

## The leadership role of a local public administration CIO: the case of Bucharest

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**Abstract.** *Today, the role of CIO in local government is becoming increasingly important. In the last 25 years there was among theorists and practitioners a significant increase in the volume of studies on the powers and role of the CIO in the public entities which are facing different challenges from those in the private sector.*

*One of the major challenges of the implementation of e-local governance is the lack of a shared vision to lead to structural and functional changes necessary for an integrated management to ensure the progress of the local community.*

*This paper provides a successful model on how to overcome the problems and challenges derived from the implementation of IT strategy in the Municipality of Bucharest and the central role of the CIO (Chief Information Officer) or the person who is in a similar position.*

**Keywords:** sustainable development, local authorities, Municipality of Bucharest, CIO, IT Strategy.

**JEL Classification:** H77.

**REL Classification:** 13G.

## Introduction

Computers and information technology have been used by governments for more than 50 years to automate activities. The use of computers and networked communications is therefore not new, but the arrival of the Internet has enhanced communications and enabled the digital supply of government services. In many areas of government, the reforms have been facilitated by digital technologies, such as: Internet access through computers – desktop, laptop and palmtop – mobile phones, information kiosks and digital television. Through these modern technologies eGovernment<sup>(1)</sup> is widely perceived to be a fundamental tool to the reformation, modernization and improvement of the public administration system (Foley, Alfonso, 2009: pp. 371-396).

Today, the growing role of information and communication technology (ICT) is forcing the local authorities to overcome the challenges of managing complexity associated with the major transformations in order to fulfill their missions. New technologies have allowed local public administrations to expand their cooperation in both public and private sector or towards their citizens.

ICT is an essential tool in driving the modernization of public administration claimed by the sustainable development of our society. Sustainable development expresses the need to increase the potential of ICT and its application in public administration taking into consideration the problems, challenges and development strategies at the local government level.

This paper aims to explore the role of the CIO in the context of a sustainable administration by analyzing as case study, the need and the impact of the CIO position on the development of Bucharest.

The undertaken research answers the following question: *what role should the CIO (who is perceived as a key factor in the formulation of strategic organizational objectives) play so that the local administration in general - and that of Bucharest in particular - becomes flexible, collaborative, simplified, and sustainable at the same time?*

The research methodology used is mainly qualitative and it is based on the analysis of official documents, key information and the case study on the IT staff and department of the Bucharest City Hall

In this respect, the work will try to identify the main organizational problems related to IT governance. It will select indicators which refer to organizational goals and objectives, organizational culture and environment, the normative framework etc.

We expect as a result of the research, to understand what are the main reasons for creating the position of CIO in Bucharest, which is the profile of a CIO, what are the required skills and the area of managerial responsibilities with impact on the modernization of their work that wants to become collaborative, objective, oriented to added value and self-sustainable.

### 1. What is the CIO?

Regarding the meaning of the term CIO, there is now a common and agreed definition in the specialty literature which scholars use to define the CIO, starting from his attributions, or describing what he should do.

Starting from these premises, we can highlight a first understanding of the CIO, related to the management of the information technology. It describes that the CIOs are present to coordinate technology needs; to bridge statewide and agency plans; to optimize the use of the Internet for state web sites; and to ensure quick turnaround in technology replacement plans so that systems are current in a rapidly changing field (Rabin, 2005: p.148).

Another description of the CIO regards the attributes and skills needed, making it similar with a *chameleon* (Remenyi et al., 2005: pp. 1-11).

According to Lawry R. (2007: p. 584), there are four characteristics that could be identified as the attributes of the CIO and of the chameleon: ability to change; ability to see in multiple directions; to strike fast when required and the ability to hang on when the going gets tough.

These characteristics suggest that the role of the CIO requires the ability to (Lawry, 2007: p. 584):

- adapt to a constantly changing environment,
- able to envision the organization in a holistic manner,
- remain ahead of the game on technological development,
- endure the tough times when unrealistic expectations and failures occur.

For all these characteristics, we can draw some skills that the CIO must have and we can also identify his place in an organization (Table 1).

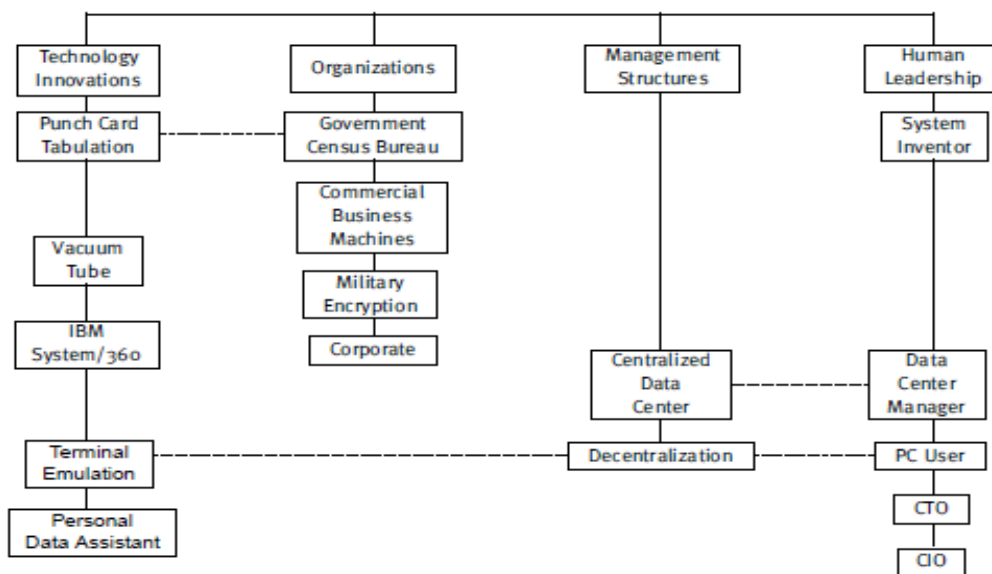
**Table 1.** *CIO skills*

| Managerial skills and expertise | Technical skills and expertise |
|---------------------------------|--------------------------------|
| Strategic Planning              | Computer Hardware Acquisition  |
| Financial Planning              | Database Design and Management |
| Human Resource Management       | Telecommunications             |
| Communication: Written and Oral | System Auditing                |
| Project Management              | System Analysis                |
| Leadership                      | Information Service Management |
|                                 | Application Development        |

**Source:** Adaptation after Gupta Y.H., 2001: p. 130.

From the discussion of the attributes and skills of the CIO it is apparent that the CIO, to successfully integrate with the organizations executive team, cannot purely be a technology expert, but must also have sufficient managerial skills and in some cases it is important to possess some leadership qualities. It is via these skills that the CIO can effectively exploit the information technology within an organization and gain credibility for further such investment (Figure 1).

**Figure 1.** *Genealogy of Information Technology*



**Source:** Schubert et al., 2004: p. 8.

The role of the CIO changed in concordance with the Citizens demands to have an improved access to tailored public services, greater accountability and transparency of public officials, increased confidence in how governments handle their personal data and greater efficiency in service delivery all at the same time.

Due to the fact that legislation, politics, and resources place very different demands on the public sector, there was the need to create a function similar with that from the private sector, whose role should be to fulfill the requisite knowledge and competence in the needed domains of public sector.

The importance of information and technology in government modernization and transformation were recognized by government and political leaders. This makes the CIO the important pillar in public administration transformation plans. These plans offer an opportunity for CIOs to redefine their role in order to fulfill these higher expectations (IBM, 2009: p. 1).

## 2. The evolution of the CIO in the public sector

In order to understand the place of the CIO in the public sector, it is important to understand what exactly the components of the public sector are.

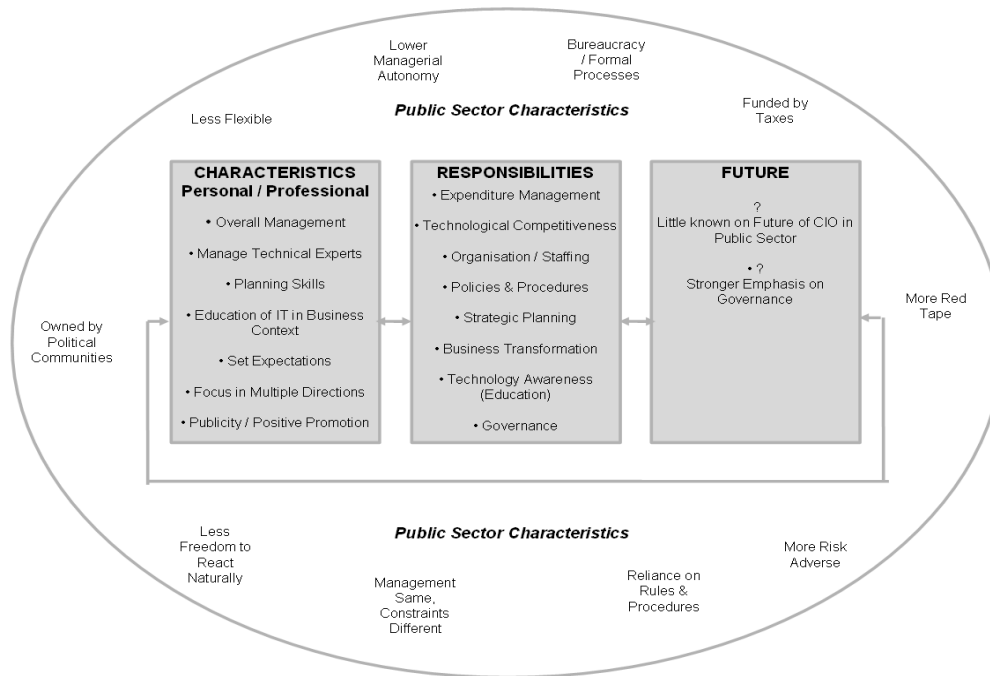
The term *public sector* is also used for analytical purposes, in particular, as a contrast to the private and third, or voluntary, sectors. This allows for the mapping of the scope of state activities within the wider economy and, also, it underlines distinctive patterns and operating procedures within the public sector. This relates to the contemporary interest in cross-sectorial learning, especially the learning of “private” management practices for application in the public sector.

The general definition of the public sector includes government ownership or control rather than mere function, thereby including, for example, the exercise of public authority or the implementation of public policy. When pictured as concentric circles, the core public service in central and infra-national government agencies defines the inner circle of the public sector. In this case, the distinction of the public from the private sector is relatively straightforward—it is evident in terms of employment relationships and the right of exercising public power. The next circle includes a number of different quasi-governmental agencies that are, however, placed outside the direct line of accountability within government (Bevir, 2007: p. 776).

By increasing government’s dependence on Information Technology for internal management, delivery of services to citizens and fulfill the requirements of the digital environment, the role of the CIO in the public sector has become more prominent, but its role within the public sector is still at a formative stage whereas in the private sector it is well developed (Lawry, 2007: p. 581).

Because of each bureaucracy’ file continuity requirement, the evolution of IT in a state can be understood from a historical perspective. At the end of the 1960s, 90% of all data processing systems were supported in nine major areas: finance, revenue, highways, motor vehicles, employment security, health and welfare, law enforcement, legislative and institutional functions (National Association for State Information Systems, 1970).

The public sector agencies are owned, funded and controlled collectively by members of political communities at different levels of government (Budhwar, Boyne, 2004: pp. 346-370).

**Figure 2.** Adapted model of CIO in the public sector

**Source:** Lawry et al., 2007: p. 587.

Even if the roles and responsibilities in the public sector of the Chief Information Officer are evolving fast due to the important role of ICT for government processes and electronic services, the importance of the CIO in the public sector is beyond that of the private sector, due to the restrictions in which it operates and the future of the position (Figure 2).

The CIO is evolving together with the evolution of the Public Sector. It evolves from a technology leader to a critical transformer of enterprise government services. This evolution implies new skills, experience, competency, and accountability.

For example, the baseline fundamental skills are a set of entry-level requirements for any CIO position. These entry-level requirements can be considered very important for any CIO from the public sector.

According to Schubert (2004: p. 69), the key basic technical fundamentals are:

- Computer systems architectures, implementations, and vendors;
- Computer networking architectures, implementations, and vendors;
- Application solution designs, implementations, and vendors;
- Outsourcing and in sourcing viability;
- Help Desk and problem management designs, implementations, and vendors.

These perspectives may differ based on specific environments, and they are not enough with the evolution role of the CIO. This evolution requires that the skills and professional experience of the role evolve from that of IT management specialist to that of a leader.

### 2.1. The leadership role of the CIO

The role of the CIO in both the public and private sectors is evolving, and a fundamental ingredient for this evolution is the leadership capability of the CIO. Leadership requires that a CIO develops key relationships that are important to delivering the mission of the IT organization.

For a CIO, we have seen an evolution in the expectations of the role to support the enterprise shift from infrastructure management to enterprise applications to governance to policy development to security to business transformation. This shift requires different skill sets and professional experiences of the CIO which place him in a leadership role in the organization (Figure 3).

**Figure 3.** Pathway to CIO leadership



**Source:** Behen D., Letchford J., Miller K., Nelson K., Decker B. (2011), *State CIO Leadership in Government Innovation and Transformation*, State CIO Leadership in Government Innovation and Transformation, NASCIO, p. 13

We can underline the following actions that can make the CIO to be viewed as a leader (Behen et al., 2011: p. 13):

- To be informed in all issues facing the state and Administration. The information should not be limited only to information technology issues;

- To communicate proactively regarding the status of issues and threats to delivery of government services (i.e., cyber security);
- To stay informed on how disruptive and enabling opportunities, technologies, solutions, and business models could help support and drive state priorities;
- To identify how IT can facilitate, enhance, or improve the core lines of the state's functions or processes;
- To develop personal relationships with critical decision makers in the Administration through visits, assistance to staff, sharing of information, and understanding their challenges;
- To encourage CIO staff to understand the critical issues of their peers and to give feedback on how IT could be of assistance;
- To assist with raising the awareness level of legislative staff with regard to technology;
- To know the budget, and the potential to deliver savings through efficiencies.
- To suggest how technology can drive efficiencies;
- To identify stakeholders, such as lobbyists, policy advisors, or agency chiefs of staff, who can help with education and awareness of the impact technology, can have within a state.

### 3. The CIO and the public administration

Public administrations, as a component of the public sector, are increasingly adopting Information Technology for internal processes and for the delivery of service to their citizens.

In a study of information system use in local public administration, it was estimated that computer support activities comprised more than 22% of full-time equivalent employees and consumed nearly 23% of total operating budgets. Across local public administrations, computers are used for more than 450 work applications (Brown, Brudney, 1998: pp. 421-442).

The most common applications supported by computers in local public administrations are related to housekeeping transactions such as utility billing, payroll, accounts payable, and accounts receivable. But administrative support systems (such as word processors and spreadsheets) are also widely used, and decision support systems are gaining in popularity (Brown, Brudney, 1998: pp. 421-442).

Public administrations throughout the world are facing issues relating to the modernization and reform of public management. Technology has underpinned reforms in many areas and eGovernment is widely perceived as fundamental to the reform, modernization and improvement of government.



The modernization in public administration does not stop with the functioning of the institutions of representative democracy. The modernization agenda of public administration goes deep in the way in which governments are able to respond to changing social, cultural and economic conditions and the ‘wicked’ policy problems which result from them (Bekkers et al., 2006: p. 9).

In these regards, the role of CIOs in local administrations is becoming increasingly important and more research about their actions and impacts is needed, not only from an academic perspective, but also for practical purposes. Currently, eGovernment initiatives require a high degree of specialization and knowledge about citizens’ needs and government procedures<sup>(2)</sup>. A strong CIO, with well defined role and responsibilities, would help to make better decisions about the use of IT in public administration agencies (Figure 4).

**Figure 4.** Pairs of role of the CIO in public administration



**Source:** IBM, 2009: p. 3.

The IBM Institute for Business Value identified in a study three pairs of role that a CIO should have in public administration (IBM, 2009: p. 3):

- *Makes innovation real*

The innovation must have a strong foundation and it is not enough just to plan for innovation. To realize a real innovation the CIO should act as an Insightful Visionary, or as a Pragmatist.

- *Raises the ROI of IT*

The CIO must use IT to have an ongoing focus on efficiency, higher productivity, and working within budget. By doing this, it can act as a Savvy Value Creator, which finds new ways to help citizens, the organization, and government as a whole benefit from how data is used; or as the Relentless Cost Cutter, focused on managing budgets well, eliminate or reduce unnecessary costs.

- *Expands business impact*

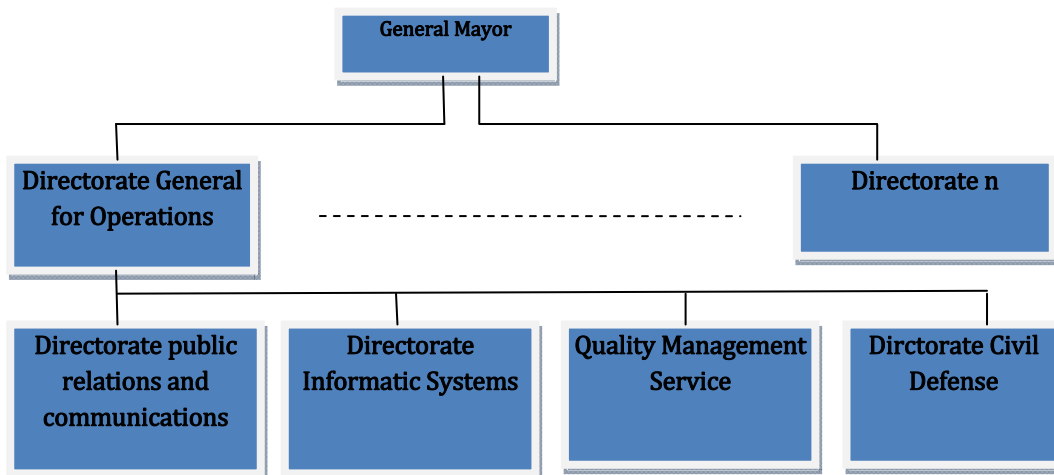
Government CIOs will engage with the enterprise as Collaborative Business Leaders, to drive new business initiatives and cultural shifts.

#### 4. Case study: A CIO for the Municipality of Bucharest?

Currently the executive authorities of major European cities and not only these reconsider its organizational structure by creating the post of CIO in order to adopt a flexible behavior and open new mechanisms for implementing eGovernment initiatives.

Despite this trend, Bucharest City Hall (BCH) does not provide its own organizational chart with the position of CIO. They adopt a classic model in which the position is occupied by a director of a structural subdivision of the public administration mainly responsible with operational and not strategic attributions. Analyzing the Regulation of Organization and Functioning of the Bucharest City Hall, it can be observed that those powers are circumscribed to the Directorate General for Operations, so this area should ensure the implementation of the strategy of computerization of the local public administration of Bucharest, developed by the Information Systems Directorate subordinated to the DG Operations (Figure 5). Most tasks involved to DG Operations and to its subordinate structures are likely to provide technical support in the area of IT (IT procurement, hardware, software, training), but having the power to coordinate IT policies in the municipality of Bucharest

**Figure 5.** Extract from the Bucharest Organization City Hall



#### *IT Background of the City of Bucharest*

Bucharest City is Romania's first national urban center, this level being reached due to their status as state capital and by meeting certain conditions related to the number of inhabitants (over 2 million persons), land (approx. 365 sq km), services provided, etc.

This urban primacy is reflected in a number of indicators: the principal point of decision in the country; high concentration of the infrastructure of public services; it generates 20% of national GDP; best business city in Romania; about 10% of residents of the country are living in Bucharest etc.

▪ *IT Infrastructure*

In terms of IT, Bucharest has been continuously expanding its technological infrastructure since 1990, gradually causing a significant change in the information system of local government in Bucharest, especially after the launch of the Internet in 1995. Although it enjoyed a significant growth in terms of the IT infrastructure, the IT budget could not meet the needs of citizens, investors and other stakeholders. In addition, IT staff dedicated primarily to operational duties at the expense of strategic weakness reflected a weakening of the capacity of the city to keep up with innovations in IT.

▪ *Internet Presence and Internal Processes*

With regard to information resources, BCH has a large volume of data and information necessary to conduct their activities. Data and information of BCH, are now managed uniquely in the *IT Integrated System for Management Activities*, implemented by BCH between 2003-2005. It is a major information resource and the most efficient system implemented in the public administration in Romania. The main characteristics are:

- it contains 9 subsystems that integrate complex information;
- it covers all fields of BCH;
- it provides details for both BCH and employee activities to inform citizens;
- it includes 1100 workstations;
- it allows Internet access and electronic mail to all employees of BCH;
- it is filled constantly with new data and information from all areas of interest to local government of Bucharest.

The Website of the Municipality of Bucharest (Figure 6) was established in 1996 and contains relevant information about the activities of local authorities to ensure full transparency in decisions making process for the city. The database contains indexes and macroeconomic, social and infrastructure indicators, developed in the BCH and it provides statistical information compatible with European level, regarding the socio-economic situation and infrastructure Bucharest.

**Figure 6.** The official website of the Bucharest City Hall



Source: <http://www.pmb.ro/>

The first stage of the informatization strategy, conducted between 2003-2005, was to implement the IT Integrated System for Management Activities in BCH, an unique system that manages all types of data and information from the organization, that meet the requirements defined by any of the compartments of the city hall and provide correct, complete and timely information to decision makers. IT Integrated System for Management Activities coordinates and manages high volume and very diverse data and information, covering all fields of BCH and is used by all departments of the institution (General Mayor of Bucharest Report, 2013: p. 12).

During 2006, in the second phase, BCH began the implementation of the Strategy of *e-Bucharest – Integrated Information System for Public Administration and extended services for the citizens*.

Also in 2006, it started the implementation of the *Project Interactive Territorial System of citizen information*, whose main objectives targeted free access to a coherent information system, consistent and updated; active citizen participation in community activities; reduce the time for solving citizens' problems etc General Mayor of Bucharest Report, 2009: p. 9)

The adoption of the Law 544/2001 on free access to public information, to increase transparency of public institutions to strengthen democracy by

strengthening civil society control over their forced public authorities and institutions, local default publish on its website information about actions, processes undertaken and the resources employed. This development is particularly important in Bucharest whereas territorial internet access, in the year 2013 was more prevalent among households in the Bucharest-Ilfov (72.5% of households had Internet access at home), as well and connect to the Internet using devices (44.3%) (National Institute of Statistics, Press release, 2013: pp. 2-3).

The need to reduce the digital gap requires on the one hand, new online services and on the other hand, a flexible bureaucratic behavior of BCH.

In this regard, DG Operations was a key player in the development of on-line processes by promoting the use of international certifications, such as the Integrated Management System, re-certified by LRQA in 2010 (quality management system certification according to EN ISO 9001: 2008), (environmental management system certification new building according to EN ISO 14001: 2005) which contributed to the standardization of processes and development of these types of services. The impact of properly implementing the integrated management system was reflected in various organizational documents: plans, rules of organization and operation, regulatory documents, etc.

#### 4.2. Leadership role of the local public administration CIO

The structured interviews with the IT staff and analysis of the responses obtained have clarified the main motivations for the creation of the CIO position in Bucharest, the CIO profile, skills required and scope of managerial responsibilities impact on the modernization work that authorities wishing to become collaborative, objective oriented to value and self-sustainable.

Related literature reveals the leadership that the CIO's need in order to coordinate the executive department IT staff, articulating solutions for different organizational structures (Almazan, Gil-Garcia, 2011: p. 3).

Faced with the challenges of a highly unstable socio-economic and political environment, with a significant decrease in resources, especially economic, BCH requires strong IT leadership goals, able to strengthen the link between authorities and citizens.

Understanding the role, importance and impact of ICT in the modernization of local government executives and political leaders, the municipality initiated a series of bilateral decentralized cooperations in which to launch joint initiatives (study tours, workshops, trainings, implementing IT programs etc.) thus providing opportunities to modernize the internal structures of BCH and thus redefining the role of IT departments<sup>(3)</sup>.

An analysis in various states of the different CIO models, shows that the fundamental ingredient for the introduction and evolution of the CIO in the organization is the leadership capability of the CIO. Leadership requires that a CIO develops key relationships that are important to delivering the mission of the IT organization (Relationship with Legislature/Legislators, Customers, Budget Officer, Secretary/Director) (National Association of State Chief Information Officers, 2013: p. 11).

CIOs need to be able to communicate the major view and mission, and effectively articulate what that means in terms of technology for stakeholders, and CIOs need to manage conflicts when they occur, while keeping to their core mission of operating an efficient and effective organization that supports the multitude of systems ensuring services continue to be provided to citizens (idem: p. 12).

Significant challenges of the future for the CIO could be the following: new responsibilities on strategic and management issues, IT portfolio management, IT investment management and risk assessment, Human capital management; a deeper understanding and intuitive grasp of corporate finance and accounting processes; a greater leadership role with a focus on shaping and creating a world economy fuelled by information (Lawry et al., 2007: pp. 58-2).

In the Municipality of Bucharest, along with the challenges mentioned above, it should be added:

- de-motivation of human resources and resistance to change;
- inconsistent IT vision between different levels of management, especially the lack of human and financial resources;
- change of the will of the deliberative General Council of the Municipality of Bucharest in accordance with political configuration change;
- the incomplete regulatory framework;
- the insufficient policy to eliminate the digital division;
- weak correlation of the municipal agenda with national agenda on eGovernment sphere.

## Conclusions

Over time, the role of the IT function in local public administrations has been changing. Before the Internet era, the IT director was a technical staff member of the municipal government and her or his main function was to provide technical support and helpdesk services to users. Currently, the dynamic nature of the information economy has transformed the CIO into an important decision maker.

The role, responsibilities and importance of the CIO is directly linked with the public sector and with the difficult task to enact the required changes in this sector.

The importance of a CIO was also determinate by today' realities: the global economic crises and global issues have combined to compel unprecedented levels of change and collaboration.

This essential ingredient was related to the need for modernization in the public sector and the challenge to reform the public administration, in which the CIO was seen as a changing factor.

One of the important pillars of modernization of the Bucharest local public administration may be the introduction of the CIO position. Although that at the BCH level, there is an equivalent function of CIO, it has mostly operational and not strategic attributions.

The future CIOs must have responsibilities less focused on technical issues relating to technology improvement of BCH. The new responsibilities have to consider issues such as the development of innovative IT solutions, development of standards, promotion of regulatory framework, the implementation of new technologies, etc., in order to carry out the administrative mission in Bucharest.

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### Notes

- (1) Defined by the OECD as the use of information and communication technologies ICT (OECD 2003, p. 11).
- (2) The Planning Service, Strategy, Projects. It also sets out the objectives of computerization in service activities of the Municipality, together with decision makers in each of the other directions of BCH.
- (3) We underline the recent accession the Bucharest Municipality to the International Association *Major Cities of Europe- IT Users Group*.

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