

Governance Insights Center

Technology series

Emerging technologies

July 2017

The Essential Eight technologies Board byte: robotics

Robotics are changing the way companies do business. What should boards know?

Companies across all industries are using, investing in or planning to invest in robotics. As the robotics market grows, boards should understand whether and how this technology may impact their company's strategy.



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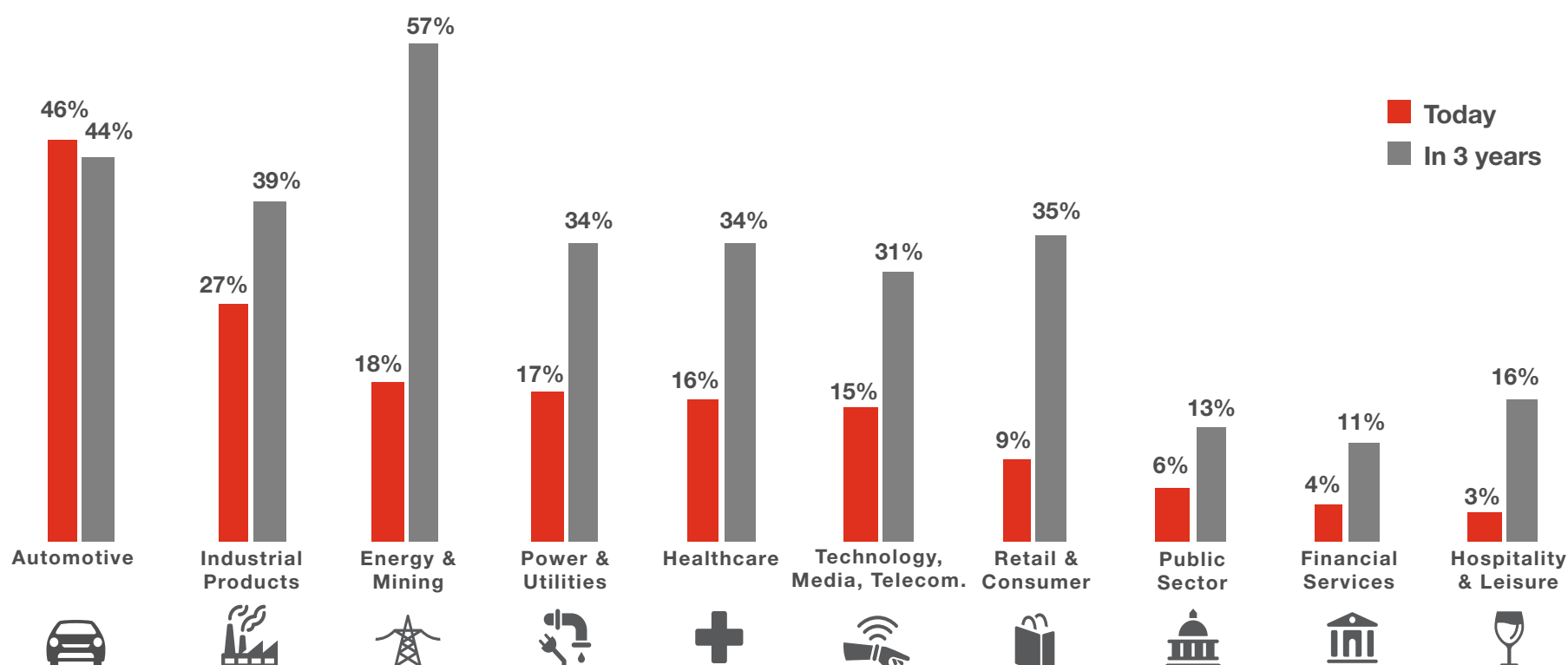
The next time you order room service, don't be surprised if a robot delivers your food. Some hotels already offer this service, and others are likely to follow in the near term. Robots, long a part of the American vision of the future, have moved beyond factory floors. They are being developed to work in hospitality, serve customers at financial institutions, deliver medications in hospitals and even pull weeds on farms. And these are just a few examples.

A coming robotics boom?

The market for robots is growing, with sales expected to grow more than 26% through 2019.¹ This uptick is echoed in PwC's [Digital IQ research](#): Today, 15% of business leaders say they are making significant investments in robotics technology, and nearly one-third expect to do so in three years.

Robotics is an area board members will want to focus on as they continue to raise their Digital IQ and engage in strategic discussions. PwC categorized [robotics](#) as one of the [Essential Eight](#) technologies after analyzing more than 150 emerging technologies.

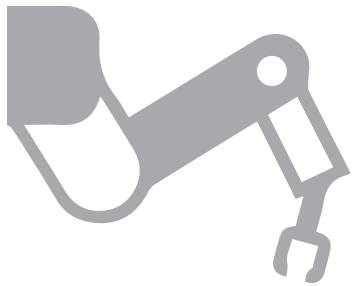
Robotics investment by industry



Source: PwC, 2017 Global Digital IQ® Survey

Q: Which technologies are you making substantial investment in?

Bases: Automotive: 72; Energy & Mining: 135; Financial Services: 322; Healthcare: 237; Hospitality & Leisure: 75; Industrial Products: 375; Power & Utilities: 131; Public Sector: 156; Retail & Consumer: 217; Technology, Media & Telecommunications: 433



Five big trends

How are robotics changing the way companies do business?



Robots are working in more places than just

factories. At one time, robots could function only inside tightly controlled and structured environments. Now they can handle dynamic, less predictable settings.



Robots can work with people. Thanks to sensors and smart technology, new generation robots no longer pose the same safety risks to their human “collaborators.”



Robots can learn. The new robots can “learn” skills through trial and error, mimicking the way people learn new tasks.



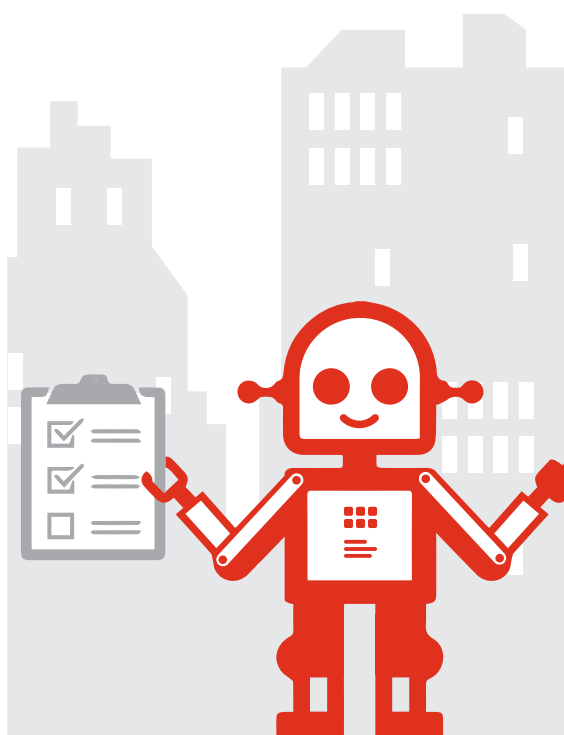
Robots are no longer single-task machines.

Robots can now be customized to fit the company’s specific needs.



Robots are moving to the front office. Robots are working in positions where they interact directly with customers and employees.

With these changes, the applications for robotics go way beyond manufacturing. Robots can automate and expedite business operations. They can make those operations more efficient and reliable. And they can either free up employees for more complicated tasks or fill in when labor shortages hit.





Robots in action today

Need to make a deposit? Meet Nao. Japan's biggest bank introduced Nao, a humanoid, interactive companion robot, to serve its customers.² Nao speaks 19 languages and is available 24 hours a day to greet customers and help determine their needs. The robot is also programmed to analyze facial expressions and tone of voice to better serve customers.

One small step for man... and robot. Meet Robonaut 2.

Designed by researchers at NASA, Robonaut 2 is a highly dexterous, humanoid robot with vision systems, image recognition systems, sensor integrations, artificial hands and much more. Robonaut 2 is the first humanoid robot in space and will conduct research and perform tasks from changing air filters to helping space walkers do repairs on board the International Space Station.³

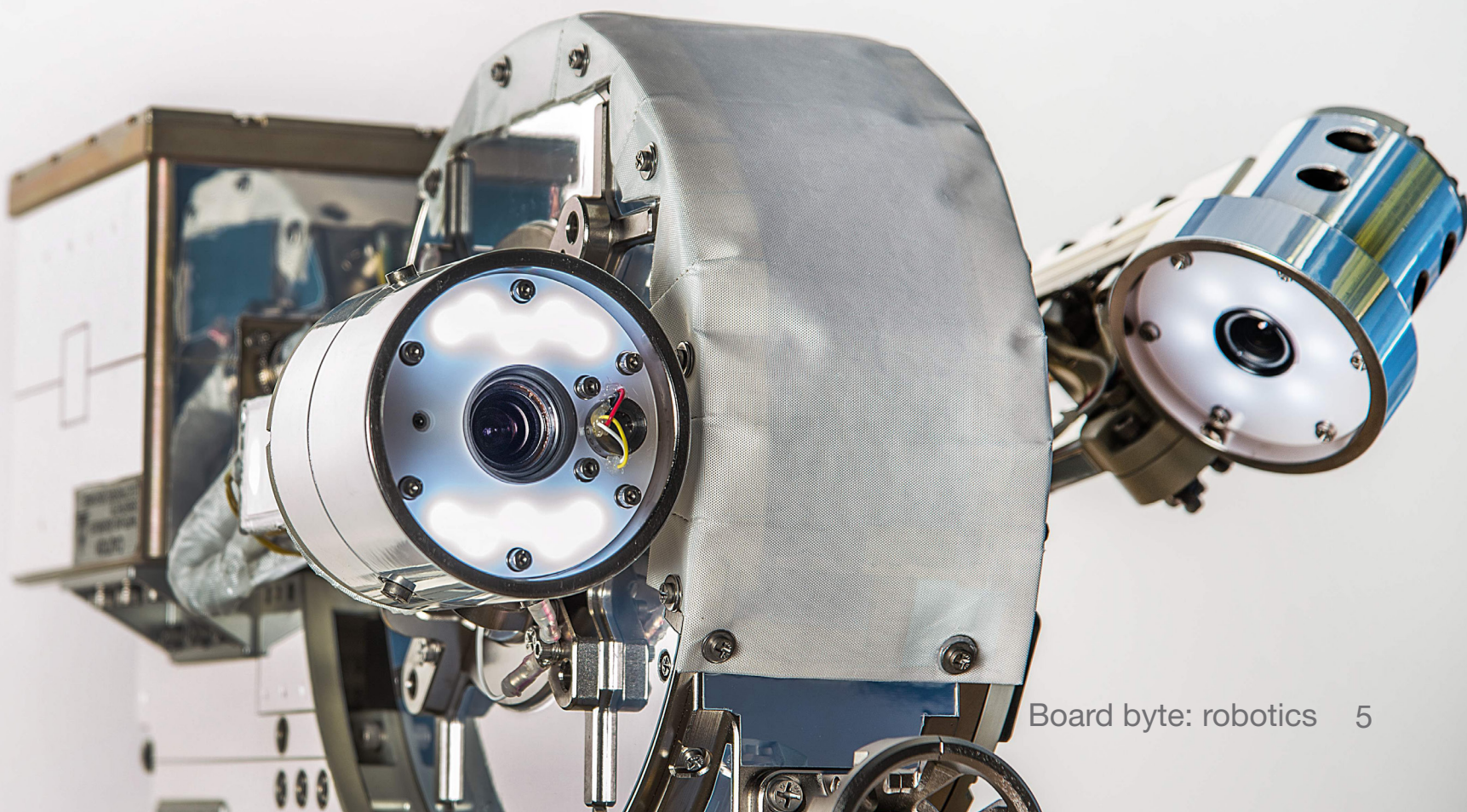
Want fries with that? Meet Flippy.

In March 2017, Flippy, the robotic kitchen assistant from Miso Robotics, had its first day on the job at a fast-food restaurant in California. The robot cooked the burgers and placed them on buns—and then the human working beside it added condiments and toppings.⁴



Although robots are becoming less expensive and more capable, there are reasons some companies may be putting off making investments in the technology.

- ⊕ **Human adoption of technology:** Is the world really ready to socially accept robots as part of our life? There is a significant culture question to be tested over the coming months and years as to the degree and extent of comfort humans have working and interacting with robots.
- ⊕ **Maturity of the market:** While robots have been used in industry for decades, robots are now being designed to work alongside humans. Service robots or cobots (collaborative robots) are examples of the evolving state of interaction between robots and humans, though some companies may be waiting for this market to mature further.
- ⊕ **Perceptions regarding labor displacement:** The concern that robots will eliminate jobs can complicate employee and labor relations.
- ⊕ **Compliance:** Following safety regulations can be expensive, especially for smaller businesses.
- ⊕ **Implementation costs:** While the cost of robots is coming down, the cost of changing and installing new systems can be prohibitive.





Questions boards can ask management about robotics

Many companies may be able to find innovative ways to use robotics that make them more efficient and set them apart from competitors. How can boards discuss the potential and strategic fit for emerging robotic solutions with management? Some questions include:

- ⊕ Have we inventoried our processes and identified repetitive, mundane or undifferentiated tasks done by humans that could be carried out by robots?
- ⊕ Were any automation efforts shelved in the past because of high cost? If so, are they viable now?
- ⊕ Are there tasks that we do not perform because they are not core to our business, but we would if we could do so economically? Have we explored what gains in productivity, efficiency and waste reduction we could achieve by deploying robots in various operations?
- ⊕ Are there tasks that require high precision and dexterity that we have difficulty securing human talent to perform?
- ⊕ Have we considered pilots in low risk markets to evaluate the adoption and engagement with robots?

Boards with a basic understanding of robotics and the other Essential Eight technologies can better oversee management's decisions on those most relevant to their company's business and most likely to create opportunity.

Find additional resources on [robotics](#) and emerging technologies on PwC's [Next in Tech](#) hub.

For more resources on what boards should know about the Essential Eight and digital transformation, go to our website, ***Technology hub: insights for corporate board members***.

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Endnotes

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2. MUFG, Embracing innovation for change, http://www.bk.mufg.jp/global/newsroom/featuredarticle/2016_01.html, accessed April 5, 2017.
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