

Switzerland: Fit for Innovation?

25th June 2002

Results and Findings

FOREWORD

GOO FIRST TUESDAY ZÜRICH

GDI

■ Foreword

First Tuesday Zurich and the GDI introduced the Thought Leadership Forum 2002 Series to Switzerland as a new way to look at key strategic issues.

We have called on the power of independence and diversity, of different viewpoints debating the same issues, as an important tool to generate new insights and solve problems. In this world of increasing specialization, which is more than offset by escalating connections and globalization, our best chance for insight is often not individual or isolated experts, but networks. Networks of experienced professionals matched up with those with fresh perspectives can work together to create knowledge and intelligence inaccessible in isolation.

We have worked to build on established techniques like brainstorming, and leveraged technology and research to create a format which is powerful, intense and extremely efficient. We view these Thought Leadership Forums as a dynamic format and platform to share ideas, push the boundaries and create new insights.

■ The Question

As Switzerland's competitive future is brought into question, First Tuesday Zurich and the Gottlieb Duttweiler Institute produced the Innovation Forum with a group of distinguished Thought Leaders and some students to tackle some of the industry's most pressing issues.

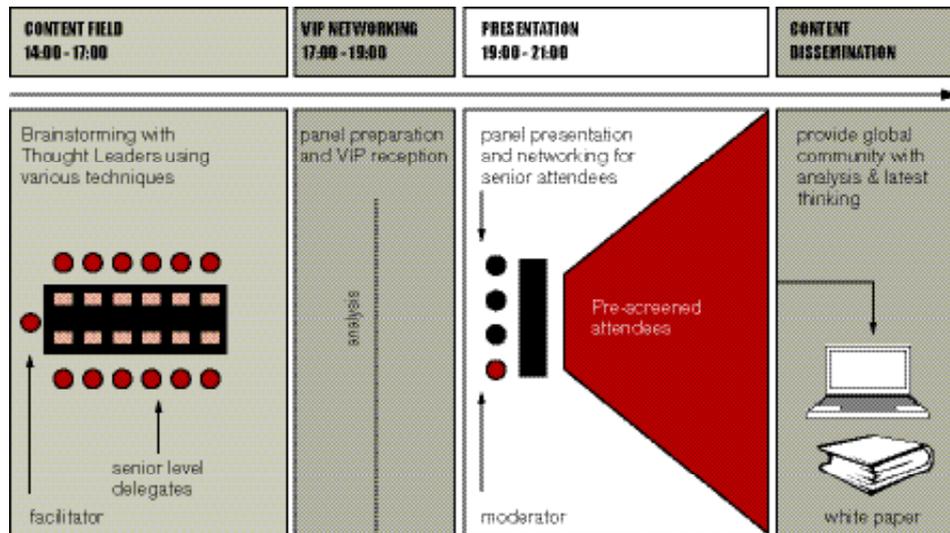
No other country has a higher density of patents, inventors and Nobel Prize Winners per capita than Switzerland – a true knowledge heritage. But innovation isn't just about technology, and it is not just a buzzword. Innovation is key for organizational survival. Innovation is the top non-financial contributor to corporate value in almost every industry, meaning the capacity for innovation is crucial to future success.

In Switzerland, some claim the great quality of life leads to a low appetite for risk or change, and that the Swiss lack an entrepreneurial spirit. Some criticize government, investors and businesses for failing to support and drive innovation forward. Given its relatively limited resources and size, Switzerland must focus its efforts to keep a leading role in driving innovation and productivity growth.

How can Switzerland and its industries ensure that it is not left behind in the area of innovation? What role should business and government play in driving innovation? These and other related questions were the focus of this Thought Leadership Forum.

■ The Format

The Forum began with a structured brainstorming session bringing together a relatively small group of Thought Leaders focusing on the topic of Innovation in the afternoon. Differing perspectives, as represented by senior level decision-makers and experts in business, academia, government and technology as well as almost the same number of teenage Thought Leaders, accelerate the development of new and meaningful insights and ideas. The thought session was moderated by a team from BrainStore, the idea factory in Biel, Switzerland. The input of the VIP audience who came in the evening was also solicited through a survey evaluating their opinions of the top ten ideas from the afternoon.



Within a single afternoon and evening, this Forum provided an opportunity to meet, tackle key issues, and to discuss and disseminate the findings to a wider group. Following the Forum, the results were analysed and produced into a White Paper which is enclosed in these results and findings.

■ The Results

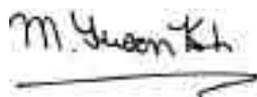
Included in the results from the Forum are the following papers:

Thought Starter: The purpose of this paper is to provide background research about the industry and its current trends. It was commissioned by First Tuesday Zurich and the GDI, and written by Evaluesserve.

Keynote, Metrics of Innovation: The keynote address from Joel Kurtzman, Global Lead Partner for Thought Leadership and Innovation, PricewaterhouseCoopers addresses some of the challenges in measuring and driving innovation.

White Paper: This paper is the key analysis of the results of the afternoon think tank among the Thought Leaders, as well as the input of the evening VIP audience. We have taken the ten ideas from the Forum and built them into initial recommendations for action. It is included in German and English.

We would like to extend special thanks to our Forum Partners, the Department of Economic Development of the Canton of Zurich, Credit Suisse Private Banking and our Knowledge Partner, PricewaterhouseCoopers, whose support for this Forum was crucial to its success. Many thanks as well to our Supporting Partner Ericsson, our Online Partner Venturix and our Software Partner groupVision.



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THOUGHT STARTER

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■ 1. Executive Summary

Innovation has emerged as a critical input for economic growth, especially in developed economies. Since 1995, USA and several Nordic countries have been leaders in innovation and creation of value through innovation. In comparison, the Swiss performance has been average. Though Switzerland compares favourably against some European nations, trends indicate that Switzerland is slipping as Europe moves towards the 'knowledge economy'.

This innovation record for the Swiss is not due to lack of trying. High expenditure on R&D, education and information technology indicate that the Swiss have made consistent effort towards achieving more innovation, and growing as an economy. But this effort has not been effective.

Opinions are divided on the lack of effectiveness with respect to innovation, but two key messages stand out. There is a need for institutional change in handling innovation and a need for change in the importance given to innovation within Switzerland.

Keeping in view the express purpose of this Thought Starter, a summary of opinions on innovation in Switzerland is also included.

■ 2. Background and Context

Overview

This section covers the background for the discussion on innovation by providing:

1. The objective of the Thought Starter
2. An overview of the Swiss economy
3. The definition of innovation and means for measurement of innovation

Objective

This Thought Starter seeks to present an overview of innovation in Switzerland in two parts:

1. An overview of Swiss performance in innovation
2. A brief analysis of the Swiss performance coupled with opinions on innovation in Switzerland, so as to provide a relevant base for the discussion on innovation.

The Swiss economy

Switzerland produces about 64% of its GDP through Services and about 34% through Industry¹. In addition to being a financial hub, Switzerland is home to the largest nutrition company and some of the largest pharmaceuticals and biotech companies in the world². It has a strong Small and Medium Enterprises (SME)³ sector that is engaged in high-end services and the production of machine tools and precision instruments. This SME sector is considered to be among the best in the world.

Paradoxically, Switzerland has notched a dismal real GDP growth of 0.6% annually from 1990-99⁴. This is below almost all of Western Europe and substantially below the 3.3% that USA has achieved. Big companies and economic strength notwithstanding, the Swiss are consistently slipping with respect to competitiveness ratings⁵. According to the World Economic Forum, present Swiss competitiveness ranks below Finland, Norway, UK, Ireland, USA and Denmark among others.

Opinion has suggested that the growth of developed economies, specifically USA in recent years, has been due to transition to the knowledge economy. This knowledge economy⁶ is described as the use of knowledge-based products and services⁷. Such a view is akin to stating - "future growth will be through the ability to innovate".

Definition and measurement of innovation

For the purpose of this Thought Starter, innovation is defined as:

"The development and application of new ideas to create value"

In this reference frame, any of the following: new products, new services, new processes, new ventures, new business models, new markets and even new routes to market are of relevance as long as value is being created.

A set of parameters for measuring the degree of innovation has been used. A summary of these measures is:

1. Labour productivity
2. Patent and trademark filing
3. New venture creation
4. Size of high technology sectors

1 Source: The Economist: Pocket World in Figures, 2002 Edition

2 According to Evalueserve estimates large Swiss companies provide 20-25% of employment. Their scope and markets are global in nature

3 According to the Swiss Federal Statistical Office, 99% of Swiss firms have less than 250 employees per firm, and they provide 70% of Swiss employment

4 Source: The Economist: Pocket World in Figures, 2002 Edition

5 Source: World Economic Forum, Global Competitiveness Report, 2001 and IMD, The World Competitiveness Yearbook, 2001.

6 The exact phrase used in the literature can be knowledge economy or new economy

7 See Why America is so successful in the new economy: a European view by Christoph Koellreuter

3. Swiss Performance in Innovation

Overview

The Swiss performance in innovation is average, as is indicated by a brief look at its record with reference to a relevant comparison set⁸ (See Table 1). It is noteworthy that this assessment is based on an analysis that ignores the effects of size of the economy. The discussion on size is taken up separately, wherever relevant.

The lack of performance in Swiss innovation is due to a wide set of reasons, and not just because of poor performance in a small area. Swiss performance is lacklustre in productivity level, improvement in productivity, new venture creation and new venture funding. Even in areas where indicators suggest that performance is better, such as the high percentage of GDP attributable to high tech sector and high new patent filing, there are visible trends and insights that negate the benefits.

Further analysis of these indicators conveys important gaps in the Swiss performance.

Table 1: Presents a set of rankings among 6 countries, and shows Swiss performance to be average. A ranking of 1 is the best performance in the group, and a ranking of 5 reflects the worst performance. Therefore lower rank implies better performance.

MEASURE	RANK					
	US ⁹	JP	UK	F	D	CH
Relative change in productivity (1980-2000)	4	1	2	3	NA	5
Productivity in 2000	1	6	4	2	3	5
Patents in EPO (1998)/ GDP	6	4	5	3	2	1
Patents in USPTO (1998)/ GDP	1	2	5	6	4	3
Venture Capital investment in country (% of GDP)	2	NA	1	3	4	5
Venture Capital based out of country (% of GDP)	2	NA	1	3	5	4
Information and Communication Technology (ICT) as % of GDP	1	4	3	5	6	2
Information Technology employment as a % of total employment	5	4	2	3	6	1
Average rank (lower is better)	2.750	3.500	2.875	2.800	4.286	3.25

Source: Productivity: ILO figures for 2000, productivity is measured as value added per employed person. Patent Filing: EPO, USPTO for patent filing numbers, The Economist for GDP. Note that Patent Filing numbers are for 1998, GDP for 2000. These numbers are generated by country of origin for patent. Venture Capital: OECD Science, Technology and Industry Scoreboard 2001, based on data from EVCA in Europe, NVCA in USA. Data compiled in the 2nd half of 2000. High Tech Sector: WIFO calculations using IDC (2000) and European Commission (2001) data. The values for Japan (for 1998) and USA are from OECD Science Technology and Industry Scoreboard 2001

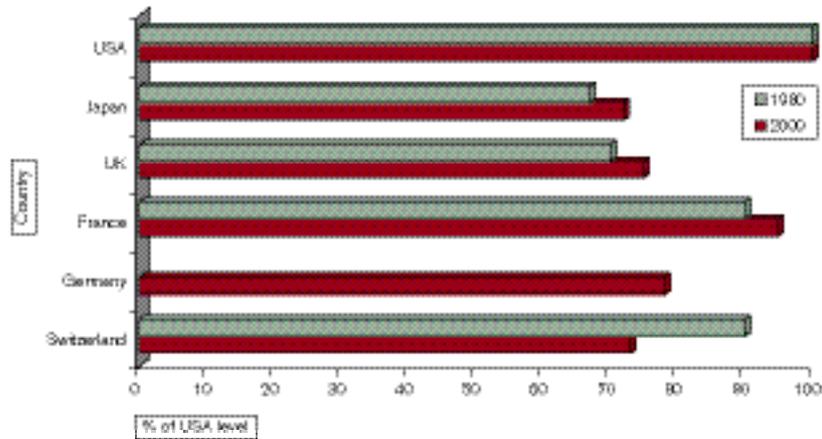
⁸ Germany, France, UK, USA and Japan are the comparison set.

⁹ US – United States of America; JP – Japan; UK – United Kingdom; F – France; D – Germany; CH – Switzerland. NA – Not Available

Productivity has fallen drastically

It is widely accepted that the surge in productivity that has taken place in the USA left much of the rest of the world far behind. Nevertheless, the extent of decline faced by the Swiss economy is startling (See Figure 1).

Figure 1: The Swiss productivity has fallen from 90% of USA level in 1980 to 73% in 2000. During 1975-95 USA had a productivity growth lower than Europe, and it is since 1995 that USA has surged ahead.



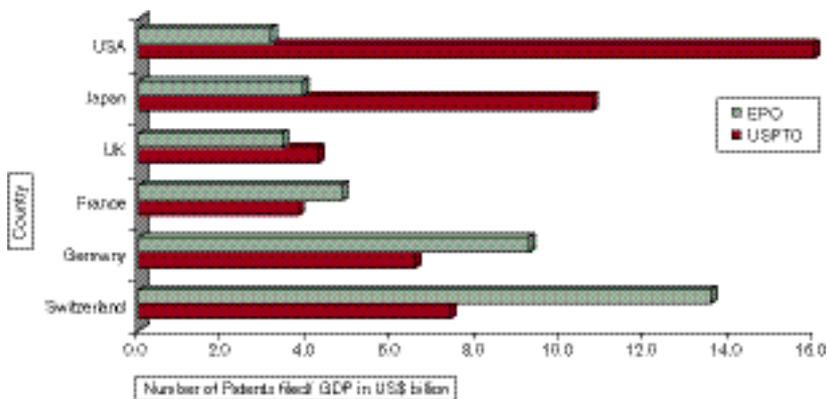
Source: ILO figures for 2000, productivity is measured as value added per employed person/

That the drastic fall in productivity occurred after 1995 indicates that Europe in general, and the Swiss in particular, could not adopt better processes and information sharing in the knowledge economy. Switzerland is in a situation where its inability to innovate is also impairing its ability to catch up because falling productivity is eroding competitiveness.

New product development is moving out

When adjusted for size using GDP, the Swiss economy puts up a sterling performance in the number of new products or ideas patented (See Figure 2)

Figure 2: Patent filing numbers for the Swiss are favourable once adjusted for the size of the economy.



Source: European Patent Office (EPO), United States Patent and Trademark Office (USPTO) for patent filing numbers, The Economist for GDP. Note that Patent Filing numbers are for 1998, GDP for 2000. These numbers are generated by country of origin for patent.

There is an indicative trend showing an outflow of inventions abroad. In 1997, of the total filings for EPO patents by Swiss residents 39% were invented abroad, while the reverse flow was 16%¹⁰. Swiss company employees outside Switzerland also rose from about 890,000 in 1988 to about 1,610,000 in 1998.¹¹

¹⁰ Source: OECD STI Scoreboard 2001

¹¹ Source: Swiss Federal Statistical Office, 1999

In a final reaffirmation of this trend, foreign expenditure on research by the Swiss private sector has grown to CHF 9 billion in 2000 against CHF 2.2 billion in 1983. In contrast, domestic R&D spend grew at a slower rate and increased from CHF 4.5 billion to CHF 7.8 billion¹² in the same period. Better destinations for R&D investment have emerged, and innovation is moving away. Switzerland faces the prospect of being “hollowed out”.

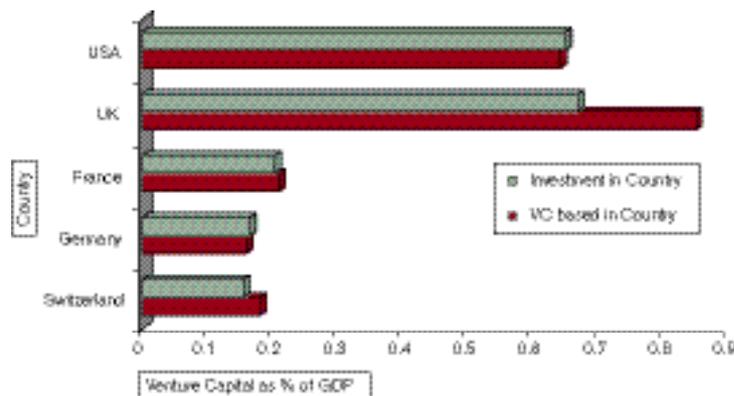
Intimately connected with hollowing out, is the inability of Switzerland to focus its efforts. Despite its good size adjusted performance, the small size of Switzerland makes a wide scope of new product development difficult to achieve. However, it has not been able to retain its lead even in important areas such as pharmaceuticals, as indicated by the recent shifting of Novartis’ R&D global base out to Boston, USA.¹³

Finally, the structure of the patenting system in Switzerland has been very complex in the past and the cost of patenting (including translation costs) has been too high. This is partly caused by the coexistence of three patent systems: Swiss, European and International. As a consequence, this complex patenting system for protecting innovation has been under-utilised.¹⁴

New venture creation is too small

In 1999 the Geneva region of Switzerland had 1365 new ventures, this jumped to 2391 in 2000. An extrapolation places the total number of new ventures in Switzerland at roughly 10,000 in comparison to approximately 770,000 new ventures started annually in USA in 1995.¹⁵

Figure 3: The new venture industry in Switzerland is too small, even when adjusted for economy size. Notably, there is not much of an investment gap in terms of source and destination.



Source: OECD Science, Technology and Industry Scoreboard 2001, based on data from EVCA in Europe, NVCA in USA. Data compiled in the 2nd half of 2000.

The Swiss performance in venture funding is suspect, especially when considering that its powerful SME sector should have created a strong trend towards entrepreneurship. Interestingly, even its financial sector has not had much impact in funding new ventures either locally or abroad. This lack of participation may stem from a strong sense of financial conservatism that Switzerland has fostered in its economy, which is a factor in a widely held perception that Switzerland is a safe haven for investments, and not an area of investment for growth.

To some extent the current company law also obstructs innovation. In Switzerland, the process of setting up an enterprise is relatively complicated, time consuming and costly. Furthermore, Swiss law does not provide for a limited liability partnership where only one member of the partnership is held responsible for the debts and where such member may also be a company. In the same way, Swiss company law does not provide for preferred stock with a stated dividend that must

¹² Source: Credit Suisse Economic Briefing #18

¹³ See Wall Street Journal May 7, 2002 - Swiss Drug Giant Joins Exodus To U.S. With New Global Lab

¹⁴ This entire opinion on legal frameworks has been kindly provided by Mr. Thierry Calame, partner at Lenz & Staehelin

¹⁵ See Entrepreneurship and Youth in the New Century: One American Approach, REAL Enterprises by Cullen Gurganus, Development Director REAL Enterprises, Durham, NC, USA

be paid before dividends to common stockholders. Both limited liability partnership and preferred stock favour external financing (risk investment). Another constraint of the current system is the fact that director's liability is relatively stringent.¹⁶

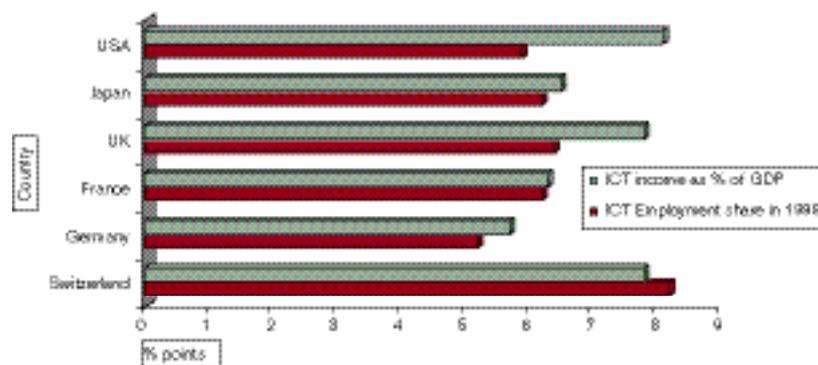
The regulatory and administrative environment for companies can also be a restraint to innovation. Cumbersome administrative formalities curb enterprise formation or external financing. For example, the setting up of a private equity fund requires the authorisation from the Federal Banking Commission, even though such investors in general are aware of the risks of their investment. Administrative law (for instance labor law and environmental law) also places a burden on companies by imposing regulations and prohibitions on research and development and production, especially in the biotechnology sector.

Swiss immigration law is a real obstacle to the free movement of highly skilled workers, i.e. those who contribute most to spreading innovation, into Switzerland; especially when they come from outside of Europe.¹⁷

Employment in high tech sectors is large

Switzerland employs substantially in the Information and Communication Technology (ICT) sector. As a reflection, it also has one of the highest GDP contributions from ICT.

Figure 4: Switzerland has a very high percentage of its employees in ICT.



Source: WIFO calculations using IDC (2000) and European Commission (2001) data. The values for Japan (for 1998) and USA are from OECD Science Technology and Industry Scoreboard 2001. Growth rates also from OECD Science Technology and Industry Scoreboard 2001. Note that the Swiss growth rate estimate is not available

However, the impact of this investment in ICT is poor. With over 8% of total workforce, the Swiss produce about 8% of GDP from ICT. This is the poorest employment to output ratio in the comparison set, and suggests that the Swiss ICT sector is not as high value adding as other countries. This is reinforced by the fact that the highest end of the information technology market, i.e. packaged software, produces less than 1% of GDP (about 10% of ICT).¹⁸ The IT spend in Switzerland is focussed on the low end, not on innovation.

¹⁶ This entire opinion on legal frameworks has been kindly provided by Mr. Thierry Calame, partner at Lenz & Staehelin

¹⁷ Ibid.

¹⁸ Source: Datamonitor September 2000

■ 4. Causes for lagging innovation in Switzerland

Overview

The Swiss effort in innovation is remarkable, but it has not delivered. While deficiencies in effort are certainly present, the overwhelming opinion sites two related causes for this lack of effectiveness. The first cause is the general lack of interest in innovative ventures in Switzerland. This is reflected not only in a conservative attitude towards business, but also in a lack of public opinion or pressure to push innovation. The second cause is that Switzerland has not moved far in developing institutions or practices that can support innovation, such as investment in areas of secondary and higher education. It may also be that a lack of public interest has ensured that innovation is kept at a low priority in Swiss institutional efforts.

Switzerland has invested considerable effort

The Swiss effort in innovation is amongst the most intense worldwide. If measured as a percentage of GDP, the Swiss are amongst the highest IT spenders in the world and have also invested heavily into R&D and into the development of human resources (See Table 2).

The efforts are not delivering

While there are still considerable gaps in effort, such as lack of venture investment and relatively low university degree enrolment, it remains true that whatever effort is being put in is not delivering (See Table 3).

Table 2: Presents a ranking analysis similar to table 1. This analysis shows the effort put in by Switzerland into innovation, and a relative comparison indicates it has put in considerable effort.

MEASURE	US ¹⁹	JP	UK	F	D	CH
Historical R&D Spending (Total R&D as a % of GDP)	2.65 (1999)	3.01 (1998)	1.83 (1998)	2.17 (1999)	2.38 (1999)	2.73 (1996)
Historical R&D Spending (R&D by businesses as % of GDP)	2.01 (1999)	2.17 (1998)	1.20 (1998)	1.37 (1999)	1.63 (1999)	1.93 (1996)
Doctorates Granted/ GDP in billion USD	4.7 (1997)	3.2 (1997)	7.6 (1998)	7.7 (1998)	11.4 (1998)	14.1 (1997)
First University Degree/ Population 24 years old	32.1 (1998)	28 (1997)	35.1 (1998)	13.2 (1998)	24.3 (1998)	20.6 (1998)
Historical spending in IT as % of GDP (1992-1999)	8.1	6.5	7.8	6.3	5.7	7.8
IT spending in recent years as % of GDP (2001)	9.5	8.2	9.6	7	6.8	9.4
Average rank (lower is better)	2.66	3.00	3.50	4.83	4.33	2.66

Source: R&D Indicators: Australian R&D indicators in an International context (May 2001) Department of Industry, Tourism and Resources, Australia. IT Spending: The Economist for 2001 and a combination of WITSA (2000) for the spending data; World Bank Development Indicators for the GDP data for 92-99. Education Data: National Science Foundation, USA./

¹⁹ US – United States of America; JP – Japan; UK – United Kingdom; F – France; D – Germany; CH – Switzerland. NA – Not Available

Table 3: No other country in the group gets less result for more effort

MEASURE	US ²⁰	JP	UK	F	D	CH
Composite ranking measure of results (from Table 1))	2.750	3.500	2.875	2.800	4.286	3.25
Composite ranking of effort (from Table 2)	2.66	3.00	3.50	4.83	4.33	2.66
Effort - Result, a measure of effectiveness	-0.09	-0.50	+0.63	+2.03	+0.04	-0.59

Source: Table 1 and 2 rankings

Using the methodology of table 3, a comparison of the relative ranking of effort and result indicates that certain countries gain more leverage from their effort. This is indicated by, for example the UK, which has a higher ranking in its result than in its comparative efforts evidenced by a +0.63 improvement in its relative ranking. Switzerland, whose ranking in effort is 2.66, drops in contrast by -0.59 in its composite ranking of results.

A number of reasons can be pointed out for this lack of effectiveness, and a survey of opinions suggests interesting thought starters.

Thought starter

Two distinct streams of thoughts have emerged in the analysis of opinion. First, there is a lack of interest in innovation in Switzerland and second, there is a lack of institutions to guide the innovation effort. Together they ensure that Swiss effort is frittered away without delivering substantial results.

The Swiss people on innovation

Mobilisation of opinion is needed

In a strong recent indictment, it was highlighted that an overall complacency with regard to the Swiss attitude to innovation²⁰, stating that innovation is off the public opinion radar screen in Switzerland. This opinion has suggested that despite repeated studies showing falling competitiveness, falling education standards and falling productivity there has not been any sustained media interest, or legislative/ executive action to arrest the fall. In a logical conclusion of this argument, it is difficult to regard that innovation will be a priority in a highly democratised environment like Switzerland, without organising public opinion for it.

Risk taking needs to be encouraged

The Swiss people take a traditional view of business and maintain a conservative mindset with respect to professional opportunities. This is reflected clearly in the nature of start-ups. Only a few Swiss start-ups begin with innovation. Instead highly educated professionals with considerable experience create new ventures²¹. Furthermore, the appetite for risk in Switzerland is likely to decrease rather than increase unless concerted efforts are made. This is a further area of concern because about 28% of the population will be over 65 years in age by 2030,²² and the ageing of Switzerland will both reduce the risk taking appetite while increasing the burden on a shrinking workforce.

²⁰ See "Jetzt haben uns auch noch die Finnen überholt" at http://www.weltwoche.ch/ressort_bericht.asp?asset_id=2276&category_id=60

²¹ Source: Formation of new businesses in Switzerland – An empirical analysis by Najib Harabi, August 2001.

Solothurn University of Applied Sciences Northwestern Switzerland, Series A: Discussion Paper 2001-W08

²² Source: Swiss Federal Office for Statistics, "Trend"

The Swiss institutions on innovation

Commitment to Education

There are three key weaknesses that can be pointed out in Swiss education. First, the impact of the Swiss school education level is comparatively low. Swiss schooling has been ranked 20th in terms of effectiveness in the PISA study²³ for 2001. In this study the percentage of students ranked at rudimentary understanding or below is 20%. Such basic schooling is unlikely to push innovation.

Second, the enrolment of students for first level university degrees is low²⁴, even though the percentage of doctorates is very high. This suggests that education is pursued by a surprisingly high number of people as a career in itself, rather than as an enhancement to a career outside of education.

Third, the ability of the Swiss educational institutions to collaborate with industry in encouraging innovation is questionable.²⁵

Together these three factors weaken the ability of educational institutions to promote innovation.

Regulation for innovation needs change

Illustrative of lack of institutional support, Intellectual Property Rights (IPR) awareness is still relatively low in Switzerland, especially among SMEs and public sector research institutes. IPR generated through public sector research are, in general, still not well exploited. This is despite the fact that the transfer of technologies from universities and research institutions to the market place has been enhanced to some extent by the creation of Technology Transfer Organisations (e.g. Unictetra, ETH Transfer). The current legal situation is unsatisfactory because it often lacks clarity as to IPR ownership in higher education institutes. Another area of concern is ambiguity of the patentability of software-related and biotechnological inventions. For instance, computer-programs as such are excluded from patentability. Yet numerous patents for technical inventions using a computer program have been granted by the Swiss patent office and the European patent office. This lack of legal certainty is likely to have adversely affected innovation in the software sector. Another weakness in the current patent system is the co-existence of 26 first instance cantonal courts with jurisdiction over patent disputes. Most of these courts lack the expertise to deal with complex patent litigation and to deliver decisions within a reasonable period of time.²⁶

Globalisation of effort is needed

There are two aspects of globalisation that inhibit innovation in Switzerland. First, the lack of integration with European markets, especially due to the referendum rejection on joining the European Union, has reflected on the Swiss ability to innovate. The small Swiss market offers little cushion for absorbing risks associated with innovation.²⁷ It has also meant that while the entire European Union has created a co-ordinated effort to measure, benchmark and promote innovation, Switzerland is isolated in its effort.

Second, Switzerland has maintained strong barriers to immigration that is causing a shortage of skilled manpower, especially in the high tech and research driven sectors. Even if Switzerland ensures that domestic supply of high quality manpower improves over the years, it must have a policy to attract and retain the best brains in the world.

Switzerland will have to work with a global scope in terms of both resources and markets to encourage innovation.

Co-ordination is required

The Swiss effort at innovation needs to focus and co-ordinate its investments, commitment and objectives, and push to establish the urgency of these questions. Chief amongst these requirements is co-ordination between educational institutions, research set-ups, industry, public sector and government to focus the research spending²⁸ and all other investments and initiatives focused on driving successful innovation.

Disclaimer

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23 Source: OECD Pisa Database, 2001

24 See Table 2 in this report

25 Source: Why America is so successful in the new economy: a European view by Christoph Koellreuter

26 This entire opinion on legal frameworks has been kindly provided by Mr. Thierry Calame, partner at Lenz & Staehelin

27 Source: Why America is so successful in the new economy: a European view by Christoph Koellreuter

28 Ibid.

KEYNOTE

OOO FIRST TUESDAY ZURICH

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Metrics of Innovation

Keynote Speech at the Thought Leadership Forum 2002

25th June 2002 at the Gottlieb Duttweiler Institute, Ruschlikon

Joel Kurtzman, PricewaterhouseCoopers

Thank you for inviting me to this Thought Leadership Forum.

This evening, I would like to speak about innovation. What it is, how we measure it, and what we can do with it in order to make our companies better.

To start, I want to give you one thought that I believe very strongly. Innovation and competitiveness are not national issues. They are corporate issues. Companies compete. Countries don't compete. Yes, a country has to provide the infrastructure, the educational superstructure, and healthcare. But, that is not where competitiveness lies. Competitiveness and economic benefit lie in companies, in the economic engines of that economy. From my standpoint, the most important thing to think about is not the country, but it is how you create economic value within companies. That alone will give the country benefit.

Looking at innovation from that standpoint, I am not interested in the perspective of the ivory tower or academic research. That is very important, but it is very distant from value creation. Much of it is irrelevant to value creation. This research is about understanding the way the world works and how systems integrate. Some of it will, years later, decades later, lifetimes later, work its way into the economic initiatives and the economic value creation of a country.

Therefore, I look at innovation and define innovation from a very narrow perspective. From the perspective that the purpose of innovation is to create value – measurable value.

There are many ways to measure that value: revenue, profit or shareholder return. From this perspective, innovation is not measured in terms of patents or copyrights. Countries like to boast how many patents they have. If you take Switzerland as an example, the numbers of patents and copyrights that emanate from this small country is amazing. And yet it does not translate into economic growth. Over the last decade in Switzerland, growth has been below or around 1%. That is a very meager return. That is roughly the same level as Japan, which by the way, has the highest number of patents issued every year of any country in the world – and has been in recession for a decade.

As a result, I do not look at patents, or copyrights, or anything that results in bragging rights. They do not indicate the creation of value. They indicate minds at work, but they also indicate protection of turf. They are not indicators of value.

Innovation is also not measured by the number of PhD or scientists. Russia has more scientists than any other country in the world, and India is number two. Both India and Russia are making progress, but it will take decades and decades for these countries to catch up with the standard of living you have in Switzerland – if ever.

The key measurement of innovation is the amount of economic growth in a company and the demonstrable increase in productivity. Other important factors, which are hard to measure but very real, are customer satisfaction and customer delight.

PricewaterhouseCoopers has recently completed a study on innovation. In it you will find some very interesting statistics of what innovation means in terms of growth. For example, companies that have 50% of their revenue from products that are five years or younger, the average total shareholder return over the last decade has been 15% or greater. That puts innovation in a real context. It raises the bar and tells you that innovation itself is one of the key determinants in creating shareholder return.

But no company, both from my experience and the research that I've read over the years, can be an innovator without leadership from the top. This is a CEO issue. It is not an issue of marketing. It is not an issue for the technology department. The CEO has to dedicate himself to being the Chief Innovator in the company. He has to make sure that people understand that innovation is what he is looking at in terms of performance evaluation.

Innovation is an unnatural act for many organizations and is often not part of the culture. Many of Russia's best-trained minds were stagnant for decades until they came to the US or to Israel where innovation was something that was valued. Innovation is not just a matter of intelligence.

I want to give you the case of Industrial Light and Magic as an illustration. Industrial Light and Magic was founded by George Lukas. The company is based in Northern California and its primary business is the creation of animation and special effects. By global standards, it is not a very big business. Turnover is about USD500-600 Mio a year. But, it is very pivotal to the film and entertainment industry, where it occupies an important role.

At Industrial Light and Magic, the management of the creative process is designed to be invisible. The way that they manage is to create a place where it looks like everybody can do anything he wants. Someone with a bright idea is allowed to just go and pursue it.

What the creative people don't know is that every move is monitored by the management from a cost and customer satisfaction perspective. So while people think they are just being geniuses, free to create, and having an opportunity to make movies and some of the most incredible animation that has ever been done, in fact, every step of the way is closely monitored for cost and customer satisfaction. The result is that the creative process is practical and pragmatic.

I bring up Industrial Light and Magic for another important reason. Its main supplier of computer systems is Silicon Graphics, which is now part of Sun Microsystems. The demands that Industrial Light and Magic puts on Silicon Graphics are intense. They want faster computing power. They want better interfaces. They want all kinds of incredible graphic capabilities. They want processing speeds. They want the ability to move in multi-dimensions. They want all kinds of incredible colors. Hence, Industrial Light and Magic is a horrendous customer.

And yet, Silicon Graphics stood very closely by Industrial Light and Magic. They made an alliance with Industrial Light and Magic, and work very closely to satisfy every crazy demand of the creative people who work there. Why do they do it? Because what Industrial Light and Magic demands of Silicon Graphics, Silicon Graphics then sells as a regular feature in its products to Boeing, to Daimler Chrysler and to Ford – its traditional big customers. As a result, the disruption that is caused by Industrial Light and Magic makes Silicon Graphics much more competitive in a very important marketplace.

There was a comment earlier about embracing ideas from the outside. I would say that in the innovation game, you have to embrace not only outside ideas, but the most difficult ideas and the most demanding and disruptive customers.

Innovation is also born of diversity, which was also a topic earlier today. Japan and Switzerland, for example, suffer from homogeneity. Much of the culture in Swiss companies is alike. That is not the case in the most innovative areas and companies of the world.

In innovative companies a lot of interaction is going on. Misunderstandings, cultural differences, people challenging each other, in an often not very kind way, finally lead to very constructive and new outcomes.

Intel is a very good example. Intel is really a mini-UN, just like Silicon Valley is a mini-UN. The teams at all levels are very global: a Hungarian-born chairman, an American-born president, an Indian-born head of manufacturing, an Israeli chip-design team and Indian/American software developers and debuggers. This is not a HQ-culture with a lot of investments around the world. It is a seamless integrated unit. It is diverse and diversity is hard to manage. It is very messy but it works.

Innovation is also about learning. It is about learning how quickly you can improve. It is not just learning how well a company does in terms of its knowledge of chip or software design. It is about measuring how quickly processes improve, and how quickly a company can learn.

Continuous learning means measuring the half-life of an idea within a company, measuring how long it takes to improve the introduction rate, and to speed up processes. It means measuring whether or not the rate of increase is increasing when it comes to learning.

What we learned today at the Forum is that creativity often happens at the edge of chaos. I was very glad to be part of this process today, which was messy. People were playing with play dough and arguing about different ideas. There was music in the background and kids running around. I was happy to see that it produced results. It has been my contention that the edge of chaos is important, and yields results. Innovation is not a clean process. Innovation has a lot of failure built into it, and innovation is about tolerating those failures. The best venture capital firms in the world have about a 20% success rate – admittedly much worse in the current environment. Innovation means tolerating the fact that failure is a part of the game. Innovation means celebrating failures as the first step in the process.

It also means choosing the right things to measure. I recall a software company that had a very good metric of all the business it won from customers. There was a great graph showing a strong line of increasing its customer wins every year. What it didn't chart was the number of losses of customers. The company is out of business today. Even though it was winning, the losses outnumbered the gains.

Surveys often produce misleading results. The Cadillac brand in the United States does an annual survey of customer satisfaction. The survey shows that customers of Cadillac are very satisfied, and that they will come back and re-order. But for 20 years, year after year, Cadillac has lost market share. Yet all the surveys say customers are satisfied.

So the real challenge is measuring the right things, and knowing in fact that what you are measuring is appropriate.

Let me explain this by the example of a Canadian Bank. This bank was quite successful, but it had no sense of its potential in the market. All it knew was how successful it was against the other 5 or 6 Canadian banks.

So one of the first things that we did was to ask if the measures of market share vis-à-vis their competitors were the right measures. Do they add up to 100% of the market? What we found out was that in Canada a large group of people were not in any of the metrics. In Canada, there is a system of Church banks where people get mortgages and do a lot of banking informally. It accounts for 15% of the market in certain parts of the country and up to 20% in other regions. This sector is actually a very significant player, and yet they didn't show up on any of the bank's metrics.

We changed that. We looked at the total opportunity and the total market in terms of banking. Suddenly we had a very different picture. All the banks were operating far below their potential. They were going after the wrong competitors.

We also realized that the incentives in the bank were inappropriate. Each branch manager was rewarded on how he compared with his internal rivals. His bonus was dependent on how he did vis-à-vis his peers. It created a very competitive relationship. As a result, no one in the bank shared any information. Each bank manager, each branch manager, each region manager and each district manager kept their figures and ideas to themselves.

So we changed the rewards process and we linked it to potential. We now knew that there was a lot of potential in the market. We told the managers that they were now going to have their bonus set by how much of that new potential they captured.

What happened in just a few days was a miracle. The entire culture changed, without much training, without talking and explaining things very carefully. When people saw that they were going to be rewarded by realizing their potential in the market, they used the most basic of technologies available to achieve that. They picked up the phone, which they hadn't done in years, and they called their rival branches in the system and said: "We see that your mortgage initiation rate has moved up, and you've moved up higher in your region, how did you do it?" They shared information.

The bank, which was sluggish and under-performing, was suddenly awash with new and innovative ideas. The information was captured very formally and circulated. The innovation was institutionalized. Once the barrier within the incentive structure had been identified and dropped, the unnatural process became natural. That accounted for a tremendous change. The bank is still quite successful today.

Traditional measurements of innovation are flawed. Better frameworks for measurements have to answer questions such as: Are we measuring the right things? Are we doing the right things right now? How fast are we getting better? Are we getting value from the right resources and the right customers? Do we have enough innovative customers who really push us? Or do we have basic customers who tell us they are satisfied but will go somewhere else as soon as our rivals innovate? Do we have an enterprise innovation scorecard that really measures this?

In the traditional way of measuring and managing performance, you set your goals, you create a strategy that should exploit your potential, you create a balanced scorecard, you create a performance management system, and you get results.

This is a recipe for success or a recipe for disaster. It doesn't necessarily produce innovation, and it doesn't necessarily help companies improve in an ever more competitive landscape.

For strategy, innovation means that you have to explore yourself. Explore the assumptions, the perceptions, the discontinuities, and the broken parts of the company that people don't talk about very often, except to grumble at each other in a non-constructive way. You have to accept failures and gaps as real and approach them from the standpoint of how to fix them.

Look at your market and your market focus, your worst customers and your most unhappy customers. I know it is painful, we've all been there, but they have to be part of the process. Then you have to create and implement scorecards that measure the right things.

From there you start to manage the business. But what this process does is change priorities. The actual management of the business becomes a lower priority than the learning component of the business, lower than the innovative part of your business and lower than the really messy part of making certain that your business is drawing more revenue from its best, worst-behaved and most innovative customers. If a company sticks with the easiest customers, the ones who are the easiest to please, someone in a garage somewhere will be coming up with a product or a service that will put that company out of its misery, or out of its complacency, or out of its business.

This is not just a theory. A lot of very big companies that were Fortune 500 companies a decade ago are gone. They were household names and global brands, and now they are gone – in just a decade. I believe that is because they failed to capitalize on their innovative potential.

There is another a company that I admire a lot, Analog Devices. It is a USD2 billion company in the Boston area. It is also the company which invented balanced scorecards, a way to systematize the measurement of performance along the elements that are important to its future. They came up with balanced scorecards about a decade ago, and have been perfecting the process ever since.

For Analog Devices, one of its critical metrics is the percent of revenue and profit from products that are 18 months old and younger. Every company in each space has a different time frame for innovation. Certain industries innovate at slower rates naturally than others do. The high tech industry has a different rate from automobiles or cement or bricks or chemicals. Analog Devices makes chips for cell phones and analog to digital conversion, and their time frame is much tighter than the, perhaps five-year, time frame of an automobile company.

Analog Devices measures on a monthly basis the percent of its revenues and profits from products 18 months or younger versus the entire portfolio of products. They consider this not just a management tool, but also a learning tool. Are they in the right spaces? Are they working with the right customers? Are they getting the right feedback from the customers that can help them in their innovative cycle?

The second critical measure for Analog Devices is customer satisfaction. Once they know the number of customers and revenue from new products, they want to make sure that the new products are making people happy. They consider this an indicator of whether or not they will stay in business.

They also want to measure their processes and the ways in which their processes get better. They are not interested in just process improvement. They are interested in the rate at which processes improve, and whether or not that rate is improving. That is a subtle but critical difference in measuring innovation.

And, although it sounds counterintuitive, innovation is hard. It has to be worked at. Companies have to push themselves. They have to struggle with their own culture to break down barriers. Sometimes they have to discover what the real barriers are. Companies have to institutionalize innovation, and it has to be driven from the top.

Companies have to recognize contributions. Innovation is not just a suggestion box, or a leader with an open door policy. Innovation needs champions. Frequently, there is someone who has struggled to get an idea adopted throughout a company, sometimes at the risk of his or her career. That person is a zealot or a champion for an idea. That person should be recognized.

You have to develop networks to foster this flow of innovation. But as the example of the Canadian bank indicated, it is not necessarily high tech. It is not necessarily expensive technology. It could be the telephone you pick up, or it could be face-to-face meetings. But you have to communicate both internally and externally about innovation, and create structures and processes for people from different disciplines to come together.

At Rhone-Poulenc, before the merger, Jean-René Fourtou would have every group get together, from research to sales, once a year for a face-to-face global meeting. He would often invite them to taste wines with him, and worked to make these meetings into a community building experience. Jean-René Fourtou would not only invite the internal staff, but also external people, consultants or advisors, who worked with them. He wanted to create communities of innovation.

Finally, some comments about innovation and technology. Technology empowers the drivers of innovation, but it is not the driver. Technology is required to achieve higher levels of strategic integration, for instance developing new products together with suppliers. Technology can help create horizontal links, which enable joint ventures and collaborative research.

But you also need to be certain not to dismiss disruptive technologies. Customers are often unaware of the services they will use once the value proposition is proven. And success can work against innovation.

Digital Equipment Corporation had a winning product with great technology. But they were overtaken and they didn't even notice it happening. This is the dilemma of the successful innovator. How do you protect yourself against a product that is coming in very rapidly from a space that you don't yet see?

You must constantly be aware of the wider world. Innovation requires a mindset that says nothing in a company is safe from change. Everything should be looked at. That doesn't mean you tear down everything. That doesn't mean that you destroy what is productive. It means everything is subject to examination. It means making a decision whether or not what used to work yesterday, still works today.

WHITE PAPER

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Innovation - Getting back on track

Ten ideas to promote Innovation in Switzerland by First Tuesday Zurich, the Gottlieb Duttweiler Institute and BrainStore. (Boris Schneider and Samuel Dubno)

Management Summary

Recently two papers have seriously shaken the Swiss economy's self-confidence: the growth report of the State Secretariat for Economic Affairs (SECO) commissioned by Federal Councillor Pascal Couchepin and the OECD's (Organisation for Economic Cooperation and Development) country survey of Switzerland. The conclusion is sobering: in the nineties Switzerland fell behind dramatically in terms of economic growth. Switzerland is the only member country of the OECD unable to increase its real per capita GDP. With the transition from an industrial to a service and knowledge society, global competition has become innovation competition. Only constant innovativeness guarantees success, since innovative capacity has become a central driving force of economic growth on today's globalised markets.

Although the funds invested in research and development by the private sector account for about 2% of GDP, too few funds are flowing into the promising innovative growth sectors such as biotechnology, IT or mobile technology.

Furthermore, a dangerous trend of brain drain has become noticeable. An increasing number of high-powered Swiss scientists are leaving the country to work abroad where they enjoy better conditions in research, in the development of new products and the creation of new firms. As a result, an increasing number of patents filed by Swiss nationals with the European Patent Office, for example, are filed by Swiss working abroad. Companies, such as Nestlé and Novartis, with a long tradition of commitment to research, have set up well financed research centres abroad.

Innovation politics have become a burning issue discussed by political parties, think tanks and parliamentary commissions. They maintain that the key to the future success of our country as a centre to attract strong companies caught up in the innovation competition resides in the networked interaction between all players with a part in the production and transfer of knowledge.

During the second Thought Leadership Forum on June 25, 2002 in Rüschiikon, First Tuesday Zurich and the Gottlieb Duttweiler Institute invited about twenty decision-makers from the economy, science, politics, technology, the media and culture to work with a group of young people. Facilitated by the Biel-based company, BrainStore, the gathering reflected on what could be done in concrete terms to create a more innovation-friendly framework in Switzerland and to strengthen the innovative power of companies. The ten ideas set forth in this paper are the result of this brainstorming.

Summary of the ten ideas

Idea No. 01: Start challenging early

The Swiss concept of kindergarten and primary school is obsolete. Children are far more able than we have traditionally believed. And at a far younger age.

We demand that children start going to school at a younger age. Switzerland's compulsory school system needs to be overhauled. Children can and must be encouraged at a younger age and more comprehensively.

Idea No. 02: Stop the error terror

A paralysing zero-error culture prevails in Swiss schools and professional life. Coping skilfully with defeat and failure, however, is an important attribute that every independent, successful entrepreneur has to possess.

We demand a new error culture in schools and professional life. Mistakes must be seen as essential learning tools and not as a reason for punishment.

Idea No. 03: Innovation comes from the outside

Many firms approach the process of innovation in a spirit of intellectual in-breeding. The largest knowledge base, however, rarely resides intra muros. Looking beyond the edge of one's own domain is indispensable for good ideas.

We demand the opening of borders. The immigration barriers for foreign skilled labour must be lowered. Firms should be more outward looking and strengthen interaction with their environment.

Idea No. 04: Rotation for innovation

Although many careers may have vertical lift-off, they often lead directly to narrow-mindedness, whereas circuitous routes and insights in other activities generate cross-fertilisation.

We demand variation. Practical internships, exchange programmes and job rotation in training, education and professional life broaden our view.

Idea No. 05: Imitation and innovation

The culture of Swiss engineering and the requirement for the highest quality, which are a strong legacy, are optimal prerequisites to kick-start growth efficiently: copy and improve.

We demand "copy right!" instead of "copyright". To copy is to learn – and learning is a prerequisite of innovation.

Idea No. 06: Informally original

A healthy degree of informality in rigid corporate cultures may, at least, be a first step towards increased creativity and innovativeness.

We demand (and offer) that people are on first-name terms. A casual atmosphere fosters creativity.

Idea No. 07: Innovation incentives

Granting tax incentives is a simple and well-proven method of inciting firms to take certain actions. Until now most managers have followed the seductive call of money.

We demand tax breaks for innovative firms. The motivating force of financial incentives is unequalled.

Idea No. 08: Quality time

Developing good ideas takes time. More time than most employers are willing to give us during the jam-packed 8.2-hour workday.

We demand more time to think during the day. Firms should give their employees (more) time to develop innovative ideas.

Idea No. 09: Coordination of innovation

Switzerland's total R & D expenditure is high – and marginally effective. What is sorely needed is not only more money, as the Swiss National Fund recently demanded, but more coordination.

We demand the creation of a Swiss Ministry for Innovation. Coordinating and focussing all private and public activities and spending will increase the return on the high research expenditure.

Idea No. 10: Innovation Index

There are rating scales, quality labels and certificates for nearly everything – to measure performance at school, for animal-friendly husbandry and business processes. There are no yardsticks to measure the innovativeness of a firm or a country.

We demand that Switzerland participate actively in the design and implementation of a multinational standard to measure innovation.

■ Innovation - Getting back on track

Introduction

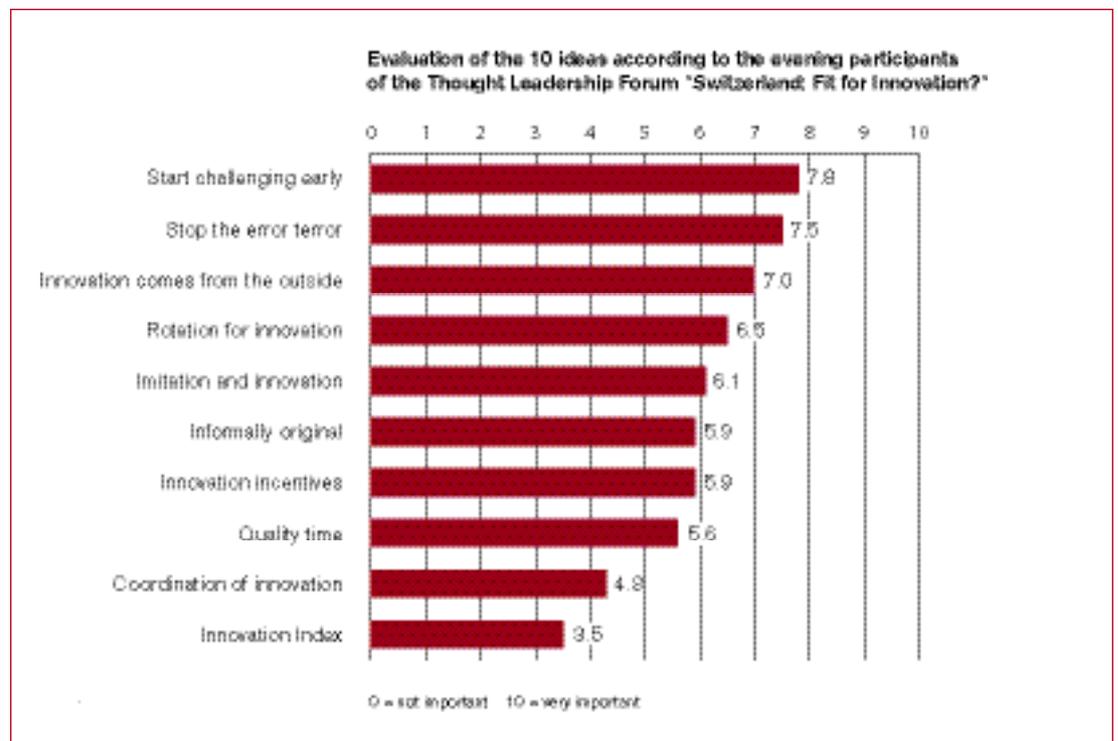
Recently two papers have seriously shaken the Swiss economy's self-confidence: the growth report of the State Secretariat for Economic Affairs (SECO) commissioned by Federal Councillor Pascal Couchepin and the OECD's (Organisation for Economic Cooperation and Development) country survey of Switzerland. The conclusion is sobering: in the nineties Switzerland fell behind dramatically in terms of economic growth. Switzerland was the only member country of the OECD unable to increase its real per capita GDP. With the transition from an industrial to a service and knowledge society, global competition has become innovation competition. Only constant innovativeness guarantees success, since innovative capacity has become a central driving force of economic growth on today's globalised markets.

There are many examples of highly traditional Swiss firms resting for too long on the laurels induced by self-satisfaction and complacency. Bally, which once upon a time shod the whole world, kept its factories going while totally ignoring customer needs. Today, the company is owned by a US-investment company, has moved its headquarters from Schönwerd in the Canton of Berne to the Swiss-Italian border and cut back its payroll from 16,000 to 1,750 employees. Or take Ascom. The former exclusive supplier of state-owned telephone company PTT Telecom, has reduced the number of its business areas substantially and is attempting the tough turn-around from telephone company to high-tech firm. International benchmarks measuring competitiveness and innovativeness reflect these developments. According to the Competitiveness Report of the World Economic Forums (WEF) for 2001, Switzerland ranks far behind other European countries such as Finland, Norway, England, Ireland and Denmark in terms of international competitiveness. Yet company expenditure earmarked for R & D, accounting for nearly 2% of GDP, is high, but evidently not especially effective. Funds are chiefly invested in traditional areas such as the chemical industry, engineering and capital goods, the construction industry and consumer goods. Growth segments with promising innovation prospects such as biotechnology, IT and communications technology seem neglected. Furthermore, potential entrepreneurs have to grapple with major difficulties in Switzerland arising from complicated incorporation procedures, intricate patent legislation and the often conservative thought patterns governing investors' strategy of allocating venture capital, when they wish to translate new ideas into mass production of products or services.

Although the statistics of the European Patent Office (EPO) certify that Switzerland has been granted an extremely high number of patents compared with the size of its economy, placing it behind the USA and Japan, but before England, France and Germany by international comparison, a dangerous trend of brain drain has become noticeable. In 1997, for example, about 39% of patent applications were filed by Swiss nationals working abroad - and only 16% by foreigners working in Switzerland. While in 1988 only 890,000 Swiss nationals held a job abroad, this figure almost doubled within 10 years, to 1,610,000 in 1998. It is striking to note that the money invested in R & D abroad by Swiss firms is expanding much more rapidly than the same category of investment at home. From 1983 to 1998 it increased from CHF 2.2 billion to CHF 9 billion, whereas domestically it only rose from CHF 4.5 billion to CHF 7.8 billion. Even companies with a long history of tradition and close ties with Switzerland such as Novartis and Nestlé have recently followed the call of alternative locations for product development, and have opened well funded research centres abroad. Switzerland is losing its innovative brains: the brightest talents are finding more advantageous conditions abroad when it comes to the marketing of new products and founding of new companies. Switzerland is seriously threatened by intellectual depletion, for we still do not possess any other natural resources than the sum of all the grey matter of those who live and work here.

In the mean time many think tanks and parliamentary commissions have turned to the subject of innovation policy. They are all maintaining, in unison, that the success of our country as a society and as a location for firms caught up in the innovation competition, resides in the networked interaction between all the players with a part in the production and transfer of knowledge. Education, research and technologies, the importance of which was vastly underestimated in the past, have become vitally important today and should be understood in the context of global innovation competition and tailored to the new challenges.

During the second Thought Leadership Forum on June 25, 2002 in Rüslikon, First Tuesday Zurich and the Gottlieb Duttweiler Institute invited about twenty decision-makers from the economy, science, politics, technology, the media and culture to meet with a group of young 14 to 19 year olds. Facilitated by the Biel-based company, BrainStore, the gathering reflected on what could be done in concrete terms to create a more innovation-friendly framework in Switzerland and to strengthen the innovative power of companies. The ten ideas set forth in this paper are the result of this brainstorming and are presented in the order of importance established by the participants (see graph below). They should serve as the basis for more detailed discussions and – it is hoped - for measures; they are also a contribution to Switzerland's national holiday this year. (August 1. 2002)





Idea No. 01: Start challenging early

The Swiss concept of kindergarten and primary school is obsolete. Children are far more able than we have traditionally believed. And at a far younger age.

Can the foundations of innovative thinking and behaviour be transmitted at an earlier age? Switzerland's school and education system is still grounded in the development psychology marked by Jean Piaget at the beginning of the 20th century. Today, neurobiologists believe that the result of these teachings, however, was to systematically under-estimate children's talents. The human brain possesses more than 100 billion nerve cells, which are connected to each other by about 100 billion contacts (synapses). Every impression, every situation, every stimulus to which a human being is exposed, modifies this finely woven network, by either strengthening or weakening certain neural connections. According to more recent findings the brain matures in two stages: the rough circuit board constituting the neural connections develops during childhood and thus shapes the pathways along which the future adult will think. During puberty and later on the existing connections are merely strengthened or weakened. This is why neurobiologists are demanding that the transmission of knowledge in various areas, including mathematical and natural-scientific skills, begin at an earlier age than is customary today – in a playful, lively, experimental and relaxed way. Would this have to be at the expense of childhood? No, quite to the contrary. Children are veritable energy rockets, have a great thirst for knowledge and a great potential for frustration. They are unafraid of risk and approach even insoluble tasks optimistically. All these are traits which one can, even should, develop well before children are seven years old.

We demand that children start going to school at a younger age. Switzerland's compulsory school system needs to be overhauled. Children can and must be encouraged at a younger age and more comprehensively.



Idea No. 02: Stop the error terror

A paralysing zero-error culture prevails in Swiss schools and professional life. Coping skillfully with defeat and failure, however, is an important attribute that every independent, successful entrepreneur has to possess.

How do we cope with failure at school and in professional life? The student who gives the wrong answer is simply ignored by the teacher. The employee who makes a mistake is reprimanded by his boss. Yet we are practically born with the ability to deal with mistakes and personal failure. A skill which we are drilled to unlearn during our education, training and in our later professional life. What would happen if teachers and bosses were to be made more consistently responsible for directly encouraging their students' and subordinates' failures? More than anything else, primary and grammar school offer the ideal environment in which to learn how to deal with mistakes. Unfortunately, most teachers only teach us to a small degree that defeat can also signify personal progress. At any rate never forget: "This early practice only helps us digest mistakes with aplomb later on." Watch America. Despite all the failings of the American High School system, so fondly criticised in Europe, it nonetheless demonstrates how with the help of so-called "extracurricular activities", such as sports competitions and debate clubs, it is possible to learn how to cope with failure or defeat. The fear of failure, however, continues to paralyse us even after we have left school: according to certain studies more than half of all employees are afraid of failure. Executives and managers should praise those employees who admit to mishaps. All employees could learn from the "mistake of the month". Robert I. Sutton, Professor for Management at the renowned Stanford Engineering School, puts it very aptly: "Reward failure, not only success. Inaction is the only thing which should be punished."

We demand a new error culture in schools and professional life. Mistakes must be seen as essential learning tools and not as a reason for punishment.



Idea No. 03: Innovation comes from the outside

Many firms approach the process of innovation in a spirit of intellectual in-breeding. The largest knowledge base, however, rarely resides intra muros. Looking beyond the edge of one's own domain is indispensable for good ideas.

A breath of fresh air is part of the innovative climate. And no breath of fresh air can get through permanently closed windows. This principle holds true both in national economic as well as in corporate and entrepreneurial terms. Immigration policy above all is of vital importance if one wants to revitalise a national economy intellectually – even more so in a small country with such above average aging demographics like Switzerland. While other countries have grasped the importance of simplifying the administrative procedures of naturalisation and immigration for qualified and skilled specialists, we scare off interested foreign talents with our quotas and red tape. The following also applies to firms: no good ideas come forth and no pressing problems can be solved if only a secret group of old boys brood about them in a fit of mental in-breeding. The theses of the "Cluetrain Manifesto", which considers that markets are conversations and that the customer's knowledge is greater than that of the firm, show the way: if you do not discuss product development with your most difficult customers, you lose. The online merchant Amazon.com, for example, sees customer service as the company's strongest R & D department. Indeed, the largest knowledge base does not reside within the company, but ante portas.

We demand the opening of borders. The immigration barriers for foreign skilled labour must be lowered. Firms should be more outward looking and strengthen interaction with their environment.



Idea No. 04: Rotation for innovation

Although many careers may have vertical lift-off, they often lead directly to narrow-mindedness, whereas circuitous routes and insights in other activities generate cross-fertilisation.

Those who remain flexible are innovative and creative. The planned ascension on the career ladder in this country, however, is often merely the reward of staying put rather than of pursuing intellectual curiosity or agility – not exactly innovation-nurturing! Yet flexibility could be institutionalised relatively easily. For many years, job rotation has been commonplace in many industrial enterprises. The automobile manufacturer Toyota, for example, applies this model to force its workers to take on new challenges continuously, and to thus enrich their knowledge and experience and to enhance their feeling of satisfaction. Insights into related or radically different fields of activity enlarge one's own view of the world. The desire for change and interaction between one's professional and private life is spurring an increasing number of people to cobble together their own patchwork career, says Professor Norbert Thom from the Institute for Organization and Human Resource Management at the University of Bern. Specialised further training and education, and excursions into unknown subject areas are part of this just as alternating temporarily between a leadership and a subordinate's position. No less enriching for the mind and the intellect are exchange programmes, thanks to which Swiss pupils and students are uprooted to spend a year in another country and culture. Such creativity-nurturing change could also be institutionalised in the "ivory towers", the universities, namely in their regulations: every student should be obliged to take at least one subject which is totally unrelated to his or her main field of study or to spend a six months practical internship in the real, professional world, in order to be admitted to final examinations – and in order to broaden their perspective.

We demand variation. Practical internships, exchange programmes and job rotation in training, education and professional life broaden our view.



Idea No. 05: Imitation and innovation

The culture of Swiss engineering and the requirement for the highest quality, which are a strong legacy, are optimal prerequisites to kick-start growth efficiently: copy and improve. Imitation instead of innovation – a strategy that works time and again. Frequently the ability to imitate has been turned to an innovative advantage. For example Japan: after WWII the country's industrial production was lying in ruins. By 1950, Sony was already making money thanks to the tape recorders it had developed itself. AEG Berlin had actually described the principle of metal coating previously. In 1948 Bell Labs America developed the transistor, yet it was only 10 years later when Sony had already produced more than one million transistors. Semi-conductor world leadership was merely the logical consequence of Japan's passion for imitation. One of the basic global principles of free research is the fact that scientists talk to each other about their work. The Japanese have the knack of making money from other people's knowledge and science simply because they are better at organising their industrial production and at translating research results – their own and those of others – more swiftly into products than the West – a fact which has been borne out by the best known examples such as the fax machine and CD technology. Copying also works in Switzerland: Mivella instead of Rivella and Café Zaun instead of Café Hag (a play on words using different terms for "fence"). Migros, the retailer giant, did not only become a giant as a result of its aggressive pricing of me-too products and excellent logistics, it also became Switzerland's retail pioneer. "Embrace and extend" has also been the long-lasting recipe for success of Microsoft, the world's largest software company. When you have no ideas of your own, you study those of others, dissect them, copy them and improve on them. This is what the jargon calls "reverse engineering". It is still better to study and to copy meticulously than to lag behind.

We demand "copy right!" instead of "copyright". To copy is to learn – and learning is a prerequisite of innovation.



Idea No. 06: Informally original

A healthy degree of informality in rigid corporate cultures may be at least a first step towards increased creativity and innovativeness.

"How's it going?" - "Fine, thanks. How about you?" For many Europeans the typically American informality is an alienating ingredient in their transatlantic business dealings. Yet within a company the culture of calling one another by one's first name may well support the process of innovation, for it breaks down the barriers of hierarchy and allows employees to network more rapidly across different departments and levels within the company. Sweden demonstrated that a political decision is able to remove all the polite forms of address from a language. This example does, however, show that such a change takes several generations. The same applies to companies. Whether you address someone by their surname or their first name is - at the end of the day - a matter of corporate culture, which as we know can only be changed very slowly and laboriously. More than anything else it is the management style and the corporate values as demonstrated actively by management that define it. For this very reason introducing the informal form of address throughout a company is very suitable as one of the first steps on the road to an informal, innovation-friendly climate. Hey Beat, when will you start calling me by my first name?

We demand (and offer) that people are on first-name terms. A casual atmosphere fosters creativity.



Idea No. 07: Innovation incentives

Granting tax incentives is a simple and well-proven method of encouraging firms to take certain actions. Until now most managers have followed the seductive call of money. Governments can exploit the attraction of money as a means of promoting innovation in the economy. In concrete terms: a company with an impeccable track record of innovativeness over a certain period of time should benefit from tax breaks. First steps in this direction have already been taken in Switzerland at the cantonal and federal level. For example the amended federal law in favour of economic renewal areas which came into force on July 1, 2001 or the federal law passed on October 8, 1999 regarding venture capital investment companies which in certain circumstances grants the investor direct federal tax breaks. In the European Union, some Member States have adopted clearly more progressive measures. A study commissioned by one of the European Commission's Directorates-General "Companies Management of Innovation" states clearly that tax incentives have a great potential to influence the private sector's decisions regarding investment in R & D, and that they are a natural and powerful political instrument for every government. Of course, the fiscal gifts must be tailored to the strengths and weaknesses of each respective economic system. There is no standard recipe that applies equally to all economies. The main question remains: how to measure the innovativeness of a company in order to calculate tax breaks fairly. Spain may offer some help here: before the end of the year it will introduce a "Technical Innovation Certificate", which automatically gives tax breaks to innovative companies.

We demand tax breaks for innovative firms. The motivating force of financial incentives is unequalled.

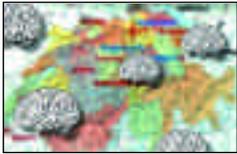


Idea No. 08: Quality time

Developing good ideas takes time. More time than most employers are willing to give us during the jam-packed 8.2-hour workday.

Thinking takes time, time is money. Regrettably, the time it takes for a good idea to be born and to mature is seen too frequently as a sacrifice rather than an investment. But not everywhere. Some companies have decided to adopt the "time off at work" for employees as a central element of their corporate culture. In this context 3M is exemplary. On the one hand, the company fully endorses individual initiative and risk-taking as part of its management principles, on the other hand, the company's 15% rule explicitly allows the scientists in its employ to devote part of their working time to the pursuit of their own research projects. Innovative and successful products, such as scotch tape and Post-it, were created thanks to this kind of experimenting, which cannot be planned. The "sabbatical" is nearly as relevant for the creation of free space and time and the development of new personal skills. The term comes from academia and designates the – paid – leave, usually a semester, that full-time faculty take to engage in research and creative activity, instructional improvement or faculty retraining. To take the time to be someone or something else, to see or to do something different – this may prompt a steadily increasing number of companies every year to assign individual employees or whole teams of employees to volunteer service. One of the services of Caritas Switzerland for example is Corporate Volunteering. Overworked managers suffering from burn-out probably get fresh ideas again when dishing out meals to the homeless, helping the aged or the disabled during their free time or working as team members at a centre for political asylum seekers.

We demand more down time during the day. Firms should give their employees (more) time to develop innovative ideas.



Idea No. 09: Coordination of innovation

Switzerland's total R & D expenditure is high – and marginally effective. What is sorely needed is not more money, as the Swiss National Fund recently demanded, but more coordination. The political responsibility for innovation on the one hand and for research efforts on the other is terribly fragmented in Switzerland. Decisions concerning the relevant framework conditions are taken at the federal level by the authorities in charge of education and research, of competition and finance, as well as by authorities in charge of foreign trade and monetary policy. Thus, no less than 4 Federal Offices and the Swiss National Bank are in charge of these matters. Every canton has its own focus on education, research and economic policy. Moreover a multitude of foundations, associations and political parties is also involved in the politics of innovation. In this context, Swiss federalism acts as a tremendous obstacle when it comes to harmonising all these activities. But would it make sense at all to create a central organisation in charge of innovation? It is not surprising to note that precisely such an institution is the centrepiece of the Japanese economic miracle: the Ministry for International Trade and Industry (MITI). Its greatest achievement has been to point Japan's industry and society energetically toward the future. Thus, it keeps a watching brief on the whole world's entire industrial landscape and new developments and urges industry to advance into promising areas. The incredible power of the MITI is contested even within Japan, but the positive effects outweigh the doubts. Thus, there is a committee, which allocates vast sums for long-term research programmes, which test the boundaries of technology: biotechnology, new materials, electronics and medicine. Representatives from industry, associations and universities are the members of this committee. Other countries also have committees devoted to planning the future, but in no other country is their composition as colourful and successful as in Japan.

We demand the creation of a Swiss Ministry for Innovation. Coordinating and focussing all private and public activities and spending will increase the return on the high research expenditure.



Idea No. 10: Innovation Index

There are rating scales, quality labels and certificates for nearly everything – to measure performance at school, for animal-friendly husbandry and business processes. There are no yardsticks to measure the innovativeness of a firm or a country.

Since many companies have no benchmark against which to measure innovation processes, their managers are completely lost when they have to justify the effectiveness of their development efforts. This is why the central issue in innovation policy comes up time and again: how can the innovativeness of a company be assessed and "certified"? It is absolutely essential to set a yardstick; to be used, for example, to decide whether a company should get a tax break. Setting such a yardstick or standard is made even more difficult by the fact that the very term innovation is interpreted very differently. Another question is whether a possible yardstick or standard could be defined at the national or European, or maybe even international level. One frequent approach is to consider the number of filed patents and the turnover generated by relatively new products – developed for example in the preceding 18 months – in comparison to total turnover. According to a study conducted by PricewaterhouseCoopers a 10% increase in the turnover generated by such products or services corresponds to a 2.5% increase in total turnover. As a rule, however, companies are active in many product categories and pursue many development projects, with greatly varying degrees of success. As a result, more recently proposals have been made to include additional factors, such as for example companies' rate of learning.

We demand that Switzerland participate actively in the design and implementation of a multinational standard to measure innovation.

WHITE PAPER

GOO FIRST TUESDAY ZÜRICH

GDI

■ Zurück zur Innovation – aber wie?

Zehn Ideen zur Innovations-Förderung von First Tuesday Zurich, dem Gottlieb Duttweiler Institut und BrainStore. (Boris Schneider und Samuel Dubno)

Management Summary

Zwei Dokumente haben das Selbstbewusstsein der Schweizer Wirtschaft jüngst schwer erschüttert: Der Wachstumsbericht des Staatssekretariats für Wirtschaft (Seco) von Bundesrat Pascal Couchepin und der Länderreport Schweiz der Organisation für wirtschaftliche Zusammenarbeit und Entwicklung (OECD). Das Fazit ist ermutigend: In den Neunzigerjahren handelte sich die Schweiz punkto Wirtschaftswachstum einen dramatischen Rückstand ein. Als einziges OECD-Land vermochte sie das reale Bruttoinlandprodukt pro Kopf nicht zu steigern. Doch mit dem Wandel von der Industrie- zur Dienstleistungs- und zur Wissensgesellschaft ist der Wettbewerb zum Innovationswettbewerb geworden. Erfolgreich ist, wer konstante Innovationsfähigkeit beweist, denn diese ist auf den globalisierten Märkten zum zentralen Wachstumstreiber geworden.

Obwohl die von der Privatwirtschaft in Forschung und Entwicklung investierten Gelder rund zwei Prozent des Bruttoinlandprodukts ausmachen, fliessen zu wenig Mittel in innovationsträchtige Wachstumssegmente wie Biotechnologie, Informations- und Kommunikationstechnologie.

Auch macht sich ein gefährlicher Trend hin zur Abwanderung bemerkbar: Immer mehr hochkarätige Schweizer Wissenschaftler verlassen das Land, um im Ausland zu arbeiten, wo sie bessere Bedingungen für die Forschung, die Entwicklung neuer Produkte und die Gründung von Unternehmen vorfinden. So stammen immer mehr der beim European Patent Office von Schweizern angemeldeten Patente von im Ausland arbeitenden Schweizern. Traditionsreiche Unternehmen wie Nestlé und Novartis haben jüngst mit grossen Investitionen Forschungsstätten im Ausland eröffnet.

Innovationspolitik ist zum heissen Thema geworden, dem sich Parteien, Denkfabriken und parlamentarische Arbeitsgruppen annehmen. Sie argumentieren, dass der Erfolg unseres Landes als Standort für Unternehmen im Innovationswettbewerb auf dem Netzwerk basierten Zusammenspiel aller Akteure in Wissensgenese und Wissenstransfer beruhe.

Am zweiten Thought Leadership Forum am 25. Juni 2002 in Rüschlikon haben First Tuesday Zurich und das Gottlieb Duttweiler Institut gut zwanzig Entscheidungsträger aus Wirtschaft, Wissenschaft, Politik, Technologie, Medien und Kultur mit einer Gruppe von Jugendlichen zusammen gebracht. Unter der Leitung der Bieler Ideenfabrik BrainStore haben sie sich überlegt, was konkret getan werden kann, um innovationsfreundlichere Rahmenbedingungen in der Schweiz zu schaffen und die Innovationskraft in den Unternehmen zu stärken. Die zehn in diesem Papier beschriebenen Ideen sind das Resultat.

Die zehn Ideen im Überblick

Idee Nr. 01: Früher fördern

Das schweizerische Konzept von Kindergarten und Grundstufe ist veraltet. Kinder können weit mehr, als wir bisher dachten. Und das erst noch früher.

Wir fordern die Früheinschulung. Das Grundschulsystem der Schweiz ist renovationsbedürftig. Kinder können und müssen früher und umfassender gefördert werden.

Idee Nr. 02: Aus Fehlern lernen

An Schweizer Schulen und im Berufsleben herrscht eine lähmende Null-Fehler-Kultur. Der gekonnte Umgang mit Pleiten und Misserfolgen ist aber eine wichtige Eigenschaft jedes selbständigen, erfolgreichen Unternehmers.

Wir fordern eine neue Fehlerkultur in Schule und Beruf. Fehler sind als Lernhilfe und nicht als Bestrafungsgrund zu verstehen.

Idee Nr. 03: Das Neue kommt von Aussen

Viele Unternehmen gehen Innovationsprozesse in einem Klima der geistigen Inzucht an. Doch die grösste Wissensbasis liegt selten innerhalb der eigenen Mauern. Der Blick über den Tellerrand ist für gute Ideen unerlässlich.

Wir fordern die Öffnung der Grenzen. Die Zuwanderungshürden für ausländische Fachkräfte müssen gesenkt werden. Unternehmen sollen den Blick nach Aussen schärfen und den Austausch mit ihrem Umfeld verstärken.

Idee Nr. 04: Das Rotationsprinzip

Mancher Karriereweg führt zwar steil nach oben, aber auch direkt in die Engstirnigkeit. Dabei wirken Umwege und Einblicke in andere Tätigkeiten befruchtend.

Wir fordern Abwechslung. Praktika, Austauschprogramme oder Jobrotationen, in Ausbildung und Berufsleben integriert, öffnen Horizonte.

Idee Nr. 05: Imitation und Innovation

Die Schweizer Ingenieurskultur und die historisch gewachsenen hohen Ansprüche an Qualität sind optimale Voraussetzungen für eine effiziente Methode zur Ankurbelung des Wachstums: Kopieren und verbessern.

Wir fordern Copy right statt Copyright. Kopieren ist lernen - und lernen die Voraussetzung für Innovation.

Idee Nr. 06: Informell originell

Ein gesundes Mass an Ungezwungenheit kann in starren Unternehmenskulturen zumindest den Grundstein für mehr Kreativität und Innovationsfähigkeit legen.

Wir fordern (und offerieren) das Du. Eine zwanglose Atmosphäre fördert die Kreativität.

Idee Nr. 07: Mit Steuern steuern

Ein einfaches und probates Mittel, Unternehmen zu bestimmten Handlungen zu bewegen, sind Steueranreize. Dem Lockruf des Geldes sind bisher die meisten Manager gefolgt.

Wir fordern Steuererleichterungen für innovative Unternehmen. Die Motivationskraft von pekuniären Anreizen ist unübertroffen.

Idee Nr. 08: Frei-Zeit während Arbeitszeit

Das Entwickeln von guten Ideen braucht Zeit. Mehr Zeit, als uns die meisten Arbeitgeber im gedrängten Achtekomma-zwei-Stunden-Tag dafür einräumen.

Wir fordern mehr Musse im Alltag. Unternehmen sollen ihren Mitarbeitenden (mehr) Zeit für die Entwicklung innovativer Ideen zur Verfügung stellen.

Idee Nr. 09: Koordination der Innovation

Die Gesamtausgaben für Forschung und Entwicklung in der Schweiz sind hoch – und wenig effizient. Nicht nur mehr Geld, wie jüngst vom Schweizerischen Nationalfonds verlangt, sondern mehr Koordination tut Not.

Wir fordern die Schaffung eines Schweizer Ministeriums für Innovation. Die Koordination und Konzentration aller privaten und öffentlichen Aktivitäten und Gelder wird den Return auf die hohen Forschungsausgaben erhöhen.

Idee Nr. 10: Innovations-Index

Für fast alles gibt es Skalen, Gütesiegel und Zertifizierungen – für schulische Leistungen, tiergerechte Haltung und unternehmerische Prozesse. Für die Innovationsleistung eines Unternehmens oder eines Landes existieren keine Messeinheiten.

Wir fordern, dass die Schweiz aktiv an Design und Implementierung einer multinationalen Masseinheit für Innovation mitarbeitet.

■ Zurück zur Innovation – aber wie?

Einführung

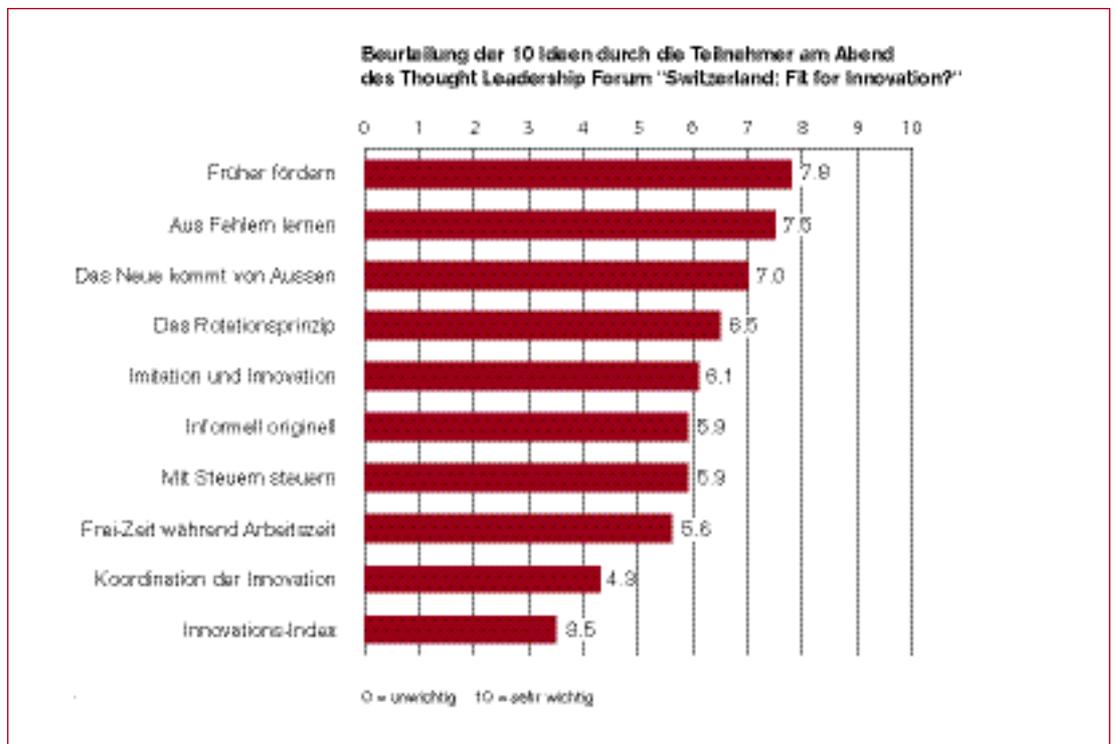
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Es gibt genügend Beispiele für traditionsreiche Schweizer Unternehmen, die zu lange in einem von Selbstzufriedenheit und Sättigung ausgelösten Winterschlaf verharrten. Bally, deren Schuhe die Welt einst trug, produzierte an den Kundenbedürfnissen vorbei. Heute gehört die Firma einer US-Investmentgesellschaft, hat den Hauptsitz vom bernischen Schönwerd an die schweizerisch-italienische Grenze verlegt und den Personalbestand von 16'000 auf 1750 Mitarbeitende reduziert. Oder Ascom. Der frühere Hoflieferant der staatlichen Telefongesellschaft PTT Telecom hat die Anzahl seiner Geschäftsfelder stark reduziert und versucht sich im schwierigen Wandel vom Telefonie - zum Hightech-Konzern. Internationale Benchmarks zur Wettbewerbs- und Innovationsfähigkeit reflektieren diese Entwicklungen. Laut dem Competitiveness Report des World Economic Forums (WEF) für das Jahr 2001 rangiert die Schweiz bei der internationalen Wettbewerbsfähigkeit weit hinter anderen europäischen Ländern wie Finnland, Norwegen, England, Irland und Dänemark. Die Ausgaben der Unternehmen für Forschung und Entwicklung sind mit fast zwei Prozent des Bruttoinlandsproduktes zwar hoch, aber offenbar nicht sonderlich effizient. Geld wird vornehmlich in traditionellen Bereichen wie Chemie, Maschinen- und Anlagenbau, Bauwesen oder Konsumgüter investiert. Innovationsträchtige Wachstumssegmente wie Biotechnologie oder Informations- und Kommunikationstechnologien kommen hingegen zu kurz. Auch stossen potenzielle Unternehmer in der Schweiz wegen aufwändiger Gründungsverfahren, komplizierter Patentrechte und der oft konservativen Denkmustern unterliegenden Risikokapital-Vergabestrategie der Investoren auf grosse Schwierigkeiten, wenn sie neue Ideen in die serielle Produktion von Produkten oder die Erbringung von Dienstleistungen umsetzen wollen.

Während die Statistik des European Patent Office (EPO) der Schweiz gemessen an der Grösse ihrer Volkswirtschaft eine enorm hohe Zahl von erteilten Patenten bescheinigt, die das Land im internationalen Vergleich hinter den USA und Japan, aber vor England, Frankreich und Deutschland plazierte, macht sich ein gefährlicher Trend zur Abwanderung bemerkbar. So stammten im Jahr 1997 rund 39 Prozent der Patentanmeldungen von Schweizern, die im Ausland arbeiten – und nur 16 Prozent von in der Schweiz arbeitenden Ausländern. Während im Jahr 1988 lediglich 890'000 Schweizer eine Stelle im Ausland innehatten, hat sich diese Zahl bis 1998 auf 1'610'000 erhöht. Besonders augenfällig ist, dass die von Schweizer Unternehmen im Ausland getätigten Ausgaben für Forschung und Entwicklung weit schneller wachsen als die im Inland investierten Gelder. Sie stiegen zwischen 1983 und 1998 von 2,2 auf 9 Milliarden Franken, hierzulande aber lediglich von 4,5 auf 7,8 Milliarden Franken. Selbst traditionsreiche und dem Standort Schweiz verbundene Unternehmen wie Novartis und Nestlé sind jüngst dem Ruf alternativer Standorte für die Produktentwicklung gefolgt und eröffnen mit hohen Investitionen Forschungsstätten im Ausland. Die Innovationskraft zieht weg, die besten Köpfe finden im Ausland vorteilhaftere Bedingungen für die Markteinführung neuer Produkte und die Gründung von Unternehmen. Der Schweiz droht die geistige Aushöhlung. Denn wir besitzen immer noch keinen anderen natürlichen Rohstoff als die Summe der Köpfe aller hier lebenden und arbeitenden Menschen.

Inzwischen befassen sich viele Denkfabriken und parlamentarische Arbeitsgruppen mit dem Thema Innovationspolitik. Sie argumentieren unisono, dass der Erfolg unseres Landes als Gesellschaft und als Standort für Unternehmen im Innovationswettbewerb auf dem Netzwerk basierten Zusammenspiel aller Akteure in Wissensgenese und Wissenstransfer beruhe. Bildung, Forschung und Technologien komme eine überragende, in der Vergangenheit unterschätzte Bedeutung zu und sie müssten im Kontext des weltweiten Innovationswettbewerbs verstanden und an die neuen Herausforderungen angepasst werden.

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Idee Nr. 01: Früher fördern

Das schweizerische Konzept von Kindergarten und Grundstufe ist veraltet. Kinder können weit mehr, als wir bisher dachten. Und das erst noch früher.

Können die Grundlagen für innovatives Denken und Verhalten früher vermittelt werden? Das Schweizer Schulsystem basiert immer noch auf der von Jean Piaget zu Beginn des letzten Jahrhunderts geprägten Entwicklungspsychologie. Diese Lehre führte aber zu einer systematischen Unterschätzung der kindlichen Talente, meinen Neurobiologen heute. Das menschliche Gehirn besteht aus über 100 Milliarden Nervenzellen, welche über rund 100 Billionen Kontaktstellen (Synapsen) miteinander verknüpft sind. Jeder Eindruck, jeder Sachverhalt, jeder Reiz, dem ein Mensch sich aussetzt, verändert dieses fein gesponnene Netz, indem er bestimmte Neuronenverbindungen stärkt oder schwächt. Nach neusten Erkenntnissen vollzieht sich die Reifung des Gehirns in zwei Stufen: Während der Kindheit wird der grobe Schaltplan der Nervenvernetzung erstellt und damit die Bahnen gelegt, in denen der Erwachsene später denken wird. In der Pubertät und danach werden lediglich bestehende Verbindungen gestärkt oder geschwächt. Neurobiologen fordern deshalb, dass früher als heute üblich mit der Vermittlung von Wissen aus unterschiedlichsten Bereichen, inklusive mathematischen und naturwissenschaftlichen Kompetenzen, begonnen wird – auf eine spielerische, bunte, experimentelle und alltagsnahe Art. Bedeutet dies, Abstriche an der Kindheit in Kauf nehmen? Nein, im Gegenteil. Kinder sind wahre Energiebündel, sind wissensdurstig und verfügen über ein hohes Frustrationspotenzial. Sie haben keine Angst vor dem Risiko und gehen selbst unlösbare Aufgaben hoffnungsvoll an. Alles Eigenschaften, die man durchaus schon vor dem siebten Altersjahr nutzen könnte – ja müsste.

Wir fordern die Früheinschulung. Das Grundschulsystem der Schweiz ist renovationsbedürftig. Kinder können und müssen früher und umfassender gefördert werden.



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An Schweizer Schulen und im Berufsleben herrscht eine lähmende Null-Fehler-Kultur. Der gekonnte Umgang mit Pleiten und Misserfolgen ist aber eine wichtige Eigenschaft jedes selbständigen, erfolgreichen Unternehmers.

Wie gehen wir in der Schule und im Berufsleben mit Misserfolgen um? Der Schüler mit der falschen Antwort wird vom Lehrer kurzerhand übergangen, der Mitarbeiter, der einen Fehler macht, vom Chef gerügt. Dabei ist uns der Umgang mit Fehlern und dem eigenen Versagen eigentlich in die Wiege gelegt. Eine Fähigkeit, die uns während der Ausbildungszeit und später im Beruf abgewöhnt wird. Wie wäre es wohl, wenn Ausbilder und Vorgesetzte konsequenter für das Versagen ihrer Schüler und Untergebenen verantwortlich gemacht würden? Gerade Primarschule und Gymnasium bieten eine optimale Plattform, um den Umgang mit Fehlern zu lehren. Doch die meisten Lehrer bringen uns nur beschränkt bei, dass auch Niederlagen einen persönlichen Fortschritt bedeuten können. Auf alle Fälle gilt: früh übt sich, wer später Fehler leicht wegstecken will. Amerika machts vor. Bei allen in Europa gern kritisierten Schwächen der amerikanischen High School, zeigt sie doch, wie mit so genannten "Extracurricular Activities" wie Sportwettbewerben und Debattierklassen der Umgang mit Niederlagen trainiert werden kann. Die Angst vor dem Scheitern lähmt aber auch über die Schulzeit hinaus: Mehr als die Hälfte der Arbeitnehmer hat laut Studien Angst vor Misserfolg. Führungskräfte sollten Mitarbeiter, die Missgeschicke offen legen, loben. Aus dem „Fehler des Monats“ könnte die ganze Belegschaft lernen. Robert I. Sutton, Professor für Management an der renommierten Stanford Engineering School, bringt es auf den Punkt: "Fangen Sie an, nicht nur Erfolge zu belohnen, sondern auch Fehlschläge. Einzig Untätigkeit sollte bestraft werden."

Wir fordern eine neue Fehlerkultur in Schule und Beruf. Fehler sind als Lernhilfe und nicht als Bestrafungsgrund zu verstehen.



Idee Nr. 03: Das Neue kommt von Aussen

Viele Unternehmen gehen Innovationsprozesse in einem Klima der geistigen Inzucht an. Doch die grösste Wissensbasis liegt selten innerhalb der eigenen Mauern. Der Blick über den Tellerrand ist für gute Ideen unerlässlich.

Zu einem innovativen Klima gehört ein frischer Wind. Und dort, wo das Fenster dauernd zugesperrt bleibt, bläst der Wind nicht. Dieses Prinzip hat sowohl aus einer gesamtwirtschaftlichen wie aus einer unternehmerischen Perspektive seine Richtigkeit. Vor allem der Immigrationspolitik kommt für die geistige Revitalisierung in Volkswirtschaften eine hohe Bedeutung zu – erst recht in einem kleinen und überalterten Land wie der Schweiz. Während andere Länder es verstehen, Einbürgerungs- und Niederlassungsprozesse für qualifizierte Spezialisten massiv zu vereinfachen, verscheuchen wir interessierte, ausländische Talente mit Kontingenten und bürokratischen Keulen. Auch in Unternehmen gilt: Es kann keine gute Idee entstehen und kein drängendes Problem gelöst werden, wenn lediglich eine verschworene Gruppe alter Bekannter in mentaler Inzucht darüber brütet. Die Thesen des "Cluetrain Manifests", wonach Märkte als Gespräche zu verstehen sind und das Wissen der Kunden jenes der Unternehmen übertrifft, zeigen den Weg: Wer bei der Produktentwicklung nicht mit seinen schwierigsten Kunden redet, hat verloren. Der Internet-Buchhändler Amazon.com beispielsweise versteht den Customer Service als eigentliche Forschungs- und Entwicklungsabteilung des Unternehmens. Denn die grösste Wissensbasis liegt nicht in der Firma, sondern vor deren Toren. *Wir fordern die Öffnung der Grenzen. Die Zuwanderungshürden für ausländische Fachkräfte müssen gesenkt werden. Unternehmen sollen den Blick nach Aussen schärfen und den Austausch mit ihrem Umfeld verstärken.*



Idee Nr. 04: Das Rotationsprinzip

Mancher Karriereweg führt zwar steil nach oben, aber auch direkt in die Engstirnigkeit. Dabei wirken Umwege und Einblicke in andere Tätigkeiten befruchtend.

Innovativ und kreativ ist, wer in Bewegung bleibt. Der programmierte Aufstieg auf der Karriereleiter ist hierzulande aber oftmals lediglich eine Folge von Sitzfleisch statt (geistiger) Beweglichkeit – nicht eben gerade innovationsfördernd! Dabei liesse sich Beweglichkeit verhältnismässig einfach institutionalisieren. Jobrotation ist in vielen Industrieunternehmen seit Jahren gang und gäbe. So bedient sich der Automobilhersteller Toyota dieses Modells, um die Mitarbeitenden in seinen Werken immer wieder mit neuen Herausforderungen zu konfrontieren und dadurch ihren Erfahrungsschatz zu erhöhen und ihre Zufriedenheit zu steigern. Einblicke in verwandte oder radikal andere Tätigkeitsfelder erweitern das eigene Weltbild. Der Wunsch nach Abwechslung und die Verbindung der beruflichen und privaten Existenz bringt immer mehr Menschen dazu, sich eine Patchwork-Karriere selber zu stricken, meint Professor Norbert Thom vom Institut für Organisation und Personal der Universität Bern. Fachliche Weiterbildung und Abstecher in fremde Branchen gehören genau so dazu wie der Umstand, zeitweise eine Führungsposition innezuhaben und dann wieder nicht. Nicht minder befruchtend für den Geist sind Austauschprogramme, die Schweizer Mittelschüler oder Studenten für ein Jahr in ein anderes Land und eine andere Kultur versetzen. Die kreativitätsfördernde Abwechslung liesse sich auch im "Elfenbeinturm Universität" per Reglement verankern: Jeder Studierende muss mindestens ein fakultätsfremdes Nebenfach belegen oder ein halbjähriges Praktikum in der Berufswelt absolvieren, um zum Abschluss zugelassen zu werden – und seinen Horizont zu erweitern. *Wir fordern Abwechslung, Praktika, Austauschprogramme oder Jobrotationen, in Ausbildung und Berufsleben integriert, öffnen Horizonte.*

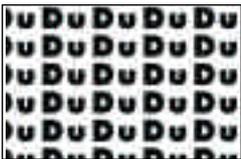


Idee Nr. 05: Imitation und Innovation

Die Schweizer Ingenieurskultur und die historisch gewachsenen hohen Ansprüche an Qualität sind optimale Voraussetzungen für eine effiziente Methode zur Ankurbelung des Wachstums: Kopieren und verbessern.

Imitation statt Innovation – eine Strategie, die immer wieder funktioniert. Oftmals wurde aus Imitationsfähigkeit gar Innovationsvorsprung. Zum Beispiel Japan: Nach dem zweiten Weltkrieg lag die industrielle Produktion dieses Landes in Schutt und Asche. Bereits 1950 aber verdiente Sony das erste Geld mit selbst entwickelten Tonbandgeräten. Das Prinzip der Metallbeschichtung hatte zuvor die AEG Berlin beschrieben. Die amerikanischen Bell Labs entwickelten 1948 den Transistor, nur zehn Jahre später hatte Sony bereits über eine Million davon hergestellt. Die weltweite Führung im Bereich der Halbleiter war eine logische Konsequenz des japanischen Nachmach-Eifers. Dass Wissenschaftler miteinander über ihre Arbeit reden, ist ein weltweites Grundprinzip freier Forschung. Dass die Japaner daraus Nutzen ziehen, das Wissen anderer zu Geld machen, weil sie ihre Industrieproduktion besser organisieren und fremde wie eigene Forschungsergebnisse schneller in Produkte umsetzen als der Westen - dafür sollten Faxgerät und CD-Technik die bekanntesten Beispiele werden. Kopieren funktioniert auch in der Schweiz: Mivella statt Rivella und Café Zaun statt Café Hag. Die Migros wurde dank aggressivem Pricing von Me-Too-Produkten und einer starken Logistik nicht nur zum Riesen, sondern auch zum Pionier im Schweizerischen Detailhandel. "Embrace and extend" ist auch das langjährige Erfolgsrezept des weltgrössten Softwareherstellers Microsoft. Ideen, die man nicht selber hat, werden studiert, seziiert, kopiert und mit eigenen Zusätzen erweitert. "Reverse Engineering" heisst das in der Fachsprache. Gut studieren und kopieren ist immer noch besser, als in Rückstand zu geraten.

Wir fordern Copy right statt Copyright. Kopieren ist lernen – und lernen die Voraussetzung für Innovation.



Idee Nr. 06: Informell originell

Ein gesundes Mass an Ungezwungenheit kann in starren Unternehmenskulturen zumindest den Grundstein für mehr Kreativität und Innovationsfähigkeit legen.

"How's it going?" - "Fine, thanks. How about you?" Typisch amerikanische Informalität ist für manchen Europäer ein befremdliches Element im transatlantischen Geschäftsverkehr. Doch innerhalb von Unternehmen kann die Du-Kultur Innovationsprozesse unterstützen, denn sie reisst hierarchische Barrieren ein und erlaubt eine beschleunigte interne Vernetzung von Mitarbeitenden über verschiedene Abteilungen und Stufen hinweg. Schweden hat vorgemacht, dass sich mit einem politischen Entscheid eine ganze Sprache von der Höflichkeitsform befreien lässt. Doch zeigte dieses Beispiel, dass ein solcher Wechsel nur über mehrere Generationen hinweg stattfinden kann. Gleiches gilt für Unternehmen. Ob "Sie" oder "Du" ist letztlich eine Frage der Unternehmenskultur, die sich bekanntlich nur langsam und schwer verändern lässt. Sie definiert sich vor allem über den Führungsstil und die vom Management vorgelebten Werte. Gerade deshalb eignet sich die Einführung der unternehmensweiten Du-Form als erste Sofortmassnahme auf dem Weg zu einem informellen, innovationsfreundlichen Klima. Wann fängst Du damit an?

Wir fordern (und offerieren) das Du. Eine zwanglose Atmosphäre fördert die Kreativität.



Idee Nr. 07: Mit Steuern steuern

Ein einfaches und probates Mittel, Unternehmen zu bestimmten Handlungen zu bewegen, sind Steueranreize. Dem Lockruf des Geldes sind bisher die meisten Manager gefolgt. Staaten können die Anziehungskraft von Geld als Mittel zur Förderung von Innovation in der Wirtschaft zu Nutze machen. Konkret: Ein Unternehmen, dessen Innovationskraft über einen bestimmten Zeitraum einwandfrei belegt wird, kommt in den Genuss von Steuererleichterungen. Erste Vorstösse in diese Richtung sind in der Schweiz sowohl auf kantonaler wie eidgenössischer Ebene bereits erfolgt. So etwa mit der am 1. Juli 2001 in Kraft getretene Änderung des Bundesgesetzes zu Gunsten wirtschaftlicher Erneuerungsgebiete oder dem am 8. Oktober 1999 eingesetzten Bundesgesetz über die Risikokapitalgesellschaften, das dem Wagniskapitalgeber unter bestimmten Umständen Erleichterungen bei der direkten Bundessteuer in Aussicht stellt. In der Europäischen Union gehen einige Mitgliedstaaten entschieden weiter. In einer Studie der Generaldirektion "Unternehmen Direktion Innovation" der Europäischen Kommission wird klar festgehalten, dass Steueranreize ein erhebliches Potenzial bergen, um private Investitionsentscheide in die Forschung und Entwicklung zu beeinflussen und deshalb für jede Regierung ein natürliches und kraftvolles politisches Instrument darstellen. Allerdings müssen die Steuergeschenke auf die Stärken und Schwächen des jeweiligen Wirtschaftssystems zugeschnitten sein. Es gibt keine Patentlösung, die auf alle Volkswirtschaften anwendbar ist. Die zentrale Frage bleibt deshalb, mit welcher Messgrösse sich die Innovationsfähigkeit eines Unternehmens ermitteln lässt, damit eine gerechte Steuererleichterung kalkuliert werden kann. Ein Blick nach Spanien könnte weiterhelfen: Dort wird noch in diesem Jahr eine "technische Innovationsbeglaubigung" in Kraft treten, die innovativen Unternehmen zu automatischen Steuererleichterungen verhilft.

Wir fordern Steuererleichterungen für innovative Unternehmen. Die Motivationskraft von pekuniären Anreizen ist unübertroffen.

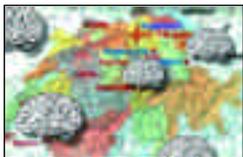


Idee Nr. 08: Frei-Zeit während Arbeitszeit

Das Entwickeln von guten Ideen braucht Zeit. Mehr Zeit, als uns die meisten Arbeitgeber im gedrängten Achtkommazwei-Stunden-Tag dafür einräumen.

Nachdenken braucht Zeit, Zeit ist Geld. Bedauerlicherweise wird die Zeit, die das Entstehen und Reifen einer guten Idee braucht, zu oft als Opfer statt als Investition betrachtet. Aber nicht überall. Einige Unternehmen haben es zum zentralen Bestandteil ihrer Kultur gemacht, den Mitarbeitenden diese "Frei-Zeit innerhalb der Arbeitszeit" zu offerieren. Als Paradebeispiel gilt 3M. Zum einen unterstützt die Firma in ihren Führungsprinzipien die Eigeninitiative und den Mut zum Risiko, zum anderen räumt sie ihren Wissenschaftlern mit der 15-Prozent-Regel einen Teil der Arbeitszeit ganz explizit für die Weiterverfolgung eigener Forschungsprojekte ein. Durch dieses unplanbare Experimentieren sind innovative und erfolgreiche Produkte wie Scotch Tape oder Post-it entstanden. Eine ähnlich hohe Bedeutung für die Schaffung von Freiräumen und die Entwicklung neuer persönlicher Perspektiven kommt auch dem "Sabbatical" zu. Der Ausdruck stammt aus dem akademischen Umfeld und bezeichnet ein bezahltes Feriensemester eines langjährigen Universitätsprofessors, welches dieser zum Auffrischen seiner Gedanken, für die Forschung oder die Fortbildung nutzen soll. Sich die Zeit zu nehmen, etwas anderes zu sein, zu sehen oder zu tun – dies mag auch der Ansporn dafür sein, dass alljährlich mehr Unternehmen einzelne Mitarbeitende oder ganze Teams in Freiwilligeneinsätze schicken. Die Caritas Schweiz etwa führt das Corporate Volunteering im Angebot. Bei der Essensausgabe in der Gassenküche, der Begleitung von Betagten oder Behinderten in ihrer Freizeit oder als Teammitglied in einem Zentrum für Asylsuchende kommen auch überarbeitete und einfallslos gewordene Manager wieder auf neue Gedanken.

Wir fordern mehr Musse im Alltag. Unternehmen sollen ihren Mitarbeitenden (mehr) Arbeitszeit für die Entwicklung innovativer Ideen zur Verfügung stellen.



Idee Nr. 09: Koordination der Innovation

Die Gesamtausgaben für Forschung und Entwicklung in der Schweiz sind hoch – und wenig effizient. Nicht nur mehr Geld, wie jüngst vom Schweizerischen Nationalfonds verlangt, sondern mehr Koordination tut Not.

Die innovationspolitischen Zuständigkeiten einerseits und die Forschungsanstrengungen andererseits sind in der Schweiz stark zersplittert. Die entsprechenden Rahmenbedingungen werden auf Bundesebene von der Bildungs- und Forschungspolitik, der Wettbewerbs- und Finanzpolitik, aber auch von der Aussenwirtschafts- und Geldpolitik mit gestaltet. Dafür sind nicht weniger als vier Departemente und die Nationalbank zuständig. Jeder Kanton setzt in der Bildungs-, Forschungs- und Wirtschaftspolitik eigene Akzente. Daneben engagiert sich eine Vielzahl von Stiftungen, Verbänden und Parteien in der Innovationspolitik. Der Schweizer Föderalismus erweist sich dabei als grosses Hindernis bei der Abstimmung aller Aktivitäten. Aber macht die Schaffung einer zentralen Organisation für Innovation überhaupt Sinn? Nicht überraschend steht genau eine derartige Institution im Zentrum des japanischen Wirtschaftswunders: das Ministerium für Internationalen Handel und Industrie (MITI). Seine grosse Leistung besteht darin, die japanische Industrie und Gesellschaft energisch in die Zukunft zu orientieren. So behält es die ganze Weltindustriellandschaft und alle neuen Entwicklungen im Auge und hält Industrie dazu an, in zukunftssträchtige Bereiche vorzudringen. Umstritten ist dabei selbst in Japan die grosse Macht des MITI, doch überwiegen die positiven Effekte. So gibt es einen Ausschuss, der riesige Geldsummen für langfristige Forschungsprogramme verteilt, in denen die Grenzen der Technik ausgelotet werden: Biotechnologie, neue Werkstoffe, Elektronik und Medizin. Am Tisch sitzen Vertreter der Industrie, Verbände und Universitäten. Ausschüsse für Zukunftsplanung gibt es auch in anderen Ländern, doch nirgends sind sie so bunt gemischt und so erfolgreich wie ein Japan.

Wir fordern die Schaffung eines Schweizer Ministeriums für Innovation. Die Koordination und Konzentration aller privaten und öffentlichen Aktivitäten und Gelder wird den Return auf die hohen Forschungsausgaben erhöhen.



Idee Nr. 10: Innovations-Index

Für fast alles gibt es Skalen, Gütesiegel und Zertifizierungen – für schulische Leistungen, tiergerechte Haltung und unternehmerische Prozesse. Für die Innovationsleistung eines Unternehmens oder eines Landes existieren keine Messeinheiten.

Weil viele Firmen keine Benchmarks für Innovationsprozesse haben, tapen ihre Manager im Dunkeln, wenn sie Angaben zur Effizienz ihrer Entwicklungsanstrengungen machen müssen. In der Innovationspolitik stellt sich deshalb immer wieder die zentrale Frage: Wie soll die Innovationsfähigkeit eines Unternehmens bewertet und "beglaubigt" werden? Eine Messeinheit ist dringend notwendig. Etwa um Unternehmen in den Genuss von Steuererleichterungen kommen zu lassen. Die Schaffung einer solchen Messgrösse wird durch den Umstand erschwert, dass der Begriff der Innovation sehr unterschiedlich interpretiert wird. Kommt die Frage hinzu, ob sich eine mögliche Metrik auf nationaler oder doch auf europäischer oder gar globaler Ebene definieren liesse. Ein häufiger Ansatz betrachtet die Anzahl eingereicherter Patente und den mit verhältnismässig neuen – beispielsweise innerhalb der letzten 18 Monate entwickelten – Produkten erwirtschafteten Umsatz und dessen Verhältnis zum Gesamtumsatz. Laut einer Studie von PricewaterhouseCoopers entspricht eine Zunahme um zehn Prozent beim Umsatz mit solchen Produkten oder Dienstleistungen einer Zunahme des totalen Umsatzes von 2,5%. Typischerweise sind Firmen aber in vielen Produktkategorien aktiv und verfolgen mehrere Entwicklungsprojekte, deren Erfolg stark variiert. Neuere Ansätze versuchen deshalb zusätzliche Grössen einzubauen, beispielsweise die Lerngeschwindigkeit von Unternehmen.

Wir fordern, dass die Schweiz aktiv an Design und Implementierung einer multinationalen Messeinheit für Innovation mitarbeitet.

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