

Hyperinnovation

Introduction

Today's business environment can be characterised as very tough for companies in nearly every industry. It has become inevitable to be among the top players in this hypercompetitive environment in order to be profitable enough. To do so successful companies need to have superior products serving customers' needs better than others do. This all depends on the product development of the company. But just in tough times, which are currently strengthened by economic struggles in some major countries and more risk-averse investors, companies tend to cut their R&D spending to save costs, stabilise cash flows and restore profitability.

That it is possible to gain more for less in the essential phase of product development because of the changed prototyping methods nowadays Michael Schrage from MIT has predicted and describes it in his concept of hyperinnovation.

The subject gains on relevance recognizing that according to McKinsey typically 75 percent of the product costs are set in the design stage. Product development is as a result a long-term cost reduction lever and not just an innovation engine.

The intention of this paper is to introduce the reader to the concept of hyperinnovation, to reflect it critically and taken this as a framework for a successful management of innovation to finally enlarge this view with complementary elements.

Concept of Hyperinnovation

Hyperinnovation occurs from the radical change in prototyping methods caused by further enhanced technologies allowing it to radically reduce costs of testing products, services as well as business models. The marginal costs have shrank to insignificance as Schrage found out. This has changed the rules of innovation. As a result hyperinnovation forces *all* companies to rethink their innovation strategy.

For Schrage companies successfully engaged in hyperinnovation, which may appear chaotic from the outside, see themselves as investors in a rational marketplace being funded by a new sort of capital, which he calls *iterative capital*. This resource gives companies the ability to handle more and more versions of various ideas in less and less time. It requires that companies invest in tools and technologies to model virtually, prototype and simulate more efficiently. But then the fusion of Moore's Law, which predicts that the number of circuits on a silicon chip doubles every 18 months, and of Metcalfe's Law, saying that the value of a network is the square of the sum of its nodes, guarantees that the costs of doing iterations will shrink to near-nothingness.

The conclusion of this cost decline is that the number of iterations should go up. As a consequence it leads to a capital-gain explosion. But the iterative capital should be well invested in order to yield real profits. This can only be achieved when the new product, service or business model creates value to the customers and the other stakeholders.

Examples can be stated from BMW and Goldman Sachs. BMW managed to built far safer and more crashworthy cars in much less time than before through the usage of crash-simulation software to

simulate thousands of virtual crashes. It was also less expensive and more reliable than crashing real BMW cars. Goldman Sachs depends on Monte Carlo simulations to stress-test their complicated derivative products. Nowadays they perform between 10 and 100 times more tests than five years ago. As a result their own risk managers can check more financial scenarios to reduce the risk, thereof benefit the clients as well.

Challenges of Hyperinnovation

The rise of choices due to the capital-gain explosion is also a great challenge because it becomes harder to define which choice is more valuable. Consequently a company has to examine what it really wants.

The spending of the extra cycles possible in the development also cause many *tensions and trade-offs*. Tensions occur among the different involved departments and it should be the task of the product development to allocate the amount of cycles to be spent for e.g. the design, manufacturing or marketing most effectively. Trade-offs can be seen in the way how to spend the extra cycles, e.g. to reduce the time to market, to work on product improvements or test alternative designs, but also cycles can be saved to keep costs down. To sum up the real hyperinnovation challenge lies in the investment of the iterative capital in order to get the best returns and to minimize the political and cultural conflicts for the organization.

Another legitimate concern according to Schrage is that companies face the what he calls "Parkinson's Law of Prototyping", where there are no or only little returns for endless iterations which only waste time. For him companies have to focus on criteria for their specific return, set according to this priorities and filters which makes the hyperinnovators to hypereditors.

But bearing in mind that the ultimate goal of innovation is to create greater *value* hyperinnovation indeed has speed limits. The limits are set by the adopter, i.e. the customer of the new product, with whom the company has to collaborate. That is why Schrage goes finally even farther and compares the hyperinnovative executive to a financial portfolio manager who also seeks to rise the value of his assets. Just like him he has to use the same quantitative techniques to measure risk and return in order to manage his iterative capital portfolio investments successfully. Only with these tools the challenges of hyperinnovation can be overcome.

Complementary elements

The introduced concept of hyperinnovation with its challenges reveals how the future impact of innovation in a global marketplace looks like and can be influenced. It can be seen from my point of view as a kind of framework for other elements affecting the innovativeness. In the following two of them, the usage of networks and the involvement of customers, are discussed further.

Firstly the organizational element of *networks* has an enormous effect on the level of innovativeness due to the collaboration. Henry Chesbrough sees in what he calls "open innovation" the opportunity to use external knowledge and therefore expand the intellectual property of the own company. This can be achieved through either strategic alliances, joint ventures, licensing or spin-offs. The collective performance and the released synergies because of the complementary capabilities result in an

advance of each partner's business. The important issue in networks is the building of trust in the relationship to really achieve this win-win situation.

Beside these external networks Clayton Christensen points out that also internal networks help increasing the level of innovativeness, but often it is more difficult because of the reallocation of resources, the changing of existing processes and the values within a company. Obviously these challenges also occur in external networks, whereas it might be easier to handle them with an external partner collaboratively, learn from the solutions and implement them in the own company than doing it all on one's own. The so further-developed company will have greater opportunities. It can be derived from this that the iterative capital is an even more crucial investment in networks.

Secondly the element in hyperinnovation worth to be looked at more in detail is the *involvement of customers*. In the end they should benefit from the innovation. Therefore it is inevitable to get their feedback in the earliest phase of prototyping to implement their ideas. But not only this end of the production chain also the suppliers should be invited to give their feedback and ideas about the realisation of the innovation. This all reassures to built a product which is realisable, driven by customers' needs and guarantees a success when entering the market. Accordingly these considerations also affect the decisions about the investment of the iterative capital.

All of these elements gain another relevance in the framework of hyperinnovation and the decisions about their characteristics become much more important than before.

Conclusion

To conclude there are several lessons to learn from Schrage's concept of hyperinnovation.

Firstly it raises the awareness to deploy the own capabilities more effectively than before because the competition has grown and competitors can react much faster to new market developments. Though it is not that much important to be the first-mover with a product, but to grasp the needs of the customers with it and to create an added value for them. Companies have to change their own processes towards a more innovative and open structure embedded in internal and external networks, where communication among the different departments is increased and being innovative belongs to the core values. Hyperinnovation stresses this change and can lead to new kinds of innovations and also towards an improved response to competitor's innovations, e.g. towards disruptive technologies.

Secondly the proposed management of hyperinnovation as a portfolio of iterative capital investments is an adequate tool to set up and control the various possibilities how to spend the additional cycles. It helps to overcome the different tensions and trade-offs rationally as well as it prevents to waste capital so that really value is created.

Finally the understanding of the hyperinnovation concept and its right adoption helps to cut costs in the product development, to increase revenues and create substantial growth. All in all it gives the company the competitive advantage it needs to survive in today's business environment and to be among the top players in the future.

References

- Anonymous (1996): Letting the customer drive innovation. *The Journal of Product and Brand Management*, Vol. 5, No. 5, pp. 21-22.
- Anonymous (2003): Product Development. <http://www.mckinsey.com/practices/operationsstrategy/effectiveness/productdevelopment/> [checked at 2003-05-31].
- Chesbrough, Henry (2003): Reinventing R&D Through Open Innovation. <http://www.strategy-business.com/press/enewsarticle/?art=44635032&pg=0> [checked at 2003-05-31].
- Chesbrough, Henry (2003): How to generate more innovation for less. *Financial Times*, 2003-08-07, p. 7.
- Christensen, Clayton M. (2001): Assessing Your Organization's Innovation Capabilities. *Leader to Leader*, No. 21.
- Harris, Lisa; Coles, Anne-Marie; Dickson, Keith (2000): Building Innovation Networks: Issues of Strategy and Expertise. *Technology Analysis & Strategic Management*, Vol. 12, No. 2, pp. 229-241.
- Schrage, Michael (1991): Prototypes: Building Blocks for Entrepreneurs. *Wall Street Journal*, 1991-09-09, p. A10.
- Schrage, Michael (2001): Here comes Hyperinnovation. *Strategy + Business*, First Quarter.