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Inclusion, Digital Transformation of Social Sectors, and Smart Territories

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Abstract:
Digital is today identified globally as the 4th industrial revolution, creating major economic and social opportunities, but also bringing unprecedented changes. The digital wave requires numerous adaptations at the level of our societies and in particular at the level of the policies implemented in order to benefit from its benefits.
Morocco is aware that Digital is an important factor to face socio-economic challenges, particularly in 3 areas: improving the quality of interactions between citizens and administrations, improving the productivity and competitiveness of the Moroccan economy and reducing social inequalities.
Additionally, digital technology plays an important role in social inclusion by providing access to information for all, particularly vulnerable people, such as people living in rural or disadvantaged areas. This allows everyone to have equal opportunities. However, there are still obstacles that prevent the country from fully entering the digital era, which aims to give new impetus to responsible and inclusive digital transformation and to promote proactive and ambitious development of technological sectors, which are crucial for the human and economic development of rapidly emerging countries.
Our objective is to highlight Morocco's positioning in digital development, to clarify Morocco's prospects in terms of digital development and to make the country an "intelligent nation".

Keywords: Digital Transformation, Social Inclusion, Human And Economic Development, Morocco, Intelligent Nation.

Introduction:

In a constantly changing environment, organizations must quickly adapt to new requirements and technological advances. Change management helps foster a culture of innovation and flexibility, by encouraging employees to adopt new practices and develop new skills. This allows the organization to remain competitive in the market and to seize the opportunities offered by new information systems (Michel Barabel, Olivier Meier.2015).
Today, Digital is identified globally as the 4th industrial revolution, creating major economic and social opportunities, but also bringing unprecedented changes. With the advent of digital technology, many countries have adopted a strategy aimed at becoming a "Smart Nation" in order to accelerate their speed of development in a context where technology is now consubstantial with any attempt to articulate public policy.
Indeed, during over the last 20 years, Morocco has implemented numerous national programs to support the development of Digital. However, obstacles persist and slow down the Kingdom's full entry into the

digital era. Under the leadership of His Majesty, may God glorify Him, the Kingdom of Morocco wishes to give new impetus to digital transformation and promote proactive and ambitious development of technological sectors. In this context, Morocco has adopted several national programs for the development of Digital over the last decade. These programs have enabled the creationofa significant dynamic inthe sector and have resulted in concrete achievements. This has given rise to progress for the country, notably with the putting online of several e-government services, the improvement of the competitiveness and productivity of SMEs, and the establishment of certain prerequisites necessary for the amplification of digital trust.

The era of digitalization has profoundly transformed our world, impacting all aspects of our daily lives and our professional activities. Rapid technological advancements and increased connectivity have given rise to a new economic era, where digitalization plays a key role in the economic growth of nations. These days it's impossible to ignore the omnipresence of technology, from smartphones to connected objects to online platforms, digitalization has radically changed the way we work, consume and interact. But beyond the practical aspects and the convenience effect it brings, digitalization has emerged as a key driver of growth in all sectors, particularly social sectors.

Taking into account the elements mentioned above, our research aims to highlight Morocco's positioning in digital development, to clarify Morocco's perspectives in terms of digital development and to make the country an "intelligent nation". To do this, we chose to formulate the following problem: what is Morocco's positioning internationally in terms of digital development? And what are the prospects for digital development in Morocco to make the country a "Smart nation"?

Background and objectives:

Digital is today identified globally as the 4th industrial revolution, creating major economic and social opportunities, but also bringing unprecedented changes. The digital wave requires numerous adaptations at the level of our societies and in particular at the level of the policies implemented in order to benefit from its benefits. The Kingdom of Morocco, aware of these challenges, has put in place several national programs to support the development of Digital. However, obstacles persist and slow down the country's full entry into the digital era. Under the leadership of His Majesty, may God glorify Him, the country wishes to give new impetus to digital transformation and promote proactive and ambitious development of technological sectors.

Section 1: The theoretical and conceptual foundations of digitalization

In this part, it seems necessary to begin with a literature review on aspects and issues of digital transformation in order to achieve the objective of our study.

1. Meaning of the word "digital"

The word digital comes from the English word "digit" which means number and means digital. The origin of the word digital comes from the Latin "digitalis" which means "which has the thickness of a finger". It has been used since the 1970s in certain French-speaking countries. In French, the word "digital" means "which belongs to the fingers" but its common meaning relates to the adjective "digital".

2. Definition of digitalization

The concept of "digitalization" is quite old, but it began to take shape in the 1950s and 1960s with the first computers and data processing systems. This term began to be used and has been associated with the latest technological revolutions since 2004. It is increasingly used in the context of the digital transformation of

a company.

Digitalization is defined in different ways depending on the authors and fields of study. However, several thinkers and researchers have contributed to the development of this concept over time. This concept was first introduced in 1679 by Gottfried Leibniz. Leibniz also addressed concepts related to automation and the formalization of knowledge in his writings. He assumed that symbolic languages can be used to represent and reason about human knowledge, which could be considered a form of digitalization of knowledge.[1]

Erik Brynjolfsson and Andrew McAfee in (2014) define digitalization in their book "The Second Machine Age" as "the process by which economic, social and cultural activities are transformed through the intensive use of digital technologies. This includes process automation, the use of large amounts of data, artificial intelligence and the Internet of Things.[2]

According to Ross et al. (2017), "digitalization also refers to a total transformation of the company. It aims at both speed of expression and comprehensiveness of transformation." For Riemer (2013), "digitalization refers to the changes brought about by digital technologies in such a way as to disrupt the business model of an organization towards the creation of value for its missions".[3]

Reis et all, (2018) present three aspects of digitalization:[4]

The first aspect is technological in nature where digitalization is based on new Information and Communication Technologies (ICT), such as social networks, mobile technology, analytical or integrated tools (Fitzgerald et al., 2013).[5]

The second aspect is of an organizational nature where digitalization requires a change in operational processes or the creation of new business models (Ross et al., 2016).[6]

The last aspect is of a social nature where digitalization is a phenomenon that influences all aspects of human life (Matt et al., 2015). In fact, Reis et all bring together the commonalities of these aspects to come up with the following overarching definition: "Digitalization is the use of new technologies that can significantly improve a company's operations and affect all aspects of customers' lives." .

Westerman & al (2011)[7] indicated in an article that "Digitalization is based on several technologies that facilitate the transfer operation and multi-dynamic processing of data likely to improve the performance of an organization". Dörner & Edelman (2015) [8]defined digital as "a means of hedging a context in which companies and organizations operate. They think that for some executives, it's a question of technology."

Hanelt&al(2020), "We define digital transformation as organizational change triggered and shaped by the widespread diffusion of digital technology. The content of this change, we argue, includes a movement toward malleable organizational models that are embedded in and driven by digital business ecosystems".[9]

Verhoef & al.,2021, "We posit that digital transformation requires specific organizational structures and has consequences for the metrics used to calibrate performance ».[10]

[1]The Digital Consultant, "What is the definition of digitalization? » In: Digitalization: definition of digital transformation (le consultant-digital.com).

[2] Erik Brynjolfsson et Andrew McAfee, 2014, "the Second Machine Age ", consulté le 3 octobre 2015

[3] I.M., BeathMocker, Moloney, & Fonstad, N. 2016 Ross, J.W., Sebastian,. "Designing and Executing Digital Strategies". ICIS

[4] Reis, Amorim, Melão, N. et Matos, P 2018 "Digital Transformation : A Literature Review and Guidelines for Future Research "

[5] Fitzgerald, Kruschwitz, Bonnet, and Welch, M. 2013, "Embracing Digital Technology, MIT Sloan Management Review, pp. 1-12."

[6] Matt, Christian, Hess, Thomas, Benlian, Alexander 2015, "Digital Transformation Strategies, Business & Information Systems Engineering", Vol. 57 : Iss. 5, pp: 339-343.

[7] Westerman, C Calméjane, D Bonnet, P Ferraris and A McAfee 2011,"Digital transformation : A roadmap for billiondollar organizations ". MIT Center for Digital Business and Capgemini Consulting: pp 1–68

[8] See the McKinsey & Company portal "https://www.mckinsey.com."

[9] (Hanelt & al., 2020:p. 29).

10 Verhoef and al., 2021 : p.1)

According to these definitions above we can agree that digitalization is a transformation strategy based on economic intelligence, as it gives access to a lot of information of an economic nature, to process and verify it. It also makes it possible to establish innovative work processes by supporting the implementation of organizational strategies and action plans linked to decision-making processes. It is a real transformation of an organization, allowing it to adapt to the new realities of its environment, and in particular to master its mission, that is to say that digitalization encompasses a broader field than digitalization, which is a methodology and practice of organizational change that affects management.

3. Digitalization: Advantages and disadvantages

Digitalization refers to the transition of a business, organization or society towards digital technologies with the aim of transforming business processes, facilitating innovation, improving efficiency and providing better services to users of the 'information.

Indeed, the digital transition can offer advantages but also disadvantages to companies or organizations, we can cite some examples:

Advantages:

- Dematerialization of information flows and access to information continuously and on demand
- Task automation
- Increased productivity and competitiveness
- Increased performance
- Stimulation of innovation
- Instantaneity of exchanges and interactions
- Increasing inclusion and poverty reduction
- Reduced costs and increased availability of mass education
- *Disavantages:*
- Increased risks of information and data insecurity
- Reduction of certain jobs
- Risks of loss and inaccessibility
- Need for financial investments
- Worsening economic and territorial inequalities.

4. Digitalization and digital technologies:

Digitalization refers to the increasing use of digital technologies in all aspects of our daily lives to transform processes, services and products in various areas. Indeed, the integration of digital technologies in the digitalization process makes it possible to automate and simplify processes, reduce manual tasks and potential errors, promote the emergence of new business models and new opportunities, offer more personalized experiences adapted to individual needs, access to information and education, as well as optimize decision-making processes.

In this specific context, it is imperative to cite and explain the different digital technologies which contribute to digitalization and which have seen significant use during this recent period, such as: the internet, Big data, artificial intelligence , the Internet of Things (IoT), 3D printing, and Blokchain.

Big data: The concept of big data translated into French as "megadata" or "massive data", it dates back to 2001, the year when the challenges of increasing data were met using a 3V model by Doug Laney (2001)[11]. The 3Vs, also known as the dimensions of big data, are volume (data generated in bulk every second),

[11] Laney, D., 2001. 3D, « data management : Controlling data volume, velocity and variety », Tech. Rep. 949, META Group.

velocity (of data that changes and iterates rapidly), and variability (data from multiple heterogeneous sources and formats different). The model was not originally used to define big data, but it has been used by various companies, including Microsoft and IBM, to define the same (Meijer, 2011).[12]

According to the global McKinsey Institute, "big data refers to data sets whose size is beyond the capacity of typical database software tools to capture, store, manage and analyze" p.1 (Manyika et al ., 2011)

Artificial intelligence (AI): Artificial intelligence is a branch of computer science that aims to create systems and machines capable of imitating human intelligence. According to John McCarthy who is one of the founders of the discipline of artificial intelligence AI is “the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI should not be limited to methods that are biologically observable.” McCarthy J coined this definition at the Dartmouth conference in 1956, this conference is considered to birth AI as an independent field of research.

The goal of AI is to enable machines to perform tasks that normally require human intelligence, such as speech recognition, decision-making, complex problem solving and more.

The Internet of Things (IoT): is a computing concept, it is a network of physical devices connected to the Internet, which can collect, exchange and share data without human intervention. These physical objects, also called "connected objects" are not limited to computers or machines, they can be sensors, vehicles, domestic devices, industrial equipment, wearables (portable objects), etc.

Blokchain: is a technology that allows information to be stored and transmitted without a central authority. It is a shared ledger that records transactions chronologically and securely and tracks the assets of a network.

These digital technologies are essential tools for digitalization, transforming traditional data, processes and experiences into more efficient, faster and more scalable digital formats. Indeed, these technologies can stimulate innovation and job creation in many key sectors of the economy; they can be the answer to strong, sustainable and inclusive economic growth.

5. The challenges of digital transformation:

Technological,economic and social challenges are significantly taken into account in this
context of accelerating digital transformation:

-*Technical issues:* Through the automation of processes and the evolution of project and business practices, digital technologies contribute to the transformation of the organizationand the modes of operation of companies. The key factors for success in the new digital environment seem to be to align technologies and their uses with the strategic orientations of the company, to master internal and external data sources, to identify algorithms to make sense of the information collected and to have the skills for coordinated work within the organization. The issue of information technology governance allowing an IT organization to support and develop the organization’s strategy and objectives is more centralthan ever. “The challenge is that digital technologies contribute to improving value creation processes, while taking into account risk management and technical performance" (Bounfour and All, 2015).

-*Economic stakes:* The economic models inherited from the industrial revolution and the place of theconsumer/user is profoundly transformed by digital technologies,which continue to favor new modes of organization and new intermediations. The way in which organizations can collect and process massive data while ensuring to the various stakeholders that the processing is carried out could also constitute an

[12] Meijer, E., 2011. The world according to LINQ. ACM Communications 54 (10), 45-51.

important intangible capitalthat the markets do not value sufficiently. In a knowledge-based economy, it seems to us that companies should be able to define and value their digital capital, just like the brand capital that financiers are integrating today into the valuation ofcompanies. Thus, it seems to us essential to determine whether we can talk about the digital capitalofcompanies and, if so, to evaluate it. Other sectors, such as the automotive and healthcare sectors, are still at the dawn of major transformations, while the media sector was very early affected by the digital transformation of cultural goods, for which consumers chose to transform themselves into music and film publishers (Poels, 2015) by relying on electronic exchange platforms.

-*Human issues:* Human activities will increasingly depend on digital devices today. It is necessary to rethink human issues in this context. The appropriation of digital technology by all stakeholders: The appropriation by employees, managers and leaders of organizations of the use of digital technology at work is one of the essential conditions for a return on investment. The identification of digital appropriation factors in a particular context is essential to work on deployment strategies with all the actors of an organization. (Grimand, 2012).

The development of individual and collective skills:The skills of these employees will be a crucial issue for the company to come. "The role of man in the man / machine / product triangle is set to change profoundly in the factory of the future; operators would indeed be equipped with augmented reality and communicating tools to interact with other team members, monitor the production chain and spot incidents. There is a strong confusion between man and machines. The sense of the profession evolves with the skills. (Jaujard, 2015). The man-machine relationships are modified by the integration of automatic sensors and the influx of massive data on the workstations of the production line. This should allow an enrichment of tasks and arise incompetence that companies must anticipate and support to remain competitive.

The use of digital technology has an impact on both individualand collective capacities: in all organizations. As a result, technical, informational, relational and metacognitive skills(TIRM) have become essential in adigitized world Analysis of job development It seems that new professions, called Data Office Managers or Data scientists, have appeared thanks to the digital transformation. It is necessary to improve the identification and qualification of all these new professions, because the first results suggest that the skills of some of them come from a different field than that of their predecessor (Chaintreuil, 2015). Therefore, the expected skills of a data manager are based less on IT expertise than on the in-depth understanding of stakeholder's digital behaviors and the ability to lead the necessary changes in companies to respond appropriately to their expectations.

Section 2: Positioning of digitalization in Morocco

1. History of digitalization inMorocco:

Over the past 20 years, the technology sector has undergone an evolution in the direction of political will. A brief historical overview of the actions of public authorities in favor of the development of the technological sector in Morocco can be presented as follows[13]

1956: CreationoftheMinistryofPostsandTelecommunications.

1984:Creationofthe NationalOfficeofPostsandTelecommunications(ONPT).

1995: Introduction of the internet in Morocco.

[13] 3 Belgian Development Agency,"Technical and financial dossier strengthening theskillsofcivil servants (women & men) at central and local level, morocco", 2018, p. 18.

1996: Competitive Morocco's Initiative, the strategic action plan which proposed inparticular to develop emerging clusters (electronics, information technologies).
1997: Creation in June of the Information Technology Group by the Ministry of Commerce and Industryand organization ofthe first national seminar onthe development ofteleservices in Morocco.
1997:Adoption of Law24-96 inAugust 1997 which made it possible to launch a first stage of liberalization of the telecommunications sector.
1998: Creation of the State Secretariat to the Prime Minister in charge of the Post Office and Telecommunications and Information Technologies (SEPTI).
1998: Creation in place of the Public and private Information Technology Monitoring Committee (CSTI).
1999: Insertion in the Five-year Plan 1999-2003 of the will to include the development of telecommunications and ICT as a national priority and a strategic option for the economic, industrial and social development of the Kingdom.
1999:Award of a license for a 2nd GSM network for 1.08 billion US $.
2001: Signing between the Government and the Association of ICT Professionals, APEBI, of a progress contract calling for a "positive rupture".
2001: Publication of the Sectoral Policy Letter presenting the "Information Infrastructure Development Program" and organization of the National Symposiumon the Information Society.
2001: Presentation of the first document e-Morocco Strategy: proposals for an operational implementation.
2001:Granting of8satellitelicenses.
2003:EstablishmentoftheNationale-GovCommitteewhichproducedthenationale government plan (2002-2007).
2004:The CSTI becomes the ICT Strategic Committee organized inseveralpoles.
2004:Launch of the Audiovisual liberalization process.
2004:NewtelecommunicationsLaw55-01amendingandsupplementingLaw24-96.
2004: Vision for the development of the telecommunications sector 2004-2008.
2005: Elaboration and launch of the National Cyber-Strategy e-Morocco 2010. It aims at the development of the Information Society and the Knowledge Economy and has been able to benefit from the consensus of the various actors involved in the ICT sector
(departmentsgovernment, committees in place, the private sector and civil society).
2007: Maroc Connect, which was created in 1999 as the second Internet access provider in Morocco, becomes the third operator to become global.
2009: Wana obtains the 3rd 2G (GSM) license thus becoming a global telecommunications operator.
2009: Launchofthe "Morocco Numeric 2013" program. Endowed with5.2 billiondirhams to develop digital technology.
In February 2014, the Court of Auditors published an evaluation report on this strategy. He points to the considerable delay in relation to the predefined objectives and reports on the achievement of 1/3 of the objectives set.
In July 2016, the new government, via the Ministry of Industry, Trade, Investment and the Digital Economy, presented the main lines of the strategydigital 2020. The ambition of this strategy is to anchor Morocco decisively in the digital emergence via the following results: One of the first actions implemented in this strategy is the creation of a government agency dedicated to digital. Indeed, promulgated by the Dahir n ° 1-17-27 and published at Official Bulletin n ° 6604 on September 14, 2017, Law 61-16 on the creation of the Digital Development Agency (ADD) was born.

In January 2019, the head of government entrusted the Digital Development Agency with the task of developing a note to propose to the government guidelines for the development of digital technology by 2025.

2. The health crisis: a powerful catalyst for digitalization in Morocco

Avec la crise sanitaire (COVID-19), survenue en février 2020 est à l'échelle mondiale, la digitalisation n'est plus un choix, elle est devenue une nécessité pour assurer la compétitivité au niveau mondial.

In this context and faced with the unprecedented challenges that we have faced, companies, institutions and individuals have had to adapt quickly and find innovative solutions, in order to ensure a certain continuity of public services provided to the population in helping them to complete their administrative procedures and formalities, while limiting their travel and in particular the use of paper media. The continuity of business activities and the educational continuity of teaching should also be ensured.

Indeed, containment measures have created growing demand for digital technologies, ranging from online collaboration tools to home delivery services. As a result, remote mobile payment during the confinement phase increased by 40%, compared to the same period of 2019, which indicates the possibility of seizing it by accelerating the digitalization of domestic commerce. Thus, 72% of companies which first started using new information and communication technologies during the crisis report very good management of Covid-19 in their company, compared to only 33% for the rest.[14]

Thus, the adoption of digital tools has increased by companies in the Kingdom, encouraging them to become aware of their importance in their production processes.

In addition, teleworking has emerged as a solution to meet the challenge of the drop in production caused by repetitive confinements and to maintain their economic activity remotely and preserve a certain level of growth. According to a survey carried out by ReKrute.com on the working conditions of executives, around 50% of Moroccan companies have adopted teleworking for more than 80% of their staff. Thus, according to a recent study carried out by the director of (ADD), which even reveals that 80% of companies are in favor of this digital transformation.

The COVID-19 pandemic has accelerated digitalization in many sectors, including electronic commerce (e-commerce), online education, digital financial services and telecommunications.

The crisis has not only disrupted the way we operate, but has also stimulated innovation and a profound transformation of economic models, placing digitalization at the heart of growth strategies, since it opens up new perspectives and opportunities, allowing companies to take advantage of the advantages offered by digital technologies in an ever-changing world.

1. Digital connectivity in Morocco

The digital revolution, began with the use of mobile phones and the Internet for various activities, including social media, information searching, online communication and e-commerce, which also led to structural changes in Moroccan customs and traditions. This highlights one of the specificities of the digital revolution: the democratization of mobile telephony is with the widespread use of the Internet.[15]

This part aims to analyze the development of ICT connectivity for households, businesses and departments in recent years and provide access gaps between urban and rural areas.

[14] McKinsey, "How COVID-19 has pushed companies over the technology tipping point—and transformed business forever ", October 5,2020.

[15] Abdelhamid Nechad, Tarik Kasbaoui & Ihssane Benhessou, "l'impact de la crise sanitaire dans l'accélération de la transformation digitale du royaume : vers l'émergence d'un nouveau modèle économique marocain ", International Journal of Trade and Management, Volume 1, Issue 1, March 2022.

- ***Access to ICT by citizens***

Access to telecommunications has improved considerably in Morocco in recent decades, especially after the Covid-19 health crisis, according to a survey published by the national telecommunications regulatory agency (ANRT)[16], the Internet penetration rate in Morocco experienced an increase from 9.9% in 2011, to 71.3% in 2019, to 84.1% in 2020, an increase of 3.5 million Internet users after the health crisis. A clear increase of 13% of the population had access to the Internet in 2019 compared to 2018, an increase of 2.9 million people, while the global average does not exceed 45%.

Furthermore, the number of telecommunications subscribers has improved, according to ANRT reports, there is evidence of an increase in the number of mobile phone subscriptions of 10% per year, from 25.3 million in 2009 to 46.7 million in 2019, towards 49.2 million subscribers at the end of 2020, an increase of 71% per year in average subscribers on the mobile internet, or 27.7 million Internet users in 2020, and a 13% average annual increase in the number of fixed broadband subscriptions, from 0.47 million in 2009 to 1.48 million in 2019, towards 1.6 million at the end of 2020. 99.93% of ADSL subscriptions are operated directly by Maroc Télécom.

In addition, several facilities are available in Morocco to promote the development of (ICT). According to the Speedtest Global Index ranking[17], the average mobile internet speed in Morocco is 36.36 Megabits per second Mbit/s, while the world average is 48.40 Mbit/s. Regarding the average fixed internet speed, Morocco is ranked 60th among 140 countries with an average speed of 25.05 Mbit/s which is also much lower than the world average (98.67 Mbit/s), and Morocco is ranked 112th among 177 countries.

Morocco is ranked 44th out of 230 countries where GB Gigabit (GB) is the cheapest in the world with an average price of 7.96 Dirhams per GB12; Morocco is the 11th cheapest country in Africa.

Indeed, Moroccans are more connected than ever to social networks, several people have direct access to an intangible market, young people Moroccans have grew up with the evolution of technology, more in 2020, the age group 19-24 years who connect the most to internet (99.8%), followed by the age group of 15-19 years (90.4%) and age range 25-39 years old (87.5%). For the older, the use of the internet is being done less: 75.3% of the age group 40-59 years connects to least once a day, followed by age group 75 years and over (60.8%) and by the slice age 60-74 years (50.7%).

- ***ICT equipment according to environment and gender***

In Morocco, the proportion of households equipped with mobile phones is high after the health crisis, both in rural areas (99.8%) and in urban areas (99.9%)[18]. When it comes to smartphones, their adoption has grown rapidly, with a significant increase in 2020 in both urban and rural areas. The smartphone ownership rate increased from 63.8% in 2015 to 93.4% in urban areas, and from 42.5% in 2015 to 83.6% in rural areas.

Regarding Internet access and computer equipment. In 2020, nearly 71.9% of rural households had Internet access. However, there is a remarkable inequality in the distribution of computers between the two environments, with nearly 56.9% of rural households not equipped with computers, compared to 26.2% for urban households. A significant divide is also noted with regard to fixed telephone equipment: in 2020, only 2.6% of rural households were equipped with fixed telephones, while this figure rose to 29.50% in urban areas.

[16] ANRT reports from 2007 to 2020.
[17] Speedtest Global Index Ranking mobile and fixed broadband speeds from around the world.
[18] National Telecommunications Regulatory Agency (ANRT), "EQUIPMENT AND USES OF ICT DURING 2020".

Additionally, there is a disparity between access and use of digital tools by women compared to men. In 2020, Internet use by women in 2020 was lower than that of men (81% compared to 87.3%). Likewise, men were relatively better equipped with smartphones than women (83.5% versus 80%). However, near parity was observed in terms of mobile telephone equipment in 2020, with a rate of 96.4% for men compared to 94.9% for women.[19]

- ***Digital adoption by companies***

According to a survey conducted by Ausim[20] in 2019 on the digital transformation of companies in Morocco reveals that 94% of them are engaged in a digitalization process. Digital solutions are already widely available, although their availability varies from company to company. For example, platforms dematerialization are used by 58.1%of companies, platforms collaborative by 60.5%, mobile apps by 52.3% and cloud solutions by 43%.

In addition, Moroccan companies have websites that they use to present their products and services, establish links with social networks, as well as to place orders and follow up with customers. Some companies also develop mobile apps for their services, and most of them have a business social media account. However, certain uses still remain limited, in particular the personalization of products and services by users via the website and the use of Big Data.

In fact, the connectivity digital in our country has positive aspects and challenges to overcome. The high rate of mobile phone ownership, particularly smartphones, demonstrates rapid adoption of communications technologies throughout the country. However, there are significant disparities in Internet access and computer equipment, particularly in rural areas. These disparities must be addressed to ensure equitable digital inclusion for all citizens. The development of digital infrastructure, promotion of universal access to the Internet and facilitation of equipment in computers are key elements for reduce these gaps.

Thus, strengthening connectivity will allow Morocco to promote economic development, access to online education and the active participation of the Moroccan population in the digital age. In this sense, it was necessary to support this digital process by activating the related laws.

2. Government policies for digital transformation in Morocco

A. Directions, plans and strategies for digital transformation

In recent decades, Morocco has implemented a set of government policies for the development of digital technology in Morocco, which is now considered a real lever for economic and social growth, productivity and competitiveness. Two royal speeches were direct directives for digital and digital transformation in Morocco.

-(...)*electronic administration must be generalized using an integrated approach allowing different departments and various services common access to information. In fact, the use of new technologies helps to facilitate citizens' access to services as quickly as possible, without the need to frequently travel to the Administration and deal with it, because it This is the main cause of the spread of the phenomenon of corruption and influence peddling."* Extract from the speech of His Majesty King MOHAMMED VI, on the occasion of the opening of the first session of the first legislative year of the 10th legislature, Friday October 14, 2016.

[19] "Survey to collect ICT indicators from households and individuals at the national level for the year 2020: Results". ANRT, IN: https://www.anrt.ma/sites/default/files/publications/enquete-tic-2020.pdf

[20] AUSIM, "Digital Transformation in Morocco: State of play, position of Art and Testimonies". September 2019

-*"The development of the African continent and its trade must also take into account global technological developments and transform the deficit in our intracontinental trade into a real opportunity for the development of new digital technologies. Africa is on the way to becoming a laboratory of the digital world. Digital technology is changing the face of our continent, driven by inventive, creative and daring youth. This digital leap is the result of young startups active in the fields of finance, telecoms, industry and agri-food, to name just these areas. It is often a young and low-income population that is at the heart of this innovation process; it must therefore be at the heart of our public policies."* Extract from the royal speech at the Extraordinary Summit of the African Union on the Continental Free Trade Area, Kigali, March 21, 2018.

Faced with these clear directions from his Majesty King Mohammed VI, may God help him, it is necessary to develop and implement strategies to promote and accelerate digital transformation. In this sense, we will present below the main Moroccan strategies that have been launched:

- **The "e-Morocco 2010" strategy**

This strategy was launched in January 2005. It was developed in order to direct all actions towards the development of the information society and the knowledge economy in our country. Its major objectives were to reduce the digital divide and strengthen Morocco's international positioning.

- **The "Digital Morocco 2013" strategy**

It is a national strategy for the Information Society and the digital economy, launched in October 2009. It aimed to position Morocco among dynamic emerging countries in the field of information and communication technologies.

This strategy is structured around 4 strategic priorities:

- **Social transformation:** by making high-speed Internet accessible to citizens and promoting access to exchanges and knowledge.
- **Establish user-oriented public services**: through an ambitious e-government program.
- **Computerize SMEs:** through incentives to computerize SMEs to increase their productivity.
- **Develop the IT sector:** by encouraging the emergence of centers of excellence with strong export potential.

In this sense, a series of measures have been implemented based on the development of human capital. "Maroc Numérique 2013" can be considered as a digital milestone. The main objective of the strategy was to prepare human capital.

- **The "Digital Morocco 2020" strategy**

This is a national strategy for the development of the new information technology industry, sponsored by the Ministry of Trade, Industry, Investment and the Digital Economy. Indeed, it is a strategy which aimed to guarantee continuity of the "Numeric Morocco 2013" strategy. This strategy is based on three pillars:

-Pillar 1: Digital transformation of the national economy: Through a digital transformation of the administration and the simplification of procedures on the one hand and ease of access to digital by reducing the digital bill for stakeholders of the 'somewhere else. We seek to achieve digital transformation and ensure access to benefit from it.

-Pillar 2: Regional Digital Hub: A strategic repositioning of the Moroccan economy in its region by improving the country's attractiveness for foreign investments through the development of infrastructure and the development of skills in Information Technology and communication (ICT).

-Pillar 3 : Digital square of Morocco: La formation du capital humain aux technologies de l'information, la mise en place d'un cadre légal et réglementaire et la promotion de l'émergence de nouveaux acteurs

technologiques nationaux procureront au Maroc une place numérique

This strategy was reinforced in 2017 by the creation of agencies specializing in this area, including:

-The Agency for Digital Development (ADD), created under Law No. 61.16[21] published in official bulletin No. 6604 of September 14, 2017, is a strategic public establishment with legal personality and financial autonomy. ADD plays a catalytic role in the implementation of public policies related to digital technology and supports state strategies in this regard.

-The National Commission for the Control of the Protection of Personal Data (NCPD), created by law 09-08[22], it ensures compliance with the obligations of the persons concerned with public and private organizations before and during the processing of personal data.

- **The National Administration Reform Plan 2018 – 2021**

This plan aims to embody the general orientations that would push the reform process towards structural transformations of management at the organizational, administrative, digital and ethical levels, with the aim of developing public services and strengthening trust between citizens and the public.

The main objective of this plan is to provide an administration that serves citizens and businesses, ensuring the continuity of public services in accordance with quality standards, while ensuring the general interest. This plan also encompasses four strategic axes for the structural transformation of efficient administration:

- Axis 1: Organizational transformation
- Axis 2: Managerial transformation.
- Axis 3: Digital transformation.
- Axis 4: Moral transformation.

- **The digital development strategy in Morocco by 2025**

The strategy aims to transform interactions with public administration, through the end-to-end digitalization of priority citizen/business pathways, to establish Morocco as a reference Digital & Technology Hub at the African level, and to bring digital to the forefront. service of a more inclusive and egalitarian society. In order to achieve these objectives, and to ensure a successful digital transformation, the following strategic axes have been maintained:

-Strategic axis 1: Digital transformation of administration: Digital transformation at the public service level constitutes a crucial point with a view to developing public administrations and improving their management practices.

-Strategic axis 2: Digital ecosystem and innovation: The development of the digital ecosystem will act as an accelerator of digital transformation. On the one hand, the digital ecosystem must be supported by an active development policy in the technological field, and by supporting and encouraging the transformation of the structural components of the economy, notably SMEs, and the development of the technological industry. local on the other hand.

-Strategic axis 3: Social inclusion and human development: Digital transformation will be a factor serving human development. Easy access to information, opportunities and services (education and health) will reduce social inequalities.

Digital technology is also one of the transformation projects to start the new development paradigm. This digital transformation strategy must be implemented in ADD as a continuation of an integrated digital platform. ADD is also developing its own roadmap for fifteen projects to implement this strategy.

[21] Dahir n°1-17-27 du 8 hija 1438 (August 30, 2017) promulgating Law No. 61-16 creating the Digital Development Agency.
[22] Law No. 09-08 of February 18, 2009 relating to the protection of individuals with regard to the processing of personal data

- **The digital transformation strategy for 2030**

This strategy sets as indicators and objectives:

- The digitalization of 100% of public services.
- The connection of 100% of the entities concerned by the citizen and business journeys to the
- "One Stop Shop" (single interface for public services).
- The generalization of the use of digital technology in the economic and social sectors.
- The establishment of a regulatory and legislative framework adapted to digital challenges.
- The development of a competitive digital economy that creates added value.
- Supporting citizens and businesses in their digital transformation.

Morocco has adopted strategic approaches to respond to digital challenges and opportunities. Indeed, these ambitious and visionary government policies demonstrate the country's commitment to embrace change and thrive in a changing global environment.

B. New development model: recommendations for digital transformation

The success of the digital transformation process in Morocco requires a clear vision and a well-defined strategy and it depends on the commitment and support of all stakeholders, whether political decision-makers, business leaders, employees, and even society as a whole, in order to overcome obstacles and promote the adoption of digital changes.

In this context, the new development model (NDM) has placed the potential of digital technology as a real strategic lever for transformation and development of the country.

Indeed, the NDM has proposed numerous strategic choices for the acceleration of digital in Morocco. These choices must be implemented urgently in order to ensure a significant and lasting transformation of our economy.

The NDM pays tribute to making digital a driver of competitiveness and modernization of businesses in line with global transformations, through the strengthening of digital infrastructure, technology adoption capacities and access to high-speed internet throughout the country, as well as training in digital skills and artificial intelligence, to promote financial inclusion through digital finance, to support the digitalization of businesses and to support startups in their development.

The acceleration of the digitalization of administration is among the recommendations of NDM, through the development of digital platforms, allowing citizens and businesses to access all administrative services. According to the NDM, "The digitalization of the administration is considered a necessary response to improve the quality of the administration's relationship with citizens and operators and its corollary the restoration of trust."

Thus, the NDM recommends accelerating the digitalization of all health system management processes to comply with international standards, promoting innovation and digitalization in the tourism sector in order to support the design new offers and their integration into marketing circuits, to accelerate technological infrastructures, to strengthen the competitiveness of the country and continue its development and to become a digital nation, where the transformational potential of digital technologies is fully mobilized. According to the NDM. "The country's overall competitiveness is essentially based on the quality of its human capital."

In short, Morocco's desire for a strategic digital transformation is underway in order to offer a promising future for the economic, social and sustainable development of the country.

Thus, adopting an approach based on innovation, economic diversification and regional cooperation paves the way for sustainable growth, job creation and improving the quality of life of citizens.

Finally, this strategic operation confirms Morocco's position as a major player on the international scene.

Section 3: Social inclusion and human development

1. Improving the quality of life of citizens through digitalization

Digital technology must be put at the service of human development, through better access to social assistance, health, education and the establishment of simpler services better adapted to the needs of beneficiaries. Digital transformation also constitutes a lever for social inclusion, able to facilitate access to information for citizens, and in particular vulnerable populations (e.g., rural or disadvantaged populations), in order to offer everyone the same opportunities.

In this way, Digital can help address critical issues for social development in Morocco in 3 main areas.

Education and Youth with the use of new technologies to develop access to education and training throughout the country and raise digital awareness among young Moroccans.

Health: improvement of patient care, particularly with the development of the electronic medical record to facilitate the sharing of information and medical monitoring of patients, and access to health, particularly in rural areas with telemedicine ;

Improved access to social assistance and financial inclusion for vulnerable populations, particularly unbanked populations (banking rate in Morocco of 56%), e.g. with the development of mobile money.

This strategic axis will make it possible to contribute to the reduction of social inequalities through equitable access to information and opportunities.

2. The sectoral impact of digitalization at the social level

In this part, we will take a close look at the profound impact of digitalization on all socio-economic sectors, exploring the major transformations it has brought about and the opportunities it has created.

The transition to digital has profoundly transformed the traditional functioning of the Moroccan economic and social sectors through the automation of manual processes and repetitive tasks using advanced software and IT systems. This has resulted in reduced operational costs, increased productivity and improved accuracy of operations.

- **The education sector**

The digitalization of the education sector has been an essential response to the health crisis triggered by the COVID-19 pandemic, containment measures, school closures and travel restrictions have forced educational establishments to find alternative solutions to ensure continuity of learning.

Digitalization has had a significant impact on education in Morocco. With the advent of technology, students now have access to a wealth of educational resources and online learning platforms. It has made learning more interactive, engaging, and accessible. Students can take online courses, access digital libraries, and collaborate with peers from around the world. Digital tools like educational apps, video conferencing, and virtual reality also enhance the learning experience. However, it's important to ensure that everyone has equal access to these resources to bridge the digital divide. Overall, digitalization has transformed education and opened up new possibilities for learning. With technology, students now have access to a ton of online resources like e-books, videos, and interactive learning platforms. It's made learning more engaging and convenient. Plus, digital tools like virtual classrooms and online collaboration platforms have made it easier for students to connect and work together. However, we need to make sure that everyone has equal access to digital education.

This has made learning more engaging, convenient, and personalized. Additionally, digital tools like virtual classrooms and online collaboration platforms have allowed students to connect and work together

regardless of their physical location. However, it's important to ensure that everyone has equal access to digital education to avoid creating a digital divide

Nevertheless, universities and colleges have offered training programs in digital technologies to train students in these new skills through tools and practices, online learning platforms, distance courses through mobile devices, and school management software and digital learning resources.

Thus, digitalization makes it possible to offer quality education to a greater number of people, particularly in remote regions or developing countries. This means more people can learn the skills needed to participate in the economy productively.

Access to online education can also help adults train and learn new skills, can help train workers in the digital skills needed to succeed in an increasingly technology-driven economy. This can help create a skilled and competitive workforce, which promotes social and economic mobility and stimulates economic growth.

- **The health sector**

In recent years, Morocco has committed to digitalizing health systems in accordance with the guidelines of the World Health Organization, which set 2030 as the deadline for the diffusion of digital health worldwide.

The integration of information and communication technologies (ICT) in the healthcare sector can improve the operational efficiency of healthcare facilities, for example electronic medical records, allow healthcare professionals to easily access medical information patients, reducing errors and delays in treatment.

It's actually quite remarkable. With the advancement of technology, digitalization has transformed the healthcare industry in Morocco. It has made healthcare more accessible and convenient for people. Telemedicine, for example, allows patients to consult with doctors remotely, saving time and effort. Digital health records enable healthcare providers to access patient information more efficiently, leading to better coordination of care. Additionally, wearable devices and health apps help individuals track their fitness, monitor their health, and make healthier lifestyle choices. However, it's important to address concerns about data privacy and security to ensure the trust and safety of patients.

Indeed, digitalization in the health sector allows the collection and analysis of large quantities of health data, this data is used for medical research, the identification of trends, the early detection of epidemics, the improvement of treatment protocols. This allows hospitals and clinics to operate more smoothly and optimize the use of resources.

Thus, a set of digital solutions are used to facilitate the making of medical appointments, the management of electronic medical records and teleconsultation.

This has made healthcare more accessible, especially for those in remote areas. Digital health records have also made it easier for healthcare providers to access and share patient information, leading to more coordinated and efficient care. Additionally, wearable devices and health apps allow individuals to monitor their health, track fitness goals, and make informed decisions about their well-being. However, it's important to address privacy and security concerns to ensure the protection of personal health information.

In this regard, digitalization also promotes the development of new companies and start-ups focused on health technologies, it also helps stimulate innovation, create new jobs and contribute to overall economic growth.

3. Digitalization and public administration

The concept of administration or government has evolved in recent years. It should be noted that there is no single and common definition of e-government (Halchin, 2004)[23]. Therefore, the term "e-government" is known by different synonyms such as e-administration and e-government.

Indeed, the term "e administration" refers to the use of ICT by administrations to provide public services. While the term "e-government", refers to the provision of online administrative services and public information services via the Internet or any other digital means (Muir and Oppenhein, 2002).[24]

On the other hand, the e-administration seems to resolve the problem of proximity, and to approach the administration of the citizen without taking into consideration either time or space.[25]

The construction of a new relationship between the State and society and one of the key trends within Moroccan public organizations is the main objective of the digitalization of public administration.

For Lowery (2001)[26], "e-governance represents electronic interactions between the government and the beneficiaries of its services (see Figure). The World Bank (2007) also shares this description, that is to say the existence of relationships between the government (administration) and the users of its services: government to citizen (G2C), government to business (G2B), government-to-employee (G2E), as well as government-to-government (G2G). According to Yildiz (2007)[27], there are four types of e-government based on the functions and tasks they perform.

-Government to Citizen: Most public services are aimed at citizens and all users, aiming to provide them with comprehensive and integrated services to meet their information, transactional and other needs, such as: such as: online tax declaration and payment, downloading administrative forms and tracking medical reimbursements. The e-administration strengthens communication between the administration and the citizen, thus improving the quality of public services, accountability and democracy. G2C allows citizens to easily access information and administrative services through efficient tele-services, thus facilitating their contribution and participation in public institutions.

-Government to companies: this second type of administration includes public services intended for companies and economic actors. These services include the dissemination of regulations, operational policies and memos, as well as the provision of information and services essential for conducting companies activities. Indeed, this relationship offers advantages to companies, particularly in terms of companies promotion and access to public markets thanks to the dematerialization of procedures and the electronic submission of offers. This process ensures fairness, transparency and good governance in public procurement. In addition, this relationship shares common objectives, such as: improving the quality of services, reducing costs and processing times for companies requests.

-Government to government: the concept of administration to administration refers to the different interactions between public bodies such as administrations, ministries, institutions, agencies, etc. Indeed, it aims to improve public services between these government entities through the development of

[23] Halchin, L E. 2004, « Electronic government: Government capability and terrorist resource », Government Information Quarterly, 21, 406_419

[24] Muir, A. & Oppenheim, C 2002, « National Information Policy developments worldwide in electronic government », Journal of Information Science, 28(3), 173_186.

[25] SATRY F. & BELKADI E. (2019) « Electronic administration : Concept, "Challenges and Prospects" International Review of Management Sciences -Number 4: July 2019 / Volume 2: number 3- p: 646 _ 667

[26] Lowery, L. M 2001. Developing a successful e-government strategy. San Francisco, Department of telecommunications and information services.

[27] Yildiz, M 2007. E-government research: Reviewing the literature, limitations, and ways forward. Government information quarterly, 24(3), 646_665.

applications allowing the sharing of information, the establishment of infrastructures necessary for collaboration and cooperation, as well as the exchange of databases. In addition, the use of information and communication technologies (ICT) by public organizations has made it possible to improve services, achieve cost and time savings, and centralize information.

-Government to employee:it consists of setting up online services meeting the needs of public officials such as: payment of salaries, reimbursement of travel or mission expenses, management of annual leave and consultation of balances. In addition, this type of service allows civil servants to follow and develop their career thanks to the online training offered to improve their ICT skills. These services also facilitate access to information on remuneration policies and social benefits, while allowing remote management of rights and obligations. In summary, this relationship offers employees services and information essential for their management and meeting their expectations.

Conclusion:

The COVID 19 era has given momentum to digitalization in Morocco. Containment measures to combat the spread of the virus have stimulated the use of digital technologies by our country's various institutions, thus Moroccan citizens are connected more than ever.

State strategic policies play a crucial role in digital transformation. They help define priorities and key performance indicators related to transformation, as well as provide a strategic framework to guide public and private organizations in their transformation journey, by aligning their objectives and opportunities, and improving their functioning.

Indeed, technological advances have favored the modernization of infrastructure and the transformation of the traditional functioning of sectors such as: health, education, etc. and the emergence of a new version of the social and economic sectors.

Furthermore, digital technologies play an important role in social inclusion by making information accessible to everyone, especially disadvantaged groups living in rural or poor areas. This provides equal opportunities for everyone. However, there are still barriers that prevent the country from fully entering the digital age, which aims to inject new impetus into responsible and inclusive digital transformation and promote proactive and ambitious development in technology fields relevant to humanity and rapidly emerging countries.

In this regard, the digitalization of social and economic sectors can create significant effects for stimulate Moroccan social inclusion such as: the development of the education sector as well as the health sector, adding to this the improvement of public administration to bring services closer to citizens, especially those in rural areas, and improved productivity and efficiency, which subsequently leads to an increase in production as well as the creation of opportunities jobs by increasing disposable income.

However, to successfully develop digital technology in Morocco, an integrated digital structure must be developed. Such a structure, including the many players in the ecosystem, will require a clear governance model with effective management tools and structured and coordinated infrastructure choices.

Finally, the digitalization of all sectors will not be easy, but without digitalization, it will not be possible to integrate into the global economy or be competitive in the global market. To do this, it will be necessary to integrate a sectoral and regional strategy, integrating a participatory and user-centered strategy.

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