

# The Waves in Business Transformation Management: A Conceptualization of how IT-Enabled Business Transformations Unfold

*Research-in-Progress*

Niz Safrudin, Jan Recker  
Information Systems School  
Queensland University of Technology  
Brisbane, Australia

Email: [n.safrudin@hdr.qut.edu.au](mailto:n.safrudin@hdr.qut.edu.au); [j.recker@qut.edu.au](mailto:j.recker@qut.edu.au)

## Abstract

*We examine IT-enabled Business Transformations (ITBT) based on three case studies of successful, multi-year ERP implementation programs. Given the inconsistencies in segmenting the different key periods in ITBTs in both literature and our cases, we sought to consolidate the common events or critical incidents in such initiatives. We label those key periods as waves, and the emergence of triggers and reactions thereunto in the management of business transformations. We show that business transformations unfold in four distinct waves: Wave 1 Concept Development, Wave 2 Blueprint Design, Wave 3 Solution Delivery and Wave 4 Post-Transformation. These waves are characterized by the occurrence of strategic- and program-level triggers to which organizations respond by invoking different management services. Our interpretive research provides a new conceptualization of ITBTs based on a service-oriented view of such initiatives. This view draws attention to managerial capabilities as a service to transformations, and how and when these capabilities are required to respond to triggering incidents. We outline propositions and recommendations for business transformation management.*

## Keywords

Business Transformation Management, IT-Enabled Business Transformation, Critical Incidents

## INTRODUCTION

Business transformations imply fundamental changes to the genetic architecture of the corporation (Morgan and Page 2008), which results in the enterprise performing current work differently, or performing different work altogether (Rouse 2005). They are typically initiated in attempt to address the value deficiencies experienced and/or anticipated by the enterprise (Rouse 2005), typically involving an Information Technology (IT) artefact to enable the transformation (see e.g. Gregor et al. 2006). Common examples include deploying new Enterprise Resource Planning (ERP) software to replace aging legacy systems that are not able to support the expanding business operations of a company, or enacting Cloud technologies to allow for scalable and innovative business solutions – such a phenomenon can be referred to as an IT-enabled business transformation (ITBT), which is the focus of this study.

The notion of business transformations is not at all new. Numerous studies have been conducted, bearing various theories, methods and approaches, many of which, have reached a significant level of maturity (cf. Besson and Rowe 2012). Yet, the reported failure rate of transformation initiatives remain as high as 70% (Ashurst and Hodges 2010), which suggests that, in spite of the existing works conducted to date, we have yet to advance our understanding on how business transformations are managed, particularly one that involves an IT artefact in large-scale enterprises. Such organizations have a significant amount of customer and sales turnover (usually in millions), and a long history of establishment, which in turn implies long-established practices and business processes across multiple business divisions (see Safrudin and Recker 2012). Coupled with a large number of employees (usually in thousands), transformational changes are hard to overcome due to various socio-technical inertia (Besson and Rowe 2012). That being said, following the Resource Based Theory of the firm, a significant amount of resources and managerial capabilities are required for ITBTs to ensure that the initiative achieves its intended goal(s) over what appears to be a prolonged period of time (typically about 7-10 years to completion).

Our on-going study falls under an overarching research program that seeks to investigate how are ITBTs managed. In this particular paper, we build on our previous work that identifies the triggers for managerial capabilities required in ITBT (see Safrudin and Recker 2013), where we now seek to gain a deeper understanding of: a) how do ITBTs unfold over such a prolonged period of time; and b) what are the key events, milestones, or critical incidents that occur throughout the journey of a transforming enterprise. We will conceptualize this

progression over time as *waves*, during which there are critical incidents consisting of different *triggers* for *managerial capabilities*. The following research questions guide our study:

*RQ1. How does each wave start and end?*

*RQ2. What are the critical incidents that take place in each wave?*

In the sections to follow, we present our literature review findings that shape our understanding on how business transformations unfold, including pertinent theories used to guide our work. Then, we describe the research method employed to investigate how ITBTs unfold, followed by presentation of our analysis and findings. We then discuss the implications of the results, and conclude with implications and limitations of our study.

## BACKGROUND

### How do IT-enabled business transformations unfold?

Several studies, as depicted in Table 1, have attempted to describe how organizational transformation initiatives unfold. These works, while rich in content, indicate several ambiguous aspects that preclude an understanding of Business Transformation Management (BTM). For starters, the varying use of terminologies such as phase, stage, state, and capability, among others, that represent the key periods in BTM can lead to confusion due to the lack of consensus on the naming conventions; different names utilized for the same concept, or identical names employed for different concepts reflect misunderstandings and can magnify unnecessary misconceptions (Deissenboeck and Pizka 2006) for what is already a complex phenomenon.

Table 1. Selected Findings from Literature on How Organizational Transformation Initiatives Unfold

Author	Selected Findings
(Murray and Trefts 2000)	Reference to different phases, namely: <ul style="list-style-type: none"> <li>• Phase I – vision and business objectives</li> <li>• Phase II – business architecture blueprint</li> <li>• Phase III – IT architecture buildable blueprint</li> <li>• Phase IV – design and engineering detailed specifications</li> <li>• Phase V – building and implementation of the improved solution</li> <li>• Phase VI – benefits audit post-implementation</li> </ul>
(Hill and Collins 2000)	Reference to the four kinds of transition states in the various transformation stages: <ul style="list-style-type: none"> <li>• Stage I – developing the business vision (relatively predictable and stable transition)</li> <li>• Stage II – small scale reengineering projects (more complex and less predictable transition)</li> <li>• Stage III – project teams design new processes, implementing them in phases (complex and turbulent environment)</li> <li>• Stage IV – organizations adapt to the transformed state in its market environment (highly volatile and turbulent context)</li> </ul>
(Shanks, Bekmamedova and Willcocks 2013)	Reference to the interplay business and IT alignment throughout three key phases: <ul style="list-style-type: none"> <li>• Phase I – conceptual design to identify and define global business processes (over a year)</li> <li>• Phase II – incremental implementation and release of the IT solution (over several years)</li> <li>• Phase III – refinement and enhancement of the ITBT, emphasizing on providing reports throughout the organization.</li> </ul>
(Wheeler 2002)	The author proposes an applied dynamic capabilities theory with four sequenced constructs: <ol style="list-style-type: none"> <li>i) Choosing enabling/emerging technologies,</li> <li>ii) Matching with economic opportunities,</li> <li>iii) Executing business innovation for growth, and</li> <li>iv) Assessing customer value.</li> </ol>

We also observed inconsistent categorizations and varying duration of the different periods in business transformations. This may be attributed to varying levels of analysis that have been applied to the study of ITBTs. Op't Land, Proper, Waage, Cloo, and Steghuis (2008) suggest that enterprise-wide transformations can be viewed from at least three management perspectives: Project, Program or Strategic Management level.

### Management Services as Resources and Managerial Capabilities Required in BTM Waves

In describing how ITBTs are managed over the lifetime of their progression, we extend on the Resource-Based theory of the firm (cf. Barney, Ketchen and Wright 2011) to develop a Service-Oriented View that allows us to identify different *Management Services*. We define Management Services (MS) as abstract resources that provide a coherent set of managerial capabilities, stemming from the various management disciplines (e.g. Strategy Management, Change Management, IT Management, Risk Management, etc.) required for a ITBT initiative (Safrudin, Recker and Rosemann 2011). The purpose of the MS concept is to specify what those abstract *resources* are that are required to deliver the *managerial capabilities* required for BTM.

Building on our earlier work (cf. Safrudin, Recker and Rosemann 2011), we identify the attributes of MS as being Transactional (TA MS) or Transformational (TF MS). TA MS provide operational capabilities and are characterized as being highly repetitive, has a fixed approach to structures, and reuses existing routines and practices (Helfat and Winter 2011), e.g. Project MS reuses established methodologies such as PMBOK or PRINCE2 and is repeatedly invoked throughout an ITBT. TF MS on the other hand provide dynamic capabilities and are unlikely to be repetitive, employs a flexible approach to structures, and reconfigures routines (Zahra, Sapienza and Davidsson 2006), e.g. designing a business vision via Strategy MS reconfigures existing routines and does not occur on a frequent basis, nor does it require any fixed approach or method.

In perusing the MS concept, we need to develop an understanding when and how such services are invoked. To that end, we now discuss the different types of triggers that invoke the necessary MS in BTM.

### Triggers for Management Services in BTM

In line with Zahra and George (2002), we regard a trigger in ITBTs as an incident that compels the transforming organization to respond to a specific stimuli. We classify these triggers based on the level at which they occur (cf. Op't Land et al. 2008), by drawing on pertinent literature, such as studies concerning information systems deployment (e.g. Teubner 2007; Thomas and Bostrom 2010; Sun 2012), services (Roos 2002) and organizational management (e.g. Walsh and Seward 1990; Zahra and George 2002). Based on these findings, we broadly classified triggers in ITBTs at two levels, namely, Strategic Management Level (herein known as Strategic Triggers) and Program Management Level (herein known as Program Triggers), summarized in Table 2.

Table 2. The Different Types of Triggers in Business Transformations

Trigger	Description	Examples
<i>Strategic Management Level (aka Strategic triggers)</i>		
Internal	Factors that stem from within the organization, causing the firm to redefine its strategy	Concerns instances that lead to fundamental changes such as depleting performance, inefficient processes, limited IT capabilities, etc.
External	Factors that emanate from the firm's operating environment	Technological shifts, changes in government policy, market volatility, etc.
<i>Program Management Level (aka Program Triggers)</i>		
Influential	Factors related to the constraining situation of the initiative	Budget and time allotted for the program deliverables, process interdependencies, etc.
Reactional	Factors pertinent to the of deterioration in perceived performance during the transformation	Out of the ordinary occurrences such as unanticipated technical issues that emerge during data migration, etc.
Situational	Factors concerning the personnel involved in BTM, and are not necessarily related to the transforming enterprise at all	Individual traits, individual capacity and competences, personal factors, etc.

In summary, our literature review indicates the lack of a consensus on how ITBTs unfold in terms of identifying the key stages/phases in ITBTs. Building on the notion of MS – and their attributes – drawn from our prior work, we have also identified what triggers those MS; but we have yet to conceptualize the interplay between those triggers and particularly the attributes of corresponding MS invoked throughout the BTM waves. We thus endeavour to investigate the said association by identifying the critical incidents that shape each wave in BTM that consist of those triggers and the corresponding MS. We describe our research approach in the following.

## METHODOLOGY

In our research program, we rely on qualitative research to examine ITBTs. Specifically, we conducted three case studies, following extant guidelines (cf. Yin 2003; Björkdahl 2009; Lee et al. 2011) on large-scale enterprises that embarked on successful ITBTs involving the implementation of ERP systems. At the time of study, two organizations were nearing completion of their transformation and one had successfully completed. We gathered data from the case organizations via documents, in-depth interviews (primary source of data), participant observation and archival records. A total of 28 interviews with 25 participants consisting of senior management and executives across the three cases were conducted, lasting approximately one hour each. Interviewees were selected based on their ability to provide information regarding the abstracted managerial capabilities at the program and strategic management level, i.e., staff at the senior management and directorate level. We also interviewed some managers involved in discrete projects as part of the transformations. The interviews were semi-structured following a predefined and evolving protocol. Two fundamental questions

asked during the interviews were, “Can you please describe how the business transformation was managed from start to end?” and “Were there any key stages or phases in the business transformation initiative? Please describe in detail.” Further data were gathered from pertinent documentations such as meeting notes and project plans, and also included memos from direct observations conducted on-site, particularly on the daily interactions at the office and during regular steering committee meetings. The purpose of these sources of data was to triangulate the interview findings. Then, in conducting our data analysis, we engaged with the literature where appropriate to synthesize findings with literature, and to contrast our findings against extant theory.

## DATA ANALYSIS

### Identifying the Business Transformation Waves

Table 3 presents our findings on the four different waves in BTM, where we identified how each wave started and ended based on our analysis of the interviews and pertinent documentation. The interviewees each described how the ITBT were managed from start to end, albeit with variations to their stories, such as the naming conventions employed, e.g., using the terms ‘stages’ and/or ‘phases’ to distinguish key events and periods. As a result, we sought to clarify the critical incidents that occur in those large-scale and prolonged initiatives. We utilized the term ‘waves’ as a means to group associated events that we found to be consistent across all stages, events and phases across the three cases. Other variations to the interviewees’ narratives include the different dates (month and year), which are dependent on when they were involved in the programme, as only a handful were involved from the very start through to the end of the initiative. To rectify the incongruences, commonalities on the critical incidents were consolidated and contrasted with the documented roadmap of the initiatives. The durations of each wave were averaged across all cases. We omitted incidents that were insignificant, e.g., those mentioned by only one or two personnel that either entered late into the programme, or pertained to incidents at the project management level. The resulting findings were then contrasted with existing literature bearing similar critical incidents in their reported cases. The way we derived the critical incidents that constitute each wave is detailed in the next section.

### Identifying Triggers and Management Services in the Case Studies

To identify both the triggers and corresponding MS in the waves, we coded the available data using the Critical Incident Technique (Flanagan 1954). Critical incidents engage participants in the reflective process by drawing on the personal meaning of experience, which allows for the provision of critical perceptual information (Bloomberg and Volpe 2008). The critical incidents were elicited from interview transcripts and documentation, and were also asked explicitly in the case study interview. We had interviewees identify significant incidents, and report on the way they were managed. Figure 1 illustrates our approach to eliciting the critical incidents in our BTM study. Those critical incidents were used to identify the different triggers *and* MS embedded in the waves, including key milestones that determine when each wave starts and end, all of which constitutes the concept of a BTM wave. Once the critical incidents were collated, we examined the content of trigger and the response to those triggers, viz. MS. We used a coding approach we developed elsewhere (cf. Safrudin and Recker 2013). Specifically, we first identified the five different types of triggers (per Table 2), and then associated them with their respective categorizations levels, i.e., Strategic or Program.

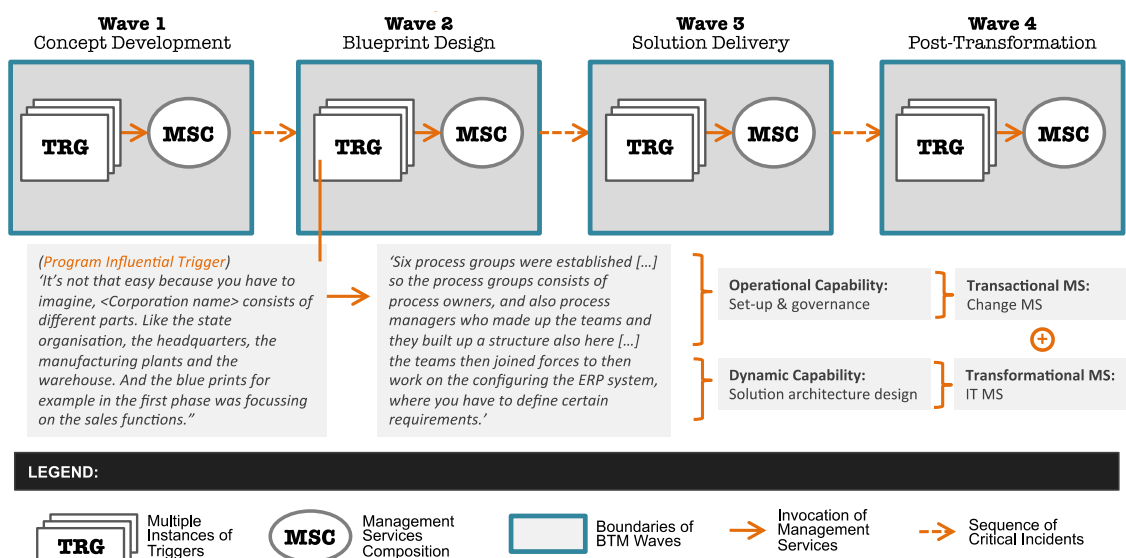


Figure 1. Data Coding via Critical Incidents to Elicit Triggers and MS Embedded in BTM Waves

Table 3: The Four Waves in Business Transformation Management

Wave Description	Wave Start	Supporting Data	Wave End	Supporting Data	Supporting Literature
<p><b>Wave 1: Concept Development</b> (6-12 months) Identifies the need to transform due to the value deficiencies experienced and/or anticipated by the enterprise and ascertains possible IT solutions to mediate the deficiencies</p>	<p>Identification of value deficiency experienced by an organization, gaining key stakeholders feedback and buy-in for the transformation initiative</p>	<ul style="list-style-type: none"> <li>• <i>'It started with a board off-site in &lt;year&gt; [...] at which point the new strategies that they had in terms of customer service and efficiency was very much in discussion.'</i></li> <li>• <i>'Basically IT came to the business and gone &lt;legacy system name&gt; is nearing end of life, and has limitations about the number of stores it can service, and therefore we need a new core system'</i></li> </ul>	<p>List of potential avenues to address the value deficiencies of business and approval by the board to proceed with the next step of designing the ITBT</p>	<ul style="list-style-type: none"> <li>• <i>'So we agreed we would go away for a year and come back to the next board off-site with a view that, could you actually do something about that, and if you could, how would you do that? [...] Then we came back with, there were three ways you could do that.'</i></li> <li>• <i>'It was part of some strategic work done by the CEO to think about what do we need from a systems and solutions perspective to help deliver the corporate ambition at the time. And they had kind of three levels of the strategy [...] It went through to the Board, got an agreement to proceed to the next stage, which was evaluation, selection of an appropriate solution.'</i></li> </ul>	<p>(Ruohonen 1991; Earl 1993; Wheeler 2002; Shanks, Bekmamedova and Willcocks 2013)</p>
<p><b>Wave 2: Blueprint Design</b> (6-12 months) Describes the next steps to be done that are approved by the key stakeholders in an enterprise, including selection of an appropriate IT solution</p>	<p>Preparation of feasibility paper outlining proposed approach, including selected solution, vendor, implementation partner, program plan, resources</p>	<ul style="list-style-type: none"> <li>• <i>'Then phase two was looking at what was it that we needed to do, so it went from agreement to the vendor, the solution provider, [...] how do we improve the timing and sequence of delivery.'</i></li> <li>• <i>'We have kind of the blueprint phase where we do the design basically on paper what is the ideal world without looking really at the details of the possibilities of the system.'</i></li> </ul>	<p>Completion of roadmap and approval of business case by the board of directors within an organization</p>	<ul style="list-style-type: none"> <li>• <i>'By the time we finish our design phase we have the whole blueprint for the solution [...], agreement to the overall business case at a very high level, some requests to focus on how do we improve the cost of the delivery [...] and we can then begin our build phase'</i></li> <li>• <i>'We basically got an approved proof of concept out of this where the people say yes the system now is good enough that we can now start with the roll out. And the roll out then started in &lt;year&gt; in &lt;country name&gt;'</i></li> </ul>	<p>(Hill and Collins 2000; Wheeler 2002; Shanks, Bekmamedova and Willcocks 2013)</p>
<p><b>Wave 3: Solution Delivery</b> (5-7 years) Conducts the installation of a new IT platform as part of the solution to enable the business transformation</p>	<p>Rollout of first pilot project entailing the first release of the IT solution for the business</p>	<ul style="list-style-type: none"> <li>• <i>'We then went live in &lt;country 1&gt; with our first organisation then in 2002 [...] the next one was in &lt;countries 2, 3 &amp; 4&gt; and then we basically started rolling out country by country in parallel or at least very staggered.'</i></li> </ul>	<p>Completion of last release of the IT solution as defined by and for the business</p>	<ul style="list-style-type: none"> <li>• <i>'Our project and our roll out phase was basically done in 2008. So that's when everything was delivered (to 40 countries).'</i></li> </ul>	<p>(Manzoni and Angehrn 1997; Hill and Collins 2000; Wheeler 2002)</p>
<p><b>Wave 4: Post-Transformation</b> (6-12 months) Manages the outcome of the completed IT-enabled transformation</p>	<p>Evaluating and managing the organizational transition such as restructuring, improving and establishing support systems</p>	<ul style="list-style-type: none"> <li>• <i>'One of the biggest, obvious points is that we could switch off legacy systems and we could also basically also streamline our IT team because we now don't have to support 20 different systems, but only one. And those people who develop, maintain and support these systems, we could redeploy them in other parts of the organisation.'</i></li> </ul>	<p>Identification of subsequent value deficiency to be addressed, including leveraging IT investment towards innovation</p>	<ul style="list-style-type: none"> <li>• <i>'The ERP system and business processes were almost too elaborate, too complex for these smaller organizations. So we looked at how we can simplify, took certain functionalities or certain processes out'</i></li> <li>• <i>'We're now able to be innovative in one country and if we can prove the business case we can also multiply that for the rest of the organisation [...] where we can leverage the competence of our global team and make sure that the entire organisation is working on or moving towards best practice level'</i></li> </ul>	<p>(Wheeler 2002; Shanks, Bekmamedova and Willcocks 2013)</p>

## FINDINGS

### Critical Incidents in each BTM Wave

To reiterate, the purpose of this study is to identify how ITBTs unfold, by identifying the critical incidents that manifested in the different BTM waves. To address this question, we examined in particular: a) *What is the most prominent type of trigger in each wave and the most prominent MS attribute invoked in response to those triggers*; and b) *What is the most prominent type of trigger and MS attribute across all waves*. Figure 2 illustrates our findings in relation to the critical incidents that make up each BTM wave, and also describes the MS invoked in response to those triggers. Our findings indicate that Strategic triggers appear to be more prominent in Wave 1, Wave 2 and Wave 4, while Program triggers were most prominent in Wave 3. This may imply that the Concept Development, Blueprint Design and Post-Transformation waves require more involvement and resources from Strategic Management Level, and that the Solution Delivery requires more dedication from resources at the Program Management Level.

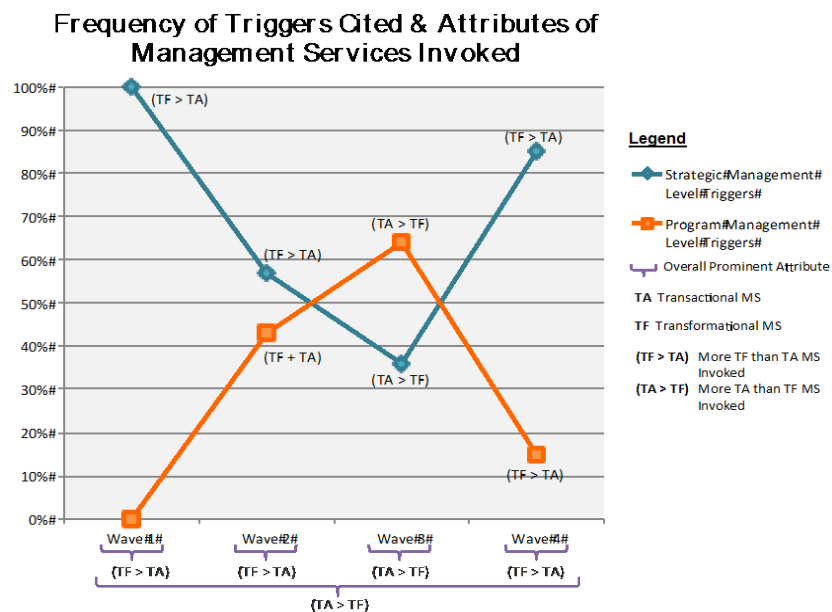


Figure 2. Illustrated findings on triggers and MS attributes cited across all waves from cross-case analysis

In **Wave 1**, the critical incidents pertained to those at the Strategic Management level, where value deficiencies of the transforming enterprises were identified and addressed via the ITBT initiative. More TF MS than TA MS were invoked as designing an appropriate solution generally requires the reconfiguration of existing routines, such as when identifying a new business vision and suitable IT infrastructure to support and enable the new operating model of the enterprise. The TA MS on the other hand, corresponded to the use of established methods, such as approaches to assess strategic risks or analyze the existing business and IT needs.

In **Wave 2**, there were more Strategic than Program triggers cited across all three cases. The Strategic triggers mainly concerned internal triggers such as obtaining stakeholder buy-in from various business units of the transforming enterprise and identifying investment benefits via a detailed business case. There were also external triggers such as aligning the ITBT's objectives in response to the market conditions that may influence the course of the ITBT, and adhering to legal regulations. For this Blueprint Design wave, more TF than TA MS are required for those Strategic triggers. As for the Program triggers, a balance of both TF MS and TA MS is required as formulating the ITBT roadmap requires both the reconfiguration of existing routines and re-using established methodologies such as program, project, change and IT management frameworks, among others.

**Wave 3**, which is the wave bearing the longest duration during the transformation, indicates the only time throughout the ITBT initiatives when Program triggers were more predominant than Strategic triggers. This may be due to the Solution Delivery wave being focused more on rolling out the IT solution to the transforming enterprises, which subsequently triggers predominantly TA MS for both Strategic and Program Management Levels. TA MS were invoked to adhere to the scope of deliverables, established governance structures and formulated plans such as schedule and resource allocation, while TF MS were invoked to identify mitigation approaches for emergent issues that occur during the prolonged duration of Wave 3.

**Wave 4** indicates an increase in Strategic triggers, with a decrease in Program triggers. It should be noted that Wave 4 was derived from one case study, as it was the only organization that had completed its ITBT at the time of study. Nonetheless, we observed how more TF than TA MS are required for both Strategic and Program

Triggers. This is due to the need to consider emergent factors after implementing the solution such as streamlining process improvements and enhancements to the new IT artifact based on user feedback, dealing with socio-behavioral inertia such as ramping up user competences in order to use the system, or dealing with lag in user adoption, and identifying means to leverage IT investment, such as embarking on new innovation initiatives to improve or offer new products and/or services for customers.

Overall, we found more Strategic than Program triggers across all waves, and the triggers overall required more TA than TF MS throughout the entire initiative. TA MS were invoked mainly to ensure adherence to the established governance structure of the initiative, while TF MS were required mainly to formulate solutions or approaches throughout the initiative. This is important to know as we have yet to advance our understanding on the effort required for managing an ITBT in terms of which MS are required (TA or TF MS), where are they required most (Strategic or Program Management Level) and when (waves in BTM), all of which are partly addressed through our research-in-progress study of how ITBTs unfold. Still, one of the emergent findings from our analysis is the observed association between the critical incidents that occur at the Strategic Management Level, and its influence on the critical incidents at the Program Management Level, explained next.

### Association between Critical Incidents in each BTM Wave

Figure 3 visualizes the sequence by which triggers and invoked MS interact across the four waves in the cases studied. The model in Figure 3 suggests three key findings. First, the critical incidents in each wave inform those in the subsequent waves. For instance, in the Concept Development (Wave 1), the critical incidents at the Strategic Management Level denote the embarkation of the ITBT initiative. This prompted subsequent critical incidents in the Blueprint Design (Wave 2) at both Strategic and Program Management Levels. Similarly, the critical incidents at the Strategic and Program Management Levels in the Solution Delivery (Wave 3) will influence those critical incidents in Post-Transformation (Wave 4).

Second, the way the Strategic triggers are handled in each wave by composing the required MS impacts the Program triggers and corresponding MS. Take for example, how the Strategic internal triggers in Wave 2, such as initiating the replacement of the enterprise's legacy system with a new IT platform, requires the invocation of predominantly TF MS (Wheeler 2002). This subsequently induced, to a large extent, predominantly Program influential triggers in developing the ITBT roadmap and deployment plan (Shanks, Bekmamedova and Willcocks 2013), which in turn invoked a balance of TF and TA MS. Where TF MS reconfigures routines such as via process redesign projects (Hill and Collins 2000), TA MS reuses routines such as Project and Program Management methodologies to ensure alignment with the strategic initiative (Avison et al. 2004).

Third, we also observe the inverse to hold true, i.e. the way Program Triggers are handled in each wave by composing the required MS, impacts the Strategic Triggers and corresponding MS. For instance, in Wave 3, when Program reactionary triggers such as unexpected technical issues emerge, management personnel executed an established risk response plan, and also monitored and controlled the transformation (Van de Ven and Sun 2011) by invoking TA MS; these incidents at the Program Management Level subsequently prompted Strategic internal trigger to ensure alignment of initiative with the overall enterprise. In doing so, TF MS were invoked to regulate communication and formulate an appropriate response that is not detrimental to the business and the initiative (Manzoni and Angehrn 1997).

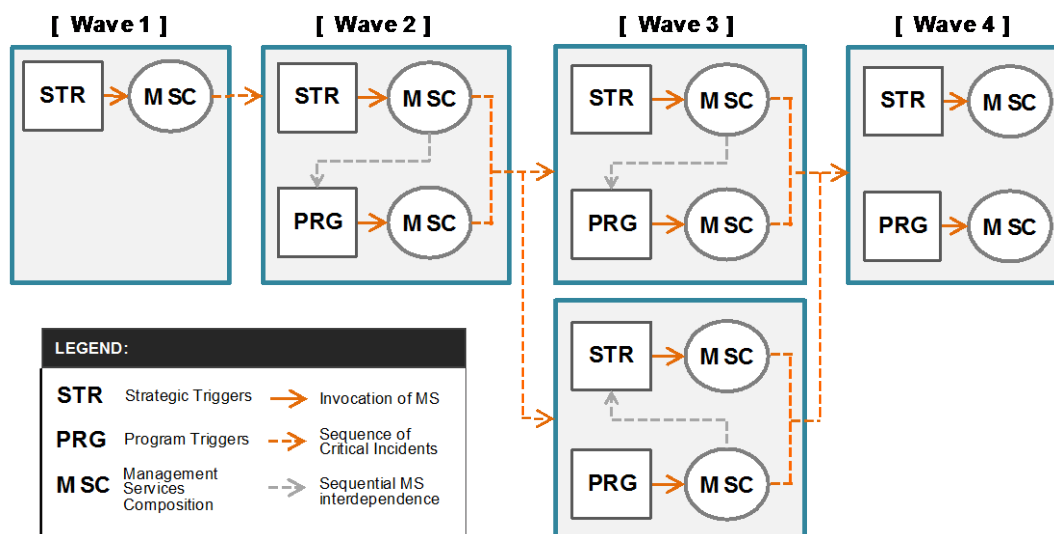


Figure 3. Illustration of how the Composition of MS at the Strategic Management Level Impacts the Program Management Level, and vice versa

## DISCUSSION

The waves in business transformation are defined as the temporal order of key milestones achieved throughout the duration of a business transformation, entailing a combination of events, tasks and routines that require capabilities achieve a particular outcome (Hill and Collins 2000). The concept of the BTM wave was developed inductively via empirical observations from our case studies, motivated by the conflicting responses provided by management personnel when they were enquired how the initiative unfolds from start to end. In particular, there were inconsistencies in terms of terminologies used to separate the key stages or phases in BTM. Upon consolidation of these differences, we established that 'stages' pertains to the segmentation of key milestones and events for Program Management, while 'phases' refers to those embedded within Project Management. In other words, the waves subsume stages and phases. Hence, labeling the overarching segmentation of the critical incidents as 'waves' allows for a common understanding with reference to how a BTM unfolds from start to end, particularly when viewing from the perspective of Program and Strategic Management levels.

*P1. ITBTs unfolds in four waves, whereby Wave 1 manifests as Concept Development, Wave 2 as Blueprint Design, Wave 3 as Solution Delivery and Wave 4 as Post-Transformation.*

We further observe how different triggers require different MS in each wave, which we denote as the composition of MS in BTM. Each BTM wave has a different focus in providing different key deliverables (see Table 3). For instance, Wave 1 has a stronger emphasis on identifying the vision and direction of the ITBT, while Wave 3 is more focused on delivering and realizing the vision of the ITBT. As such, there will be varying prominence in demand for the types of MS required, due to the different types of triggers in each wave. Hence:

*P2. The MS are composed in accordance with the varying types of triggers embedded in each BTM wave.*

Our analysis indicates how each wave has varying durations, where the start and end times differ based on the different deliverables realized for each wave, that subsequently requires different MS attributes. For instance, Wave 3 may take the longest time to complete, but transforming enterprises can re-use existing routines based on the prominence of TA MS cited in this wave. In order to constantly deliver the IT solution, organizations can iteratively invoke TA MS to provide operational capabilities by (re-) using project and program management approaches, plus IT and change management frameworks, and so forth. This is in the contrary to Wave 2 for instance, where the duration is shorter than that of Wave 3, and transforming enterprises are to reconfigure existing routines by formulating an appropriate blueprint for the ITBT, which requires predominantly TF MS at the Strategic level. Those TF MS provide dynamic capabilities to attain competitive advantage, which are much harder to acquire than operational capabilities (Zahra, Sapienza and Davidsson 2006). Hence, the transformational changes that occur in ITBTs are dependent on the actions undertaken throughout the initiative, where such changes occur based on the MS invoked in response to the different types of triggers at different points in time of the transformation, i.e. in the BTM waves. Consequently, the type of MS invoked too will differ, even with the same type of trigger to provide operational capabilities via TA MS, and/or dynamic capabilities via TF MS (see Figure 2). Thus, we posit that the MS invoked will differ depending on the waves.

*P3. The MS attribute required in BTM differs with each wave in a business transformation initiative.*

*P3a. Wave 1 requires predominantly TF MS for Strategic triggers.*

*P3b. Wave 2 requires predominantly TF MS for Strategic triggers, and both TA MS and TF MS for Program triggers.*

*P3c. Wave 3 requires predominantly TA MS for both Strategic and Program triggers.*

*P3d. Wave 4 requires predominantly TF MS to address both Strategic and Program triggers.*

As we aggregate the different triggers and corresponding MS as critical incidents, we observe that those critical incidents at the Strategic Management Level appear to influence the critical incidents at the Program Management Level (see Figure 3). Similarly, the critical incidents that take place at the Program Management Level were observed to influence those at the Strategic Management Level. Thus:

*P4. The critical incidents at the Strategic Management Level determines the critical incidents at the Program Management Level, and vice versa*

## CONCLUSIONS AND OUTLOOK

In this research-in-progress paper, we attempted to facilitate an understanding of how business transformations unfold from its inception to completion, i.e. across the Concept Development (Wave 1), Blueprint Design (Wave 2), Solution Delivery (Wave 3) and Post-Transformation (Wave 4). The four waves were identified and conceptualized based on an aggregation of the critical incidents embedded in each wave, which we define as triggers occurring at the Strategic and Program Management Level that require managerial capabilities, viz. MS,



as responses to these triggers. The key contributions of this work are twofold. First, it distils and interprets the association between the triggers and the attributes of the MS required across the waves. Second, the waves are distinguished from 'phases' or 'stages' in BTM, comprising of critical incidents that entail the triggers and MS. The 'waves' label is purposeful to differentiate the way we perceive the key periods in a business transformation program (as a collective whole), which is distinguished from the interdependent projects embedded in a business transformations program. This study also contributes to industry practice, in particular for senior management who have yet to further their experience in BTM. Our study extends an awareness on when waves start and end, including the duration of each wave to inform the resources required in ITBTs, i.e. when to ramp up, what capabilities are required, and what to anticipate, for better management of business transformations.

It is important to highlight several limitations of our ongoing research. First, the findings were derived inductively from three case studies, which may limit the generalizability of BTM practices. Nonetheless, we have carefully selected our cases based on similar attributes, viz., large-scale and long-established enterprises that undertook ITBT initiatives to replace their legacy systems with a similar IT artifact. The critical incidents identified in each wave can potentially suggest that similar incidents may also occur in other BTM initiatives, as they are not context specific to ERP systems. Second, the qualitative nature of our analysis induces subjectivity into interpretation and conclusions. We attempted to mitigate bias by highlighting plausibility of our data coding and analysis. Third, we could not report in sufficient detail and breadth about all elements of our analysis and discussion of data in this paper. We reserve these analysis, in particular the cross-case analysis to an extended version of this paper. We see multiple avenues for future work to extend and enrich our findings, such as via the use of survey or other quantitative methods to examine the suggested propositions in more deductive ways.

## REFERENCES

- Ashurst, C & Hodges, J 2010. "Exploring Business Transformation: The Challenges of Developing a Benefits Realization Capability," *Journal of Change Management* (10:2), pp 217 - 237.
- Avison, D, Jones, J, Powell, P & Wilson, D 2004. "Using and validating the strategic alignment model," *The Journal of Strategic Information Systems* (13:3), pp 223-246.
- Barney, J, Ketchen, DJ & Wright, M 2011. "The Future of Resource-Based Theory: Revitalization or Decline?," *Journal of Management* (37:5), pp 1299-1315.
- Besson, P & Rowe, F 2012. "Strategizing information systems-enabled organizational transformation: A transdisciplinary review and new directions," *The Journal of Strategic Information Systems* (21:2), pp 103-124.
- Björkdahl, J 2009. "Technology cross-fertilization and the business model: The case of integrating ICTs in mechanical engineering products," *Research Policy* (38:9), pp 1468-1477.
- Bloomberg, LD & Volpe, M 2008. *Completing your qualitative dissertation: A road map from beginning to end*. California: Sage.
- Deissenboeck, F & Pizka, M 2006. "Concise and consistent naming," *Software Quality Journal* (14:3), pp 261-282.
- Earl, MJ 1993. "Experiences in Strategic Information Systems Planning," *MIS Quarterly* (17:1), pp 1-24.
- Flanagan, JC 1954. "The critical incident technique," *Psychological bulletin* (51:4), p 327.
- Gregor, S, Martin, M, Fernandez, W, Stern, S & Vitale, M 2006. "The transformational dimension in the realization of business value from information technology," *The Journal of Strategic Information Systems* (15:3), pp 249-270.
- Helfat, CE & Winter, SG 2011. "Untangling Dynamic and Operational Capabilities: Strategy for the (N)ever Changing World," *Strategic Management Journal* (32:11), pp 1243-1250.
- Hill, FM & Collins, LK 2000. "A descriptive and analytical model of organisational transformation," *International Journal of Quality & Reliability Management* (17:9), pp 966-983.
- Lee, S, Frank, LB, Schultz, C, Margolin, D, Shen, C, Weber, M, Fulk, J, Gould, J & Monge, P 2011. "Research Methods for Studying Evolutionary and Ecological Processes in Organizational Communication," *Management Communication Quarterly* (25:2), pp 211-251.
- Manzoni, JF & Angehrn, AA 1997. "Understanding organizational dynamics of IT-enabled change: a multimedia simulation approach," *Journal of Management Information Systems*, pp 109-140.
- Morgan, RE & Page, K 2008. "Managing business transformation to deliver strategic agility," *Strategic Change* (17:5-6), pp 155-168.

- Murray, RJ & Trefts, DE 2000. "The IT imperative in business transformation," *Information Systems Management* (17:1), pp 17-22.
- Op't Land, M, Proper, E, Waage, M, Cloo, J & Steghuis, C 2008. *Enterprise architecture: creating value by informed governance*: Springer.
- Roos, I 2002. "Methods of Investigating Critical Incidents: A Comparative Review," *Journal of Service Research* (4:3), pp 193-204.
- Rouse, WB 2005. "A theory of enterprise transformation," *Systems Engineering* (8:4), pp 279-295.
- Ruohonen, M 1991. "Stakeholders of strategic information systems planning: theoretical concepts and empirical examples," *The Journal of Strategic Information Systems* (1:1), pp 15-28.
- Safrudin, N & Recker, J 2012. "A Typology for Business Transformations." Paper presented at the *Australasian Conference in Information Systems (ACIS2012)*. Melbourne, Australia.
- Safrudin, N & Recker, J 2013. "Identifying the Triggers for Management Services in Business Transformation Management." Paper presented at the *Pacific Asia Conference of Information Systems (PACIS2013)*. Jeju Island, South Korea.
- Safrudin, N, Recker, JC & Rosemann, M 2011. "The Emerging Management Services of Business Transformation Management." Paper presented at the *Pacific Asia Conference of Information Systems 2011*. Brisbane, Australia.
- Shanks, G, Bekmamedova, N & Willcocks, L 2013. "Using business analytics for strategic alignment and organisational transformation," *International Journal of Business Intelligence Research (IJBIR)* (4:3), pp 1-15.
- Sun, H 2012. "Understanding User Revisions When Using Information System Features: Adaptive System Use and Triggers," *MIS Quarterly* (36:2), p 453.
- Teubner, RA 2007. "Strategic information systems planning: A case study from the financial services industry," *The Journal of Strategic Information Systems* (16:1), pp 105-125.
- Thomas, DM & Bostrom, RP 2010. "Vital Signs for Virtual Teams: An Empirically Developed Trigger Model for Technology Adaptation Interventions," *MIS Quarterly* (34:1), pp 115-142.
- Van de Ven, AH & Sun, K 2011. "Breakdowns in Implementing Models of Organization Change," *The Academy of Management Perspectives* (25:3), pp 58-74.
- Walsh, JP & Seward, JK 1990. "On the Efficiency of Internal and External Corporate Control Mechanisms," *Academy of Management Review* (15:3), pp 421-458.
- Wheeler, BC 2002. "NEBIC: A dynamic capabilities theory for assessing net-enablement," *Information Systems Research* (13:2), pp 125-146.
- Yin, RK 2003. "Designing Case Studies," in *Case Study Research Design and Methods*. Thousand Oaks: Sage, pp 19-56.
- Zahra, SA & George, G 2002. "Absorptive capacity: A review, reconceptualization, and extension," *Academy of Management Review*, pp 185-203.
- Zahra, SA, Sapienza, HJ & Davidsson, P 2006. "Entrepreneurship and Dynamic Capabilities: A Review, Model and Research Agenda," *Journal of Management Studies* (43:4), pp 917-955.

## ACKNOWLEDGEMENTS

Ms. Safrudin's contributions to this research were supported by a scholarship from SAP AG's Business Transformation Academy.

## COPYRIGHT

Safrudin & Recker © 2014. The authors assign to ACIS and educational and non-profit institutions a non-exclusive licence to use this document for personal use and in courses of instruction provided that the article is used in full and this copyright statement is reproduced. The authors also grant a non-exclusive licence to ACIS to publish this document in full in the Conference Papers and Proceedings. Those documents may be published on the World Wide Web, CD-ROM, in printed form, and on mirror sites on the World Wide Web. Any other usage is prohibited without the express permission of the authors.