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Dossier water

Not only does Switzerland have an abundance of H_2O – we are also leaders in managing this valuable resource. Top researchers and innovative companies are finding practical solutions to water problems.

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Urs Honegger,
CEO PwC Switzerland

Over time the availability of water will become an increasingly serious issue – both in human terms and economically.

Switzerland's lack of natural resources is oft cited. And it's true that this country has no oil, ores or rare earth minerals of its own. But there is one resource with which we're richly blessed: water. While it might sometimes feel as though there's far too much falling from the heavens, over time the availability of water will become an increasingly serious issue – both in human terms and economically. In this issue of Magazine we'll be looking at a commodity we all too often take for granted, investigating its importance for people and whole economies from a number of different angles. It's fascinating what we find out in the process.
While other parts of the world are suffering from a shortage of water, institutions and innovative businesses in water-rich Switzerland are playing an impressive part in working out new ways of enabling these places to make more efficient use of the water resources they have. Practical research from the Swiss Federal Institute of Aquatic Science and Technology, Eawag, has a key role here, as does the work of the SDC (Swiss Agency for Development and Cooperation) and the aid organisation Helvetas.
In the course of our investigation of water as a means of transport we became aware of very exciting plans for the port of Switzerland in Basle. Surprisingly, this major logistics and infrastructure project is attracting little public attention. The pioneering Swiss National Supercomputing Centre (CSCS) in Lugano is also doing trailblazing work, and not just by Swiss standards. Also in this issue we find out why Holcim CEO Bernard Fontana believes that multinationals have a vital interest in ensuring water resources are used sustainably. All our ex-amples show very clearly that water's not the only resource that Switzerland has in abundance. There's also no lack of great ideas, scientific curiosity and entrepreneurial spirit. As long as this potential is cherished and nurtured, I have no fears as far as this country's future is concerned.
But Switzerland has another concrete advantage over its peers: the healthy structure of the economy and the large proportion of small and medium-sized enterprises, many of which are global leaders in their niche of the market. Many of these businesses are also family owned, and face the major challenge of mastering the future. Peter Schmid and Marcel Widrig propose some key approaches that will enable the new generation to continue managing their family businesses successfully.
In recent decades Switzerland has been exemplary in terms of social solidarity and cohesion. But here too, there are signs that trust in institutions and the economy is being eroded. It's up to us to do something about it, and Alexander Fleischer gives us some food for thought on the basis of PwC's Annual Global CEO Survey. Tax is another issue that's on everybody's lips right now. But amid all the hue and cry, we shouldn't forget that it's vital for companies to make sure their tax strategy and business model are aligned. Carl Bellingham's article highlights some of the possibilities and potential pitfalls.
I hope you find this issue of CEO Magazine a source of valuable information, tips and ideas.

I wish you stimulating reading.

Urs Honegger

H_2O

dossier water: ***Not only does Switzerland have an abundance of H_2O – we are also leaders in managing this valuable resource. Read how top researchers, diplomats and innovative companies are developing ideas, blazing new trails and in the process helping to find practical solutions to water problems. At home, and abroad.***

Cover:
Keystone/Monika Flueckiger

Roger de Weck:
"Painstakingly balancing interests is a Swiss virtue that gives the Confederation its stability."

The Swiss Confederation came into being 723 years ago, and the federal state 165 years ago – and we're still happily united. What is the underlying reason, the core quality that holds Switzerland together? Is it nationhood that binds us together? We are not actually a nation, which is why we call ourselves a Willensnation, a nation founded on political will. In other words, the Swiss people need to have the will, generation on generation, to be a nation. This will may be strong, but at times may also weaken. The way in which the German-speaking majority sometimes refer to the Latin minorities is indicative of how the federal mindset may sometimes be lost from view. Constant work is needed to ensure that the regions do not become distanced from one another.

One reason underlying our cohesion is direct democracy. We have cause to be proud of this because it creates a sense of proximity, gives rise to numerous pragmatic decisions and, while it may not be particularly spectacular, is very efficient. Nevertheless, we should not overestimate our democracy. Sometimes it works well, sometimes not so well. For example, throughout the country there are innumerable municipalities in which there are no longer enough candidates coming forward to sit on the local councils. Civic-mindedness is not something that can be taken for granted.

The legendary Alps are also a uniting factor. But the mountain regions have their problems, such as those associated with second homes, which the people have voted on. As wintery regions become less wintery, the mountains are becoming a symbol of climate change. They are also synonymous with traffic problems at the Gotthard Pass, a bottleneck on the route between north and south. The mountains thus represent both the cement that binds our country together as well as one of its major challenges.

Moreover, the mountains symbolise two major movements in Swiss history, summed up by the late Swiss historian Jean-François Bergier – the Alps as a place to withdraw from the chaos of the European continent, and the Alpine passes as a place of transit between north and south, of world trade, of opening up. Our whole history might be interpreted as a conflict between these two traditions, withdrawal on the one hand and opening up on the other. Both Alpine traditions have their value, and we certainly should not neglect the second.

Another factor that holds us together is economic success. This country knows the value of its enterprises. By these I mean both global players and large corporate groups, through to medium-sized enterprises and self-employed individuals – and above all, those who perform their daily work with the dedication, professionalism and efficiency that characterise this country. But economic success is also a fragile bond. We used to be a poor country; with efficiency and by creating our own good fortune, we have become rich. But we could easily become poor again. If our cohesion depends on economic success, it could become compromised in the coming years, as in all probability there will be less growth. Will that mean a lesser Switzerland? Certainly not!

Indeed, the primary key to our success is Switzerland's long-standing desire for equilibrium, for the balancing of interests: between the real economy and the financial economy, between capital and labour, long-term and short-term thinking, between public spirit and self-interest, production and nature. The focus must be shifted back to the search for equilibrium – painstakingly balancing interests is a Swiss virtue which gives the Confederation its stability. Prosperity and welfare in a country that has no raw materials of its own, where nothing is a given, will be all the more durable once Switzerland and its business leaders have the right sense of measure.

Roger de Weck (59) is General Director of SRG SSR. A bilingual publicist, editor-in-chief and journalist, he graduated from HSG St. Gallen in 1976 with a degree in economics. He is an honorary doctor at the Universities of Lucerne and Freiburg.

Photo: Ruben Wyttenbach

Adrienne Järsvall and Laura Rutishauser: “A little more bottom-up and global thinking can’t do Swiss companies any harm.”

Welcome to the bottom-up generation. The first generation not to know life without mobile phones or the Internet is shaped by the principles of grass-roots democracy – and is currently entering the employment market. Their associated expectations and behaviour patterns present employers with both challenges and opportunities. Our generation is characterised by paradigms of constant negotiation and global networks. We give voice to our opinions on Twitter, talk up our qualities as employees on LinkedIn and evaluate our holiday destinations through TripAdvisor. We participate actively in the democratisation of information.

These horizontal, participative characteristics and the global orientation also affect our behaviour in the workplace – we want to participate in and contribute to workplace decisions, and we value flat hierarchies. We are also flexible in our search for the ideal employer; as global nomads we think nothing of crossing both physical and – thanks to the ubiquity of English – linguistic borders in our search for the perfect job, be it in Vevey, Wroclaw or Vancouver.

Two examples should illustrate the benefits that these attributes of our generation offer to a company. In a market in which both customers and suppliers are increasingly scattered, a broad cultural and linguistic understanding is needed. In a situation where, say, programmers are in Korea, technicians come from Poland and customers live in Sweden, our existing network and language abilities contribute to the flexibility of the company. If, for example, we as employees are confronted by the closure of a production facility in Brazil, local contacts we have already established may help us to quickly find the optimum solution.

As for the companies themselves, the participative inclinations of our generation can help them to be better and more efficient – provided our appetite for creativity and innovation is not stifled by rigid structures in the workplace before it can take root, but rather our ideas are given the opportunity to permeate upwards. One appropriate channel for this are mentor-mentee programmes, as long as they are more than a mere transfer of knowledge from the experienced to the less-experienced person. Instead, they should promote a mutual exchange in which the fresh viewpoint of the mentee in combination with the experience of the mentor enables structures and processes to be examined critically and suggestions for improvements put forward. Of course, a global orientation and a participative method also present challenges to companies – management in particular needs to practice a culture of openness with regard to the corporate structure and culture; linguistic abilities should be encouraged in existing employees as well to ensure the company’s flexibility; and clear decision-making structures remain important to guarantee the quality of Swiss services and products.

The examples given show that a little more bottom-up and global thinking can’t do Swiss companies any harm. Federalism and direct democracy have ensured that participation and grass-roots democracy are already entrenched in the Swiss identity and mentality, and that Switzerland, as an open economy, is perfectly placed to embrace global thinking. This is the best background against which Swiss companies can allow the above approaches to bear fruit in a competitive, increasingly international environment, so they can make the most of the potential of our generation.

Authors Adrienne Järsvall (32) and Laura Rutishauser (27) examine the bottom-up approach in the foreign affairs think tank foraus – Forum Aussenpolitik. Adrienne acts as the organisation’s auditor and is concerned with the topic of commercial diplomacy, while Laura is working under the Global Governance programme on a study titled “International Geneva – an opportunity for Switzerland”.

Photo: Andri Pol

Riet Cadonau:
"Business can and must make a contribution to ensuring that Switzerland flourishes as a location."

Organising the relationship between Switzerland and Europe via the so-called bilateral agreements has proven its worth up to now and preserved a relatively high degree of sovereignty for us. Anything else would not have been accepted by the Swiss people. The route to EU integration continues not to be an option – even if external pressure is constantly growing.
As a small economy (Switzerland: 8 million inhabitants; Baden-Württemberg: 10 million; Europe: 500 million), Switzerland needs a stable network of allies. This must be maintained with care. A flourishing economy in Switzerland is also an important basis for the expected discussions with Europe. Only in this way can we tackle the issues from a (negotiating) position of relative strength.
I focus here on the requirements for a flourishing Swiss economy. In my opinion, there are primarily four points, for which politics is mainly responsible. However, business can and must also contribute. So what can the entrepreneur, the CEO, the director do?

1. Stability and predictability of the political system: Business must be a reliable partner of politics – and vice versa, of course. It must also curb destabilising influences on politics and society in its sphere of influence – see, for instance, the negative effects of the compensation discussion on political opinion making. Because further polarisation due to a few intransigents and a failure to say anything regarding misinformation (such as on the topic of the income gap) causes paralysis and damage. Furthermore, business should strengthen our "militia" system, in which citizens take on many public offices and perform them alongside their normal job, by sending suitable representatives of business into the political system. Credible entrepreneurs are required here, but the issue of their dual workload must also be addressed for this to work.
2. An excellent infrastructure: Investments in the maintenance and preservation of infrastructure must be assisted. That also includes, in particular, a commitment to the sustainable further development of our energy supply, whilst preserving democratic rights and a balance between reliability of supply, energy prices and ecological aspects, and warning against hasty reactions.
3. Beneficial framework conditions: Business should promote the preservation of beneficial framework conditions. The room for manoeuvre that is currently available should be handled in a responsible manner (such as with social partnerships). At the same time, credible representatives of business should campaign against further expansion of both state intervention and regulation at all levels and the public sector. I emphatically oppose entrepreneurial and personal freedom being sacrificed step by step in favour of state regulation and control. Because self-responsibility is a success factor for this country.
4. A first-class research and education system: And by that, I do not only mean top-notch teaching and research. Rather, our dual education system has a pivotal role to play in the performance of Switzerland as a business location. Here, business must make the corresponding funds available. Proximity to research and development is also important, for instance via partnerships or transfer of know-how. Finally, this engagement should specifically promote the company's own innovation activities with the aim of increasing its competitiveness and creating interesting jobs for young talent.

In light of growing global competition, Swiss business would do well to make a contribution to retaining the competitiveness of our business location in the medium and long term.

Riet Cadonau (52) is CEO of the Kaba Group. He graduated with a degree in business administration and began his career with IBM before joining the Ascom Group, where he was the company's CEO between 2007 and 2011 after holding various other positions.

Photo: Helmut Wachter

H_2O

Nutrition, health, hygiene – water has a central role in our everyday lives. A plentiful supply of water is a location advantage for an economy. Water is used in industry and for cooling plants and machinery.

Not only does Switzerland have an abundance of H_2O, we are also leaders in managing this valuable resource.

In this dossier, read how top researchers and companies are developing ideas and practical innovations, blazing new trails and helping to solve global water problems.

Photos: Roth und Schmid
Texts: Corinne Amacher, René Bortolani, Iris Kuhn, Bernhard Raos, Franziska Zydek

Two hydrogen atoms, one oxygen atom: the huge H_2O model in the atrium of the Swiss Federal Institute of Aquatic Science and Technology, Eawag, near Zurich, symbolises the profound meaning that water has for life and all human endeavour.

“Whatever we do must be relevant in the wider context.”

The Swiss Federal Institute of Aquatic Science and Technology, Eawag, is one of the world’s leading institutes in the field of water research. Director Janet Hering works with her teams of experts on putting research outcomes into practice for specific, beneficial purposes.

Concrete, glass, metal – the exterior of the ultra-modern headquarters of Eawag in Dübendorf near Zurich does not provide many clues as to what goes on inside. But the centrepiece of the building’s huge atrium is a stylised H_2O molecule suspended from a steel structure – water, the height of a man and unmissable. This model is the symbol of the core competence of Eawag, an independent research institute and a world leader in its field.
Eawag is headed by American scientist Janet Hering, who takes a holistic view: “Our research is aimed at gaining a far-reaching understanding of the interaction between water systems and society,” she says. This broad field is divided within the institute between twelve research departments, each with a different focus (see box on page 16).

From foaming lakes to biodiversity
All the departments have one thing in common: they are all concerned with water, Eawag’s mission since it was founded 77 years ago. But much of what is actually involved has changed. Water pollution, which used to cause foam to form on rivers and lakes, has been cleaned up in Switzer-

Janet Hering directs Eawag with the explicit goal of developing prac-tical solutions.

Cleaning waste water removes valuable nitrogen. An ingenious process is now being tested at a pilot plant in Glattbrugg which filters out nutrients from the waste water and processes them to form pollutant-free fertilisers.

land, but new issues have arisen, such as the impact of micropollutants and nanoparticles, and the loss of biodiversity. The main preoccupation used to be with water quality, hygiene and health, whereas now the emphasis is on the protection of water courses and aquatic ecosystems.
Human activities and intervention are placing considerable pressure on natural aquatic habitats. Dams, flood control and drainage systems alter their morphology, while agricultural chemicals and micropollutants impair water quality. “Treating our water resources responsibly requires us to understand how aquatic habitats react to such interference,” says Janet Hering. “We need to know what these habitats need in order to safeguard their resilience and adaptability.”

Solution oriented and interdisciplinary
Water management for the functioning of ecosystems is therefore one of the three strategic focus areas in the Eawag development plan to 2016. The research teams want to work out answers to questions such as how anthropogenic environmental changes affect water-based organisms and aquatic habitats, and how modified watercourses can be effectively cleaned and revitalised.
The Director of Eawag believes it is explicitly a matter of research for practical applications. “Whatever we do must be relevant in the wider context,” she says, “and so our research is not only aimed at gaining greater understanding and finding solutions, but is also interdisciplinary.” This close proximity to practical applications is an important motivator for Janet Hering. “Many of the outcomes of our work are very quickly put into practice,” she says proudly, and gives the example of the water quality control method developed in Dübendorf. “It was adopted immediately by the Swiss Federal Office for the Environment and introduced over a wide area,” she says with a smile. “It shows we are able to exert considerable influence, which is very satisfying.”

Developing innovations for practical application
There are numerous successful examples of practical implementation. A trailblazing project by the department for environmental microbiology involves the disinfection of water in PET bottles using the UV-A radiation of the sun. The processes crucial to killing germs were attested by Eawag and the process developed further into the safe SODIS method, which is now used regularly in 30 countries by around 3 million people. There have been numerous other proven innovations. Pesticides and biocides from agriculture and residential areas are diffused in the water systems, without passing through drainage systems and sewage treatment plants. Eawag is investigating the relevant substance flows, to reconstruct the pollution routes and seek to propose improvements in this area. This has already been achieved in the case of copper which is leached down from roofs by rainwater. The results of the research have given rise to a set of guidelines by VSA, the Association of Swiss professionals for water protection, and the copper filter developed by Eawag is being sold by a spin-off company.

Eawag: facts and figures

Founded in 1936 as Advisory Centre for Effluent Treatment and Water Protection

Focus of the research
- Water for human welfare
- Water for ecosystem function
- Strategies for trade-offs and competing demands

Research departments
Surface Waters
Aquatic Ecology
Fish Ecology and Evolution
Environmental Chemistry
Environmental Microbiology
Environmental Toxicology
Water Resources and Drinking Water
Process Engineering
Urban Water Management
Water and Sanitation in Developing Countries
System Analysis, Integrated Assessment and Modelling
Environmental Social Sciences

Employees
455, from 38 nations, including 282 scientists from the disciplines of natural sciences (70 per cent), engineering (25 per cent) and social sciences (5 per cent)

Budget
CHF 65 million in 2012, of which CHF 54 million was from the Federal Government

Output
320 articles in renowned periodicals, around 25 doctoral theses per annum, 9 completed apprenticeships, teaching commitments at the Swiss Federal Institute of Technology Zurich and other universities, specialist conferences and courses

www.eawag.ch

Some 300 employees work at Eawag headquarters near Zurich. The research carried out in the laboratories and testing facilities is practically oriented and multidisciplinary.

Research focus on waste water treatment: separating nutrients from waste water in treatment plants is an energy-intensive and costly undertaking. Eawag has developed a biological process which cuts the cost of such treatment in half.

Another very promising pilot project is currently under way, testing a new water disposal concept. It has arisen from the fact that the treatment of waste water is still polluting the environment, even in Switzerland. Valuable nitrogen is also being lost during water cleaning. An ingenious process is now being tested at a pilot plant in Glattbrugg which filters out nutrients from the waste water and processes them to form pollutant-free fertilisers.

Water management in Switzerland
Some of the latest projects form part of the national research programme NFP 61. In these projects Eawag uses interdisciplinary and transdisciplinary research to get to the heart of the issue of sustainable water management in Switzerland, in order to find answers to current questions such as the impact of climate change on the quality and availability of groundwater in Switzerland and our water systems as a whole.
The initial results have already been obtained. For example, we now know that climate change will not affect Switzerland's position as the water tower of Europe, and our country will continue to have a surplus of water. But there are still grounds for being careful in the way we handle water: "Problems with chemicals from the built environment, transport and agriculture, the use of hydroelectric power and the ever more intensive use of land have an adverse effect on water quality and the function of water systems as an ecosystem," says Janet Hering. The researchers place great importance on what they call "creeping problems". For example, Eawag in cooperation with industry as well as German and Swiss authorities are running a Rhine-monitoring station in Weil am Rhein. Here, water samples are taken daily and examined with highly sensitive equipment for pollutants down to the thousandth of a microgram, in order to be able to detect risks in good time.
To date, 318 micropollutants have been found in the river water and recorded. The chemicals come from sources such as pesticides, pharmaceuticals and cosmetics. The monitoring station checks the list on a daily basis so it can identify any problematic discharges as soon as possible. This work may be on a microscopic level but it has major significance, not only for the numerous animals, plants and microorganisms whose habitat is the Rhine – there are also 20 million people who get their drinking water from the river downstream of the station. —

Janet Hering: "Our society's desire for growth is taking the environment to its biophysical limits."

Dr Hering, what do you believe is the greatest task in relation to the way we handle water?
To satisfy our society's requirements for water, while at the same time protecting the aquatic environment to ensure that crucial ecosystem services are maintained and can continue to be of benefit to us.
This is without a doubt one of the major challenges of our times.

Do you mean using water in a sustainable manner?
Yes, in a very real way – we want to offer a high quality of life to everyone, but the way in which we use our resources today is far from sustainable. We therefore have to understand how ecosystems react to the pressures placed on them by human activities. This is the only way to prevent irretrievable losses and to implement the right measures.

So we need to use water more efficiently?
That would be a good start. But if being more efficient also means using ever more resources, increased efficiency will do no good at all.

Are you proposing a new way of thinking?
There's no other way, as our society's desire for growth is taking the environment to its biophysical limits. It's something our society has to recognise. In many countries of the world we are so prosperous, our quality of life is better than ever – it's high time to have the courage to say, "We made it", and to start considering how we can responsibly bring all people to this point.

What is the significance of drinking water to your work?
We are concerned with the quality of drinking water, but at the moment we place even greater importance on waste water, an issue that tends to have a subordinate position in the public awareness. But waste water is a very, very important aspect of our use of water.

How can we improve our waste water disposal?
With waste water it is increasingly a matter of recovering substances and bringing them back into circulation. Let's say, for example, extracting the nutrients from urine and processing them into fertiliser. This idea is especially attractive to countries with prohibitive fertiliser costs, and from our point of view a win-win situation – the water quality is protected and at the same time people are helped to improve their living standards. It is therefore very important for our scientists to work in developing countries, where they can transfer the technologies that have been developed here.

Can you give us an example?
A successful example of this strategy in action is the Diversion Toilet developed by Eawag. A simple mechanical device collects urine and faeces separately, ready for subsequent processing to create fertiliser. However, the problem is that there is no demand for it.

Why?
People who have money available and can choose where they want to invest it generally don't support projects of this kind. This dilemma then led us to consider the concept of presenting the Diversion Toilet as a business idea. Instead of selling them, the systems, which can produce good, saleable fertiliser, are hired out. And it works.

Does it worry you that the success of an innovation depends on financial considerations rather than awareness?
I don't mind why further developments take place – what is important is that things happen. —

Janet Hering (55)
studied chemistry at Harvard and undertook her PhD in water research at the Massachusetts Institute of Technology. She then worked as a researcher and professor at the California Institute of Technology, before taking up her post at Eawag in 2007. She is Professor for Environmental Biogeochemistry at the Swiss Federal Institute of Technology Zurich and Professor of Environmental Chemistry at the Swiss Federal Institute of Technology Lausanne.

“We want to take a pioneering role.”

Every year, Holcim uses 145 million cubic metres of water. At its true value (including estimated environmental impact costs), this could amount to USD 360 million. The company has a vital interest in the sustainable use of resources. CEO Bernard Fontana pushes the introduction of a water management system.

Stone and water: the cement industry uses huge resources. Plants require water for cooling purposes and process water at various points in the production chain. That amounts to a significant volume of water. Around 250 litres are required to produce one tonne of cement. For one tonne of aggregates such as grit, gravel and sand, Holcim withdraws 600 litres of water.
With a volume of around 150 million tonnes of cement and 160 million tonnes of aggregates, the Swiss company Holcim is one of the world’s leading manufacturers of building materials. Because the company is dependent to a large degree on natural resources, a sustainability strategy was defined as early as in the 1990s. This strategy is based on core issues of pollutant emissions, energy con-

Bernard Fontana (52)
The Frenchman has been the CEO of the building materials manufacturer Holcim since February 2012. He previously worked in various positions for the Indian steel and mining group ArcelorMittal and as the CEO of Aperam, a spin-off of Arcelor-Mittal. Fontana began his career at the French industrial group SNPE. He studied engin-eering at the École Polytechnique and the École Nationale Supérieure de Techniques Avancées in Paris.

“The Group has more than 2,000 plants in 70 countries. As each site is affected differently by the water problem, each must formulate its own answers, solutions and goals.”

sumption and biodiversity, and includes the careful use of water too. CEO Bernard Fontana also emphasises the social responsibility aspects that this entails.

Mr Fontana, Nestlé president Peter Brabeck considers water scarcity to be the greatest threat to mankind. Do you agree?
A shortage of water is undoubtedly one of the major challenges. Global water use could increase by 55 per cent by 2050. The number of people without access to high-quality water – currently 780 million – will increase significantly. It is also one of the major challenges for our company, which by definition requires large volumes of water.

When the cement industry talks of sustainability, it is primarily about the emission of pollutants. How important is the topic of water at Holcim?
Like emissions, water is a firm component of our sustainability strategy, but it has even grown in importance over the last few years. The topic has high priority for us. Holcim has taken on a pioneering role in the reduction of CO_2 output in the cement industry. We have been able to reduce emissions by more than 20 per cent since 1990. We now want to take on a similar pioneering role in our commitment to biodiversity and our stewardship of water resources. To do so, we have been collaborating with the International Union for Conservation of Nature (IUCN) whose expertise we use for solutions in the field of biodiversity and water.

How urgent is the need for action?
Holcim is fully committed to the sustainable management of water: of Holcim’s 2,000 sites, 20 per cent are already in regions in which there is a water shortage. According to internal calculations, 35 per cent could be risk areas by 2025. These concern not only the emerging markets in South America and Asia but also industrial countries such as the USA, New Zealand, the United Kingdom or Spain.

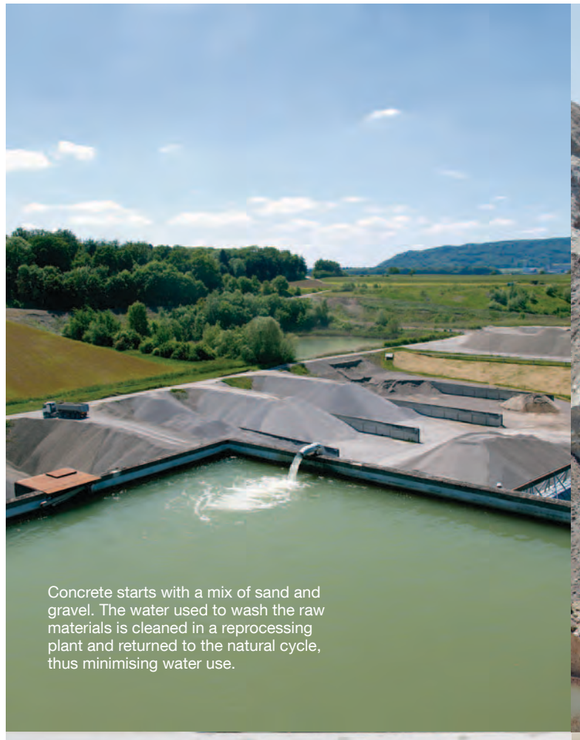
The topic was properly launched at the end of 2011 when the Group management adopted the Water Management System formulated in collaboration with IUCN. It consists of three parts. Firstly instructions for an efficient and responsible handling of water as a resource, the “Water Directive”. Secondly, a tool for the correct measuring of water at individual sites, the “Water Measurement Protocol”. Thirdly, the obligation of all Group companies to determine the water footprint and water quality per company, to assess the risks and to develop measures and goals relating to water consumption and waste water, the “Water Risk Assessment Methodology”. The Water Management System is to be introduced throughout the entire Group by the end of 2013.

Mr Fontana, what is the greatest challenge in the implementation of the Water Management System?
The sheer number of sites. The Group has more than 2,000 plants in 70 countries. As each site is affected differently by the water problem, each must formulate its own answers, solutions and goals. For one, environmental issues are the focus; for others, it is more about technical solutions, and for others still, it is about cost savings. This results in a large number of “Good Practices” that are then passed on and discussed within the Group. Each site can thus benefit from the experiences of the others.

What is the financial result of the water management?
At first, costs are incurred. The implementation of the system will cost millions of dollars. In return, I am expecting significant savings when the system has been introduced. Water is a cost factor for Holcim. We use 145 million cubic metres of water per year. If we calculate “true value” costs of 2 to 3 dollars per cubic metre, this corresponds to around USD 360 million per year.

What role does Switzerland play?
Switzerland is not in a water risk area, and with a consumption of around 3 million cubic metres of water per year, its share is small. All the cement plants of Holcim Switzerland have their own sources of water which meet practically all requirements. Most water is used for cooling purposes and is returned back to the water cycle in a non-polluted form.

Progress is also visible in areas where the need for action is greater than that in Switzerland. In the Fontcalent plant in Alicante, Spain, for instance, it was usual for lorries and machines to be washed directly in the quarries. Water that is used for such purposes is polluted with petrol and oil, which constitutes a risk to groundwater. To prevent this, washing facilities have been built in which the water is collected and then cleaned. Work is under way on more comprehensive solutions in high-priority areas such as India, where an increasing number of regions are suffering droughts. The Holcim subsidiary, Ambuja Cement, with 4,500 employees is one of the leading suppliers in the country. Via the Ambuja Cement Foundation, a water programme was developed that has had a considerable effect: Ambuja is the first cement producer in India to be certified as “water



Concrete starts with a mix of sand and gravel. The water used to wash the raw materials is cleaned in a reprocessing plant and returned to the natural cycle, thus minimising water use.

positive", i.e. it collects more water than it uses. The population also benefits from this, for example, those in the region around Kodinar.
The town, in the western Indian state of Gujarat, used to be in the heart of a fertile region. But since the 1970s, there have regularly been bottlenecks in supply due to drought and overusage of the water. The quality and volume of the groundwater sank by an alarming degree; in addition salt water flowed into the groundwater due to heavy pumping off of water. Supported by private partners, the Ambuja Cement Foundation developed numerous measures to collect and store water and to feed it back into the groundwater again. Channels were thus built between the different waterways and river dams built to prevent rainwater flowing away. The dams ensured that the rainwater is now available and can be used for eight months rather than four months after the monsoon period, and only seeps away slowly. According to Holcim, around 15,000 farmers in the region have benefited from the solutions created in this way through relatively simple constructions and now have reliable access to water.
These examples show that the sensitisation to the topic of water is bearing fruit even before water management has been comprehensively introduced at Holcim. In a comparison over several years, the consumption figures are on the decline: between 2009 and 2012, the water consumption per tonne of cement declined from 360 to 250 litres. In the production of the aggregates (gravel and sand), the required quantity has fallen from 640 to 600 litres over the same period of time.

Mr Fontana, the consumption of water at Holcim has fallen in the last few years. How much potential to save even more is there at present?
We are in the process of formulating a set of goals for each operational unit. I cannot yet say exactly what these will look like in detail. But I can definitely promise that we will demand a lot and set very ambitious goals. Because we are convinced that we are doing the right thing. —

A port with a future

The Basle Rhine ports handle 7.2 million tonnes of goods every year – and the trend is upwards. This logistics centre is investing in infrastructure while also creating space for a new urban concept.

For a bird's-eye view, take the high ground. It is also an excellent vantage point for breathing in the air of history at the Basle-Kleinhüningen port. A steel staircase leads to a grain silo built in 1924 at Harbour Basin One. The silo is still in operation, with all its equipment, as well as the wooden lift, preserved in their original state.
Any museum-like feel vanishes a few moments later, as the vista of the impressive modern port operations opens up from the platform, 50 metres above ground. The west dock houses a container terminal, where hundreds of transport containers are piled up like bright-coloured Lego bricks. A computer-controlled crane grabs one container after another and arranges them with millimetre precision on a cargo ship moored alongside. Another ship can be seen waiting to unload its freight. Several sites around the harbour basin are scenes of loading and unloading activity. Today there is some particularly expensive freight on the railway tracks next to the right bank – open goods wagons filled with aluminium bars. A recycling warehouse for metal, glass and wood is located adjacent to the container terminal.

Trimodal container terminal
If all goes according to plan, the scene here will be quite different in a few years' time. Standing in front of a large survey map in the conference room of the nearby headquarters, Hans-Peter Hadorn, director of the Port of Switzerland, explains how. "The driving force

The importance of the Swiss Rhine ports is often underestimated in landlocked Switzerland. In 2012, 7.2 million tonnes of goods were handled here.

“Demand exceeds supply.”

Port Director Hans-Peter Hadorn talks of the future of his transport hub, political processes and the potential for conflict.

How much more traffic can the Swiss Rhine Ports cope with?
We still have capacity. In 2012 both Swiss refineries were closed down, and only 70 to 80 per cent of the volume – approximately 1.5 million tonnes – was replaced by the Rhine ports. In the cereals sector we still have a reserve of 25 to 30 per cent, and at least 25 per cent for containers.

So things are looking good in the medium term?
The huge expansion of the Rotterdam seaport means more traffic, which cannot be accommodated by rail or by road. The resulting increase in inland waterway transport means that the terminal capacity in Basle will soon become critical. So we need to expand, or else our roads will be completely congested.

The plan for a new harbour basin and a container terminal is in place, and now a proposal has been put forward to construct a large trinational port in Alsace. Does that ruin your plans?
There is a joint venture with the neighbouring ports in France and Germany. We need to decide where we will establish the necessary logistics sites in the long term. But over the next 20 to 30 years we need to expand in Basle.

After that time will the Rhine ports in Basle no longer be necessary?
The risk of that is very small. The north harbour area is ideal for the development of all three modes of transport – rail, ship and road. I have never felt such a strong demand for terminal infrastructure as there is here in the run-up to the port development of 2020. Trimodality is a safe bet for Basle, now and in future.

Can Basle provide all the space that is needed for the ports in the long term?
The demand far exceeds supply, so we are consolidating existing areas. If the demand for mineral oil products decreases, this will open up new options for us, and the coal yards are becoming obsolete. We will also relocate existing warehouses, thus gaining development areas.

Basle wants to have it all – new attractive residential developments and more dockside activity. Could this mean conflict?
We will create the right conditions for urban development. The use mix is a political decision. On the other hand, we want to establish a viable port, with the right mix of employment opportunities and living space. This is feasible with apartments to the west and services and other facilities to the east.

The rail freight operators want to be able to use the fully extended container terminal in the north port by 2018. Is that realistic?
Yes, if the political decision is made soon by the Federal Government. I believe that will happen this year. Then we can begin with the specific implementation plan and complete the terminal within five years. It will certainly be a challenge!

“Rhine freight transport is a cost-effective and environmentally friendly alternative to road transport.”

Swiss Rhine ports

Total volume of goods handled in 2012:
7.2 million tonnes

Oil, mineral products:
3.58 million tonnes

Containers handled: 102,240 TEU

Railway tracks: 100 km
Length of the quay: 7 km

Tank storage for oil and fuels:
1.25 million m³

Grain silos: 385,000 m³
(stored goods sufficient for 270 million loaves of bread)

Other bulk storage:
80,000 m³

Cranes with a lifting capacity of between 5 and 400 tonnes: 60

Transportation distance per tonne/litre of diesel oil consumed:
Cargo ships 100 km
Rail 66 km
Lorries 20 km

behind the development is the trimodal container terminal, which we want to build here in Basle North by 2018,” he says.
Trimodal means the combination of ship, rail and road transport. The new terminal in Basle North is designed to deal with a capacity of 200,000 containers annually. As a comparison, in 2012 all the terminals in Basle handled approximately 100,000 containers. The new terminal is to be built on the site of the former Badischer Bahnhof marshalling yard and will be connected to a third harbour basin on the Rhine.
According to Marek Fausel, head of Ocean Freight Switzerland at the logistics group Panalpina, this is a step in the right direction. “A large container vessel can transport 18,000 containers on average, a figure that is pushing the capacity limits of the infrastructure in Switzerland.” Fausel wants more infrastructure across the board, economically and efficiently combining marine, rail and road transport. He sees Rhine freight transport as “a cost-effective, environmentally friendly and reliable alternative to road and rail transport.”

Rhine ports play a key economic role
The importance of the Swiss Rhine ports is often underestimated in landlocked Switzerland. In 2012, 7.2 million tonnes of goods were handled here. Nearly 12 per cent of all imports in Switzerland are brought to the country by cargo ship – and the trend is upwards.
“Our location is unique within Switzerland. Nowhere else can connect up ship and rail transport so directly and efficiently,” boasts Hans-Peter Hadorn. Formerly head of strategic planning at the rail transport company SBB Cargo, he is an expert on the modal split. Two thirds of goods are transported to the Rhine ports by rail, and a third by road. The site in Basle North is ideally located alongside the most important European rail corridor between Rotterdam and Genoa. The technical feasibility of the terminal was assessed in 2012, with costs calculated at CHF 140 to 160 million for constructing the rail terminal and harbour basin.
The site – a rectangular extension of Harbour Basin Two – is one of the last undeveloped spaces in the densely developed Basle urban area. Basin Two already enjoys an international reputation as the Rhine port with the highest productivity rate in relation to its size. A new landmark feature of this development is the impressive 84-metre-high Ultra-Brag silo with its distinctive honeycomb design. It has a capacity of 30,000 tonnes in 47 separate silo compartments. Here, too, like everywhere else in the port, remote-controlled cranes undertake most of the work. The handling facility projects out over the water and is equipped with two crane trolleys each with a lifting capacity of 35 tonnes. A heavy-duty crane with a handling capacity of up to 600 cubic metres per hour fills the silos by means of conveyor belts.

Rotterdam sets the pace
The Rostiger Anker (Rusty Anchor) restaurant, facing directly onto the harbour street in Kleinhüningen, gives a real taste of the harbour atmosphere. It is a great favourite with Hadorn. “Here at the gateway to the docks you can feel the life of this microcosm,” he says. The flags of the large Rhine vessels that pass by reveal their origins. Dutch customers predominate in the Swiss Rhine ports, both in terms of the volume of cargo and the number of vessels. They represent a share of over 50 per cent, followed by German and Swiss vessels. The Dutch flag will be seen even more often in Basle in the coming years, as the major port at Rotterdam reacts to the increase in worldwide traffic by doubling its capacity (“Port Vision 2030”). A targeted modal shift strategy is to be implemented, with inland navigation and rail making up 65 per cent of the total.
These plans were also a stimulus for the Swiss Rhine ports to expand, as a significant percentage of goods arriving in Rotterdam will be shipped along the Rhine or transferred to rail. “We have to be ready,” says Hadorn. If not, Switzerland will have to deal with considerably more lorry traffic in future.
The planning applications for the Basle North container terminal will be submitted to the Swiss Federal Office of Transport later this year. The project schedule is ambitious; administration and officials will need to move quickly (see interview).

Manhattan on the Rhine
Not only will a container terminal be built in Basle North. The recycling logistics will be

moved from the west dock to nearby Weil am Rhein in Germany, and the grain silos are to be relocated to the east dock. This will create space for a new Swiss harbour city development.
In the middle of the Rhine, surrounded by port logistics, an island approximately 700 metres in length will be established off the present west dock in Kleinhüningen and developed for mixed use. The marshalling yard will be decommissioned and the previous Harbour Basin One will be extended along the original course of the Old Rhine. Residential buildings, hotels, industrial and cultural premises, as well as open spaces and recreational areas are all planned here. The urban planners talk about "New Basle", sceptics call it "Rhinehattan". German and French neighbours over the trilateral borders have been included by means of a planning agreement. The whole development will form a starting point for the urbanisation of the entire region over the decades to come.
The successful examples of urban and dockside developments in Hamburg and Rotterdam have inspired both planners and residents. "The port connects our district with the world," says Heidi Mück, president of the local association for Kleinhüningen.

Basle as a logistics hub
Investments are not only being made in the Kleinhüningen port, but also in those of Birsfelden and Muttenz. All three today come under the umbrella of the Swiss Rhine Ports, with Muttenz the most important handling facility for mineral oil. The plan here is to expand the waterside development, connect it to the rail system and strengthen the link with the industrial area of Schweizerhalle and Infrapark Basleland. There are plans to further boost the steel centre at the Birsfelden port together with logistics and production.
The entire Basle region is to become an important logistics hub for Switzerland by interconnecting rail, road and inland waterways. Forty per cent of the country's total foreign trade passes through the region, where approximately 1,000 firms in this sector employ 16,000 people. To Director Hans-Peter Hadorn this represents a commitment to the future: "With the port development 2020 we are providing the necessary impetus." —

"We can reduce our water consumption intelligently."

Martin Dahinden, director of the Swiss Agency for Development and Cooperation (SDC) talks about Switzerland's water footprint, political activities and water diplomacy.

The SDC, together with the environmental organisation WWF, is presenting a water footprint for Switzerland. Why?
Water shortages and poor water quality affect the quality of life of hundreds of millions of people, and a worldwide water crisis is emerging. We therefore need a new level of awareness. The water footprint for Switzerland will enable us to awaken public interest and stimulate discussion.

Over 80 per cent of Switzerland's water footprint occurs outside our country. What does this mean, exactly?
The fact is that although we are a country rich in water, our service-oriented economy means that we import four times more water through food and goods than we draw from our own resources. This indirect water import is questionable if it comes from regions that suffer from water shortages. We therefore share the responsibility for the resources that lie beyond our national borders.

Does the prosperity of Switzerland also depend on water from countries that do not have adequate water resources?
The situation is very complex, and not primarily negative. For many of these water-

Dr Martin Dahinden
The 58-year-old ambassador has been director of the Swiss Agency for Development and Cooperation since 2008. He previously headed the Directorate of Corporate Management at the Federal Department of Foreign Affairs and was director of the Geneva International Centre for Humanitarian Demining. Dahinden obtained a doctorate in business administration at the University of Zurich. He has been in the diplomatic service since 1987.

“We are a country rich in water, yet we import four times more water than we draw from our own resources.”

scarce countries the production of goods is essential for survival. What matters is that in future we need to use scarce water resources differently, and more efficiently. This is where the SDC can offer support.

Do you yourself drink coffee with a clear conscience, despite the fact that it takes a lot of water to produce it?
Yes, and I also clean my teeth and take showers. That’s not the essential point here. We can reduce our water consumption intelligently. More specifically, 50 per cent of food is lost between production and consumption. In many water-scarce regions, 20 to 30 per cent of food is wasted during transport or because of incorrect storage. This is the area in which we intervene actively, both through policies and specific projects.

Agriculture accounts for a share of 70 to 80 per cent of global water consumption. How should that be viewed?
The question is not so much whether this consumption can be justified, but rather where the potential for increased efficiency lies. It is encapsulated by the slogan “More crop per drop”. Water savings of around 30 per cent could be achieved by improved irrigation systems, and furthermore, up to a third could be saved by cultivation methods and crop varieties adapted to local conditions. The SDC offers support, for example, in the form of cheap and sustainable irrigation systems for small family farming operations, which make a worldwide contribution of around 50 per cent to food security.

The SDC water programme for 2013 talks above all about political work. What does this involve?
The global water crisis cannot be resolved by local projects alone. These days, therefore, classic water programmes are being increasingly supplemented by political activity and water diplomacy. We want to establish trust in the context of cross-border water problems and create the necessary structures. To this end, the SDC has more than doubled its water budget compared with previous years, to around CHF 150 million.

Water diplomacy? Does Switzerland have any means of exerting political influence?
We don’t claim to be able to solve all the problems of a crisis region, but where water leads to or intensifies conflicts, we seek to bring the parties together round the table. We provide fact-based information and use it to stimulate discussions, as well as encouraging exchanges on other topics. There are 250 international water courses that form the basis for satisfying the water needs of 60 per cent of the world’s population.

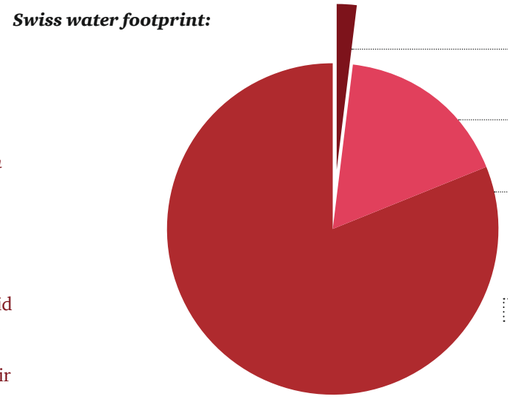
The UN has designated access to water and sanitation as a human right. For billions of people, however, this right exists on paper only.
That’s sadly true. Depending on the criteria used to assess quality, availability and price, this human right does not apply for 1 to 3 billion people. Around 800 million people have no access to drinking water.

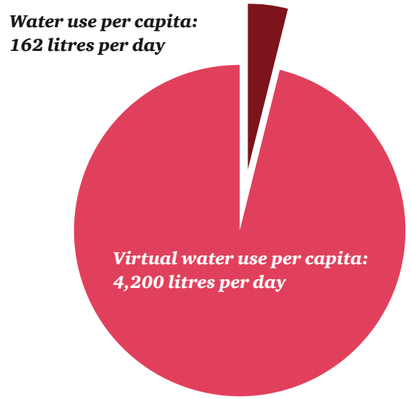
Could you venture to forecast when this human right will apply to all?
It is an objective we should seek to attain as fully as possible. UN law reminds governments of their obligations and reinforces the efforts that are being made in individual developing countries. It also obliges states to cooperate. 2013 is the UN International Year of Water Cooperation. The SDC will do all it can to ensure that this topic is taken seriously by the international community.

Overall, there is more than enough fresh water in the world. Could it be that better water management is what we need most?
The precipitation that falls is beyond our control. The major challenge is water management in water catchment areas and in arid regions. The problems cannot be solved simply by drilling water holes, but we can support the countries affected in optimising their water consumption.

Many countries are facing crises. This does not bode well for an improved water supply worldwide.
It is certainly a problem if the traditional donor countries, and therefore indirectly also the international organisations, have fewer resources available to them. On the other hand, many newly industrialised and developing countries are experiencing considerable growth – this is often where the greatest challenges with regard to water lie. Here we can get involved, act as political intermediaries and pass on our expertise.

Is this why the SDC has established the Swiss Water Partnership, a networking platform for private organisations and public bodies in the water sector?
The different players, such as universities, the Federal Government, businesses and non-governmental organisations, used to operate independently. With this new platform – which has been in existence since 2012, bringing together some 40 members – we are creating a basis for practical cooperation. At the World Water Forum in Marseille we appeared together for the first time with a joint stand, as a deliberate bundling of complementary fields of knowledge. Switzerland has a lot of expertise in the area of water, and we at the SDC contribute experience from our development cooperation work. This gives us a broad knowledge base and a good opportunity to be part of the worldwide debate. —





The water footprint
In industrialised nations and developing countries comparatively little water is used for drinking, cooking and washing. The consumption for the production of food, services and goods is much greater. The water footprint is the volume of fresh water used to fabricate goods and provide services, plus the waste water produced, whether for an individual, enterprise or country. This volume includes direct and indirect fresh water consumption; indirect water usage is also referred to by the term “virtual water”.
According to a SDC/WWF study, 18 per cent of the water footprint is generated within Switzerland, while 82 per cent relates to imported goods and services. A Swiss resident uses an average of 162 litres of water per day for drinking, cooking, cleaning and washing. Taken together with the virtual water for food, drink, clothing and other consumer goods, this gives a water footprint for Switzerland of 4,200 litres daily per person. The total Swiss water footprint is 11 billion cubic metres per annum, corresponding approximately to the volume of water that flows into Lake Constance every year.

ceo 1/2013
Value insights

Peter Schmid,
Family Business,
Tax and Legal Services

Marcel Widrig,
Leader Private Clients,
Tax and Legal Services

Family businesses
Getting set for the future

Constant changes are forcing a rethink at family businesses. If you're taking over from an old-style owner and want to remain successful, you have to tread new paths, adopt new approaches inside and outside the business, and find new ways of dealing with conflict within the family.

Despite the crisis, many family businesses currently find themselves in surprisingly good form. So far the turmoil in Europe has not really been bad for business, and many family firms have actually seen solid growth and development. This is particularly the case in Germany, Austria and Switzerland, where most family businesses are outpacing their peers in the rest of the world. Seventy per cent have seen sales increase over the last twelve months, and 80 per cent expect growth to continue in the next five years.

These are the findings of a PwC study entitled "Die Zukunft von Familienunternehmen – der Kern der Wirtschaft" (The future of family businesses – the core of the economy), which looks at the significance of family businesses all over the world and the challenges they will face going forward (see page 44).

Family businesses march to a different beat

Family businesses have freedom. Perhaps that's why they're so successful. If the owners are prepared to weather a lean period, they can deliberately opt for a strategy that won't lead to success until the medium to long term. Stable ownership arrangements lessen the risk of ill-advised changes in course and unfriendly takeovers, and flat hierarchies ensure rapid decision making and greater flexibility.

Many family companies are now more aware that future success will depend on a new and different set of management skills. The days of an all-knowing, omnipotent and omnipresent boss who wants to do everything himself are nearing an end.

Family businesses shine in terms of customer focus, service, and the ability to serve a niche. Their constancy is the reason why some European countries, particularly Germany, Austria and Switzerland, are weathering the crisis better than others. On the other hand the past year wasn't quite as successful for Swiss family companies as it was for their German-speaking neighbours.

How does the new generation view the future?

So much for the past successes of family businesses. How does the new generation view the future? What risks, opportunities and challenges do the people taking over from today's family business owners foresee?
One thing's for sure: there's no going back to the old days. Around a third of family businesses will face major internal reorientation in the near future. Over the last few years they have grown, but their internal structures and processes are ill equipped to cope with further development. They will have to become more efficient, rethink the way they do things, and reorganise.
The rough and tumble of competition, price pressure and the struggle to recruit qualified staff will have a much more decisive influence on the way family businesses develop in the future. Will they be able to hold their own in the face of pressure from large, global corporations? Will they manage to hire and retain talented people? Will they be able to preserve and build on their power of innovation? Innovation is crucial, particularly for companies that operate in global markets or intend to do so in future. These companies will only be a match for their rivals if they manage to constantly reinvent themselves.

Living out values privately and in business

Many business-owning families have values that have guided them, both at work and in private, for generations. For example, they'll generally do everything in their power to keep on their staff, even when times are bad. In the financial and economic crisis these values have once again proven their worth: despite weak order books, family businesses have remained loyal to their people and in recent years have even increased their workforces, while international companies have shed jobs.
The up-and-coming generation of family business owners faces a new problem in this respect: it's getting harder and harder to find well-trained people. In the competition for the most able talent, family-run SMEs often find themselves losing out to listed companies with more financial clout. Not only are smaller businesses unable to match the levels of pay expected by specialists; they're also less likely to be able to offer international career opportunities. One trump card family businesses still hold, however, is greater job security, making them attractive, for example, for people who want to start a family.

Management skills or family loyalty?

It's evident that many family companies are now more aware that future success will depend on a new and different set of management skills. The fate of the business will ultimately be decided by the qualities of the person who takes over the reins. For example, it used to be usual for a technology company to be headed by an engineer. Nowadays, in addition to purely technical knowledge, bosses need management, leadership and team-building skills, as well as the ability to build networks. If their company operates abroad or plans to do so, they also have to have the necessary social skills to deal with people in other cultures.
These tougher requirements are putting the next generation under pressure. It's not just responsibly minded heirs who are having to ask whether they have the right qualifications and qualities to lead the family business into a successful future. This is a question their parents are also increasingly having to confront. Is our son or daughter sufficiently qualified to take over a business that has been built up over generations? How would our own children fare in a professional external assessment?
It's crucial to assess the situation clear-sightedly and decide accordingly. One quarter of those polled in the survey cited the lack of qualifications of potential successors within the family as one of the reasons for plans to sell the business.

Emphasising different skills

It may be that suitable succession solutions emerge if the family is willing to change the way it thinks. The business may find it has to have a different focus in tomorrow's growth markets, meaning that the skills it requires have to be reassessed.
One quarter of family businesses worldwide, and a third of those in Switzerland, intend to continue focusing on the domestic market as before. But the trend to internationalisation continues, with the companies polled already generating a quarter of their sales abroad, and saying that this is likely to increase to 30 per cent in the next five years. In the light of this development, a conceivable scenario would be for a family member with international experience and the relevant language and social skills to take a leading role in the company while a manager from outside heads the technical side.

No need to play Superman

With the exception of the odd multitasking wizard, the days of an all-knowing, omnipotent and omnipresent boss who wants to do everything himself are nearing an end. In the future, families will increasingly divide up the burden according to the talents, skills and qualifications of individual members. This opens up the field of possible candidates

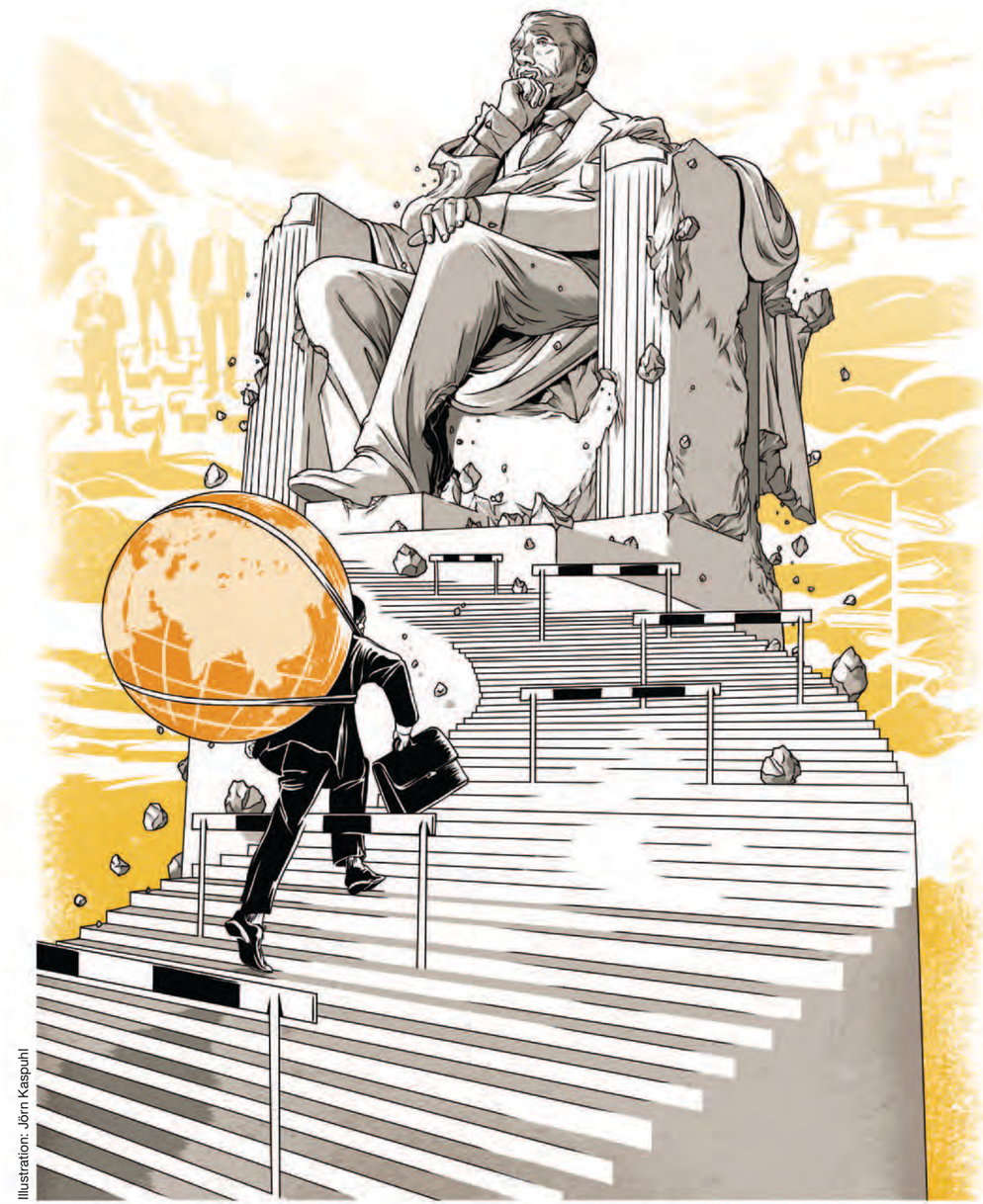


Illustration: Jörn Kaspuhl

for a management role, both inside and outside the family. Instead of a boss who takes on the whole burden, an executive team of experienced specialists in different areas of technical expertise might take care of operational management, while a board of directors consisting of various family members and trusted outsiders guides the company's broader development. There are many potential ways of solving the management challenge, although new approaches also require new rules. The reason is that in a management team, opinions on where the business should be headed to are more likely to be divided.

Keep emotions out of conflict

In recent years many family firms have implemented structures to avoid potential conflict between family members and ensure everyone pulls together to assure the future of the business. Almost a third of companies in Germany, Austria and Switzerland already have entry and exit rules and regulations enabling managers both inside and outside the company to be assessed objectively. Moreover, 35 per cent of the companies polled in these countries look to mediators to mitigate disputes between family members (compared with only 25 per cent in 2010). An even greater number of companies have set up a family council.
At this stage very few of the firms have a family charter, although this is something that is likely to change in the future, as a charter is a great way of preventing conflicts, tensions and other emergencies before they even arise. A charter can be used to set down rules governing the way family members deal with each other as partners in the business, what rights and duties the family has, and how they interface with the business. The benefits of a family charter are obvious: it can help prevent conflict, assure stability and harmony, encourage members to pull together and identify with the business, and improve management and control. Family charters also have a demonstrable, positive economic side effect: companies with family governance generally earn better returns than those without.

Sell the family silver?

Reflecting a consensus all over the world that it's better to keep the business in family hands, half of family-run companies in Germany, Austria and Switzerland plan to hand over management to the next generation. Another quarter plan to pass on the shares within the family while delegating operational management to someone outside.
Only in Switzerland is there a greater tendency to consider selling the family business, floating it on the stock exchange or issuing shares to management. At 43 per cent of the Swiss companies polled, either the next generation isn't interested in taking over the reins (compared with an average of only 24 per cent overall in Germany, Austria and Switzerland), or there are other reasons making this unviable.

Earn a living, or live your dream?

What lies behind this development? Don't potential successors in Switzerland have the passion to continue leading the family business? Would they prefer a comfortable existence financed by the sale of the business? Or would they rather pursue a career of their own choosing? Presumably families will discuss the issue of succession very thoroughly before deciding on a solution. Often the person who has built up the business will feel that their life's work is vindicated by an attractive offer from outside the family, and will expect their children to make a similar financial commitment. After all, the way the entrepreneur sees it, nothing has been handed to them on a plate during their tenure.
If this happens, it's high time to have the business valued objectively by an external party.
On the other hand there are situations where a member of the younger generation who would be keen to lead the business sees no chance of taking over any time soon because the parent won't let go. Here, too, a neutral outside assessment can help find solutions that make long-term sense for the departing boss, the family, and, most importantly, the business.

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Summary

It's a completely new ball game for the up-and-coming generation of family businesspeople. Increasing internationalisation, competition for qualified people, and the need to adapt internal structures call for far-sightedness and concerted effort. At the same time, family members are likely to find their own leadership qualities and qualifications under scrutiny. It's time for businesses and the families who own them to rethink their approach and reorganise.

Carl Bellingham
Value Chain Transformation,
Tax and Legal Services

Transformation
Tax authorities shift their focus to value chains

Value chain transformation has been on the corporate agenda for some time now. But with the goalposts shifting in an increasingly dynamic business environment, it's something companies can now no longer afford to ignore. These days it's not just about operational efficiency or tax management, but about aligning the business, tax and legal operating models to ensure synergies and benefits are maximised.

Go back a few years and you'd find few companies where tax and operations were aligned. You had very smart tax people, and very smart operational people managing the supply chain, but each group worked predominantly in its own silo. And that was the way management ran the business. But businesses are now realising that it's both desirable and essential to align these two models; desirable because the more closely they're integrated, the more sustainable the value you generate; and essential because tax authorities are increasingly focusing on the way operational and tax structures are aligned.

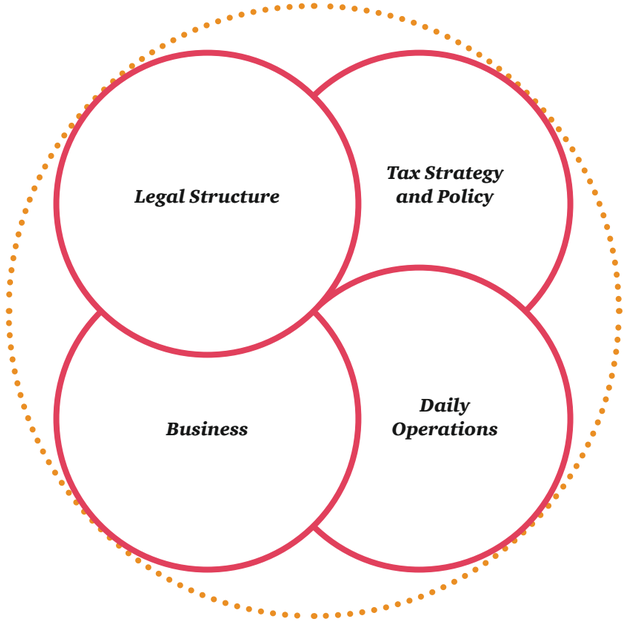
Pushing the limits of operational efficiency

Let's first look at the operational side. In an environment of growing globalisation and increasingly dynamic markets, value chains are getting more and more complex. The financial and economic crisis has put many companies under increasing cost and competitive pressure. This is forcing them to make their value chain as efficient as possible. Corporate value chains are increasingly looking for ways of getting more value for – ideally – reduced costs or – at a minimum – existing costs. That's all about operational efficiency, how you procure, purchase and produce, and how you manage to optimise your marketing and distribution.
But there comes a point where you can't squeeze any more out of the supply chain to get more value, where you've exhausted the potential for increasing efficiency, or where further cost cuts would entail incalculable risks. At this point you have to start asking how you can design the interplay between the traditional value chain and other corporate functions. How can you create appropriate tax structures that are aligned to the operational business, while at the same time generating a non-operational cost benefit which translates into increased dividends or more money for spending in areas such as R&D?

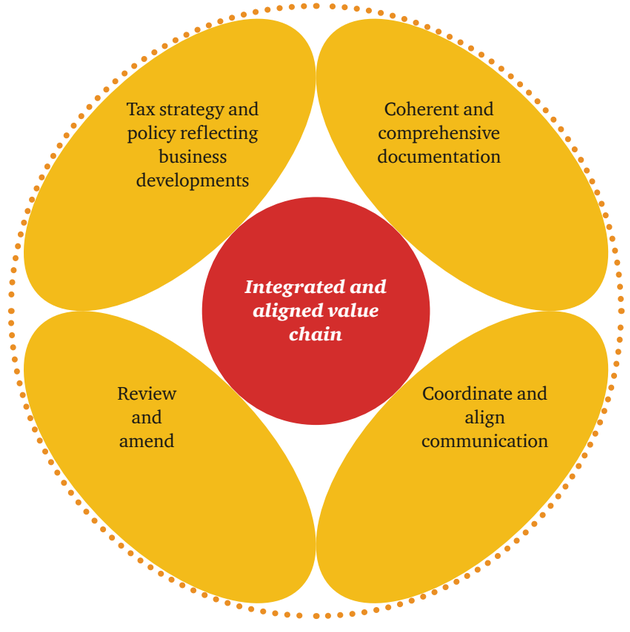
Looking beyond the legal structure

Look at things from a tax point of view and you get a different picture. Tax is focused on legal entities: you pay tax on legal entities' results. But business and operations generally don't care about legal entities. This state of affairs – the fact that value creation literally respects no boundaries, but taxation is coupled to specific territories and entities – leads to a natural tension between operational flexibility and how you manage a tax strategy.

Integrated and aligned operating model



Whatever the business is doing needs to be reflected in the tax strategy, and whatever the tax strategy is, it needs to be sensitive to operations.



Companies need to assess regularly whether their tax strategy accurately represents value creation – and all this has to be rigorously and comprehensively documented.

Tax authorities are now very alert to this. When they come to make an inspection, they're more interested in what's actually happening in the business, in value creation and what level of profit is appropriate. The more advanced tax authorities have started looking at job descriptions, metrics, and the way a company measures its own success. Now that the focus has moved behind the legal façade, companies should be reviewing and, where necessary, redesigning the value chain. The days of operationally efficient but legally misaligned structures are numbered. To this extent, the context in which the value chain operates has changed fundamentally.

Value chain transformation recognises that tax people and operational people have to be integrated in the processes for the design, implementation and sustainability of this type of business model. Whatever the business is doing needs to be reflected in the tax strategy, and whatever the tax strategy is, it needs to be sensitive to operations.

Tax policy reflecting value creation

Business doesn't stand still. It operates, and will continue to operate dynamically. Tax legislation isn't as dynamic as business, and most tax legislation is at a minimum four or five years behind. Despite this, consideration should also be given to the fact that corporate taxation is no longer just about legality, but increasingly about morality too. Something that's legal won't necessarily be viewed by the public as legitimate, which means that even pursuing a legally accepted tax model may pose a reputational risk. This is another risk that companies can minimise by ensuring that their operational and tax strategies are aligned. Just as business doesn't stand still, the way tax strategy is deployed shouldn't stand still either. The approach should be dynamic, reflecting the way the business is developing. You need to assess regularly (e.g. every two years) whether your tax strategy accurately represents value creation – and all this has to be rigorously and comprehensively documented. Proper documentation is one of the most effective weapons when it comes to defending your tax policy and practice. But this weapon is dulled if your documentation only covers the legal aspects of tax compliance. Your documentation should demonstrate that your value creation and tax policy are aligned — not just at a particular point in time, but over time.

Communication is also crucial. From a tax perspective, you need to be able to give a coherent and aligned message to all tax authorities across the different territories in which you operate. Tax authorities increasingly have the ability to exchange information through double tax treaties. Documenting what actually happens in the business, and communicating this persuasively, is hugely important in terms of your credibility and reputation.

Tax authorities are increasingly knowledgeable about the tax strategies that companies deploy. They have the same access to modern communications channels as customers and to all the information aimed at other stakeholders. Information for customers that may be well intended commercially can easily prompt the tax authorities to ask other questions (for example a corporate website may suggest ownership of valuable intellectual property which is inconsistent with the desired tax profile). So it's a good idea to have some level of coordination between corporate communications and the tax and legal department.

Principal company structures with operational substance

Transforming a value chain to successfully integrate all the relevant operational, tax and legal aspects may sound like trying to fit a square peg into a round hole. It is achievable, however, but does require a collaborative process that engages both operations and tax in designing and implementing a holistic solution that delivers sustainable incremental value.

Value chain transformation enables organisations to assess how they create and maintain value, and determines how the components of that created value are allocated appropriately to an operationally sensitive but compliant legal structure.

A good way of doing this is by using a principal company structure (PCS). In a PCS you have a single legal entity that bears the main entrepreneurial risks for an identified part of the business in an identified geographical area. The key is the concept of residual profit or loss.

Let's assume, for example, that a global group decides to establish a PCS in Switzerland to manage its activities within Europe. This is fairly common practice. Decision makers will be employed by the PCS in Switzerland who will centrally manage and control key functions of the value chain. This is typically complemented by a fundamental transformation of the operational supply chain processes. In this case the PCS is definitively not merely a creature of artificial tax planning but instead has material business and operational substance, comprehensive infrastructure, key personnel and decision takers who are competent to take key entrepreneurial decisions and bear the resulting entrepreneurial risks.

In our example, the affiliates of the PCS are left to perform routine tasks, for example manufacturing or distribution. By assuming the entrepreneurial risks, the principal company structure sitting in the middle is guaranteeing these affiliates a routine profit commensurate with their efforts, while the residual profit (or loss) belongs to the PCS.

The PCS is an object of taxation on the basis of this residual profit, whereby the amount of residual profit generated depends on the extent and the quality of the entrepreneurial functions actually centralised in the PCS. It's very important to communicate this within and outside the company. In particular, it is essential to document and prove to the foreign tax authorities that the management function is not merely formal in nature, but assumes a genuinly active and significant role in generating substantial value

added to the overall success of the business. Tax authorities will routinely compare the structures before and after the PCS was set up, and will be looking to see whether it is really the PCS – and not an affiliate – that is bearing the operational and financial risks, exercising control, doing substantial work and creating value. Proper and current documentation is hence a vital component of successfully demonstrating this.
Structures that lack the required documentation and substantial centralised management are unlikely to pass inspection by the tax authorities. In contrast, aligning your operational business model and tax strategy on an ongoing basis will enable you to remain tax compliant and defend the resulting tax benefits with the critical tax inspectors internationally. Also a dynamic, centralised and integrated business model forms the basis for sustained business success and a positive reputation with all stakeholders.

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Strategy & Reputation

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Summary
The context in which the value chain operates has changed fundamentally. Operational efficiency can no longer be the only goal of value chain transformation. If you manage your effective tax rate on a global level and match that with your supply chain, you get a double benefit: operational efficiency, and a sustainable and compliant tax result.

Trust, resilience and sustainable growth
How CEOs are redefining their role

Resilience is the latest buzzword in the corporate world. It's also the crucial quality identified in this year's global survey of CEOs conducted by PwC. Business leaders know that building resilient organisations starts with trust. In this article we look at how CEOs are rebuilding trust with their growing numbers of increasingly influential stakeholders.

What concerns CEOs most at present is how to target the right opportunities, attract and keep more customers, and improve operational effectiveness. To succeed in these efforts, they know they have to repair the bridges between business and society. The global financial crisis and questionable behaviour of some companies have badly damaged faith in institutions of every kind. This is hindering the performance of businesses and the economy as a whole. Of the business leaders polled in PwC's Annual Global CEO Survey, 37 per cent are concerned that a lack of trust in their industry could endanger their company's growth. Trust is the glue that binds an organisation and all its stakeholders together – and there are now many more stakeholders to consider. Thanks to the social media revolution, many of these stakeholders have an unprecedented amount of clout.

Global capitalism in the service of global humanity rather than isolated individuals

This lack of trust has affected institutions of all types, not just businesses. The worst thing in these circumstances would be for businesses to sulk and retreat in fear and panic. Corporations have much better chances of emerging from this crisis of trust than many other institutions. Charges that politicians are only in it for re-election are much harder to refute than accusations that managers are only in it for the money. If businesses really do get back to trust and responsibility, the current "greed" phase could go down in economic history as a relatively short chapter – albeit a chapter where many people got the impression that markets were only there to enhance the globalised economy in isolation from the rest of society, and that the money and prosperity were flowing straight into the pockets of a caste of people beholden only to themselves, missing out the rest of humanity on the way.
Now, in 2013, there is already much to suggest that business is taking very active steps to build the capitalism of the 21st century. Terms such as stakeholder capitalism, conscious capitalism, responsible capitalism, public value capitalism and Business 3.0 haven't just come from nowhere. What approaches like these have in common is the desire to change the global economy so that it meets expectations of generating greater prosperity for global humanity, such as those embodied in the United Nations Global Compact, signed years ago by so many companies. But a great deal of damage has been done already. This can only be rectified if companies and managers step out of the defensive and take positive action to drive social developments forward. But how will they do this? The CEOs polled in PwC's global survey provide the answer: you have to start from within. As one CEO puts it: "Tackling the challenge of trust requires a long-term perspective, and not just fine words but concrete action. It also demands a level of personal self-questioning – and even self-doubt – with which some business leaders may not feel comfortable. But they need to overcome such qualms."
So what are the 1,330 CEOs in 68 countries who were interviewed by PwC actually doing to build trust in their organisation? They're starting from within, with 56 per cent planning to focus more on promoting an ethical culture and half planning to develop a more diverse and inclusive workforce. Looking beyond corporate walls, nearly half of the CEOs plan to focus more on cutting their organisation's environmental footprint, and 41 per cent plan to focus more on non-financial reporting. Over the next three years, 61 per cent plan to invest more in creating a skilled workforce – an area which CEOs see as a responsibility they share with government.

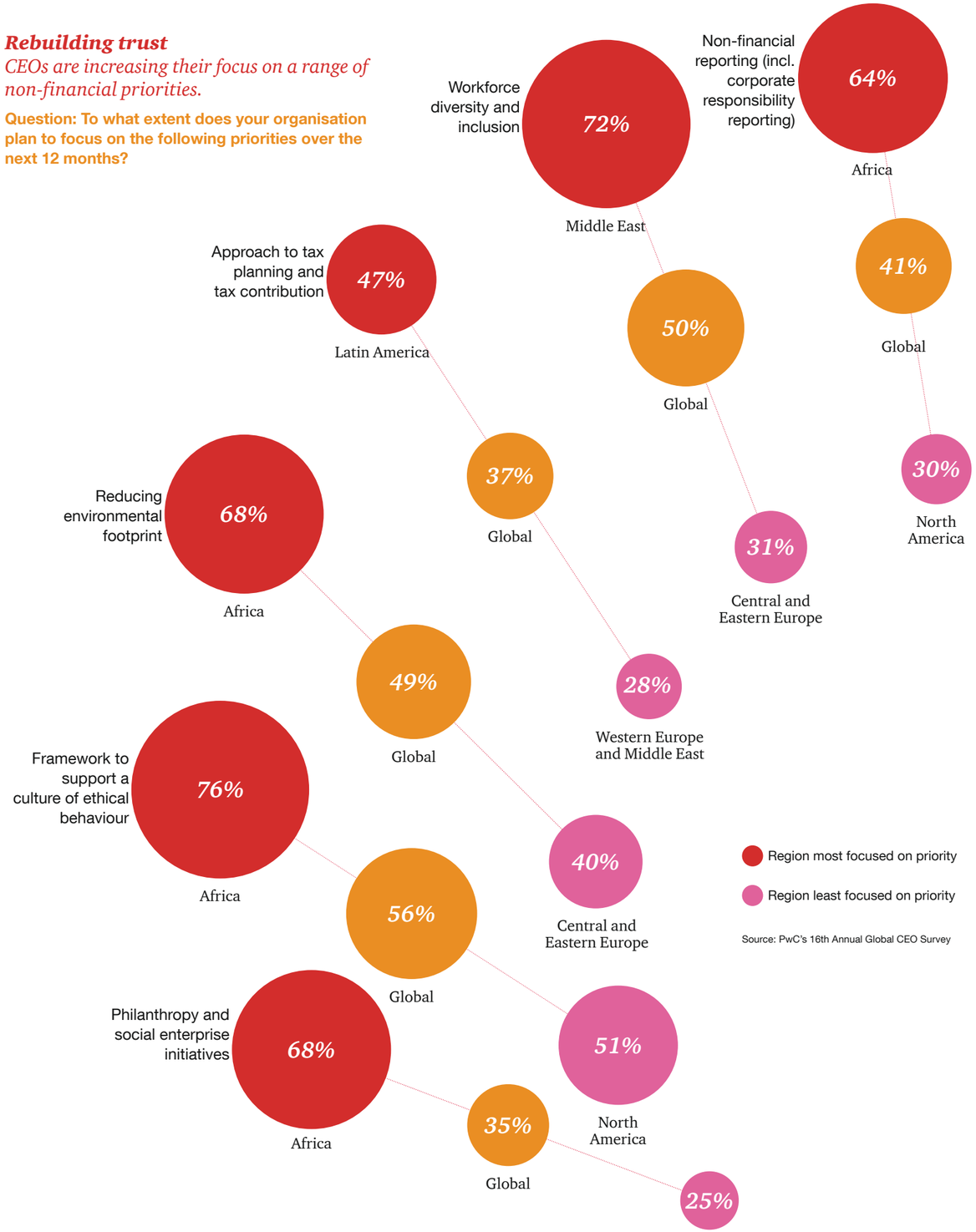
Resilience starts with robust self-understanding

A learning society comes from learning organisations, and learning organisations come from learning people. Resilience is directly connected with learning ability. A resilient person is someone with a healthy self-understanding coupled with the ability to reflect. Reflection enables them to see where they fit in in terms of the changes occurring in the world around them, which in turn creates options. It's very similar for organisations. A resilient organisation first has to understand itself, and then engage in a process of reflection. This opens up options and opportunities which the organisation can then target and harness in harmony and interplay with its environment – in other words, with its stakeholders. Or translated into operational, consultant speak: if we're trying to boost the resilience of organisations it's a good time for companies, regardless of their size, to reflect again on their mission, vision and purpose. This way they can take a critical look at the individual elements of their business model, and go about shaping them creatively and innovatively. The result of this reflection is an integrated transformation plan that addresses every aspect of the organisation, from corporate culture to the business model and value chain.
Ultimately the greatest challenge for an organisation is to rethink the way it views its stakeholders. Instead of treating stakeholders as groups with claims on the organisation, companies have to see them as partners who are woven into the value creation process and receive a fair share of the value created in return – and here, too, we're not just talking about financial value. This results in a type of stakeholder management geared to mutual benefit within a network of relationships. One group that has a large stake in many organisations are the people who work for them. An economy geared to the prosperity and well-being of people also has to place people at the centre of the organisation. Not only this, but people have to be treated as equals, not talked down to, and not treated as a mere resource or target audience. Organisations that fully involve their people in the transformation process by harnessing their ideas, insights and experience will gain a competitive edge. With digital media enabling dialogue with all employees as close and intense as in any small workshop, large companies are no longer at a disadvantage here by comparison with smaller organisations.
But employees are only one group of stakeholders. If you take the same approach to your external stakeholders, you open up

Rebuilding trust

CEOs are increasing their focus on a range of non-financial priorities.

Question: To what extent does your organisation plan to focus on the following priorities over the next 12 months?



Source: PwC's 16th Annual Global CEO Survey

immeasurable potential for innovation and mutual value creation. One of the CEOs interviewed put it like this: "The public at large are stakeholders because they can take part in discussions on social media. They can influence our decisions, and we actually want them to do that."

The learning organisation as the basis of resilience and sustainable success

The key to rebuilding trust in business is learning ability. To communicate that you're able to learn, you have to put this ability into practice. It has to be visible and tangible, also from outside the organisation. The mark of a learning organisation are not the internal training programmes it offers, but the structural and programmatic changes that it makes in an attempt to establish the learning organisation as a firm feature of corporate life. The more closely all the employees and major stakeholders are involved in the process, the more credible it will be. For large organisations this means thinking seriously about how the training and education, innovation, research and development, communications and corporate (social) responsibility departments have evolved into isolated silos pursuing their own agendas, and whether they're working in parallel on similar issues without the slightest chance of resolving them alone, regardless of how big their budget is.

Developments in the fields of social enterprise and social innovation have enormous innovatory potential, but this potential is sometimes hampered by the way corporate social responsibility is over-departmentalised. Taking a fresh look at tasks, structures and processes within the organisation can dissolve obstacles to innovation, collaboration and ultimately learning, while at the same time saving a massive amount of money. One CEO describes it thus: "I think there is an indirect link between the agility of the company and its focus on the responsibility agenda: responsibility is really a great way of living our values, what we believe in as an organisation, and it helps to underpin the behaviours necessary for a business to be agile."

With healthy self-understanding, the ability to learn and a willingness to work permanently with stakeholders to seek out opportunities, organisations and managers as representatives of business can help build trust that society is developing in a more humane and people-friendly direction.

Business leaders actively shaping developments

To build trust, business leaders have to expose themselves as people. As one CEO puts it: "Business leaders cannot afford to stop communicating. If they don't fill the information void, then others will fill it with their own information – possibly misinformation. So clear communication, and personal responsibility, are more critical than ever. And it must reach and engage both business's traditional interest groups, and a wider audience who regard responsible and ethical behaviour as much more important than financial performance." One way business leaders can display personal responsibility is simply by showing themselves as people – people for whom there are a lot more important things than their own wealth, and who are committed to business's role of generating prosperity for people. One of the CEOs in PwC's survey puts it in a nutshell: "I think the role of business in society is poorly understood. Wealth creation is fundamental to a successful society. And the agency in society that creates wealth is business. Government can't do it. Organised religion can't do it. The military can't do it. The single agency in society that creates wealth is business – and wealth creation is fundamental to human progress."

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Summary

Trust boosts the resilience of organisations. In the current environment, resilience is key to sustainable growth and business performance. It's hard to make things happen if you're on the defensive, and the best way of being self-assured and going into the offensive is to embark on becoming a truly learning organisation. The means to do so are available – to organisations of all sizes.

Swiss family businesses: stable, but facing challenges

Swiss family businesses can look back on a challenging year marked by intense competition on prices, exchange rate problems and a strong Swiss franc. For this reason they take a much more conservative view of their growth prospects than peers in other parts of the world. One in two firms is concerned about the lack of specialist talent. Family businesses would like to see less bureaucracy, a lighter tax burden, and easier financing options. These are the findings of the Family Business Survey for which PwC polled managers at 250 family firms from Germany, Austria and Switzerland.

You can download a free PDF of the study in German or French from www.pwc.ch/publications. Or you can order print copies from susanne.sancho@ch.pwc.com.

Disclose
The latest on financial reporting and auditing

PwC's regular publication "Disclose" looks into key aspects of financial reporting and auditing in clear and understandable language. The June issue is devoted to corporate governance. Management systems with checks and balances work to the advantage of companies, shareholders and stakeholders, as well as helping keep the economic system stable. Good corporate governance isn't just a matter of corporate bodies and processes, but extends to culture, ethics and behaviour. The publication also includes an update on other current topics.

You'll find the online edition of "Disclose" in German and French at www.pwc.ch/disclose. Or you can order print copies from frauke.kleinedler@ch.pwc.com.

Thriving or surviving: European city hotels

The hotel business in major European cities grew more slowly in 2013 than the previous year, with revenues even declining in some cases. This also applies to Zurich and Geneva, which were particularly hard hit by the strong franc and the crisis in the euro zone. These are the findings of PwC's "Thriving or surviving: European cities hotel forecast 2013" study.
The study looked at the 19 most important gateway cities in Europe to provide a forecast of occupancy and revenue per available room, and a general economic outlook. These 19 cities together account for over 650,000 rooms, and welcome more than 85 million international arrivals each year.

You can order a free PDF of the study in English from mona.blum@ch.pwc.com.

Tax Excellence on Tour

PwC's tax forum, the Tour de Suisse of tax practice, will be visiting your area in 2013 as well.

Visit www.pwc.ch/taxforum to find out when the forum will be in your town and what the programme will be.

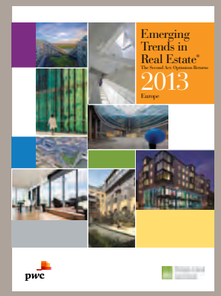
Demystifying the Swiss online shopper

These days neither retailers nor brands own the consumer as would traditionally have been the case. Last year we entitled out multichannel report "Customers take control". Well, they certainly kept it!
In our publication "Demystifying the Swiss online shopper" we focus on what we believe will be valuable insights for consumer goods companies and retailers in Switzerland.
We hope that it will help you make more informed decisions on how to achieve profitability through your multichannel propositions, and how to build lasting and successful customer experiences.

You can download a free PDF of the study in English at www.pwc.ch/r&c.

Power & Renewables Deals: 2013 outlook and 2012 review

"Power & Renewables Deals" is PwC's annual analysis of M&A activity in the global power, utilities and renewable energy market. This year for the first time we bring together our previously separate power and renewables deals analysis into one report, reflecting the increasing mainstream role that renewables play in the generation mix.
You can download a free PDF of the study in English at www.pwc.ch.



Emerging Trends in Real Estate

Confidence within the real estate industry is at its highest since 2008. This has come about despite little change in the economic climate or any sign that debt markets are returning to health.
Expectations over business confidence and profitability have improved, but this doesn't mean the industry expects the economic climate to be better in 2013.
But investors have accepted "the new normal". Businesses are now focused on managing risks and designing strategies around positive trends such as demographics, technology and urbanisation.
"Emerging Trends in Real Estate Europe 2013" reflects the views of over 500 individuals who completed surveys or were interviewed as a part of the research for this report.

You can download a free PDF of the study in English at www.pwc.ch.

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The wellspring of innovation

Appenzell businesswoman Gabriela Manser has transformed an unknown mineral water into a stylish beverage. Drinks like Flauder and Goba owe their success to a strategy that combines added value and emotional appeal to make an everyday product, water, into something special.

It all started with water. “If it had not been for the mineral water, I would never have taken over my father’s business,” says Gabriela Manser. A spring is no screw or bootlace factory – the family’s water rights could not simply be sold on to outside buyers. Emotional attachment stood in the way.
Filling bottles with Appenzell mineral water from a spring near Gontenbad was the business brainchild of Manser’s grandfather. Her father continued to run the business until he was 70. He employed eight people and produced around 2 million bottles a year. Now that figure has grown to 16 million.
A popular story tells how, back in 1999, multiple award-winning businesswoman Gabriela Manser went straight from being a kindergarten teacher to managing and redefining the objectives of the family firm. This may be the truth, but it is only part of the story – Manser had already distinguished herself. Having graduated in teacher training and school management, she was responsible for 50 kindergarten teachers in the city of St. Gallen. “I enjoyed managing people. I believed I was capable of achieving much more,” she says.
The idea that her father had no one to take over his mineral water spring back home in Appenzell preoccupied her increasingly as she pursued her career in the neighbouring canton. She also thought more and more about what she could make of the business if given a free rein. “I finally decided to lay my cards on the table.”

Things get under way

In the first six years under Manser’s management the turnover of Goba Mineralquelle Gontenbad rose from CHF 2 million to CHF 10 million, and the workforce from 9 to 24. The business currently employs around 40 people. Glass mineral water bottles do the rounds of the ultra-modern filling plant in the jam-packed extension building, operating alongside the PET blow-moulding and filling machine installed in March 2012. The entire plant has a capacity of 12,000 litres per hour

Mineralquelle Gontenbad AG
was founded in 1930, and taken over by Gabriela Manser in 1999. 16.5 million bottles per annum are currently filled and sold, with a bottling capacity of 12,000 litres per hour. Goba employs around 40 people and has invested over CHF 24 million in the last 14 years.
www.mineralquelle.ch

Natural capital: Gabriela Manser atop one of Mineralquelle Gontenbad’s spring boxes.

Staying healthily small: Goba Mineralquelle Gontenbad achieves this goal through a strategy of adding value and selling the Appenzell mineral water as what it is – a precious natural product.

Consolidating and expanding: investments amounting to millions of Swiss francs were needed to get the new-look business under way, and further major plans are afoot to keep it on course.

A spring is no screw or bootlace factory – the family's water rights could not simply be sold on to outside buyers.

and is International Food Standard certified, with a "Higher Level" classification. One hundred per cent of the company's electricity comes from green sources in eastern Switzerland.
Investments amounting to millions of Swiss francs were needed to get the new-look business under way, and further major plans are afoot to keep it on course. Architectural drawings hang in the visitors' room, showing a compact, seven-storey building – looking like a cross between an apartment block for pensioners and an industrial building. "Oh, that's in the past now," says Manser. She has already moved on. "We're now building something completely different," she says. "The building was too high for the Appenzell surroundings – and so we had to move in a completely different direction."
Manser clearly enjoys explaining how the new building solution will be better than the one originally planned. The concept of an innovation growing out of an apparent defeat is one that genuinely appeals to the 51-year-old businesswoman. "There's no such thing as a setback," she says firmly. "Everything is development." The current plans are for an expansion of the production plant plus an office building with a shop – costing in the region of CHF 9 million. "This version will be smaller – and should integrate nicely in the hamlet of Gontenbad. We also hope that the new solution will contribute something to the quality of local life," continues Manser. Storage space will not be built but rented, which will keep things flexible and save costs.

The waterbed beneath the marsh
For a long time water was the only asset on the northern slopes of the Säntis mountain, as evidenced by place names such as Wasserauen (water meadows) and Weissbad (white spa). A gravel bed lying at a depth of around 25 metres between a 17-metre-thick impermeable clay layer and the bedrock is the reason why Gontenbad enjoys ultra-pure mineral water bubbling up under its own pressure from a spring in the ground. Each individual drop is between 25 and 80 years old. The Swiss drinking water regulations define three characteristics that make water mineral water: the water must be bottled at the location where the spring emerges, it must be clean and untreated, and the fingerprint of the spring – in other words, the composition and quantities of the minerals – must remain constant at all times.
"We have the right conditions in Gontenbad," says Manser. The water comes from a huge catchment, and the source – which lies beneath the upland moors – seems to be inexhaustible. Even in the hot summer of 2003 there was no sign of flagging. But a natural resource of this kind is not unique in Switzerland. "There are numerous mineral water springs here, in the heart of the 'water tower of Europe'," says Manser. "But the quality required by law means that substantial investments have to be made in the plants, and building up a new operating network is difficult – anyone who wants to claim their place in the globalised, increasingly monopolistic water business needs a lot of staying power."

Just a bit more
Development and innovation are part of the survival strategy of Goba, one of the smallest operations in Switzerland and one of the last independent ones. Manser counts three other family-run SMEs; apart from these she can only think of major players such as Coop, Migros, Coca-Cola and Nestlé. Around 887 million litres of soft drinks and mineral water, with and without flavourings, are consumed yearly in Switzerland. Over 300 million litres of these are imported from abroad; exports are negligible. Competition and pressure on prices in the water market are huge.
"Staying healthily small" is and always has been the aim of the Goba boss. She achieved this from the start with the idea of creating tangible added value and selling Appenzell mineral water precisely as what it is: a precious natural product.
The first innovation, which was good for sales, was to divide the mineral water into still, slightly carbonated and carbonated water. "Horrid terms!" says Manser, shaking her head. The adjectives still, leise (soft) and laut (loud) were chosen for the Appenzell mineral waters. A tiny innovation, you might say. But together with the back-printed labels, visible through the water, and wordplay with sky, sun, moon and clouds around the necks of the bottles, these new descriptions provided added value that appealed to image-conscious consumers and, in particular, to the upmarket catering trade. "We strive to work with the greatest possible care, and in everything we do we give a little more than what is absolutely necessary."

A collective yearning for parallel worlds
The Gontenbad mineral spring had its breakthrough with the launch of a new range of mineral waters with light flowery and fruity flavours, of which the foremost example is the renowned Flauder with elderflower and lemon balm. It was not only the taste that was new, but also the presentation – mythical figures, plants and animals in a magical fantasy world, depicted as Appenzell silhouettes against an explosion of pastel colours.
This playful, light-hearted image in the spirit of local tradition tapped into the contemporary ethos. Flauder achieved cult status and guaranteed fame for the mineral spring of Gontenbad with its refreshingly lateral-thinking boss far beyond the borders of Switzerland.

"I keep my eyes open and notice what's happening around me," says Manser. Before the launch of Flauder she was an avid reader of Harry Potter books. "At some stage it became clear to me that there is a collective yearning for fairy-tale parallel worlds." This realisation was the basis for the emotional marketing campaign for Goba soft drinks.

Brimming with ideas

The desire to set something in motion, to have ideas and to find the means to implement them is just one side of the coin. "You also need a little luck," says Manser, as she goes on to tell how the successful blend of the first Flauder classic came about purely by chance. When clearing up the drink samples after a tasting session, she poured the remains of the elderflower and lemon balm cordials together in order to stack the beakers. "Looking back, the most surprising thing about the whole story is that I actually tasted the mixture!"

For any small business hoping to survive in the extremely competitive mineral water market, launching new products is part of the strategy for the future. It is also a very risky business. Every development of a new flavour swallows up money and resources. "We don't have the necessary laboratories, expertise or manpower," says Manser. "We have to manage each new development ourselves alongside our day-to-day business, or find the right partners to work with." She does both, as required. And she will not shy away from pulling a painstakingly developed new product from the market if it does not promise success.

Does she do all this single-handedly? Do new ideas pop out of her mind just like that? "Certainly not," she says. After she took over the mineral spring, she called to a round table everyone who had said, "If ever you need a hand, let me know." The colourful team of creative professionals, representing a wide range of backgrounds and experience, have met regularly ever since for brainstorming sessions – a think tank and "an extremely inspiring environment" for Manser. At longer intervals she invites external specialists to exchange ideas in what she calls the Forum of the Future. Is it difficult to keep attracting new consultants to Appenzell? "No," smiles Manser. "We actually have a waiting list. Water is a never-ending story." —

Cooling the grey cells

Unimaginable volumes of data are processed and stored in the Swiss National Supercomputing Centre. Every day, the supercomputers require as much electricity as a small town and must be perpetually cooled. Exemplary energy efficiency is achieved with water from Lake Lugano.

A visit to the Swiss National Supercomputing Centre (CSCS) really stretches your powers of imagination. The dimensions here are vast. In the huge pillar-free hall, the fastest computers in Switzerland cover 2,000 square metres of concrete floor, making the air vibrate with their energy. People appear pint sized in comparison.

The supercomputers are named for mountain peaks, probably to underscore their power. Piz Daint, for instance, one of the national supercomputers of Switzerland, is the newest and fastest star in this high-performance team. Its 4,512 processors and 36,096 computer "cores" achieve 750 teraflops or 750 trillion computer operations per second.

To cool the computing centre with lake water, a pumping station was built on the banks of Parco Ciani in the heart of Lugano and intake strainers 6 metres high and weighing 13 tonnes were deposited in the lake. Three pumps carry up to 760 litres of water per second via a huge pipe.

In conventional computing centres, compressors generate the required low temperature. To save energy, a natural resource – cold water – was a key component in planning the new CSCS building.

The Swiss National Supercomputing Centre

The new CSCS building is part of the national high-performance computing and networking (HPCN) strategy adopted by the Federal Council and parliament in 2009. ETHZ specified that the new data centre was to be capable of housing the supercomputing infrastructure for Swiss science for at least the next 40 years. The new building also aims to ensure that the future supercomputers of the CSCS can be operated in an ideal and energy-efficient manner. The contribution from the Federal Government to the new building, including the cooling system using water from the lake, was estimated at CHF 67.5 million. In addition, the canton of Ticino contributed CHF 5 million and the city of Lugano granted the building lease to the land in the Lugano district of Cornaredo for 40 years.

Put simply, that means a billion people with pocket calculators would need 80,000 years to match the computer performance that Piz Daint achieves in a single second.
The concentrated power of the computers is available to researchers from all universities and research institutions in Switzerland. They use it to simulate complex phenomena such as climate development and the creation of the universe.

Cooling is a priority

Piz Daint is almost twice as energy-efficient as its predecessor, the supercomputer Monte Rosa. It has a maximum power consumption of 960 kilowatts and thus requires less energy than the Jet d'Eau in Geneva. This astonishing efficiency is down to a sophisticated system that uses water from Lake Lugano with a temperature of 6 degrees to cool the computers. A conventional system would cost millions of francs in energy for the same task.
"If you talk on your mobile for a long time, you can feel the heat generated by the device on your ear," says CSCS General Manager Dominik Ulmer, by way of analogy. Put that way, his supercomputers are nothing other than billions of mobiles linked together that generate enormous heat when they are used around the clock. If supercomputers are not constantly cooled, they get hot and can be damaged. Cooling is therefore a pivotal topic for any computing centre. Every day, a centre such as the CSCS in Lugano uses as much electricity as a small town. Around a third of this electricity is required solely for cooling.
In conventional computing centres, compressors generate the required low temperature. To save energy, a natural resource – cold water – was a key component in planning the new CSCS building. "The idea is not new," says Ulmer. "The research facilities at the Paul Scherrer Institute in Villigen, for instance, are cooled by the Aare." The specialists from the Swiss Federal Institute of Technology in Zurich (ETHZ), which the CSCS belongs to, therefore had the idea right from the onset of pumping the cooling water from the depths of the lake to the centre and reusing it for more than one task.

760 litres of water per second

Lake Lugano is an unusual lake. In contrast to Lago Maggiore or Lake Como, it has few tributaries or outflows. It is also astonishingly deep, with its deepest point below sea level.
"Lake Lugano has unusually little movement and is low in oxygen," explains Ulmer. "With our plans for a pumping station that draws large quantities of water from a depth of 45 metres and returns the same volume in heated form and enriched with oxygen back into the lake, we met with positive feedback from all stakeholders, even from anglers."
After an environmental compatibility check, the unusual project was given the go-ahead.
To cool the computing centre with lake water, a pumping station was built on the banks of Parco Ciani in the heart of Lugano and intake strainers 6 metres high and weighing 13 tonnes were deposited in the lake. Three pumps carry up to 760 litres of water per second via a huge pipe. For the route from the pumping station to the computing centre opposite the Cornaredo football stadium, the cold water with a temperature of 6 degrees covers 30 vertical metres and a distance of 2.8 kilometres.

Setting new benchmarks

The lake water pipe, which is 80 centimetres across, enters the building from its southern side. Next to it, a pipe of the same dimensions takes the water back to the lake. The noise in the concrete underground security block that surrounds the two pipes is tremendous.
A clever cooling system is activated between the incoming and outgoing supply of water. Water from the lake and water from the internal cooling water circuit meet each other in man-sized heat exchangers. The internal cooling water cycle delivers the water, which now has a temperature of 8 to 9 degrees, to the supercomputers. When the water has completed this first cooling circuit, it is 8 degrees warmer but still cold enough to cool the air in the housings of computers and hard disks with a smaller energy density.
It is therefore sent through another heat

Dominik Ulmer, General Manager of CSCS, at the Piz Daint supercomputer. A billion people with pocket calculators would need 80,000 years to match the computer performance that Piz Daint achieves in a single second.

The enormous, 2,000-square-metre hall holds the fastest computers in Switzerland. The floor below contains the equally impressive cooling system, where lake water and the internal cooling water cycle come together.

exchanger connected to a second circuit. This means that several systems can be cooled in two rounds. Before it is returned to the lake, the water is used to air-condition the computing centre's buildings.
It is planned to use the returning water, which is still warm, on its way back into the lake both to generate energy and – by means of heat exchangers – to heat and cool buildings in the city of Lugano.

What will tomorrow bring?
These (and other) innovations make the CSCS one of the most modern, energy-efficient and ecologically sustainable computing centres in the world. "And one of the most flexible," says Ulmer. This aspect is important to him because the design of the centre means that there are no restrictions at all for installing and operating the supercomputers of the future. "In the computer world, change is the order of the day," says Ulmer. "Within a very short space of time, change can be so comprehensive that what applied yesterday no longer applies today." He gives an example: Twenty years ago, contemporary supercomputers achieved the same performance as today's laptops. Around ten years ago, the fastest computers required space the size of several football pitches. Supercomputers are the fastest and most efficient computers at a given time. "Like top sportsmen, high-performance computers are the elite in their field. And like athletes, they are soon outshone by younger, even better versions." Only a few years ago, for instance, it was the norm to use complex, expensive processors in sectors like banking: today, simple processors that correspond more or less to a normal laptop are switched in parallel: Ulmer holds up his mobile again: "It is conceivable that billions of even smaller processors are the future. No matter what the future holds, we will be able to keep up with the trend."
The data carriers, data volumes and cooling water are constantly in a state of flux – and so are the customers. In addition to researchers and scientists, an increasing number of research and development departments in industry are becoming interested in collaborating with the computing centre. It is here, for instance, that complex flow processes can be simulated and managed. MeteoSwiss is a pioneer in this field. "Everything is in a state of flux," says the General Manager. —

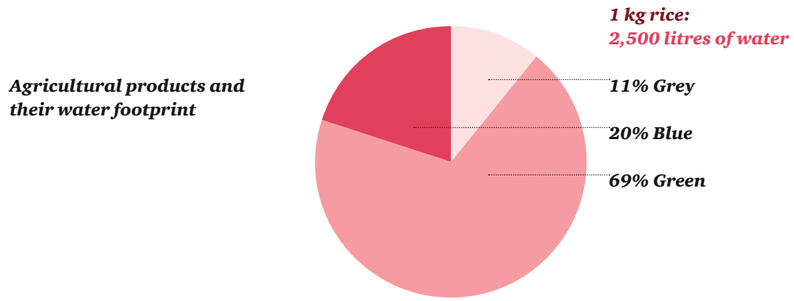
"Success is often a matter of wanting something enough."

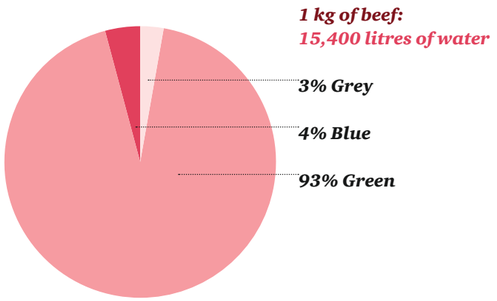
Aid organisation Helvetas Executive Director Melchior Lengsfeld talks about the need to create efficient water infrastructures and the successful export of Swiss expertise.

Did your work in development projects in Mozambique and Mali teach you to manage water carefully?
My time in these countries left a strong impression on me, irrespective of the water situation. This varies from country to country, depending on whether the water has to be fetched from a well, is brought by a water tanker or whether it simply comes out of the tap like it does in Switzerland, in mineral water quality.

Would it help people in low-water regions if we were more careful with water in Switzerland?
There is a connection, but it is not immediately obvious. In Switzerland, the direct average daily per capita consumption is 162 litres of water: for the shower, flushing the toilet, cooking, drinking water. That is relatively little. But add to this the 4,038 litres of water that every one of us uses indirectly every day via the products that we consume. One

Melchior Lengsfeld had been the executive director of Helvetas since 2005 before becoming executive director of Helvetas Swiss Intercooperation in 2011. The 45-year-old, who hails from Basle, studied sociology, economics and philosophy in his home city and in Paris. He completed a postgraduate degree in development and cooperation (NADEL) at the Swiss Federal Institute of Technology in Zurich.





The grey water footprint is an indicator of the fresh water pollution associated with the production of a product.
The blue water footprint is the volume of surface and groundwater consumed during production of goods and services.
The green water footprint is the volume of rainwater consumed during the production process.
Source: Water Footprint Product Gallery / Water Footprint Network: www.waterfootprint.org/?page=files/productgallery&product=industrial

Helvetas Swiss Intercooperation
was created from the merger of the two organisations Helvetas (founded in 1955) and Intercooperation (1982). It is a politically and denominationally independent association, with around 1,200 Swiss and 60 international staff active in the 32 partner countries in Africa, Asia, South America and Eastern Europe.
For further information: www.helvetas.ch

hundred and forty litres of water are needed to produce and process just one cup of coffee. For one kilo of beef, that figure is 15,400 litres. Through cotton, for instance, we import water from Burkina Faso, one of the driest countries in the Sahel zone. Or from Central Asia where the Aral Sea is drying out due to intensive irrigation of crops destined for export.

Isn't a global rethink required here?
Seen from a global perspective, it does indeed make little sense to import asparagus from Peru. However, exports provide an economic basis and income for the country. The challenge is: how can trade flows be organised from an ecological and social perspective as well as commercially? Is international transport by plane ecologically viable? What do workers in asparagus fields earn? Where does the water come from to plant them?

Scientists say that we have the technical resources to eliminate famine in the world but that there is a lack of political will. Is the management of water as a resource also a political problem?
Yes, the international community has a responsibility here, as do the countries concerned. Investments in efficient water infrastructures and fair distribution mechanisms are required. On the volcanic slopes of Tanzania, for instance, sophisticated agricultural systems regulate the handling of the scarce rainwater available in an exemplary manner. The result: wonderful green areas, while other similarly dry areas are barren and eroded today. Success is often a matter of wanting something enough.

Water is an economic as well as a political factor.
Definitely, and in many aspects too. Agriculture needs water, and access to irrigation water is vital to survival. Water is also a production resource for electricity, and it is decisive for many regions where dams are built and who controls the seasonal fluctuations of the water. In addition, water is a major economic factor when it comes to agricultural irrigation or to drinking water, bottled water. This is big business for multinational companies today. At the same time, bottling water means a reduction in the political will to build improved water supply systems as the decision makers can afford bottled water – in contrast to the broad masses who cannot afford bottled water and are reliant on poor or dwindling wells.

What is more serious: a lack of drinking water, insufficient hygiene or no sanitation systems?
All three factors are of roughly equal importance. The water infrastructure is essential for providing sufficient water of a proper quality. But good water is not sufficient on its own. Hygiene practices also have a profound impact on health: washing hands alone would avoid half of all diarrhoea cases! And then there is a lack of rudimentary sanitation installations for waste water and latrines in many places – with unsavoury consequences for hygiene and health.

In 2010, the UN declared water and sanitation to be a human right. Did that achieve anything?
It was a very important decision. Since then, it has become easier to mobilise international aid in the water sector.

And is it having any effect?
Yes, the number of people without access to sufficiently clean water is on the decline. Not as quickly as we would like but in increments of tens of millions of people every year. At Helvetas Swiss Intercooperation, we set ourselves the ambitious goal in 2010 of helping one million people gain access to clean drinking water within three years. We already reached this goal at the end of 2012.

Nevertheless, the prospects are gloomy. If global temperatures, the number of people and the standards of comfort continue to rise, two thirds of people will suffer water stress by 2025. What does that mean?
If the availability of water with regard to both volume and distribution is not sufficient for people or for the ecosystem, we call it "water stress". The challenge is to ensure the basics of life in a broad sense – in other words, to distribute the available water to more people. This requires political will and also considerable investments.

What can development organisations like Helvetas achieve?
We try to think globally and act locally. First, with our projects we support people who are affected by a lack of water in specifically improving their situation. Second, we are in discussion with governments and international bodies to implement exemplary local projects also in other regions. We contribute our experience on four continents and in more than 30 countries to international forums. With regard to water management, Switzerland has a lot to offer; our experience in the water sector is a good export product.

What are currently the focus areas in the water and infrastructure sector at Helvetas?
With our partners, we are building many simple wells with hand pumps in numerous countries. And we support small towns in improving their water supply, during construction work and then in maintaining the system. Two of the biggest challenges are public health and hygiene education. Here, it is about simple things: that a latrine is available, that children wash their hands, that this is taught and practised in schools, and that this knowledge is then taken home.

Are there examples of Swiss innovations in the water and infrastructure sector?
Excellent ones, in fact. For example, the SODIS method developed by the Water Research Institute of the Swiss Federal Institute of Technology (ETH) and the Swiss Federal Institute of Aquatic Science and Technology, Eawag. SODIS stands for SOlar water DISinfection and works by collecting dirty but reasonably clear water in see-through PET bottles and leaving it in the sun for six hours. The sun's UV-A rays kill pathogens such as viruses, bacteria and parasites. The water thus becomes germ-free, clean and drinkable.

This sounds surprisingly simple.
Very simple, very cheap and scientifically proven! Today, the SODIS method is available in many countries; we market it very actively. And yet even a simple technology does not spread on its own; it has to be helped. It takes time to teach people, and that is the critical element. Only when people learn why clean water is so important for their health does the method work.

What is your vision for the future?
My immediate wish is also a realistic one: that all people on this planet one day have access to sufficient clean water, and that they can rely on a decent basic sanitation system, including latrines.

What frustrates you about your work?
Sometimes it is difficult to accept that things take longer than you want. The UN, for instance, set itself the millennium goal in 2000 of halving poverty within 15 years. We will manage that in some countries – which is a major step in itself! But it still leaves us with the other half. Around 800 million people around the world are still starving, and just as many have no access to clean water. Although this is frustrating, it is also an incentive for us to continue our work. —

"Rewarding in every respect."

PwC consultants Rafael Metternich and Thede Schlömer have just experienced a very special holiday. As part of an aid project they drove an ambulance on an adventurous 16,000-kilometre journey through 18 countries, across lakes and mountains, through deserts and the vast Siberian taiga to Mongolia.

The idea came out of the blue as a result of reading an article on the Mongolia Charity Rally. This annual "race" from London to Ulan Bator proposes a straightforward way of taking to Mongolia vehicles that are considered obsolete in the donor countries but are highly sought-after in their destination, together with other aid supplies – at the end of their journey, all participants hand over their rally vehicles, money and material donations to aid projects and people in need.
We had frequently travelled together in the past, but this was to be a very special trip – an adventure that would enable us to make a small contribution to the major challenge of improving the humanitarian infrastructure in Mongolia. Sponsored by PwC and calling ourselves the "Dusty Racing Advisors", we entered the Mongolia Charity Rally in a decommissioned ambulance from the Swiss municipality of Einsiedeln.

Expertise and global relationships, suddenly these catchwords were matched with friendly, sympathetic faces.

The journey was far more than a mere adventure; it opened our eyes and was rewarding in every respect. Much of what we experienced continues to move us to this day. In addition to the indescribably beautiful landscapes and incredibly hospitable cultures in the 18 countries we passed through during a period of six weeks, we also encountered some real surprises.
The most impressive resulted from a decision we made before we set out to visit the local PwC head office in each country on our route – what started primarily as a fundraising exercise turned out to be a completely new experience. The further away the country, the warmer the welcome. As we enjoyed a huge welcoming party in Istanbul, an exciting weekend with our Azerbaijani colleagues in Baku and a guided tour by night of the city of Novosibirsk, one thing became clear to us – wherever we went, we found that PwC's young workforce is full of open-minded, inquisitive people. We had never before been so acutely aware of the fact that we belong to a truly global network. Expertise and global relationships, suddenly these catchwords were matched with friendly, sympathetic faces.
As well as our ambulance, we also had all kinds of other gifts on board: 150 kilos of dressings for hospitals, children's toys, T-shirts and baseball caps, and cash donations totalling several thousand Swiss francs. These gave us a sound basis for helping out wherever it seemed right to us along the route to our final destination. Some boxes of dressings ended up in a small hospital in Kazakhstan; we took a freezer and beds to a children's home in Ulan Bator; while breathing equipment carried across thousands of kilometres was gratefully received by a mother-and-child clinic in Mongolia. The moments of happiness we helped bring about and the real joy we were privileged to witness are among the greatest impressions of our journey.
The rally was much more than a road trip halfway around the world. It was a voyage of discovery that offered completely new perspectives – as we reflected on unjustified prejudices towards far-off lands, experienced the most amazing openness and friendship where we least expected it, and distanced ourselves a little from the abundance of "our" world. Money and status, still considered valuable assets at home, suddenly seem irrelevant to us.
We have learned a lot. —

4,000 kilometres of dust and desert: the team en route to Kazakhstan.


Global network: a stopover at PwC in Baku, Azerbaijan.


Problem solving required: mud instead of roads in Siberia.

ceo 1/2013
Value insights

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