BUSINESS-IT ALIGNMENT WITHIN THE LUXEMBOURGISH FINANCIAL SECTOR: A CASE-STUDY

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ABSTRACT

Entanglement in practice is a particular perspective on technology and perceives human practices and IT interrelated. How business-IT alignment is perceived from this research perspective is explored with this interpretive case-study within the financial sector. Employees from different departments and different hierarchy levels in one company were interviewed. The amassed qualitative data was analyzed through a coding approach and conceptualizations were derived. The study identified institutionalized features, change legacies and communication as influential for business-IT alignment. Researchers perceive a tripartite formation composed of human, business and IT, when they explore business-IT alignment. Aligned business and IT may serve as scaffolding. The paper indicates that the organizational state of business-IT alignment is important to distinguish the respective need of reflexive capabilities of human actors. Large tensions between business and IT require extensive reflexive capabilities, when actors need to elicit more carefully the respective requirements in a given situation.

KEYWORDS

Business-IT, Alignment, Finance, Entanglement, Case-Study.

1. INTRODUCTION

Information technology (IT) has a pervasive presence in organizational work (Orlikowski & Scott 2008) and the financial sector was among the first industries to use information technologies (Chiasson & Davidson 2005). Therefore, aligning organizational (business) work and IT is an important theme in literature (e.g. (Rathnam et al. 2005)), whereas its research approaches may vary. This depends also on the established perspectives on technology in this

research field. Orlikowski (2010) identifies four different perspectives (cf. Figure 1). One perspective relates to research that studies organizations without considering the influences of technological artifacts (absence presence). Research that considers technology as a powerful driver for impacts on organizational life is another perspective in this research field (exogenous force). A third perspective, that of emergent process, positions technology as a result of continuous human actions. Hence, technology and its presence in organizations is contextually dependent (Orlikowski 2010). In addition, Orlikowski (2010) distinguished a fourth perspective on technology – that of entanglement in practice. Entanglement in practice is based on a relational ontology that perceives human practices and IT not separated (like absent presence, exogenous force and emergent process) but always interrelated. With this view, the focus is on constitutive entanglements of humans and technologies.
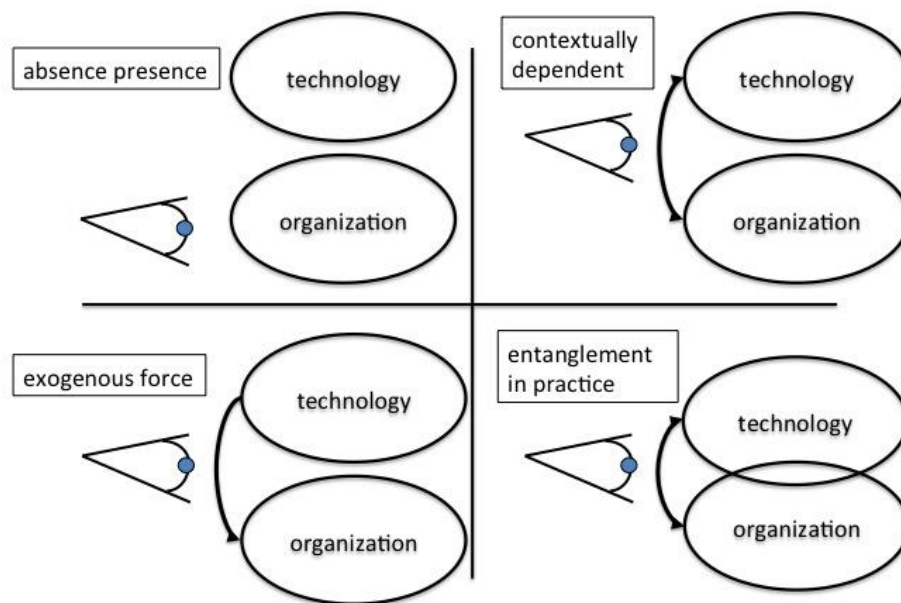

Figure 1. Perspectives on studying information technology in organizations

Studying business-IT alignment necessitates taking one of those perspectives. This study takes the strand of perceiving humans and technologies as being entangled in practice. This is reasoned in the researchers understanding, we (people working in business, people working in IT, researchers, etc.) are so entangled with the things surrounding us (e.g. work environment, IT, software) that it is hardly possible to definitely express, where we end and they begin (Introna 2009). Therefore, the alignment of business and IT is a fascinating research area, since it studies this balancing act between business and IT. Moreover, since the financial sector was an important driver and beneficiary of business, IT and its alignment, we take the opportunity to investigate this interesting field.

Although business-IT alignment research within the financial sector experienced some research coverage (cf. section: literature review), (first) it has not undergone research with an explicit expression of the researchers perspective. Although this is not necessarily a requirement of publications, we also discovered, (second) research approaches in this field are scant of balanced perspectives from a diversified background of research participants. Collecting balanced perspectives from different research participants (that includes people working in business and IT, top-level executives and people working at the shop-floor) enhances the interpretive researcher to obtain a holistic, integrated and non-particularistic perspective of the case. Only one case study claimed to provide a well-balanced selection of research participants (De Smet & Molnar 2013). However, this research involved a functionalist (Burrell & Morgan 1979) approach with the separation of human practices and IT. Hence, (third) we think that an interpretive analysis approach that takes business and IT as entangled would support the exploration of this phenomenon in the area of business-IT alignment within the financial sector. Better descriptions of the business-IT alignment phenomena can further (fourth) exemplify how entanglement in practice can be improved. These four motivations of this research lead up to the following research question: How perceive researchers that focus on constitutive entanglements of humans and technologies (entanglement in practice) the business-IT alignment phenomena within the financial sector?

The goal of this research is to explore a case study of a financial service provider in Luxembourg and investigate their business-IT alignment. Taking the entanglement in practice perspective on human and technology gives researchers and practitioners a different reflection on the business-IT alignment phenomena. The in-depth case study is based on rich qualitative data, which comprises interviews of research participants with various departmental views from all different hierarchy levels in the organization (cf. section: case description and findings). The detailed, qualitative data is interpreted through a three-fold coding approach (cf. section: research approach). Identified patterns are then generalized based on insights from conceptualizations of social theory (Giddens 1984), such as agency and reflexivity (cf. section: discussion). In the next section we present previous studies of business-IT alignment in finance.

2. LITERATURE REVIEW OF BUSINESS-IT ALIGNMENT RESEARCH WITHIN FINANCE

Reviewing previous research helps in discovering what has been done already and what literature gaps further reason this research endeavor. We focused our literature review on papers within this millennium, because earlier studies comprehend less todays dynamic and turbulent environment of financial services, in discussing alignment of business and IT (Fisher & McKenney 1993). In addition, we selected research conducted in countries/regions that are regarded as financial "powerhouses" (Table 1).

Prominent attribute in approaching business-IT alignment within the financial sector is case study research. This research area was also approached with quantitative techniques that analyzed collected empirical data (e.g. (Silvius et al. 2009)). Action research was conducted to investigate the use of international standards that facilitate interactions between business and IT experts and the organization (Kilov & Sack 2009). Furthermore, a quantitative analysis of a

quasi-experiment was published that presented an alignment model of business intelligence and incentive systems (Mueller & Coppoolse 2013).

The various case study research approaches that deal with this research topic vary in multiple characteristics (Yin 2003). A case study from the USA provides perspectives from senior managers and their reasons for alignment gaps between business and IT strategy (Rathnam et al. 2005). In a pilot study, one to six persons with various management background in getting an overview of theory development in business-IT alignment (Silvius 2007) were interviewed. All of those studies have in common the confined research approach that involved only few sources of data with a rather similar background (e.g. senior managers).

The case study approach was also used in more ample research endeavors, which included sources of data with different background. For example, interviews with representatives from front and back office were conducted in a case study in four branches of a retail bank (Beimborn et al. 2007). A case study that applied a top-down analysis approach of business-IT alignment of a financial service provider in Luxembourg pointed out, that it included balanced perspectives from diversified background of interviewees (De Smet & Molnar 2013). Hence, case study research involves a bandwidth of various approaches to elicit data.

Some investigates blend research approach attributes, in order to enhance the research output. For example, a study about business aligned IT strategy architecture was assessing its value based on the perspectives of stakeholders by blending quantitative and qualitative techniques (Jun et al. 2010). A simulation tool and interviews were used in a quantitative analysis of finding major alignment issues and attempting to determine the relationships between these issues (Baets 1996). Surveys were quantitatively analyzed in investigating the impacts of strategic alignment on organizational performance, the influence of employee alignment orientations on successful implementations of business-IT alignment and in investigating differences in strategies in smaller and larger banks (Tallon 2010). Interviews (open and closed questions) with top representatives of the financial industry were quantitatively approached, when a survey studied the expected benefits from IT projects and alignment initiatives (Schwabe & Banninger 2008).

As this literature review indicates, a lot of different research approaches were conducted for investigating business-IT alignment within the financial sector. Case studies, blended research approaches and quantitative means were used to acquire more insight in this field. Apparently, case studies were a prominent attribute in approaching business-IT alignment within the financial sector. Some ample research approaches included multiple sources of data with different backgrounds. However, only one case study provided balanced perspectives from a diversified background of research participants (De Smet & Molnar 2013). The rich data involved multiple sources with various backgrounds and its analysis approach mainly focused on a framework (Val IT^{TM}) that guided the analysis. Val IT^{TM} provides a starting point of a top-down analysis approach and it is hardly recognized by academics as a foundation to guide the case study analysis (De Smet & Molnar 2013). This is mainly reasoned in the limitation of Val IT^{TM} on focusing on the different layers of analysis and it provides weak support in analyzing data from a perspective that focuses on the constitutive entanglements of humans and technologies. In addition, all of those research approaches tended to apply a functionalist paradigm (Burrell & Morgan 1979). In the functionalist paradigm, theory-building is typically deductive, taking existing literature and theories as a starting point (Burrell & Morgan 1979). However, the interpretive paradigm pertains to reveal underlying structures, structuring processes and patterned relationships between individuals (Burrell & Morgan 1979).

Hence, this literature gap ought to be closed by using rich empirical data and applying an interpretive approach on it. Subsequently, researchers may explore a case study of a financial service provider and investigate their business-IT alignment. This approach can overcome the potential limitations of a too narrow framework, like Val IT^{TM}, and has not been applied previously. Therefore, this research seeks to close this literature gap and derive new insights from empirical data (Orlikowski 1993).

The importance of strategic alignment choices within financial services firms and their implications on social elements, such as human resources management, have recently been explored further in the literature (Giannakis & Harker 2014). It goes without saying that business-IT research has received a lot of attention for the past 30 years (Gerow et al. 2014). The findings by Gerow et al. (Gerow et al. 2014) highlight the importance of social alignment as a future avenue of research addressing the context variables in business-IT alignment research and practice. The following table 1 will synthetize the studies dealing with financial services business-It alignment, while for example Gerow et al. (Gerow et al. 2014) provide a more meta overview across sectors.

Table 1. Business-IT alignment research approaches within financial services companies			
Country / Region	Research focus	Research approach attributes	Reference
Asia	Incentive systems and alignment model of business intelligence	Quantitative analysis of a quasi-experiment	(Mueller & Coppoolse 2013)
China	Uses business aligned IT strategy architecture which evaluate services processes and assesses its value based on the perspectives of stakeholders	Quantitative and quality research; case study for validation	(Jun et al. 2010)
Europe	Identify major alignment issues and attempt to determine the relationships between these issues	Simulation tool and interviews; quantitative analysis	(Baets 1996)
Europe	Use of international standards to understand and facilitate interactions between business and IT experts and the organization	Sort of action research	(Kilov & Sack 2009)
Germany	Case study in four branches, the back office, and the IT department of a retail bank	Case study; interviews with representatives from front and back office	(Beimborn et al. 2007)
Luxembourg	Top-down analysis of business-IT alignment of a financial service provider	Case study; balanced perspectives from diversified backgrounds	(De Smet & Molnar 2013)
Switzerland	Survey studying the expected benefits from IT projects and hence alignment initiatives	Quantitative interviews (open and closed question with top representatives	(Schwabe & Banninger 2008)
The Netherlands	Overview of theory development business-IT alignment and reports on the issues, based on a number of focus group discussions	Pilot study; one to six person were interviewed with various management background	(Silvius 2007)
USA	Reasons for alignment gaps between business and IT strategy	Case study; balanced perspectives from senior managers	(Rathnam et al 2005)
USA	Investigates differences in strategies at smaller and larger banks	Quantitative analysis of survey	(Tallon 2010)

3. RESEARCH APPROACH

3.1 Data Collection

This research was part of a study concerning business-IT alignment in the greater region of Luxembourg, which involved 14 organizations. The research design tried to obtain more insight into the organizational practices in the field of business-IT alignment. It started with collecting empirical qualitative data about the business-IT alignment practices in the respective research participants. This collection involved mainly semi-structured interviews in order to explore those business-IT alignment practices. This research approach generated an immense data load, and this paper investigates the particular practices in-depth at FiSCoL (company name of this empirical case study remains anonymous and stands for a Financial Service Company in Luxembourg).

The research approach adopted in this study is an interpretive case study approach (Orlikowski & Baroudi 1991). This involves a collection of detailed, qualitative data concerning the contextual dynamics and practices in an organization. This data collection facilitated the goal of this research to explore a case study of a financial service provider and investigated their business-IT alignment. As we strived to outline the business-IT alignment we selected a single case-study, since it is a well suited method for examining a phenomenon (Hartley 1994), when research addresses "how questions" and hence interactions between people and the organization/IT (Miles & Huberman 1984). Case studies have several advantages for research of an exploratory nature, since it generates insights and rich descriptions (Yin 2003). Furthermore, numerous studies about business-IT alignment in the financial sector apply this research approach (cf. table 1). Hence, we adopted a case study approach as case studies permit the investigation of real-life events such as organizational dynamics and practices (Yin 2003).

The collected empirical qualitative data involved mainly semi-structured interviews, which generated an immense data load. On the basis of this data, an interpretive researcher may elaborate on an in-depth understanding of practices in this instance. For further abstraction and generalization a larger meta-theory (such as Structuration theory and concepts of it: agency and reflexivity) is required, which in interpretive research is a part of the research approach (Jones & Karsten 2008).

The financial services are the largest business sector in Luxembourg, with about one quarter of the Gross Domestic Product of the country[1]. The country's financial center is predominantly international and attracts more than 140 banks from various countries of origin and their total assets accumulated to more than 3.1 billion Euro[2]. The financial sector in Luxembourg is influential and it is composed of financial institutes that vary in size and bias. We selected for this research four organizations, which fit the purpose of this research. All participating financial institutions are required to cope with the post-2008 crises environment and tightening regulations. The research participants are all networked organizations that are conglomerate of business units in an international context. The researchers obligation requires anonymizing information and it limits the possibilities to provide detailed information. This is due to the fact that it would be relatively easy to trace the origin of data back to the

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[1] http://www.luxembourgforfinance.lu/sites/luxembourgforfinance/files/lff_factsheet_octobre_2013_v1_l.pdf
[2] http://www.luxembourgforfinance.com/sites/luxembourgforfinance/files/luxembourg_for_finance_factsheet_luxemb ourgfinancialcentre_2.pdf

organization in a small country as Luxembourg. We therefore provide only data that are most relevant to this research about organizational dynamics and practices.

The research team visited the headquarters of FiSCoL and the research idea was presented to a committee of top-level executives. This committee together with the researchers decided the most appropriate candidates for interviews, so that the research purpose would fulfill and the choice adequately cover the entire observation. The purpose was to get a variety of perspectives that involved different departmental views on aspects of business-IT alignment. Those perspectives include viewpoints from all different hierarchy levels in the organization, which is different to previous research endeavors.

During January of 2012 FiSCoL provided the research team the opportunity to interview nine persons (table 2). Each individual was interviewed once. We recorded and transcribed the interviews, each lasting approximately 60 minutes, held in a relaxed atmosphere. Although we collected a lot of data, we used indirect speech in this paper. This is because all the interviews were held in French and we tried to avoid any misinterpretations through translation of quotes.

We asked research participants about their individual insight into the organizational setting, communication and dynamics of their work environment. For doing so, the researchers designed a questionnaire, which involved four main sections: contextual situation of interviewees' work environment, to-be situation of business-IT alignment, as-is situation of business-IT alignment, and interviewees' comments. Naturally, we dealt with a broad spectrum of individual insights, since we sought to cover business and IT alignment aspects of all kinds.

Table 2. Roles of interviewees in FiSCoL		
#	*Responsibility*	*Company tenure (in years)*
1	CEO	10
2	Chief Operations Officer	6
3	Business unit leader of "Procurement Services"	7
4	Program Management Leader	2
5	Department leader in the business unit financial institutions Luxembourg	20
6	Services and Fraud	20
7	Key account manager of Issuing	7
8	Department manager of "Production & Shared Services"	7
9	External consultant in the area of "Service Delivery"	2

We ensured that the interviews would remain confidential to encourage frank interviews. In addition, we collected detailed information about FiSCoL. However, we needed to limit the detail of information, since otherwise it would be relatively easy to trace the origin of data back to the organization in such a small country as Luxembourg. We therefore provide only data that are most relevant to this research about organizational dynamics and practices in the field of business-IT alignment.

3.2 Analysis of Interview Data

We filed the detailed data sets of qualitative material electronically in spreadsheets, in order to simplify and accelerate further research progress. Transcriptions were analyzed through a three-fold coding approach and was based on Miles and Huberman (1994).

- We got familiar with the information by reading and rereading the qualitative material; deposited data with some meaning in order to expose the various activities, events, and incidents.
- We derived meaning from the data, put it into context and clarified its significance; hence, we developed a better understanding through short descriptions in table form. We got familiar with potential tendencies in the amassed data-load.
- We identified distinctive patterns, leitmotivs, or causal links in the data collection. Identified patterns are then generalized based on insights from conceptualizations of social theory (Giddens 1984), such as agency and reflexivity (cf. next sub-section).

By applying this procedure to the collected data we were able to explore the phenomenon in the area of business-IT alignment within a Luxembourgish company in the financial sector. Unlike Schwabe and Banninger (2008), this research emphasizes on a more diverse interviewee background and unlike De Smet and Molnar (2013), this research provides an interpretive analysis of business-IT alignment of a financial service provider.

The analysis used in De Smet and Molnar (2013) build upon the Val IT^{TM} framework offering a comprehensive framework for studying business-IT alignment in practice. However this framework did not consider the inclusion of social elements, such as those discussed in structuration theory (Giddens, 1984). In this paper, the enhancing elements of the social dimension through structuration theory will be used to enrich the organizational and process view supported by the framework of Val IT^{TM}. Therefore the insights provided in this paper will contribute to the social theoretical backbone of this research and its additional implications will be discussed. This paper will not directly address the human resource issues but will use social theory to shed further light on the importance of these underestimated, social, influences on business-IT alignment (Giannakis and Harker, 2014).

3.3 Applied Conceptualizations of Social Theory: Agency and Reflexivity

We deliberate apply only concepts of Giddens' Structuration theory (1984), because of two reasons: First, Structuration theory supports our exploration to reveal underlying structures, structuring processes and patterned relationships between actors in the study of the phenomena of business-IT alignment by giving reasonable conceptualizations to derive meaning out of the observed phenomena. Second, it is a frequent point of departure for interpretive research in IS (Jones & Karsten 2008). In this regard, it was stated: "as a general social theory, structuration should be applicable, in principle, to any aspect of IS research studying the relationship between IS and organizations (or society, more generally)" (page 138) (Jones & Karsten 2008).

Jones and Karsten (Jones & Karsten 2008) distinguished four themes in the structuration theory, which are valuable in studying the phenomena of business-IT alignment: social structures, agency, knowledgeability, and temporality. First, Giddens (1984) emphasize that social structure is continuously being created through the flow of everyday social practice.

Thus, social structure is the consequence of ongoing production and re-production of practices by individuals. In this theme Giddens distinguishes between rules of social life and the formulated rules. Rules of social life are approaches applied in the continuous creation and re-creation of social structure, whereas formulated rules are not necessarily understood as rules per-se, but rather their interpretations. Second, agency describes the individual's ability to perform actions. Thus, agency is about events that are driven by social actors, in which the actors could choose to act according to the given moment. Third, knowledgeability is another important theme in Giddens' structuration theory, since all human beings are knowledgeable social actors and know a great deal about the conditions and consequences of what they do in their daily life. Fourth and final, time and temporality has been a reappearing theme of Giddens' work (Jones & Karsten 2008). Structuration links the temporality of the individual with that of institutions (Jones & Karsten 2008).

In this work, we draw on the concept of agency and reflexivity, which are important aspects of the Structuration theory. By drawing on those concepts, we may attain strong interpretations that support our view that technology is entangled in practice. Despite the fact, Orlikowski (2010) considered Structuration theory (Giddens 1984) as an influential element on perceiving technology as part of an emergent process, we argue that aspects of the Structuration theory can strengthen analysis, when technology is perceived as being entangled in practice.

The concept of *agency* (Giddens 1984) is about events that are driven by social actors, in which the actors could have chosen to act otherwise at any given moment. Agency is the individual's ability to perform intentions and it is critical to the reproduction and the transformation of social entities. Hence, agency is an important factor in aligning business and IT. The conception of *reflexivity* (Giddens 1984) is used to derive a better understanding of the everyday actions and practices of people. Previous studies have not looked at those important factors in aligning business and IT (cf. section 2). Our emphasis was on the activities and the role of structural embedded processes while working. Employees, like other organizational actors, reflexively monitor their everyday actions, those of others and the contexts of social activity. Giddens (1984) argues that reflexivity operates only partly on a discursive level. He describes both practical and discursive consciousness. What individuals know about what they do and why they do it, in other words, their knowledgeability as human agents, is largely embedded in practical consciousness, which they cannot express discursively. Hence, we draw on the concepts of agency and reflexivity to derive conclusions.

We intend to apply Giddens' meta-theory as a "sensitizing device" (Walsham 1993) to assist the analysis of the gathered empirical study material. Therefore, there is not a formal link between Giddens' meta-theory and the studied phenomena of business-IT alignment. However, applying Giddens' meta-theory as a "sensitizing device" helps the researchers to understand the studied phenomena. The next section provides more details about the empirical data and derived findings.

4. CASE STUDY AND FINDINGS

In this section we look at the case of FiSCoL (Financial Service Company Luxembourg) in terms of its organizational setting, communication and dynamics.

4.1 Organizational Setting

FiSCoL is mainly engaged within the financial service industry in Luxembourg, a business field known for major influence from both national and international organizations (e.g., competing companies, and legislation). FiSCoL was founded as cooperation between the shareholders from the financial industry and evolved into a full-value-chain provider of financial transactions between businesses. This includes services that provide back-office activities, such as clearing of stock markets, transactions and payments. A few years ago they merged with another international company in the finance sector, as a result of which it now consists of three business units:

- procurement services
- appliances services, and
- legacy unit (dedicated to previous founders).

Although the merge with another company started a few years ago, FiSCoL is still in motion, so the migration projects are ongoing. This causes ongoing changes to the organizational setting, such as the established tools, applications and processes. For example, the organizational setting changes from a cooperative structure that shares the cost towards a profit driven model. Established tools and applications are continuously analyzed, and if necessary those tools and applications are changed accordingly to improve the organizational processes. According to the interviewees the transformation involves several issues, such as an alteration of the strategy, which now involves a better alignment to international operations, and the merged companies offer a complete value chain of financial service to business customers.

The interviewees of FiSCoL stated that it has strong compliance regulation, which influences the business to a large extent (e.g. Basel III, Dodd-Frank Wall Street Reform). Furthermore, all interviewees shared a similar understanding concerning the importance of the company heritage of providing service to the founders of FiSCoL. This is amplified by the dedication of one entire business unit to work with the previous founders. FiSCoL's strong customer focus is even too strong, according to some interviewees like the CEO.

In addition, the interviewees stated that their environment is relatively turbulent. This turbulence is caused by evolving techniques on how services may be delivered and through frequent modifications in tactics of the ongoing merge and differences in external regulations.

4.2 Organizational Communication

Despite this turbulent environment, the company established long-term goals that involve a 3 – 5 years development plan on an elaborated future business model. However, perhaps 90% of interviews stated that there is a communication gap between management and operational people concerning those long-term goals. Important details of this communication gap are incoherent answers concerning the company's business goal. For example, one manager stated that the business goal is to "be a prime supplier of high quality financial services", whereas others stated "we do not know about a particular business goal in our department".

In addition to the discrepancies of understanding the content of long-term goals, interviewees stated issues about personal semantics. Comprehension and understanding of terminology appears to be challenging within a multilingual environment of Luxembourg.

Interviewees revealed their involvement in various regular meetings, and that those ways of communication are highly integrated in their business processes. For example: incident management shares the meeting and meeting minutes, daily stand up meetings in the morning, another meeting is held before noon if there are issues, and almost every process is written in a procedure. Any update of the complex systems (processes, techniques, etc.) involves an update of norms, so that news becomes visible to everybody through the technology. This happens in form of regular patches of the organizational information systems, the software with access of all employees. We found it thought provoking that interviewees also claimed that technology is not provoking the change, instead its processes induce adjustments in the habits of people.

4.3 Organizational Dynamics

Details of the organizational setting and communication indicate that FiSCoL is in the midst of a dynamic situation. The data collection highlights four aspects of the dynamic situation:
• the merger with another international company,
• the maintenance of their legacy system,
• practiced organizational processes, and
• technological challenges.

Regarding the first aspect, we asked interviewees from FiSCoL about their experiences with the merger and they stated two main issues: first, change of the strategy, which involves a better orientation towards foreign markets; and second, the merged company offers a complete value chain for customers. This merge was conducted relatively carefully, because the restructuring lasted a few years. In their day-to-day tasks the interviewees stated that new and altered business processes induce changes in the habits of people.

In addition to those dynamics about the merger, the maintenance of their legacy system involved the second aspect of the dynamic situation. As previously indicated, the organizational setting includes one business unit, which is dedicated to previous founders. While they design at the same time a new system, which is provided by an external vendor. According to the CEO, the adopted methodology for designing the new system had not been adapted for certain elements. They piloted an open system, which is instable by nature. However, through weekly follow-ups they improved competences and processes, and maintained flexibility. In addition, FiSCoL facilitated user involvement at the time of testing with a regular exchange with the support people, so that dissemination to relevant people works better.

The third aspect involved the approaches that FiSCoL practiced on the basis of absorbed and combined organizational processes. The people at FiSCoL stated that almost everything is written in a procedure as "management of incidents". Hence, employees follow those procedures highly conscientiously. Interviewees said that FiSCoL employs a capability strategy, which should improve the decision making process for launching a new service. This strategy involves an increased awareness of the state of the art of their business market that does not only respond to a sole and unique customer request.

Fourth and final aspect relates to the underlining challenges, when FiSCoL experiences that are related to technology. For example, difficulties were encountered due to technology, when it approached the end of its lifecycle. The CEO stated, difficulties were encountered due to old technology and one of the basic questions is: What is the end of life cycle for IT? The CEO continued that it problematic to get an idea about the technological landscape of the

future that pertains to the company. Other interviewees at FiSCoL also addressed this problem, when they described the unclear future technology landscape as being challenging.

4.4 Findings

The previous case study indicates rich qualitative data about the organizational setting, communication and dynamics. We exemplify in this sub-section four main findings of FiSCoL (Table 3).

FiSCoL can hardly shape external influences (*1*) (e.g. compliance regulations and technological challenges) but it is affected by those influences. Those influences have an impact on multiple aspects of business, IT and its alignment. All interviewees stated, that compliance regulations have strong influence to the business. In addition, the unpredictable technological landscape is problematic to FiSCoL. Another main finding is the recent merge (*2*) with another company, which involved complex changes of FiSCoL concerning their business, IT and its alignment. Interviewees stated that their business evolved into a full-value-chain provider of financial transactions between businesses. Moreover, the relationship with the previous founders remained strong and reasoned one business unit, which is dedicated to previous founders. FiSCoL interviewees stated that they experience difficulties because of insufficient communication (*3*). They revealed that long-term goals are communicated not well enough and semantic dissonances prevail. The disintegration of content and context of communication could be partly caused by the multilingual environment of Luxembourg. However, the lack of clear communication of business goals indicates also a societal issue between the different layers of hierarchy. For example, interviewees of lower hierarchy levels indicated to have "no knowledge about a particular business goal". The internalized practiced processes (*4*) influence the organizational business-IT alignment considerably, since only repeatable and structured processes are properly applicable by IT. Hence, the examination of the rather organized meetings and handling of organizational processes substantiate business-IT alignment.

Table 3. Case-study findings	
Finding	Context - entanglement
External influences	Compliance regulations and technological challenges
Company merge	Ongoing changes of business, IT and its alignment
Communication issues	Organizational communication – semantic dissonances
Practiced processes	Internalized, structured processes dominate

5. DISCUSSION

The core of this research is following research question: How perceive researchers that focus on constitutive entanglements of humans and technologies (entanglement in practice) the business-IT alignment phenomena within the financial sector? By exploring this phenomenon from an interpretive perspective, we collected and analyzed detailed qualitative data. Drawing on Giddens' (1984) insight on concepts of agency and reflexivity helps us to derive meaning out of the observed phenomena. These concepts allow to have a complementary view on the

more organizational elements reported by De Smet and Molnar (2013), were the resource dependency theory was used since companies are not considered as being fully autonomous (Pfeffer & Salancik 2003). More recent reviews of the theory (Hillman et al. 2009) also indicated that mergers/acquisitions, like in this case study, offer interesting research areas. Plus, adding perspective to the resource dependency theory used before (De Smet and Molnar 2013) in this case study, is expected to beneficial for research, adding a more realistic view (Hillman et al. 2009).

External influences are difficult to manage for organizations and their employees. However, the way they cope with these potential turbulences is part of successful business-IT alignment. For example, practiced processes such as compliance regulations facilitate the continuous reproduction and adherence to the applied rules. Consequently, compliance regulations act as a helping device or scaffolding that help to reproduce the organizational procedures. This finding also illustrates the importance of the larger social system in which companies need to operate, and they will try to reduce this uncertainty, but their efforts in doing so are rarely successful. The importance of this social system is not always considered with as much attention in the resource dependency theory (Hillman et al 2009), offering a possible contribution from these findings. This scaffolding is manifested in organizational guidelines and their information system, when rules or software enforce the repeated application of compliance regulations. However, at any given moment, FiSCoL employees could have chosen otherwise and shape the ongoing reproduction in a new way. This refers to agency – the people's capability of doing things. Reflecting upon the choice between being compliant and following the organizational regulations or not being compliant by ignoring the organizational regulations is done in any given circumstance. Whereas the reproduction of compliance regulations is an institutionalized feature of FiSCoL, it provides also ontological security to the employees. This means that practiced processes (such as compliance regulations) are part of the structural properties of FiSCoL. In addition, the ongoing reproduction of compliance regulations is only partly practiced on a discursive level. This means that interviewees can state about the general reasoning of their doings, e.g. necessity of being compliant with (external) regulations. However, with the continuous mode of reproducing the institutionalized features they further manifest the structural entities of FiSCoL and this is likely to happen on a more practical consciousness level.

The company merge with its legacy influenced their business-IT alignment. As the findings of the case study indicate, the merge involved complex changes, illustrating the magnitude of FiSCoL's dependency on their merging partner which will also describe the power imbalances between them (Casciaro & Piskorski 2005). This strong external dependency also results in various boar member changes as reported previously for this case study (De Smet and Molnar, 2013). For example, FiSCoL became a full-value-chain provider for financial transactions and as a result of this transformation the business, IT and its alignment needed strong adjustment. Thereof concerned were previously institutionalized features of FiSCoL. However, part of FiSCoL's transformation process is the carrying along of previously enacted structural properties in form of a legacy unit. By doing so, FiSCoL overcomes the challenges of too many changes at one time (the merge) and facilitates actors with some ontological security for the time being. It remains to be seen when and how the actors re-balance the situation of a legacy unit. The legacy of structural properties such as IT may remain as ballast for FiSCoL. These illustrate the importance of the company's historical context (Finkelstein 1997) and internal considerations (Campling & Michelson 1998) as dependence factors on dealing with transformations following a merger. Although it provides

currently well enough scaffolding for FiSCoL at large and the legacy unit in detail, these different IT systems serve as different resources. Multiple resources have usually different requirements so that the potential tension between business and IT may grow. Hence, not aligning structural properties that stretch across time may result in increased difficulties.

Communication is a general element of interaction and is more inclusive than communicative intent (or what an actor 'means' to say or do) (Giddens 1984). The findings revealed that content and context wise the communication within FiSCoL lacked, so that business goals were not communicated well enough. We think that it is mainly the responsibility of higher hierarchy levels to communicate business goals understandable. The data indicate weaknesses in the agency of people from higher hierarchy levels. In addition, structural properties seemed not to support a well enough communication. Neither business procedures nor IT artifacts provided enough scaffolding to communicate business goals understandable. However, asking interviewees about the knowledge of business goals also showed, that it seems to be of less importance, to have a clear manifestation of business goals for the interviewee's day-to-day practice.

Figure 2 below indicates the entanglement of humans and technologies – herein business and IT. The behavior of human actors is guided by the rules and contexts in which interactions take place. They do this as the monitoring of character of the ongoing flow of social life. Employees have internalized the structural properties of their circumstances (FiSCoL), so that they reproduce their "virtual scaffolding". Although the business and IT properties provide an ample field of tensions, business and IT is well enough aligned, so that it can provide structure for the organizational activities, were consensus building can take place to address the social and technological impacts of the merger (De Smet and Molnar 2013). However this consensus building does not necessarily lead to optimal solutions to the tensions, although it is part of this scaffolding structure.

We argue that the tripartite formation of the human actor, business and IT is what researchers perceive, when they explore business-IT alignment. Answering how researchers perceive the tripartite formation sheds light on the organizations state of business-IT alignment. Good aligned business and IT within an organization may reason tight scaffolding as structural property. Less aligned business and IT within an organization may cause weak scaffolding. Apparently, large tensions between business and IT require large reflexive capabilities of human actors, because the actors need to elicit more carefully the respective requirements in a given situation. Well aligned business and IT requires only small reflexive capabilities of human actors, because the scaffolding provides a good foundation of structural support in many situations. Thus, the traditional business-IT alignment literature is arguing that high alignment nurtures organizational success. Exploring business-IT alignment with the focus on constitutive entanglements of humans and technologies supports this general claim.
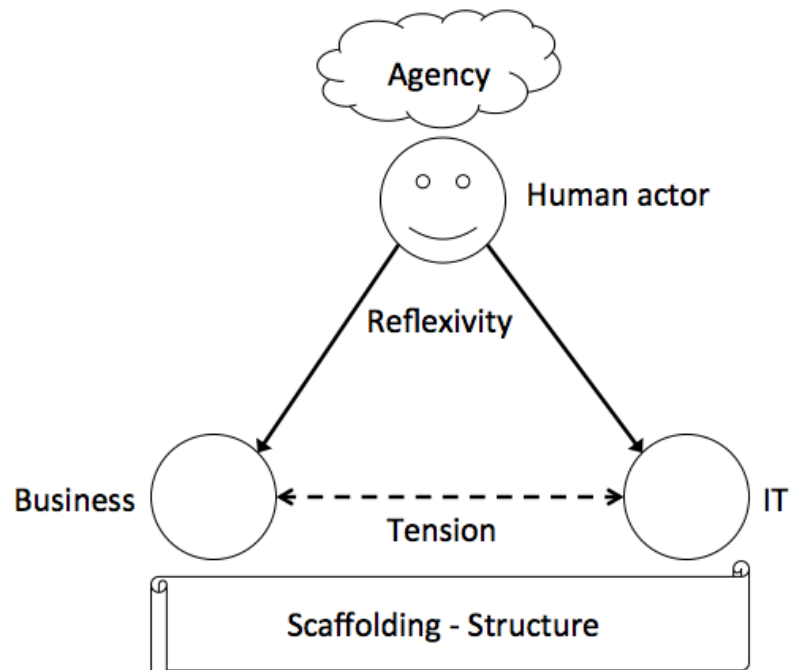
Figure 2. Business-IT alignment: agency and reflexivity

6. CONCLUSION

The previous findings and discussion highlighted how researchers that focus on entanglement in practice perceive business-IT alignment. We identified contexts that are important institutionalized features. Some of those features are compliance regulations or dominating internalized and structured processes. These have crucial influence on business-IT alignment. Moreover, transformations of the company (merge) had also profound influence on business-IT alignment. During the merge, previously institutionalized features were adjusted to balance business-IT alignment, in an effort to deal with external dependencies associated to the merge, and where its organizational factors were discussed in previous research (De Smet and Molnar, 2013). A legacy unit provided transitional support to cope with the complex changes. This research also pointed to organizational communication, which is another complicated influence on the business-IT alignment.

We imply for research that aspects (such as agency and reflexivity) of Structuration theory facilitate compelling interpretations, which support the perspective that technology is entangled in practice. Orlikowski (2010) argued that Giddens (1984) Structuration theory would primarily support the perspective that technology is positioned as a product of ongoing human interpretations and interactions (emergent process). However, this paper argues that aspects of the Structuration theory may indeed serve also the perspective that technology is entangled in practice. Hence, focusing on aspects like agency and reflexivity emphasizes

Giddens idea to think in terms of a duality, instead of dualism (Layder 1996). In this way, structure (e.g. IT) is not external to action; it is, in a sense, more internal to the flow of action which constitutes the practices (Layder 1996).

We imply for theory, researchers that investigate business-IT alignment may identify tripartite formation of the human actor, business and IT. In this tripartite formation the organizational alignment of business and IT is important. Less alignment means that the human actors necessitate more reflexive capabilities, because the actors need to take more care in every situation. Contrasting, well-aligned business-IT means that the human actors necessitate less reflexive capabilities, because the structural support provides enough support to cope with many situations.

We imply for practice that influences on the business-IT alignment needs to be considered respectfully, so that operations within a company of the financial sector work well. For example, features (e.g. compliance regulations, repeatable and structured processes) need to be institutionalized (e.g. process certification, process standards, task lists, etc.). Potential turbulences (e.g. merge) that cause complex changes need to be dealt with concurrent strategies, so that operations may be intact and new structural properties can be sustainable established (e.g. task force, guidance by consultants, workshops, etc.). Communication is a general element of interaction and should be nurtured (e.g. frequent newsletters, workshops, social events, etc.) This includes understandability of content and context of organizational news, features and rules.

As we are aware of potential limitations of our current work, future research will address them in greater extent. We see two main fields for further research: the number of cases could be increased to gather broader field data; and this includes also business sectors different to finance. We intend to address both issues in continuing our research with our forthcoming study of business-IT alignment in the greater region of Luxembourg.

In conclusion, previous literature in the field of business-IT alignment research approaches within financial service companies hardly perceived technology as being entangled in practice. Hence, research approaches that overcome the traditional dualism (of business and IT) are not available. Balanced perspectives of interviewees as sources of data are also scant. The applied interpretive analysis approach supported our in-depth research of business-IT alignment within the financial sector.

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