

Analyzing the Success Factors of University Business Incubators in China: Lessons for Algeria

تحليل عوامل نجاح حاضنات الأعمال الجامعية في الصين: دروس للجزائر

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Abstract:

In the article, the authors explore how Chinese University Business Incubators (UBIs) operate within innovation ecosystems and what lessons they might offer Algeria's emerging UBI system based on institutional design, funding mechanisms, and the integration of university-industry-government via Triple Helix. The article attempts to determine the main factors driving the success of Chinese UBIs, for example: positive regulatory environment; diversified financing sources; close university-industry linkages; and assess how these could be applied within Algeria's socio-economic and cultural context.

The authors conclude that the Chinese UBIs were developed through coherent policies, the use of venture capital resources, and being integrally connected to industrial value chains and therefore could provide guidance on developing sector-specific UBIs for Algeria, establish PPP governance structures, pursue enhanced science diplomacy with China, and implement reforms to mitigate bureaucratic, financial and technological barriers.

Keywords:University business incubators; Innovation ecosystems; Triple Helix model; China–Algeria cooperation; echnology transfer and commercialization.

JELClassificationCodes: L2, O3, R11.

ملخص:

يستكشف المؤلفون في هذه المقالة كيفية عمل حاضنات الأعمال الجامعية الصينية ضمن بيئات الابتكار، والدروس التي يمكن أن تقدمها لنظام حاضنات الأعمال الجامعية الناشئ في الجزائر، وذلك

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استنادًا إلى التصميم المؤسسي، وآليات التمويل، وتكامل الجامعات والصناعة والحكومة عبر نموذج الحزبون الثلاثي. وتسعى المقالة إلى تحديد العوامل الرئيسية التي تدفع نجاح حاضنات الأعمال الجامعية الصينية، مثل: البيئة التنظيمية الإيجابية، ومصادر التمويل المتنوعة، والروابط الوثيقة بين الجامعات والصناعة، وتقييم كيفية تطبيق هذه العوامل في السياق الاجتماعي والاقتصادي والثقافي للجزائر.

ويخلص المؤلفون إلى أن حاضنات الأعمال الجامعية الصينية قد تطورت من خلال سياسات متماسكة، واستخدام موارد رأس المال الاستثماري، وارتباطها الوثيق بسلاسل القيمة الصناعية، وبالتالي يمكنها أن تقدم إرشادات لتطوير حاضنات أعمال جامعية متخصصة في قطاعات محددة في الجزائر، وإنشاء هياكل حوكمة للشراكة بين القطاعين العام والخاص، وتعزيز الدبلوماسية العلمية مع الصين، وتنفيذ إصلاحات للتخفيف من العوائق البيروقراطية والمالية والتكنولوجية.

كلمات مفتاحية: حاضنات الأعمال الجامعية، النظم البيئية للابتكار، نموذج الحزبون الثلاثي، التعاون الصيني الجزائري، نقل التكنولوجيا وتسويقها.

تصنيفات JEL: L2، O3، R11

1. INTRODUCTION

Universities are shifting to an economy driven by knowledge production, where a knowledge-based economy relies on universities not just as centres for basic research but as key players in driving innovation. University Business Incubators (UBIs) facilitate converting research from universities into economic value. Unfortunately, in Algeria, there is still a mismatch between the amount of research produced in universities and the level of commercialization in the private sector. While Algerian education has received much investment, an inability to convert knowledge produced by universities into scalable companies leads to less diversification in the economy and a more over-reliance on hydrocarbons.

Comparatively, China is an example of how to overcome these challenges. In a relatively short period, China developed an extensive network of incubators affiliated with universities and science parks that accelerated regional growth and increased technology-based industry. The objective of this research paper is to analyse the Chinese model and determine what strategic lessons can be learned for Algerian universities, particularly as they navigate through significant systemic reform to support startups.

This research has two primary objectives: first, to identify and categorize the success factors of Chinese UBIs, including institutional

design, regulatory framework, a variety of funding options available and the ‘Triple Helix’ model of collaboration between universities, businesses and government; and second, to assess how these factors can be applied in Algeria in a way that considers the specific socioeconomic and cultural context of Algeria in developing a new system of university-based innovation.

The methodology adopted in this research paper follows a descriptive-analytical and comparative approach that creates a theoretical framework in which to place UBIs in the context of broader innovation ecosystems. The study reviews and contrasts the experience of China and Algeria in establishing a UBI system, including how the Chinese have evolved and financed their UBI system and how the findings can be compared with the current developing entrepreneurial environment in Algeria, particularly focusing on the emerging regulatory environment in Algeria, as well as existing barriers to institutionalisation in Algeria. The resulting analysis provides a series of strategic recommendations for policymakers and leaders in academia in Algeria to support the development of a dynamic, successful and sustainable university-based innovation system.

2. Theoretical and Conceptual Framework

2.1 Defining University Business Incubators: Origins, Evolution and Core Functions

University-based business incubators (UBIs) can be seen as an expansion of the incubation movement and derive their uniqueness from the incorporation of an entrepreneurial mission along with traditional pedagogical and research functions into higher education institutions (Hassan, 2020, pp. 175-177). From an academic perspective, UBIs are classified as organizations that facilitate the early-stage growth of a firm by assembling a structured set of bundled resources that include infrastructure, shared services and specialized business assistance, housed within or through the university infrastructure or resources of a university (Rudawska, 2020, pp. 158-160).

The inception of the UBI was driven by a strategic issue of how to commercialize academic inventions, retain local talent and support the strength of a regional economy. As universities developed an entrepreneurial university model, institutions moved from a passive position of licensing their intellectual property to managing the development of incubators and science parks (Piqué et al., 2020, pp. 3-5). Today, UBIs serve as an important link between the internal university capabilities and resources to the larger innovation ecosystem.

The primary functions of a contemporary UBI are as follows:

- Lowering Barriers to Entry - Providing shared resources to provide a more efficient, reduced capital expense and administrative burden on new companies.
- Capacity Development - Providing specific mentorship related to IP management and investment readiness, leveraging university scientific capabilities.
- Supporting Networks - Increasing the amount of social and financial support by connecting startups to an extensive network of investors, large corporations and alumni.

Additionally, there are new developments in academia that suggest the transition to a more socially and environmentally responsible business incubator. For example, the concept of a "sustainable UBI" provides an opportunity for UBIs to build on the previous criteria of developing an incubation process to include social and environmental impact (Karahan, 2024, pp. 5-8).

2.2 UBIs within Innovation Ecosystems and the “Valley of Death”

Innovation ecosystems consist of various actors working together to develop and commercialize new technologies; incubators and accelerators within these systems are termed "innovation habitats." A major challenge faced by actors in an innovation ecosystem is referred to as the "Valley of Death", which represents the high degree of risk and uncertainty involved in developing from proof-of-concept (POC) to market-ready products. At this stage, there are significant gaps in both funding and regulatory clarity (Calza et al., 2020, p.5) between POC to market, making it very difficult for innovators to navigate.

UBIs are important actors in addressing the Valley of Death, providing such actors with a platform for pre-incubation activity to assess the commercial viability of their concept, develop prototypes, and engage with their academic counterpart(s) regarding validation of market fit (Rudawska, 2020, pp167-170). As a result of this, UBIs decrease the level of technical risk related to the development of commercialized technologies via the provision of access to specialized laboratories and access to technical advisers through incubation and other educational experiences, which greatly shortens the time required to receive feedback from the marketplace regarding a potential product (Nicholls Nixon et al, 2020, pp108-110). Ultimately, the success or failure of the UBI's ability to adequately fill this gap will be dictated by the institution maintaining a level of institutional

legitimacy within the ecosystem and by meeting the demands of a larger ecosystem beyond its own ecosystem.

2.3 Innovation Theories: Triple Helix and Entrepreneurial University

The theories of innovation that are used in this study are based on Triple Helix and Entrepreneurial Universities (Cai 2022, pp 3-5), both of which are based on a perspective of innovation produced through the dynamic interaction among the three primary entities involved: university, Industry and Government. This interaction reflects the Hybrid Roles of all three entities, as well as overlapping Institutional Structures, as the key determinant of innovation development.

Research in China to date supports the finding that there is significantly higher Regional Innovation Efficiency when the three primary entities work collaboratively (Zhuang et al. 2020, pp 8-10). As such, in China, UBIs serve as an embodiment of the Triple Helix interaction among the three primary entities, and lead to the ability of Universities to become "Entrepreneurial," mostly through the creation of Spin-off Companies and Patents (Pique et al. 2020, pp 2-4). The UBI Ecosystem creates multiple employment pathways for Graduates of Universities, including offshoots of Academic Entrepreneurship, High-Growth Company Employment, etc. (Guerrero et al. 2020, pp 10-12).

Collaboration between Universities and Industry (the two primary drivers of innovation) often faces obstacles due to Bureaucratic and Cultural Barriers. UBIs provide a more structured interface that reduces transaction costs and facilitates the building of Social Capital (i.e., the establishment of social networks) between the two Entities (Rossoni et al. 2023, pp 9-18). Therefore, the UBI Framework positions UBIs as Strategic Partnerships that facilitate the transformation of Academic Research into Viable Enterprises through Risk Mitigation and Network Orchestration. This frame of reference will allow for a comparison and identification of the Transferable Best Practices between the Chinese and the Emerging Algerian Context.

3. Case Study: The Chinese UBI Experience

3.1 Historical Evolution: From the Torch Program to High-Tech Zones and Science Parks

The evolution of technology-based incubators affiliated with universities in China illustrates the broader change from a centrally directed economy to an innovation-driven, government led model. The Wuhan Donghu New Technology Entrepreneurship Centre was established in 1987 and represented a watershed moment in the development of TBIs in China

as it was specifically created to connect the gap between knowledge created in academia and application in industry (Yuan et al., 2022, p. 3). This establishment coincided with the Chinese government's launch of the 'Torch Programme' which was a key initiative aimed at transitioning technology from the laboratory to the marketplace through a network of hi-tech firms and incubator facilities.

While initial growth of TBIs in China was fairly stable, the Chinese government's launch of its 'Mass Entrepreneurship and Innovation Initiative' in 2014 greatly accelerated the development of TBIs as they established themselves as vital components of China's national strategy to stimulate economic development. From 2014 to 2017, the number of TBIs in the country increased from 1,748 to 4,069, reflecting rapid growth during this period (Yuan et al., 2022, p. 4). As shown by Wang et al. (2020, p. 7), the increase in the number of TBIs directly correlated with an increase in regional innovation performance, with the incubation capacity of TBIs having a greater impact on regional economic growth than either basic physical or financial resources.

High-tech zones and university science parks became the primary spatial locations for the implementation of these policy initiatives. While initially focused on providing favourable infrastructure for associated businesses, over time, these zones became expanded to include R&D capabilities and university partnerships allowing for the development of full-fledged technology parks (Zhao, 2020). Even in less developed western provinces, such as Nanning High-Tech Zone, a three-tiered approach to developing a high-tech zone was employed consisting of enterprise aggregation, industrial cluster development, and the integration of a regional innovation system (Huang et al., 2020). The Chinese approach is different than more fragmented international approaches in that the Chinese government has made a long-term commitment to the development of TBIs through sustained investment in regional infrastructure.

3.2 Institutional and Regulatory Success Factors: IP and Technology-Transfer Incentives

The rapid growth of China's universal basic income policies relies upon an integrated policy framework through science, technology and innovation (STI). At the provincial level, the policy mix is successfully integrated using financial guidance, talent programs and IP incentives to form a synergistic relationship among government, industry, university/research providers (Jia et al., 2020).

An important component of this framework is a strong focus on the

enhancement of China's national IP system. Legislative updates to the Patent Law and the Law on Promoting the Transformation of Scientific and Technological Achievements, along with establishing specialised IP courts, are aimed at reducing risk regarding technology transfer (Huang et al., 2023). These updates provide greater clarity around ownership and revenue sharing agreements which will lead to an increase in the number of academic spin-outs and associated licensing opportunities. Recent statistics indicate that although patents from industry are still the largest source of invention patents, there has been an increase in collaborative innovation between universities and industries and indicates that the Triple Helix model is beginning to mature (Tao et al., 2021).

3.3 Financing Mechanisms and Investment Support: Venture Capital, Public Funds and Tax Incentives

China's approach to supporting incubators and science parks utilizes a comprehensive, multilayered strategy to finance these organizations through many different vehicles including R&D grants from the federal budget, tax credits, and government equity investment in venture capital funds (Goncharenko&Gamarli, 2020). A national study of incubators confirms that "capital"—access to funding and an active network of investors—is one of the principal factors in the success of an incubator (Yuan et al., 2022, pp. 7-9).

In contrast, research shows that while public investments are critical, venture capital is the largest influence on incubation innovation by supporting the development of R&D budgets (Guan & Jin, 2023, p. 5). Similarly, the design of public funding programs plays an important role; generalized subsidies generally lead to inefficiencies, but performance-based "incentives" provide much greater support for business mentoring and an intermediary role for financial institutions (Qi & Ning, 2023, pp. 8-9). The resulting hybrid ecosystem in which public funding is used to remove risk from early-stage research while private funding drives growth offers a model for the developing startup ecosystem in Algeria.

3.4 University–Industry Integration: Aligning Research with Markets and Manufacturing Chains

The coordination of university-directed research and the industrial value chains that are associated with them is a major characteristic of Chinese systems (Huang et al., 2020). This intermediation occurs in high-tech parks through incubators, which synchronise university laboratories with corporate R&D and regional development needs (Huang et al., 2020). The interconnectedness between industry and universities (IUC) manifests

itself through co-assigned patents and co-authored publications and is associated with greater success for the companies involved in IUC and especially those with substantial absorptive capacity (Hsu et al., 2021, pp. 4-6).

At the urban regional level, the relationship between collaborative innovations and GDP appears to follow an inverted U curve; therefore, at some point, the quantity of collaborations will become less important and the quality and relevance of collaborations will become more important (Xiao et al., 2023, p. 6). Consequently, Chinese policy places great importance on supply-and-demand integration; this means that university-directed research must align with the needs of the industry (Jia et al., 2020). To achieve this goal, China has invested heavily in entrepreneurship education, which promotes self-efficacy and technical skill development that foster local manufacturing supply chains (Lu et al., 2021, pp. 10-12).

In the case of Algeria, these findings indicate that there is a need to anchor UBIs within specific regional industrial strategies, such as renewable energy and fintech, so that the economic use of academic results can be maximised.

4. The Entrepreneurial Environment and UBIs in Algeria

4.1 The New Regulatory Framework: Ministerial Decree 1275 and its Impact on University Culture

Algeria has redefined higher education (HE) as a mechanism to diversify and diversify its economy by shifting from an economy reliant on hydrocarbons to an economy based on knowledge (Souiki, 2023, pp. 221-222). The Ministerial Decree 1275 (September 2022), which created a "start-up diploma," is a key part of this transition. By creating a venture capital fund with financing and technical assistance for projects developed by students at universities, the decree provides a means for universities to develop entrepreneurs while allowing students to create an enterprise as a graduation project (NaitBahloul&Abderrahmane, 2024, pp. 5-6).

The establishment of the "startup diploma" is part of a broader institutional framework, which includes the Ministry of Knowledge Economy, Start-Ups and Micro-Enterprises; the National Start-Up Fund; and digital certification systems (Souiki, 2023, pp. 225-227). As a result of this new framework, universities in Algeria have also been encouraged to set up innovation and entrepreneurship incubation centres, with the cooperation of the National Institute for Industrial Property (INAPI), to maximise the potential of the students' intellectual property (IP) (Souiki, 2023, p. 230).

The creation of university business incubators (UBIs) to support innovative entrepreneurs was rapid; 52 new UBIs were launched in Algeria in one year (Saoud et al., 2024, p. 75). Research conducted at the universities of Bouira and Annaba demonstrates that, while there are structural supports in place for innovation, universities, and their students, are still missing an opportunity to develop their market analysis abilities and the ability to create robust legal structures to support their startups (Saoud et al., 2024, pp. 80-82). Therefore, while Ministerial Decree 1275 provides the foundation for a legal structure, the mentorship and coaching provided to students, as well as the transaction and commercialisation strategies taught in universities, are critical.

4.2 SWOT Analysis of the Algerian Incubator Ecosystem

Strengths

- **Political Will:** The establishment of a startup as a key area of economic development by the Algerian government through the simplification of the legal framework for startup creation and the availability of specific funding is significant (Souiki, 2023, pp. 222-224).
- **Demographic Opportunity:** A significant pool of potential entrepreneurs is available from Algeria's young population and the mass of students who are graduates of higher education institutions without paying university tuition (Meslem et al., 2024, pp. 7-9).
- **Legal Protection of Intellectual Property:** Agreements that have been signed between universities and INAPI have resulted in an increase in the number of patents filed by universities, resulting in an increase in the opportunity to use such patents for commercial purposes (Belgoum&Benessalah, 2023, p. 9).

Weaknesses

- **Bureaucratic Slowdown:** Prolonged formalities and divided responsibilities in administrative sectors between multiple government ministries and agencies inhibit the ability of full-time working students to execute their projects (Khoualed et al., 2024, pp. 13-14).
- **Financing Shortage:** Most new startup founders rely on private savings to raise capital for their startups because the banks are unwilling to provide them with traditional loan funds, and support mechanisms available to startups are minimally effective in mobilizing external investment capital (Benlefki et

al., 2024, pp. 4-9).

- **Disconnection Between University Research and Market Demand:** The disconnect exists between university research and the marketplace, where few businesses have partnered with universities to co-develop projects (NaitBahloul&Abderrahmane, 2024, pp. 6-8).
- **Maturity Gap:** Algeria has a long way to go before achieving similar levels of incubator densities or mentorial experience compared to its peers in Africa, as physical presence alone does not indicate success. Rather, successful startups tend to be concentrated within very few urban centers (Ouamer, 2024, pp. 10-12).

4.3 Economic and Technical Challenges: Digital Transformation and the Rentier Transition

The Context Concerning the Algerian UBI Environment is Impacted by a Historical Rentier System of Algeria. While Start-Ups in Algeria are Seen as Potential Growth Catalysts, and Start-Up Companies Would Ideally Contribute to Overall Economic Growth, There Are Macro-Level Challenges Such as Regulation, Stability, and Market Uncertainty that Have a Negative Impact on Start-Up Companies (Peng&Walid, 2022, pp. 9-11).

Another Critical Technical Enabler for Digital Transformation Is the Investment in Upgrading the Telecommunications Infrastructure, Improving E-Payment Systems, and Providing Digital Skill Development Opportunities Which Will Create The Competitiveness Needed by Start-Ups to Compete Effectively (Tiour et al., 2024, pp. 8-10). Today, Many Projects that are Being Incubated Face Significant Technology Backwardness And Have Limited Ability to Integrate into a Global Digital Market (NaitBahloul&Abderrahmane, 2024, pp. 7-8). Nevertheless, Technological Innovation Continues to Be A Major Factor Of Survival and Revenue Growth for Start-Ups in Algeria And, Thus, There Must Be An Explicit Focus on Providing Ict-Based Support to Start-Ups by UBI Cos (Asma et al., 2024, pp. 14-16).

The Transition From A Rentier Economy Toward A Production-Based Economy Requires Deep Cultural/ Sociological Change. Public Employment Remains The Perceived Primary Safety Net, And The Potential For Entrepreneurship To Help Solve Environmental/ Social Issues Is Not Yet Fully Ingrained Into The Student Population (Souiki, 2023, pp. 226-227). Therefore, UBI Cos Need To Take On The Role Of Cultural

Change Agents, To Normalize The Concept Of Entrepreneuring And Aligning The Academic Output With The Sustainable Development Goals.

In Summary, The Future Success Of UBI Cos In Algeria Is Wholly Dependent On Their Ability To Manage And Mitigate The Structural Weaknesses... Of There Being Supportive Politically Yet Hindered By Bottlenecks And Bureaucratic Barriers... And To Hopefully Adapt And Introduce Some Of The Best Global Practices Evident In The Chinese Model.

5. Lessons Learned and Implementation Strategies for Algeria

5.1 Adapting Rather than Copying: Sector-Specific Strategies

The experience gained through UBI in China illustrates that context-specific models of UBI development/implementation will lead to greater success than merely replicating models from one geography into another. Scholars in the field of entrepreneurial universities advocate for emerging economies to use knowledge-transfer material that is tailored to their own unique environments rather than using a generic “best-practice” approach (Fischer et al., 2020). For Algeria, this means developing sector-specific incubation strategies based on their own comparative advantages and avoiding generic incubation strategies.

For example, in the case of the renewable energy sector, China's leadership indicates that emphasis needs to be placed on the development of an internal innovation ecosystem through the development of domestic technological capabilities and the use of those capabilities as a basis for further growth, rather than simply depending upon imported technologies (Pandey et al., 2021). For this reason, Algerian UBIs should focus on developing responses to the challenges posed within the Saharan context through the utilization of frugal and decentralized solutions, thereby integrating elements of community financing and community-based development of local technical capacity.

In a similar vein, agricultural innovation in Saharan countries has shown to be more effective and produce sustainable agronomic results when produced in cooperation with local users (Pandey et al., 2021). To that end, UBIs could develop a unique platform for producing “frugal agri-innovation,” through collaboration and connection between agricultural research and low-cost digital water management tools.

In addition, fintech can be used to bypass existing bottlenecks in the banking sector. By fostering the growth of startups in mobile payment systems and crowdfunding, UBIs will help reduce the information asymmetries and difficulties encountered by youth-led organizations in

accessing credit (Hasan et al., 2024). As a result, Algeria must create an integrated system that links industrial priorities to sector-specific UBIs located within regional clusters.

5.2 A Public-Private Partnership-Based Integrative Model

Worldwide, researchers have emphasized that Public-Private Partnerships (PPP) form the basis of successful innovation systems, and that Public-Private Partnership (PPP)-based University Business Incubators (UBI) leverage the credibility of universities alongside the agility and market knowledge of the private sector (Huang & Chen, 2024; pp. 64-66).

For Algeria, any integrative model for UBI must be based on three core components:

- Co-governance, utilising a collaborative framework between Universities, municipalities and small- to medium-sized enterprises (SME), with formal agreements of expectations established by way of transparent performance contracts.
- Financing, with a combination of publicly-sourced, seed funding and a blend of private venture capital and digital technology-financed "blended finance" to extend access to UBI services in areas that have traditionally been underserved.
- Service Delivery, through a combination of technical assistance, intellectual property consulting and digital enablement to promote the development of resource efficient and environmentally sustainable business models.

In summary, this model does not view PPP only as a financial investment method, but rather as a long term strategic partnership between the three sectors; government, business and academia, with joint-aligned missions.

5.3 Enhancing Scientific Diplomacy and South-South Cooperation

As a conclusion, utilizing science diplomacy to facilitate technology transfer can enhance building capabilities when adopted within the framework of 'equal Innovation Cooperation' between China and Algeria (Pandey et al., 2021, pp. 12–14).

China will continue to be an important partner for Algeria, and establishing this partnership through joint research and higher education networks will contribute to the training of personnel in high technology sectors such as Computer Technology and Mechanical Engineering.

There are three primary approaches to implementing the above objectives:

- Incubator Twinning: Creating a formal partnership between Algeria and established Chinese science parks, including the co-development of training programs and exchanges of personnel.
- Triangular Cooperation: Placing Algeria at the center of multi-lateral projects involving China, Europe and Africa to address Climate Adaptation.
- Diplomatic Integration: Using UBIs to achieve the objectives of Science Diplomacy by utilizing the Algerian Diaspora as well as tracking available opportunities for International Investment.

By synthesizing lessons learned from China regarding the Development of UBIs with PPP Governance and pro-active development of Science Diplomacy, Algeria has the potential to establish a locally-based UBI System that is globally-oriented.

6. Conclusion and Recommendations

Findings from this research suggest that UBIs represent not only marginally supportive structures for universities but also have the capacity to serve as strategic vehicles for national development. The experience of China demonstrates that incubators evolve from being viewed simply as space for hosting, to being viewed as key drivers of employment generation, industrial competitiveness, and improved technological capabilities when universities, industry, and government collaborate and agree upon a cohesive innovation strategy. Likewise, in Algeria where the gap between academic research and applied production in the economic sphere is still an on-going issue, UBIs may prove to be the leaders in converting academic knowledge into tangible forms of economic activity.

The findings of this analysis highlighted several elements of successful UBIs in China that are transferable to Algeria: an ongoing regulatory framework that provides incentives to support innovation and technology commercialisation; a diversified financial support model that utilises public sector, venture capital, and tax incentives; and extensive integration of universities into industry and value chain organisations. However, the specific context of the Algerian economy may result in practical limitations due to the presence of excessive bureaucratic policies, poor technology access, and a lingering rentier economy. Therefore, UBIs in Algeria will require careful adaptation to the local conditions rather than a mimetic approach to how UBI's work in China.

Several policies may emerge from the findings of this analysis. A

primary policy direction for the Ministry of Higher Education may be to reposition universities as entrepreneurial entities. This requires a significant shift in the way faculty and students are incentivised to place a high value on patents, spin-off companies, and partnerships with industry as opposed to having their primary means of recognition be through publications.

UBIs should be provided with management independence and the ability to select their own leaders based on experience and ability to manage corporations and entrepreneurs. For the Ministry of Knowledge Economy and Startups, the goal is to create an enabling ecosystem for UBIs to thrive within. An enabling ecosystem may include: streamlining the process for creating and funding startups, and developing seed-stage funds designed specifically to finance university startup projects, and creating tax incentive programs designed to reward companies who develop technology in collaboration with university teams.

Governance structures should be created to facilitate coordination between ministries, universities, financial institutions, and businesses. The establishment of joint governance structures would ensure the strategic coherence of UBIs and their related projects.

Future research may expand upon this study by exploring three more avenues. One way to expand upon this research is by developing a comparative study of specific incubators from China and Algeria. This study may provide additional insights into the specific management practices that lead to incubator success. The second area of future research is to assess the performance of sector-specific models of UBIs in priority sectors, such as renewable energy, Saharan agriculture, and digital finance. The third avenue of future research will be to evaluate the long-term socio-economic impacts of incubated startups on regional development and youth employability.

In conclusion, Algeria is on the brink of a major transformation; through strategic application of lessons learned from China, UBIs could become the foremost instruments by which to transform Algeria from a resource-based to a knowledge-based economy.

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