

Webstrategy Formulation: benefiting from web 2.0 concepts to deliver business values

Senoaji Wijaya

Institute of Information and Computing Sciences, Utrecht University, The Netherlands

Marco R. Spruit

Institute of Information and Computing Sciences, Utrecht University, The Netherlands

Wim J. Scheper

Strategy, Finance, and Operations, Deloitte Consulting, The Netherlands

Institute of Information and Computing Sciences, Utrecht University, The Netherlands

Abstract

With the accelerating growth of internet users, an increasingly rising level of globalization, distributed work environments, knowledge-based economies, and collaborative business models, it becomes clear that there is currently a high and growing number of organizations that demand a proper webstrategy. The emergence of web 2.0 technologies has led many internet companies, such as Google, Amazon, Wikipedia, and Facebook, to successfully adjust their webstrategy by adopting web 2.0 concepts to sustain their competitive advantage and reach their objectives. This has raised an interest for more traditional organizations to benefit from web 2.0 concepts in order to enhance their competitive advantage. This chapter discusses the effective webstrategy formulation based on the web 2.0 concepts in (O'Reilly 2005) and the differing requirements, characteristics, and objectives in different types of organizations. This research categorizes organizations into Customer Intimacy, Operational Excellence, and Product Leadership, according to the Value Disciplines model in (Treacy and Wiersema 1993).

Keywords: web 2.0, webstrategy, framework, mass collaboration, globalization, business model, value disciplines

1 Introduction

The growth of internet usage has been increasing tremendously in the past years. Illustratively, Internet World Stats (2007) reports that there are approximately 1.25 billion internet users in the world., 210.5 million internet users in the United States, 493.1 million internet users within European Union countries, and 459.5 million internet users in Asia. Also, a significant number (73.3%) of the entire population in the Netherlands makes use of internet technology. These statistics show the importance of the internet which connects billions of people, that there is a big potential market in there (the internet community itself) and is one of the triggers of the emergence of internet businesses nowadays. This accelerating growth shows the opportunity to enhance one's businesses through a good web-strategy.

Many new internet companies have been developed in recent years. Some are really successful, while others are still struggling to attract users by providing their unique selling points. Most of the successful internet companies tend to build and grow a web community. The increasing importance of business communities confirms that there is a shift in business models from a traditional hierarchical system and competition into more collaboration and social networking, which are considered to be two of the most important web 2.0 concepts (Benkler 2006, Chesbrough 2006, Tapscott and Williams 2006).

Web 2.0 is defined as "the philosophy of mutually maximizing collective intelligence and added values for each participant by formalized and dynamic information sharing and creation" (Hoegg et al. 2006: page 13). Web 2.0 revolves around seven key concepts introduced by O'Reilly (2005), which are intensively used in this chapter. Next to web 2.0 concepts, the term "web 2.0 features" is also used occasionally in this chapter. While the concepts can be referred to as high level web 2.0 principles, the features are referred as web 2.0 technologies or functionalities in the context of this work. Examples of web 2.0 features are wikis, weblogs, user ratings, RSS feeds, and podcasting. The seven web 2.0 key concepts are discussed in section 5.

Many practitioners are currently debating and exploring the subject of web 2.0 and its implications for all kinds of reasons. An interesting and currently much highlighted prospect for web 2.0 is to aid organizations to enhance their businesses by sustaining their competitive advantage (Gilchrist 2007). Web 2.0 has been successfully adopted by many of the successful internet companies, such as YouTube, Amazon, Wikipedia, and Facebook. They are able to grow and maintain their big web communities by applying web 2.0 concepts in their webstrategy (O'Reilly 2005). Therefore, the following research question arises: "*how can more traditional organizations benefit from web 2.0 concepts?*".

This chapter investigates this research question regarding the formulation of webstrategy benefiting from web 2.0 on any type of organization. The next section elaborates on the business IT alignment to show the importance of IT role and its

alignment in the business to create values. Section 3 explains the organizational development to globalization and a knowledge-based economy, which includes the significance of information and knowledge for value creation in this twenty-first century. In response to this, the business model adaptation is necessary. The collaborative business model is introduced in section 4, where the need of peer-production and knowledge sharing is discussed. Then, the webstrategy framework's composition and its operation in effective webstrategy formulation are explained in section 5. Finally in section 6, conclusions are presented.

2 Business IT Alignment

Ever since the emergence of Information Technologies (IT), organizations have been having difficulties in finding evidence of tangible assets that are delivered by IT to the organization's performance (Brynjolfsson and Hitt 2000). Research findings over past decades indicate that there is inconsistent evidence that IT leads to significant increases in productivity (Brynjolfsson 1993). For example, Bordoloi et al. (1998, 2000), Cook (1999), and Kauffman (1989) show that an increased IT investment results in lack of productivity. Explanations for these research findings include management failure to leverage IT's potential (Dos Santos and Sussman 2000), ineffective implementation (Dehning and Stratopoulos 2000), incomplete measurement of performance (Bharadwaj et al. 1999), and the presence of a time lag between IT investments and performance effects (Barua et al. 1995, Patnayakuni et al. 1996).

Nonetheless, it is believed that IT with its relation to other business dimensions helps to sustain and enhance performance, as well as augment a firm's competitive advantage. In search for the solutions of this IT productivity paradox, Schepher (2002) developed the Business IT Alignment (BITA) model. This model, states that:

- The business domain contains more dimensions than just strategy and organizational processes. Those dimensions are Strategy & Policy, Organization & Processes, Information Technology, Monitoring & Control, and People & Culture.
- Business IT alignment is about multi-dimensional alignment and adaptation
- A model should contain elements that are measurable as performance indicators

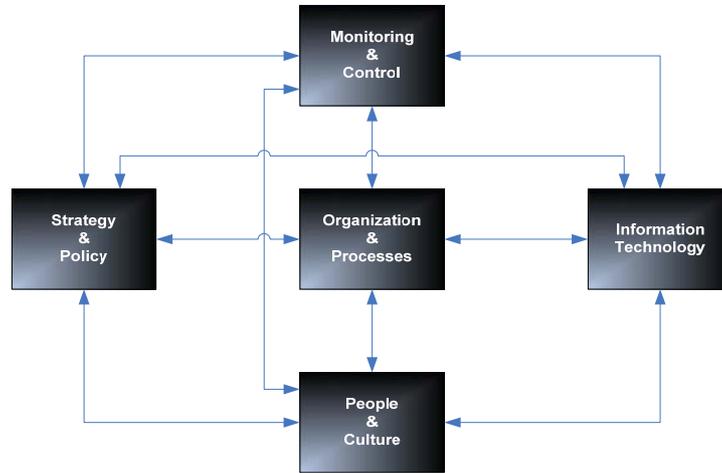


Fig. 2.1 The Business IT Alignment Model (Scheper 2002)

The hypothesis states that the maturities of all business dimensions are equally measured and the multi-dimensional balance between business maturities is basically measured by a factor called (business-IT) alignment. Then it is expected that organizations with higher alignment scores significantly outperform their competitors and improve their performance over time (Beukers et al. 2005, Scheper 2002). Scheper (2002) has confirmed this hypothesis by conducting a benchmark study over 265 organizations in The Netherlands. The result is supported by Batenburg and Versendaal (2004, 2006), who emphasize that the performance of an organization is positively related to the maturity of all dimensions and the alignment of these five maturities. Furthermore, the deployment of new IT systems is often a trigger for improving the business (Peppard and Ward 1999, 2003).

3 Organizational Developments

Organizations nowadays have to adapt to and deal with fast-paced changes in order to effectively continue pursuing their business objectives. In order to do so, effective and efficient information flows within and from the environment into the organization is required. This is supported by Harris (2002) who asserts that organizational and communicative processes involve ongoing changes in order to organize activities. This specifically counts for organizations operating in this twenty-first-century business environment. The fast-changing pace of today's dynamic environment pressures organizations to adapt to these changes by reconsidering its structures, processes, and relationships with its clients, competitors, and

partners. This implicates that organizational and communicative processes need to be adapted as well (Gallois et al. 2004).

Notable changes that have been identified up until now, and which are deeply connected to web 2.0 concepts, include the following observations:

- Globalization is continuously rising. More and more, organizations need to be able to operate in an increasingly complex environment (Chesbrough 2006, Daft 2004, Tapscott and Williams 2006)
- The movement towards a distributed work environment is greater than ever before (Brown et al. 2001, Dennis and Kinney 1998, Kakihara and Sorenson 2002)
- There is a shift towards a knowledge-based economy in which knowledge and information are the primary sources of value creation (Jashapara 2004, Nurmi 1998)

These continuous changes drive organizations to adapt their business model whenever necessary. The globalization, the movement towards a distributed work environment, and the shift towards a knowledge-based economy in which knowledge and information are considered to be the most important aspects of an organization's capital, have tickled the interests of many researchers and practitioners on the benefit and implementation of web 2.0 concepts in every type of organizational context.

3.1 Globalization and Distributed Work Environment

Recent technological advances, such as the emergence of the internet and other computer networks that connect billions of people, have pushed organizations toward the globalization era and enabled them to operate in an increasingly complex working environment. They are now able to provide their products and services to one global market. In order to outperform their competitors, organizations should think globally and work collaboratively with their chain partners (Tapscott and Williams 2006). This means that the environment and the work for organizations are becoming more complex and require greater coordination and interaction (Gallois et al. 2004). Thus, the right processes and structures to gain maximum benefits while minimizing the disadvantages are desired (Daft 2004). These processes and structures are more likely organized in a flat design and consist of employees that are highly empowered and involved in the business activities.

Using advanced technologies which support globalization and the increasing necessity, individuals and organizations are more willing and have more abilities to be mobile. This mobility development influences not only organizations but also the entire society (Kakihara and Sorenson 2002), and is supported with the emergence of advanced information and communication technologies which have

enabled organization's employees to work together while being spatially and temporally decoupled from one another (Garud et al. 1999). From this point, employees and organizations are required to develop the 24x7 and flexible work culture, which means that the employees can work and collaborate at any time and from anywhere, and therefore, the right set of IT resources are needed. One of the effective solutions is by having the web as a single universal platform that ties everything together and that is accessible at anytime from anywhere. As a result, the changes in the organization's requirements to maintain a high level of communication are inevitable (Nurmi 1998). Web 2.0 concepts, as one of the IT resources, can be employed to help enable such an organizational environment.

3.2 Knowledge-Based Theory of the Firm

Knowledge is considered to be a special strategic resource that does not depreciate in the way traditional economic productive factors do. This kind of resource is intangible and dynamic (Bontis and Curado 2006). The Resource-Based View (RBV) of the firm has been introduced as a theory that examines the resources and capabilities necessary to generate above-normal rates of return and sustainable competitive advantage (Oliver 1997). Barney (1991) argues that the resources leading to competitive advantage must be scarce, valuable, durable, and difficult to imitate. The origin of all tangible resources lies outside the organization, therefore, the competitive advantage of an organization will most likely come from the intangible organization-specific knowledge that allows it to uniquely add value to the resources, procured from outside (Spender 1996).

Knowledge-Based Theory of the firm is an extension of the RBV of the firm, which provides a strong theoretical underpinning for the organization learning and intellectual capital researchers. This theory suggests that knowledge-based resources or intangible assets are the most important assets for realizing competitive advantages (Grant 1996).

3.3 Knowledge-Based Economy

Drucker (1992) defines a knowledge-based economy as an economical situation in which information and knowledge are largely recognized as important capitals of the industries. This new economy is also recognized as the information economy (Benkler 2006). The shift from post-industrial economy to this new economy can already be seen in this global market that requires organizations to adapt knowledge and organizational capabilities in their long-term strategies (Grant 1996). Organizations might choose market mechanisms to coordinate production and services rather than hierarchical governance (Penz and Sinkovics

2005, Williamson 1979). Moreover, in this economy, the development of information and communication technologies has taken a huge leap. Information is digitized and the revolution of communication technologies has led to many developments where knowledge is captured, organized, stored, shared and evaluated. Knowledge is considered an increasingly important source of wealth creation and competitive advantage for organizations (Chesbrough 2006, Donaldson 2001, Tapscott and Williams 2006). From this perspective, it should come as no surprise that knowledge-intensive organizations continue to emerge ever more frequently.

3.4 Web 2.0 Implications

The organizational development and new economy have been discussed in the previous sections. These facts have tickled our curiosity on how web 2.0 concepts can serve organizations in this knowledge economy and globalization era. In this era organizations require to accommodate the increasing needs of collaborative efforts, because coordination of their activities eventually determine their own success. The web 2.0 in itself emphasizes on user collaboration and participation, as well as using the web as a single universal platform to facilitate the organization's activities that enable collaboration at anytime from anywhere (O'Reilly 2005). Thus, an effective web 2.0 solution may help organizations to provide these needs.

4 The Business Model

A business model is a method of doing business by which a company can sustain itself and generate revenue (Rappa 2005). However, Hoegg et al. (2006) argue that this definition does not provide insights into the components of business models and, thus, does not provide a foundation for a systematical analysis of the activities of an organization. According to Timmers (1998), a business model is an architecture for the products, services and information flows, including a description of various business actors and their roles, a description of the potential benefits for the various business actor, and a description of the sources of revenues.

Chesbrough (2006) supports this definition by describing a business model as a useful framework to link and convert ideas and technologies into economic values. He asserts that every company of any size has a business model, whether that model is articulated or not. Alongside other things, a business model performs two important functions: *value creation* and *value capture* (Chesbrough 2003, 2006). Value creation is performed by defining a series of various activities throughout which values are created. The organization, then, develops the model of the products and/or services based on the values that are captured from a portion of these activities.

4.1 Business Model Adaptation

In order to thrive in this twenty-first century with its globalization and knowledge-based economy, the value creation and value capturing activities (generally the business model) of the organizations are required to be adapted and improved (Chesbrough 2006).

A business model not only has to be developed, but it also has to be managed and improved overtime. However, the activities of managing and improving a business model are considered risky and uncertain, especially when a business model has been around for decades within an organization. This is due to the fact that changes made in the business model may lead to additional risks. Nevertheless, there are leading organizations that have been able to foster change in their business models. This is usually done by responding to major shifts in the markets or by benchmarking the best practices of successful competitors (Chesbrough 2006). Thus, business model improvement or adaptation is proven possible, yet, how and where to improve their business models should be studied and discovered further according to their particular situation.

4.2 Collaborative Business Model

When we hear the word “collaboration”, some of us might think of the image where several individuals sitting together, having a good discussion and working together to achieve their objectives. However, collaboration in the current context means something significantly different. This type of collaboration aims at harnessing collective intelligence through peer-production, in a more effective and efficient way than ever before (Tapscott and Williams 2006). This peer-production concept is starting to displace the traditional corporation hierarchies as the main system of wealth creation in the economy.

The most recent business model improvement in today’s business environment is to involve key suppliers and customers in the value creation and value capturing activities as the business partners of the organization, entering into a relationship where both technical and business risks are shared (Batenburg and Rutten 2003, Chesbrough 2006). This improvement is shifting the economy from the industrial information economy, which typified information production since about two decades ago until recently, into a “networked information economy” (Benkler 2006). The remarkable characteristic of a networked information economy is that decentralized individual action, carried out through participation, plays a much more important role than it ever did in the industrial information economy. This has led to the facts that many of the resources for effective information production and communication are now owned by and available to much bigger communities and provide more possibilities of mass collaboration than they were and ever did be-

fore (Benkler 2006, Tapscott and Williams 2006). The individual freedom to cooperate with the others in creating economic value is no longer limited to certain geographical area and timeframe.

Furthermore, the collaborative business model is characterized by the following: (Benkler 2006)

- Nonproprietary information is becoming more common and important in the information production.
- The use of continuously expanding computer network that connects billions of people from everywhere, which provides a platform where the aggregate effect of individual action produces the coordinate effect of a new and rich information environment.
- The rise of the effective and large scale cooperative peer-production of information, knowledge and culture.

These characteristics fit very well with the characteristic of the open business model that is described by Chesbrough (2006). Being “open” means that the organizations require to open up their business models to let more external ideas and technology flow in from outside the organization and allow more internal information and knowledge to flow from the organization. By using external ideas in their own business and letting other organizations use their ideas, the growth of innovation becomes faster than ever with lower cost and shared risks. This is also supported by the new competitive concepts such as openness, peering, sharing, and acting globally (Tapscott and Williams 2006).

In this age of collaboration, communities of individuals and small producers are allowed to cocreate products, share their views and information in many ways. Communication and collaboration patterns, as well as information consumption and production are reshaped (Hoegg et al. 2006, Kolbitsch and Maurer 2006). Tens of millions of people are blogging nowadays and individuals are willing to contribute to social media, such as Wikipedia, YouTube, and Flickr, or to be a part of social network communities like MySpace. Table 4.1 illustrates the accelerating number of contributors and articles in Wikipedia, the free encyclopedia, since January 2001.

Table 4.1 Contributors to Wikipedia, January 2001 – June 2005 (Benkler 2006)

	<i>Jan.</i> <i>2001</i>	<i>Jan.</i> <i>2002</i>	<i>Jan.</i> <i>2003</i>	<i>Jan.</i> <i>2004</i>	<i>July</i> <i>2004</i>	<i>June</i> <i>2005</i>
Contributors*	10	472	2,188	9,653	25,011	48,721
Active contributors**	9	212	846	3,228	8,442	16,945
Very active contributors***	0	31	190	692	1,639	3,016
No. of English language articles	25	16,000	101,000	190,000	320,000	630,000
No. of articles, all languages	25	19,000	138,000	490,000	862,000	1,600,000

* Contributed at least 10 times; ** at least 5 times in last month; *** more than 100 times in last month

The rapid growth of the number of user contributions shows that individuals are reacting positively on the shift toward collaboration. Thus, some pioneering organizations have tried to adopt the collaborative business models and successfully thrive in this networked information economy. For example, Procter & Gamble has successfully developed a program called “Connect and Develop”, which licenses in or acquires products from other companies. They also have been using the service of a web community in “InnoCentive” network where approximately one hundred and twenty thousand scientists around the world are ready to solve R&D problems with cash rewards (Tapscott and Williams 2006). InnoCentive is an open innovation marketplace that stimulates anyone from anywhere to contribute or cocreate innovations and new economic values by sharing their ideas, inventions, and knowledge (InnoCentive 2008).

5 Webstrategy

The emergence of the Internet and the World Wide Web have significantly contributed to a fundamental change in views on how economic conditions and business practices work (Penz and Sinkovics 2005). With the accelerating growth of internet users, a rise of globalization, distributed work environments, knowledge-based economies, and collaborative business models, it becomes clear that there is currently a high and growing number of organizations that demand a proper webstrategy. This demand has been increasing over time, as a high number of organizations did not even know what they were getting from the internet and how the internet would influence their business, even after launching their websites or web-enabled applications (Curry and Tetzeli 1996).

A proper webstrategy should allow the organizations to collaborate with their business partners and massive number of individuals (internally and externally), thus, assure them in gaining collective knowledge to sustain their competitive advantage and enhance their businesses. The current research aims to assist these organizations to formulate the proper webstrategy for their business industry.

5.1 Webstrategy Definition

How do we define a webstrategy? In order to define the term ‘webstrategy’, we may want to know how strategy is described. The word derives from the Greek word *stratēgos*, which derives from two words: *stratos* (army) and *ago* (leading). Wikipedia (2008) defines strategy as “*a long term plan of action designed to achieve a particular goal, most often "winning"*”. Another definition is quoted from The American Heritage Dictionary which defines strategy as “*a plan of ac-*

tion resulting from strategy or intended to accomplish a specific goal". Moreover, James Brian Quinn in *The Strategy Process: Concepts and Contexts* indicates strategy as "the pattern or plan that integrates an organization's major goals, policies, and action sequences into a cohesive whole".

Strategy is applicable on different scopes and environments, such as war, business, marketing, and even in the web environment. From the strategy definitions mentioned above, we define webstrategy within the context of this research as "The plan of action, involving important elements, revolving around a web environment with regard to web 2.0 concepts, designed and implemented in order to achieve organization's business goals". The important elements include:

- Goal (Ohmae 1982, Porter 1980)
- Clients (Haggie and Kingston 2003, Ohmae 1982)
- Products (Haggie and Kingston 2003)
- Time (Haggie and Kingston 2003)
- Resources (Haggie and Kingston 2003, Porter 1980)
- Tools/channels (Haggie and Kingston 2003, Porter 1980)

5.2 Webstrategy Formulation

We believe that the different types of organizations with differing requirements, characteristics, and objectives require a different webstrategy. Therefore, an effective webstrategy formulation is necessary to be performed. In the next sections, we categorize the organizations, and present our webstrategy framework including the key supporting tools. This framework is meant to assist in formulating a good webstrategy according to the organization type and the important elements involved.

5.2.1 Organization Typology

Organizations can be classified into several categories. Many organization typologies have been introduced over the years, such as beneficiary approach (Blau and Scott 1962), control and power (Etzioni 1961), technology structure (Thompson 1967), business process (Wiig 1997), organizational structures (Mintzberg 1980), and environmental approach (Jurkovich 1974). Therefore, it is important to select the appropriate organization typology. For this purpose, we have defined two main criteria:

1. The typology must have a clear distinction on the goal or strategy for each of the organization types

2. Each organization type in the typology must have strong and distinct characteristics from one another, to which web 2.0 concepts can be addressed in order to support them

Based on these criteria, the “Value Disciplines” typology introduced by Treacy and Wiersema (1993) was selected. Value Disciplines categorizes organizations into three types: Customer Intimacy, Operational Excellence, and Product Leadership. Table 5.1 provides the organization’s characteristics for each organization type (Haggie and Kingston 2003, Treacy and Wiersema 1995).

Table 5.1 The characteristics of each organization type (Haggie and Kingston 2003, Treacy and Wiersema 1995)

<i>Organization Type</i>	<i>Characteristics</i>
Customer Intimacy	<ul style="list-style-type: none"> - Build bonds with customers - Understand customers - Tailor its products and services - Customer loyalty is the greatest asset
Operational Excellence	<ul style="list-style-type: none"> - Improve operational quality - Improve efficiency - Ease of purchase - Low prices - Hassle-free services
Product Leadership	<ul style="list-style-type: none"> - Keep innovating - Creation of new knowledge - Require highly creative environment and culture - Ability to bring/commercialize new ideas to market quickly - Have state-of-the-art products or services

Treacy and Wiersema (1995) argues that there is no company today can succeed by trying to be all things to all markets. But instead, the unique value that it alone can deliver to the markets must be found and excelled. It is certainly conceivable that organizations may be associated with more than 1 value disciplines. Direct explanation on this statement is that the organizations do not abandon the other two disciplines when they choose to excel in a value discipline. These organizations only choose a dimension of value on which to stake their market reputation over the long term (Treacy and Wiersema 1995). Thus, there is only one value focus an organization would excel at in order to differentiate them from their competitors. Matching the organization’s characteristics with the list provided in table 5.1 would help to identify the organization type easily.

5.2.2 Webstrategy Framework

The differing requirements of different organization types have led us to think about how a webstrategy would be best formulated for the specific organization’s situation. In order to perform an effective webstrategy formulation and web 2.0 adoption, we have developed a webstrategy framework. The purpose of the webstrategy framework is to assess the current (as-is) webstrategy of an organization, give the direction of the desired (to-be) webstrategy of the organization, and finally provide advices regarding possible improvements and propose a new effective webstrategy. These phases are executed according to the organization’s situation and maturity revolving around the important elements of webstrategy and compared to their competitors. These important elements are goal, clients, products, time, resources, and tools/channels.

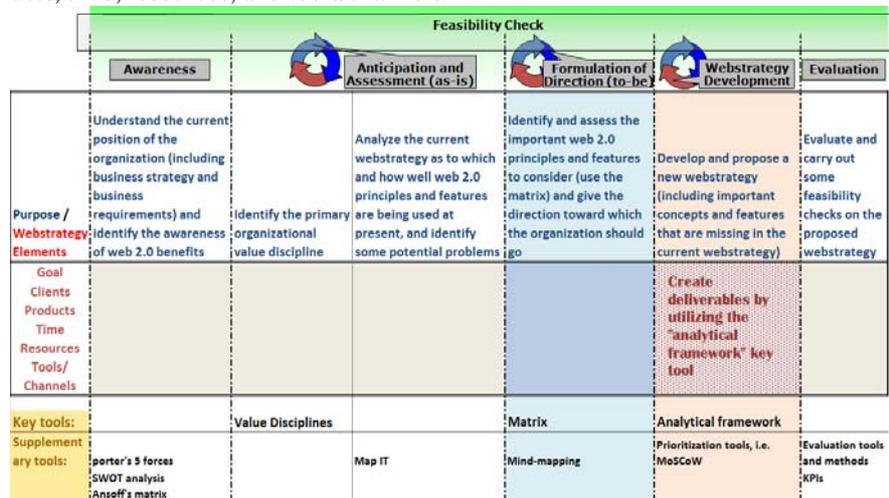


Fig. 5.1 A fragment of the Webstrategy Framework

The webstrategy framework depicted in figure 5.1 incorporates five phases, one additional activity, six webstrategy elements, key tools, and optional supplementary tools. These phases function to guide through the whole webstrategy formulation in search for a good solution. Questions, revolving around the six webstrategy elements, on each of the phases are to be asked in order to gain adequate information to formulate an effective webstrategy. Moreover, these questions should include internal and external aspects (Ohmae 1982, Porter 1980). The webstrategy formulation phases are:

- **Awareness:** In this phase, information about the current position of the organization should be gathered. This includes their business strategy, business requirements, the industry trends, as well as their awareness regarding web 2.0 benefits. The maturity of the organization compared to its competitors is also included. Some example questions which may be asked are:

- What is the goal of the organization?
 - Who are the clients of the organization?
 - Does the organization want to enhance its existing market and/or product?
 - Is the organization aware of web 2.0 benefits to enhance its businesses?
 - What are the current trends in the industry?
 - What are the major movements of the organization’s competitors?
 - What channels are mostly being used by the clients?
- **Anticipation and Assessment (as-is):** The purpose of this phase is, firstly, to categorize the type of the organization by identifying their value discipline. Secondly, the current webstrategy and as-is situation of the organization should be assessed, as to which and how well web 2.0 concepts and features are being used at present, and lastly, the potential problems should be identified. The example questions to be asked include:
 - Is the goal of the organization very hard to achieve without an excellent efficiency within its business processes?
 - Would the organization fail to survive if it did not have excellent relationships with or information about its customers?
 - Does the organization constantly require new knowledge in order to keep innovating?
 - What are the characteristics of the organization?
 - Is the current webstrategy goal aligned with the organizational goal?
 - Does the organization invite its consumers to become prosumers (consumers who produce), to be involved and collaborate or add value to their business? If so, to what extent?
 - Does the organization have GUI-style web applications with Rich Internet Application functionalities to encourage clients to use them?
 - Does the organization currently use or lease data from other organizations or providers?
 - Does the organization have any web applications that can be reached from multiple devices? If so, what applications are they?
 - **Formulation of Direction (to-be):** After gathering the information in the first two phases, based on the organization type, the desired situation is formulated toward which the organization should improve their webstrategy. This direction is provided by the “Matrix”, one of the key tools provided to support the utilization of this webstrategy framework. The development of this matrix, and the matrix itself are elaborated upon in section 5.2.2.1. Some example questions which may be asked include:
 - To what extent should the web 2.0 concepts be implemented in order to effectively obtain added value from users participation?

- In order to implement the web 2.0 features listed on the matrix successfully, what knowledge must be obtained and what changes must be performed?
- **Webstrategy Development:** In this phase, the new webstrategy is formulated and proposed to the organization. The important web 2.0 concepts and features that should be emphasized and applied in the webstrategy, but are missing or not getting enough attention in the current webstrategy, are listed. Instead of asking questions, we suggest to create deliverables according to and by using the “Analytical Framework” key tool. During the development of the webstrategy, the alignment with the organization maturity, strategy, processes, goals, capabilities, culture, products, resources, human capitals, skills, knowledge, and industry trends should be taken into consideration to develop an effective and efficient webstrategy (Batenburg and Versendaal 2004, 2006; Beukers et al. 2005; Scheper 2002). The design of the analytical framework is further elaborated in section 5.2.2.2.
- **Evaluation:** Evaluation and final feasibility checks on the proposed webstrategy are performed in the Evaluation phase. Usually this phase is executed after the new webstrategy is implemented. Questions which may be asked to evaluate the proposed webstrategy are:
 - Is the proposed webstrategy well aligned with the business strategy of the organization?
 - Does the proposed webstrategy deliver what it was intended to, and is it able to help the organization to achieve its objectives?
 - Does the proposed webstrategy adequately provide the users a platform to collaborate and add value to the organization?
 - Are the proposed changes acceptable for the organization's employees and clients?
 - Is the proposed webstrategy able to improve the advertising and marketing performance of the products?

In the webstrategy framework shown in figure 5.1, we can see the one additional activity that is performed throughout the whole webstrategy formulation process:

- **Feasibility Check:** The webstrategy framework we developed suggests that feasibility check should be performed continuously throughout the whole process. This is done in order to identify potential problems early in the process, thus, saving time from analyzing and formulating ineffective or inefficient webstrategy. Therefore, in every phase, the feasibility with respect to the following aspects should be checked:
 - Is it within the organization's budget?
 - Does the organization have adequate resources and capabilities?
 - Is it aligned with the organizational goal and the business strategy?

- Is the organization or the products mature enough?
- Does the organization have enough human capital, skills and knowledge required?
- Is it timely feasible?
- Are the employees and clients supportive toward the changes?
- Are the business requirements and web requirements positively addressed?

With the six webstrategy elements, five phases, and the feasibility check activity explained, it leaves us with the last chunk of the webstrategy framework, “tools”. The tools are categorized into two parts, which are key tools and supplementary tools. These tools are meant to be used to support the utilization of the framework. The **supplementary tools** are optional and can be used to support information gathering and the completion of particular phase. Examples of supplementary tools include Porter’s five forces, SWOT analysis, Ansoff’s matrix, Ma-pIT, Mind-mapping, MoSCoW prioritization tool, and Key Performance Indicators (KPIs). Unlike the supplementary tools, the **key tools** are strictly attached to and must be used along with the webstrategy framework.

5.2.2.1 Key Tool: The Matrix

Web 2.0 is not a single philosophy or technology, rather many that should be considered (Manafy 2006). Hoegg et al. (2006) presents the fundament of web 2.0 as collective intelligence maximization, transparency of the information creation and sharing process, and network effects. Next to these, more terms can be found in literature to denote web 2.0: social software (Bächle 2006), peer production (Schonfeld 2006), social networking communities (Breslin et al. 2004), folksonomies and shared media (Mathes 2004), and web logs (Bachnik et al. 2005, Baoill 2004, Gill 2004, Hara et al. 2005, Kumar et al. 2004). However, these terms are leaning toward higher level concepts that are enunciated by O’Reilly (2005). The seven key concepts of web 2.0 according to O’Reilly (2005) are:

1. The Web as Platform

The term “desktop” has evolved to “webtop”, where the web is used as a single universal platform that connects and accommodates organizations and individuals to have web 2.0 services. Both, web browsers and web servers turn out to be commodities, and value moved up the stack to services delivered over the web platform (Gilchrist 2007, O’Reilly 2005).

2. Harnessing Collective Intelligence

The interactive exchange of information and the continuous development and maintenance of a group opinion, which results in a commonly accepted opinion and content (Hoegg et al. 2006). An application should be able to encourage user participation and uniquely leverage the ability of the participants to improve the product or content (Baumann 2006, Manafy 2006, O’Reilly 2005).

3. **Data is the Next Intel Inside**

Knowledge is power and data is treated as a core competence. Database is valuable, growing organically in value if constructed and used correctly (Baumann 2006, O'Reilly 2005).

4. **End of the Software Release Cycle**

Software is delivered as a service rather than as a product, it must be maintained, reviewed, and improved on a daily basis. This leads to the need to treat users as co-developers, where some sites are in an almost “perpetual beta” condition (Gilchrist 2007, O'Reilly 2005).

5. **Lightweight Programming Models**

Programming models should allow for loosely coupled systems, allowing syndication rather than mere coordination (Gilchrist 2007, O'Reilly 2005). Therefore, remixability, web services, and mash-ups play an important role.

6. **Software Above the Level of a Single Device**

Software for devices other than computers (multi-channel). Applications are independent of the devices used to access them, and mobile applications are not degraded versions of what happens on the PC (Baumann 2006, Gilchrist 2007, O'Reilly 2005).

7. **Rich User Experiences**

Web 2.0 gives users an experience closer to desktop applications than traditional static web pages (Manafy 2006, O'Reilly 2005). Rich Internet Application (RIA) is important for user satisfaction by bringing desktop abilities into the web browsers.

This matrix is one of the key tools involved in the webstrategy framework, which will be used in the Formulation of Direction phase. The purpose of this matrix is to give the direction of which web 2.0 concepts an organization should focus on. Note that this matrix is not meant to develop a universal webstrategy for each organization type. Instead, its main purpose is to provide a meaningful and accountable direction. The actual webstrategy is developed based on the analysis of this direction and the information specific to the organization's situation (*see 5.2.2.2*). The direction provided in this matrix consists of the different significance and effectiveness levels of each web 2.0 key concept for an organization to sustain or even enhance its competitive advantage, depending on the type of the organization.

5.2.2.1.1 *Methodology*

The matrix was developed with two different dimensions. The characteristics of each organization type on one dimension (y-axis), and seven web 2.0 key concepts on another dimension (x-axis), where in each cell contains a numerical value between 1 – 5.

Table 5.2 Matrix composition

Organization Types and its Characteristics	Web 2.0 Key Concepts						
	1	2	3	4	5	6	7
Customer Intimacy							
- <i>Build bonds with customers</i>	c1						
- <i>Understand customers</i>	c2						
- <i>Tailor its products and services</i>	c3						
- <i>Customer loyalty is the greatest asset</i>	c4						
Operational Excellence							
- <i>Improve operational quality</i>							
- <i>Improve efficiency</i>							
- <i>Ease of purchase</i>							
- <i>Low prices</i>							
- <i>Hassle-free services</i>							
Product Leadership							
- <i>Keep innovating</i>							
- <i>Creation of new knowledge</i>							
- <i>Require highly creative environment and culture</i>							
- <i>Ability to bring/commercialize new ideas to market quickly</i>							
- <i>Have state-of-the-art products or services</i>							

In order to fill in this matrix, 12 expert interviews have been conducted with web 2.0 experts. Even though the 12 experts have various experience, specialization and industry focus, all of them have strong interest and good understanding, knowledge, and experience on web 2.0 projects. The composition of the respondents according to their job functions are as follows:

- Business Analyst: 1 respondent
- Consultant: 2 respondents
- Senior Consultant: 1 respondent
- Manager: 4 respondents
- Senior Manager: 3 respondents
- Assistant professor: 1 respondent

The duration of each expert interview was ranging between 90 and 120 minutes. During the interview, additional information was provided to ensure that the concepts being discussed were exactly and correctly understood by both the experts (interviewees) and the researcher (interviewer). During this session, the experts were required to complete this matrix by giving an importance score of each concept toward every characteristic of each organization type. The relationship between the concept and the characteristic is ‘*how important is this concept for helping the particular organization type to realize or support the corresponding char-*

acteristic?'. The score ranges between 1 – 5, where 1 indicates 'least important' and 5 is interpreted as 'extremely important'.

The analysis was performed in two ways by investigating the *averages* and the *frequencies*. The analysis on average values was performed by taking into consideration the standard deviations and potential outliers. The steps taken are:

1. The sum scores of the characteristics of each organization type per concept are calculated for every respondent. Since the number of characteristics, and thus the sum of maximum scores, of the customer intimacy organization is not the same as the other two types, therefore, the calculation is done in percentage in order to make comparable measurements among the 3 organization types, i.e. $(c1+c2+c3+c4)/(c1_{max}+c2_{max}+c3_{max}+c4_{max}) * 100$.
2. From the previous calculations, the average scores of the sum, of the 12 respondents, on each concept per organization type are calculated to draw the final result. The higher the average score, the more important the concept is.

The second analysis is focusing on the frequency. The steps taken are:

1. The average scores of the characteristics of each organization type per concept are calculated for every respondent.
2. The average scores are categorized into 1-2, 2-3, 3-4, and 4-5, and certain points are assigned to each category. The points assigned to the categories are 1 point, 2 points, 3 points, and 4 points respectively.
3. The frequency of the average scores in all categories are analyzed by calculating the points that each concept obtained on each organization type. The higher the point, the more important the concept is.

The two different analyses are performed. In order to have a reliable outcome, the results from both analyses are expected to draw the same conclusion.

5.2.2.1.2 Results

After the data collection and data analysis on the averages, taking into account the standard deviations which were relatively low (smaller than half of the mean values), are completed, the results show that concept (6) "software above the level of a single device" and (2) "harnessing collective intelligence" turned out to be the most important concepts for customer intimacy organization to sustain its competitive advantage and deliver business values. Harnessing collective ideas of what the customers really need, as well as an excellent quality of information about the customers, can be very crucial for this type of organization. These would allow the organization to understand their customers better and be able to tailor its products and services according to the customers' needs, thus improve customer loyalty. By allowing the customers to access and use their web applications from multiple devices, the harnessing collective intelligence activities will be maximized. This allows the organization to get inputs from users who would not have been able to contribute if the software was only accessible through one device.

Some experts also argue that multi-channeling, together with “rich user experiences” (7) concept such as RIA (Rich Internet Application), would improve the user-friendliness of the applications, which will lead the organization to build bonds by having more returning customers and improve customer loyalty.

Furthermore, concepts (4) “end of software release cycle” and (5) “lightweight programming models” were found to be the least important concepts when focusing on the webstrategy of customer intimacy organizations in order to deliver business values.

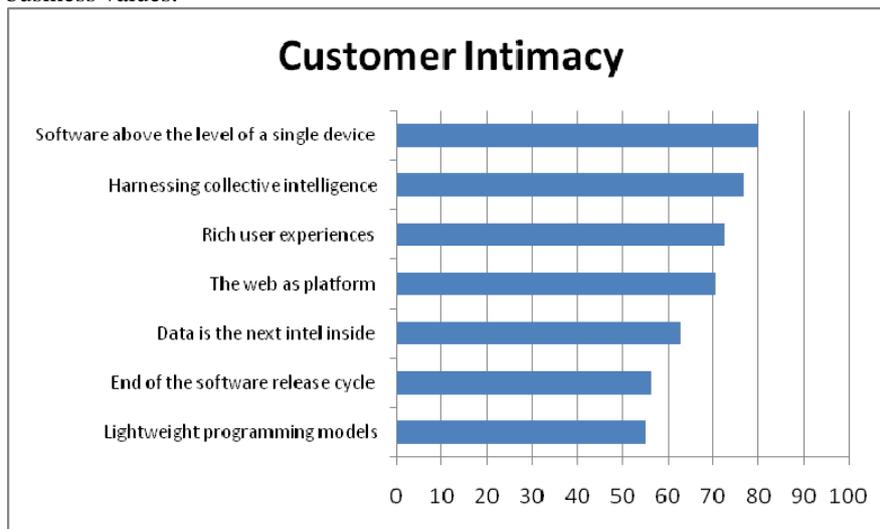


Fig. 5.2 The importance of web 2.0 concepts for customer intimacy organizations

While concept (6) “software above the level of a single device” turns out to be one of the most important web 2.0 concepts for operational excellence organizations, concept (1) “the web as platform” scores slightly higher according to the experts. The two concepts directly and significantly support all of the main characteristics of operational excellence organizations, and hence, sustain their competitive advantage. Operational quality, efficiency and hassle-free services can be improved by using the web as a single universal platform where most of the business activities take place. This excellent operational efficiency sometimes allows this type of organization to skip the middle-man in reaching its customers or to obtain other benefits, which results in low prices. The direct contact between manufacturer and the customers is mostly done on the web, this is where the “software above the level of a single device” concept becomes important. By providing more possibilities to have this type of contact (or to access the web applications) through multiple devices, the ease of purchase and hassle-free services are significantly improved. Customers who are not always sitting in front of their computers can now purchase or obtain services through their mobile phones, PDAs, or other devices from anywhere at any given time.

Furthermore, the result also shows that the five remaining web 2.0 concepts are almost equally important to be implemented in the webstrategy for the prosperity of operational excellence organizations.

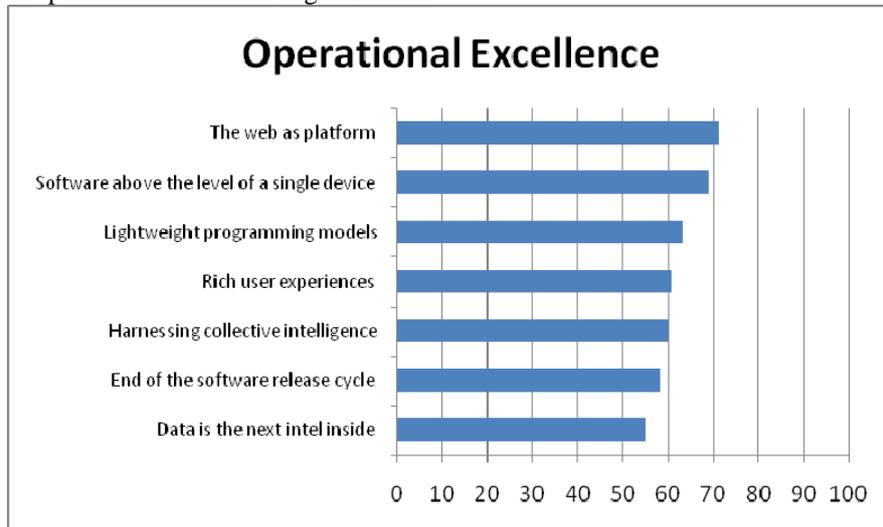


Fig. 5.3 The importance of web 2.0 concepts for operational excellence organizations

Product leadership organizations require constant innovation, new knowledge, and a creative environment. According to the experts, concept (2) “harnessing collective intelligence” directly addresses these three characteristics. The example of P&G and InnoCentive as described in section 4.2 shows how these concepts may help build a highly creative environment that allows constant creation of good quality of innovation and new knowledge. Moreover, the experts believe that concept (5) “lightweight programming models” is an important concept to support the development of state-of-the-art products, along with “harnessing collective intelligence”. Lightweight programming models allow the organization to be agile and quickly adjust their software and products according to the latest trends and innovation in the market. Figure 5.4 below also shows that concept (4) “end of the software release cycle” is indeed one of the most important web 2.0 concepts for product leadership organizations. By focusing on this concept in its webstrategy, this type of organization would be able to improve its ability to bring and commercialize the new ideas or products to the market quickly, and thus receive early feedback from the consumers.

According to the analysis, concept (3) “data is the next intel inside” appears to have the least significance, compared to the other web 2.0 concepts, to be implemented in the webstrategy of product leadership organizations to sustain competitive advantage and deliver business values.

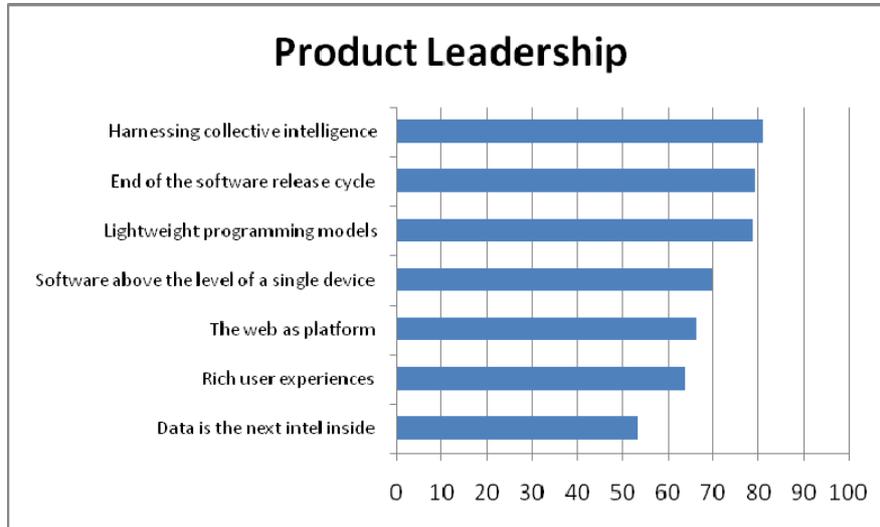


Fig. 5.4 The importance of web 2.0 concepts for product leadership organizations

Next to the average analysis, a frequency analysis has been conducted. The results of this frequency analysis positively support the results of the average analysis, thus the same conclusion was drawn.

- “Software above the level of a single device” and “harnessing collective intelligence” are the most important web 2.0 concepts to deliver business values for customer intimacy organizations.
- “The web as platform” and “software above the level of a single device” are the most important web 2.0 concepts to deliver business values for operational excellence organizations.
- “Harnessing collective intelligence”, “end of the software release cycle” and “lightweight programming models” are the most important web 2.0 concepts to deliver business values for product leadership organizations.

Table 5.3 The results of the frequency analysis

Organization Types (Average Score Categorization)	Web 2.0 Key Concepts (Frequency)						
	1	2	3	4	5	6	7
Customer Intimacy							
1-2 (x1 point)	1	0	1	0	3	0	0
2-3 (x2 points)	1	1	3	9	2	0	1
3-4 (x3 points)	6	3	5	2	5	6	6
4-5 (x4 points)	4	8	3	1	2	6	5
Total Points	37	43*	34	28	30	42*	40
Operational Excellence							

1-2 (x1 point)	0	1	0	0	0	0	1
2-3 (x2 points)	2	3	6	7	3	3	5
3-4 (x3 points)	5	6	4	3	8	4	4
4-5 (x4 points)	5	2	2	2	1	5	2
Total Points	39*	33	32	31	34	38*	31
Product Leadership							
1-2 (x1 point)	0	0	2	0	0	0	1
2-3 (x2 points)	1	1	4	0	0	2	5
3-4 (x3 points)	10	5	5	6	4	8	4
4-5 (x4 points)	1	6	1	6	8	2	2
Total Points	36	41*	29	42*	44*	36	31

* The most important web 2.0 concept for corresponding organization type.

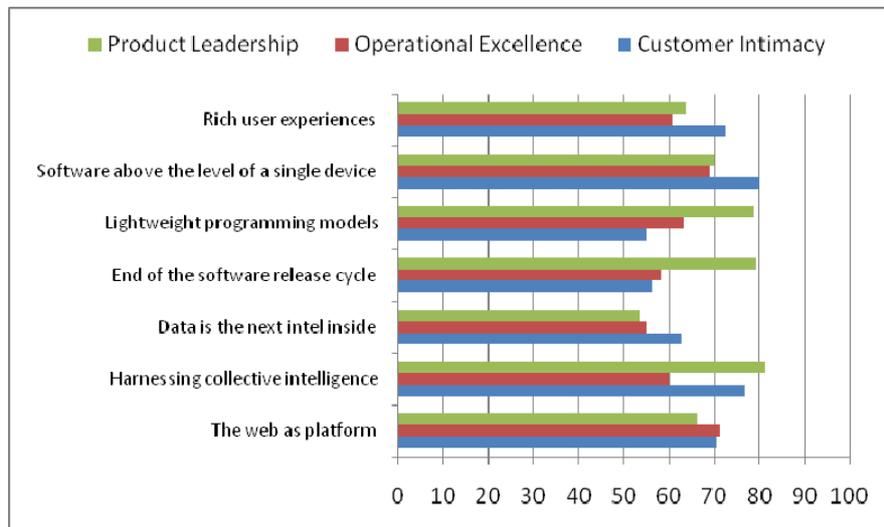


Fig. 5.5 The overall overview of each web 2.0 concept for all organization types

Figure 5.5 presents an overview of the importance of each web 2.0 concept to different types of organizations. It shows that according to the experts, “harnessing collective intelligence” (2) is a very important concept for the success of customer intimacy and product leadership organizations. Next to this, “end of the software release cycle” (4) and “lightweight programming models” (5) concepts appear to be valued the most by product leadership organizations compared to the other types of organizations. Expectedly, “software above the level of a single device” (6) and “rich user experiences” (7) are shown to deliver most values for customer intimacy organizations. Moreover, the result of the research suggests that “the web as platform” (1) and “data is the next intel inside” (3) are considered as common or general concepts that would deliver about the same values to all types

of organizations. However, the “the web as platform” (1) concept scores slightly higher with respect to operational excellence organizations when compared to the other two types, while the “data is the next intel inside” (3) concept scores higher on customer intimacy. The same interpretation can also be seen in the result of the frequency analysis table above (see table 5.3).

This result should be able to give the direction of which web 2.0 concepts an organization should focus on when formulating an effective webstrategy by using the webstrategy framework.

Table 5.4 The mapping of the 7 web 2.0 concepts toward organization types based on their importance level in delivering business values.

<i>Organization Type</i>	<i>Very Important</i>	<i>Important</i>	<i>Less Important</i>
Customer Intimacy	- Software above the level of a single device (6) - Harnessing collective intelligence (2)	- Rich user experiences (7) - The web as platform (1) - Data is the next intel inside (3)	- End of the software release cycle (4) - Lightweight programming models (5)
Operational Excellence	- The web as platform (1) - Software above the level of a single device (6)	- Lightweight programming models (5) - Rich user experiences (7) - Harnessing collective intelligence (2) - End of the software release cycle (4) - Data is the next intel inside (3)	
Product Leadership	- Harnessing collective intelligence (2) - End of the software release cycle (4) - Lightweight programming models (5)	- Software above the level of a single device (6) - The web as platform (1) - Rich user experiences (7)	- Data is the next intel inside (3)

5.2.2.2 Key Tool: The Analytical Framework

The analytical framework is developed to investigate the information gathered from the previous phases of the framework. This systematic tool gives the guideline on how the new webstrategy should be proposed, based on the information gathered in the previous phases. This analytical framework involves internal and external aspects of an organization. The internal aspects include *business strategy*, *business requirements*, *web requirements*, *value discipline*, *webstrategy direction*

& best practices, and assessment of current webstrategy. The external aspects include *industry trends and technology breakthroughs*. The information about these aspects, in relation to the organization, were gathered by asking the questions in the previous phases of the webstrategy framework. Furthermore, this analytical framework is to be used in the “*webstrategy development*” phase of the webstrategy framework.

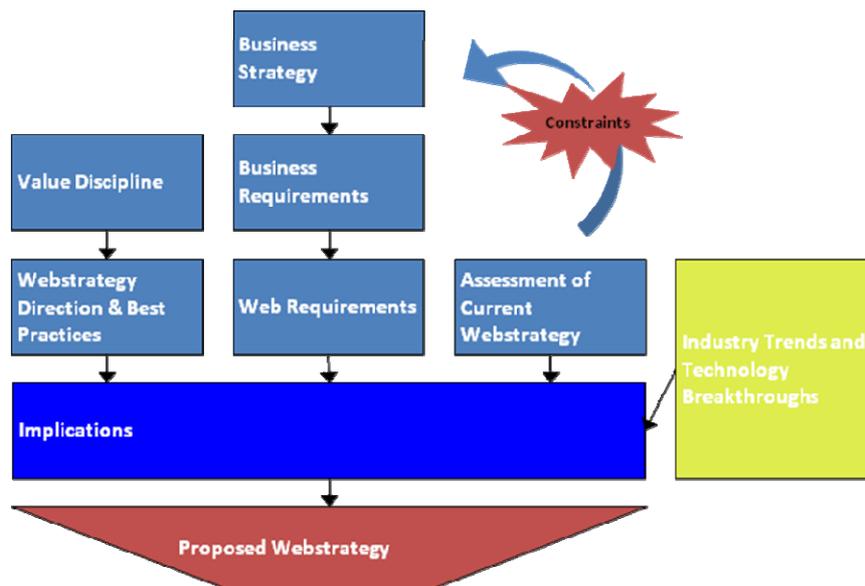


Fig. 5.6 The analytical framework

Some deliverables are expected to be created by utilizing this analytical framework. These deliverables are essential in formulating an effective webstrategy. The deliverables can be documented and should involve the following items:

- **Business Strategy:** The business strategy of the organization can be identified by analyzing the information gathered in the first phase of the webstrategy framework, namely “*awareness*”. In this phase, general questions about the organization are asked, including questions on its business strategy. This is usually the long term business plans of the organization to achieve its long term goals.
- **Business Requirements:** After the identification of the organization’s business strategy, there is a need to list its business requirements. Business requirements are usually derived from the business strategy, however, these can also be derived with the combination with key stakeholders wishes and research outside the company. Business requirements constitute a specification of what the business wants and describe in business terms what must be delivered or accomplished to provide value. With the identified business strategy, along with

the additional information obtained in the phase “*awareness*” of the webstrategy framework such as key stakeholders wishes, the business requirements of the organization can be formulated.

- **Web Requirements:** Web requirements are translated from the business requirements of the organization, and usually contain the necessities of web-related technologies capabilities in order to support the business and achieve its objectives. Next to the business requirements, additional information can also be asked to aid the identification of web requirements.
- **Value Discipline:** The value discipline of the organization should be identified in the second phase of the webstrategy framework, which is “*anticipation and assessment*”. In this phase, questions concerning the focus of how an organization, in its markets, has increased the value offered to customers over the long term are asked. The answers to these questions would give an adequate information of the organization’s value discipline, thus, the organization type.
- **Webstrategy Direction & Best Practices:** The identification of organization type allows us to use the matrix key tool to give the webstrategy direction. With the help of this matrix, the webstrategy direction can be derived as to which web 2.0 concepts are essential in delivering business value to the organization. In this item, best practices available for this particular organization type can also be included. This deliverable refers to the “*formulation of direction (to-be)*” phase of the webstrategy framework.
- **Assessment of Current Webstrategy:** This deliverable can be produced from the information that is previously gathered in the “*anticipation and assessment (as-is)*” phase of the webstrategy framework. This should include not only the assessment of the current webstrategy, but also the impact on the business strategy. Any (potential) **constraints** from the current webstrategy that limit or do not support the effectiveness of the organization’s business strategy are listed here.
- **Industry Trends and Technology Breakthroughs:** This deliverable concerns more of external influences, such as the trends in the industry (product and service trends, market trends, and movement trends of the competitors) and the technology breakthroughs (any emerging technologies) that currently penetrate and are able to deliver business values to the organization.
- **Implications:** Taking into consideration of the four deliverables, which are “*webstrategy direction & best practices*”, “*web requirements*”, “*assessment of current webstrategy*”, and “*the industry trends and technology breakthroughs*”, the implications are derived. These implications involve internal as well as external influences. Specific situations and conditions of the organization, such as the maturity of the organization compared to its competitors, the maturity of the products/services, the availability of resources, human capitals, skills and knowledge should also be taken into account. These implications must give clear ideas on which the formulation of the actual webstrategy to be proposed will be based.

- **Proposed Webstrategy:** This deliverable formulates the actual webstrategy to be proposed to the organization. The proposed webstrategy should be align with the organization's business strategy, capabilities, and goals. Note that the formulation process is based on the implications derived from the previous deliverable, in which internal (*webstrategy direction & best practices, web requirements, and assessment of the current webstrategy*) as well as external aspects (*industry trends and technology breakthroughs*) are intensively considered. Thus, the proposed webstrategy, with the current capabilities of the particular organization, is expected to effectively address the issues that the organization has, deliver the business values to the organization, and improve its business performance.

6 Conclusions

In this twenty-first century, where the knowledge-based economy has evolved from an industrial information economy into a networked information economy, IT technologies are crucial to the success of the organizations. Taking IT into an organization requires a good alignment between the capabilities of different business aspects and IT. Business models have also started to shift toward collaboration and community involvement. Organizations create pores to allow information and knowledge to flow in and out of the organization, which would stimulate creation of knowledge and innovation. This approach effectively gains through web 2.0 technologies and their underlying concepts, which suggests that collective intelligence, even from individuals, matters.

For an organization to successfully adopt web 2.0 concepts into its webstrategy, there are a number of aspects which need to be considered, including the value discipline which best describes its organization type and the unique value that is to be delivered in the long term. The webstrategy of the organization requires to be able to sustain and even improve this unique value to the next level in order to outperform its competitors. Therefore, the categorization of the web 2.0 concepts based on their effectiveness in addressing the issues and delivering business values to specific organization type was emphasized.

Next to the value discipline, webstrategy formulation involves other aspects as described in section 5. An effective webstrategy should consider its alignment with the organization's business strategy, objectives, resources and capabilities, as well as with the industry trends and technology breakthroughs. This research has sought to consider these elements and the alignment in formulating an effective webstrategy with the adoption of web 2.0 concepts for different types of organizations. The webstrategy framework and its key tools were introduced and the explanations of the fragments were provided. The differing needs of web 2.0 solutions for different organization types were also presented. The webstrategy

framework as described in this chapter will assist in formulating an effective web-strategy by incorporating the appropriate web 2.0 concepts to effectively deliver business values for the organization.

7 References

- Bächle M (2006) Social Software. Informatik Spektrum
- Bachnik W, Kurylo L, Leszczynski PR, Rymaszewicz E, Szymczyk S (2005) Quantitative Sociological Analysis of Blog Networks. arXiv:physics, vol. 1
- Baioill AO (2004) Conceptualizing The Weblog: Understanding What It Is In Order To Imagine What It Can Be. *Journal of Contemporary Media Studies*
- Barney J (1991) Firm Resources and Sustained Competitive Advantages. *Journal of Management*, (17), pp 99-120
- Barua A, Kreibel CH, Mukhopadhyay T (1995) Information Technology and Business Value: an Analytic and Empirical Investigation. *Information Systems Research*, vol. 6, no. 1, pp 3-23
- Batenburg R, Rutten R (2003) Managing Innovation in Regional Supply Networks: a Dutch Case of “Knowledge Industry Clustering”. *Supply Chain Management: An International Journal*, Vol. 8, No. 3, pp 263-270
- Batenburg R, Versendaal J (2004) Business alignment in the CRM Domain: Predicting CRM performance. In: T. Leino, T. Saarinen & S. Klein, *Proceedings of the 12th European Conference on Information Systems*. Turku: Turku School of economics and business Administration (CD-ROM)
- Batenburg R, Versendaal J (2006) Alignment matters – Improving business functions using the Procurement Alignment Framework. Institute of information and computing sciences, Utrecht University. To be discussed in the Workshop Inkoop Onderzoek Nederland (WION), January 2006, Lunteren, The Netherlands
- Baumann M (2006) Caught in the Web 2.0. *Information Today*, vol. 23, issue 8, p 38
- Benkler Y (2006) *The Wealth of Networks: how social production transforms markets and freedom*. Yale University Press
- Beukers M, Brinkkemper S, Versendaal J (2005) Business Alignment in the Procurement Domain. Institute of information and computing sciences, Utrecht University technical report UU-CS-2005-001
- Bharadwaj A, Bharadwaj SG, Konsynski BR (1999) Information Technology Effects on Firm Performance as Measured by Tobin’s q. *Management Science*, vol. 45, no. 7, pp 1008-1024
- Blau PM, Scott WR (1962) *Formal Organizations*. San Francisco: Chandler
- Bontis N, Curado C (2006) The Knowledge-Based View of the Firm and its Theoretical Precursor. *International Journal of Learning and Intellectual Capital*, Vol. 3, No. 4, pp 367-381
- Bordoloi B, Sircar S, Turnbow JL (1998) The Impact of Information Technology Investments on Firm Performance: a Review of the Literature. *Engineering Valuation and Cost Analysis*, vol.1, pp 171-181
- Bordoloi B, Sircar S, Turnbow JL (2000) A Framework for Assessing the Relationship between Information Technology Investments and Firm Performance. *Journal of Management Information Systems*, vol. 16, No.4, pp 69-97
- Breslin JG, Decker S, O’Marchu I (2004) Online Social and Business Networking Communities. DERI – Digital Enterprise Research Institute - Technical Report. Available online: <http://www.deri.at/fileadmin/documents/DERI-TR-2004-08-11.pdf>
- Brown B, Harper R, O’Hara K, Perry M, Sellen A (2001) Dealing with Mobility: Understanding access anytime, anywhere. *ACM Transactions on Computer-Human Interaction*, 8 (4), 323-347

- Brynjolfsson E (1993) The Productivity Paradox of Information Technology. *Communication of the ACM*, Vol. 35, No.12, pp 66-77
- Brynjolfsson E, Hitt LM (2000) Beyond Computation: Information Technology, Organizational Transformation and Business Performance. *The Journal of Economic Perspectives*, Vol. 14, No. 4, pp 23-48
- Chesbrough H (2003) *Open Innovation: The New Imperative for Creating and Profiting from Technology*. Harvard Business School Press
- Chesbrough H (2006) *Open Business Models: How to Thrive in the New Innovation Landscape*. Harvard Business School Press; (1 edition)
- Cook B (1999) Paradoxically Speaking: Increased IT Spending and the Lack of Productivity Improvements. *Inform*, Vol. 13, No. 5, p 40
- Curry SR and Tetzeli R (1996) Getting Your Company's Internet Strategy Right. *Fortune*, Vol. 133, Issue 5, pp 72-78
- Daft RL (2004) *Organization Theory and Design*. Mason: Thomson South Western
- Dehning B, Stratopoulos T (2000) Does Successful Investment in Information Technology Solve the Productivity Paradox? *Information & Management*, vol. 38, no. 2, pp 103-117
- Dennis AR, Kinney ST (1998) Testing Media Richness Theory in the New Media: The Effects of Cues, Feedback, and Task Equivocality. *Information Systems Research*, 9 (3), 256-274
- Donaldson L (2001) Reflections on knowledge and knowledge-intensive firms. *Human Relations*, 54 (7), 955-963
- Dos Santos B, Sussman L (2000) Improving the Return on IT Investment: The Productivity Paradox. *International Journal of Information Management*, vol. 20, no. 6, pp 429-440
- Drucker P (1992) The new society of organizations. *Harvard Business Review*, 95-105
- Etzioni A (1961) *A Comparative Analysis of Complex Organizations*. New York: Free Press
- Gallois C, Gardner J, Jones E, Watson B (2004) Organizational Communication: Challenges for the New Century. *Journal of Communication*, 54 (4), 722-750
- Garud R, Raghuram S, Wiesenfeld BM (1999) Communication Patterns as Determinants of Organizational Identification in a Virtual Organization. *Organization Science*, 10 (6), 777-790
- Gilchrist A (2007) Can Web 2.0 be Used Effectively Inside Organisations? *Bilgi Dünyası*. Vol. 8, Issue 1, pp 123-139
- Gill KE (2004) How can we measure the influence of the blogosphere?. In proceedings of the WWW2004 Conference, New York
- Grant R (1996) Toward a knowledge-based theory of the firm. *Strategic Management Journal*, 17, 109-122
- Haggie K, Kingston J (2003) Choosing Your Knowledge Management Strategy. *Journal of Knowledge Management Practice*, 4. Available online: <http://www.tlinc.com/articl51.htm>
- Hara Y, Hino Y, Nakajima Sh, Tanaka K, Tatemura J (2005) Discovering Important Bloggers based on Analysing Blog Threads. In proceedings of the WWW2005 Conference, Chiba, Japan
- Harris TE (2002) *Applied Organizational Communication: Principles and Pragmatics for Future Practice*. London: Erlbaum
- Hoegg R, Martignoni R, Meckel M, Stanoevska-Slabeva K (2006) Overview of business models for Web 2.0 communities. In: *Proceedings of GeNeMe 2006.- GeNeMe 2006.- Dresden, S.* 23-37
- InnoCentive (2008) <http://www.innocentive.com>. Accessed 12 May 2008
- Internet World Stats: Usage and Population Statistics (2007) <http://www.internetworldstats.com>. Accessed 8 October 2007
- Jashapara A (2004) *Knowledge Management: An Integrated Approach*. Essex: Pearson Education Limited
- Jurkovich R (1974) A Core Typology of Organizational Environments. *Administrative Science Quarterly*, Vol. 19, No. 3, pp 380-394
- Kakihara M, Sorenson C (2002) Mobility: an extended perspective. *Proceedings of the 35th Annual Hawaii International Conference on System Sciences*, pp 1756-1766. Hawaii

- Kauffman RJ, Weill P (1989) An Evaluative Framework for Research on the Performance Effects of Information Technology Investments. Proceedings of the 10th Annual International Conference on Information Sciences pp 377-388
- Kolbitsch J, Maurer H (2006) The Transformation of the Web: How Emerging Communities Shape the Information We Consume. *Journal of Universal Computer Science*, Vol. 12, No. 2, pp 187-213
- Kumar R, Novak J, Raghavan P, Tomkins A (2004) Structure and Evolution of Blogspace. *Communication of the ACM*, vol. 47, no. 12
- Manafy M (2006) The Collective Wisdom at Work. *Econtent*, vol. 29, issue 7, p 6
- Mathes A (2004) Folksonomies – Cooperative Classification and Communication Through Shared Media. Available online: <http://www.adammathes.com/academic/computer-mediated-communication/folksonomies.html>
- Mintzberg H (1980) Structure in 5's: A Synthesis of the Research on Organization Design. *Management Science*, Vol.26, No. 3, pp 322-341
- Nurmi R (1998) Knowledge-Intensive Firms. *Business Horizons*, pp 26-32
- Ohmae K (1982) *The Mind of the Strategist: Business Planning for Competitive Advantage*. Penguin
- Oliver C (1997) Sustainable Competitive Advantage: Combining Institutional and Resource-Based Views. *Strategic Management Journal*, (18:9), pp 697-713
- O'Reilly T (2005) What is Web 2.0: Design Patterns and Business Models for the Next Generation of Software. Available online: <http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html>
- Patnayakuni N, Patnayakuni R, Rai A (1996) Refocusing Where and How IT Value is Realized: an Empirical Investigation. *Omega*, vol. 24, no.4, pp 399-412
- Penz E, Sinkovics RR (2005) Empowerment of SME websites – Development of a web-empowerment scale and preliminary evidence. *Journal of international entrepreneurship*. Vol. 3, Issue 4, pp 303-315
- Peppard J, Ward J (1999) 'Mind the Gap': diagnosing the relationship between the IT organisation and the rest of the business. *Journal of Strategic Information Systems*, 8(1), 29-60
- Peppard J, Ward J (2003) *Strategic planning for information systems*, 3 edition, Chichester, England, Wiley
- Porter ME (1980) *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. Free Press
- Rappa M (2005) *Managing the Digital Enterprise*. Available online: <http://digitalenterprise.org/index.html>
- Scheper WJ (2002) *Business IT Alignment: solution for the productivity paradox* (In Dutch). De-Loitte & Touche, Netherlands
- Schonfeld E (2006) *The Economics of Peer Production*
- Spender JC (1996) Making Knowledge the Basis of a Dynamic Theory of the Firm. *Strategic Management Journal*. (17), pp 45-62
- Tapscott D, Williams AD (2006) *Wikinomics: How Mass Collaboration Changed Everything*. Portfolio Hardcover
- Thompson JD (1967) *Organizations in Action*. New York: McGraw-Hill
- Timmers P (1998) Business Models for Electronic Markets. *International Journal on Electronic Markets and Business Media*. Vol. 8, no. 2, pp 3-8
- Treacy M, Wiersema F (1993) Customer Intimacy and Other Value Disciplines, *Harvard Business Review*
- Treacy M, Wiersema F (1995) How Market Leaders Keep Their Edge. *Fortune*, Vol. 131, Issue 2, pp 88-93
- Wiig KM (1997) Knowledge Management: Where Did It Come From and Where Will It Go?, *Expert Systems with Applications*, Vol. 13, Issue 1, pp 1-14
- Wikipedia (2008) Strategy. <http://en.wikipedia.org/wiki/Strategy>. Accessed 18 February 2008

Williamson OE (1979) Transaction-cost Economics: The governance of contractual relations. J Law Econ, October, pp 233-261