

Creativity in crafts amid the digital advancements

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Abstract :

The purpose of the research is to discuss that traditional professions and crafts express aesthetic, civilizational and cultural connotations and values, and that they are among the most important components of popular heritage, as they combine art, authenticity, culture and beauty. They are the fruits of civilizations that extend for thousands of years, and create a cumulative creative impact. They can use everything that technology and digital development provide, while preserving the nature of manual labor. It is therefore essential to develop the creative capacities of these trades and crafts in a world driven by technology and digital advances. The research problem is represented by asking the question: **How can creativity in professions and crafts be conceptualized using technology and digital developme.**

Keywords: Cultural economics, Technological Change, Network training.

JEL Classification Codes: (Z1 , O33 , D85).

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1. Introduction:

Traditional Trades and Artisanal Crafts are indications of aesthetic and cultural values of certain people, as well as being the most important popular and heritage legacies, since it combines Arts, Authenticity, Culture, and beauty to be the cultural outcome of thousands of years, and to establish a creativity accumulation, from here, it becomes important to develop the creative expertise in these professions and crafts in the known world by benefiting from the technological and digital advancement.

- **Problem and Importance of the research:** It is represented in the search for a system to utilize technologies and digitalization to strengthen the creative expertise in the artisanal crafts and traditional trades, that seek to gain status in a competitive changing world. This is done by rising the problematic: **How can the creativity in the artisanal and traditional crafts be envisioned by using technology and digital advancement?**
- **Research hypotheses** starting from the given problematic, and to have the ability to resolve and discuss in this research, we introduce the following primary three hypotheses:
 1. It is not possible to dispense the utilization of technologies and the digital innovation to strengthen the creative abilities in the artisanal and traditional crafts;
 2. The utilization of technologies and digital innovation to strengthen the creative abilities in the artisanal crafts has limits, the handmade nature cannot be crossed;
 3. Speaking about the utilization of technologies and digital innovation in the strengthening of the creative abilities in the artisanal and traditional crafts cannot be done without highlighting the negative effect of this utilization on them.

2. Entry to Technology, Digitization, and Creativity:

Technology and digitalization are some of the creativity changes in any country, as it signify the optimal utilization for the scientific knowledge, and its applications, and using it to serve humanity and its well being, however, it remains that transporting and earning the technology and the technological abilities as a method to achieve the industrial development and the economic growth (Christine KESSIDES, 1997, pp. 45-46). Artificial Intelligence breaches the world at a pace so unrestrained that it induces a sense of vertigo, showing us daily new marvel of algorithms run by artificial intelligence, a real technology for all usage, that it deserves being called “the new electricity” (برنامج الأمم المتحدة الإنمائي, 2025, p. 3).

2.1. Defining Technology:

Technology today is one of the most commonly used concepts and mysterious concepts, the outcome of the human civilization developing all along history, specialized in the utilization of knowledge and the scientific method to achieve goals and solving problems and the needs of communities, it is based essentially on the operation of electronic training intended to access the content easily and smoothly (علاء عبد الخالق حسين المندلوي, 2025, p. 55).

Technology can be defined as:

- A source of information that is dedicated to the tool making and processing and the extraction of materials, that can be used to achieve different tasks in the daily life (محمد جوارنه, 2022);
- An organized effort that aim to use the results of the scientific research in the development of the methods of the production operations performance like human techniques (not considered an applied science) and skills and knowledge in the creating the scientific revolution (Danielle DEHOUX & Yves GRAFMEYER, 1982, p. 16);
- An art and science of craftsmanship, from what it contains and demands of studies, researches, skills, and the necessary expertise to apply into the field or the group of a specific production (محمود علم الدين, 1990, p. 55).;

In the light of the above, we define technology as the art and the science of craftsmanship to use the results of the scientific research from the studies and researches and skills and the necessary expertise to be applied in specific applied fields.

The term technology indicates³ (محمد عبد العزيز ربيع, 2007):

- That it is not possible to separate technology from science, since there is no technology without a scientific revolution;
- That human advancement is intrinsically tied to the evolution of technology, considering how discoveries were coincided with the development in the human ways of living;
- And that the technological growth didn't stop at a certain time, but rather is the result of continuing accumulations of years of positive experiences.

Meaning that the technological transfer is the exchange of information in the technical in the way that facilitates applying it in a scientific application, and in general, the technological transfer is rather an economic, sociologic, and political processes, and not imitation of developed countries.

In order for technological transfer to achieve effectiveness, it must be that (خالد بن ثلّاب الحربي, 2005):

- Before choosing the technology which would be implemented, choosing between the available options what's more suitable;
- That the development be characterized with flexibility and the possibility for change in case of new developments or emergencies, so that the change can be made easily to face these developments and conditions;
- Demonstrating a considerable focus on developing the human resources by providing vocational trainings and other necessary trainings;
- Giving the financial capacity.

2.2. Defining Digitization:

In recent years, digitalization in the age of globalization became a strategic important and necessary choice worldwide, as a result of the rapid technological development, to be integrated into various aspects of social, economic and political lives, which requires the preparation of the human resources and encouraging a digitalization culture (وزناجي بسم, 2024, pp. 376-386):

Digitalization is defined as:

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- The continuous interaction, integration, and coordination between technology and national, sectoral, and international economy, which would achieve transparency and immediate actions (السيد شعيثع أبو رضوان, 2018, p. 7);
- The operation of transferring anything non-digital to the digital form can be comprehend and processed by a computer (دفاتر موقع-, 2025);
- Transforming the information and data from its traditional form to its digital form, like transforming paper files into digital documents as a first step into the digital transformation (أشرف ياسين الطراونة, 2025, p. 9).

From the above, we define digitalization as the transformation of information and data, and of paper files into digital documents as a first step into the digital transformation, which achieve the transparency and immediate actions.

There is a difference between digitalization and the numeric transformation, as the terms are often confused, digitalization is connected with the transformation of data and information into the digital coordination, can be read and processed by computers. While numeric transformation includes the application of these digital techniques on a larger scale and it means a deeper change in the operation, strategies, and commercial models, toward replacing the paper procedures with digital data processing applications, which would enhances overall efficiency (OCDE, 2022).

Amid the intense competition and market demands, the digital transformation became an essential requirement for every economic agent and across every country at a rapid pace never seen before (M. A. BRAHAMI & M. Arslane A. BELGHABA, 2022, pp. 1-15), where the digital technologies didn't only change the ways of working but also changed the methods people communicated, exchange information, and interact with both the public and private sectors (Mar NEGREIRO & Tambiama MADIEGA, 2019).

Algeria has recognized since its independence the importance of the technological development, especially information and communication technology, and its effect on the economic and social growth of the country. This commitment to commitment was reflected in the establishment various training centers and researches specialized in information and communication field; like the center of studies and researches in computer science that was founded in 1969 and has later on become the National Science of Computer Science (ENI), then the Higher School of Computer Science (ESI), and in the same year, the National Committee of Information Technology (CNI) that is considered the leading organization in Africa and in the middle east and north Africa region, Also the construction of Fiber Optic Network with a length of 200 thousand kilometers to connect over 5.74 million families with fixed internet network, including 1.24 million families using fiber optic technique in their homes (Haut-commissariat à la numérisation, 2024, pp. 4-5).

In order to achieve this goal, it is essential to (Haut-commissariat à la numérisation, 2024, p. 21):

- Enact a comprehensive law that govern and regulate the digital sector in Algeria, and guarantee accelerating digital transformation;
- And adaptation the current legal texts and harmonizing it with the regulations of this new comprehensive law.

2.3. Defining Creativity:

Creativity doesn't emerge without a former existence, where the creative person receive exterior and interior stimulants, prior and instant, from interesting situations, or an idea he remembered, or an information he read, or inspiring current events, or a past memory, or a feeling that overwhelmed him (شاكر عبد الحميد, 1987, pp. 239-240).

Creativity is defined as:

- Applying creative ideas to present new products that adds value to the institution, whether by achieving an increase in income or decrease the costs (أحمد القريوتي قاسم محمد, 2005);
- A human state, a personal, emotional, psychological experience, and a creative power (عتيقة بلعقروز, 2021, pp. 116-129);
- Everything that results in original and distinctive thinking that contributes in social and technological growth (صلاح الدين عوينتي, 2010);
- The ability to discover a new and original solution of a certain problem (**Centre national de ressources textuelles et lexicales France, 2025**);
- Inventing something based on nothing but in a new form (حسن أحمد عيسى, 1976, p. 6);
- Providing an opportunity to deal comfortably with turbulent problems or to find new and original approaches (هاتم الشبيني, 1979, pp. 88-92).

From the above, we define creativity as everything that results in original distinctive thinking that is able to discover creative ideas of new and original solution of a certain problem.

There is a difference between creativity and innovation; some believe that they convey the same meaning, however, it should be noted that there are differences between the two (**Béatrice TOUSTOU, 2019, pp. 3-2 & بكة -موقع- , 2025**):

- Creativity is the process of creating new ideas of values; while innovation is the practical implementation process of the creative ideas;
- Creativity is viewed through concepts, ideas, and visions, while innovation is viewed through results;
- Creativity is immeasurable, while innovation is measurable (in products, services, and new work models ...).

There is also a difference between creativity and invention, since invention is finding something new, while creativity is the invention that brings benefit, that is, it is a step further than invention; an invention may arise, but the idea remains buried and brings no benefit to others (صلاح الدين عوينتي, 2010).

The visions of creativity are numerous, we mention (بكة -موقع- & علي دشتي, 2025):

- Technological creativity involves changing and developing the physical and performance characteristics of commodities and services for a company that operates in a highly technological and intensely competitive environments;
- Artistic creativity involves new development (a change in the means of production, introducing information technology to the work...);

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- Expressive creativity that manifests itself in the spontaneity of the work (like a painter producing his artworks in a particular way);
- A composed creativity that is achieved through an irregular combination of things, by combining different ideas into a single model;
- Creativity in a product that is embodied in company outputs, in the form of commodities and services;
- Creativity in a specific operation and method (Effectiveness improvement management and production efficiency in both production and marketing...);
- A radical creativity should be new and very different from prior solutions;
- Cumulative creativity executes relatively small changes or performs modifications to existing work practices;
- Fundamental creativity is directed to the creation of new products and operations, that didn't exist before;
- Ongoing creativity provides evident and continuous improvement on a product;
- Administrative creativity indicates the utilization of creative methods to solve problems, expressed in a scientific form (familiarity with scientific and mathematic theories to generate new ideas) and in a practical form (having the ability to immediately solve problems and crises).

3. Technology and Digitization to serve Creativity in Professions and Artisanal Crafts:

Technology and digitization focus on training, qualification, and supporting craftsmen, ensuring they keep pace with creativity by equipping them with development skills, in terms of product designing, product quality, and colors output, using a more developed materials, contributing to saving what remains of our traditional crafts which is a true creative popular heritage, and to obtain new marketing skills for their products (محمد بن ناصر بن محمد العرفي, 2009 & محمد فياض الفياض, 2009).

3.1. Defining Professions and Artisanal Crafts in Algeria:

The professional activities diversified, fragmented, and became more unique as a result of increasing diversity of their identities, thus, working paths were replaced or new ones were added (Claude DUBAR, Pierre TRIPIER & Valérie BOUSSARD, 2015, p. 325). . And in the professions and artisanal crafts, this also appears evident through the branching and diversity of the crafts blog in Algeria, including the list of traditional industry activities and crafts (According to Executive Decree 339-07, 2007), the thing represents the outstanding production present in some aspects of life in every country of the world, which is a source to grow creativity of a heritage that depict social and historical characteristics (محمد ولد احميادا, 2006). Algeria worked to create an effective dynamic for craft activities on every level to represent an important contributor to the economic fabric, its effect and role is not only limited on the economic side, but also extends to historical and social components of the society, as a repository of the values, customs, and traditions of society, and an economic translation of them (محمد بن قطاف & محبوب بن حمودة, 2017, pp. 11-40).

Traditional professions and crafts include a large number of professions of primary manual nature, combining between the cultural heritage and the economic activity (سهم بن عمار, 2018, pp. 27-48). It is defined with different forms, including:

- What artisans produce, whether completely handmade, or getting assistance with manual tools or even mechanical ones; using raw materials from the natural sustainable resources, and it has various distinctive features, and it is utilitarian, aesthetic, culturally related, decorative, functional, and have religious and social symbolism (**UNESCO and ITC definition - Centre du Commerce International CCI & Organisation mondiale de propriété intellectuelle, 2003, p. 6**);
- Manual industry of an individual or a group of people using local natural resources in traditional methods, in the intention of using the product in the daily needs, based on mental skills (طروبياندير, 2020, pp. 41-53);
- Industries that are either entirely handmade or with the aid of manual or mechanical tools, under the condition that the largest contribution in the final product is the artisan's manual contribution and utilizes natural resources (سهيلة اليماني, 2006);
- Manual labor must predominates every production, creativity, transformation, artistic restoration, maintenance, repair, or service performance activities, and it is practiced mainly and permanently, in a stable, mobile, or exhibition based form, individually or within a traditional industry and crafts cooperative or traditional industry and crafts enterprise (**According order 96-01, 1996**).

From the above, professions and crafts are defined as creative industries that produce products in a manual way with the possibility of utilizing manual of mechanical tools.

Executive decree 2007 (**Executive Decree 339-07, 2007**), as amended and supplemented, came to distinguish between three (03) traditional industry activities through clusters as a national code for the sector, all of which share a number of characteristics, all of which meet in a number of characteristics:

1. Traditional industry activities and artistic traditional industry
2. Traditional industry activities to create materials
3. Traditional industry activities of services

And by presenting these activities, we notice that all the traditional professions and crafts is based largely on manual work, making them the professions that create most employments for the working force in the three (03) specified activities in the Algerian legislation for the traditional industry sector.

3.2. The application of technology and digitization to achieve creativity in professions and artisanal crafts:

Transforming technology and digitization into traditional professions and crafts is witnessing fundamental changes in the nature of the transferred technology and in the patterns and methods of transfer, providing that it doesn't cause environmental damages that destroy development – or decline- (**Robert STAVINS N., 2004, pp. 50-51**). And we notice that one of the reasons for the deterioration of the traditional crafts is disregarding manual work on one hand and

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the large quantity of handcrafted imitations of local products at competitive prices on another hand (خالد عزب, 2006). We will discuss the concept of usage by selecting a number of points.

- Usage of technology:

The development of traditional professions and crafts using technology, this will, undoubtedly, contributes to creativity by raising the level of qualification of the artisan while maintaining manual mastery, therefore (أحمد بن عبد الهادي, 2005):

- The actual contribution in creating new work positions for young people with simple and inexpensive investments comparing with other activities;
- The contribution to intensifying economic activities at the regional, local and rural levels;
- Achieving a permanent income source for families;
- The activation of regional growth to contribute in meeting the basic needs of the locals from goods and services;
- Contributing to reducing the phenomenon of rural exodus;
- Reducing imports and minimizing wasting resources by recycling and using local raw materials;
- Preserving heritage and enhancing touristic assets.

With regards of creativity, the limits of industries differ according to the utilized definitions in social sciences, where they are defined usually for extending beyond cultural industries, but it is narrower than information economy or the non-material economy (Philippe BOUQUILLION & Jean-Baptiste LE CORF, 2010, p. 4).

- Usage of digital sites:

The various internet sites are strong modern media tools that attract the traditional professions and crafts community including obtaining information, promoting, offering services, E-commerce, communicating and interacting with different organizations, and then it is handled on the internet through two (02) types of websites (شهرزاد بوهدة, 2020, pp. 55-72; عصام قريط, 2008, pp. 40-42 & علياء عاطف عطية, 2022, pp. 235-254):

1. Websites:

Every craft or workshop create a site for their activity on the internet in the intention of presenting and marketing their products to the public, and present detailed information about the products and its artistic roots, through electronic platforms, applications, or social media platforms, thus, these websites will bring about a qualitative leap in marketing and promotion of these traditional crafts. It should be noted that introducing technology into the marketing of craft products is a transformation into e-commerce, and concern remain on the risks it present to heritage protection.

Among the most prominent websites used for craft marketing and promotion, we mention:

- **Warshati website:** (since 2014) as the first official platform that allow Algerian artisans to promoting and marketing their products;

- **Allo Hirafi application:** (since 2019) as a platform available for artisans through registering in it, whether remotely or through provincial chambers of traditional industry and crafts;
- **Using various social media platforms** by all agents of traditional professions and crafts, from craftsmen (as manufactures, producers, and marketers), provincial chambers of traditional industry and crafts, the national chambers of traditional industry and crafts, and the ministry of tourism and traditional industry ...etc;
- **Crafts groups** on Facebook.

2. Virtual museums:

Virtual museums in traditional industries rely on audiovisual technologies, created on the internet to present a museum that might not exist at all on ground, with the intention of preserving traditional crafts; it may aim to display a certain collection in “museum like” manner, where a ceramics or carpets museum can be organized in way that attracts visitors to the website to view the exhibits, it is also possible to present educational programs through these websites that allow young people to master these crafts and innovate in them.

- Forms of creativity in traditional professions and crafts:

Among the forms of creativity in traditional professions and crafts, we mention the examples:

• The craft of stoneware production:

The craft of stoneware production is an old industry as old as history, dates back to thousands of years, in the beginning it was used to preserve food and drink, the uses of stoneware diversified according to the diverse needs of life. Stoneware were frequently found confirming the importance they had, serving religious and ritual purposes, but over time they came to be used for other purposes such as decoration and manual crafts (زينب عبد التواب رياض, 2015, pp. 217-227 & رامي الحمصي, 2023).

Stoneware is considered an artistic works despite the harshness and rigidity of stone as a raw material. There is still new stoneware whether discovered in various locations or those that fill corners of world's museums, which testify to the splendor of art and the precision of carving (زينب عبد التواب رياض, 2021, p. 70). These are handmade tableware or using carving tools, from various types of stones like Basalt (very hard and retains heat), granite (durable and smooth), soapstone (easy to carve and smooth to the touch), and limestone (mostly used for decoration) (نورا محمد طه, 2025).

The mill was one of the important tools for Algerian families, as a daily use tool and not just seasonal use. In the past, the mill was present in every house, it was indispensable, but with the development and modernization, only a rare few remain in some houses and heritage museums (آت ميزاب, 2025).

Stoneware industry is moving towards using technological equipment and machinery, what helps improving the working conditions, increasing efficiency, ensuring longer working hours for artisans in carving processes, and allows for creativity in the product with various new designs, and naturally increases the produced quantities (وطني رقمي-موقع, 2024).

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- **The Craft of bousaadi mos –knife-** (محيوب بن حمودة, 2020, pp. 79-100):

The traditional Bousaadi knife is a cultural craft, unique to the city of Bousaada, its use was and still is, but in less than before and on rare occasions and events. This is an affirmation of the cultural and civilizational dimension of the different regions of Algeria and of the existence of an artistic craft handmade mainly with a small assistance of some technological equipment. Among the obstacles that face the development of the industry this craft is the weak marketing, where the craftsman markets while working in his shop, meaning he is combining the both functions of production and sales.

The authentic Bousaadi knife constitutes of a sheath made of genuine leather, a hand grip made of ivory and held together with a wire (silver until recently), the iron blade of the knife is engraved with distinctive engravings and decorations (or even the names of its owners). The knife is known for its sharpness and durability, thanks to the craftsmanship and quality of the materials used in its making, and it still remains a popular souvenir from the city.

According to the commonly practiced and generally accepted international artistic standard, the idea of registering and nominating the Bousaadi knife for the UNESCO list of the Cultural Heritage of Humanity must be executed at the earliest opportunity, in order to preserve this cultural heritage craft.

The existence of virtual museums to introduce the Bousaadi knife is a necessity, if we wanted to promote traditional professions and crafts. And perhaps the best example we can offer is the attempt to draw lessons and learn from the Omani experience, through the website: "**The dagger; my identity and pride**" (<http://www.khanjar.om/>), in both Arabic and English.

From the successful e-marketing methods, we mention: Marketing through emails, marketing through social media platforms, and marketing through content creatures.

4. Conclusion :

Working in traditional professions and crafts is usually described as a job that automatically expresses the culture of the nation; therefore it must be encouraged to use different technologies and technical methods, in the aim of achieving serious creativity that benefits the comprehensive economic growth, it must be reassessed and revised to align with the current state of the Algerian economy. Therefore, craftsmen must be qualified and prepared through training and systematic education in order to improve the skills necessary for creativity.

And returning to the hypotheses of the research, without doubt dispensing of the utilization of technology and digitization development to promote the creative abilities in the traditional professions and crafts, also the manual nature of the work is the foundation of craft's work, without forgetting the challenges related to negative side of the modern technical and developed utilization.

Technology unable the traditional professions and crafts to break into bigger markets and increase its productivity through the digital marketing and the assisting techniques, the thing that allows

artisans to concentrate on their creativity while decreasing the necessary effort on repetitive tasks. Merging technology with the crafts provides various advantages for craftsmen, most notably:

- Preserving the cultural heritage by publishing it digitally;
- Preserving a culture of a society and entrust it to future generations using every available digital tool;
- Improving work conditions, increasing its efficiency, and ensure longer working hours for artisans;
- Innovation and creativity in craft's products with new designs, while preserving its authentic artistic nature;
- Increasing productivity and efficiency by accelerating production operations and decreasing the repetitive tasks;
- Expanding the market on the account of the use of digital platforms and e-commerce.

Thus, we advice the following:

- Developing serious training programs that use technologies which help to revitalize traditional professions and crafts;
- Using websites, new networks, satellite channels, newspapers, and associations to establish the craftsman activity;
- Working on benefiting and exchanging proficiency from distinguished experiences;
- And finally, the necessity to emphasize that the use of various technologies in traditional industries and crafts is insufficient, unless being supported by factors that preserve our heritage from extinction such as professional ethics and the distinctiveness of manual labor unlike other industries.

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