

The Hard Side of Business and IT Alignment

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Abstract—Despite the critical importance of achieving business and IT alignment in organizations, its practical operationalization at the level of specific actors, decisions, and documents still remains rather shadowy. This paper explains the operationalization of alignment as a pipeline with five distinct decision-making phases: positioning, focusing, prioritizing, assessing, and implementing.

■ **THE ROLE OF IT** for modern organizations is hard to overemphasize. The overarching digitization trend enabled by IT is slowly but persistently changing the nature of existing businesses and even creates new, previously unimaginable business models and opportunities.^{1,2} The critical dependence of most companies on IT yet again reminds business and IT executives about the necessity to achieve better business and IT alignment to reap maximum value from leveraging IT.

Even in the extreme cases of almost total fusion of business and IT, these two elements still represent rather disparate parts of organizations with different focus. Specifically, the externally focused business part can be considered as a

“frontend” responsible for determining the overall direction of the organization in its environment, while the internally focused IT part can be considered as a “backend” accountable for implementing the desired strategy through digitized processes. This synergistic relationship between business and IT only strengthens the need for their effective coordination and mutual alignment.

The notion of business and IT alignment initially originated long ago when a constantly growing dependence of business on IT became widely evident.³ Business and IT alignment is usually understood rather broadly as an overall consistency between current business operations and underlying information systems (operational alignment), as well as between strategic business plans and long-term IT strategies (strategic alignment). Since the early 1990s, the alignment between business

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and IT remains an important but elusive practical goal. During the last 15 years, improving business and IT alignment consistently tops the most worrying issues of IT executives across the globe.^{4,5}

Academic research on business and IT alignment was very active as well.^{6,7} For example, it was established that better business and IT alignment improves general business performance,^{8,9} and effective communication between business and IT leaders was commonly recognized as the key factor enabling alignment.^{10,11} Research also identified a number of other soft factors facilitating business and IT alignment^{12,13} and revealed some curious alignment-related effects, including “detours” on the way to alignment,¹⁴ the so-called “spillovers” of alignment,¹⁵ and even dangerous alignment “traps.”¹⁶

However, what has not been studied is the “hard” side of business and IT alignment. In other words, it was never adequately explicated how exactly business and IT alignment is actually operationalized in organizations, i.e., what specific activities, people, documents, and interactions between them lead to the desirable alignment of business and IT. This knowledge gap is widely acknowledged among senior scholars of business and IT alignment^{6,7} and most clearly articulated by Karpovsky and Galliers¹⁷ (p. 136):

“We still know little about what it is that organizational actors actually do, on a day-to-day basis, to align IS and related concerns with business imperatives. In order to address this lack of understanding regarding the practices of aligning, we argue for research that goes beyond abstract macro analysis of alignment processes to that which considers the actual micro practices of aligning.”

Paradoxically, despite that the value of achieving business and IT alignment is unquestionable and was proven empirically more than two decades ago,^{9,18} any systematic models explaining the practical operationalization of alignment at the level of specific actors, decisions, and documents are still absent in the literature.^{6,17}

My analysis of information systems planning practices in eight Australian companies shows that the “hard” side of business and IT alignment can be conceptualized and explained as five distinct decision-making phases involving relevant business and IT stakeholders, where different sorts of

planning decisions are made, eventually leading to the achievement of both strategic and operational alignments. These five alignment phases reflect consistent patterns of action identified in some or the other form in all the studied organizations.

RESEARCH METHODOLOGY

As part of my research, I analyzed information systems planning practices in eight diverse Australian organizations from banking, telecom, insurance, retail, energy, and other industry sectors, all of which are rather advanced users of IT. Most of them were large commercial companies, although smaller and public sector organizations were also represented in the sample.

In total, I did 29 1-h interviews with IT planners working at both the strategic and tactical levels. All the interviewees were asked to describe the activities they perform to plan information systems, nature of the planning decisions they make, their dialogs with business colleagues taking place along the way, documents they use to facilitate planning, and other related questions. Samples of planning documents provided by the interviewees were studied as well. All the interviews were recorded and analyzed to uncover consistent decision-making patterns, regularities, and similarities between the alignment processes existing in different organizations. As a result of this analysis, five conceptual phases of business and IT alignment were identified as present in a generalized form in all the eight studied organizations.

FIVE PHASES OF BUSINESS AND IT ALIGNMENT

As a complex organizational mechanism, the process of aligning business and IT can be considered as a set of five decision-making phases representing different interrelated subprocesses carried out simultaneously, largely in parallel to each other. Each of these phases involves specific actors, documents, and activities and yields specific types of planning decisions addressing different aspects of business and IT alignment.

Phase One: Positioning

The first phase of business and IT alignment can be titled as positioning. This phase sets an overall context for the alignment between business

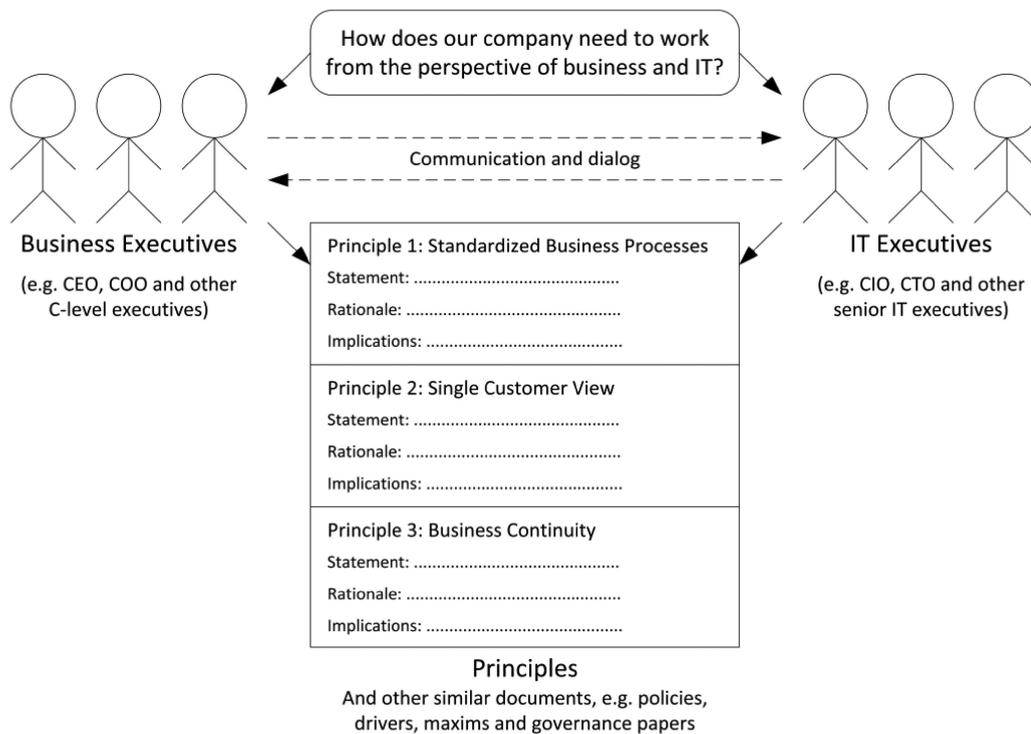


Figure 1. First phase of business and IT alignment: positioning.

and IT in the whole organization. As a part of this phase, senior business and IT executives formulate the most fundamental “timeless” requirements to IT from the business perspective via collectively answering the following question: “How does our company need to work?” Answering this question may include, among other decisions, defining the general role of IT in the business, e.g., driver of low costs or enabler of innovative products, choosing the preferred sourcing strategy, e.g., adopting a two-vendor policy to avoid vendor lock-in, indicating desirable synergies between different business units, e.g., mandatory use of standard systems or common access to core databases, imposing information sharing approaches, e.g., what types of data can or cannot be exchanged with partners, as well as determining the necessary levels of privacy, quality, and security of IT systems.¹⁹ These and other overarching planning decisions agreed upon by senior business and IT leaders are typically documented as a set of abstract guiding principles and sometimes more detailed policies governing all IT-related decision-making. Other more exotic products of the positioning phase created in the studied organizations with analogous intentions include maxims, drivers, and

governance papers. The schematic description of actors, activities, and resulting deliverables constituting the positioning phase of business and IT alignment is shown in Figure 1.

After being agreed upon and formally signed-off at the CEO level, or in some cases even by the board of directors, established principles, policies, and other similar documents drive all the “downstream” decision-making processes during all the subsequent alignment phases.

Phase Two: Focusing

The second phase of business and IT alignment can be titled as focusing. This phase defines a long-term direction for future IT investments necessary to intertwine business and IT strategies. As a part of this phase, senior business and IT leaders determine the most critical business areas that should be uplifted with IT in the long run, often on a horizon of 3–5 years, by jointly answering the following question: “Where does our company need to invest its IT dollars?” Answering this question requires identifying which business capabilities, processes, activities or areas should become the primary focus of future IT investments, e.g., supply chains,

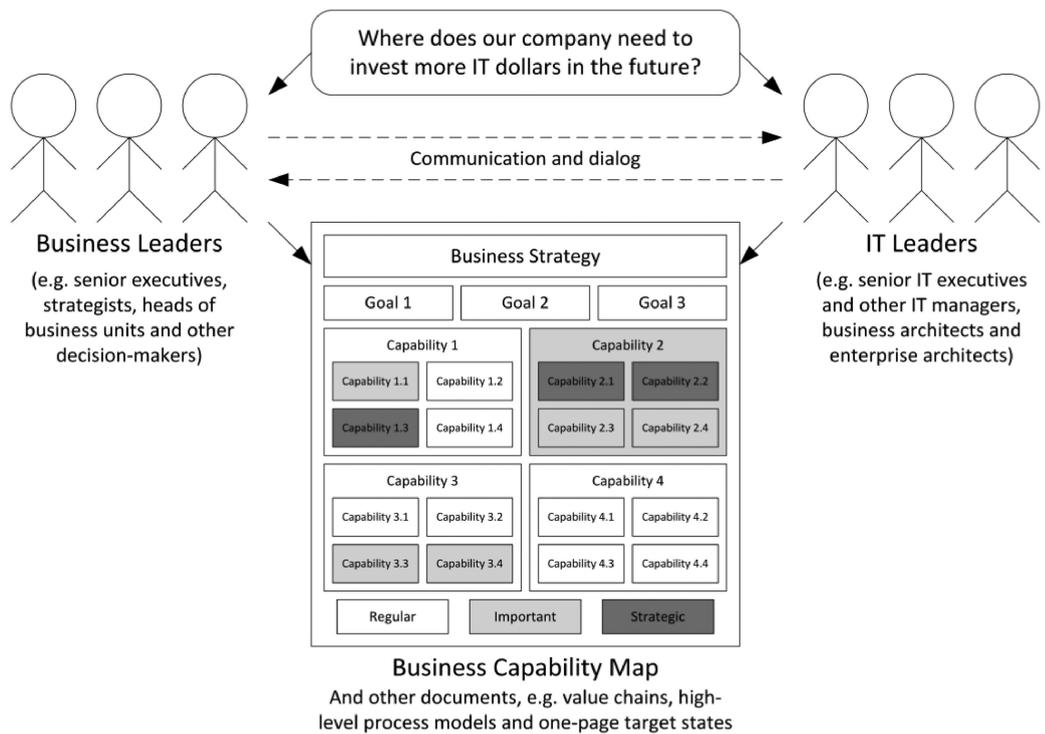


Figure 2. Second phase of business and IT alignment: focusing.

customer relationships, or product development, as well as what types of IT-enabled enhancements are desirable in these areas, e.g., cutting costs, improving quality or introducing breakthrough innovations. The long-term priorities for IT investments agreed by business and IT executives are usually highlighted, or “heatmapped,” in organization-wide business capability maps²⁰ or, somewhat less often, in value chains or very high-level process models. In rarer cases, more explicit depictions of the desired future state may be created to guide IT investments. The schematic description of actors, activities, and resulting deliverables constituting the focusing phase of business and IT alignment is shown in Figure 2.

After being formally approved and signed off by senior executives, usually on a yearly basis, agreed IT investment priorities provide a sound basis for future investment decisions, help shape investment portfolios, and propose concrete IT initiatives to be executed.

Phase Three: Prioritizing

The third phase of business and IT alignment can be titled as prioritizing. This phase creates a

more specific IT investment portfolio and articulates a set of IT initiatives to be launched in the foreseeable future, often during the next 2–3 years. As a part of this phase, senior business and IT managers compose rather detailed investment plans for different business areas via collaboratively answering the following question: “What IT initiatives does our company need to execute and when?” Answering this question implies first proposing candidate IT initiatives correlating with the strategic long-term investment priorities established earlier during the focusing phase (see Figure 2) and then arranging these initiatives according to their perceived tactical importance. The resulting investment plans agreed by business and IT are most typically documented in the form of one-page roadmaps aligned to different business areas and indicating approximate delivery timelines for planned IT initiatives. In some cases, these roadmaps also demonstrate the current and expected future states in respective business areas either from the perspective of relevant information systems, or through the maturity levels of corresponding capabilities. The schematic description of actors, activities, and resulting deliverables constituting

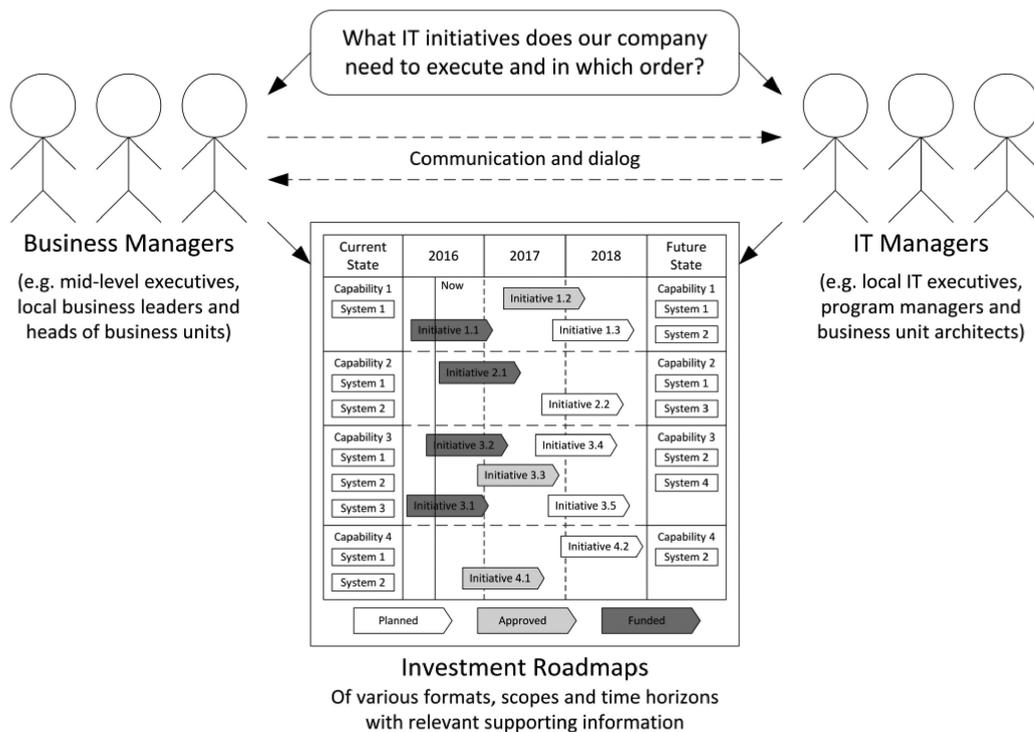


Figure 3. Third phase of business and IT alignment: prioritizing.

the prioritizing phase of business and IT alignment is shown in Figure 3.

After being developed in collaboration of business and IT and endorsed by top managers, investment roadmaps provide yearly “slices” of IT initiatives to be funded and launched during the next financial year. Then, each of the scheduled initiatives enters into its own execution lifecycle.

Phase Four: Assessing

The fourth phase of business and IT alignment can be titled as assessing. This phase elaborates each of the IT initiatives from the approved investment portfolio with more detail and produces very high-level solution implementation plans, often up to 1–2 years ahead. As part of this phase, business sponsors of IT initiatives and IT architects, often external architects from software vendors or outsourcing partners, come up with the conceptual structure of required IT solutions via collectively answering the following question: “What are the most preferable solution implementation options?” Answering this question implies first discussing available high-level solution implementation options with their pros and cons, and then selecting the most desirable

option to be realized based on its benefits/costs ratio and associated risks. For instance, business and IT stakeholders of the solution may consider relevant business-related risks, such as legal ones, as well as the risks related to the technical side of the implementation, e.g., excessive strategic dependence on a single vendor, cloud provider, or proprietary technology. Analyzed implementation options in some cases are explicitly described in intermediate options assessment papers facilitating decision-making, while the resulting architectures are typically documented in more detailed solution overviews that are 15–30 pages long. These solution overviews explain the business value of proposed IT solutions, estimate their timelines and costs, specify which partners will be involved in their delivery, and offer their conceptual outlines, e.g., how the solution will work, what systems will be developed, where the necessary data will be obtained from, which business processes will be improved, and how. Solution overviews also provide the basis for creating formal business cases for new IT solutions and evaluating their financial impact. Besides solution overviews, the assessing phase may also leverage other less popular documents like conceptual

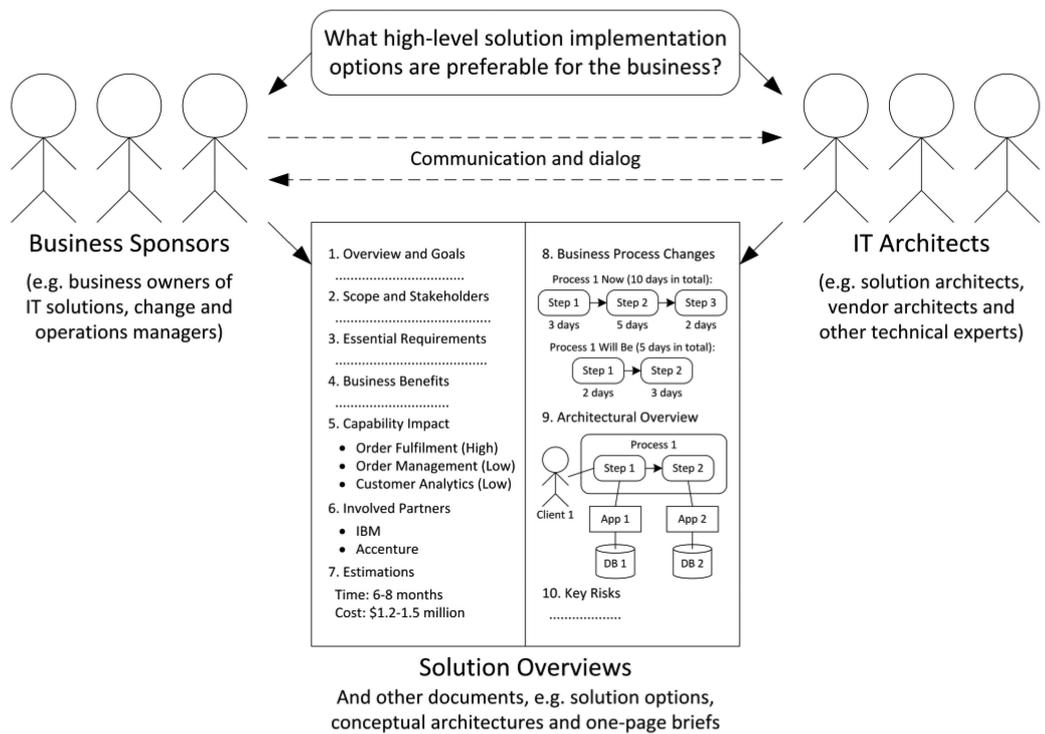


Figure 4. Fourth phase of business and IT alignment: assessing.

architectures or one-page solution briefs developed for similar purposes. The schematic description of actors, activities, and resulting deliverables constituting the assessing phase of business and IT alignment is shown in Figure 4.

After being agreed upon by business and IT stakeholders and then approved and funded by the investment committee, solution overviews provide the basis for further system delivery activities and get elaborated with more detailed business requirements and technical specifications during the subsequent implementation phase.

Phase Five: Implementing

The fifth and final phase of business and IT alignment can be titled as implementing. This phase converts high-level solution overviews developed during the previous assessing phase (see Figure 4) into detailed technical system implementation plans, often with an outlook up to 6–12 m ahead. This phase involves primarily business analysts, or sometimes actual business owners of IT projects, as well as project teams normally including some IT architects. These parties decide on how stipulated project requirements should be addressed with IT via jointly answering the

following question: “How exactly should the new IT system be implemented?” Answering this question requires first reaching an agreement on how the upcoming system is expected to work from the business point of view and then proposing the most optimal technical implementation of these business requirements. The resulting technical structures of IT solutions are most typically documented in corresponding solution designs of 25–50 pages long, or longer if necessary. These solution designs contain all the necessary information required to deliver described IT systems, e.g., what functionality and behavior are anticipated, what specific requirements should be met, what applications should be created and how they should interact, which data entities and fields should be used, what infrastructure is required, and where the solution should be deployed. In some cases, intermediate preliminary solution designs may be developed before full solution designs are commenced in order to double check and verify the previous time and cost estimations. The schematic description of actors, activities, and resulting deliverables constituting the implementing phase of business and IT alignment is shown in Figure 5.

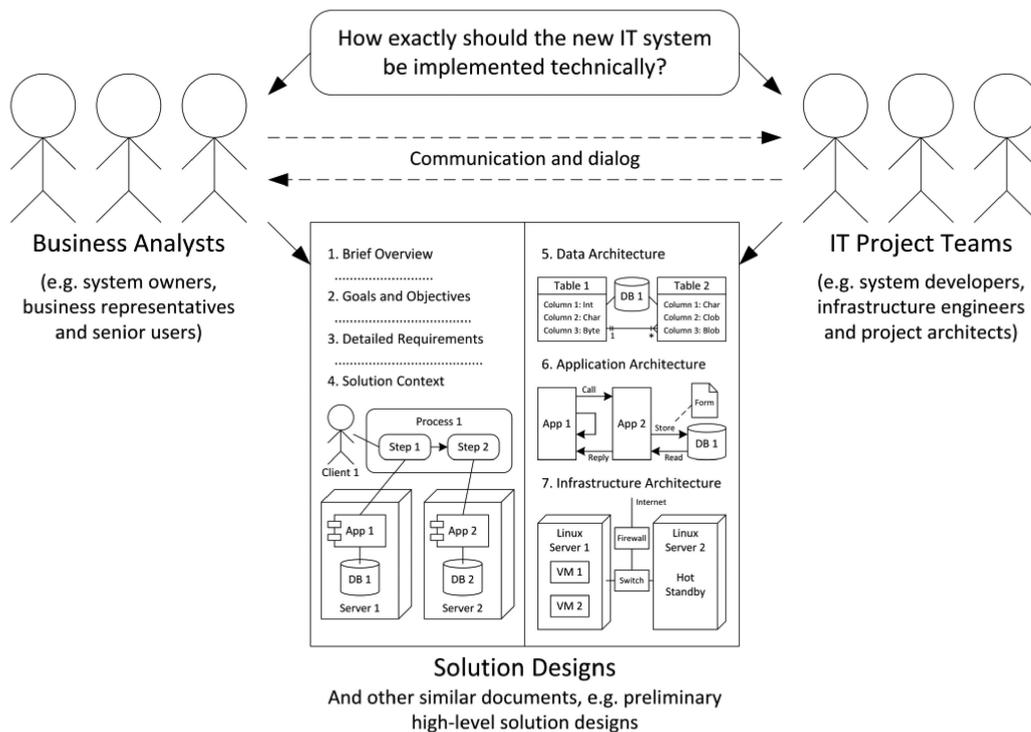


Figure 5. Fifth phase of business and IT alignment: implementing.

After being finalized, detailed solution designs are “consumed” by IT project teams, including software developers, infrastructure engineers, and database administrators, who implement respective IT solutions according to the provided specifications. Thereby, abstract IT-related plans are transformed into tangible systems constituting the corporate IT landscape.

FIVE ALIGNMENT PHASES AS A PIPELINE

The five phases of business and IT alignment described above, i.e., positioning, focusing, prioritizing, assessing, and implementing, essentially represent a decision-making “pipeline” through which all IT-related planning decisions pass and from which all working IT solutions eventually originate. This pipeline starts from very abstract organization-wide planning decisions and ends with highly specific project-level decisions. It represents an organized system of continuous communication and decision-making involving both business and IT, where different IT-related planning decisions are made by relevant stakeholders at the appropriate levels of the corporate

hierarchy. Moreover, the granularity of these planning decisions is “commensurable” to their organizational scope and planning horizon, but lower level decisions are always aligned to higher level ones. From this perspective, this decision-making pipeline can also be considered as a “funnel” where planning decisions initially emerge as general ideas, then gradually mature and become more and more crystalized while moving from the top to the bottom.

The five-phase alignment pipeline naturally starts from strategic alignment as the coherence between business and IT objectives and strategies. Specifically, the positioning, focusing, and prioritizing phases of alignment synchronize business and IT plans at different time horizons. The two subsequent phases of alignment, namely assessing and implementing, relate to the implementation level and enable operational alignment as the consistency between business processes and information systems supporting these processes. Therefore, the five phases of alignment help link future business and IT plans together and then turn these plans into concrete information systems addressing down-to-earth operational requirements in an efficient manner.

Phase	Phase One	Phase Two	Phase Three	Phase Four	Phase Five
Title	Positioning	Focusing	Prioritizing	Assessing	Implementing
Meaning	Setting an Overall Context for Alignment	Defining a Direction for Future IT Investments	Shaping a Detailed IT Investment Portfolio	Elaborating and Evaluating IT Initiatives	Producing Detailed Implementation Plans
Involved Actors	C-Level Business and IT Executives	Senior Business and IT Leaders	Local Business and IT Managers	Business Sponsors and IT Architects	Business Analysts and IT Project Teams
Decisions	How Our Company Needs to Work	Where Our Company Needs to Invest	What IT Initiatives Need to Be Executed	How to Implement Each IT Initiative Conceptually	How to Deliver Each IT Initiative Technically
Typical Deliverables					
Quantity	One Set	One Document	Several Documents	Multiple Documents	Multiple Documents
Scope	Entire Organization	Entire Organization	Separate Business Areas	Specific IT Initiatives	Specific IT Projects
Horizon	Largely Timeless	3-5 Years	2-3 Years	1-2 Years	6-12 Months
Granularity	General Considerations	Business Capabilities	Specific Business Needs	Solution Structure	System Components
Outcomes	Overall Appropriateness	Strategic Effectiveness	Mid-Term Expediency	Tactical Efficiency	Fitness to Requirements
Alignment	Strategic Alignment			Operational Alignment	
Progression	Strategic Vision		Project Portfolio	Specific IT Projects	

Figure 6. Five-phase decision-making pipeline of business and IT alignment.

Every IT project that goes through this alignment pipeline meets short-term business needs and, at the same time, contributes to the long-term business goals.

Importantly, the five phases constituting the alignment pipeline can be considered as strictly sequential neither from the temporal perspective nor from the perspective of decision-making logic. On the one hand, activities related to different alignment phases usually happen simultaneously, although on different “floors” of the company. For example, at the time when C-level business executives gathered in the boardroom to discuss the desired place of IT in the organization in the long run (phase one), business unit leaders may be busy prioritizing their local IT investments for the next couple of years (phase three), and project teams may be planning in detail the implementation of current IT initiatives (phase five). On the other hand, planning decisions made as part of different alignment phases, although generally progress from more broad and abstract ones (early phases) toward more narrow and specific ones (later phases), also have certain flexible feedback mechanisms allowing to revise previous higher level decisions in case of necessity. For example, if a technical planning exercise (phase five) shows that a particular IT project cannot be implemented as

it was expected earlier, then the entire conceptual structure of the new solution may be revisited and reassessed (phase four). Likewise, if all available options for delivering a planned IT initiative seem infeasible (phase four), then the whole investment portfolio may need to be rearranged (phase three). The full five-phase decision-making pipeline of business and IT alignment described above is shown in Figure 6.

The five-phase decision-making pipeline presented in this paper (see Figure 6) offers arguably the first systematic model conceptualizing the operationalization of business and IT alignment in organizations, which has been previously called for by other alignment researchers.¹⁷ This model demystifies the complex notion of alignment via explaining in detail its “hard” side, i.e., the interaction patterns between specific actors, processes, and documents that lead to the achievement of closer business and IT alignment, including both its strategic and operational components. Embedding these phases into regular decision-making procedures, institutionalizing their work, and fine-tuning their subtle aspects to accommodate with organization-specific needs can help companies use IT more effectively, become more profitable, and prosper in the upcoming digital epoch.

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