Semi-Open Innovation in Services

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Abstract:

To keep customers satisfied companies often must provide more added value in their offerings through knowledge-based services. This implies that they must increasingly take the role of intermediaries, combining own activities with those of third parties, to make their offerings attractive. Proactive intermediaries, business orchestrators, will have to consider how to leverage and build distinctive capabilities when developing their service strategy.

By examples from service development cases it is shown how the capability-based view on service development, here introduced as semi-open innovation, presents both a creative but also efficient way to address service innovation. The experiences from the case companies offer rich insights into the peculiarities of service development in general, and especially into the interlinking of customer preferences and capability development during the initial phase of service innovation. In addition, the paper puts forward some concrete suggestions for any networked company looking for ways to activate customers as partners in a semi-open innovation process.

Key words: service development, capabilities, orchestration, semi-open innovation

Semi-Open Innovation in Services

Services make up about 70% of the contribution to the total economic gross value added in the Organization for Economic Cooperation and Development (OECD) nations and contribute more than 75% of the GDP in the United States[1]. The European Union has prioritized service research in order to be more aware of how these firms can be stimulated to further improve their innovative performances. For example, in Finland Tekes, the Finnish Funding Agency for Technology and Innovation, has established a separate development program, Serve, to especially focus on service innovations[2].

Innovation in services has long been recognized to have some distinguishing features compared to product innovation. One of the first persons to explicitly address the particularities of innovation in services was Richard Normann[3]. He noticed that service innovations often fail to appear spectacular because many of them are actually based on social innovation, on innovations that create new types of social behavior, that use social or human energy more efficiently, that link social contexts to each other in new ways. He also suggested culture and dominating ideas as management tools when innovating in service business[4].

Today international business, traditionally based on controlled international trade routes, increasingly is about production and value delivery worldwide. Based on shared technologies and shared business standards, all built on top of a global IT and communications infrastructure, the variations in business models have increased tremendously, and the role of services has increased[5].

The global integration of operations is forcing companies to choose where they want the work to be performed and whether they want it performed in-house or by an outside partner. This development implies that companies increasingly are intermediaries, business orchestrators[6]. Some of the work they perform themselves, but an increasing part of most businesses is based on combining one's own resources and efforts with those of outsiders.

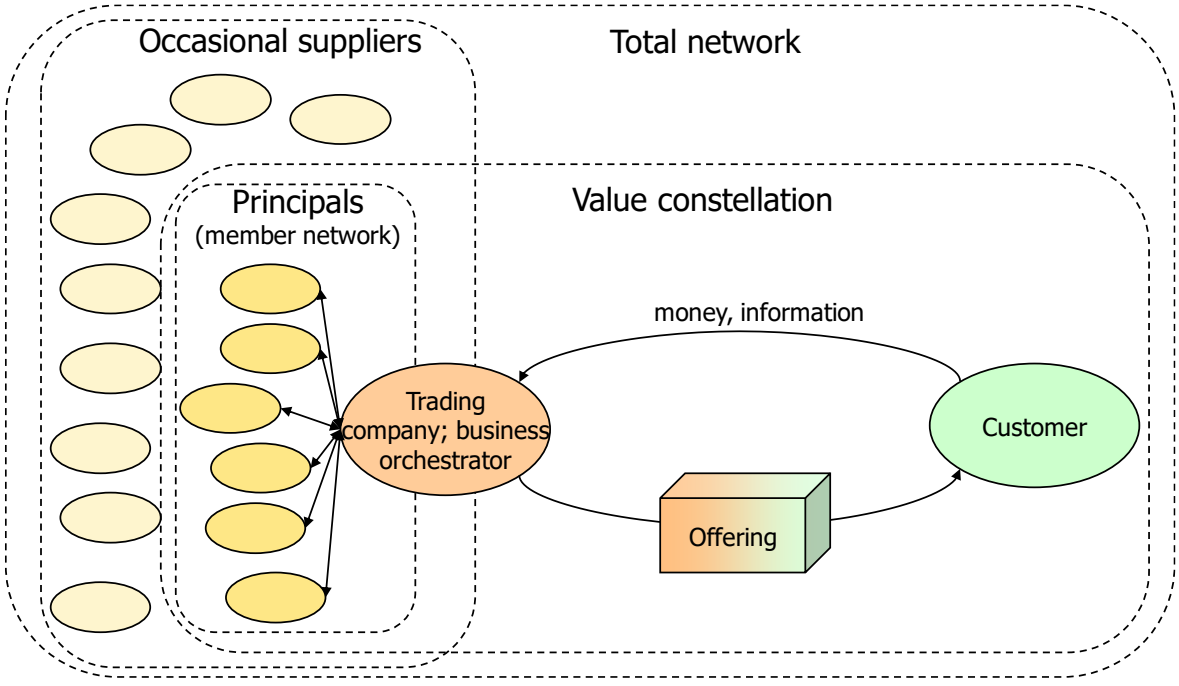

Figure 1. The value creation of a business orchestrator

Resulting from this is that new forms of collaboration emerge everywhere. The challenge for the company is how to manage different operations, expertise, and capabilities so as to configure the enterprise in an optimal way, allowing it to connect more intimately with partners, suppliers, and customers.

Value creation is about linking together a firm's addressable resources and customers[7]. This linking takes place through the intermediate outcomes of the firm's activities[8], i.e. the offerings. To generate profits, the offerings must be desirable in their targeted market. The offerings of a service provider consist of two major elements: resource aggregation and customization. Combining these elements in a novel value-creating way is the key objective of service innovation.

The resources aggregated by the service companies can consist of a various part of own and addressable, as well as tangible and intangible resources. As customers become more demanding, the capabilities[9] of the service company become increasingly the factor, based upon which the customer selects suppliers.

The operational capabilities[10] of a service company relate to the matching of the addressable resources and the customers. Considering this matching task from either the external or the internal perspective one can classify the operational capabilities into four categories as illustrated in Figure 2.

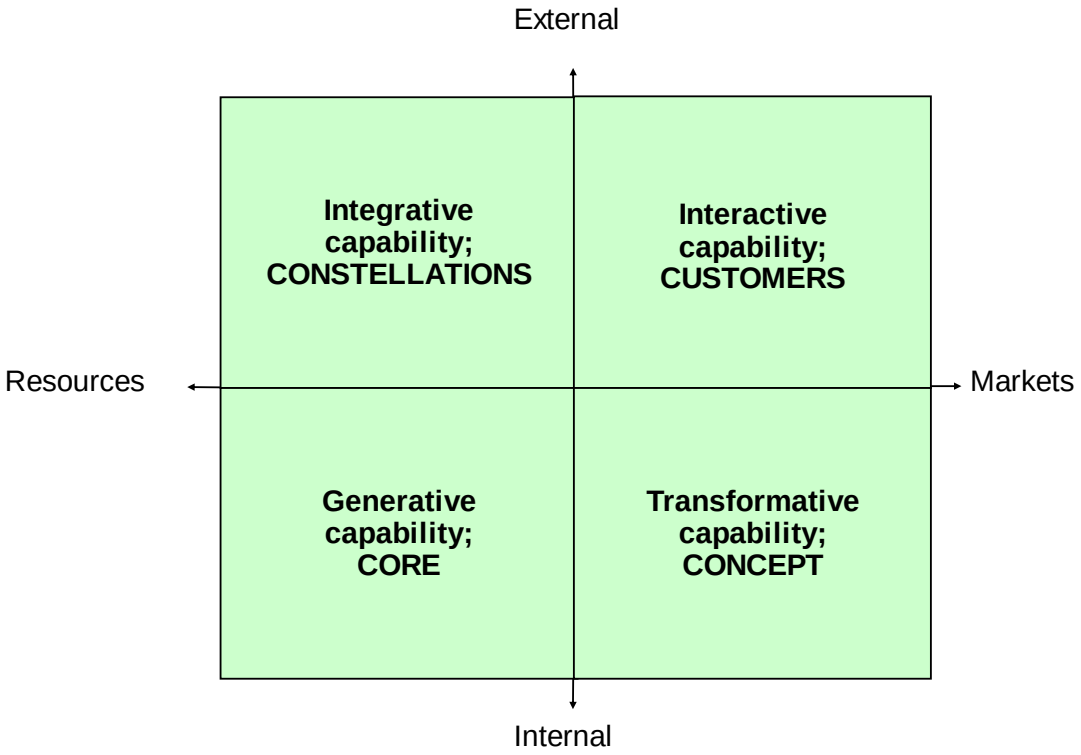

Figure 2. Operational capabilities and their center of attention

Many service companies used to have a strong resource focus. For example, trading companies developed a local logistics and supply chain process, which formed the core, and added to this close integration with major local and international suppliers. This formed the basis for value constellations, where industrial knowledge and relationships constituted the basis for a successful business model. The distinctive capabilities in such a business model are the generative and integrative capabilities.

Present challenges facing trading companies affect their both strongholds. The core is threatened due to disintermediation. Customers can easily access information about the offering, prices included, over the internet. Logistics services are provided very cost effectively by global service providers. The suppliers are also more aggressive. Increasingly they consider opening own direct channels to save costs and improve customer intelligence. Due to this the trading company must add more knowledge and services to the offering portfolio to remain a value adding partner both to the customers and to the suppliers. The key question is then what types of services to develop.

As services are co-produced between the supplier and the customer, understanding what genuinely provides value to the customer becomes paramount[11]. Acknowledging and incorporating the specific individual requirements of each customer implies that customers cannot be simply treated *en mass* as "product markets"[12]. Customer needs and preferences can be better understood by knowing how each customer is producing value for himself and, in turn, for his customers. What is valuable depends on the value-creating context of the customer.

The business model[13] will create value if it fits into the value-creating context of the customers. To capture part of the value created the service provider must establish a unique resource base that enables a profitable price, which cannot be undercut by competitors.

Service innovation subsequently must be based on two premises. Firstly, the service provider needs to deeply understand the present and changing preferences of its existing and potential customers. Secondly the service development process must be one of resource strengthening, particularly capability building. This implies that the capability portfolio becomes the intermediate operational vehicle, through which the service development process can be managed (see Figure 3). In the following both these implications are discussed in more detail.

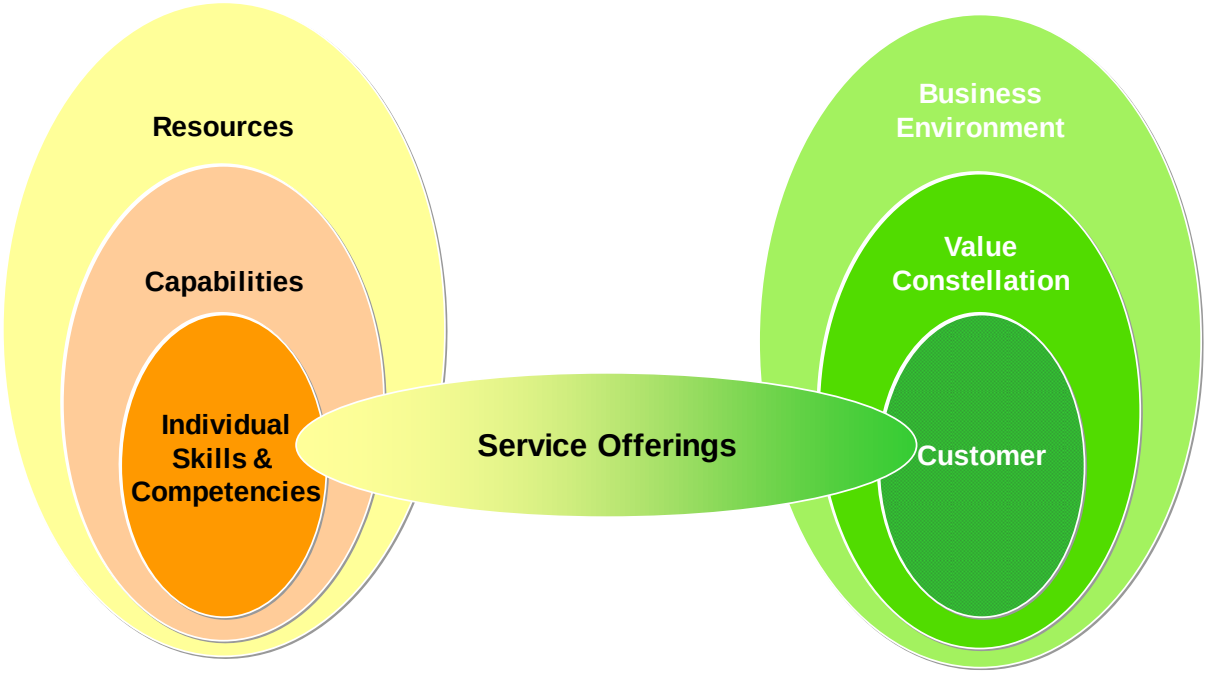

Figure 3. The context for service innovation

A framework for capability-driven semi-open innovation

Probing customers for value creating options

Serving customers means a constant balancing of cost efficiency and provision of enjoyable experiences. Information technology is rapidly replacing traditional service activities with self-service e.g. in banking. However, if the average customer may prefer the automated alternative, some customers may view the balance between enjoyment and efficiency differently. The classical example is the elderly bank customer, who weekly visits the bank office to withdraw a modest sum of money. The social encounter between the customer and the teller is for her well worth the price tag of a manual withdrawal from the bank account.

Service companies need to truly understand the individual preferences of its existing and potential customers to be able to evaluate the approximate size and profit potential of respective customer segment. As customers' preferences change over time, it means that the way the customers are segmented must undergo constant monitoring. Occasionally it may be necessary to fundamentally question the premises based on which the segmentation is done.

For a service company the offering can include elements such as the range of physical products, different delivery conditions, spare parts supply, maintenance services, problem shooting, product development assistance, process specification, individual consultations etc. In some cases, the service provider may take responsibility for an outsourced process or enter a deep partnership with the customer, changing the competitive context of the whole industry.

The alternatives available for the service company constitute of a multitude of combinations of product, service, self-service and joint activities with its customers. There are four main questions management has to ask when considering what service elements to develop: who should we serve, what do we offer, how do we do it, and who does what. When these questions can be addressed, at least partially, based on a proper analysis of reliable facts, it is far easier to decide how to develop the services. Each question will be shortly discussed.

Who should we serve?

The first question, who should we serve is many times trickier than originally expected. The first surprise may be the results of an activity-based profitability analysis. Customers regarded as "good" may turn out to be considerably less profitable than expected. The second issue is about the sustainability of the customer relationship. As industries go through consolidation, the major customers can also be vulnerable to radical changes. So, did for example the announcement of Sweden's Ericsson that it would merge its handset operations with Sony wipe out 55 % of the market value of one of its major suppliers, Elcoteq, in one single day in January 2001. Creating a balanced portfolio of different types of customers is a way to both manage risks and stimulate innovation.

What do we offer?

What to offer to the targeted customer segments must start from what the customers really need. Opening up the discussion to also include the customers is a way to make the decision making more effective. Leading experts on innovation have argued that open innovation is a way to speed up and improve the quality of the innovation process[14]. In the case of service businesses this is even more so than in product businesses, where in-house resources of the firm tend to play a larger part. Service companies must constantly search their customer base for new needs, and this ongoing dialogue with the customers should also serve the needs of the service innovation process[15]. This dialogue must involve both individual-level and organizational-level aspects[16].

How do we do it?

When considering how to provide the future services the internal constraints come into play. Two major challenges must be met.

The first challenge relates to the individual competencies of those individuals who have the responsibilities for the key customer relationships. Very often these individuals are sales focused persons, who are not skilled in undertaking strategic conversations with their counterparts. They feel much more comfortable to have the upper hand in the dialogue, by framing the discussion based on their own strong knowledge about the offerings. To address this problem, it may be necessary to involve completely different persons when opening up the discussion with the customers. In the longer term there may be a need for a major training effort to change the mindset of the sales force and to make the sales people confident in entering a more consultative relationship with their counterparts. Sometimes even this will not suffice, but a new breed of salespeople must be brought in.

The second challenge is about how to frame the area where the dialogue should take place. If customers are just asked in general what they think should be done, the discussion will become too vague and serendipitous. This will make any later synthesis across customers difficult. To overcome this hurdle management should first agree upon some structured way to describe the company's relevant future offering universe. By putting the attention of the customers on these matters, it will become possible to start to recognize some repeating patterns, and then to use these insights to gradually deepen the dialogue with the customers.

Who does what?

Defining the offering universe must be based on a thorough evaluation of the present and future capabilities of the company, and what role the customers can take in the co-productive relationship. In a distributed business world, the roles and responsibilities of different actors in the value constellation are increasingly fluid. Depending on the workload of any particular organization at a certain point of time, the way a set of activities is performed today may be performed with another configuration tomorrow.

For a service company acting as a business orchestrator the way the value creating activities are organized is a strategic decision. It must be carefully considered, which activities to control to be able to capture part of the value created. Only this way is it possible that future offering extensions, forming the service innovation, will provide a positive business outcome. For the orchestrating service company to secure that strategic control is maintained, the service innovation should be built around its own distinctive capabilities.

Securing value capturing through a distinctive set of capabilities

In the same way as an individual possesses a certain set of skills, the organization has a set of capabilities. And in a similar way as behavioral scientists argue to what extent our skills are defined by our genetic heritage and to what extent by our environment, it is debatable how much and rapidly the capability stock of an organization can be changed. This means that even if capabilities have emerged as a centerpiece of management research and practice over the last ten years, we are still in the beginning of understanding how to proactively steer the capability building activities within organizations.

An organizational capability, i.e. the ability to perform a certain task, is of value only if it can contribute to the use of resources to create, produce, and provide profitable offerings to a market. A capability which today is of value can tomorrow be obsolete. When the transistor was developed, superior capabilities in the manufacture and refinement of the vacuum tube

could not save the vacuum tube market. The vacuum tube firms maintained their capabilities but lost their competitive advantage, as the dynamic environment destroyed the economic potential of the capabilities[17].

The example of the vacuum tube also raises the question of whether existing capabilities can become constraints impeding the building of new capabilities. The notion of core rigidities[18] suggests that changing the direction of successful organizations can be difficult, because of the belief that the past success makes them invulnerable. One such example was the way Motorola, the market leader, ignored digital technology in mobile phones, enabling Nokia to reap a technological lead in the early 1990s.

Entering a path of introducing new innovative services is more about developing a direction for renewal than just categorically selecting a direction for renewal[19]. This development of the direction for renewal must be based on a good understanding of the addressable resources, the existing capability base, and the capability building options available for the company. A detailed description of the future offering alternatives provides the means whereby the expectations of the customer can be investigated in a systematic and uniform way across a broad range of different customers. The customer expectations subsequently must be balanced against needed capability development efforts.

Capabilities can only be built incrementally[20]. As any athlete will not suddenly improve his hundred meters running skills from eleven to ten seconds, a company can also only gradually lift its capability from one level to the next one. To be able to better understand the level from which the company starts, it is useful to agree upon some way to quantify and operationalize the present stock of capabilities. Figure 4 depicts one such attempt to define various levels of the operational capabilities within a company. The operationalization of capability levels will be shortly discussed for each capability category.

	Generative	Transformative	Interactive	Integrative
Level 5	Global eco-efficiency	Reconfigurer	Mentor	Community nurturer
Level 4	Strategic agility	Structurer	Change driver	Supply chain master
Level 3	Production flexibility	Solution designer	Problem solver	Production organizer
Level 2	Quality assurance	System integration	Consul-tation	Sourcing
Level 1	Lean production	Offering customization	Trustworthy sales	Resource brokerage

Figure 4. Operationalizing capability levels; illustration

Generative capabilities

When talking about the generative capabilities in the distributed business world the lean production paradigm is prevailing. If the price from the customer's viewpoint is not competitive, there is no business opportunity. Increasingly major competitors have little room to maneuver based on price and are then trying to differentiate themselves based on quality.

As cycles shorten and customers rapidly change their minds, the requirements for flexibility in the production set up increases. Developing the combination of leanness, quality, and flexibility has been described as strategic agility[21].

The question of what impact large companies have on the global environment has introduced the issue of eco-efficiency as an additional requirement on the company. For example, Shell has stated that systemic changes are needed in order to promote effective action to tackle carbon dioxide emissions[22].

Transformative capabilities

Customization is the starting point when discussing transformative capabilities, i.e. how the accumulated knowledge of the firm can be put together in appealing offerings. Adjusting the proposal to the specific requirements of the individual customer improves efficiency and saves time. The following level means going into the customer's value creating system and making sure that the offering is properly integrated with the value creating activities of the customer. These capabilities, customization and system integration are both relatively independent from the individual professional in the service providing organization.

The next level, solution design, is more dependent on the skills of a particular individual in combination with the accumulated experience of the whole organization. Subsequently this level of capability is indicated with a darker grey shade in Figure 3 to distinguish that here we must look more specifically into an individual knowledge holder as the ultimate building block of the capability. The solution designer takes the perspective of the customer and comes up with the solution for that problem.

In financial services a new title has emerged, the structurer. This profession has been described as the glue that keeps the business together as he or she combines elements of trading, sales and investment banking[23]. These people, with the ability to structure a variety of financial instruments into a deal that will be accepted by the customer, have become big contributors to the bottom line at banks as margins in more commoditized markets have compressed. If a structurer combines existing elements in new ways, the reconfigurer is in addition creating some totally new elements as part of the concept. The way Steve Jobs of Apple changed the digital music business is one example[24].

Interactive capabilities

Nowadays customers expect trustworthy sales. If this is not the case, no real interactive capability exists within the company. Increasingly the salesperson also must provide a consultative perspective, being able to engage in a dialogue with the customer regarding different options, delivery times, additional services etc.

If capable of truly solving problems on behalf of the customer, the individual sales person can further strengthen his or her position with the customer. Using this position wisely it may even be possible that the salesperson becomes a change driver within the customer's organization, having the opportunity to promote changes that ultimately could make the customer more successful, despite initial fears or resistance within the organization.

Sales persons that establish a reputation of truly bringing added value to its customers are getting more and more requests to provide advice for the leading executives of the customer's organization. Gradually the sales person may move into a position of a trusted mentor to these organizations. Respected investment bankers and management consultants form such relationships with important clients. How management consultant Ram Charan related with clients like Jack Welch, Larry Bossidy and Jeffrey Immelt is here a case in point[25].

Integrative capabilities

A company that successfully has built and strengthened its integrative capabilities for more than hundred years is Hong Kong's largest export trading company Li & Fung. Chairman Victor Fung has described the evolution of the company as a transition from a resource broker to a position as a trusted partner managing dispersed production, and supervising manufacturing programs for major consumer goods companies such as Wal-Mart and Target[26]. Li & Fung is a supply chain master that combines its historical supplier relationships with savvy use of latest information technology to drive costs out of the supply chain[27].

Another company that successfully has created a business model based on resource integration is eBay. Its auction platform is also enabling close interaction among the tens of million of active users forming the eBay community. The need for efficient communication within the community was emphasized when eBay acquired internet telephone company Skype for $2.6bn in September 2005. EBay's CEO Meg Whitman stated that the community brings eBay forward, and it isn't eBay that brings the community forward[28].

Assessing the capabilities before entering an open innovation process

A company considering alternative service innovation paths must define a process for how to evaluate the different alternatives. The dynamic capabilities framework[29] suggests that the firm should primarily consider building upon or extending existing capabilities. This means that when depicting the offering universe, the boundaries should be drawn based on the evaluation of the existing capability base. Figure 3 provides an example for managers assessing the capability strongholds of the company.

If the relationships with the customers are very strong, then adding more resources e.g. in the form of additional partners in the supplier network may be a way forward. In another case it may be that the supplier relations provide the strength. This may open possibilities to enter new customer segments. However, only considering the present strength of the operational capabilities is not enough. In addition, the capacity to further strengthen and build capabilities should also be evaluated. Especially if the market situation is rapidly changing this becomes important. Management should evaluate what the possibilities are to integrate, build, and reconfigure internal and external resources to rapidly address changing environments in respect of each category of operational capability. When capability building alternatives are considered, the strength of dynamic capabilities means how easily the company can lift a particular operational capability from the present level to a higher one.

Having considered the capability development potential the management team should be able to agree upon a first draft of an offering universe that contains the offering extensions that could be the alternatives to choose among when intensifying service innovation. Based on this first outline customers can then be invited to an open innovation process, based on which the understanding is gradually deepened regarding which development alternatives to finally pursue. This approach is here defined as a ***capability-driven semi-open innovation approach***.

The section that follows will further illustrate the practical considerations that will come into play when applying the semi-open innovation approach.

Semi-open innovation in trade and distribution

Commerce represents the link between the manufacturing industry and the consumers. The commerce sector generates a significant portion of the GDP in the European Union, and is made up of millions of companies, 95% of which are small enterprises[30].

Trading companies are business orchestrators mobilizing and integrating the resources of other companies to provide offerings to its customers, and simultaneously create value for the customers, themselves and the network participants involved. Traditionally trading companies tried to protect the relationships with their principals, often under exclusive arrangements, to capture value from monopolizing the physical material flow. However, the impact of globalization, consolidation, and ubiquitous information means that today business orchestration appears in a multitude of settings, with different types of companies performing business orchestration as a major or minor part of their strategy. This new breed of business orchestrators offers services and solutions for their customers and base their competitiveness on their capabilities, and not just on their position in the physical value chain. Subsequently trading companies must seriously rethink their business models, and often face the challenge of developing more attractive knowledge-based services for their customers or facing being cut out as an intermediary.

Business orchestrators provide the offerings that compete for the attention of customers, without having to commit to the investment in owning the resources. The trading company normally has two types of supplier categories, principals and occasional suppliers. The principals typically provide the bulk of the business. But as customers may also need less frequently requested products, it is a practice to also source sporadically for such complimentary products, thus establishing a secondary network of more occasional suppliers. When considering the possibilities of service innovation all relationships, downstream and upstream should of course be actively evaluated in respect of their innovation potential.

One sector of commerce relates to the trade and distribution of raw materials and industrial goods. In Finland these companies have organized themselves into the Association of Finnish Technical Traders (AFTT), which has 235 members active in technical wholesale in more than twenty different product categories such as automotive, machinery, chemicals, motorcycles, packaging, machine rental, and steel[31].

Members of AFTT must continuously strengthen their capabilities and introduce new innovative service concepts. The first members of AFTT started already in 2005 to use the capability-driven semi-open innovation approach presented here. Based on the promising results from these first trials, the board of AFTT decided during spring 2006 to strengthen the efforts to apply the semi-open innovation approach to speed up service development among its members. The board had identified several challenges for its members, the most significant being:

- Most members had strong, long lasting relationships with manufacturing principals, but were less capable of developing new service concepts for their customers.
- The impact of information technology and electronic commerce had significantly improved customers' knowledge regarding product availability and price levels.
- Globalization was expanding the geographical area from which the customers were actively sourcing.
- Consolidation affected technical trade as both customer organizations and supplier organizations were consolidating.

AFTT applied for governmental support from Tekes, The Finnish Funding Agency for Technology and Innovation, for an industry-wide three-year development program. The objective for the program was to strengthen service innovation among AFTT members. Tekes approved the funding and Synocus was engaged to facilitate the program. It was agreed that

the capability-driven semi-open innovation approach would be used as the methodological frame of reference when proceeding with the program. The first phase for a company entering the program was called the Innovation Audit.

In September 2006 five companies agreed to enter the program. The author was supervising all the audits, which used the similar process with some minor deviations due to specific requirements of each company.

The first step of the Innovation Audit was to conduct a business analysis covering the customer base, supplier base, core activities and capabilities in respective company. Based on this analysis the management team of each company identified the potential offering universe relevant for the service innovation evaluation. This offering universe was made explicit by specifying individual offering elements. Subsequently several customer interviews were conducted with the aim of clarifying which offering elements were considered as most relevant by different customer segments. In the interviews the customer was first asked to spontaneously mention the expectations in respect of the future offerings of their technical trade suppliers. Secondly, the customer was asked to rank the preferences regarding predefined offering elements. Thirdly, and finally the customer was offered the opportunity to provide some direct feedback to the AFTT member. All interviews were documented in detail and authorized by the interviewee before distributed further to the AFTT member.

The results from the customer interviews were then brought back to the management teams for reflections, and the offering development options were mirrored against the internal capability assessment done by the management. – The different elements of the Innovation Audit are depicted in Figure 5.

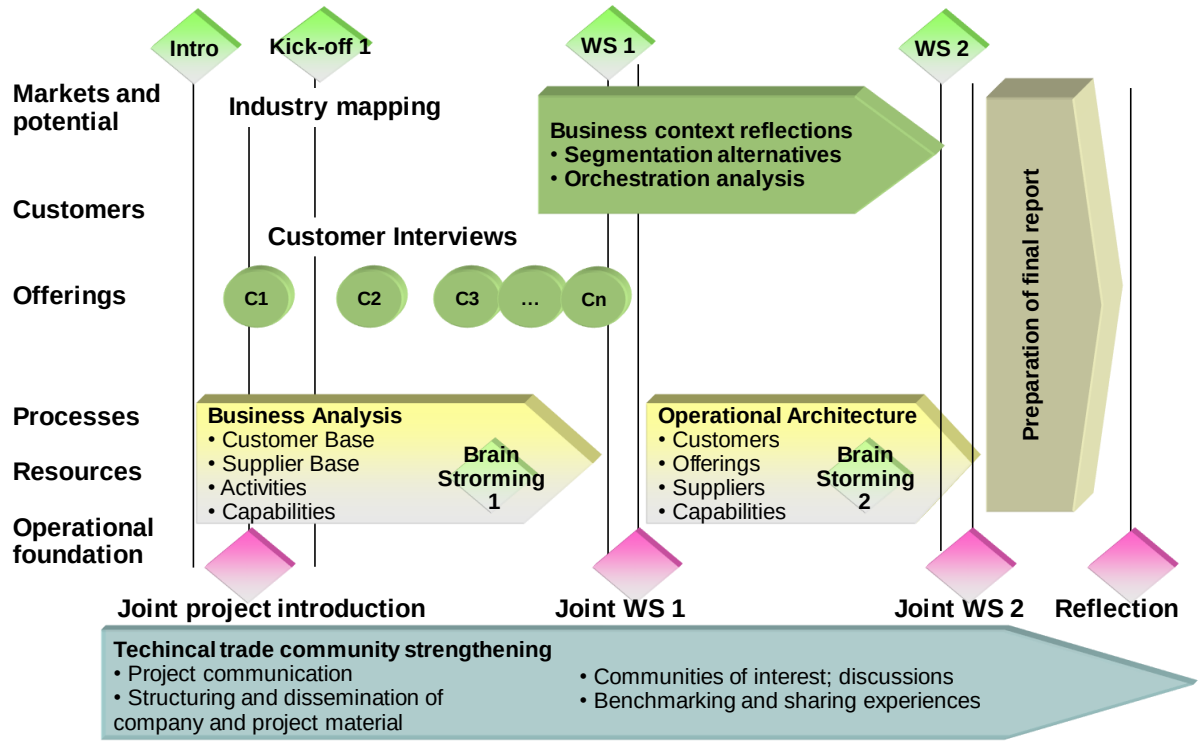

Figure 5. The Innovation Audit at AFTT

In addition to the company specific activities of the program two joint workshops were organized with participants from all the involved companies. Summaries of each individual Innovation Audit were sent out to all participating companies. This resulted in some further reflections and recommendations. This way it was possible to secure that the generalizations

from the company specific experiences were agreed upon by all parties involved. The program was also actively used by AFTT in its own interaction with other members and external stakeholders. This also strengthened the technical trade community in Finland.

In the following some of the experiences of the participating AFTT members will be used to illustrate the learning taking place within the companies. The results from four of the participating companies will be used to highlight different perspectives facing companies entering a semi-open innovation process. First the four companies are introduced, and there after the three phases of the program will be discussed: capability assessment, customer involvement in the innovation process, and subsequent managerial reflections and actions.

Four companies entering capability-driven semi-open innovation

The four companies will be referred to as AgriCo, ChemCo, HeavyCo, and RentCo. Of these ChemCo had started to apply the semi-open innovation approach already in 2005, whereas the three others were conducting their audits during the fourth quarter of 2006. All companies were aware of each other, and the same conceptual framework was used in all cases.

All four companies had a long tradition of technical trade. AgriCo and HeavyCo were representing international suppliers solely on the Finnish market, whereas ChemCo and RentCo operated internationally in Northern and Eastern Europe. Two of the companies are publicly traded and two are family-run businesses.

Each of the company entered the process with a united management team supporting the undertaking. The timetable was considered as ambitious, but each company had other strategic activities in the pipeline that were benefiting from the outcome of the Innovation Audit. All companies conducted their own audit within the predefined time limit.

Capability assessment

The four companies started from slightly different capability positions.

AgriCo is a leading supplier to Finnish agricultural farmers. Its way of operation has traditionally focused on providing equipment, spare parts and maintenance services through a network of independent distributors. The EU-legislation had affected the Finnish agricultural industry substantially. Elderly farmers had difficulties in getting sons and daughters interested in continuing the farm, meaning that they often sold out. This implied that the farming community was professionalizing. Subsequently the expectation on more in-depth expertise from suppliers was growing. Due to its strategy having independent front-line representatives AgriCo didn’t consider itself to have very strong interactive and transformative capabilities. The rapidly changing farming conditions in addition meant that the principals were also becoming more demanding. Securing the continuation of the relationships with the main principals was therefore considered as the most important short-term goal. A credible plan for how to better serve the market was defined as the key outcome of the Innovation Audit, as this plan would help the principals better understand the value-adding work done by AgriCo.

ChemCo is a leading chemical distributor in Northern Europe. It had continuously expanded geographically, marketing wise as well as in its sourcing activities. ChemCo also sourced quite actively from China and India. ChemCo identified the rapidly shifting strategies for main principals as a key challenge. More and more principals were considering leaving the distributor totally out and doing business directly with ChemCo’s customers. For ChemCo it was subsequently important to identify ways to provide additional value to both customers and principals in order to avoid being cut out from the distribution chain. Another important part was to identify customer needs that could be satisfied through the new supply channels

that ChemCo was cultivating in emergent markets. Due to this ChemCo saw a need to strengthen all the four operational capabilities: how to interact with the customers, how to come up with new solutions for the customers, how to organize its own internal work to cut costs to maintain profitability despite margin pressures, and how to keep the principals happy.

HeavyCo represents several global heavy equipment producers on the Finnish market. The company had a natural strength in its "installed base" as its branded products were considered as the leading ones among the users. For HeavyCo the challenge was to further strengthen its relationships with the customers, and to expand the share of customer spending by increasing service agreements and making sure that its customers to a larger extent would use OEM spare parts. HeavyCo considered its relationships with the principals to be on a quite good level but saw a need for improvements in all other capability areas. The main question for HeavyCo was to identify what particular service offerings the customers would need immediately, and how to organize the provision of these services.

RentCo had a slightly different perspective on the Innovation Audit compared to the three other companies. RentCo had identified one specific market niche that it wanted to more aggressively penetrate. It saw the growth potential as significant. If the audit would provide encouraging results RentCo considered establishing a dedicated business line to serve this niche market. RentCo had very strong generative and interactive capabilities and an impressive track record of both volume and profitability growth. Due to this, however, it was a tremendous pressure on top management to just cope with the increased duties from the business growth. Subsequently one of the expectations from the Innovation Audit was to strengthen the transformative capabilities as a by product of the audit, as the limited capability in this area was identified to potentially slow down growth.

Customer involvement in the innovation process

In parallel with the capability assessments the sales history of each company was analyzed in detail. This material was then used to select approximately ten customers for each of the participating companies as targets for in-depth customer interviews. All interviews were documented using a uniform format. Possible misinterpretations were avoided by having the interviewees to confirm and if needed supplement the documentation. In some of the cases the sales people in charge of the customer relationships had been interviewed prior to the customer interview and asked to evaluate the offering priorities for that customer as well.

For AgriCo three different types of offering development possibilities emerged as possible paths forward. One was very much concentrated around the segment of young well-educated farmers emphasizing broader consultative services on top of the traditional product deliveries. Another market segment consisted of the more traditional farmers that didn't expect much change from the present situation; having a cost-effective flexible service network was seen as the major value provided by AgriCo. A third growing customer segment consisted of part time farmers, often white-collar professionals that had inherited the farm. These were expressing increased interest in getting advice over the internet.

Based on the customer interviews ChemCo segmented the customers into three groups. The most demanding customers were then further approached with customer specific workshops where ChemCo executives invited the counterparts from the customer's organization to develop a joint plan for how to strengthen the collaboration over time. Correspondingly the most critical principals were also approached in the same manner. Thus, the demands from the customer interface were directly channeled further into the discussions ChemCo had with its principals. This implied that the open innovation perspective became a truly networked

process, whereby the openness simultaneously strengthened the relationship ChemCo had with both its main customers and its main suppliers.

HeavyCo used the Innovation Audit to unify its management team around the service innovation direction but also regarding its future IT-strategy. Subsequently the whole management team was prioritizing the offering elements prior to the customer interviews. Once the results from the customer interviews were available the management team met to discuss and compare its own perceptions about the offering priorities and the viewpoints expressed by the customers. It became evident to management that customers gave higher priority to such basic service elements as price of equipment, spare parts availability and service attitude compared to the expectations from the management team. Management had expected total cost of ownership and consultative support to be relatively more important compared to the feedback from customers. Based on these results HeavyCo made some concrete resource allocation decisions that would strengthen the generative capabilities related to the most critical offering elements.

RentCo had handpicked some of its most demanding customers to get an in-depth view on how to develop the new niche offering. From these companies two or three persons were interviewed. The immediate feedback was very positive. Through the discussions with the customer representatives it was possible to envisage a modular structure for the new offering. The business plan for the new business line was approved, and the company used the feedback from the customers as a main fact base when finalizing the business plan. For some of the customers RentCo could immediately offer services that the customer was asking for, and the new business was immediately benefiting from the customer feedback.

Subsequent managerial reflections and actions

Executives from all the companies that had participated in the Innovation Audit gathered for two half day workshops, one in November 2006 and one in January 2007, to evaluate the experiences from the audits. There was unanimous agreement that the capability-driven semi-open innovation approach had been useful, and that involving the customers in the formulation of the service strategy had both speeded up the process and provided deeper insights relating to the relative importance of different offering elements.

The participants also agreed that the role of the facilitator was important. Daily business matters tend to limit the time available for efforts like this and having an active facilitator that made sure that the time tables were adhered to was by everybody considered to have improved the results. It was also agreed that having a tight timetable proved to be useful, as the momentum could be kept throughout the process. Considering the calendar time used and the overall resource allocation, the outcome of the auditing exercise exceeded the expectations in all companies. The companies therefore endorsed AFTT to promote this type of approach for other member organizations within AFTT. AFTT was subsequently initiating a second wave of conducting Innovation Audits during 2007.

Benefits from semi-open innovation

Considering service innovations, the question of what to do internally and what to do externally is first and foremost about the work division between the service provider and its customers[32]. But as the case of ChemCo showed business orchestrators frequently must involve the up-stream suppliers as well when evaluating new service alternatives. Developing such multiple-actor co-developing value constellations is not easy and will demand both time and energy to become successful. Chesbrough and Schwartz[33] analyze such co-development partnerships and introduce what they call “Weedman’s Corollary” to Moore’s Law:

> (Establishing) the second (offering co-development) deal takes half of the time of the first deal, and the third deal takes one third of the time, and so on. And the subsequent deals are not only faster, they tend to be more profitable.

When considering service innovations, it is not necessarily definable at the outset of the innovation process what the "best scenario outcome" would be. As the governance of service innovation is more about setting a direction for innovation and not just categorically selecting a direction for renewal, there must be a more granular analysis when addressing the important question of how to match customer potential and capabilities. As this analysis proceeds management will gradually improve the understanding of which service development alternatives to pursue, and which ones to leave out or postpone.

Activity based costing suggests that the costs of resources first should be allocated to activities. Only after that they should be allocated to products and customers. The semi-open innovation approach takes a similar stance. It suggests that the capabilities first should be connected to specific (activity based) offering elements. The value-adding effect of individual offering elements can then more easily be discussed with the customers, element by element.

The benefit of the capability – offering elements – customer value –approach is that it also helps defining what the company should not do. In the case of HeavyCo it was identified that some of the most demanding customers would welcome HeavyCo to take responsibility for a larger portion of the whole process, e.g. by offering full-service agreements or even providing guaranteed fleet availability. For HeavyCo two questions had to be addressed: What is the size of this market segment? How well do our capabilities support this type of value-adding service? The answer to the first question was that the number of customers with these demands was still very small. When addressing the second question management realized that even the needed capabilities might have been developable, this would have reduced the possibilities to develop some other, and more urgently needed capabilities. Subsequently this service development initiative was not pursued. However, it was recognized that this was an important phenomenon to monitor, and it was decided to keep track of how customers would potentially change their minds in this respect, and what competitors would be doing.

The semi-open approach may also brutally raise un- or intentionally suppressed issues within the service organization. In one company we started the discussion with the customer representative using the normal open inquiry about the general expectations regarding the customer's relationships with key suppliers. The customer immediately raised the issue of global sourcing, and the need to completely overhaul the supplier base. As our client had the distribution rights only for a limited area in Northern Europe this implied a major strategic risk. Continuing the market research revealed that similar shifts in strategy could be expected also from a significant number of other customers. Such discussions had not been surfaced previously to the same extent. Based on this corporate management had to seriously reconsider the strategy for this division. Consequently, the divisional manager resigned in the midst of the process.

The semi-open innovation approach can provide tangible benefits in several ways. To fully exploit these benefits, managers need to understand how semi-open innovation differs from the more traditional funneling approach. It is also necessary to recognize how the semi-open approach must be positioned vis-à-vis the dynamic capabilities of the firm. In addition, the semi-open approach may also have profound implication on the business model of the company. In the following all these considerations will be dealt with.

Funneled vs. semi-open innovation

Chesbrough[34] provides several examples of successful open innovation cases, Cisco and P&G being perhaps the most well-known ones. In the way these companies commercialize external ideas they seem to follow the basic idea of an innovation funnel. This model appears to be particularly popular when the company is looking for radical innovations. We can call this funneled open-innovation. Chesbrough[35] also illustrates the open innovation model with a funnel, albeit with porous boundaries.

Funneled open innovation starts with recognizing a position in the value chain where the company has identified an opportunity for considerable business growth through some form of radical innovation. The open innovation process is then primarily about harnessing a large amount of external ideas, from which the most promising ones will be selected for refinement. The process of gradually turning the idea into a commercial offering may then take place in the R&D lab of the company. Once the product is ready it will be launched, both to the internal sales force and to the external market.

The semi-open innovation process takes a somewhat different route. Here the starting point is the distinctive capabilities of the company. Based on the evaluation of the development potential of the capabilities the potential future offering universe is preliminarily depicted. Based on this rough sketch of the possibilities, customers are engaged in in-depth discussions about the most attractive value-creating options. Based on the input from the customers, patterns start to emerge regarding how customers cluster into segments, and what the segment-specific offering priorities would be. These first design versions of the new offering can then be turned into prototypes, which again will be presented to the customers for further evaluation and possible testing. Again, additional feedback may be used to improve the understanding of the offering architecture, and subsequent offering improvements will be made. This iterative process will be repeated until the offering is felt to be mature enough for full commercial roll out.

When screening ideas for further development both the funneled and semi-open innovation approaches aim at weeding out “false negatives” (projects that initially seem to lack promise but turn out to be surprisingly valuable). In this respect the funneled approach may provide a greater possibility to identify previously unrecognized possibilities. Subsequently the semi-open approach is more suited when the objective is to look for social innovations, which is often the case in services. The innovations coming out from the semi-open process are also in their nature more often incremental innovations, as was illustrated by both the objectives and the actual outcomes of the Innovations Audits of the AFTT-members in Finland.

Chesbrough[36] refers to the old innovation paradigm with the tem *closed innovation*. Characteristically this focuses on control. Companies must generate their own ideas and then develop them, build them, market them, distribute them, service them, finance them, and support them on their own. He introduces the notion of what we here call *funneled open innovation* as a new paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology. Here two ideas are worth stressing: ideas and technology. In service innovation, the social dimension becomes relatively more important than in product innovation. For this context the innovation logic here introduced, *semi-open innovation* represents a third service logic. The differences between the three approaches are illustrated in Figure 6.

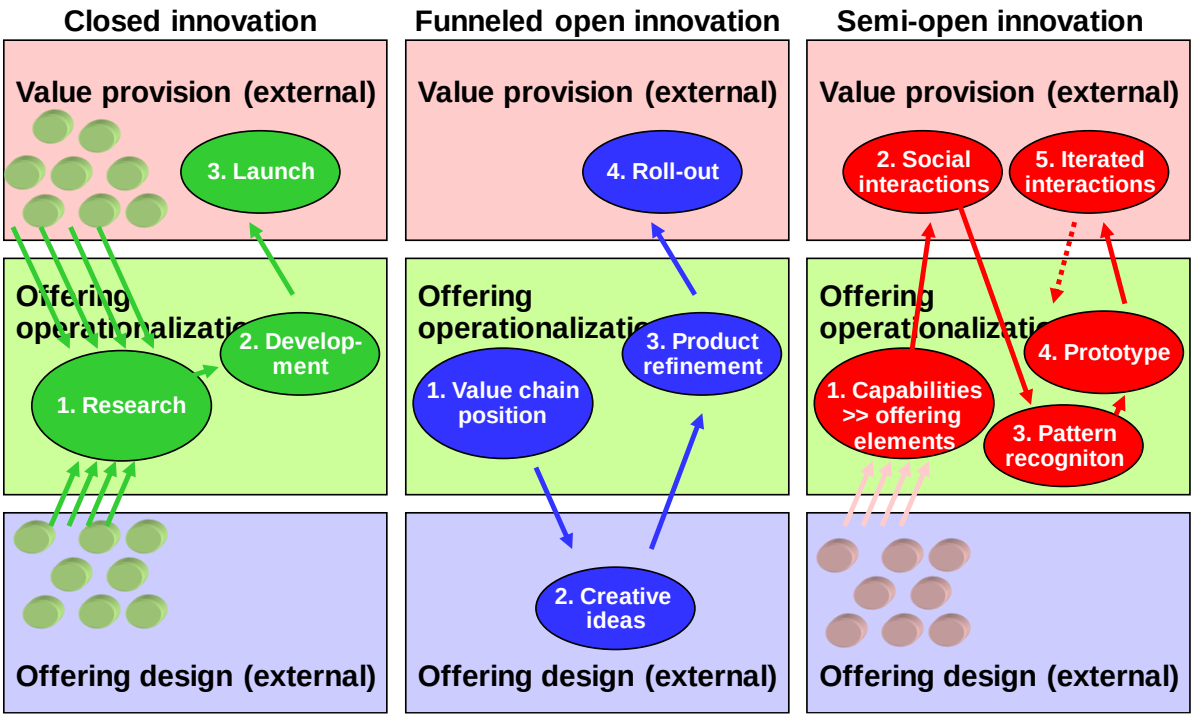

Figure 6. Closed, funneled and semi-open innovation

The semi-open innovation focuses on the social aspects on the innovation process, involving the customers as partners in the critical early stage of developing the direction for renewal. This is a different role for the customer compared to seeing the customer as an outsourced innovator, innovating form him- of herself[37]. As the case of ChemCo showed the first interaction with the customers lead to follow-up meetings with the most important customers. Sometimes such workshops involved also the principals. Subsequently this was institutionalized by making continuous formalized customer interviews part of the incentive scheme for the sales personnel. In this way the prototype for social interaction was gradually refined through several iterations.

In the semi-open innovation approach the decision who does what, once the new service innovation is operationalized, is another issue. There are risks that outsourcing the actual offering operationalization activities to the customer may weaken the value appropriation possibilities for the service company. In the semi-open approach, the role of the customer is to effectively provide the priorities regarding what provides most value for the customers. How the service offering subsequently is operationalized is a separate decision.

Both funneled open innovation and semi-open innovation require that external and internal views are combined into architectures and systems whose requirements are defined by the business model. The distinctive feature of semi-open innovation is that it considers the social part of the development as both a means and an end. The inclusion of the customers in this novel way is an incremental service innovation by itself. This also provides a deeper understanding of the value created for the customer. Semi-open innovation thus also emphasizes the need to build trust in the customer engagement process[38].

Dynamic capabilities and semi-open innovation

The notion of capabilities has been accused of tautology and poor operationalization[39]. Dynamic capabilities in turn possess the challenge of what is called infinite regression[40]. This means that once the capabilities to develop operational capabilities are not unique any more,

then the capabilities to develop the dynamic capabilities will become the important distinctive capability, and so on.

The here shown early results from applying semi-open innovation would suggest an increased level of granularity when thinking about capabilities. The first step is to operationalize the operational capabilities into four generic categories: generative, transformative, interactive, and integrative. Having done that, the dynamic capabilities can be broken down to basically two different categories. The first-order dynamic capabilities are related to the specific capability of developing a particular operational capability. The second-order dynamic capability relates to how the whole portfolio of operational and first-order dynamic capabilities is developed[41].

The semi-open innovation approach may strengthen the first-order dynamic capabilities of the service company as a by-product of the service innovation. To achieve this, the involvement of the customers in the innovation process must be manifested in permanent routines to form a distinctive capability. Normally a company has quite different first-order capabilities regarding respective operational capability. The learning here is that (first-order) dynamic capabilities are not necessarily as distinctive across all the operational capabilities but have to be understood in the context of specific operational capability categories.

Business model implications

It has recently been advocated that the notion of open innovation will profoundly force CEOs to rethink business models[42]. When discussing open experiments, it has been recognized that many companies simply do not have processes in place for open experiments. The experiences here put forward operationalize two different process alternatives for open experiments, funneled open innovation and semi-open innovation. Each manager needs to consider which approach is suitable for him or her.

However, the suggestion[43] that engaging in a process of open innovation may rapidly lead to a need to question the business model is confirmed from the experiences of AFTT. HeavyCo did make some considerably changes in its IT-infrastructure to secure stronger involvement of the customers in the future. ChemCo institutionalized the proactive involvement of customers by having regular customer interviewing as a part of the criteria for the individual bonuses within its incentive program. AgriCo reorganized to strengthen local presence to increase the possibility to interact with customers. RentCo made an acquisition to strengthen the new service offering identified and operationalized during the Innovation Audit.

The above examples highlight how the semi-open approach addresses some of the most important reasons for open innovation: rising costs and shorter times[44]. The semi-open approach provided concrete results for all the participating AFTT-members in less than six months. In some of the cases actionable recommendations could be made within weeks from kick-off. By shortcutting the funnel of ideas – operationalization – roll-out by immediately approaching customers with an actionable agenda, the innovation cycle was radically shortened. This in turn reduced costs dramatically.

Semi-open innovation is one option for managers to consider when thinking about improving the innovation process. It is not the solution for all types of innovation, but has some benefits to offer, especially when evaluating alternative incremental service innovations.

Notes

[1] See the OECD web site for the most recently available data on this topic, at <http://www.oecd.org>
[2] The study here reported here has been partly financed with funds from the Serve program of Tekes, which here is gratefully acknowledged.
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[43] Chesbrough (2007), op. cit.
[44] Chesbrough (2007), op. cit.