Article

Analysis of Conversation Competencies in Strategic Alignment between Business Areas (External Control) and Information Technology Areas in a Control Body

Alberto Leite Câmara [1,†]**, Rejane Maria da Costa Figueiredo** [2,†] **and Edna Dias Canedo** [3,*]

[1]   Federal Court of Accounts (TCU), Brasília-DF, CEP 70042-900, Brazil; alberto.camara@tcu.gov.br; (A.L.C)
[2]   ITRAC—Information Technology, Research and Application Center, University of Brasília (UnB), Brasília-DF, CEP 72.444-240, Brazil; rejanecosta@unb.br; (R.M.C.F)
[3]   Department of Computer Science, University of Brasília (UnB), P.O. Box 4466, Brasília-DF, CEP 70910-900, Brazil; ednacanedo@unb.br; (E.D.C)
[*]   Correspondence: ednacanedo@unb.br; Tel.: +55-61-98114-0478
[†]   These authors contributed equally to this work.

Abstract: The process of governance in the domain of Information and Communication Technologies (ICT) has been the subject of many studies in recent years, especially as regards the strategic alignment between the business and ICT areas. However, only a handful of those studies focused on studying the relationships that exist between these areas, specifically the conversation competencies that so strongly influence their alignment. This study sought to investigate and analyze the gaps that exist in such conversation competencies, as found in a Brazilian Control Body, according to the perceptions of the officers in the business and ICT areas. The survey tool used here was a questionnaire, sent to all the officers of the Body's areas, the construction of which was based on the conversation competencies. It was found that there were 28 gaps in the conversation competencies of the Brazilian Control Body that may be developed to improve the alignment of the business and ICT areas. As regards the paths for future work, a recommendation is made for the creation of a research tool that allows the verification of the percentage of alignment that exists between ICT services and the business requirements, as its application.

Keywords: ICT governance; conversational competencies; business requirements; strategic alignment

1. Introduction

Information and Communication Technology (ICT) governance allows an organization's ICT domain to keep and expand the objectives and strategies of the organization. The key element for that is the alignment between the business and the ICT domains that adds value to the business [1].

COBIT 5 (Control Objectives for Information and Related Technology [2]) ICT Governance Framework states that the strategic alignment between the business and the ICT areas is one of the objectives related to ICT that ensures the configuration and maintenance of a governance structure in the organizations (EDM01—Ensure Governance Framework Setting and Maintenance). The difficulty that exits in the communications between business and ICT people is one of the factors that inhibits alignment [3]. This difficulty can cause conflicts and misunderstandings and stems from the interaction of the different mind frames of those areas, where business managers have a model oriented toward business value and ICT managers use a model that is more focused on the technical services [4].

In this sense, the use of new technologies capable of keeping us in touch with friends and acquaintances, to give one example, can enable a more effective collaboration amongst the many areas of an organization, producing more transparency in projects and activities and facilitating

the participation in them [5]. Apart from that, communication is the element found in all human interactions, and when effective, it can yield high performance and create a competitive edge for the organization [4,6]. It should be pointed out here that, according to [2], the management of relations (APO08) comprise a primary support element to attain strategic alignment between the ICT and business domains, one that should be achieved in a formal and accountable way to ensure the focus and to attain the common and shared targets that support strategic objectives.

COBIT states that the relationship between the business and the ICT areas should be based on mutual trust, on the use of open and comprehensible terms, on a common language and on a disposition to accept responsibility for important decisions [2,7]. However, mutual trust, the use of open and comprehensible terms, as well as of a common language can only come to be with the involvement of conversational competencies. These conversational competencies account for the efficiency, efficacy and effectiveness of each and every organization as the goals of the organizations rely intensely on conversations [8–12] to succeed. For this study, we chose to focus on some conversational competencies such as productive exposition, productive questioning, orders, offers and promises, as well as on conversational commitments and re-commitments and conflict resolution.

This choice was based on the work of [8] that investigated how conversations contribute to the management of ICT, projects with the use of a questionnaire aimed at detecting the gaps in conversational competencies amongst project managers. Based on this scenario, this work sought to find possible gaps in certain conversational competencies, as shown by [13] from the perceptions of those in management in the business and ICT areas of a Brazilian Control Body, in a realm of strategic alignment, as between the business and ICT domains. The methodology adopted was to replicate the research instrument as developed by [8] and insert some queries based on COBIT 5 [2].

The remainder of this paper is structured as follows: Sections 2–4 present the theoretical references for this work (ICT governance and the COBIT 5 Framework; concepts for strategic alignment; review of the conversational competencies). Section 5 presents the methodology adopted, as well as the research instrument. Section 6 shows the results obtained, followed by the analysis of the data. Section 7 provides some final considerations for this work.

2. Information and Communication Technology Governance

According to the IBGC (Brazilian Institute for Corporate Governance), corporate governance is defined as the system through which organizations are managed, monitored and stimulated, involving the relationships between the owners, the Board of Directors, the Directors and the Control Bodies [14,15]. ICT governance is the responsibility of the Board of Directors and of the Executive Managers. It is a part of corporate governance and consists of organizational and leadership processes and structures that ensure that an organization's ICT area keeps and expands the organizational strategies and objectives [1,16,17].

There are authors [4], however, that understand that ICT governance is not restricted to the the senior executives that sit on Boards, but is also the duty of subordinates, being characterized as a recursive function that permeates the entire organization. Organizations are much more concerned with ICT management, acting in a defensive manner in ICT development. What is desirable is that the ICT actions are planned around its objectives and performance targets. For that, it is necessary that upper management should get involved and embrace leadership, allocating resources and support processes, that is an ICT governance in place [18]. The lack of a proper ICT governance produces some problems in the ICT management of governmental organizations [16].

Control Objectives for Information and Related Technology (COBIT 5)

COBIT 5 is a framework that considers the management of relationships (APO08) as a primary support element to achieve strategic alignment between the ICT and business domains. The latter, in turn, is one of the ICT-related objectives that ensures the setting and maintenance of governance in the organizations (EDM01–Ensure Governance Framework Setting and Maintenance) [2,19]. Table 1

shows the goals and respective metrics associated with the process of relationship management of COBIT 5.

Table 1. Objectives and metrics APO008 [19].

Goal	Metrics
The strategies, plans and requirements of the business are well understood, documented and approved.	The percentage of alignment of ICT services with the business requirements.
There is a good relationship between the business and the ICT domains.	Satisfaction poll ratings for ICT users and personnel.
Business stakeholders are aware of the technology opportunities at hand.	Surveys on the level of technology knowledge as held by the business stakeholders; rate of inclusion of technology opportunities in investment proposals.

3. Social Dimension of the Strategic Alignment

A strategic alignment occurs when the strategic choices, as made in the internal and external areas, are consistent and integrated with the business, whilst being dynamic [20]. Therefore, the strategic alignment is not an event, but rather a continuous process of adaptation and change that relies not only on sophisticated technological functionalities, but on the organizational capacity to influence the technologies, in order to differentiate their operations from those of their competitors and gain a competitive edge [20].

In [21], three perspectives for alignment were put forward: through the architecture, governance and communication. The alignment made through communication enables operational integration, defined as the "social dimension" of the alignment.

This "social dimension" refers to the creation of a context in which upper management and collaborators, both from the business and ICT domains of an organization, understand and strive to accomplish the mission, attaining the business and ICT goals and targets. With it, one seeks to reduce the cultural gaps found between people in the business and ICT areas, which are the main reasons for failures in system development [21]. Apart from that, [21] show that in order to connect the ICT planning domain with the strategic planning area of the business, it is necessary to communicate with a "common language", as well as to stimulate actions aimed at sharing knowledge.

Business-External Control

To grasp and apply the concepts of strategic planning, one needs to deal with the definition of business, which consists of three independent dimensions: product/service, clients and technologies used [22]. In this work, business is the end activity of the Brazilian Control Body, that is the exercise of an external control through inspection activities, performed by their external control offices and specialist units [16]. Control is the inspection activity of a given object, based on what has been previously set in standards, regulations, contracts, etc., to produce a statement of value [23]. External control, in turn, is the classification of control as regards the position adopted by the Control Body, that is, if the controlling entity is in the Body, the control is of an external kind; if it is outside, it is an external control. Based on that, we found that the service provided by the Body is that of an external control, and that the society is the client [16].

4. Conversational Competencies

Conversational competencies are understood as a fundamental competency for the existence of an organization [24,25]. In this sense, for team work to succeed, it is necessary that communication and collaboration are rooted in a sense of trust amongst the team members [6]. Straightforward communications reduce cost, mitigate damages caused by ICT pitfalls and promote trust, teamwork

and positivity in the use of ICT and amongst the people that work with it [16]. Apart from that, the ability to communicate of those in management is a core factor for good management as the work progresses; even those of an individual nature need the articulation or coordination of actions to be executed with efficacy and efficiency [26].

The communication in the company provides a set of procedures that enable the commitment of the collaborators to pursue the company's goals, to eliminate the need for re-work, increasing the capacity quickly, to positively respond to changes, along with the effective involvement of people, with the innovations and improvements made to managerial systems, to boost teamwork productivity [9,27].

The observation and the analysis of the types of conversation that define an organization are decisive factors for its continuation and success. The development of organizational competencies has not been a concern in the qualification programs that saw the light of day in organizations [24]. Conversational competence is defined as the ability to, in conversation, mobilize, articulate and put into action, in a sustainable manner, the values, knowledge, skills and attitudes necessary for the efficient and efficacious development of the activities required at work and in life, in a general way [28]. Thus, to listen effectively and resolve conflicts, as well as deal with badly-formulated requests, promises and offers, expose and query in a productive way, free one's self from the bonds of mistaken judgments and change emotions into results that are useful for the organization all depend on the development of conversational competencies [24]. Some of them are shown in Sections 4.1–4.5.

4.1. Effective Listening

Two actions stand out in human communication: speaking and listening. However, [29] points out that listening is the cornerstone of language, implying that in order to effectively speak in a business environment, one needs first and foremost to effectively listen. Listening effectively is in the level of skills of conversational competencies [30,31]. This competency produces trust in the relationships as it ensures that the interest of the other is being taken into account. Differently from transmitting information in the communication between machines, human communication has two aspects to consider: the meaning of the message sent and the ability of the receiver to literally reproduce the information received.

Thus, what one individual says may not necessarily be what the other hears; this phenomenon is known as a critical breach. In order for the action of listening to be effective, one needs to close the gap on such breaches, with the application of the following conditions [30]: opening; checking what has been heard; checking for unsettling elements; understanding how the emotional state of the parties in communication affects their listening; building a shared context.

4.2. Conflict Resolution

Several features of a group can indicate potential conflict-triggering hazards such as cultural diversity, organizational environment and ideological stances, amongst others [6]. However, a conflict only arises when three elements are found: the actual disagreement, scarcity and the disagreement on the right. The first factor means that there is a difference of opinion that may have or may not have consequences after a given decision. In the second one, there is a scarcity that prevents each person, no matter who, to obtain what one wants. The last factor is a difference in the mechanism to adjudicate, that is different people uphold different positions on the use of a scarce resource [13].

Each conflict has three levels: that of the task at hand (actions can be hampered due to a lack of coordination), that of the relationship (the link can wear out and make the joint task harder, as it can produce fear and distancing) and that of emotions (the conflict can cause grudges and resentment amongst the parties involved, hurting them emotionally) [13]. We should pay attention to emotions, especially when faced with a personal or non-operating conflict. This type of conflict is marked by a difference of tastes and opinions; as a result, in order to clear it up, it is fundamental to have respect for the other and an understanding that there is no 'being right', but rather "my own notion of right" and "your notion of right" [13]. If the conflict is of an operating nature, there is a material decision on what

each one will do in the future. In this type of conflict, one should, through conversation, find what the interests are that lay at the root of the positions taken by the parties involved. Consensus is the best way to solve the differences in an operating conflict [13]. In this sense, it is important that the leaders can see the signs of unresolved conflict, as they are able to balance the positive aspects of a conflict [6].

4.3. Conversational Commitments and Re-Commitments

Commitments are made in a common reality on the facts, and the collective work depends on the ability to create this reality and see commitments struck and actions executed [32]. In a conversation in which commitments are negotiated, the notion that 'who commits to do what, and when, and with which purpose and to satisfy whom' should be made very clear as people generally operate within implicit parameters, something that can produce misunderstandings [13]. To this end, the leader has to define a clear direction to follow, removing all possible ambiguities of the process, and establishing, whenever needed, the roles and responsibilities, starting with one's own responsibilities [6].

Conversational commitments affect the task —the coordination of the actions towards the attainment of the results desired—and the relationships—the creation of bonds of trust that allow the coordination of future actions—and the identity—acting with integrity and dignity. Integrity and trust are within the domain of evaluation and, as a result, stem from the observations of third parties [13]. The difficulties with conversational commitments can be dealt with via conversational re-commitments.

4.4. Productive Exposing and Questioning

Thinking is much faster than speaking, and therefore, it is impossible to reveal all that we think. A healthy practice to determine the circumstances in which the reasoning should be exposed to avoid both excesses, which might render a conversation infeasible, and scarcity, which prevents a specific point-of-view from being understood [13]. In most conversations, the parties in them are concerned with their points-of-view and do not care about that which the other is exposing, as they consider their opinion to be the sole truth and those of the other to be entirely useless. This is called non-productive exposing [13].

It should be pointed that both productive exposing and querying require the acknowledgment by the parties involved that they will never have all the relevant information, as it is impossible for someone to know what the other person thinks. Thus, in a conversational interaction, each party should be given the chance to express one's inner states: thoughts, emotions, intentions, and so on [26].

4.5. Requests, Offers and Promises

A promise is a linguistic action where a person accepts the commitment to do something for another in the future and whose responsibility is that of the person that makes the undertaking. An offer is a promise with conditions for reciprocity, that is whoever accepts the offer also commits in some way. A request, in turn, is the situation where the person who asks tries to obtain a promise from the other [13]. However, not all promises are explicit, something that produces a problem where those involved may accept different promises, that is a party in it promises an 'A', whilst the other understands a 'B'. To avoid this, it is necessary to create a common shared context that is seen by all of those involved. It is possible to see thus that promises depend on the context, and therefore, it is fundamental to listen and to understand well a given problem and its context, prior to making offers, requests or promises.

5. Research Methodology

The research methodology can be defined by four basic criteria, that is the nature, the approach to the problem, the purposes and the means for that. The methodology adopted in this work is applied research, as it seeks to generate knowledge for a practical application in the domain of the Control Body, especially to streamline the communication between the business and ICT areas. As

regards tackling the issue, it is a quantitative one, as it seeks to quantify through an analysis of the questionnaire answers—an instrument based on [26], the gaps that exist between the importance and the command behaviors related to certain conversational competencies, based on the perception of the business and ICT managers, especially on the interactions between these areas.

As regards the purposes, this investigation is a descriptive one as it exposes the conversational competencies business and ICT managers have and shows the gaps such competencies have in the Body. As regards the means, it is field research, as it seeks to get, with the use of a questionnaire, the thoughts of the Body's managers and a bibliographical one, necessary for its foundations, based on specialist literature.

5.1. Scenario

The Control Body is responsible for saving and recovering billions of Reais of taxpayer's money every year back to the Treasury. In other organizations, it is possible to see that there is some noise in the communication between the ICT and the business areas, especially amongst their managers. The target group of this survey consists of 46 managers of the business area and 10 ICT managers of the Control Body. The data were obtained with the use of an electronic display system available to the internal staff of the Body.

This work considers as business managers those commissioned as external control officials and allocated with the external control units in headquarters and in state branches. Apart from these, the managers with the Joint-Office for Corporate Solutions and Systems at the Systems and Information Management of the Control Department were also asked to answer the questionnaire. As regards the ICT managers, two ICT officials with the ICT Solutions Office and with the ICT Infrastructure Office were invited, as well as the Directors and heads in the ICT area.

5.2. Survey Instrument

The instrument used in this survey is a questionnaire. It has three parts: Part 1, respondent profile; Part 2, questions about the behaviors found in each conversational competency; and Part 3, questions about the COBIT 5 framework. The respondent profile, Part 1, identifies the subject's name and email address and requires mandatory data on gender, academic background and the area of the manager (business or ICT). Part 2 has questions related to behaviors in each conversational competency as listed by [13], namely: effective listening; conflict resolution; conversational commitments and re-commitments; productive exposing and questioning; and requests, offers and promises.

Two questions were added to the questionnaire, based on the first two goals/metrics of the process for relationship management—COBIT APO08 [19], to evaluate the relationship between the business and the ICT areas, as shown in Table 2.

Table 2. Objectives and metrics APO008 [19].

ID	Objectives	Metrics	Question
29	The strategies, plans and requirements of the business are well understood, documented and approved	The percentage of alignment of ICT services with the business requirements	How do you rate the alignment of the services provided by the ICT area with the requirements of the business?
30	There is a good relationship between the business and the ICT domains	Satisfaction poll ratings for ICT users and personnel	How do you rate the relationship between the business and ICT areas?

5.3. Data Analysis Structure

For the data analysis task, we use the equation that weighs the scarcity ratio for a given competency and the respective relevance in the organizational context in which an individual is inserted [26]:

$N = I(3 - D)$, where Nis the gap between competencies; I, the degree of relevance of a given competency; and D for the level of command one has of such a competency. The questionnaire defines the following ratings:

- Degree of relevance (I): 0, no relevance; 1, little relevance; 2, medium relevance; 3, high relevance;
- Level of command (D): 0, no command; 1, little command; 2, medium command; 3, high command.

The categorization of the gaps as adopted for the analysis of the results is shown on Table 3.

Table 3. Gap categories and classes for behaviors [26].

Gap Class	Gap Categories
0	Null Gap
0–1	Low Gap
1–2	Medium Gap
2–4	High Gap
4–9	Very High Gap

6. Data Collection, Results and Analysis

We used the online Google Spreadsheets app for data collection and storage. The online questionnaire was available for 30 days and was forwarded to the institutional email address of each participant along with the first instructions to filling it out, as well as its respective access link.

Of the 56 managers invited to answer the questionnaire, 15 did so, 14 men and 1 woman. As regards the academic background of the respondent sample, most hold postgraduate degrees, 60% with specialization degrees and 13% with Master's degrees, and 27% have just a degree. Most of them, 60% of the respondents, come from the business area, whilst the remaining 40% are ICT people.

The data collected was inserted in an Excel spreadsheet to calculate the gaps for each respondent. After that, the average was found for the gaps, along with the relevance and command of each behavior. With such figures in hand, it was possible to calculate the gaps for conversational competencies with the arithmetical average for individual gaps of each behavior. With the numbers for the gaps, they were categorized based on the categories shown in Table 3. The descriptive behaviors for each conversational competency produced 28 gaps (Na); apart from that, we also calculated and showed the mean and standard deviation for the degree of relevance, respectively Imand Dev(I), as well as the mean and standard deviation for the level of command, respectively Dmand Dev(D).

In Figure 1, it is possible to see that Behaviors 1, 3 and 4 had the highest relevance average (Im = 2.73), and the respective standard deviations related to the degree of relevance were the smallest (Dev(I) = 0.46); this points to the fact that these behaviors had the lowest dispersion. Behavior 6 had the smallest average in relation to the level of command (Dm = 1.60), that is it is the behavior that, on average, business and ICT managers command the least in the effective listening conversational competency.

As regards the (Na) gaps, Behaviors 1, 3 and 4 have a medium gap, whereas the other three behaviors have a high gap. We should point out Behavior 2, related to the verification of what was listened to, with the highest gap (Na = 2.73); this is, therefore, the behavior with the highest scarcity in the command-relevance relation for the effective listening competency. Table 4 presents the list of behaviors studied.
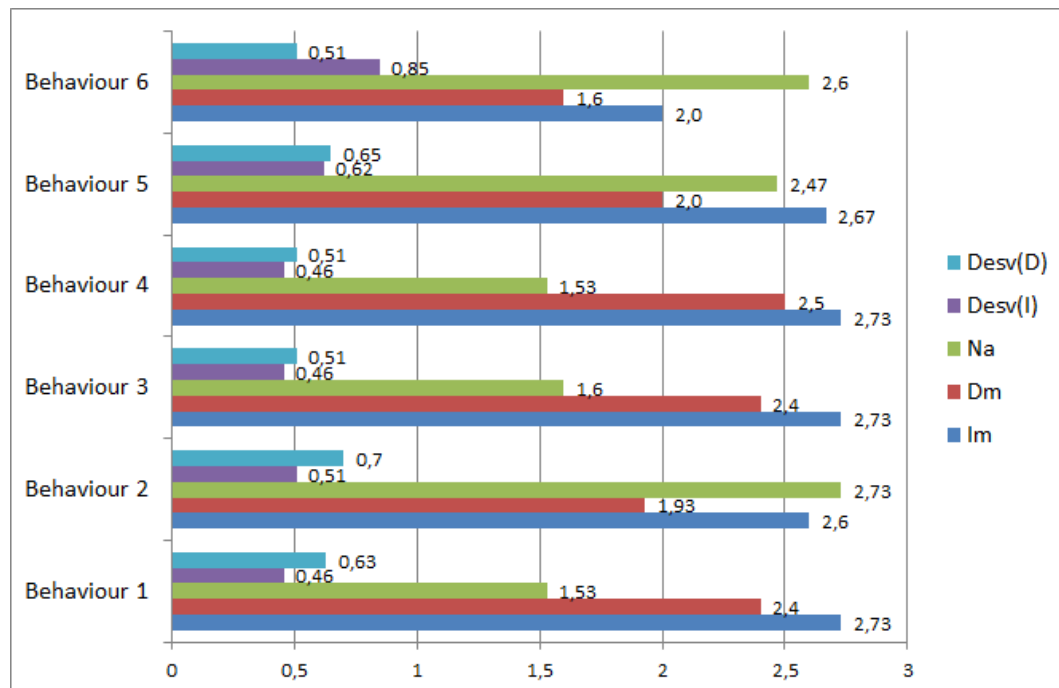
Figure 1. Effective listening.

Table 4. List of behaviors.

ID	Behavior
1	In formal and informal meetings I understand that what I hear is influenced by my personal experiences, interests, opinions and possible prejudices. Because of that, I know there can be other equally legitimate "personal views" other than mine that should at least be respected.
2	At the end of a conversation, I usually check if what I hear is what the other person actually wanted to convey, when necessary.
3	When listening, I keep an attitude of interest, curiosity and/or attention to the words of the other.
4	When I listen I ready myself to accept the possibility that other ways of thinking or acting other than mine might exist.
5	When listening I seek to find interests and needs that were not clearly voiced, but that can be relevant.
6	When I listen I take my emotional state into consideration (happy, anxious, disappointed, etc.), as I know it can influence my listening.
7	When faced with a conflict situation I first try to analyze the emotional aspects of all those involved in it.
8	I recognize that some conflicts are actually produced by differences of tastes and opinions and for these the dissolving element is the respect for the other and an understanding that there is no "being right" but rather "my own notion of right" and "your notion of right".
9	In conflict resolution I do and/or encourage the following behavior: (a) I start a conversation explaining to the other party my intention to resolve it; (b) I propose to listen; (c) if necessary, I make questions to better understand the position of the other; (d) I summarize one's ideas to ascertain whether I got them correctly; (e) I ask if the other is pleased with my summary (f) In the end, I make my exposition, to show the other party the bases for my reasoning or for my actions.
10	After doing and stimulating without success the behavior described in the previous item an seeing that the conflict is about tastes, desires and opinions and that it is not an operating one, that is, it will not produce any material effect (making a decision, making a purchase, etc.), I propose the acceptance that there is a disagreement and close the conversation.

Table 4. Cont.

ID	Behavior
11	If the conflict is of the operating kind, I try to advance in the conversation with the goal of finding out the interests that lie behind the conflicting positions. In doing so, I seek to find basic interests, common to the parties involved, and try to build a more creative negotiation to resolve the initial conflicting position.
12	In a conversation where commitments are being negotiated I try to keep the question of "who commits to do what, when, and with which purpose and to satisfy whom" clear.
13	Prior to establishing a commitment I always to try to check if I have the capacity require to fulfill it.
14	I keep behavior where I always rely on my will, my capacity and resources at hand, to fulfill the commitment.
15	When I sense that a commitment is at risk of "not being performed" I immediately notify the "creditor" of the promise, apologize, and explain the reasons that changed the situation, and try to find ways to minimize the losses.
16	After the completion of a task (result, work) I check with those I committed to if the conditions for satisfaction they set were met.
17	I try to make it clear that the opinions, inferences and interpretations I offer are mine. Acknowledging that the ideas put forward are "what I think" and not the absolute truth (objective truth).
18	I implicitly admit to me or explicitly to the others that I may be wrong in expressing what I think.
19	I seek to provide the data my reasoning is based on, acknowledging, however, the possibility that there is other relevant data that has not been considered.
20	When I put the thoughts forward I also seek to show the possible weaknesses and doubts my ideas carry.
21	Following the exposing of an idea I make questions, when necessary, to try and find how what has been said can help attain the proposed objectives.
22	I try to make questions to try and find the observations and the data that support the reasoning of the other.
23	I usually ask the other party to illustrate one's reasoning with concrete examples and cases to help me better understand the situation at hand.
24	I check if I have understood correctly the position of the other person, summing up the main points of the other person's words
25	To make useful proposals or coherent requests I try to listen and properly grasp the issue and the context.
26	When making a request, I clearly voice the need for help, explaining what I want and what the conditions to meet are.
27	When making a request, I take precautions to find if the one who listened (the one that will attend to the request) correctly understood what I want.
28	Promises are always under the risk of interpretation. I may believe that I am promising 'A' whilst the other party took it for a 'B'. To mitigate (reduce) this, I try to create a common shared context that is perceived by all of those involved.

Figure 2 shows that Behaviors 8 and 9 had the highest average in relation to relevance (Im = 2.60). Behavior 10 had the smallest average in relation to the level of command (Dm = 1.73), that is it is the behavior that, on average, business and ICT managers command the least in the effective listening conversational competency.
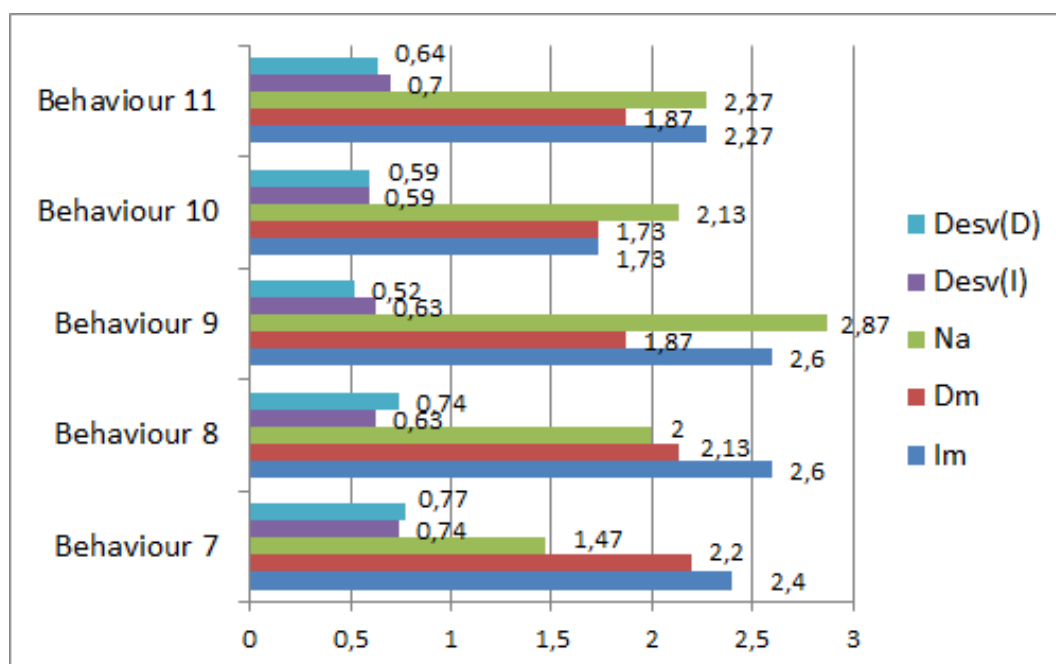
Figure 2. Conflict resolution.

As regards the (Na) gaps, according to the proposed ranking, Behavior 7 is the unique case that presents a medium gap, whereas the other four behaviors have a more significant gap. We should point out that Behavior 9 presents a conflict resolution, with the highest gap (Na = 2.87). That is, the behavior with the highest scarcity in the command-relevance relation for the conflict resolution competency.

In Figure 3, it is possible to see that Behaviors 13 and 14 have the highest average relevance (Im = 2.87), whereas Behavior 13 had the smallest standard deviation as regards the degree of relevance (Dev(I) = 0.35), showing that this behavior has the least dispersion. Behavior 16 had the smallest average in relation to the level of command (Dm = 1.80), that is it is the behavior that, on average, business and ICT managers command the least in the effective listening conversational competency. As regards the (Na) gaps, Behavior 14 was the only with a low gap, and Behaviors 12 and 13 displayed a medium gap, with Behaviors 15 and 16 having a high gap. We should point out Behavior 16, related to the verification of what was listened to, with the highest gap (Na = 2.93); this is, therefore, the behavior with the highest scarcity in the command-relevance relation for the effective listening competency.

In Figure 4, it is possible to see that Behaviors 17 and 14 have the highest average relevance (Im = 2.53), whereas Behavior 19 had the smallest standard deviation as regards the degree of relevance (Desv(I) = 0.64), showing that this behavior has the least dispersion. Behavior 20 had the smallest average in relation to the level of command (Dm = 1.80), that is it is the behavior that, on average, business and ICT managers command the least in the effective listening conversational competency.

As regards the (Na) gaps, Behavior 18 had a low gap, Behaviors 17 and 19 had a medium gap and the only high gap was that of Behavior 20, related to the exposing of weaknesses and doubts; and this is the highest gap (Na = 2.47). It therefore is the behavior with the highest scarcity in the command-relevance relation for the productive exposing competency.
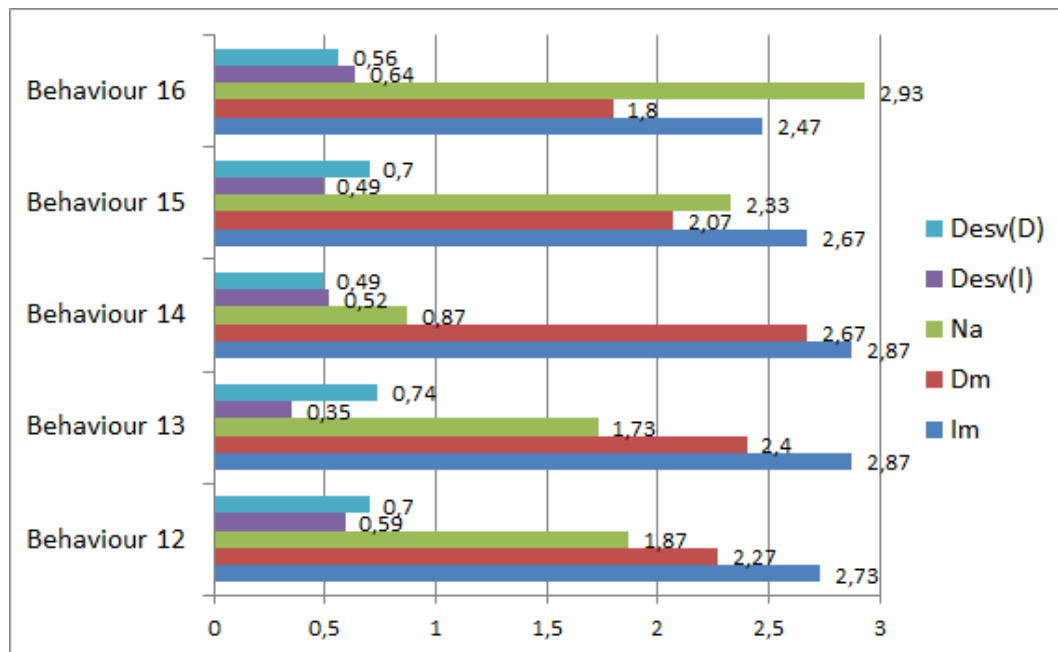
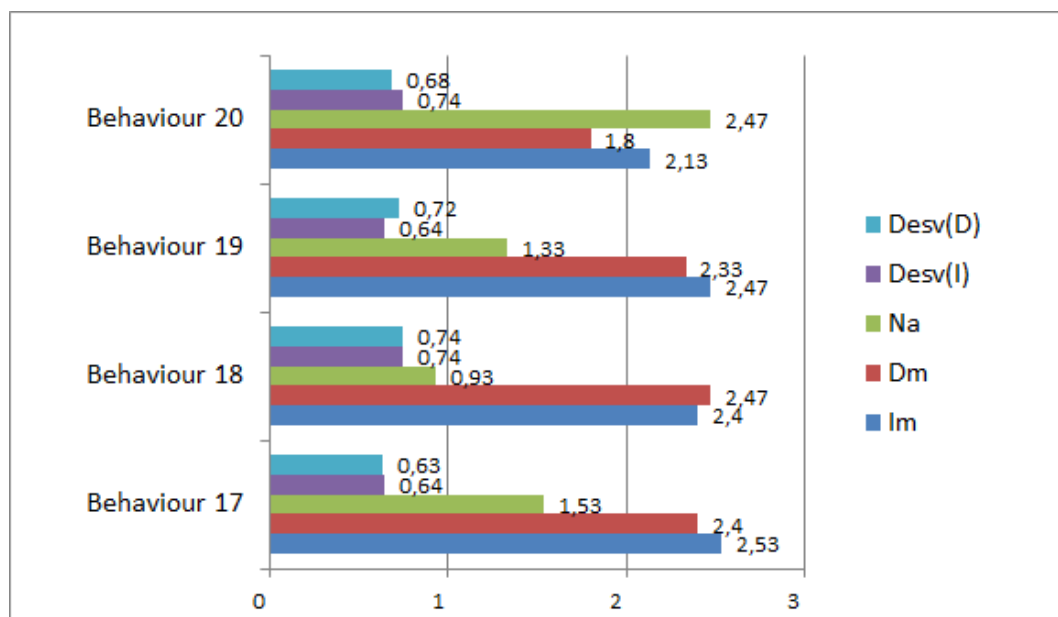**Figure 3.** Conversational commitments and re-commitments.

Figure 4. Productive exposing.

In Figure 5, it is possible to see that Behavior 24 had the highest average for relevance (Im = 2.67) and had the smallest standard deviation as regards the degree of relevance (Dev(I) = 0.62), showing that this behavior has the least dispersion. Behavior 21 had the smallest average in relation to the level of command (Dm = 1.60), that is it is the behavior that, on average, business and ICT managers command the least in the effective listening conversational competency.

As regards the (Na) gaps, Behavior 23 had a medium gap, whereas the other three behaviors have a high gap. We should point out that Behavior 21, related to questioning whether what was said contributes to attaining an objective, had the highest gap (Na = 2.67); and is, therefore, the behavior with the highest scarcity in the command-relevance relation for the productive questioning competency.
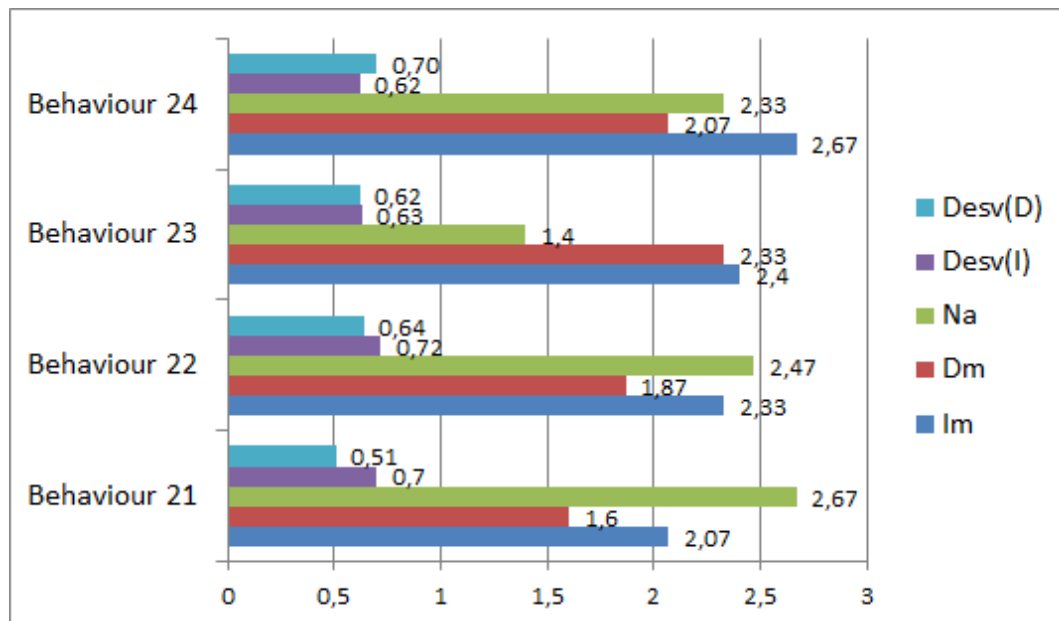
Figure 5. Productive questioning.

In Figure 6, it is possible to see that Behaviors 25 and 27 had the highest average for relevance (Im = 2.80) and had the smallest standard deviation as regards the degree of relevance (Desv(I) = 0.41), showing that these behaviors have the least dispersion. Behavior 28 had the smallest average in relation to the level of command (Dm = 2.00), that is it is the behavior that, on average, business and ICT managers command the least in the requests, offers and promises conversational competency.
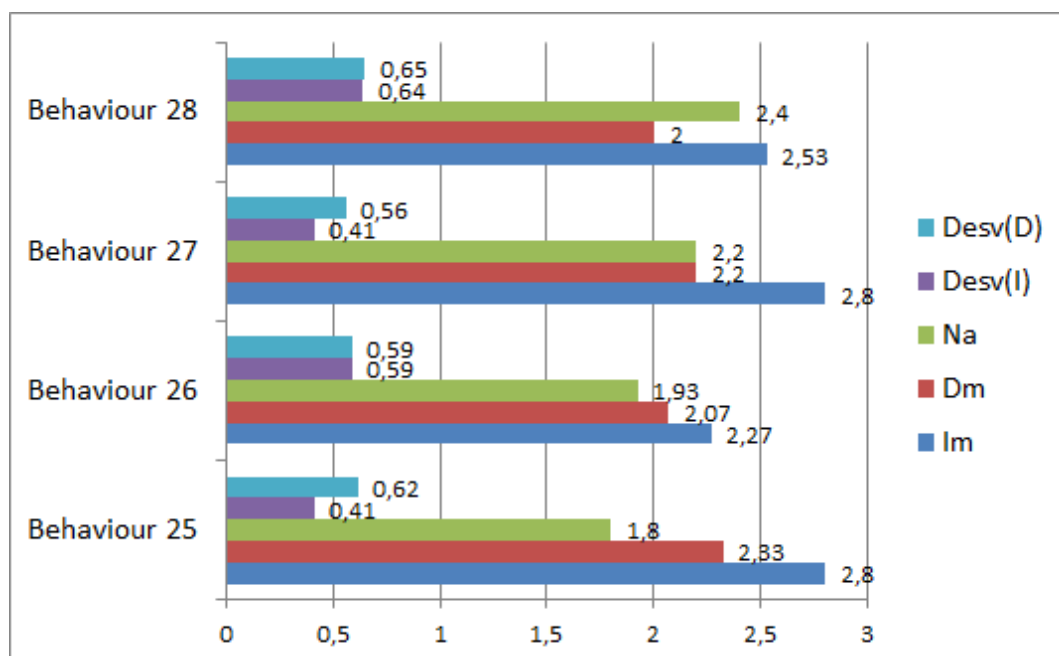
Figure 6. Requests, offers and promises.

As regards the (Na) gaps, Behaviors 25 and 26 have a medium gap, whereas Behaviors 27 and 28 have a high gap. We should point out that Behavior 28, related to the verification of different interpretations of what was said, had the highest gap (Na = 2.40); this is, therefore, the behavior with the highest scarcity in the command-relevance relation for the requests, offers and promises

competency. Based on the data provided above, we calculated the gaps for conversational competencies through an arithmetic average for the descriptive behavior gaps, for each competency, and the results obtained can be seen in Figure 7.
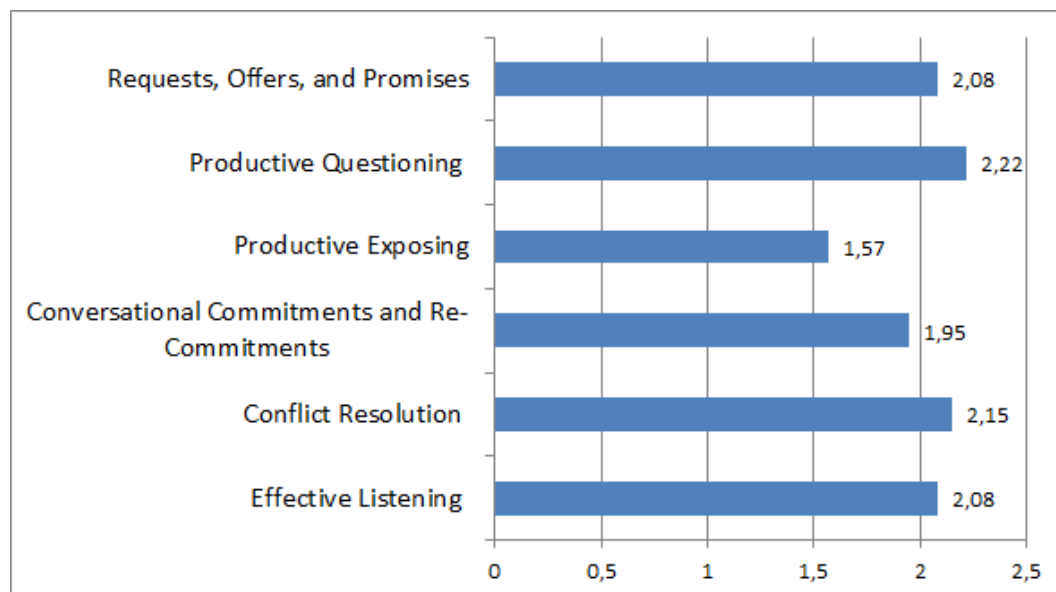

Figure 7. Conversational competency gaps.

It is possible to see that the productive exposing and conversational competencies are rated as having a medium gap, whereas other competencies have a high gap. This result suggests that there is a need to streamline these competencies amongst the TCU's business and ICT managers to see a more effective strategic alignment for ICT. We should point out that the productive questioning competency had the highest gap (Na = 2.22), followed by the conflict resolution (Na = 2.15) one. Of the questions related to COBIT 5, 80% of the business and ICT managers thought that the alignment of the services provided by the ICT area with the requirements of the business was good or excellent, as shown in Figure 8 below. Only 20% considered the alignment as average, and no one rated it as poor or very poor.
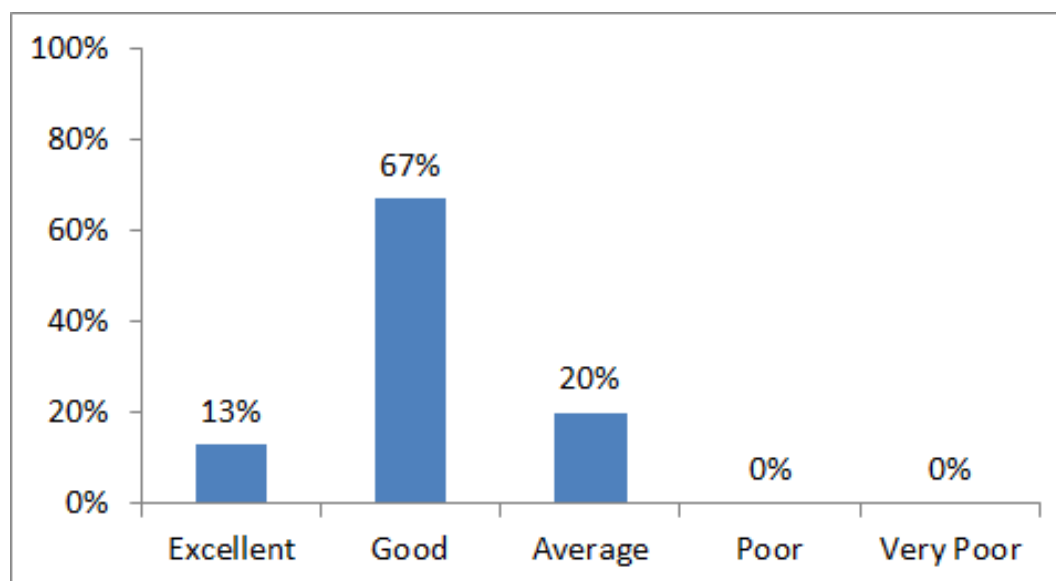

Figure 8. Alignment of services provided by the ICT area with the requirements of the business.

As regards the evaluation of the relationship that exists between the business and ICT areas, 67% considered it good or excellent, 33% rated it as average and no one rated it as poor or very poor, as shown in Figure 9.
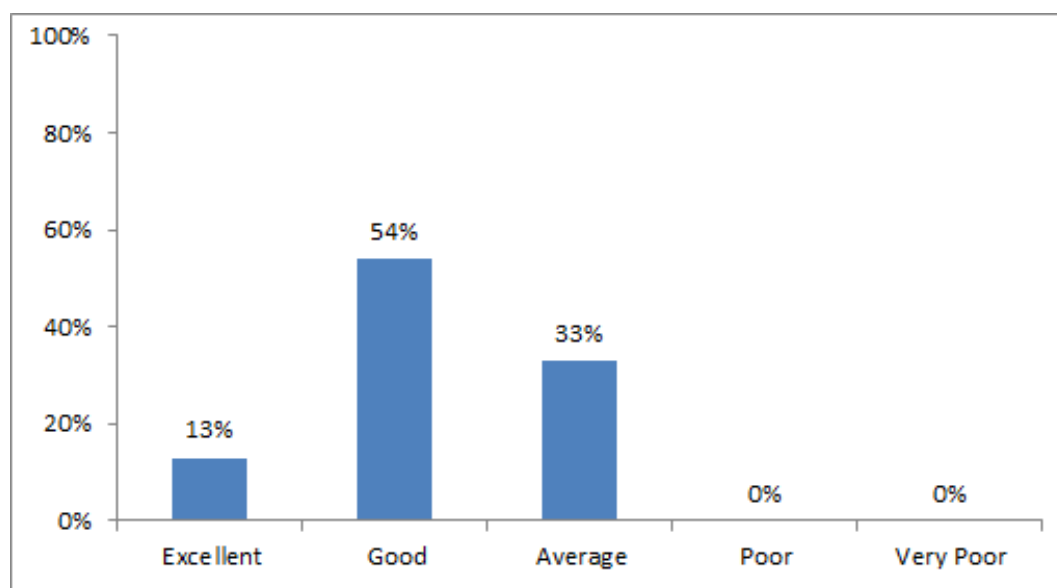

Figure 9. Evaluation of the relationship between the business and ICT areas.

7. Conclusions

Streamlining the conversational competencies produces an improvement of the strategic alignment between the business and the ICT areas, as it allows those in decision-making positions to express what they really think and ask in a manner to understand the positions taken by the others, as well as commit with the achievement of organizational objectives; as a result, the strategic planning of the organization will come from dialogue and not as an imposition from one area on the other.

However, we see much and serious noise in the communications—and in many institutions, between the business and ICT areas. This is partly due to a lack of conversational competencies amongst the managers of these areas. This work attempted to find what the perceptions are amongst managers in the business and ICT areas of the Control Body with the use of a questionnaire that described several behaviors related to certain conversational competencies, aiming at finding the gaps in conversational competencies that existed in this institution.

The research found that most of the descriptive behaviors in the conversational competencies studied have gaps, classified as medium or high. Behaviors rooted on the notions of "after the completion of a task (result, work) I check with those I committed with if the conditions for satisfaction they set were met" and "In conflict resolution I do/stimulate the following behavior... types" had the biggest gaps, where the first one is the descriptive behavior of the conversational commitments and re-commitments conversational competency and second one is that of the conflict resolution competency.

The present work found that the "I keep the behavior where I always resort to my will, my capability and the resources at hand in fulfillment of a commitment" and the "I admit, implicitly to myself or explicitly to the others that I may be wrong in exposing my thoughts" behaviors had a low gap.

This result indicates that, in the context of ICT governance, there is greater maturity amongst the managers as regards some behaviors related to those that take part in project management, as they are more concerned with the supplying of products and services, i.e., more worried about the

management of ICT operations than about the performance and the transformation of ICT to meet present and future business demands.

As regards the conversational competencies, the conversational commitments and re-commitments and productive exposition were rated as having a medium gap, and the other four were rated as having a high gap. We should point out that the productive questioning competency had the highest gap (Na = 2.22), followed by the conflict resolution (Na = 2.15) competency.

As regards the COBIT 5 metrics, most of the managers evaluated the relationship between the business and ICT areas and the alignment of the ICT-provided services with the business requirements as good or excellent. However, in both questions, only 13% rated them as excellent, which, with the addition of gap analysis for the conversational competencies, shows that there is room for improvement of the conversational competencies of the Control Body managers.

It is also important to note that only one woman answered the questionnaire, that is 0.07% of the respondents. Apart from that, of those eligible to take part in the survey, only five were women (0.08%), which shows a meager female participation in the management of the Control Body. This can be one of the reasons for the gaps in conversational competency to be rated as medium or high, as women tend to be more careful in relationships.

As paths for future work, we recommend the creation of a survey instrument that allows the verification of the percentage of alignment of ICT services with the business requirements, in an objective way, as well as its application; the replication of this work with an enlargement of its scope to include all the collaborators in the business and ICT areas of the Control Body, as well as its replication to other bodies of the Brazilian Federal Administration.

References

1. De Haes, S.; van Grembergen, W. IT governance and its mechanisms. *Inf. Syst. Control J.* **2004**, *1*, 27–33.
2. ISACA. *COBIT 5: A Business Framework for the Governance and Management of Enterprise IT*; ISACA: Schaumburg, IL,USA, 2012.
3. Huang, S.J.; Wu, M.S.; Chen, L.W. Critical success factors in aligning IT and business objectives: A Delphi study. *Total Qual. Manag. Bus. Excel.* **2013**, *24*, 1219–1240.
4. Coertze, J.; von Solms, R. Towards a cybernetics-based communication framework for IT Governance. In Proceedings of the 2015 48th Hawaii International Conference on System Sciences (HICSS), Kauai, HI, USA, 5–8 January 2015; pp. 4595–4606.
5. Richter, A.; Hetmank, C.; Klier, J.; Klier, M.; Müller, M. Enterprise Social Networks from a Manager's Perspective. In Proceedings of the 2016 49th Hawaii International Conference on System Sciences (HICSS), Kauai, HI, USA, 5–8 January 2016; pp. 4242–4251.
6. Dunn, S.; Grannan, C.; Raisinghani, M.; Stalling, H. Communication Strategies for Successful Virtual Teams. In Proceedings of the 2015 48th Hawaii International Conference on System Sciences (HICSS), Kauai, HI, USA, 5–8 January 2015; pp. 364–373.
7. Patón-Romero, J.D.; Baldassarre, M.T.; Piattini, M.; García Rodríguez de Guzmán, I. A Governance and Management Framework for Green IT. *Sustainability* **2017**, *9*, 1761.
8. Andrade, E.C.S.D. Conversas: O Fator Chave Para o Gerenciamento de Projeto. 2009. Available online: https://bdtd.ucb.br:8443/jspui/handle/123456789/1566 accesed (accessed on 7 July 2018).
9. Amorim, M.C.S. Comunicação planejada, recurso fundamental para a eficácia da gestão organizacional. U.S. Patent, 15 September 2012.
10. Hyvärinen, J.; vos, M. Developing a conceptual framework for investigating communication supporting community resilience. *Societies* **2015**, *5*, 583–597.

11. Walling, A.L. Role of Inquiry in Executive Coaching: Perceived Interactions between Relational and Conversational Competencies to Inform Client Outcomes. Ph.D. Thesis, Teachers College, Columbia University, New York, NY, USA , 2015.

12. Van der Heijden, K. *Scenarios: The Art of Strategic Conversation*; John Wiley & Sons: Hoboken, NJ, USA, 2011.

13. Kofman, F. *Metamanagement: A Nova Consciência dos Negócios*; Antakarana Cultura Arte Ciência/Willis Harman House: São Paulo, Brazil, 2002; Volume 3.

14. Black, B.S.; de Carvalho, A.G.; Sampaio, J.O. The evolution of corporate governance in Brazil. *Emerg. Mark. Rev.* **2014**, *20*, 176–195.

15. Graham, J.; Plumptre, T.W.; Amos, B. *Principles for Good Governance in the 21st Century*; Institute on Governance Ottawa: Ottawa, ON, Canada, 2003.

16. Federal Court of Accounts of Brazil—TCU. *Get.IT: Governance Evaluation Techniques for Information Technology: A WGITA Guide for Supreme Audit Institutions*; International Organization of Supreme Audit Institutions (Intosai): Vienna, Austria, 2016; Volume 1.

17. Hagen, M.; Bouchard, D. Developing and Improving Student Non-Technical Skills in IT Education: A Literature Review and Model. *Inform.* **2016**, *3*, 7.

18. Weill, P.; Ross, J.W. *IT Governance: How Top Performers Manage IT Decision Rights for Superior Results*; Harvard Business Press: Brighton, MA, USA, 2004.

19. Isaca, C. *5: Enabling Processes*; ISACA: Rolling Meadows, IL, USA, 2012; Volume 60008.

20. Henderson, J.C.; Venkatraman, H. Strategic alignment: Leveraging information technology for transforming organizations. *IBM Syst. J.* **1993**, *32*, 472–484.

21. Chen, H.M. Towards service engineering: Service orientation and business-IT alignment. In Proceedings of the 41st Annual IEEE Hawaii International Conference on System Sciences, Waikoloa, HI, USA, 7–10 January 2008; pp. 114–114.

22. Pfeffer, J.; Salancik, G.R. *The External Control of Organizations: A Resource Dependence Perspective*; Stanford University Press: Redwood City, CA, USA, 2003.

23. Guariglia, E. Entropy and fractal antennas. *Entropy* **2016**, *18*, 84.

24. Spitzberg, B.H. 10 The composition of competence: Communication skills. *Commun. Competence* **2015**, *22*, 237.

25. Brown-Schmidt, S.; Konopka, A.E. Experimental approaches to referential domains and the on-line processing of referring expressions in unscripted conversation. *Information* **2011**, *2*, 302–326.

26. Frame, J.D. *Project Management Competence: Building Key Skills for Individuals, Teams, and Organizations*; Jossey-Bass: San Francisco, CA, USA, 1999.

27. Brundiers, K.; Wiek, A. Beyond Interpersonal Competence: Teaching and Learning Professional Skills in Sustainability. *Educ. Sci.* **2017**, *7*, 39.

28. Guariglia, E. Spectral analysis of the Weierstrass-Mandelbrot function. In Proceedings of the 2017 2nd International Multidisciplinary Conference on Computer and Energy Science (SpliTech), Split, Croatia, 12–14 July 2017; pp. 1–6.

29. Brownell, J. *Listening: Attitudes, Principles, and Skills*; Routledge: Abingdon-on-Thames, UK, 2015.

30. Lakshmi, R. Effective Listening Enhances the Process of Communication. *IUP J. Engl. Stud.* **2017**, *12*, 7–10.

31. Laajalahti, A.; Hyvärinen, J.; vos, M. Crisis communication competence in co-producing safety with citizen groups. *Soc. Sci.* **2016**, *5*, 13.

32. Roses, L.K.; Brito, J.C.B.; Lucena Filho, G.J.D. Conversational competences model for information technology and business strategic alignment. *JISTEM-J. Inf. Syst. Technol. Manag.* **2015**, *12*, 125–144.