

COMPETENCIES OF THE CHIEF INFORMATION OFFICER (CIO). AN ANALYSIS OF THE FEDERAL US CIO COUNCIL MEMBERS' BACKGROUND

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This article is trying to answer two main questions: "What should the competencies of a Chief Information Officer (CIO) be?"; "Do the persons holding CIO positions have such competencies?". I tried to answer the first question searching into the history and theory of the Information Resources Management. I focused in the beginning on the interdisciplinary roots of the domain which, in my opinion, should be also present in the background of its managers, i.e. CIOs. Usually, the technical experience and skills of a CIO are taken for granted, so I wanted to reveal what other competencies a modern CIO should have for being proficient. There are some myths about what a CIO is, and such as: "CIOs may know about tech, but they fall short on people"; "CIOs live in silos, and are only concerned about their own department's performance"; "CIOs usually earned some kind of techie degree along the way"; "The buck stops here (1), at the CIO's desk, on all tech decisions". I went than and I analyzed the US Federal CIO Council, focusing on the background of its members. By doing this, I wanted to destroy the above myths, and to prove that it is indeed a reality to have CIOs with competencies beyond the technical area, which, by the way, are striving to share their experience to others CIOs to be.

Key words: chief information officer; information resources management; competence.

1. INFORMATION RESOURCES MANAGEMENT & ITS INTERDISCIPLINARY ROOTS

When referring to the term 'Information Resources', one should have in mind that this includes both information and related resources, such as personnel, equipment, funds and information technology. Information

Resources Management (IRM) means the process of managing information resources to accomplish the mission and to improve organizational performance (2). Logically, IRM includes the management of information resources, but also of various technologies and equipment that manipulate these resources, and the people who generate, organize, and disseminate those resources (3).

Thus, it can be stated that IRM is a management concept that brings together individuals' knowledge and skills, information, organizational goals and objectives, and information technology, for the final goal of effectively accomplishing the organization's mission.

The roots of IRM are widely spread and cover the spectrum of at least four major sciences: Organizational Sciences (Sociology, Public Administration, and, in more depth, organization theory, human relations theory, group dynamics, leadership, and motivation), Management Sciences (Business, Management, and Economics), Computing, Communications & Telecommunications, Policy, Law and Political Sciences. Against this background, the developed IRM theory contains pieces of organization theory, management theory, human relations theory, economic theory, cognitive psychology, cultural anthropology, computer science etc.

2. THE SKILLS AND COMPETENCIES OF A CIO

By the 1996 Clinger-Cohen Information Technology Management Reform Act the institution of the CIO has been established and regulated thus calling for a focus on IRM management in each organization, either military or civilian.

According to this act, a CIO is in charge of Information Technology (IT) strategy and computer systems, and also responsible for driving directions and implementing technology within the organization. In order to be able to accomplish this, a CIO needs to meet simultaneously

the current IT basic needs, to plan for the future growth, and to adjust to changing technology. This requires from a modern CIO to be expert in various domains such as leadership, acquisition, strategy planning, policy, process improvement, security and information assurance, e-governance and e-business, performance and results-based management, technology assessment.

It has been traditionally hard for the CIOs to build and earn the trust of the executive team. While the technologists may give support, the business often looks at them as outsiders. Three acquired and proved attributes are considered to be critical in building and earning the trust of the executive team for the CIOs: functional head, transformational leader, and business strategist.

A good functional head understands more than just the technical components that make up their area. Management skills such as managing the team, running the function as a business, and developing a strategy that is comprehensible to the larger organization are fundamental and are anchored into thorough technical knowledge. A contemporary CIO needs to be a business leader that understands what technology is available and how it can be used to create value for the organization; they need to know what it can do, not how.

The ability to work closely with the business partners and implement serious change is required for transformational leadership. Impacting the overall company and transforming processes and systems come after CIO has proven s/he can run the area of responsibility like a

business. This requires fundamental changes to the IT organization and thinking, namely to reduce the utility spending and to focus on the areas that really impact the business – business analysis and process improvement. This is often a difficult transformation, since organizations and managers do not want to transform. CIOs have to get out of their comfort zone and start the conversation with the people they work with. CIOs have to be seen as enablers and transformational leaders.

Being a business strategist is the final stage in the CIO evolution. This role is absolutely necessary for those working in selling service through technology, while in manufacturing, the goal should be to enable the business to operate as effectively and efficiently as possible.

A more comprehensive outlook on all of the above is rendered in **Figure 1.**



Fig. no. 1. A CIO’s spectrum of responsibilities

3. US FEDERAL CIO COUNCIL

The US CIO Council is the principal interagency forum on Federal agency practices for IT

management. Its mission is to improve practices related to the design, acquisition, development, modernization, use, sharing, and performance of Federal Government information resources.

The CIO Council aspires to promote a bright and prosperous future for the United States through the strategic use of Federal IT. It seeks to drive efficiency and effectiveness across Government, spurring innovation, protecting and defending the resources and more effectually bringing Government services to the American People.

The CIO Council serves the following key objectives:

- Develop recommendations for the Office of Management and Budget (OMB) on Federal Government IT management policies and requirements;
- Establish government-wide priorities on information technology policy and monitor their implementation;
- Share lessons learned, ideas, best practices, and innovative approaches related to IT management;
- Assist the Federal Chief Information Officer (Federal CIO) in the identification, development, and coordination of multi-agency projects and other innovative initiatives to improve Federal Government performance through the use of IT;
- Promote collaboration and community building among Federal Agency CIOs for purposes of sharing best practices, transferring knowledge, and developing a unified approach for addressing Federal IT challenges;

- Serve as a forum for collaboration on intra-agency IT portfolio management to reduce duplicative IT investments and drive the efficient use of IT resources across agencies within the Federal Government.

The CIO Council is comprised of committees that align with Federal IT priorities (the current committees focus on Innovation, Cyber security, and Workforce). The committees manage specific projects on behalf of the Council. The Council supports and conducts ongoing information exchange with a number of self-organizing Communities of Practice (CoPs) which address important IT topics and issues (currently, these include the Privacy, Accessibility, and IT Workforce CoPs). By working within a structure that combines formal committees, short-term, agile working groups, and communities of knowledge experts, the Council ensures that the most relevant and pressing Federal IT topics are addressed across the Federal CIO community.

The Council has now 47 members, CIOs or deputy CIOs of about 40 Federal Departments, Offices and Agencies, including the Federal CIO. The way the US Federal CIO Council is organized and operates could be an excellent example for any other Governments who decide to implement an institutionalized IRM. This highest Governmental level approach provides the general unitary vision and modus operandi for all the state agencies, while combining the formal committees with flexible WG is a way to follow in having an absolutely needed CIO community of practice.

4. THE REFLECTION OF THE CIO COMPETENCIES INTO THE US FEDERAL CIO COUNCIL MEMBERS' BACKGROUND

I have thoroughly analyzed both the educational and professional background of all the 47 members of the US Federal CIO Council, as it was stated by each of them in their CVs posted on the official website of the Council.

What is the main conclusion? All of them, maybe with few exceptions, observe the pattern of what we can call a modern CIO, in terms of experience, competencies and broader knowledge.

When it comes to education, the majority have a degree (Bachelor, Master or Phd) both in a technical domain (e.g. computer sciences, IT management, systems engineering, industrial engineering, educational technology, communications, quantitative research methods, mathematics), and in business management (public management, economics, marketing, finance, business in science, project management) or international affairs. Nevertheless, those with only technical education have a large professional experience in business administration, gained while being in specific leading positions. Many of them got diplomas or certificates in the very field of IRM or CIO (the US National Defense University being the main education provider).

All of them, with no exceptions, have a professional experience of at least 20 years, being accomplished information technology management executives with extensive government and corporate experience.

The career of most of them touched both the public and the private

sector (prestigious profit, non-profit companies or universities), which, obviously, has contributed to their professional development. Most of them have an important previous experience as CIO or other COs in other organizations (including CEO).

They have all demonstrated a strong ability to build and sustain relationships with public/private stakeholders to lead innovative projects and inter-agency initiatives. Their roles were both technical and executive, sometimes facing the engineering and product side of the business and sometimes facing the end-users, but always with both feet grounded in the technology.

As change agent in modernization and transformation, they managed large system implementations, focusing on innovation, technology and business strategy, gaining a depth and breadth of knowledge regarding how organizations use technology to transform their businesses and better serve their customers. In this framework, the areas covered by these CIOs include enterprise architecture, software quality in business process reengineering, strategic planning, capital planning and investment control activities, IT budget and acquisitions, financial management, mergers and acquisitions, contracts and procurement, grants policy issues, information operations, knowledge management, internal control and audit resolution, information sharing and safeguarding, enterprise human resource information systems etc.

Other areas of expertise includes for some of them data analysis consulting, emotional intelligence, logistics, international trade, history etc.

An important number of the US Federal CIO Council's members were pioneers in certain moments of their professional evolution – we have among them the first CIO of the Department of Homeland Security (DHS), the first CIO of the state of Hawaii, the one who implemented the first-ever National Call Center to provide emergency financial assistance during natural disasters, to give just few examples.

For their remarkable professional career and as an ultimate prove of their performance as CIOs, as well as for effective leadership and management in IT projects, many of the Council's members were awarded by Federal/State Government, President, professional publications, prestigious companies and associations, or they were included in different CIOs tops at Federal level.

Last, but not least, the importance and magnitude of these CIOs' responsibility is reflected also by the financial level, of tens of billions of USD, of the portfolio they have overseen.

5. CONCLUSIONS

The main conclusion of the above research is that, indeed, reality meets theory when it comes to having skillful and experienced persons in CIO positions.

However, at least at the level of the US Federal CIO Council's members, the myths about this job and its owners are clearly countered by reality, as follows:

- Productive CIOs realize that human skills are just as essential as tech command;
- Today's CIO is fully immersed in the needs of all departments to ensure

that tech supports the organization, not the other way around;

- Some CIOs might not have a formal IT education, but technology ignites their passion and intellectual curiosity when it comes to envisioning how it can solve business challenges;
- With an increasingly mobile workforce holding more influence than ever over which tech tools are used in the enterprise, effective CIOs pay attention to multiple stakeholders to help come up with high/performing IT solutions that minimize security risks.

CIOs have to make the transition from technology leader to business leader. They need to be leading the discussion about how IT can enable new business models, products and services. They need to get experience outside of the IT function and they need to invest time in networking and building relationships across the business so that they can shape the thinking of their colleagues and set the overall direction for how their organization can exploit technology.

Although CIOs have not traditionally been known for soft skills such as stakeholder and relationship management skills, the present digital business requires them to be social. This mainly means getting for longer outside of the IT function and engaging with stakeholders within and outside of the organization.

Being a social CIO in the physical world takes time, energy and effort, and thus CIOs will need to invest time, energy and effort in developing their online presence. This will help them be a credible CIO, build human capital, develop the network, create a personal brand.

The main takeaways resulting from this analysis, and that can be stated as prerequisites when it comes to considering establishing an institutionalized IRM approach and a CIO position are:

- Have a strategic integrated outlook and not a piecemeal approach;
- Establish the right infrastructure for developing the needed knowledge and skills;
- Be ready to make dramatic changes in the organizational structures;
- Have a community of practice to support and refine the implementation of policies and regulations.

NOTES & REFERENCES

(1) i.e. the responsibility is not passed on beyond

(2) Section 3502 (7) of Title 44, United States Code, Paperwork Reduction Act of 1995.

(3) Gary D. Blass et al. "Finding Government Information: The Federal Information Locator System (FILS)", Government Information Quarterly, JAI Press, Inc., Greenwich, Connecticut. Vol. 8, No. 1, pp. 11-32. 1991

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