Dynamic social alignment on operational level and organisational performance

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Abstract: Business-IT (BIT) alignment on different organisational levels is thought to facilitate organisational performance. This study investigates how dynamic social alignment on an operational level improves organisational performance. The concept of dynamic social alignment has been introduced based on the theory of dynamic capabilities and the integration of two constructs: IS change agreement and task support satisfaction (TSS). The business value of dynamic social alignment was measured through business process performance and organisational performance. A conceptual model was thus developed and empirically validated through structural equation modelling (SEM). It is confirmed in this study that organisations which have better dynamic social alignment on the operational level continuously support the execution of changing everyday business tasks. The results also confirmed the mediating role of business process performance between task support satisfaction (TSS) and organisational performance. The study reveals that business and IT professionals need to nurture and maintain dynamic mutual agreement regarding IS changes in order to improve performance. In this manner, their organisation would be more prepared for reconfiguration and transformation, vital for adjustment to rapidly changing environment.

Keywords: business-IT alignment; dynamic social alignment; IS change agreement; shared understanding; task support satisfaction; TSS; business process performance; organisational performance; IT business value.

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1 Introduction

Business-IT (BIT) alignment on strategic level has received much attention in the past within the academic community and business practice. In the last IT issues and trends study for 2016, published by Society for Information Management (SIM) BIT alignment was ranked as number one IT management concern (Kappelman et al., 2017). This is a continuance of a stable trend in the last 10–15 years, ranking BIT alignment always in the top three management concerns. This paper is a response to the call of several scholars (e.g., Wagner and Weitzel, 2012; Ullah and Lai, 2013; Jentsch and Beimborn, 2014, 2016) for more research in the field of social BIT alignment on operational level. Authors such as Jentsch and Beimborn (2014) noticed that there is very limited research on daily interactions between the operational workforce which takes BIT shared understanding into consideration (they identified only ten papers published in the period between 1996 and 2013).

On the other hand, other scholars (Ullah and Lai, 2013; Wagner and Weitzel, 2012) pointed out that in the past research significantly more attention was given to strategic and structural alignment compared to social and cultural dimensions. A more recent work of Wagner et al. (2014) combines the social perspective of IT and business linkage at non-strategic levels in daily business operations involving regular staff. The key motivation behind this research study is to develop a conceptual model of dynamic social alignment on operational level and then to test the model empirically. Dynamic capabilities theory (DCT) was used in the past to conceptualise strategic alignment as dynamic organisational competency, but to best of our knowledge it was not used on the operational level. Therefore, we use DCT to introduce the concept of dynamic social alignment between business and IT professionals on operational level. Our approach follows the suggestion of Baker et al. (2011) and we view the relation between IS change agreement and task support satisfaction (TSS) as dynamic managerial capability. Looking from the perspective of DCT, a sustained agreement between business and IT professionals is a dynamic capability which helps organisations to maintain their flexibility and better to address the pressing needs for changes coming from the external environment. This pressure impacts the way how organisations are doing things mainly through their business activities and business processes. If IS services fail to change in a proper manner in line with the pressing needs coming from the external environment and the internal need for continuous improvement, then misalignment becomes a reality.

Another important question which we address in our study is the relation between dynamic social alignment on operational level and organisational performance. Therefore, the model of social alignment is extended with the concept of business value of IT. Discovering the path to obtain higher levels of BIT alignment was in a certain way envisioned as the Holy Grail for obtaining the business value of IT investments. Papp (1999) pointed out that "business-IT alignment is key to achieve improved productivity from IT investments." It has often been indicated that business-IT alignment can serve as a key company governance output, which can enable better business value from IT investments (Van Grembergen and De Haes, 2010). Researchers strived to provide a deeper understanding of the IT productivity problem generally on two levels: on a state economy level, and an organisational level. As a result, two main streams explaining productivity paradox emerged in IS research: the first stream were the economists seeking better methods for measurement of IT contribution to productivity,

and second stream occupied the authors in the field of management who were in search for better methods of management of IT (Brynjolfsson and Hitt, 1996, 2003; Macdonald et al., 2000).

The reminder of the paper is structured as follows: in the next section we explain the theoretical background on social alignment, than we explain more deeply the distinction between shared understanding and shared agreement. In Section 3, we provide background on DCT, while in Section 4, we state our hypothesis and we present our research model. In Section 5, we explain the research method and the data collection process. Findings from the research study are presented in Section 6 followed by research limitations. After this, we discuss the theoretical and practical implications and at the end of the paper we give our conclusions.

2   Theoretical background

2.1   Social dimension of operational alignment

At the beginning of the theoretical background, we give a literature overview on different dimensions of alignment studied in the past. In this way, on one hand, we want to show what has been investigated in the past and on the other hand we want to describe the relation between our research focus and the research gap under our investigation. This approach also gives good description and helps to better locate our research effort within the existing literature. Scholars have been focused on various dimensions of BIT alignment, such as: strategic-intellectual, structural, social, cultural, cognitive, and until only recently, operational alignment. The idea of Schlosser et al. (2012) for clarifying the separation between the organisational level and the content of BIT alignment, is very good landmark, helping newcomers in the field to overcome starting research ambiguity. By making this distinction same authors have provided an integrated categorisation of (BIT) alignment dimensions and prevented to a certain extent overlapping in future research. Regarding the organisational level, on which alignment can and should be assessed, they make a distinction between a strategic layer, a cross-domain layer, and an operational layer. Most works in the past were focused on studying alignment on a strategic and structural level, while only some on an operational level (Aversano et al., 2012; Jentsch and Beimborn, 2014). Following the categorisation of (BIT) alignment dimensions, this article is focused on the social dimension of alignment as a content of alignment and on an operational layer as an organisational level.

Taking into consideration two criteria (level of alignment and dimension), the research on BIT alignment started on a strategic level with more focus placed on the intellectual dimension, meaning how business and IT strategies and plans complement each other (Floyd and Wooldridge, 1990; Reich and Benbasat, 1996). Later researchers focused more on the social dimension of alignment concerned with relationships and cognitive linkages on the strategic level of alignment. Most of the authors had studied social relationships and cognitive linkages between business and IT executives, being members of a board of directors. The authors have acknowledged the fact that a partnership and mutual understanding between the CEO and CIO facilitates BIT alignment, and therefore enhances the contribution of the IS to business performance (Johnson and Lederer, 2010; Karahanna and Preston, 2013).

But what is meant by social alignment as a construct? Several studies significantly contributed to better understanding of the concept of social alignment. Following the classification of Schlosser et al. (2012), intellectual alignment to business and IT strategy and plans relating to one another and focusing on formal planning and documentation. On the other hand, social alignment encompasses relationships, mutual understanding, cultural issues, and an informal structure. Reich and Benbasat (2000) define social alignment as a state in which business and IT executives understand and are committed to the business and IT mission, objectives, and plans. In the literature, this is often the generally accepted definition of social alignment. Most authors have been following the approach of Reich and Benbasat in distinguishing a shared or mutual understanding about the current and future role of IT, as a short and long-term alignment (Zhao et al., 2009). In our paper, we do not make such assumption. Instead, we introduced the construct of IS change agreement and measured it as a dynamic capability.

Further, Cannon-Bowers and Salas (2001) also significantly contributed toward better understanding of the concept of shared understanding as multidimensional construct. It is valuable to mention their study because they are probably the first who call for more caution in conceptualisation and measurement of such a complex construct as shared understanding. They suggest that 'what is shared' falls into one of four categories:

1 task-specific knowledge

2 task-related knowledge

3 knowledge of team-mates

4 attitudes/beliefs.

Regarding the second term, 'shared', which constitutes the concept of shared cognition, they also identified four categories:

1 shared or overlapping

2 similar or identical

3 compatible or complementary

4 distributed.

The deconstruction of shared cognition in the proposed categories provided a much deeper understanding of shared cognition as a complex construct and gave useful directions towards its measurements. The authors themselves indicate that when researchers are studying shared cognition they should be very specific in defining what they think should be shared and what they mean by shared. The concept of shared cognition is neither simple nor unitary and in order to prevent misuse authors need to be very specific in its definition and interpretation.

2.2 *The relation between shared understanding and shared agreement*

The distinction between shared understanding and shared agreement remained blurred long time in the literature. Jentsch and Beimborn (2014) in their literature review paper presented various dimensions of BIT shared understanding addressed by scholars in the period between 1996 and 2013. The same authors concluded that aside from the existence

of various dimensions used to explain shared understanding, most of the papers make presumptions that shared understanding does not simply mean pure understanding but also a mutual consensus between business and IT professionals. In our research study we support the arguments of previous scholars (e.g., Marshall and Brady, 2001; Jentsch and Beimborn, 2014) that shared understanding by default does not imply mutual agreement.

It is valuable to understand the distinction between shared understanding and shared agreement in order to provide clear definition of the construct under investigation. Hence, Jentsch and Beimborn (2014) stress that "people can understand another person's position but not agree on the validity of this position." In addition, Haffke and Benlian (2013) support the argument that understanding and agreement are different aspects of social relationships, even though they are related. In their study, they use the perceptual congruence model to measure various dimensions of shared understanding, such as: perceived agreement, actual agreement and understanding. The distinction between understanding and agreement can be identified from the concept of ideal communication given by Habermas (1985) where communication in the end results in consensus. According to Habermas (1985), in the communication process, the receiver needs to understand the content of the message which was sent by the initiator of the communication. After that the receiver of the message needs to reply through a validity claim. By accepting the validity claim a consensus about the communication content is reached. Through this short theoretical elaboration of an ideal communication process given by Habermas (1985), it is relatively easy to notice the difference between understanding of the content of the message which is communicated and accepting the validity claim given by the receiver, related to the previously understood content.

Additionally, Chiravuri et al. (2011) pointed out that "one approach to generate consensus and resolve cognitive conflicts is needed to create a shared understanding through the use of mental models." Shared understanding helps to structure and minimise cognitive conflict, making it easier to attain consensus and positively affect group performance. Therefore, making a clear distinction between agreement and understanding and measurement of both dimensions on different alignment levels will provide better understanding of social alignment as a latent construct. However, most of the research in the past was focused on BIT shared understanding compared to mutual BIT agreement. Only Preston and Karahanna (2009) defined shared understanding as mutual agreement on the role of IT.

Following previous suggestions given by Habermas (1985) and Chiravuri et al. (2011), the construct of IS change agreement was introduced in the model of this paper and defined as: *The degree to which exists an agreement between the business and IT professionals l on IS change design, prioritisation and implementation*. The assumption behind this construct is that if business and IT professionals have a greater level of mutual understanding it would probably be easier to reach an agreement. But, as was mentioned earlier in the paragraph above, that although these two constructs are related and one might influence another, shared understanding is not the same as agreement (consensus). Thus, in this paper the construct of IS change agreement was measured as a consensus between both parties regarding specific issues related to IS changes.

3 DCT perspective on social alignment

The resource-based theory (RBT) was widely used in the past to explain IT-enabled organisational performance, but at the same time was widely criticised (Makadok, 2001) for its static perspective. DCT lay emphasis on the firm to maintain own flexibility by creating competences to address external pressure. Dynamic capabilities are the ability of the firm to maintain their flexibility. They are defined as "the ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments" (Teece et al., 1997). Dynamic capabilities differ from resources in two ways:

1 capability is always firm specific, since it is embedded in the firm structure and processes

2 the primary purpose of a capability is to enhance the productivity of other resources (Makadok, 2001).

DCT was used in the past to conceptualise strategic alignment as dynamic organisational competency. Vessey and Ward (2013) used complexity theory worldview to address sustainable IS alignment as a dynamic, multi-faceted, and non-deterministic process. Baker et al. (2011) argued that the dynamic strategic alignment competency is an enduring organisational competency built on organisational processes and routines that provides a source of competitive advantage. In their measurement approach they used three key components:

1 the degree of alignment at a given point in time

2 the organisation's history of alignment

3 the maturity of the business processes that enable IT and business strategies to co-evolve.

Sabherwal et al. (2001) used punctuated equilibrium model to show how various theories of organisation design, strategy, and information technology management can be integrated to yield insights into alignment processes.

All of the studies mentioned above were focused on dynamic strategic alignment. Schwarz et al. (2010) created DCT model to understand the impact of IT-enabled business processes and IT-business alignment on the strategic and operational success of the firm. Although they have investigated the impact of IT enabled business process on operational success they also focused on the strategic level, arguing that business processes and IT-strategic alignment are dynamic capabilities. In our research study we shift our focus in conceptualisation from strategic alignment on dynamic social alignment on operational level in order to provide contribution to the existing body of knowledge. Hence, we further adjust our model to better address the dynamic nature of operational collaboration between business and IT professionals.

Today, the global and turbulent business environment demands continuous changes and a redesign of business processes in order to adopt and survive. Consequently, business process redesign requires changes in tasks and IS services in order to provide better productivity and flexibility. Baker et al. (2011) emphasise that if the skill or ability to achieve strategic alignment can be understood as a managerial capability, it is important to examine whether this capability is temporary and static or if, instead, it is enduring and dynamic. In accordance with the view of Baker et al. (2011) IS change agreement as a construct was introduced as a managerial capability, on the operational level.

A number of studies investigated TSS as a key variable of IS success. Bharati (2003) studied how the quality of information and the characteristics of end users affect TSS. Yoo et al. (2017) in their paper investigated the antecedents of TSS in the context of electronic patient care report (ePCR) in emergency medical services (EMS). But what were the motives to include TSS in our theoretical model? The answer to this question is two-fold:

1   the decomposition of business processes

2   the turbulent and dynamic nature of business today.

The business process was defined as a complete, dynamically coordinated set of activities or logically related tasks that must be performed to deliver value to customers or to fulfil other strategic goals (Kettinger et al., 1997). Dynamic coordination implies continuous changes in IS services and the organisational tasks approach, often called business process reengineering (BPR). If we observe most of the everyday tasks performed by working people in organisations today, they are supported by IS services. Changes in IS, in the end, on an operational level result in changes in IS services used to perform everyday tasks.

But changes in these two domains must be aligned or it is very important for IS services to support individual performance by executing everyday tasks. This type of need for fit between technology and tasks is a well established theory in the field of information systems research, called task-technology fit theory, developed by Goodhue and Thompson (1995). Also, DeLone and McLean (2003) argued that one of the six IS success criteria (apart from: information quality, system quality, use, individual impact, organisational impact) is user satisfaction. The model of dynamic social alignment is compatible with the IS success model of DeLone and McLean (2003). Following these two approaches, the second construct was introduced in the model TSS, defined as: *a perceived value of level to which changes in IS services support effective completion of everyday changing tasks towards achieving better individual performance*. For both the constructs IS change agreement and TSS represents the dynamic nature of social alignment on an operational level depicting the left side of the conceptual model.

Figure 1   Conceptual model
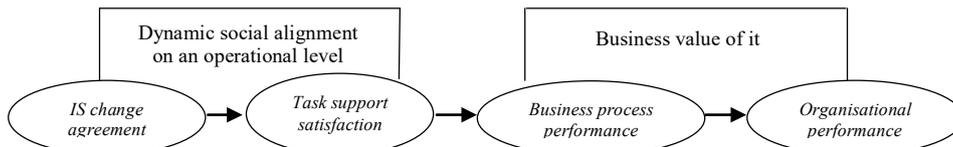
Following the theoretical model of business value of IT given by Melville et al. (2004), there were subsequently added two constructs to measure performance such as: business process performance, and organisational performance. Business process performance was defined as: *operational efficiency of specific business processes, measures of which include customer service, flexibility, information sharing, and inventory management.* Organisational performance was defined as: *overall firm performance, including productivity, efficiency, profitability, market value, competitive advantage, etc.* Following the results of deductive analysis of organisational performance in this paper, the logical assumption that follows is that organisational performance is determined by business process performance, while business process performance is determined by individual performance represented through effective execution of everyday tasks in a changing environment supported by IS services.

Figure 2 Mediation model
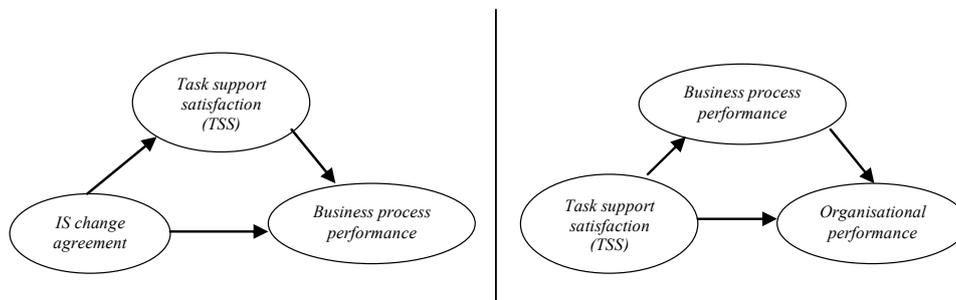
Information systems are designed with the intention of helping workers perform their tasks (Bharati, 2003). Also, previous studies showed that information systems have had an impact on a personnel's ability to perform the tasks within the business process subsystem (Yoo et al., 2017). Lyytinen and Newman (2008) suggest that IS change can be viewed simultaneously as technical and social change. According to them, the change of information systems covers the generation, implementation, and adoption of new elements in an organisation's social and technical subsystems that store, transfer, manipulate, process, and utilise information (Lyytinen and Newman, 2008). They further stress that socio-technical systems during IS change are open and that they need continuously to adapt to their environment to maintain the system state stable. System stability involves stable relationships within and between the system components and its environment. In such a state the system can respond adequately in relation to its task, and its performance does not deteriorate (Lyytinen and Newman, 2008).

Therefore, we investigated two mediation effects:

1 how TSS mediates the effect of IS change agreement on business process performance

2 how business process performance mediates the effect of TSS on organisational performance.

Goodhue and Thompson (1995) stressed that a key concern in information systems research is the better understanding of the linkage between information systems and individual performance. In their research study, they highlighted the importance of the fit

between technologies and users' tasks in achieving individual performance. In our study, we followed their call for decomposition of task-technology fit into more detailed components (such as: IS change agreement and TSS) in order to use them as a tool to better evaluate whether information systems and services in a given organisation are meeting user needs.

4   Research model and hypothesis

Taking into account the previously explained conceptual model, five hypotheses are proposed for testing. Each of the hypotheses corresponds to the model explained in Figure 1, and below the ratio behind each of the hypotheses is briefly described. Firstly, following the need for greater flexibility of business processes, today as a result of the dynamic nature of the business environment, this logically leads to the constant need for changes in business processes taking the form of necessity. Business process reengineering as an approach requires continuous changes in everyday tasks to provide the required flexibility of business processes. Furthermore, since tasks as composite elements of business processes are subject to changes, IS services must change as well in order to support their effective execution. Therefore, the higher level of agreement between the business and IT professionals about the IS changes would provide better support for the execution of everyday dynamic tasks. The assumption is that if there is greater agreement on several questions regarding IS changes, such as:

1   how IS change requests would be managed and prioritised

2   how changes would be tested

3   how users will be notified about changes

4   how comments from users would be incorporated in IS changes

5   how changes will be implemented

6   when changes will be implemented, etc., then greater support for tasks would be provided by those IS changes.

Following this logic, Hypothesis 1 is formulated as the following:

H1   Higher levels of agreement among the business and IT professionals regarding IS changes will lead to a higher value of ISS/task support.

The second hypothesis is that companies that have a higher level of agreement among the business and IT professionals regarding IS changes will hence achieve higher levels of business process performance than those that do not. A higher level of agreement for IS changes should provide a greater perceived value of the support by input/output IS services in the completion of everyday changing tasks. If changes in information systems provide reliable and available input/output IS services which provide accurate data, data on the appropriate level of detail, timely data, etc., through the use of which users can effectively fulfil their tasks, then this would lead to better business process performance. Therefore, the second hypothesis is formulated as:

H2   Higher levels of perceived TSS will lead to greater business process performance.

The third hypothesis follows the model of business value of IT, proposed by Melville et al. (2004), where business process performance will lead to better organisational performance. Organisational performance on a large scale is determined by business process performance.

H3   Higher levels of business process performance will lead to greater organisational performance.

The fourth hypothesis tests the mediation role of TSS on business process performance. The assumption behind the mediation role of the perceived value of TSS is that if there is a higher level of agreement for IS changes the level of perceived value of the services would be higher. As a result the users' satisfaction from IS service design and implementation would be higher, which should further lead to more effective task execution. If tasks as constitutive parts of the business process are executed in a more productive manner then the business process performance would be 'transformed' by IS changes/task support. Thus, the fourth hypothesis is formulated as:

H4   TSS mediates the influence of IS change agreement on business process performance.

The fifth hypothesis tests the mediation business process performance on organisational performance. The business process performance is reflected in the KPI's of organisational performance. The mediation role of business process performance 'transforms' TSS into better organisational performance. Business process performance can effectively mediate the influence of TSS on organisational performance if the process of managing changes in information systems is supported by a high level of mutual agreement among both parties. Thus, the fifth hypothesis is formulated as:

H5   Business process performance mediates the influence of TSS on organisational performance.

4.1   Measurement

Based on the introduction, theoretical background, and the conceptual model depicted in Figure 1, the constructs were firstly defined. The definitions of the constructs and their corresponding references are presented in Table 1. In order to give a proper explanation of the process of translation of constructs into survey items used to measure the previously defined variables, a useful approach used by Schwarz et al. (2010) was followed in this study.

Many scholars (e.g., Wagner and Weitzel, 2006; Johnson and Lederer, 2010; Aversano et al., 2012) argue that empirical research regarding alignment on an operational level is very rare. Therefore, as suggested by Eisenhardt (1989) the measurement items for the variable IS change agreement have been derived from a validated questionnaire and adjusted to the research purpose of this article. The other three constructs (task-technology fit, business process performance, and organisational performance) from the model have been operationalised according to theoretical definitions derived from prior work. All constructs from the model were measured by ascription of the quantitative value to qualitative data by multi item measures. Business and IT specialists were asked to rate each of the items using a seven-point Likert scale where 1 indicates 'strongly disagree' and seven indicates 'strongly agree'.

Table 1   Model constructs, definition, survey items, and their corresponding references

Construct	Definition of construct	Translation of construct to items	Items	Theoretical reference
IS change agreement	The degree to which exists an agreement between IT and the business personnel on IS change design, prioritisation and implementation.	The social dimension of operational alignment was measured through mutual consensus between business and IT professionals on IS changes. A general agreement between two groups of professionals in terms of providing IS services is required to support everyday tasks.	Q5, Q6, Q7	Subramani and Henderson (1999), Johnson and Lederer (2010) and Beimborn (2012)
TSS	A perceived value of level to which changes in IS services support effective completion of everyday changing tasks towards achieving better individual performance.	Business processes/activities constitute a system of interrelated tasks whose efficient execution is supported by IS services. In this construct users' satisfaction of IS services based on support for task completion is measured.	Q8, Q9, Q10, Q11	Goodhue and Thompson (1995), DeLone and McLean (2003) and Yoo et al. (2017)
Business process performance	Operational efficiency of business processes.	The benefits of IT-enabled business process reengineering were used to develop measures for business process performance. Business process reengineering (BPR) requires IS changes, therefore the benefits from BPR were translated in operational measures for business process performance.	Q12, Q13, Q14, Q15	Al-Mashari and Zairi (2000)
Organisational performance	Overall firm performance, including productivity, efficiency, profitability.	Based upon Melville et al. (2004) and Chan et al. (2006) five measures for organisational performance were selected.	Q16, Q17, Q18, Q19	Cragg et al. (2002) and Melville et al. (2004)

5 Method and data collection

The data for this study was collected from the Macedonian banking and telecommunications industry. These two sectors were selected because various scholars and industry reports have indicated these two sectors as one of the highly IT intensive sectors. At the very beginning, initial contacts and short meetings with IT managers from all the organisations were established. In communication with IT managers, what was highly stressed was the need for having e-mail contacts from two types of employees from their organisations:

1   Business professionals whose daily tasks have been significantly affected
    by IS changes or business users who were involved in IS change or IT project
    implementation which brought about significant changes in daily operations in the
    past three years.

2   IT professionals who were involved in the IS change control process by executing
    some tasks related to the same process, such as: change classification, approval,
    change communication, documentation, testing, implementation, etc. We included IT
    professionals in the survey because their view can aid in comprehending the effect of
    IS on TSS. In order to develop a profound understanding of how IS supports these
    tasks, it is important to study the perceptions of not only the employees but also the
    IS department (Jiang et al., 2002; Bharati and Berg, 1999).

To collect data to test the research model, an online survey was conducted. The questionnaires were mailed to business and IT specialists in the organisations selected from the above described criteria and contact lists obtained from organisations. To avoid the potential problem with common method bias several steps were taken:

1   we randomised the question order to disrupt potential interference between questions

2   we protected respondent's anonymity

3   we pre-tested the survey instrument by a representative group.

A total of 15 organisations participated in the online survey conducted in 2015, where 13 organisations were banks and three were telecommunications companies. This procedure resulted in a sample of 123 responses from a total of 172 sent questionnaires, and a 71.51% rate of response was achieved. Seven questionnaires were removed from the initial data sample; five as a result of too many missing values, and two as a result of a low level of engagement of the servants (there was no variation in the responses). Data analysis was performed on the reduced sample size, consisting of 116 responses in total. 65 respondents were business specialists, while 51 were IT specialists. According to the suggestion of Joseph et al. (2009) the minimum sample size of 100 is required for models which contain five or fewer constructs, each with more than three items (observed variables) and with high item commonalities (0.6 and higher). Following this suggestion the sample size of 123 responses satisfied the threshold for the minimum size of the sample to perform structural equation modelling (SEM). The distribution of demographic characteristics is presented in the Appendix Section 2, Tables A1 and A2.

6 Results and discussion

In the proposed research model, all the constructs are latent variables. A latent variable is a variable that cannot be measured directly, but can be measured by linking it to a set of items that can be measured directly (Schwarz et al., 2010). According to the measurement limitations, an appropriate technique for latent variables was selected, termed SEM. SEM allows for simultaneous testing of all the relationships in the research model (Chin, 1998). To analyse the theoretical model, both the measurement and structural model were examined. The psychometric properties of the scales are assessed in terms of item loadings, discriminant validity and internal consistency. Item loadings and internal consistencies close to and greater than 0.70 are considered acceptable (Fornell and Larcker, 1981). First the measurement model was examined in order to examine the adequacy of the measures. The examination of individual items reliabilities, represented by the loadings to their respective construct, should tell whether items are measuring the constructs, as they were designed. According to Chin (1998), "standardised loadings should be greater than 0.707."

Table 2   Items and constructs loadings for the research model

Items	*Constructs*	*Standardised regression coefficients*
ISC/A 1	IS change agreement	0.835***
ISC/A 2	IS change agreement	0.765***
ISC/A 3	IS change agreement	0.734***
ISS/TS 1	TSS-task support satisfaction	0.634***
ISS/TS 2	TSS-task support satisfaction	0.663***
ISS/TS 3	TSS-task support satisfaction	0.859***
ISS/TS 4	TSS-task support satisfaction	0.675***
BPP 1	Business process performance	0.894***
BPP 2	Business process performance	0.89***
BPP 3	Business process performance	0.597***
BPP 4	Business process performance	0.609***
Op 1	Organisational performance	0.848***
OP 2	Organisational performance	0.981***
OP 3	Organisational performance	0.823***

Notes: Fit indices: x^2/df = 99.04; GFI = 0.62; AGFI = 0.834; CFI = 0.96; RMSEA = 0.05.
Recommendation criteria: x^2/df < 2; goodness-of-fit-index (GFI) > 0.90;
adjusted goodness-of-fit index (AGFI) > 0.90; comparative fit index (CFI) > 0.90;
root mean square error of approximation (RMSEA) < 0.05; ***significant at
$p < 0.001$.

Table 3 Composite reliability and correlations among the constructs

	Number of items	CR	AVE	Business process performance	Task support satisfaction (TSS)	Organisational performance	IS change/agreement
Business process performance	4	0.841	0.579	0.761			
IS service/task support	4	0.803	0.59	0.609	0.713		
Organisational performance	3	0.916	0.786	0.419	0.342	0.887	
IS change/agreement	3	0.823	0.608	0.557	0.629	0.306	0.78

Examining the loadings for each of the items in Table 2 indicates that most of the items largely meet Chin (1998) threshold of 0.707, confirming internal consistency of the measures. Five items whose loadings were very close to 0.70 (as ISS/TS 1 – 0.634, ISS/TS 2 – 0.663, ISS/TS4 – 0.675; BPP3 – 0.597, BPP4 – 0.609) were accepted for further analysis because their loadings were very close to the recommended threshold. All coefficients which measure the co-variances between variables were way below the allowed threshold of 0.8. The strongest covariance relationship was between ISC/A and ISS/TS, 0.63. Composite reliabilities were created from the loadings presented in Table 3, which shows the number of items and the composite reliabilities for each construct. The results indicate that all of the constructs are reliable because the recommended threshold of 0.80 was met.

To evaluate discriminant validity, the average variance extracted (AVE) for each construct should be greater than the squares of the correlations between the construct and all the other constructs (Fornell and Larcker, 1981). In Table 3, all of the AVE are greater than the recommended 0.50 level and the square root of the AVE is greater than the correlations between the constructs. The AVE value for business process performance (0.579), and particularly for TSS (0.59), is close to the recommended threshold of 0.5, but still above the required minimum to convey sufficient variance for the variables to converge into a single construct. In the validation of the structural model, hypothesised relationships between the constructs were examined.

Figure 3 Research model
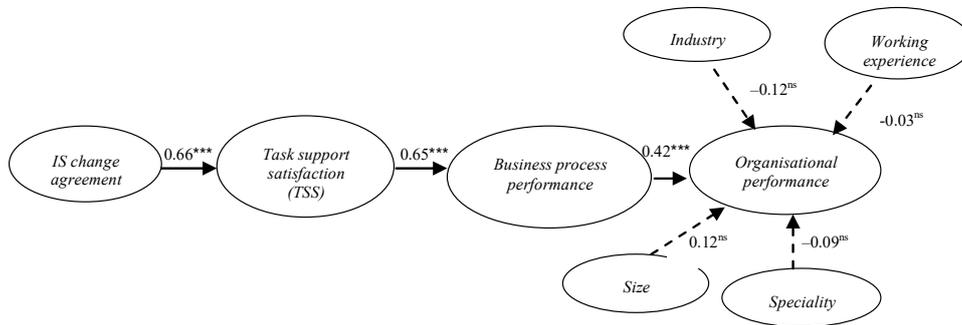
Notes: Fit indices: $x^2/\text{df} = 169.27$; GFI = 0.651; AGFI = 0.813; CFI = 0.939;
       RMSEA = 0.063.

The results from Table 4 confirm most of the hypothesised positive and direct relationships. The strongest positive relationship is between IS change agreement and TSS (0.66***) supporting hypothesis H1. Additionally, a positive relationship was confirmed between TSS and business process performance, and a positive relationship between business process performance and organisational performance. These results support H2 and H3. Regarding the control variables' industry, size, speciality and working experience p values are higher than 0.05 (p > 0.05) or even negative showing that these relationships do not have influence on the model.

Table 4 Results from testing hypothesis H1, H2 and H3

Testing hypothesis			Standardised regression coefficient
H1: TSS	<---	H1: IS change agreement	0.66***
H2: Business process performance	<---	H2: Task support satisfaction (TSS)	0.65***
H3: Organisational performance	<---	H3: Business process performance	0.42***

Notes: ns = non-significant, ***p < 0.00; **p < 0.01; *p < 0.005.

In order to test hypotheses H4 and H5 a mediation analysis was performed following the Baron and Kenny (1986) approach. The results from the mediation analysis are presented in Table 5.

Table 5 Results from testing mediation (H4 and H5)

	Relation	Direct relationship without mediator	Direct relationship with mediator	Type of mediation
1	[IS change agreement] – [task support satisfaction (TSS)] – [business process performance]	0.547 (p = 0.001)	0.285 (p = 0.027)	Partial mediation
2	[Task support satisfaction (TSS)] – [business process performance] – [organisational performance]	0.314 (p = 0.03)	0.09 (p = 0.488)	Full mediation
3	[IS change agreement] – [task support satisfaction (TSS)] – [organisational performance]	0.287 (0.05)	0.095 (p = 0.4)	No mediation
4	[IS change agreement] – [business process performance] – [organisational performance]	0.287 (0.05)	0.163 (p = 0.241)	No mediation

The results from the mediation analysis proved the partial mediation role of TSS in the relationship between IS change agreement and business process performance. The regression coefficient significantly dropped (from 0.547 to 0.285), but is still significant p = 0.027 < 0.05, indicating partial mediation according to the approach by Baron and Kenny (1986). The mediation analysis also proved the mediating role of business process performance in the relationship between TSS and organisational performance. Since the regression coefficient declined considerably (from 0.314 to 0.09) and the relationship changed from significant to non-significant (0.03 = > 0.48 > 0.05), a full mediation is confirmed. Based on the mediation analysis, we can conclude that H4 was partially confirmed, while H5 was fully confirmed from the data results.

The results suggest that TSS transmits some of the effects of IS change agreement on business process performance in improving organisational performance. In addition, business process performance fully transmits the effect of TSS on organisational performance. Two other mediations were tested (3 and 4 in Table 5) only to provide better reliability of the results, and no mediation was confirmed, which gives additional strength to the obtained results.

Figure 4 Mediation analysis
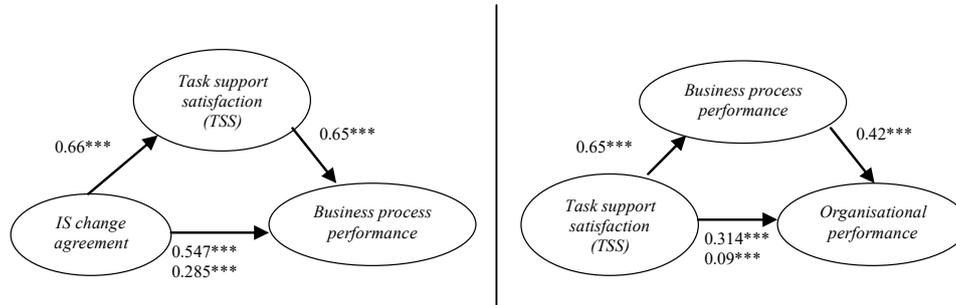
The empirical analysis confirmed the previously stated hypothesis. The validation of the structural model confirmed that greater IS change agreement has a positive influence on TSS, which eventually should provide better business process performance and organisational performance. Through the analysis of the results the concept of dynamic social alignment on an operational level can be established. This concept requires maintaining a refurbished agreement on IS change by continuous adjustments and readjustments of the IS services which support business tasks. It requires users to be well-informed and notified for the changes made in the information systems. This concept expects users to be involved on a higher level when changes are made in IS. Practices such as signing the IS change by a users' representative, giving submissions and comments prior to change are welcome. Developing this type of practice can maintain a stronger dynamic social alignment on an operational level, which in return can bring better business process performance and organisational performance.

6.1   Research limitations

The research endeavour of the article was to take a close-up view on the relation between agreement on IS changes and dynamic everyday business tasks, and seeing if that relation further extends to organisational performance. This article certainly contributes to the existing body of knowledge, yet it has inherent limitations that warrant caution in the interpretation of the results. Firstly, the whole study was based on data collected from one small country (R. Macedonia) and the data sample is relatively small to provide a stronger generalisation of the results. Secondly, the data has been collected in a specific point in time, which means that longitudinal trends cannot be derived from the study. Third, IT professionals included in the survey study might be biased towards the quality of IS services. Fourth, although we have dealt with the potential issue of common method bias ex ante we still need to be cautious in interpretation of the results. Fifth, the use only of positivist approach and survey methodology can limit the level of understanding of the phenomena under investigation. Therefore we call for future research which can include other research methods such as cross-case study approach to extend the knowledge regarding the studied phenomena. Finally, a subjective interpretation of the study's results by the author can be also strong limitation of the study.

7   Implications for theory and practice

The findings of this study offer several theoretical and practical implications. First, to the best of our knowledge this is first attempt to introduce dynamic capability theory (DCT) on social alignment on operational level. The process of IS changes has inherent dynamic nature which goes in line with the need for continuous redesign of business processes in order to adopt and survive. Hence, this approach of DCT address better the question of IS changes as part of the collaboration process between business and IT professionals on operational level. Further, it sets the foundation for future research and improvements of the conceptual model.

Second, our research study suggests that although reaching shared understanding between business and IT professionals is very important it is also important to be aware about maintaining IS change agreement as managerial capability. Most of the studies in the past (Wagner et al., 2014) were focused on B-IT shared understanding, not explicitly including shared agreement in the conceptual modelling and empirical testing. The fit between IS change agreement and TSS should endure as social structure under the influence of constant pressure for business process redesign. Hence, more research in future can be conducted on exploring the key constructs which represent dynamic nature of social alignment on operational level.

This research study offers some interesting implications for practitioners. Business and IT professionals need to be aware about the temporal nature of IS change agreement. Therefore they need to strive to build capacity for achieving sustainable fit between IS change agreement and TSS. This means that both parties (business and IT) should invest continuously more resources and time to nurture the dynamic social alignment on operational level in their own organisation in order to improve organisational performance.

8   Conclusions

This research has focused on examining the effects of IS change agreement on TSS and organisational performance in two man industries: the telecommunications and banking industry. This paper's focus was placed on the dynamic social alignment on operational level. In order to better understand the key variables regarding dynamic social alignment on an operational level, a conceptual model was developed. Two main building blocks were incorporated into the model:

1   dynamic social alignment on an operational level

2   IT business value.

Based on the theoretical model, an empirical study was conducted. In the first building block, the relationship between IS change agreement and the perceived value of TSS was tested and a positive relationship was confirmed. Therefore, the business and IT professionals must reach a strong agreement regarding the changes in IS. Apart from the need for mutual understanding they must agree also on the design, timing, testing, prioritisation, etc., on continuous base. Only if the organisation can provide good collaboration between both parties, which involves not only understanding but agreement as well, can a higher level of operational alignment be obtained.

Although the mediating role of the variable TSS was partially supported, a positive relationship between the perceived value of TSS and the business process performance was also confirmed. This means that business and IT people clearly identify the value of the support role of IS services on task execution and its relation to the business process performance. This is a sign for business managers that the change of IS services should always be done in the light of their role of support for better business process performance. Additionally, the mediating role of business process performance was supported, meaning that the support role of IS services can be translated to organisational performance only through business process performance. The two other mediations which were tested and not supported give the argument for reinforcing the mediation role of business process performance.

The value of the paper is in the research endeavour to introduce the concept of dynamic operational alignment and understanding how dynamic alignment on operational level affects organisational performance. In the end, a future research which will involve more longitudinal studies, a bigger sample, and data from longer time period could give better results, regarding the concept of dynamic operational alignment and organisational performance. Future research can also use different research designs, such as case study approach or action research, in order to give better results regarding dynamic social alignment on an operational level and its relation to organisational performance.

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Appendix

A1 Survey instrument used in the research

A seven-point Likert scale was used to evaluate respondents' answers.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1	2	3	4	5	6	7

1 Which industry does your organisation belong to?

    1   Banking

    2   Telecommunications

2 What is the number of employees in your organisation?

    1   1–50

    2   51–100

    3   101–150

    4   151–200

    5   201–250

    6   251–300

    7   301–500

    8   501–1,000

    9   Above 1,000

3 Do you belong to:

    1   IT personnel

    2   Business personnel

4 Did you have any working experience related to information systems change (for example, submitting an IS change request, leading or participating in projects for implementation of IS changes, giving suggestions for IS changes, etc.?

    1   Yes

    2   No

If the answer to the previous question is no, please do not fill in the rest of the survey.

Q5 IT and business personal achieve agreement about most of the changes in the IS services.

Q6 IT and business specialists are prepared to make compromises in the design and implementation of IS service changes.

Q7   IT and business specialists have an agreement regarding the priority of the implementation of IS changes.

Q8   Changes implemented in IS services provide me with current data which I need to carry out my everyday tasks.

Q9   Changes implemented in IS services provide me with sufficiently detailed and aggregated data to carry out my everyday tasks.

Q10   Changes implemented in IS services provide me with support to easily find data for a particular subject and purpose.

Q11   Changes implemented in IS services provide me with critical data which are very useful for successful completion of my everyday tasks.

Q12   Business processes are well optimised and they have minimised the waiting time for the client.

Q13   Business processes are well integrated and they eliminate the need for execution of unnecessary tasks.

Q14   Business processes are executed on a regular basis without any breaks, delays or errors.

Q15   The role of human factor in information sharing needed for different business processes is reduced to a minimum.

Q16   Our organisation has increased productivity and reduced operational costs.

Q17   Our organisation has increased its market share and achieved sales growth.

Q18   Our organisation has increased its income and profit.

Q19   Our organisation has improved customer satisfaction and loyalty.

A2   Demographics

Table A1   Number of employees and number of companies

Number of employees	Number of companies included in the survey	Percentage
1–100	1	6.66%
101–200	3	20%
201–300	2	13.33%
301–500	5	33.33%
501–1,000	1	6.66%
1,000	3	20%
Total	15	100%

Table A2 Industry distribution

Industry	Percentage	Number
Banking	80%	12
Telecommunications	20%	3
Total	100%	15