

White Paper

Zippering Up Business and Technology Considerations Together Into a Mutual Strategy

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Zippering Up Business and Technology Considerations Together Into a Mutual Strategy

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Abstract

Only one-third of today's major corporations will survive in an economically important way over the next quarter of a century. Why is that? It is a question of creative destruction, an occurrence close to Darwin's struggle of the fittest. A basic necessity to survive in this turbulent competitive environment is to create and efficiently execute an overall competitive strategy that in turn defines several more focused product strategies, marketing strategies, etc. Among the most important ones are: business strategy and technology strategy.

Practitioners and scholars often talk about closing the gap between business and technologists and that the two corresponding strategies should be parallel. The authors claim that this is not enough; technology and business management should be intertwined. They should affect each other in an interactive, recursive manner to enable continuous and intensive discussion and decision-making between business managers and technologists. As a result, the business and technology strategies are two dualistic viewpoints to a mutual strategy. The consequent strategy implementation actions get zipped up together like a zipper. The two parts of the zipper are aligned, and interlocked thus strengthening each other. By aligning the efforts one gains the most from their combination. The authors present a practical model for strategic management of technology that enables, supports and produces the necessary dualistic view.

Even though strategies are paramount to a company's success and even to its very existence, surprisingly few actually make real strategies; for technology or for anything else. A big reason for that is the lack of understanding. Many think that a strategy is about market shares, growth or other developments based on the past. It is not. Strategy is simply about defining a winning position and organizing one's resources accordingly.

The authors explain how, in the extreme, business and technology management fuse into one through the actions of strategic management of technology. All that remains outside are the day-to-day operational activities.

This paper is based on the authors' experience in constructing a strategic management of technology model for a major global enterprise.

STRUGGLE OF THE FITTEST

Foster & Kaplan (2001) claim that if history is a guide, no more than one-third of today's major corporations will survive in an economically important way over the next 25 years. The big turnover in indices like Standard & Poors 500 and the Financial Times 500 give further proof. This very Schumpeterian phenomenon is not a recent development, but has existed throughout the history of the indices. Many scholars, e.g. Foster & Kaplan (2001), Christensen (1997), and Hamel & Välikangas (2003 a), present and discuss several well-known cases of such failures.

Why is it that not everybody succeeds? A basic necessity to survive in this turbulent competitive environment is to create and efficiently execute an overall competitive strategy that in turn defines several more focused product strategies, marketing strategies, etc. Among the most important ones are business strategy and technology strategy. But none of these is sufficient alone.

BUSINESS AND TECHNOLOGY CONSIDERATIONS

There are variations in strategies driving business and technology development, ranging from a separate and pervasive master plan strategy to a jungle of different strategies and plans. However, different organisations understand "strategy" in very different ways.

Kaplan & Norton (2004) declare: *"In our practise, however, we observed that no two organizations thought about strategy in the same way."* Näsi & Aunola (2002) share this opinion. They identify several different, good ways to approach strategy conceptually. They conclude - or concede - that *"strategy can be any of these and it can be all of them"*.

Lacking a single, extensive and commonly agreed definition, let us examine what the classic strategist von Clausewitz says about strategy (von Ghyczy 2001): *“Strategy determines the place where, the time when, and the fighting forces with which the battle is to be fought”*. In business, the fighting forces can be thought of as products, technologies, processes, organizational capabilities, and so on.

Practitioners and scholars often talk about closing the gap between business and technologists and that the two corresponding strategies should be parallel. As is true with “strategy” in general, there are different interpretations also here. Simply put, business strategy defines “*what*” and “*when*”, whereas technology strategy declares “*how*” and “*by which means*”.

Closing the gap or aligning the strategies is not trouble-free. There are a couple of aspects.

First, business people and technologists often use different languages and do not easily understand each other. Matthews (1992) presents a conceptual framework to overcome this. He stresses that for linking these two it is essential to have a continuous process of communication and decision-making. It addresses fundamental business questions such as:

- What business are we in, and do want to be in?
- Where is our competitive advantage and how can we improve our competitive position?
- What kind of organization do we want to be?
- How can we create added value and keep our customers?

This process makes it possible for the overall business strategy to adequately reflect technological considerations, and for the elements of the technology strategy to be derived directly from the overall business strategy. Essential is duality; constant change of viewpoint between business and technology.

This framework consists of a cycle of sessions with different viewpoints. In this framework, a technology strategy is derived from the overall business strategy. However, during the process they mutually affect each other. The cycle is especially a process for generating fundamental questions, structuring answers, and focusing on potential options and trade-offs (Matthews 1992).

Especially important are the potential options. The options interlock the results of business and technology considerations together into a mutual business-technology strategy like the two halves of a zipper (*Figure 1*).

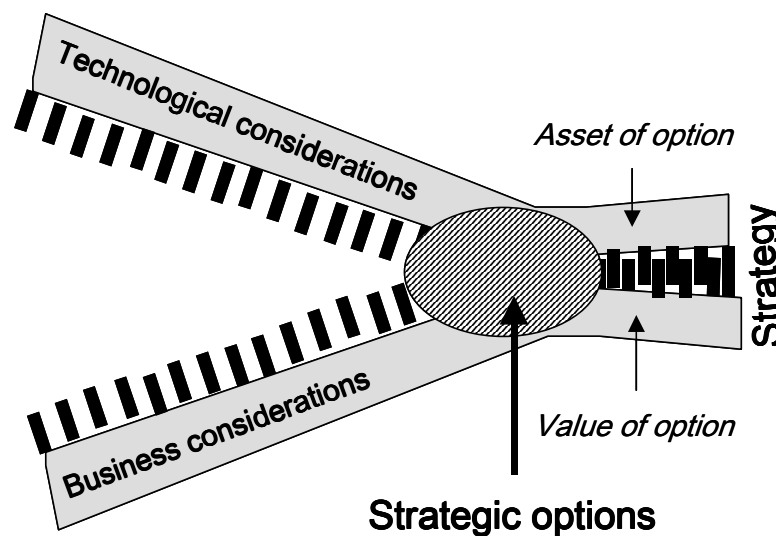


Figure 1. Strategic business options interlock the outcome of technology and business considerations into a common strategy.

Value of options corresponds to business considerations, and their asset corresponds to technology considerations. Options are real strategic business options, and any subsequent product development is a business investment with the purpose of generating a return.

It is not only about aligning business and technology efforts, but rather interlocking the two through formulating options to support and strengthen each other. Using the zipper analogy, the result is a mutual strategy having a dualistic view, or two different but strongly interlocked halves that are not extensive enough alone or separate:

- *Without technology considerations one cannot have business strategy*
- *Without business considerations one cannot have technology strategy*

The second aspect to take into account is the time span. If (mid-term) business planning is based on a three-year horizon, the window of opportunity for technologists is already closed!

THE TRAP OF SUCCESS

If strategy is about defining and organizing one's forces into a winning position – and is thus extremely crucial to an organization's survival – then why do so many companies fail in this? Of course implementing even a good strategy may fail, but the reasons for failure can be more deeply-rooted: lack of understanding – or even disinterest.

The authors have noticed in various occasions that creation and implementation of strategies even in big international corporations can be weak, if not downright overlooked. This may appear unbelievable, because there are so many well-known and often-cited examples of successful technology companies. However, Scott's (2000) extensive study on critical technology management issues in hi-tech companies supports it. Even those making business on technology may fall into the oversight. Some of the experts believed that, in reality, technology planning methodologies and plan implementation techniques are lacking in their company.

This is not to suggest that it is common. It is an indication of the threat the successful companies face, which Hamel & Välikangas (2003 b) discuss. Successful companies have a risk of tending to repeat time after time the way to conduct business, without really considering new challenges. Those in crisis do not have that luxury. Hamel summarizes aphoristically (Hamel & Välikangas 2003 a):

“Companies are successful until they are not.”

Then there is the question of understanding. The entire strategy creation in (even) large companies is amazingly primitive, claims Dr. Välikangas (Talouselämä 2004). She argues that barely one in ten companies think about strategic options! By strategic options she means real strategic options for future business, not just extrapolating the current situation into future. Mintzberg (1994) shares Välikangas's opinion: *“managers confuse real vision with the manipulation of numbers”* and *“...strategies that are extrapolated from the past or copied from others.”*

IN PRACTISE

We created a three-level strategic management of technology (MoT) model (Talonen & Hakkarainen 2006):

- Strategic Level** – *Strategy positioning and generation*
- Tactical Level** – *Continuous planning and adaptation*
- Operational Level** – *Implementation*

The strategic level is essential in linking business and technology developments together through common strategic thinking and discussion. The tactical level links short-term, project-level operational activities with long-term strategic objectives through portfolio management. The operational level means disciplined work to efficiently and effectively implement the strategy in practise.

The processes at the strategic level are illustrated in *Figure 2*.

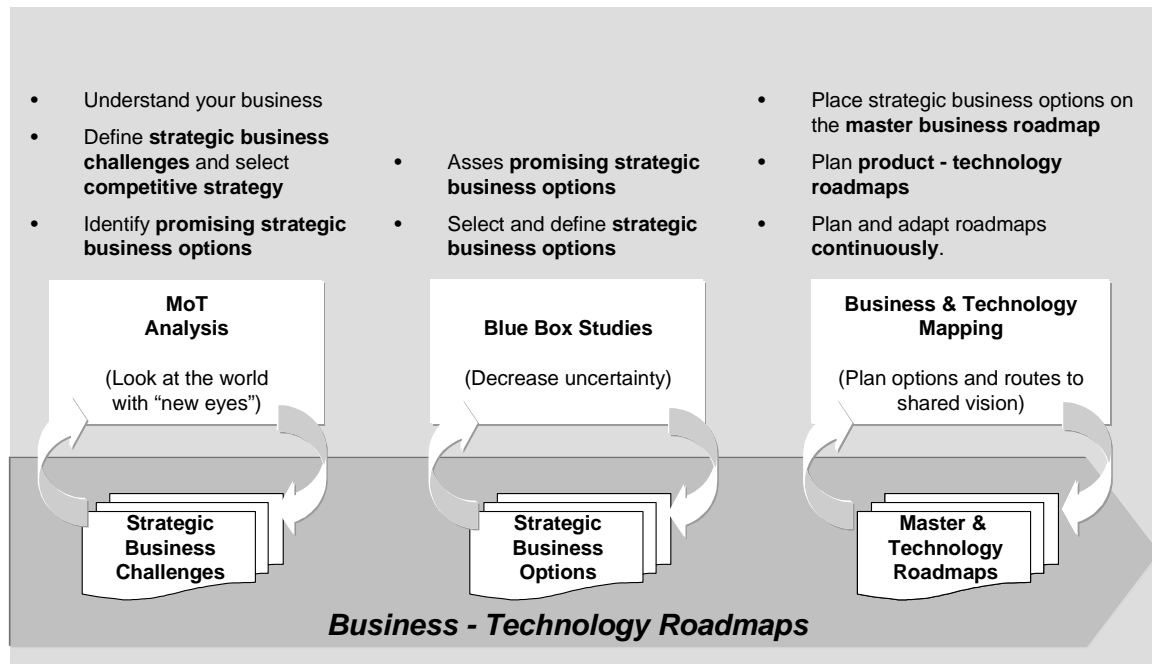


Figure 2. The upper level of the strategic management of technology model.

The processes at the strategic level and their deliverables are

MoT Analysis	– <i>Strategic Business Challenges</i>
Blue Box Studies	– <i>Strategic Business Options</i>
Business & Technology Mapping	– <i>Master & Technology Roadmaps</i>

The first element is what Matthews (1992) calls Management of Technology analysis (MoT analysis). The objective is to gain an understanding of the changes and discontinuities occurring in the external and internal business environment, and to declare strategic business challenges, respectively. The result is a basic competitive strategy approach, with identified promising new strategic business options for further studies.

The second element, Blue Box studies (Matthews 1990), declares the selected strategic options for future business from the most potential ones, and decreases the uncertainty of them. Blue Box addresses questions such as “*Is it practical?*” and “*Is it desirable?*”. Or, put bluntly: “*Could we do profitable business with it?*”.

The third activity at the strategic level is business and technology mapping. This involves communication and decision-making on strategic business options for the future, and placing the chosen options on business and technology roadmaps. In essence, roadmaps illustrate the competitive situation and its anticipated development; competitors’ actions and our countermeasures. This is where the results of the other two processes are combined into a mutual business-technology strategy.

One could claim that, in the extreme, the strategic management of technology *becomes* business management. All that is omitted are the day-to-day operational activities.

Let us draw an analogy to an athlete. Like an enterprise, an athlete has a goal, creates a strategy for how to reach it, and then starts to develop skills and capabilities accordingly. Once the competition or combat starts, the only possibility is to follow and fulfil the strategy. It is too late to redefine it, or to improve skills. All is operational, executing as efficiently as possible what one has learned and developed.

One might claim that the example is over-simplified. Since most businesses have more than one person working together, let us consider a team. As a team – and individually – the members set goals and create strategies, and develop individual and team capabilities in a similar way to what an individual athlete does. One could maybe further argue that there are also other people involved. There are managers and coaches that select the members, organize a team, define their roles and playing styles, and so on. Anyway, the goal of all of this is to improve performance the same way it happens in business. Again, in competition, the most essential aspect is to adapt and use as smoothly and efficiently as possible what has been learned and developed. It is purely operational.

In the business parallel, taking this approach, product creation becomes a lean, mean implementation machine. This shifts the focus from managing individual development projects or project portfolios to managing technologies in securing a company's future competitiveness. This is a step in the right direction.

CONCLUSIONS

When integrating technology and business strategies it is not sufficient to only align the two. None of them is extensive enough alone or separate. It is rather more like closing a zipper: in business strategy one incorporates technology considerations, and in technology strategy one incorporates business considerations. They become interlocked into one mutual strategy with two interlocked halves or dualistic viewpoints supporting and strengthening each other.

REFERENCES

Christensen, Clayton M. (1997). *The Innovator's Dilemma. When New Technologies Cause Great Firms to Fail*. Boston, Mass., USA, Harvard Business School Press. 252 p. ISBN 0-87584-585-1.

Foster, Richard N. & Sarah Kaplan (2001). *Creative Destruction. From 'built to last' to 'built to perform'*. London, UK, Pearson Education, 671 p. ISBN 0-273-65638-4.

von Ghyczy, Tiha, von Oetinger, Bolko & Bassford, Christopher 2001. *Clausewitz on Strategy*. New York, USA, John Wiley & Sons, 196 p. ISBN 0-471-41513-8.

Hamel, Gary & Liisa Välikangas (2003). Strategic Resilience. *UKexcellence* June / July 2003, pp 6 - 9.

Hamel, Gary & Liisa Välikangas (2003). The Quest for Resilience. *Harvard Business Review*, September 2003, pp. 52 - 62.

Kaplan Robert S. & Norton, David P. 2004. *Strategy Maps*. Converting Intangible Assets into Tangible Outcomes. U.S.A., Harvard Business School Press. 454 p. ISBN 1-59139-134-2.

Matthews, William H. (1990). Kissing Technological Frogs: Managing Technology as a Strategic Resource. *Perspectives for Managers*, Number 5, 1990. Lausanne, Switzerland, International Institute for Management Development (IMD). 5p.

Matthews, William H. (1992). Conceptual Framework for Integrating Technology into Business Strategy. *Int. J. of Vehicle Design*, vol. 13, nos 5/6, 1992. pp. 524 – 532.

Mintzberg, Henry (1994). The Fall and Rise of Strategic Planning. *Harvard Business Review*, January – February 1994. pp. 107 - 114.

Näsi, Juha & Manu Aunola (2002). *Strategisen johtamisen teoria ja käytäntö*. Helsinki, Finland. Federation of Finnish Metal, Engineering and Electrotechnical Industries, MET. 177 p. ISBN 951-817-790-2. (in Finnish).

Scott George M. (2000). Critical Technology Management Issues of New Product Development in High-Tech Companies. *The Journal of Product Innovation Management*, 2000:17, pp. 57-77.

Talonen, Tapani & Hakkarainen, Kari (2006). Essential Strategies Driving R&D and Technology Development. Manuscript accepted for publication in *Research – Technology Management*.

Talouselämä (2004). Suuryritys tarvitsee kriisin. *Talouselämä* 32 / 2004, pp. 38 – 40. (in Finnish).