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Risk Management: From Portfolio Strategy to Value-creating Systems Strategy

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When the Michelin brothers, who had invented the inflated tyre that could be dismantled, printed their first guidebook "Guide Michelin" in 1900, it was a very foresighted concept for marketing. The purpose was to find a way to promote the automobile and the guidebook was given free of charge to those who bought the tyres. At the time, covering the distance between Paris and Nice was a real adventure for the rare French automobile owner of the time (there were 2,900 automobiles in 1900!). The idea was to accompany them during this risky

Figure 1: Michelin's "Guide Rouge" (1900 and 2000)

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adventure. The guidebook answered questions that any inexperienced driver should have: how to find fuel or a small inn.

This is an interesting example of how a supplier enabled its clients to manage the risks surrounding the client's value creation process. Michelin helped its clients in managing the *travelling*, not only how to "change and inflate the tyre properly for good tyre practices". Bundling the tyre offer with the guidebook, which was not for sale separately, now opened the way for more tyre sales while helping the customer to *manage the risk* more generally – by getting to Nice.

In this article we will explore three issues that we have found increasingly relevant to managing risk in today's economies and businesses. We will end the article with some conclusions related to how to create customer value from managing opportunities today where risk management plays a key role in realizing a profitable business.

The issues are:

- Understanding the new business logic and its risk;
- Offerings becoming service offerings;
- Management of risk.[1]

Understanding the new business logic and its risk

Driving forces

The driving factors for economic growth are today enabling and "forcing" change in value and wealth creation in a way that has not been seen since the early days of the industrial revolution. The most significant of these factors are, as we know: new technologies, globalization of markets and deregulation of markets. During the last two decades also Intellectual property rights (IP) have become key strategic issues for market access to many companies. All these represent new market opportunities for growth.

Information and communication technology (ICT), and the Internet in particular, drive economic growth. Globalization of markets together with trade liberalization increase the growth in GDP for many nations encouraged by the WTO agenda. Unfortunately there are also some more negative aspects connected to the new opportunities like possible climatic changes and other macro factors that are a consequence of the industrial revolution and increased globalization, but they also represent new markets like management of environmental systems.

These driving forces put the actual value creation process under pressure for change in an increasingly complex situation: more and bigger actors, larger and freer markets, etc. than, say, more than 100 years ago when the industrial revolution was steaming ahead.

According to the classical theory of risk-and-opportunity, economic actors basically have to take more risk to make the new opportunities beneficial to them and their customers. *The challenges in taking advantage of the new opportunities for value and wealth creation thus force economic actors to take more risk to be competitive as well as to develop competencies to master them*. This prompts new ways of managing risk. As we will see later, new positions need to be developed to keep the competitive edge.

From an economic point of view it can be said that services have dominated value

[1] By *risk* we mean both risk that can be calculated and *uncertainty* that cannot be calculated but managed by knowledge and systems.

creation since the end of the 1960s in western economies and can today attain 80 per cent of GDP in some countries. Manufacturing accounts for a mere 10 to 15 per cent in the same regions. Investments in information technology, which also is a service enabler of high potential, have skyrocketed and accounted in 1999 for 4 to 5 per cent of GDP in the leading IT countries.[2] This is as much as, or more than, the growth of the economy in these countries. Services and new service-enabling technologies are the primary and most profitable activities in the economy today undertaken by, in a classic manner, combining risk-taking with knowledge/competence.

Risk-sharing between the individual, the market[3] and the state also changes when services dominate the economy.

In the 1990s new markets were being opened up to competition, especially service markets such as education, healthcare, finance, telecom, energy, etc. The states then become market actors by deregulating and by buying services in the market. They cannot eliminate the risk by no longer guaranteeing everything – it is too expensive. As a result there is a change in the risk-sharing equation between the individual, the market and the state. A new system of value creation is established. The states can become major players in that market through either, for example, a more or less state-controlled education and healthcare system, or as an infrastructure operator, through legislation and monitoring.

The states become market actors in the knowledge economy by regulating an *infrastructure* that in turn enables new value-creating logic. This infrastructure is different from the industrial infrastructure regulations where the focus has been on the "distribution of wealth created in factories" rather than on the creation of wealth in a co-production way with the clients or users.

This can be seen in almost any area today, finance, logistics, biomedicine, etc., where a "global view" is needed to dynamically manage the system in question rather than setting a *static* game rule. *The new "rule of the game" is managing in a market context, i.e. choice of co-producers, not regulating in a state context*. To enable this new risk sharing between the individual, the market and the state to take place in a market, deregulation is a necessary risk management activity. *Many more actors thus share the risk in the economy. This would lead to a more productive economy.*

The pervasiveness of the service logic

The driving forces enable a service logic, which in turn contains more risk than the industrial logic since the service logic takes place in real and future time. *The service logic is, then, an application of the new, more complex economy.* The service logic is about making resources and people co-produce – often with the customer – in common value creation. In the manufacturing logic you mobilize resources to create a product. The industrial logic co-exists within the same economy.

R&D, manufacturing and distribution activities all take place in "historic time" with respect to the value they create for the user. All "using" and "post-usage handling" activities take place in "real" and "future time". In the service logic all activities get a "real-time" and "future" focus, i.e. a using and post-usage handling focus. R&D, for example, becomes focused not only on the function but also on all aspects of the future usage/post-usage

[2] The U.S., Sweden, U.K., Finland, Israel and Denmark according to Newsweek/Forrester, 2000.
[3] By "market" we mean both businesses and non-profit organizations.

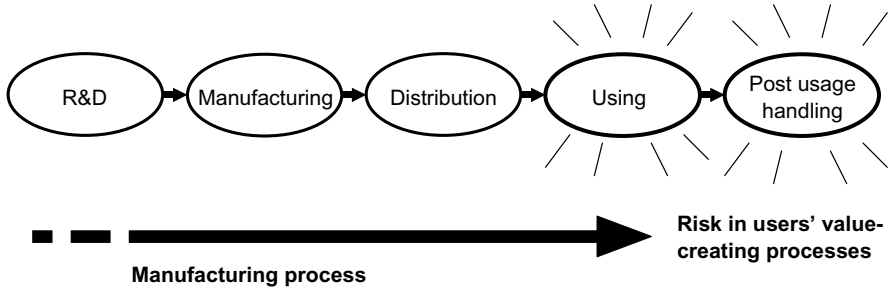

Figure 2: A shift in focus forward in a service logic. The uncertainty is dominant in real and future time when selling services, i.e. the customer's using and post-usage handling processes like reusing. The focus can be both on an enabling logic (training the client) and a relieving logic (taking over activities related to using/post-usage handling)[4]

handling in the client's processes. Focusing on the future usage/post-usage processes make the customer's processes the primary source of value creation. See Figure 2.

GE Aircraft Engines' (GEAE) "flight hour concept" is an interesting illustration of this. For GEAE, U.S.$1 billion engine sales gives an "after market" with a present value of U.S.$2 billion of service during the engines' lifetime. Instead of selling the engines to, for example, Boeing, GEAE charges the air transport company for the time the engines are *used* in flight. GEAE then helps the air transport company to manage the risk by lifting off fixed cost.

It also enables GEAE to optimize service activities and lower cost by having control over the process in which the engine is used. GEAE thus earns more money without increasing prices. They do this by having access to the client's usage and post-usage handling processes. To do this, real time information about the engine's performance and status is monitored worldwide. This takes much planning, ICT, and a trusted relationship with the client. GEAE has done this very successfully setting a new "game rule" in the market forcing Rolls Royce and Pratt Whitney to take similar actions since GEAE now also services their engines for the air transport companies, getting access to "their" U.S.$2 billion engine services market.

The service logic clearly requires learning about how the customer's value creation process works. Understanding this enables the supplier, i.e. the co-producer, to manage the risk in the less controllable process at the customer's end. Access to the client then becomes one of the most critical factors to operate a service logic. From here a learning relationship can be developed.

The service logic, as we will see, is far more efficient than the manufacturing logic since it takes into account the usage and post-usage handling processes and thus provides a better tool to make the whole system of value creation work more effectively.

The difference between a product and a service is that the product is manufactured when or before it is sold but a service is not performed before or when it is sold. The service will always take place in the future with respect to signing a contract.

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[4] A similar diagram was presented in various articles written by Orio Giarini, the last being 'The Globalization of Services in Economic Theory and Economic Practice: Some Conceptual Issues' published in The Trading Services in the Global Economy, 2002, edited by J. R. Cuadrado-Roura *et al.*, Edward Elgar, Cheltenham.

Another example is the PC. The PC hardware purchase price represents only about 5 per cent of the cost of using the PC during its lifetime. At least 50 per cent of the costs are directly related to the usage of the PC system, i.e. services. The remaining 45 per cent is the "indirect" cost of lost productive working time. The value thus lies to a lesser extent in the "historic" manufacturing activities and to a greater extent in real time and future time usage/post-usage handling activities performed by the customer and its suppliers. The scope of business therefore must expand to encompass usage processes in order to operate a service logic.

The relationship between supplier and client changes in the service logic. From historically the "transaction" of product sales with limited product liability, the relationship changes to a long-term relationship over many years where one has to perform a certain promised level of service. *The simple buy and sell transaction is being replaced by a relationship with the client, helping him in his value creation process with his customers*.

This change in relationship can today be seen in the high demand for Customer Relationship Management (CRM) and e-CRM solutions (e-CRM being interactive CRM via an Internet-based relationship with clients). Nearly all companies place a major focus here. In a few years almost everyone will be forced into an active customer relationship management and e-CRM/CRM systems implementation/usage. Here the supplier learns through interacting with the client about its value-creating processes. The more demanding the client is and the more knowledgeable the supplier is about how opportunities can be created for the client the more value can be created through the relationship. A learning relationship is established as the basis for the service logic and efficiency in the whole value-creating system with clients, suppliers and the clients' clients is achieved.

The focus on the customer's processes for value creation also changes the nature of what is offered to the customer, i.e. the "offering". *From separate "products" or "add on" services, offerings now take part in the customer's value creation process delivering performance to the client*. A new value creating system is established.

A new economy: a system of actors

The driving factors lead to a "new economy" where knowledge and innovation (which may result in intellectual property rights) becomes the number one production factor. This is due to the fact that with information technology we can "take everything apart" physically. This has prompted the need to reintegrate these "elements" in new patterns. The creation of value is now "spread out" in a different way: in time, in space, between actors. The value creation is divided by actors who "co-produce" in a system, the primary actor being the customer (who is a producer according to the above). By dividing the value creation differently either the customer or the supplier can set up the system and the value creation takes place. The value of assets is then increasingly a function of their positional relation in a more and more geographically spread out and complex value-creating domain, meaning that the value of an asset depends on one's knowledge and capability of using it in context.

Value creation takes place in a system-like manner, where actors working together use spread-out assets in a global, deregulated context. We call this a *value-creating system* enabled by information and communication technology that during the past 20 to 30 years has outperformed the more linear value-adding chain process enabled by manufacturing technology in the industrial economy.

The transition to a "knowledge", "information economy" or "service economy" becomes more and more obvious and demands a serious approach theoretically, conceptually and with regard to risk.

The knowledge economy, which is the term we will use for the "new economy" or "service economy", is by definition more risky since more competencies and market actors interact in a more complex manner, in many constellations, over a larger time scale, etc. We have left a "bricks and mortar" economy where the dominant value was in the manufacturing process and the offerings were consolidated – "frozen knowledge" was sold in the form of products. *The knowledge economy is therefore about making more assets interact more to create more value in more complex constellations*.

A conclusion could be that to be successful in the new more competitive and performing economic system the macro driving forces bringing new opportunities to create value and wealth force market actors to take more *risk* with respect to:

- New technology and the "information highway" which involves systems risk (such as availability and stability), security and information safety risks;
- Globalization includes political risks, cultural risks, etc.;
- Deregulation means new market risks, bigger markets, etc.;
- Risk due to activities spread out physically, in space, between actors and co-production partners and in time (a change in business logic);
- Other factors like climate means that natural resources may be destroyed.

This leads to a rethink of the "risk map".

A new "risk map"

The risk map changes in at least two ways. With the new opportunities available, risk is changing in nature, i.e. it is coming more and more from "man-made" systems not just hazards of nature. Of the driving factors above, some are "natural" but the new ones are

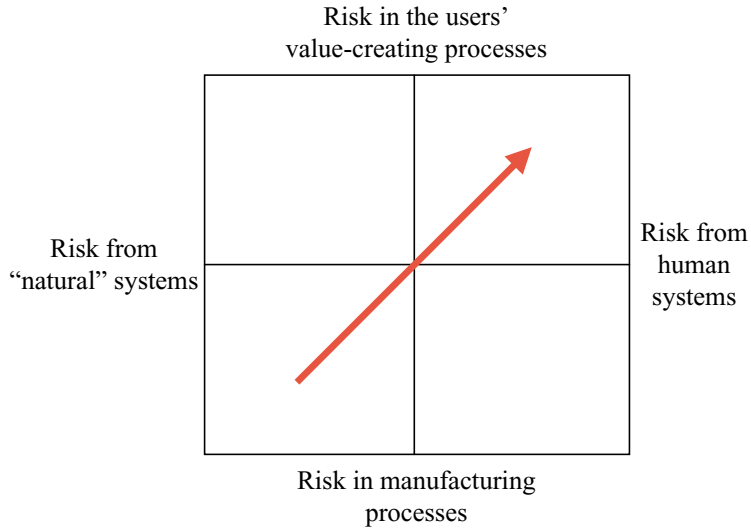

Figure 3: The arrow illustrates how a shift in focus of sources of risk has changed and expanded the risk map and, as a consequence, the competence demands on effective risk management

man-made factors and strategic decisions. One might say that risk changes from causes like natural catastrophes and the like to factors due to the increased complexity of human systems: technical, economical, political and social, etc. This process became clear with the industrial revolution.

The other fundamental trend is that the greatest risks from the economic actor's point of view like companies, are moving away from the relatively easily controllable factory situation to a more difficult to control user situation, partly due to the "spreading out" of activities physically which demands co-ordinating efforts. Companies not only produce goods and services; they also design and run actual customer sites like power plants and logistics companies around their products and services. Risk at the "customer's end" then becomes significant and shifts the focus as to *where and with whom* risks need to be managed to be successful in the marketplace.

This change in the nature of risk and where the greatest risks are affects the *scope of risk* that needs to be managed to stay successful. *The focus on new opportunities and the customer results in companies being forced to handle more risk at the customer's end*. Figure 3 expresses these two dimensions of change in scope.

Now one not only has to acquire competencies about how these new technologies and markets can be used to create value but also how to manage the risks associated with a more complex scope of risk in the knowledge or service economy.

Managing the new risk map effectively gives us the possibility of harvesting the full potential of opportunities in the knowledge or service economy. People (suppliers and users) and systems (natural and man-made) then interact in a new way in the value-creating system that leads to a change in the value-creating logic.

Offerings becoming service offerings

Following the service logic, offerings become *service offerings*. These are promises of *future* value creation involving activities from the supplier's side.

The supplier of service defined as a promise of future value creation for the customer now builds an *intangible debt* that is "worked off" gradually. The "debt" or "promises outstanding" becomes the profit potential. This resembles very much the fixed income banking business. One promises a coupon and has to work, put the money at higher risk elsewhere and manage the risk, to earn more on the capital borrowed.

This is a way of creating value more effectively than in an industrial logic since the market actor, *in the offering,* takes into account the actual usage situation at the customer's end. This is more effective than just selling more "frozen knowledge" by means of diversification of products, i.e. investing more knowledge in R&D or manufacturing and distribution processes.

Developing service offerings means investing knowledge and resources in the customer's usage/post-usage handling processes. Services are more flexible and knowledge "dense" and the knowledge is not "frozen" until they are actually performed.

The offerings therefore have to deal with the risks in the value-creating situation. Customer value can then be much higher in the service than the product offered because the whole usage situation is in the offering. This is the opportunity of the service logic.

A product may be part of a service offering and a service is always associated with a product. However, selling a product is merely *enabling* the client in his value-creating processes. Selling a service always means co-producing the value with the client enabled by a

product where the supplier promises to perform activities for the client in the future. The supplier can relieve or enable the user to perform activities that will take place in the future.

The "future" aspect of selling a "promise" of value creation in the future means that increased uncertainty is introduced in the offering. With this last step, risk management becomes an integral part of the offering, closing the circle. The supplier performs or creates customer value through a service logic, not through a manufacturing logic.

Management of risk

This leads us to the conclusion that when increased uncertainty is introduced in the offering the potential of the knowledge economy can be harnessed using the service logic for value creation only if management of the risk becomes an integral part of the offering. This means that economic actors must include risk management as part of their offerings. That means rethinking the business model.

Risk management activities can be introduced in at least two ways: managing the client's risks by taking over full responsibility and control of the client's process (relieving the client), or enabling the client to manage its risks in its value creation for its customers. In the first case this could be done in the form of an outsourcing strategy or operator strategy. In the second you give tools, information, to the user of your products or services to better manage the risk involved in using them in creating value.

The classic form of risk management is a functional division and specialization of risk management mirroring the value-creating manufacturing logic. Since the product is the main carrier of value in this logic a *portfolio* strategy is efficient to spread the risk for market actors. Now the value creation is somewhat more complex with value-creating activities carried out at the client's end by the supplier. As actors are forced to manage those risks they need to include risk management at the customer's location.

Risk management then becomes *systemic* rather than functional since we now sell performance not products. All actors involved in creating value in the customer's processes need to be co-ordinated in the value-creating system in each offering to manage the value-creating system risk at the client's end. The result is that risk management in the service economy takes place in a systemic fashion where risk is managed in each offering including all actors "co-producing" the offering, rather than by all actors in the market using the products. There is thus a centralization of risk management to "lead" actors in the market, who are able to manage the risk in the offering. The sharing of risk thus changes between the supplier and the customer and risk in using can be centralized and managed more effectively at the offering level. This results in a value-creating system strategy where all participants in a value-creating system share risk in a more optimal and "individualized" way.

The risk the supplier once spread in a portfolio of products is now spread over many more customer relationships, each carrying a more optimal risk-sharing formula. The total system of value creation, i.e. the economy, is made more efficient by this strategy. The cost of managing risk in value creation goes down due to more efficient risk-sharing and we get a more productive economy.

Several steps can be identified between the product and the offering in managing risk, from a historical point of view. Each step the supplier takes will enable the client to create more value in his processes with his clients by stretching the offering in time and taking on more risk:

(1) *Functional guarantee* – industrial logic, enabling the customer (e.g. functional risk);

(2) *Financing* – gives the customer access to the product (e.g. credit risk);
(3) *Service* – technical service of the product making it produce for the customer (e.g. competence risk);
(4) *Management tools* – enabling the client to interact in his client relationship (enabling the client to create customer value in the usage process) (e.g. information and processing risk);
(5) *Managing the value-creating process* for the customer – strategic or market value of risk management introduced in the offering. Service level agreement can be made. Operating the customer's value-creating process delivering competitive advantage and cost savings by providing a better offering than the customer's competitors can provide to their customers (e.g. relational, knowledge management risk).

The new scope of risk management is then not just an add-on to the manufacturing facilities but a central part of making the knowledge economy, applied in a service logic fashion, work at all.

To manage the risk in a service logic we need above all to:

- Develop competencies about the customer's processes, to enable competitive offering design.
  This means learning from customers and co-ordinating activities among many actors since the individual client's processes and risk-sharing formula has to be taken into consideration individually upon pricing and delivery. The different risk-sharing between actors in the market enables the supplier to take more risk and manage the process more effectively by means of standardization, training the client, etc. By taking on responsibility for the customer's value creation processes with its customers, and promising value in the future, one can sell or price the service performing the value, not just the products enabling the value. A performance is sold not just as a product. The price carrier is on performance not on the product as such.
- Develop access to management capacity, management tools, technical service, finance and products to be put in to action in the offering delivery process (the above five steps).
- Organize risk management competence at the executive level as a strategic position, since risk is taken actively and individually in each customer relationship and not just collectively by a product strategy; work with quality and economies of scale or scope in delivering promises.
  The risk in value creation cannot be managed the same way as the risk is connected to people and maybe hundreds of networked actors. It changes the approach to risk management from a "functional" one based on the manufacturing process in the industrial economy, to a "systems" approach to value creation where many service and manufacturing processes interact simultaneously using the same resources, and are organized according to the customer's processes. Organizing a risk management function as part of the delivery system then becomes another means of managing risk.
- Work with offering design, with different, individualized risk-sharing formulas. Offering design becomes the new core competence that replaces the product design as the "customer interface".
- Develop competence in pricing the new offerings becomes the new challenge to make this concept operational.
  Pricing is done of the risk management activities. A price is given to the offering as a whole including the risk not just of the individual parts. In a service offering, you price the future value to be created together with the client, not just the past created in a factory.

- Develop pedagogical competencies to help achieve a behaviour that is risk management efficient by the actors involved in the value-creating process, taking into account the two principal sides, i.e. the client's and the supplier's side. This in turn requires cultural competence.
- The legal contract is changed, as the risk-sharing formula becomes individual, requiring new competence in contractual issues. An agreement is made where the service supplier promises to make his resources available to deliver a service at a certain quality level in an organized manner with the client for some time into the future.

To summarize: the business you are in is defined by the scope of business you can choose depending on the competencies you acquire to manage risk in the new value-creating system. Decisions are discrete to take an opportunity and manage the risks.

Towards a new perspective of business definitions

In early industrialism, companies defined their business in terms related to the raw materials, production processes, or, later, products they dealt with. They were in businesses like "mining", "steel", "cars", or "credit cards". Economists defined the economy as divided into "agricultural", "industrial" and "service" sectors. These definitions were all related to the resources and skills that were crucial for attaining competitive advantage.

But the driving forces and the resulting emphasis on the service logic, with its focus on the future value creation of customers including the management of the risks involved in value-creating systems, suggests that such traditional business definitions are being replaced by new ones. More and more companies are organizing according to customer groups, and define their offerings not as products but as services. We are witnessing a change of business definitions that reflects the new business logic and the new critical competencies required to be successful, namely the competence to manage a value-creating system. The scope of this definition tends to become both broader (the range of actors involved) and longer (from transactions to relationships, and with a shift of focus from production to "use" and value creation in the future).

In view of these changes the challenge for companies to thoroughly reappreciate *who* and *what they are* (or should be) has probably never been greater.

Summary

- Driving forces (IT, globalization and deregulation) force economic actors to take more risks to be competitive as well as to develop competencies to master them;
- This leads to a knowledge economy, which enables a service logic (an application). The service logic contains more risk since the service logic takes place in real and future time;
- Offerings then become service offerings, which are promises of *future* value creation;
- Risk management becomes part of the offering. There is a price that can be put on risk and risk management bundled in the service offering;
- Management of risk through competencies, capabilities and organization and sharing;
- The business you are in is defined by the scope of business you can choose depending on the competencies you acquire to manage risk in the new value-creating system;
- A new business definition emerges from the new risk management challenges.