Leadership in Business-IT Alignment: Implications of Generation Gaps

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Abstract: Over the past few decades, information technologies (IT) have dramatically changed the way individuals communicate, work and live their lives. Organizations have been learning to explore the possibilities that technologies offer to enhance their employees' capabilities or the relationship with customers, suppliers and other stakeholders. Older and younger generations view, use, develop and define strategies to better manage the IT in the workplace today. Indeed, a significant number of daily operations in most performant companies are dependent on IT. Yet, business-IT alignment remains as one of the most important issues among IT managers. This concern is justified by the conviction, already evidenced in previous studies, that higher alignment positively influences the business performance of companies. Also, alignment is made by people. As each person is unique, when it concerns the relation with technology, differences among people, such as the age, should be understood and taken into consideration. As managers from different generations lead business and IT in companies, different values and mindsets come into play, leading to different perceptions, motivations and attitudes, and consequently, implying different leadership approaches. Nowadays, three generations usually cohabit in the workplace: Baby Boomers, Generation X and Millennials. Although using stereotypes may be a problem, people from these generations have analogous characteristics which are interesting to depict in order to better understand their involvement in the workplace context and their leadership styles. This paper presents empirical results from a survey conducted among 408 business and IT managers from 238 medium-size and large Portuguese companies. The results seem to show that different generations influence in a different way the alignment of business and information technology. Older generations seem to consider that their companies have a higher alignment maturity than younger generations. A sensitive analysis of the survey results and a literature review provide some possible explanations and insights. Future research and some implications for practitioners are also suggested.

Keywords: Leadership, business-IT alignment, generation gap, Silent Generation, Baby Boomers, Generation X, Millennials, Generation Y, snowball sampling

1. Introduction

Since John Mauchly and John Eckert developed the first electronic general-purpose digital computer in 1945, the Electronic Numerical Integrator and Computer (ENIAC), that the evolution of computers has been enormous. Starting with the vacuum tubes technology, used at ENIAC and on other first generation computers, the technology used at computers evolved significantly, consequently jumping to new technologies like transistors, integrated circuits, very large scale integration and lastly, evolving into a fifth generation of computers that are smaller, user friendly, smarter (with high processing speeds), portables, supported by artificial intelligence and with great connectivity to networks (Clements, 2014).

This tremendous evolution of technologies for computers has leveraged the evolution of societies and organizations in most diverse aspects. The Global Information Technology Report of 2015, a study promoted annually since 2001 by the World Economic Forum (WEF) and the INSEAD (the original acronym for the French business school "INStitut Européen d'ADministration des Affaires") about the Information and Communication Technology (ICT) role on the global growth, evidenced that ICTs have become more powerful, more accessible, and more widespread (WEF & INSEAD, 2015). Yet, the impact of ICT clearly exceeded the benefits associated with productivity gains. Today, ICTs are crucial in enhancing competitiveness, but also to enable social development and transformation, by improving access to basic services, enhancing connectivity, and creating employment opportunities. Bruno Lanvin, Thierry Geiger and Soumitra Dutta, respectively, the INSEAD

executive director for Global Indices, a senior economist for global competitiveness and risks of the World Economic Forum and the dean and professor of management at the Samuel Curtis Johnson Graduate School of Management at Cornell University (New York), are convinced that ICT, if boosted correctly, can improve economies and foster entrepreneurship and the wealth creation, through increasing productivity gains, reducing information costs, allowing new models of collaboration or changing the way people work (WEF & INSEAD, 2015).

So, over the past few decades, ICTs have radically transformed the way individuals communicate and live. In particular, organizations have been learning to discover and explore the potentials that technologies offer to improve capabilities of their employees or their processes, like those concerning the relationships with their customers, suppliers and other stakeholders.

However, this organizational performance improvement, based on the information technologies possibilities, much more than being just a technology issue, is influenced by other dimensions. As Orlikowski advocated some decades ago, it is important to analyze three distinguished components and their reciprocal interactions: people, organization, and technology (Orlikowski, 1992). The Orlikowski´s Model of Technology identified four different influences among these components: a) technology as a creation of human action, b) technology as an instrument of human action, c) organizational conditions of interaction with technology and d) institutional consequences of interaction with technology. Nowadays, with the amazing possibilities of the current information technologies, the Orlikowski's vision still remains even more pertinent. Although the technology is important, people and organizational issues are crucial and must be carefully addressed so that it is possible to make the information technology effective, and thus, help to improve organizational performance.

This paper will first address the concern about the business-IT alignment and the differences across generations that may have implications for the alignment. Then, once explained the research methodology, the findings of a survey, administered to business and IT managers from medium-size and large Portuguese companies, are presented. Finally, the discussion around the findings is made and conclusions are presented. Future research and some implications for practitioners are also suggested.

1.1 Business-IT Alignment

The need of alignment has been addressed in several fields, namely in strategic management, underlining the need to consider external factors in the definition of the strategy. Alignment should also consider the organization's strategy fit with an internal appraisal of the firm, configuring strategies, objectives, action plans, and decisions throughout the various levels of the organization (vertical alignment) or through a cross-functional integration, connoting the consistency of decisions across functions like marketing, operations, human resources, complementing and supporting each other (Kathuria, Joshi, & Porth, 2007; Porter, 1979; Prieto & Carvalho, 2011; Siggelkow, 2001).

The alignment has also been a dominant concern in the information systems field. During a long number of years now, the alignment has remained one of the most important concerns among IT managers (Kappelman, McLean, Johnson, & Torres, 2016; Jerry Luftman & Ben-Zvi, 2010, 2011). The business and IT alignment may be defined as the "measure of how much the mission, objectives and plans of IT support and are supported by the mission, objectives and business plans" (Reich & Benbasat, 1996).

The consecutively expressed concern around the business-IT alignment is probably related to the belief that the alignment contributes for better organizational performance. Although the organizational performance depends on a complex set of factors, it seems that the alignment between business and IT helps IT investments to have a higher payoff resulting in higher organizational performance. Even if the understanding of the phenomenon is not consensual, still raising some doubts (Palmer & Markus, 2000; Sabherwal & Chan, 2001) and cannot be characterized by a simple linear relationship (Tallon & Kraemer, 2003), therefore still needing more research, several studies have consistently supported that companies with higher alignment are better performing companies (Almajali & Dahalin, 2011; Bergeron, Raymond, & Rivard, 2004; Byrd, Lewis, & Bryan, 2006; Chan, Huff, Barclay, & Copeland, 1997; Cragg, King, & Hussin, 2002; Croteau & Bergeron, 2001; Papp, 1999; Teo & King, 1996).

1.2 Generations and their gaps

A significant number of daily operations in most performant companies are dependent on IT. Different generations define, develop and apply strategies to better manage the IT in present workplace. When it concerns the relation with technology, differences among people should be understood and taken into consideration in order to better answer the concern of the alignment between the business and the IT.

Diverse generations of managers lead the business and the IT in companies, each one with specific values and mindsets, and thus, leading to different perceptions, motivations and attitudes, and consequently, implying different leadership approaches. Today, the Baby Boomers, the Generation X and the Millennials are the three generations that usually cohabit in the workplace. Although everybody is unique, there are similar characteristics which are interesting to have in mind in order to better comprehend their involvement on the workplace and their leadership styles.

The persons belonging to the Silent Generation were born between 1925 and 1945. Some of the values of this World War II (WW2) generation are the hard work, conformity, dedication, sacrifice, and patience. The work style of this generation admits a delayed recognition and reward (Gesell, 2010). These workers were born before the first commercial computer was made, the UNIVAC, in 1947.

Baby Boomers have their name due to the significant birth rate increase which happened after the WW2, from mid-1940s through to mid-1960s. Although industrialized countries have slight differences on the period of this significant birth rate raise, these persons may be considered as those that were born between 1946 and 1965 (Leach, Phillipson, Biggs, & Money, 2013). They are usually optimistic, oriented to teamwork and they also expect a personal gratification and growth, valuing ethics at work (Gesell, 2010). Baby Boomers are contemporary of second generation of computers, which evolved from valves to transistors (developed in 1947 by William Shockley, John Bardeen e Walter Brattain from the Bell Labs). This technological innovation allowed the development of new computers, usually used at public organizations and big companies, characterized by being much smaller and faster than previous valve computers.

Although there are also differences about the period of birth of those belonging to the Generation X, these persons may be considered as those who were born between 1966 and 1980 (Lancaster & Stillman, 2002; Reeves & Oh, 2008). This generation, abbreviated as Gen X, is also known as the Sandwich Generation, because the persons of this generation were born between two larger groups; the Baby Boomers and the Millennials. The Generation X is characterized by being self-reliant, global thinkers, funny, informal and individualistic. They are skeptical and they mistrust the institutions, they value balance, diversity, flexibility, freedom and a place to learn. They were born using the PC, they use technology and they are multitasking (Gesell, 2010; Lancaster & Stillman, 2002; Simons, 2010).

Millennials, Generation Y or just Gen Y, are those who were born between 1981 and 1999 and tend to become the largest group at workplace. Although a big part of them are still not at the workplace, some of them are already on organizational leadership (Gesell, 2010). These employees are confident, optimistic, sociable and collaborative. They give no relevance to institutions, they value the civic duty, they celebrate the diversity and they are open-minded. These workers are realistic, they are prepared for demands and have high expectations (Gesell, 2010; Lancaster & Stillman, 2002; Simons, 2010). They were born using the Internet, they do not use, but assume the technology and they perform multitasking fast (Simons, 2010).

Those born after the Millennials generation are called the post-Millennials by some authors or as Generation Z or iGeneration by others. They were born with the social media and the mobile technology. The majority of these young people discover and connect with hundreds of others teens from all over the world. They play games online and they learn on the web, by “googling” a question. These persons are still not at the workplace.

2. Methodology

A survey conducted from November 2015 until May 2016 was targeted to managers of business or IT from medium-size and large Portuguese companies. The sample used at the survey was based on 2015 companies, where approximately half of them are large companies and the other half medium-size companies. In a

population of one thousand large companies and five thousand and six hundred medium size companies in Portugal, the large companies sample corresponds to nearly the total population and the medium-size companies sample corresponds to a convenient, but significant one.

The study was based on the perceptions of key informants. The way managers perceive their environment is more critical to organizational strategy than objective or archival measures of the environment (Anderson & Paine, 1975; Hambrick & Snow, 1977; Kearns & Lederer, 2003). Archival data cannot capture a picture of the firm´s environment which can be provided by perceptual measures from the viewpoint of key informants familiar with relationships.

A combination of methods was used in order to reduce the non-response bias. The process of selecting the sample of companies and collecting data from respondents had two phases. After getting the sample of companies and their top-level management contacts, provided by Informa D&B (Dun & Bradstreet), a company which main mission is to make available business information, the first phase consisted in launching an initial set of invitations to potential respondents. Then, the second phase was to expand the number of potential respondents using the LinkedIn social network.

A snowball sampling method used LinkedIn to increase the number of potentials respondents of selected companies exploring the existence of interpersonal relations and connections between people supported by this social network that may facilitate the possible collaboration of new respondents. This kind of method is based on a non-probability sampling method where existing individuals recruit other possible future respondents from among their acquaintances, and so, a snowball effect may emerge with an increasing number of possible respondents. This method uses effectively social networking sites (Web 2.0) for the study of "hard-to-reach" populations. It can expand the geographical scope and enables the identification of individuals with barriers to access, increasing the sample size and its representativeness, by using virtual networks in non-probabilistic samples (Baltar & Brunet, 2012; Browne, 2005).

The categories of the respondents' age used in this questionnaire match those previously presented generations, respectively:

- Silent Generation: born before 1946 (more than 69 years old)
- Baby Boomers: born between 1946 and 1965 (from 50 to 69 years old)
- Generation X: born between 1966 and 1980 (from 35 to 49 years old)
- Millennials: born after 1981 (less than 34 years old)

The Generation Z is still not working, and so, was not considered.

The instrument that was used to measure the alignment was basically the instrument proposed by Luftman (2003), adequately translated to Portuguese with slight adaptations because of that reason. This instrument is composed by six dimensions (maturity of communications, measures of competence and value, governance, partnership, technology scope and skills) and is better explained below (Jerry Luftman, 2003).

The assessment of the alignment's maturity of an organization proposed by Luftman, also known as the Strategic Alignment Model Maturity (SAMM), comprises five levels of strategic maturity, respectively:

1. Initial/Ad Hoc Process
2. Committed Process
3. Established Focused Process
4. Improved/Managed Process
5. Optimized Process

Each of the five levels of alignment maturity is supported, in turn, on a set of six following criteria: communications maturity, competency/value measurement maturity, governance maturity, partnership maturity, scope and architecture maturity and skills maturity (J. Luftman, 2000). The
presents a set of questions that were answered on each one of these criteria.

Table 1. Questions for the six business-IT alignment criteria proposed by Luftman (2000, 2003).

Criteria	Questions
Communications	• How well the IT professionals understand the business and viceversa? • How well the business professionals understand the IT? • How rigid or fluid is the communication? • How well is the knowledge shared? • What type of relationship exists between the business and the IT staff?
Competency / value measurement	• How embracing are the IT and business metrics on IT projects? • What kind of links exist between business and IT metrics? • How detailed and embracing are the IT service level agreements? • How formal is the assessment of the IT investments? • What type of improvement practices exist?
Governance	• How formal is the business and the IT strategic planning? • What kind of organizational structure and reporting relationships exist? • How are the IT projects decided and budgeted?
Partnership	• What is the business staff perception of IT? • What is the IT's role in strategic business planning? • What is the type and how is the IT–business relationship managed?
Technology scope	• What is the technological and strategic sophistication of systems? • How integrated, transparent and flexible is the infrastructure?
Skills	• How ready is the organization for change in this dynamic environment? • Are the individuals personally responsible for business innovation? • Can individuals and organizations quickly learn from their experience? • Are innovative ideas and the spirit of entrepreneurship leveraged?

The detailed instrument proposed by Luftman to assess the maturity of the alignment is composed by those six criteria and is evaluated through 39 business practices, from level 1 up to level 5 (Jerry Luftman, 2003).

3. Findings

There were 3379 invitations sent to the identified connections from November 2015 to April 2016, from which there were 394 valid answers. This corresponds to a response rate of 12%. Yet, the response rate of the sample of contacts from Informa D&B is significant lower than the one relative to the contacts collected from the LinkedIn social network. The response rate for the first and the second sources were approximately 3% and 23%, respectively.

The response rates of this study are not really surprising and are in line with the expectations. According to some of best practices used to increase response rates, this survey used some follow-up schemes (Skarupova, 2014) and other complementary survey techniques (Belfo & Sousa, 2011), as some posterior email reminders, an invitation carefully prepared, an welcome screen with the institutional sponsorships or incentives to participation.

The average assessment of respondents about the incentive and the alignment according to their age is presented at

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Table 2. Business-IT alignment by Generation Gap.

Description	Gen Y	Gen X	Baby Boomers	All
number of respondents:	41	271	82	394
	10%	69%	21%	100%
Communications	3,28	3,31	3,60	3,37
Competency & value measurements	3,11	3,18	3,43	3,23
Governance	3,30	3,28	3,48	3,32
Partnership	3,31	3,29	3,45	3,32
Technology scope	3,38	3,43	3,57	3,46
Skills	3,07	3,00	3,20	3,05
Global Assessment of Alignment	3,24	3,25	3,46	3,29

This statistics show an apparent difference among respondents' generations. Older respondents appear to see the company with a higher alignment maturity, particularly at Communications or Technology Scope dimensions.

4. Discussion

The eventual generational gap is a classical issue in the information systems field. As it was previously explained, the categories of the respondents' age used at this study questionnaire are based on those most used in IT studies, respectively, the Silent Generation (born before 1946, i.e., with more than 69 years old), Baby Boomers (born between 1946 and 1965, i.e., from 50 to 69 years old), Generation X (born between 1966 and 1980, i.e., from 35 to 49 years old) and Millennials or the Generation Y (born after 1981, i.e., with less than 34 years old). The generation Z is still not working, and so, is not considered.

shows respondents distributed by three of the four suggested generations. As it was somehow predictable, since the normal retirement age in Portugal is 66 years old (Centro Nacional de Pensões, 2015), there were no respondents of the Silent Generation, i.e. with more than 69 years old. Also, the majority of respondents, accounting for more than two thirds of the total number of respondents, belongs to the Generation X (from 35 to 49 years old) and just about one fifth is baby boomer and one tenth is Millennial. This distribution of respondents may be considered biased if we simply compare it with the total number of inhabitants per generation in Portugal in 2011 (INE, 2011) presented at

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Table 3. Inhabitants per generation in Portugal according to the census 2011.

Generation	Born from	Born until	Number of persons	%
Silent Generation and olders	-	1945	1.887.926	18%
Baby Boomers	1946	1965	2.770.562	26%
Generation X	1966	1980	2.383.531	23%
Generation Y or Millennials	1981	1999	2.280.990	22%
Generation Z and youngers	2000	-	1.239.169	12%
		Total	10.562.178	100%

Considering just the three generations that answered the questionnaire, with similar numbers of inhabitants in Portugal, each generation roughly represents about one third of the total population. Yet, the low proportion of respondents of Generation Y should be interpreted considering that, on one hand, Millennials are arriving to managerial positions, but the great majority of them haven't still reached those positions. On the other hand, today (and not at 2011), Baby Boomers are between 51 and 70 years old, and so, some of them are also retired. Furthermore, although the boomers are usually seen as committed, hardworking and focused on their career, they are also sometimes stereotyped as expensive, difficult to manage, difficult to learn new skills, resistant to change and not being up to date with new technology. These may be reasons to justify a low response rate to online surveys from boomers managers.

Also, it is interesting to note that, the larger a company is, the more difficult is to get responses from chief executive officers (CEO), chief information officers (CIO) or other C-Level executives. Yet, this survey still managed to get approximately half of the respondents as top level managers. So, as the percentage of Baby Boomers respondents is low and the Gen-X so high, this fact may mean that although a significant number of top executives are Baby Boomers, there are a substantial number of Gen-X managers which already reached a C-Level executive position. If so, the Generation X occupies not only the great majority of the current workforce at companies, but they also represent an important proportion of top executive boards. Finally, X managers were brought up in an era of technological and social change, and they are usually known to be tech-savvy and open to change, which may also be good reasons to justify a higher response rate to this online survey.

Concerning the maturity of the alignment, it is observable that the Baby Boomers assessed the alignment higher than the Generation X or Generation Y, respectively with 3.46, 3.25 and 3.24 (
). This finding seems to be in line with previous research that supported significant positive correlations between age and the IT alignment maturity (Smith, 2014). An apparent consequence of this finding could be that companies managed by Baby Boomers seem to be more aligned than other companies managed by other generations, like those managed by X or Y generations. Yet, this is probably a contradiction and may be a wrong interpretation of these results. If Baby Boomers have a hard time learning new skills, have resistance to change and are not up to date with new technology, then it is most likely that their companies are not so aligned as others.

Another possible explanation for this fact is that Baby Boomers managers are not as tech-savvy as the X or the Y generations and so could have been less critical in their analysis of the company alignment, and consequently, evaluating it with a higher maturity. Another possible explanation is that governance schemes and main processes were probably defined by Baby Boomers managers in earlier years of their companies and so, their management practices are best formatted to their point of views and not so to the Generation X perspectives. A sensitive analysis clarifies that this difference is particularly noticed at communications dimension and at that dimension, even more detailed, more justified by certain business practices. The business-IT alignment maturity of Baby Boomers managers is significatively greater then alignment maturity of managers from Generation X and Y specially at business practices as the understanding of business by IT, the understanding of IT by business, the organizational learning and, particularly, the one concerning the IT–business liaison staff. At this last business practice, regarding the IT–business liaison staff, Gen X managers assessed this practice with 3.09, closer to level 3, which means that they consider that their companies facilitate the knowledge transfer, while the Baby Boomers managers assessed this management practice with 3.56, much closer to level 4, which means that they considered that their companies are more mature, also facilitating the relationship building. This may be justified by intrinsic differences in communications approaches of both generations, with Generation X managers being more direct, preferring to use an informal and pragmatic communication style, to share info immediately and often, to use email as first tool, while Baby Boomers managers being more diplomatic, preferring to use body language to communicate, to establish a friendly rapport (McCrindle & Wolfinger, 2009; Yu & Miller, 2005).

5. Conclusions

This research addresses one recurrent issue among information systems area of knowledge: the generation gap. The contribution of this study regarding a possible generation gap was that Baby Boomers considered the alignment higher than the Generation X or Generation Y. This fact was especially anchored on the communications dimension and at that dimension, even more justified by the understanding of business by IT, the understanding of IT by business, the organizational learning and especially by the IT–business liaison staff, where the respective differences about the alignment assessment of managers from different generations are greater. The proposed explanation for this fact seems to be justified by the intrinsic characteristics of surveyed generations (McCrindle & Wolfinger, 2009; Yu & Miller, 2005), and was that Baby Boomers managers are not as tech-savvy as the X or the Y generations, and so, could have been less critical in their analysis of the company.

An admissible hypothesis is that if the perception of the alignment maturity at an organization is considered higher by its managers, then the effort invested to improve the alignment is probably lower. If so, these results

may suggest that different generations influence in a different way the alignment between the business and IT in their companies.

Therefore, practical implications for companies run by Baby Boomers managers should include the definition of initiatives that help promoting new behaviors among the business and the IT managers to boost the business-IT alignment. These initiatives may seek to reach higher maturities in any of the alignment dimensions. Thus, they may be designed to achieve more mature communications, better measures of competence and value, improved IT governance, more advanced partnerships, more mature technology and more adequate skills. A more specific practical suggestion for companies that are mostly run by Baby Boomers managers is to plan some seminars or roundtables about opportunities and challenges of information technologies for business, so that business managers can upgrade their perceptions and knowledge about IT and then, starting to have a more critic, active and participative role on IT issues.

Future research may include an effort to check if boomer managers are really not so tech-savvy as the X or the Y generations. Another suggestion would be to repeat the same inquiry through a broader base of respondents in each company, allowing one to assess whether, in the same company, perceptions differ across respondents' generations.

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