CIO Competencies: A social representation analysis

Completed Research Paper

José Carlos Correia
Getulio Vargas Foundation
jcpcorreia@yahoo.com.br

Luiz Antonio Joia
Getulio Vargas Foundation
luiz.joia@fgv.br

Abstract
The Chief Information Officer (CIO) has become increasingly important for companies. However, one can perceive that this professional realizes that his/her competencies are not always enough to tackle a daily professional routine centered around the constant transformations the business arena has witnessed. Thus, by using the Social Representation Theory operationalized via the words evocation technique, this article intends to investigate what are the IT professional perceptions about the CIO core competencies, in order to compare them with the CIO perceptions about his/her own competencies. The work concludes that there is a strong cognitive dissonance between those perceptions, as just “capacity to influence the organization” and “technical expertise” are perceived as CIO essential competencies both by IT professionals and CIOs. Finally, this article points out the very need companies have to develop internal programs to overcome the aforementioned cognitive dissonance, as it can hinder an adequate IT-Business alignment in an organization.

Keywords
CIO Competencies, Social Representation Theory, IT Professional, Chief Information Officer, IT Leadership.

Introduction
Information Technology (IT) has become increasingly relevant for business processes and value creation in companies. Information – and consequently IT – is nowadays an important component in products, services, and organizational processes (Rodrigues, Maccari, and Simões, 2009; Melvill, Kraemer, and Gurbaxani, 2004). Besides that, the use and availability of information systems and technology have increased in an exponential way, turning them into commodities as ubiquitous as labor within companies (Fasanghari and Roudsari, 2008; Laurindo, 2008). Notwithstanding IT commoditization, executives have become increasingly concerned with their businesses dependence on IT (Sacilotti, 2011). Thus, IT is no
longer considered an expense and is now in many cases deemed to be the solution for business problems (Oliveira and Maçada, 2012).

In line with this, the role of the Chief Information Officer (CIO), the professional responsible for the management of IT resources in an organization, has become increasingly important for companies. However, one can perceive that this professional, whose functions are more and more complex, realizes that his/her competencies are not always enough to tackle a daily professional routine centered around the constant transformations the business arena has witnessed (Carter, Grover, and Bennett, 2011; Chen and Wu, 2011). Thus, it has become increasingly relevant for the CIO to possess the basic skill of walking a fine line between the technical and managerial aspects (Igbaria, Greenhaus, and Parasuraman, 1991). The duality revealed by these technical, and at the same time managerial skills, the need to understand the organizational context, the perception of the appropriate dosage of innovation and also the responsibility for cultural change brought about by the use of IT are some of the pressures to which this professional is constantly subjected (Chatterjee, Richardson, and Zmud 2001).

Based on that, this work intends to investigate the essential competencies of the CIO as perceived by IT professionals, in order to compare them with those perceived by the CIOs themselves as set forth in the extant academic literature. In order to get the IT professionals’ perceptions regarding the necessary competencies for the CIO, the Social Representation Theory (SRT) operationalized via the Words Evocation Technique is adopted in this research.

Essentially, this article seeks to answer the following research question: “What are the IT professionals’ perceptions about the essential competencies CIOs should have?”

This article is structured as it follows. After this introduction, the theoretical references are presented addressing the main characteristics of CIOs, their critical competencies, as well as the Social Representation Theory (SRT) that is applied in this work to identify the core competencies in CIOs as perceived by IT professionals.

**Theoretical References**

**Chief Information Officer**

Senior executives, including the CIOs, are in charge of the strategic development of their organizations. The CIO, in turn, is responsible for the implementation and governance of IT (Weill and Ross, 2004), being that a function created to fulfill two organizational needs. The first is to concentrate the responsibility for processing the informational organization needs in just one executive, and the second is to have an executive to link the company’s business strategy with its IT strategy (Grembergen, 2004).

Nowadays, IT is increasingly seen by companies as a strategic asset to ensure competitive advantage (Chun and Mooney, 2009). Thus, IT executives who are able to develop their skills and abilities to better understand the business processes, as well as the information needs of their organizations, will undoubtedly achieve good results accrued from IT use, not to mention excellent professional perspectives for their future careers (Carter, Grover, and Bennett, 2011).

However, the shift from a technically-oriented career to a technically/managerially-oriented career has unveiled the need for new professional profiles in the IT management realm (Bassellier and Benbasat, 2004). In fact, the new role IT professionals and especially CIOs have played, pursuing a balance between technology and business, has required new managerial and business-oriented competencies (Schambach and Blanton, 2002) that the IT executives have sought to acquire and develop. By way of example, studies conducted with IT executives concluded that most IT managers are aware of the need to acquire new executive competencies to enhance their existing technical skills (Cota, 2002; Luciano, Becker, and Testa, 2012).
Indeed, one can argue that one of the major challenges regarding the effective use of IT resources lies in the identification and development of the critical competencies for CIOs, in order that they can perform their functions adequately, thereby complying with their organizations’ expectations.

**CIO Competencies**

Competency management is a key factor for the professional success of a CIO and IT professional in an organization (Abraham, Beath, Bullen, Gallagher, Goles, Kaiser, and Simon, 2006). Thus, several models in the extant literature have sought to pinpoint all the necessary competencies for this professional. Based on this fact, this work adopted the model proposed by Vreuls (2009) and Vreuls and Joia (2010, 2011, 2012) in order to compare the results obtained via empirical research with the academic literature. The rationale for that lies in the fact that the aforementioned model is based on the consolidation and triangulation of 56 competencies set forth in six models that have investigated the CIO critical competencies, namely: Earl's Model (1996); Periasamy and Seow's Model (1998); Ravarini, Moro, Tagliavini, and Guimares’ Model (2001); Tagliavini, Moro, Ravarini, and Guimares’ Model (2004); Broadbent and Kitzis’ Model (2005); and Lane and Koronios’ Model (2007).

From this triangulation and consolidation, a model applicable to the CIO reality was developed (Vreuls, 2009 and Vreuls and Joia, 2010, 2011, 2012) composed of seven critical competencies for the CIO and being validated by a set of CIOs. This model is depicted in Figure 1 and the definition of each competency is presented below (Vreuls, 2009 and Vreuls and Joia, 2010, 2011, 2012).

![Figure 1 – CIO Critical Competencies Model](image)

i) Vision of the business

This competency highlights the need for the CIO to understand the environment in which the company is situated and its business processes, which is also supported by Luftman (2000). Besides, this competency also points out the need for the CIO to communicate the contributions of IT to the organization. According to Henderson and Venkatraman (1993), CIOs must demonstrate to the organization what the expected benefits from IT are in relation to the investments proposed or made. Therefore, they must learn to express themselves in a clear manner to other executives and investors, which suggests that it must be in business language.

ii) Understanding the organizational context

This competency demonstrates the need for CIOs to understand the role that IT should play in their organizations, as well as to adapt IT to the corporate characteristics and the organizational structure. Besides, this factor highlights the internal relationships fostered by CIOs and their ability to systemically understand their organizations and plan the IT to support it as an integrated whole.

iii) Capacity to influence the organization

This competency brings together both leadership and financial aspects, characterized by the ability that the CIO must have to influence the organization by means of basing advice on sound financial principles. This competency reflects the strategic role of the CIO as an advocate/prosecutor of technologies (Laplante and Bain 2005). As seen earlier, there is a degree of uncertainty arising from the investment amounts traditionally involved in IT (Powell, 1992). Because of all these risks and uncertainties, financial and analytical rigor in assessment has been a growing trend (Tingling and Parent, 2002). Associated with this, there is also the difficulty of identifying the precise impact of IT on the organization (Preston et al., 2008), which justifies the need for controls and a financial approach. The leadership of the CIO appears here as a necessary element for the alignment between IT and the strategies of the business (Farrell, 2003). This feature can either facilitate or inhibit the alignment (Preston et al., 2008). In fact, the leadership profile of the CIO, according to Preston et al. (2008), is what causes the difference between purely operational IT and IT where the investment leverages the business (Preston et al., 2008).

iv) Technical expertise

This competency points to the need that CIOs have to ensure the delivery of effective IT services, therefore boosting their own credibility and that of IT vis-à-vis the organization (Earl, 1996). This competency also enables the CIOs to implement technological solutions within their organizations. Thus the technical competencies continue to be necessary for adequate professional performance of the CIO (Applegate and Elam, 1992).

v) External networking

The CIO’s preoccupation with maintaining relationships outside the organization manifests itself in this competency and the need to legitimate IT actions/projects justifies the importance of this factor. In a changing world with the need for investments that are often sizeable (Powell, 1992; Galas and Marques, 2006), the CIO seeks to legitimate the choice to be made by referring to the prior use of the product in other organizations, being thus a form of mimetic isomorphism (Tingling and Parent, 2002). Again, the technical and management aspects are seen in this competency. Since the CIOs are the IT professionals who combine the two basic technical and managerial characteristics (Igbaria et al., 1991), they need to remain technologically updated. This is due, in large part, to an attempt to reduce uncertainty, seeking more information on existing products (Ackoff, 1967). According to Lane and Koronios (2007), IT suppliers present themselves to the CIO as an updating source with respect to products and technologies.
This relationship also allows the CIO to ensure the enhanced utilization of IT resources (Lane and Koronios, 2007).

vi) Management of the IT operation

The alliance between the operational, relationship and planning elements characterize this competency, supporting the allegation of Lancit (2001), who sees the CIO as a professional who embodies not only technical competencies, but also those of a more strategic nature. This also proves the current need for skills in inter-personal relationships, over and above those involved in a purely technical profile (Loogma et al., 2004). Furthermore, this factor highlights the need for leadership ability that CIOs must have to keep their team aligned with organizational needs. They must therefore be functional leaders (Laplante and Bain, 2005). Since CIOs are responsible for identifying the required information and technologies for the organization to be in a position to deliver the relevant services (Kitz and Broadbent, 2005), they need to form and maintain their teams in order to achieve the desired results. It is also a competency that facilitates the strategic IT-Business alignment (Luftman et al., 1999).

vii) Capacity to innovate using new information technologies (IT)

Providing technological solutions and/or innovations that enhance the business is the essence of this competency. The CIO appears here as an agent of change, as suggested by Laplante and Bain (2005). The choice of new technologies to be employed will be reflected not only in operational efficiency, but also in the competitive differential of the organizations to which the CIOs are associated (McRary, 1995). The concern of CIOs with the alignment of the IT initiatives with the strategies of the business (Henderson and Venkatraman, 1993) is yet again demonstrated in this factor.

Then from the literature review on CIO competencies, it is necessary to understand how the competencies unveiled by Academia will be compared with those accrued from the IT professionals’ perceptions collected in this study. Thus, in the next section, the Social Representation Theory (SRT) used to collect and analyze the IT professionals’ perceptions about the CIO essential competencies is presented.

**Social Representation Theory – SRT**

The Social Representation Theory (SRT) was proposed by Serge Moscovici in the late 1950s, being derived from the publication of his study *La Psychanalyse: son image et son public* (Moscovici, 1961), whereby an innovative perspective with respect to the integration of individual, collective and social phenomena was established.

People need to adjust and keep abreast of what is happening in the the world around them, creating representations. However, these are not individual constructions. The SRT encompasses not only the social environment but also the transforming capacity of social beings. The representations depict common sense, purporting to construct and interpret day-to-day life, being revealed both via interactions established within the social setting and interactions among individuals, as they reveal their opinions about a specific phenomenon relevant to the group to which they belong. The representations are part of reality, i.e. they perform collectively through interactions and behaviors. Thus, social representations are complex processes that address the processes by which the meaning of a certain object is structured by subjects in the context of their relationships in a dynamic process of sense-making and transforming the range of accessible possibilities. While the representations do not fully determine the decisions made by individuals, they limit and frame the reality made available to them (Cramer, Brito, and Cappelle, 2001).

According to Moscovici (2003), the Social Representation Theory, in comparison with other psychological theories, has a greater variety and richness to describe specific phenomena. The perception of reality unveiled by the social representation theory lies in general in how individuals map out the way they will relate to the object being represented socially. This reinforces and explains the validity of using the SRT when one seeks to understand the way society or specific groups have related to specific social phenomena, as is the case of this study about the CIO competencies socially represented by IT professionals.
In 1976, Jean-Claude Abric proposed the Central Kernel Theory as an extension of the SRT (Abric, 1976). A social representation, as defined by the Central Kernel Theory, is an organized string of information, beliefs, opinions, and attitudes, composed by two subsystems, namely central and peripheral subsystems.

All social representation is organized around a central kernel that determines its basic aspects, its meaning, and its internal organization (Sá, 2002). This central kernel is composed of elements of great importance for the framing of a social representation. In other words, the lack of a central kernel either leaves the corresponding social representation without a formal structure or gives it another meaning (Sá, 2002). Moreover, this central kernel is directly linked to the social representation, being heavily influenced by the collective memory of a social group, as well as being shared, stable, coherent, and resistant to change (Abric 2003). On the other hand, the peripheral system is the interface between the central kernel and the actual reality, having the function of materializing and reaffirming the central kernel. It is open to modification, flexible, experiencing significant influences from the context in which the representation is inserted (Sá, 2002).

Vergès (1994) structured the social representation through a square composed of four quadrants that represent simultaneously the central kernel and the peripheral system concepts. These quadrants, according to Vergès (1994), are used for the analysis of collected words associated with the social representation under analysis, combining the citation frequencies with the evocation order of the words associated with the concept one seeks to represent socially. The central kernel is located in the upper left quadrant, whereas the peripheral system is located in the lower right quadrant, as will be explained in the next section. The upper right and lower left quadrants are discarded as they have a very tenuous and superficial link with the central kernel (Vergara, 2005).

Thus, the main interest of this research lies in understanding the central kernel of the representation under analysis, as well as the conclusions accruing from the comparison of results derived from the use of the SRT with extant CIO competency models developed by Academia.

**Methodological Procedures**

The sample of this research is composed of IT professionals, namely individuals with experience and academic background in the Information Technology area. This option is supported by the fact that the main interest of this work is to understand how the CIO critical competencies are perceived by the IT professionals.

These professionals were chosen by accessibility criteria associated with the snowball technique (Biernacki and Waldorf, 1981). That is to say, the IT professionals made contact with other colleagues who might also answer the research questionnaire. All questionnaires were sent by e-mail and were answered via an Internet website.

To survey the possible elements that comprise the central kernel of the social representation under investigation, the words evocation technique was applied. This technique is based on asking the respondents to mention, orally or in writing, a certain number of words that spring to mind from the presentation of an induced expression (Vergara, 2005), whereby the competencies of the CIO are obtained.

The questionnaire sent to the IT professionals was composed of two parts. The first part addressed the words evocation technique, whereas the second part, in a complementary manner, was composed of fifteen objective questions. Before receiving the replies, an instruction page on the web was developed in order to minimize doubts about how to fill out the questionnaire. Lastly, it was explained that the respondents would not have their identities disclosed for the sake of security and to ensure spontaneity levels associated with the answers.

In this study, the respondents were asked to write down five words that sprung to mind when the expression “Critical Competencies of the CIO” was mentioned. These words were then numbered by them from one to five according to the order in which they were mentioned, thereby developing a hierarchy for the words set forth in the words evocation technique: number one was attributed to the first word, while
number five was attributed to the last word quoted. In this manner, it was possible to apply the data analysis method proposed by Pierre Vergès, combining the words evocation frequency with the order they were evoked, in order to reveal the elements of the central kernel (Sá, 2002). To that end, the following steps were followed (Abric, 2003): word categorizations; calculation of the category frequency; calculation of the average order of evocation.

From the words evoked by the subjects, semantic categories were created in order to group words with similar meanings, in order to avoid words with similar semantic content being considered distinct. However, categories with little significance were discarded, namely those consisting of a word evoked only once (Vergara, 2005).

Each category was then ranked on the basis of the number of times each word pertaining to this category was evoked in the first, second, third, fourth or fifth instance. The calculation of the average order of evocation (AOE) of each category was calculated as presented below:

\[ \text{AOE} = \frac{(f_1 \times 1) + (f_2 \times 2) + (f_3 \times 3) + (f_4 \times 4) + (f_5 \times 5)}{\sum f} \]

Where \( f_i \) means the number of times this category was evoked in the first instance, \( f_2 \) the number of times this category was evoked in the second instance and so on. The total sum of \( f \), as presented in the denominator, describes the total number of times that category was evoked: \( f_1 + f_2 + f_3 + f_4 + f_5 \).

In order to build Vergès’ quadrants, it was necessary to calculate two reference values to position the categories within these quadrants, namely: average frequency of evocation (AFE) and the mean figure for the average order of evocation (AOE). The average frequency of evocation was calculated by dividing the total sum of all categories evoked by the number of categories, and the mean figure for the average order of evocation was calculated by dividing the total sum of all AOE by the number of categories. By comparing the individual values of each category with the aforementioned reference values, it was possible to locate each category horizontally and vertically in a specific quadrant. From the joint analyses of the two averages of each category, the elements pertaining to the central kernel of the social representation were revealed. The categories were then grouped in the following quadrants as presented below (Abric, 2000; 2003):

1) Upper Left: categories having frequencies of evocation greater than or equal to and AOE smaller than their respective averages (Central Kernel);
2) Upper Right: categories having frequencies of evocation greater than or equal to and AOE greater than or equal to their respective averages;
3) Lower Left: categories having frequencies of evocation smaller than and AOE smaller than their respective averages;
4) Lower Right: categories having frequencies of evocation smaller than and AOE greater than or equal to their respective averages (Peripheral System);

The quadrants (ii) and (iii) do not allow any direct interpretation as they refer to cognitions that only have close relationships with the central kernel (Tura, 1997).

**Data Analysis and Results**

The research was conducted with 243 IT professionals. It is important to stress that answers from professionals who occupied or have occupied the role of CIO were discarded in order to ascertain the perception of IT professionals about the CIO competencies rather than the CIOs perceptions about their own competencies.

**The Central Kernel and Peripheral System**

A total of 337 different words were evoked, however 12 of them were discarded as they were quoted just once, having no semantic similarity with other words, such that they could not be included in any category.
In Table 1 the general numbers accrued from the words evocation technique can be observed in a concise manner.

<table>
<thead>
<tr>
<th>General Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of individuals who answered the questionnaire</td>
</tr>
<tr>
<td>Total of words evoked</td>
</tr>
<tr>
<td>Total of words discarded</td>
</tr>
<tr>
<td>Total of words categorized</td>
</tr>
<tr>
<td>Total of categories analyzed</td>
</tr>
</tbody>
</table>

Table 1 – General Data Related to the Words Evocation Test

The words were grouped into categories according to their similarities in order to comply with the critical competencies singled out by Vreuls (2009) and Vreuls and Joia (2010, 2011, 2012), thereby making it easier to compare the results accrued from the SRT operationalized by the words evocation test with the academic literature. The Evoc software developed by Pierre Vergès was used to categorize the words evoked, placing them into clusters or categories of analysis.

From the seven critical competencies for the Brazilian CIO identified by Vreuls (2009) and Vreuls and Joia (2010, 2011, 2012) the semantic equivalence was found for six of them as accrued from the output of EVOC. Only the competency Management of the IT Operation failed to present any equivalence. One possible explanation for this is the fact that the respondents ascribed this competency to the IT operational area rather than to the CIO.

Besides the six competencies consistent with the work of Vreuls (2009) and Vreuls and Joia (2010, 2011, 2012), three more competencies were set forth, namely: Interpersonal Relationship, Ethical Behavior, and Focus on Results.

After the categorization of the words evoked, the calculation of the frequency of evocation and the average order of evocation (AOE) was conducted for each semantic category considered capable of being analyzed, as presented in Table 2.

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>AOE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity to influence the organization</td>
<td>308</td>
<td>2.90</td>
</tr>
<tr>
<td>Interpersonal Relationship</td>
<td>133</td>
<td>3.00</td>
</tr>
<tr>
<td>Focus on Results</td>
<td>185</td>
<td>3.19</td>
</tr>
<tr>
<td>Technical expertise</td>
<td>223</td>
<td>3.00</td>
</tr>
<tr>
<td>Capacity to innovate using new IT</td>
<td>128</td>
<td>2.98</td>
</tr>
<tr>
<td>External networking</td>
<td>48</td>
<td>3.23</td>
</tr>
<tr>
<td>Vision of the business</td>
<td>77</td>
<td>2.65</td>
</tr>
<tr>
<td>Ethical Behavior</td>
<td>90</td>
<td>3.16</td>
</tr>
<tr>
<td>Understanding the organizational context</td>
<td>23</td>
<td>3.00</td>
</tr>
</tbody>
</table>

Table 2 – Frequency and Average Order of Evocation of the Categories

In order to identify the central kernel of the social representation under analysis, Vergès’ quadrants were created. To achieve this, it was necessary to calculate the average of the frequencies of evocation and the mean figure for the average order of evocation (AOE), as depicted in Table 3.
From the reference values presented in Table 3, it was possible to place the semantic categories into one of the four Vergès quadrants, thereby revealing the elements of the central kernel and peripheral system (Figure 2). Thus, the elements present in the central kernel of the social representation of the CIO competencies according to the IT professionals who took part in this research are: Technical Expertise and Capacity to Influence the Organization. The Technical Expertise category included expressions such as: experience, competency, knowledge, technical background, to name just a few. On the other hand, the Capacity to Influence the Organization category included expressions such as: people management, leadership, example, teamwork, admiration of the team, marketing, mentor, integrator, to name just a few.

Likewise, the elements present in the peripheral system of the social representation of the CIO competencies according to the IT professionals who took part in this research are: External Networking and Ethical Behavior. The External Networking category included expressions such as: knowledge of the market and suppliers, update with the trends of the market, well informed, to name just a few. On the other hand, the Ethical Behavior category included expressions such as: honesty, transparency, justice, integrity, ethics, credibility, to name just a few.

The other categories were located in the lower left and upper right quadrants, not permitting any kind of direct interpretation as they refer to cognitions that only have a tenuous link with the central kernel (Tura, 1997).

---

**Table 3- Reference Values for Vergès’ Quadrants**

<table>
<thead>
<tr>
<th>Reference Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average of the frequencies of evocation: $\sum(\sum f)/9 = \frac{1215}{9}$</td>
</tr>
<tr>
<td>$135$</td>
</tr>
<tr>
<td>Mean figure for the average order of evocation: $\sum(\sum f)/9 = \frac{27.11}{9}$</td>
</tr>
<tr>
<td>$3.012$</td>
</tr>
</tbody>
</table>

---

**Figure 2 – Central Kernel and Peripheral System**
Discussion and Conclusions

From the results obtained, it was possible to develop a comparative table of the social representation of the CIO critical competencies according to IT professionals with the CIO critical competencies as perceived by them and presented in Table 4.

<table>
<thead>
<tr>
<th>CIO Critical Competencies</th>
<th>CIO perceptions (*)</th>
<th>IT professional perceptions (**)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vision of the business</td>
<td>Perceived</td>
<td>Inconclusive</td>
</tr>
<tr>
<td>Understanding the organizational context</td>
<td>Perceived</td>
<td>Inconclusive</td>
</tr>
<tr>
<td>Capacity to influence the organization</td>
<td>Perceived</td>
<td>Mandatory (Central Kernel)</td>
</tr>
<tr>
<td>Technical expertise</td>
<td>Perceived</td>
<td>Mandatory (Central Kernel)</td>
</tr>
<tr>
<td>External networking</td>
<td>Perceived</td>
<td>Ancillary (Peripheral System)</td>
</tr>
<tr>
<td>Management of the IT operation</td>
<td>Perceived</td>
<td>Not perceived</td>
</tr>
<tr>
<td>Capacity to innovate using new IT</td>
<td>Perceived</td>
<td>Inconclusive</td>
</tr>
<tr>
<td>Interpersonal relationship</td>
<td>Perceived</td>
<td>Inconclusive</td>
</tr>
<tr>
<td>Focus on results</td>
<td>Not perceived</td>
<td>Inconclusive</td>
</tr>
<tr>
<td>Ethical behavior</td>
<td>Not perceived</td>
<td>Ancillary (Peripheral System)</td>
</tr>
</tbody>
</table>

(**) Obtained via SRT

Table 4 – Comparison of the CIO Critical Competencies

Of the nine categories/competencies unveiled by the social representation theory, only Technical Expertise and Capacity to Influence the Organization were supported as CIO core competencies by the IT professionals, as they are placed in the central kernel. The former competency points to the need CIOs have to foster both IT services and their capacity to deliver services effectively via IT, thereby ensuring organizational trust in their work (Earl, 1996). Besides, the latter competency points to the CIO ability to influence the organization based on financial arguments. This competency reflects the strategic function of the CIO as a supporter/promoter of technologies, as also supported by Laplante and Bain (2005).

Two other competencies deserve attention as they are placed in the peripheral system, namely: External Networking and Ethical Behavior. It was a surprise to note that the latter competency, which was not even perceived by CIOs, was not placed in the central kernel. This indicates that this competency is not heavily present in the IT professionals’ perceptions as was expected. Interestingly, the IT area is nowadays subject to audit, control, and compliance with sets of best practices, such as Cobit and ITIL, in order to avoid any unethical behavior. This might indicate a crisis of confidence of the organizations in their CIOs and the need to monitor this area carefully. Moreover, the External Networking category – a competency also perceived by the CIOs themselves – also showed some volatility as a CIO competency. However, that should not come as a surprise, as the relationship between suppliers and IT teams has changed over time. The suppliers are now technology consultants rather than mere hardware/software vendors. This new supplier role justifies the positioning of this category in the peripheral system.

In order to better understand this issue, it is important to analyze the answers given by CIOs about their own necessary competencies, which underpin the development of the CIO competency model (Vreuls, 2009 and Vreuls and Joia, 2010, 2011, 2012). It might be questioned whether the CIOs actually apply the competencies considered as essential by them in their daily professional routine or have given a common sense answer on this subject.
Furthermore, the comparison of results accrued from the academic literature with those accrued from the social representation approach reveals cognitive dissonance between IT professional and CIO perceptions regarding the latter’s core competencies. One would expect that IT professionals would be aligned with their leaders regarding the latter critical competencies for the management of the IT area, however this is not the case. Besides, one can conclude that CIOs might be induced to quote essential competencies different from those they actually possess in order to legitimize themselves vis-à-vis the market. Consequently, this can lead CIOs to have similar behavior, revealing mimetic isomorphism (Tingling and Parent, 2002).

This article sets forth an important practitioner implication, as it unveils a strong cognitive dissonance associated to CIO competences as perceived by IT professionals and CIOs themselves. This fact deserves attention as it can hinder an adequate IT-Business alignment in an organization (Preston et al., 2008), pointing out the very need companies have to develop internal programs to overcome this barrier.

As with any research work, this work also has its methodological limitations, which should be taken into consideration when analyzing the final results. The characteristics of the organization were not considered and they may have an influence on the relevant factors associated with the professional performance of the CIO working in them (Preston et al., 2008). In fact, the IT-business alignment depends as much on the CIO as on the organization (Luftman, 2000), a fact which was not considered in this study. Thus, the attitude of organizations with respect to information technology was not assessed, revealing only the vision of the IT professionals with respect to the core competencies in CIO. Besides, the number of respondents was not taken into consideration in the categorization process of the CIO competencies via Social Representation Theory.

As can be seen from the above, this knowledge field is in its early stages and still requires considerable investigation. This article hopes to have shed some light on the understanding of the critical competencies associated with the professional performance of CIOs and the relationships between them and the IT professionals.

REFERENCES


Correia et al.  CIO Competencies: A social representation analysis


