

Understanding the Intermediary's Role in Large enterprise

SaaS Sourcing - An explorative case study

Master Thesis
Cand.merc.IT
Copenhagen Business School 2016
Supervisor: Mogens Kühn Pedersen

Xiangrui Zhang
xizh10ac@student.cbs.dk

Hand-in Date: 1st June 2016
110.027 characters, 48 pages

****blank page reserved for declaration of authorship****

Abstract

The Software-as-a-Service (SaaS) as one of the three service models of cloud computing is seeing increased adoption in large, multinational companies in the past few years. As a new delivery model, SaaS has changed the traditional relationship amongst the provider, intermediary, client and the internal IT organizations. Due to the multi-tenant architecture of SaaS, the intermediary role has in particular changed. This thesis aims to create an understanding the of SaaS intermediary's role in large enterprise SaaS sourcing context. A systematic literature review has exposed that the current SaaS sourcing research does not offer sufficient insight into the role of SaaS intermediary in the context of large enterprises. A case study based on Novo Nordisk's SaaS initiative was conducted to explore the role of SaaS intermediary in a practical context. The findings of the case study suggests SaaS intermediary plays a role in closing the technical knowledge gap needed by the business unit to operate in SaaS, and are related to standardization of the SaaS solution. Based on the insight gained from this thesis, three propositions were offered to guide the future of SaaS intermediary research.

Key words: Software-as-a-Service, SaaS, Cloud-Computing, SaaS intermediary

Table of Contents

Abstract	1
Introduction	5
Conclusion.....	7
Limitation.....	8
Implications and Future Research.....	8
Literature Review	9
Literature Search.....	9
Meta-Analysis of Reviewed Literatures	12
Review Methodology	13
Literature Analysis	15
Theoretical Approach & Analytical Result literatures.....	15
Theoretical Approach & Constructive Result literatures	17
Empirical Approach & Analytical Result literatures	20
Empirical Approach & Constructive Result literatures	31
Review Conclusion	36
Case Study.....	37
Methodology	37
Case story - Software-as-a-service in Novo Nordisk HR	38
Case Discussion	41
Case Study Conclusion.....	48
List of References	50
Appendix.....	55
Process Manager Interview Transcription.....	55
System Manager Interview transcript.....	60
Vice President Interview transcription.....	66

Introduction

Cloud computing has become THE buzzword within the information technology in the recent years. It refers to applications delivered through internet connections, together with the remote hardware and datacenters that provides the underlying infrastructure. Along with Infrastructure-as-a-Service (IaaS) and Platform-as-a-Service (PaaS), Software-as-a-Service (SaaS) is defined as one of the three service models of cloud computing (Mell & Grance 2010). While IaaS (e.g. Amazon Web Services) and PaaS (e.g. Microsoft Azure) consists of the underlying technical layer/foundation supporting the application deployment, SaaS is the actual, on-demand services residing on top of the other two layer. SaaS hides the infrastructure and technical elements behind a layer of abstraction, and delivers the application service to the clients via internet connections (Armbrust et al. 2010).

Contrary to traditional IT deployment, the SaaS vendors deploy its application services through a multi-tenant structure, meaning multiple clients are using a common source code. The requirements of various clients are thus supported through a single instances of the application. To fit the individual client's needs, the SaaS software confers certain configurability in terms of: user interface, workflow, data, access control, miscellaneous options i.e. choice of language localizations. Despite the configurability focus of the SaaS applications, the clients are confined within the options defined by the SaaS vendor. For the single SaaS clients, this means limited customization possibilities are available beyond the configurability options offered by the vendors. This results in a homogeneity of the business processes enabled through the SaaS as oppose to the traditional on-premises IT systems which allows comprehensive customizations. (Zainuddin & Gonzalez 2011).

Software-as-a-service has seen tremendous growth in the past couple of years.¹ For small and medium enterprises (SMEs), adopting SaaS is perceived as a way to reduce IT cost, increased scalability, and access to innovations (Venkatachalam et al. 2012). Risks regarding data lock-in, system ownership, regulatory concerns are some of the key factors affecting the SaaS adoption decision (Heart 2010; Janssen & Joha 2011; Trinh et al. 2015).

¹ Market Trends: Future Look at SaaS in the Application Markets

<https://www.gartner.com/doc/3172034/market-trends-future-look-saas>

In the recent years, The large enterprises also began adopting SaaS to capitalizes on the benefits of SaaS enjoyed by SMEs. Not only are non-core processes supported through SaaS, even core-business processes are sourced via this new delivery model in some large enterprises (Chou & Chan 2015). All these indicates SaaS is becoming a popular way of IT sourcing along side with the traditional outsourcing options.

However, as the result of servitization from SaaS, the business units can source and operate IT services directly from the vendors. The IT departments are no longer involved as the middleman between the IT service provider and business units. This means the strategic relationship between business unit and IT organization is changing, as the needed technical expertise and knowledge are now more likely to be sourcing externally (Willcocks et al. 2014; Jede & Teuteberg 2015). Hence, the governance and management of these “shadow IT” systems becomes increasingly difficult for the IT organization (Gozman & Willcocks 2015).

Traditionally, a intermediary between providers and clients are considered as a part of the marketing channel. However due to the multi-tenancy, the role of provider, client, and intermediaries has changed in the SaaS context, where as the focus of the providers are towards the standardization of the service, the intermediaries focus on the service customization for the individual clients (Overeem & Vreeken 2014). As SaaS are often marketed directly to the business units (Willcocks et al. 2012), the business units relies heavily on the expertise and knowledge provided by the intermediaries to configure, operate, and derive value from SaaS (Venkatachalam et al. 2014).

Following the above argument, understanding the role of SaaS intermediary not only have implications for the utilization of SaaS, but also the future role of IT management within the enterprises – thus this thesis proposes the following research question:

Which role does SaaS intermediary play in SaaS sourcing of large enterprises?

A systematic literature review was conducted to find answers to SaaS intermediary’s role within the existing SaaS sourcing literature. A subsequent explorative case study was created to provide contextualization of various concepts from the literature review, and to discuss the SaaS intermediary role from a practical setting.

Conclusion

The findings of systematic literature review suggests the primary focus of the SaaS research in the past 10 years are centered around the understanding of SaaS as a technology phenomenon. The research covers the adoption, exploration, and continuance stage of SaaS in various contexts. The relationship of SaaS provider and clients gainers most of the research attentions as the antecedents for the diffusion of SaaS. The conclusion based on the 47 reviewed literature is that the current SaaS research does not sufficiently explore the SaaS intermediary role in the large enterprise context.

Only two of the reviewed literature specifically investigates the intermediary role in SaaS sourcing. However they only peripherally cover the SaaS intermediary role from the theoretical level discussion (Overeem & Vreeken 2014), or within the context of SMEs (Venkatachalam et al. 2014). The explorative single case study in Novo Nordisk HR revealed that the SaaS intermediary plays a role in the fill in the technical, competency gap needed by the business unit to ensure the configuration and operation of SaaS. Additionally, the case study showed that the access to SaaS intermediary services and the perceived standardization by headquarter unit are correlated. Given the explorative nature surrounding the SaaS intermediary research, it is not feasible to stipulate conclusive claim based on the literature review and a single explorative case study. Therefore as the contribution of the thesis, three propositions are presented to guide the future research of SaaS intermediary role in the large enterprise SaaS sourcing context:

Proposition 1: The current SaaS sourcing literature does not sufficiently cover the role of SaaS intermediaries in the large enterprise context.

Proposition 2: SaaS intermediary plays a role in reducing the adoption and operational challenges by closing the knowledge and competency gap in large enterprise SaaS sourcing.

Proposition 3: SaaS intermediary access have a role in impacting standardization of SaaS sourcing in large enterprises affiliates.

Limitation

As with any research several limitation apply to this thesis. The first limitation is from the selection of literature reviewed in this thesis. A-list literatures from the basket of eight are lacking from the reviewed literature selection, this indicate there are room for improvement in terms of the quality of the literature selection. Literature sourced from reputable publications strengthens the research findings. Additionally, as most of the literature are conference proceedings, there is a lack of in-depth assessment of various empirical literature's data collection methodology. The analysis of the different interview questions regarding client provider relationship might be able to shed insight on whether the empirical findings of the providers attributes such as trust, or collaboration are merely correlation due to the framing of survey questions. The 47 literature by no means represents the complete overview of the SaaS sourcing research in its entirety. Including more literature might uncover other themes that can be relevant for understanding the SaaS intermediary role. In terms of the case study, the lack of multiple case studies impacted the generalizability of the thesis results: The findings generated in the single case studies are confined only within the context of Novo Nordisk alone. Many factors such as the organizational structure, the IT governance structure, and even the organizational culture could have an impact on the arrangement of the SaaS intermediary and its role in the different contexts. Finally, the case study are only based on the interviews conducted with the practitioners in Denmark. Therefore, there could be potential bias towards SaaS from the a headquarter perspective.

Implications and Future Research

The thesis contribute towards the expansion of sparse research conducted regarding the SaaS intermediary in SaaS sourcing. Through the process of literature review and the case study analysis, several future research opportunities have been identified: Firstly, while previous research allocated constructs such as knowledge sharing and process alignment (Chiang & Chou 2013) to the SaaS provider role, the case study indicate these constructs are rather related the SaaS intermediary role. There are certainly more SaaS intermediary related constructs that can be established through empirical investigations, which will expand the current understanding of the client, provider, intermediary relationship and the diffusion of SaaS. The identification and operationalization of these potential constructs provide ample future research opportunities. To the best knowledge of the author, there are currently no empirical research that studies the SaaS intermediary and its

relationship to service quality and the efficacy related constructs of SaaS sourcing, which could be a good starting point.

Secondly, the validation of SaaS intermediary's role as the technical expertise provider for business unit instead of the IT organization raises important IT governance related questions. There are already research trying to determine the relationship between the governance type and application characteristics (Winkler et al. 2011), however to best of author's knowledge the current research does not incorporate scenarios where the use of SaaS intermediaries bypassing the governance structure - vis-à-vis shadow IT problem. The future research on how to manage and govern the SaaS intermediary to the advantage of enterprise IT agility is much needed due to the increase SaaS adoption in the enterprise context. This would of course require the further clarification of the intermediary role in enterprise SaaS sourcing context first.

Lastly, from the case study there is indication of the SaaS intermediary might also play a role in the inherent business unit politics. It might not be possible for SaaS intermediary contracted by an affiliate to ensure customer orientation, while at the same time focus on alignment with the overall strategy. Therefore, future SaaS intermediary research can also be of interest to other field of studies such as the headquarter-subsidary relations research.

Literature Review

A literature review aiming to collect relevant insight regarding SaaS intermediary within existing SaaS sourcing was created. In Literature Search section, the details regarding the search criteria used for the selection process was elaborated. The Review Methodology sections presents the method used to categorize and analyze the selected literatures. Finally, the literature are discussed and evaluated for their relevance to the research question in the various categorized sections.

Literature Search

The search of literature is based on systematic review approach (Webster & Watson 2002).

To ensure the verification and the systematic nature of the literature review, the process is documented to allow third party to replicate the results (Brocke et al. 2009).

In the first round the key word combination of "SaaS", "Sourcing", and "Management" was chosen to ensure the relevancy of the search results in various search engines. "SaaS" was chosen to exclude literatures concerning the other service models of cloud computing: IaaS and PaaS.

“Sourcing” was added to ensure the research are considering SaaS as a sourcing option, which should frame the research contexts towards more of larger enterprises. Finally, the keyword “management” was selected to root out the articles with technical nature, and to have a combination with “Sourcing” to capture papers with focuses on “Sourcing management” to increase selection relevancy.

According to Association of Information Sciences, there are the “basket of 8”² which are considered the recommended sources of information science literature: *European Journal of Information Systems*, *Information Systems Journal*, *Information Systems Research*, *Journal of AIS*, *Journal of Information Technology*, *Journal of MIS*, *Journal of Strategic Information Systems*, *MIS Quarterly*. Therefore, the journals/articles from these 8 sources will have a high priority during the selection process.

The search engine as per publisher of the 8 journals (with the exception of AISeL) has not provided satisfactory relevancy e.g. Palgrave-Macmillan for *European Journal of Information Systems* and *Journal of Information Technology*; Wiley Online Library for *Information Systems Journal* etc. For example, under the Palgrave-Macmillan journal search, using the keyword “SaaS” alone yield no result, while using “SaaS Sourcing” provides results but with no relevancy to cloud computing nor SaaS (only sourcing related literature).

Therefore, the literature search has based on popular academic literature search engines: Association of Information Science Electronic Library (AISeL), ACM Digital Library (ACM DL), Science Direct, Springer Link.

Since cloud computing and SaaS is a relative new phenomenon, results earlier than 2006 are few. Pre-2006 literature showed little to no relevancy to the chosen topic, and are therefore omitted from the review. The initial search were all sorted based on their relevance to the keywords. Subsequently an additional relevance screening based on their title and abstract is conducted – with the relevant articles selected for the in-depth review process. Papers that are marked “Research in progress” are not included.

For the scope of this thesis, it is not possible to screen through all search results from the various sources (over 3000 in total). Since all of the searches are ranked by their relevancy to the key words, the search results are expected to have an descending relevancy the further it is away from

² Senior Scholars’ Basket of Journal <https://aisnet.org/?SeniorScholarBasket>

the first page. In order to account for limitations of relevancy ranking algorithms in the various searches, as well as the selected keywords, a source is considered exhausted once 5 consecutive results without relevance to SaaS sourcing are screened.

Table 1 provides an overview of the settings/criteria used in the search sources:

Table 1 Search criteria overview

Source	Search criteria used
ACM DL	Initial search was done using the "SaaS Sourcing Management", which showed only 27 results and low relevance. Thus a new search was conducted using the advanced search function, using the criteria Select items from "The ACM Guide to Computing Literature". Where "Abstract" matches all of the following words or phrases "SaaS Sourcing" While adding the refinement of "Published since: 2006".
AISel	Searching in "All Fields": "SaaS Sourcing Management" Sort by: "relevance" Date range: 01/01/2006 to 05/12/2016 Limited search to: "AIS Electronic Library (AISel)" – when choosing "All Repositories" there were in total 265 results, however it included too many unrelated publications from field e.g. biology and environmental studies. "Peer-reviewed only" is unticked, as searching in peer-reviewed result only yielded 64 results in addition the first page contained maybe results regarding PaaS in the first couple of entries, which is outside scope of the thesis. Un-ticking the field increased the yield to 387 as well as provided results with significantly.
EBSCOhost	Database: "Business Source Complete" and "Academic Search Elite" Boolean/Phrase: "SaaS AND Sourcing AND Management" was used, but it only yielded 3 results, the Boolean/Phrase was then changed to "SaaS AND Sourcing", which yielded 4 results. Publication Date: 2006 – 2016 Limited to: "Scholarly (Peer Reviewed) Journals".
Science Direct	Initial search yield 3800+ results. The followings filters was then applied: Year: 2006-2016 Un-ticked publication titles which have no obvious relevance: "Spectrochimica Acta Part A: Molecular and Biomo..." (111 results), "Journal of Environmental Sciences (30 results), "Journal of the American College of Cardiology" (28 results) etc.
Springer Link	The keywords "SaaS sourcing management" was used in the search field at first. Then the following refinements was applied Content Type: "Article" Discipline: "Business & Management", "Computer Science" Sub-discipline: "Business Information Systems" Language: "English"

Meta-Analysis of Reviewed Literatures

Using the search method described in the previous section, the literature search yielded in total 3347 results from the five search sources. After the screening process, a total of 47 research papers was selected as the part of the review (Table 2).

Table 2 Number of screened and selected literature

Source	Search Yield	Screened	Selected
<i>Science Direct</i>	2829	19	7
<i>Springer Link</i>	57	10	2
<i>ACM DL</i>	70	6	1
<i>EBSCOhost</i>	4	4	1
<i>AISel</i>	387	78	36
Total	3347	117	47

The selection consists 36 conference proceedings and 11 academic journals, which comprises 77% and 23% of the total number of literatures respectively. The sources for proceeds consists of *European Conference on Information Systems*(8), *Americas Conference on Information Systems*(7), *International Conference on Information Systems*(7), *Pacific Asian Conference of Information Systems*(12), and others sources(2)³.

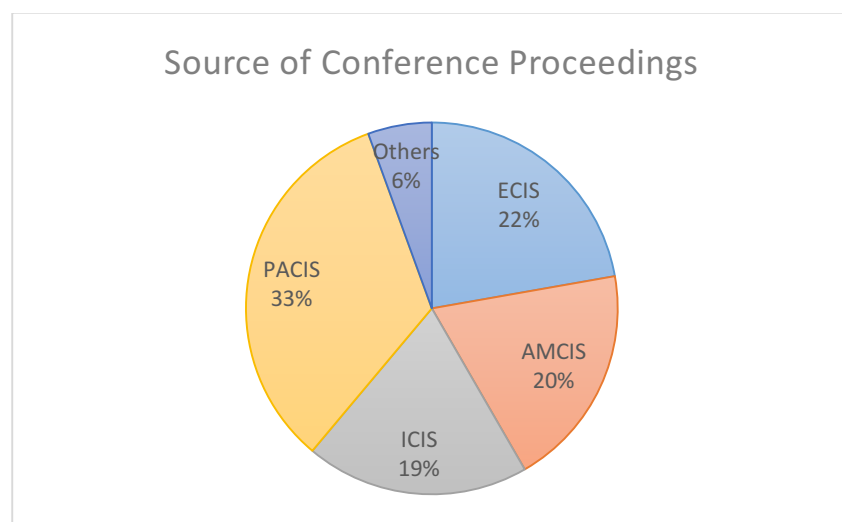


Figure 1 Spread of Conference Proceedings

³ UK Academy of Information Systems and Wirtschaftsinformatik

Although the various searches includes results from 2006 and onwards, the final selected research spanned from 2009 to 2016, with upward trend in terms number of publications throughout. The meta data indicates there is an increasing interest of SaaS sourcing management research within the field of Information Systems.

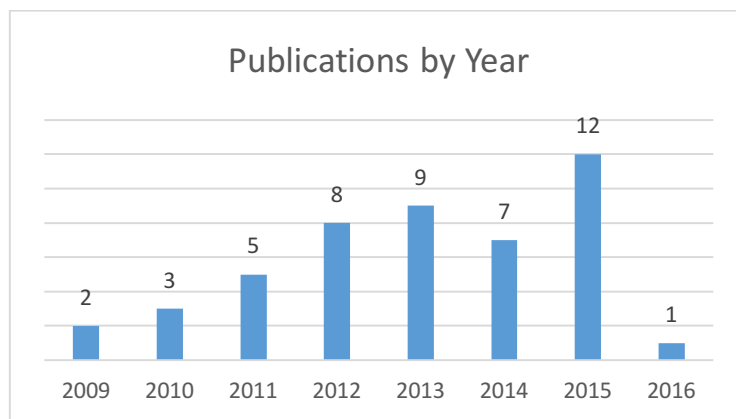


Figure 2 Publications by year

Review Methodology

The explorative nature of determining the role of SaaS intermediary through current SaaS research requires a wide-ranging perspective from the literature. The literature classification matrix of Sørensen (2005) was used to provide a framework for the analysis. The matrix categorizes literature into four quadrants according to their research approach and type of result. These categorizations gathers research findings within the same type of academic contribution, and therefore allowing comparisons and enabling a more distinctive content analysis. The reason to use Sørensen in particular are due to the majority of the research papers having a “rounded” approach, and therefore containing both theoretical and empirical elements. By only focusing the academic contributions, it allows the search for components in the literature that may have relevance to the research question beyond the context of their specific research context.

Theoretical Approach	Quadrant 1: e.g. literature review	Quadrant 2: e.g. theoretically based guidelines, method, framework, taxonomy, or model
Empirical Approach	Quadrant 3: e.g. case study, questionnaire survey, experiment	Quadrant 4: e.g. empirically based guidelines, method, framework, taxonomy, or model
	Analytical Result	Constructive Result

Figure 3 Sørensen's literature Matrix (Sørensen 2005)

In the first quadrant of Sørensen's (2005) literature matrix, the selected SaaS literature with theoretical approach with analytical contribution was reviewed. This group of literature contributes with insights or the status quo of the field of SaaS research at their time. The analysis of literature within this group are therefore their respective research focus, the generated insights/finding, and the context. The focus is to determine the significance of SaaS intermediary role within various research directions.

The second quadrant consists of constructive research contributions that are based on a theoretical approach. The analysis in this section are both the proposed framework/model, but also the theoretical background in which the final contributed are originated. The focus in this section is to find whether the proposed framework/model incorporate the SaaS intermediary as part of the components.

The third quadrant consist of researches contributing towards empirical validation of previously proposed concepts and theories. These tested results provides important insight in how various concepts and constructs are connected. The relevance of the concepts/constructs can provide glimpse into the implication of SaaS intermediary role of would have in practice. As well as an indication of the research consensus surrounding various themes within the SaaS research.

The literatures within this group are divided, depending on the quantitative/qualitative method used, as this relate closely with context of the findings and the respectively generalizability.

The last and fourth quadrant literature contribute with framework/models which are based on empirical analysis. The focus in this quadrant is similar to the second quadrant, where the research focus is the proposed framework/model, albeit generated an empirical approach. Also here the constructs of various framework are discussed to determine their relevancy to SaaS intermediary role.

Literature Analysis

Theoretical Approach & Analytical Result literatures

Author	Research Focus	Key Findings	Context
Zainuddin & Gonzalez 2011	SaaS maturity and value co-creation	The findings show that value co-creation components are dynamic, changing at different maturity levels. Two drivers for change – knowledge and volume of clients was identified.	SaaS provider, SME
Walther et al 2012	SaaS provider success factors and value proposition	Cost reduction has shown to be the most important value proposition of SaaS. Most value proposition of SaaS	SaaS provider
Link 2013	SaaS ERP adopter firm characteristics	Developed new criteria based company characters, and developed claims to which characteristics fits best with SaaS or OP ERP mode.	Enterprise
Overeem & Vreeken 2014	SaaS and IT brokerage	The research result indicate an increased importance of business facing skills, customer development and process re-engineering capabilities of the IT-Brokerage when engaging with SaaS. The research result also indicate that governance of SaaS-applications at the client is diverse and often underdeveloped, possibly leading to lack of focus on SaaS-governance at the IT-Brokerage.	Cloud service brokerage
Trinh et al 2015	SaaS adoption factors	Based on various existing theories and research, research identified factors related to technology, organization, environment and risk related to SaaS adoption in SMEs	SME

Table 3 Quadrant 1 literature overview

In their theoretical oriented research, Zainuddin & Gonzalez (2011) contribute towards the understanding of the relationship between value co-creation components and the maturity stages of SaaS. The insights generated from literature review indicates the configurability characteristics of SaaS differs from the non-SaaS applications – in which SaaS configuration are *vendor-supported*, and client-enabled. Through case study examples of small schools, these two types of the of SaaS configurations are analyzed across the SaaS maturity stages. The discussion of Zainuddin & Gonzalez (2011) does not include a separate role SaaS intermediary, and the research context are

confined to small-sized schools. Therefore, the paper have limited relevancy for the research question.

Using Delone & McLean model of IS Success (Delone & McLean 2003), Walther et al. (2012) classified SaaS success factors and value propositions found through literature review into four categories: *system quality*, *information quality*, *service quality* and *net benefits*. As the research has its emphasis on the success factors and value propositions, only the *SaaS provider* concept are used. While certain metrics under system quality i.e. *performance*, *availability*, and *actuality* are indeed associated with SaaS provider, metrics such as *ease of implementation* and *Installation* are arguably SaaS intermediary related metric – given the multi-tenant structure compels SaaS providers to rely on SaaS intermediaries for implementation activities (D'Souza et al. 2012; Overeem & Vreeken 2014). The paper's implications for the research question are further discussed in the later sections of the thesis.

The research of Link (2013) focuses on the client characteristics of SaaS adoption, specifically within the ERP context. Since the contribution and findings are confined within the client perspective, with the discussion of SaaS grounded on the technology level – hence the role of SaaS intermediary are not explored in this paper.

Overeem & Vreeken's (2014) propositions contributes significantly towards the research question by providing concept definitions that is relevant to SaaS intermediary. Their research differentiate between the SaaS providers and intermediaries by purposing the concepts of *cloud service provider* and *cloud service brokerage*, in which the cloud service brokers are further defined into four types: *configurator*, *assembler*, *trust builder*, and, *integrator*. Based on the supplier capabilities model by Feeny et al. (2005), the paper propositioned SaaS increases the need of *customer development* as a *relationship competency*, the need for *governance* as a *delivery competency*, along with the need for *process reengineering* as a *transformation competency*. In addition to previous propositions Overeem & Vreeken (2014) added *technology exploitation* and *behavior management* based on the findings from limited case studies.

Trinh et al (2015) contributed with insight into factors impacting SaaS adoption within the SaaS related literature and existing technology adoption theories e.g. Technology-Organization-

Environment (TOE) theory (Tornatzky et al. 1990), Innovation Diffusion Theory (DOI) (Rogers 1995) etc. Factors affects SaaS adoption are identified as technology-related: *compatibility, relative advantage, trialability, complexity*, organization-related: *IT readiness, top management support, innovative culture*, and environment-related: *SaaS provider, competitive pressure, regulatory framework*, and finally risk-related: *SaaS security risks appraisal, risk coping appraisal*. However, The factors purposed by this paper does not cover the SaaS intermediary as an component of the adoption consideration. Instead, only elements from SaaS provider and clients are offered as adoption determining factors.

Theoretical Approach & Constructive Result literatures

Author	Theoretical Basis	Constructs/Variables	Contribution
Huang & Wang 2009	Cobb-Douglas production function	<i>Labor, capital, intangible assets, cost-of-goods-sold, selling and general administrative expenses, research & development expenses</i>	SaaS Productivity Model
Wu et al. 2011	DEMATEL	<i>Trust of SaaS adoption, perceived benefits (PB), cause-effect factors of PB, perceived risks (PR), cause-effect factors of PR, PB-PR matrix</i>	Solution Framework for SaaS trust
D'Souza 2012	Various sources through literature review insight	<i>Business/product structure, revenue logic, customer relationship, partnerships</i>	On-premises to SaaS Transition Model
Repschlaeger et al. 2012	Design Science	<i>Reliability and trustworthiness, service & cloud management, costs, scope & performance, IT security & compliance, flexibility</i>	SaaS Provider Selection Criteria
Stuckenberg 2012	Various sources through literature review insight	<i>internal organizational integration, external organizational integration, software service characteristics, software product characteristics, extent of solution failure</i>	SaaS Failure and Integration Framework
Venkatachalam et al. 2012	Dynamic Capabilities	<i>Leadership, business systems thinking, informed buying, vendor development, sensing, seizing, transforming</i>	SME SaaS Sourcing Framework
Walther & Eymann 2012	IS continuance, technology acceptance model (TAM)	<i>Technological quality, organizational benefits, confirmation, satisfaction, system investment, technical integration, continuance intention, continuance decision</i>	On-Demand Enterprise Systems Continuance Model

Table 4 Quadrant 2 literature overview

The contributions within this category are of theoretical and explorative nature. The literatures are from the relative early period of SaaS research, from the first half of the timespan of the overall review literatures: from 2009 to 2012 out of 2009 to 2016.

Huang and Wang (2009) approaches SaaS sourcing from a the software vendor's productivity perspective. The paper hypothesize that the pure-SaaS firms will have a comparative economic disadvantage against mixed-SaaS firms based on the Cobb-Douglas production function. Given the emphasis of the paper centers around the various configuration of the vendor rather than the actual sourcing, it lacks relevancy to provide insights to the research question.

On-premises to SaaS Transition Model (D'Souza 2012) focuses on transformations of software vendors moving from a traditional on-premises towards SaaS based offerings. The model captures the transformation through both business perspective and technoigical perspective in each change domains. The purposed domains are based on insights from literatures are: *business/product structure, revenue logic, customer relationship, partnerships*. The model propositioned the technological change towards multi-tenant structure of SaaS as the establishment of *active tenant management, tenant-aware database, and extensive logging system*. Other often discussed characteristics of SaaS are also included in the transition model, e.g. from sales of licenses to sales of services, and from pay per user to pay per use/feature etc. Nevertheless, the oversimplification of complex aspect of the on-premises to SaaS transition is acknowledged by D'Souza et al. (2012) as the weakness of the proposed model.

Trust as a SaaS construct has subsequently been subjected to numerous empirical studies within the SaaS research (Chou & Chiang 2013; Mangula et al. 2014; Yang & Chou 2015). In the Solution Framework purposed by Wu et al. (2011), the Trust construct is linked with perceived benefits and risks of the SaaS provider, which in turn influence the adoption of SaaS – especially in the enterprise user context.

In relation to Wu et al. (2011), the SaaS Provider Selection Criteria (Repschlaeger et al. 2012), offers a framework for SaaS adoption from the perspective of the client. More importantly by using a design science approach, various constructs related to SaaS adoption is expanded to a level that is tangible for practitioners. Consistent with the *Trust* of SaaS adoption of Wu et al. (2011), one of

vendor dimensions proposed by Repschlaeger et al. (2012) is the *Reliability and Trustworthiness* dimension of SaaS vendor, which contains criteria: *provider profile, auditing, reporting, liability, availability, disaster recovery*. Other dimensions are: *Service & Cloud Management, Costs, Scope & Performance, IT Security & Compliance, and Flexibility*.

Based on conceptualizations at a higher level, the SME SaaS sourcing framework of Venkatachalam et al. (2012) proposed *leadership, business system thinking, informed buying, and vendor development* as required IS capabilities for SMEs sourcing SaaS, and uses sensing, seizing, and transformation phases (Teece 2007). The *vendor development* in particular is considered as a prominent factor for the transformation process. The inter-organizational collaboration competence is important especially for SMEs, due to the reliance of vendor to manage business value and innovations in SaaS sourcing. However, the proposed degree of prominence of the vendor development is questionable through the findings of subsequent empirical findings (Chou et al 2014; Hsu et al 2015b).

In contrary to the previous discussed models, Walther and Eymann's (2012) model concerns with the post-adoption phase of SaaS. The proposed On-Demand Enterprise Continuance Model is the combination of Expectation-confirmation theory of IS continuance (Bhattacharjee 2001) – which focuses specifically to the post-acceptance stage of a technology, and the frequently used IS success model by Delone & McLean (1992; 2003). The constructs in the model have been studied empirical studies in the SaaS research e.g. confirmation, continuance intention (Benlian et al. 2010; Walther et al. 2013(2); Hsu et al 2015; Yang & Chou 2015; Martins et al 2016), *satisfaction* (Benlian et al. 2010), *service quality* (Chou & Chan 2015; Hsu et al 2015b; Yang & Chou 2015). Given to the theoretical as well as explorative nature of Walther and Eymann's (2012) model, the specified constructs offer no delineation of SaaS provider and intermediary role.

The theoretical framework purposed in Stuckenberg (2012) explores the interrelation between solution failure and organizational integration within SaaS context. Instead of centering the success (or failure in this case) of the information system around the actions/perceptions of different actors, *the software service characteristics, and software product characteristics* are proposed to mediate the co-relation. The two characteristics are arguably more tangible for practitioners than constructs found in Walther and Eymann (2012). Using explorative case studies,

Stuckenberg's (2012) propositions SaaS product characteristics and SaaS service characteristics resulting in increased cost and innovation pressure of SaaS vendors, leading to increased need of integration. The conceptualization of the framework is consistent SaaS intermediary role, due to the framework focuses on the characteristics rather than assigning constructs to specific roles i.e. SaaS provider. Therefore, non-existence of SaaS vendor role in the frameworks conceptualization has an increased applicability to the research question.

The research consensus in this category of reviews indicates that SaaS vendor play an important role in terms of *SaaS adoption* (Wu et al. 2012; Repschlaeger et al. 2012), *continuance* (Walther & Eymann 2012) and the vendor related capability is essential for SME client to achieve transformation through SaaS adoption (Venkatachalam et al. 2014). However, none of the theoretical contributions has established the role of SaaS intermediary as a separate entity for research. Therefore no direct insight is gained towards answering the thesis research question.

Empirical Approach & Analytical Result literatures

Since the use of qualitative and quantitative method have implications for the research findings. The literatures within the empirical category with analytical result are divided into two groups according to their use of methodology.

Research based on Qualitative Methods

Author	Research Focus	Key Findings	Context
Janssen & Joha 2011	Advantages and risks of SaaS adoption, sourcing, and diffusion	Advantages: easier IT control, no installation and development costs and access to software otherwise out of reach. Disadvantages and risks: continuity, performance, privacy, ensuring the control of the IT-function, lack of influence on further innovation and development directions. There is a need of change in the organizational governance, structure of IT and capabilities necessary when using SaaS. There is a shift from capabilities for managing IT in-house to capabilities required for the management and governance of the relationship with the SaaS provider.	Public sector
Stacey et al. 2013	Initial trust as a factor for SaaS adoption	Confirmation of established trust models by showing how diverse factors, such vendor size, reputation and personal interaction, contribute to trust formation. In particular, smaller organizations, while having confidence in the technical abilities	SME

		of larger providers, are concerned about the lack of responsiveness they would receive.	
Melin et al. 2014	IT fashion and SaaS adoption	Deeper understanding on how IT fashions play a role in the legitimacy of IT departments	Two universities
Venkatachalam et al. 2014	SME SaaS adoption	SaaS intermediaries plays important role in reducing the adoption and implementation challenges of SaaS.	SME
Teracino 2014	Institutional preconditions and SaaS adoption	The expectation that the stronger the perceived pressures from the institutional preconditions, the less likely firms will mobilize, is supported by the results. Thus whether firms mobilize could be better estimated considering institutional preconditions – in the context of online-software-enhanced financial service market.	Accounting firms
Teracino et al. 2014	Institutional preconditions and SaaS adoption	Results suggest that the perception of pressures from the institutional preconditions perceived by the banks did have an influence with regards to observed mobilization activities.	Banking industry
Seethamraju 2015	SME SaaS ERP adoption factors	Low total cost of ownership, willingness of the SaaS vendor to work with the customer, reputation of the SaaS vendor in the SME community are some of the key determinants of adoption decision. Security and data risks are not issue for SME when making adoption decision. SME are more concerned with fit	SME ERP
Kaltenecker 2015	Transformation of towards from on-premises to SaaS software companies	Consistent with the Theory of Disruptive innovation, the 8 strategies for software vendors transformation towards SaaS are investigated: spin-off, leader, expert opinion, trial and error, staff integration, customer integration, internal resource, cooperation.	B2C

Table 5 Quadrant 3 literature with qualitative method overview

In terms of research methodology, all literatures of this selection deployed multiple case study data to support their findings.

Janssen and Joha (2011) draws upon service-oriented architecture provide basis for their research on advantages and benefits of SaaS. Based on categorizations used in outsourcing and shared services literatures, research findings from case studies are sorted in four categories: *Strategic and organizational, political and legislative, technical, and economic*. Compare to other SaaS research that are based on the use of TOE framework (Yang et al. 2015; Mangula et al. 2014; Trinh et al 2015), the categorization used by Janssen and Joha (2011) depicts the SaaS adoption through the

standpoint of technological characteristics – which is analogous to the SaaS Failure and Integration Framework (Stuckenberg 2012) reviewed in the earlier section. Moreover, The case studies findings in public context are consistent with Stuckenberg (2012)'s framework, especially in terms of strategic and organizational aspect: The characteristics of SaaS necessitate the shift of focus towards change of organizational governance, and IT structure (internal integration), and from managing IT in-house capabilities towards managing governance relationship with SaaS provider (external integration). While the the findings does not directly explain the role of SaaS intermediary, the Janssen and Joha (2011) empirically established the correlation between the characteristics of SaaS (in terms of service and product) and organizational integration is within the public sector context. The insight will be further discussed in the later section, where the concept's applicability is discussed in the context of large enterprises.

Referring back to analysis of theoretical based literatures in the previous section, SaaS vendor trust are proposed to not only as a construct which is associated with perceived benefits and risks (Wu et al. 2011), but also an important criterion for SaaS adoption decision (Repschlaeger et al. 2012) from the perspective of the client. Stacey et al. (2013) empirically explores how trust – in particular the initial trust is formed during SME's SaaS acquisition process. The research suggests the formation of initial trust are linked to the provider's characteristics. The conducted case studies shows the organizational size rather than reputation, is the primary concerns for SMEs. The provider larger size is correlated with limited service attention, personal interaction with the SME clients. As a solution to the size imbalance and depersonalized interaction, some SMEs used a local agent as a middle man to provide access to the technical capabilities and resource pool. Allowing them to have a business partner to care about about the individual client during the acquisition. The findings of Stacey et al. (2013) has great relevance to the thesis question, because the research findings provides empirical evidence of SaaS intermediary's role (Albeit only in the SME's context) in SaaS sourcing as the mediating entity which closes a gap between the relationship of SaaS providers and clients.

Venkatachalam et al. (2014) specifically examined the relationship between SaaS intermediaries and clients in the SME context. On the basis of case study, the business model of SaaS intermediary is divided into orientation and alignment dimensions. Venkatachalam et al. (2014) identified two types of SaaS intermediary orientation – the technology orientation and customer orientation. The

technology orientation are is related to “*the generic features of the SaaS offerings and getting the SaaS application up and running in a straightforward way*”, where as the customer orientation is related to “*how intermediaries offer and deliver engagements that address the individual customer specific requirements using SaaS*”. The two alignment types for SaaS intermediaries are the operational alignment, and the strategic alignment. The operational alignment is defined as supporting the SaaS client “*with full operational implementation of SaaS*” and so that the client can “*self-sustain*” after the initial implementation. For strategic alignment, the SaaS intermediary shares knowledge about important features of new releases from the SaaS provider. The intermediary uphold intimate understanding of the client’s process and strategic aspirations, therefore are able to assists the client anticipate the impact of the releases by the SaaS provider. Venkatachalam et al. (2014) summarized SaaS intermediary orientation and alignment in detail by classifying them into elements of business model canvas (Osterwalder et al. 2010):

Table 6 Orientation of SaaS Intermediaries (Venkatachalam et al. 2014)

Business model element	Technology Orientation	Customer Orientation
Customer Segments Customer Relationships Customer Channels	<ul style="list-style-type: none"> • Size of target customer market (number of SaaS products) • Short term and limited to the project scope • Referrals via technology partners 	<ul style="list-style-type: none"> • Long term and relationship based • Existing customers asking for additional services
Value Propositions	<ul style="list-style-type: none"> • Awareness of SaaS and cloud service solution options • Technology skills for initial implementation • Data migration, conversions, clean up and back up services for remotely hosted SaaS data 	<ul style="list-style-type: none"> • Small to large scope of customization • Local access to expertise • Vendor agnostic, integrated, best fit solutions • Additional data services for specific customer needs (data localization and improved quality)
Activities Resources Partnerships	<ul style="list-style-type: none"> • Technology related activities (development, testing, minor extensions, configuration) • Automation knowledge • SaaS provider certified skills • Global technology vendor partnerships 	<ul style="list-style-type: none"> • Understanding SME business direction • Customer problem resolutions • Best fit solution identification for customer problems • Consultant’s knowledge of custom fit solutions • Locally accessible skills and knowledge • Infrastructure for data

		<ul style="list-style-type: none"> • Vendor agnostic customer focused solutions
Revenues Costs	<ul style="list-style-type: none"> • Short term • Global technology development resources 	<ul style="list-style-type: none"> • Long term • Customer interactions

Table 7 Alignment of SaaS intermediaries (Venkatachalam et al. 2014)

Business model element	Operational Alignment	Strategic Alignment
Customer Segments Customer Relationships Customer Channels	<ul style="list-style-type: none"> • Focus on current need (with self-sustainment after setup) • On-site for setup services 	<ul style="list-style-type: none"> • Long term with a strategic focus • On-site for setup and enhance services • Remote location for on-going support
Value Propositions	<ul style="list-style-type: none"> • Services for initial setup only • Best practices for efficient implementation • Self-sustainment of SaaS after initial setup • Error free operational reporting through data cleansing services 	<ul style="list-style-type: none"> • Also ongoing support and enhancement services • SaaS roadmap aligned with customer business objectives • Trust advisory role for long term solutions
Activities Resources Partnerships	<ul style="list-style-type: none"> • Investigation for aligning SaaS for a defined scope of requirements • Develop custom extensions and integration of components for a specific need 	<ul style="list-style-type: none"> • Conduct workshops for understanding business objectives of customers • Ongoing maintenance of customized extensions
Revenues Costs	<ul style="list-style-type: none"> • Project fees • Physical and human resources for setup 	<ul style="list-style-type: none"> • Recurring revenue model • Physical and human resources for setup, enhancement, and support

Venkatachalam et al. (2014) propositioned the basic role of SaaS intermediary would consist of technology orientation and operational alignment. The intermediary can assume an added value role for the SaaS client by shifting their business model towards customer orientation and strategic alignment. The differentiation of the basic and value added role is consistent with the theoretical contribution of Overeem and Vreeken (2014), which focuses on the competency and capabilities of SaaS intermediary in form of cloud service brokerages. The significance of Venkatachalam et al. (2014) for the thesis is twofold: First, despite limited within the context of SMEs, the research provided empirical validations for the concept of SaaS intermediary role. Second, by approaching

and framing the role of SaaS intermediary through business model canvas, the insights are applicable for other contexts given the appropriate adaptation is made.

Institutional theory (Scott 2007, DiMaggio & Powell 1983) is a widely accepted organizational theory. It is used in both Teracino (2014) and Teracino et al. (2014) as the theoretical lens to explain, how the environmental factors relate mobilization within an industry. The inclusion of SaaS adoption are used as the indicator of firms' mobilization effort. The research focus are on the intention of mobilization, and not on the technology deployment which convey the mobilization (in both cases the SaaS adoption). This means focuses on understanding the implications of environmental factors (cognitive, normative, regulative) from a holistic perspective, whereas the SaaS adoption is one of the elements of servitization. The relevancy these institutional factors in particular to SaaS is undetermined. There are some empirical SaaS specific research suggests correlation between the two (Benlian 2009), while others suggest limited correlation (Kung et al. 2011) or no correlation at all (Hsu et al. 2015b). Therefore, Teracino, and Teracino et al. (2014) lack the specificity to contribute of towards the thesis research question of investigating SaaS intermediary role.

Melin et al. (2014) concerns with the concept of SaaS adoption as "IT fashion"⁴, and argued SaaS adoption are not always solely factored by economic rationalistic intentions. The findings from two longitudinal case studies, suggests the SaaS adoption both enhance and erode the institutional legitimacy. The enhanced legitimacy is resulted from the perception of SaaS adoption being innovative, where as eroded legitimacy is resulted from the common perceived risk of SaaS e.g. data ownership and security. Similarly to Teracino (2014) and Teracino et al. (2014), the institutional theory also provides the theoretical lens in Melin et al. (2014). But the legitimacy aspect of the institutional theory in Melin et al. (2014) has more conceivable relevance to the research question. Not only does the findings provide an critical perspective on the SaaS adoption that is not based on rational point of view, but research also empirically established a link between the SaaS adoption and the institutional legitimacy and the IT departments. Both elements bears great relevance for technology adoption in the large enterprise context.

⁴ A transitory collective belief that an IT is new, efficient, and at the forefront of practice (Fichman 2004; Wang 2010)

Seethamraju's (2015) research concerns with SaaS ERP adoption in SME's in particular. The adoption determinants identified through case studies are consistent with other SaaS studies such as cost of ownership, vendor reputation. The findings are confined within the specific context and the SaaS adoption roles adequately explored to enable insight into intermediary level. Thus the empirical findings provides insufficient relevance for the thesis research question.

Kaltenecker (2015) empirically examined SaaS transformation strategy applied for B2C software companies. The seven strategies: *spin-off*, *leader*, *expert opinion*, *trial and error*, *staff integration*, *customer integration*, *internal resource*, *cooperation* have applicability since the findings are based on B2C SaaS providers only. However, Kaltenecker's (2015) research revealed important differences between the B2B and B2C SaaS provider strategies. The similarity amongst the two are staff integration strategy, cooperation strategy, and trial and error strategy, and with the differences in the spin-off strategy and customer integration strategy. In previous discussion of IT fashion, the most practitioner's perception and reputation of SaaS as flexible and innovation are based on their experiences as consumers (Melin et al. 2014). Therefore, the underlying difference between B2B and B2C from a provider strategy point-of-view is significance to the post-adoption expectation confirmation. The practical implication of Kaltenecker (2015) is further discussed in later section.

Research based on Quantitative Methods

The analysis emphasis of this section is to descriptively present key findings of various empirical studies, and highlight the the context in which the quantitative research is based on.

The analysis of the quantitative based empirical papers are structured according their research focus on adoption, intention to explore and continuance of SaaS.

Table 8 Quadrant 3 literature with quantitative method overview

Author	Theoretical basis of constructs	Constructs	Data Sample
Benlian 2009	Transaction cost theory	Application specificity(-), Environmental uncertainty(-), Usage frequency(ns), SaaS outsourcing(+)	SME & Enterprise
Benlian & Hess 2010	Perceived Risk Framework	Performance risk(+), Financial risk(+), Strategic risk(+), Psycho-social risk(ns),	SME & Enterprise

		Perceived risk of SaaS(+), Intention to increase SaaS sourcing(-)	
Benlian et al. 2010	IS Continuance Framework, Zone-of-Tolerance	Confirmation of SaaS service quality(+), Perceived Usefulness(+), Satisfaction(+), SaaS continuance intention(+)	SME & Enterprise
Kung et al. 2011	Institutional Theory (INT), Diffusion of Innovation (DOI) Theory	Mimetic pressure(+), Coercive pressure(+), Normative pressure(+), Intention to adopt SaaS(+)	SME & Enterprise
Chou & Chiang 2013	Service Quality, Trust theory	Rapport(+), Flexibility(+), Competence-based trust(+), Openness-based trust(+), Relational norms(+), SaaS Satisfaction(+)	SME & Enterprise
Walther et al. 2013b	IS Success Model, Expectation-Confirmation Model	Net benefits(+), System investment(+), Technical integration(+), Information quality(ns), System quality(+), Attitude(+), Subscription renewal intention(+)	Enterprise
Chou et al. 2014	Dynamic Capability	Strategy-oriented agility(+), Service-oriented agility(+)	SME & Enterprise
Mangula et al. 2014	Technology-organization-environment (TOE) Framework, Diffusion of Innovation (DOI) Theory	Relative Advantage(ns), Compatibility (+), Complexity(+), Trialability(ns), Observability(+), Organizational Readiness(ns), Top Management Support(ns), Market Pressure(ns), Market Competition(+), Vendor Marketing Effort(ns), Trust on Vendor(ns), Government Support(+), SaaS adoption(+)	SME & Enterprise (only Indonesia)
Hsu et al. 2015	Relational View	Service investment(+), Service flexibility(+), Effective Communication(+), Commitment(+)	SME & Enterprise
Hsu et al. 2015b	Social Capital Theory	Relational capital(ns), Cognitive capital(+), Intention to explore(+)	SME
Yang & Chou 2015	IS Continuance Framework	Trust in service quality(+), Trust in provider(+), Intention to explore(+), Intention to continue(+)	SME & Enterprise
Martins et al. 2016	TOE, DOI, INT	Relative advantage(+), Compatibility(ns), Complexity(-), SaaS Diffusion(+)	SME & Enterprise

Benlian (2009) tested the relationship between SaaS-based outsourcing and three transaction cost based construct: *application specificity*, *environmental uncertainty*, *usage frequency*. The key feature of the applied research model is its ability to study SaaS sourcing on the application level. The variance of the constructs are tested using data from both enterprise and SME users. Benlian (2009) found that the *environmental uncertainty* is the strongest factor for SaaS out-sourcing for SMEs. For the enterprise users, the *application specificity* is most important, and *environmental uncertainty* second. The usage frequency is found to have weak significance for SMEs and no significance for enterprise users. While *firm size* is shown to be a non-significant factor for associated with SaaS outsourcing in the overall data analysis, the results shown a significantly negative association in SME and enterprise data sets – indicating the existence of variables which moderates the relation between firm size and SaaS outsourcing.

Kung et al. (2011) also concerns with SaaS adoption, but with particular focus on its relation with environmental factors. The research model consists of three environmental pressures based on institutional theory: *mimetic*, *coercive*, *normative* pressures. Furthermore, the perceived complexity are hypothesized to have a moderating effect on these pressures and the intention to adopt SaaS. Mimetic pressure in SaaS context is the adoption of SaaS based on firms' attempt to imitate other firms, with the intention to seek legitimacy rather than empirically proven performance benefits – which is closely related to SaaS as IT fashion (Melin et al. 2014). Coercive pressure in SaaS is related to government regulations, contractual obligations, or organizational obligations. Normative pressure entails the pressure from standards adopted by others, in which SaaS' increasing popularity is considered as such standard and have positive effect on the adoption intention. The moderating construct of perceived complexity is a determinant of how difficult SaaS is perceived to use and understand. The empirical findings of Kung et al. (2011) suggests all pressure construct proposed has positive effect on the SaaS adoption intention, and in addition there is significant interaction effect between mimetic pressure and perceived technology complexity, suggesting a strong link between institutional and diffusion of innovation (DOI) theories. This link appears to be supported in subsequent SaaS research (Martins et al. 2016).

By combining DOI constructs into the TOE framework as the technological element, the research model was used to specifically study SaaS adoption in Indonesia in Mangula et al. (2014). The research results suggest SaaS adoption factors may vary according to geographical locations i.e. the

organization readiness, and top management support does not contribute towards SaaS adoption intention in Indonesian firms, contrary to other SaaS adoption research (Yang et al. 2015; Martins et al. 2016). The inconsistency observed in Mangula et al. (2014)'s finding is also mentioned in other SaaS adoption related empirical research (Chou & Chan 2015), which implies culture maybe associated with variance in SaaS adoption factors.

Perceived risk has been theoretically established as one of the SaaS adoption factors (Wu et al. 2011; Trinh et al. 2015). Benlian and Hess (2010)'s empirical studies is aimed to further elaborate variance of different risk types and how they impact the risk perception of the SaaS clients. The data analysis findings shows the perception of SaaS risk differs between non-adopters and adopters. Both *strategic risk* and *security risk* contribute to the risk perception for adopter and non-adopter. *Financial risk* is significant for non-adopters and not significant for the adopters. The adopter consider performance risk as significant while the non-adopters does not. *Psycho-social risk* are not significant in both cases. Lastly, in accordance with theoretical research on SaaS sourcing (Wu et al. 2011) the findings of Benlian and Hess (2010) suggests the perceived risk of SaaS is significantly negatively associated with the intention of increasing SaaS sourcing.

Hsu et al. (2015b) approaches the intention to explore SaaS through through the lens of social capital – which are comprises of relational capital and cognitive capital. The relational capital refers to the adopter firm's employee engaging in interactive system usage situations, which increases the service quality and therefore leading to increased intention to explore. Cognitive capital refers to the individual system usage situations. The findings of the empirical study suggests the cognitive capital and not relational capital, play a significant role in SME's intention to explore additional SaaS features. From the original social capital theory, the structural capital concerns with the system structure and work place situation. But structure capital was replaced by service quality. Authors argued that under the multi-tenant structure of SaaS, the service quality plays is considered as the source of value creation in workspace. This implies a situation where SME does not have access to an intermediary resources to facilitate value creation. Therefore, the results have limited implications for the research question discussion, as the basis of the empirical findings are under SME organizational context, and rather unlike large enterprises'.

The empirical research of Benlian et al. (2010) aim to establish SaaS continuance intention with service quality. The research model is the extension of IS continuance model (Bhattacharjee 2001), with Confirmation of SaaS service quality. The confirmation construct is further comprised of constructs from IS SERVQUAL and SaaS literature. The latent construct within confirmation are defined as: *rapport*, *responsiveness*, *reliability*, *flexibility*, *features*, *security/privacy*. The empirical results suggests the most important factors for SaaS service quality are *responsiveness* and *security/privacy*. Interestingly, the constructs of SaaS provider in Benlian et al. (2010) defined are inherent characteristics which is hard to improve, considering he multi-tenant architecture and the technological nature of SaaS.

Setting the contextual background on the limited customization resulted by multi-tenant architectures of SaaS. Hsu et al. (2015) empirically assess the collaboration of client-provider of SaaS and its relation to commitment. Based on relational view, the client-provider collaboration are separated into intra-firm relationship capability of the client firm, and the collaboration of the provider. Three constructs are proposed on client and provider side respectively, and the commitment construct associated with provider collaboration constructs. Behavior control, SaaS knowledge capability, client relationship capability constructs represents the intra-firm relationship capability of the client. Collaboration of provider are divided into: service investment, service flexibility, and effective communication. The empirical results shows while SaaS commitment is indeed associated with increased provider collaboration, the client relationship capability does not significantly contribute towards service flexibility and effective communication of the provider. The findings pointing towards the limited influence the client have within the SaaS client-provider collaboration, yet the association with SaaS commitment remain unaffected.

Trust has been explored theoretically as a factor for SaaS adoption (Wu et al. 2011). Yang and Chou (2015) proposes trust has additional role as a dedication and constraint mechanism between service quality and SaaS post-adoption intentions. More specifically, trust in service quality as the dedication mechanism and trust in provider as the constraint mechanisms. The service quality constructs used in the empirical study that are related to trust are categorized as: client orientation quality, client response quality, environment quality. Although the findings showed all except one constructs are positively interrelated to trust, leading to client's increased intention to explore and

intention to continue. Provider’s client response quality are found to have positive impact on trust in service quality, but not the trust in provider.

Fig ? provides an overview of the empirical contribution and the coverage of various themes reviewed in this section.

Author	Benlian 2009	Benlian & Hess 2010	Benlian et al 2010	Kung et al 2011	Chou & Chiang 2013	Walther et al 2013b	Chou et al 2014	Mangula et al 2014	Hsu et al 2015	Hsu et al 2015b	Yang & Chou 2015
Theme of Constructs											
Adoption	X			X				X			
Intention to Explore/expand		X								X	X
Continuance			X						X		X
Perceived Risk		X									
Service Quality			X		X	X				X	X
Satisfaction			X								
Trust					X	X		X			X
Environmental pressure	X			X				X			
Relationship & collaboration							X		X	X	
Benefits (cost, technological)						X	X	X			

Table 9 Overview of Quadrant 3 research construct themes

Empirical Approach & Constructive Result literatures

Author	Theory/Source	Constructs/Variables	Contribution
Heart 2010	TCT, trust theories	<i>Perceived reputation of SaaS vendor community, Perceived capabilities of vendor community, Trust in the vendor community, Perceived capabilities of SaaS vendor community</i>	SaaS adoption model based on Perceived trust and perceived risk
Winkler et al. 2011	TCT, RBV, IT Governance, Contingency Theory	<i>Organizational context: Firm size, Managerial autonomy, Strategic IS goals Line IT knowledge, IT Business knowledge, Application properties: Scope of usage, Ease of customization, Training needs, Integration complexity, Origin of the initiative, IS authority, Change decisions, Financial decisions, Architecture decisions, Change implementation, First level support, Second level support, Governance effectiveness</i>	A contingency model for application governance
Wu 2011	TAM, TAM diffusion theory model	<i>Marketing efforts, Social influence, Perceived benefits, Perceived usefulness, Perceived ease of use, Security & Trust, Marketing Efforts, Perceived benefits, Attitude toward technology innovations, Behavior intention</i>	SaaS adoption model from technology acceptance perspective

Winkler & Benlian 2012	TCT, Application Governance	<i>Functional specificity, human asset specificity, scope of use, technical specificity, application governance, decision authority, task responsibility</i>	Information system specificity application governance model
Björn & Ruivo 2013	Practitioner insights	<i>Costs, security, availability, usability, implementation, ubiquity, flexibility, compatibility, analytics, best-practices</i>	ERP SaaS adoption factors
Chiang & Chou 2013	Dynamic capabilities	<i>Knowledge sharing, process alignment, sensing capability, responding capability, action efficacy</i>	SaaS collaboration-agility-efficacy framework
Chou et al. 2013	Relational view	<i>IS Coordination, IS integration, Task-based value, Governance-based value, Satisfaction</i>	Perceived relational value and SaaS performance framework
Walther et al. 2013	IS Success Literature	<i>Net benefits, Information quality, System Quality</i>	Post SaaS adopt success model
Goode et al. 2015	SaaS security literature	<i>Responsiveness, Security, Service Quality, Trust, Perceived Value, Satisfaction</i>	Revised SaaS client satisfaction model
Gozman & Willcocks 2015	Practitioner insight	<i>Lack of Visibility and Control of the IT Estate, Understanding Privacy Obligations and SaaS Architectures, Evaluating SaaS Vendor Reliability and Longevity, Monitoring and Auditing Outsourcing Risks, Policies and Practices, Managing Intra-Group Outsourcing Arrangements, Emergent Challenges: Shifting Regulatory Landscapes, Emergent Challenges: Shifting Technical Landscapes</i>	7 "Crocodiles" of SaaS Outsourcing
Jede & Teuteberg 2015	Social-technical system theory	<i>Perceived IT security change, Perceived interface configuration change, Perceived IT architecture change, Company's increasing SaaS usage, Perceived technical change radicalness, Perceived IT organizational change, Perceived individual job outcome, Perceived individual process performance</i>	Social-technical model of SaaS influence
Walther et al. 2015	IS Success Model, discontinuance model	<i>System Quality, Information Quality, Net Benefits, Continuance Intention, Technical Integration, System Investment, Continuance Intention</i>	Organizational level SaaS continuance model
Chou & Chan 2015	Cost-benefit and risk evaluations	<i>Perceived cost advantage, GAP in IT capabilities complementing the Company's Strategic Goal, Perceived Service Quality, Attitude of Management toward IT Ownership and Control</i>	Integrative framework for core and non-core SaaS adoptions
Yang et al. 2015	TOE	<i>Organizational Readiness, Technological Readiness, Environmental Readiness, SaaS Readiness</i>	Tripod Readiness model of SaaS
Martins et al. 2016	TOE, DOI, INT	<i>Relative advantage, Compatibility, Complexity, Technology competence, Top management support, Coercive pressures, Normative pressures, Mimetic pressures, SaaS diffusion</i>	A holistic SaaS diffusion model

Table 10 Quadrant 4 literature overview

To explain SaaS adoption are the objectives of numerous frameworks/models purposed in this section. Various constructs and insights such as perceived trust and risk (Heart 2010), technology acceptance factors (Wu 2011), practitioner sights (Björn & Ruivo 2013) are linked to SaaS adoption. Chou and Chan's (2015) model distinguish the the SaaS adoption for core and non-core processes respectively through economic, strategic, vendor, and management perspectives. An interesting observation of Chou and Chan's (2015) empirical findings is that certain adoption factors such as attitude of management toward IT ownership and control are related to culture factors. However, similar to majority adoption related SaaS research reviewed, the SaaS intermediary role are not specifically explored within these research.

Through an IT governance perspective, the contingency model proposed by Winkler et al. (2011) examines the SaaS application and it's relation to IS authority within an organization. Drawing upon the transaction cost theory and research based view, created model suggests governance should depend on the usage, specificity and initiation of the application. The model further propose two dimensions: decision authority, task responsibility in which the governance effectiveness is related to. The key feature of the model is its constructs are not SaaS specific. This allows the comparison of SaaS with other IT applications in the IT governance context.

Winkler and Benlian (2012) provides further empirical support to the contingency model for application governance by determining the relations amongst information system specificity constructs (functional specificity, human asset specificity, technical specificity, scope of use) and the application governance constructs. The empirical finding suggests the organizational embeddedness represented by human asset specificity is related to more involvement of business units. The greater technical embeddedness represented by technical specificity leads to greater IT organization's involvement. Combining the research result of Winkler and Benlian (2012) with the role of SaaS intermediary suggested by Venkatachalam et al. (2014), it is conceivable that the use of SaaS intermediary reduces the involvement of the IT organization, due to the intermediary's role as the contributor of technical competencies in SaaS sourcing.

Instead of the governance perspective of (Winkler et al. 2013) The SaaS performance proposed by Chou et al. (2013) is based on relational view. While Winkler et al. (2013) focuses on the governance effectiveness, Chou et al. (2013) proposed a correlation between the governance-based value and the SaaS satisfaction, along with task based value – which would be the other side of the

coin in terms of governance effectiveness. Chou et al. (2013) uses IS capabilities as the antecedents of these relational values. The suggested IS capabilities potentially relate to the role of SaaS intermediary to ensure coordination and integration, despite it is presented as the provider related capabilities.

Through practitioner insight, Gozman & Willcocks (2015) identified 7 challenges of SaaS sourcing. The challenges concerns the SaaS on the technology level and are similar to the TOE framework used in quantitative empirical studies. For instance, the lack of visibility and control of the IT Estate, understanding privacy obligations and SaaS architectures concerns the challenges in technology context. Whereas monitoring and auditing outsourcing risks, policies and practices, managing intra-group outsourcing arrangements, are related to organizational challenges. Lastly, evaluating SaaS vendor reliability and longevity, emergent challenges: shifting regulatory landscapes, and emergent challenges: shifting technical landscapes would fall under the environment contexts. The role of SaaS intermediary are not explicitly linked to challenge mentioned in Gozman & Willcocks (2015). But the challenges of SaaS intermediary would relate to one of the organizational context challenges. This is due to SaaS intermediary as the technical expertise provider allows the business unit to source SaaS without the involvement of the IT organization – leading to Shadow IT⁵ problems.

Based on insights from existing IS success literature, and the construct definition of Delone and McLean's (2003) IS Success Model, Walther et al. (2013) compiled a comprehensive list of empirical tested the success dimensions for evaluating organizational SaaS success. The identified dimensions are sorted into three categories. The system quality categories comprises of dimensions of: reliability, flexibility, integration, accessibility, ease of use, response time, functionalities, security, ease of learning, user requirements, ease of update, customization. The dimensions are also studied as constructs for SaaS adoption (Björn & Ruivo 2013), and SaaS satisfaction (Goode et al. 2015). Information quality is used as related client provider relationship construct in Walther et al. (2012), and consist of: completeness, accuracy, format, currency, relevance, understandability. The Net benefits category are similar to the technology context of the TOE framework, and comprises of dimensions are directly related to the characteristics of SaaS: productivity, decision

⁵ <http://www.gartner.com/it-glossary/shadow/>

making, cost savings, better planning, strategic flexibility, mobility, innovation agility, quality business processes, IT-risk transfer, staff requirements, improved outcomes/output.

The social-technical model of SaaS influence by Jede and Teuteberg (2015) focuses on the impact of SaaS adoption on the IT organization. Through the assessment of: *perceived IT security change*, *perceived interface configuration change*, *perceived IT architecture change*, *company's increasing SaaS usage*, the research model elucidate SaaS' *perceived technical change radicalness* and *perceived IT organizational change* from the perspective of IT employees. The empirical research shows although SaaS involves advantages such as interoperability, performance increase, and on-demand updates for both the IT organization and relevant stakeholders, the SaaS is negatively affecting the IT employee's perception of job outcomes and process performance. The findings contrasts with the earlier studies conducted by Malladi and Krishnan (2012), in which the IT employee's perception where not changed by SaaS adoptions. Because the technical configurator role are fulfilled by the intermediaries in SaaS sourcing (Overeem & Vreeken 2014), the Jede and Teuteberg's (2015) findings hint possible link between SaaS intermediary's role and the changing the the social technical structure of IT organizations – arguably due to the SaaS intermediary replaces IT employees as the technical knowledge contributor for the business unit in SaaS sourcing context.

Yang et al. (2015)'s tripod readiness model borrow heavily from the existing research SaaS adoption based on the TOE framework. Instead of explaining SaaS adoption, the constructs were used to determine the “readiness” of SaaS, in which the contexts are considered as readiness types. Given the similarity of the constructs with TOE framework, the significance of the empirical contribution are rather limited – hence no contribution towards the research question was presented.

With the intention of to empirically substantiate all aspect of the SaaS as a technological phenomenon, Martins et al (2016) proposed a research model that combines all popular applied theoretical framework of SaaS research. The structure of the conceptual model are based on the three contexts of TOE framework, in which the technology context are replaced with *Relative advantage*, *compatibility*, *complexity* constructs from the diffusion of innovation theory (DOI). The original environment context constructs are replaced with three institutional pressures: *coercive pressures*, *normative pressures*, *mimetic pressures*. The organization context constructs of

technology competence and *top management support* remains unchanged from the TOE framework. Finally, the intention to adopt, SaaS adoption, and SaaS routinization are combined to formulate the SaaS diffusion construct. The holistic conceptual model of Martins et al. (2016) have considerable support from other studies, the model only concerns with explaining SaaS on the technological level – therefore no explanation of the intermediaries roles can be derived from the model.

Review Conclusion

Although Overeem and Vreeken's (2014) research focuses on the cloud brokerages, which are corresponding to the SaaS intermediary role, the research emphasizes on the supposed capabilities of intermediary, but not its role. The contribution are confined to a theoretical level discussion and therefore lacks empirical validity. While Venkatachalam et al. (2014) explores the SaaS intermediary role in the SaaS sourcing, the research context are confined to SMEs and qualitative findings. It is conceivable to assume the intermediary role determined in Venkatachalam et al. (2014) are insufficient when apply to the larger enterprise, where there are considerably increased complexity.

In general, the reviewed literatures does not address the intermediary role as a part of the SaaS research. Majority of the literature only center around the direct relationship between the SaaS client and SaaS provider. The theoretical insight from most literature consider the SaaS provider characteristics are the antecedent to adoption, continuance etc. It is also evident that the most of the constructive contributions attempt to understand SaaS from the technology point of view. The underlying theoretical framework does not accommodate the essential difference of SaaS sourcing from the practitioner's perspective – the changing dynamic between provider, intermediaries and the client.

Lastly, it seems main research trend as recent as 2015 are still concerned with SaaS as a novel technology, with adoption factors, continuance factors as the “burning questions” within the field. Therefore, as to conclude the findings of the literature review, the following proposition is made:

Proposition 1: The current SaaS sourcing literature does not sufficiently cover the role of SaaS intermediaries in the large enterprise context.

Case Study

Methodology

Through the findings of the conducted literature review, it is concluded that the SaaS intermediary role – specifically in the large enterprise SaaS sourcing projects is not sufficiently addressed. This means there are limited amount of theoretical insights available to determine and understand the SaaS intermediary role. Therefore, the research focus for the empirical section of the thesis is to:

- Contextualize the various insights from the literature review.
- Explore the SaaS intermediary role within a large enterprise's SaaS sourcing context.

According to Yin (2009) a case study is an empirical inquiry that “investigates a contemporary phenomenon in depth and within its real-life context.” A case study method is particularly interesting when the studied phenomenon is not sufficiently theorized and exhibit certain extend of complexity. Similar to other theoretical explorative studies within the SaaS research (Zainuddin & Gonzalez 2011), the single case design was chosen. The single case study provides “an opportunity to observe and analyze a phenomenon previously inaccessible to scientific investigations.” (Yin 2009)

The choice of using Novo Nordisk as the case company are due to the company's size, and its financial situation. It is important for the case company to have a certain size to provide the large enterprise setting required by the research question. Furthermore, the financial success of Novo Nordisk allows the case study to explore more strategic elements as well as the utilization challenges of the SaaS sourcing and intermediary role, rather than excessive focus on the cost reduction aspects of the SaaS. The initial knowledge of the particular SaaS sourcing project was acquired through author's informal contacts within Novo Nordisk.

The data collection for the case study consists of semi-structured interviews. The interviewees were selected according to the key informant approach to ensure their response does not lead to inaccurate conclusions. The use of this approach is consistent with existing SaaS empirical researches (Benlian et al. 2010; Stacey et al. 2013 etc.) Three key informants were selected according to their involvement and level of knowledge of the SuccessFactors project.

The informant “Process Manager” is a project manager responsible for the implementation of succession management module of the SuccessFactors. The main tasks of the informant involves articulating the need of the succession planning department to the consultancy firm, who would then apply the defined configuration. Thus the informant's day to day work are heavily linked to the

SaaS intermediary. The knowledge from the “Process Manager” is intended to provide insight into the SaaS sourcing from the operational level.

The informant “System Manager” is a senior project manager who is responsible for the overall service delivery of the SuccessFactors modules used by various departments. Therefore, the informant have detailed knowledge about the provider client relationship and inter-organizational relations regarding SuccessFactors. The “System Manager” offers insight into SuccessFactors as a whole from a (system) management perspective.

The informant “Vice President” is the owner of global HR IT systems, who is also a member of the management board for HR operations globally. The informant provides knowledge into how the SuccessFactors are utilized across various affiliates that is beyond the need-to-know basis. The interview with the “Vice President” are used to develop insight of SuccessFactors from a more high level and strategic perspective.

The interviews are guided using a pre-defined interview guide containing generic topics identified through the literature review: *SaaS implementation and operation challenge*, *SaaS value proposition (benefit)*, *SaaS Client-vendor relationship*, *SaaS adoption and organizational impact (e.g. relation with IT organization)*, *SaaS and business unit (HR) strategy*. Once the interviewee has adequately covered one topic, the interview is guided towards the next topic on the list.

Instead of specifically asking the interviewee about the role of SaaS intermediary, using generic topics avoid potentially framing the responses of informants. The generic topics are also used to support the explorative nature of the case study and intend to capture previously undiscovered insight of the SaaS intermediary role.

Finally, information gathered during three informal post-interview lunch are used to supplement the case story e.g. general company information, organizational structure.

Case story - Software-as-a-service in Novo Nordisk HR

Novo Nordisk is a pharmaceutical company consist of 41000+ employees across 75 countries.

The company is the largest producer and market leader of insulin for diabetes care in the world. In addition to insulin & diabetes care products, Novo Nordisk also research, develop, and produce products within the areas of growth hormone deficiency and hemophilia care.

In the recent years, the number of diabetes patients is increasing around the world. As the living standards improve in emerging markets, more people are exposed to the unhealthy lifestyle that can potentially develop diabetes (type 2). The prevalence of diabetes and the innovative products has

contributed to the Novo Nordisk's financial success in the recent years - the company had 42 consecutive quarters of double-digit growth in revenue. Novo Nordisk is the biggest company in Denmark in terms of market capitalization, where it is headquartered.

Novo Nordisk adopted its first SaaS based system in 2007, when its US affiliate procured a SaaS based recruitment platform referred as *Recruit* internally. The system was initially launched in the US affiliate, and eventually made its way into Denmark and China during the years of 2011 and 2012. It is today the global corporate standard recruitment system for Novo Nordisk HR.

In the meantime, the HR organization in the Danish headquarter in a limited fashion initiated their own SaaS sourcing for their succession management unit in 2010. The *SuccessFactors* was chosen through an assessment for "best of breed" products – without specifically looking into on-premises vs SaaS differences.

A year later, *Plateau* – a SaaS based learning management system was launched in the production part of the Novo Nordisk, named. The *Plateau* system was later acquired by *SuccessFactors*, which became a part of the HR suite solution of *SuccessFactors*. This meant Novo Nordisk owned two modules within the *SuccessFactors* platform.

Nevertheless, The Novo Nordisk's SaaS journey did not stop from there:

Following the acquisition of *Plateau*, the *SuccessFactors* themselves was acquired by SAP not long after. The Novo Nordisk HR management quickly saw this as an prospect to move their HR service portfolio to the cloud.

Shortly after, a new HR IT strategy was formulated aiming to transition the Novo Nordisk HR function towards SaaS-enabled processes globally, the vision the HR management is to have a common platform across the global HR operations – for better process alignment & transparency, data flow amongst the HR functional areas and also across various geographical locations. As result, a sizable portion of the companies HR functions already operate via the *SuccessFactors* today: succession planning, performance management, learning management etc. Despite the numerous implementation and operational challenges encountered along the way, the Novo Nordisk HR management are looking into further adoption of *SuccessFactors* modules and other SaaS products to support their processes in the future.

SuccessFactors software – or "services" to be more concise, are provided to Novo Nordisk HR organization (headquarter and affiliates) for a negotiated subscription fee. The Novo Nordisk users

access the relevant part of the system according to their role as an employee, HR administrator etc. via the standard web-browser on their computer. The responsibility for data and the underlying supporting IT infrastructure are provided by SuccessFactors. As the SaaS provider, SuccessFactors also continuously maintain and improve the the SaaS product: For each service modules, there are version updates every 4 years on average. Those version upgrades contain significant upgrades of the modules e.g. with increased system flexibility or new user interface design.

In between the version upgrades, there are smaller updates on a quarterly bases. There are two types of quarterly updates, referred as “universal releases” and “opt-in releases”. The universal releases typically contains bug fixes, and are by default applied to all customer instances of SuccessFactors. These releases are generally welcomed by the customers. The opt-in releases would normally contain update that would change the standard functionalities of the service modules, and is enabled by the different clients themselves.

Majority of the SuccessFactors’ development ideas are based on the feedbacks of the clients. The ideas are captured through client conferences run by SuccessFactors, or on the client community website. These are also the venues to propose changes that falls outside of the clients’ configurable frame of SuccessFactors. Conversely, due to the multi-tenant nature of SuccessFactors as the SaaS provider, they are only able to incorporate the most supported proposal across the client base into the development prioritization.

“There is a website where you could log in as a customer. Then if I make a suggestion, I can get what you call “kudos”. If many of the other customers find this is also great for them, the more kudos I get – the more focus it will get from the development part of the SuccessFactors – the bigger chance for it to be implemented” – System Manager

Similar to other popular SaaS services (e.g. Salesforce.com), SuccessFactors as the SaaS provider only focuses and specializes in the development of the generic system instances and service modules that concerns all clients. Even though self-service being one of the advertised characteristics of SaaS, Novo Nordisk HR are not able to conduct all of implementations and operational activities on the SuccessFactors. For instances enabling some of the of the opt-in feature requires high level of technical knowledge of the system, along with the HR process knowledge related to the specific service module. To close this gap between client and the SaaS provider, Novo Nordisk sources from third party implementation partners e.g. Deloitte. The main role of Deloitte is

to support the HR employees with the more complex configurations within SuccessFactors with specialist competencies and knowledge.

“Many of those opt-in feature is something we can enable ourselves, we can test, and we can go through. But some of those opt-in features are very highly technically matter, with a high technical complexity. We would need a implementation partner to help us configure these things. Because we don’t really know the consequence of enabling it.” – System Manager

The rapid growth of Novo Nordisk’s business globally has contributed to a decentralized organization structure throughout the different geographical locations. This also meant the accompanying support functions i.e. HR organization are diverse in terms manpower as well as financial resources. The larger affiliates (who are also the pilot countries for SuccessFactors adoption) such as US and China are able to afford their own implementation partners for their regional needs. In contrary, the smaller affiliates might not have dedicated resources to maintain the simplest configuration tasks. To maintain and operate on the SuccessFactors platform, these affiliates have to rely heavily on the project resources and knowledge shared by the headquarter HR unit.

Case Discussion

The insights from Novo Nordisk demonstrated many of the perspectives on SaaS are applicable in both SME and large enterprise, despite the original research context.

In Novo Nordisk’s case, the increased implementation of SuccessFactors service modules for HR operations coincided with SAP’ acquisition of SuccessFactors. The reputation of SAP as trusted ERP provider has positively influenced adoption of additional SuccessFactors modules as suggested in the earlier section. This is consistent with the constructs purposed by Stacey et al. (2013), where the size, reputation, functionality are connected to the initial trust of the SaaS provider. This supports the idea that the SaaS adoption intention are linked to trust of vendor, which are related to the perceived risks and benefits (Benlian & Hess 2010; Wu et al. 2011).

“Then SAP acquired SuccessFactors, and we are a SAP company in Novo Nordisk – So we use SAP for finance, we use for production, for distribution, for logistics, and for HR, and for BW – Business Warehouse reporting. So, then it became strategic you could say. Because now suddenly the vendor we are betting on

for our core financial and production processes was also owning a suite offering within HR.” – Vice President

Furthermore, many benefits associated with SaaS are confirmed. For example, From HR operation perspective, the SuccessFactors improved their ability to focus on core (HR) business process:

“You don’t have to have server in your basement, and you don’t have to operate, you don’t have to do Windows upgrades or other operating system upgrades, database upgrades, or middleware upgrades or anything. All that, is just something that’s handled by somebody else, professional to handle [...] you don’t need to focus on all that crap about upgrading servers and operating systems, and databases – it has no relevance to the business really.” – Vice President

And the benefit in terms of ease of use and the faster deployment cycles:

“It takes less technically skilled resources to operate a cloud platform [...] You don’t do development, only the integration layer. You don’t do the development in the application anymore. So that’s a big difference. That means, you can get a completely different speed on your changes. So you don’t have to await development cycles. Sometimes my employee that are not very techy can actually do configuration changes themselves, because it’s so simple. It gives you another agility, you can move faster.” – Vice President

Another benefits is the updates and releases from the SaaS provider are perceived as a way to get best operation practices through the system at reduced cost compare to the alternative:

“It’s great to have all those things, and we pay for licenses fees for the users we have, and what they then promise us in return is they make sure that they have the best-in-class solution that is always updated, and whenever there is an issue. We don’t pay them for those quarterly releases, it comes with the license(subscription) fee.” – System Manager

“Instead of having to go look for best practices every 5th year, you can expect your vendor to more or less push that to you – have tons of value [...] So we don’t need to build it from scratch buying new systems every year.” – Process Manager

Although the unavoidable updates from the SuccessFactors have caused problems and setbacks at times, most of the these updates are perceived positively by the Novo Nordisk HR organization.

Referring back to the earlier section, the clients can contribute towards the development of SuccessFactors by communicating their ideas via community website and client forums – which in the practical sense is the frequently discussed “client-vendor relationship” in SaaS literature. The multi-tenant nature of SaaS means that SuccessFactors as a provider can never satisfy all their clients. Novo Nordisk HR recognize their limited influence on SuccessFactors as one of the many one of the client.

“SuccessFactors is a huge system, we are a pretty small customer to them. We are an important customer, and we are their biggest Danish customer, but we are not that big – and that’s tough when we suddenly want to do something [...] its very rare you would (work) with the cloud system owner – at least in our case – directly.” – Process Manager

However, the limitation to the configurability of SuccessFactors is considered only as an insignificant aspect of the deployment model for Novo Nordisk. All key informants are content with this limitation of SaaS configurability, or the “frame” as they called it.

“if you are only customer they have that has that wish, probably you are not going to get it within the next couple of years. So then agility goes away. But I think looking back over the years that we have operated over the cloud – it is so rare. It happens, but it’s very very rare. Normally we can find a solution within the frames, or we can say to the requester: ‘sorry, this is not going to happen’, and typically this is something we can live with.” – Vice President

To recap, the interaction between SuccessFactors and Novo Nordisk’s HR unit are infrequent, due to most of the configurations needed are within the “frame”. The relationship can be characterized as monotonous because there just isn’t much the vendor can do to cater a single vendor’s specific needs. These insights are consistent with the findings of Hsu et al. (2015), which suggests SaaS client’s relationship capability with the provider are not linked with the SaaS service flexibility, nor the effective communication. It offers a clue to why the commitment towards the SaaS provider (SuccessFactors) is unaffected – at least in the context of Novo Nordisk.

The tendency for SaaS provider not exhibit traditional client-vendor dynamics are supported in Yang and Chou (2015)’s empirical findings. Their research result indicated provider’s client response quality does not affect the client’s trust in provider, but yet the service quality of SaaS is affected by the response quality. Going to back to the context of the case, it is apparent that the

regardless the response quality, Novo Nordisk have trusts in SuccessFactors as a provider due to independent factors such as reputation etc. Consequently, the contradicting link between response quality and service quality implies there might be other moderating factors which are not captured in the research model used by Yang & Chou (2015). Based on the second proposition from literature, the subsequent question are therefore whether these constructs are connected to the SaaS intermediary role instead of the providers. In the context of Novo Nordisk, the SaaS intermediary role is fulfilled by the third party firms such as Deloitte, and the findings suggests the response quality of Deloitte affect the trust in service quality.

“We had a really bad implementation partner as well who is supposed to help me. I can only describe what I would like, they were the ones who were supposed to be the expert on the system. [...] We got Deloitte in, and actually American Deloitte in to help us. And they were awful, they were terrible, and they took tons of money. [...] even when we gave them clear input, they were terribly slow and they gave us wrong information, and gave us parts of the information we needed to make good decisions. I thought it was very very cumbersome to work with (them).” – Process Manager

This suggests suggests not only is the client response quality a intermediary related construct, but also other construct such as information quality (Walther et al. 2013b), knowledge sharing (Chou et al. 2014) are relevant for the client-intermediary relationship, rather than the provider.

Furthermore, Novo Nordisk also sees the intermediary to continuously play a role in help navigating through the releases during the releases, as a part of the operations. There is a strong indication from the case that Deloitte as a intermediary plays a role in ensuring the service quality of SaaS.

“We need to engage an vendor (Deloitte) on this, because there is a lot of other features that needs to fall in place. That’s what come on top of the complexity there is in managing the system. It’s not so much related to the implementation of the project, but it’s more of the operation side of it. I think it’s important to divide between what happens during implementation – there is some requirements, and you configure it, and then you go live. From that point onwards there is the operation side. So the implementation part is of course affected by the quarterly releases, the potential upgrades if there is any of those that’s coming in every forth year. Then there is the operational part that is in a constant ‘storm’ in terms of all those releases we need to navigate through.” – System Manager

Using the cloud service brokerage types purposed in Overeem & Vreeken (2014), The SaaS intermediary can be considered as specialist providers, where they provide distinctive industry or functional expertise to help the SMEs adopt and use the SaaS-solutions. Despite the the assumption came from the perspective of SMEs, it is evidently true also in Novo Nordisk's case.

The case findings are also consistent with the findings of Winkler and Benlian (2012). Since the use of Deloitte's for technical competencies correlate with the limited (or the lack of) involvement of IT organization in SuccessFactors – SaaS intermediary role as a technical knowledge contributor lowers the technical embeddedness of the application, thus leading to lower governance from IS authority.

But the case findings suggest that the role (or the expectations for) of intermediary are beyond the service quality delivery aspect alone.

Through concrete examples, the interviewee pointed out that having different implementation partner causes coordination problems amongst the various clients. This applies both in on the level of activity timing, and also on the level of implementation alignment.

“The testing of the new succession module: suddenly our colleagues upstairs (Rewards Department) said they were working on Compensation in the system, and they had some idea that we were messing around: because they had one implementation partner and we had another implementation partner. They had one project manager and we had another project manager. And they just shut us down, so we couldn't test. We were like “get the hell out, we are testing!” and they were like “get the hell out, you are messing with our data, we are building!” and that's just frustrating.” – Process Manager

This indicates in addition to being a mediator between the client and provider, the intermediary role is also associated with the coordination amongst the operational and implementation activities within the client organization. Because the need for coordination are related to factors such as scope of SaaS system which is more often seen in the larger enterprise adoptions, then presumably the role of coordination for SaaS intermediary has increased relevancy in the context of enterprises than in SMEs. The coordinating role is also important in the context of SaaS deployment across subsidiaries. From the perspective of the key information, using different intermediary are related to the fragmentation, with notable examples in larger affiliates who can afford their own implementation partner.

“Some (of the fragmentation) of it was due to bad project management from our American stakeholders or affiliates, they were the ones to run the project, for strange reasons. And it was not clear, and they have not briefed the consultants. Probably also it was not clear for the consultants who they should get input from.” – Process Manager

“So I would say many of the projects that we have initiated had been driven out of pilot scenarios, on a very autonomous manner – so China could drive a pilot on compensation [...] They used a local vendor that didn't speak English – and they did suffer the consequences for that, because there are certain things they couldn't do.” – System Manager

In the smaller affiliates, the configurations are defined by the headquarter unit. Looking at this from an alternative perspective, the configuration expertise required to adopt and use SuccessFactors are actually originated from the headquarter unit's implementation partner. Drawing parallel between the smaller affiliates with SMEs based on the decentralized structure of Novo Nordisk, it would mean headquarter unit's SaaS intermediary also assumed the intermediary role for these affiliates.

“We have Region IO and EU screaming for system support and compensation process, because they still do it in spreadsheets – So whenever there is a annual raise, that's all managed in the spreadsheets, which is not ideal. There are a lot of golden opportunities for us to do a lot more, that's also being recognized by the organization, because they are suffering from things that are not supported with IT. So I think in the coming years, there is a lot for us to do in developing and implementing.” – System Manager

From the key informant's viewpoint, the different outcomes concerning the SaaS deployment in various affiliates are co-related by their access to the intermediary: afforded for themselves or through headquarters. Interpreting from an inductive standpoint, the correlations imply that the SaaS intermediary might play a role in ensuring the standardization in SaaS sourcing. The role of SaaS intermediary in Novo Nordisk is consistent with the customer orientation and strategic alignment purposed by Venkatachalam et al. (2014), in which the intermediary have a role of knowledge sharing, and provide on-going support, alignment with business and IT objectives. However, performing the intermediary role purposed by Venkatachalam et al. (2014) (which are based on SMEs) in the enterprise context could be challenging. Large enterprises are often riddled with hidden politics at the business units level. This is especially true in a decentralized, international company like Novo Nordisk. Unlike in SMEs, the orientation and alignment provided

by SaaS intermediary firms are bound to the paying customers. Therefore the SaaS intermediary role might be inadequate to cope with the implications from the politics amongst SaaS adoption business units – especially between the HQ and the larger subsidiaries in the case of Novo Nordisk. In essence, the customer orientation and strategic alignment purposed by Venkatachalam et al. (2014) can be two contradicting objectives in the context of the decentralized, large enterprises such as Novo Nordisk.

By remaining critical towards the perspective of key informants, there are many interpretable indications which are related to the political dynamics between the Novo Nordisk headquarter HR and the larger affiliates.

*“NNI, our American affiliate, huge market, plenty of people, they had their own, and we had ours. It was realized that it was not a sustainable solution, they need to migrate to global. [...] we thought our global one was messy and difficult to navigate, theirs were even worse. When we tried to ask them “ok we can see you have this, what is it? What do you use it for? Who wants it?” They couldn’t answer those questions, so it was kind of cumbersome to get them onto our system and I think they started out having these ideas, that we are thinking we will have over. But we start to realize that we do not want their **** in our system. So it was a bit of battle to get that in. [...] That’s also where we had the push back, ‘well, we could this, and why couldn’t we do this anymore’ They basically just created portals and for every kind of data that people wanted to have in the system, and then it got outdated.” – Process Manager*

Despite the Corporate IT of Novo Nordisk has listed Cloud computing as their key focus areas in the coming years, the IT organization are only involved in the SuccessFactors initiative in a few limited areas: The HR organization has investigated some data migration possibilities with the IT organization during the initial stages of SuccessFactors, however the project was later discarded, due to another SuccessFactors module Employee Central will eventually replace SAP HR, which are currently maintained by Corporate IT.

The end-user questions and requests for SuccessFactors are facilitated through the AR-Web, which is the general system platform for all IT support in Novo Nordisk. The support operations for SuccessFactors are offshored to a shared service center located in Bangalore India. Both the AR-Web and the share service center are under Corporate IT. According to the key informant, the established support structure by Corporate IT have more to be desired.

“Normally if there is an issue, it’s submitted to India, because we have handed over to Corporate IT. Corporate IT have an system called AR-Web, for all of their support ticketing, issues, and problems that arise on the different system. So if there is any issues in the SuccessFactors, we need to create a ticket in that system. It’s not the most well liked system, and I’ve been here for 4 years and nobody have yet explained to me what “AR-Web” stands for. It’s not really intuitive and it’s an IT system that’s primarily used for semi-nerdy IT people. It’s not really ideal for the users like us.” – System Manager

Traditionally, the interest alignment amongst the business unit are facilitated by the IT organization through the governance mechanisms and the technical expertise (Winkler & Benlian 2012). But as the SaaS intermediary enables the business units to circumvent the IT organization’s involvement, such alignment becomes increasingly difficult. Therefore the SaaS intermediary role as the replacement for the technical expertise as well as political moderator is for SaaS sourcing has profound significant from a IT governance perspective. There are already research attempts to establish application characteristics and IT governance (Winkler et al. 2011; Winkler & Benlian 2012). The inclusion SaaS intermediary role could potentially shed additional insight into the development of best-practice related to IT governance for SaaS.

Finally, to understand the political implications associated with the SaaS intermediary role, observations from the different affiliates of Novo Nordisk are required. It is also not possible to isolate the SaaS intermediary’s impact on standardization and IT governance based on Novo Nordisk’s single case alone. Further research with increased magnitude in terms of theorization and scope falls beyond the scope of this thesis.

Case Study Conclusion

Many of the findings from the existing SaaS literature are confirmed through the findings of the case study on Novo Nordisk’s SaaS journey. The characteristics of SaaS such as provider reputation, cost model, and ease of use etc. indeed influence the adoption decision. It is evident that the much studied client provider relationship in the context of Novo Nordisk are not as intricate as reflected by the research attention given. Novo Nordisk as an SaaS client are indifferent to many of the constructs concerning provider characteristics such as response quality, and service flexibility. Even as a large enterprise business unit, Novo Nordisk HR’s needs mostly falls within the configurability of SuccessFactors. The findings further suggested it is SaaS intermediaries such as Deloitte, rather than the provider are the one who has influence on the integration and utilization of SaaS services. This indicate there is a need to view SaaS intermediary as a part of the on-going

SaaS delivery process in large enterprises. Many provider constructs proposed in the literature concerning the service delivery e.g. response time, response quality are instead related to the SaaS intermediary, who directly involves in the continuing operation (implementation, and configuration activities) of SaaS, together with the actual client business unit. The case offered validations for SaaS intermediary role as the specialist provider which closes the knowledge gap needed to ensure the adoption and implementation of SaaS (Overeem & Vreeken 2014). The users from Novo Nordisk have expectation towards SaaS intermediary to assist beyond the configurator role, but rather more towards a pro-active advisory role.

However, the case also revealed that the SaaS intermediary plays a much more complex role within the large enterprise SaaS sourcing. Access to independent SaaS intermediary negatively correlate with system standardization across the affiliates from the headquarter unit perspective.

This correlation indicate the access to intermediary service contribute towards customization of the SaaS product, but it also increases the fragmentation from the overall perspective. The SaaS intermediary business model dimensions regarding customer orientation and strategic alignment (Venkatachalam et al. 2014) can be two contradicting objectives in the larger enterprise context – when different intermediaries are used in different affiliates, and even different departments within the same affiliate (in this case the headquarter).

There are plenty of food for thought for the Novo Nordisk's IT organization regarding their role in the future. The IT organization must able be to legitimize their role (Melin et al. 2014) amongst the SaaS provider, intermediary, and client. But this would require a fundamental rethinking of their existing role and service for their business unit customers (Janssen & Joha 2011).

Consequently, two additional propositions are created based on the findings of the case study:

Proposition 2: SaaS intermediary plays a role in reducing the adoption and operational challenges by closing the knowledge and competency gap in large enterprise SaaS sourcing.

Proposition 3: SaaS intermediary access have a role in impacting standardization of SaaS sourcing in large enterprises affiliates.

List of References

- Benlian, Alexander, "A transaction cost theoretical analysis of software-as-a-service (SAAS)-based sourcing in SMBs and enterprises" (2009). ECIS 2009 Proceedings. Paper 4.
- Benlian, Alexander and Hess, Thomas, "The Risks of Sourcing Software as a Service – An Empirical Analysis of Adopters and Non-Adopters" (2010). ECIS 2010 Proceedings. Paper 142.
- Benlian, Alexander; Koufaris, Marios; and Hess, Thomas, "The role of SaaS service quality for continued SaaS Use: empirical insights from SaaS using firms" (2010). ICIS 2010 Proceedings. Paper 26.
- Brocke, Jan vom; Simons, Alexander; Niehaves, Bjoern; Reimer, Kai; Plafaut, Ralf; and Cleven, Anne, "Reconstructing The Giant: On The Importance Of Rigour In Documenting The Literature Search Process" (2009). ECIS 2009 Proceedings. Paper 161.
- Johansson, Björn, and Pedro Ruivo. "Exploring factors for adopting ERP as SaaS." *Procedia Technology* 9 (2013): 94-99.
- Chiang, Chun-Hsiung and Chou, Shih-Wei, "Understanding Software-as-a-Service Performance - A Dynamic Capability Perspective" (2013). PACIS 2013 Proceedings. Paper 147.
- Chou, Vincent, and Aman Chan. "An integrative framework of comparing SaaS adoption for core and non-core business operations: An empirical study on Hong Kong industries." *Information Systems Frontiers* 17.3 (2015): 629-644.
- Goode, Sigi, et al. "Rethinking the role of security in client satisfaction with Software-as-a-Service (SaaS) providers." *Decision Support Systems* 70 (2015): 73-85.
- Chou, Shih-Wei, and Chun-Hsiung Chiang. "Understanding the formation of software-as-a-service (SaaS) satisfaction from the perspective of service quality." *Decision Support Systems* 56 (2013): 148-155.
- Chou, Shih-Wei; Hsu, Chia Shiang; Min, Hui-Tzu; Chiang, Chun-Hsiung; and Chang, Yu-Chieh, "Understanding Competitive Performance Of Software-As-A-Service (SaaS)—The Competitive Dynamics Perspective" (2014). PACIS 2014 Proceedings. Paper 362.
- Chou, Shih-Wei; Min, Hui-Tzu; Hsu, Chia-Shiang; Hung, I-Hua; and Chang, Yu-Chieh, "Analyzing the Influence of IS Capability on Software-as-a-Service Performance: A Relational View" (2013). PACIS 2013 Proceedings. Paper 49.
- D'souza, Austin; Kabbedijk, Jaap; Seo, DongBack; Jansen, Slinger; and Brinkkemper, Sjaak, "Software-As-A-Service: Implications For Business And Technology In Product Software Companies" (2012). PACIS 2012 Proceedings. Paper 140.

Delone, W. H. and McLean, E. (2003) The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. *Journal of Management Information Systems*, 19, 4: 9–30.

Goode, Sigi, et al. "Rethinking the role of security in client satisfaction with Software-as-a-Service (SaaS) providers." *Decision Support Systems* 70 (2015): 73-85.

Gozman, Daniel, and Leslie Willcocks. "Crocodiles in the Regulatory Swamp: Navigating The Dangers of Outsourcing, SaaS and Shadow IT." *ICIS Conference Proceedings* (2015).

Heart, Tsipi. "Who is out there?: exploring the effects of trust and perceived risk on saas adoption intentions." *ACM SIGMIS Database* 41.3 (2010): 49-68.

Hsu, Chia-Shiang; Chou, Shih-Wei; and Min, Hui-Tzu, "Understanding Software-as-a-Service (SaaS) Commitment from a Client-Provider Collaboration Approach" (2015). *PACIS 2015 Proceedings*. Paper 200.

Hsu, Chia Shiang; Chou, Shih-Wei; and Min, Hui-Tzu, "Understanding Clients' Intentions to Explore Software-as-a-Service (SaaS) Features: A Social Capital Theory Perspective" (2015b). *PACIS 2015 Proceedings*. Paper 24.

Huang, Ke-Wei and Wang, Mengqi, "Firm-Level Productivity Analysis for Software as a Service Companies" (2009). *ICIS 2009 Proceedings*. Paper 21.

Janssen, Marijn and Joha, Anton, "Challenges For Adopting Cloud-Based Software As A Service (SaaS) In The Public Sector" (2011). *ECIS 2011 Proceedings*. Paper 80.

Jede, Andreas and Teuteberg, Frank, "Looking Behind the Stage: Influence and Effect of Software-as-a-Service on Socio-technical Elements in Companies" (2015). *ECIS 2015 Completed Research Papers*. Paper 87. ISBN 978-3-00-050284-2

Kaltenecker, Natalie. "Managing Disruptive Change: Successful Transformation From On-Premises To SaaS in B2C Software Companies." *PACIS Conference Proceedings*(2015).

Kung, LeeAnn, and Hsiang-Jui Kung Dr. "Environmental pressure on software as a service adoption: An integrated perspective." *AMCIS Conference Proceedings* (2013).

Link, Björn, "Considering the Company's Characteristics in Choosing between SaaS vs. On-Premise-ERPs" (2013). *Wirtschaftsinformatik Proceedings* 2013. Paper 17.

Suresh Malladi and Mayuram Krishnan, "Does Software-as-a-Service (SaaS) has a role in IT-enabled Innovation? – An Empirical Analysis" (July 29, 2012). *AMCIS 2012 Proceedings*. Paper 17.

Mangula, Ivonne Sartika; van de Weerd, Inge; and Brinkkemper, Sjaak, "The Adoption Of Software-As-Service: An Indonesian Case Study" (2014). PACIS 2014 Proceedings. Paper 385.

Martins, Ricardo, Tiago Oliveira, and Manoj A. Thomas. "An empirical analysis to assess the determinants of SaaS diffusion in firms." *Computers in Human Behavior* 62 (2016): 19-33.

Melin, Ulf, Pradip Sarkar, and Leslie Young. "Fashions in the cloud: A case of institutional legitimacy." *AMCIS Conference Proceedings* (2014).

Mell, Peter, and Tim Grance. "The NIST definition of cloud computing." *Communications of the ACM* 53.6 (2010): 50.

Gerwin Overeem and Arjan Vreeken, 2014, "Implications Of SaaS On Competencies Of IT-Brokerages", *Proceedings of the European Conference on Information Systems (ECIS) 2014*, Tel Aviv, Israel, June 9-11, 2014, ISBN 978-0-9915567-0-0

Jonas Repschlaeger, Stefan Wind, Rüdiger Zarnekow, and Klaus Turowski, "Selection Criteria for Software as a Service: An Explorative Analysis of Provider Requirements" (July 29, 2012). *AMCIS 2012 Proceedings*. Paper 3.

Seethamraju, Ravi. "Adoption of software as a service (SaaS) enterprise resource planning (ERP) systems in small and medium sized enterprises (SMEs)." *Information systems frontiers* 17.3 (2015): 475-492.

Stacey, James; Schroeder, Andreas; and Bardhan Correia, Deba, "Initial trust formation in a SaaS context" (2013). *UK Academy for Information Systems Conference Proceedings 2013*. Paper 37.

Stuckenberg, Sebastian, "Exploring the Role Of Integration In Software-As-A-Service Failure" (2012). *PACIS 2012 Proceedings*. Paper 183.

Sørensen, C. (2005): Slightly revised version of "This is Not an Article — Just Some Food for Thoughts on How to Write One." Working Paper. Department of Information Systems, The London School of Economics and Political Science. No. 121.

Teracino, Elizabeth. "Institutional Preconditions Influencing Accounting Firms Mobilizing into the Online Software-Enhanced Financial Services Market." (2014).

Teracino, Elizabeth, Kristian Peters, and Johan C. Wortmann. "Institutional Preconditions Influencing Banks Adopting Software-as-a-Service and Mobilizing for Servitization." (2014).

Trinh, Thao Phuong; Pham, Cong Hiep; and Tran, Dieu, "An Adoption Model of Software as a Service (SaaS) in SMEs" (2015). *PACIS 2015 Proceedings*. Paper 18.

Venkatachalam, Nagarajan; Fiel, Erwin; Rosemann, Michael; and Mathews, Shane, "Small And Medium Enterprises Sourcing So ware As A Service – A Dynamic Perspective On Is Capabilities" (2012). PACIS 2012 Proceedings. Paper 123.

Venkatachalam, Nagarajan, et al. "Small and Medium Enterprises using Software as a Service: Exploring the different roles of intermediaries." *Australasian Journal of Information Systems* 18.3 (2014).

Sebastian Walther and Torsten Eymann, "The Role of Confirmation on IS Continuance Intention in the Context of On-Demand Enterprise Systems in the Post-Acceptance Phase" (July 29, 2012). *AMCIS 2012 Proceedings*. Paper 2.

Sebastian Walther, Andreas Plank, Torsten Eymann, Niraj Singh, and Gaurang Phadke, "Success Factors and Value Propositions of So ware as a Service Providers – A Literature Review and Classification" (July 29, 2012). *AMCIS 2012 Proceedings*. Paper 1.

Walther, Sebastian; Sedera, Darshana; Sarker, Saonee; and Eymann, Torsten, "Evaluating Operational Cloud Enterprise System Success: An Organizational Perspective" (2013). *ECIS 2013 Completed Research*. Paper 16.

Walther, Sebastian; Sarker, Saonee; Sedera, Darshana; and Eymann, Torsten, "Exploring Subscription Renewal Intention Of Operational Cloud Enterprise Systems - A Socio-Technical Approach" (2013b). *ECIS 2013 Completed Research*. Paper 25.

Walther, Sebastian; Sarker, Saonee; Urbach, Nils; Sedera, Darshana; Eymann, Torsten; and O o, Boris, "Exploring Organizational Level Continuance of Cloud-Based Enterprise Systems" (2015). *ECIS 2015 Completed Research Papers*. Paper 194. ISBN 978-3-00-050284-2

Webster, Jane, and Richard T. Watson. "Analyzing the past to prepare for the future" *MIS quarterly* 26.2 (2002): 13-23.

Willcocks, L. P., Hindle, J., Venters, W. and Whitley, E. (2012). *Cloud on the Landscape: promises and challenges*. IN: Willcocks, L. P. and Lacity, M. C. (2012). *The new IT outsourcing landscape: from innovation to cloud services*. Palgrave Macmillan.

Willcocks, L., Venters, W. and Whitley, E. (2014) "Moving to the Cloud Corporation: How to face the challenges and harness the potential of cloud computing" Palgrave Macmillan ISBN 978-1-349-46733-4

Winkler, Till J., and Alexander Benlian. "The dual role of IS specificity in governing software as a service." *ICIS* (2012).

Till Winkler, Christoph Goebel, Alexander Benlian, Francis Bidault, and Oliver Günther, "The Impact of Software as a Service on IS Authority – A Contingency Perspective" (December 6, 2011). ICIS 2011 Proceedings. Paper 22.

Wu, Wei-Wen. "Developing an explorative model for SaaS adoption." *Expert systems with applications* 38.12 (2011): 15057-15064.

Wu, Wei-Wen, Lawrence W. Lan, and Yu-Ting Lee. "Exploring decisive factors affecting an organization's SaaS adoption: A case study." *International Journal of Information Management* 31.6 (2011): 556-563.

Yang, Chih-Chang and Chou, Shih-Wei, "Understanding the Success of Software-as-a-Service (SaaS) - e Perspective of Post- Adoption Use" (2015). PACIS 2015 Proceedings. Paper 198.

Yang, Zhaojun, et al. "Understanding SaaS adoption from the perspective of organizational users: A tripod readiness model." *Computers in Human Behavior* 45 (2015): 254-264.

Eruani Zainuddin and Paola Gonzalez, "Configurability, Maturity, and Value Co-creation in SaaS: An Exploratory Case Study" (December 7, 2011). ICIS 2011 Proceedings. Paper 9.

Appendix

Process Manager Interview Transcription

Xiang:

I'm interested to hear about the adoption of cloud technology in Novo Nordisk HR. Could you introduce your role (in the SuccessFactors project) as well as the system?

Process Manager:

I'm kind of came in through the backdoor to work with SuccessFactors, which is "the cloud" tool/system. And I am a HR project manager or participant I guess. And I've been working in various roles with SuccessFactors, both when it came to using it for internal recruitment, internal sourcing, perhaps the right word is – head hunting, finding talents. There, we mainly use SuccessFactors to store data on employees. At that time – and I still believe the SuccessFactors, as how we see it as a strong tool for searches. But at that time, we took the data out of the system, and used a self developed tool, an (Corporate) IT developed tool to slice data, and present the data.

I'm not the IT guy on the project, I am mainly being the one describing HR demands for the system, when we have we just comes through re-launching and revitalizing the whole succession system and our employee profile – which is our repository for employee data – some employee data at least. So to describe HR deliverables, testing, making training material for end-users. I am part of the Change Advisory Board. So, if we do have changes we need to discuss on a more operational level, then they are brought to change advisory board. And I represent parts of the system there, part of the HR processes. There is also system advisory board, where my colleague AOSN is part of that. Which is of more strategic decisions, so where you want to move with SuccessFactors. What processes should be supported by the cloud solution – and so forth. I can be a bit anxious that these guys up there, they have stars on their shoulders – but they don't always have the needed knowledge, or detailed knowledge to take the right decisions. So they are very much dependent on having other people – sometimes me giving them input. Of course, we have our whole People Systems Organization where you know ****, **** running that. I think you should consider speaking to Lasse as well. I think he will be able to give you all the good inputs.

Xiang:

Since you have mentioned that you are more on the implementation part of the project, could you talk a bit more about the typical challenges with the implementation you are encountering? It doesn't have to be specifically related to cloud.

Process Manager:

I think there are two themes: one about adaptation to the local processes, and another one about knowledge. So you could say, with what I've been working with, we've had this Employee Profile. Now everybody talks about it like it is a new thing: "here it comes" – some times we built on that, because it creates some hype. The truth is, we've had Employee Profile for the last 7 years. It's been there, but it's not been used. It's a tool developed by SuccessFactors, and we got it for free. When we chose back in 2009 to investigate whether SuccessFactors will be the right system for us to use for succession planning. And when that was decided, we got it for all the employees. So we got this repository where there are these standard portals, and you can also create the portals yourself where you have people entering data. And then, my former colleagues realized this could actually be interesting, as they have this idea and vision about trying to bring employees across borders. So they realized this might be able to sort of create our internal LinkedIn. What we have had until now or till then, it is still the best employee self reported data on mobility, aspiration, job experience – outside of the company. The best data we have is actually in LinkedIn, which is externally stored. We can't control what is asked, we can't control who is entering the data, we can't control whether the data is correct. And it costs money to get the data out. So we thought, why not take it in-house? To also have such database in-house.

You might look back in 10 years and say "What the hell were they thinking back then? Why didn't they just use an external system to do that? Why all the strict limit?" Then again, we ARE a big company with our own needs.

Basic issue in cloud system is you can't control what is there completely. But at least we can control some if we have our own opportunities to develop on the system. So, they built this database of the employees who were willing to move across borders and where you consider some sort of talent – at least not low performers, but solid performers. And when affiliates, and smaller business unit for example in Brazil "we need this product guy who knows something

about this new product that we will launch in Brazil now, which other markets had for long time – is there someone out there with strong experience?” Then they could go and find that person with the help of these colleagues. That was kind of where one part of system where the succession planning comes in. But with all of that being said, the system could do a lot more. So to get back to your question, one issue is someone have filled in the Employee Profile for other purposes, someone have used the succession module at certain degree or another, and some are deleting positions in the succession module because they thought “that wouldn’t be needed” then suddenly they realized that they could not get it back. So we have all this going on out there, and there were no corporate processes or no STRONG processes. In some ways, we have the People Board, who wants to keep the local flexibility – that’s putting it in a nice way. So they don’t want to force one processes, they don’t want us here in Corporate (HR) to decide one process – this is how you all going to do and you are going to stick to this. So someone – and this is an implementation issue – might have a need to say “but we would like to do this” or “we have done this” all the time, and now you (we) come to simplify the process and try to streamline it or align it to Corporate, to do it just a bit more corporate. Why can’t we do this? It’s pretty few people who has that issue right now, because other issue was knowledge. We have this system, but no standard process – it’s hard to get the knowledge out there. It’s hard to get people engaged in an IT system without process. They need a business need first. I think we have an issue with our HR colleague at the top, at least they used to have with the old (I hope this is confidential) SVP of HR. He used to have this idea that, the business should ask us for something – that we shouldn’t just invent something for invention’s sake, we should have the business come to us and ask us to develop something, and then we can deliver. The issue here is, there is so much IT systems, Cloud systems, or just HR processes, HR initiatives that we don’t know about. They don’t know they need it before they see it. But it’s hard to push because, you need them to have a process, you need it before the people can jump onboard. That’s kind of the internal thing, and that’s very much HR related, and it might not be specific to IT. I think the third thing that should be mentioned here is, now that we go out and we start doing these things, start enforcing more structured use of the Employee Profile, (“enforcing” might be the wrong word here, “encouraging” is more like it) a lot of needs come up: if we could search for the candidate in a better way, or if we could have these instead of succession plans where we have successors for one position, we could have an overview of everybody who could take up a e.g. director position in production. That is kind of a generic position, so instead of having to do planning for each director position, we could have a pool of talents that could be ready for director position, so we could groom for director positions. But, that’s not possible in the way that is set up. Because at the same time, there is a lot of fear of opening too many data, what’s going to happen: are people going to steal each other’s employees, talents? Will demand just take control over all the data so there is a lot of protection of data. So you could only see data within your own organization, then you might be able to “steal” talents. So that’s good, but then, some people come and say “couldn’t we just do this?” and we had to say “well... it’s a cloud solution, we can only do so and so much, we can’t change this, we can’t change that”. SuccessFactors is a huge system, we are a pretty small customer to them. We are an important customer, and we are their biggest Danish customer, but we are not that big – and that’s tough when we suddenly want to do something, and we ourselves wanting to build something really cool, and we saw this feature for us. I mean, I’ve struggled for months last year to make this search tool work, and why isn’t it there? – because there is a beta version that I don’t know when it’s going to be fully released, and then we had a really bad implementation partner as well who is supposed to help me. I can only describe what I would like, they were the ones who were supposed to be the expert on the system. And that’s the thing if you work with an implementation partner. It’s very rare that you would with the cloud system owner – at least in our case – directly. That’s does not necessarily make thing easier – because it is hard to recruit the right implementation partner. They can tell you that they are the experts, and you have to believe them at some point. We got Deloitte in, and actually American Deloitte in to help us. And they were awful, they were terrible, and they took tons of money. Some of it was due to bad project management from our American stakeholders or affiliates, they were the ones to run the project, for strange reasons. And it was not clear, and they have not briefed the consultants. Probably also it was not clear for the consultants who they should get input from. But even when we gave them clear input, they were terribly slow and they gave us wrong information, and gave us parts of the information we needed to make good decisions. I thought it was very very cumbersome to work with (them). And I guess, if we have bought some solution, non-cloud solution, we would have to settle for something as well. So I realized that it is the name of the game – that if you buy IT systems you don’t develop yourself, then you have to settle for something. But our issue here is, then things also change: so we already know now, and we have launched this system, but within a year or two, the system will change dramatically. The view of the system will change, some functionalities may change, some might not be there (some of the functionalities which we have right now), others might be introduced that we don’t want to introduce, because they just mess up the picture for the end users – but, we have to accept that. That’s cloud, so that’s what we get. Sometimes you get really

cool stuff, you get something you wouldn't have thought of yourself, and you get pushed to get something better. But what we have gotten with this update of succession module, was a new and better user interface of the succession module. We used to have the old version (the version 11), and now we are at version 12 – and there is a huge difference! It looks completely different. All training material, definitely needs to be changed. It's not that the font is a bit different, or the colors changed. The functionality is fundamentally changed with this new update that SuccessFactors did. But at the same time, while our American colleagues were running this, they didn't realize this was coming. They wanted to launch so fast, that they wouldn't have made the shift to this new version. But we realized late last year (last 2015) we take this back, and we get 2 months extra to work on this system, then we can get something that is not just a slight, but huge improvement from where we came from. We got our steering committee, or not even – we got the HR SVP convinced, that we needed to take this back, and we needed to do something way better than what was there. So that was what we did, and we ended up with something way cooler. I mean I could have dreamed of this system they have come up with, I could probably also described something along those lines. But for us to do better than that, let's say we have developed our own succession planning system, that's would have been a huge task. Now we get something in, and we just need to configure: ok, do we need to activate this, or do we need to activate that, the colors. It's way more simple because they come with it.

So this was a good case, this was a case where cloud solution gave us an opportunity to update to something with less resources. I guess you could have also had succession planning system with it being cloud. But they could also have released a new version and we could've bought it – that would have been kind of the same. That would have given us a bit more control – because what would have happened, if we haven't opted-in for this solution now, is that usually with SuccessFactors we get two year notice: they tell us "Now there is an improvement to part of the system, you could implement now, or within the next two years." At that time, we push it to everybody. So we get time to test it out, to see if it makes sense to you. But at one time, they will change it, and they will not support your older version any longer. In this case, we are pretty early movers, so we are in on the system while it still is fresh, and we can also hope that the system won't change anytime soon – but that's only for the succession system. For Employee profile system – part of the system, that will change. We will need to change it, because another project on this platform. That might be the 5th topic to touch upon. I'm not sure if that relates to cloud, but I do see is, we do have an issue. We do have a strategy of getting on-board with SuccessFactors, because we can do tons of things: we can do performance management, we can do compensation management, we can do succession management, we can have internal sourcing, we can have sort of talent management processes, learning management could be in there. Right now I am basically mentioning areas we know one way or the other, working our way into SuccessFactors. We are also working on replacing our SAP HR systems, with Employee Central in SuccessFactors. To me, this is a big ball of blurry, where things gets a bit messy for me. Because I do understand that it is the backbone, but at the same time in my understanding: the SuccessFactors is a point and click tool on top of SAP in some ways. We in many places only have a one way connection. So we take in data from SAP, but we can not edit the data into SuccessFactors and feed them back into SAP. We have a one-way feed. You could have it the other way around. I think what we are going from is to taking the whole SAP HR system and say, we obsolete that, then make all take place in SuccessFactors. I'm not the one who can explain about the benefits doing that, but I'm sure there are some. But with the project coming, we will need to change the whole way the Employee Profile looks. So, you could imagine people would go into their Employee Profile once or twice a year, they go in now a lot of them. They might go in sometimes after maybe around when they do their mid-year review of their performance process. And when they get in start of the next year, (the user interface) probably would have changed. To make people comfortable in a IT system, they also need to have some kind of consistency. So if you change it all the time, when they get in there, it's going to be hard to get buy-in from the organization. I can feel that a bit, people perceive that "this is forced upon us". Partly because SuccessFactors' update, but partly also because another initiative is working within Novo Nordisk on the same system, that needs to follow along. I do not know, but the general issue is that we have different parts of the organization working on different parts of the system – and we don't know what each other do. We are not good enough at coordinating that. Again, I'm not sure whether this is a cloud issue. But it is definitely an HR IT issue. And some of it can be run through all this system advisory board, but they are not well functioning enough to succeed in that. Maybe it should run not in the board, but actually through People Systems department, I believe they should play a strong role there, and they should be the ones knowing the more technical implications of changes. We are not well enough equipped in the change advisory board to understand each other's process like that, we need at least a lot of help understanding those kind of situations.

Simple examples: the 3P the performance management system, they chose to introduce this idea that, you should also update your IDP (your development plan) in the Employee Profile, when you do your goal setting. I don't know where the idea came from, we haven't been encouraging that, but find uses of the systems is always good. Then they

just didn't talk to us. We had for years, 1.5 years at least been told about the restructuring the Employee Profile that the name of the Profile will be changed. Now it's called "My input" that is where you go and can do something on your own data. You enter data – that's your LinkedIn profile we have talked about earlier. And they (Rewards Department) were frustrated: they have done training material in 8 languages including small video clips on how to fill in your profile, and then suddenly the first headline is changed – the first headline you had to click. And I understand why they are frustrated. But we were convinced that we couldn't stay on with the same headline, we've been try to push this for long time. And now finally, we had the opportunity to change this. So, 3P system (team) were frustrated with us and we had found some intermediate solution. At the same time I think they have to realize that this will change. I had talk about this before, the system WILL update. If it's not headline that's changing, then it's the background color. And they want their training material to reflect that, you will have to have resources to work on an on-going basis where you change training material or your user guide. You will need to change them half yearly, probably review them and use a couple of weeks to change them as well. And that's frustrating.

The other one is when the final parts of the system – the testing of the new succession module, suddenly our colleagues upstairs (Rewards Department) said they were working on Compensation in the system, and they had some idea that we were messing around: because they had one implementation partner and we had another implementation partner. They had one project manager and we had another project manager. And they just shut us down, so we couldn't test. We were like "get the hell out, we are testing!" and they were like "get the hell out, you are messing with our data, we are building!" and that's just frustrating. Since the cloud system is so big, it's difficult to coordinate. So a lot of issues like this.

XRZ:

Maybe you could help me elaborate on the motivation behind the adoption of the system?

Process Manager:

I don't know how much I know about that, the funny thing here is, I'm not sure whether there is a big understand of why do we do this at that time. I mean, I think we realized that the first reason for us to have SuccessFactors coming in was that we needed somewhere to do the succession planning, until then (when the system was implemented) the succession planning have been done by paper and hand. There have been Excel sheets around the organization. You could do that – that's fine. But there are a lot of things you can't: it doesn't get transparent, you don't know candidates outside of your area. There's a lot of good things about having a system. So system was decided, and then I think the project manager at that time looked around, and find SuccessFactors sounds like someone who knows what they were doing. It's Poul Utzon (as the project manager) if you want some more input on that. Why did they chose a cloud solution, rather than a system (we develop). It makes sense for me, to have data linked to SAP, to have some kind of connection – so you could get data out of SAP as you do succession planning. In that way, SuccessFactors is excellent answer. Since we have SAP, that is backbone of our employee data, that is our data warehouse when it comes to HR. Then, it made sense, that SuccessFactors can link directly. So "of course, go ahead and do that". Now I'm more guessing: cloud computing was already at that time, a buzzword.

XRZ:

What year was it exactly?

Process Manager:

2009. We bought it. When they launched SuccessFactors, then it must have been a bit later. To my best of knowledge, that was 2009 that we got it in – that the decision was made. I actually need to do a presentation lately where I have to say how long have we had Employee Profile. The best heads I could ask, the answer was we had it since 2009, and the first ones to use it was succession planning – at that time it was the succession planning project. And then I guess some of things you get with cloud is exactly the things about having an always up to date system. Instead of having to go look for best practices every 5th year, you can expect your vendor to more or less push that to you – have tons of value. Well, we still probably attend conferences to learn more about best practices of the succession planning and talent planning. We do that for other reasons as well, but we can at least get something in through the system as well. So we don't need to build it from scratch buying new systems every year – opposed to a more stationary system, instead a cloud based system.

I also do know that for our colleagues in Corporate IT, cloud computing is one of their main 5 themes at the moment, together with internet of things, and stuff like that. Cloud computing is one of their objectives to succeed and more in the years to come. But I simply think the easy answer to your question is that it was the best system at that time. I

don't think they started out by asking should we go in-house or should we go cloud. I think they started saying "we need a succession planning system, what's the best? Oh it's a cloud system, let's go that way". So it has mushroomed tremendously since it got here. Maybe that's also the advantage of cloud, that it can do so many things, and SuccessFactors is expanding, and they want to be an all encompassing HR platform, so we can put more and more processes to SuccessFactors.

XRZ:

You have mentioned briefly about the alignment of the processes, and the decision of the People board, and the role of coordination has an effect on the implementation. Could you tell me more about it?

Process Manager:

Well, People Board consists of heads of HR regions and of SVP's management team here in Denmark. So they are a quite big group – 18 people, that will probably change. They are not technical experts, I don't think they would call themselves that either. They need to take high level decisions. In this HR project, we have issue with them on the one hand not having time to going into details, and understand details, wanting to only get high level presentations. But they want to take decisions on a very operational level. We have tried to push forward, and only partly succeeded, having them instead delegate trusted employees from each region. And then we could collect a core talent management team, and we could discuss how we should build the system. That is hard to get everybody on the same page. I think in this case, main discussions have been on process and on system. We took the decision on the system pretty late, and we ran with it. We believe it's so much better the upgrade we can get by going to this version 12 of the Succession module, that will take whatever hits when people get angry, because we can improve. 10 issues that we know we had, and there are 1 or 2 we can not deliver on. So the conflicts and discussions have been more on process, how do we define potential, which is part of doing succession planning, you need to assess potential, how our scales is going to look, who is going to have access – that sort of thing. But where I do see where we have an issue with some of the local vs global is that, sometimes, not as much in as in this case, local gets to build something before we get there. So that goes for example in China, they made their own learning management system before LearnIT gone on the way, as I understand it. LearnIT is again a part of the SuccessFactors. That's what we call our learning management suite in SuccessFactors. Then of course they get frustrated, because then they have had a lot of faults and they might have built something they can't get directly translated to the corporate platform. So yes, that is an issue we see from time to time. I think, there is a general issue here that, sitting in CPO, Novo Nordisk is a super tanker that takes tons of time to navigate, you have to involve all sort of stakeholders, everything gets a bit cumbersome and slow. And then, they sit in the regions, they might at the same time realize, we need to do something here, but then they decide we can't wait for them in corporate to do something, and then they build something themselves instead of waiting for us to come. Then, you have the issue adapting. When it came directly to SuccessFactors, what I should mention is that, actually we did have two versions of SuccessFactors, at least of the Employee Profile. Lasse will be able to explain you more on the technically details. NNI, our American affiliate, huge market, plenty of people, they had their own, and we had ours. It was realized that it was not a sustainable solution, they need to migrate to global. You could say that we actually had three projects at once, we had that migration project of getting NNI on to the corporate/global platform, the SuccessFactors version update, and the Employee Profile update. Especially the Employee Profile update and the migration project they link together. But migration also hits other parts, that's also compensation, that I have no knowledge about. So they (NNI) had not only Employee Profile, they had other stuff going on SuccessFactors. But we had to migrate their data from an Employee Profile – we thought our global one was messy and difficult to navigate, their were even worse. When we tried to ask them "ok we can see you have this, what is it? What do you use it for? Who wants it?" They couldn't answer those questions, so it was kind of cumbersome to get them onto our system and I think they started out having these ideas, that we are thinking we will have over. But we start to realize that we do not want their **** in our system. So it was a bit of battle to get that in. Now finally, we are on one platform that should help, but that have taken some time. That's also where we had the push back, "well, we could this, and why couldn't we do this anymore" They basically just created portals and for every kind of data that people wanted to have in the system, and then it got outdated. We also saw a part of the global profile were outdated, so we've made a huge clean up and you probably need to do that continuously: does this have a business purpose? Do we need something else in the system? But every time when it comes to all employee needs to fill in, you get kind of sweaty by thinking about if you ask for 10 minutes from all the employees in the company, it's 400.000 minutes! It's a lot of productive taken away from something more important. So you need to have a good reason to do updates, so you also need to be strict on what you ask people, if you can limit the data entries you want people to do from 10 minutes to 5 minutes, it saves the company a lot of money.

I think those are the issues, and now we are now in more of a stable stage, and we are starting to build more communities or forums where you can discuss. Then it's more matter of having the right people on-board from the regions, that on the one side understand what kind of systems are we talking about there, and understand that there are some limitations. At the same time also understand the HR process, and I think find those people is always hard, and you usually you need 2 people probably. We see that right now, in EU we have some very nice colleagues we work with who understand the talent management processes, and then for some reason there is this IT guy, who runs around and creates havoc and I don't know what he is... I'm sure he has a lot of good intentions, but he just does not understand HR. So he has a lot of those ideas, asking crazy questions, wanting to push something to all of the employees, which is only targeting some corner of the greater initiative. But extensive details. Finding those people in the affiliates, with understanding of both IT and their role, and of the HR process is hard. It's mainly on regional level that is challenging. In the affiliates, to be honest, they basically just say thank you when something comes or say thank you and don't use it. But we don't have that much direct interactive with them. We have some interaction with the business areas which is a level between regions and the affiliates, in two of the regions, but that's it.

System Manager Interview transcript

XRZ:

Could you introduce your role and the project of SuccessFactors?

System Manager:

Yes. So my name is **** ***, and I have now been in Novo Nordisk for 4 years. My responsibility is the SuccessFactors platform. So everything that happens on that platform I'm either responsible for or know of or some sort. We implemented SuccessFactors back in 2009, at that point in time we were looking for IT solution to support our succession process. The HR community used spreadsheets and all sorts of PowerPoint organization charts to display the successors for the EVP, SVP, and CVPs around the organization to comply with the organizational audit requirements regarding succession. That was not an ideal process, it was cumbersome process naturally, because it was all hand-held, so they wanted a system to support that. Back then, they initiated the proposal process and they have dialogues with a lot of vendors. They found out that SuccessFactors actually met the requirements they had, but also because the system looked nicer than the other ones.

Succession is a very simple process when it comes to systems. So you could argue that 80% what happens in the succession happens outside of the system. It's only 10-20% that happens in the system itself. Because it is mapping successors and all those things – at least that's how we set it up. So that's when we implemented the platform back then, and at that time it was an HR initiative – it was implemented by HR, primarily with HR employees. So it was for HR – by HR. Very little IT involvement was there. There was some integrations with SAP HR to feed the system with some core data, to enable it to display a correct organization chart, that was more or less it. So that's how SuccessFactors got started in Novo Nordisk.

Cloud computing in that platform, it's been evolving very much since. A couple years later, Product Supply had a need, they started a project based on a need to consolidate all their training needs in systems. They used a lot of hand-held spreadsheets for administrating a lot of training sessions and courses, throughout the entire Product Supply. So what they did was they looked at the market, and found SuccessFactors was more or less the one they wanted to use. Then they implemented what we called today LearnIT – the LMS (Learning Management System) solution for SuccessFactors. Around that time, that was when I got hired. I was brought in to get some kind of control over the platform. At the same when I was hired, there was a process that was being developed on talent management part of it. So there was a module in SuccessFactors called Employee Profile, and that Profile was at that time supposed to support an internal headhunting function. It was a process we knew as Global Careers. It was a very premature start of that, but at least it was initiated at the same time the LearnIT was implemented. So when I was hired, we had a process for Succession, Employee Profile, there as a Global Careers under the development, and LearnIT was in full flown implementation mode. So that's how it all evolved.

Along the way, a couple of years ago, we identified that the our old performance system was outdated and out of support with our old vendor. We need either to upgrade the solution and stay with that vendor, or to find another vendor. That was actually also a cloud (based solution) I believe, and never upgraded that platform. So we decided back in the day, in alignment with our newly developed HR IT strategy – the new performance process will be implemented in SuccessFactors as well. Then we initiated the process where we initiated the project, where we had the CPO and NNI as the first pilot, for the first wave of the new performance cycle. And then it went global this year.

That's more or less the talent processes, that we have enabled in our platform. We have performance, succession, LMS, and the Global Careers part, and the Employee Profile part.

There was a lot of reasons why NNI actually chose to implement SuccessFactors as well, but they had more or less the same need as we had. So what we need a couple of years back is we migrate their solution, their SuccessFactors platform on to ours. So that we in Novo Nordisk only have one instance that we all use for all those processes. So you might only know performance management, because that's what's relevant to you, and succession is relevant to another crowd, and LMS is for another crowd etc. So as an individual employee it's not necessarily known to you, that all the processes actually exist. It's divided into their business areas, their need, and their adoption modules. So in terms of governance, and controlling this cloud platform, it was clear to me through out all those implementation of the modules we have in place that, we need a professional system management setup to drive this platform. To ensure that we are in a better shape operationally that we were at that time. What we did was we initiated a dialogue with Corporate IT in India and initiated a rather big hand-over process. So the system managing responsibility was handed over to Corporate IT in India. There is a huge number of system management activities and responsibilities that you need to drive each year. Not only because it's cloud, but because of the way Novo Nordisk has set up. It's area of responsibility for a system manager or any solution that we have – so it's not only for cloud, but also for on-premises solutions. We in HR of course want to opt-in on those, because many of those activities are best-practices, and it's the right way to manage these systems. It was the right thing to do to hand-over the system management responsibility to India. That has been ever developing journey, after the official hand-over. Because you can not blame CPO for "sitting on our hands" and stay still in terms all the activities and all the projects we wanted to start on this platform – because there is a huge appetite through out the entire organization to begin projects in this matter. That is actually also why the compensation (module) was initiated. After the system hand-over, the Global People Board endorsed China could drive a compensation pilot for their region to see how that module works, and if it's a success then we could potentially roll out to other company affiliates/business areas. We are now in a situation for compensation where we have it in China, US, and some part of headquarters. Again, it's not a standard global approach to how to you do compensation, but we have bit of a fragmented implementation of compensation. It works well for those who have it, but I foresee that some process alignment is needed in the future.

Of course there is a roadmap on thing you want to start in the coming years – they have the upcoming Employee Central project, which in a nutshell replaces the on-premises SAP HR. with all the core, master data from HR – all the employee, organizational data. That's a big project, because it's complex, it's a big project because there are a lot of dependencies on downstream systems when you move from on-premises to cloud. There is a lot dependencies on the already existing talent modules we have implemented, and see how would they be affected by such implementation. Then there is the whole global process alignment - more or less lies outside the system. That's a whole animal we also need to look into in the project. That's one of the bigger things that's coming up. We are also looking at making better use, more use of the already existing modules we pay for today, but haven't really rolled out: compensation is one of those, we have Region IO and EU screaming for system support and compensation process, because they still do it in spreadsheets – So whenever there is a annual raise, that's all managed in the spreadsheets, which is not ideal. There are a lot of golden opportunities for us to do a lot more, that's also being recognized by the organization, because they are suffering from things that are not supported with IT. So I think in the coming years, there is a lot for us to do in developing and implementing.

XRZ:

Could you elaborate more on what are the most frequent challenges you have encountered during implementation?

System Manager:

In many of the processes that we have had, if you off to a good start in a project: getting everything like project governance, project plan – pretty ABC on how to do project management and implementation. If you off to a good start, then you are half way done. I believe that hasn't happened. So I would say many of the projects that we have initiated had been driven out of pilot scenarios, on a very autonomous manner – so China could drive a pilot on compensation, and so they more or less excluded us in headquarters from being a part of it. They used a local vendor that didn't speak English – and they did suffer the consequences for that, because there are certain things they couldn't do, and they didn't take the advice that Corporate (HR) gave them on their implementation approach... But it's a success and it works, and everybody is happy nevertheless. So I would say bringing up China is just one example of how setting a scene for a project implementation like this is key: getting the right project governance, getting the right players, the people who knows it onboard on implementing, getting the right vendors is key. But I would say there has been a lot of challenges through out.

The challenges has not always been the system part, because the way many cloud solution works today is that they are highly configurable. So you can do a lot yourself, and both great, because that gives us huge flexibility to adjust to the things we want. But it's also a limitation in terms of we then need to define what it is we want – it's the latter part that has been difficult through out many projects. In many of the projects we have been part of, we need to define and be more crisp on what is the process that lies in the systems – take performance as example: how does performance process start? Well we first start define when we should launch the performance forms, who should be launching those forms? Is it the employee who launches it? Or is it the manager who launches it? So that you have a document between you and your manager. Well, it could be the system manager to launch it. Then what happens? Who takes the next setup? Does the employee go in and create the goals? Or is it the manager who does that in advance before he sends it to the employee or? Do you import goals? ... So that kind of process description is many times overlooked in many projects. We all know we need to go through it, to be crisp and clear on what it is we want to do. But it's sometimes we don't always spend enough time on getting a great start on defining what it is we want to have done. Because what that also leads to is to create user requirement specification based on the processes we have – to also get our vendor onboard, so they know who and what and which way we need to configure things. That is a normal challenge I believe, in any IT project. But in terms of cloud, it's because of the high configurability, it's difficult to just leave it up to (the IT professionals/the vendors). Because with many of the on-premises solutions, we sometimes go into a lot of customizations – and it's expensive, and it's not standard, off the shelf product. But when you come to these cloud computing solutions, there is a huge flexibility. I would say another that's been challenging with cloud computing/implementing cloud solution is also that, there is always a release. You know, Facebook is also a cloud application, ever so often they release something new, they don't inform you that they are releasing it. Some days you have to upgrade Facebook, and then you are suddenly on a new platform, new environment, and new features has been implemented. That goes for many of these (if not most) cloud solution, and it also goes for SuccessFactors. Once every quarter there is a release cycle. So when a new release comes up, and there are two kinds of release in SuccessFactors terminology: there is a "universal release" which is per default applied for all their customers, you can't avoid from getting it, it just comes. Normally it's bug fixes, it's things that is beneficial for all of their customers, they won't push something that will create problems for their customers naturally. So all universal updates are welcoming by all customers generally. Then there is another set of releases – that is the "opt-in releases" as they call it. That is something we can choose to enable if we find it beneficial to our process. That is something we need to discuss in the way we have chosen to govern ourselves on the system. We have some quarterly Change Advisory Boards where we discuss changes, upgrades, and all those things. So these releases come into our normal governance processes, where those changes are being discussed. That's also a challenge during implementation because you need to know when those upgrades and things are coming. Because you could potentially develop something in the system, and be ready with go-live say, in June, and in June there is also a release. That release could have an impact – you could have been developing a work-around something, and the release completely annihilates that problem we had, it's all fixed. That's of course the positive outcome of those releases, but it's difficult to navigate in those, because you don't really know what's coming in those until it's coming.

XRZ:

Now you have both talked about internal, as well as the external (factors). Could you elaborate on bottom-up generated change requests, how does that go into the system – eventually all the way to SAP? What if there is a requests from the business? How is the escalation moving upwards?

System Manager:

So for each module (employee profile, compensation module, performance, succession), we have two line-of-business delegates. We have a process owner, which is a person who is strategically responsible for how we drive performance, in Novo Nordisk. So it's a person who could say yes or no, and have the mandate to say yes or no – so we going to skip mid-year review for instance. That's a process owner, a person who can on a more strategic level set the direction for that given process. On the more operational level, we have something called a process manager. Process manager is person who is responsible for making sure that module is working as intended, and users through out the entire organization: super users, for training module is the training administrators. They know how everything around the system is working as intended, and as defined by when we implemented the module back then. That's governance side from the line-of-business responsibilities. If a set of super-user or HR business partners who most likely are the super users of this scenario, they would say "we would very much like, if could change the color of this button from green to blue" as a change request, and then what would happen is that the system management captures that change request, put it in the portfolio of all the change requests that comes in. And then each quarter we have a

change advisory board, where we discuss two things: we discuss the changes that's coming in – so one of changes being changing the button color from one to another, and we discuss the release from the SuccessFactors. So all process managers are gathered in that meeting, to discuss all those things. So for instance, many of the things, if it's performance related, and it's not touching any other processes, we don't need to take it up in the change advisory board because then you would have people from other modules listening in on something that doesn't affect them. But for things that has an effect on the entire platform and touches upon all the other elements, we discuss those. So if there is a change in the LMS solution that affects performance or whatever, then we need to discuss this and get an endorsed agreement on this is what we want to do going forward, and we can approve this change. That's being handled and managed in the change advisory board, and what happens after is we then start to configure these changes, then have it tested by those who are responsible and submitted those change requests and approve it, then we move it into production. So that's the process owner's responsibility and change advisory board. Then you have the process owners, who is on a more strategic level, we also have quarterly meeting with those people. That's on a more strategic level, we present the SuccessFactors strategy, we let them know of our roadmap for the upcoming years, initiatives that has been started, general operational and maintenance activities going on, all sort of things is being discussed – although on a more strategic level. But those are the typical things that comes up in those board meetings. I think an example would be will be the name change of the system: should we still call it SuccessFactors, or should it be called something else. So we have those two levels of governing the system: a strategic level with system advisory board, process owners. A more operational level, process managers that handles change requests and all. But in terms of issues and escalations, we definitely have room for improvement. Normally if there is an issue, it's submitted to India, because we have handed over to Corporate IT. Corporate IT have an system called RWeb, for all of their support ticketing, issues, and problems that arise on the different system. So if there is any issues in the SuccessFactors, we need to create a ticket in that system. It's not the most well liked system, and I've been here for 4 yours and nobody have yet explained to me what "RWeb" stands for. It's not really intuitive and it's an IT system that's primarily used for semi-nerdy IT people. It's not really ideal for the users like us. But it works, and processes is theoretically all in place, but in real life we could improve on some of this. Nevertheless, if you have an issue with the system, that's where you submit it. If it's technically related, so if you can't access the system, if there is something really weird about the data you see etc. Things don't work as intended, then you create a ticket in RWeb, because that's a system problem. It could also be a process problem, so I don't know where to nominate a successor for instance – that's not something wrong with the system, that's just you not knowing where to do it, and at that point you will contact your super user, HR VP, all the way in the end the process manager, who is then responsible for making sure that the end users are trained, and all the training material is available to the end users. You could say there are two different flows of support: there is a more process oriented support, and there is the IT support. What I mean by "we could improve" here is – and I lean very much towards how NNI has set it up – they have an AskHR support organization, so they really thought their delivery model through to the organization and see themselves as a service organ. If you ever have a HR question, doesn't matter if it's something related to your vacation, or an issue you have with your manager, or it could be legal element, it could be how could I create a goal in the system, does matter. What ever questions you have, you go to AskHR – that's what they name it. There is service to answer all the questions, making sure that your ticket/question is answered and funneling it in HR to the right key person who could assist you with whatever question you ask. I believe, and I personally love that setup. I think it's ideal, and it's very customer friendly for the HR community. I think it's something we should look into in CPO, especially here in headquarters. Because if you look at a manager in Måløv, who is team lead for a group of people, if he is asked to do succession, he goes to one area. If he is asked to do performance, he goes to another area. If he is asked to do reporting... I think it's difficult for the managers to know how to utilize HR. But this is a more broader discussion, not just about Cloud computing all together. But back to the support scenario we have set up: for each module we have implemented, it's relatively fragmented. Also because the way we have implemented it. Each project define their own project model more or less. If you have a request/issue with 3P, you call NNIT service desk on 3P support. If you have a problem with LMS solution you call your training administrator, who you would then need to know because they are regionally all over the place. You will find a different support model for succession because that's driven out of the talent organization. So if you as a manager have a problem with some succession data that you can't refer to, or you need to extract some data to do succession, you will need to go to a different crowd. So NNIT for 3P, your local training coordinator for LMS, and then your local talent manager for succession. You can see how it's spread out on different place. I think we could be better at helping our managers to understand who to go to. That's what I love about AskHR support setup, which is a one-stop shop where you can ask your question, and they will help you.

XRZ:

Since you have talked about the corporate IT and referring to the more external factors, could you talk about changes from SAP? In terms of how from their end impact your processes with regards to the universal release and etc.? How do you accommodate?

System Manager:

I mean, it comes every quarter. We know that every quarter there is a release from SuccessFactors. They are carved out in universal and opt-in... I have not seem in my 4 years a universal release that created any pain. SuccessFactors knows this, because they can not push a release out if it creates chaos for their customers. So for example that would be something like you could always report on gender and you suddenly couldn't. Because that data field is managed in some isolated place in the system. So universal feature could be that now they have moved the data a bit around, so that field is now reportable. That's an example on universal release. It's something that helps the end-user or the customer to use more of their functionality. That's an example of universal release, and that could be many more – and there are many more.

Then there is the opt-in. An opt-in could be, let's say... performance as an example again: whenever we configure a performance module, you create a template from which you launch from. Right now we have a scenario where you can interactive with manager through out all the different steps. An opt-in could be you now have the opportunity to make it more open process. So you can constantly create goals and interact with your manager through out the process. It's something that will change the way that you do it, if you enable it. That is something they can not just enable, because if they did that they will ruin performance process for all of their customers on the platform – and they will lose all their customers overnight, or most of them. They will at least begin to look at a different vendor, who did not do this and break their process. So that's an example of an opt-in. We choose and enable it ourselves. Many of those opt-in feature is something we can enable ourselves, we can test, and we can go through. But some of those opt-in features are very highly technically matter, with a high technical complexity. We would need a implementation partner to help us configure these things. Because we don't really know the consequence of enabling it. Because even though we have an full overview of what happens in the system. Sometimes if you enable something, you might not be sure of the impact. If that's the case, we engage in an implementation partner to help us with that. One thing is the quarterly release and the smaller features, but there is also version updates. The way the SuccessFactors is structured is, each module have a version. So we are now on version 12 in succession, we are on version 11 on performance, we are on version 12 in employee profile, version 11 on compensation and so on. Normally what always happens with these versions is they get outdated at one point. So there is a reason why they release a new version: because the look and feel is better, because it comes with a more flexible way of using the system. There is many reasons why they do this. That's actually outside the normal scope of our release in the universal and opt-in. But it's more of a platform upgrade. Those SuccessFactors update come every forth year. So every fourth year there is an upgrade. Right now we have initiated an upgrade. Normally that's something us as customers can do ourselves as well. Again, if it's with great complexity that will hit us in areas where we don't have control of the system, then we need some vendor engagement. We've just started an upgrade project on the performance side where we upgrade from version 11 to a version 12. The best case for initiating that is now, because the timing is really bad, we've just launched version 11 globally. Everybody is trying to get accustomed to that, and now we are upgrading again. You could argue that it's the same process, and you can go on and create your goals and mid-year review – so nothing around the process has changed. It's just that the look-and-feel changes. With that release there is another feature that we need to opt-in. But in any case, it's not an ideal timing because we just roll it (the version 11) out globally. Now we have initiated this project (version 12) and we are planning on going live in the next performance cycle. Because we've been informed up until now in Q1 of 2017 we can not use the version 11 anymore. The people who have been informing us have been very strict on that "you have to upgrade now", there are a lot of technical reasons for it, but we need to upgrade that now, so that in 2017 cycle we are then on a newer, version 12 platform. Normally that's something we could handle ourselves, but because of the complexity of the project, we need to engage an vendor (Deloitte) on this, because there is a lot of other features that needs to fall in place. That's what come on top of the complexity there is in managing the system. It's not so much related to the implementation of the project, but it's more of the operation side of it. I think it's important to divide between what happens during implementation – there is some requirements, and you configure it, and then you go live. From that point onwards there is the operation side. So the implementation part is of course affected by the quarterly releases, the potential upgrades if there is any of those that's coming in every forth year. Then there is the operational part that is in a constant "storm" in terms of all those releases we need to navigate through. That's the good thing, and also the bad thing about cloud computing. It's great to have all those things, and we pay for licenses fees for the users we have, and what they then promise us in return is they make sure that they have the best-in-class solution that is

always updated, and whenever there is an issue. We don't pay them for those quarterly releases, it comes with the license fee. That's kind of the whole structure of how cloud computing is built, which is great. I think it's important that we divide between the implementation and the operation mode. It has some different complexities with those two ends. I think there is that aspect and the complexity as well with the version upgrades, that you also need to account for and put into consideration. I am actually waiting for a response from the SuccessFactors on if it is really needed that we upgrade in Q1, because the timing for Novo Nordisk part is extremely bad. Because we just launched it (version 11). If they return to me with a no that we don't really need to do it, because we will still be on support of the version 11, but they just don't develop on it. That will be fine for me. We are not planning on doing any development on the platform anyways – because we just went live, successfully. I think I'm trying to revisit the whole upgrade part, whether we should postpone it a year, because of the timing.

XRZ:

Since you talked about operation part and the version updates, do you see any challenges arise down the road on the operational part of the cloud computing and in regards to the updates?

System Manager:

I wouldn't call it so much as a "challenge". Those upgrades and releases are for the benefits of the customers. I think that's a thing that you need to bear in mind when you talk about these releases. Whenever your iPhone is being updated, they are not making your iPhone in a worst shape than it is. They are normally doing it to fix a lot of things, improving it and making enhancement to it. And that's how I think it's important that you see all those releases and upgrades. That it is smart people, they have a huge R&D team in SuccessFactors and in SAP, who is allocated to make their product better. It's the cornerstone of their living. If they are making it worst with those upgrades. They (customers) will choose a different vendor. That's the name of the game with cloud computing environment. So say SuccessFactors started making releases that's continuously worsen their product, people will go to different vendors. So I think that's important to bear in mind. There some not what I would call "challenges", but there is some activities we would need to govern ourselves around because of those releases. It's not a challenge, it's just name of the game, what's the way we need to do it. However, I would also argue that cloud computing is new – many might say it has been here for awhile, and it has, but to many corporations like Novo Nordisk, who's been in many many years a firm believer of on-premises solutions, and this is the right way to handle it.

It is also a change for Corporate IT to move away from on-premises solution to cloud computing. Because it is a different way of managing systems. I could imagine that Corporate IT in Novo Nordisk is not the only organization who is suffering a bit on the understanding of what's the different in the shift between on-premises and cloud. In that regards, in terms of challenges perspective, I think that us HR end-users in the way we use the system, we are happy with cloud computing scenario – because the problem has been with on-premises for many years is that it is very rigid and it's highly costly if you want to do any changes. Here it comes all free with cloud computing. But the other hand, on operating it and making sure that we are all in compliance, and all those things, it is more difficult for the IT organization to manage – I wouldn't say a new system – but a new way of ... managing systems.

XRZ:

How does it play out in terms of engaging with the vendors?

System Manager:

What's also great about cloud computing, the SuccessFactors is very aware of the fact, that many of their development ideas actually comes from an idea generation base from their end-users. A good example is that in our succession project, the way the org-chart is displayed in the succession organization chart, we choose what we want to see in the org-chart. On the top right corner, there is some functionality that you could enable, so you could see one part of the system, enable something else an you can see different part of the organization chart – that is not configurable, so we can't not choose what's in that list. But we would want to have performance rating to be shown, and we would want gender to be show in the org-chart, and of course we want successor and nomination detail to be shown. But right now you can only show the name, and whether there is a successor or not. That's something we really want. So in that regard, I would then create an idea on their community site, and that idea would then be seen and reviewed by their R&D team, who would then consider putting it in their upcoming releases, so that idea could then go through a team of consultants evaluating whether this is something smart for their customers. So they need to set a team together and then start configuring this so it's available. That would then lead to an opt-in features, so a feature we could choose to opt-in compare to the standard, so that we will have the ability to define what is shown in

the org-chart. That's the way it goes. So there is this whole idea generation database that they use. They also call for some sessions with their customers and clients, where they capture on discussion forums all these ideas that has been generated and requests from their end users. Then those are all bundled as "leads" for their development department. So you can say there is a community for this. There is a website where you could log in as a customer. Then if I make a suggestion, I can get what you call "kudos". If many of the other customers find this is also great for them. The more kudos I get, the more focus it will get from the development part of the SuccessFactors – the bigger chance for it to be implemented.

Vice President Interview transcription

XRZ:

Could you tell me more about how it all started?

Vice President:

Cloud within HR? Ok, our first global cloud system was actually Recruit, and that was implemented back in 2007 I believe. Only for US in the beginning, and in 2011 and 2012, China and Denmark came on(board). Now we have almost completed the full global roll-out, and it's going to finalize a little later this year. So back then, I don't think the whole "cloud" hasn't really kicked in yet, so I don't think there was a very strategic choice between whether it should be cloud or non-cloud – that came later, as kind of strategic choice. So if we move up in time, then the next global cloud solutions was Succession management on SuccessFactors in 2010. That was for a very limited scope, only for OA scope – so only the senior management: SVP -1, so that basically CVP and up. Also, at that point in time, we did investigate different solutions, both on-premises and cloud. And we didn't choose the cloud from a strategic point-of-view, but more from comparing the pros and cons from the different contenders, and finding SuccessFactors as the "best of breed" solution. So we didn't see this as a part of suite. We didn't have any idea that this would actually in the end become our strategic choice – So that's maybe a little interesting you know, strategy is something comes along the way, that grows from what you already have done, and not something you on day zero take a decision and then you go do. So... that's also some input to how strategy sometimes evolves.

Then later, our production implemented a learning management system (LMS) called Plateau – a cloud solution. And after a year or two, SuccessFactors acquired plateau, so it became part of their suite. So suddenly we started this wicked(?) journey, because now we have two modules – then you know, you have started the journey on the SuccessFactors cloud. Then SAP acquired SuccessFactors, and we are a SAP company in Novo Nordisk – So we use SAP for finance, we use for production, for distribution, for logistics, and for HR, and for BW, Business Warehouse reporting.

So, then it became strategic you could say. Because now suddenly the vendor we are betting on for our core financial and production processes was also owning a suite offering within HR.

Why was it interesting for us to implement global solutions within these processes? Basically because either we didn't have anything before, or what we have was very poor or very expensive. We needed to do something, and then – there was this huge benefit in this suite, because you have one user interface, across all processes, you have data floating between the processes and so forth. So there was a lot of argument for moving towards suite. And we now have SuccessFactors and SAP, which is a strategic partner for Novo Nordisk. It's a big partner, we know they are also here tomorrow. They have the setup we like, good support setup, professional, and they are big. So it became strategic, and then we made this roadmap for rollout for the processes on the SuccessFactors, and now we had made this choice upfront: it has to be this technology, on this very very strong argument for it.

At the same time, in People Board, we have gone through a process, where we have been thinking more and more global, instead previously being very focused on local needs. And local have a lot leeway to do whatever they wanted. Now, it's global first, and it's only if we decided there is no business need to do something globally, then you can do it globally – otherwise it's by default global. So that's how it became strategic, so it kind of evolved over time. And now you can say Recruit is something separate – it's with IBM. Now they are on their own and eventually, one day we will probably also route recruitment to SuccessFactors – but that's less of a burning platform, because we have a fairly good system there.

XRZ:

When rolling out globally, I've heard there has been a lot of differences in processes. So how is your experience on that with the new system to accommodate? Strategy to ensure alignment?

Vice President:

So, if we focus on SuccessFactors – that’s our big system – I think in general, it’s actually configurable to a degree where you can cater to a lot of local differences. But do you want it? That’s the question, is that a benefit to the company to have a lot of local deviations or is it at least a default assumption to better standardize? There are some advantage in standardizing, because you actually have a much easier task in operating the platform and processes. It’s easier for people to move around globally, because the processes are more or less the same, wherever you go. And if you look at HR processes, at least at fairly high level – they are very much alike. I mean, when you are hiring somebody, it’s not like it’s a completely different process in Bangladesh or in US: You make a requisition for hire, you make a posting, you post it, you get some people applying for the job, you screen them, you interview them, take a decision, and you hire. That’s happening everywhere. So at that level, the processes is standardized. Then something else that goes on more detailed in each step that can be more local. So it’s also a question of standardization at what level do you actually look at it.

I think for example on the performance management – you know 3P. We are very standardized on the processes globally, so that is a very neat solution. That’s one solution for everybody globally. Then you have compensation, there is a big element of local tradition, market relevance, different pay elements – when it comes to compensation around the world. Denmark is specially, because we have some agreement with local unions, and we have some special personnel category which don’t exist outside of Denmark. So there it’s really had to make one form that cater for everybody. You can do it, but then it becomes extremely complicated – and you don’t want that. So it’s better to make a number of forms, maybe one for North America, one for China, one for Denmark and so forth. Sometimes, you can go far standardizing, and sometimes you don’t want to. Because it’s not to the advantage of the business. So you have to be a little pragmatic there. Standardization is not always by definition good, not to the extreme. But it’s good to ask yourself the question, when people ask for localization: do you really need it? Is it really important to get it? I think that’s important. But if it is very important, you should try to meet that need of course. Sometimes we are very tough and say it’s only if you have documented legal requirements that you can get deviations. We’ve done that on the roll out of Recruit. Then, very rarely there’s something that’s documented legal requirements, which means they need to have a different configuration. So sometimes we can be tough on it.

XRZ:

Could you tell more about the HQ-SUB relationship development, now that it is mediated through this common cloud platform?

Vice President:

Our affiliates are very different. So you could say, some of the affiliates has all along appreciated a more leading role from the HQ very much. At least in those affiliates where they don’t have a lot resources financially and manpower, to do their own projects. Or to operate their own systems. They actually love when HQ comes with a system and say: “this is it and this is how to use it, done deal”. They kind of like that. Other parts of Novo Nordisk probably, and particularly US have their own resources. So they can actually do something that caters 100% for their own purposes, and traditionally they have preferred that. I think A LOT have changed over the past 2-4 years, in terms of Global People Board becoming more aligned, and the company also growing so much, becoming so global that everybody understands it’s not sustainable to think local, at least as a general rule. Sometimes you need to – there are special things in US, but as a general rule, we have to think global.

So I think the (HQ-SUB) relationship, and the common understanding of this journey we are on, with more and more global processes and systems that’s inevitable. And I think everybody kind of understands. There are different perceptions of how fast it should go, and how far it should go. But everybody understand that it has to move in that direction. That’s my translation on this.

XRZ:

What are the most challenging things you have encountered in this journey?

Vice President:

The first many years, we have focused on what they called talent management processes. So those are the processes around the core – so that’s like performance management, compensation management, learning management, succession management, talent management, those processes. Now, within the past year we have looked at core processes – so that is what we have in the past 15 years been handling in SAP HR, and the payroll systems. We have

almost one payroll system per country – because it's a very local thing: local taxes and all that. So when you start to look at the core, it becomes extremely complicated. That is a struggle – that is really difficult, in a company like ours. So that is by far the most difficult thing I think. Other than that, I don't think the transition to cloud is such a difficult thing. If you compare to the alternative, which is on-premises, which is extremely complex also. And you have a lot of the complexity, that you actually get rid of when you move to the cloud: you don't have to have server in your basement, and you don't have to operate, you don't have to do Windows upgrades or other operating system upgrades, database upgrades, or middleware upgrades or anything. All that, is just something that's handled by somebody else, professional to handle. You only need to cater for the quarterly releases that comes. You say ok, which of these functionalities am I actually interested in. You get rid of all these dreadful upgrade projects, that don't really deliver business value, that only are there to keep you in compliance. So, generally as a system owner – I own the global HR systems, and I think it's easier to own cloud that is to own on-premises, for sure. It's more fun, because you can focus on business, you don't need to focus on all that crap about upgrading servers and operating systems, and databases – it has no relevance to the business really. It's also cheaper. You would also expect the user experiences is better, but I have to say it's little hard to prove with the numbers, unfortunately, But we are working on that.

XRZ:

Since you have mentioned about the infrastructure aspect, could you tell me more about how has adoption of the cloud solution, affected the relationship with the IT part of the organization?

Vice President:

I think it's a big change. It takes less technically skilled resources to operate a cloud platform, however it's not completely non-techy, but it's less techy. You don't do development, only the integration layer. You don't do the development in the application anymore. So that's a big difference. That means, you can get a completely different speed on your changes. So you don't have to await development cycles. Sometimes my employee that are not very techy, can actually do configuration changes themselves, because it's so simple. It gives you another agility, you can move faster. But of course within some frames, because if you have an on-premises solution you own it – you can basically do anything in the world, it's just a question of cost and time. But that's not possible in the cloud, you have to stay within the frame that the vendor offers. But from an IT point of view, that's a big advantage, because that becomes easier to operate, and you get away from all these crazy customizations we have made in the past, to handle some obscure, subtle, local need. Honestly, there was no business case for doing that. We were doing that because we could, and they had the money.

XRZ:

Could you think of any draw backs associated with your cloud adoption?

Vice President:

Nope, I don't think there is any drawbacks in going cloud, compare to the alternative. Honestly, I can't see. The only one would be that in on-premises solution you could do anything. But I don't think that's an advantage actually. I think it's nice to be able to say no – not just for the sake of saying no, but because the solution can not do it – because it is not best practice. I mean this solution is been build and it's being used by 1000s of customers. They all can live with it as it looks. Of course it develops all the time, but it can not be that Novo Nordisk is so special that it doesn't work for us. I mean, we are not talking very advanced processes here, we are talking about HR, it's a very generic thing, HR is not very special in Novo Nordisk because we are pharmaceutical. I mean, HR is HR basically, across different industries, there isn't so much difference.

XRZ:

When you talked agile and the development. So how does the communication between you and the vendors play out?

Vice President:

So there is two elements that's playing out, one is configuring within the current frames. That is very agile, we can do that very fast. Either ourselves, or with some help from the consultants. Almost day to day, so that's extremely agile. The other thing is you want something that is not doable within the frames, so that the frames has to be changed. They have quarterly releases, but then you suddenly get into their machinery – and if you are only customer they have

that has that wish, probably you are not going to get it within the next couple of years. So then agility goes away. But I think looking back over the years that we have operated over the cloud – it is so rare. It happens, but it's very very rare. Normally we can find a solution within the frames, or we can say to the requester: "sorry, this is not going to happen", and typically this is something we can live with.

But the solution can do a lot you know. It can be configured in many different kind of way, so when it's a workflow for example like 3P, we can set up this workflow to be exactly how we wanted it. So it can cater for very different purposes. So it's rare we running into situation that we say we have a business need that we can not configure, so we have to raise a ticket to SuccessFactors and ask them to expand their product. It happens, but it's very rare.

XRZ:

What's the future roadmap of HR IT?

Vice President:

That is the further roll out of the existing modules, and expansion to new modules to cover more processes to this global HR IT platform. So we've looking into recruitment, into compensation for the roll out, into workforce analytics, and into core (HR). So those are our focus areas in the coming years.

XRZ:

So a general move towards cloud.

Vice President:

Definitely. Not just for the sake of cloud, but just for the sake of the suite, to have one user interface across HR processes, so managers, employees, HR admins when they work, it's one system. No matter it's 3P, compensation, talents, succession, learning, everything is in one system. Data flows freely between them. That's going to be a huge step forward when we get to that.

XRZ:

In terms of data, there has been a lot talks about data lock-in issues in terms of cloud.

Vice President:

I don't think that has anything to do with cloud actually, I think it has much more to do with the suite. Because there I see a challenge, that's a balance right. There's lot of benefits with going with a suite, but the downside is that your negotiation position deteriorates. The more you have invested with one vendor, the more secure the vendor feels. The more difficult it becomes to transition: if we have one module with SuccessFactors, it's fairly easy to swap to another cloud. Actually it's much easier to swap from one cloud to another compare to the swap from one on-premises to another. So I think it's the suite that's actually making a difference, it's not cloud. So if we have one module with SuccessFactors we can swap away, if we have 7 modules, it's a big project to swap away. So that's why when we negotiate, we negotiate long term contracts, so we get a good deal, and well in due time we start out the re-negotiation, so we have time for if we do not reach a satisfying result, we have time enough to do the swap.