Business model innovation in e-services: Investigating new service development in the digital age

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Abstract

Business model innovation (BMI) in the e-service context is of contemporary interest. However, there still lacks empirical research investigating the implementation of the business model (BM) through an operations management (OM) lens. This ongoing process study is intended to contribute 1) by addressing the lack of OM research on BMIs, 2) by identifying and describing efficient alignment mechanisms for business strategy, BM, and operational process in e-services, and more generally 3) by exploring the development and deployment of BM during NSD processes. The initial findings will help in terms of the management and provision of the new service in a dynamic environment.

Keywords: Business Model Innovation, E-services, New Service Development

Introduction and Purpose

E-services have grown rapidly over recent years. In 2018, the worldwide turnover in the e-service industry amounted to approximately $17bn USD, and was predicted to show an annual growth rate (CAGR 2018-2022) of 15.6 % (Statista, 2018). This growth rate shows that the e-service industry is becoming a new market and a significant economy. E-Service, as an abbreviation of "Electronic Service", is defined by Rust and Kannan (2003, p. 38) as "the provision of any service over electronic network formats". It differs from traditional services in terms of lower barriers to entry, disintermediation, high clock-speed development, high degree of outsourcing, modular architecture, and transparency (Geum et al., 2016; Menor et al., 2002). In turn, this creates significant managerial challenges and, at the same time, new research prospects (Cho & Menor, 2009). A significant challenge in e-services is related to the management of innovation (Bouwman et al., 2010).

The e-service industry provides innovative forms of BM for enterprises operating in the digital age (Rust & Kannan, 2003). The high clock-speed and short time-to-market

nature of e-service render service innovation and NSD more challenging (Menor et al., 2002). Hence, BM, as a design tool, helps entrepreneurs to address these challenges by providing a framework to manage, facilitate, and commercialise innovations (Massa et al, 2017). BM, itself can be a new source of innovation complementing the traditional focuses of the offering, process, and organizational innovation (Foss & Saebi, 2017). In e-services, there is considerable uncertainty as to how BMs are introduced and implemented. As such, the mechanisms of BMI can help enterprises to formalize their approach to NSD and service innovation (Kindström, 2010).

Hence, the purpose of this research is to answer the research questions. (RQ1) What are the key business model elements in e-service business models at each NSD stage? (RQ2) How do the key business model elements evolve at each NSD stage for e-services? (RQ3) How does alignment occur amongst business strategy, business models and operational processes as part of BMI during the e-service NSD process?

The paper is structured as follows. Theoretical background reviews the extant literature pertaining to BM and NSD. In the methodology, a description of the research method is explicated, followed by data collection and analysis of the pilot study. The initial findings are stated in the penultimate section. Finally, the insights gained from the study are discussed.

Theoretical Background

BM, as an analytic tool, helps entrepreneurs to better manage and commercialise innovations (Chesbrough, 2010; Teece, 2010). BM provides the generic logic for an organization to create, deliver, and capture value through an innovative idea (Chesbrough, 2010; Johnson et al., 2008; Osterwalder & Pigneur, 2010; Teece, 2010). Previous research has emphasized the relationship between strategy and BM (Massa et al, 2017). Furthermore, an alignment between BM and operations processes is also essential (Solaimani et al., 2015). BM plays a prominent harmonization role to bridge strategy with operational processes (Solaimani et al., 2015). This makes BM in e-services of interest to OM scholars. Voss and Hsuan (2009) regard the nature of services as both products and processes, and emphasise a perspective of modular process for service research. It has been argued that the alignment among strategy, BM, and operations processes is a prerequisite for shoring up BM viability and commercializing innovations (Al-Debei & Avison, 2010; Solaimani et al., 2015). Yet, there still lacks empirical research that investigates the implementation of BM through an OM lens (Girotra & Netessine, 2013; Spring & Araujo, 2009) by linking strategy with operations (Al-Debei & Avison, 2010； Solaimani et al., 2015).

BM elements help entrepreneurs identify the critical components, to describe, analyse, and design BM (Osterwalder & Pigneur, 2010). Several studies have argued that key elements should be identified and analysed to compose a generic BM (Johnson et al., 2008; Kindström & Kowalkowski, 2014; Osterwalder & Pigneur, 2010; Mason & Spring, 2011). According to the extant literature about BM elements, three main BM elements are identified and synthesised, namely value alignment mechanism, networked architecture, and activity system. Each BM element also consists of several sub-elements.

BM elements are regarded as fundamental cornerstones for BMI, designing or reconstructing BM (Mason & Spring, 2011). Mason and Spring (2011, p. 1037) argue that “an understanding of these elements and how they relate to one another is essential to an understanding of management innovation”. The BMI mechanisms are depicted by the processes, which keep adapting BM elements to different NSD stages over time (Kindström & Kowalkowski, 2014).

BMI research is a recent extension of the BM literature, which is emerging and still lacks theoretical underpinning (Foss & Saebi, 2017). Prior research points out that BMI, which mainly conducted in traditional sectors (such as manufacturing) as a source of innovation, has become more important for business success than product/service innovation (Foss & Saebi, 2017; Johnson et al., 2008; Schneider & Spieth, 2013). Recently, significant strands of research in this area have suggested that BMI in the service-based sector is distinctive from that of product-based sectors (Kindström, 2010; Kindström & Kowalkowski, 2014; Maglio & Spohrer, 2013; Visnjic & Van Looy, 2013). The service-based BMI is argued to be highly competitive, complex, customer-focused, dynamic, heterogeneous, and fast-clock speed (Kindström & Kowalkowski, 2014 ; Maglio & Spohrer, 2013; Visnjic & Van Looy, 2013). Consequently, organizations should develop and innovate service-related resources and capabilities, and reconfigure main BM elements to integrally adapt to NSD, regarding the service-based BMI.

According to Menor et al. (2002, p. 141), the NSD process cycle consists of four fundamental stages, namely "design", "analysis", "development", and "full launch". The NSD process is cyclic in nature, which implies highly iterative and non-linear (Bonomi Santos & Spring, 2013; Chai et al., 2005; Menor et al., 2002). The design stage incorporates activities such as formulation of new services strategy, idea generation and screening, and concept development and testing; the analysis stage incorporates activities such as business analysis and project authorization; the development stage incorporates activities such as service, process, and marketing design and testing, personal training, pilot run, and test marketing; and the full launch phase incorporates activities such as full-scale launch and post-launch review (Johnson et al., 2000; Menor et al., 2002). The NSD process cycle identifies the essential NSD stages revolving around the design and configuration of the service concept elements, and recognizes the operational resources and capabilities in the development process (Bonomi Santos & Spring, 2013; Chai et al., 2005; Menor et al., 2002).

The emergence of the Internet and e-services generate new issues relating to NSD (Menor et al., 2002; Geum et al., 2016). There are substantial differences between e-services and traditional services, which further distinguishes e-service NSD from traditional NSD (Menor et al., 2002; Geum et al., 2016). Hence, some distinctive features of e-service NSD should be considered, when applying NSD to BMI in e-service context. E-service NSD is considered more entrepreneurship intensive than traditional NSD (Menor et al., 2002). E-service NSD has higher clock-speed (Geum et al., 2016; Menor et al., 2002). Outsourcing is highly popular and valuable in e-service NSD (Menor et al., 2002). A recent area of NSD is "electronic disintermediation" (Menor et al., 2002, p. 150), which makes e-services lower marginal costs compared to the traditional services. As a result, these contingencies make the e-service industry more dynamic, uncertain, highly competitive, and a higher risk of imitation (Geum et al., 2016; Menor et al., 2002).

Methodology

This is an ongoing research project with a quasi-longitudinal process study methodology (cf. Langley, 1999). This research focuses on "what" and "how" questions that are exploratory in nature. The study is underpinned by abductive reasoning where the researchers iterate between extant theory and emergent data (Kovács & Spens, 2005). Multiple research cases will be selected for the ongoing research, which is considered to augment external validity and reduce observer bias (Voss et al., 2002; Yin, 2009). The focal firms studied provide information services to business customers on

online formats. Based on previous literature review, a research framework was developed for the investigation of the BMI during NSD processes in e-services. This framework is shown in Table 1. Data collection is currently ongoing within the case organizations. In the light of theoretical sampling, data collection should be continued until theoretical saturation is reached (Eisenhardt, 1989; Glaser & Strauss, 1967; Strauss & Corbin, 1990). The research methods will include semi-structured in-depth interviews, in-field participant observations, and second-hand archival documentation. Throughout the process study, the generic actors (including the focal organizations, suppliers, partners, and customers) amid the focal organization's BM networks will be investigated in detail.

Table 1- Research Framework

<table>
<tr><td rowspan="2">Business Model Elements</td><td colspan="4">NSD Process</td></tr>
<tr><td>Design</td><td>Analysis</td><td>Development</td><td>Full Launch</td></tr>
<tr><td>Value Alignment Mechanism</td><td colspan="4" rowspan="3">Empirical insights of this research</td></tr>
<tr><td>Networked Architecture</td></tr>
<tr><td>Activity System</td></tr>
</table>

A semi-structured interview protocol was developed for the pilot study of this ongoing research based on the previous literature review (Miles & Huberman, 1994; Yin, 2009). An iterative approach will be adopted, so as to allow theory to inform data collection and vice versa (Dubois & Gadde, 2002). Thus, the protocol will evolve over the course of the ongoing data collection. The data of this pilot study were collected from multiple sources and at different levels within a single organization Case A. So far, six semi-structured interviews of between 35 minutes and 70 minutes were conducted; the interviewees are listed in Table 2. Among these six interviews, three were formal individual interviews, one was a formal group interview with four people, and two were informal individual interviews. All the formal interviews were recorded via recording pen and transcribed verbatim by myself. Internal documentation and publically available archival data (e.g. websites, brochures, etc.) were utilized to enable triangulation of the data (Raja et al., 2018). Together, the different data sources will allow for a holistic view to be developed of the focal organization and for the BM configurations across the different phases to be understood.

Table 2- Description of cases and data collection points

Cases	Services provided	Data collection	Interviewee role(s)
Case A	1986 saw the dawn of the distance learning MBA (DLMBA). Ranked 1st in the world by the Financial Times, the DLMBA combines inspirational teaching with flexible online learning. The DLMBA comprises eight required modules, student's choice of four electives, and a consultancy project. The programme takes between two and four years to complete but how long the student takes to complete it is led by the student's preference. There are 30 teaching hours for each module, 40 hours of guided self-study and 30 hours of independent self-study. There is an online learning resource system developed to support all the online services.	Semi-structured interviews Internal and external documentation Site visits	Director of Teaching and Learning Support Teaching and Learning Officer Programme improvement officer Technology Utilisation Consultant Operations Coordinator Group Head Assistant Professor

All pilot data were coded and analyzed via NVivo 11 using the "Gioia Methodology" (Gioia et al., 2013), based on the framework derived from the literature (see Table 2). Emerging data from the other cases will be progressively incorporated into the data analysis, which will allow for the systematic combining of the ongoing development of the interview protocol and the transpiring issues (Dubois & Gadde, 2002). An iterative approach, which moves between the extant literature and emerging dataset, will be adopted, so as to analyse the data in the appropriate theoretical background. The research project team checked the reliability of the coded data emerging from Case A (Miles & Huberman, 1994). Figure 1 presents the initial coding structure derived from the pilot study data analysis.

Based on the initial coding and triangulation documentation, a process flowchart of Case A's e-service BM evolvement was proposed in Figure 2. BM plays a role as an intermediate interface, which intersects with strategy and operational processes (Al-Debei & Avison, 2010). The BM intersection with strategy signifies a set of organization's strategic-oriented choices for business establishment and management; and the BM intersection with operational processes represents a set of business implementation practices and activities (Al-Debei & Avison, 2010; Solaimani et al., 2015).

In the process flowchart of Case A's e-service BM evolvement, there are three different phases identified. Phase I represents the initial stage period of DLMBA, when it was still paper-based. All the learning notes and materials were printed and posted to the students by 'snail mail'. Phase II witnesses a gradual transition of DLMBA from paper-based to online learning resource system, when the Internet pervaded. Phase III presents the recent development of DLMBA with the modular development of the learning resource system, where the further revolution of technology exploded.

Back in 1998, it was still a global programme, the distance learning MBA (DLMBA). We used to send out 30 kg boxes of printed materials to the students across the world.

Over a 10-year period, the print-based course had moved to one which also used online resources and discussion.

That's the core. Everything is built around that particular core. (Case A)

The initial findings of the analysis will be fed back, in the form of reports and presentations, throughout the period of the study for validation by the participants**.**

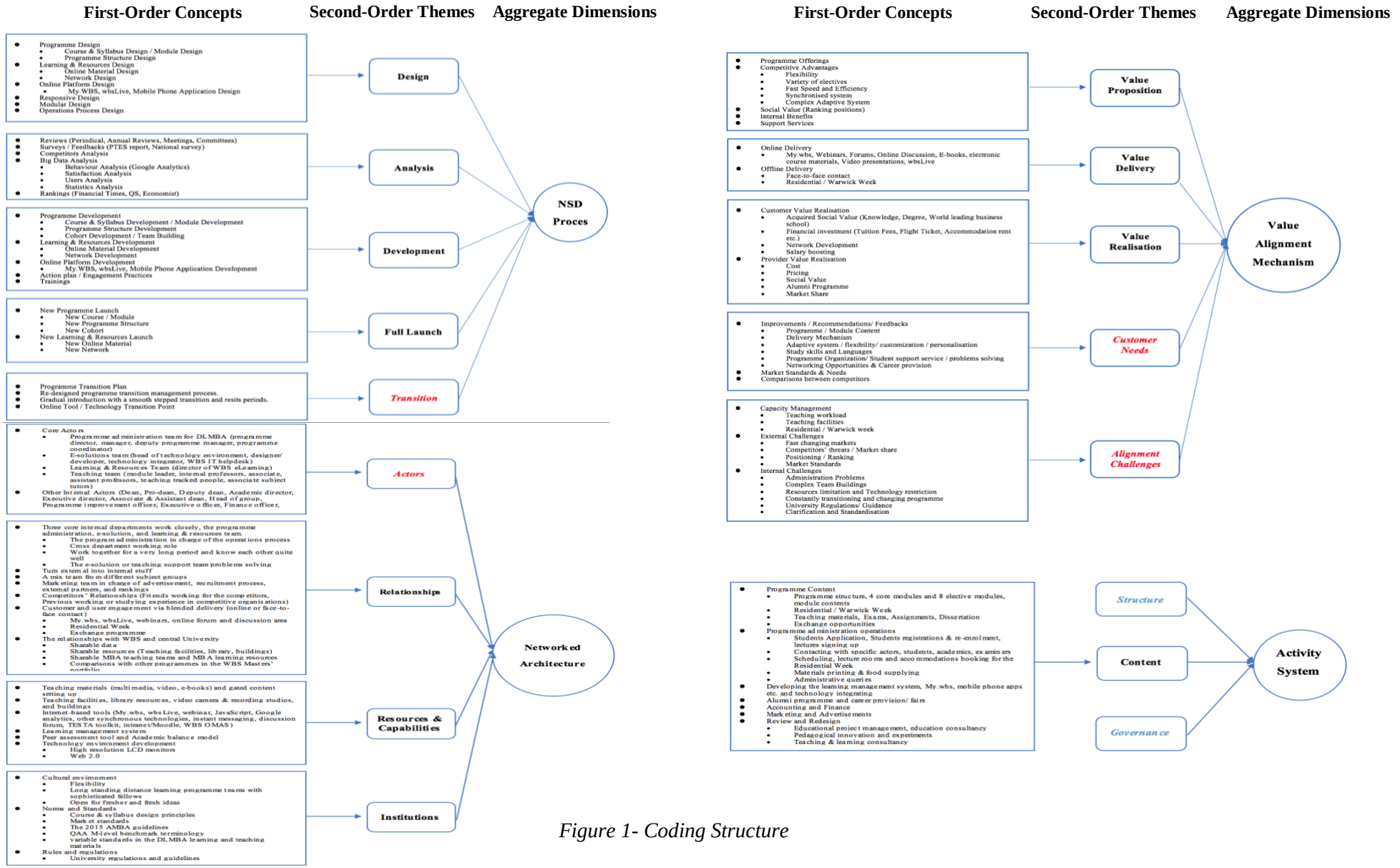

Figure 1- Coding Structure

Initial Findings

- ***NSD Process***

The NSD process cycle consists of four fundamental stages, namely "design", "analysis", "development", and "full launch". The pilot study identifies these four stages respectively within three phases as well, which is shown in Figure 2.

In the design stage, organization A adopted the concept of 'responsive design', which was first introduced in the web design. While, the concept of 'responsive design' is also well applied in the programme design to meet the students' diverse needs and solve alignment challenges, and in turn, achieve competitive advantages by the flexibility.

The flexibility was one of our unique selling points…Responsive design basically means the kind of thing with them in some respects it's better to be. (Case A)

The analysis stage incorporated activities of business analysis and project authorization, such as reviews, surveys, feedbacks, competitor analysis and big data analysis. Regarding the e-service context, it provides the practical environment for the big data analysis. Moreover, the competitor analysis takes especially important part in Case A, which helps to better understand its market competitors and adapt itself according to the market norms in the dynamic environment.

We use Google Analytics and look at user behavior through the online learning resources system. And Google Analytics tells you a lot of really high-quality information. (Case A)

The development stage of Case A followed a modular structure that supplemented part will be gradually added to the core spine. And the full launch stage incorporated activities of full-scale launch of the new programme. Interestingly, apart from the previous four stages, the data show that the NSD process of Case A also incorporated a smooth and gradual transition stage, where alignment challenges appeared mostly.

So people find it a bit unnerving that we're constantly transitioning and changing...We've got this a three-year transition plan. (Case A)

- ***Business Model Elements***

Regarding the value mechanism, the traditional BM literature mainly focuses on the value proposition, value delivery and value realization. While in Case A, the data showed a value alignment mechanism between services providers and customers. Thus, in the e-services context, the organization should not only focus on the supply-side factors such as value proposition, delivery, and realization, but also take the demand-side factors such as customer needs and balance between supply-side factors and demand-side factors to solve the alignment challenges.

Technology played a core part in the network architecture of Case A. The popularization of innovative technologies such as the Internet changed the way people communicated and learned. The ongoing technology explosion further influenced and changed people's behaviours. Outsourcing was highly welcomed at the beginning of the new service. When the new service became mature and gained great potential of profits, the focal organization started to operate in-house to have a better control and maintain the consistency of quality. Sometimes, there could also be a transition or merge from external partners into internals.

Activity system content refers to the selection of activities. In different phases of the BM evolvement, the focused content should be aligned respectively. For example, in Phase I initial stage period, organization A focused on the value propositions and the designs for the key offerings, built up partnerships, and relied heavily on outsourcing. In Phase II transition period, the focus was on the development of the online learning resources system and a wide range of delivery methods, which witnesses a transition from offline to online.

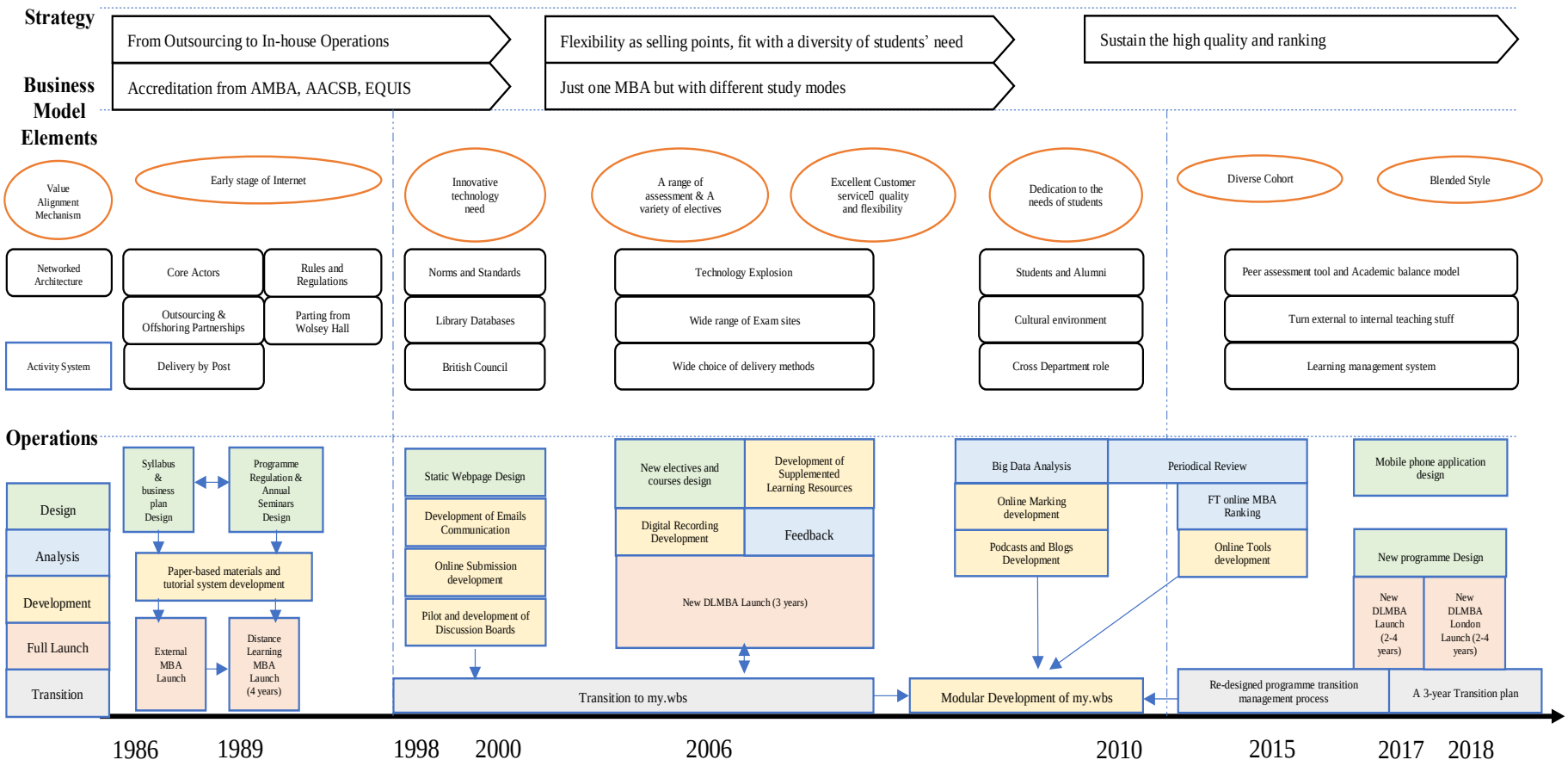

Figure 2- Process Flowchart of Case A's e-service BM evolvement

Discussions and Conclusions

The NSD process is cyclic and modular in nature, which implies highly iterative and non-linear (Bonomi Santos & Spring, 2013; Chai et al., 2005; Menor et al., 2002). Meanwhile, the speed of NSD becomes faster since the technology explosion, and new services replace old offerings more frequently. Transition activities are essential to comply with the promises to customers, when the old offerings retreat from the market. During the transition period, lots of challenges will appear and need to be aligned with strategy, BM and operations. Therefore, the e-service NSD process should consist of five fundamental stages, design, analysis, development, full launch and transition. The NSD itself as a specific dynamic capability will help the organizations better adapt to changes and maintain sustainable development in a dynamic environment (Gutierrez-Gutierrez et al., 2018).

The implementation of BM suggests an aligned connection between its strategic ontology and its operationalization of modular business processes, especially in the e-service context with considerable trans-sectoral innovation projects (Al-Debei & Avison, 2010; Bouwman et al., 2010; Solaimani et al. 2015). The organizations that are more strategically flexible will better develop new products/services (Gutierrez-Gutierrez et al., 2018). The organizations need to consider the strategic flexibility within the alignment mechanism during NSD process. For instance, organizations can align diverse customer needs with flexible value propositions in the design stage, or more flexible alternative activities could be provided to solve the transition challenges. The high strategic flexibility, in turn, leads to a high customer satisfaction and competitive advantages.

This is an ongoing process study. The pilot study only focuses on a single case. With the ongoing data collection with different cases, the findings will be expanded and improved. This study will be one of the first OM focussed research into the NSD process in e-services sector, which is becoming a new market and a significant economy.

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