The critical gap between management theory and technological reality

Why many businesses are still failing to innovate effectively

Prof Hugo Tschirky

n the interests of simplicity, it might be best to start with an unrefutable and obvious fact:

Technology has changed everything.

This isn’t just a fact true for the generations that remember a time before the internet, but points towards the rapid developments seen in the past 20 years, with entire generations now born into this era of superconnectivity. As a society, we’ve moved past the novel idea of there being a computer in every other home to nearly the entire population having a super-fast smartphone in their pocket, packed with immense functionality. A world of possibilities, just a few taps away, has fundamentally changed how we interact with technology on both a cultural and economic level. Companies have of course realised the endless opportunities effective technology adoption can afford, thus revolutionising the world of commerce. Entire markets have been created, corporate monoliths have boomed, and some traditional sectors are simply no more.

To put this further into perspective, in the fight against coronavirus, the British government is trialling a new smartphone app designed to record citizens’ symptoms, track their progress and alert anyone if they come into close proximity with an infected patient. For such technology to work it relies upon widespread access to, and knowledge of, smartphone technology and its functionality. Such a notion wouldn’t have been a workable theory a decade ago, which shows how far technological development has come in that time (as well as how unprecedented the ongoing Covid-19 pandemic is).

Taking all of this into account, many would assume that technology – and its adoption – would be second nature to corporate boardrooms by now. Unfortunately, this assertion is wrong; in fact, a critical gap has emerged between management theory and technological reality.

BRINGING TECHNOLOGY INTO THE BOARDROOM

In 2004, Prof Hugo Tschirky, academic at the Swiss Federal Institute of Technology (ETH), initiated and co-authored a book entitled “Bringing technology and innovation into the boardroom” about this very subject. Back then, Tschirky wrote about the significance of establishing technological competencies at a top management level. It’s apparent that this has become nothing if not more crucial in the modern way of doing business. Specifically, he wrote about how technology is effectively an ordinary unit of general management, constituting specific knowledge, abilities, methods, and equipment. At the time, companies may not have realised it, but technology had become of fundamental importance.

When we look at companies today, the reality of this is even clearer. Could a luddite thrive on the board of Amazon? Would someone be able to run Uber despite not ever having owned a smartphone? And, on the flipside, do we think the same traditional mindsets are enough to keep high street retailers going?

The answers to these (admittedly hyperbolic) hypothesis are clear. And, if anything, the continued accelerated rate of technological development has further emphasised the need for a thorough understanding of technology.

Corporate history is unfortunately littered with examples of management boards making fundamental mistakes when it comes to the adoption of technology. Worryingly, a comparison of common textbooks on enterprise management (and the problems encountered to cope with technological disruption) still reveal a critical gap between theory and reality. To show the extent of this, you only have to look at how many companies go out of business by losing market share to their online/more tech-savvy peers.

DOES INNOVATION EQUAL COMPETITIVENESS?

Closing this gap is an extraordinary challenge. From an academic perspective, it means identifying all company-relevant knowledge from all Technology, Technology Management and Technology and Innovation Management. Some of this stems from the days that the USA had to revolutionise in the 1980s to compete with Japan, while other countries have been universally able to do so. The global economy has witnessed a surge in the adoption of technology, which has become increasingly championed by politicians, is technology and innovation management (TIM) competence which draws direct correlations between innovation and a company’s competitiveness in its current environment.

The final mile concept shows that innovation, and therefore competitiveness, is produced by companies.

You can lead a management team to water, but you cannot make them drink.
Behind the Research

Hugo Tschirky introduces the integrated concept of technology and innovation management to promote companies drive their innovation processes.

Detail

Prof em Dr Dr sc techn ETH Hugo Tschirky
Swiss Federal Institute of Technology (ETH)
Department Technology, Innovation and Economics
Zürich, Switzerland
Bio
Hugo Tschirky received a PhD in Nuclear Engineering from the Swiss Federal Institute of Technology in Zürich, Switzerland, in 1968. He acquired a second PhD in Business Administration in 1978. Between 1968 and 1971 he worked as an engineer and researcher at Gulf General Atomic in San Diego, USA. He was CEO of Carl Zeiss Switzerland AG (opto-electronics) for several years, and CEO and President at Cerberus AG (electronics).

Between 1982 and 2007 he taught Business Administration as a Full Professor at ETH Zürich, and in 1992 lectured as guest professor at the Tokyo Institute of Technology. Since 2003 he is teaching at ETH Zürich as well as at universities in Japan, Luxembourg and Slovenia.

Funding

European Institute for Technology and Innovation Management

Collaborators

• Dr Stefan Koruna, Dr Gaston Trauffler, Dr Beat Birkenmeier,
  Dr Anton Kratzer
  • Dr Harald Brodbeck, Prof Dr Cornelis Harreurt, 
  and Dr Birgit Baum

www.researchoutreach.org

www.researchoutreach.org

References


• Tschirky, H. (2020). Bringing Technology to the Boardroom: What does it mean? In: Tiwari R. and  

• Tschirky, H. (2020). Bringing Technology to the Boardroom: What does it mean? In: Tiwari R. and  

• Tschirky, H. (2020). Bringing Technology to the Boardroom: What does it mean? In: Tiwari R. and  

Personal Response

In your opinion, how competitive are European companies nowadays compared with the US, Japan and China?

According to the latest European Innovation Scoreboard (EIS 2019) South Korea is the most innovative nation, followed by Canada, Australia, China and Japan. For the first time the EU is just ahead the United States. The EU is lagging behind the top-ranking innovation leader nations despite leading positions in industrial sectors such as Pharmaceuticals, chemicals, aerospace, mechanical and electrical engineering. A main reason is given by the fact that private Research, Development and Innovation (RDI) investments are only 1.3% of EU GDP compared with 1.6% in China, 2% in the United States, 2.6% in Japan or 3.3% in South Korea. Moreover, in China, industrial investments in R&D are growing fast: +20% between 2017-2018, compared with only +8% in the EU and +9% in the USA.

Among the numerous initiatives to improve the EU’s competitiveness, the fundamental role of the companies representing the ‘final mile’ of the overall innovation process is not appropriately considered.

The EU is seriously threatened by China. The People’s Republic is catching up fast with a growth rate two times as high as the EU’s. This development is mainly backed by entrepreneurial activities. For example, the number of Unicorns (start-ups with a value of over $1 billion) is almost three times that of the EU. In this sense, Atkinson et al. argue that the longstanding opinion “China cannot innovate, they can only copy” is misleading.