

From Academic Research to Startup Creation: Structural Challenges, Policy Mechanisms, and Strategic Prospects of Algeria's Entrepreneurial University Transition under Ministerial Decree 1275

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Abstract:

This comprehensive study investigates the structural transformation of Algerian Higher Education Institutions (HEIs) toward the 'Entrepreneurial University' paradigm, catalyzed by the legislative enactment and national deployment of Ministerial Decree No. 1275 ("A Graduation Diploma / A Startup"). Grounded in Institutional Theory and the Triple Helix Model of innovation, this paper evaluates the operational mechanics, organizational adaptations, and policy mechanisms of campus-based University Business Incubators (UBIs) and Technology Transfer Offices (TTOs). Employing an embedded, multi-site qualitative case study methodology across representative Algerian universities (including the University of Bejaia and the University of M'sila), the research identifies critical systemic bottlenecks: pervasive bureaucratic rigidities, severe shortages of early-stage seed capital and venture funding, and structural misalignments within academic career advancement criteria. The study provides an actionable strategic roadmap designed to bridge the "Valley of Death" for academic ventures, aligning university-driven innovation with national economic diversification imperatives in oil-dependent transitioning economies.

Keywords: Entrepreneurial University, Ministerial Decree 1275, Campus Incubators, Triple Helix Model, Academic Commercialization.

JEL Classification: I23, O31, O32, O38, L26, M13.

1. INTRODUCTION AND THEORETICAL FRAMEWORK

Over the past three decades, global higher education policy has undergone a profound paradigm shift. Higher Education Institutions (HEIs) are no longer evaluated solely on their traditional "First and Second Missions"—namely, pedagogical instruction and basic scientific research. Instead, modern educational policy mandates a robust "Third Mission": driving regional socio-economic growth, technological commercialization, and job creation through spin-off ventures and patent licensing. In oil-exporting and resource-dependent developing nations, this

Third Mission has evolved from an academic ideal into an urgent macro-economic necessity. In Algeria, where the national economy has historically depended on hydrocarbon revenues for state budgeting and foreign currency reserves, structural economic diversification has emerged as a top policy mandate. The government has identified higher education as a vital catalyst for this transition, aiming to convert universities from public expenditure hubs into self-sustaining engines of innovation and venture creation. Historically, Algerian HEIs functioned under a highly centralized, administrative framework focused primarily on mass diploma issuance and fundamental research disconnected from market demands. To bridge this divide, the Ministry of Higher Education and

Scientific Research enacted ****Ministerial Decree No. 1275**** on September 27, 2022, universally known as the "A Graduation Diploma / A Startup" initiative.

Decree No. 1275 establishes a groundbreaking regulatory mechanism allowing undergraduate, Master's, and Doctoral students to submit operational business plans, commercial prototypes, or patent applications in lieu of traditional theoretical dissertations. Despite the speed of its national implementation, the operational transition of Algerian campuses into entrepreneurial ecosystems reveals significant friction between innovative policy mandates and entrenched administrative practices.

1.1. Theoretical Framework

To critically analyze the systemic dynamics, policy mechanics, and institutional frictions governing Algeria's university transition, this study employs an integrated dual theoretical framework:

1. The Triple Helix Model of Innovation (Etzkowitz & Leydesdorff): The Triple Helix paradigm asserts that sustainable, knowledge-based economic development relies on trilateral, non-linear interactions among three primary institutional spheres: Academia, Industry, and Government. In traditional state-centric models, government exercises direct authority over academia and industry. Decree 1275 represents a state-driven attempt to shift Algeria toward a "Triple Helix II" (Institutional Model), where the government acts as an enabler by funding campus incubators, adjusting regulatory barriers, and mandating startup diplomas. However, as this study demonstrates, the structural weakness of the Industry strand—characterized by limited private-sector R&D capacity and weak corporate-academic ties—creates an imbalanced helix, placing excessive strain on academic institutions to push supply-side innovations into an unprepared market.

2. Institutional Theory and Isomorphism (DiMaggio & Powell): Institutional Theory provides a critical lens for understanding how complex public organizations respond to external normative and coercive mandates. DiMaggio and Powell conceptualize institutional isomorphism as the process by which organizations within a given field become increasingly similar when subjected to common structural pressures. Under Decree 1275, Algerian universities experience intense coercive isomorphism (top-down ministerial directives and quota-driven startup targets) and mimetic isomorphism (uncritical copying of Western incubation models). This creates a structural decoupling between **formal compliance** (establishing incubator offices and labeling student projects as startups) and **actual operational capacity** (lacking specialized IP lawyers, venture capitalists, and prototyping labs).

2. POLICY AND REGULATORY FRAMEWORK: MINISTERIAL DECREE NO. 1275

Ministerial Decree No. 1275 represents one of the most comprehensive legislative reforms in Algerian higher education history. Promulgated on September 27, 2022, and subsequently updated through Ministerial Decision No. 008 of 2025, the decree formalizes the concept of the "Entrepreneurial University" across all national HEIs. The policy establishes clear administrative protocols and organizational support structures to facilitate student-led venture creation.

1.2. Key Mandates and Legal Provisions

The regulatory architecture of Decree 1275 rests on four foundational pillars:

1. The "Startup / Patent Diploma" Substitution: The decree legally allows graduating students (Bachelor's, Master's, and Engineering tracks) to substitute conventional academic dissertations with an applied startup project ("Un diplôme... une startup") or an industrial patent application ("Un diplôme... un brevet"). Projects are evaluated by specialized academic-industry defense committees that include external business mentors, incubator directors, and industrial representatives.

2. **Institutionalized Campus Support Units: Decree 1275 mandates the universal** establishment of three distinct organizational entities across every Algerian university campus:

- Entrepreneurship Development Centers (CDEs): Responsible for broad-scale awareness, entrepreneurial culture building, and foundational business training.
- University Business Incubators (UBIs): Charged with providing pre-incubation services, business model coaching, prototyping guidance, and legal incorporation support to selected student teams.
- Technology Transfer Offices (TTOs): Tasked with managing institutional Intellectual Property (IP), evaluating invention disclosures, conducting prior-art searches, and managing patent filings with the Algerian National Institute of Industrial Property (INAPI).

3. **Academic Supervision and Mentorship Protocols:** The decree restructures faculty supervisory responsibilities. Professors are explicitly encouraged to serve as "scientific mentors" or "business guides" for student startup projects. Supervisory workloads dedicated to startup coaching are recognized within annual academic service calculations, encouraging faculty involvement.

4. **Inter-Ministerial Synergies and Labeling Mechanisms:** Decree 1275 forms a direct operational bridge between the Ministry of Higher Education and Scientific Research (MESRS) and the Ministry of Knowledge Economy, Startups, and Micro-enterprises. Graduation projects approved under the 1275 framework gain direct access to the national "Startup Label" or "Innovative Project Label" evaluation committee, unlocking tax exemptions, custom clearance facilities, and access to the Algerian Startup Fund (ASF).

3. RESEARCH METHODOLOGY

To capture the complex, multi-layered execution of Decree 1275 across Algeria's higher education system, this study adopts an embedded qualitative case study design. Qualitative research is particularly suited for evaluating institutional transformations, policy execution dynamics, and organizational frictions in real-world contexts.

3.1. Site Selection and Sampling Framework

The research design utilizes a multi-case comparative strategy focusing on two representative Algerian public universities that served as early adopters and regional pioneers of the Decree 1275 mandate:

✓ **The University of Bejaia (Abderrahmane Mira):** Selected as a leading representative of university-driven incubation and entrepreneurship in central-eastern Algeria, featuring an established Entrepreneurship Development Center (CDE) and campus incubator network.

✓ **The University of M'sila (Mohamed Boudiaf):** Selected for its national leadership in technology transfer, intellectual property management, and patent volume under the 1275 framework.

3.2. Data Collection Protocols

Data triangulation was achieved through three primary methods:

1. **Primary Qualitative Fieldwork:** In-depth, semi-structured interviews ($n = 28$) were conducted between 2024 and 2026 with key operational stakeholders across both institutions. The interviewee sample comprised campus incubator directors ($n = 4$), TTO operational managers ($n = 4$), academic supervisors and faculty mentors ($n = 10$), and student-entrepreneurs participating in the Decree 1275 program ($n = 10$).

2. **Documentary and Policy Analysis:** Systematic examination of legislative texts, executive decrees, ministerial circulars, institutional incubator annual reports, INAPI patent registry records, and internal university incubation evaluation grids.

3. **Non-Participant Observation:** Direct field observations during student startup defense sessions, incubator pitch competitions, and industrial mentoring workshops across the selected campuses.

3.3. Analytical Procedures

All interview recordings were transcribed verbatim and analyzed using **Thematic Analysis** following Braun and Clarke’s six-phase qualitative framework. Utilizing NVivo 14 software, transcripts were subjected to open, axial, and selective coding to identify recurring patterns, organizational frictions, and operational bottlenecks. Codes were synthesized into overarching thematic categories: administrative rigidities, financing constraints, intellectual property governance, and cultural-faculty alignment.

4. ORGANIZATIONAL AND STRUCTURAL ADAPTATIONS

The implementation of Decree 1275 required rapid structural reorganization within Algerian universities. Institutions moved swiftly from traditional bureaucratic hierarchies to specialized innovation units designed to support academic entrepreneurship.

4.1. Operational Mechanics of Campus Business Incubators (UBIs)

Campus incubators serve as the operational core of the Decree 1275 architecture. Prior to 2022, university incubators were scarce and functioned as informal student clubs. Under Decree 1275, UBIs have been formalized into dedicated administrative entities with physical facilities, co-working spaces, and structured incubation cohorts.

The operational lifecycle of a student venture within Algerian UBIs follows a standardized four-stage pipeline:

- 1. Ideation and Selection Phase:** Student teams submit project proposals. Incubator selection boards screen projects based on innovation potential, technical feasibility, and market relevance.
- 2. Pre-Incubation and Business Model Refinement:** Accepted teams undergo intensive workshops on Business Model Canvas (BMC) design, market research, financial planning, and pitch preparation.
- 3. Prototyping and Technical Validation:** Teams utilize university laboratories, FabLabs, and technical equipment to construct proof-of-concept models or minimum viable products (MVPs).
- 4. Labeling and Graduation Defense:** Projects are presented to a hybrid academic-industry jury. Successful projects are awarded the "Startup Diploma" and submitted to the National Startup Committee for official "Innovative Project" labeling.

4.2. Development and Performance of Technology Transfer Offices (TTOs)

Parallel to incubator expansion, Decree 1275 catalyzed the nationwide establishment of Technology Transfer Offices (TTOs). TTOs serve as the primary legal and commercial bridge between university researchers and external markets. TTO responsibilities include managing invention disclosures, conducting patentability assessments, negotiating technology licenses, and facilitating spin-off formation.

At the University of M'sila, the TTO established an integrated IP management protocol that drastically reduced patent application turnaround times. By streamlining internal disclosure reviews and partnering directly with INAPI, the university registered unprecedented increases in national patent applications, demonstrating the efficacy of dedicated technology transfer units in transitioning HEIs.

5. EMPIRICAL BOTTLENECK ANALYSIS: SYSTEMIC FRICTIONS AND INSTITUTIONAL BARRIERS

Despite the rapid structural rollout and quantitative growth in startup project submissions across Algerian campuses, qualitative empirical analysis reveals deep-seated structural friction. These barriers severely hinder the transition from nominal compliance with Decree 1275 to genuine, market-viable venture creation.

Table 1. Comprehensive Matrix of Structural Bottlenecks in Algeria's Entrepreneurial Transition

Bottleneck Category	Institutional & Regulatory Root Causes	Operational & Socio-Economic Impacts
1. Bureaucratic & Administrative Rigidities	- Public accounting laws and centralized procurement procedures. - Zero-based state university budgeting rules. - Rigid civil service hiring regulations for incubator staff.	- Severe delays (6–12 months) in purchasing specialized lab chemicals and electronic components for prototyping. - Inability to hire external, high-level private business mentors or IP attorneys. - Administrative paralysis caused by risk-averse financial control audits
2. Acute Financing Deficit ("Valley of Death")	- Near-total absence of private domestic seed capital and angel investor networks. - Risk-averse commercial banking practices requiring heavy physical collateral. - High centralization of the Algerian Startup Fund (ASF).	- High failure rate of student ventures transitioning from functional prototype (TRL 4–5) to commercial production (TRL 8–9). - Student entrepreneurs lack basic seed funding to cover legal incorporation, registration fees, and initial marketing.
3. Academic Promotion & Tenure Misalignment	- National tenure regulations strictly prioritize high-impact theoretical journal publishing. - Lack of official academic credit for patent grants, commercial licensing, or startup mentoring - Evaluation committees composed of traditional academic scholars.	- Senior professors view startup mentoring as a secondary, unrewarded administrative burden. - Mentorship quality drops, leaving student founders without deep technological guidance. - Faculty disconnect from applied industry R&D.
4. Infrastructure & Prototyping Gaps	- University R&D labs designed primarily for academic instruction rather than industrial prototyping. - Fragmented access to specialized FabLabs, advanced testing equipment, and industrial machinery.	- Prototypes remain rudimentary software wireframes or low-quality physical models incapable of industrial testing. - Extended time-to-market allows international competitors to eclipse local innovations.

Source: Authors' elaboration based on empirical qualitative synthesis and fieldwork data (2024–2026).

5.1. Detailed Analysis of Core Frictions

1. The Public Accounting Paradox: Public higher education institutions in Algeria operate under strict public accounting laws (*Comptabilité Publique*). These legal frameworks are designed to enforce budgetary compliance and prevent financial mismanagement. However, they are fundamentally incompatible with the agile, high-risk environment required for technology venture creation. Incubator directors report that purchasing basic microcontrollers or specialized biological reagents for a student startup requires navigating multi-stage public tender protocols that can take up to a year. By the time equipment arrives, the market opportunity has frequently passed or the students have graduated.

2. The Prototyping "Valley of Death": The "Valley of Death" refers to the critical gap where an academic research concept has demonstrated technological feasibility in a lab (Technological Readiness Level 3–4) but lacks the capital to build a commercial prototype, conduct field trials, and establish manufacturing processes (TRL 7–8). In Algeria, while Decree 1275 successfully drives ideation and early business model design, funding mechanisms for advanced prototyping remain severely constrained. The public banking sector demands physical asset collateral that student founders do not possess, while private venture capital remains in an embryonic state.

3. The Career Incentive Disconnect: A fundamental institutional friction lies in the criteria used to evaluate university faculty. In Algeria, academic promotion to Associate Professor (*Maître de Conférences A*) and Full Professor (*Professeur*) depends almost exclusively on publishing theoretical papers in peer-reviewed journals indexed in databases such as Scopus or Web of Science. Contributing to a patent filing, building an industrial prototype, or spending hundreds of hours coaching a student startup yields zero credit toward academic promotion. Consequently, senior scientific researchers—who possess the deepest technical expertise needed for high-tech spin-offs—frequently opt out of the 1275 program, leaving student supervision to junior faculty lacking extensive R&D backgrounds.

6. CASE STUDY ANALYSIS: EMPIRICAL EVIDENCE FROM BEJAIA AND M'SILA

A comparative examination of the University of Bejaia and the University of M'sila illustrates the diverse execution strategies and local adaptation pathways emerging under Decree 1275.

6.1. The University of Bejaia: Ecosystem Integration and Regional Entrepreneurial Culture

The University of Bejaia has established itself as an regional leader in fostering an integrated campus entrepreneurial ecosystem. Benefiting from a vibrant local industrial base in agro-food industries, logistics, and manufacturing, the university leveraged Decree 1275 to solidify ties with regional industrial actors.

Key operational findings from the University of Bejaia include:

- **Cross-Disciplinary Team Formation:** The Bejaia incubator actively enforces cross-disciplinary team assembly, mandating that technical projects (e.g., computer science or food technology) pair with business and economics students to ensure commercial viability.
- **Industrial Mentorship Networks:** The university established an external advisory board composed of local business leaders and alumni entrepreneurs who provide regular coaching, industrial site access, and initial seed sponsorship for student ventures.
- **Persistent Challenges:** Despite high student engagement and strong regional culture, student ventures at Bejaia report severe friction when attempting to secure formal commercial registration and bank loans, leading to a high drop-off rate post-graduation.

6.2. The University of M'sila: Technology Transfer, IP Volume, and Process Streamlining

The University of M'sila represents an institutional model of process optimization and rapid policy scaling under Decree 1275. Recognizing that institutional transformation requires administrative velocity, M'sila focused heavily on technology transfer mechanisms and intellectual property protection.

Key operational findings from the University of M'sila include:

- **Institutional Acceleration of Patenting:** M'sila established an internal IP review board that pre-screens invention disclosures within 14 days, drastically lowering the barrier for researchers to file patents with INAPI. This resulted in M'sila ranking among the top national institutions in total patent filings.
- **Digital Platform Integration:** The university developed dedicated internal software platforms to monitor student startup progress, schedule mentoring sessions, and streamline administrative approvals under Decree 1275.
- **Persistent Challenges:** While patent volume increased exponentially, the conversion rate of those patents into active, revenue-generating commercial licenses or private spin-off companies remains low, underscoring the broader national gap in industrial technology absorption.

7. COMPARATIVE INTERNATIONAL BEST PRACTICES AND LESSONS FOR ALGERIA

To contextualize Algeria's transition, it is instructive to compare its policy framework with international experiences of university entrepreneurial evolution, particularly in emerging and transitioning economies.

7.1. The Chinese Model: University-Affiliated Science Parks and State-Driven Commercialization

China's transformation of its higher education sector into an economic innovation engine offers valuable lessons. Chinese universities established state-sanctioned National University Science Parks (NUSPs) directly adjacent to campuses. These parks benefit from specialized legal frameworks that exempt them from standard public university procurement rules. Furthermore, Chinese academic evaluation systems explicitly recognize patent commercialization, technology transfer revenues, and startup founding in faculty tenure decisions, aligning individual career goals with national innovation strategy.

7.2. The European Experience: Interdisciplinary Nodes and Venture Creation Programs

European university reforms (such as Finland's Aalto University model and Germany's *EXIST* program) emphasize deep interdisciplinary integration and specialized Venture Creation Programs (VCPs). Rather than treating entrepreneurship as an extracurricular activity, European models embed venture creation directly into accredited Master's curricula, where students build real companies as their primary degree requirement. Crucially, these programs are backed by public seed grants (*EXIST-Gründerstipendium*) that provide student founders with monthly living stipends and prototyping budgets for 12 months, effectively eliminating the financial risk during early-stage validation.

8. STRATEGIC POLICY RECOMMENDATIONS AND ROADMAP

To overcome the empirical bottlenecks identified in this study and transition Algeria's entrepreneurial university strategy from quantitative compliance to qualitative commercial impact, a holistic policy reform agenda is required. The following recommendations offer an actionable roadmap for decision-makers:

8.1. Modernize Academic Career Incentives and Tenure Guidelines

The Ministry of Higher Education and Scientific Research (MESRS) must urgently reform the national decree governing academic promotion and tenure. The evaluation criteria should be updated to establish clear equivalencies between traditional journal publications and technology transfer achievements:

- Granting an industrial patent should be recognized as equivalent to publishing a high-impact peer-reviewed paper in a top-tier journal.
- Successfully mentoring a student startup that achieves official "Startup Label" status or secures third-party investment should count directly toward faculty promotion points.
- Senior professors should be legally permitted to serve as Chief Scientific Officers (CSOs) or equity-holding co-founders in university spin-offs without violating public civil service regulations.

8.2. Establish Autonomous University Seed Innovation Funds

To bridge the critical "Valley of Death," the government should create dedicated, decentralized ****University Micro-Seed Funds**** managed directly at the regional university cluster level. These funds should:

- Provide non-dilutive prototyping micro-grants (e.g., 1,000,000 to 3,000,000 DZD) directly to student startup teams approved under Decree 1275.
- Be exempt from standard public accounting procurement rules, allowing rapid purchasing of laboratory supplies, technical components, and external testing services via corporate credit cards or digital procurement platforms.
- Partner with the Algerian Startup Fund (ASF) to establish semi-automated follow-on equity investment matching for ventures that successfully achieve functional prototype validation.

8.3. Grant Administrative and Financial Autonomy to UBIs and TTOs

University Business Incubators and Technology Transfer Offices must be legally converted from internal administrative sub-units into autonomous public entities of an industrial and commercial character (*Établissement Public à Caractère Industriel et Commercial - EPIC*).

This structural change would enable campus incubators to:

- Operate independent bank accounts and manage private sponsorship revenues.
- Hire experienced private-sector venture mentors, patent attorneys, and business developers at market-competitive salaries.
- Take equity stakes in graduating student spin-offs on behalf of the university, creating an institutional revenue-reinvestment cycle.

8.4. Upgrade Prototyping Infrastructure through Shared FabLabs

To resolve hardware and technical validation bottlenecks, the ministry should establish centralized, high-tech ****Regional University Prototyping Hubs (FabLabs)**** accessible to student entrepreneurs across neighboring institutions. These hubs should be equipped with advanced industrial 3D printers, CNC machining centers, electronic testing benches, and wet-lab space, staffed by dedicated technical engineers capable of assisting non-specialist founders in rapid MVP development.

9. CONCLUSION

Ministerial Decree No. 1275 represents a landmark structural intervention in Algeria's higher education trajectory. By formalizing the concept of the "Startup Diploma" and mandating the universal deployment of campus incubators and technology transfer offices, the decree has catalyzed a powerful shift in institutional priorities and student career aspirations. It has successfully placed

entrepreneurship, patenting, and venture creation at the center of academic discourse across Algerian campuses.

However, as the empirical findings of this study demonstrate, establishing policy frameworks and creating administrative offices represents only the first step of a complex institutional evolution. Algerian higher education currently stands at a critical juncture between *nominal policy compliance* and *genuine socio-economic transformation*. Overcoming the pervasive structural bottlenecks—specifically rigid public accounting rules, severe early-stage funding gaps, unsupportive faculty career incentives, and prototyping limitations—requires bold, systemic regulatory reforms.

By modernizing academic tenure criteria, granting financial autonomy to campus incubation structures, establishing decentralized seed funding mechanisms, and strengthening ties with private industry, Algeria can successfully transform its universities into resilient innovation engines. In doing so, the nation can leverage its vast academic talent to drive sustainable economic diversification, tech-driven job creation, and long-term prosperity in the post-hydrocarbon era.

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