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The Role of Managers and Middle Managers in the Change Process with the Integration of ICT — Case Study: National Archives Centre in Lebanon

Charbel Chedrawi, May Sayegh
(Saint Joseph University, Lebanon)

Abstract: The present study seeks to identify the relationship involved between information and communications technology (ICT) and the adoption of new management tools, modernization and reorganization. Using data from the National Archives Centre, we present the attitudes of upper and middle managers in the organization based on Mintzberg's studies on innovation, the role of leaders facing resistance and organizational changes. The results show that ICT significantly affect important elements in all structural dimensions, especially the key people management. More generally, the results suggest that ICT is correlated with the internal environment of the company.

Key words: middle managers; ICT; organizational changes; National Archives Centre
JEL code: O380

1. Introduction

Although electronic government does not have an effectively coherent identity (Hu, Pan & Wang, 2010), it is often considered a major development in public administration over the past decade (Roux, 2015).

Change in organizations is seen as a critical challenge for leaders and middle managers (Vandangeron-Derumez, 1998). If we admit that change could be a permanent state of contemporary organizations, the challenge for any public or private company would be to manage this change while maintaining its organizational stability. Each company is allowed to make changes to stay competitive. For Bayad et al. (2006), the aim of introducing innovation in any organization is to improve its efficiency. Innovation could be new products, technologies or structures that are considered an organizational change.

Since the excessive use of computers, and more recently of Internet, governments are encouraged to integrate information and communication technologies (ICT) in their work, and move to e-government. In this context, the leaders of the National Archives Centre in Lebanon (CAN), an entity created in 1962 to collaborate with the government in the management and organization of archives and filing of records, realized the importance of upgrading this Centre by introducing technological innovation in their daily work.

Such change may be associated with many obstacles at the technical, organizational, political, financial, or legal levels. Therefore, a manager's role is to find the suitable means to achieve what is requested within the limits

Charbel Chedrawi, Ph.D., Assistant Professor, Saint Joseph University; research areas/interests: management, organization change, ICT, ageing, new public management, public sector. E-mail: charbel.chedrawi@usj.edu.lb.
May Sayegh, Ph.D., Assistant Professor, Saint Joseph University; research areas/interests: organization change, ICT, big data, management. E-mail: may.merhejsayegh@usj.edu.lb.

of the organization's capabilities. Similarly and because of the ambivalence of their position in the organization, middle managers also seem particularly concerned with organizational change. Indeed, the pressures created during any new task force the manager to consider the workloads and respond quickly to stimuli. He seeks the tangible and avoids the abstract, takes decisions and executes all that is asked abruptly (Mintzberg, 1990).

This article examines the role of leaders and managers during the change process in the National Archives Centre (public entity) with the modernization of its daily work, and the introduction of information and communications technology and an integrated information system (IS). We create a set of proposals based on existing literature on organizational change and the role of leaders in this situation. We had to lead three semi-structured interviews with the CEO and two of the seven middle managers at the CAN.

We present the theoretical framework with an overview of the resistance and the role of leaders and managers in the process of organizational change. We continue with the research methodology to finally present the results of our study.

2. Literature Review

The information and communications technology was the basis for the development of a new economy. The digital revolution offers opportunities for countries that integrate ICT.

ICTs have generated data exchange, information, ideas, knowledge, goods and services throughout the world. The transition to the knowledge society is not just about technology, but rather includes other elements that go beyond technology. Nevertheless, in order to succeed, organizational and environmental change should accompany any technological change.

While it is clear that ICTs are powerful engines of wealth and economic growth, there are still many challenges that hinder the successful implementation of e-government (United Nations, Economic and Social Council, 2014).

The literature on Information and Communication Technologies (states that the role of ICTs is important in public management (Asgarkhani, 2005) since they allow:

- To provide better public services and reduce the waiting time and costs (Breen, 2000);
- To help citizens find work and benefit from efficient public services and encourage participation (Brueckener, 2005);
- To contribute to the development of the community (Hammerman, 2005);
- To improve the productivity of the State (Yang & Rho, 2007);
- To facilitate good governance (Basu S., 2004);
- To strengthen the accountability of the government (Yang H. J., Lay Y. L., Tsao W. Y. & Liou Y. C., 2007; Rose M., 2004; Wong W. & Welch E., 2004);
- To prevent fraudulent behavior by providing the public with all the information pertaining to the development of public policy and provision of services (Chadwick A. & May C., 2003);
- To create public value through the use of modern ICT (UNDP, United Nations Development Program).

For many years now, governments have been increasingly encouraged to integrate information and communications technology in their work, and move to e-government defined by the OECD as "the use of ICT, particularly the internet, in order to improve the public management affairs". ICT allows better results in terms of public action, better service and citizens' commitment.

Such change may be associated with many obstacles of a technical, organizational, political, financial, or legal nature. Indeed, the adoption of new systems requires internal adaptation in the organization at many levels in the operating system and can generate technical and operational problems (Rondeau A., 2008).

Thus, the flexible role of managers in public organizations can be supportive of the adoption of ministerial decisions on ICT. Organizations that adopt ICT and focus only on their services without considering the broader context which includes the management of human resources and budgetary rules may face internal and external obstacles. The lack of knowledge and human skills is inadequate for the simplification of administrative procedures (Lau E., 2004).

2.1 Resistance to Organizational Change

Since the introduction of information and communication technologies, a growing number of organizations is subject to changes in employment and work organization. Technological and organizational changes improve working conditions, job security, income levels through increased productivity and ensure continuity, growth and development in the organization, but they can also cause negative actions such as premature retirement, increased responsibilities, intensive training sessions, disruption of work and management ways, etc. All this can create uncertainty and insecurity among employees and managers, which subsequently leads to destructive resistance (International Labor Office, Geneva, 2008).

While the ICT is considered a major source of state modernization, resistance to change is sometimes observed.

Soparnot (2013) noted that in his study, McKinsey concluded that two-thirds of 3199 surveyed business leaders admitted that major changes undertaken in recent years had not succeeded in significantly improving the performance of their organization. Another study conducted by McKinsey found that 70% of change programs don't succeed.

Authors like (Bareil, 2004, 2008; Ford, Ford & D'Almelio, 2008; Vas; 2005(a)), explain the poor performance when there is resistance. They see that the issue in organizational change is at the managerial level, and they focus on the role of leaders and their strategies to reduce these resistances.

Resistance is defined as a negative attitude of the users towards the adoption of ICT (Ferneley E. H. & Sobreperez P., 2006). Another definition refers to the opposition of individuals regarding the implementation and use of an information system (Klaus T. & Blanton J., 2010).

Various researches about resistance to change assume that the nature of people tends to keep what is learned and mastered rather than adopting and accepting new unknown innovations: "I am generally opposed to any IT project if I have to change the way I work" (Tremblay R., 2000).

Lapointe and Rivard (2005) stated that resistance is an interaction between all the individual factors, technological and organizational.

Soparnot (2013) defines resistance as a variety of behaviors such as denial, indifference, rejection, rumor, blind obedience, refusal, argumentation, repression, strikes, sabotage. It is summarized in the Table 1.

Indeed, resistance is a combination of individual factors such as age, education level, anxiety towards technology, the degree of motivation for the adoption of an innovation and its use (Yang H. J., Lay Y. L., Tsao W. Y. & Liou Y. C., 2007).

Coulibaly and Hermann (2015) note that the answers to questions about resistance are not simple especially that the concept of innovation is triggering reactions. "Innovation has no rational action, economically justified and peaceful, it is related to a broken path, in which interests, beliefs and behaviors meet" (Alter N., 2010). This

irrationality about innovation implies that there is no guarantee of success in the change process.

Table 1 Factors and Characteristics of Resistance to Change Soparnot (2013)

Factors of resistance to change	Characteristics
Anxiety (psychological resistance)	Change can cause stress and a psychological state of imbalance
Relationship with the company (identity resistance)	Change causes the person to question his identity by changing the nature of his identity in the organization.
Power games (political resistance)	Change calls into question the conditions of the power games among players and their freedom of action
Group influence (collective resistance)	Change can break the balance created by groups of standards
Corporate culture (cultural resistance)	Change can convey values that differ from those of the organization
Knowledge and individual skills (cognitive resistance)	Change requires learning techniques and new methods

The complexity of accepting the change is related to the difficulty of understanding and using innovation (Vas A. & Coeurderoy R., 2004). The resistance increases if the technology is perceived as a complex process (Bradford M. & Florin J., 2003). So the effective implementation of change is largely conditioned by the acceptance and willingness to carry it out by members of the organization (Cummings T. G. & Worley C. G., 1997).

The users of the information system may decide to bypass the system if its use is not mandatory. The resistance can lead to mistakes, failures and resignations.

2.2 Role of Managers in Organizational Change

Our research was based on Mintzberg's theory on organizations (Mintzberg H., 1996), which demonstrates that we can describe any organization based on three basic components:

- **The strategic summit**: composed of executives in the organization and their advisors. They ensure that the organization fulfills its mission effectively.
- **The hierarchy**: groups formed by all the middle managers who sit among members of the strategic apex and those of the operational center.
- **The operational center**: includes members that allow the organization to produce its services and goods.

For Mintzberg, these three components will always be important regardless of the envisaged organizational model.

We will limit our study to the first two levels given the importance of the strategic summit which takes decisions and the leaders who execute them. For Alain Vas (2005), resistance exists on all levels of the organization; whereas it is usually assumed that only the employee resists change, he believes instead that resistance is manifested in the middle and the top management.

2.2.1 The Role of the Strategic Summit in Organizational Change

According to Melkonian (2005), the reaction of managers to changes and the quality of their engagement is an essential factor for the proper functioning of others in the organization. The first source of resistance is that leaders who didn't decide the change can reject it.

When a manager accepts the change and is ready to discuss it with the community, he will facilitate the transition phases to support the change, contrary to a conservative leader who will contribute to the failure of the change by amplifying the anxieties of his subordinates. Representations of leaders are a major factor in an organization's technology-based restructuring process. Indeed, the effective implementation of change is largely conditioned by the acceptance and willingness to carry it out by members of the organization (Cummings T. G. & Worley C. G., 1997).

Kotter (1996) illustrate the vision that executives and managers have to convince the group to accept change and implement it. Leaders are seen as the initiators of change. They play a major role in the process of change by expressing their support to changing the established system while ensuring its sustainability.

Miller, Hickson and Wilson (2008) confirmed in their studies that managers are expected to have a diverse set of skills and abilities that allow them to make strategic decisions effectively. They should also be able to conduct a broad dialogue aiming not only to clarify the details of the strategy, but also to maintain the coherence of activities (Getz Joe Lee, 2011).

The commitment of senior management is the main condition for the success of any change within the organization. Indeed, the involvement of leaders is considered an essential factor in the success of a technology (Singh A. & Shoura M., 2006). According to the two authors, the assumption is that the attitude of managers can influence that of lower levels, but if they are not involved in the integration of change, the reaction of others will be less positive.

The manager is the key person who can ameliorate the welfare of people around him, as well as the future of the organization and all enterprise resources (Dincu A. M. et al., 2015). Taylor and Van Every (2000) declare that a manager is as much an agent of change as everyone, the only major difference is that the manager has the power to declare decisions and orders. Managers must assume an active leadership role, which can be done by engaging in implementing activities (Hanley C., 2007).

The direct or indirect encouragement by different means such as supporting learning and use can help accept the new innovation. Managers have the ability to reduce resistance, involve stakeholders in the process of change and stimulate their subordinates to adopt the change. In fact, the bottom players are influenced by their leaders especially if they are given the responsibility.

The leader, supported by senior management, creates a positive dynamic vis-à-vis the changes and urges the actors to join despite the resistance encountered. Baron and Tang (2009) stated that there is a positive relationship between the leader's positive emotions and creativity on one hand and the level of innovation in the company on the other hand.

With the technological changes, the actors in the organization must reconsider their ways and thinking to adapt themselves to the new organizational reality, meaning that they have to find a state of equilibrium. Several studies have shown the importance of communication as a way to reduce uncertainty to change (Allen et al., 2007). It is therefore beneficial to ensure communication about the technology project, even inform the workers and try to answer their questions (Nelms G. & Colven D., 2000). Communication is a way to motivate the different actors that are concerned by the change. Individuals who are motivated to use ICT experience less resistance (Setzekorn, K. et al., 2002).

2.2.2 The Role of the Hierarchy in Organizational Change

"Middle managers are generally defined as being between two hierarchical levels: below the CEO level and above line workers and professionals" (Huy Q. N., 2011). One of their characteristics is that they are much more in touch with employees and customers than senior managers, which allows them to come up with good solutions to motivate people.

According to a study by Prosci (2012), middle managers' resistance is a major barrier to change; more than half of this resistance could be avoided if managed proactively. Resistance to change can add strategic value to change plans and their implementation, hence the importance of managing it (Ford J. D., Ford L. W. and D'Amelio A., 2008; Downs A., 2012; Ford J. D. & Ford L. W., 2010).

Middle managers have a particular responsibility to implement the field missions. They work on linking strategy decisions to the operations (Applegate L. M., J. I. Cash & Q. D. Mills, 1988; Pinsonneault A. & Kraemer K., 1993; Floyd S. W. & Wooldridge B., 1997; Currie G. & Procter S., 2002); Balogun J. & Johnson G., 2004; Rouleau L., 2005).

Floyd and Wooldridge (1994, 1997) assume that middle managers have an important upward role to play with top management regarding the strategic process (diffusion upward direction), but they also have a major role in the downward direction. According to Floyd and Wooldridge, middle managers are key members of the organizational community, they act as mediators between the top management and the rest of the community. The middle management is the hierarchy defined by Mintzberg (1982) as the formal authority linking the strategic summit to the operational base; it is particularly responsible for the direct supervision of the operational process.

Middle managers are considered, according to many researchers (Huy Q. N., 2011; Balogun J. & Johnson G., 2004; Vas A., 2009; Rouleau L. & Balogun J., 2007; Autissier D., Vandangeon Derumez I., 2004), as key members in the organization able to play a key role in detecting new innovations and mobilizing the resources needed to achieve change.

Huy (2011) mentioned in his study that middle managers are not considered sources of resistance but rather agents of change. They are the "coordinators between the daily activities of units and strategic activities of the hierarchy". They are also considered the center of the innovation process in organizations (Nonaka I. & Takeuchi H., 1995).

Based on the above, it is clear that the role of top and middle management is essential in the acceptance and successful integration of ICT in the organization.

Mintzberg (1973, 1980) develops the categories of activities observed. He manages to draw a portrait integrating the different roles of professional managers and he identifies the main features of their work. Recognizing the variations between levels of management, the portrait ranked the leaders in three categories roles, in an attempt to establish a managerial theory. Those roles were also used later by Dincu (2015).

- Interpersonal role: nominal and linking leader.
- Informational role: active observer, disseminator, communicator.
- Decisional role: entrepreneur, regulator, distributor of resources, negotiator.

Based on these three roles, our research will detect the behavior of managers and middle managers at the National Archives Centre throughout the integration of ICT.

The figure (exhibit 1) adapted from Guilmot and Vas (2011) can illustrate the role of middle managers to be studied in the Can case.

3. Change Context: National Archives Centre

The National Archives Centre is a public organization in charge of organizing and managing the national archives and documents in all forms especially blogs and materials resulting from public acts of both public and private sectors, as well the activities of individuals and the national documents.

The flow chart of the company is as exhibit 2.

The CAN has 17 permanent and 8 contractual employees 28% of which have a university level education and 68% are over 51 years old.

In recent years, governments have been called to review their structure for two main reasons:

(1) Rapid changes in the external environment: the public sector is facing increasing complexity and rapid change like social, political and economic crisis, recruitment of a new generation, growing expectations of citizens...

(2) The emergence of new pressures in the organization:

- The search for greater efficiency, through the transition from an administration of means to an administration of results.
- The way business is done: shorter deadlines and hierarchical exchange requirements.
- The increase of "professionalization", via the
- More formal and structured exchanges.
- The fieldwork and missions carried out with more autonomy.
- The increased pressure exerted by service users.

According to the World Economic Forum, Lebanon recorded a delay in the development of information and communication technology (ICT). Globally, it is ranked 94th among 144 countries. Of the 14 countries in the Middle East and North Africa, Lebanon occupies the 10th place in terms of ICT development. This ranking is based on the "networked readiness index" that measures the ability of each country to benefit from the use of ICT, within a competitiveness strategy aiming to improve the lives of citizens. Lebanon recorded a score of 3.53 points lower than that recorded by Qatar (5.10 points), Saudi Arabia (4.82 points), Jordan (4.20 points) and Egypt (3.78 points) but higher than the score of Algeria (2.78 points) and Libya (2.77).

According to the World Forum, the CAN is no exception. In fact, through a computerized information initiative, the National Archives Centre has completed the digitization of its documents by using the services of a specialized company to achieve the following objectives:

- Organize the archives;
- Improve services;
- Control costs;
- Improve management tools.

According to Duchenim (2000), "computerization is an expensive process emerging changes in the institution". So the purpose was to acquire a general knowledge about the problem of archiving, detecting categories of manipulated data and metadata and setting the criteria for a suitable selection of data efficient for users. Therefore, the cooperation of employees is a must.

Like any computerization process that offers the possibility of reorganizing internal work by modifying work practices, we have chosen to present an environment which was used to complete the successful implementation of the information system by identifying the role of leaders who have guided the efforts up until the end.

4. Research Methodology

By favoring a qualitative methodology, we address the following exploratory issue: What are the roles of managers and middle managers in a change project with the integration of ICT?

We adopt the interpretive method, more particularly the case study (Walsham G. & Waema T., 1994; Walsham G., 1995; Langley A., 1999) that allows us to consider "a phenomenon in its natural setting, using multiple data collection methods to gather information from one or more entities" (Benbasat I., Goldstein D. K., & Mead M., 1987).

According to Creswell (2003), in a case study, the researcher explores in-depth a program, event, activity, process, or individuals. The cases are limited by time and activity, and researchers can collect detailed information using a variety of data collection methods over time.

This method appears to be appropriate for our research because it focuses on the beliefs and concerns of stakeholders; it allows us to understand the overall context of ICT in a specific area. This method is most often used by researchers seeking to better understand the social and cultural context.

Our source of information is a set of social structures; mainly based on the perceptions expressed by the CEO and middle managers. To this end, we conducted interviews with three leaders of the CAN in two levels (first level: the CEO level and the middle managers level) that guided the organizational change regarding the integration of ICT.

Our source of information is the interview guide (Appendix 2) based on the following:

- The advantages and challenges of ICT integration;
- The encountered resistance to this change;
- The implementation of change guided by the officials; and the role of leadership during this transition phase.

Our main goal is to better understand the relationship between the interpretations made by the leaders and their actions. We explore the role of informational, decisional and operational roles performed by those managers through their actions.

Garreau (2010), based on Strauss and Corbin (1990) researches suggests three types of coding that aim to: identify potentially relevant categories (open coding), connect them (axial coding) and select those that best explain the phenomenon studied (selective coding).

Based on the data collected, we can identify the relevant categories using the open coding. We will identify the interesting elements in the data. Then, we use the axial coding through which we can link the data together to address the selective coding of selected items from our theoretical construct. These used data can be redirected to unveil the most interesting phenomena in our search for the empirical or theoretical perspective.

Applying the method of Garreau cited above, we have conducted an analysis of the interviews while going over the main themes or variables based on the organizational design of Mintzberg. We indicated the key ideas, created verbatim transcripts and coded some variables in order to identify the behavior patterns adopted by leaders and managers.

5. Results

The results of our exploratory study in the CAN enabled us to highlight the role of leaders who make the major decisions, but also the important role that middle managers play in the successful integration of ICT at different employee levels. The results provide a more meaningful insight on this topic.

The synthesis of our interviews with the three leaders confirms the importance of ICT: The integration of ICT has several advantages that the two hierarchical levels agreed on. There is a reduction of unnecessary bureaucracy and more time saving. Also, the human factor is more comfortable, the system is easier for employees, lighter and faster for researchers or citizens. This was confirmed by the definitions of several authors (Asgarkhani M., 2005; Breen R., Lindsay R., Jenkins A. & Smith P., 2001; Godwin-Jones R., 2005).

The three leaders confirmed the definition of Rondeau (2008) about the need for organizational adaptation and the generated technical and operational issues: *"ICT integration will face many obstacles...: The first level is*

financial, represented by the lack of budget. The second level is technical and related to the unsuitable building for IT facilities. The third level is the human factor, since it is necessary to recruit new employees. Also on this same level, the average age of current employees is high, meaning that they are not ready to embrace the technological change."

In fact, the complexity of accepting the change is related to the difficulty of understanding the use of innovation (Vas A., Coeurderoy R., 2004). "There is the will to move towards computerization, but there is still hesitation. It is not necessary to convince the head of department and his team to the establishment of an IS."

Leaders agree on the issue of employee resistance to the integration of ICT. The characteristics of resistance specified by Soparnot (2013) and Yang (2007) are detected in their statements:

> "The employee is afraid to lose and his power is based on information held only by himself... the fear in new recruitment ... in control ... the employees have hesitation about being able to work well on a IS, due to various factors such as age , level of education ...".

"This resistance to change exists at different hierarchical levels and it is the middle manager who is the strongest" (PROSCI Best Practices in Change Management – Edition 2012).

During our interviews, the surveyed managers described their roles in a detailed way and according to their levels. For instance, the CEO is described by himself as having a strategic role in negotiating with middle managers about providing communication around a project (Nelms G. & Colven D., 2000).

> "I explain to middle managers the need to negotiate with employees explaining that it facilitates the daily work without touching their positions."

These middle managers explain that their role with employees is to disseminate informational communication (direct influence of middle managers). They communicate in their own way using their interpersonal role. They talk about several issues starting from the lack of financial resources, the age of employees and their lack of involvement. "*The middle management is essential in the implementation of decisions taken by the general manager and the communication of feedback on the work to the DG who should be aware about the problems and fix them.*" "*The integration of a IS is a strategic decision to modernize the administration and the decision is taken. And operational leaders address the employees about the project.*"

> "Managers were initially hesitant, they don't have the sufficient and competent staff to begin the project. But being conscientious, they found the idea needed for the evolution of our company." (Singh A. & Shoura M., 2006)

In addition, middle managers seem to play an important role in identifying new ideas and employing the right resources with respect to these ideas:

> "They are in a very strategic position that allows them to detect new opportunities in their field because they are usually close to the base," and "the middle manager represents the ideas and plans of the general manager." (Rouleau L. & Balogun J., 2007).

In addition, our results confirm the work of Floyd and Wooldridge (1997): "*Being on the front line of change, the role of middle management is here to control the daily activities in the contextual change while communicating this change and results in either direction upward to the top management and down to the base.*"

Middle managers seem to have a very significant role in disseminating information to internal stakeholders and even external stakeholders by sharing new information research resources. They play a critical role in the way they apply and lead change.

They are considered the change facilitators (Rouleau L. & Balogun J., 2007; Balogun J., 2003). “Awareness will allow middle managers to transmit tranquility and confidence to employees under their direction especially if a new IT director is on the place”. Middle managers, supported by senior management, create a positive dynamic during the change phase and attract different players to join despite the resistance encountered.

Finally, the synthesis of the interviews with leaders of the CAN confirm the definitions of Mintzberg (1990) concerning the role of leaders during the integration of change, which in our case is the introduction of innovation. These roles are shown in Exhibit 3.

6. Conclusion

Changes in the environment (increased competition, new technologies, deregulation...) lead organizations to drive change and manage it well to survive.

The public sector is not an exception. Indeed, this sector has experienced in recent years major organizational changes which created different reactions from the different stakeholder groups. These reactions, known under the name of resistance, are a major source of failure of public organizational changes.

A manager’s role is to find the suitable means to achieve what is requested within the limits of the organization’s capabilities. Similarly and because of the ambivalence of their position in the organization, middle managers also seem particularly concerned with organizational change.

This paper has studied the role of leaders and middle managers in public organizations by taking the Centre of the National Archives as a case study while also exploring the relationship between management and employees with the introduction of ICT. This allowed us to have a better understanding of how, in practice, leaders create through their daily activities a suitable environment shaped by their roles whether interpersonal, informational and decision (Mintzberg H., 1990). Their attitudes in complex situations indicate the success or failure of any new product. We also recognize that the key players in our survey are presented themselves as key players and we must take into consideration that they presented their "subjective" ideas.

Finally, this research presents a methodological limitation with regards to the generalization of results to other public companies operating in the same contexts. In fact, the results presented in this research are limited to the context of the CAN. The generalization of results will depends on several further researches, either in the same context of the CAN (interviews with all the managers) or other government entities. Similarly, a more developed study of the variables is to be adopted as a government policy regarding the integration of ICT.

References

Asgarkhani M. (2005). “The effectiveness of e-service in local government: A case study”, *Electronic Journal of e-Government*, Vol. 3, No. 4, pp. 157-166.

Alter N. (2010). *L’innovation ordinaire*, Paris: Presses universitaires de France.

Allen et al. (2007). “Uncertainty during organizational change: Managing perceptions through communication”, *Journal of Change Management*, Vol. 7, No. 2, pp. 187-210.

Applegate L. M., Cash J. I. and Mills Q. D. (1988), “Information technology and tomorrow’s manager”, *Harvard Business Review*, Vol. 66, No. 6, pp. 128-136.

Autissier D. and Vandangeon Derumez I. (2004). “Comportements et rôles de l’encadrement intermédiaire dans les projets de changement”, *13e conférence de l'AIMS*, Normandie, p. 10.

Bayad M., Boughattas Y. and Schmitt C. (2006). *le métier de l’entrepreneur: le processus d’acquisition des compétences*, CIFEPME, Fribourg.

Bareil C. (2004). “La résistance au changement : synthèse et critique des écrits”, HEC Montreal, Paper no. 04-10

Bareil C. (2008). "Démystifier la résistance au changement: questions, constats et implications sur l'expérience du changement, La gestion du changement stratégique dans les organisations publiques", *Télescope- l'observateur de l'administration publique*, Vol. 14, No. 3, p. 91.

Basu S. (2004). "E-government and developing countries: An overview", *International Review of Law, Computers & Technology*, Vol. 18, No. 1, pp. 109-132.

Balogun J. (2003). "From blaming the middle to harnessing its potential: Creating change intermediaries", *British Journal of Management*, Vol. 14, No. 1, pp. 69-83.

Baron R. A. and Tang J. (2009). "The role of entrepreneurs in firm-level innovation: Joint effects of positive affect, creativity, and environmental dynamism", *Journal of Business Venturing*.

Balogun J. and Johnson G. (2004). "Organizational restructuring and middle manager sensemaking", *Academy of Management Journal*, Vol. 47, No. 4, pp. 523-549.

Breen R., Lindsay R., Jenkins A. and Smith P. (2001). "The role of information and communication technologies in a university learning environment", *Studies in Higher Education*, Vol. 26, pp. 95-114.

Bradford M. and Florin J. (2003). "Examining the role of innovation diffusion factors on the implementation success of enterprise resource planning systems", *International journal of Accounting Information Systems*, Vol. 4, pp. 205-225.

Brueckner A. (2005). "E-government II: Best practices for digital government", *Bulletin of the American Society for Information Science and Technology*, Vol. 31, No. 3, p. 16.

Benbasat I., Goldstein D. K. and Mead M. (1987). "The case research strategy in studies of information systems", *MIS Quarterly*, Vol. 11, No. 3, pp. 369-386.

Creswell J. (2003). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, Sage.

Currie G. and Procter S. (2002). "Impact of MIS/IT upon middle managers: Some evidence from the NHS", *New Technology, Work and Employment*, Vol. 17, No. 2, pp. 102-118.

Chadwick A. and May C. (2003). "Interaction between states and citizens in the age of the Internet: 'E-government' in the United States, Britain and the European Union", *Governance*, Vol. 16 No. 2, pp. 271-300.

Cummings T. G. and Worley C. G. (1997). *Organization Development and Change*, Cincinnati, OH: Southwestern.

Coulibaly B. and Hermann H. (2015). "L'appropriation d'une innovation par ses usagers autour du futur Learning centre de l'Université de Haute Alsace", *Revue internationale de pédagogie de l'enseignement supérieur*.

Dincu A. M. et al. (2015). "Manager and its role in an organization", *Scientific Papers: Animal Science and Biotechnologies*, Vol. 48, No. 1.

Downs A. (2012). "Resistance to change as a positive influencer: an introduction", *Journal of Organizational Change Management*, Vol. 25, No. 6.

Duchemin P. Y. (2000). *L'art d'informatiser une bibliothèque*: *guide pratique*, p. 587.

Ford J. D. and Ford L. W. (2010). "Decoding resistance to change", *Organizational Dynamics*, Vol. 39, No. 1, pp. 24-36.

Ford J. D., Ford L. W. and D'Amelio A. (2008). "Resistance to change: The rest of the story", *Academy of Management Review*, Vol. 33, No. 2, pp. 362-377.

Floyd S. W. and Wooldridge B. (1997). "Middle management's strategic influence and organizational performance", *Journal of Management Studies*, Vol. 34, No. 3, pp. 465-485.

Ferneley E. H. and Sobreperez P. (2006). "Resist, comply or workaround? An examination of different facets of user engagement with information systems", *European Journal of Information Systems*, Vol. 15, No. 4, pp. 345-356.

Garreau L., Bandeira-De-Mello R. and Vargas F. (2010). "La théorie enracinée en pratique: vers un dépassement de la tension entre scientificité et créativité dans les recherches basées sur la théorie enracinée?", Luxembourg, AIMS.

Getz Joe Lee (2011). "Why your strategy isn't working", *Business Strategy Series*, Vol. 12, N. 6, pp. 303-307.

Godwin-Jones R. (2005). "Emerging technologies Skype and podcasting", *Disruptive Technologies for Language Learning*, Vol. 9, No. 3, pp. 9-12.

Guilmot N. and Vas A. (2011). "Les cadres intermédiaires au coeur du processus de sensemaking en contexte de changement organisationnel", working paper, CRECIS, 20ème congrès de l'AIMS.

Hanley C. (2007). "The execution challenge: Translating strategy into action", *Bank Accounting & Finance*.

Hammerman C. (2005). "E-government II: Lessons learned in Michigan: Best practices for local e-government", *Bulletin of the American Society for Information Science and Technology*, Vol. 31, No. 3, pp. 17-19.

Hu G., Pan J. and Wang J. (2010). "The distinctive lexicon and consensual conception of e-government: an exploratory perspective", *Int. Rev Adm Sci*, Vol. 3, No. 76, pp. 577-597.

Huy Q. N. (2011). "In praise of middle managers", *Harvard Business Review*, pp. 72-79.

Kotter J. P. (1996). *Leading Change*, Harvard Business School Press.

Klaus T. and Blanton J. (2010). "User resistance determinants and the psychological contract in enterprise system implementations", *European Journal of Information Systems*, Vol. 19, pp. 625-636.

Langley A. (1999). "Strategies for theorizing from process data", *Academy of Management Review*, Vol. 24, No. 4, pp. 691-710.

Lau E. (2004). "Principaux enjeux de l'administration électronique dans les pays membres de l'OCDE", *Revue française d'administration publique*, Vol. 2, No. 110, pp. 225-243, doi: 10.3917/rfap.110.0225.

Lapointe L. and Rivard S. (2005). "A Multilevel Model of Resistance to Information Technology Implementation", *MIS Quarterly*, Vol. 29, No. 3, pp. 461-491.

Mintzberg H. (1996). "Structure et Dynamique des organisations", Harvard Business Review.

Melkonian T. (2005). "Les cadres supérieurs et dirigeants face au changement imposé: le rôle de l'exemplarité", *16e Conférence de l'AGRH – Paris Dauphine*, p. 3, available online at: http://www.reims-ms.fr/agrh/docs/actes-agrh/pdf-des-actes/2005 melkonian097.pdf.

Mintzberg H. (1990). "The manager's job: Folklore and fact", *Harvard Business Review*.

Miller S., Hickson D. and Wilson D. (2008). "From strategy to action involvement and influence in top level decisions", *Long Range Planning*, Vol. 41, No. 6, pp. 606-628.

Nations Unies, Conseil économique et social (2014). *Commission de la science et de la technique au service du développement Dix-septième session*, "Les technologies de l'information et de la communication pour un développement économique et social équitable", Genève, 12-16 mai.

Nonaka I. and Takeuchi H. (1995). *The Knowledge-Creating Company*, New York: Oxford University Press.

Nelms G. and Colven D. (2000). *The Efficacy of Tele-Support for Loan Equipment*, ISAAC, pp. 498-500.

Pinsonneault A. and Kraemer K. (1993). "Survey research methodology in management information systems: An assessment", *Journal of Management Information Systems*, Vol. 10, No. 2, pp. 75-105.

PROSCI Best Practices in Change Management – Edition 2012.

Rose M. (2004). "Democratizing information and communication by implementing e-government in Indonesian regional government", *International Information & Library Review*, Vol. 36, No. 3, pp. 219-226.

Rondeau A. (2008). "L'évolution de la pensée en gestion du changement: leçons pour la mise en oeuvre de changements complexes", *Téléscope*, Vol. 14, No. 3.

Rouleau L. and Balogun J. (2007). "Exploring middle managers' sensemaking role in practice", Aims, p. 37.

Roux L. (2015). "Valeurs de service public et administration électronique: un mélange explosif? Illustration à partir du cas des Caisses d'Allocations Familiales en France", *Revue Internationale des Sciences Administratives*, Vol. 81, pp. 243-260, doi: 10.3917/risa.812.0243.

Rouleau L. (2005). "Micro-practices of strategic sense making and sense giving: How middle managers interpret and sell change every day", *Journal of Management Studies*, Vol. 42, No. 7, pp. 1413-1441.

Singh A. and Shoura M. (2006). "A life cycle of evaluation of change in an engineering organization: A case study", *15 International Conference on ICT in Organizations*, Paris, *International Journal of Project Management*, No. 24, pp. 337-348.

Soparnot R. (2013). "Les effets des stratégies de changement organisationnel sur la résistance des individus", *Recherches en Sciences de Gestion*, Vol.4, No. 97, pp. 23-43, doi: 10.3917/resg.097.0023.

Setzekorn K. et al. (2002). "A comparison of implementation resistance factors for DMSS versus other information systems", *Information Resources Management Journal (IRMJ)*, Vol. 15, No. 4.

Taylor J. R. and Van Every E. J. (2000). *The Emergent Organization: Communication as Its Site and Surface*, Mahwah, NJ: Lawrence Erlbaum.

Tremblay R. (2000). "The development of aggressive behavior during childhood: What have we learned in the past century?", *International Journal of Behavioral Development*, Vol. 24, No. 2, pp. 129-141.

Vas A. (2005). "Revisiter la résistance au changement aux différents niveaux hiérarchiques: une étude exploratoire", *Gestion 2000*, Vol. 22, No. 5, pp. 131-154.

Vas A. and Coeurderoy R. (2004). "Dynamique organisationnelle et diffusion du changement: analyse par modèle de survie de l'introduction d'un système de gestion intégré du travail", *13e conférence de l'AIMS*, Normandie.

Vas A. (2009). "Challenging resistance to change from the top to the shop floor level: An exploratory study", *International Journal of Strategic Change Management*, Vol. 1, No. 3, pp. 213-230.

Vandangeon-Derumez I. (1998). *La dynamique des processus de changement*, Revue française de gestion.

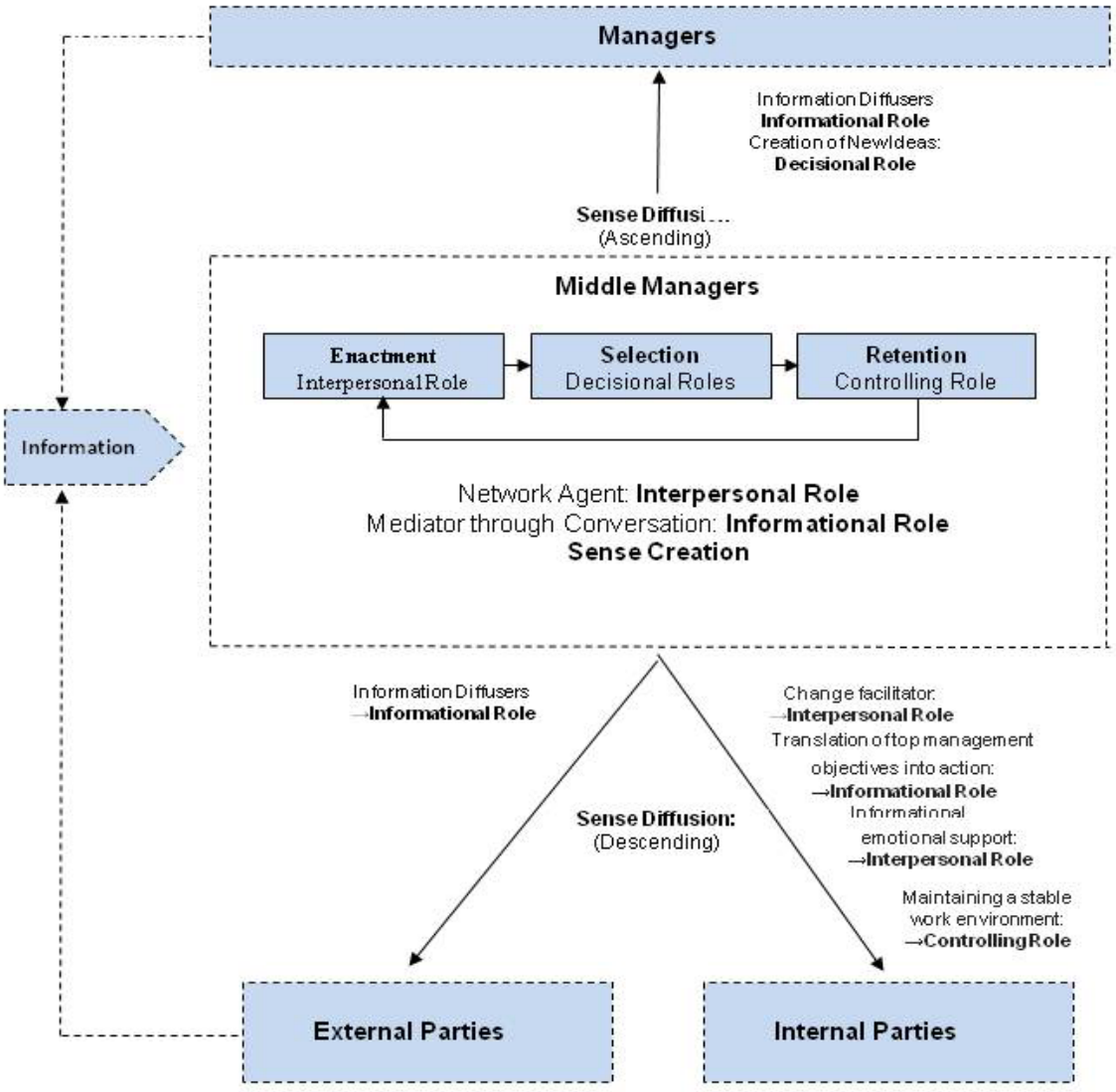
Walsham G. and Waema T. (1994). "Information systems strategy and implementation: A case study of a building society", *ACM Transactions on Information Systems*, Vol. 12, No. 2, pp. 150-173.

Walsham G. (1995). "Interpretive case studies in IS research: Nature and method", *European Journal of Information Systems*, Vol. 4, No. 2, pp. 74-81.

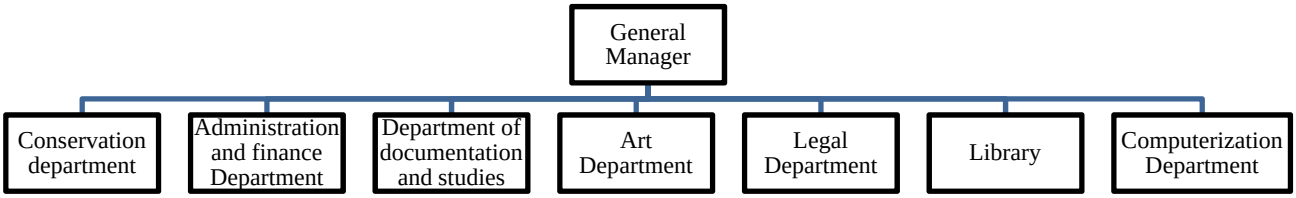
Wong W. and Welch E. (2004). "Does e-government promote accountability? A comparative analysis of website openness and government accountability", *Governance*, Vol. 17, No. 2, pp. 275-297.

Yang H. J., Lay Y. L., Tsao W. Y. and Liou Y. C. (2007). "Impact of language anxiety and self-efficacy on accessing internet sites", *Cyber psychology and Behavior*, Vol. 10, No. 2, pp. 226-233.

Appendix 1



Appendix 2



Appendix 3

	Interpersonal role: model, leader, linking agent (1)	Informational role: active observer, disseminator, communicator (2)	Decisional role: entrepreneur, regulator, distributor of resources, negotiator (3)
First level	The leader can influence employees' behavior during change, he can motivate them to perform their responsibilities efficiently and effectively. He is a Leader, he communicates results to employees; he has an interpersonal and an informational role.	Explaining to middle managers the need to negotiate with employees which can facilitate the daily work without threatening their positions.	The integration of ICT and the modernization of their administration is a strategic decision, and it is the operational managers' task to address employees. (Formal authority)
Second level	"Resistance is at the level of middle managers," "the positive perception of change by managers is the key to a successful innovation project". The leader must not exceed the limits of his authority stipulated in the regulations. (Interpersonal role) The importance of continuous training and seminars. The involvement of the leader. (Interpersonal role) The role of the leader is primarily to facilitate the work of employees and make it clearer by setting goals to achieve in a given period. (Leader) The leader delegates some of his power to his employees and approves decisions taken by his employees. (Leadership	The manager must prepare an annual plan divided into monthly sub-targets. Feedback on the objectives achieved should be done at the end of each month. Decision making, authority and distribution of resource. Informing employees about the importance of implementing this new program in order to reduce their daily workload (Communication and Informational role). Awareness will allow middle managers to explain to their subordinates the coming of a new IT manager. (Integration of both the informational and interpersonal roles). Cooperation between managers and subordinates during meetings. (Informational role) Involvement of leaders : The management must make middle managers understand that they should not fear from new comers affecting their power. (Informational and interpersonal roles)	Leaders must effectively divide work between employees, organize tasks and delegate responsibilities to the right persons. (Decisional role) Senior management must be aware that computing services require a budget for maintenance and development costs in order to align with the continuous technological advancement. (Negotiation)