Innovation and Adaptation: The Primary Digital Initiatives of Morocco in Education, Teleworking, and E-Administration for Enhanced Management of the Covid-19 Crisis

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ABSTRACT

The Covid-19 pandemic constituted an unprecedented disruption to the Moroccan economy and society, forcing public authorities to accelerate the digital transition in order to ensure the continuity of essential services and productive activities. Although digital tools have proven to be opportune in addressing health challenges, they have also revealed the extent of the digital divide with the exclusion of rural populations from online platforms.

Teleworking has demonstrated its operational efficiency but raises managerial challenges such as remote management of employees. The crisis has disrupted traditional management patterns, requiring in-depth reflection on the evolution of digital-based management methods.

Regarding the education sector, the assessment of ICT equipment in schools predicted the inability to deploy distance learning accessible to all in an equitable manner. This partial digitalization has hindered the objective of pedagogical continuity.

In summary, while digital technologies have enabled the continuation of activities, this crisis reveals the need to accelerate digital transformation in Morocco to bridge the digital divide and adapt managerial practices to the new challenges of teleworking.

KEYWORDS : Distance learning, telecommuting, e-administration, digitalization, Covid19, Digitization of education

1   INTRODUCTION

The Covid-19 pandemic has affected people from all nations, continents, races, and socio-economic groups (Shanafelt et al., 2020).

This pandemic, which occurred in 2020 has caused an unprecedented disruption to the Moroccan economy and society, forcing the government to accelerate the digital transition in order to ensure the continuity of essential services and productive activities. While digital tools have proven to be useful in addressing health challenges, they have also revealed the extent of the digital divide, with rural populations being excluded from online platforms.

Telecommuting has demonstrated its operational effectiveness but raises managerial challenges such as remote employee management. The crisis has disrupted traditional management patterns, requiring a deep reflection on the evolution of digital-based management methods.

Regarding the education sector, the assessment of ICT equipment in schools had already indicated the inability to deploy equal and accessible distance learning for all. This partial digitalization has hindered the goal of pedagogical continuity.

In conclusion, while digital technologies have allowed for the continuation of activities, this crisis reveals the need to accelerate digital transformation in Morocco to bridge the digital divide and adapt managerial practices to new challenges.

In this article, we endeavor to analyze the deployment of digital tools during the crisis in Morocco and their contribution to ensuring the continuity of public services, businesses, and the education system.

2   THE DIGITAL TRANSFORMATION PROJECT IN MOROCCO: CURRENT SITUATION

2.1   DIGITIZATION IN MOROCCO : A CONCISE OVERVIEW

According to the Economic, Social, and Environmental Council, Morocco has implemented several strategies and programs to accelerate its digital transformation, such as "Maroc Numeric 2013" and "Maroc Digital 2020." It has established specialized entities in this field, including the Digital Development Agency (ADD) and the National Commission for Control of Personal Data Protection (CNDP).

In this context, several initiatives have emerged, including the "Idarati" portal for administrative procedures, online payment of taxes and duties (vehicle registration, income tax, corporate tax, VAT, etc.), the "PortNet" single window, monitoring of RAMED (medical assistance program), the "Chikaya" portal for complaints, the "TELMIDTICE" platform for distance learning, the digital office of correspondence, and other initiatives related to digital public services (CESE, 2021).

However, the CESE (2021) highlighted in its report titled "Towards a responsible and inclusive digital transformation" that the Covid-19 pandemic has revealed several shortcomings and inadequacies in Morocco's digital transformation, including :

- A significant delay is accused in the implementation of previous digital transformation policies in several sectors such as administration, health, education, and industry ;
- A low geographical coverage in high-speed and very high-speed Internet infrastructure ;
- The fragmented and sometimes inadequate legislative and regulatory framework, particularly in terms of teleworking ;
- A lack of local technological actors ;
- The low production of national digital, cultural, and educational content.

To address these aforementioned shortcomings and deficiencies, the CESE proposes to mainly proceed as follows :

- Establish a comprehensive and appropriate regulatory framework for digitization, particularly regarding teleworking and data protection ;
- Improve cybersecurity and digital sovereignty to promote responsible digital transformation ;
- Establish national and regional sovereign data centers to enable the state and Moroccan organizations to host their strategic assets (data and applications) ;

- Integrate the academic, economic, and industrial systems into R&D in digital transformation.

2.2 PLACE OF DIGITIZATION IN MOROCCO'S NEW DEVELOPMENT MODEL

According to the commission responsible for the development of the new development model, digitalization is seen as a driving force for the development of public administration and, therefore, it will allow for the improvement of services provided to citizens. Indeed, in its April 2021 report, the aforementioned commission drew the following conclusions :

- Digitalization of administration is considered a necessary response to improve the quality of the administration's relationship with citizens and operators, and its corollary is the restoration of trust.

- The densification of training programs in digital skills and artificial intelligence, the acceleration of the national strategy for financial inclusion through digital finance, support for internal digitalization of businesses, and support for startups.

- The use of digital tools should be encouraged to introduce students in a modern and playful way to our historical and religious heritage.

- The health crisis related to Covid-19 has been an opportunity to highlight the potential of digitalization in the healthcare sector.

- Improving access and quality of services also requires reorganizing the healthcare journey and accelerating the digitalization of the healthcare system.

- The modernization and digitization of the healthcare system also involve a greater use of new technologies for better quality of care and better hospital management, thus allowing healthcare personnel to practice their profession under the best conditions.

- The State must accompany this dynamic of change by strengthening the digital transformation of the media and supporting them in their search for an innovative and sustainable economic model.

- The State must encourage the status of self-employed and revalue the status of domestic employees, notably through simplified and digitalized contracting and declaration procedures.

- It is urgent to accelerate the digitalization of the administration through a single digital platform, allowing everyone to access all the necessary administrative services for their daily life.

Based on the foregoing, it can be deduced that the commission responsible for the development of the new development model considers digitalization to be one pillar among others for the development of the Kingdom. It is a cross-cutting element that affects all sectors of the State. The said commission also emphasized the urgency of accelerating the digitalization of the administration in order to promote the quality of service provided to citizens and meet their expectations under the best conditions and deadlines.

2.3 OVERVIEW OF THE MAIN DIGITIZED GOVERNMENT SERVICES IN MOROCCO

During the past two decades, several institutions and ministries have implemented projects related to the digital transformation of their services. The following non-exhaustive list includes:

- Online tax and duty declarations and payments (vehicle registration, income tax, corporate tax, VAT, etc.) implemented by the General Tax Directorate (DGI) ;
- The PortNet single window initiated in 2008 by the National Ports Agency ;
- The video conference solution of the Department of Justice, enabling remote hearings and trials ;
- The "Chikaya" platform launched online by the Department of Administrative Reform in collaboration with the Department of Digital Economy to facilitate the citizen complaint filing process ;
- The "Watiqa" platform implemented by the Ministry of the Interior, allowing remote modernization of civil status and obtaining administrative documents ;
- The "TELMIDTICE" portal, made available by the Ministry of National Education for distance learning during the health crisis ;
- An online appointment scheduling portal "mawiidi.ma" launched by the Ministry of Health.
- The claims portal (Chikaya) established by the National Health Insurance Agency (ANAM) for the benefit of AMO policyholders.
- The National Agency for Cadastre and Cartography (ANCFCC) has deployed an online service platform available to all users, whether individuals or professionals, including the digitization of deposits by surveyors, digital filing of documents by notaries, and the ability for users to make electronic payments for land conservation fees and cadastral file fees, as well as obtain a digital property certificate.

- Since 2015, the Municipal Equipment Fund (FEC) has implemented an "E-services" portal for its customers, providing integrated, transparent, secure, and continuous online services for the management and monitoring of their loan applications throughout all stages of processing (account consultation, application and correspondence tracking, information and contact). Additionally, the "E-services" portal also offers local authorities a document area where they can download various documents related to their loan applications.

As for the private sector, it is worth noting that the banking sector remains the most affected by digital transformation in order to meet the changing needs of its clients and market expectations. Indeed, the regulations at the international level, the regulations established by Bank Al Maghrib regarding digitalization, and the digitalization of payment are all factors that have allowed for the acceleration of digitalization in the banking sector.

2.4   THE MAIN GOVERNMENTAL ACTORS IN THE FIELD OF DIGITALIZATION IN MOROCCO.

2.4.1   THE DIGITAL DEVELOPMENT AGENCY (ADD)

The Digital Development Agency (ADD), created under law No. 61.16 published in official bulletin No. 6604 on September 14, 2017, is a strategic public institution with legal personality and financial autonomy.

Under the supervision of the Ministry Delegate to the Head of Government in charge of Digital Transition and Administrative Reform, the Agency is responsible for implementing the state's strategy for digital development and promoting the dissemination of digital tools and the development of their use among citizens.

The Digital Development Agency has several cross-cutting missions as an institutional actor, aimed at structuring the digital ecosystem and creating true operators in the digital economy. It also aims to promote digital administration by establishing closer ties with users (citizens and organizations) and creating a regulatory framework for digital products and services. Its attributions also consist, in order to reduce the digital divide, in supporting the Industry 4.0 revolution, leading a change in society through training and awareness. It is responsible, among other things, for encouraging research and development, promoting social and entrepreneurial innovation, and ensuring responsible and sustainable digital inclusion.

Additionally, the Digital Development Agency adopts a participatory approach with all stakeholders (public and private sector, civil society) and ensures coordination and consultation

on the multiple issues of digital transformation and its impact on the overall environment (administration, business, citizen).

2.4.2 THE GENERAL DIRECTORATE OF INFORMATION SYSTEMS SECURITY (DGSSI) ATTACHED TO THE NATIONAL DEFENSE ADMINISTRATION

The General Directorate of Information Systems Security (DGSSI) was created by decree No. 2-11-509 of September 21, 2011. It is attached to the national defense administration of the Kingdom of Morocco.

The DGSSI is responsible for :

- Coordinating inter-ministerial work on the development and implementation of the state's strategy for information systems security

- Organizing training programs and awareness actions for personnel in government departments and public organizations.

- Ensure the implementation of the directives and guidelines of the strategic committee for information system security.

- Issue authorizations, manage declarations related to cryptography means and services.

- Certify electronic signature creation and verification devices, and approve service providers for electronic certification.

- Ensure technological monitoring to anticipate developments and propose necessary innovations in information system security.

- Conduct security audits of information systems for government administrations and public organizations, with the scope and procedures determined by the strategic committee for information system security.

- Assist and advise government administrations, public organizations, and the private sector in implementing their information system security.

- Establish, in collaboration with ministerial departments, a system for monitoring, detecting, and alerting events affecting or likely to affect the security of state information systems, and coordinate the necessary measures to be taken.

- Develop necessary devices for the implementation of secure systems for the benefit of government administrations and public organizations.

2.4.3 THE NATIONAL COMMISSION FOR CONTROL OF PERSONAL DATA PROTECTION (CNDP)

The National Commission for the Control of Personal Data Protection (CNDP) was created by Law No. 09-08 of February 18, 2009, relating to the protection of individuals with regard to the processing of personal data.

It is responsible for verifying that the processing of personal data is lawful, legal, and does not infringe upon the privacy, freedoms, and fundamental rights of individuals.

The Commission consists of individuals who are well known for their impartiality, moral integrity, and expertise in legal, judicial, and computer fields.

3 GOVERNMENT INITIATIVES IN DIGITALIZATION DURING THE PERIOD OF THE HEALTH CRISIS

By declaring a state of health emergency related to the Covid-19 pandemic in March 2020, the Moroccan State had as its primary objective the guarantee of the health safety of employees while maintaining the continuity of public service activities.

To this end, public administrations aligned themselves with the recommendations issued by the authorities, particularly by the Ministry of Health, taking into account the evolving health context related to Covid-19 (adoption of barrier gestures by employees, adoption of restrictive measures related to meetings and travel, use of video conferencing for communication and exchanges between employees and partners, mandatory wearing of masks).

Thus, they have adopted teleworking or a hybrid mode with alternating in-person/teleworking, and have implemented a reduced workforce organization system, both in-person with rotation and teleworking. Indeed, the strict confinement and social distancing measures imposed by the State have led to a significant acceleration of the digitalization of the administration. With the urgent need to maintain the continuity of administrative services while ensuring compliance with public health protection measures, authorities are obliged to accelerate the integration of digital technology within the administration.

Covid-19 has highlighted certain areas of uncertainty within public administration and organizations. Agility, adaptation, and digital transformation must be at the core of the modernization process of public services in order to cope with an ever-changing environment. Furthermore, the health crisis linked to Covid-19 has demonstrated the need to modernize administration and opt for digitalization in order to make it more proactive and efficient.

Furthermore, in response to the need to meet the requirements of social distancing and confinement, Moroccan administrations have adopted digitalization to ensure the continuity of their activities. Among the digital services implemented by various state structures during the sanitary crisis related to Covid-19, we can present the following non-exhaustive list :

3.1 THE DIGITAL OFFICE SERVICE IMPLEMENTED BY THE DIGITAL DEVELOPMENT AGENCY (ADD)

The Minister of Economy, Finance, and Administrative Reform has addressed Circular No. 2/2020 dated April 1, 2020, regarding digital services for administrative correspondence to various public administrations.

This circular requires public administrations to transition to electronic exchanges of documents and administrative correspondence in order to avoid the risk of Covid-19 contamination associated with the use of paper documents.

Thus, according to this circular, it is specified that the Digital Development Agency (ADD), in coordination with the Ministry of Economy, Finance, and Administrative Reform (Department of Administrative Reform), has taken a set of measures to support Public Administrations in adopting digital solutions by developing a series of digital services. These developed services include :

- A portal of the digital office for administrative correspondence, which aims to allow users and administrations to remotely submit their administrative correspondence to the relevant administrations, in exchange for a digital receipt ;
- An electronic service for inter-administrative correspondence, which allows administrations to manage their incoming and outgoing letters, as well as those exchanged between their internal services, at both central and decentralized levels ;
- The electronic inbox enables the digitization of paper media for different administrative documents, the electronic signature of said documents, and workflow management.

Additionally, it is indicated that in order to support Public Administrations in their digital transformation, a task force composed of representatives from the ADD and the Department of Administration Reform has been created to assist them in adopting various digital solutions, states the Circular, noting that this team plans to organize virtual workshops to present the solutions developed by the Agency.

Finally, the Minister called for the widespread dissemination of this circular to the services under the various ministerial departments, both at the central, regional, and provincial levels,

urging all government departments and relevant organizations to work, in coordination with the Department of Administrative Reform and the ADD, to adopt these digital solutions and commit to achieving the expected objectives.

3.2 ELECTRONIC SUBMISSION OF INVOICES BY SUPPLIERS OF PUBLIC ESTABLISHMENTS AND COMPANIES

The Ministry of Economy, Finance, and Administrative Reform issued circular No. C59/20/DEPP dated June 1, 2020, addressed to public establishments, regarding the electronic submission of invoices by suppliers of public establishments and companies.

In accordance with the provisions of the circular, Public Establishments and Companies (EEP) are called upon to take all necessary measures, mobilize all human and material resources, and implement the necessary reforms to gradually operationalize the electronic submission of invoices and related documents from their suppliers.

3.3 DIGITAL SERVICES IN THE HEALTHCARE SECTOR

The occurrence of the pandemic has intensified the process of digital transition that was already underway within the Moroccan public administration, with the aim of ensuring the continuity of public services in this disruptive context. The healthcare sector, whose functioning has been severely impacted by the health crisis, has not escaped this acceleration of its digital transformation. Numerous platforms and mobile applications, developed by both public authorities and private actors, have emerged in order to maintain and even improve the relationship between different users of the healthcare system. These digital tools have allowed for the provision of services such as patient information, population awareness, medical appointment scheduling, telemedicine, and health pass management, thus contributing to the resilience of the sector in the face of the challenges posed by this unprecedented period.

According to Rkain et al. (2021), the main digital services implemented during this crisis period are as follows :

- **The "wiqaytna" service**

Launched in June 2020, the mobile application for virus exposure notification was jointly developed by the Ministries of Health and Interior, in collaboration with the ADD and ANRT as well as private companies. It aims to strengthen the contact tracing system by notifying individuals potentially exposed to the virus.

▪ **The "liqahcorona" service**

The platform www.liqahcorona.ma was set up by the Ministry of Health. It allows electronic exchanges related to the COVID-19 vaccination program. This platform addresses the main questions from users and provides the possibility to get information about vaccination appointments, download the vaccination pass or exemption certificate, and report an adverse event after vaccination.

▪ **The "Tbib24" service**

Tbib24 is a solution that allows users to quickly locate and contact a doctor for a video consultation or directly book an appointment at their clinic or home. This platform facilitates real-time consultations. It was launched at the beginning of the confinement period as a result of a partnership between the Ministry of Health, the National Council of the Order of Physicians (CNOM), and the National Council of the Order of Dentists (CNOMD).

4   POST-COVID GOVERNMENT INITIATIVES IN THE FIELD OF DIGITALIZATION

4.1   PUBLICATION OF THE BEST PRACTICES GUIDE FOR DIGITALIZATION OF PUBLIC SERVICES BY THE ADD

The Digital Development Agency (ADD) has published a guide of best practices for administrations in the design and digital transformation of public services, based on the best international experiences and practices.

This guide is built around two axes :

▪ Placing the user at the center of the administration's digital transformation process ;
▪ Creating an innovative, efficient, and transparent administration.

This document primarily aims to guide public administrations in transforming and instilling digital thinking in their work practices, by referring to technical standards regarding digital services and applying recognized digital standards and best practices integrated into the administration's framework.

It should be noted that the ADD (Agency for the Development of Digital Morocco) is governed by Law No. 61-16 and is responsible for implementing the state's strategy in the field of digital economy development, promoting the dissemination of digital tools, and encouraging their use among the Moroccan population.

4.2 PUBLICATION OF THE CESE REPORT ON DIGITALIZATION IN MOROCCO

The Economic, Social, and Environmental Council of Morocco published a report in 2022 titled 'Towards a responsible and inclusive digital transformation' on digitalization in Morocco.

Through this report, the Economic, Social, and Environmental Council assessed the state of digitalization in Morocco by presenting its shortcomings, limitations, and obstacles hindering its development in the Kingdom, as well as the use of digital transformation during the health crisis.

The CESE also presented the advantages and achievements of Morocco in terms of digital transformation, as well as the necessary prerequisites for a new vision of digital transformation towards a digital and modern state, a vector of efficiency and citizenship.

Furthermore, in its report "Towards a responsible and inclusive digital transformation", the Economic, Social and Environmental Council (CESE) formulates a vision and several strategic recommendations to make digital technology a major driver of economic and social development in Morocco (CESE, 2021).

The CESE particularly recommends adopting an inclusive digital policy aimed at generalizing access to technology for the entire Moroccan population within a period of 3 years. It also recommends increasing the contribution of ICT to 10% of the GDP within 5 years and digitizing administrative procedures within the same time frame.

Moreover, the Council suggests making digital technology the foundation for the implementation of laws, regulations, and public services. However, it emphasizes the need to ensure a responsible and equitable digital transformation, given the persistent risks of digital divide, especially for the entrepreneurial fabric.

In order to achieve these objectives, the CESE recommends the establishment of a transformational governance for the digitization of the Moroccan public sector. The recommendations aim to accelerate the country's digital transition while ensuring its accessibility and benefits for the entire society.

4.3 LAUNCH OF THE EADD IDENTIFICATION SERVICE

According to a press release from M.A.P. (2022), the Digital Development Agency (ADD) has launched, in partnership with the General Directorate of National Security (DGSN), the identification and authentication service for users of digital services, based on the Electronic National Identity Card (CNIE).

The launch of this new service is part of ongoing efforts to strengthen digital trust and create the appropriate environment to ensure responsible and inclusive digital development in Morocco.

The new service, based on the DGSN's "national trusted third party" platform, allows various entities from the public and private sectors to verify the identities of individuals wishing to access their online services through the identification and authentication of digital service users, the secure sharing of accurate personal data based on their CNIEs, and the subscription to new remote services.

According to the CEO of ADD, the Covid-19 pandemic has demonstrated how much digital technology is an absolute necessity to shed light on the digital skills of administrations, citizens, and businesses. This new initiative, which is at the heart of the digital development process, is a prerequisite for the emergence of a digital administration serving the citizen, a competitive economy, and a connected and inclusive society.

4.4 LAUNCH OF THE DIGITALIZATION PLATFORM FOR THE COMMERCE SECTOR "MOROCCAN RETAIL TECH BUILDER"

The "MOROCCAN RETAIL TECH BUILDER," the first Venture Builder in Morocco and Africa dedicated to the digitalization of commerce, aims to support a hundred project holders in the development of innovative digital solutions for the benefit of merchants. Simple and accessible digital tools will be designed to enable beneficiaries to modernize and create value. According to the Moroccan Minister of Commerce and Industry, this Venture Builder will enable merchants to strengthen their role by modernizing, increasing their turnover, and gaining competitiveness while improving their offering for the well-being of Moroccan consumers and their requirements.

Resulting from a public-private partnership, the content of the MRTB program was co-constructed with all actors in the commerce sector. Startups, university researchers, sectoral federations, public institutions, and experts came together during several working sessions to consult, share, and develop a common and innovative vision, including the Open Innovation Retail Workshop, which took place in July 2021.

To conclude this part of our article, it should be noted that despite the various initiatives undertaken by the public authorities in the field of digital transformation, some challenges remain to be met in order to successfully carry out this strategic project for the country's development. Indeed, according to Zaanoun's work (2023), the process of digital transformation

in Morocco is hindered by several obstacles that complicate its progress and the achievement of set objectives.

The author highlights the lack of coordination between the various government programs deployed in partnership with the private sector and international donors. This fragmentation of initiatives is one of the main obstacles to the success of digital transformation projects (Zaanoun, 2023). For example, the results of the "e-Maghreb 2010" plan were not taken into account when developing the "Maroc Numérique 2013" strategy. Furthermore, a lack of follow-up in the implementation resulted in the realization of only 42 services out of the initially planned 89.

The managerial structures have also encountered difficulties. The National Council for Technologies, Media, and the Digital Economy has not ensured the management of the "Digital Morocco" strategy (Zaanoun, 2023). Furthermore, digital services intended for the general public are often less advanced than platforms dedicated to professionals (bill payment, royalties, taxes), creating a disparity in access to services based on usage. Therefore, a strategic and organizational harmonization effort seems necessary to remove these barriers and successfully complete the digital transition in Morocco.

5   BUSINESS CONTINUITY THROUGH TELEWORKING: MOROCCAN ORGANIZATIONS' RESPONSE TO THE COVID-19 PANDEMIC.

Digital transformation is accompanied by professional mobility, causing the physical boundaries of organizations to disappear with the emergence of teleworking or nomadism. Teleworking has emerged for certain professional fields thanks to digital transformation. It is a new form of work that allows one to work from any location while being efficient and productive collaboratively, just as if they were present in the organization's premises.

Although the motivations for the expansion of telecommuting have evolved, institutions, businesses, and individuals nevertheless maintain their perception of telecommuting as a palliative solution to their difficulties (Largier, 2001).

According to Le Scaon & Chardin (2020), teleworking can be defined as "any form of work organization that could have also been carried out on the employer's premises, performed by an employee outside the premises voluntarily, using information and communication technologies."

Telecommuting includes both employees who work from home and "nomadic" employees who work in third places.

For his part, Largier (2001) considers telecommuting to be a situation in which an individual carries out professional activities remotely from the usual place of work, using new information and communication technologies (NICTs) to establish and maintain contacts.

According to Lederlin (2020), telecommuting has significant potential impacts on health, the environment, personal life, and productivity. In terms of health, by limiting physical interactions in the office or during commutes, it constitutes an effective measure of social distancing against the spread of diseases. Environmentally, reducing commuting can decrease greenhouse gas emissions, contributing to the fight against climate change. Personally, it promotes a better balance between professional and private spheres, allowing for a reconciliation of family life and work. In terms of productivity, by limiting external demands, telecommuting could increase employees' focus and performance at work. Thus, the development of this work organization method has the potential to bring about significant changes.

Moreover, in March 2020, the confinement measures implemented by the Moroccan authorities led to the sudden closure of workplaces, plunging organizations into a state of emergency. To maintain their activity, they had to massively and quickly adopt telecommuting, a solution that allows for remote service continuity. Within a few weeks, thousands of positions transitioned to telecommuting thanks to the digital efforts of public and private organizations. This unexpected generalization affected different sectors and made it possible to maintain economic activity despite the disruptive context.

Faced with an unprecedented crisis situation following the Covid-19 pandemic, Moroccan organizations found themselves confronted with the unprecedented challenge of maintaining activity in a disruptive context. In the absence of established methods to cope with such contextual upheaval, telecommuting emerged as the most suitable solution to ensure operational continuity, despite its forced and improvised adoption. Indeed, in the face of the health emergency and the imposed restrictive measures, remote work has emerged as the only mode of action to ensure the continuation of the production of goods and services while respecting the requirements of confinement and physical distancing. This timely response, although unplanned, has thus made it possible to minimize to the extent possible the economic repercussions of the systemic crisis caused by the pandemic.

According to a study conducted in 2020 by the High Commission for Planning, several million Moroccan workers switched to teleworking at the height of the crisis. This massive transition allowed organizations to continue their activities despite the health restrictions. Teleworking

has proven particularly useful in certain sectors such as IT, banking and insurance, or consulting. However, not all jobs are suitable for teleworking, especially manual labor.

Furthermore, according to statistical data published by the HCP in 2021, the adoption of teleworking varied depending on the size of the companies. Indeed, a large majority of large companies (55%) resorted to this mode of remote work to cope with the unprecedented context raised by the crisis. This proportion decreases as the organizational dimension decreases, with 29% of small and medium-sized enterprises (SMEs) also opting for teleworking. Finally, small businesses (TPE) accounted for only 19% of those who turned to this solution to maintain their activities during the pandemic. These official statistics thus highlight a positive correlation between the size of the structures and the forced but necessary adoption of teleworking as a means of resilience in the face of the uncertainties of the new health and economic context.

Furthermore, according to the same source, the HCP (2021), statistical data shows that the adoption rate of teleworking varied across sectors. Thus, companies operating in information and communication, where the professions are best suited, mainly resorted to remote work with a percentage of 65%. They were followed by energy companies (47%) and business services (44%). These high rates reveal that digital sectors naturally adapted to the crisis, unlike others such as the manufacturing industry, whose activities are less compatible with teleworking forced by the context.

Although teleworking and digital tools have proven to be timely responses that have allowed organizations to ensure the continuity of their operations in the troubled context created by the Covid-19 pandemic, it is important to note that such remote working arrangements are not without certain constraints.

Also, it should be noted that the occupational risks to be prevented in the context of teleworking are similar to those of any work, but also include certain specific psychosocial risks. Among these risks are social and professional isolation, sleep disorders, time management difficulties, mood disorders, addictive behaviors, and stress resulting from a possible mismatch between set goals and available resources (Chamoux, 2021).

On the other hand, Charani & Hilmi (2023) believe that it is obvious that teleworking can have a negative impact on the health of employees, manifesting as ailments such as headaches, musculoskeletal pain, stomach aches, and psychosocial problems. These health problems can in turn affect the effectiveness of employees in their work.

Indeed, the analysis of this unprecedented experience imposed by the health crisis also reveals the existence of inherent limits to such dematerialized modes of operation. While the hasty

recourse to emergency teleworking has proven economically beneficial, its effects on organizational processes and employee well-being in the medium term also deserve particular attention in order to optimize future hybrid working methods combining physical presence and remote work in a more balanced way.

Indeed, the Covid-19 pandemic has highlighted certain organizational limitations that have hindered the full adoption of teleworking by companies in the context of urgency. Specifically, the lack of mobile computer equipment and access to a stable internet network, as well as incomplete digitization of documents, have constituted obstacles to the widespread implementation of remote work. Therefore, it has become relevant for organizations to adopt a hybrid model reconciling physical presence and remote work.

This mixed approach, which involves dividing working time between professional premises and employees' homes, allows for the benefits of teleworking flexibility while limiting certain risks associated with isolation. Another major challenge for businesses is to empower employees by precisely clarifying their areas of action, which ensures efficiency during remote phases. This granted autonomy, although demanding a redefinition of managerial modalities, offers real productivity potential for organizations adopting a post-crisis hybrid model.

However, while the hybrid mode offers an optimal solution to cope with the crisis, it is nevertheless necessary to consider new team management rules, to define new standards, and to codify them. It is essential that all employees can adapt to this new way of working, find references, give meaning to their work, and actively re-engage in the organization (Frimousse & Peretti, 2022).

Thus, it is important to note that despite the increase in the use of electronic communication, this does not eliminate the need for face-to-face communication and meetings. In reality, electronic communication tools complement rather than replace in-person meetings and exchanges (Kalika et al., 2007).

6 THE ACCELERATED TRANSITION TO DISTANCE LEARNING IN THE EDUCATION SYSTEM DURING THE LOCKDOWN : CONTRIBUTION OF DIGITAL TOOLS FOR MAINTAINING PEDAGOGICAL CONTINUITY

Education is a constantly evolving field, and digital technologies have brought about many changes in teaching. Over the years, digital technologies have gradually transformed education, with significant impacts on teaching methods, learning tools, and the way students and teachers interact.

The Covid-19 pandemic has highlighted the importance of these technologies in ensuring pedagogical continuity. This part of our research aims to examine the importance of digital technologies for education and emphasize the contributions of these tools to pedagogical continuity during the Covid-19 crisis.

They allow new forms of teaching, such as online teaching and hybrid learning (Picciano, 2017). Online learning platforms also allow for the provision of additional educational materials to students, such as course recordings and reading documents. Furthermore, digital technologies offer opportunities for collaboration and communication between students and teachers, which can promote student learning and engagement (Pazmiño et al., 2020).

Thus, it should be noted that the Covid-19 pandemic has resulted in the closure of many higher education institutions, creating challenges for pedagogical continuity (UNESCO, 2023). Digital technologies have allowed for the reduction of interruptions in teaching and ensuring program continuity (Bao, 2020). Indeed, online learning platforms have enabled teachers to provide online courses and communicate with students, and have also allowed students to continue accessing educational materials and communicating with their teachers.

However, distance learning during a crisis has sparked several disagreements regarding what should be taught, how to teach, the workload of teachers and students, the learning environment, and the implications for educational equity (Zhang et al., 2020).

Also, despite the advantages of digital technologies for pedagogical continuity, there are also challenges to overcome. Indeed, the transition to online teaching has been difficult for some teachers and students who were not familiar with digital technologies. Infrastructure, connectivity, and hardware issues have also been obstacles for some students and teachers (Bao, 2020).

Boudokhane-Lima et al. (2021) emphasized that the successful adaptation of teaching activities to distance learning relied largely on the substantial work done by teachers outside of their formal professional setting, mobilizing their technical skills and their own conception of the profession. It is the significant personal investment that allowed them to functionally reconfigure their pedagogical practice in the new imposed format. Teachers had to implement in-depth reflective and metacognitive processes to ensure the continuity of their daily tasks: optimized information management, reconstruction of the meaning of content, as well as reinvention of their role and posture as educational agents. Their adaptation required intensive work on their own practice to ensure a smooth transition to distance learning modalities, despite the significant constraints inherent in the context.

In summary, it can be said that digital technologies have brought many advantages to the education sector, allowing for new forms of teaching, new means of communication, and innovative pedagogical methods. Indeed, the Covid-19 pandemic has highlighted the importance of these technologies for pedagogical continuity and has accelerated their adoption. Online learning platforms have allowed teachers to continue their teaching despite the closure of educational institutions. However, there are still challenges to be overcome for the effective use of digital technologies in the education sector.

Thus, educational institutions must continue to invest in digital technologies to ensure better utilization of these technologies in teaching. They should also provide training for teachers and students to improve their mastery of digital technologies (Bao, 2020).

7 THE DIGITAL DIVIDE IN RURAL AREAS : A BARRIER TO DIGITAL INCLUSION

A recent study examined the issue of the digital divide in the MENA region, focusing on 21 countries over a period from 2000 to 2021. This research identified three subcategories of digital divides: age-related, gender-related, and population density-related, including the divide between rural and urban areas. Despite the efforts made by the Moroccan government to reduce the digital gap in key areas such as education, e-government, and entrepreneurship (Morocco Numeric, 2013, National Strategy for the Information Society and the Digital Economy), Morocco remains classified in this categorization (Fertahi & Zaky Lhasnaoui, 2022).

Research conducted by the same authors highlights the difficulties rural populations face in accessing digital technologies due to inadequate infrastructure, low population density, and lack of digital skills. These findings are supported by AGRIMAROC (2017), which emphasizes that in 2022, the Internet penetration rate in Morocco was 72.3%, with significant disparities between urban and rural areas. In rural areas, this rate drops to 42.5%, meaning that a large portion of the rural population does not have access to the Internet.

It is important to emphasize that nowadays, many public and private services are exclusively accessible online, which excludes rural populations who do not have the necessary financial resources or skills to use these technologies. These specific examples and statistical data highlight the extent of the digital divide in Morocco and its negative impact on rural populations. It is therefore imperative to take concrete measures to bridge this gap and ensure equitable access to information and communication technologies for all citizens.

8 LESSONS FROM A CRISIS : INSIGHTS INTO THE RESILIENCE AND AGILITY OF THE MOROCCAN EDUCATION SYSTEM IN THE FACE OF THE CORONAVIRUS

Since 2006, Morocco has embarked on establishing a genuine integration of digital technology in its education system through the "GENIE" project. This ambitious strategy aimed to generalize the use of information and communication technologies within public educational institutions progressively. Structured around three key areas, namely technological infrastructure, strengthening teachers' professional capacities, and the production of digital educational content, this pioneering action plan aimed to make digital tools a full-fledged learning medium in support of the modernization and democratization goals of national education. The objective was to lay the foundations for a Moroccan education system firmly oriented towards the 21st century (CSEFRS, 2021).
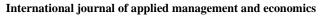
However, the sudden emergence of the Covid-19 pandemic abruptly confronted the Moroccan education sector with new challenges. Indeed, the unforeseen health crisis forced the system to urgently revise its usual mode of operation, which was based on in-person teaching.

It is in this disruptive context that public authorities had to demonstrate agility to ensure pedagogical continuity by temporarily implementing alternative distance solutions. An innovative response that allowed the learning process to continue despite the uncertainties of an unusual situation.

The period of confinement caused by Covid-19 has pushed teachers to ensure pedagogical continuity, made possible thanks to the use of information and communication technologies (ICT). This situation has been perceived as a "laboratory" allowing for a rethinking of the education system in the digital age (Boudokhane-Lima et al., 2021).

Indeed, the abrupt closure of schools and universities in March 2020 forced Morocco to shift towards remote education. The Ministry of National Education implemented digital platforms and televised courses to ensure pedagogical continuity.

Faced with the need to substitute distance learning for face-to-face instruction due to the health crisis, the Moroccan education sector had to meet the challenge of maintaining continuity and quality of education under far from optimal conditions. These new distance learning methods, adopted in urgency and without prior planning, clearly indicated that the transition phase would inevitably come with difficulties, particularly regarding the possibility of fully guaranteeing educational objectives in this complex context where all the conditions for successful distance

learning were not met. The responsiveness of public authorities would therefore be severely tested in overcoming these challenges (CSEFRS, 2021).

The CSEFRS (2021) adds that to fill the lack of digital resources to ensure optimal pedagogical continuity at a distance, the Ministry of National Education has quickly worked to develop complementary content to be disseminated on its TelmidTice platform. This platform has seen its catalog of digital capsules enriched with new productions categorized by subject, grade level, and study program. This rapid effort to structure digitized educational content aimed to fill the initial deficit in terms of digital tools and provide learners as well as teachers with suitable resources to effectively continue intellectual work at a distance.

Furthermore, despite the considerable efforts made by the Ministry of National Education to ensure pedagogical continuity in this crisis context, numerous difficulties have arisen. Indeed, accessibility problems to digital tools for all learners, especially those residing and studying in less connected rural areas, have emerged as a major obstacle to distance pedagogical continuity. In order to overcome this difficulty and ensure the continuation of education for all students, especially those without internet access, the public television channels promptly implemented an unprecedented mobilization. Through the regular broadcast of pre-recorded lessons, they were able to provide an effective alternative solution, extending the reach of remote educational solutions to the entire national territory through this accessible medium.

Furthermore, several elements deserve to be highlighted regarding the experience of teachers during the period of forced remote teaching. First of all, some of them expressed a feeling of being overwhelmed by digital tools whose functionalities they did not fully master. This situation could have engendered a sense of guilt in some, linked to a perception of their own technical shortcomings. Additionally, the abrupt transition to distance teaching seems to have been marked by a sense of abandonment for some individuals. Many teachers also reported a lack of pre-existing digital skills. This deficit forced several of them to undergo self-learning training urgently, in order to be able to practice their profession in this new imposed context. The experiences recounted by some teachers thus highlight the pedagogical and psychological difficulties brought about by this rapid transition to remote teaching, in the absence of adequate preparation both organizationally and in terms of digital skills development.

9   CONCLUSION

In conclusion, the Covid-19 crisis constituted an unprecedented shock, which forced states to experiment with new ways of functioning using digital technologies. Morocco was not immune to the consequences of this crisis. Indeed, this health crisis placed the government, organizations, and Moroccan schools in the face of the urgent need to undergo an accelerated digital transition to ensure the continuity of their activities and services.

However, while these digital tools have allowed for the continuity of public services while limiting physical movement in line with health measures, they have also revealed the extent of digital divides in Morocco. A portion of the population, particularly those in rural areas, found themselves excluded from accessing dematerialized public services, reinforcing the need to support digital inclusion across the entire territory in the post-crisis period.

Furthermore, although teleworking proved to be opportune in addressing health constraints during the crisis, it also raised certain managerial and psychosocial challenges. Indeed, remote management of teams and the risk of employee isolation present challenges inherent in this imposed organizational mode. More fundamentally, the pandemic has disrupted traditional leadership approaches, forcing managers to deeply reconsider their methods of management.

The main current challenge is thus to design new innovative management methods that promote autonomy and cohesion at a distance.

It is about firmly placing digital transformation at the heart of management strategy in order to optimally accompany the sustainable changes induced by the crisis. This transformation inaugurates new ways of conceiving work in the service of a constantly redefining environment. Regarding the education sector, as highlighted by the CSEFRS (2021), it should be noted that in Morocco, a preliminary diagnosis of the state of technological infrastructure and connectivity within educational institutions revealed limited capacities. Indeed, the analysis of school equipment in terms of ICT and their access to the Internet revealed limitations that did not allow for a fully adapted response to the crisis through the deployment of fully inclusive distance learning. This prior observation of a partial digitalization of the Moroccan education system predicted the difficulties that could be encountered in ensuring, through digital tools, the pedagogical continuity of all students in an egalitarian manner, in a context of health emergency requiring an impromptu generalization of remote teaching.

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