THE WORLD OF INNOVATION

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SUMMARY OF THE EVALUATION OF CITIES OF INNOVATION AND TECHNOLOGY TRANSFER (CITT) AT MOROCCAN UNIVERSITIES

Introduction. *Science, technology, and innovation are pivotal for economic policy worldwide. Morocco, aiming to boost its competitiveness, has implemented reforms to enhance economic diversity and foster university-business links since 2000, although the impact on technological advancement remains limited.*

Problem Statement. *Morocco's Cities of Innovation and Technological Transfer (CITT) lack a defined statutory role within university structures, restricting their decision-making influence. This study examines these constraints to suggest strategic improvements.*

Purpose. *The goal is a comprehensive evaluation of CITTs across Moroccan universities, identifying their strengths, weaknesses, opportunities, and threats to propose a strategic plan for better integration and effectiveness in the national innovation system.*

Materials and Methods. *Employing a mixed methodology, this research analyzes the innovation and technological transfer structures within six Moroccan public universities through SWOT analysis, focusing on innovation capacities and interinstitutional collaborations. Data were collected via validated questionnaires, interviews, and field observations.*

Results. *CITTs align with the universities' strategic visions, enhancing scientific research and socio-economic engagement. Recommendations focus on defining clear mission statements, developing strategic policies, and fostering proactive collaborations to improve CITT operations and visibility.*

Conclusions. *The study highlights CITTs' potential to drive socio-economic and scientific progress in Morocco. Despite challenges like regulatory impacts and limited university autonomy, enhancing these structures' roles is crucial for national development. Strategic plans and university autonomy are recommended to integrate innovation more effectively into Morocco's broader development goals.*

Keywords: Cities of Innovation and Technology Transfer CITT, National Innovation System SNI, Evaluation, Moroccan public universities, SWOT.

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The Moroccan system of support for innovation is now entering a phase of maturation, marked by the development of various activities that contribute to an ecosystem conducive to the valorization of research results and the strengthening of the university's relationship with the productive system [1]. The university is expected to enhance its scientific research and its degree of valorization and innovation, thereby fulfilling its role as an actor of economic development. These missions are assigned to the university by Law 01—00 on the organization of higher education. However, the National System of Innovation (SNI) lacks a statutory definition, both in terms of the position of this activity within the university's organizational structure and its weight in decision-making.

In this study, we present an evaluation of the current situation of the Innovation and Technology Transfer Cities (CITTs) and similar structures in Moroccan public universities. We has adopted a SWOT analysis (strengths, weaknesses, opportunities, and threats) to identify the key aspects based on the reports of evaluations of the CITTs carried out by Moroccan experts. Our purpose is to propose ways of improvement, recommendations, and a strategic plan for innovation structures in Moroccan universities.

Our analysis has identified several dysfunctions within the current system. These dysfunctions have been studied and benchmarked to propose recommendations for correcting them, as well as strategies to improve the situation of these structures across multiple dimensions (institutional, organizational, and managerial).

This synthesis is based on information and data collected from the reports on the evaluations of the Cities of Innovation, Valorization, and Technological Transfer at Moroccan universities. These evaluations have been conducted by Moroccan experts mandated by the Erasmus+ project titled "Institutionalization of Structures of Innovation, Transfer and Exploitation of Knowledge" (INSITES).

Global economic development has undergone a radical revolution driven by principles such as science, technology, and innovation, which play a highly effective role in economic competitiveness. These principles serve as levers of economic policy in many countries worldwide [2]. Morocco has implemented several reforms in its economic system to ensure an advanced position in the global economy, diversify its economy, and reinforce the competitiveness of its exports. Despite these efforts, scientific research and innovation currently exert limited influence on the country's technological development, even as the global economy has experienced radical changes due to technological advancements in most areas [3].

The political and institutional changes that Morocco has been undergoing, its privileged position in the region, and its willingness to adhere to the European strategy in terms of economic and political liberalism [4] have contributed to ensuring the autonomy and effective responsibility of universities and have led to the emergence of new missions for the university.

Since 2000, the country has initiated a process aimed at establishing an ecosystem that favors the development of scholarly research (SR), the valorization of its results, and innovation. The essential steps of this reform can be summarized as follows [5]:

2002—2003: implementation of the program "Priority Solidarity Fund: Valorization of Research for Industry and Upgrading of the Moroccan Company, FSP-Valorization." This program is the result of a triangular cooperation between the Ministry in charge of research, the Ministry in charge of industry, and the French Embassy in Rabat.

2004: launch of the national program of University-Enterprise interfaces.

2006: implementation of the scholarly research strategy for 2025, which takes into account the major development projects launched by Morocco (Plan Emergence for industry, Azure Plan for tourism, National Initiative for Human Development (INDH), Offshoring, etc.).

2007—2008: perennialization of the programs and networks of the FSP-Valorization in the form

of a program named: Program of Support to Innovation and Technological Development (PAIDT). The PAIDT was the subject of a convention signed in 2008 by the Ministry in charge of Higher Education and Scholarly Research (MESRSFC) and the Ministry in charge of Industry (MCINT).

2009—2012: Implementation of project N°14 within the framework of the 2009—2012 Emergency Program, which focused, among other things, on patents of university origin and collaborative R&D project contracts in partnership with companies.

2009: Launch of the "Moroccan Innovation Initiative" between the two ministries in charge of scientific research and industry, on the one hand, and the General Confederation of Moroccan Enterprises (CGEM), on the other.

2015—2030: The Strategic Vision for Educational Reform in Morocco for the period 2015—2030 is an initiative of the Higher Council for Education, Training, and Scientific Research aimed at building a new school based on the main pillars of equity and equal opportunity, quality for all, and the promotion of the individual and society. This strategic vision of educational reform is set in the context of the installation of the Higher Council of Education in accordance with the Constitution and the law on its reform, as well as the implementation of the High Royal Directive calling on the Council to develop a roadmap. It aims to be both ambitious and achievable in the short/medium term to give a clear direction to national education and motivate the actors of the Moroccan education system.

2019: the adoption of Framework Law No. 51—17 on the education, training, and scientific research system in Morocco. This law, enacted on August 9, 2019, aims to reform the national education system. It includes provisions for coordination among the various actors in the fields of scientific and technical research and innovation, along with measures to optimize integration between the different institutions and sectors involved. Framework Law No. 51—17 is seen as a significant step towards improving the quality of education in Morocco and implementing long-awaited educational reforms.

The PACTE ESRI 2030 is a plan initiated by the Moroccan government to accelerate the transformation of the country's higher education, scientific research, and innovation ecosystem. The plan aims to align with the priorities of the government's program and the 2015–2030 vision outlined in Framework Law No. 51—17. It seeks to promote academic excellence, develop human capital, and position Morocco as a pioneering nation in innovation and strong innovation capacity. The plan involves a co-construction approach with input from various stakeholders, including regional workshops and consultations.

The Industry Recovery Plan 2021—2023, as implemented by the Ministry of Industry and Trade in Morocco, supports the industrial and trade sectors. The recovery plan focuses on objectives such as import substitution, national preference, public procurement, and renewable energy. As part of this initiative, the Ministry has launched a call for projects for an industrial innovation support program, aimed at supporting innovation and R&D projects in industrial sectors. Furthermore, the Ministry has established a support system for subcontracting companies, offering tax and customs benefits on components and raw materials, whether imported or acquired locally, as part of their activities.

Today, universities are called to strengthen their scientific research capabilities, enhance the valorization and innovation of their research outcomes, and fully play their role as drivers of economic development. One of the key objectives is to cultivate a culture of technological innovation among students, which is essential for promoting wealth creation and employment opportunities.

To promote the valorization of research results and reinforce the university-enterprise relationship, several initiatives have been established:

- Creation and Professionalization of the University-Enterprise Interface: This initiative aims to bridge the gap between academic research and industry needs.

- Establishment of a Technology Transfer Center: This center includes a communication and technology watch unit, as well as a project setup and monitoring unit, to facilitate the transfer of technology.
- Creation of an Incubator for Innovative Companies: The incubator focuses on exploiting patents, valorizing research results, and transferring technology to the market.

These initiatives have formed the foundation for the implementation of the Cities of Innovation and Technology Transfer (CITT) within Moroccan universities.

The 'CITT' concept is defined as a university-region platform that lies at the intersection of three key areas: the valorization of scientific research and technology, socio-economic development through innovation and knowledge, and territorial development.

The main objectives of a 'CITT' are:

- Promote and Enhance Scientific and Technological Capabilities: Stimulate innovation among private and public actors by showcasing scientific and technological capabilities.
- Integrate Various Fields: Link innovation, technology, marketing, management, standardization and certification, sustainable development, and human resources management to establish a comprehensive innovation chain.
- Develop a Research Center on Entrepreneurship and Innovation Systems: Focus on advancing knowledge and practices in entrepreneurship and innovation.
- Support Business Creators and Innovative Companies: Assist in the development of projects by business creators and innovative companies.
- Disseminate the Culture of Science, Technology, and Innovation: Promote a broader understanding and appreciation of science, technology, and innovation within society.
- Cultivate a Culture of Innovation within the University Community: Encourage research development and innovation that are responsive to societal issues.

However, the success of these strategies and initiatives to promote the valorization of research results and strengthen the university-enterprise relationship depends on the federation of know-how and resources of universities through the establishment of specialized university structures working in close collaboration with economic actors. In this context, the CPU approved the draft university organization chart in June 2015, which included CITTs as transversal university structures. This organization chart was subsequently approved by the councils of all Moroccan universities. Nonetheless, the sustainability and operationalization of such structures are contingent upon their institutionalization through the establishment of a relevant governance mode, thereby enhancing the quality and relevance of university services in research, innovation, development, and entrepreneurship.

Innovation is the driving force behind economic growth and social progress in the contemporary world. At the heart of this dynamism are the Cities of Innovation and Technology Transfer (CITT), which transform ideas into tangible realities, redefining economic and social landscapes. These cities, as catalysts for development and transformation, are drawing increasing attention from researchers and practitioners in the field of innovation management. This section aims to explore the theoretical foundations and conceptual frameworks that shape the creation and operation of these innovation cities. By examining various models and approaches, from Open Innovation to Innovation Clusters, through innovation ecosystems and the Triple Helix, we seek to understand how these models interact and contribute to the flourishing of innovation cities:

OPEN INNOVATION MODELS

Open innovation, a concept popularized by Henry Chesbrough, suggests that organizations can and should utilize both external and internal ideas in their innovation processes. This model is especially relevant for innovation cities, where

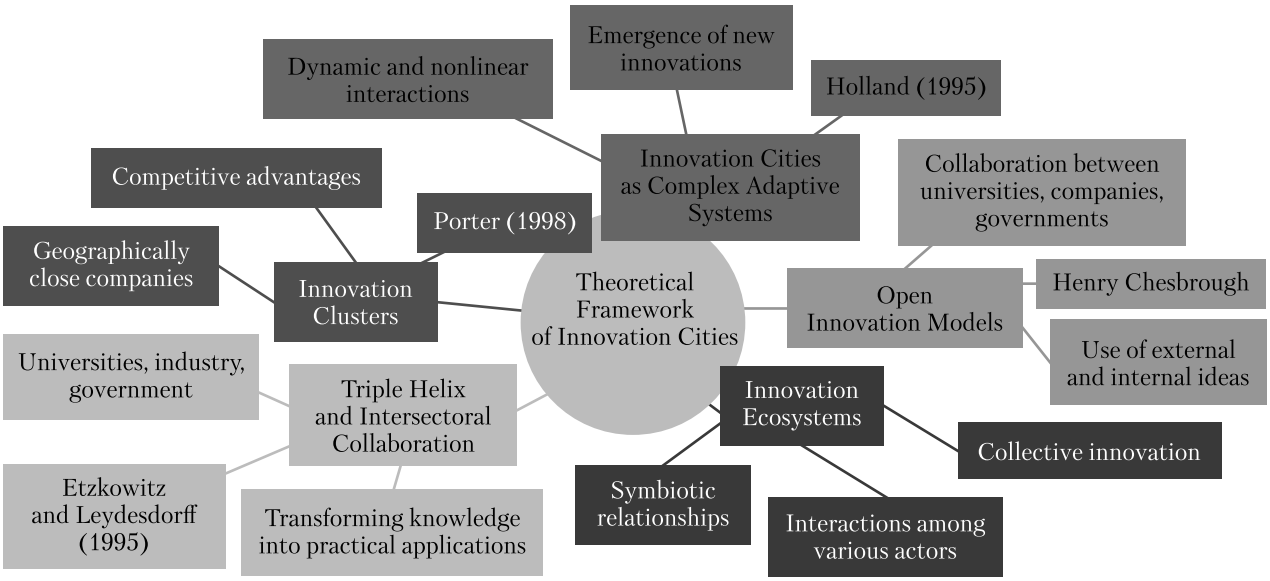

Fig. 1. The theoretical framework of innovation cities [10–14]

collaboration among universities, businesses, and governments fosters a dynamic innovation ecosystem. Chesbrough (2003) argues that this approach enables a more efficient flow of knowledge and skills, which is crucial in the context of innovation cities [7].

INNOVATION ECOSYSTEMS

The concept of innovation ecosystems, emphasizing the interactions among different actors (companies, research institutions, government), is fundamental to understanding innovation cities. Moore (1993) introduced the concept of business ecosystems, which can be extended to innovation ecosystems. These ecosystems are characterized by symbiotic relationships where each actor contributes to and benefits from collective innovation [8].

TRIPLE HELIX AND INTERSECTORAL COLLABORATION

The Triple Helix model, developed by Etzkowitz and Leydesdorff (1995), describes the interaction between universities, industry, and government to promote innovation and economic development. This model is particularly relevant for innovation cities, where intersectoral collaboration is essential for transforming knowledge into practical applications [9].

INNOVATION CLUSTERS

Porter (1998) introduced the concept of clusters, where geographically proximate companies in similar or related sectors benefit from competitive advantages. Innovation cities can be considered specialized clusters, where the proximity of actors facilitates knowledge exchange and stimulates innovation [10].

INNOVATION CITIES AS COMPLEX ADAPTIVE SYSTEMS

Innovation cities can also be studied through the lens of complex adaptive systems. This framework, explored by authors like Holland (1995), highlights how dynamic and nonlinear interactions among different actors lead to the emergence of new innovations and the evolution of the ecosystem [11].

In conclusion, the theoretical framework of innovation cities relies on a variety of models and theories, ranging from open innovation and innovation ecosystems to the Triple Helix and innovation clusters. This theoretical diversity reflects the complexity and richness of dynamics within innovation cities and underscores the importance of intersectoral collaboration and adaptability in these environments.

MOROCCAN UNIVERSITIES' PRACTICES IN INNOVATION

Innovation within Moroccan universities has significantly developed in recent years, reflecting a global trend towards greater integration of research, development, and entrepreneurship in higher education. A study conducted by Youssef HAMDANI [12] has highlighted how Moroccan universities integrate innovation into their curriculum, focusing on practical training and collaboration with industry.

Furthermore, research [13] examined the role of university incubators in Morocco, highlighting their importance in promoting student entrepreneurship and supporting startups in their initial phase. These incubators not only provide workspace and resources but also offer crucial access to networks of mentors and investors.

Additionally, research [14] addressed the issue of technology transfer in Moroccan universities. This study revealed that, although progress has been made, there are challenges in terms of regulation, funding, and cooperation between universities and industry. This suggests a need for improved policies and collaboration mechanisms to facilitate technology transfer.

Another significant aspect is the adoption of digital technologies in teaching and research. According to [15], Moroccan universities have gradually incorporated advanced technologies like artificial intelligence and big data into their programs, reflecting a commitment to more innovative and globally relevant education and research.

Finally, [16] studied the impact of the organizational culture of Moroccan universities on innovation. This research underscored the importance of cultivating a culture that values creativity, risk-taking, and interdisciplinary collaboration to stimulate innovation within academic institutions.

Our study focuses on a thorough analysis of the Cities of Innovation and Technology Transfer in six Moroccan public universities, located in regions with distinct socioeconomic characteristics (Fès, Rabat, Casablanca, Settat, Marrakech and El Jadida). The public universities are: Sidi Mohamed Ben Abdellah University in Fès, Mohammed V University in Rabat, Chouaib Doukkali University in El Jadida, Hassan II University in Casablanca, Hassan I University in Settat, and Cadi Ayyad University in Marrakech. The study was conducted using a mixed-method research approach that incorporates both qualitative and quantitative methodologies. Leveraging the analytical framework of the SWOT method [17, 18], we examined the strengths, weaknesses, opportunities, and threats associated with these structures, taking into account variables such as innovation capacity, technical expertise, collaboration with other businesses and institutions, funding availability for innovative projects, competitive environment, regulation, technological advancements, as well as economic changes and societal trends.

To collect relevant data for our study, we developed a questionnaire, validated during a focus group with our research team, and subsequently tested and validated with the officials of the Innovation City at Hassan I University in Settat. This questionnaire was designed to gather quantitative information on key aspects of the innovation structures. The analysis of the responses was tailored to the specificities of our sample, consisting of human-sized structures, thus allowing for a personalized and detailed analytical approach. In addition, interviews were conducted with the heads of the innovation structures, alternating between direct and semi-direct visits, to enrich our understanding of the internal and external

dynamics influencing these entities. These qualitative interviews provided invaluable insights into the challenges and opportunities faced by the innovation structures.

Field visits were also conducted to directly observe the operational conditions within these structures, thereby adding an empirical dimension to our analysis. The richness of data collected through these various means was further enhanced by incorporating results from the European Erasmus+ project titled "Institutionalization of Structures of Innovation, Transfer and Exploitation of Knowledge" (INSITES), which aimed at establishing and promoting innovation structures within Moroccan universities. The insights gained from this project not only enriched our understanding of the institutional and operational contexts of innovation structures but also allowed us to contextualize our observations within a broader framework of national and international innovation efforts.

The research period spanned eighteen months, from September 2021 to March 2023. This duration was specifically chosen in consultation with the research team and innovation officials to ensure a comprehensive observation of trends, developments, and impacts of innovation initiatives within the studied innovation structures. Segmenting this period into several key phases allowed for a structured and detailed analysis of the observed change dynamics.

Study Preparation: This initial phase included the development of the questionnaire, selection of the sample, a preliminary study to test the relevance of the questions, followed by a review and validation of the questionnaire.

Questionnaire Administration and Data Collection: The questionnaire was administered via emails, telephone calls, and direct interviews to ensure a high response rate and the collection of diverse data. This mixed approach maximized the study's reach while accommodating respondents' availability.

Interviews with Officials: Interviews were conducted with the heads of the innovation structures, alternating between direct and semi-direct visits. This method enhanced our understanding of innovation mechanisms and the challenges faced by these structures, providing valuable insights into their internal operations.

Field Visits: To complement our data collection, field visits were conducted, allowing for direct observation of the operational conditions and the actual impact of innovation initiatives within the universities. These visits offered a tangible perspective on the effectiveness and outcomes of the innovation structures.

Analysis and Integration of the Erasmus+ INSITES Project Results: This phase played a pivotal role in our study by contextualizing our findings within the existing landscape of academic innovation research. By thoroughly examining the data and conclusions from the INSITES project, we were able to identify key trends, gaps in current research, and opportunities for our SWOT analysis.

This structuring into distinct phases not only allowed for a methodical and thorough data collection but also facilitated a temporal analysis of the collected data, offering a longitudinal perspective on the development and effectiveness of innovation structures in the academic context.

In summary, the methodology adopted in this research provides a comprehensive and nuanced approach to evaluating university innovation structures in Morocco. By combining various data collection methods with SWOT analysis and integrating the results of the European Erasmus+ INSITES project, our research is positioned to make a significant contribution to the literature on innovation in higher education, while offering practical recommendations for enhancing innovation capacities within Moroccan universities.

The mission is the reason for the innovation structure's existence (CITT), aligning with the university's vision for scientific research, national and international cooperation, and its engagement with the socio-economic environment. Therefore, it is crucial that the structure clearly formulates its mission, values, and strategy and

shares them as widely as possible with all university stakeholders to develop a sense of belonging to the CITT and strengthen each actor's commitment to achieving set goals. The vision, mission, and values should be periodically reviewed and whenever the internal and external context of the structure changes.

It is evident that the leadership teams of the CITTs have a relatively clear vision [19], although it can be strengthened, and well-defined missions that align with their university's strategic directions.

It is recommended that:

- The directors of the CITTs articulate their "policy" in a document that states their intentions and strategic orientations, aligning with their university's vision. Strategies should be broken down into short- and medium-term operational objectives for all components of the structure and will serve as a basis for developing multi-year action plans. When deploying objectives, directors should ensure to encourage constructive discussions with all CITT actors and actively work to find the necessary resources to achieve the goals.

We also recommend that different directorates:

- Establish a prospective structure responsible for systematically developing and adapting their strategic plans to align with their universities. These prospective structures shall have access to all relevant information and data to contemplate a programmatic approach for their city. The Quality Assurance committees of the universities could contribute to these activities since they will indirectly monitor the implementation of actions planned in the strategic plans.

From the partnership perspective, the strategy for developing universities' cooperation is proactive, encouraging the pursuit of strategic cooperation with national and international partners according to the university's priorities through its offers and calls for cooperation projects. With this spirit, the CITTs aim to ensure their sustainable establishment in their socio-economic environment to favorably support the growth of their region and the increase in development projects. This will necessarily involve a dynamic approach towards closer ties with the socio-economic world. It is legitimate for the CITTs to position themselves as the spearhead of the university in the field of cooperation by taking their rightful place.

As indicated in the evaluation reports conducted within the framework of the Erasmus+ INSITES project [20]national and international cooperation cannot be achieved by a single service holding a monopoly. It is the concern of several services, each of which must establish relationships with its partners in the field it oversees. Nonetheless, the existence of a structure dedicated to cooperation remains crucial for several reasons:

- It serves as the first point of contact for any institution wishing to cooperate with the University;
- It centralizes all information concerning cooperation initiated by institutions, joint centers, research laboratories, and research teachers;
- It offers a number of services to assist project initiators in their efforts: contact initiation, networking, drafting of agreements and patents, etc.;
- It manages certain cooperation projects for which it will be responsible;
- It is a cross-service available to all university components and can intervene in all actions and activities related to the mission of the innovation structure.

Finally, the dynamism and commendable efforts of the cities in the field of cooperation and mutually beneficial partnerships are noted, which deserve to be further disseminated to improve the internal and external visibility of the university.

Regarding governance and management, the CITTs are common services of universities led by a director, sometimes with deputy directors in charge of overseeing the activities of incubation, valorization and technology transfer, and entrepreneurship.

Currently, the CITTs are dependent on the financial management of their university and the a priori control applied to the university [21]. Being

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dependent on the university, directors try as much as possible to make their decisions by exploiting the margin of autonomy provided by the current regulations and diversify their own revenues through various services provided to CITT users and the exploitation of their patents.

However, we recommend integrating the innovation structure into the administrative and/or functional organizational chart of the university as a full-fledged structure, known and recognized as an advisory body with a strong proposal power for the university council, which will contribute to the reflection on the establishment of the policy of scientific research and openness to the national and international environment.

According to the wishes of the directorates, the CITTs must change to become foundations with a scientific and technical character while maintaining the scientific platforms in the university's heritage and the human resources assigned to the innovation city, which will still depend on the university [22].

For decision-making within the CITTs, the Director relies on the opinions of his deputy directors and the heads of the city's units. It is regrettable to note the lack of doctoral student representatives and external representatives in some relevant meetings. There is also an absence of an internal regulation, job descriptions for CITT staff, or procedure manuals.

Although the size of the cities and the participative management advocated by the directorates are likely to facilitate communication and the transmission of information within internal structures, dysfunctions have been observed in their fluidity and the sustainability of communication processes. We recommend strengthening communication inside and outside the university by making the best use of the university's website while updating the information of the innovation city daily, reviewing its content, operation, and management.

The CITTs, being relatively new university structures in most cases, need to introduce two important parameters: efficiency and effectiveness. By doing so, they aim to transition from an administrative mode of operation to a managerial mode of operation.

One of the strengths of the CITTs is their young, dynamic, and fully engaged human potential, deeply embedded in the culture and proper functioning of their structures. The staff has benefited from a series of training sessions that have enhanced their technical skills in the areas covered by the innovation cities [23]:

- Legal Assistance and Industrial Property;
- Strategic Intelligence;
- Technology Transfer and Prototyping;
- Entrepreneurship & Incubation.

It is undeniable that good human resource management relies on well-studied job descriptions for all structure actors. These should be concerted and pragmatic, indicating the mission, hierarchical and functional relationships, primary and secondary tasks, and the requirements of each position. The CITTs must develop their job descriptions and evolve them into a jobs and skills directory, allowing them to refine their recruitment procedures and the development of continuous training plans for their collaborators. Moreover, they would benefit from establishing a fair and transparent recognition and reward system to motivate their collaborators.

The CITTs need to develop their own personnel evaluation mechanisms, which should generally rely on objective and verifiable indicators.

The execution of budget expenditures is under the a priori control of the state controller. This procedure causes delays in purchasing and payment operations, thereby hindering the proper functioning and adequate monitoring of the city's activities and its current management. Furthermore, the most suitable governance mode for the nature of CITTs' activities is the foundation status, as discussed during the national meeting: National Network of Innovation Cities and Similar University Structures: "What governance mode for Innovation Cities?" [21, 24]

The CITTs must consider establishing a policy related to documentary resources specific to their activities, which will be made available to

researchers, city staff, doctoral students, project developers, startups, etc.

The CITTs have access to certain software and computer applications for carrying out their administrative tasks. However, these resources remain underutilized and too scattered to ensure quick and effective decision-making. The cities must imperatively implement an IT policy articulated around several axes and complementary actions. Ultimately, they also need to base all their IT devices on a Global Information System (GIS) that will allow secure exchanges between teachers-researchers, administrative staff, doctoral students, and external partners.

In conclusion, "Modernizing" is indeed the key word for managing human resources, finances, and assets, including analysis and control laboratories, to fit into a modern managerial approach capable of meeting all the challenges mentioned above.

The interviews with the CITT management highlighted the relevance and necessity of quickly establishing a simple and pragmatic quality assurance system.

Quality assurance is a strategic approach that allows organizing the structures and services of the innovation city, notably through job descriptions and, especially operational through the development and implementation of processes, quality procedures, and actionable plans. It makes possible, by means of indicators, dashboards, and internal audits, to monitor the proper functioning of the city and to trigger corrective actions in case of potential dysfunction. Likewise, the CITTs should consider certifying certain structures, particularly their analysis laboratories, to increase their recognition and credibility with external partners, both national and international (ISO 9001, ISO 14001, ISO/IEC 27001).

As a summary of recommendations:

At the end of the synthesis of the evaluation reports carried out in the framework of the Erasmus+ INSITES project [25]. It emerges that the devices of Innovation, Valorization and Technology Transfer are dynamic university entities that have adequate infrastructural, human and material potential, able to make them a locomotive of development and a successful example of a university component in their regions. The CITTs have the capacity to strengthen their position as a regional and national actor distinguished enough and able to professionalize and structure themselves in terms of administrative and scientific governance and rethink their internal mode of operation to seek pooling of improvements, administrative arrangements and strengths in the service of scientific research, innovation, technology transfer and exploitation of knowledge. Other similar structures existing in some universities must be inspired and take advantage of the experiences of the CITT in exercise to raise their structures in the devices of Innovation, valorization and Technological Transfer Performing.

Having carefully read the literature on the evaluation of innovation cities [25], related to the Hassan I University of Settat, Hassan II University of Casablanca, Chouaib Doukkali University of El Jadida, Mohammed V University of Rabat, Sidi Mohamed Ben Abdellah University of Fez and Cadi Ayyad University of Marrakech, which have been carried out as part of the Erasmus+ INSITES Capacity Building in Higher Education project, Call 2017 [26] and the observations during the site visits, we propose the following recommendations:

In governance:

- To increase the participation of the university community in the design of the policy of innovation, technology transfer and exploitation of knowledge through the institutionalization of the participatory approach.
- To set up a unit in charge of foresight and strategy, which will be responsible for designing strategic projects for the CITT in coordination and consultation with the University.
- Establish internal rules of the city and its decision-making structures and share them with all CITT stakeholders.
- Strengthen contacts with the relevant departments for the establishment of an official and

modern administrative organization chart highlighting the various departments.
- Monitor the actions implemented with performance indicators.
- Improve and update the website to make it a user-friendly, useful tool and develop an intranet or ENT (Environnement Numérique de Travail).
- Ensure that the work of the city is communicated to all university bodies.
- Implement a training plan for administrative staff to update their skills.
- Develop an effective communication plan to raise awareness of the CITT and enhance its value.
- Establish a quality approach at all levels while ensuring the essential and close links between the available skills and the motivation of the city's actors.
- Equip the CITT with an Integrated Information System and incorporate the platforms available at the university.
- Reactivate national and international cooperation contracts especially with promising partners to develop collaboration in applied research.
- Diversify the international partnership.
- Integrate European projects that benefit from funding for the mobility of administrative and technical staff and teacher-researchers and the acquisition of scientific equipment.
- Develop twinning with national and international innovation cities to encourage mobility, scientific and intercultural exchanges, etc.

In the area of support function management:
- Modernize human resources and financial management by introducing high-performance digital management tools.
- Introduce a continuous evaluation based on a system of indicators capable of supporting and reinforcing the city's development strategy.
- Reinforce the various services with competent and specialized personnel.
- Develop well-developed job descriptions for each employee.
- Establish a fair and motivating reward system.
- Strengthen and adapt ongoing staff training.
- Appoint a quality manager to build a quality management system, its implementation and continuous improvement.

Our research on innovation structures within Moroccan public universities, while offering valuable insights into innovation capacity, technical expertise, and collaboration dynamics, encounters certain limitations that deserve to be highlighted to contextualize its findings. A notable limitation lies in the restricted spectrum of stakeholders with whom we were able to establish effective communication. Despite a rigorous methodology involving questionnaires, interviews, and field visits, the collected data might not fully reflect the diversity and depth of experiences and perceptions of all key actors. This lack of comprehensive communication with stakeholders, potentially including industrial partners, financiers, and other actors indirectly related to innovation structures, introduces a constraint in our ability to provide a comprehensive analysis of the university innovation ecosystem.

This limitation raises relevant questions about the generalizability and completeness of our conclusions. It suggests that crucial dimensions of the innovation environment, which could significantly influence the effectiveness and sustainability of the studied innovation structures, may remain underexplored. Recognizing this bias, our study calls for a more inclusive approach in future research, proposing the engagement of a broader range of stakeholders through diverse and complementary data collection methods. Adopting such approaches would not only address the identified gaps but also enrich the understanding of the underlying mechanisms of innovation in the Moroccan academic context, thus contributing more significantly to the literature on innovation management and practice in the field.

Our investigation of the Cities of Innovation and Technology Transfer CITT in Moroccan universities reveals a complex reality, where these entities emerge as potential catalysts for socio-economic and scientific transformation within the kingdom [5]. The analysis highlighted competent

human resources and a notable scientific heritage at the heart of these structures, indicating an intrinsic capacity to promote innovation. However, to fully leverage this potential, it is imperative to consider innovation structures within a broader context, marked by national and regional specificities that directly influence their effectiveness and scope.

In the course of this research, the SWOT analysis emphasized that the strengths and weaknesses of the examined innovation structures are intrinsically linked to several key factors. Among these, the organization's innovation capacity, its technical expertise, its ability to establish fruitful collaborations with other businesses and institutions, as well as its capacity to secure funding for its innovative initiatives stand out as determining elements. On the other hand, the opportunities and threats identified mainly stem from the organization's external environment, including the competitive landscape, regulatory frameworks, technological advancements, economic fluctuations, and societal trends. This conclusion underscores the importance for organizations to maintain strategic and adaptive vigilance in the face of these dynamic variables, in order to maximize their innovative potentials while effectively navigating a complex and changing environment.

Morocco, with its strategy aimed at strengthening its economy through innovation and research, presents fertile ground for the growth of these structures. However, the concentration of economic activity in certain regions, notably along the Rabat-Casablanca axis, raises pertinent questions about regional development equity and the role universities can play in mitigating disparities. This economic centralization contrasts with the need for a more homogeneous distribution of innovation initiatives, calling for a national strategy that promotes better integration of less developed areas into the innovation circuit. Moreover, the challenge of Moroccan universities' autonomy, both administratively and financially, constitutes a significant obstacle to the independence necessary for initiating and managing ambitious innovation projects. University autonomy, by allowing more agile decision-making adapted to local realities, could energize innovation structures, equipping them with the flexibility and resources needed to effectively meet market and societal needs.

The success of these structures in the Moroccan context therefore intrinsically depends on the ability of the educational system and national policy to create an environment conducive to innovation. This implies structural reforms that strengthen university autonomy, equitable distribution of resources dedicated to innovation across the territory, and a national innovation strategy that aligns the objectives of innovation structures with the country's economic and social development priorities. Such an approach requires close collaboration between universities, the government, the private sector, and civil society actors, to build a robust and inclusive innovation ecosystem.

In conclusion, innovation structures in Moroccan universities stand at the crossroads between scientific potential and structural challenges. Their successful integration into the national innovation landscape requires clear recognition of regional dynamics and a political will to support university autonomy, as well as a balanced distribution of innovation investments. Faced with these challenges, Morocco has the opportunity to shape a future where universities are not just places of knowledge but active engines of socio-economic development and regional equity.

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ОЦІНКА МІСТ ІННОВАЦІЙ ТА ТЕХНОЛОГІЧНОГО ТРАНСФЕРУ (MITT) В МАРОККАНСЬКИХ УНІВЕРСИТЕТАХ

Вступ. Наука, технології та інновації є ключовими для економічної політики в усьому світі. Марокко, прагнучи підвищити свою конкурентоспроможність, з 2000 року запровадило реформи для розширення економічного розмаїття та сприяння зв'язкам між університетами та бізнесом, хоча їх вплив на технологічний розвиток залишається обмеженим.

Проблематика. Міста інновацій та технологічного трансферу (MITT) у Марокко не мають визначеної статутом ролі в структурі університетів, що обмежує їхню здатність ухвалювати рішення. Це дослідження аналізує ці обмеження для напрацювання пропозицій щодо стратегічних покращень.

Мета. Всебічна оцінка MITT в марокканських університетах, визначення їхніх сильних і слабких сторін, можливостей та загроз для розробки стратегічного плану щодо поглиблення інтеграції та підвищення ефективності національної інноваційної системи.

Матеріали й методи. Використовуючи змішану методологію, це дослідження аналізує структури інновацій та технологічного трансферу в шести марокканських державних університетах за допомогою SWOT-аналізу, зосереджуючись на інноваційних можливостях та міжінституційній співпраці. Дані були зібрані шляхом анкетування, проведення інтерв'ю та польових досліджень.

Результати. MITT відповідають стратегічному баченню університетів, підвищуючи рівень наукових досліджень та соціально-економічної взаємодії. Рекомендації зосереджені на визначенні чітких місій, розробці стратегічних напрямів політики та сприянні проактивній співпраці для удосконалення роботи MITT та висвітленню їхньої діяльності.

Висновки. Дослідження підкреслює потенціал MITT у сприянні соціально-економічному та науковому прогресу в Марокко. Незважаючи на виклики, такі як вплив регуляторних заходів та обмежена автономія університетів, важливо посилити роль цих структур для національного розвитку. Напрацьовано рекомендації зі стратегічних планів та автономії університетів для більш ефективної інтеграції інновацій у ширші цілі розвитку Марокко.

Ключові слова: міста інновацій та технологічного трансферу (MITT), Національна інноваційна система (НІС, оцінка), марокканські державні університети, SWOT-аналіз.