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Service Integration and Management

Practical Implications in a Multi-Vendor Value Network in the Fintech Industry

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Abstract

Service Integration and Management (SIAM), som specifikt finder anvendelse inden for IT service management, er et relativt nyt begreb, som har sit udspring i andre andre rammeværker på området såsom ITIL, COBIT m.fl. Der er ikke tale om et nyt rammeværk, som erstatter de hidtidige, men derimod en overbygning, som i højere grad tager højde for en tendens, der både præger IT-branchen og også samfundet generelt; nemlig at mange virksomheder i stigende grad indkøber varer og tjenesteydelser fra mange forskellige leverandører frem for en enkelt (eller måske nogle få) hovedleverandør(er).

Inden for IT-verdenen er fokus naturligt nok på tjenesteydelser – eller services – i højere grad end på fysiske vareflow. Ikke desto mindre er behovet for koordinering mellem flere samtidige leverancer mindst lige så udtalt for services, og dermed opstår også et behov for at styre flowet af services fra mange leverandører or orkestrere – eller integrere – disse til en helstøbt service ud mod forretningen eller kunden. I det følgende, og i SIAM-rammeværket generelt, anvendes begrebet integration frem for orkestrering eller brokerage, som også har fundet anvendelse. Årsagen er, at der med begrebet integration menes, at serviceintegratoren tilfører værdi, så den samlede service er mere end summen af de enkelte underliggende services.

IT service management generelt og SIAM i særlig grad drager paralleller til Lean-tankegangen om effektivisering gennem reduktion af spild eller forøgelse af værdi og ensretning gennem standardiserede processer – men traditionelt har IT service management fokuseret meget på processer (og derigennem på den underliggende teknologi), men ikke tilstrækkeligt på den menneskelige faktor. I et komplekst netværk med mange aktører, der samtidig både kan være hinandens leverandører og kunder, konkurrenter og samarbejdspartnere – i branchen anvendes begrebet "konkulleger" – og hvor aftaleregimer, som vi skal se i det følgende, er gået fra en kontrakt mellem en kunde og en leverandør til forhandlinger mellem mange parter, og hvor det samtidig ikke nødvendigvis er de, der indgår aftalerne, der efterfølgende skal operere under dem, får det menneskelige aspekt og ikke mindst tillid mellem samarbejdspartnere større betydning end de lineære procesmodeller fra tidligere.

Begrebet SIAM oplever megen "business hype" i disse år, og specielt de store IT-konsulenthuse er langt fremme med at falbyde løsninger, der er svaret på alle vores bønner. Ligeledes har SIAM været et varmt emne på diverse konferencer de seneste par år, om end begrebet stadig mestendels finder anvendelse inden for IT-branchen. Ikke desto mindre har der stort set ikke været skrevet noget akademisk litteratur på området, og begrebsdefinitioner er i bedste fald uklare. Der er skrevet mange bøger om serviceøkonomi og multileverandørsamarbejde, men hvad mener vi med begrebet service, når vi taler SIAM? Hvad vil det sige at integrere?

Disse og mange andre spørgsmål søges redegjort for i det følgende, herunder ikke mindst hvordan begrebet finder anvendelse i praksis. Hvad skel der til for at have succes som serviceintegrator? Efter en teoretisk redegørelse for, hvordan virksomheden bedst organiserer sig som serviceintegrator, søger et case-studie af en IT-serviceleverandør i den danske fintech-branche at afdække, hvordan det foregår i praksis, herunder hvor serviceintegratoren ser sig selv, hvad kunderne forventer, hvordan samarbejdet med leverandørerne skal foregå, og ikke mindst hvem der har hvilke roller og hvilke ansvarsområder.

Konklusionen på undersøgelsen er, at definitionen af begrebet SIAM stadig er uklar, idet der er tale om både en funktion, der kan være enten intern i virksomheden eller outsources til en ekstern part, og samtidig også en strategisk kompetence eller kapabilitet, som er nødvendig for at kunne holde styr på mange forskellige services fra forskellige leverandører samlet i en helstøbt ydelse ud mod kunden. Der er mange måde at strukturere SIAM-organisationen, men det anbefales enten at holde den internt eller lægge den hos en separat tredjepart – ikke hos en eksisterende leverandør, der i så fald vil have svært ved at skelne mellem egne og andres servicekomponenter i den samlede leverance.

Ud over organiseringen af SIAM-funktionen er området præget af mange andre udfordringer og manglende kompetencer. Den primære årsag til dette er, at begrebet er relativt nyt, og der derfor ikke findes mange eksempler i praksis på, hvordan serviceintegration gøres med succes. Hvor klassiske procesmodeller som ITIL og COBIT hidtil har anlagt en (lineær) procestilgang til IT service management, fokuserer SIAM i højere grad på tillid og menneskelige relationer. Kontraktregimerne bliver langt mere komplekse med mange leverandører og delt ansvar, hvilket stiller større krav ikke mindst til personlige kompetencer. Ligeledes spiller det teknologiske aspekt en ny rolle i forbindelse med integration mellem ikke mindst styrings- og informationssystemer på tværs af mange led i værdinetværket.

Den undersøgte virksomhed, som er et selskab i den danske finans-IT-branche med det opdigtede navn BankCorp, leverer forskellige integrerede services til sine kunder. To af disse er udpeget i det nærværende med henblik på nærmere undersøgelse af løsningerne i praksis, og det afdækkes, at de to cases håndteres forskelligt i BankCorp. En anbefaling er derfor, at BankCorp gør sig klart, hvordan SIAM-funktionen skal udvikle sig i fremtiden, og ensretter SIAM-arbejdet frem for at oprette nye funktioner for hver ny kunde.

Introduction

Companies are increasingly focusing on business value, and IT is increasingly becoming a commodity (Tieto, 2016). At the same time, customers are increasingly turning towards multi-vendor constellations. (Accenture, 2010; DuMoulin, 2014; ISG, 2013; Newstrom, 2014; Overby, 2012) At the same time, the paradigm of demand in businesses and in society in general is shifting from products to services. (Lusch & Vargo, 2014; Vandermerwe & Rada, 1988) As such, a need arises for the integration and management of services, a need which is apparent not least in the management of complex IT services (Newstrom, 2014; Overby, 2012; Spiegelhoff & Colgan, 2012), where many suppliers in several tiers are often involved. (Accenture, 2010; ISG, 2013; Spiegelhoff & Colgan, 2012) Gone are the days where any product you could produce was a good product. Gone are the days where companies bought all or most of their products (or services) from a single (or select few) suppliers. Supply chains are no longer sufficient, and are increasingly being replaced by multi-supplier value networks (Finister, 2012; Mann, 2013), where customers are enabled to select best-of-breed solutions from among a range of suppliers (Accenture, 2010; Arora, Sengupta & Joshi, 2013; Capgemini, 2012; ISG, 2013; Patterson, 2012). Being able to orchestrate an intricate web of service demand and delivery is as crucial to success as ever, and 'Service Integration and Management (SIAM) is at the time of writing one of the most talked about topics'. (Dorst, Major-Goldsmith & Robinson, 2015)

The purpose of this paper is trifold, as is the motivation for undertaking the research. First, the work is driven by a need to build academic literature based on existing practices. Although several attempts have been made at constructing operating models (Accenture, 2010; Arora, Sengupta & Joshi, 2013; Capgemini, 2012; Holland, 2015b; Nissen, 2015; Spiegelhoff & Colgan, 2012), a conceptual framework is still desirable. This requires, *inter alia*, a common definition of some of the central notions within the area. (Holland, 2015b; Nissen, 2015) The demand for a theoretical model springs exactly from these ambiguous applications. (*ibid*.)

Second, Service Integration and Management is a relatively new field (Saxena, Weber & Hirji, 2014; Dorst, Major-Goldsmith & Robinson, 2015), the earliest pioneers having begun to take off as recently as within the last couple of years of the previous decade (Accenture, 2010). This means there are few experts in the field, and many companies look to the consultancies for advice. IT service providers therefore also have an interest in the area. Thus, this research will contribute to building knowledge of practical application of the subject matter based on a theoretical foundation.

Finally, as the author, I have a personal interest in the subject, as my professional career for the past eight years has centred on exactly this topic – albeit not using the term Service Integration and Management or SIAM explicitly , but on the orchestration of a complex web of intertwining relations between actors in a network; not only as mere buyers and suppliers, but from time to time acting simultaneously as both supplier, customer, partner and competitor to one another.

All of this makes for a truly intriguing topic for further investigation, the implications of which have yet but dawned upon us.

Research Question

How are the quasi-theoretical ideas of service integration - primarily based on proprietary knowledge in terms of white papers from suppliers - interpreted in a value network in the Danish fintech industry?

Research Method

This paper is divided into five sections. Following the introduction, existing literature in the area of service integration is reviewed. A framework is constructed as a theoretical backdrop based on literature combined with industry best practices. The framework is then applied to a particular case company. Finally, recommendations are contributed for the optimal design of a true service integrator organisation, rounded off by concluding remarks and suggestions for further research.

Paradigm

The methodological stance taken in this research is abductive in its nature. Abductive reasoning was fathered by American pragmatist Charles Sanders Peirce at the turn of the previous century (Mortensen & Bertilsson, 2013), and is also referred to as analytic induction. There is a difference between inductive and abductive reasoning, in that a purely inductive method requires no presupposed knowledge of a field, whereas the abductive method takes as its point of departure a given situation with a known set of circumstances at hand.

My reason for applying an abductive approach is as follows: The setting in which the research for this paper takes place is a concrete situation in a company which is currently struggling to comprehend the potential impact and options for application of a certain theoretical scope. In order to apply a purely inductive approach, no previous knowledge of the field would be allowed, as this would already influence the choice of subject to study. Therefore, an approach which takes into account previous knowledge of the field – namely the company's as well as my own previous knowledge of the subject matter and the advantages of its application in the given situation – is more appropriate for the kind of research undertaken to write this paper.

Similarly, a purely deductive approach would require extensive theoretical knowledge of the field already in existence, which would then be tested for validity through application to the real world. However, as little theory yet exists in the area, the deductive approach would be counterproductive to the paper's aim of synthesising knowledge and building new theory.

To paraphrase Flybjerg (2001), a case study is a 'detailed examination of a single example of a class of phenomena' which can be used to 'provide reliable information about the broader class.' Similarly, according to Eckstein, case studies 'are valuable at all stages of the theory-building process, but most valuable at ... the stage at which candidate theories are tested.' (Eckstein, 1975 cited in Flyvbjerg, 2001, p. 77)

Approach

First, I needed to understand more about what Service Integration and Management is. I began by reviewing the literature currently at hand. I then performed a range of in-depth interviews with a number of subject matter experts either employed in key positions in the focal company or working as IT service management consultants. I then used this material as input to a qualitative study.

In order to understand how SIAM is done in real life, I tested my newly gathered theoretical knowledge on two cases in the focal company. Delving into the findings of the interviews, I conducted a more thorough analysis of the two cases in order to assess the company's success of applying the theoretical knowledge.

The focal company operates within the financial services industry in Denmark, specifically supplying IT services to a range of Danish financial institutions. The two cases are both highly complex scenaria comprising the integration and management of several services from several suppliers and coopetitors in order to provide the customer with a well-orchestrated service solution.

In the first instance, CB, a customer of the focal company, is currently preparing a new platform for running its operations. The complexity in the service setup has increased due to the fact that the focal company as a SIAM provider is not wholly responsible for the entire range of services. Some are provided by the focal company itself, while other elements are sourced from suppliers of the focal company, and yet others are supplied by the customer itself. Similarly, the second case study concerns SX, a mobile payment solution. Here, end-user support, application development, infrastructure and operations are all handled by different suppliers, and the focal company is responsible for integrating the total solution.

Interviews

The interviews were conducted following an iterative approach. One initial pilot interview was conducted with the first respondent, the head of operations and support. This was in order to start the course of interviews at a natural point in the organisation (my immediate superior) and to gain new knowledge concerning the subject matter. Next, I prepared a revised interview guide for the following interviews. This was done in order to ensure quality in the research (Tanggaard & Brinkmann, 2015).

Additionally, the interview guide for the pilot interview was more detailed and the interview followed the interview guide more linearly. In later interviews the interview guide was gradually loosened and has come to serve more as guidelines for steering the interview in the right direction rather than a predefined set of questions to ask and answer from one end to another. This evolution in the interview guide goes hand in hand with the subjective paradigm, where the researcher travels on a journey with the respondents rather than picking the required details readily from their minds (Kvale & Brinkmann, 2009).

The following persons were interviewed:

#	Role	Company
	Head of operations and support	BankCorp
	Chief Operating Officer	BankCorp
	IT service management consultant	External consultancy
	Chief Information Officer	BankCorp
	SIAM specialist	BankCorp
	Head of service management office	I&O supplier
	IT strategy specialist	BankCorp
	SX project manager	BankCorp

	Head of e-business development	BankCorp
	CB project manager	BankCorp
	Head of trade, settlement and deposit	BankCorp
	Head of department responsible for CB activities	BankCorp
	Head of legal department	BankCorp
	Head of sales	BankCorp
	Chief Operating & Financial Officer	SX

Table 1: List of respondents in the in-depth interviews.

I subsequently transcribed the interviews in order to extract findings to further strengthen my arguments in the Theoretical Framework section. Statements from the interviews also serve as the basis for the Analysis section and excerpts from the interviews are included to support the claims.

Interview Guide

The interview guide has served throughout the research process initially as a structure for conducting the first interview and later as a frame for guiding the interview in a less stringent manner.

Pilot and BankCorp interviews

The initial interview guide was divided into three sections; first, a brief introduction of the respondent and his or her role in the company, then a discussion of what service integration is from a theoretical point of view, and finally a section on what service integration is from the company's perspective. The questions asked were the following:

- Who are you and what is your role in the company?
- What is service integration?
- Why do service integration?
- How does a service integrator act?
- What pitfalls should be avoided/challenges handled?
- How does BankCorp do service integration?
- Is BankCorp a service integrator today?
- What strengths do you see? Challenges?
- How is it appraised? Can it be measured? Maturity?
- What is required to succeed as a service integrator?
- What does the future look like?

Case interviews

Following interviews with subject matter experts in and outside of BankCorp, a number of interviews have been conducted with key staff on the two cases used in the research for this paper. For the interviews with SX persons, the following questions were used as a guideline:

- What is SX?
- What was the background for SX?
- What was initially the plan for BankCorp's role in the SX solution?
- What does the existing solution look like today?
- What are the main reasons for this?
- Why has SX chosen to retain the service integrator role instead of leaving it with BankCorp?

- Can the present SX solution be viewed as a success or a failure from BankCorp's perspective?
- What will the future look like?

Similar questions were asked in interviews with persons relevant for the CB case.

Structure

The main themes – service integration enablers, the identified challenges and required capabilities and the archetypes of organising the SIAM function – are found throughout the Literature Review, Theoretical Framework and Analysis chapters of this paper.

The following graphical representation of my approach illustrates how the literature review coupled with findings from interviews form the basis for the construction of a theoretical framework, which is then tested against the practical application in the focal company:

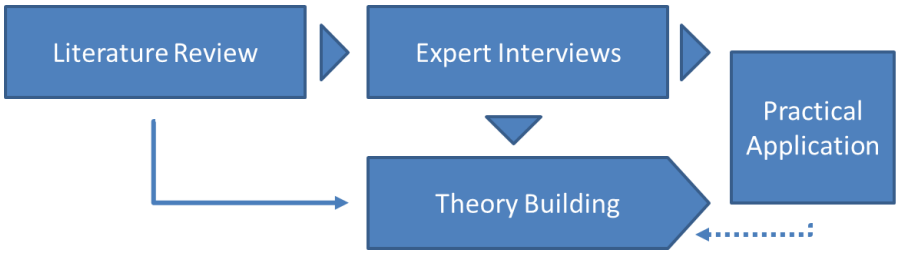

Figure 1: The structure of the paper.

Retrospectively, as I have worked through the material and structured the document, I have become aware that the questions in the interviews have focused quite a lot on what service integration *is*. In order to be able to delve further into *how* service integration is *done* in the organisation, the interview questions should have focused more on this part. This has concentrated my research around the theoretical aspects rather than the practical ones, where it should have focused more on the application and practical use in the organisation. To thus further strengthen my research, I ought to have conducted a second round of interviews given this new knowledge. This approach would hve been in line with Grounded Theory (Glaser & Strauss, 1967), which is also based on abductive reasoning (Reichertz, 2009). Furthermore, it has been impossible to arrange interviews with contact persons at CB, for which reason that case is analysed only from the BankCorp perspective. A corresponding interview covering the customer angle would have been benificial to the subsequent analysis.

Literature Review

Simply searching the Internet for articles or webpages provides a plethora of best-practice descriptions, articles in various newspaper and editorials, blog entries *et cetera*. This does not, however, guarantee relevance of the search results. A more structured approach to searching on the subject matter reveals more relevant material.

As a next step, I therefore expanded my search to involve Google Scholar and the article database Business Source Complete, which is accessible through the Copenhagen Business School library. These searches revealed a more academic approach to the subject, but also leads to a common pitfall in the area; the term service integration (or systems integration at times) has been widely used in a much more technically specific context for a number of years. This application of the term has also been referred to as inter-organisational systems (IOS), which will not be discussed further here. As the two applications of the term service integration are verbatim, they are invariably confused; however, the more technical application of the term as a synonym for systems integration is misleading in the context of Service Integration and Management – systems integration maybe part of service integration, but the two are not the same (Fellows, Sadowski & Ring, 2013). Say, however, argues that SIAM 'effectively extends the role of a systems integrator to take on more day to day management over the long term.' (2012) Finally, the acronym SIAM happens to coincide with Siam, which was the old name for the country now known as Thailand. Quite a lot of books can be found on the history of Siam (or Thailand), but obviously have nothing to do with Service Integration and Management.

Service integration has also been described as service orchestration or service brokerage (Armes *et al*., 2015; HP, 2013; Stadtmueller, 2013; 2014), but these two defitions differ from service integration in the sense that, whereas orchestration or brokerage concerns bundling readily available services, integration entitles the sum being more than the sum of the parts, that is, enabling a service solution which was not there before and which implies added value. Spiegelhoff & Colgan define the 'role of IT Service Management & Governance (SM&G) [as] the capabilities required to enable successful end-to-end management of internally and externally sourced services' (2012, p. 2) In the following, I use the terms *service integration* and *Service Integration and Management (SIAM)* interchangeably.

Service Integration

As opposed to physical goods, 'services are performed rather than produced and are essentially intangible.' (Vandermerwe & Rada, 1988, p. 315) A service is consumed at the same time as it is provided and thus cannot be stored. Lusch & Vargo (2014) define service as the 'application of competences (knowledge and skills) for the benefit of another entity or the entity itself.'

A service in the context of this paper is defined as 'a means of delivering value to customers by facilitating outcomes customers want to achieve without the ownership of specific costs and risks.' (TSO, 2011a, p. 13). In accordance with the goods-to-services continuum (Gustafsson & Johnson, 2003), a service is a means of providing value with or without a physical product. While electricity or education maybe examples of pure service, one has difficulty imagining a pure product with no added value.

In their 1988 article on *servitisation*, Vandermerwe & Rada talked about providing 'bundles' of services, which can be viewed as a precursor for what we now call service integration.

The academic literature available on the topic of Service Integration (and Management) is severely limited. Only a handful of journal articles (Goldberg & Satzger, 2015; Goldberg, Satzger & Kieninger, 2015; Heinrich, Zellner & Leist, 2011) have been written on the topic, describing what has so far been done by those who do service integration most successfully. Apart from a single, self-published handbook written by two HCL consultants (Verma & Kumar, 2014), the first proper book on the subject was published as late as November 2015 (Armes *et al.*, 2015).

The reason for this dominance of practical descriptions and lack of theoretical literature is the fact that service integration is still a relatively recent phenomenon, and 'the market is still relatively immature, with very few organisations actually operating an SI model' (Finister, 2012). This is also apparent in the sources for this paper, most of which are consultant white papers, and most of which were written only within the past couple of years.

In a 2012 blog entry explaining service integration, Finister defines service integration as '[t]he management by a supplier filling some or all roles of the traditional retained service management organisation of e2e service levels delivered by multiple suppliers.' (Finister, 2012)

Nissen (2015) argues that the term SIAM is ambiguous in that it has two meanings; SIAM is both a framework and a function (see Figure 2).

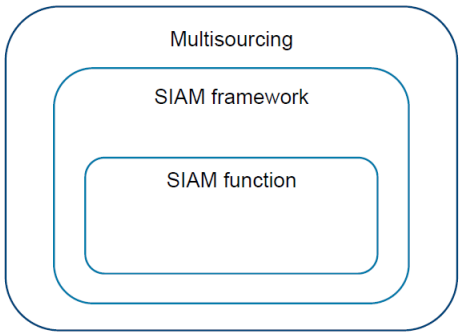

Figure 2: SIAM as a framework and a function (Nissen, 2015)

According to Capgemini ''Service Integration' is the integration of discrete IT service elements into a coherent set of end-to-end services'. (2012, p. 1) In its simplest form, Service Integration and Management concerns the bundling of services from multiple suppliers into service solutions delivered to one or more customers (see Figure 3). The service integrator thus serves as the 'central point of control between demand and supply' (Patterson, 2012), which is also known as the decoupling point (Olhager, 2010) between customers and suppliers.

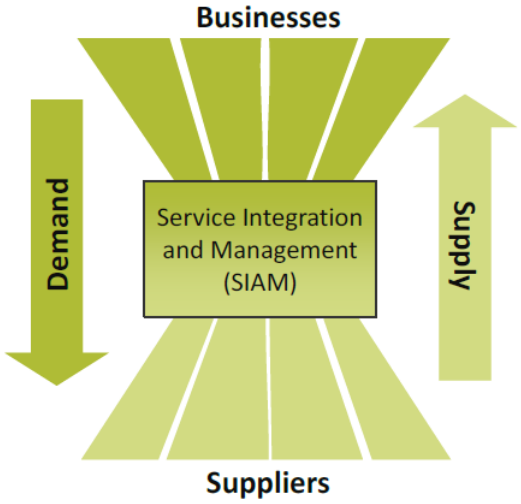

Figure 3: Service Integration and Management (ISG, 2013)

The service integrator 'provides a service hub [which] optimizes the value of IT [through]

- Consolidated coordination and monitoring of best-of-breed suppliers for enhanced overall service quality and control
- Centralized continuous improvement for institutionalizing innovation
- Leveraging the benefits of a modular solution for the business, in order to invest or divest, with less complex IT implications.' (Capgemini, 2012, p. 3)

Further, service integration delivers value through:

- Reducing operating costs
- Increasing control over IT service providers
- Enhancing IT flexibility and responsiveness
- Reducing risk, improving governance and compliance. (Capgemini, 2012, p. 5)

Tieto defines SIAM as 'the coordination and management of IT services from both internal and external suppliers, consolidating them into end-to-end services that meet business needs and requirements for performance, quality and cost. Put more simply, it involves bridging the gap between supply and demand - aligning what vendors deliver with what the business really wants.' (2016, p. 4)

According to Holland, '[t]he aim of SIAM is to provide a single point of visibility and control for the service management and delivery of all services provided by suppliers, by:

- Taking end-to-end accountability for the performance and delivery of IT services to the users, irrespective of the number and nature of suppliers
- Co-ordinating delivery, integration, and interoperability across multiple services and suppliers
- Assuring suppliers performance
- Ensuring that the services effectively and efficiently meet the business need
- Providing the necessary governance over suppliers on behalf of the business.' (2015b, p. 6)

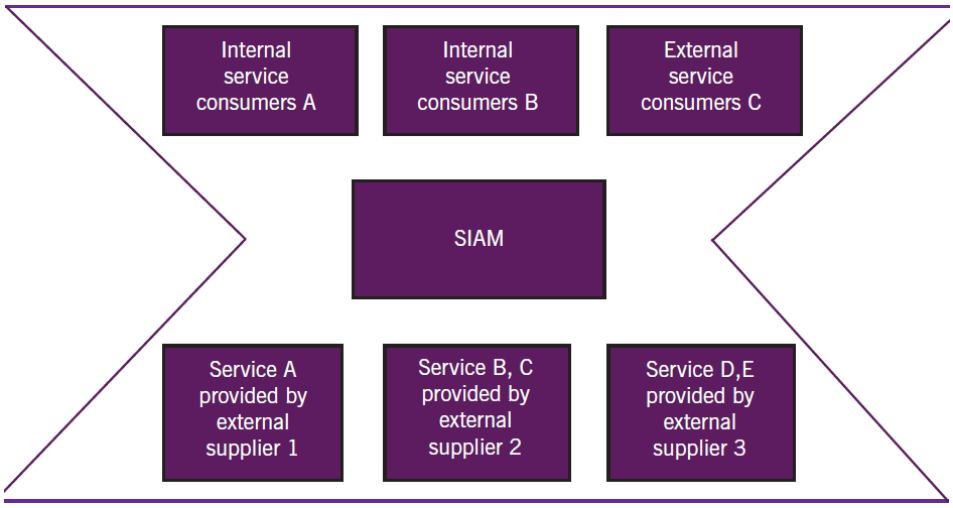

Figure 4: A high-level SIAM model (Holland, 2015b)

A high-level description of the notion of service integration is thus a service provider (internal or external to the customer organisation) which acts as a middle layer, integrating services from multiple service providers into a full service solution as illustrated in Figure 6. There is a difference between traditionally managing multiple service providers and integrating the services they deliver, both in terms of magnitude, complexity and business expectations. (Stadtmueller, 2013)

Arora, Sengupta & Joshi define what they call Comprehensive SIAM as: 'the phenomenon by which a provider performs some or all of the traditional service management roles across multiple providers in a consistent, transparent and scalable manner, and is in turn held accountable for effective provisioning of such services.' (2013, p. 5; see Figure 5)

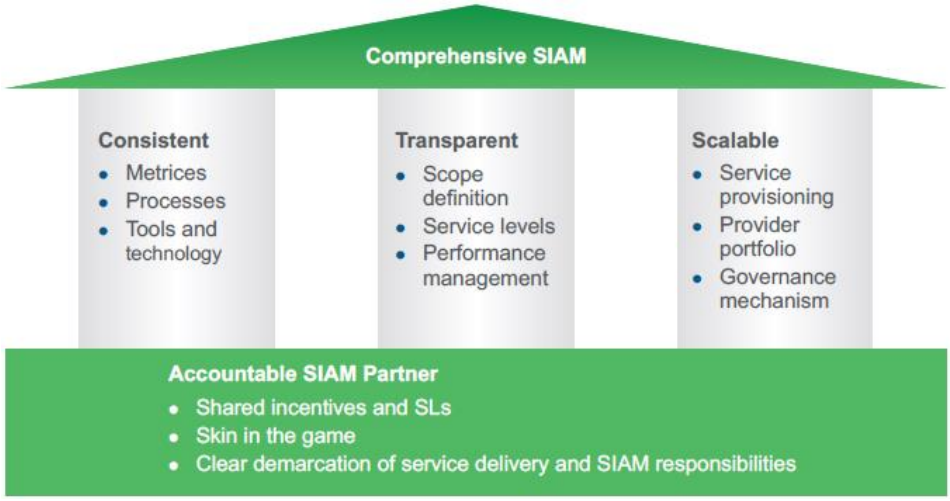

Figure 5: The Comprehensive SIAM framework (Arora, Sengupta & Joshi, 2013)

In one of the few academic papers so far written on service integration, Goldberg, Satzger & Kieninger (2015) similarly define a high-level model for service integration as depicted in Figure 6.

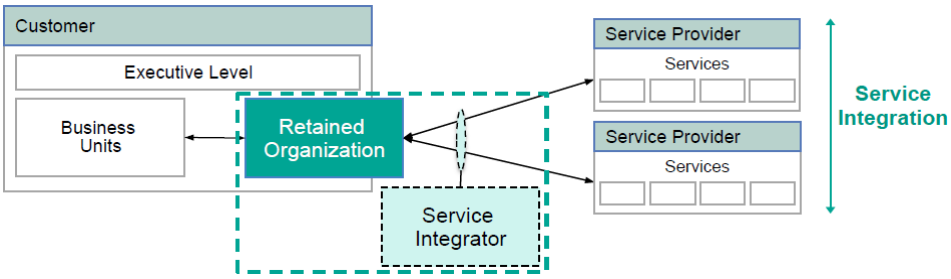

Figure 6: A service integration model (Goldberg, Satzger & Kieninger, 2015)

SIAM Challenges and Capabilities

Nissen (2015) lists a number of enablers required for successful service integration.

Armes *et al*. (2015) define three key requirements of service integration as follows; all parties must be

- Fully aware of their required outcomes
- Enabled to deliver the outcomes
- Clearly accountable for the outcomes

The keywords *enabled* and *accountable* are repeated in the two types of service integrator the book distinguishes between, and to which we shall return later.

Armes *et al*. similarly talk of SIAM enablers (see Figure 7), which they divide into strategic, tactical and operational, allowing 'decisions to be made at the most appropriate level of governance and management.' (p. 11) These enablers must be established at every intersection of the total solution. (*ibid*.)'

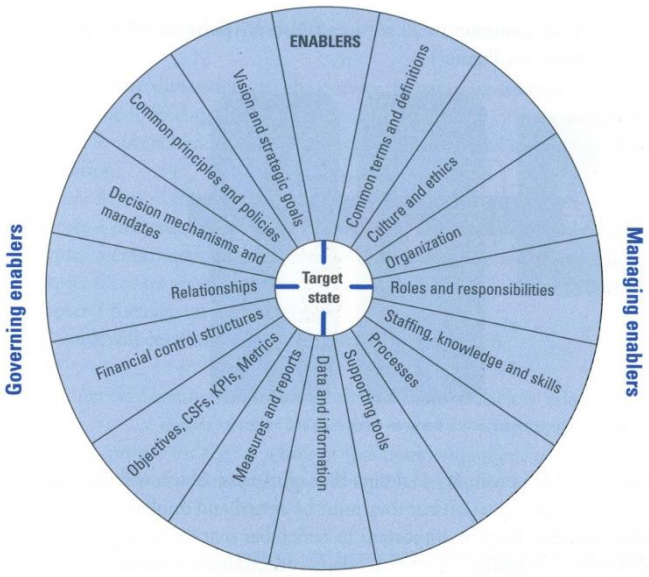

Figure 7: Governing enablers and managing enablers (Armes *et al.*, 2015)

Rowark (2014) lists these major challenges to SIAM:

- No common understanding of what SIAM is!
- Confusion between systems and service integration
- Confusion between SIAM and service management
- Uninformed decisions to outsource SIAM and
- A general lack of published best practice

According to Tieto's (2016) *Sustainable SIAM* model, SIAM is the logical response to a lack of:

- Transparency and accountability
- Communication and compliance
- Sourcing agility
- Service excellence

Goldberg, Satzger & Kieninger (2015) define four key service integration challenges:

- Measuring services end-to-end
- Aligning scope and specifications across provider contracts
- Managing relationships and collaboration with and between providers
- Defining standardization and modularization

On the backdrop of these, Goldberg, Satzger & Kieninger (2015) define six capabilities which are required if one is to successfully address the challenges:

- Manage Service Integration Governance
- Manage the Service Integration Organization
- Manage the Business
- Manage Tools and Information
- Manage Providers and Contracts
- Manage End-to-end Services

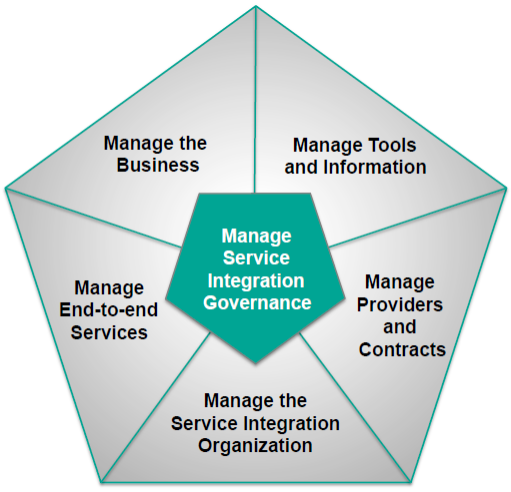

Figure 8: The six capabilities for a successful SIAM function (Goldberg, Satzger & Kieninger, 2015)

The enablers, listed in Table 2, also serve as a structure for the same section in the Theoretical Framework chapter.

Andenmatten (2015)	**Armes *et al*. (2015)**	**Nissen (2015)**
	Vision and strategic goals	Strategy
Policies, principles and frameworks	Common principles and policies	Principles and policies
	Common terms and definitions	
	Decisions mechanisms and mandates	Governance
	Financial control structures	Controls and maturity
	Relationships	Contracts and agreements
Culture, ethics and behaviour	Culture and ethics	
People, skills and competencies	Staffing, knowledge and skills	SIAM function
Organizational structures	Organisation	
	Roles and responsibilities	Unified RACI and support model
Processes	Processes	SIAM process framework
Information	Data and information	Architecture and configuration data
	Measures and reports	
	Objectives, CSFs, KPIs, Metrics	
Services, infrastructure and applications	Supporting tools	Supporting tools

Table 2: SIAM enablers (Armes et al., 2015; Nissen, 2015)

SIAM Archetypes

One of the first papers to describe the various options for organising the SIAM function (Accenture, 2010) describes two options; either retaining the SIAM function within the company or outsourcing it as a separate service provider:

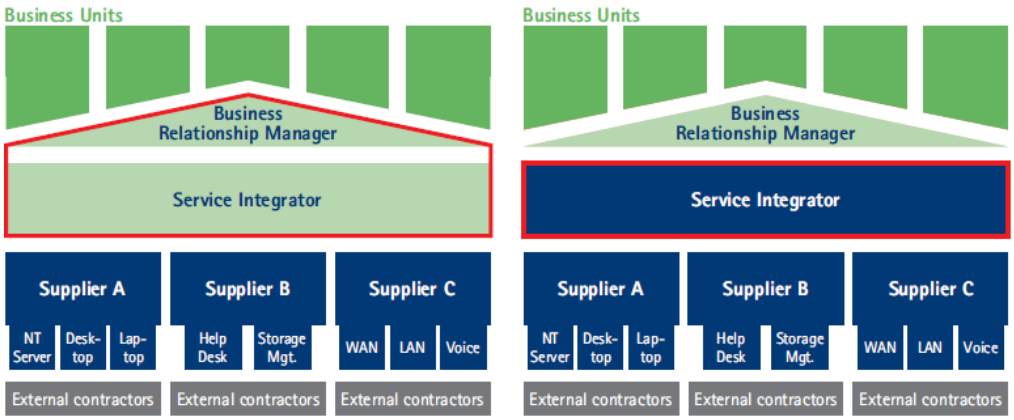

Figure 9: Retained or outsourced SIAM function (Accenture, 2010)

Vromant (2014) describes the service integrator as a coordinating layer between the business and the suppliers:

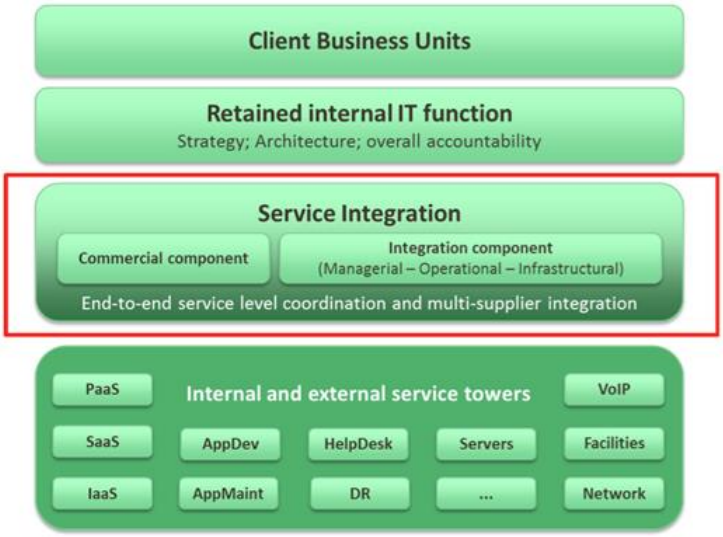

Figure 10: Service integration coordinating layer (Vromant, 2014)

Service towers in this context refers to the various techonology areas provided by different suppliers (Say, 2012; Vromant, 2014).

Additionally, Vromant, arguments in favour of retaining what he calls the Guardian is that it provides 'undisputed end-to-end accountability and control', and that 'defining and negotiating a contract and service levels for an outsourced guardian role can be complex.' On the other hand, outsourcing the guardian role makes it 'easier for a specialized outsourcing service provider to build and maintain the broad technical and operational skill sets required for multisupplier coordination', and there are 'predefined cross-supplier procedures' (2010).

Similarly, Finister (2012) argues that the 'ownership of the contracts with other suppliers might stay with the retained organisation with the SI provider only being held contractually responsible for their own performance in monitoring and reporting on other suppliers. In other case [sic] the contracts might be novated to the SI supplier and the SI supplier held directly responsible for the failure of other suppliers to meet their targets.'

In a more recent paper, Tieto (2016) define four different service integration organisational models:

The company can choose either to retain the SIAM function in-house, to source it from an external provider or from an existing vendor or run it as a joint effort together with a SIAM service provider.

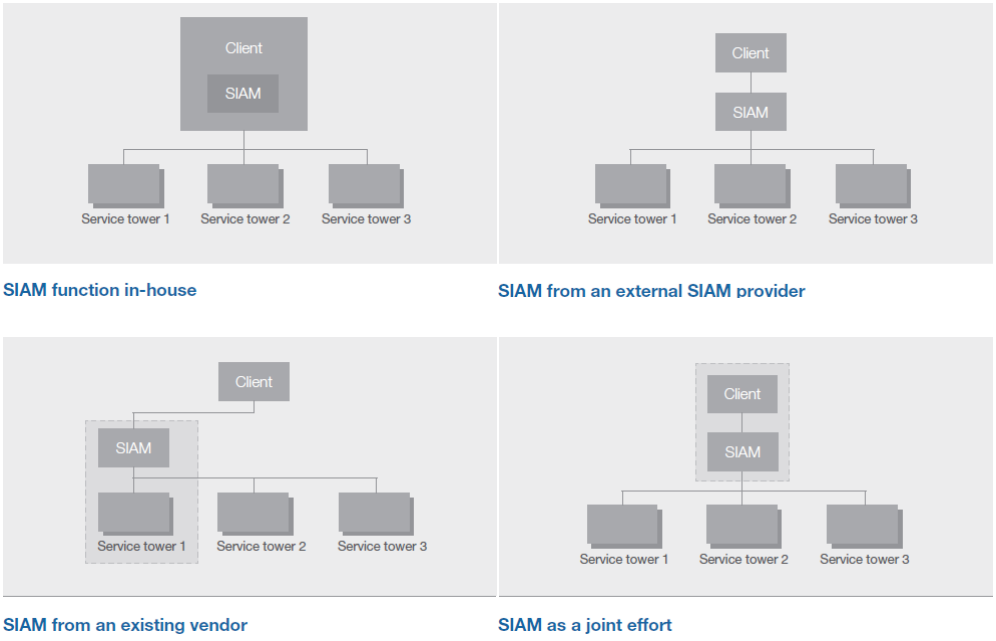

Figure 11: Four service integration archetypes (Tieto, 2016)

On this background, and based on their practical outsourcing and SIAM experience, Tieto's recommendation is the joint effort model (see Figure 12). This differs from the recommendations of other authors and experts, as we shall see later on.

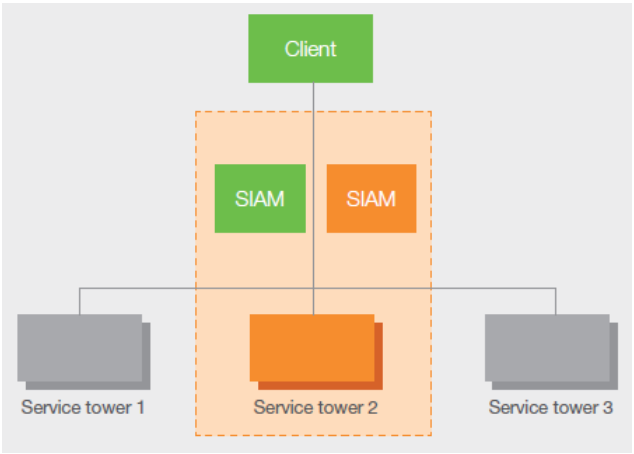

Figure 12: The joint effort service integration model (Tieto, 2016)

Similarly, Armes *et al*. (2015) divide service integration into four archetypes (see Figure 13):

- The internal service integrator
- The external service integrator
- The multiple service integrator
- The matrix service integrator

Although they describe the matrix service integrator as being more complex than the others, Armes *et al*. refrain from recommending one model over the others; rather '[i]mplementing SIAM is undertaken

according to the specific situation, desired outcome, organizational maturity and types of relationship between customer and providers.' (2015, p. 51)

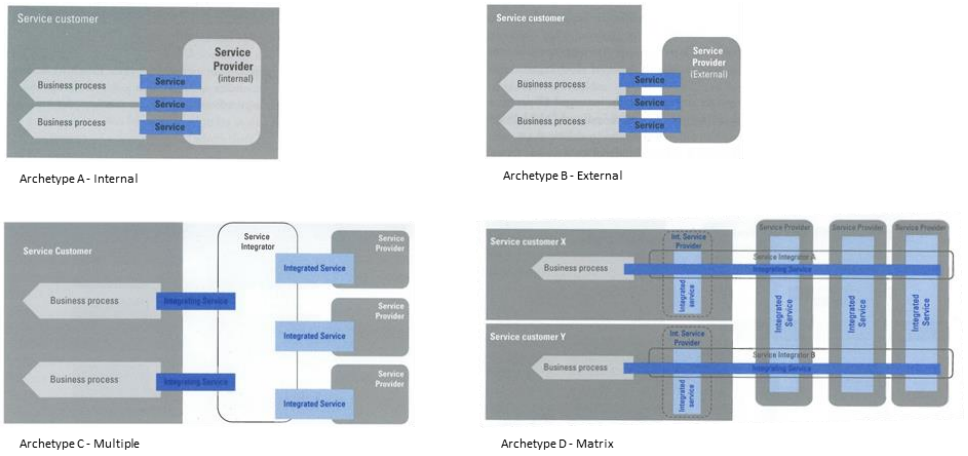

Figure 13: Four service integration archetypes (Armes *et al.,* 2015)

On a more academic note, Goldberg & Satzger (2015) define five organisational models for service integration (see Figure 14), two of which they deem irrelevant: The Shared Service Integrator, where several service suppliers have each their own service integrator role, 'is perceived as too complex and associated with unclear governance structures' (Goldberg & Satzger, 2015, p. 7), and the Prime Provider, where one service supplier has the full responsibility for all externally provided services, which then becomes a *de facto* single-sourcing service provider (*ibid*.).

The remaining three models are retaining the service integrator function in-house, making use of an independent external service integrator, who has the end-to-end responsibility for services delivered internally as well as externally, and finally the Guardian Vendor, an external service provider with the responsibility for both internal and external services.

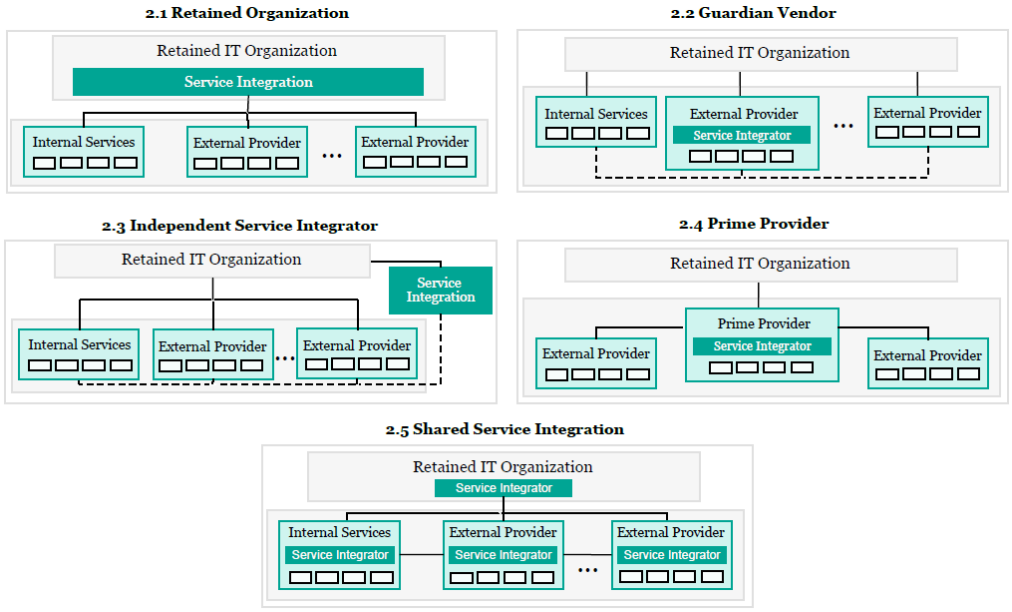

Figure 14: Goldberg & Satzger's (2015) organisational models for Service Integration

Adding to the above, Goldberg & Satzger (2015) divide service integration tasks into strategic and operational tasks, and argue that strategic tasks should be retained within the client organisation, whereas operational tasks should be outsourced to an external service integrator. Overby (2011) advises customers 'to retain as much of the multi-sourcing integration in-house as they can.'

> '*Imagine asking two teenagers to take out the garbage every Wednesday. Anyone who has kids knows that the garbage will not be taken out on Wednesday because the two teenagers will point at each other and say, "I thought he/she would do it.*"' – Vromant, 2010

Theoretical Framework

Based on the existing theory combined with findings from my interviews, I have constructed the outlines of a SIAM theory in the following. Due to the lack of academic theory as described above, this chapter is as much theory-building as it is descriptive.

Service Integration

SIAM has been called the evolution of ITIL (Dorst, Major-Goldsmith & Robinson, 2015), but rather, SIAM is one step above (Holland, 2015a; b), 'the evolution of our understanding of how to correctly apply a framework for integrated service management, such as ITIL.' (Dorst, Major-Goldsmith & Robinson, 2015, p. 6) As such, SIAM builds a capability layer on top of existing IT Service Management frameworks such as ITIL and COBIT, but it does not replace them.

The first proper book published on SIAM defines service integration as 'the set of principles and practices which facilitate the collaborative working relationship between Service Providers required to maximize the benefit of multi-sourcing.' (Armes *et al*., 2015, p. 2)

The service integrator is a means of *sourcing* services from a service provider. Armes *et al*. define sourcing as 'the acquisition of resources or services to deliver a particular part of the IT value chain.' (2015, p. 25)

Outsourcing along with out-tasking and sub-contracting are various types of sourcing on a continuum from staff augmentation, retaining the aforementioned provisioning of services (or resources) within the company by having the task fulfilled by temporary staff or consultants, to divestiture, where a part of the business is sold off. (Armes *et al.*, 2015)

The part of the IT organisation that remains within the company is referred to as the *retained* IT organisation, which comprises the OCIO, the o*ffice of the CIO* (Weldon, 2012) along with other retained IT functions. Within the OCIO rests the SIAM function (see Figure 15).

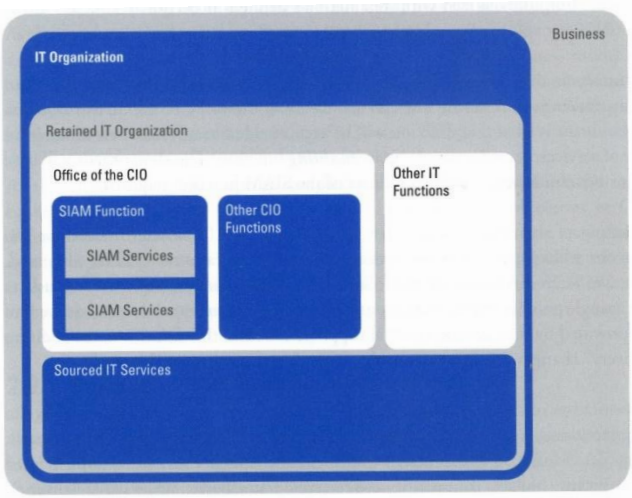

Figure 15: Aspects of the IT organisation (Armes *et al.,* 2015)

The *enabling* service integrator is responsible for ensuring that every service from every service provider is integrated into an aggregate service solution for the customer.On the other hand, the *accountable* service integrator has the final end-to-end accountability for the total service solution. In other words, the enabling service integrator is responsible for rounding up the loose ends in the service bundle at the operational level, whereas the accountable service integrator has the overall responsibility for the total service solution.

As such, in the words of one interviewee, SIAM means 'taking various services from the ones who do them best and bundling those into a service solution that provides value to a customer,' who is then 'free of the hassle of buying different services from different suppliers,' and 'handling one supplier is cheaper and easier for the customer than handling several suppliers.' (*Head of operations and support, BankCorp*) This is perhaps an oversimplified description of service integration, as it fails to take into account the different aspects of *contracts* vs. *contact*, and the fact that the service integrator is not simply a single service provider. However, according to the interviewee, there are cost advantages, and basically there are 'two reasons for buying a service; lower price and/or better quality.' (*Head of operations and support, BankCorp*) This view borrows from Lean, where value is created by either reducing the cost to quality ratio or increasing the quality to cost ratio. (Jensen, 2011; Womack & Jones, 2003)

In the words of one interviewee, there are two distinct roles in service integration, namely the governance of IT services and the management of IT services. (*Chief Operating Officer, BankCorp*) This is theoretically founded in the governance and management model from COBIT (Andenmatten, 2015; ISACA, 2012; see Figure 16), and is also backed by the governing and managing enablers in Armes *et al*. (2015) Taking two solutions from two suppliers, coupling them together and adding value on top is one thing; but there is also the governance part, which is very much a question of supplier management. (*Chief Operating Officer, BankCorp*)

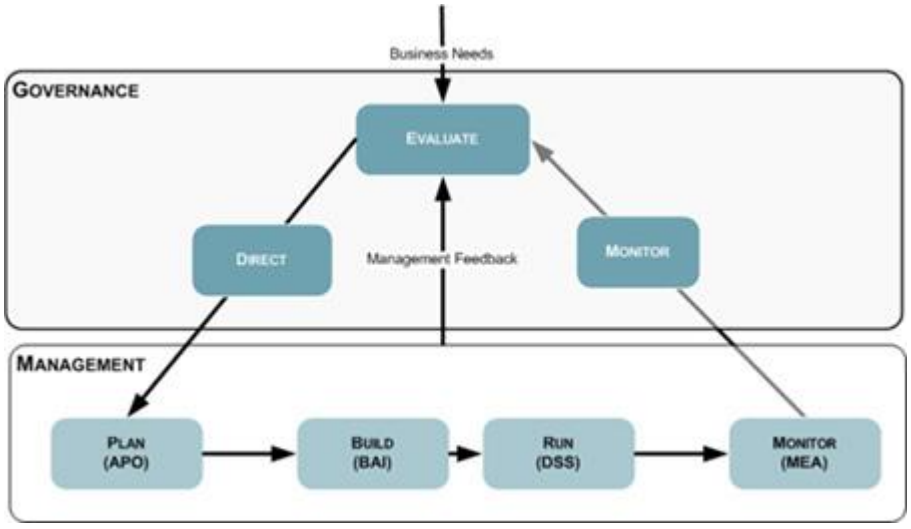

Figure 16: The COBIT 5 process reference model (ISACA, 2012)

At BankCorp, SIAM is a question of customers having a single agreement with a single supplier that covers everything, rather than negotiating one agreement with one supplier on operations, another on application management *et cetera* (*Chief Operating Officer, BankCorp*). 'SIAM comprises all the disciplines of IT service

management How do you run your release and deployment, and your configuration management, how do you handle the resolution of incidents. On top of that is the entire governance structure and the RACI matrix, and who is responsible for what. That is and becomes increasingly important.' (*Chief Operating Officer, BankCorp*)

SIAM providers in the market front a number of suppliers for the customer. Some are even suppliers themselves, delivering their services to the customer's IT department, but adding a layer to manage the services supplied by the IT organisation. This is the setup in the CB case, where BankCorp deliver a service solution to the customer; one component of the solution is supplied by the customer, but managed by BankCorp as part of the integrated service. The argument for this type of service provider is, that it becomes simpler for the customer than managing different service providers themselves. BankCorp is a service integrator, deilvering all sorts of integrated solutions to its customers. Apart from that, BankCorp is, by Danish standards, a large ISP (independent software provider), but much of what BankCorp delivers is sourced from other service providers, such as printing services, telephony services, mainframe, storage and network capacity. BankCorp then orchestrates these various services into an integrated whole, which provides added value to the customers.

From a customer perspective it means only having to focus on a single supplier, which allows the customer to raise the level of abstraction and talk to the SIAM provider in business terms, such as the functionality of a service, the availability and the cost of various services, and not worry about the technical details. 'That, I believe, will only get bigger. I believe a lot of IT will become commodity – but those who can orchestrate it and put the components together and present a service catalogue, they will be the winners of tomorrow.' (*Chief Operating Officer, BankCorp*) There are, however, also a lot of challenges to service integration. It is legally complicated because the SIAM provider assumes responsibility for something over which they have little or no control. There is huge risk to taking responsibility for the services of other providers. Stepping in front of them and reporting on a total service requires taking responsibility for the failure of subcontractors. This creates a dependency on the value chain of which the company is part. In traditional bilateral contracts that is manageable, but in a more complex setup such as the new system for CB or the SX solution, 'they have negotiated and entered into the agreements, they deliver some of the application development themselves, and they then transfer that to BankCorp to run in live operations afterwards, and we're responsible for running something we haven't developed. What is then our responsibility to the whole of the financial sector if a central system is not working? That is not trivial.' (*Chief Operating Officer, BankCorp*)

SIAM can be compared to having a toolbox available. Whenever there is a problem, the SIAM provider needs to know what tools are in the toolbox. Good service integrators have a concept, an operating model for how the various components fit together, but no unified theory exists. In it simplest form, there is a customer and service integrator who bundles a number of services, known as service towers, into one solution. The difficult part is how exactly to construct the operating model, how to design the contracts, and how to orchestrate across various suppliers and technologies (*Chief Operating Officer, BankCorp*). That becomes a strategic capability when focus moves from a technological perspective to delivering value through finished applications or large service bundles to a customer. The scope and complexity expand enormously, making it very attractive to be the one on top of it all, orchestrating the solution (*ibid*.).

Additionally, there is a cost perspective to service integration. Having many suppliers leads to increased overhead in terms of transaction costs compared to dealing with one supplier alone. This means that an internal IT department dealing with a number of suppliers might ask a SIAM service provider to step in, leveraging their experience with multiple supplier management and doing it more (cost) efficiently. BankCorp can negotiate significantly better prices with e.g. IBM for mainframe licenses or Oracle for database licenses than a single financial institution could ever hope to, i.e. a service integrator also enjoys the benefits of volume and the experience of having done it before (*Chief Operating Officer, BankCorp*). On a commercial construct, there is an upside for obtaining certain service targets. Similarly, if the service targets are breached, the customer may have negotiated a penalty clause in the contract where the service provider compensates the customer financially. Those are some of the elements creating dynamics in contract negotiations and supplier relations (*Chief Operating Officer, BankCorp*). However, BankCorp does not wish to enter into such arrangements where the failure of one supplier may end up costing punishing others financially (*Head of e-business development, BankCorp*)

However, it will still be necessary to train both the suppliers and the customer in the operating model. 'It will not work if the customer still has the incentive and the opportunity to run straight to supplier number twenty-three on the right.' (*IT service management consultant*) It requires the customer to always to through the SIAM provider; and on the other hand, it requires the SIAM provider to always take responsibility for the other suppliers. A basic prerequisite is to professionalise the relation between the SIAM provider and the customer and between the SIAM provider and the suppliers. This is an area where many service providers have much yet to learn in the years to come. 'The contracts will have to reflect the needs of the customers, and not just what you could come up with the day you wrote the contract.' (*ibid*.).

The best service integrator is the one who is able to translate customer requirements into off-the-shelf services, which he then combines into an integrated solution. This is, however, unrealistic, at least for the time being. A service integrator must be both technically competent within architecture, information management, compliance *et cetera*, and also be able to sit down with the customer and make suggestions to fulfil their demands. (*IT service management consultant*) It thus becomes a question of having the right people in place in the organisation and manning the SIAM office with the brightest minds. 'On the Apollo mission, when they were hanging out there in space and the oxygen tank exploded, it wasn't processes or technology that saved them; it was the professionals on the ground who had the required knowledge and were inventive in the moment of truth. At the end of the day, those are the ones who are going to make a difference.' (*IT service management consultant*)

SIAM Challenges and Capabilities

Enablers in this context are the competences or capabilities that the organisation is required to have in place in order to obtain success as a SIAM providers. The enablers identified in the Literature Review form the structure of the following section.

Strategy, vision and goals

The SIAM function represents a single point of accountability, i.e. a function to ensure, 'if not the seamless integration, then at least that no inbound services are conflicting.' (*IT service management consultant*) For this reason, it is important to have a clear strategy for outsourcing and supplier and contract management

(Kildebogaard, 2013), and equally important to decide, at a strategic level, whether one's SIAM solution is merely re-packaging and re-selling services sourced from other service providers, or whether it entails adding value on top. The service integrator thus has three tasks at a strategic level; to take responsibility for performance, to ensure integration and to ensure governance on behalf of the customer (*IT service management consultant*)

From a customer perspective, the service is experienced end-to-end, and it rests with the SIAM provider to ensure a seamless integration of deliverables into a whole service solution, including service level measurements and reporting. Alignment of agreements through the total solution is crucial, and (up-stream) operational agreements as well as (down-stream) service level agreements are advisable (Goldberg, Satzger & Kieninger, 2015). Further, it must be clear what the service integrator wishes to do retain in-house and what to purchase from other service providers. (*IT service management consultant)*

Traditionally, service providers would adapt their services and processes to better align with the customer. With the growing number of large-scale providers of standardised service catalogues, the tables have turned; customers are increasingly compelled to adapting their businesses to conform with standardised services (Goldberg, Satzger & Kieninger, 2015).

According to an interviewee, who is a consultant and subject matter expert on SIAM, '[t]here is next to no experience, the necessary capabilities do not yet exist.' (*IT service management consultant*) This is supported by DuMoulin, who argues that 'very few organizations have developed and deployed a repeatable approach on how to integrate suppliers into their existing core IT management processes.' (2014, p. 6) Similarly, 'most IT departments do not have the expertise, available resources, or time to learn how to develop and implement effective governance policies, build assessment tools, and ensure accountability.' (Stadtmueller, 2013, p. 2)

Principles, policies, governance and controls

There are two prevailing conceptions of what SIAM is; the bundling of many services into one solution, and the function of doing the work. SIAM is not something other than service management; it is a layer added on top of it (Holland, 2015b), and the classic service management virtues still apply (*IT service management consultant*). This means that the underlying process framework must be under control in order for the SIAM layer to be able to operate effectively. It also requires the SIAM provider to have a clear definition of what a service is, and what it means to integrate. Common definitions are required for suppliers and customers to agree on what is meant by e.g. a service or by integration. Achieving a best practice or standard may take ten years from now and is usually one of the last things to happen (*IT service management consultant*).

An important SIAM task is establishing service governance on the grounds of policies and guidelines set by management. Such policies must be unanimous across suppliers, the SIAM function and the customer to avoid the risk of governance instead becoming an obstacle (ISG, 2013). For this reason, there maybe an inclination towards retaining the SIAM function in-house for fear of losing control. However, the important part is that ownership stays with the customer, in that the customer will always be accountable in the end. 'While it is very possible to outsource the responsibility for the provisioning of the service it is not advisable at any time to outsource accountability.' (DuMoulin, 2014, p. 7) Therefore, in case of an

outsourced SIAM function, the ownership and responsibility should remain with the customer as principal and the SIAM provider as agent (ISG, 2013). 'Most of the time, the guardian does not assume accountability or contractual liability for other vendors that contract directly with the client.' (Vromant, 2010)

As such, the areas which the customer should retain include defining policies and guidelines, selecting suppliers and owning contractual relationships, governance and controls, risk management, enterprise, technology, information and management architectures, performance management and, last but not least, business relationship (ISG, 2013; TSO, 2011a).

The establishment and continuous improvement of common service integration governance is necessary for defining the rules for the integrated service solution. Governance enables service providers to integrate with each other and is important to manage and integrate service providers in pursuit of the customer's goals. Similarly, an integrated architecture is required for service provider technology to support the business. (Goldberg, Satzger & Kieninger, 2015) This includes the decision on who makes which decisions (*IT service management consultant*).

The SIAM function is required to understand the complete service solution as the sum of the parts delivered by different providers in order to build and manage services end-to-end. As service integration governance must support the overall governance of the business, so must the service integration architecture align with the overarching enterprise architecture. This is in order to ensure, that the whole service solution matches the customer's current requirements (Goldberg, Satzger & Kieninger, 2015).

SIAM contracts normally regulate the resolution of service incidents and the subsequent identification of the root cause. This means that it is the SIAM provider, not the customer, that orchestrates incident resolution. As such, the SIAM function thus becomes *de facto* accountable for the total service solution. (Vromant, 2010)

Contracts and agreements

A key requirement for successful SIAM is supplier and contract management capabilities (*Head of operations and support, BankCorp*) such as covered by the Supplier Management process in ITIL (TSO, 2011b) and the Manage Supplier Relationships and Contracts in COBIT (ISACA, 2012) , and legislation can be a show-stopper (*Head of operations and support, BankCorp*). Where ITIL takes a rather simplified, linear stance to supplier relationship management, COBIT considers the possibility of multiple suppliers: 'Where several suppliers combine to provide a service, consider allocating a lead contractor role to one of the suppliers to take responsibility for an overall contract.' (ISACA, 2012). SIAM distinguishes itself from these views, in the same way as Goldberg & Satzger's prime provider (2015) or the aforementioned general contractor, in that they are single-supplier focused. One of the greatest challenges of SIAM is exactly the distinction between who holds the contracts and who has the contact with the suppliers (*Chief Operating & Financial Officer, SX*)

It is the responsibility of the SIAM function 'to manage the providers according to the outsourcing contracts, transition services between them and define cross supplier procedures.' (Goldberg, Satzger & Kieninger, 2015, p. 10) In this regard, the service integrator is required to match the customer both in terms of financial, technical and cultural criteria and must be able to seamlessly integrate the service portfolio

across suppliers (*ibid*.) This is also in accordance with ITIL best practice for supplier and contract management (TSO, 2011b).

Contracts are usually entered into on a bilateral basis. Whenever there are more than two players, this poses a great difficulty in aligning responsibilities and service levels across several contracts, or indeed entering into multilateral contracts with more actors than a buyer and a supplier. A holistic view is required to ensure the scope is aligned end-to-end (Goldberg, Satzger & Kieninger, 2015). In order to ensure high service quality and consistency, this must be built into contracts and service level agreements from the start (Accenture, 2010). As such, collaboration between service providers is paramount. However, outsourcing adds distance to the relationship between buyer and supplier, which might lead to agency in terms of suppliers taking take of their own. This holds true especially if the outsouring partner is from a different culture (Goldberg, Satzger & Kieninger, 2015). There is no plug-and-play procurement, i.e. no contract structures or regimes exist yet, and no concrete process and role descriptions for multi-tier contracts. The nature of contracts and agreements change from you-and-me to a collective, but responsibility remains with the customer (*IT service management consultant*).

Organisation, culture and relationships

Acting as the single interface towards the customer, the SIAM function must be able to both understand, manage, adapt, contribute to, and foresee changes in the development of a unified service portfolio in response to business demand and requirements. 'It should not be visible [for the business] that multiple companies are working towards the same end-to-end service.' (Goldberg, Satzger & Kieninger, 2015, pp. 9-10) Further, different charging and delivery models 'need to be aligned into a coherent costing model and charged back to the business.' (*ibid*.) Accordingly, there is a need for a unified support model, taking into account who talks to whom and to whom users should turn for help. In a multi-supplier setup this could also pose contractual challenges. (*IT service management consultant*)

As with governance, the service integrator must be able to both define the distributed organisation and also to manage it continuously as business requirements change over time. Both the structure of the SIAM organisation as well as the roles, people and skills must be managed. Similarly, enforcing and supporting cultural change among all actors is necessary for the SIAM function to appear as a single interface towards the customer. 'A cherry-picked selection of providers – each of them in themselves the best – is worth nothing if they do not fit together. Particularly cultures and expectations need to be aligned.' (Goldberg, Satzger & Kieninger, 2015, p. 9)

When it comes to the organisation of the SIAM function *per se*, the role of the retained IT organisation must be clearly defined and delimited (*IT service management consultant*), and '[w]hile service management has been in place for some time, a stand-alone SIAM function is a relatively new construct.' (ISG, 2013) There are various models for outlining the organisational structure as delineated in the Literature Review. Most of the model depicted represent a solution where the SIAM function is either retained within the business or IT or outsourced to a dedicated supplier, and this chapter ends with the construction of recommended models. Further, the organisation must take into account how to organise around the SIAM function, i.e. which employees are to be placed in the SIAM office in case of an internal function, and conversely, who should be outsourced to an external service integrator. It should also be

decided whether to operate a centralised function or separate teams for each customer (*IT service management consultant*).

There have been examples of parallel developments of SIAM functions, where tasks pertaining to service integration are assigned to a SIAM function, but the same tasks are still carried out by the retained IT organisation, either due to fear of redundancy, lack of coordination and control or insufficient transferral of responsibility. 'The role of SIAM often is misunderstood, leading to mismatched expectations among the client, the SIAM provider and the other service providers and businesses.' (ISG, 2013) This leads to a loss of confidence in the SIAM function, which is seen as irrelevant, and to a lack of faith in their abilities (*ibid*.). Similarly, business units and IT units within the same company have been known to start building SIAM capabilities simultaneously; the business because they perceive IT as no longer fit to live up to the added complexity, and IT in order to remain relevant to the business. This approach is detrimental to service quality and the overall SIAM success for the company and builds unnecessary cost (*IT service management consultant*).

Similarly, there is a risk that the SIAM provider gains too little leverage from the beginning. This may lead to a situation where the customer organisation loses faith in the skills of the SIAM provider and starts bypassing the function in favour of direct contact with suppliers. Therefore, it is important to let the newly established SIAM function get off on a good start and let everyone in the customer organisation know the process. Additionally, '[c]ontracts or agreements with other service providers must .. include clearly defined service integration responsibilities.' (ISG, 2013)

Processes, roles and responsibilities

There is no specific need for new processes, but focus should on adding value in processes that are aligned end-to-end, not just re-selling services purchased from others (*Head of operations and support, BankCorp*). 'SIAM functions rarely have processes that are clearly defined, successfully implemented, regularly measured and improved over time.' (ISG, 2013) Hence, roles and responsibilities are of paramount importance and must be clearly defined across the governance of both customers, service providers and other stakeholders, and standard operating procedures and cross-supplier processes 'are a prerequisite for successful service integration.' (Goldberg, Satzger & Kieninger, 2015, p. 8)

Ownership needs to be clearly defined and demarcated in terms of who owns the suppliers and contracts, who owns the services, who owns the customers, i.e. who is accountable. Equally importantly, who is it delegated to, i.e. who has the responsibility. Further, under which circumstances is the SIAM service provider required to consult with various suppliers and other stakeholders, and when should they consult the customer, and last but not least, when should service providers inform the SIAM function? The service integrator and the customer must agree to draw the line between when the customer should be informed of a given situation, and when the service integrator is expected to deal with that situation without involving the customer (*IT service management consultant*). These decisions are collated in a RACI matrix (TSO, 2011a), which should be unified across suppliers, SIAM function and customer (Nissen, 2015). This requires not only well-functioning process within the companies, but also between them. Processes need to be superintegrated (Hammer, 2001) in the sense that e.g. the customer's process purchasing processes takes over seamlessly where the service provider's sales process ends and vice versa.

Data, information, measurements and reporting

If the SIAM provider is to present the customer with one solidified image, visibility is required in reporting (*Head of operations and support, BankCorp*). This in turn requires common information and technology architectures (*IT service management consultant*) and adherence to compliance requirements (*Head of operations and support, BankCorp*). Additionally, common key performance indicators and service level reports must aggregate up to the total solution (Vromant, 2014).

It is difficult to accurately measure each service provider's contribution towards the resolution of an incident, as well as pinpointing the underlying cause, as there is often a lack of visibility through the various actors in the network. Further, inappropriate measurement methods might cause suboptimisation rather than all service providers collaborating on identifying the source and resolving the incident as quickly as possible (Goldberg, Satzger & Kieninger, 2015). Vendors instead are prone to concerning themselves with apportioning blame or pointing fingers (Patterson, 2012; Vromant, 2014).

Supporting tools

The SIAM function is responsible for the integrated service management solution in terms of both tools and information. All relevant information must always be made available to relevant partners across various platforms. 'The most difficult competency is to integrate the diverse tooling solutions applied by the different providers.' (Goldberg, Satzger & Kieninger, 2015, p. 10) This is due to the fact that service providers typically use each their own service management solution. To successfully integrate, these tools must 'be reduced [in numbers] or tightly integrated to realize the benefits of multi-sourcing.' (*ibid*.)

Furthermore, according to Nissen (2015), the technical integration of tools is by far the easier task; it becomes tenfold more complicated when it comes to mapping base data between various systems. Due to these technical difficulties, the service integrator and the suppliers must agree which and whose tools to use, and whether one common tool is to be shared or technical integration developed between several tools. The latter is an immense task due to a lack of integration standards– not a fault of the tools, but of the information models and a lack of maturity (*IT service management consultant*).

Many service providers in a value network may use each their own management tools to integrate with the SIAM function, owing to the fact that they are service management suppliers across various other customers organisations along with their own (ISG, 2013). The integration of tools, inclusive of the information modelling, maybe a very expensive venture, especially when it comes to automating cross-supplier processes. for This reason, some SIAM setups accept the use of several tools with banale email integrations among various suppliers, or simply force the suppliers to all use the same tool provided either by one of them or by the SIAM function or the customer (*Head of service management office, I&O supplier*).

SIAM Archetypes

Should service integration take place within the existing business, or should it be outsourced to an external provider? Should the business retain ownership, or should it outsource accountability to an external party? Based on the existing literature in the field and the above challenges and capabilities, I have constructed the following model of four options when organising the SIAM function, on which I elaborate below. There is no preferred option, as the choice depends on the situation at hand. In the model, the IT department is

green, the service integrator is blue and the suppliers are red. The black border demarcates the customer organisation.

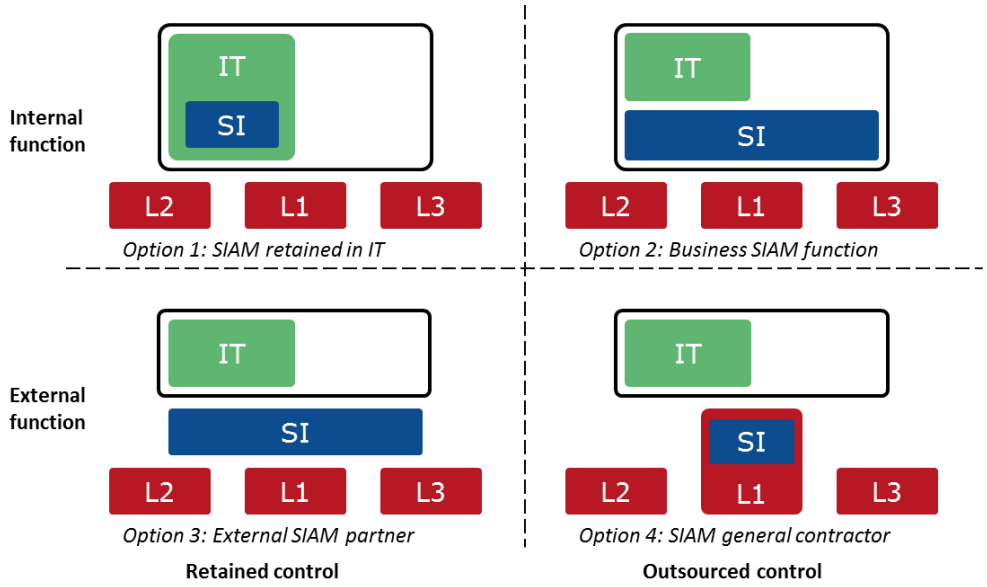

Figure 17: Four organisational models for service integration.

Option 1: SIAM Retained in IT

In the first option, the SIAM function is retained within the existing IT department. Control with the service providers remains within the company, and the IT department maintains control with the suppliers through ownership of the contracts and collaboration with all suppliers. As such, the IT department becomes the sole supplier of the total service solution to the business.

Option 2: Business SIAM Function

In the second option, the SIAM function still remains within the company, but is built as a unit in the business organisation. This means the business becomes its own service provider with the option of sourcing IT services from the internal IT organisation, from one or several external providers, or both. Control remains with the business, and, given the right circumstances, services can relatively easily be replaced or moved between the internal IT function and suppliers.

Option 3: External SIAM Partner

A SIAM 'middle layer' between the business and the suppliers provides a single point of control for the customer company to direct the service delivery, retaining accountability but placing responsibility for handling the suppliers with the SIAM provider. Usually, the customer company negotiates and maintains the contracts with the suppliers, but it is the SIAM provider that manages the contact and spearheads the integration of services from the suppliers into a total service solution facing the customer.

Option 4: SIAM General Contractor

The general contractor model is the least attractive one according to my research. This model might be called a single-supplier rather than a multi-supplier setup, in that one service provider is given the accountability for the total service solution. The advantages are the same as in model 3, but with the risk of

the general contractor (or prime provider) not being able to sufficiently distinguish between its own services and those of subcontractors. This might lead to unwanted agency and discriminative behaviour from the SIAM provider.

Analysis

Service Integration at BankCorp

At a high level, service integration is to a wide extent a question of skills or capabilities. On the one hand there are the technical capabilities described in frameworks such as ITIL and COBIT, and on the other hand there are the market skills. The SIAM provider must decide which services it wants to deliver and how to bundle them: 'Why do we supply this particular service? Could we have a supplier provide it for us and then integrate it in front of our customer?' (*Chief Operating Officer, BankCorp*) However, integrated solutions maybe more complicated than that. In the SX example, the customer has negotiated contracts with each of the suppliers, but the operational responsibility rests with BankCorp. This means that, although BankCorp has no contractual agreement with e.g. the application developer, they are still responsible for the reliability of the total service solution (*Chief Information Officer, BankCorp*).

An important thing to bear in mind about SIAM – which is also the reason to take ITIL as a point of departure (Holland, 2015a; b) – is knowing the company's current position and strengths in terms of processes and competences. Adding to that, it is important to appreciate that the real world does not occur in a logical sequence. This means that today, apart from purchasing a service solution from a well-established corporation such as BankCorp, the customer has the alternative option of purchasing a cloud-based solution. The difference is the non-functional requirements or warranties (TSO, 2011b) that surround the service in terms of e.g. surveillance, information security or adherence to legal requirements, which are included in a full-service solution. The customer would have to have all of those things in place – or he could purchase a total service solution from a SIAM provider. Futher, suppliers such as Accenture (2010) have built service solutions that decouple the technical infrastructure from the business operations. This means the platform rises to a higher level of abstraction in the technology stack; where ten years ago a hardware technician had to have a certification in order to install a given platform, today the customer can choose from a wide range of as-a-service (aaS) solutions that are increasingly becoming commoditised. This poses new requirements for a traditional service provider to uncover what the customers' requirements will be in the years to come, and how they will meet those requirements. From the customers' perspective, the solutions are increasingly becoming a question of the fulfilment of a need (*SIAM specialist, BankCorp*).

SIAM Challenges and Capabilities at BankCorp

Strategy, vision and goals

'In the future, BankCorp is going to be working more on integrating services of our own, which we deliver ourselves, with services from others, which we then bundle and supply to our customers as a package, as a business service.' (*Chief Operating Officer, BankCorp*) This indicates a move towards an increased retention of service integration capabilities in-house at BankCorp. The core business of BankCorp is to develop business solutions to its customers and deliver them in a stable, secure and cost-efficient manner. Cost-efficiency is obtained by economies of scale through the collaboration with I&O (*SIAM specialist, BankCorp*).

A huge challenge, according to one interviewee, is where to draw the line when entering into outsourcing arrangements (*SIAM specialist, BankCorp*).Usually, too much is handed over to the supplier, and tacit knowledge is lost. This happens due to the fact that outsourcing decisions are almost always based on financial incentives (*Chief Information Officer, BankCorp*). When the retained organisation discovers that knowledge of their business is sudenly in the hands of the new supplier, they start retrieving the people possessing that knowledge, because it is necessary to have someone in the organisation who knows about the area that was moved to the supplier, but who also knows about the business (*SIAM specialist, BankCorp*). The reason this is not discovered to begin with, according to the CIO of BankCorp, is that the problem slowly creeps in over time and does not hit full on immediately after moving the employees. Therefore, as many people as possible are moved, and after a while, the remaining specialists leave for retirement or other reasons, and the necessary knowledge is now gone.

This leads to the question of core competences. BankCorp puts a lot of effort into possessing the right competences and retaining the necessary knowledge of the customers' business in order to be able to couple that with the underlying operations (*Chief Information Officer, BankCorp*). The question then becomes whether a SIAM provider is able to do that. In the words of an interviewee, 'of course they can – they just can't today. It's going to take them several years to learn. Are the customers willing to take that extra risk? My guess is no.' (*SIAM specialist, BankCorp*)

Another shift BankCorp has been through during the past five to ten years is the shift in focus from infrastructure to services. When ITIL was first introduced at BankCorp, and when the outsourcing took place in 2010, everything was about technology. Focus was on hardware, but what ran op top of it, nobody in operations knew anything about. Nobody knew what the customers were unable to do if a certain server was not running. Now, when focus is on services, customers all of a sudden talk direct to operations and purchase services from them, and that requires quite different competences within the operations. There is a need to raise the bar and strengthen those competences so that everyone at BankCorp knows exactly what is meant by SIAM. It is similar to the introduction of ITIL. One thing is what it says in the theory books, but the actual, practical meaning of the term in the organisation is important, and that goes exactly for SIAM organisation (*Chief Information Officer, BankCorp*).

The upshot of this is that BankCorp needs to determine what it means by the services, the company delivers to its customers. Similarly, BankCorp needs to decide what it means by integration. Put those two together, and there is your definition of service integration, i.e. BankCorp's definition, and the management layer on top of that. Next comes the challenge that there seems to be nobody sufficiently experienced in this particular area, and even if there were, BankCorp would not necessarily have them perform the SIAM function, owing to the fact that the necessary competences for controlling the operations area with central SIAM capabilities outsourced simply do not yet exist, within or outside of BankCorp (*Chief Information Officer, BankCorp*).

In order to remain relevant to its customers, BankCorp must find its place in the value network in relation to I&O. If BankCorp decides to retain its own SIAM capabilities, is there any need to purchase integrated services from a supplier such as I&O? BankCorp's customers buy a service; they do not concern themselves with what is underneath, unless they supply parts of that service themselves and then in reality become their own service integrators. However, the customers lack the required competences to establish their

own SIAM function, and that is why they need BankCorp to do it for them (*Chief Information Officer, BankCorp*), not least due to the cost structures in the industry. For this reason, there will still be a BankCorp in ten years, unless it decides to forward integrate with some of its customers as foreseen by a bank executive a couple of years ago, due to the need for consolidation of some of the cost drivers in the market which weigh down especially the smaller banks (*SIAM specialist, BankCorp*). This is supported by an I&O interviewee: One of the things we're working on is creating a higher degree of transparency into the cost structures of our services so that we can inform our customers what it costs to deliver a service in a certain way and why it would be more expensive to deliver it in a different way. (*Head of service management office, I&O supplier*)

Further, the SIAM functions of both BankCorp and I&O will have to become much more proactive with regard to emerging technologies, so they can inform their customers in due time for them to be able to think e.g. a new platform into their roadmaps for application development (*Head of service management office, I&O supplier*). This is where the real integration begins, according to the BankCorp CIO. In a situation such as the current, where the SIAM provider delivers but a part of the service solution to the customer, they in fact become nothing more than just another supplier. The SIAM function negotiates agreements with some of the other suppliers, but the agreements are not legally binding, and the SIAM function cannot hold the other suppliers to these agreements. This leads the SIAM provider to exclude certain areas in their service level agreement with the customer, such as application development in the SX solution: 'We deliver one hundred per cent. Our service is running, and we're a great success. When I then visit SW to report on my service, they are then going to look at me and ask what it is I haven't understood. It didn't work for three days. Then I would say, but that's for the application developer to explain; my operations were running smoothly.' (*Chief Information Officer, BankCorp*) According to the CIO, SX are going to change their perspective in the future and instead ask BankCorp to take full responsibility, also for the agreement with the developer, because that would be easier for them, and that is when BankCorp becomes a true service integrator (*Chief Information Officer, BankCorp*).

Principles, policies, governance and controls

In the future, according to BankCorp's COO, SIAM providers will purchase more services from other suppliers instead of providing them in-house. This means that BankCorp must choose what to integrate in-house and what to purchase externally. BankCorp must find their place in the technology stack as must I&O, and BankCorp should integrate only the services that match their strategic goals. Rather than sourcing various services from different suppliers, BankCorp should therefore concentrate its efforts on building relationships with I&O and contribute to strengthening their integrator capabilities (*Chief Operating Officer, BankCorp*). Additionally, BankCorp needs to have a clear policy on information security, as this tends to be a show-stopper in the market (*ibid*.) According to BankCorp's CIO, the current operating model can be regarded as semi-service integration, as BankCorp is not fully accountable (*Chief Information Officer, BankCorp*).

From a customer perspective, 'service integration, in its essence, is simply to help the customer as much as possible.' (*Chief Operating & Financial Officer, SX*) The customer needs someone in the service integrator role who will follow through, so the customer does not have to deal with integration issues themselves. 'It comes down to the mindset; will you stop once somebody tells you no, or will you carry out your responsibility and ensure the problem is solved? If the supplier says no, and you're convinced the issue is

with them, then you don't stop there; then you stay at their heels. We've seen it happen; the initial reaction is, the problem's not on our end, but then you keep on pushing.' (*Chief Operating & Financial Officer, SX*)

Correspondingly, from a supplier perspective, integration has more than one meaning; it is a matter of assembling the puzzle, but it is also an integration between tools and processes. (*Head of service management office, I&O supplier*) As long as the supplier own all of the building blocks, or in the next step, owns all of the contracts, then the supplier owns the governance of the total solution and can thus make the decisions. The moment a supplier become dependent on third parties with whom the customer owns the contracts, then a need arises to integrate decision structures and processes as well. Integration must take place in several layers, and that requires more coordination and more focused agreements. Layers are added which must be under the continuously control and coordination of the supplier, which in turn adds increased complexity. When ownership lessens, complexity increases, and with that the need for a more clearly defined governance structure and even better relations. 'Relations are crucial; both with your customer, but perhaps even more importantly the group of suppliers whose services you're integrating. You can have the world's best contracts, but if the relations don't work, then it all becomes finger-pointing and throwing paragraphs at one another. It is possible, it just becomes more complex.' (*Head of service management office, I&O supplier*)

Contracts and agreements

What makes SIAM interesting from a commercial perspective is the many agreements between the actors in the network. BankCorp delivers a service to its customer, and they share a regular buyer-supplier relationship. The customer sets the expectations, and BankCorp is measured against those. However , apart from that, a third party delivers another service to the customer, which BankCorp is then made responsible for. This service also comes with a service level agreement – but that agreement is between the customer and the supplier, and BankCorp is not part of it. This means the customer now has two parallel agreeements; one with, say, a software vendor, and another with BankCorp as a service provider and integrator. What complicates matters is that these two components might not work seamlessly together, and this is where the service integration capabilities come into the picture, because BankCorp must be prepared for a situation like that. Adding to that, BankCorp outsources its own operations from I&O, which means there is a third supplier in the network responsible for the underlying infrastructure. 'That is what's interesting; are we able to synchronise the two parallel agreements?' (*SIAM specialist, BankCorp*)

BankCorp purchases most of its infrastructure and platform services from I&O, and a database server can be provisioned and made available relatively quickly. However, if the application that runs on top of it is supplied by a third party, it is still BankCorp who is responsible for the service supplied to the customer, no matter how quickly I&O can deliver. In the end, it makes no difference to the customer who supplies the various components of the service; the customer still purchases the service from BankCorp. Therefore, BankCorp must tailor the contracts with its suppliers so it is still able to deliver a full service solution to the customer. I&O may deliver some parts, and there might be a dozen other suppliers, but that changes nothing; BankCorp still holds the responsibility for the service solution (*Chief Information Officer, BankCorp*).

BankCorp is about to deliver a new service to a different customer, CB. In this case, CB purchases the toal service solution with BankCorp, but they hold the contract with the developer themselves. According to the CIO, the big change in this regard is that BankCorp will own the contract with the supplier going forward. This means that BankCorp will be moving closer to a SIAM setup; BankCorp will become responsible for the contract with the application developer, I&O supplies the infrastructure, and BankCorp supplies the service solution to CB and holds all the contracts. (*Chief Information Officer, BankCorp*)

One of the services BankCorp supplies to its customers is a homebanking solution. The service level agreement comprises application and infrastructure delivered as a service. Independent of the homebanking service solution are factors beyond BankCorp's control, such as the central security solution used all over the country by consumers to access such services. However, if e.g. the security solution is unavailable, BankCorp still reports their homebanking solution as being unavailable, due to the fact that the agreement is regulated by customer experience; so if the security solution is unavailable, so is the homebanking solution. In the explanation to the customer BankCorp will indicate that their homebanking solution was unavailable due to external factors. This BankCorp can do because the agreement with the security supplier is not a component of the homebanking service package, but it remains a prerequisite to access the homebanking solution and so remains part of the customer's experience with BankCorp (*Chief Information Officer, BankCorp*). The question then becomes where to draw the line between what is included in the solution and what is not, and more importantly what is perceived by the customer as being part of the service solution and what is not. In a similar example where BankCorp's services to CB also makes use of the public security solution, BankCorp can still explain lack of access as being caused by external factors, but what happens if for instance the network connection between BankCorp and CB is lost? CB has recently expanded their connection to BankCorp, adding an extra line from a different supplier; but CB has signed the contract with the new supplier, not BankCorp. The addition of the extra line increases the stability of BankCorp's solution and secures it against accidental damage to the cable in the ground, but at CB's cost. This means that BankCorp still is not accountable for the total service solution, and for that reason, new contracts are worded to include only the components that BankCorp supplies, whether themselves or through subcontractors. There is nothing in the SW contract about the application developer. This is a situation the BankCorp CIO foresees SW will tire of, once the application has been unavailable for days on end but BankCorp reports one hundred per cent availability on their platform. It is necessary to report on the total service solution. (*Chief Information Officer, BankCorp*)

Of course, as a service supplier, BankCorp wishes to deliver the best possible service to their customers. For this reason, to begin with, BankCorp is prepared to do anything to help the customer as much as possible; but once the service level agreement has been signed, BankCorp must also take into account what is their responsibility and what is not. In the SX example, BankCorp is not responsible for the services from the other suppliers being available, and as such, SX would have to ask the individual suppliers for an explanation in case of problems. BankCorp would obviously contribute to the statement because they are responsible for parts of the solution, but they are not responsible for uncovering what went wrong and they are not accountable for the total service solution (*Head of e-business development, BankCorp*). In this case, it is important to have clear contracts and a clear agreement on the interpretation of the contracts. If the customer becomes used to a certain level of service, and the supplier all of sudden reverts to the exact wording of the contract, conflicts might arise. It is a knife's edge, and the trick is to balance it right between delivering a good customer experience and not giving away too much that is not paid for in the contract.

It is a discipline that both the customer, the SIAM provider, and the other suppliers for that matter, must exercise. As a SIAM provider, BankCorp enters into a partnership agreement with its customer where it is not all black and white: 'You win some and you lose some, and I believe that in the future we will see that we gained a little on one thing, on the other hand we spent a few more hours on another, but we managed in the end. That's how it is. It's the partnership we're in it for, and in a partnership you give and you take.' (*Head of e-business development, BankCorp*) The partnership is driven by a wish of BankCorp's not to capitalise on the SW agreement. Obviously, there needs to be a positive outcome in the end, but the pricing structure is based on cost plus. There are no fixed prices where BankCorp assumes unnecessary risk; BankCorp is not interested in that (*ibid*.) This is in stark contrast to the more commercial solutions where the SIAM provider promises its customer a certain availability level, and if they do not attain that, there are clauses in the contract that reduce the service fee. On the other hand, if the availability target is exceeded, the SIAM provider will have spent unnecessary – expensive – resources on excess capacity, which no-one is willing to pay for (*Chief Operating Officer, BankCorp*).

Given the choice, BankCorp would have preferred to front the whole SX solution and hold the contracts with the application developer and all the other suppliers (*Head of e-business development, BankCorp*). The advantage of this for BankCorp would have been a greater degree of control over the service solution (*SX project manager, BankCorp*). Although SX chose the application provider, BankCorp could still have held the contracts. On the other hand, BankCorp has an advantage of SX owning the contracts, in that they cannot be held responsible for situations with other suppliers beyond their control (*Head of e-business development, BankCorp*). This bears resemblance to the homebanking solution mentioned above, where issues with the security solution is beyond BankCorp's control (*Chief Information Officer, BankCorp*) SX's reason for keeping control over the contracts is it means they also retain the supplier selection (*Chief Operating & Financial Officer, SX*).

In the current situation, however, the SX company holds the contracts with all the suppliers that are part of the SX solution, but BankCorp needs to know the content of these contracts. When there is an operations issue, BankCorp needs to know the agreed response times in order to know when to follow up on the supplier or escalate the situation to the customer: 'We need to know how quickly we can expect the supplier to react. What are their continuity plans? Is the support function available around the clock, or should we wait till next morning?' (*SX project manager, BankCorp*) There needs to be a collaboration agreement covering all stakeholders, but that agree might not be sufficient as it is not a legal document; it presupposes collaboration in the good spirit of the partnership. Apart from that there is a service level agreement, a contract, between SX and each supplier, just as the one with BankCorp. SX is contractually accountable, but BankCorp is responsible for the collaboration document, and that is where the practical agreements are made in terms of how the developer should act in case of a critical error, who to contact at which hours *et cetera* – but BankCorp does not hold the final accountability (*SX project manager, BankCorp*).

This means that if for instance a supplier does not react to an error report within the response times given in the collaboration document, BankCorp cannot invoke the contract, but can only appeal to the supplier in question. If this fails, there is only one other option, and that is to escalate the situation to the customer, who then assumes responsibility for resolving the problem (*SX project manager, BankCorp*). However, it is in the interest of the customer that the SIAM provider assists as much as possible (*Chief Operating &*

Financial Officer, SX). Following the customer's wish, BankCorp would have to pursue the matter with the supplier, but they have no legal agreement to support them, 'and that is what makes it complicated.' (*SX project manager, BankCorp*) Further, BankCorp would require detailed knowledge of every single contract between SX and the individual suppliers in order to know when to react, and would also need deep knowledge of the solution *per se* in order to be sure the error is not with themselves: 'It would be a shame if we redirected an issue to a supplier who would then return it. That would mean a lot of wasted time all of a sudden, before the real cause of the error is found.' (*SX project manager, BankCorp*) This could result in what authors have referred to as a 'hot potato' culture where suppliers shift blame onto one another instead of focusing on solving the problem (Patterson, 2012).

Froma customer perspective, if the service level agreement SX measures BankCorp against is to take into account all the other SLAs, then the result would be the lowest common denominator. If one supplier has a response time of twenty-eight days and all the other ones respond within one day, then BankCorp would never accept an contract of less than twenty-nine days. The responsibility that rests with BankCorp is to appraise the situation, identify where the problem is and then report it to the supplier in question. The first step in that process is to detect and identify and then send the case to the right recipient. That part is easy to put into a service level agreement; with a standard priority 3 issue, BankCorp must have identified the problem and forwarded it to the right supplier within two days. After that, the specific service level agreement between SX and that particular supplier takes over. If BankCorp had the full contract responsibility, then that would also mean the contracts with the other suppliers, whereas if BankCorp has only the contact, then SX would only measure them on a contact agreement and not the services of the other suppliers. The case in point is who takes the final responsibility for the total process. (*Chief Operating & Financial Officer, SX*)

Organisation, culture and relationships

As part of defining a sourcing strategy, BankCorp is about to decide how to organise their SIAM function. The number one question is whether to keep the SIAM function in the company (option 2) or outsource it using an external prime provider (option 4). The choice is uncertain at the moment. The SIAM projects that are under way at this time are manageable, but if all of sudden half of BankCorp's business is SIAM solutions, then it would matter a great deal who is in charge of delivering the services. If BankCorp decides to retain the SIAM function in-house, staff is needed with the right capabilities, i.e. knowledge of integrating an intricate web of services. On the other hand, if BankCorp chooses to outsource the SIAM function, staff will be needed with knowledge of contracts and agreements, because the final accountability remains with BankCorp in any case (*Chief Information Officer, BankCorp*). There have been talks with I&O of having them deliver some services and then a different supplier to provide the rest. 'That menas we've in fact placed ourselves in this layer, where we're handling a supplier who provides something to our customers. It is not simple.' (*Chief Information Officer, BankCorp*)

In the current setup, SX similarly has an integration role of their own: 'If I were the director of SX, I'd hire a service integration manager and have him control BankCorp as an operations supplier, the application developer, and so on, and then report to management how the service is doing.' (*Chief Information Officer, BankCorp*). This means the integrator role is not with BankCorp*;* BankCorp is simply a supplier in the eyes of SX. 'It's a matter of perspective. What is it that the customer experiences?' (*ibid*.)

It becomes a question of why BankCorp would want the integrator role. SX would want to keep it in-house in order to be able to translate a number of suppliers into a business service. As long as BankCorp can manage this translation, they can add value to the customer's business (*SIAM specialist, BankCorp*). Therefore, in BankCorp's perspective, SX ought to still have chosen their own supplier, but then ask BankCorp to sign the agreements, both with I&O and with the developer and the other suppliers, and then SX could have had one service level agreement with BankCorp (*Chief Information Officer, BankCorp*). On the other hand, SX is interested in BankCorp's 'ability to handle as much of that as possible, so we can have as small and flat an operations organisation as possible. That's the model I prefer. BankCorp having the contracts with all the other suppliers is not relevant in this scenario.' (*Chief Operating & Financial Officer, SX*) Another example of BankCorp's wish for a closer integration with the SX solution is the support function, which is delegated to a third party. BankCorp already provides support services for other solutions such as homebanking, and see a synergy effect in supporting the SX solution in-house. However, the other supplier was selected due to cost negotiations, bu BankCorp will continue working on a tighter integration and shouldering a larger part of the responsibility for the total solution (*Head of e-business development, BankCorp*).

Similarly, CB has organised for their own SIAM function in the sense that they are their own software supplier, and BankCorp delivers only the infrastructure. 'That why I say to them, I don't report on the service, I only report on the steel. "Well, you can't", they'll say, but I can, because that what's in the SLA.' (*Chief Information Officer, BankCorp*) It is the view of BankCorp's CIO that CB will change their minds with regard to the new service that is under development. CB are going to ask BankCorp to take over the contract which they have negotiated with the software supplier, and that is when BankCorp will become a true SIAM provider; but that is also what is going to complicate matters. BankCorp will take over a contract which was signed by the customer and a supplier. Adding to that, BankCorp enters into a contract with I&O as an operations supplier. This effectively means that CB becomes their own supplier, but through BankCorp as a service integrator, who will then have the responsibility for supplying the total service solution, parts of which are delivered by somebody else (*Chief Information Officer, BankCorp*). At its most basic, the service model is a question of taking over risk and costs from a customer. This means that if the customer starts building their own SIAM function, they take some of that risk back, and that is why BankCorp must possess the necessary competences of translating technology into business (*SIAM specialist, BankCorp*).

The current organisation of BankCorp's SIAM function for SX is informed by the existing contract: 'The setup at the moment is that BankCorp acts as a second-line for the other suppliers, and my concern is their ability to handle as much of that as possible, so we can have as small and flat an operations organisation as possible. That's the model I prefer. BankCorp having the contracts with all the other suppliers is not relevant in this scenario.' (*Chief Operating & Financial Officer, SX*) In the future, according to BankCorp's head of e-business development, 'due to the complexity caused by the many suppliers, I believe there will come a need for discussing a new, external organisation around SX.' SX currently holds nine agreements with various service providers. BankCorp is a supplier and cooperates well with the other suppliers, but BankCorp is essentially just another supplier, and SX is left with the task of selecting the other suppliers, obtaining their services and adding them to the solution that is operated by BankCorp. In case something goes wrong in a relationship with a supplier, SX still holds the responsibility. BankCorp does not wish to find itself in a situation of shared responsibility: 'How can we live with part of the responsibility? We've

discussed that with them and said, if you want to give us the full responsibility, then we'll take it -but then it has to be all of it, we will not share it with others. We want full responsibility for the other suppliers, and then we'll do it our way.' (*Head of e-business development, BankCorp*)

However, it was a complex setup with many actors competing and cooperating with each other simultaneously, so SX decided to keep the responsibility in-house in the beginning. Now, SX has formed their organisation. They have a head of development and an operations manager. They have an organisation in place to enable them to further develop their product and shoulder the responsibility, and they have the people to handle their suppliers. That means that the current setup is unlikely to change and BankCorp therefore will not immediately be given further responsibility (*Head of e-business development, BankCorp*). Going forward, situations may arise where something is wrong with the solution, and BankCorp discovers an opportunity for improvement. In that case, BankCorp is ready to advise SX to pursue the matter down a certain path, rather than simply referring to the contract and letting SX work out a solution for themselves. Depending on the contract, BankCorp might charge their customer for extra services towards that end (*ibid*.).

The advantage for SX of the current setup is they have complete control of the various actors, and they have deep knowledge of the contents of the contracts. This means they can set demands for how they want the cooperation with each of the suppliers. This is a transparency they will not have should they choose to have BankCorp enter into the agreements on their behalf. That would mean, on the other hand, that they would be able to make demands of BankCorp of how they want it to be, and BankCorp would then have to negotiate those circumstances with the other suppliers – or return to SX and tell them, that what they are asking for is not possible due to the circumstances with one or more suppliers. SX also has better informal relations with the various suppliers, including contact points at the various companies, which BankCorp does not have because it is SX who has entered into the agreements. Conversely, SX could also turn it to their advantage by reducing complexity, if they were to have BankCorp deal with the suppliers. That would enable SX to trim their organistion, which, in turn, would make it advantageous to have BankCorp perform a larger part of the work.

The disadvantage for SX, on the other hand, of having BankCorp as prime supplier, would be a loss of control and a stronger dependence on BankCorp. With that comes a risk, especially in a situation where the customer is unhappy with the supplier and wishes to terminate the contract. This is also why, as mentioned in the strategy section above, it is important for the customer to retain its core competences (Prahalad & Hamel, 1990) within the company, such as supplier and contract management (Mann, 2013), and only outsource the parts that exchangeable. Were SX to retain a broader organisation, it would require more staff to manage and meet with all the suppliers, including the financial overhead. For BankCorp, the disadvantage would be the need to cooperate with supplier they have not chosen themselves, because SX still chooses which suppliers they wish to work with, and BankCorp might have chosen other suppliers, had they had the opportunity. If the job had been BankCorp's from the beginning, they might also have opted for fewer suppliers, and maybe chosen to perform some of the work in-house. 'If I were an operations manager at SX a year ago, I would probably have taken a look at the supplier landscape and thought, "this is going to cost us." Many suppliers depend on each other, and every time one of them changes something, the others will have to change theirs accordingly. That would be easier in one company.' (*SX project manager, BankCorp*)

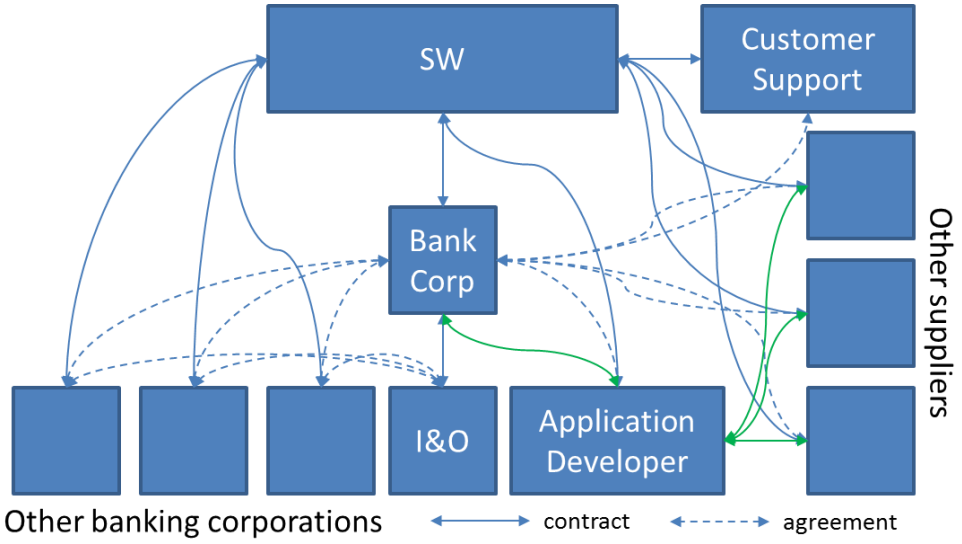

Figure 18: The SW value network.

A similar, yet crucially different, solution could be a more serialised approach where BankCorp fronts the service towards SX and then appoints another supplier as a prime provider for the development of the total service, inclusive of managing other suppliers in the network such as the security service provider and the merchant solution provider (the green lines in Figure 18).This model would be sensible insofar as BankCorp does not possess the sufficient business knowledge of the SX solution and all of its components, and therefore is unable to straddle the interdependencies between suppliers. To this end, SX have attempted to include in the agreements that the companies are to mutually inform one another, 'but there are a lot of players in the game, and if I were to recommend SX something else, it would exactly that; to reduce complexity through fewer suppliers and then a little more in one place, whether it's one or the other model.' (*SX project manager, BankCorp*) Similarly, the support function should be consolidated into BankCorp.

SX has chosen a solution where they handle much of the integration themselves. The SX project manager at BankCorp reckons this decision was made, at least in part, due to a lack of maturity and experience with so complex a supplier setup. As an example, he mentions the provider of the merchant solution, which has included late in the process, 'where I thought, that's an obvious task for the application developer. In fact, I don't think they'd considered it at the time.' (*SX project manager, BankCorp*) Additionally, there has been a lack of focus on the end-to-end architecture, someone who, from a technical point of view, would be able to see through all the dependencies and realise that the solution would become more technically complicated than need be. If instead SX would have asked BankCorp to design the total solution, they would also have had the technical responsibility, but instead, BankCorp was asked to provide a stable operations and integration platform This means BankCorp's focus has not been on the total complex of interacting systems – which it would have been, if BankCorp were the service integrator. One reason for this might be the disadvantageous position for SX in the increased power of BankCorp (*SX project manager, BankCorp*).

For the customer, it is cheaper to interfere as little as possible and trust (Overby, 2011; Sutinen, 2013) the service integrator to deliver their services at the agreed time and quality. Otherwise the supplier's agility is

reduced, requirements for reporting *et cetera* would rise, which would cost resources that could have been better spent on other things. 'For both parties it would be better if the supplier delivers what is agreed and we talk to each as customer and supplier and not as technology specialists who demand to check each other's work.' (*Head of service management office, I&O supplier*) Consequently, the biggest disadvantage for SX is their lack of control due to the many suppliers and risk of errors (*SX project manager, BankCorp*). The advantage for BankCorp, conversely, is more influence compared to the present setup. Getting closer to the business would also put BankCorp in more of a partnership, where SX could to a wider extent benefit from BankCorp's knowledge of the market (*ibid*.). This in turn would also be of advantage to SX, as they would be better able to focus on their down-stream activities.

When asked whether the setup will change in the future, BankCorp's head of e-business development says: 'I believe they're going to ask us at some point. There's no doubt that the complexity of the supplier landscape is costly, and they might be better off with a slimmer organisation which can deliver more to their customers, and then pay the price BankCorp will charge for doing that work.' SX is going to evaluate the currently setup for two reasons; one is to minimise risk, and the other is to place a larger part of the service delivery with a single supplier (*Head of e-business development, BankCorp*).

Processes, roles and responsibilities

Once the contracts and agreements are in place and the service is up and running, changes will be made on a frequent basis. If for instance the developer deploys a change to the application, and users begin to experience problems, BankCorp will not be able to handle that situation, but would have to inform SX that there is a problem with the new release of the code. 'The developer has no way of demonstrating how ther service is running, and therefore it'll be on us to prove that we didn't make a mistake.' (*Chief Information Officer, BankCorp*) The upshot of this is that BankCorp requires a performance baseline, which needs to be updated with every change. At the other end, if I&O were to upgrade something in their environment which has a negative impact, BankCorp can measure that as well – but does not own the service, only the operations. However it is still up to BankCorp to connect the dots and inform SX of a fault in their solution (*Chief Information Officer, BankCorp*).

If, on the other hand, BankCorp had the full responsibility for the integrated service, then the arrow could only point in one direction (*Head of e-business development, BankCorp*). Whenever there is an issue, SW would expect BankCorp to handle it and inform them of the solution. BankCorp would then have to do one thing only, namely contact the supplier in question and ask them to fix the problem and deploy a new release of the application. 'The service integrator must not give up; I need to be sure that he will follow up on the issue and ensure its resolution; otherwise I might as well hire someone of my own. The integrator role is not simply passing messages on to suppliers; it means that you take responsibility for helping me quickly and efficiently – that is, at a high success rate – resolve the issues. Otherwise I might as well run it internally.' (*Chief Operating & Financial Officer, SX*)

BankCorp is responsible for the operations platform in accordance with the underlying service level agreement. Accountability for the application, on the other hand, rests with SW. They are the ones to finally approve the new release. If an error is subsequently discovered, it is the responsibility of SX to detect and correct it. If all of a sudden something is not working, and the responsibility is shared, BankCorp needs to be very clear on what is their responsibility and what is not. On the other hand, 'I'm a hundred per cent

certain we will not see ny headlines blaming us as a supplier. That will happen only once, in the same way as we would never blame I&O and say it's their problem. We would stand up to our responsibility, regardless of who our subcontractors are.and we wouldn't expect anything less of SX.' (*Head of e-business development, BankCorp*)

In the early phases, SX was very unclear on where to place the support function. The initial offer from BankCorp was to accept all issues at first and then pass them on to suppliers if they were unable to handle the problem on their own. The suggestion was to simply patch the error records on to the suppliers, but not follow up on their resolution. This meant SX would have to do this work themselves. Subsequently, SX has asked BankCorp for an expanded support model where BankCorp handles the coordination of error handling across suppliers; the other banking corporations as well as the application developer and the other suppliers. If SX agrees to that, roles and responsibilities change, and it is no longer a question of passing issues on to others and then forget about them (*SX project manager, BankCorp*).

The process landscape is complicated, and the alignment between the customer's and the SIAM providers' processes and those of the suppliers is paramount. In a setup where a supplier introduces changes to the environment without informing the customer or the SIAM provider, or do not perform them in the way they were supposed to, repeat difficulties and problems abound – and that concerns only one process; a number of ITSM processes could have that sort of influence on the service solution to the customer. It is therefore essential that the processes are properly integrated between the various providers – either as a technical integration or as an agreement that the supplier complies with processes of the SIAM provider or *vice versa*; a unanimity that ensures there are no holes in the value chain due to lack of process integration (*Head of service management office, I&O supplier*).

'If it's difficult to get your own processes to work properly, and then all of sudden you've got this process puzzle that you need to make work across multiple suppliers, that requires high processes maturity – the ability to understand what it means to follow a process and cooperate around things, and understand when it no longer makes sense to follow this process, so whom should I get in touch with to get things done right.' (*Head of service management office, I&O supplier*) This is what Hammer (2001) refers to as superefficiency of a company or superintegration of processes. In terms of cost efficiency, a customer can usually have it any way they want, but it comes with a price. If a supplier is to be efficent, it requires efficient processes. 'If we've got a change process per customer, then that's not very efficient.' (*Head of service management office, I&O supplier*) Throughout the value chain, the customer will always be the Accountable part in the RACI matrix (TSO, 2011a). That leads to the question of who is Responsible, who plays the executing part. Then comes the focus on costs in the value chain (*SIAM specialist, BankCorp*). 'If a supplier is systematically speculating against the SLA, then we've got an entirely different problem, but there needs to be some sort of internal escalation procedure between the service integrator and the supplier, and only when those options are exhausted do you escalate to the customer.' (*Chief Operating & Financial Officer, SX*)

Data, information, measurements and reporting

It is the role and responsibility of the service integrator to collect the necessary data and information from each service provider and provide an end-to-end, service-oriented reporting regime for the customer. Apart from quantitative goals of e.g. two days to react on a service incident, there must also be qualitative

measures in place such as the ability of the SIAM provider to correctly place an issue with the right supplier in the first shot. (*Chief Operating & Financial Officer, SX*)

BankCorp, in the current setup, is being measured quantitatively on availability, capacity and reaction time. Response times when end customers use the application are measured only within the BankCorp infrastructure, not consumer to consumer (*Head of e-business development, BankCorp*). This means again that the responsibility for the service measurements is divided between SX and BankCorp, and SX must therefore appoint someone in their own organisation to carry the accountability for reporting on the total service (*Chief Information Officer, BankCorp*), and 'that is going to cause trouble at some point.' (*Head of e-business development, BankCorp*)

Supporting tools

The technological integration for BankCorp of getting the processes of its own organisation to run smoothly with those of various service providers requires interfaces to ensure the correct handling of for instance incidents, so the mapping takes place properly. If an incident of priority 'very serious' is reported at BankCorp, the integration with the management system of the supplier who is to deal with the issue must be able to interpret what is meant by 'very serious', if for instance the supplier's system uses numbers for priority (*SIAM specialist, BankCorp*). This information modelling is crucial and takes up to ninety per cent of the work effort to get the integration right even between two systems (*IT service management consultant)*.

This is opposed to paperwork or email based communication where the technical integration is faulty or lacking, which is not particularly expedient for either case management or metrics. This is where SIAM advises to have the technology architecture in place in order to appear as a professional service provider to the customer. That is a prerequisite for the ability to deliver metrics on how well the various steps in the process are doing (*SIAM specialist, BankCorp*).

If BankCorp were responsible for the SIAM delivery, and an error was reported to the service desk, the only way to deal with that in a professional way would be for the tools to sufficiently support the processes across providers, so incident management runs smoothly. Without proper tools integration it is impossible to verify that everybody is on the same level of awareness about a given incident, and who is responsible for resolving it. When two hundred customers have reported the same error, the technology must be able to support cross-supplier resolution from detection to correction. 'If we cannot create that value chain of information, we'll end up drowning in paper and frustrated colleagues and managers who don't understand why we can't measure anything.' (*SIAM specialist, BankCorp*) This is where the technology part of SIAM comes into the picture (*ibid*.).

In the current setup, however, little or no tool integration exists. I&O employees have access to BankCorp's IT service management system, but 'today, we have employees working in three or four different ITSM tools and three or four different sets of processes, and that's not efficient, neither from a resource perspective nor from a quality perspective. We wish to change that and only run one ITSM tool and then offer a portal and an integration interface to our customers. That is a more efficient way to cooperate than asking us to live in their own processes.' (*Head of service management office, I&O supplier*)

Discussion of SIAM Archetypes at BankCorp

From the perspective of the customers, BankCorp must choose a delivery model and stay true to that: 'From my point of view, either BankCorp present themselves as a full service provider, which is where we have only one contact interface and contract interface, and that's BankCorp. The other option is that we have the contracts and BankCorp has the contact with the suppliers.' (*Chief Operating & Financial Officer, SX*) However, if BankCorp were to be responsible both for the contact with the other suppliers and also maintain responsibility for the contract interfaces, a conflict of interests ensues; according to the BankCorp head of e-business development, either BanckCorp wants the full, undivided responsibility; if they cannot have that, they prefer not to be responsible (*Head of e-business development, BankCorp*). In that case, according to the SX CI&FO: 'then for me it's actually just the old prime supplier model, but what's new and interesting is when we're able to choose the suppliers we want, we've got the contracts, but we then buy the service from BankCorp that they handle the contact interfaces, and that's where we're headed.' (*Chief Operating & Financial Officer, SX*) Thus, there seems to be a mismatch between the expectations of the customer and the conditions on which BankCorp as the SIAM provider is willing to negotiate.

According to I&O, the infrastructure and operations supplier, there are several perspectives. There is the customer perspective, where the focal company purchases services from a number of suppliers and assembles those into a total service solution to the customers. Conversely, there is the supplier perspective – which is in fact the same, only one step further back in the chain. Here, the focal company purchases a service solution from the SIAM provider, who must then supply the services as efficiently as possible, i.e. at the highest possible quality, lowest price or a combination thereof. This they can do either by supplying the services themselves because they are the best ones in the market on that particular service area – but there are also services which they supply themselves today, where in the longer perspective there might be suppliers who do it better. When that occurs, those elements in the service solution must then be replaced with elements from another supplier, which in turn should be transparent on the customer end (*Head of service management office, I&O supplier*).

Before they can begin to discuss the integration of services, the various tiers (customers and suppliers) must first agree on a definiton of the term service. At what level of abstraction do the customer and the supplier discuss services? 'We've decided to call it service packages.Which building blocks, or service components as we've decided to call them, do those service packages consist of?' (*Head of service management office, I&O supplier*) At I&OWe've come far, but there's still a bit to go before we can start to control those, and thus start to look , the hottest topic at the moment is the relationships between service packages and the service components they comprise, aggregated up to whether the individual components are delivered by themselves or by a supplier. 'We've got an example today of a service package, a workplace solution, which was designed by one of our customers and one of our suppliers in unison, and then thrown over the fence, and now we have to run it and make it work in a delivery model to the customer, which we're responsible for. That's not necessarily a dream scenario.' (*Head of service management office, I&O supplier*)

For the service provider to deliver a service to the customer thus becomes a question of agreeing on what is delivered, i.e. the functional requirements, and on what conditions, i.e. the non-functional requirements, also known as utility and warranty (TSO, 2011b). Integrating services is then combining the aforementioned building blocks, one or more of which are delivered by others than the supplier themselves, into total

service solutions. 'Who delivers which components must be transparent for the customer, and they must not have to fight with the chain of suppliers; we must do that, and we must not blame our suppliers.' (*Head of service management office, I&O supplier*) The service provider must there define their identity and core competences, and then have a dialogue with their customers around what they expect. In the other situation, the integrator role moves to the customer, and then the supplier's job becomes to simply deliver a service, which the customer then chooses to integrate with other services, which they buy from someone else. That will mean that the supplier and their customer become a chain of service integrators, but with each their own different customers. (*Head of service management office, I&O supplier*)

As BankCorp is increasingly replacing self-developed solutions with services purchased from external suppliers, the need increases for orchestrating the cooperation of several suppliers and integrating service components into whole service solutions for the customers. Service Integration and Management in its simplest form is a broker inserted between customers and suppliers as a coordinator. As such, SIAM is not a process model such as ITIL or COBIT, but rather a management and governance layer which is added on top of the traditional IT service management disciplines, which BankCorp uses every day in organising work and cooperating with suppliers and customers. However, a solid process foundation is a prerequisite for having success with the SIAM function.

When deciding to place the responsibility of the company's services with a SIAM function, either externally or with a function inside the company, it is important to draw a clear line between the responsibilities of the SIAM provider and those of the customer organisation. Most authors and contributors to this research agree that in the end, accountability cannot be delegated to a supplier, the customer will always have the last word. In this regard, the most important areas to retain within the customer organisation are the strategic capabilities such as business relationship management, demand management, supplier and contract management and cross-supplier proces integration and ownership. Further, responsibility in most SIAM models is shared between who manages the supplier contracts, typically the customer, and who manages the supplier contact, typically the SIAM provider. This places high demands not only on the efficient process and technology integration, but more importantly on the relationships between employees in the different organisations in order to provide the customer with a seamless service solution.

The illustration in Figure 17 (see page 32) shows the various models for organising a SIAM provider identified in this research. The following sections discuss the two applied cases as a type 2 and type 1 SIAM model, respectively.

The SX case

In the SX case, the SIAM function has been established an internal unit within the business organisation (BankCorp, 2016). Responsibility for the suppliers remains with the customer: 'We build the contract regime which BankCorp should then operate within, although we have the contracts. It's the separation between the contact interfaces and the contract interfaces I find interesting. If we gave BankCorp both the contact interfaces and the contract interfaces, then that would remove our flexibility in terms of which suppliers we would like to cooperate with, because that would then be BankCorp's decision. (*Chief Operating & Financial Officer, SX*)'

For SX, the argument for retaining the contract responsibility also has a financial aspect; BankCorp would take on an increased risk which would require them to charge SX extra for the service solution. The hybrid of contract management vs. contact management thus becomes interesting in that regard, as otherwise SX views BankCorp simply as a managed service provider or general contractor, who is then fully accountable. Therefore, the enabling option, where SX retains the right to choose its own suppliers, is more interesting. (*Chief Operating & Financial Officer, SX*) SX thus owns and has entered into the contracts with all the suppliers, and BankCorp manages the relationships with the suppliers on behalf of SX. Seen from BankCorp's perspective, the SX case is thus an example of a type 2 *enabling* service integrator (cf. Figure 17 on page 32)

The CB case

BankCorp is at the time of writing in the midst of releasing a new service to CB. In this case BankCorp's SIAM function holds the overall accountability for the total service solution. CB purchases the total solution from BankCorp, but at the same time, CB is a supplier to BankCorp on application development. The SIAM function at BankCorp for CB is a unit within the IT organisation (BankCorp, 2016) and is thus an example of a type 1 *accountable* service integrator (see Figure 17 on page 32).

> '*It's like electricity suppliers. Nowadays it doesn't matter who the supplier is; electricity is what it is, you can't tell the difference, and as long as something happens when I press the button, I don't care whether it's one or the other supplier*' – Chief Information Officer, BankCorp

Conclusion

The term SIAM is in itself ambiguous, as it is being used in two different interpretations. Firstly, SIAM as a concept or framework means the establishment of an organisational unit and the work embedded in performing integration of services. Secondly, within this framework, SIAM is a function in the sense of the organisational unit, be it an office, a team, a department or an external or jointly owned service provider, performing the work. This paper generally refers to SIAM in the second meaning, i.e. SIAM as a function.

Various consultancies and academic authors have defined each their own set of organisational models for service integration. Some authors recommend some models as more ideal, while others refrain from taking sides, but merely argue advantages and disadvantages with the various models. There is, however, general agreement among the contributors that the SIAM function should be independent of the service providers in the sense that it should be a different organisational and legal entity. One contradiction to this general stance is Tieto (2016) recommending the 'joint effort' model, which others have criticised as having difficulties distinguishing between its own services and those sourced from others, and in fact rather being a single-supplier service model.

On this basis I have constructed a model of four different organisation options. One is to retain the SIAM function within the customer organisation, either as a business function or within the retained IT organisation; another option is an independent service provider; and finally there is the option where one service provider also acts as the service integrator, a model which others have referred to as the prime provider or general contractor. Based on the reviewed papers and the findings from my research, I agree with the general consensus that this fourth model is less advantageous than the other options due to the difficulties arising when integrating the prime service provider's own service components with the ones sourced from third parties. I also agree that which service integrator model to choose is dependent on the situation at hand.

As such, the service integrator ideally is an organisational entity – either within or outside the customer organisation – which acquires various service components from best-of-breed suppliers, i.e. each service component is sourced from the supplier who is best in the market with that particular service, and bundles these service components into service packages or service solutions. The SIAM provider may or may not source one or several of these service components internally. The goal is to provide the customer organisation with business services which they can use to focus on their core competences down-stream rather than spending unnecessary resources on specialist service management up-stream.

The service integrator might be viewed as a general contractor, cf. the prime provider model mentioned above, in which case the customer would in fact be contracting with a single supplier. However, the service integrator setup differs from single-sourcing in that the customer owns the contracts and therefore purchases services from several suppliers; but it is the service integrator, ie. the SIAM function, that manages the contact with the service providers and integrates the service components into a service package or bundle. In this sense, service integration differs from service orchestration and service brokerage in that the SIAM activity is value-adding so that the value of the total service solution or service package is greater than the sum of the values of the individual parts or service components.

Having selected the right service integrator model given the circumstances, one of the major pain points of the customer organisation is the distinction between *contracts* and *contact*, as mentioned by one of my informants. This, I believe, is also one of the reasons the prime provider model is less than optimal; the customer organisation in most cases enters into bilateral contracts with its service providers and owns the contracts accordingly. It is then up to the service integrator, internal or external to the customer organisation, to handle the contact with the various suppliers. In this regard, both collaboration agreements and internal escalation procedures are required between the service integrator and the service providers. This is due to the fact that the service provider must only escalate problems to the customer organisation if all other options have been exhausted; otherwise the financial benefits of externalising the service integrator role are diminished.

SIAM providers are further divided into either enabling, i.e. responsible for the integration of service components, or accountable, that is, responsible for integrating the underlying services into a seamless solution. The enabling SIAM function provides competences, resources, processes and technology for delivering the service solution to the customer, but they are not accountable for the solution as such. If something goes wrong, e.g. a supplier not living up to their obligations, the enabling SIAM provider has few other options than escalating the situation to the customer. The accountable service integrator, on the other hand, holds the responsibility for the total solution and therefore has the option- depending on the nature of the agreed contracts – to execute on behalf of the customer. What further complicates matters, however, is that the customer always has the final say and is lastly the accountable party. Therefore, the customer in reality cannot delegate responsibility, which means responsibility becomes divided between the customer and the SIAM function.

In this regard, not least the legal aspects are quite complicated, and more so than in traditional buyer-supplier relationships. This is due to the fact that more parties are involved in the negotiations. The Service integrator distinguishes itself from the general contractor in for instance the construction industy, in that the general contractor usually holds the agreements with all the subcontractors, which effectively makes for a single-supplier setup.

Once a contract has been entered into, therefore, it is of paramount importance that trust is built between the service integrator and the various service providers, and this is where the traditional process-oriented (IT) service management models fall short. When a contract is in place between the customer and the service provider, but the service integrator is not part of the contract and does not own it, he must have faith in the good will and cooperation of service providers to a much wider extent than where he to own the contract himself. This, according to my research, is also a prerequisite in order for Service Integration and Management to succeed, and for two reasons. Firstly, the contract regimes are too immature or simply do not yet exist in the IT service management industry. Secondly, contracts would probably become too complex for any man to fathom, either if legal agreements were to exist between all parties or if contracts were to comprise all actors in a specific value network.

In my research at BankCorp, the two cases have been arranged using each their own distinctive SIAM model. The SX case is an example of a situation where the SIAM function has been built by the business organisation (option 2), whereas the CB case is an example of a SIAM function retained within the IT organisation (option 1). Both are highly complex scenaria. In the CB case, BankCorp is simultaneously a

supplier and a customer of CB, in that BankCorp is the supplier of the total service package, but at the same time CB delivers the application development service component to BankCorp. Similarly, in the SX case, BankCorp plays two roles; as a SIAM supplier to SX, but at the same time as a supplier to itself on terms similar to those of the other banking corporations. However, even though the two service providers are within the same company, both are suppliers to SX, and there is no agreement between the two.

The two cases also differ in the sense that the SX case is one of an enabling service integrator. BankCorp manages the contact with the merchant solution supplier, the security service provider, the application developer, the first-level support and the other banking corporations, a total of eight different suppliers with whom the BankCorp SIAM function needs to negotiate operational level agreements on managing service incidents, service level targets, availability, *et cetera*. However, the accountability lies with the SX company itself, who owns the legal contracts with all the suppliers (including BankCorp both as a banking corporation and as a SIAM provider).

On the other hand, the CB case is one of an accountable service integrator, insofar as BankCorp holds the responsibility and answers to CB for the total service solution. Further complicating the situation is the fact that the customer, CB, is simultaneously a supplier, as they are the ones delivering the application development service component of the integrated service solution managed by BankCorp's SIAM function.

My research has also uncovered a third service integrator case, namely BankCorp's primary infrastructure and operations supplier, I&O. As mentioned by an interviewee from I&O, BankCorp purchases service packages which I&O constructs using both externally sourced building blocks, or service components as they call them, as well as ones of their own design. Again, the difference between I&O as a general contractor and as a service integrator is, that they are accountable for the total service solution and own the legal contracts with their subcontractors, whereas BankCorp is responsible for maintaining the daily contact with the service providers. This means responsibility is effectively shared between BankCorp and I&O.

Neither solution has come a point where it can be said to have matured or reached an optimum, and which option should previal at BankCorp is still too early to say. However, it is my recommendation that BankCorp should choose one option over the other and thus decide on one organisational model for the SIAM function. Based on findings of the interviews with several key employees, BankCorp sees itself as a prime SIAM provider in accordance with option 4 of the model constructed in the Theoretical Framework chapter. However, many authors and customers disagree with this stance, finding it less than optimal, as has been shown. Finally, it could be argued that the model for the 'recipient' SIAM function might differ from the 'supplier' SIAM function in the company, but customer-facing SIAM work should at least be united in one function, team or department, just as there should only be one supplier- or service provider-facing SIAM function.

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