An architectural approach to the implementation of Shared Service Centers

Abstract

Many organizations are currently introducing Shared Service Centers for primary processes as a means of achieving synergy in operational excellence, thereby reducing costs and improving quality. At this point in time, however, no systematic way of approaching such a task has been defined. During the set-up of a Shared Service Center, early discussions on the shift of interests tend to block sound decision making. Recently, an approach based on the central role of architecture was developed and followed through to the final shaping of a Shared Service Center in the Financial Industry. In this paper, we report on this architectural approach and evaluate its effectiveness, especially in the area of improving the quality of decisions. The concepts of service-orientation and re-use and the use of "responsibilities" as building blocks in business and IT seem to be essential to the success of a more general approach.

1 Introduction

Many organizations in the Financial Industry are introducing Shared Service Centers for primary processes as a means of achieving synergy in operational excellence, thereby reducing costs and improving quality.
At this point in time, however, no systematic way of approaching such a task has been defined. This task has many aspects and it is not very clear how to begin: what is a solid basis and which aspects have to treated when.
During the set-up of a Shared Service Center, early discussions on the shift of interests tend to block sound decision making. For instance, a conflict of interests can be perceived between front- and back-office about the trade-off between synergy and responsiveness.
Recently an approach was developed and followed through to the final shaping of ING's Securities Service Center. Architectural concepts played an important role in this process. This architectural approach appeared to be effective, especially in the area of improving the quality of decisions.

In this paper, we first introduce you to the concept of SSCs (remainder of this section), then we describe the current problems in this area (section 2). The next two sections (3 and 4) contain a description of the proposed architectural approach in general (3) and specific to ING (4). We end with evaluation of the approach and conclusions (section 5).

1.1 What is a Shared Service Center?

[Immink 2002] defines a SSC as follows: "A Shared Service Center is a professional organization, executing specific business functions for (internal) clients."

In this definition, we see the following interesting elements:

- "shared service", the emphasis is on the operational delivery of tangible services that already exist; only now they are shared;
- "professional organization": the SSC typically supplies its clients on the basis of Service Level Agreements (SLAs), and is accountable for the services supplied;
- "(internal) clients": the SSC has a client-focused mind-set—users of the service are viewed as customers, and the SSC is dedicated to providing high-quality, cost-effective, and timely service. Some SSCs have only internal clients, others have also external clients; the SSC can also act as an "independent" company.
- "specific business functions": these functions can be anything, ranging from secondary functions like housing, through back-office functions like order and payment processing, to front-office functions like sales; the essential point here is that those specific functions are organized once only.

In some older definitions of SSCs (e.g. [APQC 2001]), the business functions are restricted to "non-core" functions of the company; we have chosen the broader definition, especially as in a value web (a non-linear fabric of interwoven value-chains) the definition of core and non-core is quite volatile.
[Haakma 2002] discerns four types of SSCs: product-oriented, functional, expert and system-oriented service centers. The ING Shared Service Center Securities is an example of a product-oriented SSC.

Sharing implies a degree of centralization (unity of control). Control is gradually transferred from the clients to the SSC. In the final situation, the SSC is free to ar-

range and organize its processes and IT. It is only required to supply its services according to the SLA agreements.

Sharing does not necessarily imply concentration (unity of geography). It is possible to have a SSC that operates from three different locations.
The external interface of an SSC has to match the structures of the participating parties. But it has must also be able to match any future scaling up/ shrinking/change of the participating parties. It should be easy to connect new parties to the SSC (and, in principle, also to disconnect parties from the SSC).
Generally, the SSC is run as an independent business, with its own budget and bottom-line accountability. It will contain all the primary processes it needs to execute its "specific business functions" or obtain them from another SSC.

1.2 The purpose of Shared Service Centers

The current economic situation has focused many managers' attention on achieving objectives such as synergy, economies of scale and cost reduction. This has created a short term motivation to investigate SSCs.

- The ratio of cost/income is a benchmark that is commonly used to measure a bank's performance. A typical value for a general bank in Europe lies in the range of 50 – 80%.
- SSCs reduce costs by increasing the efficiency and quality of internal bank operations. Cost reductions achieved by introducing SSCs are reported to be generally in the range of 10 – 30 % [CGEY 2002a]. A recent Dutch survey confirmed this, indicating an average return on investment of 17% [Haakma 2002]

The longer-term motivation to set up SSCs is the need to respond to changes in the market place— there is an increasing trend toward globalization and mergers of (retail) banks in Europe, which creates a requirement for post-merger-integration of all the constituents of the newly formed group.
Another motivation is the development of multi-channel distribution; this has been made possible by the increasing power of ICT and allows new players to enter the market. These new distribution channels need a uniform back-office.
Finally, SSCs are used as a stepping stone strategy towards outsourcing.

Almost all known case histories of SSCs in the Banking and Finance sector report a positive outcome [Lobry 2002]. In some cases cost or headcount reductions of up to 30% have been achieved, in other cases a substantial increase in quality or market share has been reported. Large banking groups and banks participating in newly formed joint ventures are the principal players in these case histories, where SSCs have been largely applied for cash management, payments and cards.
In one case history, where an SSC for cash management did not achieve the desired result, it was not possible to supply the desired level of service due to inexperienced staff. However, one of the reasons for choosing the physical location of the SSC was the relatively low wage levels combined with the expectation that there would be a steady supply of young, well-educated personnel. The latter did not materialize.

1.3 How is cost reduction achieved?

The SSC strives for *Operational excellence*. This means that a SSC does its work at a higher processing speed, with higher quality and at lower cost.
This is explained by the following facts:

- SSCs require less people (dedicated, better utilized, better specialized);

- SSCs use a limited set of uniform and optimized processes and systems: operational risks are reduced and operational quality is improved;
- fewer systems to maintain and fewer users to support reduce IT costs;
- Service Level Agreements maximize their value to the other business units;
- higher volumes can reduce third party costs (e.g. membership of exchanges and Swift, mailing, data vendors) and bring new technology within reach.

2 Current problems with implementing Shared Service Centers

The implementation of an SSC can be compared to a Business Redesign project, where additional issues have to be addressed. Existing functionalities and/or organizational units have to be separated and rearranged ("cut" and "paste") in such a way that a high level of flexibility of organization and systems is achieved, compared to the existing situation.

Problem

On the one hand, the required approach has to use the strengths of the existing organization, its processes and its application systems. On the other hand, starting from the existing base should not lead to unwanted restrictions that are inherited from the current situation.
The chosen approach should help in making decisions about assigning business processes within/outside the SSC, or even outsourcing them completely.
It should also provide assistance for decisions on matters of location, legislation and taxation

Very often nowadays, a generalist approach is chosen that tries to handle the multiple aspects of all these complicated tasks at the same time.

Analysis

As a consequence, the resulting solution does not have a solid foundation in the structure of the business and lacks flexibility. Problems arise when changing circumstances make it necessary to rearrange the functions of the SSC. The generalist approach lacks a good framework.

A good framework is one in which the boundaries between the business building blocks and the boundaries between the information providing building blocks run largely parallel[1]. And, as a consequence, it is then possible to in- or outsource part of the business processes together with its information provision, allowing changing circumstances to be better catered for.

Concepts of solution

The problem can be eliminated by using a reference framework that focuses on content and is not influenced by "politics". This facilitates the assessment, comparison and selection of existing solutions for the organization, processes and application systems and also facilitates the assessment of selected items relative to the strategic aims and mission of the company. The framework itself has to be neutral: it should not impose an organizational or IT structure. Also, it should be purely anchored in the mission and products of a business domain.

Management can use the framework to choose a consistent structure and implement the SSC. Management's decision can then be based on a good understanding of the essentials of the business and information-providing processes (but of course everyone knows that the final choices can be heavily influenced by other factors).

Restrictions

In the remaining parts of this paper, we concentrate on the framework; a sound method of determining the functionality of an SSC and the way it has to interact with its environment. We do not focus on other factors influencing the decisions taken

[1] By the way, this does not exclude the use of common data by different information providing blocks.

when using the framework. Examples of these factors are: taxation implications when relocating to another country, or the influence of location on the availability of employees with the right qualifications (language, training, experience).

We do also realize that the complete process is a large program that requires the management of complicated change processes and possibly involves a considerable amount of internal politics. We do not consider these aspects and concentrate only on the framework.

3 The proposed architectural approach

3.1 The added value and contribution of architecture

As we saw earlier, a framework is needed to make existing processes and IT comparable and assessable. To allow this, the framework itself should be neutral towards organizational and IT structuring. Indeed, if the framework is not neutral with regard to structure, it cannot be used to assess different structures. Also, the framework should be purely anchored in the mission and products of a business domain. Indeed, we are interested in assessing solutions only for the chosen mission and products.

Currently, the need for this type of framework is well recognized in the world of business and IT consulting and is known as an architecture. This architecture frequently distinguishes between more and less stable parts of the processes and IT, referred to as 'arrangement-independent' respectively 'arrangement-dependent' ([Franke 1995]). When developing processes and IT with a top-down approach, architecture starts with arrangement-independent models and continues on to arrangement-dependent models, thus allowing step by step decision-making.

In this sense, the architecture describes a model of the final situation in "sufficient" detail. On the one hand, the level of detail should be sufficient for the decision makers: does the final situation meet the expectations and requirements and at acceptable costs? On the other hand, the level of detail should be sufficient for the constructor: is the final desired situation achievable and is it possible to make a proposal and a quotation?

Architecture models will always leave room to maneuver in how the Service Center is physically created. To provide guidance, the architecture will also define "principles": starting points, guidelines and standards to limit the freedom of the makers of the more detailed functional, technical and process designs and of the constructors, but no more than necessary.

To summarize: we take architecture to be a description of the final result for decision makers, which at the same time defines the starting point for analysts, designers and constructors to fill in the details and build systems. As such, it serves as the "hand-over point" between decision making and construction. The architecture consists of models of the (final) situation and "principles". And because parts of the architecture are arrangement-independent, it is plausible that current arrangements of processes and IT can be compared to each other.

3.2 The contents of an architecture

The final goal of an initiated change is to end up with an operating business, which satisfies the requirements defined at the outset. These requirements as such cannot just simply be translated into an operating business. The crucial step is to translate them into something that actually can be developed / built / acquired. We call this the architecture. It can be compared to an architect’s drawings and specifications for the construction of a building. If a constructor adheres to these drawings and specifications, the resulting building is guaranteed to satisfy the requirements defined at the outset (which the constructor will probably not even have seen). The architecture should encompass a complete translation of the initial requirements.

According to [Middeljans 2001], "an architecture is a summarizing picture of an artifact in its environment, especially concerning coherent choices in the area of function, structure and style." These choices are "documented in models, guidelines and standards". In this paper, our "principles" cover those "guidelines and standards".

What are the subject areas of architecture models? In the L_PASO-model ([Dietz 1999]), these areas are defined as business, information (not necessarily automated) and infrastructure. In these areas, a distinction is made between "arrangement-independent" and "arrangement-dependent".

These subject areas can be covered by several types of models or aspect architectures. The Integrated Architecture Framework (IAF) of Cap Gemini Ernst & Young (described in [Goedvolk 1999]) mentions for example the following deliverables of the architecture (the so-called "archifacts"):

- function model: an end-means hierarchy of business goals (continuous for as long as the mission of the business domain stays the same)
- object model: a model defining "things" in the business domain
- process model: the steps that must be executed in a certain order and under particular conditions to fulfill a business goal (has a defined beginning and end)
- organization model: the assignment of responsibilities to organizational entities, including the coherence of the organizational entities
- information service: a service to record and/or offer information
- information component: a clustering of information services

	business	**information**	**infrastructure**
arrangement-independent	mission, product, function, object	information service	infrastructure service
arrangement-dependent	process, organization	information component	infrastructure component

Figure 1: Some examples of IAF-archifacts in the L_PASO-model

An AS IS and a TO BE version can be produced for each model. By comparing those versions, GAPs can be analyzed (e.g. by using scenario's) and the consequences of the initiated change can then be made visible.

3.3 Applying architecture in implementing a Shared Service Center

In modeling a SSC, three main steps have to be undertaken:

- scoping: what tasks will be performed by the SSC, and what is excluded;
- subdividing: what is the optimal clustering of those tasks into components;
- filling in: assess which current processes and applications are the "best candidates" to fulfill the components just defined.

A common language is required for each of these steps and also for the implementation and migration, at least for the management of the current departments and the management of the SSC.

During scoping, the focus will be on the products delivered to the outside world. The business interfacing with this outside world should remain stable, also when the SSC wins new customers and loses others. So we will concentrate on the black box de-

scription, the behavior of the SSC. This fits well with the concept of "service" in the model of a SSC: offering services according to a Service Level Agreement (SLA) to the "outside" world. However, at the moment of scoping, it will not yet be clear what services will be performed inside and outside the SSC. As a consequence, every service has to be described in terms of black box behavior.

During subdividing, the focus will be on an "optimal clustering" of the work of people and IT. It is here that the "principles" become important. For example, if we want to be able to outsource parts of the SSC in the future, the "internal" parts of the SSC should be known in terms of their black box behavior and the SSC should be clustered in loosely coupled components (maximal internal coherence, minimal "external" coherence). On the other hand, if we want to separate and join processes and IT as non-invasively as possible, we must also give due consideration to the current organizational and application clustering.

During filling in, the fit of current processes and applications is assessed. This step has much in common with a Business Process Outsourcing (BPO) partner selection, or a package selection. By means of a Request For Information (RFI), management of the existing departments can describe the consequences of using their current processes and applications to fill in the components defined.

A number of preconditions must be satisfied in order to implement an SSC according to the architecture. For example, where processes with an unknown internal structure communicate with other processes, concepts and tools for inter-organizational workflow will be required [Aalst 1999]. And where an existing application must communicate with other, unknown, applications, not only must that application be adapted, but middleware will have to be introduced as well.

The architecture also supports different migration scenarios. Many times in the application area, the choice here is between a best of breed selection of current applications or one application which generally has the best fit. For both scenarios, the application architecture can serve as a common standard for the application portfolio.

In summary, we see two leading concepts in using architecture for an SSC:

- service orientation: follows from the purpose of an SSC + during scoping it will not be clear what will be within or outside the SSC + it enables in-/outsourcing;
- re-use: qualities of current processes and applications have to be used.

This will influence the choice of the "archifacts" and the way they are generated.

4 ING Service Center Securities case description

ING Group is in the process of implementing a strategic move towards setting up SSCs. One of those SSCs is the "Service Center Securities" (SCS). Its mission states, "Service Center Securities must deliver single world class, customer-centric, high quality securities services at competitive conditions to all ING Group companies and their clients". To blueprint this SSC, the "Foundations" program was set up.

First, we will clarify the context of this SSC within ING. Then we discuss the "Foundations" program itself: what were the goals, what deliverables were intended, how was the process envisaged. Finally, we will discuss the actual deliverables and how they have been used.

4.1 Context of the Service Center Securities in ING [ING 2002a, b]

At the end of 2001, the Dutch-based global bank-insurer ING had a presence in 65 countries, employing a workforce of 110,000 and serving more that 50 million customers. Measured in market value in April 2002, ING was the 16th largest bank in the world. Three-quarters of its result is generated in Europe.

In the course of the last few years, like many other financial institutions, ING has mainly grown by mergers and acquisitions. ING is characterized by an abundance of brands, products, and subcultures. Highly similar operations are currently performed using very different organizational forms and ICT platforms and applications. In the Netherlands alone, there are 23 brands, all with their own label, products, operations and ICT.

ING has prioritized performance improvement by reducing cost levels. These cost levels have to be reduced by synergy and the use of SSCs. While reusing the current organization and applications, ING wants to build a new collection of organizational and applicative entities, all servicing one another. ING has placed the 'cut' between the distribution channels and brands on one hand, and the product-oriented back-offices on the other hand. Integrated steering of these product-oriented back-offices for both operations and IT is placed in the organizational unit "OPS/IT". For the Netherlands, this change results in the following organization [ING 2002b]:

Figure 2: Introducing product-oriented back-offices on ING MC Netherlands

To implement this move to SSCs, principles and guidelines for organization and applications had to be drawn up at the level of ING EC (Executive Centre) Europe.

The principles and guidelines for the organization were available in the EC Business Architecture. Especially a split between front-, middle- and back-office responsibilities was prescribed.

The principles and guidelines for the applications were available in the so-called IFSA ("ING Financial Services Architecture"). IFSA consists of a number of main elements:

- a blueprint of the application architecture of ING EC Europe at the highest level, distinguishing application domains like " International Payments", "Savings" etc.
- principles for the applications in the domains (e.g. services as building blocks instead of business processes)
- principles and tools for cross-domain communication
  * principles like communication patterns (e.g. "request-reply", "fire-forget")
  * tools like intelligent middleware (the "IFSA-bus").

4.2 The plan for the ING SCS / Foundations program

4.2.1 Objectives of the program

At the end of 2001, the situation at ING SCS was as follows:

- a business case was prepared for implementing a SSC in the area of Securities
- formally, the back-offices and product-development for Securities were already reporting to the COO of ING SCS
- an operational strategy for SCS had been selected, the so-called "thin utility approach"; in this approach, SCS will coordinate activities based upon existing organizations; the operations will be rationalized with existing brands taking on one or more roles within the SCS as their focus; the rest of the group then uses that brand as a service provider.

The objective was to define a project portfolio ("roadmap") by mid 2002, enabling ING SCS to set up the SSC with the first benefits (probably employee cost savings) being expected within 2 years.

This was the objective of the Foundations program: "draft this roadmap, based on an architecture, and revisit the business case". The idea being that during the Medium Term Planning (MTP) budgeting cycle, at the beginning of the autumn of 2002, decisions could be taken and the first projects started.

The Foundations programme wanted to improve the success-rate of the projects in the roadmap. By using an architectural approach, a common language should be introduced and the project-scoping could be based on insight in the domain-coherence.

4.2.2 Deliverables & process of the program

The architecture was drafted by an international team of 17 ING and CGEY architects. The Target Business Architecture (TBA) was drafted by the OPS and IT architects together. After that, the program was split into an OPS and an IT stream. The OPS stream designed the Target Operational Model (TOM) and the Recommended Operational Model (ROM). The IT stream designed the Target Application Architecture (TAA) and the Recommended Application Architecture (RAA). After that, the architects together drew up an initial Migration Roadmap containing some 20 investment/project proposals with a 6 – 9 month delivery time.

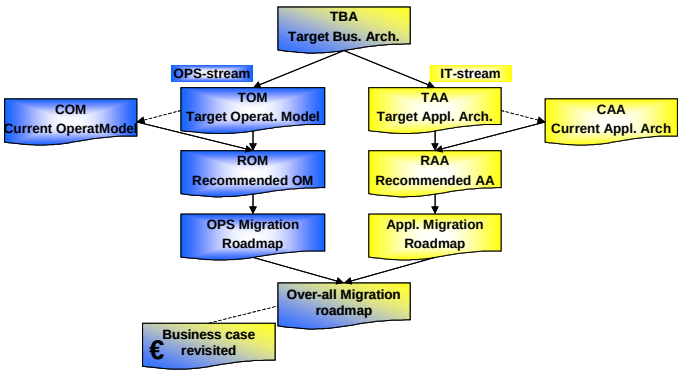

Figure 3: Foundations: process and deliverables

The intended added value of the deliverables was as follows. In the TBA, only those aspects of the business were defined and structured, which depend on the mission and products of SCS. In the TAA and TOM, an "ideal" solution for application and organizational coherence was drafted, roughly on a 5 year time scale. Based on RFI-answers, the current situation of applications and organization was recorded according to the TAA/TOM structures in the Current Application Architecture (CAA) and the Current Operational Model (COM). RAA and ROM should present a "feasible" solution for applications and organization, roughly on a 2 year time scale. Finally, the roadmaps with the proposed investment decisions were reviewed against the business case prior to implementation.

4.3 Architecture results

In this section, we will concentrate on the more generic results of the program, especially from the TBA, TOM and TAA.

Target Business Architecture (TBA)
The first result of the TBA was the business- and IT-principles set: the starting points and boundary constraints for the architecture and the realization of the SCS. Examples of such principles were:

- "playing in the distribution with the face-call-click concept has to be supported", so face-distribution (e.g. during a sales dialogue) has to be supported by the same SSC as call-distribution (by phone) and as click-distribution (by EB or Internet);
- "known Profit & Loss (P&L) by delivered service": services should be designed and implemented in a manner that allows costs to be measured and monitored; and where appropriate this should be measured down to transaction level.
  * Note: ING SCS decided at this stage not to include invoicing for delivered services in the TBA yet; however, by choosing this "known P&L"-principle, SCS is able to invoice its services in the future, particularly when external customers arrive on the scene, may be as a part of a fiscal-economic optimized solution for cross-border intra-company invoicing.

Further on, the services and actors of the SCS were defined: an actor is any party (external or internal) that interacts with the SCS (via services or other relations); a service is a (marketable) offering of SCS to one or more customer types. Examples:

- of a service: "Custody is the management of events affecting the life of the securities that are deposited with the bank" e.g. the payment of dividends, the convocation of a general meeting of shareholders
- of actors: "Tax authority", "Issuer", "Wholesale customer", "Insourcing customer"

Thus defined, services are the access point for the customer of SCS: actors outside SCS know that they can ask for that service and can have a Service Level Agreement for it. Services describe the black box behavior of SCS as a whole.

To actually provide a service, multiple activities have to be executed. The architect team chose a level of description that was called responsibility.
A responsibility is an activity:

- as elementary as possible
- at the same time no smaller than a unit of work we felt to be suitable for both insourcing or outsourcing
- with a clearly defined result in terms of the business ("is a new fact actually created")
- without making pre-suppositions about the way the result has to be produced (arrangement-independent).

At first the team considered describing business functions, including a function hierarchy. After all, a business function is also arrangement-independent and the function-hierarchy could help to assess completeness in relation to the business mission.

The responsibility approach prevailed instead, because it contains the concept of delivering one specific result, when called for; which perfectly matches the service philosophy of a SSC. The test for completeness in relation to the mission could be done adequately by using existing process descriptions in five existing and working ING organizations. It worked fast. The core team was able to define the main responsibilities and draw up context diagrams in the space of a single workshop day.

For each responsibility, the architects defined the name, the (success-)result, the initiator (actor requesting the result) and the executor (actor responsible for delivering the result). Example:

name	**result**	**initiator**	**executor**
Customer order routing & execution	executed customer order, with transfer of economic ownership to the customer	Brokerage customer	broker (customer-side)

For those readers that are familiar with the DEMO concepts [DEMO website]: the concept of responsibility closely matches the DEMO transaction. In DEMO the "essential model" does not change with in- or outsourcing; indeed only the allocation of actors (e.g. "risk reviewer") to persons is changed.

A responsibility can be used in more than one service and, alternatively, a service is provided by a sequence of responsibilities, called a process. The responsibility is a building block in such a process.

The main common terminology in the SCS domain was defined in the objects: e.g. "A POSITION is the net balance of an INSTRUMENT held on an ACCOUNT".

The relationship between actors, services, responsibilities and objects was visualized in event-traces (thus testing coherence and completeness), using the over-all TBA picture as a background (see Figure 4).

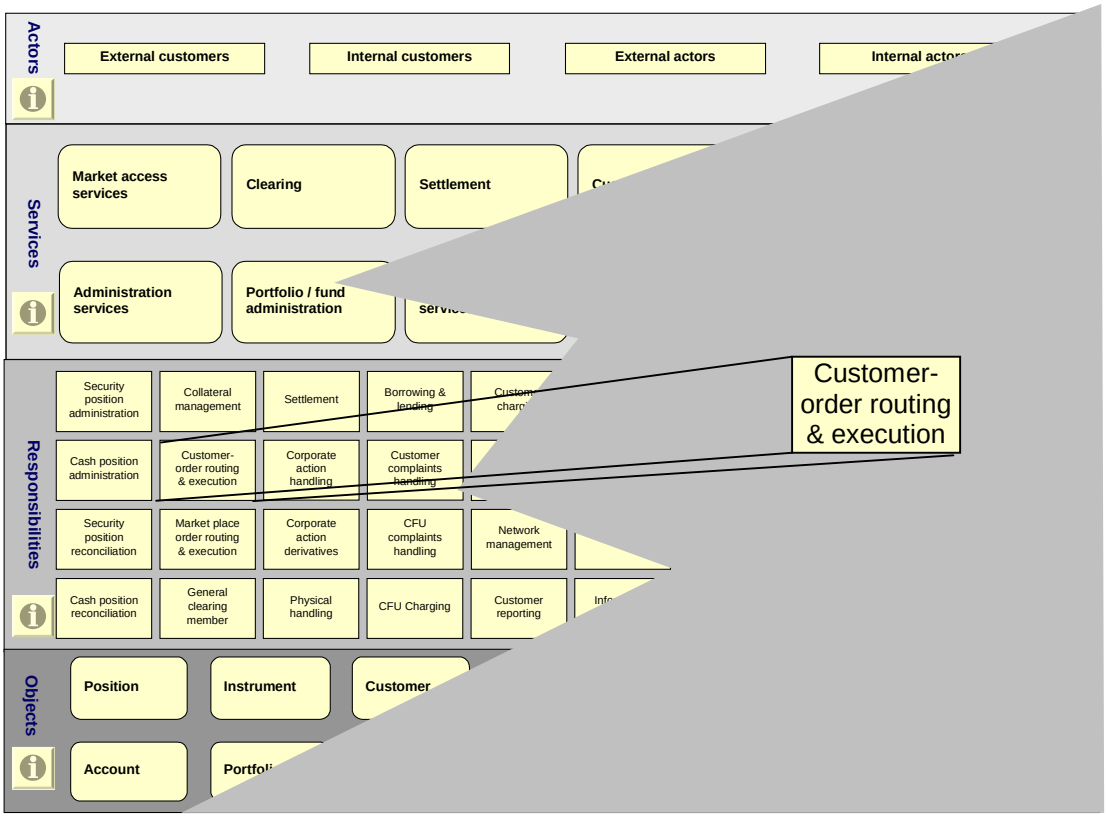

Figure 4: ING SCS Target Business Architecture [ING 2002c]

Target Application Architecture (TAA)
We will describe two parts of the TAA we generated in detail here, the Information System (IS) services and the Information System components.

An IS service is a service, to be delivered by an (automated) information system. We started by stating that one IS Service would support a maximum of one responsibility, thus enabling in-/ outsourcing in the area of information systems as well. Some new IS services came up, like "traffic control" (≈ tracking and tracing).

For each IS service, we described input/output, business rules and metrics. E.g.:

name	input	output	business rule	metrics
Customer order routing & execution (part 1)	received info: amount, limit, preferred exchange, … retrieved info: instrument info, SLA , …	message for blocking position, validated customer order, …	validate customer order on … determine possibility to group order, …	24 x 7 x 365, asynchronous, …

An Information System component is a clustering of IS services. Firstly, we allocated the IS services to the application domains in the IFSA main structure. After that, within the domain of the "Securities Product Factory", components were discerned using several scenarios (e.g. "optimal time-to-market", "optimal process control"). Finally, we distinguished three (main) components in the Factory ("market access", "clearing & settlement" and "custody"), based on an expert estimation that this would enable re-use of existing applications to the best effect, especially by minimizing interfacing.

Target Operational Model (TOM)
The TOM clusters responsibilities in operational units. In this situation, two types of units were discerned: a local unit per country (the so-called local factory) and one common unit (the common factory).

Sometimes a redundancy of responsibilities at local and central levels had to be maintained. For instance, corporate action handling takes place in the local unit at a detailed customer level and in the central factory at sub-custodian level. On the other hand, maintaining local units is currently seen to be an inevitable consequence of close customer contact and language preferences on the one hand, and current regulatory, legal and tax requirements in Europe on the other hand.

The duplication of "responsibilities" does not create an organizational problem in practice: the units are serving different clients. Local customers are serviced by the local unit; wholesale customers are serviced by the common factory.

4.4 How are the Architecture results used?

During the Foundations program itself, the architecture has been used as follows:

- the TOM was used to make an inventory of organizational capabilities (in the COM) and to decide which unit would serve which product/market combinations
- the TAA made it possible to compare the current systems (in the CAA) comparable by using the IS-services in the TAA;
- it served as basis to create the projectportfolio / roadmap: 21 well-scoped projects have been defined as a quick win (some of them realizable within 6-9 months), e.g. to enable BBL to provide cash clearing on Euronext Amsterdam by using existing ING capabilities in the Netherlands.

During and after the Foundations programme, the architecture has frequently been used as a glossary, to keep the common view and understanding of services, objects, etc. E.g. on terms like "depository bank" and "fund administration" it was possible to internationally agree on a common meaning.

Whenever processes and IT are newly arranged, the TOM and TAA are referred to and used to scope the change. This enables an evolutionary, rather than a revolutionary change, which is yet steered by a common vision on the future.

In European context the results are used as a frame of reference, when talking about OPS-arrangement and OPS-accountability, and also in drafting a more elaborated IT-vision for the next few years.

In the Netherlands, the models have been used to scope areas of change in commonly agreed terms. It enabled e.g. the elaboration of a vision on the retail-business for MC Netherlands and its coherence with the wholesale-business.

5 Evaluation of the architectural approach

5.1 The benefits of using the architectural approach

We observed that especially the concept of 'responsibilities' as building blocks was definitely fruitful in this case. This concept was defined, together with operational managers from the business, and well understood by them (better than business functions – this was too abstract). The communication on this responsibilities was supported by high-level context-diagrams, just showing external actors and responsibilities, to fulfill one of the services discerned.

The TBA appeared to be neutral in organizational and IT terms and purely anchored in the mission and products of a business domain.

The target situation was clearly described:

- the target model was not clouded by any unwanted inheritance from the existing situation;
- the model of responsibilities was stable;
- inside/outside discussion (where to place the "cut") was clearly supported; this has been supporting in drafting the organization architecture as well as the IT architecture;
- it proved to be a clear model for the decision to choose for a high degree of reuse; candidates for reuse could be identified and assessed using the model, i.e. not in the context of the existing situation, but relative to the strategic aims and mission of the company;
- the development of more detailed design was based mainly on the divisions indicated by the responsibilities, using the same 'cut' both for business-responsibilities as for their supporting IS services.

The over-all effect of using the architectural approach was a steady process, focusing on the essential items without disturbing discussions at the wrong time. This enabled easier and step-wise decision making.

5.2 Benefits expected but not yet realized

We expect that the followed approach will result in a SSC that is flexible and can easily adapt to changing circumstances that make it necessary to rearrange the functions of the SSC. This has to be proven in the future. Maybe the announced cooperation with the Bank of New York can serve as a test case.

By mentioning a responsibility like "Customer Facing Unit charging" in the TBA, assigning it to the right factory in the TOM and discerning IS-services for that in the TAA, invoicing by ING SCS should get the right place and attention in the future.

5.3 Areas of improvement

In the TBA/TAA the whole securities area is treated like one homogeneous area. In the TOM, which is an organizational view, a distinction is made between the local and common factories. Some TBA-responsibilities appear twice in the TOM, one in the common factory and one in the local factory. From the model this can be seen as still one responsibility, but with more implementations due to local, regulatory or timeline restrictions.

Interviews with some of the architects revealed that the interpretation on the degree of freedom to organize the second responsibility in the local factory has not yet been cleared up. The tension between local and common level is quite normal as in the local factory the responsibilities are embedded in the local rules, culture and regulations whereas on the other hand they have to co-work (and hence be synchronized) with the common responsibilities in order to support/interact coherently in 1 uniform process which runs across the local and common factory. This kind of discussion illustrates the need for a sustained architectural effort as a critical success factor to guarantee a coherent implementation, making abstraction of any politics.

5.4 Generalization of this case

Looking back on the program, now Foundations is finished and implementation projects are starting, we can formulate a broader research question:
Does the described architectural approach offer the required, adequate, and constructible translation of the principles (as far as connectivity and flexibility are concerned)? If not, what was found to be wrong or missing?
In this particular case, the chosen approach has indeed provided the required translation of the principles as far as the business model is concerned. The fact that discussions continue to arise concerning interpretations demonstrates on the one hand a need for more detail and on the other hand more communication around the topic. As with the construction of a house, the architect plays a role up to final delivery to guarantee correct understanding, refine and amend whenever deemed necessary. Applying this same principle to the effective migration and change management work seems to be a conditio sine qua non for success.
Does a dynamic organizational environment require a "dynamic architecture" or is this solely a matter of implementation and communication?

A second general question is:
New business models are developed, in which connectivity and adaptivity are central issues. Is the alignment between business and IT indeed improved when attention is focused on responsibilities?

The ING SCS case, a product-oriented Shared Service Center, is a first indication that the approach is fruitful. More research is needed. Is for instance a comparable approach useful for an expert-oriented Shared Service Center?

The followed approach in SCS fits with the central Business Architecture and IFSA-initiatives in the ING-organization. E.g. the application domains as described by IFSA and the presence of an application bus as the only way to communicate between applications made it very natural to continue thinking in application architectures also inside the SCS. To what degree are such central initiatives necessary (for an architectural approach) to implement SSCs?

A popular criticism that particularly applies to back-office oriented SSCs is that time to market and product flexibility are sacrificed in favor of operational excellence in a streamlined factory. But are these elements truly and inherently mutually exclusive? Publications like [Arnold 2000] suggest that high product flexibility can be combined well with smooth and unimpeded day-to-day operation. More research in the area of SSCs that have been implemented could explain this difference.

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