Capacity Building of the Digital Game Industry in
2020	Ankara (ATOM) Project
2021	İSTKA, Creative Industries Financial Support Program (For non-profit institutions)
2021	İZKA, Analysis of Creative Industries in Turkey at the Level of İİBS-2 Regions: A Look at Izmir

Source: Ministry of Education STEM Education Report

Ministry of Education: STEM Education Report

STEM education (abbreviations of Science, Technology, Engineering, and Mathematics) stresses design and robotics training to create future innovators but also focuses on universal literacy skills.[113] These skills are creative thinking, critical thinking, problem-solving, and collaborative work. Students must acquire these skills, and, in this context, the role of teachers is to guide students to high-level thinking, product development, invention, and innovation.

According to STEM Education Report, Türkiye prioritizes transformation based on innovative and high-tech sectors, strengthening entrepreneurial capacity, and creating a qualified employment infrastructure for transformation into a knowledge-based economy.

Engineering and design capacities are suggested to be added to the education system, and necessary tools are subsidized. With this document, the Ministry of Education opens the way for a strategic plan only focused on STEM education with its respective budget. So, education in design is expected to be developed further over the following years as the growth area of the Turkish design sector.

Subsidies & Funds

Türkiye has wide-scope state funding programs without deadlines that companies can apply to at any time. NGOs like TIM (Türkiye Exporters Council) and ICI (Istanbul Chamber of Industry) help their member companies to apply by using their online system.

	Direct Funding		Indirect Funding	Other Funding			
Scope	Developing design activities, designer employment dissemination, design aimedat establishingcompanies directiy named “Design Support"in this sense and includingfinancial supportare supports.		These are supports that provide some tax deductions in orderto support design activities.	These arethe supportsthatare not directiy under the name of design andthatthe design is included in the other items supporteddueto the content of the supportprogramsandcannot be separated independently.			
Name of Funding and Institution	Desing Support	İş geliştirme destek programı tasarım desteği	Law No. 5746 on Supporting Research, Development and Design Activities	TURQUALITY Support Program	Support programs run by ARDEB and TEYDEB	KOSGEB Support Prgram	Develoment Agencies Support Prgram

Figure 24 Summary of Türkiye state funding programs

The number of funded projects and amounts of resources has constantly and consistently increased.

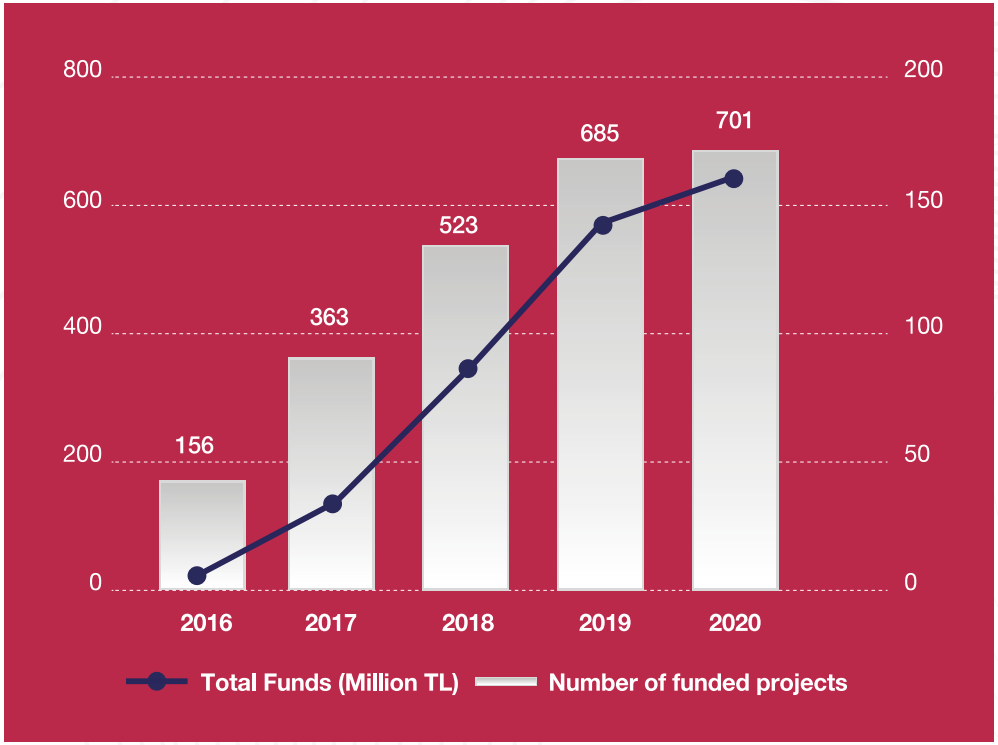

Figure 25 Number of funded projects and Millions of Turkish Lira from 2016 to 2020

KOSGEB Supports

SME Development and Support Management Directorate (KOSGEB) is Ministry of Industry's leading directorate that is responsible for SME development. The role of KOSGEB is to provide funds for start-ups, R&D/Technological, Product/ Localization, Product development/ Internationalization, SME funds, Micro SME funds, and TEKMER Technological/innovative product development.

The main points of the KOSGEB Strategic Plan 2019-2023 Funds are: [114]

17 million TL:	For high-tech start-ups.
742 millionTL:	Increase R&D, innovation, and localization activities and spread high technology through domestic and national SMEs.
846 millionTL:	Technological product investments aimed at increasing SMEs' technology level and export capacity, and commercialization of R&D projects.
224 millionTL:	Pojects of technology-based entrepreneurs and SMEs to strengthen their R&D and innovation capacities.
44 millionTL:	Target and performance-oriented incubation and accelerator centers will be established.
5383 millionTL:	Support with an approach focused on strengthening the manufacturing industry, and the share allocated to priority manufacturing industry sectors and medium-high and high-technology.
889 millionTL:	Manufacturing enterprises, with priority being given to entrepreneurs operating in medium-high and high-technology fields.
176 millionTL:	Traditional entrepreneurship subsidy.
707 millionTL:	Special target groups (young, female, disabled, veteran, or first-degree relatives of martyrs).
2212 millionTL:	It will ensure that SMEs are supported by regional, sectoral, scale, and enterprise-specific support models, especially in value-added and advanced technology areas, digitalization, and access to financial resources at low costs.
634 millionTL:	Cooperation between SMEs and large enterprises will be supported.
128 millionTL:	SMEs will be opened to international markets and their export capacities.
116 millionTL:	Contributions will be made to meet SMEs' priority needs and develop their capacities.

Municipalities

Municipalities are leading supporters of the design sector through their innovation centers.

Metropolitan municipalities tend to have innovation centers offering training, free services, and facilities to increase innovation culture and STEM thinking models, especially for kids and younger generations. In addition, these centers, and are in close collaboration with the ministry branches in the respective cities. For example, the Istanbul Development Agency supports the Kucukcekmece Municipality Innovation Centre through its incubation program.

Essential functions of these centers are their free training and workshops on digitalization, innovation, and R&D. They target to shape future SME trends that are more innovative and design-centered. Another function is to support start-ups with funds like, for example, the Avcilar Municipality Innovation Centre in Istanbul. In addition, this center provides co-working space and mentorship.

Municipality innovation centers are focused on training, consultation, workshops, and co-workspaces. They are less likely to have design or innovation facilities except for some big projects like Basaksehir Design Hub or Seyhan Design Hub. Municipality centers are crucial to evoke a culture of innovation via mainly workshops, training, occupational education supports, and consultancies. Still, municipalities are gateways for people who want to enter design start-ups and learn how to proceed with their ideas, get funding, and develop their designs.

Turquality License

TURQUALITY® enables Turkish companies with product groups with the competitive advantage and branding potential to become a global player in international markets with their brands by providing managerial knowledge, institutionalization, and development, covering all processes from production to marketing, from sales to after-sales services. It is the first state-supported branding program created to create and place a positive image of Turkish goods. Unlike conventional export supports, the focus of the TURQUALITY® Program is to contribute to the branding goals of companies rather than simply increasing exports.

The TURQUALITY® program subsidizes the expenses of the companies regarding:

- Expenses related to patent, utility model, industrial design, and trademark registration
- Expenses related to certification
- Expenses of fashion/Industrial product designer/chef/cook employment
- Promotion, advertising, and marketing activities
- Expenses pertaining to foreign units and fairs
- Consulting (Management, design, law, informatics) expenses

There are currently 371 Companies under the Turquality program with Turquality-certified brands in 2022.

6.3. Intellectual Property Rights

Turkish intellectual property law is closely aligned with EU law and international norms. Therefore, Türkiye is well positioned for the protection of IP rights both in terms of modern and EU-aligned legislation and in terms of IP litigation.

Türkiye is a signatory to the following vital treaties and conventions:

- Paris Convention
- Berne Convention
- Madrid Protocol
- Hague Agreement
- PCT (Patent Cooperation Treaty)
- European Patent Convention

The following IP rights are recognized in Türkiye [115]

Industrial property rights relating to inventions (patents and utility models)

- Trademarks
- Industrial designs
- Geographical indications
- Integrated circuit topographies
- Copyright
- Trade secrets

In recent years, the Turkish Patent and Trademark Office has made important developments, such as implementing the Madrid E-Application Platform, which allows international trademark registration applications through an online interface. [116]

When different policy and strategy documents on industrial property rights are examined, it is seen that the actions mainly focus on increasing the awareness of industrial property rights in society, raising awareness, and informing activities. In addition, it is noteworthy that similar and repetitive actions regarding industrial property rights are included in the sectoral strategy documents. The commercialization of industrial property rights is one of the most critical issues emphasized in recent policy documents.

The 65th Government Program included enacting of the Industrial Property Law and establishing a Patent Exchange. The enactment process of the law has been completed, and the legislative infrastructure of the Patent Exchange has been established.

Patent without examination applications is used for getting protection without delivering the research file. Companies benefit from this as they protect their designs immediately. On the other hand, some experts think this system discourages companies from applying for patent protection. The new Turkish IP Law, which came into force in 2017, removed the non-examined patent system from Turkish patent law. However, it is still possible to request the conversion of a non-examined patent to an examined patent within the protection period of 7 years of a granted non-examined patent.

Türkiye produced 15 thousand patent files in 2021, the highest growth in history. Patents are accumulated around the biggest cities and Istanbul constitutes 38% of patent files. [117]

Table 28 Number of filed designs and patents [118]

Year	Number of Designs	Growth	Number of Patent Files	Growth	City	% of Files	% of Designs
2017	46,853	0.8%	10,227	0.1%	ISTANBUL	37.10	37.63
2018	42,345	-9.6%	9,290	-9.2%	BURSA	7.94	9.10
2019	46,188	9.1%	10,346	11.4%	KAYSERI	6.38	7.48
2020	47,606	3.1%	11,306	9.3%	ANKARA	8.04	6.85
2021	65,915	38.5%	15,608	38.1%	GAZIANTEP	2.93	6.79
					IZMİR	5.39	4.56
					KONYA	4.28	4.02
					ANTALYA	1.32	1.84
					ADANA	1.83	1.70

As seen in Figure 26, design applications in Türkiye are dominated by furniture/household, textiles/accessories, and construction. These segments are also among the top three in the UK and Germany. Moreover, they are also the most violated design areas because of the high export potential. Unlicensed products negatively affect the competitiveness of Turkish industries. SMEs should be aware that they can get funding for their patent applications. One important gap in Türkiye is the design consultancy for the original designs. Many SMEs still don't know application procedures and seek support from law firms.[119] In the 11th development plan, it is stressed that both license applications and the process of being funded for these applications should be taught in the universities. State institutions are launching projects to increase awareness about the processes.

C23. Distribution of application design counts by the top three sectors for the top 10 offices, 2020

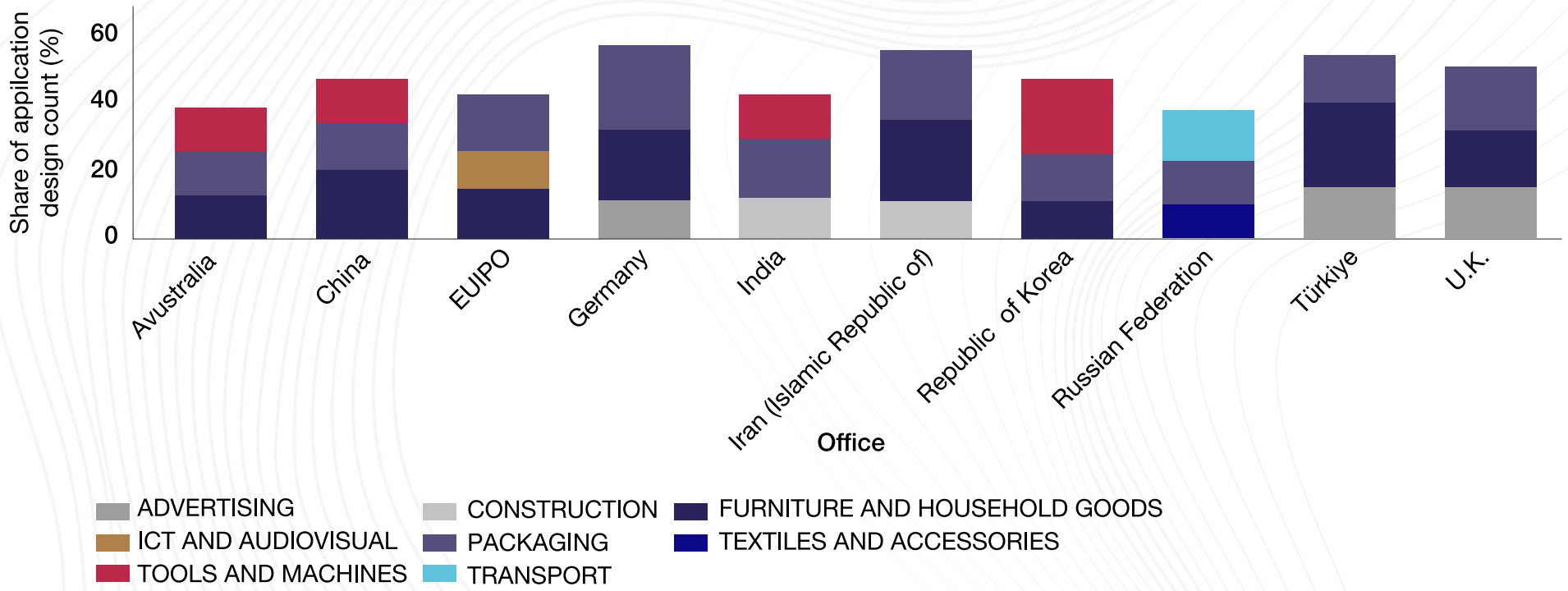

Figure 26 Distribution of application design counts by the top three sectors for the top 10 offices
Source: Wipo Institution [120]

6.4. Recommendations

The SWOT analysis of Design in Türkiye drawn from the Opinion Leaders' interviews can inspire the list of policy recommendations.

S

- SMEs have capacity and speed to analyse and produce new products or similar one
- Some individual designers have worldwide recognitions and awards

W

- Design education is not combined with sufficient material & manufacturing knowledge and manufactures are skeptic
- The design ecosystem consists of separate actors
- SMEs do not set long-term plans, invest more in machinery instead of qualified people, and have low predisposition to risk

O

- Proximity and demand for quality production from Europe
- New trends requiring new design
- Inspiring design events and supporting programs

T

- Developing countries competition
- Risk on supply chain of strategic foreign components and long lead times at custom

Figure 27 Strength, Weaknesses, Opportunities, and Threats (SWOT) Analysis resulting from the Opinion Leaders interviews

The following policy recommendations derive from the SWOT analysis of Design in Türkiye and are collected from the suggestions of the Opinion Leaders:

- Support SMEs to invest in innovation and tap into new markets (especially in neighboring Europe) with ideas emerging from recent trends.
- Leverage the innovation potential of universities and design centers to keep pace with competition from developing countries.
- Contribute to developing of a national strategic supply base for new technologies (e.g., powder for 3D printing, advanced technological manufacturing machines, IoT components, etc.).
- Facilitate the development of additional courses on materials, design for manufacturability, product costing, finance, and business skills at industrial design universities.
- Support community-building environments and situations, such as the ISO ETP Hub, with easy access to funding from international, national, and regional programs
- Support the appreciation of human resource skills and recognize their value through appropriate economic benefits and tax policies that facilitate the return of industrial design professionals from abroad.
- Launch a program to build a public database of available high-end equipment in all hubs open to external collaboration.

6.5. Potential Areas of Growth

Facilitate Innovation Culture

Innovation culture is growing in the Turkish industry. The introduction of the propensity to innovate SMEs is especially crucial to increasing the competitiveness of the Turkish industry. Consumer trends still fuel innovation capabilities in Türkiye.

According to TURKSTAT, **around 38.5% of the companies in Türkiye are conducting innovation activities**, and 33% are subsidized. The funds are mainly provided by the ministries. 66% of the innovation activities are in cooperation with R&D activities, so we cannot think innovation far from R&D. [121]

The top strategies to apply innovation activities are:

- 76% to increase the quality and consumer satisfaction level
- 68% to meet the specific demands of the consumer
- 68% to attract new consumers
- 47% of the innovation activities apply for trademark registration, and 25% apply for a patent.

High costs are the most significant barrier to innovation activities. More than half of non-innovative companies stated that high costs are the biggest barrier. This factor was followed by strong market competition and the need for more financial resources within the enterprise.

Table 29 Percent of innovative enterprises by number of employees

Employee Size of Innovative Enterprises (%)	2018-2020
TOTAL (10 employees or more)	19.7
10-49	17.6
50-249	26.1
250+	44.9

Innovation activities are higher in Science and IT sectors, where big companies invest more in innovation.

SMEs need to be encouraged about innovation and made aware of the subsidies, funds, and benefits provided by the State.

Table 30 Percent of innovative enterprises by NACE code

Economic activity (NACE Rev.2)	Innovative enterprises (%)	Types of innovation % Goods innovation	Services innovation
Total	19.7	79.2	69.2
Mining and quarrying (NACE B: 05-09)	10.4	79.3	68.5
Manufacturing (NACE C: 10-33)	23.3	91.3	62.8
Electricity, gas steam and air conditioning supply (NACE D: 35)	8.9	49.1	88.2
Water supply; sewerage, waste management (NACE E: 36-39)	15.3	54.5	83.0
Wholesale trade, except of motor vehicles and motorcycles (NACE 46)	16.1	80.7	67.4
Transportation and storage (NACE H: 49-53)	10.5	17.9	98.1
Information and communication (NACE J: 58-63)	42.5	57.7	90.9
Financial and insurance activities (NACE K: 64-66)	19.3	12.5	97.8
Architectural and engineering activities, technical testing (NACE 71)	12.3	39.0	85.0
Scientific research and development (NACE 72)	64.1	67.5	84.8
Advertising and market research (NACE 73)	21.1	28.4	88.8

Source: TURKSTAT [122]

Support Design for Circular Economy

Climate change and digitalization are tectonic shifts that will require and reward the transition towards resource-productive industrial systems and dematerialized consumption. This fundamental transition not only defines the political debate about green growth and the circular economy but also reshapes the opportunity space for industrial companies.

In this transforming landscape, circular business and operating model innovation are fundamental. Only 1/4 of a product's lifecycle emissions result from a company's direct operation. Companies must manage their emissions along the full value chain and lifecycle, including emissions embedded in materials, components (upstream), and those in the use phase (downstream).

As a result, the Circular Economy has been the latest trend to manage emissions and carbon footprint because of the targets of climate agreements. A report by Sun Institute shows that in some cases the emissions decreased by around 20-30% just by applying circular economy strategies.

The Preliminary Research Report on Circularity Potential in Five Sectors in Türkiye shows that the average input circularity in the plastic packaging industry is approximately 7%, In the textile sector, it is about 16%.[123] According to the report, here are some barriers and growth areas of the circular economy in Türkiye.

- Data deficiencies, lack of data, data privacy
- Lack of protocols supporting the implementation of circularity principles
- Lack of regulations that make reporting mandatory
- Lack of awareness about circularity principles
- Life cycle evaluation of products
- Constraints set by customers
- Underdeveloped circular input market

With more sustainable inputs, risks in the supply chain are reduced and long-term sustainability is ensured. Supply chains will be shortened if companies switch to technologies and processes that utilize their own waste and by-products. Water management technologies such as reverse osmosis, rainwater harvesting, and wastewater treatment reduce a company's water consumption.

In some applications, 3D printing technology can reduce resource usage, waste generation, emissions, and cost and shorten the supply chain. Examples of 3D printing applications reducing resource consumption and using circular economy strategies can be applied in sectors with high demand for spare parts, such as white goods and automotive. Shops or individuals sell these parts, which can be produced as needed. Thus, there is no overproduction, and the lifespan of the products is easily extended, while supply chain processes are shortened, and storage demand may decrease.

The private sector and public institutions can make joint ventures through associations, organizations, and councils to sponsor Circular Economy. Companies can make their products more sustainable and efficient by increasing communication with supply chains and customers to gather information about the circularity of inputs and outputs and collect data. Sustainability is becoming increasingly important, especially for publicly traded companies. Companies must be prepared for new standards as the exchanges' financial and non-financial reporting criteria change.

In general, **promoting Everything-as-a-Service (XaaS) business models can have a positive environmental impact because production companies become more focused and financially committed to the entire lifecycle of their products.**

Support Eco-Design

SMEs have a crucial role in national economies, and consequently, they have a prominent role in this field. **SMEs are said to be responsible for 70% of industrial pollution**.[124] Eco-design is well-owned by the academia and leading designers of Türkiye, but its applications among SMEs are insufficient.

Türkiye launched its first directive about Eco-Design in 2010. In February 2022, this directive was renewed in line with Türkiye's harmonization with the European Union legislation "**Harmonization of Laws Regarding Environmentally Responsible Design of Energy-Related Products**." According to the directive, a compliant product

- Does not hurt the functionality of the user
- Does not adversely affect health, safety, and the environment
- Does not have a negative impact on consumers, especially in terms of the life cycle cost and affordability of the product
- Does not hurt the competitiveness of the industry
- As a rule, does not force manufacturers to use a particular technology in the establishment of environmentally friendly design requirements
- Does not impose an additional administrative burden on manufacturers.

Since Türkiye has close trade ties with the EU, a regulation on eco-design was issued in February 2022 to keep Turkish design competitive. Eco-design activities must consider these measures in design: [125]

- Raw material preference and use
- Estimated values of energy and water consumption
- Average amount of waste thought to be generated after application
- Estimated emission level to air, soil, and water
- Packaging, distribution, and transportation processes recycling and disassembly time.

7. Conclusions

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Conclusions

The Istanbul Design Report analyzed **the potential of the design economy in Istanbul,** focusing on the role of industrial design in increasing the competitiveness of small and medium-sized enterprises (SMEs).

The report is based on desk research and interviews with opinion leaders, industrial designers, and SME representatives to understand better the structure, interlinkages, and needs of the design ecosystem in Istanbul. The creative economy and creative industries are defined, and worldwide data are presented to understand their overall impact on the economy, with a particular focus on design activities, including social, service, media and digital and product design. **The importance of design for national wealth is highlighted, and examples of support given in several countries are presented.**

Turkish design strengths are presented with quantitative data, achievements, and examples of leadership in design. The report highlights **the importance of new design trends, including sustainability, energy efficiency, inclusion, human-centered design, and circular economy, and the potential for Turkish industrial designers to take advantage of new market opportunities.**

The report also identifies critical issues in the design ecosystem in Turkey and Istanbul, such as **the lack of unity among designers, misunderstandings between manufacturers and designers, the risk of inadequate protection of industrial and intellectual property rights, and the weak structure of many SMEs.** To address these criticalities, the Istanbul Design Report brings the example of an ISO ETP design hub to strengthen the relationship between industrial designers and SMEs.

The report provides r**ecommendations for the ISO ETP hub's operations, including building a collaboration center; partnering with specialized organizations; organizing design events and supporting programs; offering training on new manufacturing techniques, materials, and design methodologies; providing matchmaking events and a platform for industrial designers and SMEs; facilitating access to funding programs.** The report also recommends policy changes to support industrial design in Turkey, such as **supporting SMEs to invest in innovation, leveraging the innovation potential of universities and design centers, facilitating the development of a national strategic supply base for new technologies, and supporting community-building environments and situations.**

Overall, the Istanbul Design Report provides a comprehensive analysis of the design economy in Istanbul, highlighting its strengths, weaknesses, and potential for growth. The report provides **a knowledge basis to develop further the concept of the hub and the design strategies that can improve Istanbul's design ecosystem.**

[1] Bootcamp (website), Difference between innovation, creativity, and design, https://bootcamp.uxdesign.cc/innovation-vs-creativity-vs-design-def0c35de283

[2] ETMK (website) (2021), "Definition", https://www.etmk.org.tr/endustriyel-tasarim.php?d=en

[3] NESTA (Makale), Higgs, Cunningham, Bakshi (2008), Beyond the creative industries: Mapping the creative economy in the United Kingdom https://www.researchgate.net/publication/27471984_Beyond_the_creative_industries_Mapping_the_creative_economy_in_the_United_Kingdom

[4] UNCTAD (2022), Creative Economy Outlook Report, https://unctad.org/publication/creative-economy-outlook-2022

[5] Otis College of Art and Design (2020), The Creative Economy: 2020 Otis Report on Creative Economy, https://www.otis.edu/creative-economy/2020, visited on 06.02.2023

[6] UNESCO (2022), Reshaping Creativity Report, https://www.unesco.org/reports/reshaping-creativity/2022/en/download-report

[7] UNESCO (2022), Reshaping Creativity Report, https://www.unesco.org/reports/reshaping-creativity/2022/en/download-report

[8] UNCTAD (2022), Creative Economy Outlook Report, https://unctad.org/publication/creative-economy-outlook-2022

[9] TÜIK (2021), "TÜIK Kültür Ekonomisi ve Kültürel İstihdam İstatistikleri," https://data.tuik.gov.tr/Bulten/Index?p=Kultur-Ekonomisi-ve-Kulturel-Istihdam-Istatistikleri-2021-45686, visited on 06.02.2023

[10] TÜIK (2021), "TÜIK Kültür Ekonomisi ve Kültürel İstihdam İstatistikleri," https://data.tuik.gov.tr/Bulten/Index?p=Kultur-Ekonomisi-ve-Kulturel-Istihdam-Istatistikleri-2021-45686, visited on 06.02.2023

[11] Deloitte (2021), Technology Media Telecommunications Report. https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/technology-media-telecommunications/deloitte-uk-future-creative-economy-report-final.pdf, visited on 06.02.2023

[12] Deloitte (2021), Technology Media Telecommunications Report. https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/technology-media-telecommunications/deloitte-uk-future-creative-economy-report-final.pdf, visited on 06.02.2023

[13] TOSYÖV (2021) The Cultural Creativity Industries Inventory Report

[14] Istanbul Creativity Network Map (2022), Creativity Istanbul Project. https://creativity.istanbul/istanbul-yaraticilik-agi

[15] ISTKA (2014), Istanbul Regional Plan. https://www.istka.org.tr/media/24723/istanbul-regional-plan-2014-2023.pdf

[16] Invest in Istanbul Platformu (2014). http://www.invest.istanbul/sectors/creative-industries/

[17] British Council (2020), https://www.britishcouncil.org.tr/en/programmes/arts/creative-industries-focus-country, visited on 06.02.2023.

[18] UK Design Council (2023), (website), Design For Public Good, https://www.designcouncil.org.uk/our-resources/archive/reports-resources/design-public-good/, visited on 02.04.2024

[19] Technology Services Industry Association (TSA) (2013), "Xaas Fish Model." https://www.tsia.com/blog/what-is-the-fish-model

[20] U.S. Bureau of Labour Statistics (2021), Employment Projections in a Pandemic Environment. https://www.bls.gov/opub/mlr/2021/article/employment-projections-in-a-pandemic-environment.htm

[21] NASAA (2022), "Figures on Americas Creative Economy." https://nasaa-arts.org/nasaa_research/facts-figures-on-americas-creative-economy/

[22] Statista (2022), "Arts and Cultural Sector in Italy." https://www.statista.com/topics/6933/arts-and-cultural-sector-in-italy/#topicOverview

[23] Symbola (2022)," Chi Siamo." https://www.symbola.net/

[24] CAMCOM Italy (2020), The Creative Cultural Production System: culture and creativity as factors of identity and development. https://www.tb.camcom.gov.it/uploads/GPT/pdf/The_Creative_Cultural_production_system_An_interesting_landscape.pdf

[25] UK Design Council (2021), "Design Council Launches Design Economy." Design Economy 2021. https://www.designcouncil.org.uk/our-work/news-opinion/design-council-launches-design-economy-2021

[26] UK Design Council (2022), Design for Planet Festival. https://www.designcouncil.org.uk/our-mission/design-for-planet-1/design-for-planet-festival-2022/

[27] UK Design Council (2023), Website. https://www.designcouncil.org.uk/our-work/our-impact/

[28] UK Design Council, Design Economy Report 2022. https://www.designcouncil.org.uk/fileadmin/uploads/dc/Documents/Design_Economy_2022_Full_Report.pdf

[29] British Council (2020), New and changing dynamics: How the global creative economy is evolving. https://creativeconomy.britishcouncil.org/media/resources/BC_CE_New_and_Changing_Dynamics_2017.pdf?__hstc=87502983.e47e2e82c39d4b8cc1aa6379a02197d6.1666605565176.1666605565176.1666605565176.1&__hssc=87502983.1.1666605565176&__hsfp=1894614702&_ga=2.22750523.1603572592.1666605561-446873643.1666605561

[30] Nesta (2020), The Creative Enterprise Toolkit. https://media.nesta.org.uk/documents/creative_enterprise_toolkit_english.pdf

[31] British Council (2020), Creative Hub Kit. https://www.britishcouncil.org.tr/sites/default/files/creative_hubkit_v1.1_international_example.pdf

[32] British Council (2021), Creative Hubs the Map and the Territory. https://www.britishcouncil.org.tr/sites/default/files/creative_hubs_the_map_and_the_territory.pdf

[33] Regional Skills (2020), Together for Design Report: Digital, Product and Strategic Design Skills of the Future. https://www.regionalskills.ie/imagelibary/regional%20skills%20-%20national/publications-/-for-launch-9am-100620-together-for-design-full-report.pdf

[34] BMWK (2019), "Cultural and Creative Industries." https://www.bmwk.de/Redaktion/EN/Dossier/cultural-and-creative-industries.html

[35] Dutch Industry Ministry (2020), "Creative Industry." https://dutchindustry.org/13/

[36] WOERKS Finland (2022), "Wörks Design." https://woerks.fi/design/?gclid=Cj0KCQiA54KfBhCKARIsAJzSrdpA_nU_sADuJOzwKyGz8zjmirRNcb6KIcC3a4WFlOwKGr_Gn-hW5rxoaAkMbEALw_wcB

[37] SVID (2022), "This is SVID." https://svid.se/eng/

[38] ARKDES (2022), "Exhibitions." https://arkdes.se/en/exhibitions/

[39] Dezeen News (2018), "Swedish Government Introduces New Benchmarks for Architecture and Design." https://www.dezeen.com/2018/04/06/swedish-government-introduces-new-benchmarks-for-architecture-and-design/

[40] Design Singapore (2015), "Design 2025." https://designsingapore.org/resources/design-2025/

[41] Toiaria (2020), "The Value of Design to New Zealand." https://www.toiaria.org/our-projects/value-design-new-zealand/

[42] Dexigner (2020), The Queensland Design Strategy 2020. https://www.dexigner.com/images/article/18061/The_Queensland_Design_Strategy_2020.pdf

[43] Creative Australia (2016), Creative State. https://creative.vic.gov.au/major-initiatives/creative-state/creative-state-2016

[44] Premier Design Awards (2022), "2022 Winners Announced." https://premiersdesignawards.vic.gov.au/

[45] Development Victoria (2019), "Melbourne Arts Precinct." https://www.development.vic.gov.au/projects/melbourne-arts-precinct?page=overview

[46] T.C. Ticaret Bakanlığı (2022), "Tasarım Desteği." https://ticaret.gov.tr/destekler/ihracat-destekleri/tasarim-destegi

[47] Interreg Europe (2020), European Design Report 2.0. https://projects2014-2020.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1543245130.pdf

[48] YOK (2021), "Grafik Tasarımı Programı Bulunan Tüm Üniversiteler." https://yokatlas.yok.gov.tr/onlisans-program.php?b=30188

[49] Statista (2022), "Ranking of the 20 national intellectual property offices with the most industrial design applications in 2021." https://www.statista.com/statistics/257539/ranking-of-the-20-countries-with-the-most-industrial-design-applications/

[50] World Design Rankings (2021), "Latest World Design Rankings." https://www.worlddesignrankings.com/#rankings, visited on 02.04.2024

[51] Dünya Halleri Websitesi (2022), "N'oldu o iş: Türkiye'de Maker hareketi." https://www.dunyahalleri.com/noldu-o-is-Türkiyede-maker-hareketi/, visited on 06.02.2023

[52] Gelecekhane (2018), Linkedin Profili. https://www.linkedin.com/in/gelecekhane?originalSubdomain=tr, erişim tarihi 06.02.2023

[53] Istanbul Modern Arts Gallery (2019), "Art Maker Lab Buluşma Etkinlikleri." https://www.istanbulmodern.org/tr/egitim/art-maker-lab-bulusma-etkinlikleri_2259.html, visited on 06.02.2023

[54] Mimarizm (2021), "Urban Tank." https://www.mimarizm.com/mimarlik-ofisleri/urbantank_132598, visited on 06.02.2023

[55] Zeka Gücü (2022), "Turkcell Stemm Training." https://zekagucu.turkcell.com.tr/, visited on 06.02.2023

[56] Fablabs (2024), Website, https://www.fablabs.io/labs?q%5Bcountry_code_eq%5D=TR

[57] Başakşehir Living Lab (2022), "Hakkında." https://basaksehir-livinglab.com/BLL/anasayfa/

[58] Istanbul Design Factory (2022), "About Us." http://istanbuldesignfactory.com/

[59] Design Hub Ist (2022), "Hakkımızda." https://designhubist.com/

[60] SEYTIM Hub (2022). https://seytim.org/projeler.php

[61] 3D Printing Centre (2022), Website. http://www.3dyazicivetasarimmerkezi.com/

[62] TTO Hub (2022), "Creative Hub." https://tto.agu.edu.tr/ch

[63] Kale Tasarim Sanat Merkezi (2022), Website. https://www.kaletasarimsanatmerkezi.org/ktsm

[64] Robotik Sistem (2022), Website. http://www.robotiksistem.com/guncel.html

[65] Robotik Egitim Akademisi (2022), Website. https://www.robotikegitimakademisi.com/

[66] Roboturka (2022), Website. https://roboturka.com/

[67] Robotistan (2022), Website. https://www.robotistan.com/

[68] İTO (2023), Database, https://bilgibankasi.ito.org.tr/tr/bilgi-bankasi/firma-bilgileri

[69] İTO (2023), Database, https://bilgibankasi.ito.org.tr/tr/bilgi-bankasi/firma-bilgileri

[70] Teknokentler (2023), Wikipedia, https://tr.wikipedia.org/wiki/T%C3%BCrkiye%27deki_teknokentler_listesi

[71] INOVATIM (2022), "Hakkımızda." https://www.inovatim.org/, ziyaret tarihi 06.02.2023.

[72] Makersconsulting (2022), Website. https://makersconsulting.co/

[73] Ideanest (2022), Website. https://ideanest.org/about

[74] Garage Innovation Hub (2022), Website. https://www.garageinnovationhub.com/

[75] British Council (2021), Creative Hubs the Map and the Territory. https://www.britishcouncil.org.tr/sites/default/files/creative_hubs_the_map_and_the_territory.pdf

[76] Istanbul Creativity Network Map (2022), "Ağ Haritası." Creative Istanbul. https://creativity.istanbul/istanbul-yaraticilik-agi

[77] Makercodes (2022), Website. https://makercodes.com/en/home-page/

[78] Istanbul Impacthub (2022), Website. https://istanbul.impacthub.net/

[79] Istanbul Tasarim Merkezi (2022), "Hakkında." https://istanbultasarimmerkezi.org/

[80] Takortak (2022), Website. http://takortak.org/

[81] Sehrine Ses Ver (2022), Website. http://www.sehrinesesver.com/

[82] Farklabs (2022), Website. https://www.farklabs.com/tr/

[83] Kentsel Strateji (2022), "Hakkımızda." https://kentselstrateji.com/

[84] ISKELE (2022), Website. https://iskele.co/

[85] Inogar (2022), Website. https://inogar.coop/

[86] Ebru Winegard (2019), Dijital Medya Teknolojilerinin Sanatın ve Tasarımın Yaygınlaşmasındaki Yeri ve Önemi, Istanbul Üniversitesi, MA Thesis. http://nek.istanbul.edu.tr:4444/ekos/TEZ/ET000489.pdf

[87] Wikipedia (2022), "Teknokent Listesi." https://tr.wikipedia.org/wiki/T%C3%BCrkiye%27deki_teknokentler_listesi

[88] TEKNOAG Project (2022), https://teknoag.sanayi.gov.tr/anasayfa

[89] TUIK (2022), "Education Statistics," https://istatistik.yok.gov.tr/ erişim tarihi 06.02.2023

[90] TUIK (2022), "Education Statistics," https://istatistik.yok.gov.tr/ erişim tarihi 06.02.2023

[91] ENTA (2022), Website. https://www.enta.org.tr/akademikkurumlar#:~:text=End%C3%BCstriyel%20Tasar%C4%B1m%20%C3%B6%C4%9Fretimi%20T%C3%BCrkiye'de,Sanatlar%C4%B1%20Y%C3%BCksek%20Okulu%20kapsam%C4%B1nda%20kurulmu%C5%9Ftur.

[92] ISTKA (2021), Yaratıcı Endüstrler Mali Destek Programı 2021 Teklif Çağrısı Başvuru Rehberi. https://www.istka.org.tr/media/132576/yarat%C4%B1c%C4%B1-end%C3%BCstriler-mali-destek-program%C4%B1-yes.pdf

[93] İSO (2022), İSO İlk 500 Şirket, https://www.iso500.org.tr/

[94] Hale Selek (2008), Relationship Between SMEs and Industrial Design: An Evaluation of the ITU-ISO Industrial Design Projects for SMEs from the Perspective of SME Representatives, İstanbul Teknik Üniversitesi, MA Thesis. https://core.ac.uk/download/pdf/62730465.pdf

[95] İTÜ Vakfı Dergisi-Türkiye'de Patent, Özlem Er, Kobi'ler İçin Tasarım Projesi Endüstriyel Tasarım Tescilli Ürünler Yaratmaya Ediyor, https://www.academia.edu/5195583/Kobiler_%C4%B0%C3%A7in_Tasar%C4%B1m_Projesi_End%C3%BCstriyel_Tasar%C4%B1m_Tescilli_%C3%9Cr%C3%BCnler_Yaratmaya_Ediyor

[96] Murat Yülek ve Gülesin Sena Daş (2016), "KOBİ'lerin Yenilikçilik Kapasitelerini Geliştirecek Desteklerin Tasarımına Yönelik Kavramsal Bir Model Önerisi: Yenilikçilik Profillerine Dayalı Bir Yaklaşım." Ege Akademik Bakış, Cilt 16 · Sayı 3 · Temmuz 2016, SS. 555-572 https://dergipark.org.tr/tr/download/article-file/561070

[97] Gökhan Karakuş (2016), "Çıkmazdaki Tasarım - Tasarımcılar ve Türkiye'deki Orta Gelir Tuzağı." XXI. https://xxi.com.tr/i/cikmazdaki-tasarim-tasarimcilar-ve-Türkiyedeki-orta-gelir-tuzagi

[98] Aydın Şık (2020), "Endüstriyel Tasarim ve Üretim." Mühendis ve Makina, Ocak 2020, 32-35. https://www.mmo.org.tr/sites/default/files/014_.pdf

[99] Julie H. Hertenstein, Marjorie B. Platt, Robert W. Veryzer (2004), "The Impact of Industrial Design Effectiveness on Corporate Financial Performance." Journal of Product Innovation Management, 22: 3-21. https://onlinelibrary.wiley.com/doi/10.1111/j.0737-6782.2005.00100.x

[100] TMMOB (2022), TMMOB Mimarlar Odası Endüstriyel Tasarımcılar Komisyonu Facebook Sayfası. https://www.facebook.com/tmmobeto

[101] European Commission Horizon (2021), "Innovation Union." Horizon Project. https://ec.europa.eu/research-and-innovation/en/horizon-magazine/key-themes/innovation-union

[102] BEDA (2021), "Design Europe 2021." https://www.beda.org/euprojects/design-europe-2021/

[103] European Commission (2022), "Culture and Creativity." https://culture.ec.europa.eu/creative-europe

[104] Design for Europe (2022), "Supporting design-driven innovation across Europe." https://designforeurope.eu/about/

[105] New European Bauhaus (2022), "About the initiative." https://new-european-bauhaus.europa.eu/about/about-initiative_en

[106] European Union (2022), "The NEB Lab." https://new-european-bauhaus.europa.eu/about/neb-lab_en

[107] Craft Cities EU Project (2020), Craft Urban Movement. https://craft-cities.eu/wp-content/uploads/2022/09/Factsheet-v5.pdf

[108] Design Policy Lab (2021), "The Design Policy Lab Works on the Relationship Between Design and Policymaking." http://www.designpolicy.eu/

[109] ECADE (2022), "The European Conference on Arts. Design and Education." https://ecade.iafor.org/

[110] T.C. Cumhurbaşkanlığı (2023), On İkinci Kalkınma Planı (2024-2028). https://www.sbb.gov.tr/wp-content/uploads/2023/12/On-Ikinci-Kalkinma-Plani_2024-2028_11122023.pdf

[111] T.C. Cumhurbaşkanlığı (2019), On Birinci Kalkınma Planı. https://policy.thinkbluedata.com/sites/default/files/The%20Eleventh%20Development%20Plan%20%282019-2023%29%20%28EN%29.pdf

[112] Turquality Project (2022), "Hakkımızda." https://www.turquality.com/

[113] Republic of Türkiye Ministry of Education (2016), STEM Education Report. http://yegitek.meb.gov.tr/STEM_Egitimi_Raporu.pdf

[114] KOSGEB (2019), Strategic Plan 1019-2023. https://webdosya.kosgeb.gov.tr/Content/Upload/Dosya/Mevzuat/2020/KOSGEB_Stratejik_Plan%C4%B1_(2019-2023).pdf

[115] CBC Law (2022), "About Us." https://www.cbclaw.com.tr/

[116] Türkiye Patent ve Marka Kurumu (2022), Intellectual Property Rights in Türkiye. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/669207/Intellectual_Property_rights_in_Türkiye.pdf

[117] MTP Patent (2017), "Patent Alma Prosedürü." https://mtppatent.com/patent-alma-proseduru/

[118] Türkiye Intellectual Property Rights Office (2022), "Annual Design Statistics." https://www.turkpatent.gov.tr/tasarim-istatistik

[119] Özdogru & Partners (2017), “Tescilli Tasarim Sahibinin Hakları.” https://www.ozdogruhukuk.com/yayinlar/tescilli-tasarim-sahibinin-haklari.html

[120] WIPO Int (2021), World Intellectual Property Indicators 2021. https://www.wipo.int/edocs/pubdocs/en/wipo_pub_941_2021.pdf

[121] TURKSTAT (2021), “Innovation Research, 2020.” https://data.tuik.gov.tr/Bulten/Index?p=Yenilik-Arastirmasi-2020-37457

[122] TUİK, (2020), Yenilik Araştırması, https://data.tuik.gov.tr/Bulten/Index?p=Yenilik-Arastirmasi-2020-37457

[123] KPMG (2022), Türkiye’de Beş Sektörde Döngüsellik Potansiyeli Ön Araştırma Raporu. https://www.skdTürkiye.org/files/yayin/Türkiyede_bes_sektorde_dongusellik_potansiyeli_on_arastirma_raporu_180522_compressed.pdf

[124] Ruth Hillary (2017), Small and Medium-Sized Enterprises and the Environment: Business Imperatives. Routledge:Abingdon-on-Thames, UK, https://www.routledge.com/Small-and-Medium-Sized-Enterprises-and-the-Environment-Business-Imperatives/Hillary/p/book/9781874719229

[126] Türkiye Regulations Office, Enerji İle İlgili Ürünlerin Çevreye Duyarli Tasarimina İlişkin Yönetmelik. https://www.mevzuat.gov.tr/MevzuatMetin/21.5.5187.pdf

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