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How can boards tackle the Essential Eight and other emerging technologies?

Emerging technologies are transforming companies. What should your board know about them?

Companies are looking at the next generation of digital technologies as a way to get ahead. They're changing their strategic plans and making investments–and boards need to weigh in. To do so, directors should understand which technologies are most relevant to their company and build their knowledge about them. Is your board up to speed?

As CEOs look to the future, what is top of mind? Innovation. Nearly a quarter of CEOs around the world singled out innovation as their top priority in the coming year, according to PwC's *20th CEO Survey*. And that was followed by digital and technology capabilities.

Overseeing company strategy is one of the board's most critical roles. Today, that can't be done without a working knowledge of emerging technologies. The board needs to be able to dig into how the company is planning for the future, how it's investing in emerging technologies and how it's confronting associated risks like cybersecurity.

Getting the right people around the table

How does management see the role of emerging technologies in the business? Which emerging technologies will impact the industry and company? What will the future look like with these technologies? Directors should be asking these questions—and they need to be asking the right people. Too often, the CIO and his or her staff are the only ones involved.

While the CIO is a valuable resource, emerging technologies affect the entire business. These technologies will impact strategy, customer engagement, operations, people and talent and, importantly, compliance. The CEO, business unit leaders, legal counsel and other senior management need to be involved in the discussions.
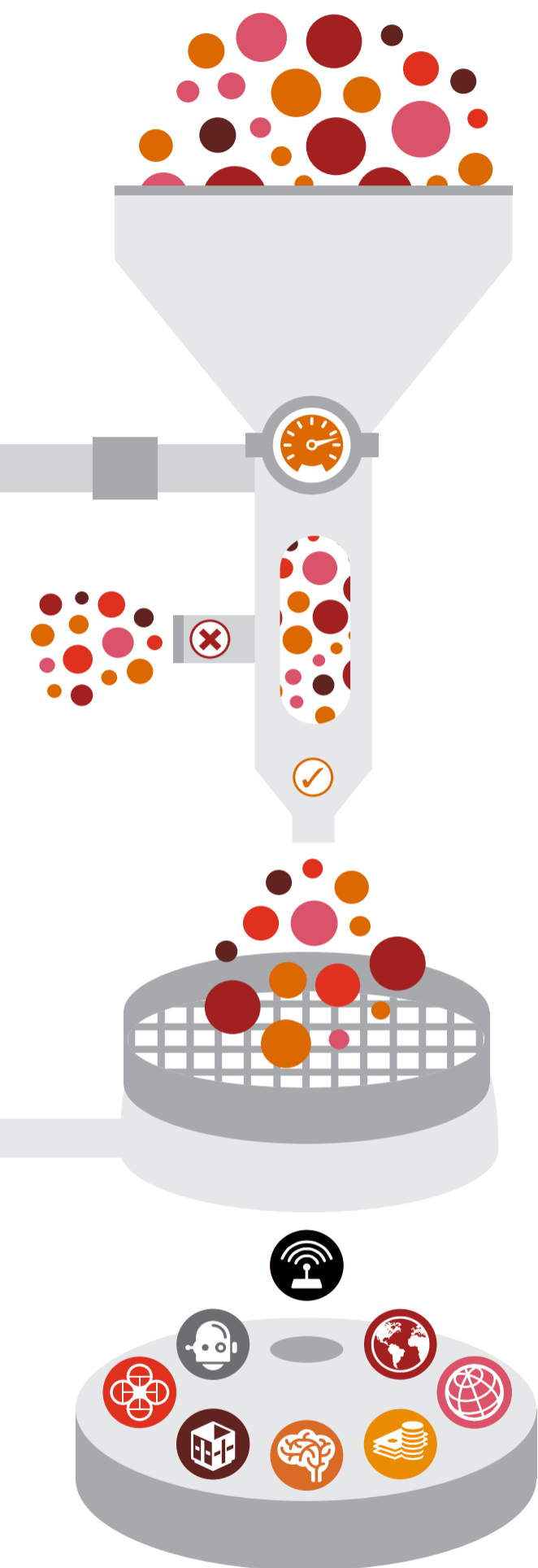
Emerging technologies: the Essential Eight

What advances in technology should companies and boards be paying attention to?

To help companies and boards answer this question, PwC analyzed more than 150 emerging technologies and came up with what we call the Essential Eight. Every company and industry is affected differently by technologies. But these are the eight that we believe will have the most significant global impact across industries.

The Essential Eight are:

Artificial Intelligence (AI)—An umbrella term for technologies that perceive and learn from their environment, then act based on that information. AI includes robotic process automation, machine learning, natural language processing, and neural networks, among other technologies. The most critical difference between AI and general-purpose software is that AI enables machines to respond on their own to signals from the world at large, signals that programmers do not directly control and therefore can't anticipate.

Augmented Reality (AR)—The viewer sees real-world images, but also sees or hears relevant "overlaid" digital information. For example, a warehouse worker wearing AR-enabled glasses may be able to look at a closed crate and see details about the products inside.

Virtual Reality (VR)—VR headsets and VR-enabled smartphones immerse users in a computer-generated 3-D environment. Spatial data, such as the data that produces a rendering of a building or a product design, becomes more real and understandable.

A look down the road through a technology lens

74%

74% of US CEOs say that **technology** will either significantly impact or completely reshape competition in their industries over the next five years.
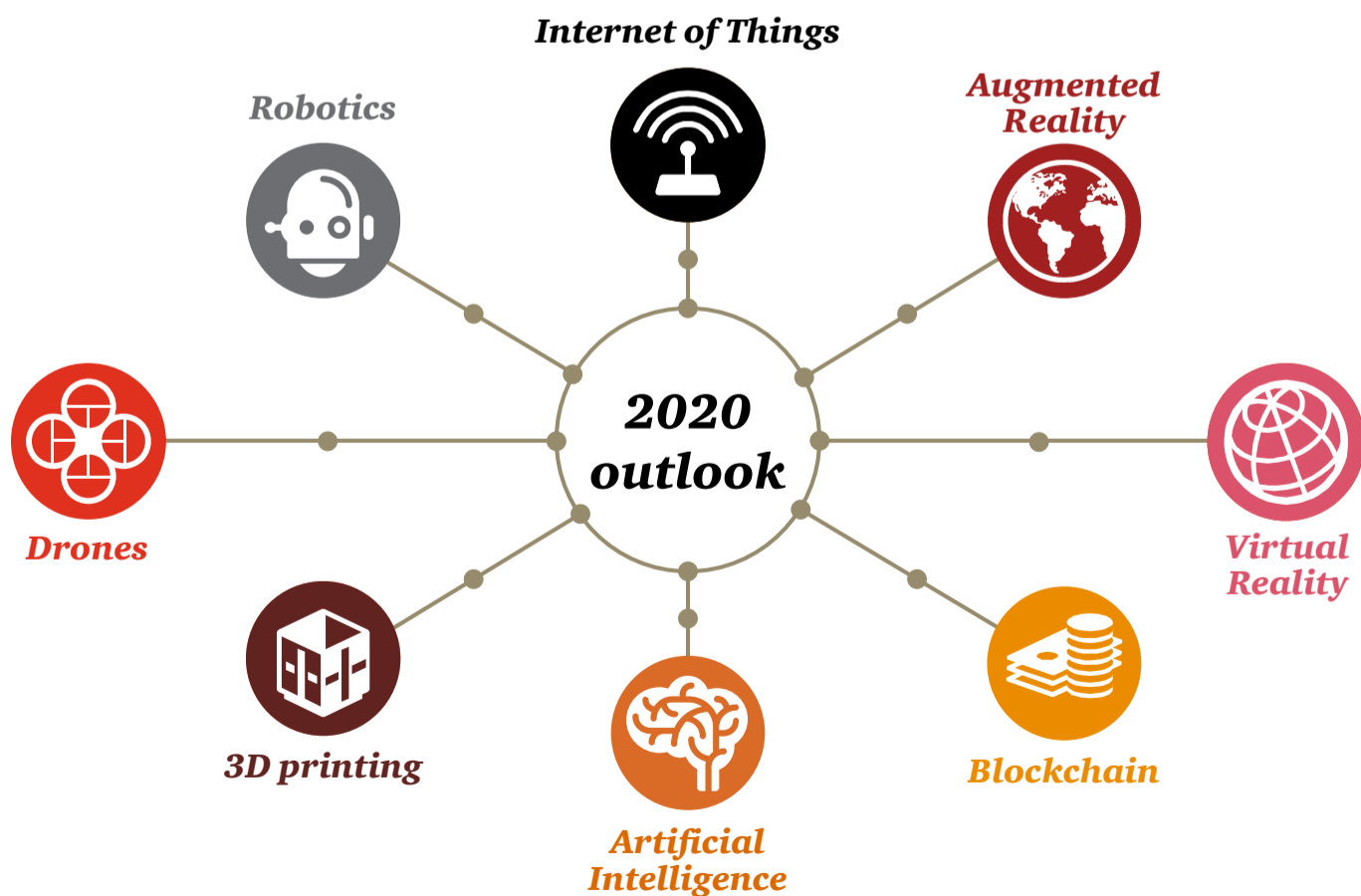
Source: PwC, *20th CEO Survey,* January 2017.

Drones—Drones are small aircraft without a human pilot. Many focus on drones' delivery possibilities, but data collection and data service may be where they make their mark. Drones extend existing aerial photography and sensor data collection methods.

Blockchain—Blockchain offers a decentralized ledger of all transactions across a peer-to-peer network. It can be used for fund transfers and tracking online voting, without a central certifying authority like a bank.

Internet of Things (IoT)—Physical objects such as devices, vehicles or appliances are embedded with sensors, software and network connectivity. The objects can then collect, exchange, and act on data, usually without human intervention.

3D printing—Three-dimensional objects, based on digital models, are formed by layering or "printing" layers of materials. 3D printing has the potential to turn every large enterprise, small business, and living room into a factory.

Robotics—Robots with enhanced sensing, control, and intelligence can be used to assist, augment, or automate human activities. They're moving beyond the factory floor. Robots now interact directly with customers and employees.

Internet of Things

Robotics

Augmented Reality

2020 outlook

Drones

Virtual Reality

3D printing

Blockchain

Artificial Intelligence

Three steps directors can take to tackle the Essential Eight and other emerging technologies

How can directors get more involved in company strategy and the impact of emerging technologies?

1. Understand the emerging technology priorities.

Which emerging technologies are on management's radar? Are any of the Essential Eight? Which ones are most relevant to the company's strategy, operations and customers? Discussions with the CEO and senior management are important to focus the board's attention on the prioritized technologies. Boards will want to ask:

- Is the CEO taking an active leadership role in the company's use of emerging technologies?

- Who decides which technologies to focus on? Are any external parties engaged?

- What criteria does management use to evaluate technologies? How does management prioritize them? Is it a systematic process? Does management consider the greater business context?

- Does the company have an emerging technologies road map? Is it kept up to date? How comprehensive is it? Is it multi-year?

- Is the company prototyping and test-piloting any new technologies to better forecast their impact?

- Does the board agree with management's prioritization of technologies?

Technology must be viewed as a competitive weapon, one that merits regular discussion and decision-making in the boardroom and among the C-suite.

2. Increase the board's Digital IQ.

Board members can use internal company resources to build their knowledge about the prioritized technologies, including the Essential Eight. They can also turn to third parties for help. They should ensure that appropriate time is spent to get educated, which can include making time on board agendas or even holding special meetings to do deeper dives on emerging technologies. Boards will want to ask:

- How does management keep its pulse on the prioritized technologies, including Essential Eight?

- What risks and opportunities are related to these technologies?

- Who does management collaborate with and what activities do they engage in to raise their Digital IQ? Do they tap into the startup, venture capital and technology labs communities, as well as other third parties? How are the Essential Eight and any other new technologies being used by competitors and others in the industry?

- Are board members spending enough time raising their Digital IQ leveraging management or third parties? Does the board have access to individuals with the appropriate skills to oversee technology, whether on the board or outside the boardroom?

3. Build technology into the board's strategic oversight process.

The pace of technological change is swift. Directors will want to understand and agree with management's plans to track, and act on, prioritized technologies. By including these technologies in the ongoing strategy review, the board can keep current and address related risks. Boards should ask:

- ⊕ How does the board ensure the company has a sustainable and competitive innovation strategy?

- ⊕ How do the prioritized technologies drive growth against competitors? What about new competitors?

- ⊕ What is the company's action plan, timeline and estimated cost for focusing on prioritized technologies? Who is accountable for the plan?

- ⊕ New technologies will impact customer engagement, operations, people and talent and compliance. Has the board evaluated those impacts? Does the company's broader business strategy reflect any needed changes?

- ⊕ How will the board monitor whether the company is successful with any prioritized technologies? Which metrics will it use?

PwC perspectives:
IT oversight for boards

To help directors execute effective IT oversight, read PwC's ***Directors and IT guide***, which outlines a six-step structured and efficient oversight process.

*To learn more, visit our **Technology hub: insights for corporate board members** for additional resources about the Essential Eight technologies and digital transformation.*

Find additional resources here:

- [PwC's Next in Tech hub](#)

- [Tech breakthroughs megatrend: how to prepare for its impact](#)

- [2017 Global Digital IQ: Emerging technology insights](#)

- [Directors and IT](#)

Contacts

For a deeper discussion about how this topic might impact your business, please contact:

Vicki Huff Eckert
Global and US New Venture
and Innovation Leader
(408) 817 4136
victoria.huff@pwc.com

Paula Loop
Leader, Governance Insights Center
(646) 471 1881
paula.loop@pwc.com

Barbara Berlin
Director, Governance Insights Center
barbara.berlin@pwc.com
(973) 236 5349

Project team

Elizabeth Strott
Senior Research Fellow
US Integrated Content Team

Chrisie Wendin
Editorial Director, Technology
US Integrated Content Team

Karen Bissell
Marketing
Governance Insights Center

Roberto Rojas
Design
Creative Team

Ryan Lasko
Design
Creative Team

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