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# BUSINESS MODEL TOOLS AND DEFINITION

## A LITERATURE REVIEW

by

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### Abstract:

The report includes a literature review on business models, possible definition, their use, a description of descriptive and comparative methods and summary of some literature examples related to business model development. It also outlines future steps in the VIVACE WP 2.1 business model work and proposes a possible approach.

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## 1. EXECUTIVE SUMMARY

This report presents a definition and description of the business model concept, with the aim of achieving a common understanding that will be of further use within the VIVACE WP 2.1 work. The potential of using business models in the strategic and business development areas will be explored, using some of the thinking and techniques discussed in this document as a foundation for partner discussions and mapping activities that aid understanding.

The proposed approach includes applying systems thinking to create a common understanding of the business model concept and building components of the aero engine industry supply chain today.

## 2. INTRODUCTION

An analysis of the term, 'business model' in literature showed that there is a wide range of definitions available. The application of business models as a conceptual tool was not as clearly defined in practice as might have been hoped. Depending upon organisational background and culture, the perception of business models was very different. Mostly it was thought of as "something for the marketing and sales departments to consider" rather than for corporate management and strategists to align their strategic choices against, or for the core organisation to link with their strategic choices regarding technology developments. Often the term was misused, referring to the evaluation of the financial aspects of a business offer – assessing revenue streams compared to costs. However that is not what we should call a business model, but instead a *business case*. This report focuses on broadening our knowledge of business models as well as showing possible ways to use business models thinking as a conceptual tool when considering the future business environment, and the operations of the aero industry.

The chapters that follow present the findings from our literature review and propose a possible way forward. Chapter 3 addresses the definition of the term, Business Model, and Chapter 4 outlines the expectations we have for the business model work in VIVACE, as a result of this work and the deliverables that are to follow. Chapter 5 gives an overview of the business model research work in literature, and Chapter 6 details the different elements that feature in a business model. Chapter seven moves on to explore different ways to describe, represent and map business models. In Chapter 8 we then look at comparative methods used elsewhere in the evaluation of business models. In Chapter 9 some problems in the development and use new business models are identified, and the role of the business model in the innovation process is discussed. Chapter 10 briefly discusses a few examples of business models described and compared in literature. This section will only serve as a short introduction to the deliverable on business models in other sectors that is planned for M30, June 30, 2006. The last two chapters, 11 and 12, give a summary of what may

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be applicable to the VIVACE project and conclude with recommendations for further work and deliverables.

It is aimed that this report will give a definition, description and understanding of the business model concept that will be of further used within the VIVACE work. The potential of using business models into the strategic and business development will be explored.

### **3. BUSINESS MODEL DEFINITION**

Shafer et al (2005), observes that while it has become fashionable to discuss business models, there is no widely-adopted definition of the term. Twelve definitions are said to have been proposed in established publications from 1998 to 2002, coming from a wide variety of perspectives including e-business, strategy, technology and information systems. It is clear that no single definition of the business model will satisfy every reader... but it is equally clear that people with a wide range of backgrounds are interested in the approach.

Shafer et al (2005), found that the business model activities could be divided into four categories: strategic choices, the value network, creating value and capturing value. They proposed the following definition:

“A business model is a representation of a firm’s underlying core logic and strategic choices for creating and capturing value within a value network”

Osterwalder and (2005), in his extensive research and work on a business model ontology, concluded that there were nine main building blocks that made up the business model (see Chapter 5). He proposed a slightly broader business model definition:

“A business model is a conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific firm. It is a description of the value a company offers to one or several segments of customers and of the architecture of the firm and its network of partners for creating, marketing, and delivering this value and relationship capital, to generate profitable and sustainable revenue streams.”

Mitchel and Coles (2004) state a set of questions that will answer what is a business model. Similar approach is also taken by Vlaar, de Viries and Willenborg (2005) and Graf (2005). These questions can be summarized with:

By a business model we mean the combination of:

- Who,
- What,
- When,

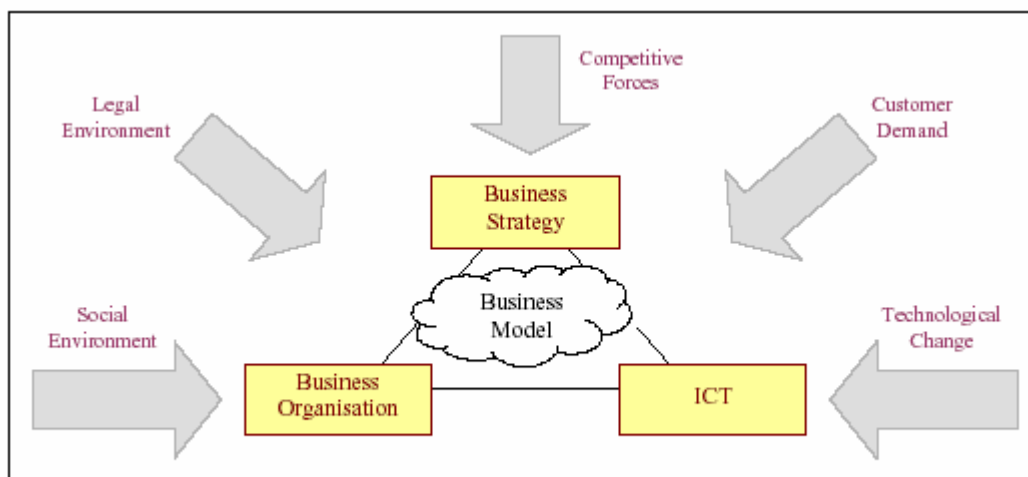
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Why,  
Where,  
To Whom  
How,  
How much

...an organisation is employed to serve its customers, end users and stake holders.

#### 4. BUSINESS MODELS VS. BUSINESS STRATEGY AND PROCESS

Most authors seem to agree that the business model is not a strategy. Osterwalder (2004) places the business model in the middle between strategy, Information Communication Technologies and Business organisation, as figure 1 shows:



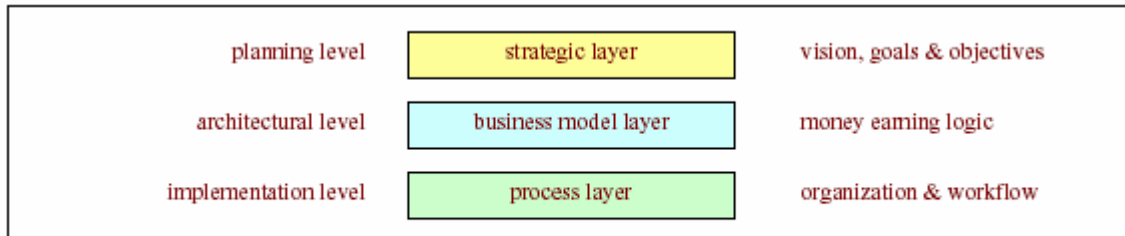
**Figure 1. Business model in relationship to Strategy, Process and information system, Osterwalder (2004)**

Chesbrough and Rosenbloom (2002) identify three main differences between the business strategy and the business model. 1) Creating value vs. capturing value, where the business model addresses the way a firm captures value, and the strategy of how to create competitive advantage and create value, 2) Business value vs. Shareholder value, where the business model focus on business value and business strategy on shareholder value, 3) Assumed knowledge levels, where the business model works on a more limited environmental knowledge and the strategy requires more certainty in the knowledge of the environment.

Also the business model is not a process model. Osterwalder (2004) places the business model layer between the strategic layer and the process layer, as shown in

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figure 2. Also Gordijn, Akkermans and van Vliet (2004) shows that business models are not equivalent to process models and show examples of the difference in graphical representations between a process model and a business model.



**Figure 2 Business model and its relationship to strategy and process Osterwalder (2004)**

Shaffer (2005) suggests that the business model is not a strategy but rather reflects the strategic choices that have been made, mainly in regard to how the company creates and captures value.

Business models are seen as a powerful way for executives to analyse and communicate their strategic choices. Schafer (2005) contends that the main benefit is that the core logic for creating value is clearly thought through for the firm while working on the business model description. However Linder and Catrell (2001) [3] found in their research that 71 percent of the non- 'dot.com' company executives had difficulty in clearly articulating their business models. They state that applying business model thinking will help clarify existing business models and broadening the portfolio of models for the future. This summarizes well our own intention with this work in VIVACE.

## 5. EXPECTATIONS FROM BUSINESS MODEL WORK IN VIVACE

When the work on business models in VIVACE has been performed we hope to have a better understanding and description of the present aero engine business model as well as some ideas for possible future business models. We have set out to perform this task in several steps, allowing all partners to contribute to different areas.

The focus in the first VIVACE business model contributed to by Volvo Aero will be:

- Based on literature to present a common understanding of what is a business model and what are the main important elements
- Find a methodology for mapping a conceptual business model
- Find tools that will make comparison of business models possible
- Increase the understanding of using business models in the development of possible future business options.



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The following steps will be addressed in two reports at M30, one by the University of Nottingham, on Business models in other sectors, and one from RR plc on business models in the aero engine industry. The main output from these reports will be:

- Capturing the business model development ongoing today in industry in general and identify the key elements that make emerging business models successful. This will be presented in D2.1.2\_2: Business models in other sectors.
- Capture the present business models in the aero engine industry specifically, looking at several levels of the value chain. This work will be presented in D2.1.2\_3.

In addition to these reports workshops will be held to:

- Find ideas for how the aero engine business models may need to change in the future.
- Evaluate possible future business models.

Finally, in the deliverables planned for M36 and M42 new potential business model developments for the aero engine industry will be explored and evaluated using approaches and tools identified during this and further literature reviews. In the first step they will be evaluated in quantitative terms, but the intention is to move the work further to a qualitative step. This might include using the value chain model work performed in parallel in Task 2.1.1.

## **6. BUSINESS MODELS IN LITERATURE**

The term, 'business model' became popular only in the late 1990's, Osterwalder (2005). There is a clear link between the emergence of new offerings in Information Technology (IT) and air transport, and the use of the term. It appears that in an industry where the business model is stable it is not talked of and not expressed [3]. It is when new competing business models emerge from a change in the status quo, either from increased competition for new technology, that there is a need to start understanding and capturing the differences.

When looking at the context of business model research, a substantial part has been associated with business models in low-cost air lines and IS/IT and internet exploiting business such as Amazon.com and Skype. Looking at Ryanair and Amazon.com, both have reached customers in a new, more cost-efficient way through the internet, which has changed the market by causing it to become more global. Considering these developments the number of ways a company can do business has substantially increased in recent years. As the document will describe the change variations highlighted above are not actual descriptions of completely different business models, in these examples only certain business model *components* actually differ, with the vast majority of factor that go into a business model remaining comparable between the opposing companies.



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When looking into business model evaluations, most approaches are qualitative studies where simple comparative methods have been used. Surprisingly, since in the end a company has to make money, very little is found on quantitative tools and methods with which to analyse business models. Business models are described in the QuickMBA website as transforming innovation to economic value for the business; however there is limited information about how.

It is an agreed by several researchers that companies that thoroughly understand their business model and know how the building blocks relate to each other will be able to constantly rethink and redesign these blocks and their relationship to innovate before their business model is copied.

So the next step after finding a definition we move on to looking at the elements that build a business model.

**6.1. Business model fit**

One important use of business model analysis is to examine a proposed activity in terms of its compatibility with the other operations of the business. Business models must 'fit' with the overall strategy of the business, or even an apparently profitable venture could harm the business. For Sun Microsystems, for example, the decision to introduce a line of low-cost servers based upon Intel chips rather than the former proprietary chips 'broke' the business model, Shafer et al (2005) because the move tended to cannibalise revenue from the premium product line. Business model can and should be considered by taking a high-level, systems view before any detailed planning is attempted.

One business model that continues to arouse significant interest in our own industry is that of the low-cost carrier, as pioneered by Southwest Airlines. At a time when very few operators are enjoying a profit, the low-cost models of EasyJet and Ryanair have bucked the trend. Again, the 'fit' of low-cost operations must be considered as a part of the operations of the whole. Kotler et al (2005) attributes British Airways' divestment of their low-cost operation, Go, to the poor fit with a full service airline.

**7. BUSINESS MODEL ELEMENTS**

Several researchers have explored what might be included in a business model. Up to as many as 43 "elements" that build a business model were found by Shafer, Smith and Linder (2005). They propose a set of 4 main components; see figure 3.

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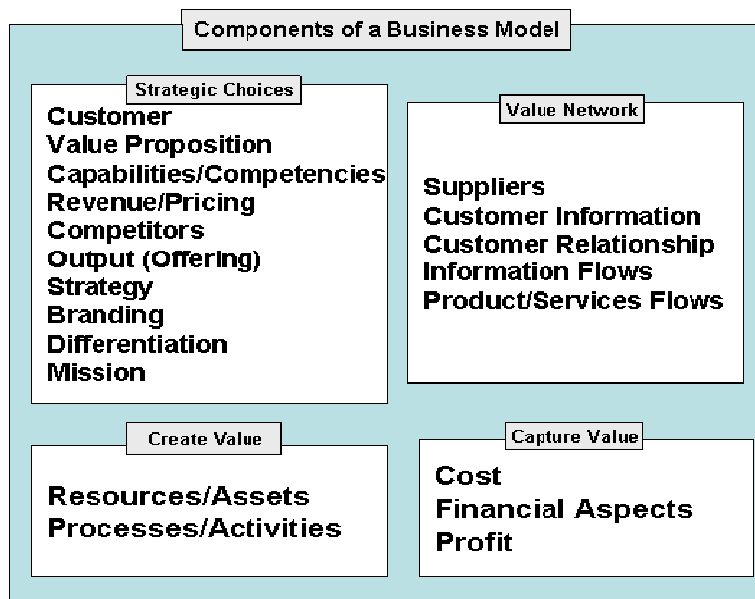


Figure 3. The proposed business model components by Shafter et al (2005).

When looking into the Quick MBA on the internet the most quoted writers are Chesbrough and Rosenbloom (2002) who present a basic framework describing the business model as having six elements:

- **Value proposition** - a description of the customer problem, the product that addresses the problem, and the value of the product from the customer's perspective.
- **Market segment** - the group of customers to target, recognising that different market segments have different needs. Sometimes the potential of an innovation is unlocked only when a different market segment is targeted.
- **Value chain structure** - the firm's position and activities in the value chain and how the firm will capture part of the value that it creates in the chain.
- **Revenue generation and margins** - how revenue is generated (sales, leasing, subscription, support, etc.), the cost structure, and target profit margins.
- **Position in value network** - identification of competitors, complementors, and any network effects that can be utilized to deliver more value to the customer.
- **Competitive strategy** - how the company will attempt to develop a sustainable competitive advantage, for example, by means of a cost, differentiation, or niche strategy.

Osterwalder (2004) investigated also what elements were used in business model research and came up with nine elements that could be seen as common elements

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that capture the main features of most proposed definitions, including those listed by Chesbrough and Rosenbloom (2002), as given above.

1. The **value proposition** of what is offered to the market;
2. The **target customer segments** addressed by the value proposition;
3. The communication and **distribution channels** to reach customers and offer the value proposition;
4. The **relationships** established with customers;
5. The **core capacities** needed to make the business model possible;
6. The **configuration of activities** to implement the business model;
7. The **partners** and their motivations of coming together to make a business model happen;
8. The **revenue streams** generated by the business model constituting the revenue model;
9. The **cost structure** resulting of the business model.

These nine elements are further described in Appendix 1.

An example of the type of features that may be explored for each of the elements is given in Table 1:

**Table 1 Osterwalder (2006) , Example of features per business model elements.**

<b>Area</b>	<b>Ex.</b>	<b>Vs.</b>
Value proposition	Low cost/value	High Cost/value
	Follower (e.g. mass market)	Innovator
Customer Segment	Niched markets	Mass markets
Distribution Channels	Reliance on own channels/stores	Reliance on partner channels
	Personal sales	Internet sales
Customer relationship	Owned/direct relationships	Partner/indirect relationships
	Transactional	Reactional
Value	Owned activities	Distributed activities

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Activities/Configuration		
	Simple activities	Complex activities
Core capabilities	Self reliance	dependant
	Centralised	Decentralised
Partnerships	Few partners	Complex value webs
Cost structure	Lean	fat
Revenue streams	Limited	diversified
	Controlled	Uncontrolled

After reviewing the literature it is evident that there is single answer as to what elements should be included. Instead, it was necessary to select the definition that would best help us understand aero industry business models. As a first approach we chose to apply the Osterwalder (2004) nine-element business model above.

## **8. WAYS TO DESCRIBE AND MAP BUSINESS MODELS**

To move the understanding of business models further we have looked into how business models and their elements are presented in literature. A set of qualitative approaches have been found where business models are investigated and compared. They are further described and illustrated in the sections below, and complemented by a set of other mapping and comparing tools used in business and strategy work.

### **8.1. Defining the elements and making a list**

The simplest way of describing a business model is to agree on a set of elements that describe a business model. They could be the elements defined in Section 10. Examples of this were presented in the previous section where possible elements of the business model were listed.

In their work to compare the Telco and Skype business models, Osterwalder et al (2005) describes and compares them by listing features for the seven out of the nine 'key elements' (as presented in Osterwalder (2004)) for each company.

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**Table 2 Summary of Skype’s and Telcos business model element features , Osterwalder et al (2005)**

<b>Business model Element</b>	<b>Telco – traditional calls</b>	<b>Skype – Free calls</b>
Value proposition	Complex charging	Free VoIP
Customer Segments	Limited reach	Global Reach
Distribution & Communication Channels	Mainly physical Traditional marketing	Virtual marketing (life style) Community (listening)
Customer relationship	-	Community (listening)
Value Configuration	Network Management (high marginal cost/user)	Software/version management (low marginal cost/user)
Revenue Streams	High average revenue per user (ARPU) necessary	Low average revenue pre user (ARPU) sufficient
Cost structure	Network maintenance	Software development

This tool provides a neat way to consider the differences between existing business models within key areas. However, this analysis needs to be supported by methodologies to consider the potential benefits of each approach.

**8.2. Systems thinking and systems models**

O’Donnel (2005) put emphasis on the need to apply systems thinking in regard to business models. Using systems thinking to develop a holistic perspective on a business model involves (a) identifying systems of activities that drive performance, and then (b) developing a process model that identifies the component relationship that drives each system. Business models describe how the pieces of a business fit together to form a system for the creation of customer value.

Systems thinking focussing on addressing two issues of significance for the business model – not enough breadth and too much depth. This is demonstrated by figure 4 below and indicates how being part of the system can have a limiting affect on the ability to visualise all factors that are involved in producing output. Systems’ thinking is a set of techniques to encourage a broadening of mental models.

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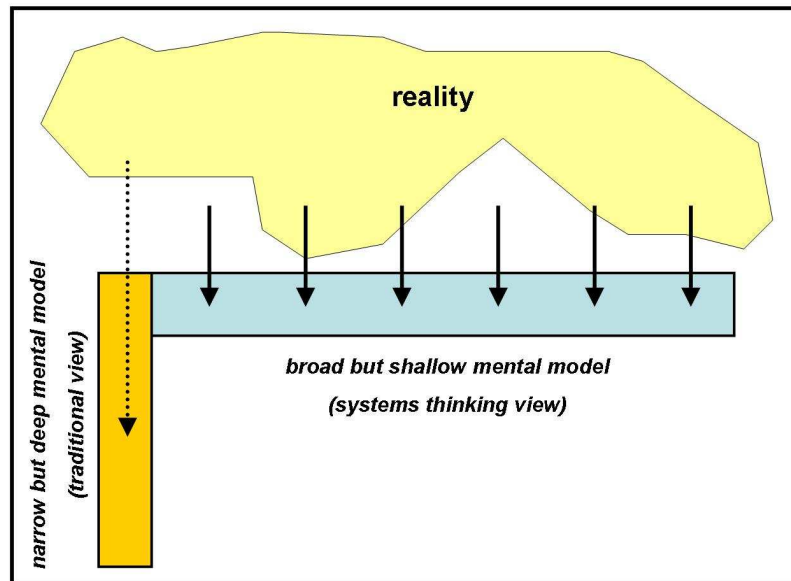


Figure 4. Comparison of system descriptions using traditional and systems thinking interpretations (adapted from Richmond 2004)

Systems thinking can help an individual develop a mental model that provides a more complete understanding of how the components of a system are linked. Systems thinking can be used as a framework for modelling business processes in a way that helps management develop a more complete perspective on their business model.

Osterwalder (2005) puts his 9 business model elements into a systems map that here represents a conceptual picture of a business model, or as Osterwalder (2004) calls it the *business model ontology*, figure 5.

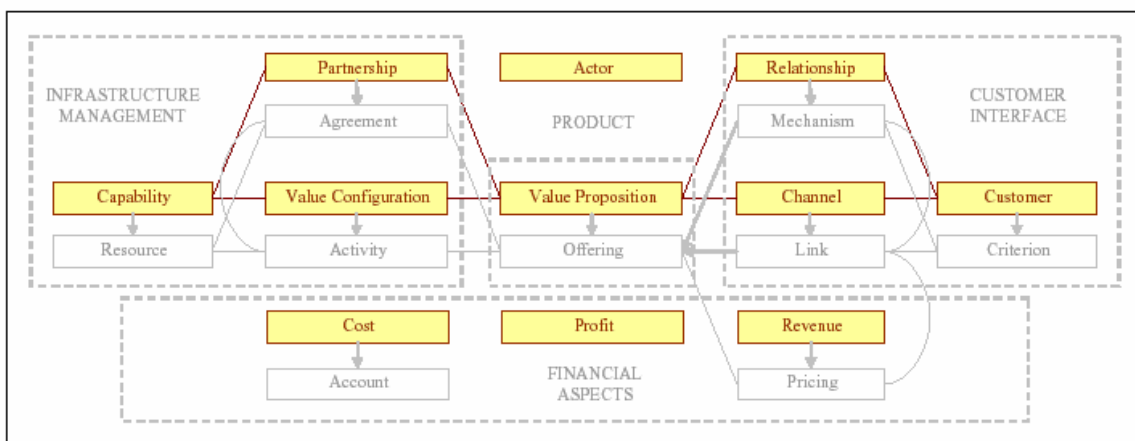


Figure 5 Business model ontology, the Osterwalder systems map of business model elements Osterwalder (2004).

This view is supported by O'Donnell (2005) where the importance of developing a holistic lens for evaluating business processes and concepts is discussed, and

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developing a holistic mental model – an overall mental representation that provides a big-picture perspective. The lens he refers to is *systems thinking*. The value chain for a wholesale distribution company provides an example of a ‘systems map’, figure 6 where the primary processes that drive the business model are identified, including who is involved and what resources are affected by those processes. A value chain map helps the organisation develop a holistic perspective on its business model by specifying the procedures and agents that drive each process component.

*E. O'Donnell / International Journal of Accounting Information Systems 6 (2005) 177–195* 189

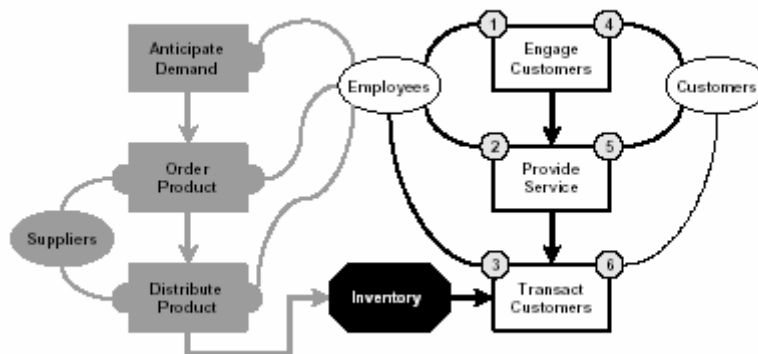


Fig. 3. Value chain map for a retailer grocer.

**Figure 6 Example of a system map, presenting links and activities between the actors in this specific business, O'Donnell (2005).**

Systems maps were also used by Bieger and Wittmer (2005) when looking into the area of air transport and tourism, and the development of new travel destinations. Systems maps/models were used to analyse and understand the business model for new destinations. An example of a systems model used by Bieger and Wittmer can be seen in Figure 7:



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T. Bieger, A. Wittmer / Journal of Air Transport Management ■ (■■) ■■■ ■■

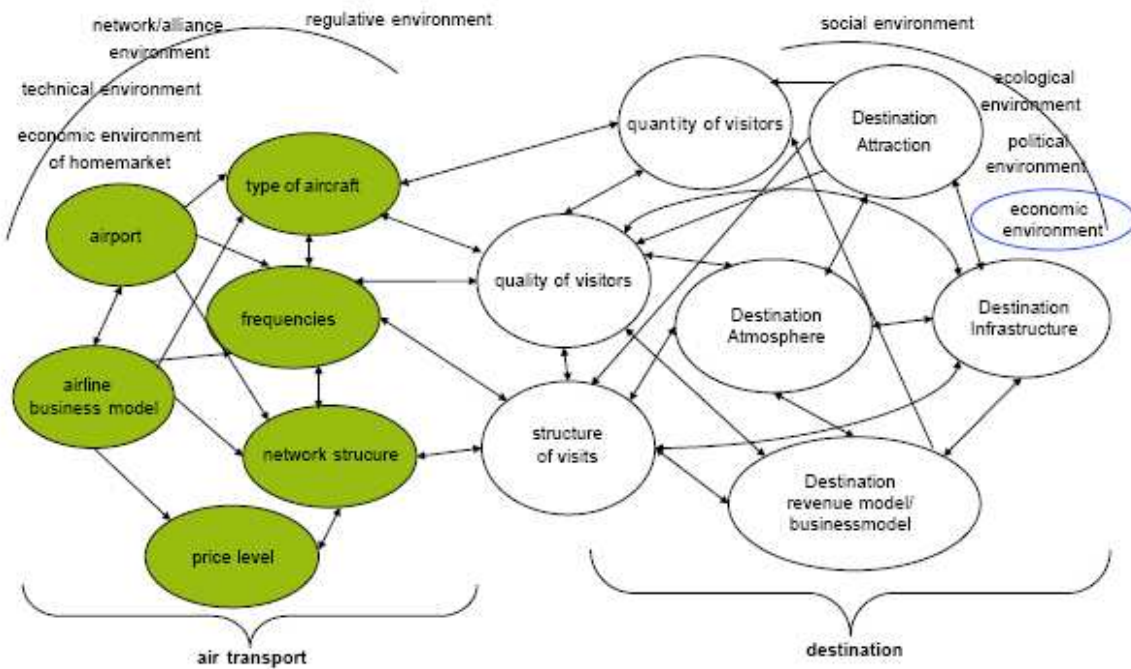


Fig. 4. System model of air transport and tourism.

Figure 7 Bieger and Wittmer (2005), Systems model of air transport and tourism.

Shevchenko and Shevchenko (2005) used a systems map to illustrate the players, their relationship and flow of products and payments in an eHUB for B2B collaboration, figure 8.

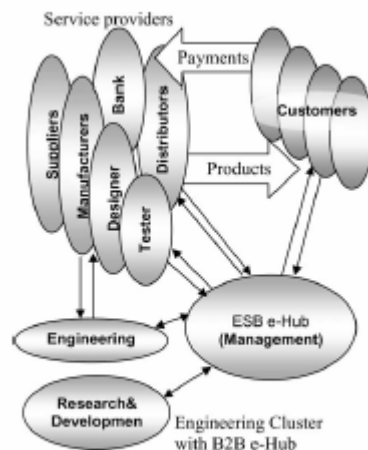
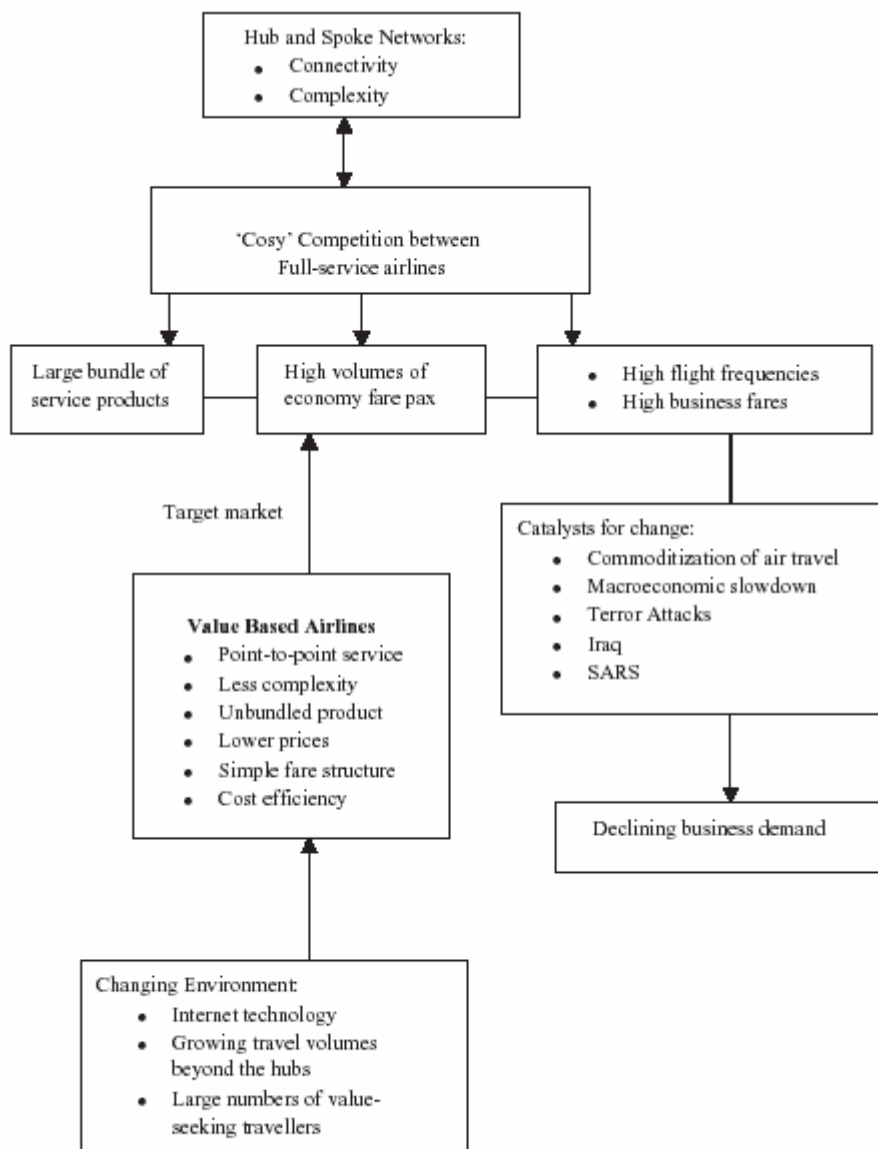


Fig. 2. A structure of the engineering cluster with the eHub for B2B collaboration.

Figure 8. A systems map of the eHUB business model for B2B Collaboration Schevchenko et al (2005).

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Gillen and Morrison (2005) looked at the evolution of business strategies and network structure decision in the commercial passenger aviation industry. They highlight the link between the airline business strategies and network structures, and examine the resulting competition between different network structure business models using systems models to illustrate and describe differences. Figure 9 presents an example:



**Figure 9. Using systems thinking to mapp the business environment and drivers for Value Based Low cost Airlines vs. Hub & Spoke Full Service Airline, Gillen et al (2005).**

The approaches highlighted in this section emphasises the importance of including a systems approach to the business model work which will be undertaken within VIVACE.

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**9. COMPARATIVE METHODS USED ON BUSINESS MODELS**

To advance the use of business models as a concept, it is essential to be able to compare and perform analyses to identify the business models that may have the highest potential. For this reason, our literature review aimed to identify examples where business models had been compared and evaluated. The sections that follow present the findings of that work.

**9.1. Comparing business model elements**

The most common way of comparing business models is, as already mentioned in Section 8.1, to make a list of the elements that are of interest to compare. An example is seen in table 3.

**Table 3. Listing and comparing success factors and driving forces of different airline business models Bieger, T. Wittmer, A. (2005).**

<b>Business Model:</b>	Network/hub airlines	Regional airlines	Low-cost carriers	Charter airlines
<b>Success factor:</b>	Extensive market coverage/market share and growth (due to network effects) alliances  Ability to adopt good and homogeneous processes and quality.	Serving niches. Flexible cooperation with alliances. Cost efficiency.	Simple processes. Cost efficient. Strong traffic flows	Tour operation relation integration Cost effectiveness. Integrated capacity management.
<b>Driving factors at the moment:</b>	Search for markets and market share	Domination of regional markets. Search for niches	Driven by search for routes with self generating strong traffic flows	Driven by tour operators interest in markets and integration of the value chain

Another way of presenting and comparing features of a business model is shown in figure 10 where several features of conventional airlines and their low fare options are examined for compatibility and differences, Graf (2005):

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	British Airways / Go			KLM / Buzz			KLM / Basiq Air			Lufthansa / Germanwings			"Swiss in Europe"		
	identical	related	separated	identical	related	separated	identical	related	separated	identical	related	separated	identical	related	separated
Destinations served		x				x		x			x		x		
Segments addressed		x			x			x			x		x		
Branding		x			x			x			x		x		
Pricing system			x		x				x			x			x
Means of production			x		x				x			x			x
Emphasis on distribution channels			x		x				x			x			x
Organisation / staff		x			x			x			x		x		
Corporate context (Org. separation)			x		x			x			x		x		
Competences (Autonomy)			x		x			x			x		x		

Fig. 1. Comparison of the configurations of the analyzed cases.

Figure 10 Comparing conventional airline low fare business model to original business model, Graf (2005).

Franke (2004) looked at competition between network carriers and low-cost carriers, and mapped the different business models towards their service level and complexity, figure 1.

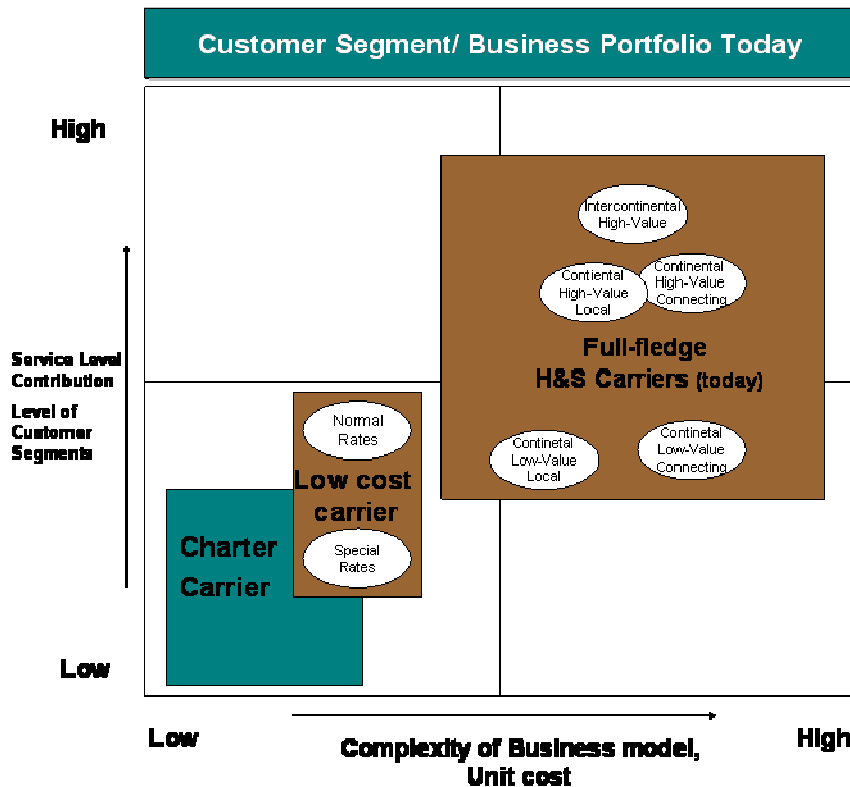


Figure 11 Mapping the different airline business models to their complexity and service level, Franke (2005).

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### 9.2. Comparing graphical systems maps of business models

Schevchenko et al (2005), as previously shown in section 8.2, have used systems maps to compare conventional supermarket business models with e-business models. The example is shown in figure 12.

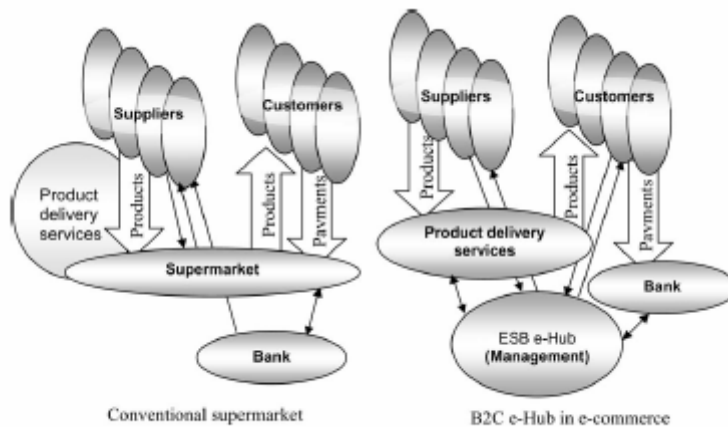


Fig. 1. Conventional supermarket and B2C e-Hub.

Figure 12 Comparing the conventional supermarket business model to the e-commerce using systems map, Schevchenko et al (2005),

### 9.3. Radar diagram

Russel (2001) uses a radar diagram to compare a business model transformation, as shown in Figure 13. This type of comparison is useful in offering a graphical representation that illustrates a change.

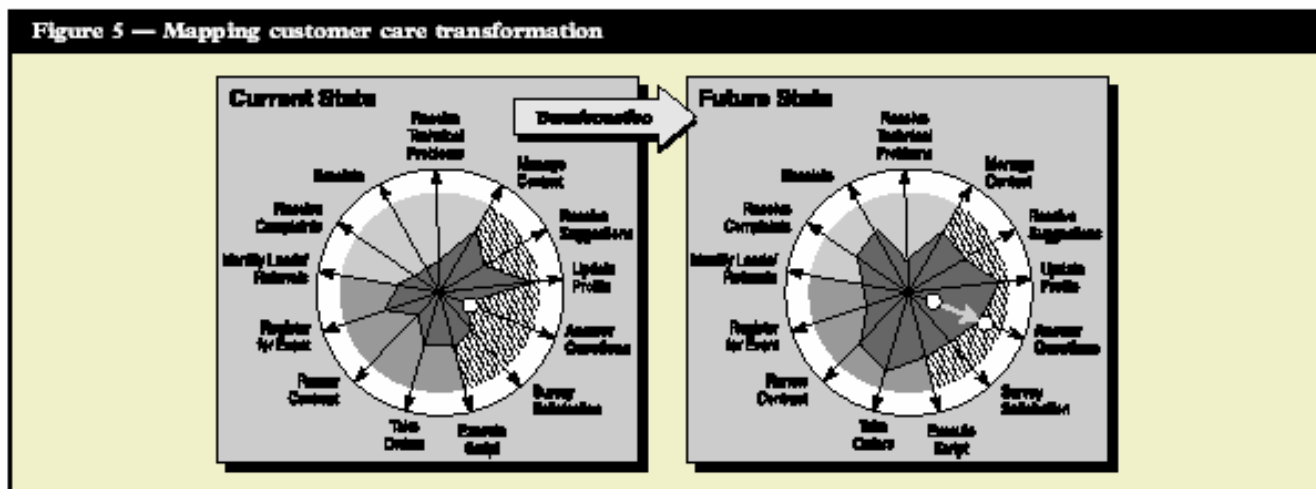


Figure 13 Radar diagram used for mapping a business model transformation [5]

9.4. Sense testing business models

Sense testing could be defined as conceptual or constructed mental frameworks that are used as filters and references to interpret cues picked up from events and objects. A systematic sense-testing tool helps in this case managers to grasp the concept of adapting and creating business model for strategic inflection. The example is from the work of Voelpel, Leibold, Tekie and Von Krogh (2005)..

Four dimensions may be investigated – 1) sensing the possibilities of new customer value propositions, 2) sensing the configuration of industry value chains 3) and or business system infrastructure, 4) sensing the sustainability of the potential reinvented business model. In figure 14, a sense testing model is shown where arrows indicate the direction of possibility:

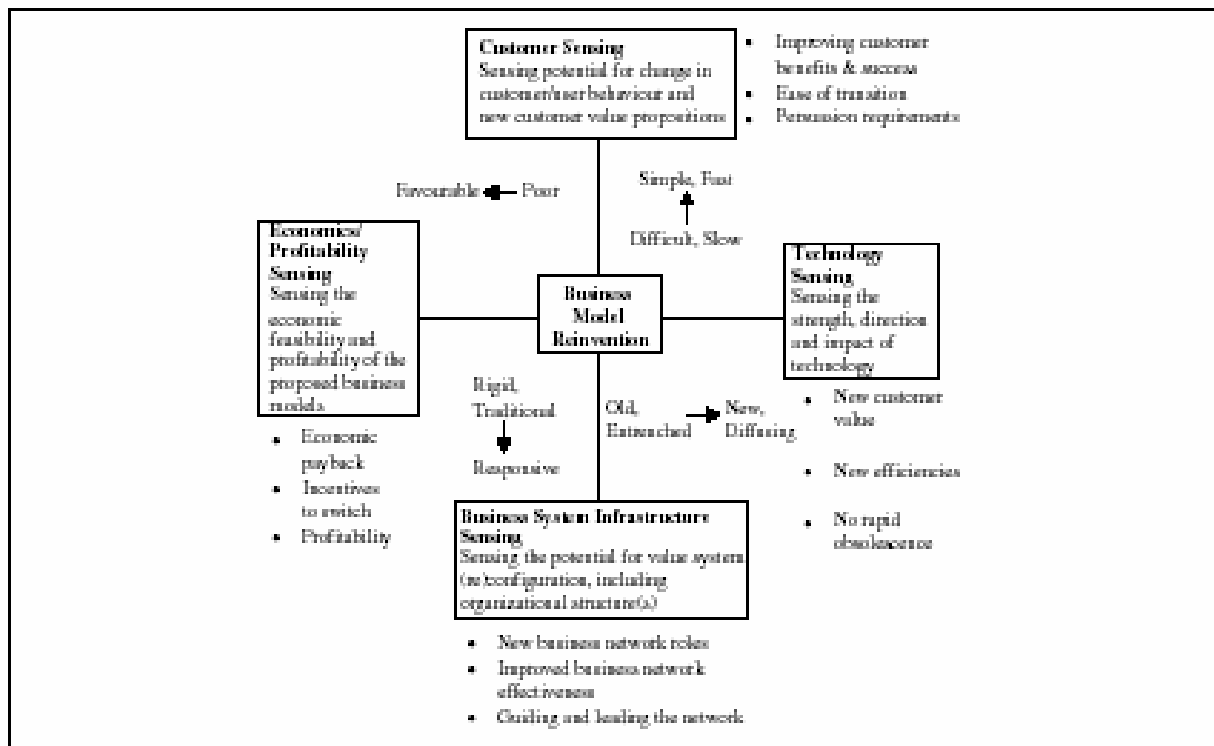


Figure 14. Sense testing map, Voelpel et al (2005).

The creative tools which have been discussed in section enable systems thinking by providing a framework that can be used to structure mental models and capture knowledge to be incorporated, and thereby creating the *big picture* required for business model analysis

## **10. ADDITIONAL METHODS USED IN STRATEGIC DEVELOPMENT**

### **10.1. Force Field analysis**

Force Field Analysis is a technique where you look at all the forces for and against a decision. It is a method for weighing pros and cons . Force field analysis is further describes in the Mind Tools internet site [17].

To carry out a force field analysis, the following steps are followed:

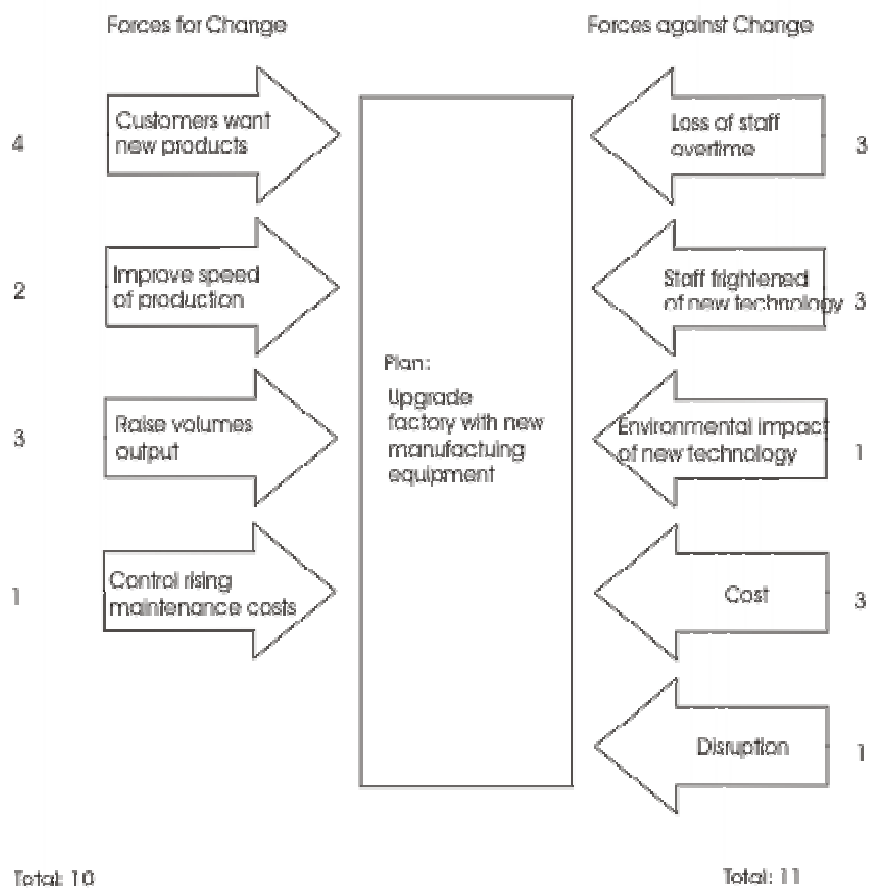
- List all forces for change in one column, and all forces against change in another column.
- Assign a score to each force, from 1 (weak) to 5 (strong).
- Draw a diagram showing the forces for and against change. Show the size of each force as a number next to it. (Some methods vary the size of the arrow, to indicate the significance of each force.)

An example of a graphical representation of a force field analysis can be seen in figure 15:



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**Figure 1**  
**Force Field Analysis Example**



**Figure 15** Example of the Force Field methodology applied when evaluating if a factory should be upgraded with new manufacturing equipment, Mind Tools (2006).

## 10.2. Uniqueness and the Business Model

The unique selling point (also referred to as a unique selling proposition) is an important component of many business models. While it is possible to offer a product or service that can be obtained elsewhere, this limits the ability of the business to differentiate itself from rivals. At best, it allows a share of the market to be captured; at worst it leads to price-based competition for market share, and all participants suffer. Furthermore, without a unique selling point there is no guarantee that new entrants will not enter the competition. Thus, a business model must take some account of the presence (or potential presence) of competitors – if any. Kotler (1997) identifies a range of industry structure types, each with a different form of competition and hence differentiation:

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- Pure monopoly: a single business provides the product or service in a certain country or area. This may come about as a result of regulation, licence, patent, economies of scale, etc. Under the pure monopoly there is little incentive to offer good service, since the customer has no choice. Only regulation or the threat of the loss of monopoly status will motivate the monopoly to become more competitive.
- Oligopoly: an industry in which a small number of large businesses dominate the market. In a pure oligopoly, the product is effectively commoditised (eg. steel, oil); there is little to differentiate one product from another. Service may still become a basis for competition. In a *differentiated oligopoly*, the rival businesses are able to provide product features that differentiate their offerings in terms of quality, features, styling, performance and service. This might be said to be the present-day business environment for aero engine systems and services.
- Monopolistic competition: an industry where there are many competitors, each able to differentiate their offerings to some degree, in the manner of a restaurant. The focus is increasingly upon meeting the needs of a niche market.
- Pure competition: a state in which there are many rival businesses, effectively unable to differentiate their offerings. Since only price-based competition is possible, prices tend towards a common, low level. Only economies in production or distribution can lead to a greater profit margin.

It can be seen that the business model a company chooses is to some degree, dictated by the nature of the market in which it is to operate, and the level of competition that exists. The uniqueness in an offering can be genuine (closely-guarded technical expertise, or a monopoly supported by legislation) or it may exist purely in the perception of the customer, encouraging them to have a preference between offerings despite the fact that they do the same job. Establishing, communicating and defending the uniqueness of an offering will naturally involve a cost, and should yield benefits in the form of increased revenue. As such, strategies relating to the unique selling point should be expressed within the business model.

## **11. BUSINESS MODEL DEVELOPMENT AND INNOVATION**

Mitchel and Bruckner (2004) indicates that there might be a great potential in defining a process for achieving business model innovation but very few companies see and uses this potential.

They define a business model improvement as any successful change in a business model element (who, what, when, why, how and how much) that substantially enhance ongoing sales, earnings and cash flow advantages versus competitors and what customers can supply for themselves.

It is important to understand that just matching what others already do is not an improvement, merely a business model 'catch-up'. What is referred to as *continuing*

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*business model innovation* is the ongoing management process of developing and introducing improvements and replacements.

At least the following four dimensions are required to operate simultaneously to achieve a business model innovation process:

- Understand and optimally apply the current business model.
- Establish, understand and follow an appropriate business model innovation vision
- Ongoing design and testing of potential business model improvements, replacements and innovations
- Understand and begin installing the next business model improvement or replacement.

It is important that, as a result of this process, the company simultaneously describes more than one future generation of innovation. The company should be prepared to face different future environments and demands.

Business model innovation is weak in industry today, since few companies have a clear view of even the first dimension; what is a business model and what is their present-day business model (as discussed in Chapters 2-5).

In addition to understanding the business model Michell and Coles (2005) [2] found several areas where a company could develop to enhance business model innovation:

Companies working in organisational silos where marketing, product development and manufacturing managers had little to do with one another had were slow and inefficient in introducing new products to market.

Also the lack of validation of ideas with customers and end users has seen detrimental to the success of new business offers/models.

Volelpe, Leibold, Tekie and von Krogh (2005) [9] found the following to be of great importance when new business models emerge:

- New business models often arise in entrepreneurial entities or ventures.
- They disruptively change the way of doing business.
- They are guided by visionary leadership. They possess an open enterprise mindset, since fresh ideas often come from external sources.
- They are hard to imitate.

Business model change opportunities emerge only very seldom and sometimes only once during the lifetime of an organisation. Significant in new business models is their ability to offer new customer value. Developing the capabilities for sense testing will increase the company's ability in business model thinking and adaptation.

The literature confirms our own present understanding in the VIVACE work that business model development requires a common language and understanding

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around the present business models in order to further develop them. For this reason the jet engine industry will be mapped and discussed in a later VIVACE deliverable.

**11.1. Strategic questions to enhance business model development**

Mitchel and Coles (2004) lists a set of strategic questions that may enhance the business model development. First you need to understand your present business model you need to start defining your business model innovation vision. The four strategic questions are:

- Whose needs can you serve in order to be first with the new business model?
- Where does being first provide the most initial advantage?
- Where does being first provide the most potential long-term advantage?
- How large can you become by serving this first need?

After developing ideas on possible changes to the present business model the next step is to start sharing and testing your vision to see if it is understood. Mitchel and Cole (2005) indicate that early small scale presentation, review and evaluation of your vision with potential customers is one of the more valuable activities.

**11.2. Key Business Model innovation process Characteristics**

The following behaviours have been found beneficial to the business model innovation process Mitchel et al (2005).

The company has established ongoing business model innovation as a primary task of the organisation including company.

The company accurately focuses on where valuable competitive advantages can be developed – has a “core insight”

Employees, partners, suppliers, distributors, customers, end users and potential stakeholders are encouraged to propose and deliver business model innovation.

The company regularly produces large number of inexpensive, low risk experiments to test out the potential of possible business model innovations.

The company’s most talented leaders focus their attention on developing and implementing business model improvements and replacements.

The increased cash flow and profits from business model improvements and replacements are first allocated to expanding and strengthening business model innovation before any sharing occurs with stakeholders.

The available cash flow and profits beyond what is needed for continuing business model innovation are shared fairly among all stakeholders. (This includes a regular bonus to workers when feasible.)

### **11.3. Difficulties associated with new business model creation**

When taking on the task of innovation or business model improvement it is important to be aware of common problems associated with the creation and use of business models. Shafer, Smith and Linder (2005) [7] indicates that there are four common problems:

- Flawed assumptions underlying the core logic.
- Limitations in the strategic choice considered.
- Misunderstanding about value creation and value capture.
- Flawed assumptions about the value network.

This indicates that it is important to spend sufficient time understanding and describing the present business before starting to develop the one for the future.

## **12. CONCLUSIONS AND RECOMMENDATIONS**

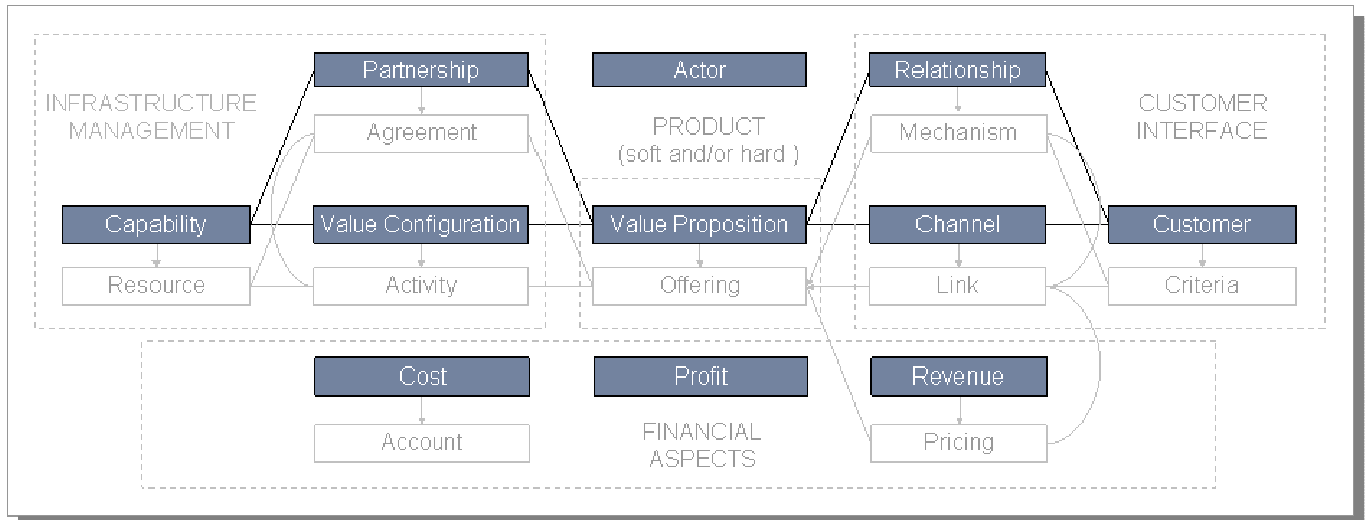
As indicated by Shafer, Smith and Linder (2005) [7] it is important before starting to develop a new business model that we spend time understanding the present business model or should we say business models since we are interested in understanding the aero engine value chain.

First we would like to have a systems map of a business model concept to use when communicating about business models within our work group and companies. The proposal is to use the systems map based on the Osterwalder (2004) Business model Ontology. It is proposed that we map each actor in the aero engine value chain at a sufficient but fairly high level. This work will serve as a starting point for the identification of subject areas that merit closer study.

Figure 16 shows the business model framework, adapted from Osterwalder (2005), without any major changes.

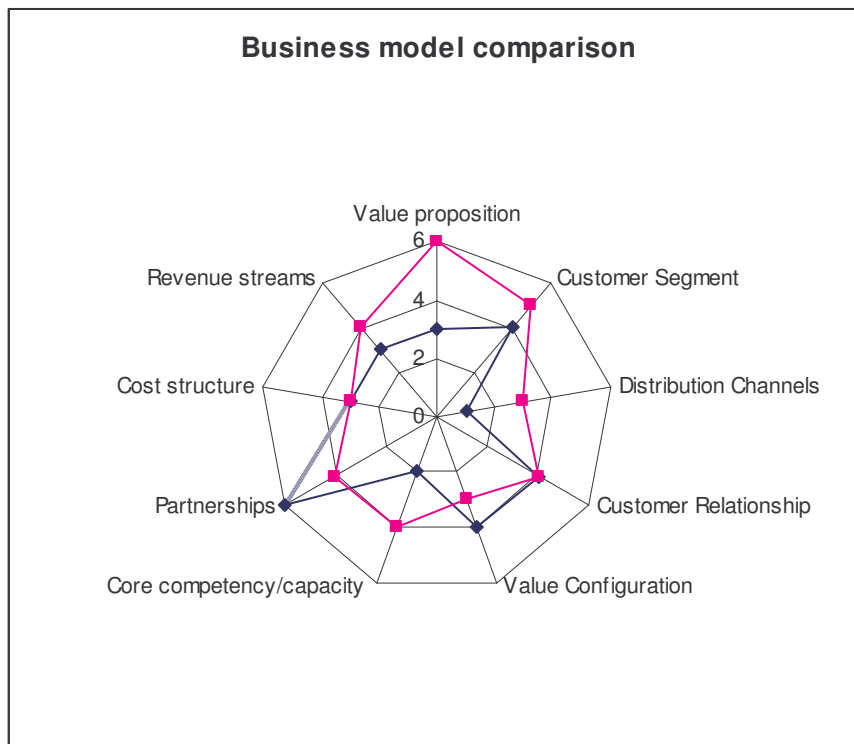
This approach takes particular account of the context of an aerospace manufacturing business; specifically that the presence of an extended enterprise, and the need for models that share the development cost and risk, while preserving intellectual property and guaranteeing revenue streams over an unusually long payback period. The business models of few other industries need to take into account an obligation to support a product for three decades, nor the necessity of waiting for perhaps a decade before profit appears, following the sale of a piece of equipment.

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**Figure 16 Proposed Business model systems map and elements to use for next step in VIVACE, Osterwalder (2004).**

In addition to the adoption of a framework adapted from Osterwalder (2004) we would like to be able to compare alternative business models, initially using a qualitative approach. We would also like to use a systems map to discuss and explore areas of interest for development in the aero engine industry business model, including its supply chain. Figure 17 presents an example, showing how the differences between a pair of proposed business models might be seen at a glance.



**Figure 17 Proposed methodology to illustrate business model feature differences along aero engine value chain.**

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In three months (M30), two more deliverables relating to Task 2.1.2 will be completed. D2.1.1\_2 is a study led by Rolls-Royce that will focus upon present-day and emerging business models for the product and service offerings in the civil aero engine sector, addressing issues such as risk sharing within the extended enterprise under a TotalCare business proposition. D2.1.1\_3, from the University of Nottingham, will review business models from other industries, using the methods identified within this document, and their potential for adaptation for use within an aerospace context will be discussed. Thereafter, the models derived will be subjected to testing, with the results from two models being detailed in Months 36 and 42 respectively.

**12.1. Proposals for further work**

To move the work further it is also proposed to map the different players in the value chain to evaluate their different business models and their compatibility. Changes have been made to the aero engine suppliers' business models over the past five years, as the value proposition to the customer evolved. TotalCare from Rolls-Royce is an example. In addition the revenue streams have also changed, and revenue has increasingly been linked to aero engine utilisation. This has not been reflected back to the supply chain, and this is an area that will need to be further explored.

Further steps it is proposed to investigate if it is possible to move the evaluation of business model to a more quantitative level to determine the potential profitability of a business model linking the work to the value chain modelling being performed by UNOTT within Task 2.1.1, to be reported at M30.

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- Appendix 1. Business model building blocks as described by Osterwalder (2004).

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<b>Pillar</b>	<b>Business Model Building block</b>	<b>Description</b>
<b>Product</b>	<b>Value proposition</b>	<b>Gives an over all view of a companies bundles of products and services</b>
<b>Customer interface</b>	<b>Customer Segment</b>	<b>Describes the segments of customers a company wants to offer value to</b>
	<b>Distribution Channels</b>	<b>Describes the various means the company is getting in touch and delivering value to the customer</b>
	<b>Customer Relationship</b>	<b>Explains the kind of links a company establishes between itself and its different customer segments</b>
<b>Infrastructure Management</b>	<b>Value Configuration</b>	<b>Describes the arrangement of activities and resources</b>
	<b>Core competency/capacity</b>	<b>Outlines the competencies necessary to execute the company's business model</b>
	<b>Partnerships</b>	<b>Portrays the network of cooperative agreements with other companies necessary to efficiently offer and commercialise value</b>
<b>Financial aspects</b>	<b>Cost structure</b>	<b>Sums up the monetary consequences of the means employed in the business model</b>
	<b>Revenue streams</b>	<b>Describes the way a company makes money through a variety of revenue flows</b>