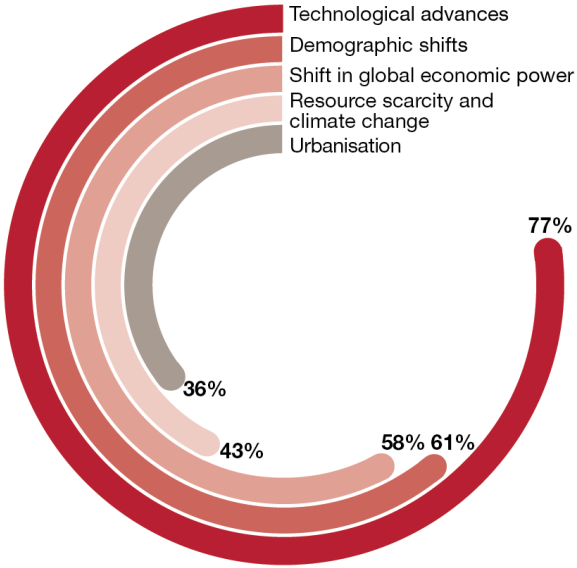
Digital Technologies – Quo Vadis?

Pavol Adamec

pwc

77% of CEOs rank technological advances as the most disruptive megatrend

Q: Please rank the top three global trends which you believe will be most likely to transform wider stakeholder expectations of business within your sector over the next five years.



Source: PwC, 19th Annual Global CEO survey, January 2016

Over the last 20 years, CEOs have witnessed tremendous upheavals as a result of globalisation and technology

In trade

- 4x trade flows
- 5x financial flows
- BRIC economies

In technology

- Exponential rise in global online traffic
- Google, Wikipedia, Facebook, Alibaba

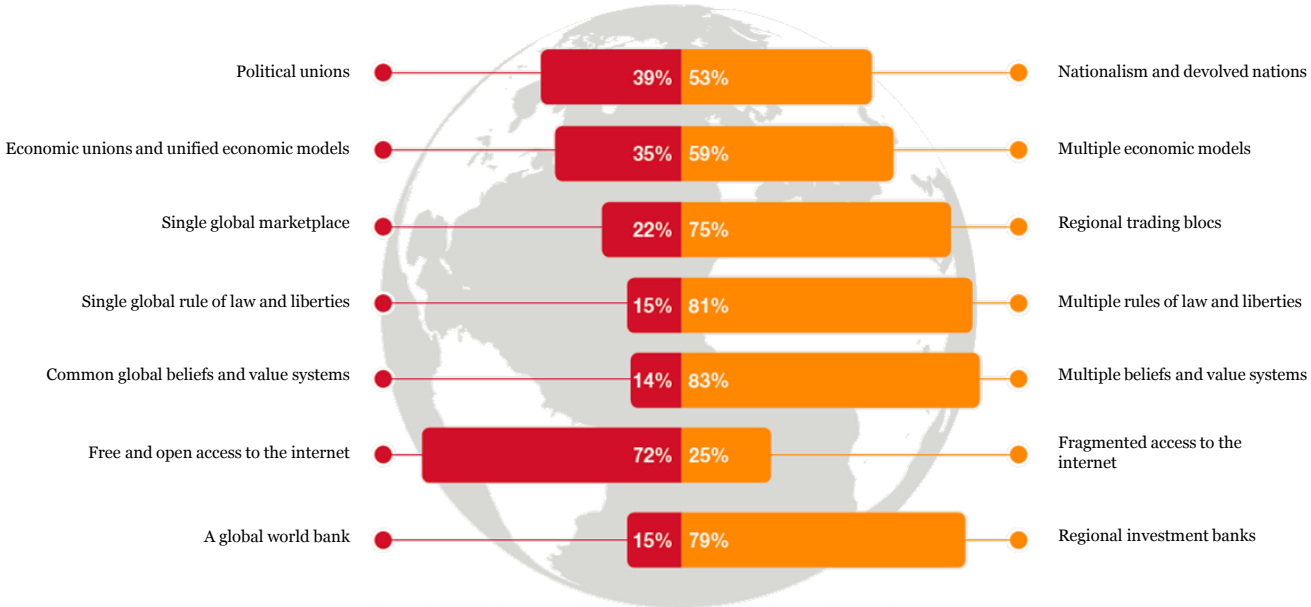
In society

- Lifting 1 billion out of extreme poverty
- New emerging middle class

... however

- Inequality is on the rise
- Mistrust in business
- Growing social instability
- Rise in populism

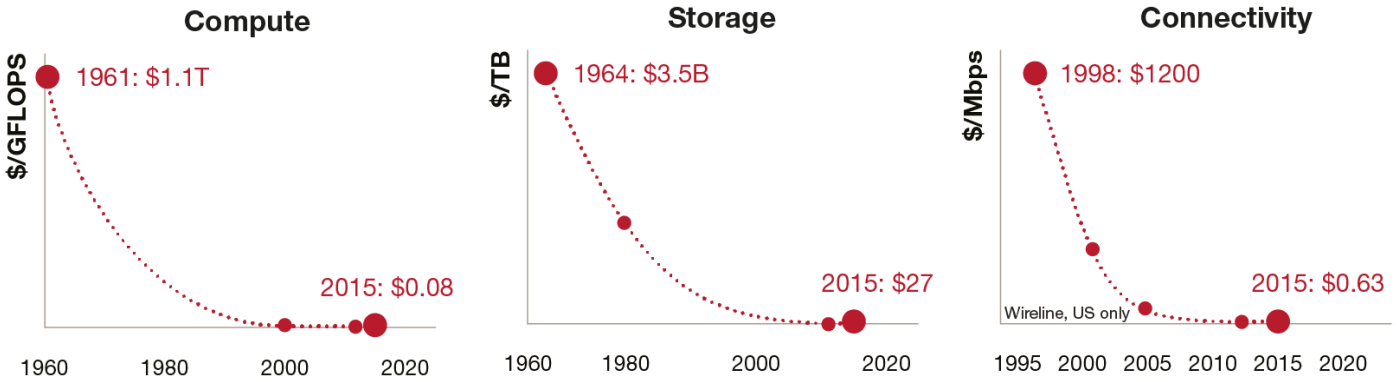
But, what's the world coming to?



Source: PwC, 19th Annual Global CEO Survey. Base: All respondents (1,409)
20th CEO Survey

Proliferation of technologies is expansive and complex

Technology costs are plummeting (and the reach is increasing)



Source: PwC/Strategy& analysis; Michael Driscoll/Metamarkets

We scanned 150+ technologies to define the top with global, cross-industry impact

Scan

150+

Data from companies, start-ups, academia and research

Assess

20+

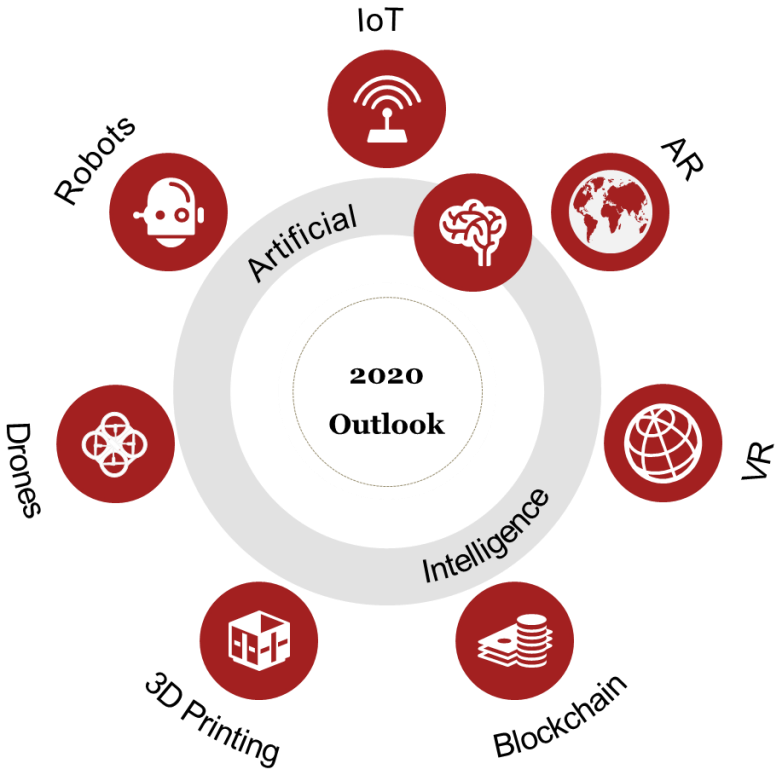
For cross-industry relevance, technical viability, global scalability (including size and growth) and investment requirements

Select

8

Those deemed to have the most impact over the next 3-7 years

The Essential Eight emerging technologies



What are they (1 of 2)?

Artificial intelligence (AI). Software algorithms that are capable of performing tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, and language translation. AI is an "umbrella" concept that is made up of numerous subfields such as machine learning, which focuses on the development of programs that can teach themselves to learn, understand, reason, plan, and act (i.e., become more "intelligent") when exposed to new data in the right quantities.

Augmented reality (AR). Addition of information or visuals to the physical world, via a graphics and/or audio overlay, to improve the user experience for a task or a product. This "augmentation" of the real world is achieved via supplemental devices that render and display said information. AR is distinct from Virtual Reality (VR); the latter being designed and used to re-create reality within a confined experience.

Blockchain. Distributed electronic ledger that uses software algorithms to record and confirm transactions with reliability and anonymity. The record of events is shared between many parties and information once entered cannot be altered, as the downstream chain reinforces upstream transactions.

3D printing. Additive manufacturing techniques used to create three-dimensional objects based on digital models by layering or "printing" successive layers of materials. 3D printing relies on innovative "inks" including plastic, metal, and more recently, glass and wood.

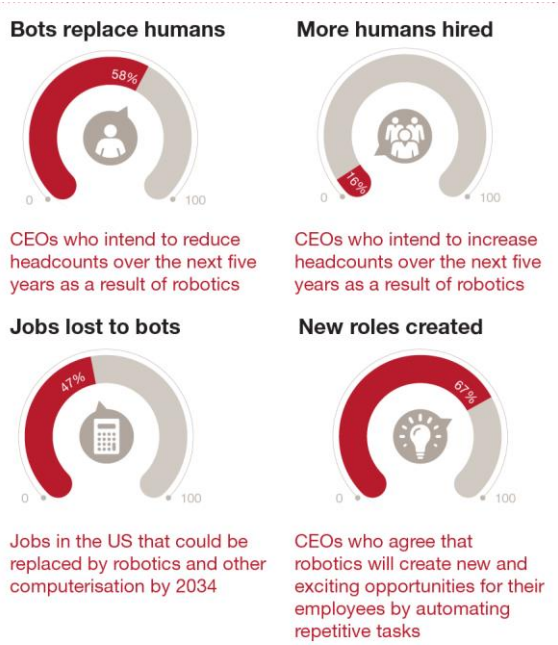
What are they (2 of 2)?

Drones. Air- or water-based devices and vehicles, for example Unmanned Aerial Vehicles (UAV), that fly or move without an on-board human pilot. Drones can operate autonomously (via on-board computers) on a predefined flight plan or be controlled remotely.

Internet of Things (IoT). Network of objects — devices, vehicles, etc. — embedded with sensors, software, network connectivity, and compute capability, that can collect and exchange data over the Internet. IoT enables devices to be connected and remotely monitored or controlled. The term IoT has come to represent any device that is now "connected" and accessible via a network connection.

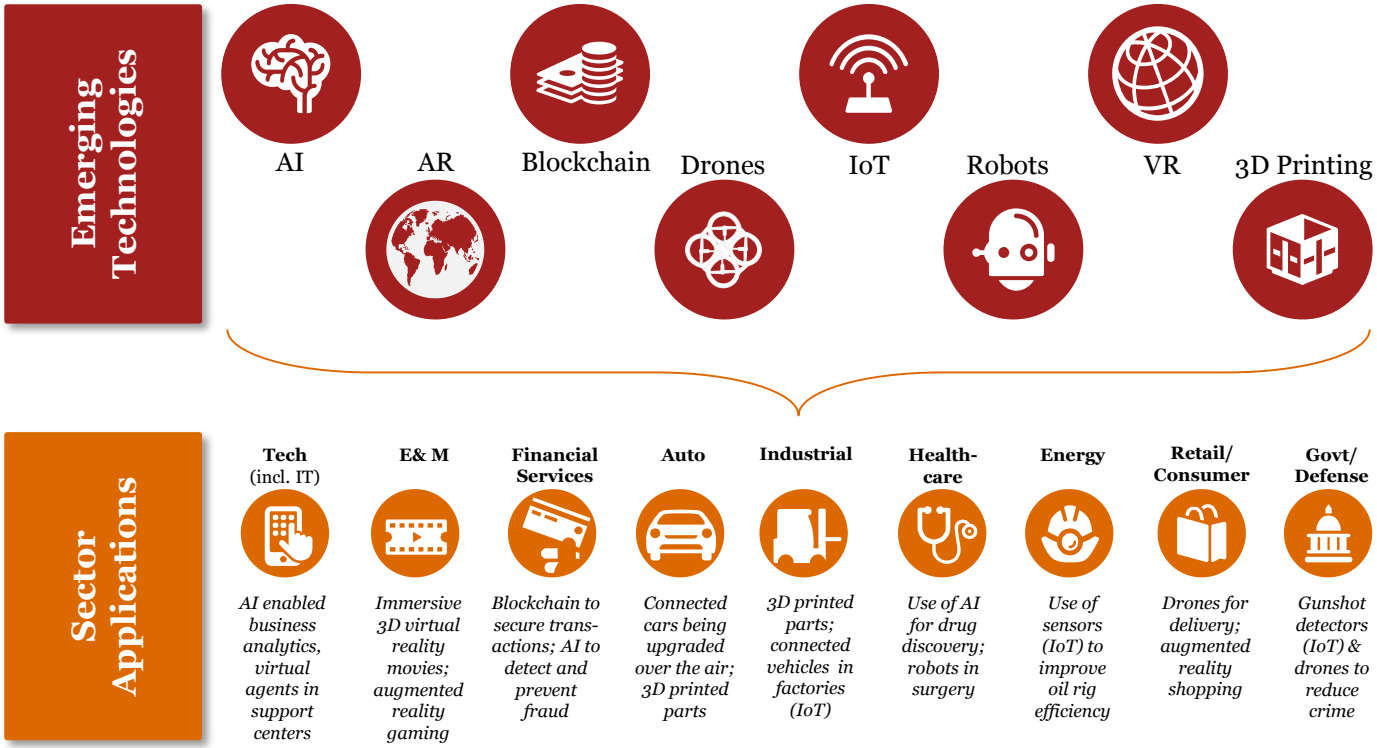
Robots. Electro-mechanical machines or virtual agents that automate, augment or assist human activities, autonomously or according to set instructions — often a computer program.

Virtual reality (VR). Computer-generated simulation of a three-dimensional image or a complete environment, within a defined and contained space (unlike AR), that viewers can interact with in realistic ways. VR is intended to be an immersive experience and typically requires equipment, most commonly a helmet/headset.

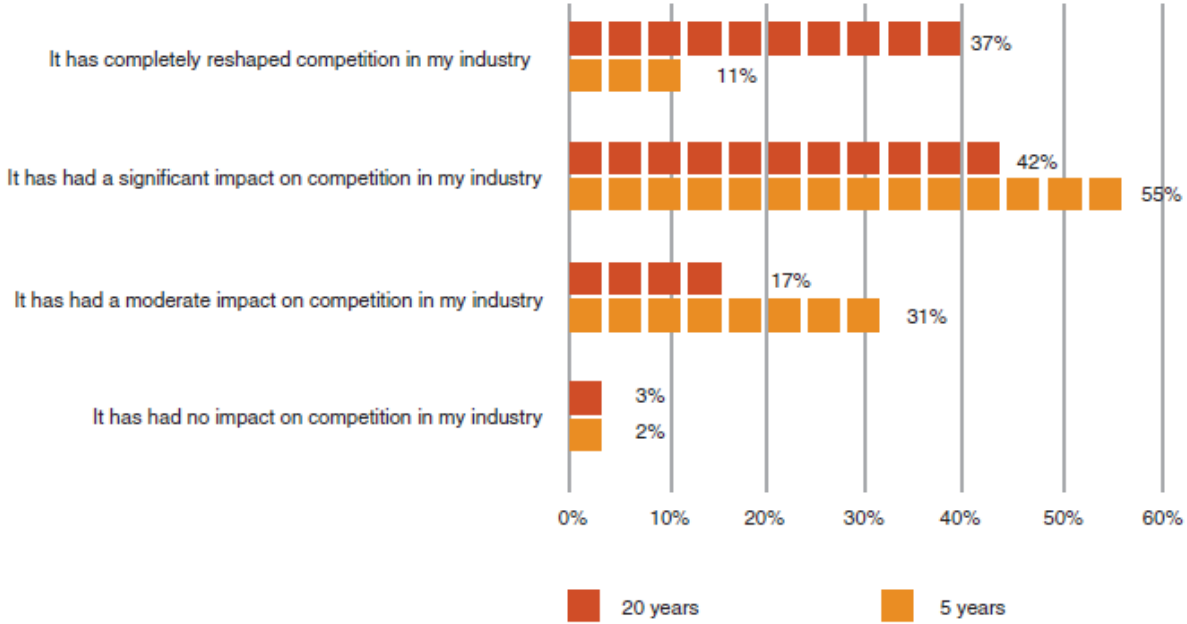


Source: PwC, CEO Agenda: Pulse on Robotics, 2016

The Essential Eight impact is being felt across multiple sectors, globally

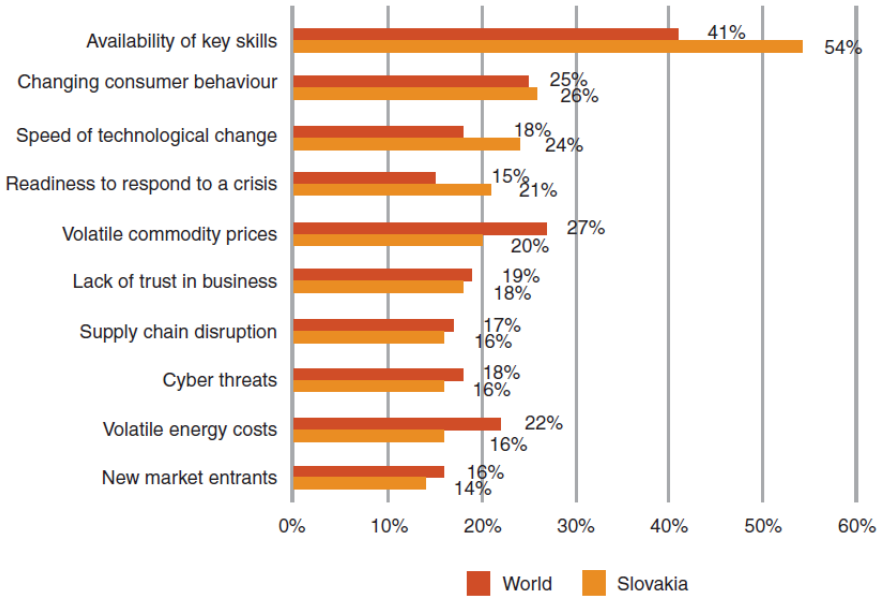


Business and technology have merged



Q: How much have technologies changed economic competition in your industry in the past ...?

More causes for concerns

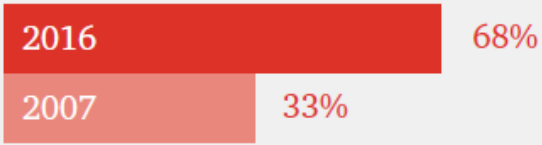


Q: How concerned are you about the following economic, policy, social, environmental and business threats to your organisation's growth prospects?

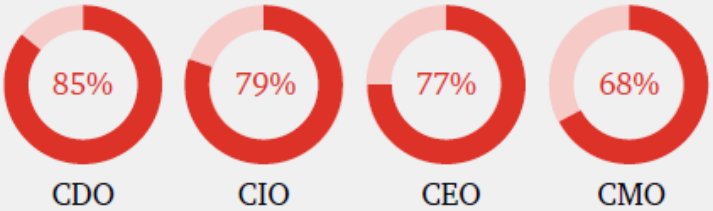
8th Slovak CEO Survey

Digital leadership roles have shifted

Percentage of executives who said their CEO was a champion for digital:



Who do executives think has the highest Digital IQ? (out of 100)



How do you define Digital in your company?	Global	CZ/SK
Digital is synonymous with IT.	29%	40%
Digital refers to all the investments we are making to integrate technology into all parts of our business.	14%	10%
Digital refers to all customer-facing technology activities.	14%	5%
Digital refers to all technology innovation-related activities.	32%	25%
Digital refers to all data and analytics activities.	4%	-
Digital goes beyond technology alone to reflect a mindset that embraces constant innovation, flat decision-making, and the integration of technology into all phases of the business.	6%	15%

The road to emerging tech: Executives need directions to next-gen digital

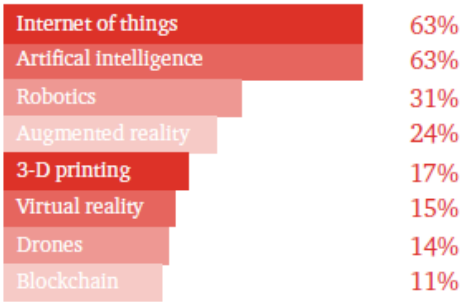
66%

of companies say they have a single, multi-year roadmap that includes business and IT processes

This is up from 54% in prior year

Businesses project 72% of their technology spend will be outside of IT

Top emerging technologies for investment within three years:



Which of the following technologies are you making substantial investments in today?

	Global	CZ/SK
3-D printing	12%	-
Artificial intelligence	54%	40%
Augmented reality	10%	-
Blockchain	3%	-
Drones	5%	5%
Internet of Things	73%	20%
Robotics	15%	-
Virtual reality	7%	-

Digital workforce still needs training

65%

of executives say their employees have the skills required for the evolving digital economy

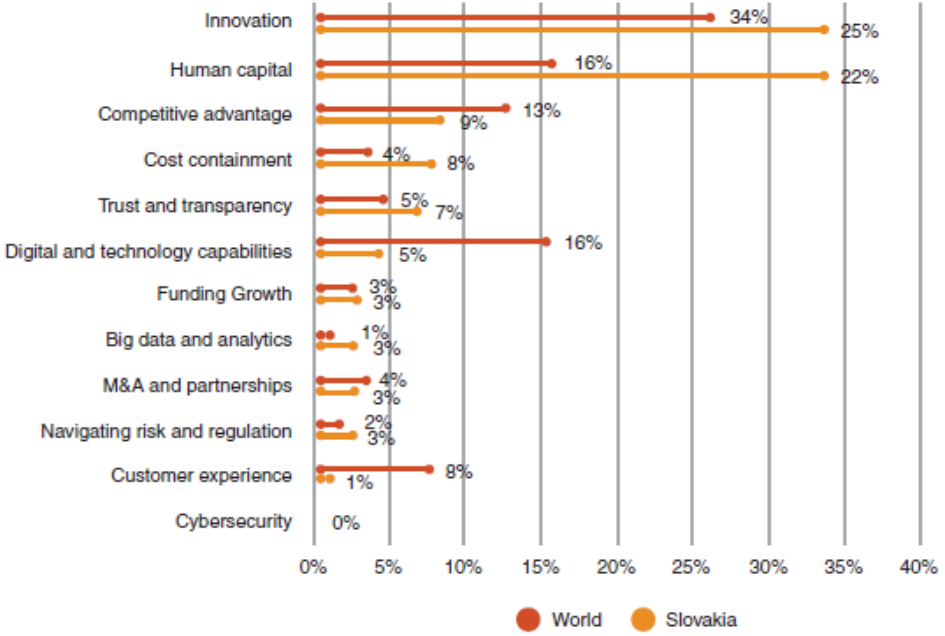
25%

of executives say they use external resources even when they have internal employees with the digital skills they need

The key gaps existing in the Czech and Slovak companies, compared to their global peers, in why they are not able to realize full benefits of digital projects, concentrate on soft factors:

- Lack of properly skilled people (barrier for 95% of local vs. 63% of global respondents)
- Inflexible or slow processes (75% vs. 42%)
- Ineffective talent recruitment and retention (55% vs 34%)

Wanted! Dead or Alive! Better Alive ....



Q: Given the business environment in which you are engaged, which of the following areas would you like to strengthen the most to make the most of new opportunities?

Executives lose confidence in their Digital IQ

Percentage of companies that rate their Digital IQ as strong:

Share of technology budget devoted to emerging tech investment:

Only **55%** of executives say digital projects are delivered within 100% scope

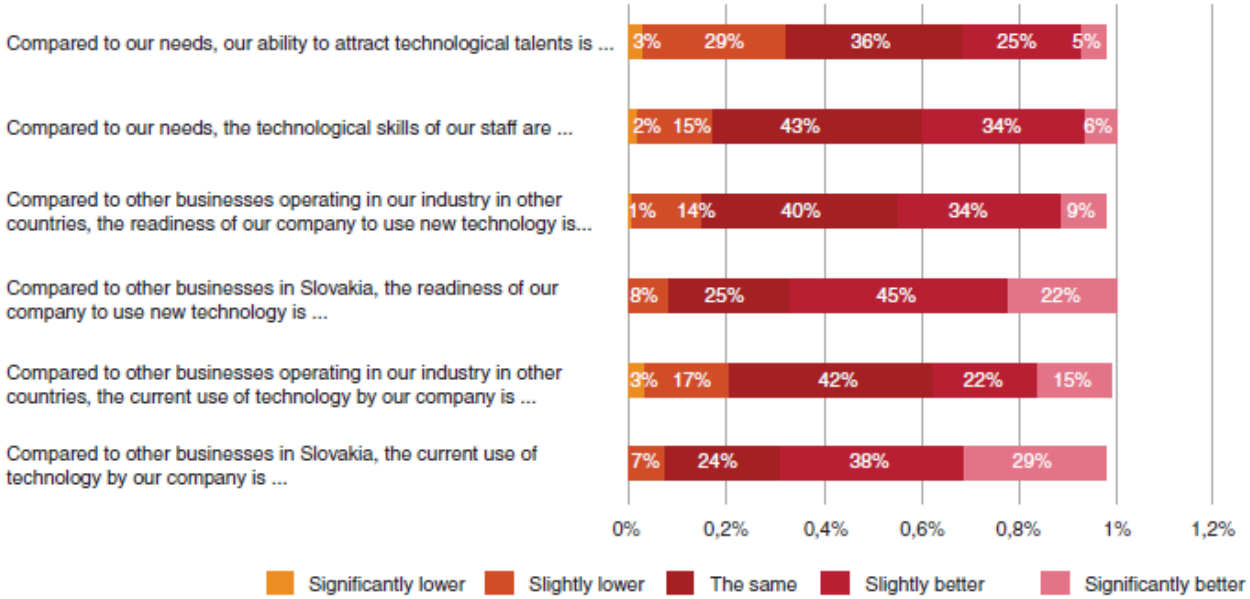
Most common current and emerging obstacles:

- Lack of properly skilled teams (63%)
- Outdated technologies (61%)
- Lack of integration of new and existing data and tech (59%)
- Inflexible or slow processes (42%)

What is the primary way you explore and act on high-priority emerging and disruptive technology innovations in your organization?

	Global	CZ/SK
Through a dedicated innovation or lab group	33%	20%
Through ad hoc/just-in-time teams	29%	50%
We hire a third party	35%	25%
Through university or lab sponsorship	2%	-
Through venture capital, incubator, or accelerator investments	1%	5%

Wake up! Confidence winning over reality



Q: To what extent do you agree or disagree with the following statements about using modern technology in your company?

Contacts

Pavol Adamec
Director, PwC Slovakia
Tel.: +421 903 702 339
Email: pavol.adamec@sk.pwc.com