Multi-sourcing IT services in Hydro
Implementing the strategy

Master Thesis - 27. January 2014

Ole Reiersen

NTNU
Kunnskap for en bedre verden

MTM
Master of Technology Management

NHH

Abstract

Through recent years, multi-sourcing of IT services has become increasingly popular as a way for large companies to diversify their IT services deliveries, reduce costs, increase service quality and keep up with the technological development. For many of these companies, the ideal world of buying "best-of-bread" services from many different service providers has become more complex and costly than what they initially expected.

After changing to a multi-sourcing strategy for IT services in 2010, Hydro has been struggling with the performance of the new IT service stack configuration. In this master thesis I explore how large national and multi-national companies in general and Hydro in particular can be successful in operating basic IT infrastructure and application services based on a multi-sourcing strategy. This is done by researching the question "What are the internal requirements for Hydro to be successful in operating multi-sourced IT services based on the current service stack configuration?"

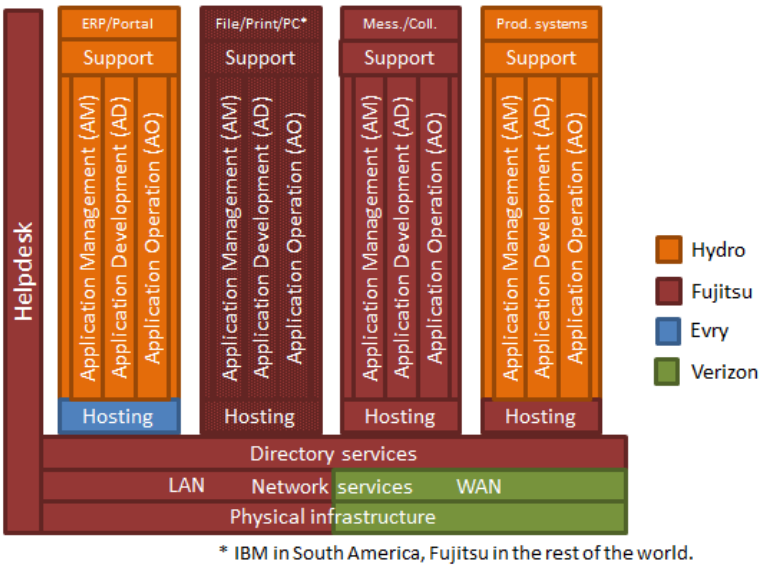

Figure 1: Current IT Service stack configuration in Hydro

As the theoretical foundation for my research I use the Resource Based View (RBV) framework for internal company analysis. I strengthen this by supplementing with theory on how company internal factors can influence outsourcing contract complexity which again can affect operations under the outsourcing contracts, and theory on how organisational readiness can be assessed to find gaps in resource and capability needs.

This theory gives the foundation for an empirical exploratory case-study on the Hydro case, using data collection from unstructured interviews of key stakeholders in Hydro and three comparable companies. These fairly

extensive interviews give valuable insight into general outsourcing and multi-sourcing experience. They also provide knowledge specifically useful when analysing the current problems in Hydro, seen from different points of view; local vs. central IT, local vs. central business users, infrastructure vs. application IT and procurement vs. IT.

The collected data form the basis for the case analysis based on pattern matching of common statements followed by a discussion were each statement is evaluated against both the theoretical input and the detailed information from the interviews. From this analysis the conclusion is that the following requirements are to be fulfilled in order to ensure that a multi-sourcing strategy is successful:

- Ensure that there is sufficient in-house competence on all key infrastructure and applications.
- Establish central service integration function across infrastructure and applications.
- Make sure that system documentation exists and is available to the helpdesk and the service integration function.
- Establish a common helpdesk, controlled by the service, covering infrastructure and applications.

Acknowledgements

I would like to thank my family, Maria, Jarand and Joachim, for being so understanding of the many evenings and weekends over the last 6 months when I have been unavailable and difficult to communicate with.

I would also like to thank Bjarne Henrik Gjellesvik, Erling Sigholt, Håkon Seim Lysne, Jostein Tjøsvoll, Torstein Gimnes Are, Hans Petter Øya, Per Erik Bøe Hansen, Ole Berner Claussen, Vidar Berg and Claes Lyth Walsø for taking the time to share your very helpful insight and experience with me through the interviews you agreed to participate in, and Elisabeth Høyland for giving me the initial ideas for this thesis.

Thanks also to associate Professor Øystein Widding at NTNU for valuable input and guidance.

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Definitions

Capability	The power or ability to do something. Capability can be used as a synonym for competence.
First generation outsourcing	The first outsourcing of an internally produced service to an external service provider. (Brown & Wilson, 2005)
IT application services	A collective term for the services involved in an application. Usually consists of Hosting, Application Management (AM), Application Operation (AO), Application Development (AD) and some sort of support function.
IT operation	The sum of processes required to operate the IT infrastructure and applications.
Multi-sourcing	A sourcing strategy where different parts of the service stack is delivered by different service providers, internal and external. "*The disciplined provisioning and blending of business and IT services from the optimal set of internal and external providers in the pursuit of business goals*" (Cohen & Young, 2007).
Outsourcing	"The purchase of a service that was previously provided internally" (Lacity & Hirschheim, 1993)
Resource	"*An economic or productive factor required to accomplish an activity, or as means to undertake an enterprise and achieve desired outcome. Three most basic resources are land, labour, and capital; other resources include energy, entrepreneurship, information, expertise, management, and time.*" and capabilities as "*Measure of the ability of an entity (department, organisation, person or system) to achieve its objectives, especially in relation to its overall mission.*" (WebFinance, Inc., 2013)
Second generation outsourcing	The second or later step when a contract for an outsourced service expires and the buyer moves on from the initial service provider to a new one (Brown & Wilson, 2005).

1 Introduction

The purpose of this master thesis is to explore how large national and multi-national companies in general and Hydro in particular, can be successful in operating basic IT infrastructure and application services based on a multi-sourcing strategy. It is important to stress the word operating. A prerequisite for the thesis is that there has been a strategy selection process in advance and that a multi-sourcing strategy has been selected. This thesis does not look into the process of selecting the sourcing strategy in itself, nor what the pros and cons of the different sourcing strategies might be. The focus is on the strategy implementation; exploring the important elements of this implementation. To be specific, the research question is "What are the internal requirements for Hydro to be successful in operating multi-sourced IT services based on the current service stack configuration?"

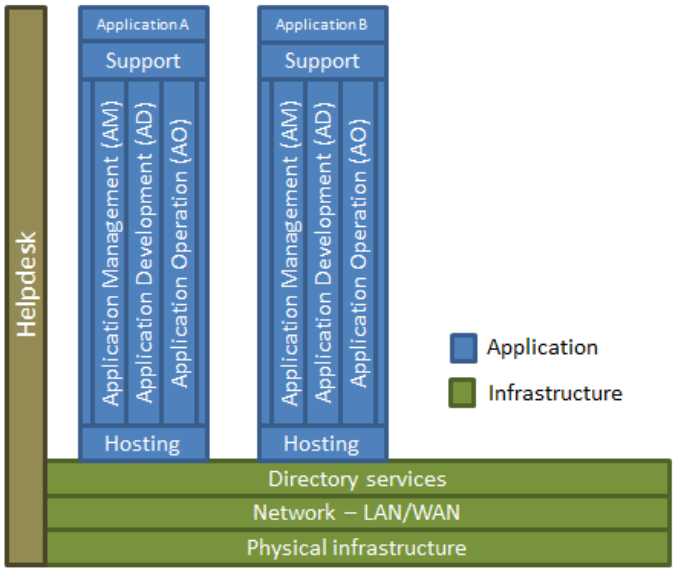


Figure 2: A generic IT infrastructure and application stack

The study is done as a qualitative case study linked to a set of theoretical pillars connected to the well-known general strategy framework "Resource Based View" (RBV) supplemented by more specific research results on outsourcing contract complexity and models assessing organisational capabilities.

As a fact basis for the analysis, the following will be used

- Interviews with some of the key stakeholders in the IT operations in Hydro.
- Interviews with representatives for some comparable companies.
- Market analysis published by IT market analysis company Gartner Inc.

The result will be an overview of key resources and capabilities (RBV) which are important for successfully implementing multi-sourcing of IT services in Hydro.

2 Background story from Hydro

To give an overview of the current situation and the challenges related to IT service deliveries in Hydro, an introduction into the current state and recent history of Norsk Hydro ASA is given. This also includes the consequences of the company's development on the internal IT organisation and the resent experiences with multi-sourcing. My interest for this topic originates from this experience.

2.1 Norsk Hydro ASA – Short company background

Norsk Hydro ASA is a large international aluminium and energy producer, with more than 12 000 employees and presents in more than 50 countries worldwide. The company has gone through huge changes through its 109 year long history. It was founded as a fertilizer producer in 1905, taking advantage of the available energy resources in the rivers/waterfalls between Rjukan and Notodden. Through these 109 years, energy production and utilization has been the red-line following the company's development. Hydro was the largest company in Norway for a long period, operating as a conglomerate within a variety of different industries like petrochemicals, solar energy, nutrition, aluminium, magnesium, oil & natural gas, and fertilizer. For the past years, the company has defined aluminium and energy production as its core business and has consequently divested large portions of its earlier business. As change is a natural process for any large corporation, Norsk Hydro ASA (Hydro) goes through continues change processes where new businesses are acquired or started while other businesses are closed down or divested.

This can be illustrated by the following table, showing major changes in Hydro over the last 15 years:

Year end	**Event**	**Effect**	**No. of employees**
1999	Acquire Saga Petroleum.	Significant expansion in the Oil & Gas business.	38 700
2000	Acquire Wells Aluminum.	Aluminium business expands to North America.	37 500
2002	Acquire the German aluminium producer VAW aluminium AG.	Aluminium becomes a global business.	42 600
2004	The fertilizer business – Agri - is divested and publicly listed as the fertilizer company Yara.	One of three major business areas leaves the company.	37 000

2007	Oil & Gas business is divested and merged with Statoil.	Hydro becomes a pure aluminium and energy company.	25 000
2009	Financial crisis.	Termination of several major production facilities.	19 200
2011	Acquire Vale S.A's aluminium business consisting of a bauxite mine, an alumina refinery and an aluminium plant in Brazil.	Aluminium business expands in South-America and covers the entire value chain.	22 600
2013	Most aluminium downstream activity is divested and merged into SAPA AS.	Significant reduction in geographical and business diversity.	12 000

(Rolf Bryhn), (Norsk Hydro ASA, 2013)

2.2 Recent business challenges

Since the financial crisis in 2008/2009 the aluminium business has been suffering from low and volatile prices as a result of global over-production. It has become a classic "red ocean" market (Kim & Mauborgne, 2005) were everyone fights to survive by cutting costs to the bone.

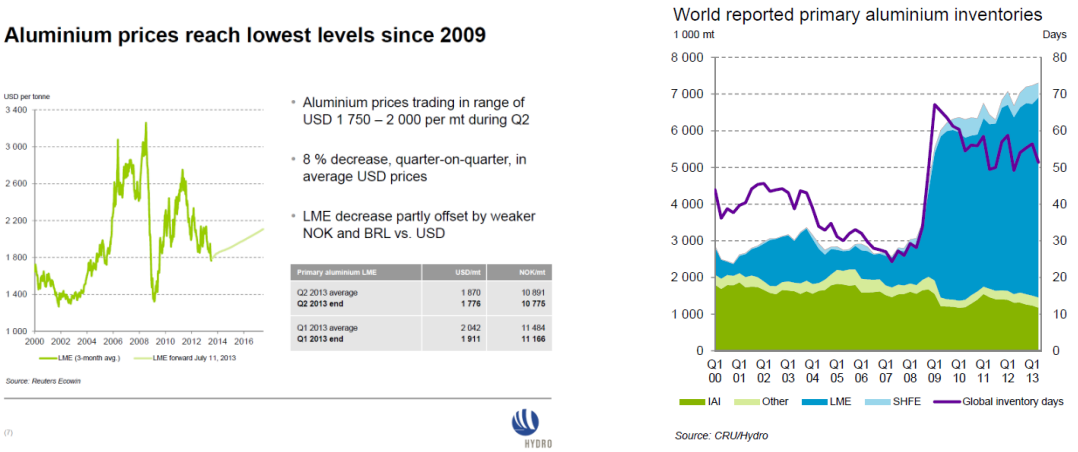


Figure 3: World aluminium prices and inventory (Hydro, 2013).

An on-going development is that developing countries in the Middle east, Asia and Africa, is using aluminium production as a tool to utilize available natural resources, typically a power surplus, to develop industry and society. This type of production capacity which is often operated on non-commercial terms

represents a big challenge for the commercial part of the industry as it increases production capacity without the requirement to balance out market prices.

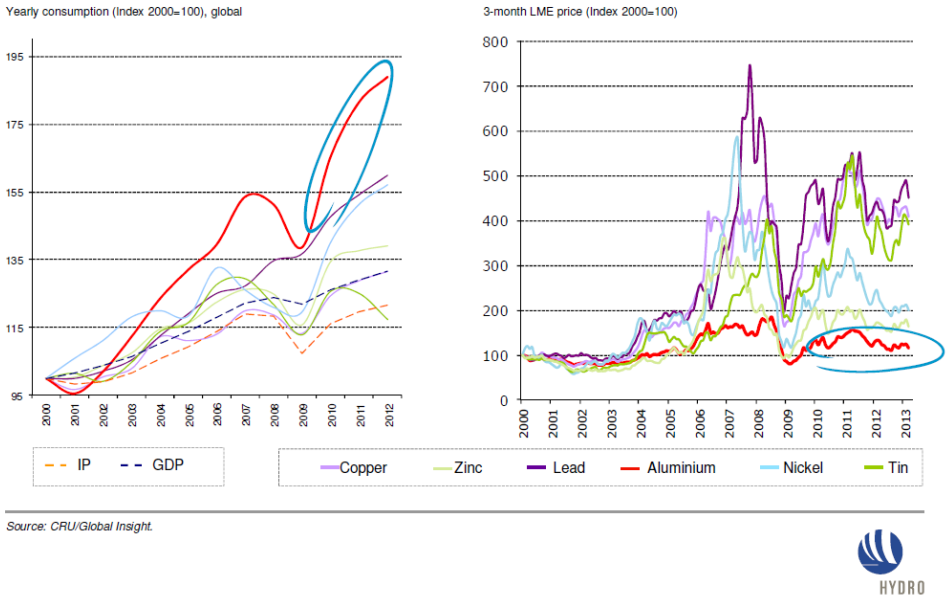


Figure 4: Industry dilemma: Growing demand – weak price development (Hydro, 2013)

The financial crisis and market development has, together with the company restructuring, had clear and significant effects on Hydro's earnings and shareholder return in recent years.

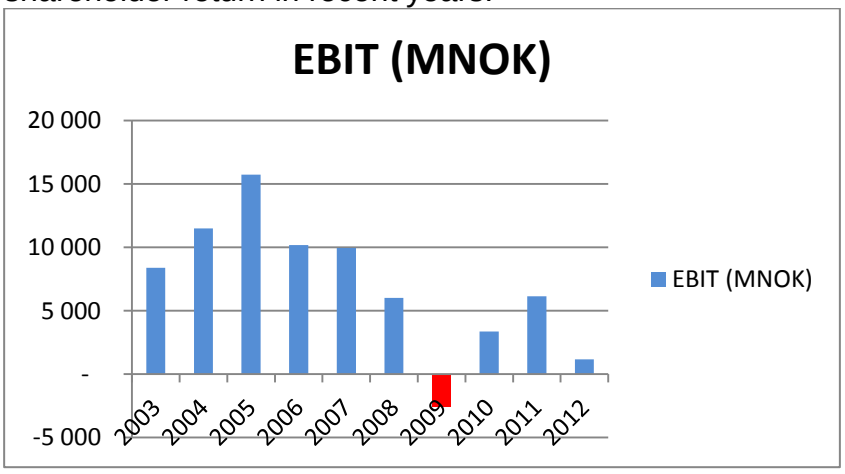


Figure 5: Hydro, Company earnings (Norsk Hydro ASA, 2013)

The reduced earnings have been met by Hydro management by initiating several ambitious cost reduction programs in all business areas.

Here are some examples of top-management statements and initiatives: "*Securing cash flow has top priority*" – CEO's letter to shareholders, annual report 2008.

"*Hydro is intensifying efforts* to improve its competitive position by launching new cost-reduction measures" – CEO on Capital market day, December 2009.

"*Hydro's ambition to improve earnings from its wholly owned smelters by USD 100 per ton is now being increased to USD 300 per ton*" – (Comment: USD 300 is the internal name of a cost cutting program) - CEO, September 2010.

"*Continuous improvement is a core activity within all business areas to establish Hydro as a performance frontrunner.*" – CEO on Capital market day, December 2011.

"*The recently launched "From B to A" improvement program is aiming at annual improvements of NOK 1 billion, while the ambitious improvement program in Extruded Products is continuing with full force, even after the announcement of the planned Sapa joint venture.*" – CEO on Capital market day, November 2012.

2.3 IT - Organisational and vendor sourcing development

The company changes in recent years have had significant effects on Hydro's internal IT organisation and how IT services are sourced and operated.

In the so called conglomerate time, before 2007, when Hydro were operating in multiple different businesses, each division - Oil & Gas, Aluminium and Agriculture had its own IT organisation which managed business specific applications. These division specific IT organisations purchased common IT services like PC setup, LAN and WAN network services, server hosting (file & print), directory services, eMail, etc. from a central IT organisation called Hydro IS Partner AS (IS Partner).

IS Partner produced these corporate services using a combination of internal resources and external service providers, thus operating with a set of flexible multi-sourced services on behalf of Hydro.

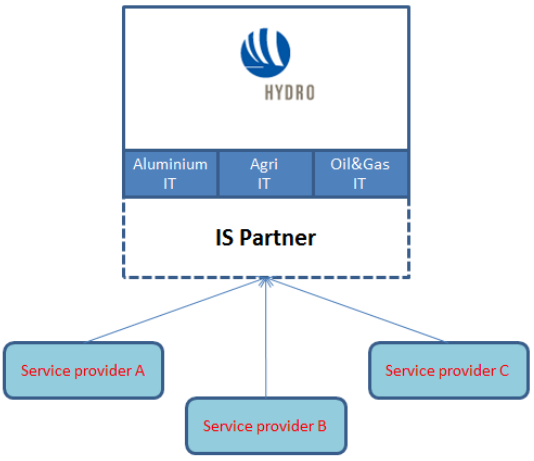


Figure 6: Pre-2007 IT organisation

First the agriculture division left Hydro and became Yara. Then when the Oil & Gas division was merged with Statoil in 2007, IS Partner was becoming too big for the remaining Hydro organisation and therefore it was decided that it should leave Hydro as a part of the Statoil transaction. Shortly after, Statoil sold most of IS Partner on to the largest IT service provider in Norway - Evry. The result; the central IT function on corporate level in Hydro went from being an internal service provider to being a part of an external company.

A consequence of this transaction, and the fact that Hydro became a focused aluminium company, was the need for a reorganisation also of the remaining internal IT function:

- **New central IT organisation - *Hydro Information Systems***:
  Aluminium IT was merged with the small corporate IT governance group and formed “Hydro Information Systems” which became the new central IT organisation in Hydro.
- **Local IT teams reporting to plant management:**
  The large plants established their own local IT teams to support day-to-day operation. These teams are reporting to the local plant management to ensure that they have focus on plant operation and development.

Evry continued to fill the role of IS Partner as the main supplier of IT services to Hydro until the contract expired in 2011.

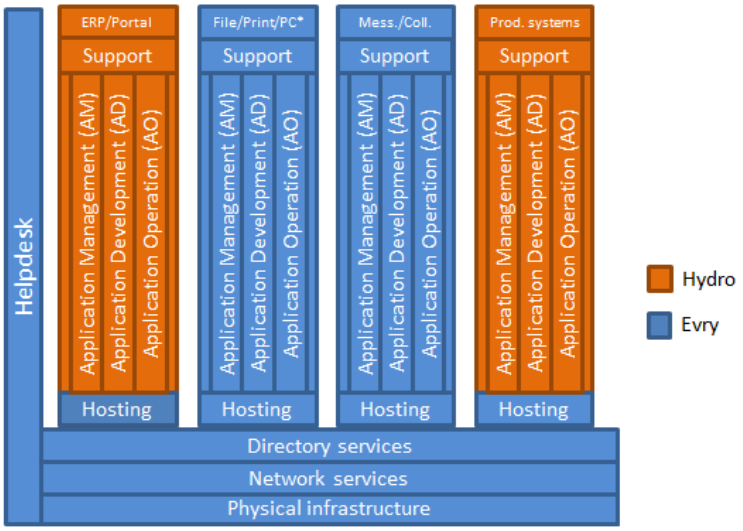


Figure 7: Extract of Hydro IT service stack before the transition to multi-sourcing

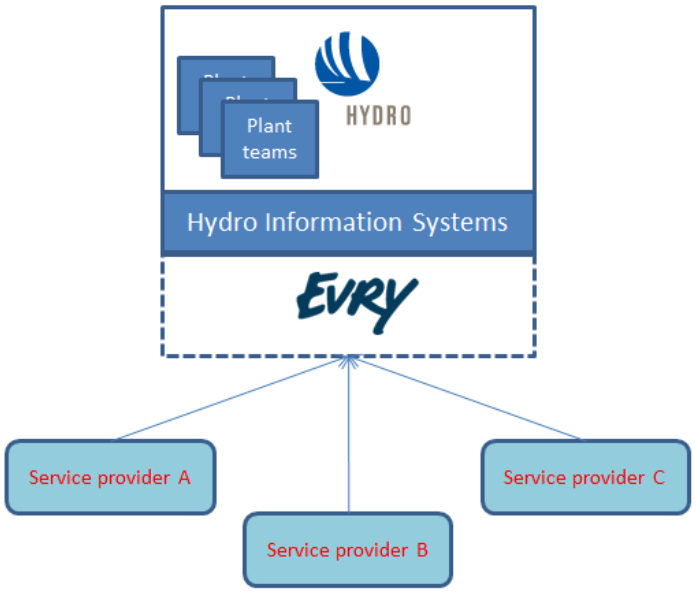


Figure 8: High level IT organisation 2007 - 2011

In 2010 Hydro Information Systems decided to change its strategy for buying IT services, from a one-partner model where all major services were delivered by the same supplier (Evry), to a multi-sourcing strategy where different service providers are delivering different parts of the services. After carrying out an extensive tendering process, the result was the following:

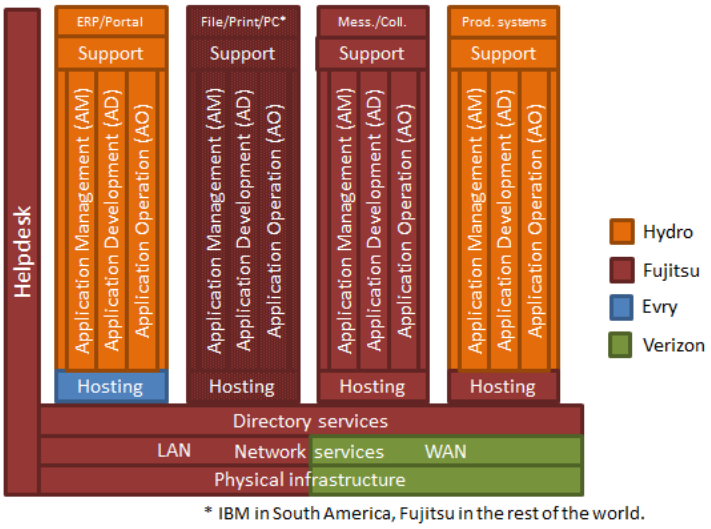


Figure 9: Extract of Hydro IT Service stack after the transition to multi-sourcing

In short, the new service arrangements were:

- Hosting services are delivered by Evry and Fujitsu.
- File / Print / PC Desktop services are delivered by Fujitsu and IBM.
- WAN / network services are delivered by Verizon.
- In addition, certain software services are purchased as Software as a Service (SaaS), or in “the Cloud”.

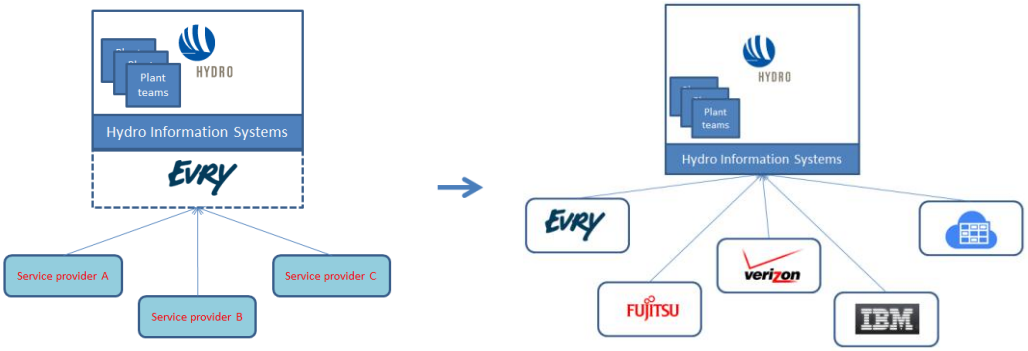
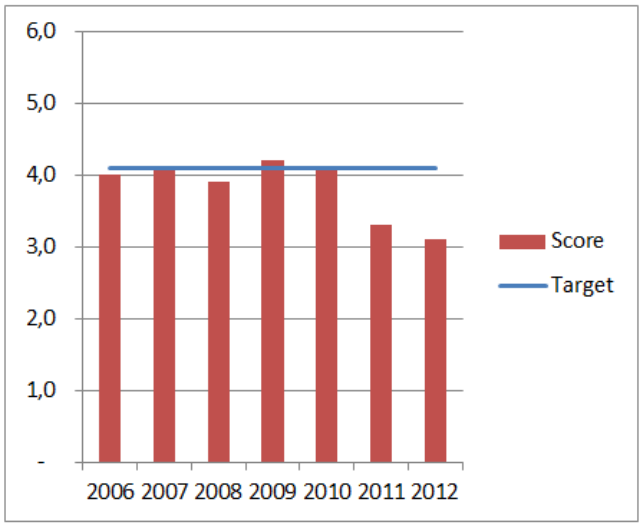


Figure 10: OrganisationOrganisational view - Transition from single to multi sourcing, 2011/2012

2.4 Operational challenges with multi-sourcing

The transition from the old to the new service stack configuration has been troublesome. In the period from 2010 until today, there have been many incidents with;

- Unavailable services e.g. downtime on email servers.
- Slow or no response on requests for support were many users have been waiting for months to have a service delivered.
- Confusion on whom to contact when a need for a change arises and difficulties implementing new solutions both within one single service provider and across multiple service providers.
- Inability to make changes. This includes even simple server maintenance.



Measurment method:
Yearly employee survey
Rating scale 1-6 (top)

Figure 11: Hydro Information Systems – Customer satisfaction rating

A result of this transition is that the internal IS organisation has a significantly reduced ability to satisfy the IT needs of the Hydro organisation. Examples of service areas which have been affected are:

a) respond to internal business needs
b) develop and implement new IT solutions
c) provide the expected service level to the business organisation
d) benefit from supplier experience and standards to lower costs and improve service

The effect on the Hydro organisation is clearly measurable in Hydro Information Systems' customer satisfaction rating shown in Figure 11.

Another effect is that the local IT teams in the factories have had to buy support outside of the central agreements, just to make the wheels go round. Some plants also have had to establish their own local helpdesks.
In all; the service level has fallen considerably, while the cost level has remained higher than expected (see attached interviews with plant IT Mangers).

3 Research question

The aim of this thesis is to analyse the challenges Hydro is facing, compare this with the experience of some other comparable companies, and make recommendations for improvements that Hydro can make which should improve the quality of IT service delivered to the internal business organisation.

Looking at a single service produced and consumed internally in a company, this service will normally have a fuzzy and flexible structure and delivery pattern. This gives a high degree of flexibility, fairly low transaction costs (Auberta, Rivarda, & Patry, 2004) (Williamson, 1979), but a relatively high operational cost level. When a service is outsourced, a more precise definition of the service, often agreed on in a Service Level Agreement (SLA) is needed in order to regulate the relationship between buyer and service provider. Defining the SLA is a complex task, and even for fairly simple services it is close to impossible to make a complete description, replicating the internal service delivery 100% (Bernheim & Whinston, 1998). This means that even with a fairly detailed SLA, a lot still comes down to the new service provider's flexibility, competence, resources and capabilities and the buying company's willingness to adapt to the new service provider.

Looking at multiple services at the same time the picture gets even more complex. How can multiple services, delivered by different service providers, play together in an efficient and stream-lined way? Surely it is not possible to agree on all the details in cross-service SLAs?

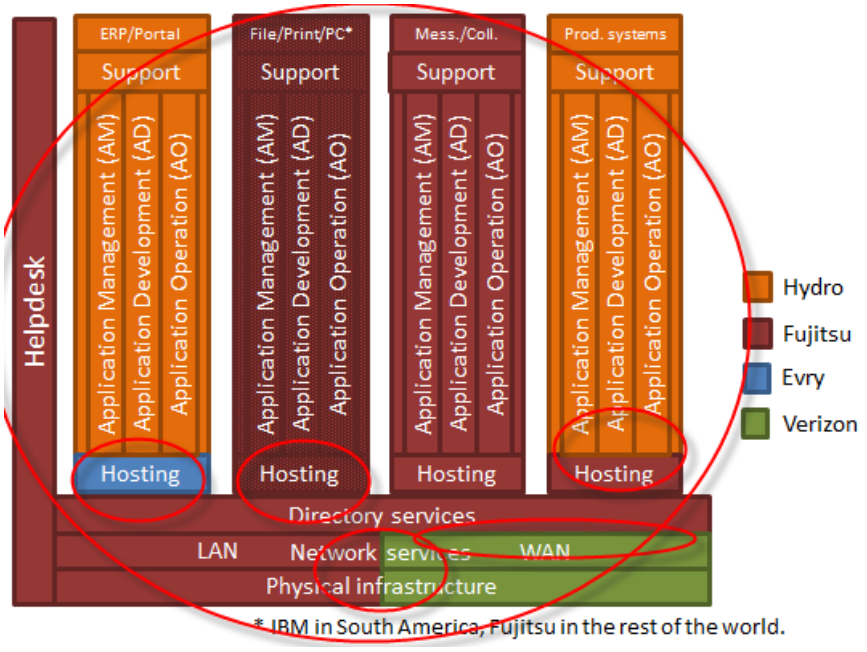


Figure 12: Integration points between different service providers

As described in the background chapter, Hydro has a long tradition for buying IT services from external suppliers. Despite this, there are strong indications from recent experience (ref 2.4 and attached interviews) that “something” was lost in this process when

1) IS Partner went from internal to external service provider as a part of Evry.
2) Many of the services delivered by Evry were replaced by services provided by different suppliers.

The question is then; what is this “something”? Or more specifically:

Research question: What are the internal requirements for Hydro to be successful in operating multi-sourced IT services based on the current service stack configuration?

4 Research method

The research question is asking for "*internal requirements*" which will provide "*successfully*" operation of IT services. Both of the terms "internal requirements" and "successful" are fairly unspecific and difficult to quantity. Attempts to quantity these could have been made, but such attempts could also very easily have ended up in being irrelevant and difficult to relate to. This indicates that a qualitative research method would be the best choice for this thesis. The question also relates to the specific situation in Hydro, with the way the service stack is configured there. This means that the main data for the study needs to be collected internally in Hydro.

4.1 Method

So what is needed is a qualitative method that can be used to research real-life contemporary conditions inside of one specific company. The obvious answer to this is a case study. This method is frequently used across many different disciplines typically to research complex topics in real-life situations which are difficult to quantify. Robert K. Yin has defined the case study research method as an empirical inquiry that investigates a contemporary phenomenon in depth and within its real life context, especially when the boundaries between the phenomenon and the context are not clearly evident (Yin, The Case Study Anthology, 2004). Case study research is commonly used to bring better insight and understanding of complex issues where it is difficult to isolate a few parameters which affect the situation. Combined with theoretical models it can help to give a holistic approach to improve the understanding of the situation or phenomenon in question.

The case study method is criticized by some for focusing on a small number of cases which could mean that the findings would be difficult to generalize into a larger context. In this thesis, this argument is not relevant, as the goal is to find specific solutions for the situation in Hydro. Other critics argue that case research runs the risk of biased findings due to the limited problem exposure outside of the case itself. This could be relevant in this thesis. To mitigate this risk, data collection has been extended beyond Hydro to include data from a selection of other, comparable multi-national companies.

Selected research method: **Case study**

4.2 Data collection

Collecting data from Hydro could be done using a number of different methods; running broad surveys, observation of the current service deliveries, analysis of documents and other written material or by doing structured or unstructured interviews to name some of the most relevant alternatives.

Data collection both through broad surveys and through observation would be time-consuming. The way the IT service stack works effects the way IT services are delivered to the internal business organisation. Observing this as an organisational insider would be very difficult, as the observations very easily would be affected by the observer's previous experience and previous and current organisational roles. Surveys are difficult to engineer without running the risk of affecting the outcome though the way the questions are constructed. Data collection through analysis of documentation and other written material would be dependent on having actual updated material covering the situation. As written sources such as system documentation and procedures in general rarely are up to date to the latest minute and often are written on an "as-intended" rather than "as-is" basis, this would probably not give the necessary insight into the current situation.

Interviews can give updated information and current experience from different parts of the business and IT organisation. The information given would be coloured by the interview objects personal experience, but by combining a selection of different interview objects having different organisational roles the personal "touch" could represent a strength for the data collection and the later analysis. Structured interviews would be easier to analyse compared to unstructured ones, but has the disadvantage that it does not allow the interview to "go with the flow" and follow the trail of thought brought up by the interview objects. The weakness of interviews as a data source is that it is time consuming to interview a large number of people. Limiting the number of interview objects makes it even more important to select relevant representatives that can provide information seen from different angles. Unstructured interviews are also difficult and time consuming to analyse, and this might affect the quality of the data going into the analysis. Despite the challenges, this seems to be the best data collection method in this case.

Selected data collection method: **Unstructured interviews with a common initial question.**

4.3 Analysis

This analysis is based on a case study of unstructured interviews from Hydro and some selected comparable companies. The case study type is exploratory and the case type is a holistic, single case unit in the terms on Yin (Yin, Case study research: Design and methods, 2003).

The analysis is done as a pattern matching analysis (Yin, Case study research: Design and methods, 2003) in the following way; each interview is first summarised into a set of headlines which covers the content of the interview, then all the headlines for all the interviews are categorised together in a pattern search to find which headlines are occurring in the most interviews and thereby seems to be some sort of common denominators. Headlines

occurring less than three times are categorised together as “Miscellaneous” and disregarded from the analysis. The headline categories which are found three times or more are then discussed in light of the relevant theory and the context of the interviews.

This analysis method will provide relevant insight into the current situation in Hydro seen from both a theoretical and a practical experience perspective across the interview objects experience.

The main weaknesses of this analysis are;

- the empirical foundation is mainly based on Hydro input, though supplemented by some input from other companies. It can be argued that this is a solid foundation for exploring what Hydro needs to do in this situation, but it is still limited when it comes to bringing in broad input from other sources.
- the discussion is mainly based on theory and experience. Some of the other limiting factors which have not been taken into consideration are; limitations on staff size and competence, financial resources, time taken to develop new capabilities and limitations in existing contracts.

5 Theoretical problem analysis

Q: "*What are the internal requirements for Hydro to be successful in operating multi-sources IT services based on the current service stack configuration?"*

The research question is related to multi-sourcing and very specifically directed towards the current situation in Hydro. A literature search in http://scholar.google.com/ using key words "*multi-sourcing strategy implementation*" gives about 1200 hits. All the top results relates to strategy selection, and most of them also to logistics and not IT. Searches on combinations like "*Information technology multi-sourcing experience*", "*IT multi-sourcing experience*" or "*multi-sourcing experience*" all give about 1120 hits but still the top results are focused on "why" outsource and "what" to outsource. Looking at more commercial sources like Gartner Inc. gives a bit more information. A search in http://www.gartner.com/home using keywords "*multi-sourcing strategy implementation*" and "*strategy implementation multi-sourcing IT services*" gives 5 hits each, while "*Information technology multi-sourcing experience*" gives 6 hits. These articles mainly explain the term multi-sourcing and describe problems related to the strategy selection process. From these literature searches, it seems to be difficult to find research literature describing the exact problem of how to implement multi-sourcing in a successful way. Therefore it is natural to look at related topics.

The research question is clearly directed inward on the company, so it makes sense to use theory and frameworks that does the same. The well-known strategy framework "Resource Based View" (RBV) (Penrose, 1959) (Barney, 1991) (Grant, 1991) is such a tool. Furthermore, multi-sourcing is about contracting and buying services from external service providers. This area should therefore get extra attention in the theory discussion. Searching http://scholar.google.com/ for "complexity outsourcing contracts" gives some interesting hits on contract complexity and the risks of outsourcing. Another internal perspective on the company would be looking at the organisation itself, to see which role this plays in combination with the other factors. Together this forms the three pillars of theory for this thesis; Resource Based View, contract complexity and organisational readiness.

To begin with the basics; what does multi-sourcing mean?

5.1 Multi-sourcing

From classic company strategy literature it is known that a company can be modelled as a set of business processes – value chain models (Porter, 1985). Each process can be broken down into process steps, which can again be broken down into activities.

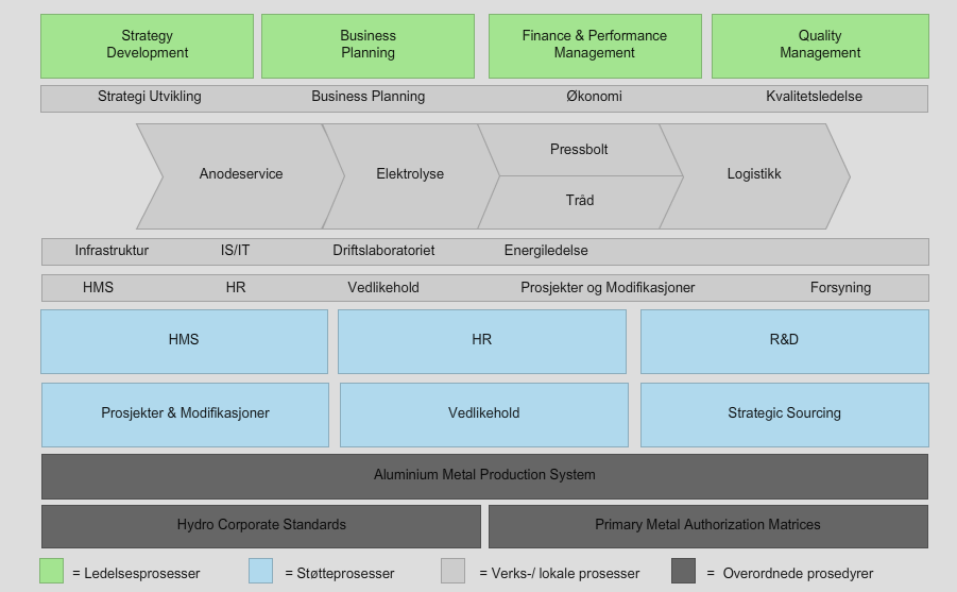


Figure 13: Example of a business process model

Each process step or activity can be seen as both a service provider and a service consumer in relation to other steps. This is the way goods and services link together to form the "organisational organism" that is the company (Morgan, 2007).

Drawing the "boundaries" for the company and making the "make-or-buy" decision per business process or service has been a classic strategic question for companies through time. Particularly from 1970 and onwards, western companies have become increasingly specialized, trying to gain a competitive edge by focusing on their "core business" (Stalk, Evans, & Shulman, 1992). A result of this process is the rise of the service industry were companies specialise in delivering support services like banking, transport, IT, telecom, communications, and a whole range of other services. Companies that decide to focus their business can buy the non-core services from an external service provider. Related to IT services in particular, this has become known as outsourcing (Bröchner, 2005).

Typically companies have started by outsourcing the most peripheral parts of their business, and from there moved on to outsourcing more extensive and complex services, closer to their core business.

Multi-sourcing as a term was only introduced recently, but the concept has been in use for many years. The idea is that the service consumer not necessarily has to buy the full and complete service from only one service provider at the time. Instead the service can be broken down to service components and bough from different service providers.

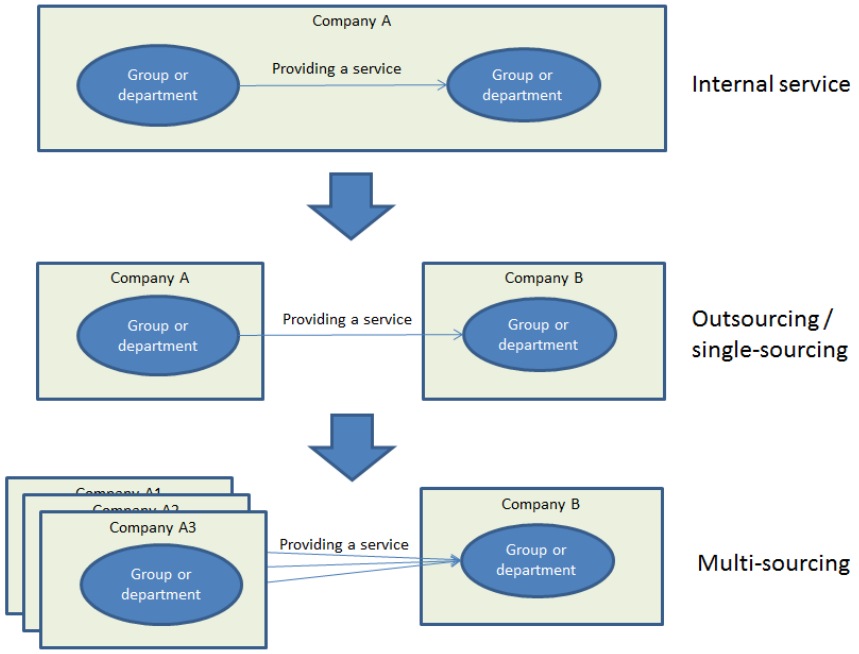


Figure 14: From internal service to multi-sourcing

Internal service production

The advantages of producing services internally are that it gives a high degree of flexibility and customization, low control requirements and informal procedures. This will normally result in low transaction costs (Williamson, 1979). The disadvantages can be high service operating costs, inflexible competence and capacity, internal politics and difficulties with measuring performance.

Outsourcing / single-sourcing

Single-sourcing means that the company buys a complete service from one service provider, which either delivers all the services themselves or handles the coordination of sub-service providers. The primary advantages of outsourcing compared to producing the service internally are lower cost, increased competence and capacity flexibility and better means for performance measurements. The disadvantages are less organisational flexibility, less service flexibility, more need for coordination, higher switching costs and higher transaction costs.

Multi-sourcing

An alternative to of buying a service as a package from one service provider, the buyer can buy services from a set of different suppliers and integrate them to a complete service package. The advantages of multi-sourcing is that it gives a the flexibility to pick “best-of-bread” solutions within a narrow area, costs can be lower compared to buying the full service from one service provider, higher flexibility to leverage the market in terms of competence, solutions and price and avoid lock-in situations with single suppliers as to scope often is smaller in these types of contracts. The disadvantages are

complex coordination, demanding in terms of management, high switching costs (Scardino & Ambrose, 2004) and complex contracting.

As mentioned in the introduction, searching for multi-sourcing IT literature in Google Scholar gives very few academic research hits. There seems to be much more research on multi-sourcing in the logistics area than in IT. Searches using google.com and gartner.com results in some articles were the key elements seem to be organisational and contractual competence and service integration competence and capacity.

Capability is a synonym for competence, and capacity is a form of organisational resource. This makes it logical to look into the Resource Based View (RBV) model for comparing company resources and capabilities in the context for contracts, organisation and service integration.

5.2 Resource Based View (RBV)

Resource Based View is a theory with roots back to 1950s (Penrose, 1959) which was revitalized in the late 1980s (Barney, 1991) (Grant, 1991) were an organisation is analysed in terms of its resources and its capabilities in order to understand and explain its performance over time. As this theory focuses on the specifics of one organisation and not on entire industries like e.g. Porters five forces or generic strategies (Porter, 1985), it is well suited for building an understanding of a specific organisation.

The basic idea of the RBV theory is to identify the resources and capabilities of the organisation being analysed. Once identified, these resources and capabilities are then classified in the VRIN matrix (VRIN = Valuable, Rare, Inimitable, Non-substitutable).

If a resource or capability is neither Valuable, Rare, Inimitable nor Non-substitutable then it is worthless. Resources and capabilities which are only Valuable and Rare (VR) constitutes a short term competitive advantage, while resources and capabilities which are Valuable, Rare, Inimitable and Non-substitutable (VRIN) constitute a sustainable competitive advantage. This is what every company is trying to develop.

In the article “The Resource-Based Theory of Competitive Advantage”, Robert M. Grant (Grant, 1991) proposes a framework for a resource based view on the firm, and how this can be used as a tool for strategic analysis. According to Grant, there is a clear distinction between resources and capabilities. Resources are inputs to the production process and form the base units for the framework analysis. On their own, resources are usually not productive, only when they are teamed together through cooperation and coordination will they become productive and create value for the company.

Grant lists six major categories of resources: financial, physical, human, technological, reputation and organisational resources.

Capabilities are what a company can do as a result of the resources working together. They represent the collective learning and skills in the organisation, especially related to coordination of "production skills and integration of multiple streams", and usually related to some sort of technology (Grant, 1991). Some recent examples of well-known companies' rare capabilities are

- Apple's ability to design appealing and easy to use consumer electronics.
- Samsung's ability to copy and improve on the ideas from its competitors.
- Oil company Lundin's ability to find new oil resources in already explored areas.

Capabilities on a company level, can, according to Grant, be identified through a functional classification of the company's activities, but a key problem in this process is maintaining objectivity. Many companies have failed in the battle with their competitors, due to misinterpretations and lack of objectiveness when it comes to appraising their capabilities. Ambitions are one thing; capabilities are not necessarily the same. Capabilities are found in the interaction "between people or between people and other resources". At its core, capabilities are about the routines and formal and informal procedures in an organisation. Acquiring new capabilities takes time and practise, repeating and drilling, again and again, improving the outcome in the process.

In the context of this thesis, were a strategy for service sourcing (multi-sourcing) has already been selected; the role of RBV is to identify resources and capabilities and to map these against the requirements for the selected strategy. This shows which resources Hydro needs to acquire and which capabilities Hydro needs to develop to support the selected strategy.

This RBV mapping is all pretty straight forward when looking at it on a high level. Unfortunately, as usual; "the Devil is in the details" – meaning that it is necessary to look into other aspects such as complexity and organisational structure to get a more complete picture of the situation and what is required.

5.3 Complexity driving elements in an outsourcing and multi-sourcing context

Inside of a company there is usually no need for formal regulation of services offered and consumed between groups and departments. This regulation is handled by the different levels of company management, where the hierarchical reward and "punishment" dependency (promotions, salary regulation) (Kerr & Slocum, 1987) (Morgan, 2007) and company loyalty in general is enough to avoid opportunistic behaviour amongst the different groups. Many companies are also using performance measurement methods

like Key Performance Indicators (KPI) as tools for regulating and tuning the internal service level (Austin, 1996).

When a service is outsourced these regulations are no longer applicable, and new mechanisms are necessary to ensure performance and balance between service provider and consumer. The normal way to regulate this is through some sort of contract. The scope and complexity of such contracts depend on many factors. It is as an example not necessary to establish anything more than a short oral agreement with a promise for payment in order for an individual to buy a simple and cheap service such as a hail cut. In this situation, the contract complexity is very low, and so is the effort required to negotiate, control and terminate. The more complex and/or repeated services that is exchanged, the more complex and demanding the contracts tends to be. In the journal article “Complexity of Outsourcing Contracts and Ex Post Transaction Costs: An Empirical Investigation” Barthélemy & Quélin (Barthélemy & Quélin, 2006) describes an empirical study of outsourcing contracts, where they use Resource-Based View (RBV) (Barney, 1991) and Transaction Cost Economics (TCE) (Williamson, 1979) as tools to test seven hypothesis on the connection between contract complexity and the transaction cost of operating these contracts. Barthélemy & Quélin uses three differnet dimensions to assess to outsourcing activity:

- Proximity to the core business
- Switching costs
- Adaptation cost

The implementation of an outsourcing contract requires according to Barthélemy & Quélin “dedicated investments (adapting human assets) and incur transfer costs (switching costs) due to their proximity to a firm’s core business (core-related specificity).”

An important note here is that there are alternative or complementary control mechanisms to a complex contract. This includes general or specific trust (Rousseau, Sitkin, Burt, & Camerer, 1998) and the protection of one’s reputation. However, these control mechanisms seems to be more relevant in contract renewals and long term partnerships, that at the point of the initial establishment of a relationship.

Proximity to the core business

Based on the RBV (Grant, 1991) (Barney, 1991) and TCE (Williamson, 1979) models there are good arguments to claim that a company will be more focused on protecting its interests the closer an outsourced service is to the company’s core business. Barthélemy & Quélin defines the term “core-related specificity” as ”the extent to which the resources that underlie an outsourced activity contribute to a firm’s competitive advantage”.

Switching costs

There will normally be a cost of switching from one service provider to another. This is valid also if the previous service provider was internal and the new is external – known as first generation outsourcing, as well as later switches from one external service provider to another – second generation outsourcing. The costs are typically related to transitioning on-going services from one service provider to another, establishing all the formal and informal details necessary to make the intention of the contract come through, and learning the organisation to work together with the new service provider.

Adaptation costs

Adaptation costs – the costs of adapting human assets to a new contractual setup. According to Barthélemy & Quélin "Human specific assets are the skills and knowledge that employees working for the outsourcing client need to develop to deal with the supplier". Looking at this definition from a RBV point of view, adaptation costs seems to be equal to the costs of developing required new capabilities to handle the outsourcing contract.

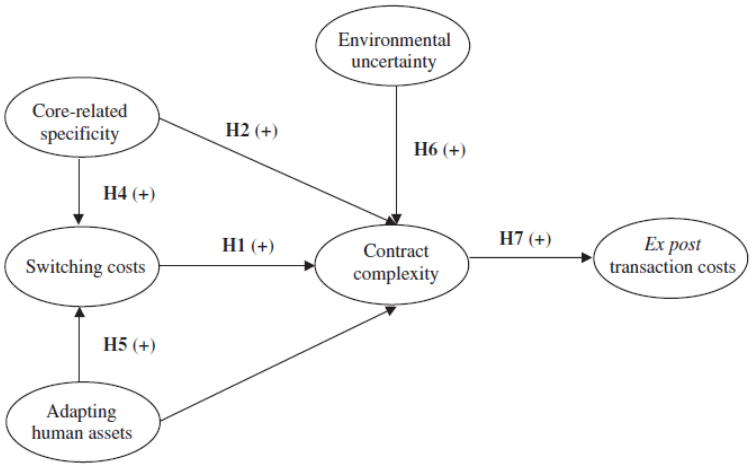


Figure 15: Barthélemy & Quélin's theoretical model for contract complexity

Barthélemy & Quélin have found that

- The higher the switching costs, the greater the contract complexity.
- The higher the core-related specificity, the greater the contract complexity.
- The higher the core-related specificity, the higher the switching costs.
- The higher the cost to adapting human assets, the higher the switching costs.
- The higher the environmental uncertainty, the greater the contract complexity.
- The greater the contract complexity, the higher the ex post transaction costs.

In other words; uncertainty, closeness to core business, and switching costs drives contract complexity which again drives the transaction costs after implementation. As shown by Williamson (Williamson, 1979), outsourcing a service will by nature increase transaction costs. But it is in the interest of both the buyer and service provider to keep the transaction costs as low as possible in order to benefit from the transaction.

	Verifiable metric aligned to project outcome	*Verifiable metric not aligned to project outcome*
Client task independent of vendor(s)	SS=MS	SS<MS
Client task interdependent on vendor(s)	SS>MS	SS>MS (low metric-outcome misalignment) SS<MS (high metric-outcome misalignment)

Figure 16: Illustration of conclusions from Bhattacharya, et al.

(Bhattacharya, Gupta, & Hasija, 2012) have done a comparative study of single vs. multi-sourcing in an IT context. They point to the importance off the contracts when a multi-sourcing strategy is chosen. Their studies indicate that the success of multi-sourcing vs. single sourcing depends on client task independence and verifiable metrics alignment between buyer and supplier. Based on these observations, it is fair to point to the importance of the contract in a multi-sourcing strategy. The design of common metrics and reasonable incentives seems to be highly important for the success of the individual buyer-supplier relationship and overall implementation of a company's multi-sourcing strategy.

5.4 Assess organisational readiness to identify resource and capability gaps

An organisation consists of individuals who are organised together in groups, which again form the total organisation. The individuals are the human resources of organisation, and the organisational structure and collective learning of these individuals constitutes an aspect of the organisation's capabilities. Logically, this means that the resources and capabilities of an organisation can be changed through a change in its size and structure. By examining the organisation it is therefore possible to reveal opportunities for capability development through organisational development. This can be seen as a different angle on the current resource question.

There are many different models for organisational development, which focuses on different aspects and therefor uses different methods for planning and executing the change. Most of them have in common an approach consisting of the steps

1. Analyse
2. Change
3. Consolidate

An example of such methods are Lewin's *Unfreeze – Move – Freeze* method (Lewin, 1947), which maps directly to the three categories above. Another example is Kottler's eight stage process for creating change (Kotter, 1996);

1. Establishing a sense of urgency
2. Creating the guiding coalition
3. Developing vision and strategy
4. Communicating the change vision
5. Empowering broad-based action
6. Generating short-term wins
7. Consolidating gains and producing more change
8. Anchoring new approaches in the culture

Here steps 1-3 represents the analysis, steps 4-5 the change and steps 6-8 the consolidation phase. Even though both these examples are recognized as excellent methods, this thesis will use another approach which seems to be even more suitable in analysis: Cummings & Worley describes a model for organisational development in the book "Organisation Development & Change" (Cummings & Worley, 2004).

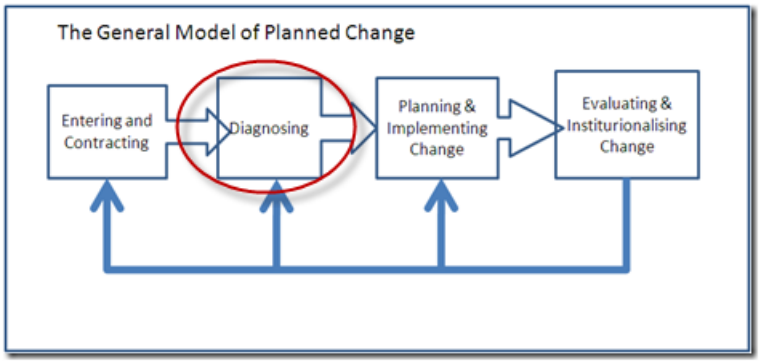


Figure 17: General Model of Planned Change(Cummings & Worley, 2004)

The model consists of four steps:

- Entering & Contracting (analysis)
  This is the initial stage to get to know the organisation and where the first data collection is done. The aim is to get to know the organisation and to

identify the main challenges which exist. Based on this the scoping of the planned work is done.

- Diagnosing (analysis)
  In this stage, the organisation is analysed either as a totality, or on group and individual job level, depending on the current scope. The analysis can focus both on issues and opportunities. The result forms the basis for the following change step.

- Planning & Implementation (change)
  This is the step where the actual organisational change is performed. The change takes the initial scope and the results from the diagnostics into consideration in the implementation.

- Evaluating and Institutionalising (consolidation)
  In this final stage, the effects of the organisational change is evaluated. Smaller adjustments are made, and the new organisations is given time and support to consolidate itself.

This thesis is focused on identifying resource and capability requirements, not organisational change as such. Therefore it is the analysis stage, particularly the diagnostics which is of most interest in this context.

5.5 Summing up the theory findings

After having discussed what the strategic choice of multi-sourcing means to the organisation, how RBV can be used as a tool to analyse the characteristics of the organisation, and how complexity and organisational structure can play a role in matching and developing resources and capabilities the findings so far can be summed up in the flowing way:

Resource & Capabilities
Looking into logically relevant resources and capabilities and matching these to empirical findings will provide insight into which resources and capabilities which will help improve Hydro's ability to deliver IT services based on a multi-sourcing strategy.

Complexity
We know that one of the potential disadvantages with multi-sourcing is higher transaction costs. Hence resources and capabilities which will reduce transaction costs will improve the operation of multi-sourced IT services. Following the description in the complexity chapter, lower contract complexity can contribute to lowering these transaction costs. In a Hydro context this may

be achieved by improving system documentation which could lower transaction costs by reducing contract complexity through lower switching costs and reducing the need for adapting human assets. Clear contract metrics and buyer-supplier alignment should also be targeted to achieve this.

Organisational diagnostics

Alignment between the different groups and the need for some form of “cross system integration” coordinating the different organisational groups seems to be an important finding from this chapter. In Hydro this can indicate the need for alignment and coordination between the different teams, both internal and external.

6 Empirical study

As concluded in chapter 4, the data from this study is captured from interviews with key representatives from Hydro's IT and business organisation. The selection of interview objects is done to capture the different main organisational dimensions than is effected by the IT service deliveries;

- Head of Infrastructure services is responsible for two out of three main sourcing agreements. He represents the internal infrastructure delivery organisation.
- Head of IS Procurement represents the professional purchasing organisation.
- IS Director Primary Metal represents a large group of mainly central business users.
- IT managers in Årdal and Karmøy represents the local production business organisation.
- Head of eBusiness represents the IT application delivery organisation.

Through this selection of interview objects the following dimensions are represented; local vs. central IT, local vs. central business users, infrastructure vs. application IT, and procurement vs. IT.

Additionally representatives from three other multi-national companies have been interviewed; Statoil, Telenor and Aibel. The companies have been selected based on the fact that these companies might have comparable challenges and experiences which could represent a correction to an all Hydro internal view of this case study, as discussed in chapter 4.1.

6.1 Interview guide

All interviews were been conducted in the following fashion

- As an informal conversation, based on the same starting question.
- Each interview took between 30 minutes and 2 hours.
- Subsequent questions was adapted to the interview objects role and response on the initial question.
- Transcribed to a written form, based on written notes or a recording of the conversation. The notes were translated from Norwegian to English in this process.
- Each interview subject was given the opportunity to read through the transcript to comment on errors, misunderstandings or inaccuracies and to give additional comments.

All interviews can be found as attachments.

6.2 Interview summary

To prepare for the interview analysis, the interviews have been summarized into a set of key statements. Some of the statements are direct quotes, while others are an interpretation from the interview content.

The summary of each interview can be found at the bottom of each attached interview (attachments H1 – H6, S1, A1 and T1).

7 Analysis

According to international business analyst group Gartner Inc., multi-sourced IT services is one of the most difficult sourcing models to manage (Ambrose & Scardino, 2004). So Hydro is far from the only company struggling with implementing this strategy.

The question in this thesis is: What are the internal requirements for Hydro to be successful in operating multi-sources IT services based on the current service stack configuration?

To get to an answer to this question, this analysis will go through the findings in the empirical study described in chapter 6, and analyse and discuss these findings in light of the theory presented in chapter 5.

Starting with the interviews as a basis; the summary from each interview gives an indication of the main content. These summaries have then been grouped together under eight statements or headlines.

The result looks like this, sorted by number of "hits" (for details, see attachment X1):

Headline	**# matches in this group**
Need in-house competence on the solutions	19 - Mix from different companies.
Need to handle service integration	17 - All four companies represented.
Understand your service provider	16 - Mix from different companies.
Helpdesk does not work as intended / Need for common helpdesk	15 - All Hydro.
Contracting competence	11 - Mix from different companies.
Need for service definition and overview	4 - Mix from different companies.
Need sufficient in-house capacity	3 - Mix from different companies.
Build outsourcing experience gradually	3 - All Aibel.
Miscellaneous	12

The further discussion is focused around these headlines, looking into how each headline fits with the theory and what the practical relevance is for Hydro in the given service stack.

7.1 "Need in-house competence on the solutions"

In-house competence on key IT solutions seems to be an important capability recommended by nearly all the interview objects. It is mentioned both in connection with contracting, where it is important to be a good buyer to make

sure that the buyer gets what is needed, and also in connection with daily operations where it is important to understand issues, solutions and proposals from the service providers.

In a VRIN analysis "In-house competence on the solutions" should be classified as **VR**; **V**aluable since it represents a significant value to a company to have this in-house competence, both judging by the interviews and by the resources put into developing such competence. And **R**are since in-house competence is not something that can be bought on the street. Every company is different and no-matter how standardized they are on IT tools and services the totality will always be a unique combination adapted to the company's business needs. In this respect, In-house competence can constitute a competitive advantage for the company, particularly on the business critical applications.

In the complexity perspective – *Figure 15: Barthélemy & Quélin's theoretical model for contract complexity*, in-house competence is also important; better in-house competence of the service to be bought will reduce environmental uncertainty and the need for adapting human assets. Both these factors will contribute to reducing contract complexity and thereby the subsequent transaction costs.

On the other hand; building unlimited in-house competence in general would be counterproductive related to some of the goals of selecting the multi-sourcing strategy in the first place (ref. 5.1). Building too much in-house competence and capacity on specific technical solutions, will reduce the flexibility to pick "best-of-bread" solutions over time, and can contribute to locking the buyer into solutions which may be unwanted or inflexible over time. Based on this in-house competence should be limited to the minimum requirements, and focused on important infrastructure and key applications only. To the extent possible, it should also be focused on higher level architectural competence rather than deep technical knowledge.

From the interviews it is clear that Hydro has significant in-house competence on network and some of the key applications (SAP and APICS are mentioned), but that the in-house competence seems to be weaker on applications such as eMail/collaboration and File/Print.

Implication: Hydro should focus on in-house competence on an architectural level; maintain this knowledge in the areas where it already is strong and seek to strengthen it in key infrastructure and application areas which seems to be weak today.

7.2 "Need to handle service integration"

In a multi-sourcing model the service integration function is the glue that binds the different services together and ensures smooth incident and change handling by coordinating the different service providers whether they are internal or external. The service integration function follows up on incident handling and change requests towards the different parties, and keeps the user up to date on the status.

To be able to integrate different services into one service stack, there needs to be some form of integration or coordination. Both from the Statoil and the Hydro contracting interview we can see that there is low faith in solutions where this responsibility is shared amongst several contracting partners. Gartner Inc. has published many articles on Service integration and what they call MSI = Multi-Sourcing Service Integrators. There are companies specializing in delivering this service integration service to companies that have adopted a multi-sourcing strategy. However, there are indications that outsourcing the service integration function can be too complex and represent a high risk for many companies, and that it therefor will be a better solution for most companies to handle the service integration in-house (Da Rold & Longwood, 2013).

From a VRIN perspective, service integration is definitely Valuable as in contributes to lower transaction costs and improves the service performance. It is also Rare in the sense that it requires specific competence on the company's service stack configuration and knowledge about the different actors in the service stack. But Service integration is neither inimitable nor non-substitutable.

Complexity wise, good service integration will work better with a good relationship and high trust level amongst the service providers and the buyer. With pour or lacking service integration, the complexity in both incident and change handling increases nearly exponentially in a multi-sourcing environment (ref. Hydro interview – eBusiness).

Organizational wise, the service integration team would be very central. Given enough capacity and a tight integration with other services, this would probably be a good place for driving infrastructure, cross application development and renewal initiatives. The reason for this is the cross functional knowledge and experience that would be accumulated in this function.

From the interviews and this discussion it is clear that service integration is a very important function to have in place when implementing a multi-sourcing strategy. The service integration function needs to cover all key infrastructure and applications to ensure low transaction costs and efficient incident and change handling. Based on the internal Hydro interviews, it seems as if this service is missing and/or that it is not covering all relevant areas and/or that it

is suffering from a lack of resources. It seems as if it is not visible to most of the organisation.

Implication: Hydro needs to establish a central service integration function across all main infrastructure and key applications. This function should work with the more specialized infrastructure and application service providers (internal or external) ensuring smooth incident and change handling.

7.3 "Understand your service provider"

This headline is more related to the bi-lateral relationship between one service provider and the buyer, and seems to be relevant both in the case of single-sourcing and multi-sourcing. The larger the contract scope is, the more important it is to find a "good match" between the service provider and the buyer. This point is made both in some of the Hydro interviews, from hard learned experience, and in the Aibel interview. A "good match" indicates both size and culture. The service provider needs to have enough capacity to serve the buyer and to have the flexibility that is expected when outsourcing (ref. 5.1). At the same time, it is indicated that one of the issues with Hydro's contract with Fujitsu is that Hydro is too small compared to Fujitsu and other Fujitsu customers. The Hydro business does represent a size that gives Hydro the necessary attention from Fujitsu. Combined with outsourcing a rather large scope to this supplier, it can create an unbalanced dependency were the buyer is significantly more dependent on the supplier that the supplier is on the buyer. This can give too low attention and flexibility for the buyer in some situations.

VRIN does not seem to be a relevant analysis framework in this context. Neither is the complexity directly relevant.

The ability to build organisational relationship and trust seems to be effected by the size and cultural match between the service provider and the buyer.

A higher degree of multi-sourcing means more contracts and more service providers, each delivering a smaller piece of the total service stack. Smaller contract scope means less dependency one each service provider. This would mean that the higher the degree of multi-sourcing is, the lower the importance of the "understand your service provider" factor will be.

Implication: The relevance of this factor depends on Hydro's further multi-sourcing strategy development. If Hydro plans to develop this strategy further, as indicated by the Head of Infrastructure, then "Understand your service provider" will become less important in the future.

7.4 "Helpdesk does not work as intended / Need for common helpdesk"

The helpdesk was only mentioned in the Hydro interviews. On the other hand, it was mentioned in all or nearly all of them. This indicates that this is of a significant importance in the current situation in Hydro.

The helpdesk is a key service to handle incidents in IT operation. This is the place where incidents are recorded and either solved right away (preferably) or routed on to a second line for more specialised support. Currently the interviews show that Hydro has a fairly fragmented helpdesk situation; there are application specific helpdesks (ref. eBusiness interview), site specific helpdesks (ref. IT manager interviews), and an infrastructure helpdesk through Fujitsu in Poland. This does not seem like an ideal situation, and from the interviews it can be interpreted that many of these helpdesks have been established as a "last resort", rather than as a strategic choice. In all, this seems to be a significant paint-point for the organisation. To avoid confusion amongst users and to gather complete statistics in one central place, would make sense to replace all these different helpdesk solutions with one, company- wide helpdesk covering all key infrastructure and applications.

Looking at the previously discussed service integration (ref. 7.2) which would be a key to smooth incident handling, it seems to be a very good idea to combine this service integration function with insight into one common helpdesk tool covering all relevant infrastructure and applications. The benefits of this would be

- that the service integration team would have a tool to track and handle incidents and changes that would cover all relevant infrastructure and applications
- that Hydro would build an incident and experience database which could be handed over from service provider to service provider over time as contracts change
- that it would give Hydro IT and higher level management insight, overview and statistics over incidents and change over time. Giving completely new and relevant possibilities for operational monitoring and performance management.

Recommendation: Establish one common helpdesk as a single point of contact with a suitable tool controlled by Hydro, covering all infrastructure and applications.

7.5 "Contracting competence"

Contracting competence is off course an important capability for any company, and the large the company is the more important it is to be a professional

buyer and to have access to expert knowledge in regulating sales and purchases through good and balanced contracts. In a VRIN analysis perspective, this capability to clearly Valuable, but it is probably neither rare, inimitable nor non-replaceable. This indicates that this is a capability which it is important to have access to, but which normally does not represent any competitive advantage.

Looking at the complexity perspective; according to (Barthélemy & Quélin, 2006) it is important to keep the contract complexity low, to avoid high ex post transaction costs. The contract complexity itself will normally reflect other surrounding factors (e.g. see 7.1) however, and will probably not be driven much by lack of contract competence itself.

Based on this it is difficult to see that "contracting competence" beyond what can be expected from any larger company is significant in the context of multi-sourcing.

7.6 "Need for service definition and overview"

Building a service catalogue to administrate and keep track of the services within the service stack sound like a good idea, in the same way as any documentation of IT systems is a good idea. In other words, a service catalogue can be considered to be a special case of system documentation in general. It is always important to keep track of what the systems and solutions are doing and who the users are. This is particularly important when outsourcing or switching to a new service provider. If the documentation is missing it will be very difficult for the service provider to take over, to define SLA's and follow-up that the deliveries are as expected. Any measurements without the baseline from a solid documentation will be very difficult.

In VRIN terms, system documentation can be classified as both Valuable and Rare. And absents of documentation will undoubtedly increase both contractual and operational complexity significantly. This can also be read from several of the Hydro interviews. Therefore it is reasonable to conclude that documentation is an important resource in both single and multi-sourcing arrangements.

Implication: Hydro needs to make sure that system and services are properly documented.

7.7 "Need sufficient in-house capacity"

Adjusting the balance between in-house and external capacity when the primary strategy is to buy the services can be difficult. On one side there is definitely a need and requirement to have a lower level of in-house capacity compared to when the services were produced internally. On the other side, it

is dangerous to reduce the in-house capacity to such a level that it becomes impossible to be a good buyer. From the interviews, it is also clear that outsourcing/multi-sourcing requires capacity for contracting, service integration and supplier relationship management to a higher degree that before.

But “need sufficient in-house capacity” in itself is probably too unspecific for drawing any firm conclusions. It can be seen and a more general statement relating to topics such as in-house competence (7.1), service integration (7.2) and “contracting competence” (7.5).

7.8 “Build outsourcing experience gradually”

This was a point made by Aibel. It respects a couscous approach to outsourcing and particularly to multi-sourcing. From the Aibel interview we can see that this is based on real-life experience from different scenarios. It also reflects some of the Norwegian spirit of taking things step-by-step.

On the other hand; this does not seem to be very relevant for Hydro, as the situation is now. Hydro has already taken the plunge into multi-sourcing and it is not an option to go back on that decision.

8 Conclusion

The aim throughout this thesis has been to explore multi-sourcing implementation in multi-national companies in general and in Hydro in particular. This has been done through the study of relevant theory followed by a case study of data collected from Hydro and three similar companies. Through this case study analysis some clear implications of the collected data has been identified. And this brings an answer to the research question as it was defined in chapter 3: "*What are the internal requirements for Hydro to be successful in operating multi-sources IT services based on the current service stack configuration?"*

In-house competence

From the empirical study it is clear that building and maintaining in-house competence on all key infrastructure and applications will make Hydro a better buyer in terms of defining deliveries when contracting and following up on service providers in daily operation. This is also matching with the theory on how lower need for human asset adaptation will lower contract complexity and thereby the subsequent operational transaction costs.

Establish central service integration function

A central service integration function across all main infrastructure and key applications will enable better integration between the different internal and external teams in the service stack. Building on in-house competence and working with the more specialized infrastructure and application team (internal or external), this will be an important capability for smooth incident and change handling. This is also supported by the theory finding on organisational readiness.

System documentation

Making sure that system documentation exists, is up to date, and is available for the service integration function and the service specific teams is a key element in lowering environmental uncertainty and thereby contract complexity and operational transaction costs. To be able to achieve this indicates the need for making system documentation available across teams in Information Systems so that it becomes possible to get access to existing documentation.

One common helpdesk, controlled by Hydro

To be able to have a functioning central service integration building on in-house competence and updated and available system documentation it is vital for this service integration team to have access to a system where all system incidents are logged and where it is possible to keep track of the incident history over time. This means establishing one common helpdesk as a single point of contact with a suitable tool controlled by Hydro, covering all infrastructure and applications.

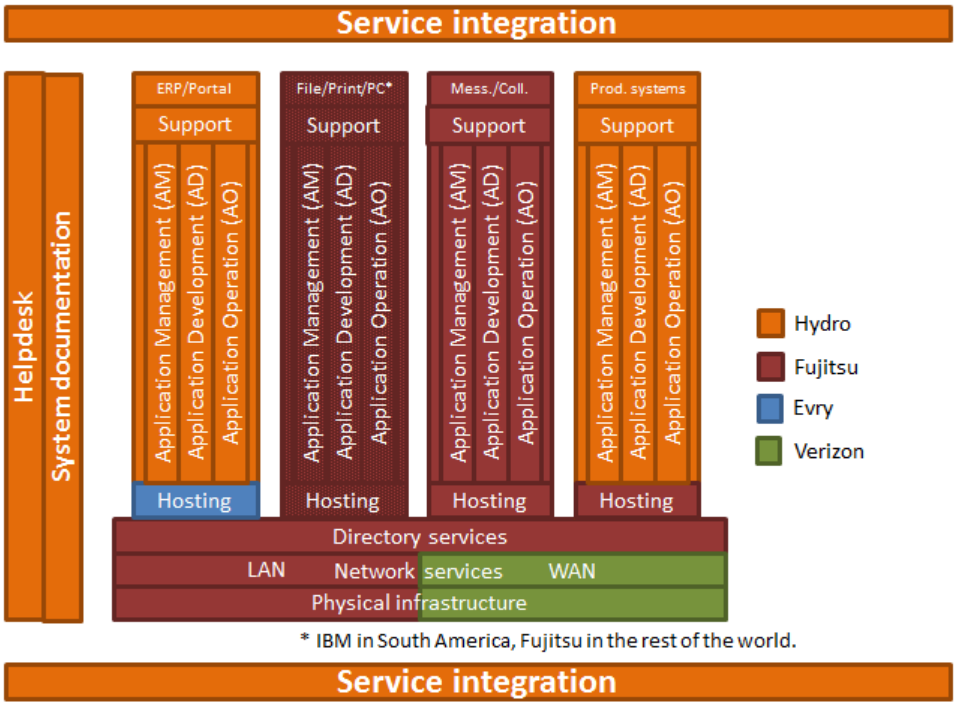


Figure 18: Service stack based on conclusions

8.1 Proposal for further research

There are a number of different directions one could go to research this topic further;

To dig further into this Hydro case, it is possible to look into the limitations that were not taken into consideration in the analysis (see 4.3). Would this change the conclusion from this thesis? Another option could be to use another method data collection; i.e. performing a survey off all or a selected group of Hydro employees, to see if this could give other findings or if it would confirm the conclusions in this thesis.

It could also be an option to widen the question to check if the findings in this thesis are valid on a broader basis for other multi-national companies. This could perhaps be done using other research methods such as a comparative study. Changing the literature search might also bring other and relevant theories up which might help to understanding of this topic.

Trust is a central part of business and a key aspect of contracting. Perhaps a study on trust between buyer and service provider in an outsourcing context and trust between all parties in a multi-sourcing context could bring new understanding of how multi-sourcing works in an operational setting?

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Attachments & interview transcripts

H1: Head of eBusiness Services in Information Systems, Hydro

Name	Bjarne Henrik Gjellesvik		
eMail	bjarne.henrik.gjellesvik@hydro.com	**Phone**	+47 91773386
Company	Norsk Hydro ASA		
Position	Head of eBusiness Services in Information Systems		
Date	15.11.2013	**Place**	Karmøy
Transcript	Transcript is based on a combination of recording and written notes from the interview.		

Q: In your position, you are responsible for operating ePortal and Integration services and you have been managing IT projects which utilizes the infrastructure now provided by multiple service providers. What has been your experience so far with operating on these services?

I have several examples which are affected by the fact that we now have multiple service providers delivering to us: I think that maybe the best resent example is “Financial workstation”, but I also have other examples; Introducing the support system Footprints, ePortal operation, Integration services and more recently; the project to revise the Mobile architecture.

Starting with **Footprints**; This is a new helpdesk and support system which eBusiness has decided to use. This system needs to have user authentication and support for lookup in a directory service to allow the helpdesk to quickly obtain name, unit/location, phone number, email address etc. for the person calling and automatically enter this in the request. The system was installed on a Evry hosted server by the SW supplier Inlead. Evry were already hosting and managing the directory service called Hydro Directory (HD for short) and the user authentication service. Just before the implementation project, the directory service was moved from Evry to Fujitsu as a part of the transition into the new service model. The project now had to relate to three suppliers, and not just two. This complicated the project significantly: A simple task, like integrating the directory service to the Footprint solution which was planned to take a few hours, took one year to complete. The reason was partially “political”; Fujitsu refused us to us the existing HD service for this purpose. They argued that the project should use Active Directory (shortened AD) and not HD as the directory service. The problem with this was that not all relevant users were registered in AD. We also got a strong feeling that Fujitsu didn’t have the right knowledge on the HD and wanted us to go on AD as this was to become the future solution. Once the politics was cleared out of the way, it was still a complicated coordination task to find the correct people in Fujitsu and connect these people to the correct people in Evry, Inlead and in Hydro.

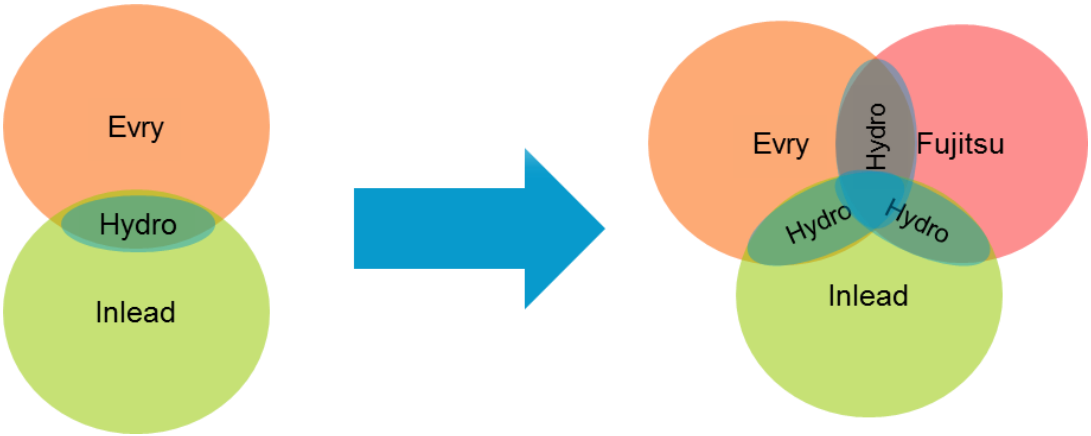
(The formality in the process was cumbersome and complicated; We had to make an RFC (Request for Change)

for this request,. We filled out the form, and submitted a RFC. Later this was redefined as a RFP (Request for Proposal – a solution proposal). And the time passed. What was going on with this RFC and RFP? Who can we contact? We didn't have a network of contacts inside Fujitsu, so we didn't know whom to contact to check what is really going on with this request. In the relationship with Evry we were used to having a contact network to "push correct buttons" inside the suppliers organisation when we needed to check the status of a request or needed to speed up the process. With Fujitsu, we have so far very few possibilities to do the same. There is only the formal escalation process – described in the contract, through the central infrastructure team. In this case, and also in many other situations, this leads to too slow and too long lines of communication where much information is lost. Eventually we got in contact with an expert on AD in Fujitsu, and were able to coordinate him with InLead (the supplier of the Footprint tool) who was configuring the solution, and Evry who was hosing the solution and also needed to open the appropriate ports in the relevant network firewalls. Without connecting these people directly to each other, the task of coordinating this work would have been impossible.)

This coordination job is some of the worst experience I have ever had through my over 30 years in Hydro. And the reason was that we went from two (Evry andInLead) to three suppliers (Fujitsu in addition).

(This would obviously have been much easier to coordinate with only the original supplier. There is no doubt in my mind. With one main supplier you have one point of contact, and the relationship was also much closer in the sense that Hydro and Evry were in a partnership were we knew each other's internal organisation. We had short lines of communication, and often knew which parts of the organisation to contact in case of a problem. It is often more than enough being two organisations that need to coordinate.)

When we go from two parties to three, the time and number of people involved escalates rapidly, and the coordination effort is not increased by 50%, but by a multitude of that.



(A side comment to this is that it is a pity that there is no coordination or common policy for support systems in Information Systems. It seems like every department is on their own. Our main suppliers like Fujitsu, and Evry are using their own internal systems, out of Hydro's control. The result is that Hydro has a very fragmented knowledge base internally, and that we have very limited access to the knowledge databases built by our suppliers. If and when we decide to switch suppliers again, this knowledge will be lost – again.)

Financial workstation is my next and perhaps best example regarding challenges with multi-sourcing. This service delivers fresh market data such as currency exchange rates and commodity prices forwarded by Reuters from Nasdaq, LME, stock and currency markets to Hydro's various finance and commodity trading functions. The service has been in operation for many years, originally serving wide parts of the old Hydro (with Oil & Gas, Fertilizer and Metals divisions). It was designed and operated by the old

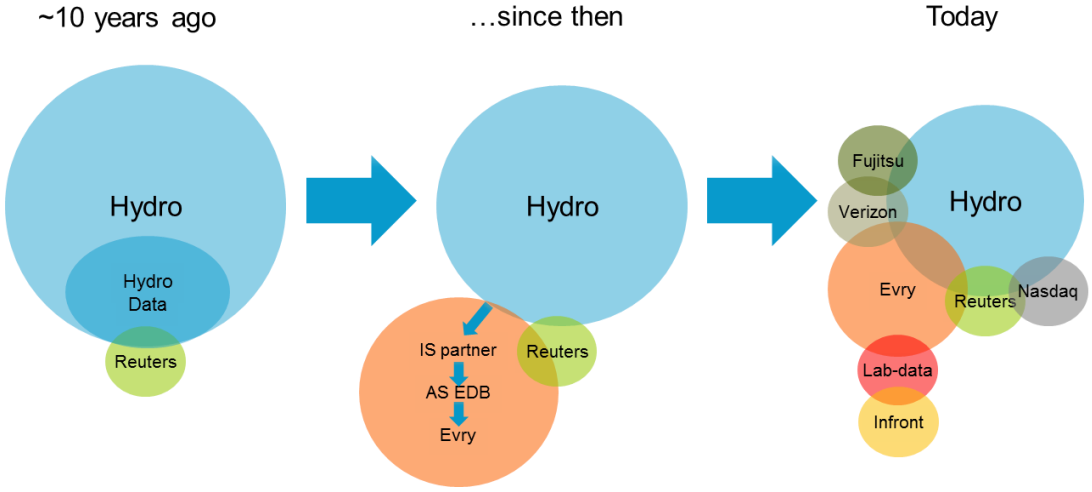
internal IT function Hydro Data which later became part of the external supplier Evry. When Hydro was required to move out from the datacentre in the old office building at Vækerø in 2012 and over to the office new building, Information Systems discovered that there was no one in Hydro who had an overview of the solution. The knowledge of this application had followed the IT personnel move over to Evry. Due to the importance of the service and the cost of maintain it, a project was established to handle to move to a new location, map out how the service worked and evaluate possible simplification and cost reductions, and to clarify ownership, management and responsibilities.

The findings from this service mapping, in combination with the move from only Evry as a partner over to the combination of Evry, Verizon and Fujitsu was that the service operation was dependent on

- 8 Evry operated servers
- 2 Evry operated firewalls
- 2 Evry operated routers
- 4 Verizon operated firewalls
- 1 Verizon operated proxy
- 2 Verizon operated routers
- 5 Fujitsu operated routers

Hydro had very limited knowledge of the solution. Evry had the knowledge of the solution, but only the control over some of its components. Evry's operation was dependent on two smaller companies delivering high performance database functionality. Fujitsu and Verizon had no knowledge of the solution. None of the parties had the overall responsibility or ownership.

This very well illustrates what can happen in a move to multiple service providers when the individual application or service perspective is not taken into consideration when the new agreement scopes are defined and responsibility is moved from one party to another. There is a high risk of pulverising responsibility when looking at it from an application or service perspective, even though it seems to have been clearly defined from a point-to-point perspective.



My third example is from the work to establish architecture for **Mobile solutions**. This year we have worked with Fujitsu to test out what they can offer us in this area. We wanted to try this out using some a standard SAP mobile app connected to one of our SAP systems. Again it was a challenge to coordinate resources and find out who needed to do what to make this happen. The SAP system is hosted by Evry, Fujitsu has the Mobile platform, and Verizon the network in-between. The project was delayed for several weeks due to coordination issues.

Q: Now that some time has passed, do you feel that things have improved? And do you see how the service integration is supposed to work?

Yes, things have improved, but even today projects like the Mobile platform initiative are struggling with coordinating activities across the different suppliers. This leads to increased hidden costs for us in the form of slow project implementation and lost opportunities. I think we have underestimated the importance of having internal competence and capacity to manage properly a multi-sourcing situation. To be able to coordinate and control you need competence on the solutions especial when you outsource parts of a total solution to several external parties.

I am not sure if it has been defined who should handle the service integration between the suppliers. When I am running a project, I usually contact the infrastructure team but I don't think that they have the formal role of service integrator. It is rather a consequence of them knowing the data network that therefore often knowing how "things" are connected.

Q: You have listed a lot of areas where you have experienced problems as a consequence of the implementation of multi-sourcing. Can you see areas where Hydro has done a good job in this process?

Clearly Hydro has done a good job on the contract side. We are much better buyer now than we were before. A lot of work has been put into building a solid and good contract structure, and the IS Procurement function has been significantly strengthened over the last years. This is a big improvement over

how things were before. But it is not sufficient to be good at ***how*** to buy, you also need to be good at understanding ***what*** you buy. This is an area of significant improvement potential in Hydro, I think.

Summary H1

- There is a need for application specific helpdesk tools.
- Complicated service structure with a lot of old history.
- Not good enough integration between different service providers.
- Application projects have to do the coordination between the different service providers. Missing a service integration function.
- Need capacity to coordinate service change.
- Missing service documentation and overview of involved parties.
- Some (typically older) services “fall between several chairs” and is missing a responsible supplier.
- Competence and overview to do service integration.
- The purchase function has been strengthened significantly.

H2: IS Director / Head of Business Solution Support, Primary Metal, Hydro

Name	Erling Sigholt		
eMail	erling.sigholt@hydro.com	**Phone**	+47 90777827
Company	Norsk Hydro ASA		
Position	IS Director / Head of Business Solution Support, Primary Metal		
Date	18.11.2013	**Place**	Phone (Oslo / Karmøy)
Transcript	Transcript is based written notes from the interview.		

Q: What has been your experience with the transition into the current situation, were Hydro has implemented a multi-sourcing strategy for IT services?

The background for what happened before the most recent switch from Evry to Fujitsu was that Hydro Aluminium in the period between 1997 and 2000 was running the BRO project focusing on best practice on the Norwegian smelters. A part of the outcome from this process was that common administrative functions like accounting, procurement and IT was moved from each plant and centralised in competence centers. Accounting in Sunndal, (procurement) & technical IT in Årdal and commercial activities (PHC) & commercial IT at Karmøy. This was in a way a form of internal multi-sourcing, which I think has been successful. I am happy with what these IT teams (Portal, SAP and APICS) have been able to deliver over the past 10 years. I believe that this has been possible due to the business knowledge in these teams and the way the teams have been located close to and in close dialogue with the internal “customers”. Through this change and centralizing process we have been able to harmonize and reduce the fragmentation both on administrative IT with the common SAP solution, and also on the technical system side with the development and roll-out of APICS. In this way we have reduced both cost and risk, and made good functionality available across all sites. This would probably have difficult to achieve without establishing these centralised teams.

Next, looking at the process were most of the local IT support was transferred to IS Partner, the initial intention as I understand it was to establish a group similar to the SAP and APICS groups which should handle PC/Desktop support. This facilitated a more professional group and also gave significant economies of scale and thereby cost savings. This was an important and necessary step, giving positive effects for the plants, but it also made the smelters (in particular) more vulnerable when most of their local IT knowledge was transferred to an internal supplier and then later left the company completely when IS Partner moved to Statoil and on to Evry

(as a result of Hydro's restructuring processes on a higher level).

The contract with Evry expired, and there was a decision to run a tender process. Here I believe that Hydro was in a difficult position because of the dependency on IS Partner / Evry. We had a contract which was OK towards an internal supplier (IS Partner), but not good enough for handling the relationship towards what had then become an external company (Evry). Our negotiation position was perceived as weak, since we were so dependent on Evry; they possessed much of the knowledge of the internal IT systems in Hydro, and handled a large part of the IT service volume.

When Hydro merged the Oil & Gas division with Statoil, IS Partner was too big for the remaining Hydro company. They also had large deliveries to Oil & Gas, and that was the logic behind transferring IS Partner to Statoil. Statoil already had a large internal IT department, and only wanted to keep the relevant parts of IS Partner, the rest was sold to Evry (with the Hydro contract as a big asset).

When the Evry contract expired and Hydro decided to run a tender process, the process in itself was good, but what we probably underestimated and under communicated was how heterogeneous the Hydro infrastructure is. This was at least not understood well enough by Fujitsu. The only bidder in this tender process who understood the complexity in Hydro was probably Evry, based on their knowledge of Hydro. The result of this was that Evry priced their bid based on their knowledge, while other bidders like Fujitsu gave a lower price based on the information communicated to them. In hindsight this was not particularly favourable for Hydro. Particularly from the Norwegian smelters, it was argued that there is a lot of Hydro domain knowledge in Evry and that the value of this knowledge should not be underestimated, but in the final evaluation this aspect was not given sufficient weight. The deciding factors were price and a qualitative evaluation of the supplier organisations experience and ability to deliver. A part of this picture was also the processes going on inside Evry, who at the time were changing their strategy to focus on banking and public sector and running large internal reorganisation projects which were clearly affecting their ability to deliver to Hydro.

This development with IT resources moving from internal in Hydro Aluminium through IS Partner and on to Evry, is interesting in the sense that we in Hydro through this process lost control over these resources and the knowledge they possessed. And in the end we also lost control of the direction they were heading when Evry changed their strategy.

When Fujitsu was selected as the supplier of infrastructure services, the cultural dimension was probably underestimated. Hydro did probably not fully understand that the delivery organisation is something different from the sales team you meet and work with through a tender process. I never met

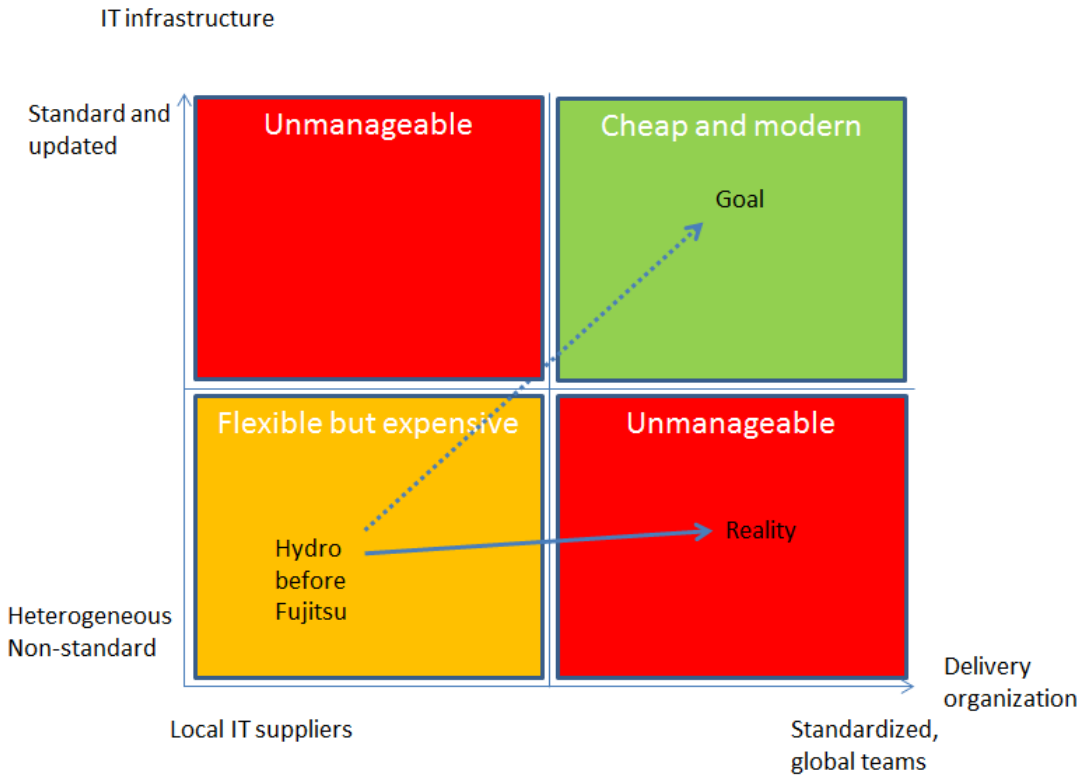
the sales team, but from what I have heard they were professional and in general gave a very good impression. I also believe that we underestimated how it is to work with a big multinational company like Fujitsu, which internally is not fully integrated. Later we have experienced that there are very different sub-cultures in different parts of Fujitsu. Some of these have had a way of working which matched very poorly with the way we are used to work in Hydro. Lastly, we probably underestimated the requirements for formalism. Hydro was used to working with Evry in a very informal way. With Fujitsu there were significant stricter requirements for formalism. This could perhaps have been a good thing, forcing us to work in a more structured way. But what we have seen is that it in reality has led to reduced efficiency, particularly in more complex tasks.

Main learning points from this

- The sales team and the delivery organisation are two different organisations.
- We underestimated the level of integration internally in Fujitsu.
- We underestimated the cultural difference between Hydro and the different sub-cultures we met in Fujitsu.
- The requirements for formalism were perhaps also underestimated.

It was only when the contract was being implemented that we discovered how low the integration level internally in Fujitsu really is. The plan was that the service desk in Poland should record the requests, and then they should allocate the task to the correct team. This did not work as intended.

An interesting learning which kind of explains why things when wrong, can be illustrated like this:



This is the problem today: There is no development, Hydro is not satisfied with the services and Fujitsu is losing money on the Hydro accounts. The only way out of this situation is to simplify and standardize the services we buy, by making them more modern and adapted to the standardized services which Fujitsu has experience with and can deliver in a cost effective way. And at the same time keep in mind that we only standardize on what there is a benefit on standardizing.

Q: What about service integration across the suppliers (Fujitsu, Verizon, Evry and the Hydro internal IT organisation)? Was or is there a plan for such a role, and do you see the need for it?

I think that this is a role that Hydro has not had enough focus on. You could say that within the infrastructure area, the infrastructure team in Information Systems is managing both the infrastructure agreement with Fujitsu and the network agreement with Verizon, and the infrastructure team has a role in integrating these deliveries. But the Evry agreement is handled outside of this team, and in general I don't think that the role of service integrator has been given enough weight and attention in Hydro. This is about having enough competence and capacity to follow up this properly. The problem in the infrastructure team is that they have had to focus on "putting out fires" and they have not had enough capacity to focus on the longer lines and development. We have seen the need for integrating services from the different suppliers, but there has not been a strong enough focus on building a service integrating function in Hydro.

A typical example that I use towards Fujitsu is related to the six delivery towers that Fujitsu is responsible for. Fujitsu took over the responsibility for the helpdesk on plan 1. July 2011. What we saw was that this service delivery was not going well, so the transition of the other services was postponed - the helpdesk was not critical for IT operations in Hydro. The two most critical areas: APICS hosting and Messaging and Collaboration was significantly postponed or delayed because it was our judgment that Fujitsu was not ready to take over this responsibility. In the APICS area we had strong internal knowledge in Hydro, and by using this knowledge we were able to formulate detailed and precise take-over requirements which had to be fulfilled before Fujitsu could take over. In this way we forced Fujitsu into a good and structured process where we agreed on the terms for taking over the services and how this should work in operation after the takeover. This was fairly successful. For Messaging and Collaboration we did not have the same strong team on the Hydro side, neither on competence nor on capacity to set similar requirements. And the result in this area, when Fujitsu was finally allowed to take over, has not been good. The point is that this illustrated how important it is to be a competent buyer on a fairly technical level, so that we are able to define requirements for how a service provider should deliver and operate the services. Particularly when buying from a big global supplier like Fujitsu, it is important that Hydro has enough competence to define the terms for how the services should be delivered. This applies both to each single service provider and to the integration across the different suppliers and services. You have to be active and see how the services from one supplier integrate with the services from other suppliers.

The Verizon process was a much better and more successful, compared the Fujitsu experience. This was a structured process from beginning to end where Verizon to my knowledge delivered as expected and the service transition went well with only a few exceptions. There were less problems in the interface between Fujitsu and Verizon that what I had feared. Form a plants point of view; I think that it has been unclear who is delivering the different services. If and when something is wrong, the question is if anyone is following the issues all the way through until they have been resolved - making sure that the issues are not lost between different teams and suppliers? As a plant IT manager you may have limited knowledge on how the work process is, and there has been examples were the root cause of a problem has not been identified quickly enough. There is a danger that the responsibility to follow up on and resolve an issue is pulverized between the different teams and suppliers. There have been some comments on how much easier it is to grasp the situation and evaluate the criticality of a problem, if you are located close to a plant and have certain business understanding when a serious problem occur. If you have this

understanding, and it is necessary, then you keep working on the problem until it has been resolved. However, if you are a technician in South Africa or some other place far away, who get assigned to an incident report through your global company, you are not necessarily able to assess the severity of the situation and to give it the required attention. It can be difficult to communicate and interpret the severity of a situation out to a multi-sourced environment of service providers.

Another interesting aspect on these problems is the contractual side: When the agreement with Fujitsu was drafted we used an external consultant to set up the structure in the agreement. The agreement he drafted is so big and complex that we in Hydro have problems understanding it, and many don't know it at all. The same seems to have been the problem in Fujitsu too. We made an agreement which does not function very well in practical use. In the Verizon process Hydro did a much better job in drafting a usable contract, and also perhaps too good a job on negotiating terms and conditions, since Verizon where having problems delivering on these conditions on some of the locations. My point with this in relation to contract complexity is that we want to have a precise contract which minimizes the risk and increases the understanding of the expected deliveries, but if the contract is too detailed and complex there is a risk that neither the buyer nor the seller understands and are able to relate to it. Some of the challenges for the IS Procurement team may be to look beyond the negotiations and signing of the contract, looking more at the life-time perspective of the contract. They should perhaps take a more active role in the day-to-day activities in following up on the contract deliveries. A service integrator role which may naturally belong in the infrastructure team, will need to work together with s supply function on the procurement side. The goal of procurement must be to negotiate contracts that everybody can live with, not just working to get as low prices as possible. It is easy to get caught up in the negotiations, trying to get the best possible prices, but it is important to remember that both parties in a relationship needs to be able to live and make money on the contract. If the supplier is losing money, there is no incentive to invest in the relationship and develop it further for both parties benefit.

Hydro is fragmented not just on IT but also in the business organisation. This has caused confusion particularly in Fujitsu. They believed for a long time that Hydro had a more centralized management that what is really the case. They believed that they could relate only to a few people in Information Systems and that these people represented all of Hydro. They have only gradually come to realize that the power is really in the Business Areas and maybe also at plant level. This has led to more demanding and time consuming processes than what they expected. And this should probably be a learning point for Hydro IS centrally also: There was perhaps

a lack of people with actual plant and operational experience in the team that prepared for the tender and participated in the negotiations. And this is also connected to how slow Hydro has been to standardize even in the IT systems were we could have done this, and how low priority and attention this has been give over the years.

Q: Can you point to things that have been good in the process we have been through in Hydro?

- Establishing the SAP, APICS and cPortal teams.
- To accumulate the IT competence in IS Partner. Even though it slipped a bit when IS Partner was sold to Statoil and Evry, I believe that this contributed to a significant cost reduction.
- Establishing a global WAN contract with Verizon. This allowed us to upgrade our WAN, thus allowing for more centralized IT services and server consolidation. This should ideally have been done before the infrastructure agreement was negotiated, so that the WAN was ready for introduction of new infrastructure services when that agreement was implemented.

I'm not so happy with the outsourcing of AM services to Accenture which has been done on the PRO21 system. It works well in combination with a strong internal team in Hydro who can control the Indian Accenture resources, but I doubt that there is a real cost benefit for Hydro in working this way. Outsourcing to low cost areas like India can be a good idea if you have a large volume of simple repetitive tasks, but if the volume is low and business knowledge is required for make things work then we need to spend so much effort in specifying and interpreting what should be done that it all in all ends up with being an expensive concept.

In relation to multi-sourcing there are some central questions which need to be clarified: Who takes the responsibility to bring us forward?
In the internal teams (SAP, APICS and Portal) it can be difficult to be able to handle both the day-to-day AM and support of the solution and at the same time see the broader picture and develop the solutions further. In this day-to-day for support and invoicing there is not much free time or budget to think and make plans to develop the solution further, long term. As it is not, this has been up to the Business Areas, and this has perhaps given too slow progress in some areas. Despite this, it has still worked better with the internal teams than with Fujitsu. With Fujitsu there was an expectation to first have a transition and then a transformation, but after the transition was finally done nothing has happened. To me it looks as if there is a need to clarify roles here. Many in IS are disappointed with Fujitsu in this respect, but this may also be linked to this service integrator role. Who is responsible for developing the totality?

Summary H2

- Heterogeneous non-standard infrastructure services delivered by a global team.
- Service integration responsibility has not been defined clear enough.
- Service integration without sufficient capacity.
- Cultural differences between Hydro and some of the suppliers.
- Tender process was not able to communicate the complexity of existing and important services to the bidders.
- Not all suppliers are making money on the Hydro contract.
- Complicated contract structure which is difficult to understand.
- Need sufficient resources to be able to maintain internal competence on key solutions.
- Capacity for driving improvements and innovation.
- Distributed IT teams with good business knowledge.
- Service integrator role has not gotten enough attention.
- Be a competent buyer on a fairly technical level.
- Be able to draft contracts with the correct level of detail and complexity, which both parties can live with and understand.
- Be able to communicate to contract bidders the reality of the needs in Hydro.
- Establishing common applications (SAP, APICS) has been a success.

H3: IT Manager, Hydro Årdal

Name	Håkon Seim Lysne		
eMail	hakon.seim.lysne@hydro.com	**Phone**	+47 91130067
Company	Norsk Hydro ASA		
Position	IT Manager, Hydro Årdal		
Date	20.11.2013	**Place**	Phone (Årdal / Karmøy)
Transcript	Transcript is based on a recording from the interview.		

Q: In your role as IT manager in Årdal, what has been your experience with this change from Evry to the combination Fujitsu/Verizon/Evry?

Seen from a plant like Årdal, there aren't that many more suppliers really. The transfer from Evry to Fujitsu included the significant part of the systems which we as a local IT department operate. Based on this I can mainly comment on the Fujitsu transition.

As I see it, this transition from Evry to Fujitsu was done on a 1:1 basis, where the existing technical solution architecture was transferred over to a new contract with a new service provider with as few changes as possible. The original intention was then to migrate this old solution into a new recommended architecture (first transition, then transform), based on a Fujitsu recommended way of operating the infrastructure. This last part, the transformation, never happened. The result was that Fujitsu had to take over and operate an infrastructure which they were not happy with and where they were lacking knowledge of the solution. 2-3 years have now passed and the existing infrastructure has gotten older and older and nothing has happened. Now we are nearly stuck, technically speaking. And the situation keeps getting worse. All energy is focused on keeping the existing but old infrastructure alive, Fujitsu is still struggling with operating this old configuration which is becoming more and more outdated. And this is the result of a job that was only half done. Only transition, but not transformation – which was the original intention of both parties. To me it is a unclear whose responsibility it was to drive this process. Hydro is blaming Fujitsu, and Fujitsu is blaming Hydro. The intentions were clear, but the capacity to execute these intentions was not present.

The Fujitsu operated service desk is an example of this; we at the three large Norwegian plants at Årdal, Sunndal and Karmøy had to establish local service desks or regional super users as we called it, outside of the Fujitsu agreement, to be able to handle the support and local operations in an acceptable way. We kept all the existing agreements with our local suppliers, and that way maintained this local knowledge base. This has been a success. Through this have we were able to maintain critical operational knowledge which we are totally dependent on. But this as given us a high

additional cost, outside of the Fujitsu agreement. This means that we never got the promised benefits out of the new agreement. The contract gives one price, but the way the infrastructure has to be operated both technically and organisational give a completely different cost picture. And the main reason was in my opinion that we never did the planned infrastructure transformation. I am in general disappointed with the service desk. I expected a higher service level, and that they would be able to resolve more issues directly on the service desk. Having a good service desk is very important in my opinion. When you call the service desk they should know what you are asking for. We clearly underestimated the language barrier with having a service desk in Poland, and we expected more competent people manning the service desk compared to what we got.

In addition the cultural differences and the difficulties with cooperating with Fujitsu have made things even worse. Fujitsu was and is much more hierarchical than what we are used to. This was difficult both on central IS level and even worse on plant level.

The handover of APICS server operation had to be postponed because of the lack of knowledge of the solution on Fujitsu's side. The internal APICS team in Hydro wanted to make sure that Fujitsu had the necessary knowledge to operate the production critical APICS systems. To confirm that this was the case, they arrange for knowledge sharing workshops where they first educated the Fujitsu team and then tested the team to confirm that they had really understood the task. The Fujitsu team failed these tests initially, and this is what triggered the postponement of the APICS operation transfer by one year; Fujitsu had to do more internal training to build the required competence, and them come back to Hydro again for a second knowledge transfer and testing session.

An additional comment to your drawing which shows the transition from Evry to multi-sourcing; the picture is really more complex than this. You should include the plants in the drawing. For the plants, Hydro IS is also a supplier, like Fujitsu, Verizon and Evry.

Q: If an error occurs, how do you handle such an issue? Where do you go to locate the problem with all these suppliers?

We can have many different suppliers involved here. It can be Fujitsu, Verizon, Hydro Information Systems – to handles this we have organized us locally so that we are able to handle this error detection ourselves, and then contact the correct supplier for help. This applies particularly to all the local and production critical systems which have to operate 24*7. Perhaps 95% of the issues are solved locally. If Fujitsu had been more proactive, perhaps we could have reduced the teams and the costs locally, but as the situation is not there is not much of an alternative. We have to handle the operating

deviations locally.

For WAN or network issues we use the excellent network team in Hydro. Without these guys we would have been lost on the recent incident when we have a major network outage in all of the Nordic countries.

The point is not necessarily to be able to solve all issues ourselves, if we could trust the supplier to do so, but the point is that it is extremely important to have the competence in-house so that we are able to be an active buyer and follow-up the supplier and take over if necessary. With the way Fujitsu is organized internally, with many different teams, there is a risk that the incident ends up in the wrong team, and then it can take "forever" to have it resolved – days or weeks, even for serious incidents. There is really a need for some "glue" between the different Fujitsu teams and between Fujitsu, Verizon and Hydro IS.

The god thing is that Hydro actually has been able to maintain and even extend the internal competence in many areas, like network / WAN services.

Q: Now we have talked about operation and transition, but what about change in this setup?

This has also been very difficult. When we for instance found out that we needed to replace a server because the old one was becoming unstable, this has also been almost impossible. During these 2 ½ years I have managed to get one server in operation. It is only in the improvement project that has just started, were server replacements is becoming an option. This is just an example of how difficult change has been. Simple small assignments are difficult to implement. So it is not just that the infrastructure is 1:1 from what was here 2-3 years ago, we have in reality also had almost a "freeze" in this period. Initiating a change is bureaucratic, gives pour feedback, and is in general difficult. It has almost become a rule that everything must be escalated before something happens. And even when escalated, both two or three weeks can pass before something happens. Even for changes tied to serious incidents. It seems as if there is a lack of follow-up on these change requests. There should have been enough capacity and significant competence in this team that should coordinate and follow-up on changes. I believe that we in Hydro should have taken this task more seriously.

To be able to implement changes is really a key to be able to increase quality and perhaps get out from a difficult position. When this is also very difficult, then we are almost stuck. In the end you just give up implementing changes.

The challenges with implementing changes are probably even more serious that the operational issues we have had. On the operational side we have

managed to get around it by working differently and making sure that the local resources are still available. But for change it is worse. To implement change we have struggle through this very slow process every time. Change also has two sides; change on what you have got, which is difficult, and then there is the change into something new, were the roadmap has been unclear or may be missing completely. The only way around this to implement solutions outside of the agreement and outside the intentions in the agreement. "Process PC's" are getting more and more common. This is a necessary sub-optimization to get around the difficulties in operating under the Fujitsu PC management regime.
Q: What has been good with this agreement? In the beginning, it made sense to me to move this way. Evry was a regional supplier and Hydro is a global company. Fujitsu seemed to be a better match for Hydro in that respect. So Fujitsu should be well positioned to cover Hydro's global needs. But as it has turned out, Fujitsu has also struggled to deliver locally in many Hydro sites at least to the same degree as Evry. In hindsight I cannot see that any of this has been very successful. But the price is lower, of course. Particularly if you exclude all the adaptations we have had to do outside of the agreement, and the lost opportunities and inefficiency. The knowledge sharing we did on the APICS transfer was good, but still I feel uncertain if we can really trust Fujitsu in this area. I believe that the problem in general is Fujitsu and the way they are working internally. This is not compatible with the way we work in Hydro.

Summary H3

- There has been a need for site specific helpdesk functions.
- Low quality and service level on the central helpdesk.
- Lack of service provider competence on some Hydro solutions.
- Service integration has to be handled by the local teams.
- Lack of integration internally in some service providers.
- Significant cultural difference between Hydro and particularly one of the suppliers has made cooperation difficult.
- Technically stuck, with very limited development.
- Significant additional costs outside of the central agreements to keep the business running.
- Change is difficult to initiate, and nearly always leads to escalation.
- Need capacity to drive service transformation to more modern solutions.
- Need enough available capacity to monitor and be proactive.
- Have enough competence in-house to be an educated buyer, and to be able to follow-up and understand the service providers' proposals.

- Establishing local helpdesks with local suppliers have been fairly successful.

H4: IT Manager, Hydro Karmøy

Name	Jostein Tjøsvoll		
eMail	jostein.tjosvoll@hydro.com	**Phone**	+47 91773385
Company	Norsk Hydro ASA		
Position	IT Manager, Karmøy		
Date	21.11.2013	**Place**	Karmøy
Transcript	Transcript is based on a recording from the interview.		

Q: In your job as IT Manager at Karmøy, you are one of the users of the supply agreements that Hydro has with service providers such as Fujitsu and Verizon. In addition you use Information Systems as an internal supplier. What has been your experience with this setup?

The big advantage before, when I started here, was that we used local agreements were we had control over the tasks, the resources and the priority. You could direct the resources to the places where they were most needed, and you could discuss priorities with local management and act quickly on what was decided. We manage today too, but now we are accountable towards an external party (Fujitsu). Now we buy the same external resources as before, but they too are less efficient because they have to comply with the formality requirements from the Fujitsu agreement. They have to get permission from Fujitsu before things can be done. This is just a waste of time really. We are close to the situation, and we know what needs to be done, Fujitsu does not contribute at all. Fujitsu could have been a good support in all of this, but with the way they are organized this does not work. It important to say that the process has become much better after the contract was moved to Finland this summer, but even Fujitsu in Finland sees that it does not work with the Service Desk in Poland and the teams in India and South Africa. I believe that we can get a benefit from Fujitsu if we can work directly with Fujitsu in Finland and get support from the Finnish teams directly.

Most users here have very little interaction with Fujitsu at all. Not with Finland, and not with the service desk in Poland. Most users in the production here completely refuse to relate to the service desk in Poland. To them it is a provocation and they get angry if they are told to call Poland. And many of them do not speak English well enough to talk directly to Poland either. They can manage when they are on holiday, but they do not master the language skills necessary to talk to a helpdesk. And if a user is calling the service desk in Poland, they have no clue as to which situation the user is in. Is this in production, or in an office? How critical is this? The persons manning the service desk is mainly unskilled. They are not able to grasp the user's situation at all. So the users here either take contact in person here at the IT office or they call the local helpdesk instead, which we

have organized outside of the agreement. We try to follow the system as it is meant to be, but using the local helpdesk to enter information into the Fujitsu system. But this requires frequent interventions by us in local IT, to speed up the process, correct misunderstandings and help smoothen the process. Take the PCs we receive as an example, they have a pre-installed image where many things that the users need are missing. You get the wrong print setup, wrong email setup; this was much better 6-7 years ago with Evry. Then we have scripts where the user just entered his employee number and the system was automatically configured. Today a user needs to know the server names and printer server names himself, in order to do this installation. And there are only a handful of our users who are able to do that. I have an example of how difficult is to get support. We are working to help a user to resolve a problem on this BlackBerry. We have spent three weeks on this, without getting anywhere. Someone behind the same mail address has asked for the same screen-dump several times. And we are not given any phone numbers, and not allowed to talk to anybody. What can go wrong, will go wrong. I do believe that helpdesk could have been better given a more skilled and stable workforce, but even with a different vendor like IBM or HP I don't think that the concept of one centralized helpdesk could provide what we need to support our users. They would never be able to replace people with local knowledge to the environment, the business and the people. This type of centralized helpdesk fits only for the very simple tasks – even though even giving a user a new password can go wrong.

We got a very good impression of the Fujitsu sales team in the beginning. Streamlined operations, smooth support and rollout of PC images upgraded to Windows 7 were what we were expecting. When the contract was signed, we instead get a team of consultants who were conflict oriented and only want to do the bare minimum of what was necessary. This was Fujitsu UK. What we have learned is that there is a huge difference between the sales team and the actual delivery teams, and that there also is a big difference between the different teams within Fujitsu. The team in Finland seems much more promising than what we have seen from other teams before.

Another part of the problem is that we have an actor in the middle, Hydro IS, who does not understand what is going on at a plant. There are many skilled people in IS, but they have problems both with capacity and with placing themselves in the situation at a plant.

Q: How can you escalate incidents? Are there functions for this?

In general, I don't think that this works. In a situation like the one we had this weekend, where a planned server maintenance takes more time than expected, there is no way of contacting the team that is performing the maintenance. We don't get any feedback about what is happening and when they expect to be done. Even when the job takes significantly longer than what was planned, we hear nothing. I made call after call to the service

desk. That was all I could do. The service desk was obviously also having problem getting in contact with the correct team. Monday morning this was still not working – despite what had been promised, and no message had been given to me. Fortunately we had Hydro IS personnel visiting Fujitsu Finland on Monday and they could take this directly with Fujitsu, to get this escalated. Then we had hourly meetings, and followed this until it was resolved. Then we got attention and things worked.

Q: What about change. If you need to initiate some changes, how does that work?

It takes time! If we need a new server, this takes a long time. One time we just gave up, and created our own virtual server instead – outside of the Fujitsu agreement. It is so much faster to just go to Evry or Atea in Haugesund and get a new server there. If it is urgent, then we have to do it this way. We cannot wait 4-5month for a new server. As I see it, this type of agreement that we now have with Fujitsu could perhaps cover mail and file services. Production support and production systems need to be outside of the agreement. The risk is too high. It was a long discussion before our local support got administrative access our local servers. But this is only for the production related servers. On e.g. the mail servers, we don't have any access. It is a pity that we, as it is not, we are not able to utilize common services like DNS, DHCP, AD, in new solutions that we are building. Instead we have to build our own parallel infrastructure. This is very unfortunate and expensive, but sadly necessary as things are today.

We have to make sure that the production related systems are independent of what happens outside of our production environment. We must make sure that errors in the office network or on different sites cannot affect our production. So the servers must have local support available, including a local depot of spare parts. We cannot trust Fujitsu to supply us with spare parts, as it was initially intended. This takes way too long.
E.g. the new servers in the pot control system in Prebake, will be handled outside of the Fujitsu contract. These servers will be so close to production that we will handle them as a part of a pure process system even though they are Windows servers.

The way the Fujitsu contract was intended to work; there should not be any local service at all. They should only use a company like InfoCare to service PCs and servers, and otherwise operate everything else remotely. What they obviously don't realize is that there is a bit difference between maintaining boxes and operating systems. You never understand the complexity and overall setting if you only believe that you are operating "boxes". I believe that the solution we have in the ePortal and SAP teams is a better solution. There you have the internal knowledge to use and challenge the service provider, and in that way work with them to make sure that you get the most out of the solution. You can buy hosting of server,

that's no problem with a good balance of tasks. There are different ways of doing this too, but as long as you have the flexibility on both sides and the willingness to work out pragmatic solutions will be ways to make it work.

Q: We have talked much about Fujitsu now, but what about Verizon. How does that relationship work?

This is more peripheral to us. There is not that much happening in the network area. When the transition was done, this has been very stable. But it is a big draw-back that we have our internet connection in Germany. There are a lot of smaller issues with this. E.g. are pages defaulted in German, access to some Norwegian university sites is not possible from abroad, professional forums are inaccessible in some cases. In general I find it strange that a Norwegian company like Hydro not has the possibility to access the Internet from Norway. In a crisis situation that might be important. We do have ways around this off course, by accessing local internet access points, but then you have to disconnect from the Hydro network first.

We have some issues in the transition project, particularly when it came to diversity on access to the sites, with access through two different cables. But this is not worse than what we should have expected, and it was solved without much delay. All in all, we are getting a stable connection and more capacity at a lower cost, so we are satisfied with this supplier.

With Fujitsu, as soon as we get to more special solutions, it takes forever to solve. I think that this is much due to the structure in Fujitsu. They receive tickets, and are setup to solve small and simple issues, not to dig into complicated issues. It seems like it's more important to fix the small and easy tickets than the more complicated and time consuming ones.

An example is the SAP client update you have been working on for a year now. As soon as there is something a bit more complex, it takes forever.

Q: Looking forward is it the suppliers we have selected that is no-good, or is it the model that is wrong?

I don't necessarily think that Fujitsu is worse than other options like HP or IBM. I think that the problem is the overall complexity, and that the agreement is too wide. We should have had a more limited agreement, focusing on mail, file and print – the simple services. This is a simpler area, which should be simple enough to manage from far away. These are more high volume, out-of-the-box solutions.

Services like LAN are complex today, and if something goes wrong there could be serious consequences. If this should give consequences in production, then we are dependent on local knowledge to resolve the issue quickly.

Q: What do you think about the improvement project we are running with Fujitsu now? Do you think that this will improve the situation?

No, I have very low expectations to that project. I don't think that there will come much out of this. I have been involved in some activities; in October we got two users to delete some emails, and then ask to have them restored again. This was done as part of the improvement project, to test the service efficiency. Only a small part of this has been recovered, and now a month has passed.

Q: If you should point out the positive sides of this agreement. What can you mention?

A good experience I have had was the Notes upgrade from 7.0.3 to 8.5.1. This worked very well. The operator seemed to know what he was doing, and everything when smooth. A bit strange to be called from a Russian number and the caller is asking to take control of your PC. If you are not prepared for this, then it sounds suspicious.

There is no question that Fujitsu has some clever people employed, but they have huge problems with coordinating their activities. This is the most important thing we have learned. They fail completely in the task to coordinate their internal activities. An important point in the contract was that the service desk in Poland should be the one single point of contact. This has failed completely. This service centre knows little or nothing of what is happening. They get no internal attention.

It is positive to have contracts with big, global service providers. If the process had worked as intended. If we could get help any time, from expert teams all around the world, this would be very positive. The problem is that it does not work.

Ideally, there should have been some positive sides to these agreements, but reality shows that there is none. The world is more complex.

But one thing I would like to stress; <u>after Fujitsu Finland took over the agreement, there are things that indicate that there can be improvements.</u> But they have to be allowed to use the internal teams in Finland, or get better coordination between the teams they have. And they have to get more pro-active.

Q: What about the cost picture? How much are you saving a lot on the Fujitsu agreement?

There is not any reduction in the total cost here at the plant, rather the opposite. The costs have increased. And I don't see how there can be any in the future either, with the contracts we have now. I don't think that it is realistic. We are diversified, the plants are different, and have a different road-map also ahead. It is not realistic to have a homogenous environment across the Norwegian smelters.

Summary H4

- Most plant users refuse to relate to the central helpdesk due to pour service and low level of understanding for the local process.
- Not all local users speak English well enough to use it to describe a problem properly.
- The central helpdesk does not have the skills to fix problems.
- The total costs have increased for us, with the Fujitsu agreement.
- The lack of internal coordination in Fujitsu is causing major problems for Hydro's attempts to do local service coordination.
- Cooperation with Fujitsu Finland is better, but they are also struggling to coordinate themselves with other Fujitsu teams.
- It is impossible to talk to people providing you with a service. No phone numbers are available.
- Information Systems does not have enough knowledge about the processes on a plant, nor the capacity to follow up on issues.
- Incident escalation does not work properly.
- Changing something takes a long time. The process is very slow. In some areas we have to build additional infrastructure outside of the central agreement.
- Internal knowledge of the solutions is essential to make the support and change processes work.
- The problem is that the Fujitsu agreement covers too many services. It should be limited to only some applications, like mail and file/print.

H5: Head of Infrastructure Services, Information Systems, Hydro

Name	Torstein Gimnes Are		
eMail	torstein.gimnes.are@hydro.com	**Phone**	+47 99562623
Company	Norsk Hydro ASA		
Position	Head of Infrastructure Services, Information Systems		
Date	22.11.2013	**Place**	Oslo
Transcript	Transcript is based on a recording from the interview.		

Q: In your role as infrastructure manager in Hydro, you are responsible for two of the large supplier agreements – WAN from Verizon and infrastructure from Fujitsu. What is your experience with these agreements, and with multi-sourcing in Hydro?

Looking at the big picture in Hydro and Information Systems, we have high degree of multi-sourcing. In my area – infrastructure, we are still in a bit old fashion situation where we have outsourced "everything" to two large suppliers. Looking forward, I don't think that this necessarily is the way to do it in the future. I believe that we will break up this portfolio in smaller components. And there are many good reasons for doing that; particularly to achieve more agility in the services delivers, and be able to do respond quicker to changes on the business side in Hydro. Currently, we are in a more or less locked scope in 5 years in the infrastructure contract, and three years in the WAN contract, the processes getting into and out of these agreements are cumbersome. The rapid changes in Hydro business, requires us to be able to adapt to changed requirement much quicker than what we can do in today's situation.

Q: You are administrating two contracts, how are things working across these contracts?

This is a very relevant question. And I think that we have an improvement potential in Information Systems, in the way we are organized internally. What we see is that there is more need to control the processes across the service areas. The change process is a very good example of this. Ideally, there should be one change process, with the relevant decision gates, so that all consequences of the planned change can be evaluated across the different service areas. Today we are doing this to a certain degree, we have an internal change manager in my team, who works very close to Fujitsu (who is delivering the largest scope), and we make sure that network change is handled into the same process. And then we try to handle larger application changes in the same way, but with limited success. There is no requirement for the application teams or business areas to use the same change process. So here there is something with the organisation that

needs to be improved in the future.

Q: What about the contracts which is managed outside of your area of responsibility, like the hosting agreement with Evry? Do you feel that this is a good arrangement?

I have a clear idea of how we could be better organized to handle the challenges with multi-sourcing and be able to deliver a better service to the Hydro business organisation. I am in favor of having a layered model where we could have could have an "infrastructure & operation" team that could handle the ITIL processes across all services, and then we could build specific solutions and application on to of this basic service layer. This would secure one common foundation, which could handle integration between the different services and applications. On the user side, there could be one common first line support / help desk and common handling of incidents.

Q: In the "old world" this was handled by IS Partner. Did we lose something in this transition?

The way Hydro had worked with IT over many years was to put as many IT functions as possible into IS Partner, just leaving a very thin layer of IT services outside of IS Partner. When we then let IS Partner go from Hydro to become a part of an external company, there were some important functions which were missing in Hydro. Hydro did not do a good enough job in assessing which resources that was needed to be a good service buyer. We are still thin, both on competence and on capacity, and this is probably a part of the explanation why we have not been succeeding with all contracts in the recent years. An example of this is with the Fujitsu agreement, where I believe that Hydro is a just as big part of the problem as Fujitsu.

We need more capacity internally to handle the integration and to control the main processes, when we are handling the service integration internally, compared to the situation we have before where we used IS Partner to handle this for us. We need to understand which are the main processes, and to what extent we need to control them. And thereof derive how much competence and capacity that is required to maintain this level of control.

Q: When you say that you think it could be smart, in the future, to split the current contracts more pieces with a more narrow scope in each contract, do you also open for taking some of these function back into Hydro?

Think that this is also an important assessment that we will have to make, and this is also an element in multi-sourcing. In this connection I believe that an important tool to help us in these assessments is to build a service catalogue. We need to have full control over which services we are delivering to the business areas, and what they requirements for each of the

services are. Through this process we can identify which services are of a general and generic nature which only needs to be available, and which services has more special Hydro requirements for functionality or integration. The generic services can then be bought in the open market with low cost and high degree of standardisation, while the more special ones need to either be delivered by more specialized suppliers or produced in-house. In scope of the current Fujitsu agreement we have a mix of generic services and services which is Hydro specific in some way (some are critical to production and need to be handled locally, or you need local knowledge to operate it). On the generic services we could have had a much higher degree of standardisation, but since they are mixed with everything else, and we don't have enough knowledge about then, they still remain decentralized on our local servers. Without knowing the different services and which requirements we have to them, it is very difficult to clean up and modernise the generic services while we still maintain support for all the special ones. I believe that using the service catalogue approach is the way to go to get progress in this area. This will be important in the further collaboration with Fujitsu. This probably has to be done plant by plant; sit down with each plant IT manager and start mapping out the different services, step by step.

Getting back to the way of organising this; having a "infrastructure & operation" team who owns the basis processes, and maybe also manages everything related to infrastructure and hosting – including SAP, Intranet and cPortal. This would give new possibilities to integrate and consolidate across the platforms that we have today. This will probably also help to simplify the some of the change processes too. This team would have be the point of contact for change; the knowledge and experience across the services/solutions would be concentrated. This would be the central service integration team in Hydro IS.

Q: Looking at the operational side: In some of the other interviews I have had, we have discussed the role of the service desk as the "glue" between the different services, and how valuable the information collected in the service desk could be for Hydro IS. What is your view on the way we should organise the service desk related to tools and operation?

I believe in a single point of contact approach to simplify the day for the users. Currently we are silo orientated on service desk function, in the same way as in application deliveries. Today we have many first line points, one for each of the big applications, and another for infrastructure. I believe in having one single point of contact for first line support, but it is challenging to deliver a good service if we organise this way. When we are buying the service desk service from an external supplier in India or Poland or somewhere else, the question is; what can you expect that they can deliver? Can they build local knowledge? Probably not. Can they build knowledge

about the company they are supporting (Hydro)? Probably not. You can meet them, give presentations and training, but my experience is that no matter how much effort you put in, you will get very little back. So I'm thinking that a service desk of this type can do an OK job on some simple and repetitive tasks within the scope of the contact, but probably not more than that. Based on this, we see that a fully functional service desk function must be built differently. It needs the necessary local knowledge and business understanding, combined with simple recipes for solving the most common issues that occurs. In addition we need efficient ticket routing for the issues that cannot be resolved directly on the service desk. We are not here today; we fail clearly on the required local and business knowledge. I addition we are also failing on supporting fairly simple standard tasks within the contract scope, so there is a lot that needs to be improved on our service desk.

But, given that we have a fairly good understanding of the problem; what is the solution? And here I have not decided what I think is the best solution. One option could be to insource this function; having internal or at least local staff, manning parts of the service desk.

We are of course talking to other companies about these issues. And one reference company we spoke to had established a very interesting concept; 70-80 internal employees at local plants and offices are defined as members of the service desk team. They have access to the supplier's tools, and they have basic administrative access to fix simple issues – based on tickets registered on the service desk. When the users on a given site are calling the common service desk number, they are routed to their local support person who has a fair amount of local and business knowledge. This is a very interesting model, but I know from the discussions with our current supplier, that they are reluctant to discuss these types of solutions. They want to have a clean cut; if Fujitsu is delivering the service, they want their people, their processes, and their tools. And they're not giving the customers access to this.

In any service desk solution, it is important for Hydro to have access and to retain the rights to the content to the knowledge database that is built by the supplier of the service desk. This will provide important documentation for Hydro, if and when we decide to move on to another supplier. Currently we have not focused much on this with Fujitsu. We have not reached the point where it is important to secure documentation control on our side, but this is an important point. This is a type of documentation that it is important that Hydro as a service customer has the control over. And this element should be included in future contracts in this area, so that we are sure that we have contractual coverage to secure the rights to this documentation. But this is a point which is very easily forgotten when the contracts are negotiated.

Q: The relationship with Fujitsu has been troublesome, while the relationship with Verizon has been much better. Why is that?

One thing is that we learned a lot from the process with Fujitsu. Roughly speaking; this was a simpler scope, and we had very good control over what we had and what we needed. We have more competence in-house and a much better understanding of the solutions we had prior to negotiating and signing the Verizon contract. We had full documentation of firewall rules, proxy servers rules, etc. This was documentation we made sure that we got from the previous supplier.

Looking at the broad perspective: We were good at listening to the supplier; following their standards for many things ranging from product classification and SLAs to contract text, pricing and so on. The alternative would have been a more Hydro proprietary contract regime, with our product descriptions and special SLAs. During the contract negotiations we brought in some more Hydro specific requirements, so we did not manage to stay completely on the course we set out on. But we still managed to end up with a contract where the service description and SLAs are based on Verizon's standards. And I believe that this was an advantage when we were building these services tighter with Verizon. In the tender process we also underlined the requirement that the transition process should start immediately after the contract was signed. And that we wanted to know and to approve, which project resources it was that would be serving Hydro in the transition project. This was also an important lesson from the Fujitsu project; after signing the contract 4-5 months passed with no activity, and then some completely unknown project people turned up. And then we were already delayed.

The project started a once, based on Verizon's standard solutions, we only had to provide the rules we wanted to apply. Then we could run a transition project that delivered more or less on time and on the expected quality.

With network projects, the critical is to deliver the "last mile" i.e. the physical line into site. This project also had some delays here, but this was not a surprise to us. Since we have in-house knowledge on network, we knew that this would be a challenge.

Q: So a positive effect of the Fujitsu process, is the lessons learned that helped provide a better foundation for the sourcing of WAN services from Verizon. Can you point to other positive effects from the process with Fujitsu?

In outsourcing you talk about first and second generation outsourcing. First generation is usually when you move from producing the service in-house to buying it externally – often transferring people in the process. We have

called the Fujitsu agreement for a second generation outsourcing, since we first had the process with IS Partner. But for Hydro, the Fujitsu process has really been a first generation outsourcing. We have learned so much about what we need to improve on our side to be a good buyer, what we need to have under control on our side. It has been a troublesome and difficult way to learn, but this is an important outcome for the Fujitsu process. The phase we are in with Fujitsu now is very interesting; they sold us a global delivery system where we have met a ridged system related to the deliveries and the possibilities for changes. Now we are changing our contract partner from Fujitsu Norway to Fujitsu Finland, and a consequence of this is that the Finish organisation will implement more of their regional solutions in Hydro, moving away from the global delivery model. This will probably match much better with our size and how (non-)standardised we are. It should be an advantage to use, and give us more flexibility and a better dialogue on how we can fix the problems we have had with the service deliveries.

Another advantage with this move to a regional delivery centre (Finland) is that it will reduce our exposure to Fujitsu's internal service integration issues. We have seen that Fujitsu has significant challenges with their internal integration of services delivered from their different teams in South Africa, India, Poland, and Russia. Culturally Fujitsu Finland is also a much better match with Hydro. The previous account team was compiled with many different people, many Englishmen, some Norwegians, some Swedes, etc. This was not a good match with our internal culture, and this combined with their global delivery model were they are used to delivering to companies 10 times bigger than Hydro. Fujitsu Finland seems to be more solution oriented, making a decision and going with that. And they seem to be much more open to discussing the issues we have, finding a solution, and then implementing this together. With our current unstandardized and distributed infrastructure, a regional delivery model will hopefully be a better fit for our needs. Then we can use the remaining contract time to clean up our service portfolio to prepare us for the next generation again, where we might go for an even more multi-sourced solution, breaking up the current Fujitsu scope in smaller pieces.

Summary H5

- Higher degree of multi-sourcing in the future.
- What we see is that there is more need to control the processes across the service areas.
- Different change process between application teams and infrastructure.
- Need for organisational changes.
- One, common helpdesk and incident handling.

- We need more capacity internally to handle the integration and to control the main processes.
- We need to get full overview over which services we are delivering to the business areas by building a service catalogue.
- One common service desk, across infrastructure and applications.
- Important to secure Hydro the right to control over the helpdesk documentation, incident history and knowledge base.
- In-house competence is essential for a being successful in buying a service.
- Listen to the suppliers, and negotiate contracts that work for both parties.
- Be aware of the cultural aspect, and look for service providers that have a compatible mind-set.

H6: Head of IS Procurement, Information Systems, Hydro

Name	Hans Petter Øya		
eMail	hans.petter.oya@hydro.com	**Phone**	+47 90119171
Company	Norsk Hydro ASA		
Position	Head of IS Procurement, Information Systems		
Date	22.11.2013	**Place**	Oslo
Transcript	Transcript is based on a recording from the interview.		

Q: You have been central in the tender process leading up to the contracts we have today. What has been your experience with this?

We have moved from what we had with IS Partner / Evry, where we had one supplier for everything within Hydro, to a multi-sourcing model. To start on the technical side. To do multi-sourcing, I believe that it is important to retain some expert knowledge internally in the company. We need this to be able to challenge the new suppliers, and to keep track of the totality across the different contracts. Things were a lot simpler when we had IS Partner in-house and also when we used only Evry. We had one party to deal with, and all requests could go to that party. They were in reality our technical competence centre. When we now have split the contract on multiple service providers, this means in reality that we have to handle the coordination ourselves, and that we have to challenge them much harder on a technical level. So it means that we have to maintain some technical knowledge internal to be a good and educated buyer. This is one of the places where we have been too thin in Hydro. And this is a part of the reason for why we have been failing in the Fujitsu process.

When we did transition from Evry to Fujitsu, we were lacking

- competence and control

- asset control on hardware and software

- documentation on the existing processes and solutions

If you are missing this control and try to do transition from one service provider and into a multi-sourcing environment is completely hopeless.

Evry told us that they had documentation, and we believed then. We made the mistake of not checking this in advance. We trusted Evry in this, and believed that we had everything under control. This should have been a part of the service we paid for many years, but then it turned out that we had nothing. This meant that when Fujitsu was taking over, they had to make new processes and solution descriptions from the bottom of. This is a huge job even when you know the processes and the solutions, Fujitsu didn't

know any of this and the result was that we ended up with pour documentation and a low level of knowledge, which mean that we had to transfer "as-is" as far as possible, instead of transforming into new solutions in Fujitsu. It is very difficult to build a new and good solution without proper documentation on the existing solutions.

This is a learning point for us; to implement a multi-sourcing solution, you have to have documentation. You also need this just to transition from one supplier to another, but it is even more important when you go to multi-sourcing, so that you are able to properly "draw the line" between the different parties.

On the contract side, several models have been proposed; Gartner has suggested clustering suppliers together in one SLA. There has been made attempts to make this work particularly in the US, but without success as far as I know. And the reason is that it is becomes too difficult within the SLA group; there are disagreements about costs and responsibilities, and then you never get anything out of it. It is a good idea and there are many who have tried this, but nobody has been able to make it work. I don't think that this is a good idea.

Q: So this means that you think it is better to have contracts towards each supplier, and then do the service integration inside Hydro company instead?

Yes. And it is important to do this service integration. This is another area where we in Hydro have had significant shortcomings. You need a well-defined integration role, and this requires people with knowledge on the solutions and the processes and how to integrate across the services from the different suppliers. This is extremely important when we are running multi-sourcing. You need architects, monitoring and issue tracing capacity, solution advisers… Today we are missing many of the links between the different services, both in terms of roles, capacity and capability. This is another learning point for us; this should have been in place before we started to multi-sourcing activities. Evry filled this role for us before, they even called themselves "system integrators", and they really were! But this role and knowledge disappeared for us through the process from Evry to multi-sourcing. Today we are lacking both the know-how and the capacity to do this. The more you do multi-source (more suppliers), the more important knowledge and capacity is required to fill this role.

Q: What about the way a company like Fujitsu delivers to us? Some say that with the many different teams in different countries they are delivering from, it is almost as if we have a second layer of multi-sourcing within one of our suppliers?

I don't think that the agreement in itself is the problem here, but the way Fujitsu has configured their delivery model. What we see is that Fujitsu is delivering to us from Finland, India, Russia, and South Africa. And these different deliveries are not coordinated. We have talked to other Fujitsu customers, and what we see is that if they get most or all deliveries from one place, then it works. Then we avoid this multi-sourcing internally in the supplying company, in addition to being one of several suppliers to us. If we knew what we know now, when we signed the contract, we had asked to be served from one location. This is what most companies are trying to do achieve now, when buying services from large multi-national service providers like Fujitsu or IBM. Another example is the SAP AM agreement we have with Accenture were we first sent all of the work to India, with only a few people in Norway and Germany. That didn't work either. We soon found out that we need more resources in Germany to follow-up and coordinate the work in Accenture was doing in India. In general, to have a multi-sourcing model inside a service provider is difficult. Having one service provider, with an internal multi-sourcing model is even harder to control than having a one-level multi sourcing with several service providers delivering to you. This is because you lose the transparency, and you don't have the power to coordinate and control the deliveries.

Some of what we have learned both from the Fujitsu and the Accenture agreement is that we must be much better at demanding and controlling where service are delivered from inside of the large service providers. The delivery model (place, teams, etc.) is very important. We missed out on this on both the Accenture and the Fujitsu agreement, and we have heard that others have had the same problem.

Q: What has been good in the process we have been through from Evry to the multi-sourcing setting we are in now?

Earlier we used to buy WAN services from Evry. Now we have switch to Verizon, and we have gotten a service provider with a lot more knowledge about this specific area. The WAN services have improved significantly, and Verizon is a much better sparring partner for Hydro compared to Evry. Evry was struggling with this all the time. They did not have the knowledge to control this type of services. In general this was some of the challenges with buying everything from Evry; in some areas, Evry did not have enough knowledge internally, and then they struggled with buying third party services and delivering this to us. In addition this model increases the costs significantly.

An advantage with the Fujitsu agreement is the cost level of the services. The direct costs are much lower, compared to Evry. We know that there are additional costs for the plants, outside of the direct service cost to Fujitsu,

but even when this is included we can see that the costs have been reduces dramatically. The plants think it is expensive, since they have to buy additional services on the side, but they still pay a lot less compare to what they did under the Evry agreement.

In general, the main advantage of multi-sourcing is that you can buy directly from the source, and avoid paying for the "middle-man" to coordinate the service purchases for you. You can buy "best-of-bread", and get the best and most cost effective solutions in the market. Just remember also to include the service integration that you need to establish to run the multi-sourcing, in the business case description. You have to be prepared for more in-house work on the solution architecture, more capacity on technical staff to follow issues and monitor the solutions, more capacity on the commercial side to follow-up the contracts and more management resources to bind it all together. And here we made another big mistake; we ran this multi-sourcing process in parallel with a general downsizing of the company. We were manning down when we should have been manning up!

In our case, moving from Evry who was very expensive, the business case would have been solid even if we had included these service integration costs. But this is mainly because Evry was very expensive (and the background for this was the transfer of IS Partner). If we have had a different supplier like HP or IBM, I'm not sure that the business case in moving to this multi-sourcing solution had been that clear.

Now, as the next step, we are looking into if we can move to more modern and cost effective services, within the Fujitsu service portfolio.

When you have a multi-sourcing step, it easier to change supplier. The contracts are smaller, and the services provided by each supplier are simpler. But this also means that you need internal capacity and knowledge to follow-up these frequent transitions.

Q: Does this mean that we are planning to split it even more that what we have done in this contract period?

We could have done that. E.g. taken server operations out and sourced that to another supplier, but there is a challenge with this, and that is the service desk. When the service desk doesn't work, then there is no "glue" between the services and it becomes difficult to diversify the multi-sourcing further. Many are struggling with this in multi-sourcing. One option could be to in-source the service desk, and operate this as a part of the internal service integration function. This would probably have been the most robust model. But this model does probably have a cost issue – it's probably not possible to get acceptance having 40 people on a service desk and 10 people in an integration team in Hydro. But there is no question that this probably is the best and most robust solution. Then you could hide the complexity for the

users and switch between suppliers without exposing this to the users, with full internal control.

We are struggling with the quality of service on the service desk. There are cultural and system issues with the service desks in Poland and Portugal which matches poorly with us. There is also a high turn-over of employees in these service desks. We have check around with about fifteen other Fujitsu customers. Fujitsu has also service desks in Estonia, Sweden and Finland. From other Fujitsu customers, we know that these service desks function much better than the one we are using in Poland. We are currently considering a switch to Estonia, with Norwegian language support. If the quality is better there, then we will probably switch.

There is also a point where there are no benefits in splitting the services further. When the cost of administrating the complexity is higher than the savings with multiple suppliers.

A final comment to multi-sourcing; make sure that you have documentation, check the delivery model of the supplier so you know where they plan to deliver services from, and check how robust the contracting partner company really is – remember that multi-national companies often are split in a lot of different subsidiaries; make sure that you know the specific company that is your contractual partner.

Summary H6

- I believe that it is important to retain some expert knowledge internally in the company.
- We need to handle the coordination between the different service providers internally.
- To implement a multi-sourcing solution, you have to have documentation.
- Clustering suppliers together in one SLA - I don't think that this is a good idea.
- You need a well-defined integration role, and this requires people with knowledge on the solutions and the processes.
- Aim to avoid multi-sourcing internally in the service providers. Stick to one service centre.
- Pick compatible partners.
- When you have a multi-sourcing step, it easier to change supplier. The contracts are smaller, and the services provided by each supplier are simpler.
- Need internal capacity and knowledge to follow-up frequent transitions.
- The service desk does not work.

- To in-source the service desk, and operate this as a part of the internal service integration function would probably have been the most robust model.
- We are struggling with the quality of service on the service desk.
- Multi-sourcing; make sure that you have documentation.
- Check the delivery model of the supplier.

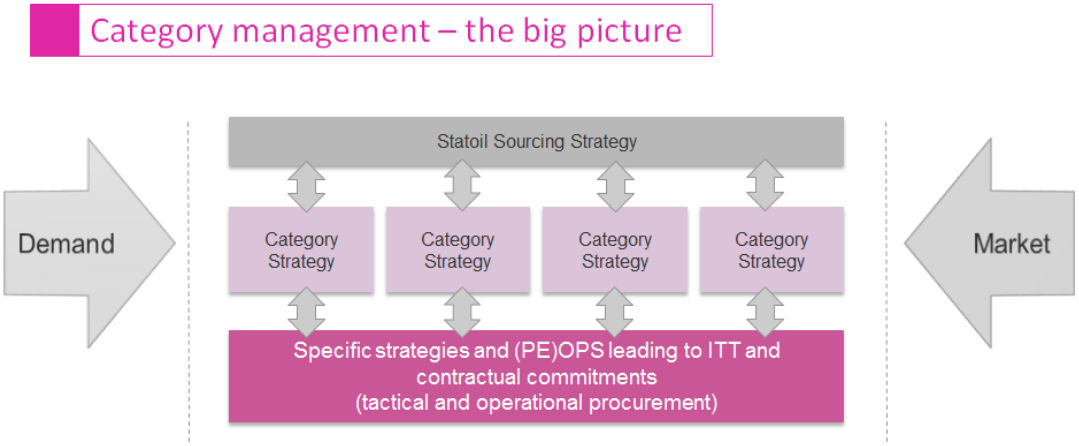
S1: Procurement Category Manager for ICT, Statoil

Name	Per Erik Bøe Hansen			
eMail	pebha@statoil.com		**Phone**	N/A
Company	Statoil ASA			
Position	Procurement Category Manager for ICT			
Date	26.11.2013	**Place**	Stavanger	
Transcript	Transcript is based on written notes from the interview.			

Background and organisation:

Statoil has a very centralized corporate shared service center called Global Business Services (GBS). This organisation consists of nearly 2600 employees. IT is a part of the GBS organisation, split into two main unites; IT Value chain – covering industry specific IT (486 positions) and IT Core – covering non-industry specific IT (418 positions). These constitute the IT delivery organisation. In addition to this there is a small corporate IT unit (ordering the IT services for the company), an information security group and a strategy and planning group.

Statoil uses category management in the organisational structure.

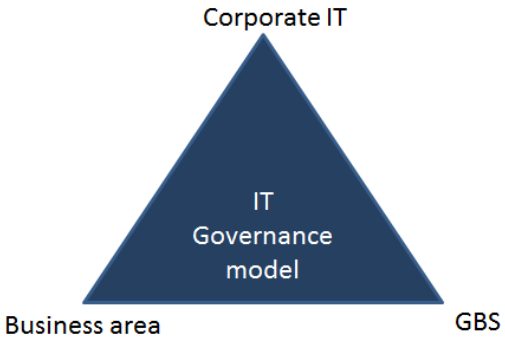


GBS handles sourcing of IT services based on a demand driven model of selective sourcing strategy. Some services are delivered internally, and some are bought in the market. Criteria's for internal or external sourcing of a service can be based on internal competence, the market works in the product or service in question and related to potential lock-in effects. Statoil has an ambition to use the market where there is one. About 65% of IT services are bought externally, and 35% is delivered internally. Up until now "selective sourcing" has in reality been a more "random sourcing", but Statoil has plans for handling this in a more structured way in the future.

IT is very centralized in Statoil. The majority of the IT activity is handled from Stavanger. We as an example invested heavily in having **one, central** ERP instance (SAP), which all parts of the company are using. This gives extremely very low SAP operational costs (run & maintenance).

Anecdote: After 6-7 years in Statoil, CEO Helge Lund was asking IT why he had only had one IT problem through all these years. Was IT over-performing?

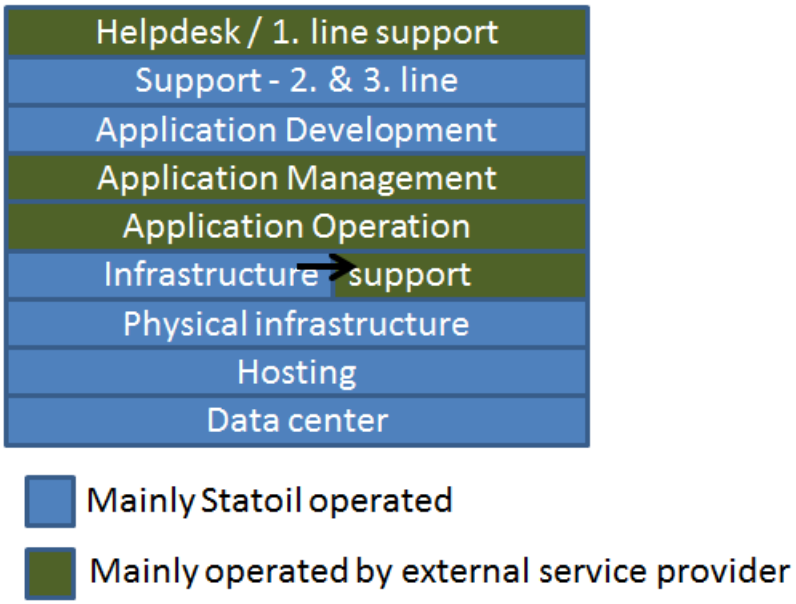
Statoil is now looking into ways of reducing the IT cost as a part of a companywide cost saving program. Target for IT is 30% cost reduction on 2012 baseline by 31.12.2014.



Today, GBS delivers very high quality at a high cost.

Q: What is the current split between internal and outsourced services in Statoil and what has the experience been with the outsourced services so far?

Looking at it from a the system stack perspective, this is the current sourcing status in Statoil:



GBS IT has a staff of about 500 internal and about 200 external contractors.

- Data centers, hosting and physical infrastructure is operated internally.
- Infrastructure support has been "out-tasked" to an external service provider which is currently operating on Statoil's assets and tools. Statoil has an option to move to a more regular outsourcing setup with this supplier, were they operate on their own tools at some point during the contract period. This allows a gradual outsourcing giving Statoil complete control of the process.
- Application Operation (AO) and Application Management (AM) is primarily handled by (several) external suppliers, but coordinated internally.
- Application Development (AD) is performed by a combination of internal resources, hired consultants and as service deliveries. This has worked well in several application areas. What I don't believe in is to offshore AD. We have made some very limited tests of this, and these tests have not been successful.
- Second and third line support is handled in-house.
- The Helpdesk is outsourced to a local service provider operating here in Stavanger, with some support also from the Philippines (also in Norwegian). We have Norwegian offshore requirements from to provide helpdesk and other services in Norwegian language.

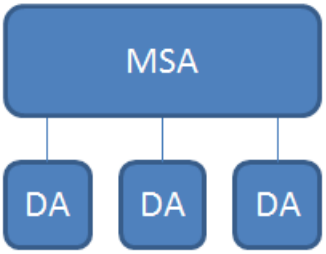
We have previously made an attempt to outsource/offshore the application development. This was not very successful due to challenges with coordination and interaction between the internal staff and the offshore services.

In general I believe in a caucus approach to outsourcing. Going step by

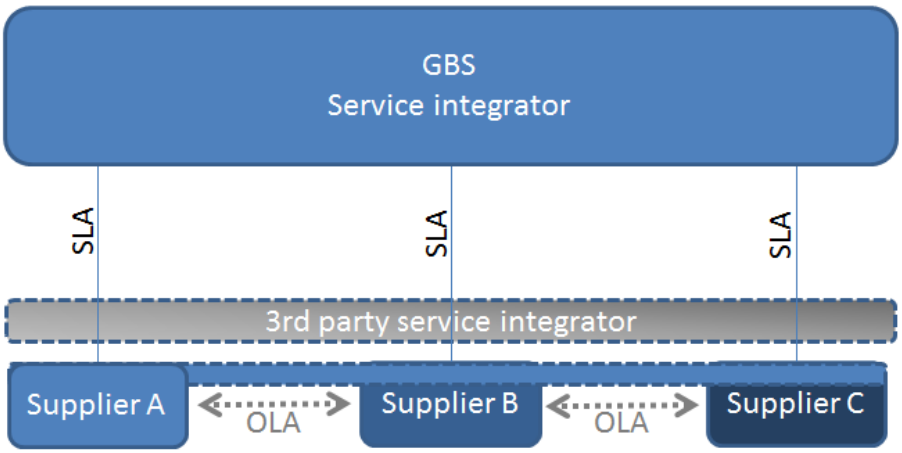
step, and not being too aggressive. General services are more suited for outsourcing than narrow or business specific services.

Q: How do you setup the contracts with the service providers, and how do you handle the service integration between them and our internal services?

In general, we use the concept of Master Service Agreements (MSA's) with Delivery Agreements (DA's) hooked up to it. This gives the necessary flexibility to extend the scope of an agreement. But we only do make use of this flexibility if there is a logical connection between the original contract and the new delivery agreement. We are very careful to have a neutral and equal treatment of all the suppliers. This is very important for how we are perceived in the market, and thereby to our ability to use the market in new tender processes.



In Statoil, GBS is a thick service integrator layer. We handle this internally. We implemented the ITIL processes in 2004, and are well advanced in utilizing this framework.



We only contract directly to one and one supplier. There are other options here:

- Gartner is promoting using third party service integrator. I don't believe in that solution for Statoil.

- We could have used one of the suppliers also as service integrator, but we would most probably end up in a significant lock-in situation with this service provider, and that is not a desired situation.
- A third option is to design the services with a very clear interface towards each other, and make the different service providers sign Operational-level agreements (designed by us) between each other. We have not gone done this road either. This would require a very detailed level of service description towards the different suppliers, and it would probably be very complex to make this work.

Q: How do you build the business case for out-sourcing and multi-sourcing? Are you able to include all the relevant factors?

This is very difficult. There are always a lot of unexpected effects when you do this type of changes. Statoil is very good at many tasks, but the business cases tend to be too optimistic. We often focus on "it works this way now, and costs this much – we can do it this way instead and save this much". In my opinion we should always add 50% for unexpected effects in the business case. This would make it more solid and protected against the unexpected effects which is always there.

Summary S1

- Statoil has a very strong internal IT function.
- Sources services from several suppliers, but handles the service integration internally.
- Statoil has previously made an attempt to outsource/offshore application development. This was not very successful due to challenges with coordination and interaction between the internal staff and the offshore services.
- In general I believe in a caucus approach to outsourcing.
- General services are more suited for outsourcing than narrow or business specific services.
- We only contract directly to one and one supplier.
- Business cases for outsourcing should always add 50% for unexpected effects.

A1: Manager Procurement Supplier Agreements & Manager IT Infrastructure and Operations, Aibel

Name	Ole Berner Claussen (OBC) Vidar Berg (VB)		
eMail	ole.berner.claussen@aibel.com vidar.berg@aibel.com	**Phone**	+47 90978185
Company	Aibel AS		
Position	Manager Procurement Supplier Agreements (OBC) Manager IT Infrastructure and Operations (VB)		
Date	27.11.2013	**Place**	Phone (Karmøy / Haugesund / Bergen)
Transcript	Transcript is based on written notes from the interview.		

Q: I would like to know what experience you have with outsourcing and multi-sourcing of IT services?

Aibel have one main contract covering WAN, LAN, data center, client, service desk, hosting with Evry, and have very limited experience with the type of multi-sourcing that you are looking into. We have some other, smaller contracts with other suppliers, but all the major services are delivered by Evry. We have, in other words, all the common infrastructure services under one contract. Application management of the major applications is handled internally. If we look at the internal application management team as a service provider, this is the closest we are to multi-sourcing in Aibel.

Based on previous experience with multi-sourcing in other organisations, and the current status in Aibel, my main reflection on this topic is that you need a good and solid experience with outsourcing, before you can take the step to implementing a multi-sourcing strategy. It is less complex to outsource a large scope to one supplier, than going for a multi-sourcing strategy with many contracts and suppliers. The first time you outsource to one supplier you learn unbelievable much and this learning is incredibly. You should probably do this 1-2 times before you move on to a more complex multi-sourcing configuration. This has to do with the organisations maturity related to sourcing; in the first outsourcing contracts technical staff is of assigned to follow-up other technical staff, you need to establish a customer-supplier relationship, you need to change the mind-set of the internal staff towards being a customer and not a part of the delivery function, and getting this understanding in the service buyers organisation is something that needs time to mature and to be assimilated into the organisation. This can take a long time, and may require 1-2 outsourcing projects before it has been properly established.

Q: Given that you outsource a large scope to one big supplier; in your experience, what can you then expect will happen to your internal organisation? During the period of such a contract e.g. 4-6 years, you get an organisation that develops capabilities to follow-up suppliers, building supplier relations, organising the internal work to be able to control and manage suppliers instead of producing the services themselves. What is also important in an outsourcing situation is to be aware that the competence that you previously had in-house will now be move over to the supplier. It is important that the supplier also understand this, and act as a partner related to the expertise which he then will possess. This can be challenging in some situations, where the supplier might be more concerned with the SLA and the service description in the contract, than acting as a part of a partnership when it comes to exchanging experience and giving advice in different situations. This does not always work in the same way as it would have done if you had the same resources in-house.
Q: Given that you have outsourced to one supplier and trained your organisation to be a service buyer; What happens when the contract expires and you move on to a new supplier? Do you still have the necessary knowledge in-house to challenge a new supplier? Doing follow-up towards a supplier is more than just tracking service levels, measuring KPIs and verifying invoices. It also requires a close follow-up on the quality of the deliveries on a technical level, and to do this you need to retain some in-house knowledge and capacity. When you are buying a service you of often want to extend the service over time, adding new functionality on top of what you are already buying. It is very important to have sufficient capacity and capability internally to be able to do quality assessments on these types of deliveries from the supplier. But this still requires a different mindset from the internal staff, compared to when they were delivering the services in-house; not doing the job themselves, just making sure that the job gets properly done. You also need to have a conscious attitude towards new and untested technology. We have had some painful experiences in this area. Make sure to have the capability to assess the proposals from the supplier, to see if the technology is mature enough and will fit with your existing environment. Also related to access to know-how; Aibel wants to buy a set of services from our supplier. We don't want to be concerned with who it is that operates this service behind the scenes. It is the suppliers' responsibility to supply the service with the correct resources and know-how. However, what our

experience has shown us is that we normally are just as dependent on the same individuals as we were when we were producing the service in-house. It is very difficult to be able to draw on the larger resource and competence pool of such service providers. This is particularly the case when you transfer people as a part of a first generation outsourcing.

To me it sounds like what you in Hydro have done recently, is in reality a first generation outsourcing, and that you have taken a very big step directly into a multi-sourcing arrangement. To repeat what I said in the beginning, I believe that an organisation will benefit from the learning of doing an outsourcing to one big partner one or two times before moving to the more complex of multi-sourcing model. This way you avoid the most obvious problem with unclear and pulverized responsibility, where to search for errors, the general blame game, and so on, in the first outsourcing period when the internal organisation is still learning how to deal with this new setting. And you avoid having to take on the role as service integrator right away.

The most central lesson I have learned related to outsourcing in general is that you have to build competence on outsourcing before you try to learn multi-sourcing; "you have to crawl before you can walk".

With one of my previous employers, when we were multi-sourcing the IT services, we first secured enough in-house competence by employing a lot of people from our previous service provider. This way we secured continuity before switching to a set of new suppliers. And when we signed the contracts, we made sure that they had different duration, to avoid that too many contracts would expire at the same time. The key word in these efforts was to secure competence and continuity.

Q: You have had one big scope outsourcing contract first with BT, and now you have switched to Evry, with the same scope. How was the transition from BT to Evry?

The handover as such from the old to the new supplier was OK. What made the transition more complicated, was that the new supplier wasn't taking over what we had 1:1, they chose to build a new platform which should replace the solution we had before. We went from owning the data centers to buying data centers as a service. We no longer own the hardware in the data centers.

The transition was about two things;

- taking over the operational responsibility for Aibel – this was OK,
- and then a project with building a new solution – this project was significantly delayed. The result was that Evry in the beginning had to operate a hybrid of the old and the new solution. This made the

transition difficult.

In other words; the transition was OK, the following transformation was not OK.

Q: With one supplier, Evry, delivering the complete outsourced scope, you only have one contract party to relate to. Is Evry perceived as one partner also when you look at it from the operational side? Do they manage to be perceived as one, integrated service provider?

From our side in Aibel, Evry is not perceived as one company. This was a surprise to us. We believed that when Evry was taking over as our service provider, that there would be good cooperation and interaction internally between the different parts of Evry. We know that Evry is operation the systems and infrastructure for many large banks in Norway, and taking over Aibel's solutions should be just "copy-paste" from the other configurations. But it turns out that the Evry teams serving us in Aibel has very little cooperation with the teams serving the finance customers. This seems to be two completely different companies within Evry, working isolated from each other. It is understandable that they are different business areas, but we are struggling with their separating between regional teams and the central enterprise environment handling the large customers. The regional teams have to buy service across different teams and from the central enterprise team. We feel too exposed to this internal service trading, which can be fairly uncoordinated at times.

Q: Give that Evry is not completely coordinated internally; does the agreement provide you with sufficient control from the outside of Evry, or have you had to establish an internal network of contact point within Evry to be able to follow-up on the service deliveries?

Contact governance is extremely important in this context. Establish the correct contact points on different levels, making sure that there is good, systematic and correct contact between the companies is important. This is independent of how many suppliers you have.

In Aibel we have a very good cooperation between IT and Procurement, and we try to follow the contract systematically. It is important the both our organisation and the supplier relates to the contract, making sure that particularly change is kept under control and within the frames of the contract. We need to keep a certain contractual distance between buyer and seller. Making sure that even though we want to work close with our supplier, we also need a certain set of formalities before changes and new solutions are implemented. We do want a partnership with Evry, but at the same time the relationship cannot become so informal that we lose track on the contractual aspects of price, scope and so on.

A relationship develops over time, and after a given time it might be possible to reduce the governance requirements in the contractual relationship, given

that we have been able to develop an agile yet controllable relationship. But this is something which is difficult to formalize. It has to be developed over time. This is about building trust and having a healthy relationship from the beginning. We want to develop this type of relationship with our major providers, but all companies are different and we have different level of success with different partners. But it is easier to do this with one or a few big suppliers, that a large number of smaller suppliers. In a governance model, it is important to meet physically, so that we can have open discussions across the table and then make decisions which bring us forward.
Aibel has made a management decision that we don't want to be exposed for IT services in low-cost countries. We wanted a Norwegian supplier. We evaluated India and eastern Europe, but decided that it was important for Aibel to have a Norwegian supplier. We have evaluated doing SAP development through consultant companies based in India; we did run a pilot project through Cap Gemini to utilize their contact with Indian development companies. The plan was that they should do HR development in our SAP solution. After fairly long discussions with the supplier we failed to get resources which we felt would be able to do the job, and we terminated the relationship with Cap Gemini. We are still in contact with another consultancy company in India. But experience has shown us that this is difficult to administrate and difficult to make the relationship work in a practical way. The companies we have been in contact with are expecting that you will be using a team of perhaps 20-30 dedicated resources, and then the cost for us is close to what we have to pay for getting the same job done in Norway. The cost/benefit with these arrangements is not necessarily as attractive as it first might seem.

Summary A1

- Focus on one main supplier- one point of contact.
- You need a good and solid experience with outsourcing, before you can take the step to implementing a multi-sourcing strategy.
- You should probably outsource to different suppliers 1-2 times before you move on to a more complex multi-sourcing configuration.
- The internal organisation needs to develop capabilities for outsourcing and multi-sourcing.
- Partner resources will act differently than internal resources.
- Outsourcing will give more focus on SLA, and less on giving advice and being in a partnership.
- You need to retain in-house knowledge and capacity to follow-up suppliers.

- It is very important to have sufficient capacity and capability internally to be able to do quality assessments of deliveries from the supplier.
- Transition to new supplier was OK, the following transformation was not.
- We are struggling with pour coordination internally inside of Evry.
- Aibel has made a management decision that we don't want to be exposed for IT services in low-cost countries.

T1: Business Advisor in IT at Telenor

Name	Claes Lyth Walsø		
eMail	Claes-Lyth.Walso@telenor.com	**Phone**	+47 93645849
Company	Telenor ASA		
Position	Business Advisor in IT at Telenor		
Date	28.11.2013	**Place**	Oslo

Q: I would like to know what experience you in Telenor have with outsourcing and multi-sourcing of IT services?

Traditionally, Telenor has produced all IT services internally, supported by additional consultants from various companies which have provided flexibility and additional capacity on a "time and material" basis. In other words; we have had full control over everything in-house.

About three years ago we signed contracts with two major suppliers; Cap Gemini and Tata Consultancy Services (TCS). The contract scope with Cap Gemini and TCS were covering separate application areas, but the idea was to have two so that we could use them partially overlapping, avoid locking situations and get project offers from both of them on larger projects. They should deliver to our in-house IT function and contribute with additional capacity. All services should be delivered directly from India, to Telenor's internal organisation. With TCS this was very clear; they don't have much representation in Norway. But also with Cap Gemini the plan was the same, even though they do have offices in Norway, these should be bypassed and we should work directly with India.

The challenges with this constellation have been several:

Competence wise; In telecom there are a lot of complex legacy systems and custom made solutions which requires a fairly long training period to be operational and effective as a consultant. Several of the central systems have been developed in-house over many years. An example of this is our tailor made middleware system where our experience has shown that a consultant typically needs 1-2 years to know the system well. When we found consultants in India who were good enough to work on this system, they typically did not stay longer than one year. Then they wanted to move on to newer and better jobs. For the skilled and clever once amongst the Indian consultants, it was all about climbing higher in the system. It was the not-so-skilled or clever who stayed behind.

Culturally; We in Telenor had very different ways of working than what the Indian consultants were used to.

Commercially; this was sort of a catch-22: to develop experience and knowledge they needed to be awarded work on larger and central projects. But for us to let them in on the central and large projects, they needed to

have the necessary experience and knowledge. We tried out several different models to build competence with the Indian teams. They got the responsibility on parts of the projects on other projects they delivered on time-and-material basis. Some of this worked kind-of OK, but all in all it was difficult to make this work. It was difficult to make this cost efficient.

Over time, we were not happy with this arrangement, and now we are in the process of switching to only one supplier; Accenture. For the mobile systems, Cap Gemini will be out by the end of this year, and Accenture is taking over much of the responsibility now in December. For the wired net, there is a parallel activity.

In this new contract we are transferring some of our internal staff over to Accenture. They will be located in Telenor's office and work together with our internal IT function on the one side, and utilize as much as possible of their Indian resources on the others side. In this constellation, Telenor will not be directly exposed to the Indian consultants. We will relate mainly to the Accenture team in Norway. Now we are outsourcing whole projects, system and service integration and operation. The remaining internal team shall focus mostly on the contact to the business side. Accenture will be hands-on on the systems, and be responsible for everything.

Q: How was the service coordination across the deliveries from TCS and Cap Gemini and internally in the two service providers?

I know the deliveries from Cap Gemini best; there was very little coordination between what was done in the AM role and what was delivered in the projects.

But this was partially our fault, due to the way we organized the work. We have system specific outsourcing and it was up to each system owner to decide how each project should be delivered, and how the suppliers would be involved in each project. Management gave directions on the use of the suppliers, but the system owner had the final word.

Q: What can you say about the experience with the new model with Accenture?

We have used Accenture and this model on some projects in the past. And it has not been painless with this model either. To succeed with this I believe that Telenor will have to go through some turbulent projects first, before the supplier get up to speed on our systems and we together get our cooperation working smoothly. But this might take as much as 1-2 years, in my personal opinion.

The basic idea with this setup is that we believe that Accenture has more flexibility in their organisation and that they are able to provide resource for larger projects in a more efficient way that what we have been able to do ourselves. The technology in telecom is developing rapidly and we may need to run larger modernisation projects on a fairly short notice. In this

situation having a partner that can provide the necessary competence and capacity will be a great asset for Telenor.
Q: Do you know how the division between Norway and India will be on Accenture's side in this new contract? I don't know if everything is clear, but I assume that they will staff up with as much as possible in India. I assume that to focus will be to have as much as possible in India, and as few as possible, but sufficient, here in Norway.
Q: When the contract with Accenture expires sometime in the future, and you want to move on to someone else. How can you know the state of your systems, when it has been up to Accenture to handle AM and AD for many years? How can you be sure that they are healthy? I am not sure. We will have domain architects in Telenor while the system architects will be Accenture staff. It is too early in the process to say exactly how this will work, but the idea is that Telenor will have the leading role on the architecture, thinking strategically and long term – in close cooperation with Accenture. Telenor will have the final work on ordering new projects, but we are not supposed to be pepping inside the system. AM and AD is up to Accenture, and Telenor will only be doing some QA activities.
What we are doing now, with Accenture, is very different from what we did with TCS and Cap Gemini; With TCS and Cap we were offshoring, now we are entering into a **partnership** with Accenture. And Accenture is getting much more responsibility than what TCS and Cap was getting. There is a certain risk of getting into a lock-in situation with Accenture, but we believe that this is difficult to avoid. We also had this to a certain degree with Cap and TCS. The plan of getting competition on project between the two suppliers never worked. They developed competence on different systems (to a certain degree) and they were never equal on competence when a given project should be staffed.

Summary T1

- In Cap Gemini there was very little coordination between what was done in the AM role and what was delivered in the projects.
- Difficult to avoid lock-in situations when development is outsourced.
- Expect turbulence when switching service provider.
- Challenges with in-house competence.
- Cultural challenges between Telenor and Indian consultants.
- Difficult for a service provider to develop competence on non-standard solutions.

X1 Interview summary classification

Group statement	Mapping of the summary statements
Helpdesk does not work as intended. / Need for common helpdesk	- There is a need for application specific helpdesk tools. (H1) - There has been a need for site specific helpdesk functions. (H3) - Low quality and service level on the central helpdesk. (H3) - Lack of service provider competence on some Hydro solutions. (H3) - Establishing local helpdesks with local suppliers have been fairly successful. (H3) - Most plant users refuse to relate to the central helpdesk due to pour service and low level of understanding for the local process. (H4) - Not all local users speak English well enough to use it to describe a problem properly. (H4) - The central helpdesk does not have the skills to fix problems. (H4) - Incident escalation does not work properly. (H4) - One, common helpdesk and incident handling. (H5) - One common service desk, across infrastructure and applications. (H5) - Important to secure Hydro the right to control over the helpdesk documentation, incident history and knowledge base. (H5) - The service desk does not work. (H6) - To in-source the service desk, and operate this as a part of the internal service integration function would probably have been the most robust model. (H6) - We are struggling with the quality of service on the service desk. (H6)
Need to handle service integration	- Not good enough integration between different service providers. (H1) - Application projects have to do the coordination between the different service providers. Missing a service integration function. (H1) - Need capacity to coordinate service change. (H1) - Competence and overview to do service integration. (H1) - Service integration responsibility has not been defined clear enough. (H2) - Service integration without sufficient capacity. (H2) - Service integrator role has not gotten enough attention. (H2)

	- Service integration has to be handled by the local teams. (H3) - It is impossible to talk to people providing you with a service. No phone numbers are available. (H4) - The problem is that the Fujitsu agreement covers too many services. It should be limited to only some applications, like mail and file/print. (H4) - What we see is that there is more need to control the processes across the service areas. (H5) - Different change process between application teams and infrastructure. (H5) - We need to handle the coordination between the different service providers internally. (H6) - You need a well-defined integration role, and this requires people with knowledge on the solutions and the processes. (H6) - Sources services from several suppliers, but handles the service integration internally. (S1) - Statoil has previously made an attempt to outsource/offshore application development. This was not very successful due to challenges with coordination and interaction between the internal staff and the offshore services. (S1) - In Cap Gemini there was very little coordination between what was done in the AM role and what was delivered in the projects. (T1)
Need for service definition and overview	- Some (typically older) services “fall between several chairs” and is missing a responsible supplier. (H1) - We need to get full overview over which services we are delivering to the business areas by building a service catalogue. (H5) - General services are more suited for outsourcing than narrow or business specific services. (S1)
Contracting competence	- The purchase function has been strengthened significantly. (H1) - Tender process was not able to communicate the complexity of existing and important services to the bidders. (H2) - Not all suppliers are making money on the Hydro contract. (H2) - Complicated contract structure which is difficult to understand. (H2) - Be a competent buyer on a fairly technical level. (H2) - Be able to communicate to contract bidders the reality of the needs in Hydro. (H2) - Clustering suppliers together in one SLA - I don’t think that this is a good idea. (H6)

	- In general I believe in a caucus approach to outsourcing. (S1) - We only contract directly to one and one supplier. (S1) - Business cases for outsourcing should always add 50% for unexpected effects. (S1) - Focus on one main supplier- one point of contact. (A1)
Need in-house competence on the solutions	- Need sufficient resources to be able to maintain internal competence on key solutions. (H2) - Capacity for driving improvements and innovation. (H2) - Distributed IT teams with good business knowledge. (H2) - Be a competent buyer on a fairly technical level. (H2) - Be able to draft contracts with the correct level of detail and complexity, which both parties can live with and understand. (H2) - Technically stuck, with very limited development. (H3) - Need capacity to drive service transformation to more modern solutions. (H3) - Need enough available capacity to monitor and be proactive. (H3) - Have enough competence in-house to be an educated buyer, and to be able to follow-up and understand the service providers' proposals. (H3) - Information Systems does not have enough knowledge about the processes on a plant, nor the capacity to follow up on issues. (H4) - Internal knowledge of the solutions is essential to make the support and change processes work. (H4) - In-house competence is essential for a being successful in buying a service. (H5) - I believe that it is important to retain some expert knowledge internally in the company. (H6) - To implement a multi-sourcing solution, you have to have documentation. (H6) - You need to retain in-house knowledge and capacity to follow-up suppliers. (A1) - Difficult to avoid lock-in situations when development is outsourced. (T1) - Challenges with in-house competence. (T1) - Difficult for a service provider to develop competence on non-standard solutions. (T1) - Multi-sourcing; make sure that you have documentation. (H6)
Understand your	- Cultural differences between Hydro and some of the suppliers. (H2)

service provider	- Significant cultural difference between Hydro and particularly one of the suppliers has made cooperation difficult. (H3) - Change is difficult to initiate, and nearly always leads to escalation. (H3) - The lack of internal coordination in Fujitsu is causing major problems for Hydro's attempts to do local service coordination. (H4) - Cooperation with Fujitsu Finland is better, but they are also struggling to coordinate themselves with other Fujitsu teams. (H4) - Listen to the suppliers, and negotiate contracts that work for both parties. (H5) - Be aware of the cultural aspect, and look for service providers that have a compatible mind-set. (H5) - Aim to avoid multi-sourcing internally in the service providers. Stick to one service center. (H6) - Pick compatible partners. (H6) - Check the delivery model of the supplier. (H6) - Partner resources will act differently than internal resources. (A1) - Outsourcing will give more focus on SLA, and less on giving advice and being in a partnership. (A1) - We are struggling with pour coordination internally inside of Evry. (A1) - In Cap Gemini there was very little coordination between what was done in the AM role and what was delivered in the projects. (T1) - Cultural challenges between Telenor and Indian consultants. (T1) - Lack of integration internally in some service providers. (H3)
Need sufficient in-house capacity	- Need internal capacity and knowledge to follow-up frequent transitions. (H6) - We need more capacity internally to handle the integration and to control the main processes. (H5) - It is very important to have sufficient capacity and capability internally to be able to do quality assessments of deliveries from the supplier. (A1)
Build outsourcing experience gradually	- You need a good and solid experience with outsourcing, before you can take the step to implementing a multi-sourcing strategy. (A1) - You should probably outsource to different suppliers 1-2 times before you move on to a more complex multi-sourcing configuration. (A1) - The internal organisation needs to develop capabilities

	for outsourcing and multi-sourcing. (A1)
Miscellaneous	- Significant additional costs outside of the central agreements to keep the business running. (H3) - The total costs have increased for us, with the Fujitsu agreement. (H4)Changing something takes a long time. The process is very slow. In some areas we have to build additional infrastructure outside of the central agreement. (H4)Establishing common applications (SAP, APICS) has been a success. (H2) - Higher degree of multi-sourcing in the future. (H5) - Need for organisational changes. (H5) - When you have a multi-sourcing setup, it easier to change supplier. The contracts are smaller, and the services provided by each supplier are simpler. (H6) - Statoil has a very strong internal IT function. (S1) - Transition to new supplier was OK, the following transformation was not. (A1) - Expect turbulence when switching service provider. (T1) - Aibel has made a management decision that we don't want to be exposed for IT services in low-cost countries. (A1) - Complicated service structure with a lot of old history. (H1) - Missing service documentation and overview of involved parties. (H1) - Heterogeneous non-standard infrastructure services delivered by a global team. (H2)