



The Impact of Artificial Intelligence on Traditional Industry Development Policies in Algeria

Abdelatif Ameer ¹ *, Laid Belfar ².

¹ Laboratory of Economic Studies on Industrial Zones under the New Role of the University, Mohamed El-Bachir El-Ibrahimi University – Bordj Bou Arréridj, Algeria, abdelatif.ameur@univ-bba.dz

² Laboratory of Studies and Research in Rural Development, Mohamed El-Bachir El-Ibrahimi University – Bordj Bou Arréridj, Algeria, laid.belfar1@univ-bba.dz

Received: 22./10/2025

Accepted: 06./12/2025

Published: 28/12/2025

Abstract:

Amid the rapid digital transformations shaping contemporary economies, artificial intelligence (AI) emerges as a key driver in reshaping the logic of public policy-making, including policies for traditional industry development. This study aims to analyse the impact of employing AI in supporting the sustainability of traditional industries in Algeria by linking AI tools to the six OECD-based evaluation criteria: relevance, coherence, effectiveness, efficiency, impact, and sustainability. A comparative analytical approach combining theoretical and empirical perspectives was adopted, supported by a SWOT analysis to identify the strengths, weaknesses, opportunities, and threats associated with the digitalisation of this sector. The findings reveal that integrating AI enhances efficiency and productivity but also raises challenges related to human capacity building and technological financing. The study recommends developing a national digital transformation strategy for traditional industries, implementing specialised training programmes, and establishing innovation incubators that bring together artisans and technology experts to ensure the sustainability of this economic and cultural heritage.

Keywords: Artificial Intelligence, Traditional Industries, Algeria, Digital Transformation, Public Policy, Sustainable Development.

JEL Classification Codes : O33, O14, O38, Q01, L52, Z32.

* Abdelatif Ameer.

1-Introduction:

In recent years, Algeria has undergone significant strategic transformations along its path toward digitalisation through the launch of national initiatives aimed at building an integrated digital economy and strengthening the country's position in the field of artificial intelligence. The **“Digital Algeria 2030” strategy** establishes the foundations for developing digital infrastructure and improving electronic governance, while the **National Artificial Intelligence Strategy** seeks to integrate AI technologies into various productive and service sectors.

These initiatives together form an **institutional and developmental framework** that enables the mobilisation of modern technologies in support of sustainable development across diverse economic and social domains, including the **traditional industry and handicraft sector**, which constitutes one of the core components of Algeria's cultural and economic identity.

In this context, there emerges a clear need to analyse the **multidimensional impact of artificial intelligence on traditional industry development policies**, since AI cannot be viewed merely as a technological tool for innovation and production. Rather, it represents a **transformative element** capable of reshaping the mechanisms of public policy design, the patterns of artisanal work, and the structure of cultural and creative value chains.

1.1 Research Problem: in recent years, Algeria has undergone profound strategic transformations in its path toward digital transition through the launch of national initiatives such as the *“Digital Algeria 2030”* strategy and the *National Artificial Intelligence Strategy*. Both aim to build an integrated digital economy and promote the use of smart technologies across various productive and service sectors. Among these sectors, traditional industries and crafts stand out as a core component of Algeria's cultural and economic identity.

However, this sector faces a dual challenge: keeping pace with digital transformation on one hand and preserving cultural authenticity on the other. This raises a crucial question about how artificial intelligence (AI) can be employed as a modernising tool without undermining cultural heritage.

1.1.1 Main Research Problem: How can AI technologies be employed to modernise development policies for traditional industries in Algeria in a way that balances the requirements of digital transformation with the preservation of cultural authenticity, enhances economic and social equity, and increases the competitiveness of craft products in local and international markets?

1.1.2 Sub-Research Questions: Based on three fundamental dimensions – heritage, socio-economic, and competitive – the main problem can be broken down into the following questions:

1. The Heritage Dimension: To what extent can AI technologies contribute to preserving the intangible heritage of Algerian traditional industries by documenting artisanal skills and knowledge and ensuring their continuity within a rapidly evolving digital production environment?

2. The Economic and Social Dimension: How can AI contribute to the economic and social empowerment of artisans through improved access to training, financing, and digital markets?
3. The Competitive Dimension: What role can AI play in enhancing innovation, digital design, and the quality of Algerian craft products to ensure their competitiveness both locally and internationally within the framework of the global creative economy?

1.2 Scientific Hypotheses

1.2.1 Main Hypothesis: the integration of AI into Algeria's traditional industry development policies contributes to a multidimensional qualitative transformation – heritage, economic, social, and competitive – by modernising production and marketing patterns while preserving cultural authenticity within a comprehensive and sustainable development vision.

1.2.2 Sub-Hypotheses:

1. The use of AI technologies contributes to preserving intangible heritage through digitisation and smart documentation mechanisms of artisanal knowledge and skills.
2. AI enhances the economic and social empowerment of artisans by improving access to training, financing, and participation in electronic markets.
3. The use of AI improves the competitiveness of craft products through innovative design development and product quality enhancement that aligns with local and international market requirements.

1.3 Study Objectives:

1. To analyse how AI can be used to modernise the development policies of traditional industries in Algeria within a multidimensional analytical framework that integrates economic, social, and cultural considerations.
2. Diagnose the current state of the traditional industry sector in Algeria in the context of digital transformation, and analyse the institutional and legal frameworks governing its development policies.
3. Identify potential areas for integrating AI into the traditional industry system across the stages of design, production, marketing, and promotion.
4. Evaluate the impact of AI on preserving artisanal heritage and sustaining cultural values within a changing digital production environment.
5. Examine the role of AI in promoting the economic and social empowerment of artisans through training, financing, and e-commerce.
6. Analyse the contribution of digital innovation and smart design to enhancing the competitiveness of Algerian craft products in both local and international markets.
7. Propose practical policy directions for integrating AI into traditional industry development, ensuring a balance between authenticity and innovation, and identity and openness.

1.4 Significance of the Study: the significance of this study emerges from its dual academic and practical contributions, reflecting both the theoretical advancement it brings to the field and its relevance to policy and practice in Algeria's ongoing digital transformation. It contributes to expanding the academic discourse on the intersection between artificial intelligence, cultural heritage preservation, and the creative economy within the Algerian and broader Arab contexts by providing an integrated analytical framework that links technological innovation to public policy evaluation through multidimensional perspectives on heritage, socio-economics, and competitiveness. The study advances the theoretical understanding of how AI can function not merely as a technological enabler, but as a strategic policy instrument capable of reshaping development models, modernising traditional sectors, and reconciling the dynamics of digital transformation with the imperatives of cultural authenticity and sustainability. At the practical level, it offers a comprehensive analytical basis for policymakers, institutional actors, and development agencies seeking to integrate AI into traditional industry development strategies, providing evidence-based insights to guide the formulation of inclusive digital policies that enhance artisans' economic and social empowerment, improve access to training, financing, and digital markets, and strengthen product competitiveness both locally and internationally. Moreover, it serves as an applied reference for artisans, cooperatives, and professional associations in navigating the challenges of digital transformation while maintaining the cultural distinctiveness of Algerian crafts, thereby contributing to the design of sustainable development policies that harmonise innovation with tradition and modernity with identity.

1.5 Methodological Approach: the study adopts a descriptive-analytical approach to analyse national documents and strategies related to digital transformation and artificial intelligence, in addition to a comparative-evaluative approach to assess the alignment of these policies with the needs of the traditional industry sector.

It also draws on international benchmark experiences to identify models for AI integration in craft industries, while analysing the relationship between Algerian policies and the key dimensions of public policy evaluation: relevance, coherence, effectiveness, efficiency, impact, and sustainability.

The analytical framework further employs a SWOT methodology to evaluate the strengths, weaknesses, opportunities, and threats associated with integrating AI into traditional industry development policies, aiming to formulate a balanced strategic vision that reconciles digital transformation requirements with the preservation of cultural identity.

1.6 Review of Previous Literature

1.6.1 Study by Sonam Damani et al. (2019): "Using AI for Economic Upliftment of Handicraft Industry"

This applied study, published in 2019 on the *arXiv* platform, explores the use of **Generative Artificial Intelligence (AI)** techniques to promote the **economic development of India's handicraft sector**, a key pillar of the national economy and a major source of employment in rural communities.

Researcher **Sonam Damani** focused on the issue of declining demand for traditional handicraft products due to changing consumer tastes and intensified global competition, which have made traditional designs appear “old-fashioned and monotonous”. In response, the study sought to integrate **AI** into artistic creativity and design processes by developing new designs for two prominent Indian crafts: **Ikat** and **Block Print**.

The study employed computer vision algorithms and deep learning techniques to generate design patterns that blend traditional symbols with contemporary aesthetic trends. Evaluation results showed that these AI-generated designs were more appealing to consumers and achieved higher sales compared to conventional artisan-made designs.

The researcher concluded that integrating **AI** technologies into handicraft design can form a strategic path for economic and social development policies by enabling artisans to compete in digital markets and achieve sustainable income without compromising the cultural identity of their crafts. (Nitya, Sonam, Ankush, Meghana, & Puneet, 2019).

1.6.2 Study by Xiang, Niu, and Wu (2022): “Research on Handicraft Design Based on Artificial Intelligence Technology in Complex Environments”

This study, published in 2022, explored the applications of artificial intelligence (AI) in handicraft design within complex and changing environments, aiming to overcome the limitations of traditional methods in artistic innovation and design.

It was based on the assumption that integrating AI with handicraft design can enhance product quality and improve both aesthetic and functional efficiency amid global competition.

The researchers adopted an experimental technical approach grounded in deep learning and pattern recognition models to generate new handicraft designs adaptable to environmental and market changes. They also developed an intelligent decision-support system to assist designers and artisans in selecting appropriate shapes, colours, and materials according to market standards and production conditions.

The results showed that the use of AI significantly improved design efficiency and precision in producing aesthetic details, while also reducing the time required to develop new craft prototypes. Moreover, the proposed system enhanced artisans’ creative capacity within complex production environments that combine technical, artistic, and economic considerations.

The study concluded that integrating AI into handicraft design represents a strategic approach to modernising cultural and creative industries while preserving traditional aesthetic values. It also called for the adoption of digital support policies to train artisans in using these technologies throughout design and production processes. (Shishi, Zhiyuan, & Yuzhou, 2022).

2. Conceptual Framework:

2.1 Definition of Artificial Intelligence

2.1.1 According to the OECD: An artificial intelligence system is “a technical system designed to use information-processing capabilities combined with abilities for learning, reasoning, decision-making, or control in order to perform specific tasks.”

This definition includes the notion that part of these capabilities may be “learnt” or “engineered”.

The system must be capable of processing data (including input, transmission, or monitoring) as a central activity. (Organisation for Economic Co-operation and Development (OECD), 2025).

2.1.2 In the academic context, **Artificial Intelligence (AI)** is defined as “a branch of computer science that aims to design systems capable of performing tasks that normally require human intelligence, such as learning, reasoning, problem-solving, perception, language understanding, and decision-making, by simulating human cognitive processes through algorithms and mathematical models.” (Russell & Norvig, 2021).

2.2 Definition of Traditional Industries: According to the definition agreed upon by UNESCO and the International Trade Centre (ITC) in their 1997 report:

“Handicraft products are those produced by artisans, either entirely by hand or with the help of hand tools, and even mechanical means, provided that the direct manual contribution of the artisan remains the most substantial component of the finished product. The special character of these handicraft products stems from their distinctive features, which may be utilitarian, aesthetic, artistic, creative, culturally significant, decorative, functional, traditional, religious, and socially symbolic or meaningful.” (UNESCO ; International Trade Centre, 1997).

2.3 Definition of development policies:

Todaro defines development policies as “government actions aimed at bringing about structural changes in the economy and society to achieve long-term and inclusive growth for all groups.” (Todaro & Smith, 2020).

2.4 Artificial Intelligence as a Policy Instrument: In contemporary literature, artificial intelligence is viewed not merely as a technological innovation but as a new policy instrument capable of reshaping the logic of governmental intervention and the stages of the policy cycle. Howlett (Howlett, 2019) explains that artificial intelligence represents an advanced generation of analytical and decision-making tools, enabling governments to process vast amounts of data and accurately analyse social and economic patterns, thereby enhancing the effectiveness and targeting of public policies. Similarly, Meijer (Meijer, 2020) emphasises that integrating AI into governmental operations leads to what can be termed “smart governance”, where AI algorithms interact with decision-making systems to generate evidence-based policy alternatives and improve operational and administrative efficiency. However, both authors point out that this transformation

raises new challenges related to transparency and ethical accountability, necessitating the development of regulatory and institutional frameworks that ensure the responsible and equitable use of AI in public policy.

3. Dimensions of the Impact of Artificial Intelligence on Traditional Industry Development Policies

3.1 The Heritage Dimension: Safeguarding Authenticity and Identity in the Age of Digitalisation and Artificial Intelligence (Directory, 2025).

3.1.1 Areas of Impact and Core Issues The heritage dimension focuses on the capacity of Artificial Intelligence (AI) technologies to support the preservation, documentation, and transmission of intangible craft knowledge such as technical skills, design patterns, and local narratives without losing authenticity during the integration of digital innovation.

This includes the automation of documentation (recording production steps through audio and video), the use of image recognition and 3D modelling technologies to store design patterns, and the extraction of knowledge rules from traditional manufacturing processes. Such applications transform tacit, non-systematised knowledge into searchable and reusable databases for artisans, researchers, and digital museums.

3.1.2 Technical and Applied Mechanisms

- **Intelligent documentation:** Video and audio recording combined with workflow tracking, using Natural Language Processing (NLP) to extract procedural knowledge that explains *how* something is done, not just describes it.
- **Image recognition and modelling:** Computer vision systems classify patterns and motifs, creating an indexed archive that can be retrieved or used as input for generative design models that respect traditional formal rules.
- **Knowledge graphs:** Linking skills, materials, tools, and ritual/ceremonial contexts to create a living knowledge resource that supports education and training.

Practical examples of this approach are mentioned in international initiatives and expert reports demonstrating how AI can contribute to safeguarding intangible heritage—provided that an ethical framework exists to protect the intellectual property of local communities.

3.1.3 Policy Implications

- Adopting digital intellectual property rights protocols and heritage data use licences.
- Funding participatory digital documentation projects led by craft associations in collaboration with research institutions (capacity building).
- Including “Digital Ethics and Cultural Ownership” modules in artisans’ training programmes.

3.2 The Economic and Social Dimension — Empowering Artisans and Achieving Digital Equity:

3.2.1 Areas of Impact and Core Issues: The economic and social dimension concerns how Artificial Intelligence (AI) can help artisans access digital value chains, improve income quality, expand training opportunities, and facilitate access to finance and logistics services. This includes smart marketing tools, automated product descriptions, dynamic pricing systems, and optimised inventory and production management for small-scale craft enterprises. (Directory, 2025).

3.2.2 Technical and Applied Mechanisms (Nitya, Sonam, Ankush, Meghana, & Puneet, 2019).

- **AI-powered e-commerce platforms:** Search and recommendation engines that target suitable buyers (matching) and use semantic product classification to enhance discoverability.
- **AI-assisted design tools:** Generative design applications or automated marketing adjustment suggestions that lower the entry barrier to digitally designed production, as demonstrated by case studies in India and China.
- **Digital Finance and Governance:** Using AI to assess the creditworthiness of small producers and to analyse sales data in order to facilitate microfinancing tailored to artisans, provided that transparent mechanisms are established to prevent algorithmic biases. (Directory, 2025).

3.2.3 Policy Implications

- **Design digital up skilling programmes** tailored for artisans, including training in digital design tools, the use of online sales platforms, and knowledge of digital intellectual property rights.
- **Support the creation of national or regional platforms** that aggregate artisans' products while providing logistics services and e-payment systems adapted to local specificities.
- **Introduce financial incentives and simplified loan programmes** supported by data analytics to strengthen craft enterprises, while ensuring privacy protection and fairness in classification and financing models. (Nitya, Sonam, Ankush, Meghana, & Puneet, 2019).

3.3 The Competitive Dimension — Innovation in Design, Product Quality, and Brand Building

3.3.1 Areas of Influence and Core Issue: The competitive dimension focuses on the role that artificial intelligence can play in generating design innovations that balance authenticity and modernity, improving standards of quality, packaging, and labelling, as well as enhancing storytelling capabilities that distinguish handcrafted products in crowded markets.

Empirical studies show that AI-generated or AI-assisted designs can achieve higher marketability when used as an integrative tool aligned with local tastes and market requirements. (Nitya, Sonam, Ankush, Meghana, & Puneet, 2019).

3.3.2 Technical and Practical Mechanisms

Generative Design Models: Image generation networks and generative models that create new designs based on heritage or aesthetic inputs, enabling collections that combine traditional elements with contemporary visual language.

Consumer Preference Testing Using Real Data: Employing digital A/B testing and analysing consumer responses (implicit feedback) to adjust designs prior to mass production, thereby reducing the risk of unsold products. (Nitya, Sonam, Ankush, Meghana, & Puneet, 2019).

Quality Enhancement and Production Alignment: AI-assisted systems for selecting materials and manufacturing dimensions to ensure that new designs remain suitable for manual or semi-automated production without losing their traditional characteristics. (Shishi, Zhiyuan, & Yuzhou, 2022).

3.3.3 Implications for Public Policy (Nitya, Sonam, Ankush, Meghana, & Puneet, 2019)

- **Support collaborative innovation labs** linking universities, design centres, and artisan associations to develop national design libraries rooted in heritage elements, while establishing guidelines for their responsible use.
- **Promote national marketing initiatives** that showcase products of a “modernised identity” through international digital platforms, under a unified cultural storytelling brand such as “*Made in Algeria*”.
- **Establish tax incentives or grants** to support entry campaigns into export markets testing digitally enhanced handcrafted products, provided that cultural ownership and intellectual property rights are respected.

4. The Impact of Artificial Intelligence across Development Policy Evaluation Dimensions in Algeria

4.1 Relevance: Artificial intelligence is relevant to policies for developing traditional industries when it addresses specific needs: documenting craft knowledge threatened with extinction, improving product access to new markets, and supporting adaptation to export market requirements. In Algeria given a national digitization strategy there is strong relevance for integrating AI tools into heritage preservation programs and in digitally empowering artisans. However, interventions must be designed with local sensitivity and acknowledge the diversity and capacities of different craft groups. (Abdelbari, Ait Hamou, & Rebati, 2025)

4.2 Coherence: Coherence across policy sectors (trade, culture, education, digital) is essential. Integrating AI requires aligning e-commerce laws and registration procedures, intellectual property protection policies, and vocational training programmes. Examples of initiatives that linked digital

support with legal protection offer a pathway that can be built upon in Algeria. (Digital Policy Alert).

4.3 Effectiveness: AI becomes effective when it yields tangible results: increased artisan sales, improved product quality, or the creation of new value chains. Preliminary evidence from digital initiatives and local platforms indicates moderate effectiveness when paired with training and logistical support. Without appropriate intermediary support (local service centres, field guidance), effectiveness may remain limited. (Charchafa & Kimouche, 2025).

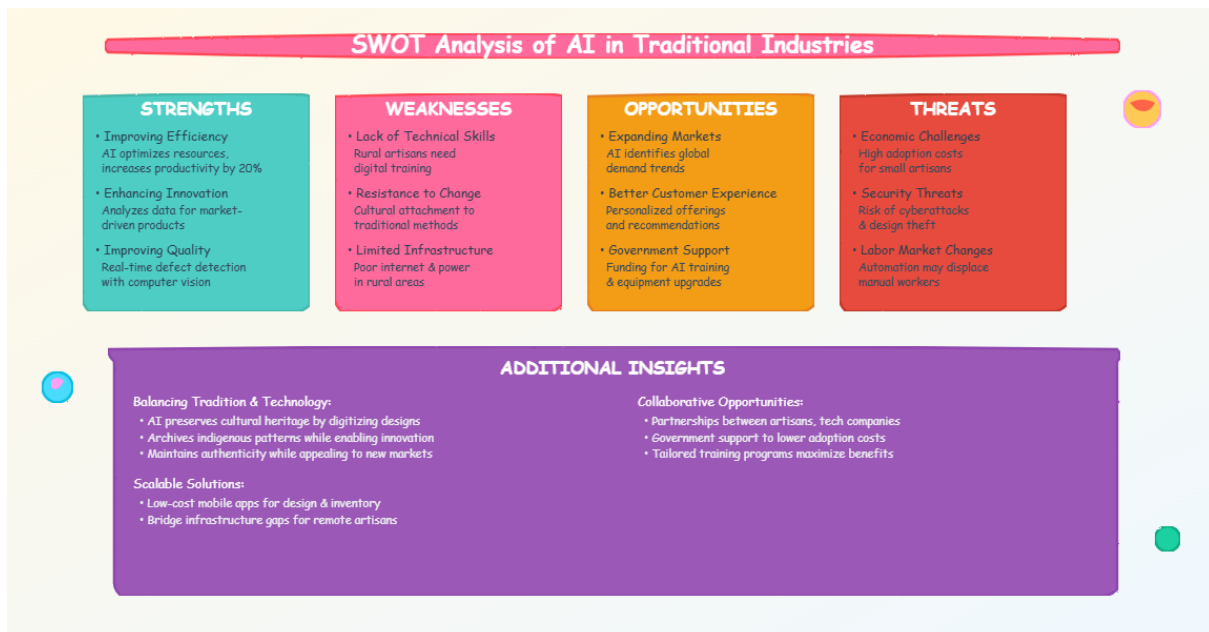
4.4 Efficiency: AI tools can reduce costs through better demand forecasting, inventory management, and production process optimisation. But efficiency is not automatic: it requires upfront investments in digital infrastructure, energy sustainability, and maintenance of hardware and software. Given resource constraints, hybrid financing strategies (concessional loans, public–private partnerships) should be put in place. (International Trade Administration, 2024).

4.5 Impact: The potential socio-economic impact includes higher incomes for craft households, heritage protection, and the empowerment of women in rural areas. However, there are risks of exacerbating the digital divide if policies do not target vulnerable groups (women, remote rural areas). Impact assessment requires measurable indicators (income, market access, new jobs, and documentation of knowledge). (Abdelbari, Ait Hamou, & Rebati, 2025).

4.6 Sustainability: Sustainability requires securing continuous funding sources, building local capacities, and a regulatory environment that protects rights. To make AI-related programmes sustainable, a phased approach is recommended: regionally managed platforms run by craft associations with government support, continuous training programmes, and frameworks for protecting intellectual and cultural property. Algeria’s recent initiatives in IP and digital empowerment provide a foundation to build on. (World Intellectual Property Organisation, 2025).

5. SWOT Analysis of the Impact of Artificial Intelligence on Traditional Industry Development Policies in Algeria

Fig.1. SWOT Analysis of the Impact of Artificial Intelligence on Traditional Industry Development Policies in Algeria



Source: Prepared by the researcher

The presented figure represents a comprehensive analytical framework for leveraging artificial intelligence in traditional industries through a SWOT methodology. This analysis provides a deep understanding of the balance between capabilities and constraints, as well as between future opportunities and potential risks.

Regarding strengths, AI emerges as a strategic tool capable of significantly enhancing the efficiency of production processes and improving output quality by reducing errors and enabling early defect detection through computer vision technologies. Additionally, it empowers organisations to make more accurate decisions based on predictive analytics.

Weaknesses, on the other hand, mainly stem from human and organisational factors, such as the lack of digital competencies, cultural resistance to change, and limited infrastructure in rural areas or within small enterprises, reflecting a digital gap that may hinder the balanced dissemination of technology.

In terms of opportunities, AI opens broad horizons for developing new products and services that meet evolving market needs. It also enhances customer experience through personalisation and rapid responsiveness, while benefiting from governmental initiatives that provide funding and national strategies to accelerate adoption. Conversely, threats cannot be overlooked, including high initial investment costs that limit access for artisanal enterprises, security risks related to data confidentiality and protection, as well as labour market shifts due to automation, which may result in the loss of certain traditional jobs unless accompanied by reskilling and training programmes.

The section on “Additional Insights” holds particular importance, as it highlights the cultural and social dimensions of digital transformation. It emphasises the need to balance the preservation of heritage and cultural identity with the adoption of modern technology. The integration of AI is not limited to improving economic efficiency; it can also contribute to digitising heritage designs and preserving local patterns, ensuring the continuity of authenticity while meeting global market demands. The analysis further underscores the importance of developing scalable and low-cost solutions, enabling artisans and small businesses to benefit from these technologies, and highlights the role of partnerships among governments, tech companies, and local stakeholders in reducing adoption costs and providing targeted training programmes.

Thus, this analysis goes beyond a purely technical reading, integrating economic, social, and cultural dimensions. It confirms that successful AI integration in traditional industries requires a holistic approach that considers sustainable development, digital equity, and the preservation of cultural identity, alongside investments in infrastructure and human capacity building.

6-Methodological Integration between SWOT Analysis and Policy Evaluation Criteria under the OECD Framework

Clarifying the methodological integration between SWOT analysis and the six evaluation criteria adopted by the Organisation for Economic Co-operation and Development (OECD) represents a fundamental step toward enhancing the analytical coherence and interpretive depth of the study. This linkage enables a more holistic understanding of public policy performance in the development of traditional industries by transforming SWOT results from a mere diagnostic tool into an analytical mechanism that contributes to policy inference.

In this context, strengths can be viewed as indicators of effectiveness and efficiency, reflecting the institutional and technical capacities that enable a policy to achieve its objectives at minimal cost. Weaknesses, on the other hand, represent shortcomings that affect relevance and coherence between objectives and instruments, or among different implementing actors. Opportunities express the potential to enhance impact and sustainability by leveraging new resources and digital trends to support the sector. Conversely, threats highlight potential risks that may weaken the external coherence of policy or undermine the long-term sustainability of its outcomes.

Through this conceptual linkage, SWOT analysis becomes a supportive framework for policy evaluation under the OECD approach, connecting strategic analysis of internal and external conditions with the quantitative and qualitative criteria used in evaluation, thereby enhancing the precision and practical relevance of policy recommendations.

7-Conclusion:

This study has explored the multidimensional impact of artificial intelligence on the development policies of traditional industries in Algeria, positioning AI not merely as a technological instrument but as a strategic driver capable of transforming the mechanisms of heritage preservation, economic empowerment, and competitiveness enhancement. Through a comprehensive analytical approach combining conceptual, policy, and evaluative dimensions, the research demonstrated that

integrating AI into traditional industry policies can generate a qualitative leap in both productivity and cultural continuity, provided that ethical, institutional, and social safeguards are in place.

At the heritage level, the findings indicate that AI contributes to the preservation and transmission of intangible knowledge through smart documentation, digital archiving, and knowledge modelling, thus ensuring the sustainability of artisanal memory in the digital era.

At the economic and social level, the study revealed that AI-supported platforms and digital finance tools can significantly enhance artisans' access to markets, training, and funding opportunities, reducing informational asymmetries and improving income generation potential. However, the success of these tools depends on the existence of inclusive digital ecosystems and capacity-building mechanisms targeting vulnerable groups and remote regions.

At the competitive level, AI has proven to be a catalyst for creative innovation, enabling the design of new hybrid models that combine authenticity and modernity and improving quality standards aligned with international markets. Yet, the adoption of these technologies must remain sensitive to the cultural and symbolic values embedded in artisanal production, ensuring that modernisation does not result in cultural dilution.

Across the policy evaluation dimensions, the study highlighted that AI integration exhibits strong relevance and potential effectiveness within Algeria's current digital strategies, but that coherence and efficiency remain contingent upon intersectoral coordination, regulatory adaptation, and sustainable financing mechanisms. The ultimate impact and sustainability of AI-driven programmes depend on institutional continuity, digital inclusion, and long-term investment in human capital.

In sum, the study concludes that artificial intelligence represents both an opportunity and a responsibility for Algeria's traditional industry sector: an opportunity to modernise and globalise craft production and a responsibility to preserve the intangible cultural heritage that constitutes its essence. Achieving this balance requires a comprehensive policy vision that harmonises innovation with authenticity, digital transformation with identity preservation, and economic efficiency with social equity.

Recommendations:

At the Institutional and Policy Level

1. Establish a National Observatory for Digital Heritage and AI in Crafts to coordinate documentation, training, and innovation initiatives, ensuring coherence between cultural, economic, and digital policies.
2. Integrate AI and digital literacy modules into national craft training programmes, targeting especially women and rural artisans to reduce the digital divide.
3. Develop a national digital platform for Algerian crafts that combines e-commerce functions, cultural storytelling, and digital IP protection, operated under a unified "Made in Algeria" brand.
4. Implement regulatory frameworks for the ethical use of AI in heritage documentation, including data ownership, community consent, and intellectual property rights.

5. Promote public–private partnerships (PPPs) to finance AI-related infrastructure and training projects in traditional industries, leveraging corporate social responsibility (CSR) programmes and international cooperation funds.

At the Economic and Social Level

6. Create micro-financing schemes supported by AI-based credit assessment tools tailored to small craft enterprises, ensuring fairness, transparency, and data protection.
7. Support local innovation hubs and design laboratories connecting artisans with universities, designers, and AI developers to co-create marketable, culturally rooted products.
8. Encourage digital cooperatives that allow artisans to pool resources for marketing, logistics, and AI tool acquisition, thus lowering adoption costs.
9. Develop inclusive performance indicators to measure the socio-economic impact of AI interventions — such as artisan income growth, number of digitised designs, and participation in digital markets.

At the Cultural and Heritage Level

10. Adopt digital ethics charters for heritage digitisation projects to prevent cultural appropriation and ensure equitable benefit sharing.
11. Digitise endangered artisanal knowledge using AI-assisted documentation (audio-visual, 3D modelling, and natural language processing), in collaboration with museums and cultural institutions.
12. Encourage cultural diplomacy initiatives to promote Algerian crafts globally through digital exhibitions and AI-enhanced storytelling platforms.

Bibliography

1. Russell, S., & Norvig, P. (2021). *Artificial intelligence: A modern approach*. Pearson. Retrieved from <https://www.amazon.com/Artificial-Intelligence-A-Modern-Approach/dp/0134610997>
2. Abdelbari, W., Ait Hamou, S., & Rebati, S. (2025, March 27). *Comment l'Accelerator Lab en Algérie aide les femmes artisanes à développer leurs commerces en ligne*. Récupéré sur Programme des Nations Unies pour le développement (UNDP): <https://www.undp.org/fr/algeria/blog/comment-laccelerator-lab-en-algerie-aide-les-femmes-artisanes-developper-leurs-commerces-en-ligne>
3. Charchafa, I., & Kimouche, B. (2025, July). Adoption of Social Media for Products Marketing in Algerian Traditional and Handicraft Firms: Evidence from Setif Province. *Naše gospodarstvo/Our economy*. doi:<https://doi.org/10.2478/ngoe-2025-0012>
4. Digital Policy Alert. (n.d.). *Algeria: Law No. 18-05 on electronic commerce including business registration requirement entered into force*. Retrieved from Digital Policy Alert: <https://digitalpolicyalert.org/event/28701-law-no-18-05-on-electronic-commerce-including-business-registration-requirement-entered-into-force>
5. Directory, S. (2025, March 14). *AI and Automation in Artisan Crafts: Ethical Considerations and Opportunities*. Retrieved from Prism Sustainability Directory: <https://prism.sustainability->

- directory.com/scenario/ai-and-automation-in-artisan-crafts-ethical-considerations-and-opportunities/
6. Howlett, M. (2019). *Designing public policies: Principles and instruments*. Routledge. doi:<https://doi.org/10.4324/9781315232003>
 7. International Trade Administration. (2024, September 19). *Algeria — Digital economy*. Retrieved from U.S. Department of Commerce: URL: <https://www.trade.gov/country-commercial-guides/algeria-digital-economy>
 8. Meijer, N. (2020). *Magnetostratigraphic, grain-size, cyclostratigraphic and palynological data from the Eocene Xining Basin, China [dataset bundled publication]*. PANGAEA. doi:<https://doi.org/10.1594/PANGAEA.923996>
 9. Nitya, R., Sonam, D., Ankush, C., Meghana, J., & Puneet, A. (2019). Using AI for Economic Upliftment of Handicraft Industry. *Platform: arXiv*. doi:arXiv:1907.02014
 10. Organisation for Economic Co-operation and Development (OECD). (2025). *Explanatory memorandum on the updated OECD definition of an AI system*. OCED. Retrieved July 9, 2025, from https://www.oecd.org/en/publications/explanatory-memorandum-on-the-updated-oecd-definition-of-an-ai-system_623da898-en.html?
 11. Shishi, X., Zhiyuan, N., & Yuzhou, W. (2022). Research on Handicraft Design Based on Artificial Intelligence Technology in Complex Environments. *Wireless Communications and Mobile Computing*, pp. 1-9. doi:<https://doi.org/10.1155/2022/1538488>
 12. Todaro, M., & Smith, S. (2020). *Economic Development* (13 ed.). Pearson Education. Retrieved from <https://isbnsearch.org/isbn/9781292291208>
 13. UNESCO ; International Trade Centre. (1997). International symposium on crafts and the international market: Trade and customs codification: Draft report. *International symposium on crafts and the international market: Trade and customs codification: Draft report*. UNESCO/ITC. Retrieved from <https://unesdoc.unesco.org/ark:/48223/pf0000111882>
 14. World Intellectual Property Organization. (2025, February 24). *Algeria expands IP initiatives with Moubadar'Art and Nadjahi*. Retrieved from World Intellectual Property Organization (WIPO): <https://www.wipo.int/en/web/business/w/news/2025/algeria-expands-ip-initiatives-with-moubadar-art-and-nadjahi>