

# Public management at the service of improving energy optimization: Case of Moroccan universities

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**Abstract.** Public management can play an important role in improving the energy optimization of Moroccan universities. By adopting efficient management practices and implementing appropriate energy policies, universities can reduce their energy consumption, decrease their carbon footprint and realize financial savings. , while taking into consideration the examples or the cases of the universities having shared their experiences. Among the elements that we have noticed present in the majority of university establishments is the presence of a long-term energy strategy for universities, setting clear objectives in terms of reducing energy consumption and greenhouse gas emissions. This strategy should include specific measures such as installing energy efficient lighting systems, using renewable energy sources, improving the efficiency of heating, ventilation and air conditioning systems. In this article we will try to emphasize the key elements of the success of public management with reference to energy optimization by taking into consideration the case of Moroccan universities.

**Index Terms**—Public management, optimization, energies Moroccan universities

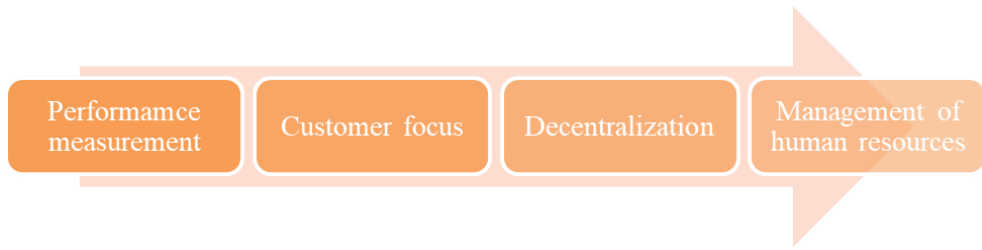
## 1 Introduction:

Public management refers to the management of public sector organizations, such as government departments, public bodies and public institutions. It focuses on the planning, coordination, organization and direction of human, financial and material resources in order to achieve the objectives and missions of the public sector in an effective, efficient and transparent manner. The principles and practices of public management sometimes differ from those of the private sector due to particularities and constraints specific to the public sector, such as public responsibility, accountability, transparency and citizen participation. Public management aims to optimize the use of public resources to provide quality services, promote the well-being of citizens and achieve the development objectives defined by public policies. The environmental management strategy within the administrations aims to integrate environmental concerns into the daily activities of the public administration. It aims to reduce the administration's environmental footprint, promote sustainability and set an example of environmentally friendly practices. An effective environmental management strategy within the administrations makes it possible to reduce the negative impacts on the environment, to achieve long-term cost savings and to reinforce the credibility of the administration as an actor committed to environmental sustainability. The environmental

management strategy and energy optimization within Moroccan universities are closely linked. By adopting an environmental management approach, universities can incorporate energy optimization practices to reduce their carbon footprint, minimize their energy consumption and promote sustainability. This requires carrying out a comprehensive energy audit of university facilities to assess energy consumption and identify areas where improvements can be made. This may include the evaluation of heating, ventilation and air conditioning systems, building insulation, lighting, energy-consuming equipment. By integrating environmental management strategy and energy optimization, Moroccan universities can play a key role in the transition to a more sustainable society, while creating a learning environment aware of the importance of environmental sustainability.

## **2 Moroccan public administrations**

The Moroccan public administration is governed by a specific legal and institutional framework, which defines its missions, its powers, its responsibilities and the procedures to be followed. The Moroccan administrative system is based on the principle of the separation of powers, with a distinction between the executive power, the legislative power and the judicial power. The objectives of public administration in Morocco include the implementation of public policies defined by the government, the provision of quality public services, the promotion of economic and social development, the protection of citizens' rights, the management of public resources, transparency, accountability and citizen participation. The Moroccan public administration is organized hierarchically, with a structure that goes from the central level (government and ministries) to the local level (local authorities). Each level is responsible for implementing public policies in its area of competence. Morocco has a civil service system that regulates the recruitment, management and career of civil servants. The principles of merit, equal access to public employment, political neutrality and accountability are essential in the functioning of the Moroccan civil service. Morocco has embarked on a decentralization process aimed at transferring certain powers from the central administration to the local authorities. This aims to bring public services closer to citizens, foster local development and strengthen citizen participation. The Moroccan public administration has embarked on a process of modernization and digitization to improve the efficiency, transparency and quality of public services. Initiatives such as e-government are implemented to facilitate access to administrative services and simplify administrative procedures. Control and accountability mechanisms are in place to ensure the transparency and integrity of public administration. Oversight bodies, such as the Court of Auditors, are responsible for verifying the use of public resources and evaluating the effectiveness of public policies. Morocco encourages citizen participation in the decision-making process and the management of public affairs. Public consultations, social dialogue mechanisms and local participation mechanisms are put in place to allow citizens to express themselves and contribute to the development of public policies. Moroccan public administration is constantly evolving to meet the needs and challenges of the country. Reforms are regularly undertaken to strengthen the effectiveness, efficiency and accountability of the administration in achieving Morocco's development objectives.



**Figure 1: Roles of modele management in public administrations**

The modernization of public administration in Morocco is a priority for the government in order to improve the efficiency, transparency and quality of public services, as well as to strengthen governance and citizen satisfaction. The Moroccan government has embarked on a digital transformation aimed at simplifying administrative procedures, facilitating access to public services and reducing processing times. Online platforms, government portals and mobile applications have been developed to allow citizens to carry out administrative procedures online, submit requests, follow up on files, etc. The Moroccan public administration seeks to simplify and streamline administrative procedures, reducing documentary requirements, eliminating unnecessary steps and speeding up processing times. One-stop shops have been created to bring together the various services linked to a specific administrative procedure, thus facilitating interactions with the administration. Measures have been taken to strengthen the transparency of the Moroccan public administration. This includes the regular publication of information on public policies, decisions and expenditures, as well as the promotion of citizen participation and public consultation in the decision-making process. Control and audit mechanisms are also strengthened to ensure the transparent and accountable use of public resources. The modernization of public administration also includes efforts to strengthen the skills of civil servants. Continuous training and skills development programs are put in place to improve the knowledge and skills of public officials, particularly in management, communication, project management and new technologies. The Moroccan public administration emphasizes management by results, setting clear objectives, measuring performance and evaluating the results obtained. Monitoring and evaluation systems are put in place to assess the effectiveness of public policies and to make decisions based on data and performance indicators. To foster a more efficient and integrated public administration, efforts are being made to strengthen coordination and cooperation between different government ministries and agencies. This aims to avoid duplication, facilitate the exchange of information and promote a transversal approach in the implementation of public policies. The modernization of public administration in Morocco is an ongoing process that requires a long-term commitment. The government is continuing its efforts to improve the delivery of public services, strengthen governance and meet citizens' expectations in terms of quality, efficiency and transparency.

### **3 Environmental management and energy optimization**

The interaction between environmental management and energy optimization is close and complementary. Environmental management aims to integrate environmental concerns into an organization's activities, while energy optimization focuses specifically on reducing energy consumption and energy efficiency. Energy optimization is an integral part of environmental management because energy has a significant impact on the environment,

whether in terms of greenhouse gas emissions, air pollution or resource depletion. natural. By adopting energy optimization practices, an organization helps reduce its carbon footprint, conserve natural resources and promote sustainability. On the other hand, environmental management provides the overall framework for integrating energy optimization into an organization's policies and processes. It facilitates the planning, implementation and evaluation of energy optimization measures by integrating them into the wider environmental objectives of the organization. Environmental management defines the objectives of reducing an organization's carbon footprint and energy consumption. These objectives can be translated into specific energy optimization measures, such as reducing electricity consumption, using renewable energy sources, improving the efficiency of heating, ventilation and air conditioning, etc. Environmental management and energy optimization are integrated into the organization's strategic planning. Strategic decisions take into account environmental and energy issues, and investments in energy efficiency are integrated into budgets and investment plans. Environmental management assesses the environmental risks an organization faces, including energy-related risks. This makes it possible to identify opportunities for energy optimization and to take preventive measures to reduce negative impacts on the environment. Environmental management and energy optimization require awareness and training of the organization's personnel. Employees must be aware of environmental and energy issues, and be trained in good energy optimization practices. This promotes the commitment and active participation of all members of the organization. Environmental management and energy optimization are based on regular performance monitoring and evaluation. This involves collecting data on energy consumption, greenhouse gas emissions and other key indicators, in order to measure progress, identify areas where improvements are needed and adjust energy optimization measures accordingly. By integrating environmental management and energy optimization, organizations can achieve multiple benefits, such as reducing energy costs, regulatory compliance, improving their public image and contributing to the fight against climate change.



**Figure 2** : Environmental Management System

Environmental management in public administration consists of integrating environmental concerns into the policies, practices and processes of public administration. It aims to promote sustainability, reduce the environmental impact of administrative activities and ensure responsible management of natural resources. Public administrations can develop and implement environmental policies that guide their actions and decisions. These policies may include commitments to reduce greenhouse gas emissions, promote energy efficiency, protect biodiversity, and manage waste. Environmental considerations must be integrated

into all decisions and activities of public administration. This may involve assessing environmental impacts when developing projects, integrating environmental criteria into procurement and contracting processes, and taking environmental issues into account in sectoral policies. Raising awareness and training of public administration employees is essential to fostering an environmental culture. Awareness programs can include communication campaigns on environmental issues, training on good environmental practices, and incentives to adopt environmentally friendly behavior.

The public administration can put in place policies and practices aimed at the responsible use of natural resources. This can include energy efficiency measures to reduce energy consumption, water management initiatives, biodiversity conservation programs, etc. Public administrations can collaborate with other actors, such as government agencies, non-governmental organizations and the private sector, to strengthen their environmental actions. Partnerships can foster the exchange of knowledge, access to additional resources and the establishment of joint projects aimed at promoting sustainability. By adopting an environmental management approach, public administrations can play a model role in protecting the environment, promoting sustainability and raising citizens' awareness of environmental issues.

## **4 Results of implementation in some universities**

The implementation of environmental management in universities in Morocco can have positive results on energy optimization, more particularly several positive results since 2015:

- Reducing energy consumption By adopting energy optimization practices, academic institutions can reduce their energy consumption. This can be achieved by improving the efficiency of heating, ventilation and air conditioning systems, the use of energy-efficient lighting, the efficient management of electrical equipment, etc. Reducing energy consumption not only saves money, but also reduces the establishment's carbon footprint.
- Increased use of renewable energy Environmental management can encourage the use of renewable energy in academic institutions. This can result in the installation of solar panels, the exploitation of wind energy, the use of geothermal energy, etc. The integration of renewable energies makes it possible to reduce dependence on fossil fuels, to diversify energy sources and to promote cleaner energy consumption.
- Awareness and commitment of the university community, environmental management promotes awareness and commitment of the university community, including staff and students, to the challenges of energy optimization. Awareness campaigns can be carried out to promote eco-responsible behaviors, such as turning off lights and electrical equipment when not in use, efficient air conditioning management, etc. The commitment of the university community is essential to ensure the success of energy optimization measures.

- Improved infrastructure efficiency Environmental management can lead to improvements in the efficiency of university infrastructure. This can include the optimization of heating, ventilation and air conditioning systems, the insulation of buildings, the use of energy efficient technologies, etc. Improving infrastructure efficiency reduces energy losses and optimizes the use of available resources.
- Financial savings , the energy optimization resulting from environmental management can generate financial savings for university establishments. Reducing energy consumption and using renewable energy can lower energy costs in the long term. The savings made can be reinvested in other environmental projects or in the improvement of university infrastructure.
- Image and environmental responsibility The implementation of environmental management in universities strengthens their image as environmentally responsible institutions. This can help attract students, teachers and researchers engaged in environmental issues. In addition, the commitment to energy optimization can be valued in sustainability reports and environmental rankings.

It should be noted that the specific results may vary depending on the actions implemented, the resources available and the characteristics specific to each academic institution. However, in general, implementing strong environmental management can lead to significant energy optimization and both environmental and financial benefits.

## **5 Conclusion:**

Energy optimization within Moroccan universities is of paramount importance to promote environmental sustainability, reduce energy costs and contribute to the fight against climate change. Moroccan universities have a key role to play as teaching and research institutions, training future leaders and professionals aware of environmental issues. The implementation of energy optimization measures within Moroccan universities offers many advantages, such as reduced energy consumption, increased use of renewable energies, financial savings, improved efficiency infrastructure and awareness of the university community to environmental issues. However, it is essential to emphasize that energy optimization should not be seen as an isolated objective, but rather as an integral part of an overall approach to environmental management within universities. Energy optimization measures must be integrated into a broader environmental management framework, which takes into account other environmental aspects such as waste management, preservation of biodiversity, reduction of greenhouse gas emissions , etc. The success of energy optimization within Moroccan universities will depend on several factors, including the commitment of management, the awareness and participation of the university community, the availability of financial and technical resources, as well as the collaboration with other actors such as government agencies and external partners. Energy optimization within Moroccan universities contributes to the construction of a more sustainable future, to the training of professionals aware of environmental issues and to the promotion of an eco-responsible society. It is an investment for the environment, future generations and the position of Moroccan universities as actors committed to sustainable development.

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