Banking Governance in The Era of Digital Transformation

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Abstract

For nearly four decades, we have been witnessing the development of the concept of corporate governance. This concept has evolved considerably since its appearance because of its multidisciplinary nature and the high diversity of its theoretical grids. There are two main theoretical approaches. The disciplinary and the cognitive approaches. Given the challenges and opportunities of digital transformation, and its inevitable impact on the bank's business model, it is natural that it also impacts on its governance. This impact can be analysed from the two dimensions of governance. First, a cognitive dimension, which concerns all the players in the governance system, particularly the board of directors. Then, a disciplinary dimension dictated by the radical transformation of the confidence relations (Board of Directors / managers) established by the blockchain technology which could call into question the notion of opportunism advocated by the agency theory as the basis of the disciplinary approach of governance.

In this paper, we will explore from an unprecedented analysis the impact of digital transformation on banking governance. This analysis will focus on the two dimensions of governance: disciplinary and cognitive. Finally, an empirical study will be presented on the digital transformation at the level of Moroccan banks which refers to the cognitive aspects of governance.

Keywords: corporate governance, disciplinary governance, cognitive governance, banking governance, digital transformation

Introduction

For almost four decades, we have been witnessing the development of the concept of corporate governance. Today, this theme has become omnipresent, both as a cause and a solution to corporate problems. It is the subject of attention in the economic and financial environment, but also in the political, sociological, legal and scientific research environment.

The concept of governance has evolved considerably since its emergence with the pioneering analysis of Berle and Means (1932). It cannot therefore be stabilised because of its multidisciplinary nature and the great diversity of its theoretical frameworks. We can thus distinguish two major currents. The first trend, known as "legal-financial" or "**disciplinary**", is historically dominant and has shaped the legal and normative framework worldwide. The second trend is "**Cognitive**", based on cognitive theories.

Given the crucial role of banks in the collection of savings, the financing and development of enterprises and economic growth, the issue of governance is crucial for the soundness and development of banking institutions and, consequently, for the financial stability and health of the economy of a country as a whole.

Given the challenges and opportunities of the digital transformation and its inevitable impact on the business model of banks, it is natural that it also impacts their governance. This impact can be based on the two dimensions of governance mentioned above. Firstly, a cognitive dimension, which concerns all the actors of the governance system: the board of directors, the management and also all the employees who must adhere to the new strategic digital vision of the bank and the new business model that results from it. Then, a disciplinary dimension dictated

by the radical transformation of the relationship of trust (Board of Directors / Management) introduced by the "blockchain" technology which could call into question the notion of opportunism advocated by the agency theory as the basis of the disciplinary approach to governance.

In this paper, we will first present the evolution of the conceptual and theoretical framework of governance from a disciplinary to a cognitive perspective.

Next, we will explore the impact of the digital transformation on banking governance from an original analysis. This analysis will focus on the two dimensions of governance. The first is cognitive, by analysing the role of the board of directors in the digital banking transformation. The second disciplinary dimension, by analysing the impact of the blockchain on the modes of banking governance. In order to do so, we thought it would be useful to present an overview of digital transformation in the banking sector.

Finally, an empirical study on digital transformation in Moroccan banks will be presented, which refers in particular to the cognitive aspects of governance.

From disciplinary to cognitive governance

The purpose of corporate governance is to frame the distribution of powers within the company, to govern the relationship between management and shareholders and to establish the mechanisms that frame the rights and obligations of all those who contribute to creating value. Thus, the objectives pursued by governance are diverse and constantly changing.

Initially, the objectives of governance, from a purely disciplinary and repressive perspective, were to serve strictly the interests of shareholders by closely controlling the room for manoeuvre of managers and their discretionary space.

In the second stage, the objectives of governance evolved towards a partnership approach, but remained disciplinary, considering the interests of stakeholders in addition to those of shareholders.

Subsequently, these goals have continued to evolve, first from a cognitive and enabling perspective and then recently from a behavioural perspective. As a result, directors provide leaders with cognitive resources while supporting them in decision making, particularly in difficult times. The ultimate goal is to create value for the company and its stakeholders.

Indeed, the "**Cognitive**" model is based on "knowledge-based" cognitive theories which replace the notion of "information" by that of "knowledge", by reducing, in its conception of efficiency, the asymmetries of "knowledge" and not of "information". According to this model, governance should promote value creation through cognitive leverage, including organizational learning, skills and innovation.

The disciplinary approach has been limited to reducing agency costs between the different stakeholders, leaving aside the productive dimension of value creation. G. Charreaux (2011).

Contrary to contractual and disciplinary theories focusing exclusively on the resolution of conflicts of interest and thus omitting the productive dimension of value creation, cognitive theories approach the process of value creation in a radically different logic by focusing on the development of knowledge, the construction of skills, the capacity for innovation and the creation of investment opportunities.

Two mechanisms can be mobilized in the cognitive model: either the reduction of the costs of cognitive conflicts through better coordination between actors, or the creation of new productive opportunities.

By considering the cognitive dimension, the system of governance must encourage the creation of "cognitive" value, a source of competitive advantage, through, for example, the construction of certain distinctive skills, the development of new know-how via organisational learning, the institutionalisation of innovation, monitoring of investment and growth opportunities, cognitive coordination, etc.

Moreover, the cognitive model is not intended to replace, but rather to complement, the financial and disciplinary model. Moreover, the work on the innovative firm by W. Lazonik and M. O'Sullivan (2000) simultaneously retains the two dimensions that prove to be complementary and intertwined.

The impact of the digital transformation on banking governance

The digital transformation in the banking sector

The democratisation of the Internet and mobile terminals in the early 2000s has profoundly changed the business ecosystem and consumer habits. Banks, like other industries, have been considerably impacted and have found themselves forced to adapt quickly in order to survive and remain competitive and to adopt a new business model in the face of this digital revolution.

Indeed, fintech is gradually occupying a field, hitherto reserved for banks, using new technologies to rethink financial and banking services.

The digital revolution

With its blurred contours and complex definition, whether perceived as a threat or as a tremendous opportunity for growth, digital technology is attracting the interest of everyone, from the Chairman to the employees, of the banking industry. The digital transformation is still a protean concept whose meanings differ between academics and practitioners. Among the former, some characterize it as "the changes induced by digital technologies in all aspects of human life" (E. Stolterman & A.C. Fors, 2004), or "the organizational transformation linked to the development and

integration of collaborative digital technologies in the individual or collective practices of companies". (A. Duzert, 2016). The latter consider more provocatively that "digital transformation is the radical exploitation of the possibilities of the Internet" (Ludovic Cinquin, 2016)¹. Indeed, this radicality manifests itself on three levels: the change in the temporal dimension of the moment as the Internet abolishes time, the evolution of the spatial dimension via mobile technologies which offer an unprecedented ubiquity, and access to the multitude as the Internet abolishes the limits of the audience.² Under pressure from new entrants, to adapt to new consumer behaviours or to take advantage of technological tools in terms of innovation or productivity, companies are called upon to rethink their processes and the way they interact with their stakeholders.

The speed and magnitude of the ongoing transformation, driven by the latest wave of ICT, has led some authors to speak of "**acceluption**" (A. Bounfour, 2016)³. This new concept highlights, on the one hand, a broad extension of the field of value production by companies, and on the other hand, the digital acceleration that leads to the instantaneousness of exchanges within society and the company. "Gradually, the added value is shifting from the actual performance of the tasks to three areas: the formulation of the customer's request, the design of the solution and of the automations that perform them, and finally the service, which consists in delivering to the customer." (A. Landier, 2014).

In this transition, the key strategic asset for the company is information. Indeed, the company that can create value from the exploitation of information and give it meaning will be able to develop (or strengthen) its competitive advantage in the long term. This is particularly true in a context favoured by the **accéluction**, which is characterised by the extension of spaces for value creation and by the acceleration of links.

The digital transformation appears less as a transformation involving a break than as a logical evolution. Indeed, digital is already an integral part of the private sphere and is part of a natural evolution by now penetrating more and more the professional sphere. The phenomenon of the "Bring Your Own Device" (BYOD)⁴ is an example of this. Aymeric Bourdin (2013) describes this digital revolution as the "locomotive of the third industrial revolution"⁵.

The impact of digital technology on the bank and its customers

The impact of digital transformation is manifested at three levels: customer relationship transformation, business process transformation and business model change (E.L. Westerman et al., 2011). In the banking sector, this transformation has a particular resonance explained by the strategic importance of its Information System, but also by its interactions with its customers, which are currently being disrupted.

Changing Customer Behaviour and Expectations

The customer demands a high level of interactivity, ease of use and continuity of service from his bank. Without having to bend to the hours of a branch, which are often difficult to reconcile with their professional activity, customers prefer online consultation of bank sites, especially with the development of smartphones and mobile applications. Secondly, customers are increasingly looking for simplified services that are less opaque and less complex. This has given rise to new ranges of products and services known as "easy" with a multi-channel distribution that allows the customer to access his accounts and banking services continuously and by several means.

Emergence of new entrants in the banking sphere

The rise of new technologies is also contributing to the entry of new hybrid players in the payment market with the creation of the status of payment institution and the status of electronic money

¹ Ludovic Cinquin, DG d'Octo France, entreprise spécialisée dans l'accompagnement des entreprises dans leur transformation digitale.

² Busson M., Institut Mines-Télécom (2016). Livre Blanc, Entreprise du futur, les enjeux de la transformation numériques.

³ Accéluction is a concept developed by Professor Ahmed Bounfour, Rapporteur of the CIGREF Foundation's ISD international research programme, which characterises the emergence of a "new system of accelerated linkage production", marked both by "the extension of spaces for value creation and by the considerable acceleration of links (transactional or organic) as a source of value creation". In "Acceleration in Action, ISD international research programme: first

progress report, a perspective on Wave A projects", the ISD research programme is the first step towards the implementation of a "new system of accelerated linkage production", marked both by "the extension of spaces for value creation and by the considerable acceleration of linkages (transactional or organic) as a source of value creation".», Fondation CIGREF – Octobre 2011, p. 8.

⁴ BYOD : written abbreviation for bring your own device: the practice of companies or schools saying that employees or students can bring their own computers, phones, etc. to work or school in order to do their work on them.

⁵ Term borrowed from Jeremy Rifkin, in La troisième révolution industrielle, Les Liens qui libèrent, 2012, and taken up again by Aymeric Bourdin, Le numérique locomotive de la 3e révolution industrielle, Editions Ellipses 2013.

institution. Among the most important in the sector are Paypal, NFC contactless smart cards and mobile payment or "m-payment".

The digital transformation of retail banking

To optimize the customer experience, the bank adopts a "customer centric" approach and strives to get to know its customers and prospects better to serve them better. Big Data plays a key role in this objective of knowing the customer better and makes it possible to optimise the customer journey and thus offer a personalised range of products and services. It therefore constitutes a considerable competitive advantage for the bank.

However, the bank's digital transformation also concerns its operational processes. The automation of processes represents a major growth opportunity for the bank, enabling it to shorten and simplify banking procedures and to improve efficiency, quality, time and risk management.

A new banking model

The digital transformation has opened a breach for new entrants (Fintech) on the one hand and has forced the bank to meet new customer expectations and reduce costs to improve profitability on the other. Indeed, digital technology, which is both a threat and an opportunity, has led to the emergence of a new banking model: connected, intelligent, agile and social, in which the traditional branch and the adviser play a different role in the relationship with the customer. Even if they visit their advisor less regularly, customers remain attached to their local branch. Indeed, they want the best of both worlds, physical and digital, with less frequent agency contacts, but with higher added value. This has certainly encouraged the resistance of the classic "brick and mortar" model, but at the same time, it has also helped the new "click and mortar" model to survive. Banks must therefore adapt and integrate digital into their strategy, or risk disappearing in favour of new players such as Fintech, which are more aggressive and reactive and in tune with the digital revolution. All these factors are pushing banks to change their business model through various mechanisms such as the rationalization of the banking network, the digitalization of the service offer, the modernization of information systems, and the search for new sources of income, particularly by exploiting Big Data.

The impact of digital technology on the Bank's business lines

As part of the digital transformation that has pushed the bank to adapt and transform its business model, processes and organisation, it is clear that the banking business is being impacted. Several business lines are being created on the basis of the existing business model but integrating the digital component. Firstly, the appearance of a new function, the CDO (Chief Digital Officer), whose role is to steer the digital transformation. Next, the Marketing department will be impregnated with the data flows collected by big data through the new job of data-scientist. In the same way, the "HR" department is deploying change management consultants to better support the impact of digital technology on the organization of employee work, particularly with the launch of robotization projects (chatbot⁶). Similarly, the risk management businesses will have to adapt to comply with new regulatory constraints and manage the risks inherent in digital technology (cyber-attacks, e-reputation). The communications sector will also undergo a revolution, with multi-channel operation possibilities making any action highly visible.

The stakes of the digital banking transformation

In the future, banks will have to meet several challenges related to Fintech (Blockchain, Bitcoin virtual currency, cybersecurity, artificial intelligence, etc.). On the other hand, there are three major constraints that could hinder their progress:

Regulatory constraints: their weight will increase further. Legislators will be particularly attentive to the new developments implemented by banks. The same applies to the processing of data from Big Data in compliance with the Act and the regulations on the protection of personal data. The challenges of digital information and data raise questions about the right to be forgotten on the one hand, and the use of data for advertising purposes on the other.

Human constraints: in the past, bank managers were asked to be competent. Today, they must also be visionary, innovative and become "digital addicts" in order to meet these challenges. Despite their risk aversion, banks need to be less risk-averse in the face of the issues and challenges associated with digital technology. Banks will have to train their employees and orient their HR policies to attract the talent that can build this new model. It is essential to accept that value creation has become a collective dynamic. Also, managerial requirements must make organisational communications more transparent to share a common strategic vision, adopt an agile architecture open to the entire bank's ecosystem, and implement a **mode of governance** based on consultation and the involvement of all the players in the value chain. To achieve this, management must adopt an approach that encourages innovation in order to generate new "open innovation" competitive advantages, promote results-based management and benefit from collaborative dynamics.

- Constraints on "information" management: Information, in this dynamic, has become a strategic asset of the bank. Tomorrow, a bank will gain in performance, if only it will be able to integrate unstructured information into its decision-making systems, cross-reference it with external data from its partners, and adapt the architecture of its information system to optimise information processing, both from a quantitative and qualitative point of view. Leaders must be convinced that digital culture is a source of innovation and value creation, and the advent of social media is opening new spaces for exchange and value creation, in which private and professional life live together. This encourages the explosion of volumes of information, both structured and unstructured (Big Data), which can contain high added value.

Double impact of digital technology on banking governance: cognitive and disciplinary

Given the crucial role of banks in the collection of savings, the financing and development of enterprises and economic growth, the issue of governance is crucial for the soundness and development of banking institutions and, consequently, for the financial stability and health of the economy of a country as a whole.

Given the challenges and opportunities of the digital transformation and its inevitable impact on a bank's business model, it is natural that it also impacts its governance. This impact can be analysed based on the two dimensions of governance presented above. Firstly, a cognitive dimension that concerns all the players in the governance system: the board of directors, the management and also all the employees who must adhere to the bank's new digital strategic vision and the new business model that results from it. Then, a disciplinary dimension dictated by the radical transformation of the relationship of trust (Board of Directors / Management) introduced by the blockchain which could call into question the notion of opportunism advocated by the agency theory as the basis of the disciplinary approach to governance.

The board of directors and the digital banking transformation: cognitive governance

Digital technology now covers the entire value chain and all banking activities. As a result, the bank is forced to adapt by being more agile, more flexible and to interact differently with all its stakeholders. This digital transformation is certainly a source of opportunities that must be seized, but also a source of new risks that must be controlled. It is a new challenge for the bank, its management and its Board of Directors to seize these opportunities and manage these risks with a view to creating value. Thus, digital transformation, which brings with it challenges in terms of performance, organization, cultural evolution and risks, is a strategic issue. It must therefore be dealt with at the highest level of the bank, discussed and debated in the Board of Directors, which must therefore take up this subject and put it on the agenda.

The digital transition currently at work in the economic and social ecosystem seems to mark a paradigm shift. Administrators must therefore become aware of the importance of what is at stake in this transition. The board of directors, being the main governance

⁶ A chatbot is a "conversational agent", i.e. a software robot that can dialogue with a client through an automated conversation service that can be carried out through choice trees or through an ability to process natural language.

mechanism, is directly concerned. First of all, the board must understand how this major transformation affects the bank itself. It is a question of understanding its business model, without which the board cannot exercise its primary function of determining strategy. It is also its other function, which is to assess the risks associated with cyber-attacks, the protection of the bank's data, and the risks associated with the adaptation of employees. Even the nature of the information that is given to the board to feed into its decisions is changing, and it is necessary to know how to interpret and sort it, especially with the use of big data.

This leads to a reconsideration of the composition of the Council. The appointments committees must recruit new directors with "digital skills". These profiles prove difficult to find given the average age of directors (58 years old for the SBF 120 example) and who do not belong to generation Y (the millennials).

It is therefore essential to strengthen the training of directors. Older directors are generally reluctant to admit that they need to be trained, but they must recognize that it is necessary regarding new technologies. Some boards have advisory boards or joint strategic committees that include non-administrators.

A second impact of the digital transformation on cognitive governance concerns the very functioning of the Council itself. Dedicated and protected Internet platforms have been in existence for some fifteen years, and the number of service providers has multiplied. One may also wonder whether artificial intelligence is not going to be invited to the Board of Directors. Not to take decisions for it, but to carry out all the repetitive and formalistic tasks involved in its operation "Legaltechs" have for some time now invested in other areas of law such as *predictive justice* or the automation of contracts and are increasingly offering products in company law. These include not only forms that are fairly precisely adapted to the situations of companies, automated management services for summons and even the drawing up of minutes.

The IFA⁷ has questioned the role of the Board of Directors in this area, and has set up a think tank in association with CIGREF⁸ on the monitoring of digital risks:

- How should the board organize itself to deal with digital?
- Should an ad-hoc committee be set up or should digital issues be dealt with within the board itself?
- Should digital expertise be introduced within the board?

Indeed, it is necessary to ensure that the Board has directors with digital skills or experience, and if not, to organize training for them. Directors wishing to better understand the challenges of digital technology at the level of their bank should ask themselves the following questions:

- How does digital technology impact my bank today?
- How can I ensure that this transformation is steered and consistent with the bank's strategy?
- Who are the players in this transformation?
- How can I think differently and instill a new culture at the highest level?
- What are the new digital risks? Are they known, managed and under control?

The interlocutors of the digital consulting

The development of a common and shared strategic vision on the digital world requires the dissemination of a digital culture. Pedagogy is the key to making people understand the benefits of digital technology and to raising the interest of the business. The Board must ensure that the bank has a shared "digital vision", in line with its global strategy and equipped with the appropriate financial and organisational resources. This vision and its deployment must be presented once a year to the Board of Directors by the CEO, CIO or CDO. This vision must contain an analysis of the environment, with a projection of competitive trends and the identification of new entrants. In this context, bank managers need to be enlightened about the digital "shift" and the business lines need to devise new services supported by new

technologies. To do this, the perception of the IS by the Business Units and the CEO must evolve from a "IS = cost unit" vision to a "IS = source of value and savings" vision. CEO-Business-CIO interactions are becoming more necessary than ever in this context. It is therefore up to the board to ensure that this triptych of CEO / CIO / Business lines is effectively functioning in the bank and that the roles of each are clearly identified by the various players.

Board interaction with senior management

The general management is of course the natural interlocutor of the board about digital. Every year, the Board can hear the Executive Board's views on its vision of digital, from a general point of view, in its market and then in the bank. The Board's role is to assess the use of new technologies in the Bank. It must clearly define whether it is a lever for improving operational efficiency, or a means of communicating information internally and externally, or a marketing tool, or a vector for innovation, or as a means of developing new activities for the bank.

It is then up to the Board of Directors to assess the way in which the Executive Management applies this vision in the bank, in strategic and operational terms, by taking an approach to opportunities and risks. The Board monitors the implementation of digital initiatives by keeping abreast of major IT investments and by reviewing the portfolio of major transformation projects each year: justifications, contributions, returns on investment, risks, etc. The Board ensures that senior management has taken the measure of the challenges associated with the use of digital technology in the day-to-day running of the Bank.

The Director of Information Systems, a privileged interlocutor of the Board

For the purpose of deepening or broadening its assessment, the Board may request a hearing with the bank's CIO. This exchange, which could be annual, is intended to complete the Board's understanding of important issues associated with digital developments and to assess the IT department's positioning within the bank, its interactions with the business lines and senior management, and the contribution of the information system to the achievement of the bank's objectives. In concrete terms, the Board can hear the CIO on the overall management of the information system, the impact of budget trade-offs on opportunities and risks, the evolution of threats related to new technologies and their uses, etc. As a preliminary to this exchange, it would be useful for the Board members to have an overview of the missions, organisational principles and roles and responsibilities of the main players in an CIO⁹.

The Board and other stakeholders

Given the stakes involved, it may be useful for the Board to hear from other bank players involved in the digital world on an ad hoc basis. For example, the Board can call on the heads of the bank's functional or operational departments, who sponsor major transformation projects with a strong digital connotation. These projects represent major investments. Their control and successful completion are critical for the bank.

The body of the board where the subject of digital can be discussed

Digital technology, which is perceived as a highly technical subject that is the preserve of specialists, is in fact a cross-disciplinary issue for the Bank, closely linked to its strategy, which may require significant investment and carries specific risks.

What is therefore the most appropriate body of the Board to deal with the subject: (the Board of Directors, the Audit Committee, the Risk Committee, the Strategy Committee, a committee specialising in digital technology, etc.)?

The answer to this question is not universal and depends on the specific context of each bank. Whatever solution is chosen, it is ultimately up to the Board, in plenary session, to take ownership of the digital issue as a whole. This point deserves attention because some directors may still be unfamiliar with digital

7 IFA : Institut Français des Administrateurs.

8 Le Cigref, « Club informatique des grandes entreprises françaises », association loi de 1901 créée en 1970, is a network of major French companies and public administrations that have set themselves the mission of making digital success. It does not engage in any lucrative activity. To date, Cigref brings together nearly 150 major French companies and organisations from all

sectors of activity (banking, insurance, energy, distribution, industry, services, etc.). It represents nearly 85% of the CAC 40, and 1/4 of its members are public administrations (Ministry of the Interior, Ministry of the Armed Forces, Caisse des Dépôts, etc.).

9 CIGREF, (2011), Information systems professions in large companies.

technology, which may require more time to become familiar with it than for other work usually prepared by specialized committees.

The new risks associated with digital

One of the roles of the Board of Directors is to monitor the effectiveness of internal control and risk management systems. New digital challenges are redrawing the bank's boundaries in a context of increased competitiveness, globalization and openness. The Bank must understand the new risks involved, particularly in terms of information systems. The Board of Directors must therefore ensure that, considering this changing environment, the Bank adapts its internal systems to promote awareness of the new digital risks in order to adapt its risk management system accordingly and to take on board the evolving regulatory framework.

IT are, in themselves, carriers of "classic" risks inherent in their operation, availability, control and mastery (theft, data alteration by employees or malicious programs, denial of service due to network saturation, etc.).

The development of digital technology has brought to light new risks that it is now important to be able to identify and control:

- Strategic: absence or failure of digital strategy, lock in, competition between two sales channels or product families;
- Related to human resources: lack of adherence to the digital strategy, social and psychosocial risks, skills sclerosis;
- Linked to the dematerialization of human relations: "infobesity", interpenetration of private and professional spheres, weakening of interpersonal communication, loss of flexibility linked to the digitization of customer processes, loss of reflection linked to the acceleration of exchanges, right to disconnection;
- Marketing: e-reputation, globalization of competition;
- Ethics and law: evolution of law and jurisprudence, authenticity of documents, heterogeneity of national laws, respect for privacy, confidentiality of data;
- Heritage: poor protection or preservation of digital data.

Impact of the blockchain on banking governance: disciplinary governance

Contrary to the previous cognitive-dominated impacts, another impact, still in the making, can be very structuring: the transformation of General Assemblies. In their present form, they are an institution that has hardly evolved since the nineteenth century and which seems increasingly unsuited to its function as a governing body. In their present state, Assemblies are often held on paper and consist of recording decisions taken elsewhere. They are a constrained and costly communication exercise. The latter are still largely practiced by ticking boxes on sheets of paper sent by mail, as the development of Internet voting is strangely slow: this can only encourage abstentionism, particularly among foreign shareholders.

There is therefore increasing talk of introducing blockchain technology. The latter can be defined as a register that guarantees the authentication of data and their durability, while avoiding having a centralized authority. It seems to have great advantages from the point of view of good governance: transparency (access of all authorized stakeholders to information in real time) and thus accountability, accuracy, security and disintermediation. The implementation of the technology, which is already well advanced in the field of crypto-currency, is being tested not only for financial market transactions but also for voting in the General Assembly. Experiments in this field are being conducted by stock exchanges such as the Toronto Stock Exchange and the Tallinn Stock Exchange in Estonia (a subsidiary of NASDAQ), and depository banks are developing prototypes. The international organisation of central securities depositories is also working on the development of an electronic voting system.

The confidence revolution

The user no longer needs to consider whether or not to trust the middleman, since he does not exist, and the network is decentralized. This decentralization makes it possible to record the history of the transactions that are carried out in the network, which makes it impossible to manipulate the data. We are thus moving from a model based on trust, as we know it, to a model where trust is delegated to an algorithm, that is, to the underlying technology. The main objective of the blockchain is therefore to exchange value between peers without intermediaries. This

exchange of value can thus take place without any fear of decisions going against the interested parties.

While the blockchain allows a better relationship between individuals, it can also allow this in the case of companies, by optimising contractual relationships. The growing extent of the phenomenon that the block chain has the power to revolutionize the existing system.

Yet a fundamental question remains unanswered: what governance model should be applied to the blockchain?

An analysis of the governance models at work highlights, despite the possible variations depending on the situation, three common characteristics: decentralisation (no regulation is carried out by an operator), autonomous financing (these governance models are not based on a financial regulatory system such as financial institutions), trust (the transaction carried out does not rely on a so-called trusted third party unlike a traditional payment via a bank, for example).

The end of opportunism

One of the applications of the blockchain, based on trusted IT management, is the "smart contract", an IT protocol for verifying, monitoring and enforcing the negotiation and execution of a contract. According to Michael C. Jensen and William Meckling, however, a business is a "node of contracts and relationships"; the goal is to distribute contracts fairly between the principal and the agent. Unlike the current model of disciplinary governance where there is opportunistic behaviour, the blockchain responds correctly to this agency theory. Since the blockchain is a transparent record, verifiable by all actors, opportunism according to Oliver E. Williamson is thus eliminated. The automation of governance mechanisms via smart contracts, the elimination of opportunism and the reduction of transaction costs make the governance of the blockchain effective. The blockchain is not an additional new technology but a disruptive technology that challenges all conventional modes of governance.

Figure 1: The impact of the digital transformation on banking governance

Study Methodology

The study conducted by Trusted Advisors was carried out in the following four phases:

Firstly, a qualitative exploratory phase through focus groups and individual interviews involving more than 70 senior executives and senior managers, representing all the stakeholders concerned by the digital transformation within the 6 banks making up the panel.

The second phase of the study includes an inter-company benchmarking to highlight best practices in terms of digital transformation and to highlight certain successes as well as pitfalls to be avoided.

The third phase of the study includes a quantitative study conducted on nearly 470 executives and managers from 9 banking organisations, across all business lines, in order to confirm or

refute the challenges raised during the individual interviews or focus groups.

The fourth phase involves consolidating the qualitative and quantitative results and confirming the major trends.

Results of the study

The levers to be adopted to succeed in the digital transformation

The qualitative approach identified key factors that must be gathered and verified in order to succeed in the digital transformation process in the Moroccan context.

- All the banks are unanimous as to the elements that are essential to carry out the digital transformation. It is about having a relevant strategic vision, clear plans in terms of actions, and common and shared objectives.

- The commitment of the teams is essential. The latter requires a "global" movement that will only happen if the company has the means both in terms of human resources (recruitment of suitable profiles and skills development and training of employees) and in terms of strong financial mobilization. All this will be accompanied by change management, clear **governance approaches** and the deployment of agile methods.

- Finally, digital transformation only makes sense if it is felt as a win-win situation between customers and the bank. Thus, all banks agree that the customer and especially the customer experience must remain the focus of attention.

At all the levels questioned, it is accepted that the evolution and transformation approach can only be effective if it is collective. Therefore, this collective approach also includes the involvement of the customer in the thinking process. This will guarantee the anticipation of customer needs in all reactivity and innovation.

Pitfalls to be avoided in order to succeed in digital transformation

The focus groups and individual interviews identified the main pitfalls that threaten the digital transformation.

-First of all, the lack of coherence between the strategy and the actions implemented. In addition, a key element is the lack of a clear and global vision. Finally, thinking that digital change is dependent on certain 'key people' and not articulated around a culture or/and organisation would also be the death knell of the digital transformation process.

-The second pitfall, which has a considerable impact on the process, is the rigidity of the action plans and their implementation, as well as external communication that is not consistent with the attributes of the services offered, which could harm the image that the bank wishes to put forward in its transformation process.

-Finally, the most common factors of failure cited by respondents in the third place are the lack of buy-in and federation of the various stakeholders, which may result in particular from shortcomings in the internal training systems, as well as the lack of sponsorship and steering or **poor governance**.

The 10 risk areas

This study has highlighted 10 risk areas that the Moroccan banking sector needs to address. These elements revealed during individual interviews were then confirmed by the quantitative study conducted among 470 senior executives and managers of 9 banking organizations in Morocco. The results are presented below:

- **A very diffuse level of awareness and involvement between functions.**
70% of respondents believe that all their bank's business units have not yet become aware of the issues involved in the digital transformation or that it is in progress. (Cognitive bias).
- **Lack of customer knowledge**
60% of respondents feel that their bank does not know enough about its customers, their behaviour and their expectations. (Cognitive bias).
- **Difficulty in sustaining transformation efforts**
65% of respondents believe that perseverance is as important as sponsoring management teams for the success of the transformation.
- **The Ownership of transformation projects is diffuse**

68% of respondents believe that in their company digital transformation projects are managed by several entities in a disparate manner.

- **A weakness of Open Innovation**
75% of respondents believe that their bank does not use Open Innovation.
- **Perception that Regulation restricts the exercise of innovation**
90% of respondents believe that the current regulatory and legal framework is binding. (Cognitive bias).
- **Believe that the Digital Transformation is only technological**
85% of the respondents believe that efficient information systems make it possible, for the most part, to successfully complete the transformation process. (Cognitive bias).
- **The bottom-up to consider**
78% of respondents believe that their bank does not solicit all their employees to propose process or customer service improvements.
- **The HR function often neglected**
95% of respondents believe that the HR function is not or not sufficiently involved in the digital transformation process.
- **A need for cross-functional teams and not just cross-functional committees**
75% of respondents believe that there is a need for cross-cutting teams and not just cross-cutting committees (need for soldiers to work together and not just generals to work together).

Conclusion

Initially focused on the disciplinary dimension, giving priority to the notion of conflicts of interest, the attention on the field of governance has gradually shifted, under the influence of different currents of literature and, due to the very limited explanatory power of the financial perspective, towards considering the different stakeholders, as well as the cognitive dimension. Based on systemic reasoning, the integration of the cognitive dimension in a financially dominated governance system is more in line with a logic of complementarity than substitution.

Indeed, the **cognitive dimension of governance** concerns first and foremost the competence of the Board of Directors, particularly for non-specialist directors who find themselves having to rule on increasingly complex activities in the digital age.

The competence of directors is increasingly challenged by increasingly technical issues, particularly digital issues.

Secondly, the competence of the manager is also challenged in his supervisory function by the increasing complexity of digital products, which risks making certain activities intelligible to the manager and the board of directors. The latter must therefore be aware of their banks' exposures to new risks inherent in digital technology.

Finally, there are the costs of understanding between the Board and the CEO or with the CIO and/or the CDO. Indeed, the increasing sophistication of products risks causing a break in the chain of understanding of activities between specialists and managers on the one hand and between managers and the Board of Directors on the other. The banking sector is traditionally opaque, complex and the costs of understanding are high. These costs are more significant in the era of digital transformation and are accentuated when directors are not specialists (P. Wirtz, 2006). These costs increase when managers and directors have distant analytical frameworks or frames of reference (G. Charreaux, 2006).

In the digital age, no bank can afford to do without a digital strategy. It is forced to adapt and transform itself in depth: in its customer experience proposition, in its operational processes, in its operating modes and internal organisation, and finally, in its business model and governance. Deep cultural changes, but also in terms of modes of governance, remain to be made if they are to meet these new challenges.

The study carried out by Trust Advisors has highlighted the real challenges of the digital transformation within the Moroccan banking sector. By highlighting the various keys to success, it has identified the priorities to be mastered for a successful transformation project, namely: the consolidation, in a clear manner, of the vision, the strategy and its implementation in a

roadmap and objectives; the refocusing of the transformation effort around the experience, needs and expectations of customers and finally, the implementation of human, financial, technological and methodological agile means directed by a **convinced governance**.

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