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ORIGINAL ARTICLE

A systematic literature review on business-IT misalignment research

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Abstract
There has been a large body of research on strategic alignment between business and information technology, which has also been summarised in several literature reviews. All of these studies describe that business-IT alignment has remained a focal point among business and IT leaders. However, little is known about a specific perspective, namely, on business-IT misalignment, on which, although some analytical works have been carried out over the last twenty years, no literature review has been summarised. The purpose of this article is to display and analyze relevant literature regarding business-IT misalignment and map the influential issues by conducting a systematic literature review. This study collected in sum 642 papers published from the Scopus and Google Scholar databases. Finally, 62 articles were selected for the systematic review. The study examined eight research questions for business-IT misalignment derived from recent, high-impact business-IT alignment literature reviews. Results are analyzed qualitatively to find a better understanding of the current body of knowledge in business-IT misalignment and to provide a research agenda.

Keywords Strategic misalignment · Business-IT misalignment · Misfit · Systematic literature review · Literature review

1 Introduction

Thirty years have passed since the first and most influential strategic alignment models describing the relationship and interaction between business and information technology (IT) domains were published, such as the MIT Model (Scott Morton 1991), the MacDonald Model (MacDonald 1991), the Baets Model (Baets 1992),

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the Amsterdam Information Model (AIM) (Maes 1999; Maes et al. 2000), and Henderson and Venkatraman's Strategic Alignment Model (SAM) (Henderson and Venkatraman 1992, 1993), thus laying the foundation for research in this area. Of these, it is safe to say that Henderson and Venkatraman's SAM model has had the greatest impact on the research field (Jia et al. 2018). Much subsequent research has built on the initial holistic models, for example by making various additions (see for example the works of Luftman et al. (1993), Goedvolk et al. (1997), and Avison et al. (2004) as additions to the SAM model).

However, in addition to the initial models and their additions, significant steps have been taken in several other directions to broaden the understanding and scope of the business-IT alignment (BITA) research field. These include different alignment typologies and classifications, providing different alignment levels and perspectives, contributing to the wide range of alignment assessment, evaluation, and measurement methods, or providing different process models of alignment. Among the various lines of alignment research, misalignment studies appeared in the early 2000s, which start from the failures to achieve the desired alignment state, but still aim to achieve this state by some method.

The topic of business-IT alignment has already been analyzed in detail in the literature and numerous literature reviews have been prepared to examine different aspects of BITA. Certain reviews focused on one alignment angle or discussed one specific topic's relationship with BITA. For instance, Jonatan et al. (2020) proposed a recent BITA literature review in the light of digital transformation, while Munoz and Avila (2019) focused on alignment measurement in their review. Other works examined the topic from a quantitative point of view, for instance, a meta-analysis was performed by Gerow et al. (2014). Jia et al. (2018) conducted a bibliometric analysis of the BITA literature. In the past 15–20 years, many extensive BITA literature reviews have been published (e.g., Chan and Reich 2017; Aversano et al. 2012), which were followed by recent systematic literature reviews (SLRs) on the topic (Ullah and Lai 2013; Sposito et al. 2016; Njanka et al. 2021). It can be stated that the last few years have brought a resurgence of additional valuable synthesis works in the field of strategic alignment. Still, none of them have devoted dedicated attention to the topic of misalignment. These literature reviews usually mentioned the phenomenon of misalignment (e.g., Chan and Reich 2007; Aversano et al. 2012; Ullah and Lai 2013; Jia et al. 2018; Jonatan et al. 2020), and perhaps even displayed it among the categories of the examination toolbox (Munoz and Avila 2019), but until now, there has not been a comprehensive literature review with a dedicated focus on the synthesis of business and IT misalignment results. This contribution closes this gap in the academic literature by providing the first comprehensive literature review on business-IT misalignment research.

In the past literature, there are only a few summaries on misalignment literature, and all of them are only parts of a broader topic. The works of Carvalho and Sousa (2008a, b, c, 2009) can be referenced as the first major literature summaries on misalignment. Later, a few studies, for example, Őri (2013, 2014b, 2017c), El-Telbany and Elragal (2014), AlGhazi et al. (2018, 2018) and Peng et al. (2021) contained misalignment literature summaries as theoretical background for a specific research direction.

The need for a comprehensive business-IT misalignment literature review can be reasoned threefold: First, it reviews the related literature and helps to gain a broad understanding of the topic. Second, it explores the different research directions on the subject and helps to define the research topics that make up the mainstream. Third, relevant further research directions can be derived from the detailed study of the articles.

To this end, this paper aims to provide a systematic literature review on business-IT misalignment to map the current body of knowledge and to identify the research shortcomings in the topic. Therefore, the paper focuses on three main research objectives: (1) to identify relevant studies related to business-IT misalignment, (2) to analyze and integrate contributions from the collected studies, and (3) to synthesize insights from related literature to determine possible future research directions.

As a result, this study provides three contributions to the academic audience. First, it broadens our understanding of business-IT misalignment by exhibiting a comprehensive overview of the state of the art in this field. Second, it answers eight influencing research questions derived from recent, high-impact business-IT alignment literature reviews. Third, it highlights the current challenges and issues around the research topic and suggests directions for future research.

As the authors of the first comprehensive literature review on the field of business-IT misalignment, we feel the need to briefly justify the selection of the research questions incorporated in the following review. Further justifications and literature review citations can be found in Sect. 2 Research Methodology.

- The most significant misalignment studies of the last twenty years have been carried out with different objectives in mind. This review collects and analyzes the various common goals for conducting research in the field of business-IT misalignment.
- Few authors have attempted to define business-IT misalignment, but at the time of writing, there is still not a universally accepted and adopted definition for the phenomenon. This review provides an overview of different misalignment definitions and compares them to explore similarities, differences, and potential hidden factors.
- An almost inescapable issue in explorative literature reviews is the search for possible perspectives and angles to approach a research topic. This review aims to address this unexploited issue by collecting and presenting the most influential angles of business-IT misalignment analysis. Once the explorative analyses have been carried out, we will see that the literature is far from complete in terms of the approaches in use, and there will remain unprocessed aspects to address as part of future work.
- A traditional topic of business-IT alignment literature reviews is the range of research topics associated with alignment research. By analogy, in this review, we collect and analyze the various research topics found in recent misalignment literature.
- Traditionally, in the history of both business-IT alignment and misalignment studies, the focus has always been on the influential models, which laid the foundations and moved forward the development of later alignment and misalign-

ment analyses. This review contains a summary and evaluation of business-IT misalignment models proposed in the last two decades.
- The use of different tools and techniques has received growing attention over the last two decades in both business-IT alignment and misalignment literature. On this basis, the article also discusses in detail the emerging tools and techniques in the field of misalignment.
- The collection of previous classifications and taxonomies in misalignment studies and the analysis of their characteristics have been scattered and have not been dealt with in depth in recent literature. Therefore, this review builds a fundamental basis for the evaluation of available misalignment classifications and sets the stage for a deeper analysis proposed as future work.
- Finally, a neglected though promising area in the field of misalignment (and of alignment) is theory building and testing. Therefore, this review aims to collect and synthesize recent results in theories used in business-IT misalignment studies.

The rest of the paper is organized as follows: Sect. 2 summarises the research methodology in use. Section 3 elaborates on the answers to the research questions. Section 4 contains a detailed discussion of the results. Section 5 concludes the paper, formulates limitations and provides directions for future work.

2 Research methodology

2.1 Research approach

To provide a structured overview of previous misalignment research, the guidelines of a systematic literature review were followed (Webster and Watson 2002; Kitchenham and Charters 2007). The principles for conducting a systematic review in the information systems (IS) field were adapted from Okoli and Schabram (2010) and Okoli (2015). By applying the systematic literature review method, we aimed to identify, evaluate, and interpret related literature on business-IT misalignment. The following subsections describe the overall article review plan, including the presentation of research questions, and the summary of procedures used for literature collection, literature screening, and literature analysis.

3 Research questions

We followed the suggestions of Okoli and Schabram (2010) and Okoli (2015) regarding the priority of formulating research questions (RQs). Previous literature reviews about business-IT alignment (Chan and Reich 2007; Aversano et al. 2012; Ullah and Lai 2013; Gerow et al. 2014; Sposito et al. 2016; Jia et al. 2018; Munoz and Avila 2019; Jonatan et al. 2020; Njanka et al. 2021) were examined to synthesize what alignment topics were already discussed. Topics covered in previous BITA literature reviews helped us in formulating relevant research questions regarding

business-IT misalignment, which is truly related to the existing BITA research. This study will review the literature by answering the research questions formulated in Table 1. The table also contains references to earlier BITA literature reviews already addressing these research questions. Except for the last research question (RQ8), the origin of each research question could be determined using previous influential BITA literature reviews. Since previous BITA literature reviews did not analyze alignment theories, the present paper can be determined as the origin of RQ8.

3.1 Literature collecting and screening

To collect the relevant research material for the review, different search engines and scientific databases were used. Our literature-collecting method was primarily built on the Scopus multidisciplinary database and was later supplemented with other search engines for forward and backward author and reference searches.

First, the Scopus database was searched for the terms "business-IT misalignment" and "strategic misalignment" during August of 2023 as follows: "business AND IT AND misalignment" and "strategic AND misalignment". The terms were searched within article titles, abstracts, and keywords, and initially, the search was not limited to a specific time span. Using the above-formulated scope, the keyword search yielded a total of 700 research results, which consisted of the following components: Scopus searches resulted in 334 documents for the term “business-IT misalignment” and 366 documents for the term “strategic misalignment”.

After filtering out duplicates, inclusion and exclusion criteria were identified and applied. The following exclusion criteria were applied: E1) Documents whose titles were irrelevant and not-matching were excluded. E2) Documents with not-matching abstracts were excluded. E3) Documents with not-matching keywords were excluded. E4) Articles in press were excluded. E5) Papers in irrelevant subject areas were excluded. E6) Articles published in languages other than English were excluded. E7) Documents published before 2000 were excluded. On the remaining list, the following inclusion criteria were applied: I1) Finished, peer-reviewed articles, that intended to cover the topic of business-IT or strategic misalignment were included. I2) The subject area spanned primarily computer science and business, management, and accounting. I3) Document types covered articles, conference papers, book chapters, and reviews.

After performing Scopus search, additional studies were identified via backward and forward author and reference search, following the suggestions of Okoli and Schabram (2010) and Okoli (2015). We used mainly the Google Scholar research engine with some additional searches within the ACM Digital Library, IEEE Xplore, SciTePress, SpringerLink, and Elsevier search engines. In the phase of backward and forward author and reference search, I3 from the above-introduced inclusion criteria was no longer applied, allowing, for instance, relevant doctoral dissertations to be included in the final list for analysis.

In our SLR we considered selecting only those papers that have been published within the timeframe of years 2000–2023. We agreed with the argument of Sposito et al. (2016) that the year 2000 can be considered a watershed in terms of

Table 1 Summary of research questions

RQ#	Research question	Reference from earlier BITA literature reviews
RQ1	What are the goals of the analyzed business-IT misalignment studies?	Aversano et al. (2012), Sposito et al. (2016), Munoz and Avila (2019)
RQ2	What definitions were proposed for business-IT misalignment?	Chan and Reich (2007), Ullah and Lai (2013)
RQ3	What are the possible angles to approach business-IT misalignment?	Chan and Reich (2007), Ullah and Lai (2013), Sposito et al. (2016), (Jia et al. 2018), Munoz and Avila (2019), Jonatan et al. (2020)
RQ4	What different research topics were associated with business-IT misalignment research?	Aversano et al. (2012), (Ullah and Lai 2013), Sposito et al. (2016)
RQ5	What models of business-IT misalignment management have been proposed?	Chan and Reich (2007), Aversano et al. (2012), Ullah and Lai (2013), Jia et al. (2018), Jonatan et al. (2020), Njanka et al. (2021)
RQ6	What kind of tools and techniques were used in misalignment research?	Munoz and Avila (2019)
RQ7	What kind of classifications has been made in misalignment research?	Chan and Reich (2007), Ullah and Lai (2013), Jia et al. (2018)
RQ8	What kind of theories has been applied to business-IT misalignment research?	–

elaboration and consolidation in BITA research, and therefore, also in business-IT misalignment research. In addition, since the review was finalized in 2023-Q3, only 2023-Q1 and 2023-Q2 articles were included in the review from year 2023. Other study selection criteria, like research design applied, preferred research approach or setting were not used.

Finally, studies included in our literature review consisted of 62 articles. Figure 1 summarises the process of literature collection and screening.

3.2 Literature analysis

In this study, our goal was qualitative content analysis, focusing on the content the collected papers added to the literature body of business-IT misalignment. Therefore, meta-analytic topics, like author, citation, timespan, and location analyses were omitted. Extracting existing literature helped us to answer the above-listed research questions and created a deep understanding of the state-of-the-art business-IT misalignment literature. To answer the research questions, the following data were extracted from the refined list: author(s), title, year, source title, volume, issue, page start, page end, DOI, abstract, author keywords, and document type. The full-text

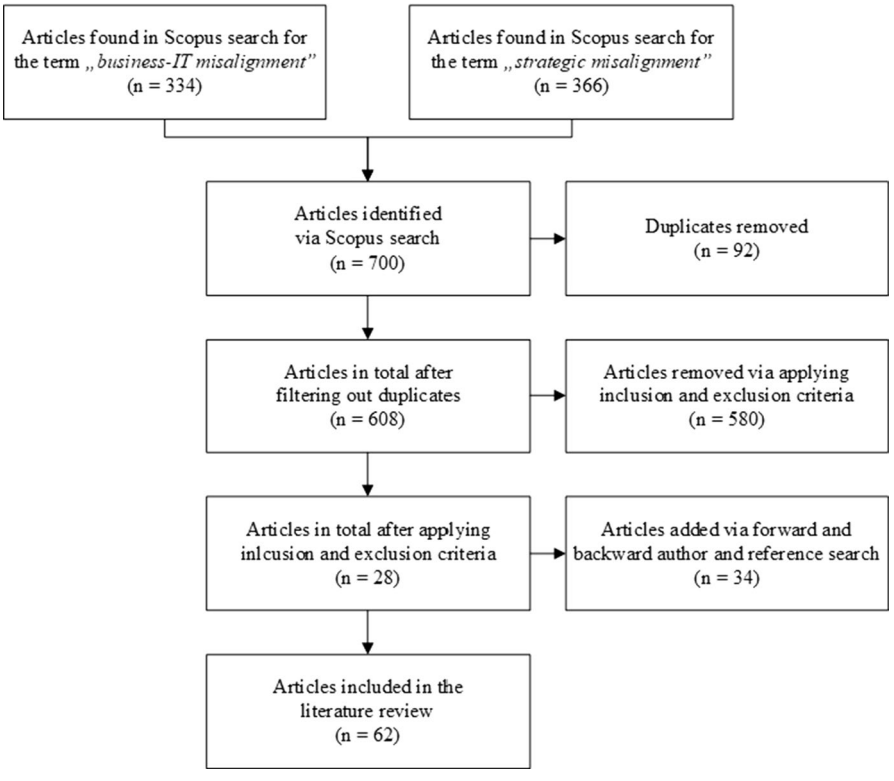

Fig. 1 The process of literature collection and screening

versions of the articles were carefully revised, and the following data were extracted for building the topics of the literature review: research topic, research approach, research questions, findings, discussion, and conclusions, including future work directions. Appendix contains the analyzed papers in chronological order.

4 Results

The section will be partitioned by the research questions. To ease tracking, in the Results and Discussion sections, analyzed papers will be referenced with the numbering used in Appendix. In tables, only the numberings will appear, while both citations and numberings will help the reader in tracking in text.

4.1 RQ1. Goals of the papers

In the papers under examination, several different goals were identified, as listed in Table 2. Some studies formulated a definition for strategic misalignment, while others proposed a model, framework, or method, provided some classifications/typology or applied a theory. These dimensions will be introduced in detail under the subsequent RQ sections (RQ2 for definitions, RQ5 for models, RQ7 for classifications, and RQ8 for theories). The rest of the papers in Table 2 refer either to conducting some kind of assessment or analysis or providing recommendations.

Regarding assessments, one influential topic was enterprise resource planning (ERP) misalignment assessment (P2 Sia and Soh 2002; P28 Bitsini 2015; P3 Soh et al. 2003; P7 Sia and Soh 2007). P20 Dulipovici and Robey (2013) analyzed knowledge management systems alignment. Enterprise architecture (EA)-based misalignment assessment was provided in several works of Őri and Szabó (e.g., P40 Őri (2017c) for a detailed analysis, P48 Őri and Szabó (2018b) focusing on digital transformation, P52 Őri and Szabó (2019a) focusing on public administration, P53 Őri and Szabó (2019b) and P55 Őri and Szabó (2020) for the dynamic assessment

Table 2 Goals of the analysed misalignment papers

Goal of the paper	Affiliated papers
Formulate misalignment definition	P5, P9, P11, P12, P22, P24, P40, P57, P59
Propose a model, framework, or method	P2, P4, P5, P7, P8, P9, P10, P11, P12, P13, P14, P16, P18, P21, P23, P24, P30, P31, P32, P33, P34, P35, P37, P38, P39, P40, P41, P42, P45, P46, P47, P48, P50, P51, P52, P53, P54, P55, P56, P57, P59
Provide classification or typology	P1, P2, P3, P4, P6, P7, P8, P9, P11, P12, P15, P17, P18, P19, P23, P24, P29, P30, P31, P32, P34, P37, P40, P43, P44, P45, P50, P52, P53, P54, P55, P56, P57, P58, P62
Apply a theory	P15, P20, P21, P33, P36, P50
Conduct an assessment or analysis	P2, P3, P7, P10, P11, P12, P20, P22, P26, P27, P28, P31, P34, P40, P42, P48, P52, P53, P55, P60, P61
Provide recommendations	P10, P11, P12, P19, P30

of alignment perspectives and EA models). P60 Mukaromah et al. (2022) conducted a COBIT-based analysis to assess the level of misalignment between business goals and IT goals. P61 Amarilli et al. (2023) presented an empirical study and assessed the evolution of alignment and misalignment journeys in four case study companies.

Regarding recommendations, P19 Kruger (2012) discussed the IT gap between business processes and application software packages and provided recommendations along the pre-defined IT gap components for aligning business processes with application software package functionality. P30 Mamoghli et al. (2015) provided management practices for mitigating misalignment risk factors. The BISMAM model proposed by P10, P11, and P12 Carvalho and Sousa (2008b, c, 2009) provided recommendations in form of misalignment prevention practices.

4.2 RQ2. Misalignment definitions

Only a few of the examined articles contained an exact definition of business-IT misalignment. In their early work, P5 Chen et al. (2005) approached the misalignment definition from the perspective of enterprise architecture and defined misalignment as "any business process that is not properly aligned either with requirements or with the system that implements the response to those requirements" (p. 15.). P9, P11, and P12 (Carvalho and Sousa 2008a, c, 2009) used a medical science perspective and defined the term as an abnormal condition that diminishes the logical components of an organization. In their medical science view, misalignment was characterized by symptoms and signs experienced by organizational actors. P22 and P40 (Őri 2013, 2017c) also approached misalignment from its symptoms and referred to the term misalignment as any difficulty that might impede alignment. In their definition, they pointed out that misalignment indicates a disorder in the operation of an organization. P24 El-Telbany and Elragal (2014) defined business and information systems misalignment as a continuous effort against the lack of alignment between business and information strategies of organizations and highlighted the role of conscious and coherent detection and test of interrelations between BITA components together with the contribution to organizational performance. P57 Peng et al. (2021) derived a misalignment definition from recent misalignment studies by revisiting misalignment concepts and providing an IS strategic misalignment model. In their multidimensional model, they differentiated strategic, structural, and operational level misalignments which corresponded to the degree of "misalign" between business and information systems strategy, structure/infrastructure, and operation, respectively. P59 Aseeva et al. (2022) approached the term from the definitions of business-IT alignment and formulated a misalignment definition as follows: "1. The extent to which the IT strategy does not support/is not supported by the business strategy; 2. The extent to which the IT mission, goals, and plan are not available." (p. 99.).

Table 3 Misalignment level of analysis

Level of analysis	Affiliated papers
Strategic	P13, P16, P19, P21, P22, P24, P26, P27, P29, P31, P34, P35, P38, P39, P40, P43, P44, P48, P50, P51, P52, P53, P57, P59, P60, P61
Structural/Tactical	P3, P4, P9, P11, P12, P29, P39, P40, P41, P42, P46, P47, P55, P57
Operational	P5, P13, P30, P33, P57, P62

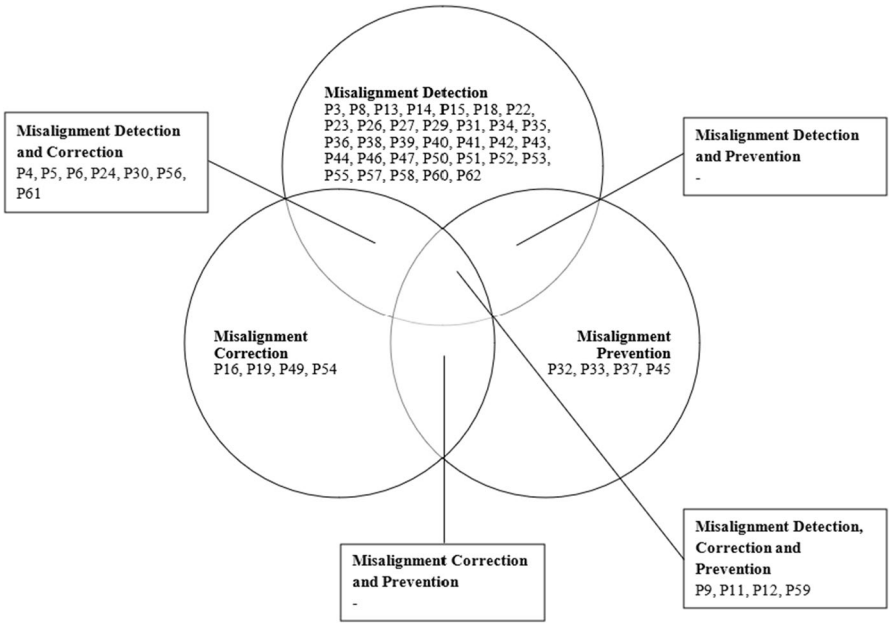

Fig. 2 Misalignment management approaches

4.3 RQ3. Angles of analysis

By reviewing the literature, two influential angles were identified to approach business-IT misalignment studies. Literature concentrated on (1) the level of analysis and (2) the management approach applied. In this subsection, results regarding these two perspectives and their synthesis will be introduced.

The angle *level of analysis* covered strategic, structural/tactical, and operational works. According to Table 3, most of the literature dealt with strategic misalignment, while structural/tactical as well as operational works were present to a moderate extent. On the structural level, most of the studies used the term structural level, only P29 El-Mekawy et al. (2015) referred to their work as tactical misalignment. P33 Obwegeser (2016) introduced the term operational misalignment. Some papers, such as P57 Peng et al. (2021) are listed in more than one category.

The angle *management approach* covered the typology of misalignment detection, correction, and prevention proposed by P9 Carvalho and Sousa (2008a). According to Fig. 2, most of the studies were dealing with misalignment detection. Fewer studies have addressed misalignment correction and prevention solely. In the intersections, only misalignment detection and correction studies could be identified. The other two intersections are left empty, presumably because the articles dealing with correction and prevention, as well as detection and prevention, also affected the third approach, aka detection and correction, respectively, and thus, entered in the intersection of three approaches. There are some studies in the middle of the figure addressing all three categories.

Table 4 presents the two angles of analysis together, highlighting frequent occurrences in the literature. The dominance of strategic level and misalignment detection was identifiable in the matrix as well. There were no empty cells in the matrix.

4.4 RQ4. Topics covered in the papers

In terms of the topics covered, the analyzed papers showed a great variety, as illustrated in Table 5. Goals and objectives, as well as business processes served frequently as topics in the analyzed papers. In addition, several papers covered different dimensions of information systems, and a significant proportion of them dealt specifically with ERP systems. Public sector was a similarly common topic, while fewer but a noticeable number of articles dealt with the subjects of software engineering, change management, risk management, the analogy with medical sciences, and BITA co-evolution. In the analyzed papers, the following topics appeared in only one article each (marked in the table as Others): Small and medium enterprises (SMEs) (P49 Tasanen 2018), Industry 4.0 (P57 Peng et al. 2021), people (P1 Khandelwal 2001), IT Innovation (P25 Fichman and Melville 2014), digital transformation (P48 Őri and Szabó 2018b), and service concept (P23 Bengoud et al. 2014).

4.5 RQ5. Misalignment models

From the available misalignment frameworks and models, two particularly influential models can be highlighted, from which several other models have been built. On the one hand, the BITAM method using EA has been presented by P5 Chen et al. (2005) and proposed 12 steps for managing misalignments between business and IT architectures. On the other hand, P9, P11, and P12 (Carvalho and Sousa 2008a, c, 2009) presented the BISMAM misalignment management model to understand, classify and manage misalignments. The BISMAM model has introduced the management triad of detecting, correcting, and preventing misalignments, and inspired several other frameworks using this management classification.

P59 Aseeva et al. (2022) focused on all aspects of the triad and presented a novel algorithm for EA-based misalignment detection, correction, and prevention using model integration. As it was already presented in Fig. 2, most of the proposed models deal with misalignment detection. P4 (Soh and Sia 2004) and P24 (El-Telbany and Elragal 2014) developed conceptual models for misalignment identification. An

Table 4 Matrix of angles: level of analysis and misalignment management approach

Misalignment management approach/Level of analysis	Misalignment detection	Misalignment correction	Misalignment prevention
Strategic level	P13, P22, P24, P26, P27, P29, P31, P34, P35, P38, P39, P40, P43, P44, P50, P51, P52, P53, P57, P59, P60, P61	P16, P19, P24, P59, P61	P59
Structural/Tactical level	P3, P4, P9, P11, P12, P29, P39, P40, P41, P42, P46, P47, P55, P57	P4, P9, P11, P12	P9, P11, P12
Operational level	P5, P13, P30, P57, P62	P5, P30	P33

Table 5 Frequently covered topics in misalignment papers

Topics covered	Affiliated papers
Information systems	P15, P19, P20, P62
ERP	P2, P3, P4, P6, P7, P8, P17, P18, P23, P28, P30, P49
Goals/objectives	P13, P14, P26, P27, P31, P34, P40, P42, P43, P44, P47, P53, P60
Business processes	P6, P16, P21, P40, P42, P46, P47, P48, P49, P53, P62
Public sector	P28, P34, P38, P40, P41, P42, P43, P44, P46, P47, P48, P51, P52
Software engineering	P21, P32, P37, P45, P56
Change management	P6, P32, P37, P45
BITA analogy with medical sciences	P9, P10, P11, P12
BITA co-evolution	P36, P50, P57, P61
Risk management	P17, P30
Others	P1, P23, P25, P48, P49, P57

EA-based misalignment symptom detection framework was introduced in the works of Őri [(2015 (P31), 2016a (P34), 2017c (P40)]. P56 (Gouigoux and Tamzalit 2021) presented an identity card method to document BITA anti-patterns. As for correction, a misalignment correction framework was proposed by P54 Zhang et al. (2019) to analyze the cause-effect relationships of misalignment symptoms. Misalignment prevention frameworks were proposed by P10, P33, and P45 (Carvalho and Sousa 2008b; Obwegeser 2016; Avila and Garces 2018).

Misalignment evaluation frameworks have been developed from various directions. These works approached the issue of misalignment from another perspective beyond the above-mentioned triad of misalignment management. P32, P37, and P45 (Avila et al. 2016; Avila and Garcéz 2017, 2018) proposed a change analysis framework for misalignment. P13 (Singh 2009) and P14 (Fruehwirth et al. 2010) approached the topic from goals and objectives. The former proposed a goal-based requirements-gathering approach, while the latter presented a method to support security metrics matching with company objectives. P50 (Baker and Singh 2019) focused on the effect of BITA on organizational performance. P57 (Peng et al. 2021) proposed an evaluation model for strategic, structural, and operational level misalignments. P16 (Heath and Singh 2011) and P21 (Heath et al. 2013) introduced an analysis approach that focused on business processes. P2 (Sia and Soh 2002) proposed a misalignment evaluation framework to identify the sources of the misfits, while P7 (Sia and Soh 2007) presented an institutional and ontological structure evaluation framework.

Many of the analyzed misalignment frameworks dealt with ERP systems, such as presenting an ERP selection methodology using different misfit types (P8 Wu et al. 2007), proposing a framework for classifying misfits between ERP systems and business strategies (P18 Yen et al. 2011), presenting an approach for evaluation of ERP fit (P23 Bengoud et al. 2014), or introducing a method for misalignment risk mitigation and monitoring in ERP projects (P30 Mamoghli et al. 2015).

Table 6 classifies the analyzed misalignment methods and frameworks.

Table 6 Misalignment methods and frameworks

Misalignment models	Affiliated papers
Propose a method	
ERP	P8, P18, P23, P30
Goals/objectives	P13, P14
Enterprise architecture	P5
Propose a framework	
Misalignment management (detection, correction, and prevention)	P9, P11, P12, P59
Detection framework	P4, P24, P31, P34, P35, P38, P39, P40, P41, P42, P46, P47, P48, P51, P52, P53, P55, P56
Correction framework	P54
Prevention framework	P10, P33, P45
Misalignment evaluation framework	P2, P7, P13, P16, P21, P32, P37, P45, P50, P57

Table 7 Frequently used tools and techniques in misalignment papers

Tools and techniques in use	Affiliated papers
Enterprise architecture	P5, P9, P10, P11, P12, P21, P22, P26, P27, P31, P32, P34, P35, P37, P38, P39, P40, P41, P45, P46, P47, P48, P51, P52, P53, P55, P59, P62
Rule testing	P32, P37, P38, P39, P40, P41, P42, P45, P46, P47, P53, P55
Matching	P5, P8, P9, P10, P12, P31, P34, P35, P38, P39, P40, P41, P42, P46, P47, P48, P51, P52, P53, P55, P59
Ontology	P2, P7
Other business techniques	P1, P9, P12, P13, P28, P58

4.6 RQ6. Tools and techniques used

Table 7 presents the frequently occurring tools and techniques in the analyzed papers. The table shows that the analytic potential of enterprise architecture management (EAM) was often utilized, together with different matching approaches. Some of them were even combined with rule-testing mechanisms (e.g., P42 Őri and Szabó 2017), but rule-testing approaches were frequently combined with EA as well (e.g., P32 Avila et al. 2016; P37 Avila and Garcés 2017; P45 Avila and Garcés 2018). As for enterprise architecture, both basic misalignment models (the BITAM (P5 Chen et al. 2005) and the BISMAM (P9, P10, P11, P12 Carvalho and Sousa 2008a, b, c, 2009) models) are based on EAM. Most of the works of Őri and Szabó (e.g., P22 Őri 2013; P26 Őri 2014a; P27 Őri 2014b; P31 Őri 2015; P34 Őri 2016a; P35 Őri 2016b; P38 Őri 2017a; P39 Őri 2017b; P40 Őri 2017c; P41 Őri 2017d; P48 Őri and Szabó 2018; P51 Őri 2019; P55 Őri and Szabó 2020) as well as P62 Andre et al. (2023) applied the tools provided by EAM. Ontology

can be considered an underrepresented approach in the analyzed papers, only P2 (Sia and Soh 2002) and P7 (Sia and Soh 2007) dealt with this tool. Other business techniques included, e.g., a balanced scorecard-based (BSC) approach (P58 Sundoro and Wandebori 2021), using critical success factors (CSFs) (P1 Khandelwal 2001; P28 Bitsini 2015), or a goal-graph approach (P13 Singh 2009).

The most frequently used techniques are represented together in Fig. 3. The figure shows that every possible intersection was applied, referring to the fact that the tools under investigation were better exploited in combination.

4.7 RQ7. Misalignment classifications

Studies included in the analysis applied different misalignment classifications. One influential classification type was introduced by P9, P11, P12 Carvalho and Sousa (2008a, c, 2009), who used an analogy for misalignment from medical sciences. They differentiated by organ system (the affected organizational area, function), by symptom and by sign (the manifestations by which the misalignment state can be caught in the organization), by syndrome (what distortions it causes in the organization), and by etiology (how to prevent this undesirable state).

Several papers dealt with the identification of misalignment causes. Some articles used a different word for causes, e.g., sources or roots, but had the same meaning. Causes of misalignment were analyzed by P54 Zhang et al. (2019), who conducted a cause-effect analysis of misalignment symptoms in the correction stage, by P57 Peng et al. (2021), who focused on the identification of causes and consequences of IS strategic misalignment and by P56 Gouigoux and Tamzalit (2021), who formalized BITA anti-patterns and identified the main causes, consequences, the difficulties caused by the pattern, and possible solutions. Sources

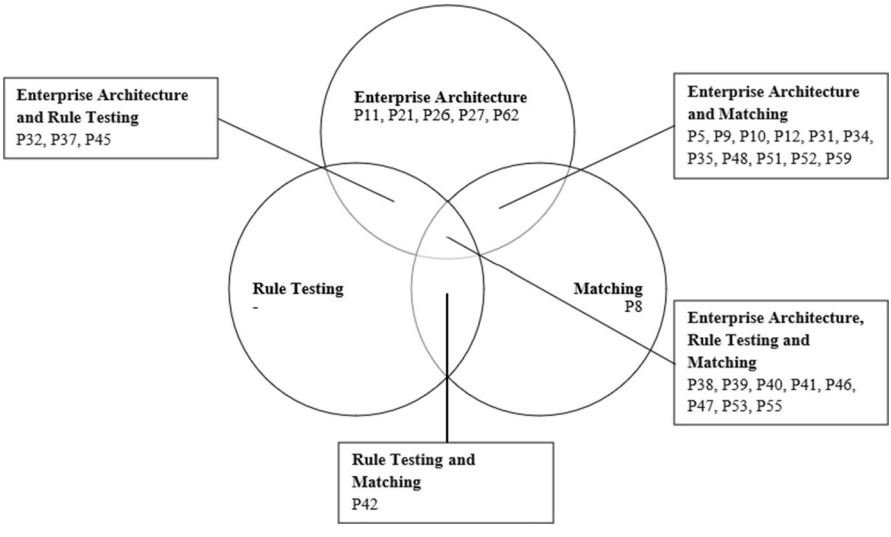

Fig. 3 Combined tools and techniques in misalignment papers

of misalignment were analyzed by several authors: P43 and P44 AlGhazi et al. (2018a, 2018b), and P58 Sundoro and Wandebori (2021) analyzed the factors leading to business-IT misalignment. These works resulted in a categorization of misalignment sources. P18 Yen et al. (2011) relied on the works of P2 Sia and Soh (2002) and P4 Soh and Sia (2004). They all listed the sources of misalignment into enterprise-specific, industry-specific, and country-specific requirements, as well as deep structure or surface structure misalignments. P32 Avila et al. (2016), P37 Avila and Garcés (2017), and P45 Avila and Garcés (2018) used the categorization of external and internal sources and provided further subcategories. Finally, the roots of business-IT misalignment were analyzed by P50 Baker and Singh (2019) by explaining how and why misalignment occurs. They used a system dynamics perspective.

Also, several authors provided typology for misfit types. For example, P15 Strong and Volkoff (2010) provided six misfit categories: functionality, data, usability, role, control, and organizational culture. Table 8 illustrates topic-based categorizations. Some of the mentioned topics are similar to the topics introduced in RQ4 (e.g., information systems and risk management), while others form new groups of misfit classifications. For instance, misfit types were grouped according to project phases in P6 Wei et al. (2005), P17 and P30 Mamoghli et al. (2011, 2015). Another new dimension revealed in the analysis was misfit types related to IT management topics. P1 Khandelwal (2001) used Business IT management, Executive technology management, IT governance, People IT management, and User IT management categories for misfit types, while P24 El-Telbany and Elragal (2014) used Business-IT relationship, IT projects, Business-IT communication, and Business-IT engagement categories. EA layers provide another innate categorization for misfit types, as it was justified in P40 Őri (2017c), P55 Őri and Szabó (2020) and P62 Andre et al. (2023). Finally, traditional alignment perspectives introduced by Henderson and Venkatraman (1993) also serve as an innate basis for misfit classification, as it was utilized in several works of Őri and Szabó (P31 Őri 2015; P34 Őri 2016a; P40 Őri 2017c; P52 Őri and Szabó

Table 8 Misalignment classifications

Classification type	Affiliated papers
Use of medical sciences analogy	P9, P11, P12
Identification of causes, sources, and roots of misalignment	P2, P4, P18, P29, P32, P37, P43, P44, P45, P50, P54, P56, P57, P58
Providing typology for misfit types	P3, P4, P7, P15, P23, P56
For information systems	P8, P18, P19
Project phases	P6, P17, P30
IT management	P1, P24
Risk management	P17, P30
Via alignment perspectives	P31, P34, P40, P52, P53
Via enterprise architecture layers	P40, P55, P62

2019a; P53 Őri and Szabó 2019b). Some articles could be classified in more than one category at the same time, e.g., P4 Soh and Sia (2004), P17 Mamoghli et al. (2011), P18 Yen et al. (2011), P30 Mamoghli et al. (2015), P40 Őri (2017c). This is mainly because they provided both cause-source identification and misfit typology in their works.

4.8 RQ8. Misalignment theories

In general, it can be stated that only a few of the 62 analyzed articles on misalignment dealt with theory building or the application of different theories. P15 Strong and Volkoff (2010) aimed at theorizing the IT artifact. In their work, they used grounded theory techniques and the fit theory for theorizing organisation-enterprise system fit. They introduced six misfit types and developed two types of organization-enterprise system fit. Furthermore, they compared their results to other fit taxonomies. P33 Obwegeser (2016) used the approach-avoidance theory from social psychology to develop a model of misaligned organizations. This study introduced the term operational misalignment, as a stress factor for organizations. Some works dealt with theories related to systems or theories applied to systems. In their work looking for the roots of misalignment, P50 Baker and Singh (2019) used the system dynamics (SD) approach for theory building and employed the causal loop diagramming for examining business and IT strategy implementation. As a result, they provided a strategic co-evolution and a strategic alignment structure. P36 Weeger and Haase (2016) introduced a novel view on the BITA phenomenon with activity theory (AT) when considering business-IT alignment as evolving activity systems. They examined the dynamics of BITA with activity theory for the systematic analysis of systems, their components, and relations. Furthermore, they applied activity theory for identifying and managing misalignment within and between systems. P20 Dulipovici and Robey (2013) applied the social representations theory when examining strategic alignment and misalignment of knowledge management systems. P21 Heath et al. (2013) approached misalignment from business processes. They applied systems theory and affordance theory from ecological psychology for building their theoretical framework for business process realization across IT and organization.

5 Discussion

By answering the research questions, a comprehensive understanding has been acquired of the business-IT misalignment research. Processing the results from the analyzed research questions, several intriguing points have emerged, which will be discussed in detail separated by research questions.

Regarding RQ1 Goals of the papers, results from several areas discussed in later research questions are reflected already in this introductory analysis, e.g., the lack of sufficient theoretical studies, or formulating only a few explicit definitions for misalignment in the articles under analysis. Beyond these observations, studies dealing with providing recommendations could be extended. In our view, future work

should concentrate on enhancing the available set of recommendations for misalignment correction and prevention.

Regarding RQ2 Misalignment definitions, this study identified a lack of cohesion when defining business-IT misalignment, together with the minority of studies defining the phenomenon (only nine definitions being used in the respective studies). Specifically, three remarkable results have emerged from the analysis. First, all the analyzed definitions are closely derived from the BITA topic. Second, the definitions cover different levels (e.g., strategic, tactical, and operational). Third, the analysis showed that the toolset of EA is also reflected in the definitions under study. Interestingly, it can be derived from the medical sciences analogy. Overall, however, this area is not sufficiently operationalized, and definitions are not comprehensive. Both results point to the need for further research in this area.

Regarding RQ3 Angles of analysis, our technique for analysis has considerably widened our knowledge of misalignment analysis approaches and revealed several observations worth highlighting. As for the level of analysis, there is a remarkable need for more operation-level results. As for misalignment management approaches, the analysis indicated that additional results are missing from the intersections, as well as for the correction and prevention phases, separately. When the two aspects of the analysis were plotted together, the largest shortfalls were at the operational level row and, even more severely, at each level of the prevention column. Furthermore, surprisingly, there were not enough articles on the static or dynamic angle, so this angle of analysis was not included in the analysis, although it would be a significant analytical aspect, due to frequent use in traditional BITA research (see e.g., the reviews of Chan and Reich (2007), Jia et al. (2019), Jonatan et al. (2020).

Regarding RQ4 Topics covered, several observations can be recorded. First, the co-evolutionary nature of BITA could not stand out with enough articles. Second, articles on ERP are all older, indicating that the ERP misalignment topic seems to be out of fashion. Third, the following topics could be strung around the concept of EA: goals/objectives, business processes, information systems, change management, and risk management, indicating that misalignment and EA could be further analyzed along these areas. Finally, the public sector also represents a significant proportion, highlighting the relevance of the topic.

Regarding RQ5 Misalignment models, results have further strengthened our preliminary assumption that the BISMAM model had the strongest effect on other misalignment models, while the BITAM model, with a similar initial potential to influence, had less impact on the other works. The paucity of method proposals indicates the need for further research, especially on EA basis. In addition, more misalignment correction and prevention frameworks would be valuable, to be balanced against the apparent surplus of misalignment detection frameworks. Finally, further research could synthesize the different views in misalignment evaluation frameworks.

Regarding RQ6 Tools and techniques used, the single most marked observation to emerge is that little is utilized from the well-documented toolkit of ontology, while it has equally rich analytical potential as EAM and could even be combined with the common techniques listed (e.g., EAM, rule testing, and matching). In addition, there is also similar potential in the use of other combined tools, such as EA and rule testing or rule testing and matching, as indicated by the more restrained use

of these tools in Fig. 3. Further inclusion of other business techniques in business-IT misalignment research is expected, providing scope for setting up and testing further lines of investigation. Nonetheless, we believe that the results emphasized the validity of the analyzed tools and techniques for misalignment studies.

Regarding RQ7 Misalignment classifications, the results assessed are quite diverse. Additional research could be carried out to further synthesize the relevant literature and to create a unified classification framework. Both the research into misalignment causes and sources and the synthesis of misalignment typologies are fragmented and await further research. Nevertheless, these results extended our knowledge of misalignment classification facilities and demonstrated the need for a sound classification structure.

Regarding RQ8 Misalignment theories, the most remarkable result to emerge from the analysis is that the use of theories in misalignment studies is not widespread. Only a few of the examined articles dealt with the use of theories, which indicates that there is significant scope for further work in this area. In addition, several influential foundation articles could be supported from the theory side, e.g., the works of P9, P10, P11, P12 Carvalho and Sousa (2008a, b, c, 2009), or P5 Chen et al. (2005). Furthermore, other IS theories could be tested in this area, and some of the existing ones could be combined or compared with other theories. A noteworthy gap in the research field is that even among the much more deeply researched business-IT alignment topic, it is hard to find theory-testing papers from the last two decades (see e.g., Baker et al. (2011) and McAdam et al. (2019)). It is also interesting to note that in the work of P16 Weeger and Haase (2016), AT was used quite similarly to the traditional EA definition of TOGAF (TOG 2022), which emphasizes that EA is the fundamental organization of an enterprise, described by its components and inter-relationships. A possible further research direction is to compare the results for AT and EA. In summary, further research is required on the topic of misalignment theories. There are a great number of theories relating to business-IT alignment and misalignment as well, that can be utilized as theoretical bases to explore this topic.

In general, the number of papers presents a scattered distribution over the past two decades. Dispersed papers reflect the lack of communication between different misalignment researchers and research communities. In addition, there is a great lack of articles on the measurement of business-IT misalignment, even though it is a major alignment topic; see for example the recent literature review for alignment measurement techniques by Munoz and Avila (2019). Furthermore, by reviewing the literature, multiple misalignment research motivations and challenges have appeared, which immediately call for synthesis. Also, the static or dynamic nature of business-IT misalignment (also called BITA dynamics (Jia et al. 2018) and process models of BITA (Chan and Reich 2007) in the BITA literature) is sorely missing from the literature body under analysis and deserves a deeper investigation. The link with organizational performance and the link with other IT frameworks (apart from EA, but e.g., IT Infrastructure Library (ITIL)) were also not addressed in the analyzed papers and opened up further research directions worth investigating. In general, there is a lack of works going below the conceptual level and providing practical guidance for misalignment management. This has been confirmed by several

misalignment articles examined in this literature review. This topic also requires further investigation in the future. Finally, an additional avenue for future research is that the misalignment issue could be approached from the perspective of alignment challenges and criticisms as well, resulting in other viewpoints of business-IT misalignment worth investigating. As we can see from the above-introduced discussions, several open issues remain which give way to further research on the topic to achieve consistency and integration in misalignment research.

From another point of view, conducting searches in scientific databases highlighted the various uses of misalignment terminology. Searches showed that the term misalignment is also used for other areas [see e.g., Pongatichat and Johnston (2008), Corsaro and Snehota (2011), and Handley (2017)]. Topics included for instance, misalignment in strategic management, misalignment in the accounting field, misalignment regarding knowledge workers, misalignment examining strategy and organizational performance (without IT) or project & operational requirements, misalignment in the creative industry between ideas and implementation, misalignment in sourcing partner selection, for exploring knowledge-sharing barriers (misalignments) in projects, or misaligned formal contracting in marketing. As we can see from the great variety of fields of application, it is crucial to separate and clarify business-IT-related misalignment vocabulary and establish concise terminology.

6 Conclusion

The niche character of this article is that currently, there are no systematic or traditional literature reviews and only a few conceptual articles focused on business-IT misalignment. This paper was initiated to investigate and determine the current status quo in business-IT misalignment research. In this study, 62 articles were reviewed using the systematic literature review method. Eight research questions were derived, mostly from influential recent BITA literature reviews, and analyzed in detail using different forms of information compression and presentation. The study has provided a deep insight into the mainstream of business-IT misalignment by integrating the contributions from the selected research articles commenced from year 2000. The paper has also identified relevant research avenues, various motivations, and diverse challenges regarding the research topic. Given the discussions and conclusions provided in this article, business-IT misalignment research is still an under-researched field. This first SLR on business-IT misalignment was intended to provide a kick-start for the journey necessary to achieve the theoretical, conceptual, and methodological consistency as well as the necessary integration in this research topic.

This work has a few limitations, mainly related to the methodology used to select and analyze relevant literature on the topic. Firstly, the determination of research questions was based on the research questions applied in recent influential BITA literature reviews. There is no doubt that some other meaningful topics can be ignored, and other selection techniques might reveal other relevant research questions worth investigating. Secondly, the selection of keyword strings might not have captured all studies. To overcome this shortfall, later reviews can focus on other formulations

of search strings, resulting in different hits in the initial search. Thirdly, the inclusion and exclusion criteria used in this review strictly defined the scope of the remaining articles. Future reviews can set other criteria, which results in a different list of articles. Fourthly, forward and backward author and reference searching is much more a manual, subjective task, but it significantly determines the range of articles for final analysis. There is no doubt that some meaningful papers might be missed. To address this shortcoming, it is recommended to re-run the extended searches in future reviews. Fifthly, the selected time frame might have excluded significant articles previously published or still in preparation at the time of writing this SLR. Finally, the current study was limited to a qualitative, topic-based analysis of the selected papers. Neither quantitative nor bibliometric nor meta-analysis was included in this SLR.

Topics deferred for future research include: (1) further analysis of the static or dynamic nature of business-IT misalignment, (2) presentation of different types of misalignment literature reviews (for example, quantitative analysis and bibliometric analysis with main path analysis), (3) utilizing the toolkit of ontology to misalignment analysis, (4) providing a concise, comprehensive misalignment classification framework, which integrates previous results on the topic, and (5) further analysis of theory testing in both alignment and misalignment studies.

Appendix: The analyzed papers in chronological order

P1. Khandelwal, V. K. (2001). An empirical study of misalignment between Australian CEOs and IT managers. *The Journal of Strategic Information Systems*, *10*(1), 15–28.

P2. Sia, S. K., & Soh, C. (2002). Severity assessment of ERP-organization misalignment: Honing in on ontological structure and context specificity. In *ICIS 2002 Proceedings.* AIS eLibrary.

P3. Soh, C., Kien Sia, S., Fong Boh, W., & Tang, M. (2003). Misalignments in ERP implementation: a dialectic perspective. *International Journal of Human–Computer Interaction*, *16*(1), 81–100.

P4. Soh, C., & Sia, S. K. (2004). An institutional perspective on sources of ERP package–organisation misalignments. *The Journal of Strategic Information Systems*, *13*(4), 375–397.

P5. Chen, H. M., Kazman, R., & Garg, A. (2005). BITAM: An engineering-principled method for managing misalignments between business and IT architectures. *Science of Computer Programming*, 57(1), 5–26.

P6. Wei, H. L., Wang, E. T., & Ju, P. H. (2005). Understanding misalignment and cascading change of ERP implementation: a stage view of process analysis. *European Journal of Information Systems*, *14*(4), 324–334.

P7. Sia, S. K., & Soh, C. (2007). An assessment of package–organisation misalignment: institutional and ontological structures. *European Journal of Information Systems*, *16*(5), 568–583.

P8. Wu, J. H., Shin, S. S., & Heng, M. S. (2007). A methodology for ERP misfit analysis. *Information & Management*, *44*(8), 666–680.

P9. Carvalho, G., & Sousa, P. (2008a). Business and Information Systems Mis-Alignment Model (BISMAM): an holistic model leveraged on misalignment and medical sciences approaches. In P. Johannesson, & J. Gordijn (Eds.), *Proceedings of the Third International Workshop on Business/IT Alignment and Interoperability (BUSITAL'08)* (pp. 105–119). CEUR-WS.
P10. Carvalho, G., & Sousa, P. (2008b). Business and Information Systems Misalignment: From Syndrome Understanding to Prophylaxis Definition. In M. Baptista Nunes, P. Isaías, & P. Powell (Eds.), *IADIS International Conference Information Systems 2008* (pp. 266–270). IADIS.
P11. Carvalho, G., & Sousa, P. (2008c). Using a medical sciences perspective to harness business and information systems misalignment. In *ECIS 2008 Proceedings*. AIS eLibrary.
P12. Carvalho, G., & Sousa, P. (2009). Business and information systems misalignment: Diagnosis, therapy and prophylaxis techniques based on syndromes. *IADIS International Journal on Computer Science and Information Systems, 4*(2), 140–157.
P13. Singh, S. N. (2009). *A goal-based requirements gathering approach to detect and understand business-IT misalignments.* [Doctoral dissertation, University of British Columbia]. UBC Theses and Dissertations. https://open.library.ubc.ca/soa/cIRcle/collections/ubctheses/24/items/1.0067271
P14. Fruehwirth, C., Biffl, S., Tabatabai, M., & Weippl, E. (2010). Addressing misalignment between information security metrics and business-driven security objectives. In R. Scandariato, & L. Williams (Eds.), *Proceedings of the 6th International Workshop on Security Measurements and Metrics* (pp. 1–7). Association for Computing Machinery.
P15. Strong, D. M., & Volkoff, O. (2010). Understanding Organization-Enterprise system fit: A path to theorizing the information technology artifact. *MIS Quarterly, 34*(4), 731–756.
P16. Heath, D., & Singh, R. (2011). Approaching Strategic Misalignment from Organizational View of Business Processes. In *AMCIS 2011 Proceedings*. AIS eLibrary.
P17. Mamoghli, S., Goepp, V., Botta-Genoulaz, V., & Renaud, J. (2011). An analysis of the "project" misalignment risk in ERP projects. *IFAC Proceedings Volumes*, *44*(1), 13,092–13097. https://doi.org/10.3182/20110828-6-IT-1002.01899
P18. Yen, T. S., Idrus, R., & Yusof, U. K. (2011). A Framework for Classifying Misfits between Enterprise Resource Planning (ERP) Systems and Business Strategies. *Asian Academy of Management Journal*, *16*(2). 53–75.
P19. Kruger, W. (2012). Strategic business-IT alignment of application software packages: Bridging the information technology gap.*South African Computer Journal*, *49*(1), 1–11.
P20. Dulipovici, A., & Robey, D. (2013). Strategic alignment and misalignment of knowledge management systems: A social representation perspective. *Journal of Management Information Systems*, *29*(4), 103–126.
P21. Heath, D., Singh, R., & Shephard, B. (2013). Approaching strategic misalignment from an organizational view of business processes. In *2013 46th Hawaii International Conference on System Sciences* (pp. 4055–4064). IEEE.

P22. Őri, D. (2013). Analysing enterprise architecture models to detect misalignment symptoms.*SEFBIS Journal 8*, 34–40.
P23. Bengoud, K., Benmoussa, R., Saib, S. & Abd, A. (2014). An approach for the identification of misalignment in ERP implementation. *International Review on Computers and Software*, 9(6), 906–919.
P24. El-Telbany, O., & Elragal, A. (2014). Business-information systems strategies: A focus on misalignment. In J. Varajão, M. Cunha, N. Bjørn-Andersen, R. Turner, D. Wijesekera, R. Martinho, & R. Rijo (Eds.), *CENTERIS 2014—Conference on ENTERprise Information Systems* (pp. 250–262). Elsevier.
P25. Fichman, R. G., & Melville, N. P. (2014). How posture-profile misalignment in IT innovation diminishes returns: conceptual development and empirical demonstration. *Journal of Management Information Systems*, *31*(1), 203–240.
P26. Őri, D. (2014a). Misalignment symptom analysis based on enterprise architecture model assessment. In P. Kommers, P. Isaías, C. Gauzente, M. Baptista Nunes, G. C. Peng, & M. Macedo (Eds.), *Proceedings of MCCSIS 2014* (pp. 191–198). IADIS.
P27. Őri, D. (2014b). Misalignment symptom analysis based on enterprise architecture model assessment. *IADIS International Journal on Computer Science & Information Systems*, *9*(2), 146–158.
P28. Bitsini, N. (2015). Investigating ERP misalignment between ERP systems and implementing organizations in developing countries. *Journal of Enterprise Resource Planning Studies*, *2015*, 570,821, https://doi.org/10.5171/2015.570821
P29. El-Mekawy, M., Rusu, L., Perjons, E., Sedvall, K. J., & Ekici, M. (2015). Strategic and tactical business-IT alignment barriers in organizations acting in Sweden. *International Journal of IT/Business Alignment and Governance*, *6*(2), 31–55.
P30. Mamoghli, S., Goepp, V., & Botta-Genoulaz, V. (2015). An operational "Risk Factor Driven" approach for the mitigation and monitoring of the "Misalignment Risk" in Enterprise Resource Planning projects. *Computers in Industry*, *70*, 1–12.
P31. Őri, D. (2015). Towards detecting misalignment symptoms: An alignment perspective-driven architecture-matching framework. In J. Barjis, R. Pergl, & E. Babkin (Eds.), *Enterprise and Organizational Modeling and Simulation. 11th International Workshop EOMAS 2015* (pp. 214–232). Springer, Cham.
P32. Avila, O., Garces, K., & Sastoque, S. (2016). A Change Management Review: Extracting Concepts to Preserve Business and IT Alignment. In V. Řepa, & T. Bruckner (Eds.), *Perspectives in Business Informatics Research* (pp. 177–192). Springer, Cham.
P33. Obwegeser, N. (2016). Operational Business-IT Misalignment as stress factor for Organizations. In *ECIS 2016 Proceedings*. AIS eLibrary.
P34. Őri, D. (2016a). An artifact-based framework for business-IT misalignment symptom detection. In J. Horkoff, M. A. Jeusfeld, & A. Persson (Eds.) *The Practice of Enterprise Modeling. 9th IFIP WG 8.1. Working Conference, PoEM 2016* (pp. 148–163). Springer, Cham.
P35. Őri, D. (2016b). Towards detecting misalignment symptoms: An alignment perspective-driven architecture-matching framework (extended abstract). In J.

Mendling, & S. Rinderle-Ma (Eds.), *Proceedings of the 7th International Workshop on Enterprise Modeling and Information Systems Architectures (EMISA 2016)* (pp. 32–35). CEUR-WS.

P36. Weeger, A., & Haase, U. (2016). How contradictions facilitate evolutionary transformation: an exploration into the dynamics of business-IT alignment from the perspective of activity theory. In *ECIS 2016 Proceedings*. AIS eLibrary.

P37. Avila, O., & Garcés, K. (2017). Change management support to preserve business–information technology alignment. *Journal of Computer Information Systems*, *57*(3), 218–228.

P38. Őri, D. (2017a). Business-it misalignment symptom detection based on enterprise architecture analysis. In D. Aveiro, H. Mulder, H. Proper, J. Verelst, & R. Pergl (Eds.), *Proceedings of the 1st Enterprise Engineering Working Conference Forum co-located with the 7th Enterprise Engineering Working Conference (EEWC 2017)* (pp. 44–47). CEUR-WS.

P39. Őri, D. (2017b). Misalignment symptom detection with XML-based enterprise architecture model analysis. In J. Gulden, S. Nurcan, I. Reinhartz-Berger, W. Guédria, P. Bera, S. Guerreiro, M. Fellmann, & M. Weidlich (Eds.), *Joint Proceedings of the Radar tracks at the 18th International Working Conference on Business Process Modeling, Development and Support (BPMDS), and the 22nd International Working Conference on Evaluation and Modeling Methods for Systems Analysis and Development (EMMSAD), and the 8th International Workshop on Enterprise Modeling and Information Systems Architectures (EMISA)* (pp. 153–157). CEUR-WS.

P40. Őri, D. (2017c). *On exposing strategic and structural mismatches between business and information systems: misalignment symptom detection based on enterprise architecture model analysis.* [Doctoral dissertation, Corvinus University of Budapest]. Corvinus Dissertations. http://phd.lib.uni-corvinus.hu/964/1/Dora_Ori_den.pdf

P41. Őri, D. (2017d). Pattern-based misalignment symptom detection with XML validation: A case study. In R. Pergl, R. Lock, E. Babkin, & M. Molhanec (Eds.), *Enterprise and Organizational Modeling and Simulation. 13th International Workshop, EOMAS 2017* (pp. 151–158). Springer, Cham.

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P45. Avila, O., & Garcés, K. (2018). Preventing business and information technology misalignment when introducing technology changes. *International Journal of Business Information Systems*, *28*(3), 315–341.
P46. Őri, D. (2018). A rule-based approach to business-IT misalignment symptom detection. In *Proceedings of the 11th International Conference on Software, Knowledge Information, Industrial Management and Applications, SKIMA 2017* (pp. 1–8). IEEE.
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