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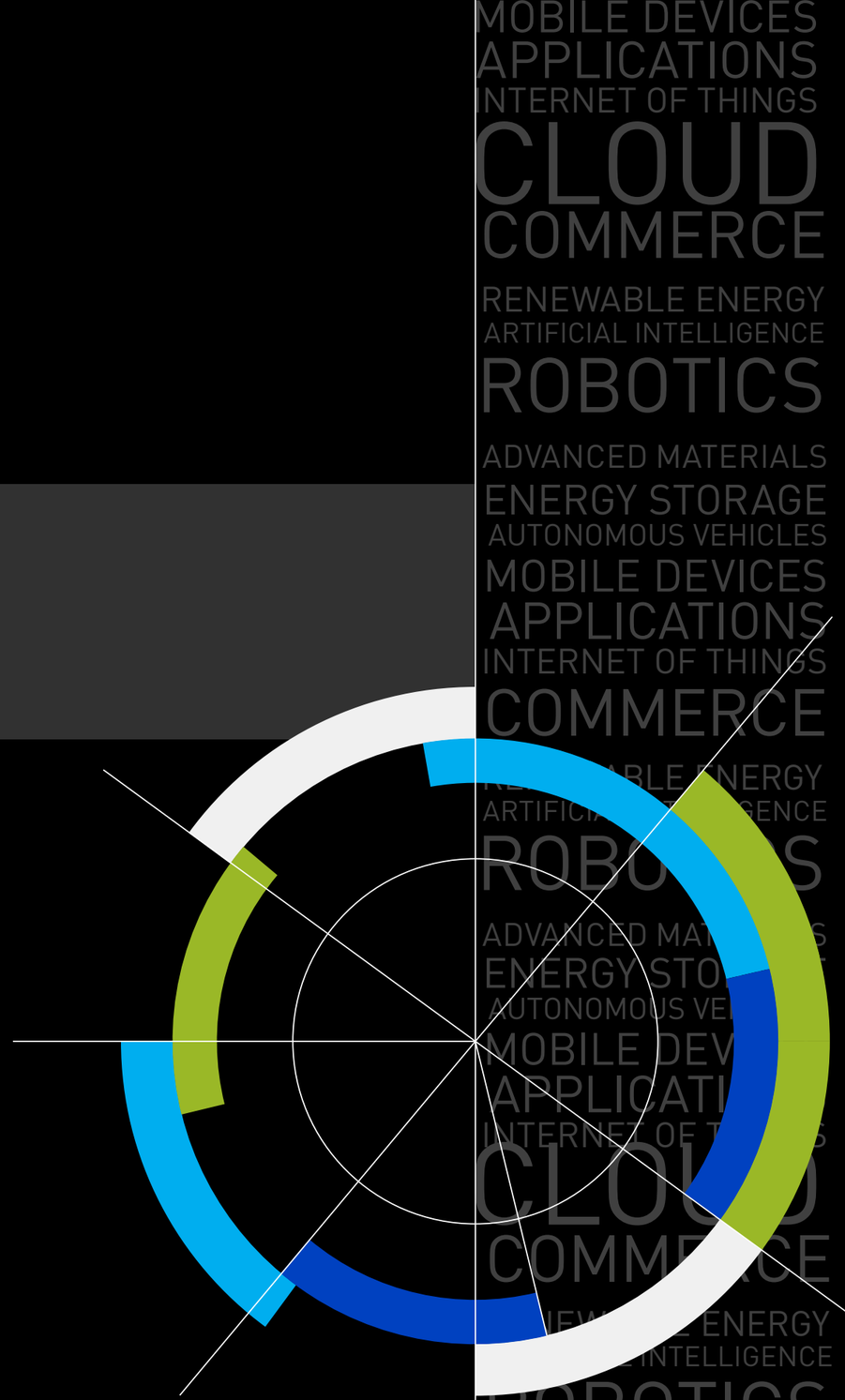
Disrupt the status quo

Industry intelligence: *Report on Disruptive Technology's Impact on Manufacturing*



Proprietary study reveals benefits of embracing disruptive technology vs. risks of waiting

A recent survey of more than 400 technology decision makers across 13 industries indicates that early adoption of disruptive technology is seen as less risky than waiting. Among technology leaders across all industries, including Manufacturing, there was near consensus that adopting disruptive technology has become the price of doing business and staying in business.

Majority of companies to increase investment

Most executives surveyed acknowledged that hesitating is far riskier than adopting disruptive technologies now. Companies surveyed have already adopted, on average, four of the 12 disruptive technologies recognized by McKinsey.[1] And almost all companies intend to increase their investment in disruptive technologies.

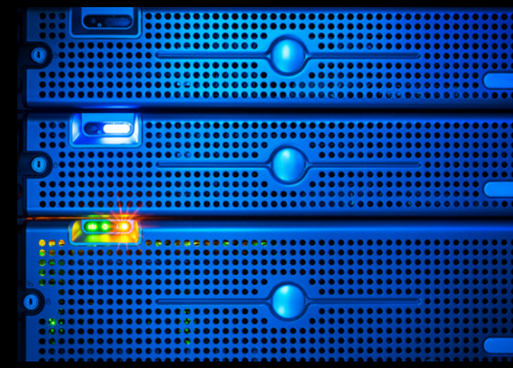
Manufacturing: growth through innovation

Manufacturing in North America is on the rebound. Part of this is driven by strong economic growth in most global markets. And part by the fact that manufacturers in North America continue to innovate. Looking to the future, manufacturers will be investing in a wide range of disruptive technologies that fuel this innovation. This report examines the trends, attitudes and behaviors toward these disruptive technologies that are determining the present and future of Manufacturing.

6 in 7 across all industries say adopting disruptive technology is the price of staying in business

2 in 3 companies across all industries say it's riskier to adopt technologies too late rather than too soon

Most companies intend to increase their investment in disruptive technologies



Disruptive technologies driving growth

MOBILE DEVICES
APPLICATIONS
INTERNET OF THINGS
CLOUD
COMMERCE
RENEWABLE ENERGY
ARTIFICIAL INTELLIGENCE
ROBOTICS
ADVANCED MATERIALS
ENERGY STORAGE
AUTONOMOUS VEHICLES
MOBILE DEVICES

[1] *Disruptive Technologies: Advances that will transform life, business and the global economy*. McKinsey Global Institute, May 2013

More than half of manufacturers have already adopted 5 or more disruptive technologies

Among Manufacturing companies, the technologies most likely to have been adopted, as they are in most industries, are the Cloud and Mobile Devices, Apps & Commerce.

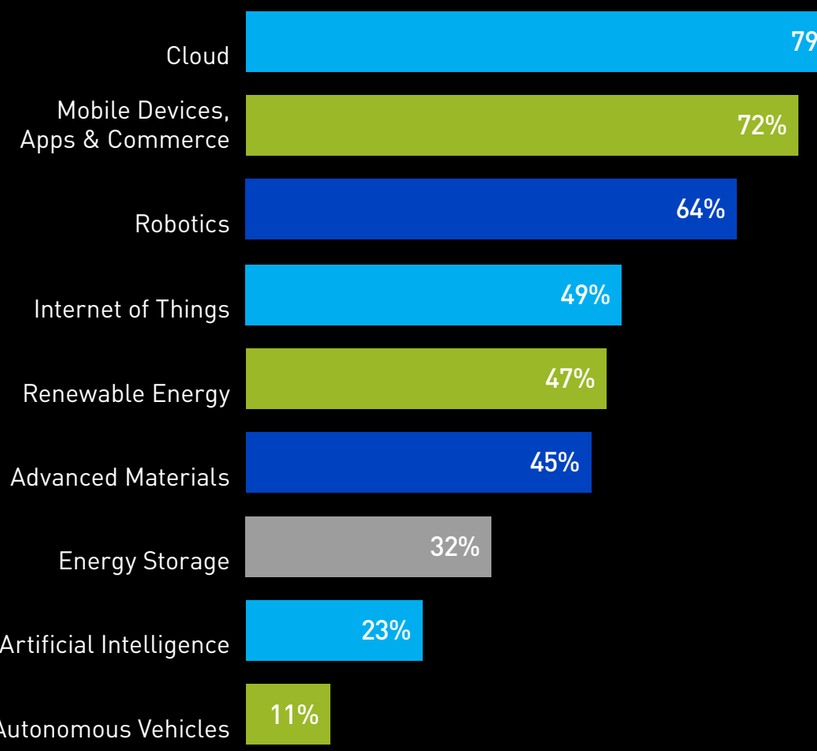
Manufacturing is a leader in adopting Robotics and Advanced Materials. Robotics is also seen as the technology most critical to Manufacturing's future success, followed by IoT and the Cloud.

+173% higher adoption of Robotics than industry average

+120% higher adoption of Advanced Materials than industry average

These organizations are concerned that failing to invest in disruptive technologies puts them at a significant competitive disadvantage. Most would feel threatened by both current competitors and emerging competitors from outside their industry.

Disruptive technologies currently adopted

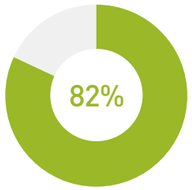


Three priorities emerge as major growth drivers

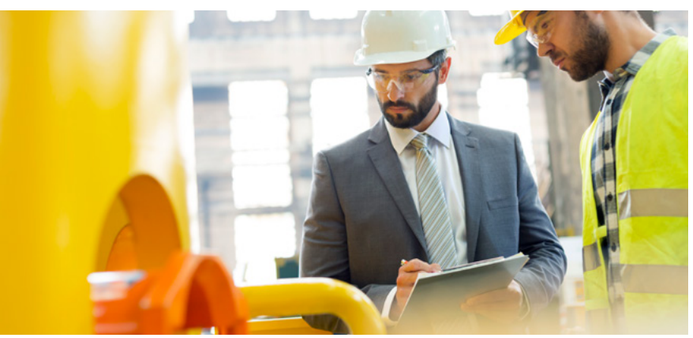
Manufacturers see growth coming from a number of places, and corporate tax cuts are pretty far down the list. Top priorities for manufacturers are driving efficiency in the supply chain through better integration with partners, increased automation and adoption of Robotics, more personalization to meet consumer needs and better employee training and skills.

Turning Manufacturing's rebound into long-term success

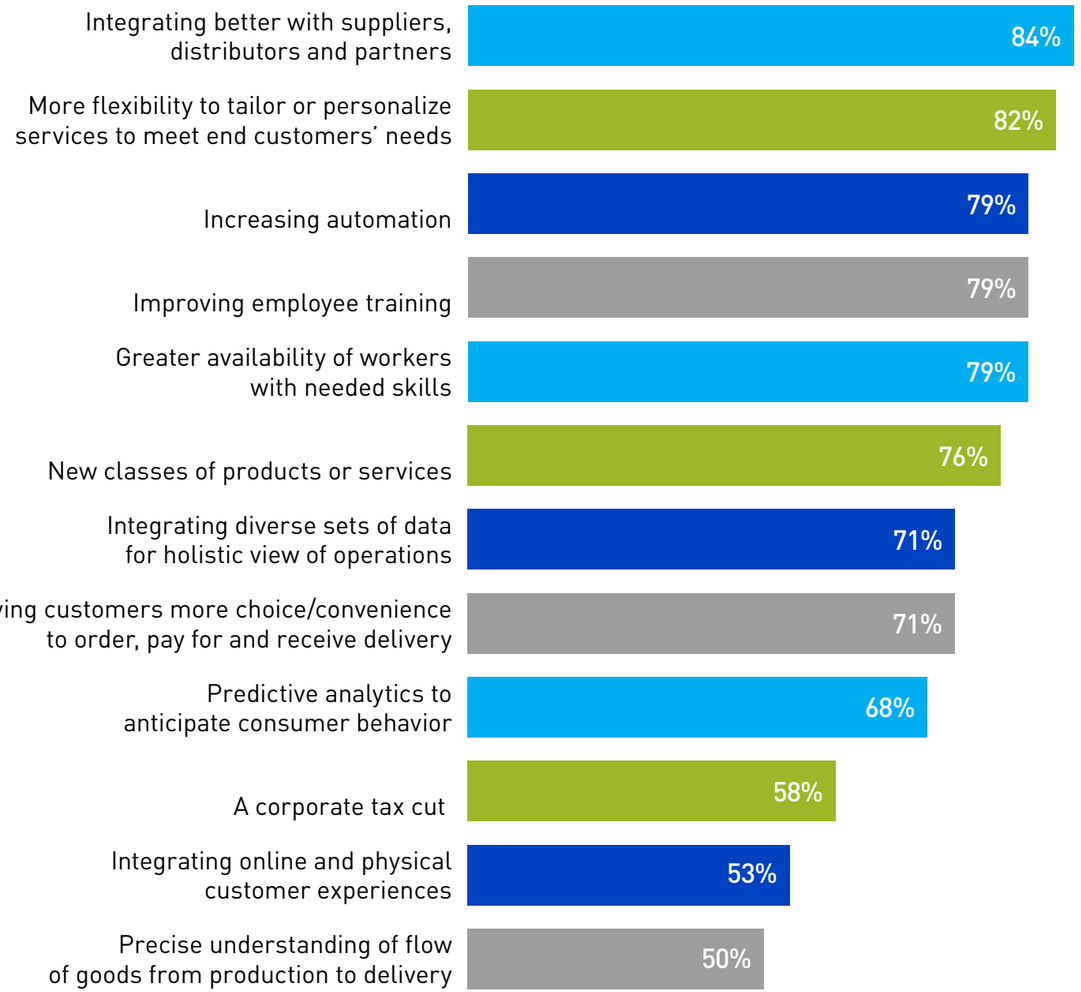
5 in 6 see better supply-chain integration driving multi-year growth



point to personalization as a key growth lever



Priorities that can drive multi-year growth



Key barriers to adoption: skill gaps and short-term thinking among decision makers

Having a skilled workforce presents growth opportunities for Manufacturing. The lack of one is a major impediment to growth. And it keeps manufacturers from adopting the disruptive technologies that allow companies to stay competitive. Many see lack of skilled employees and lack of expertise for effective implementation as major challenges. The other major challenge: short-term thinking among decision makers.

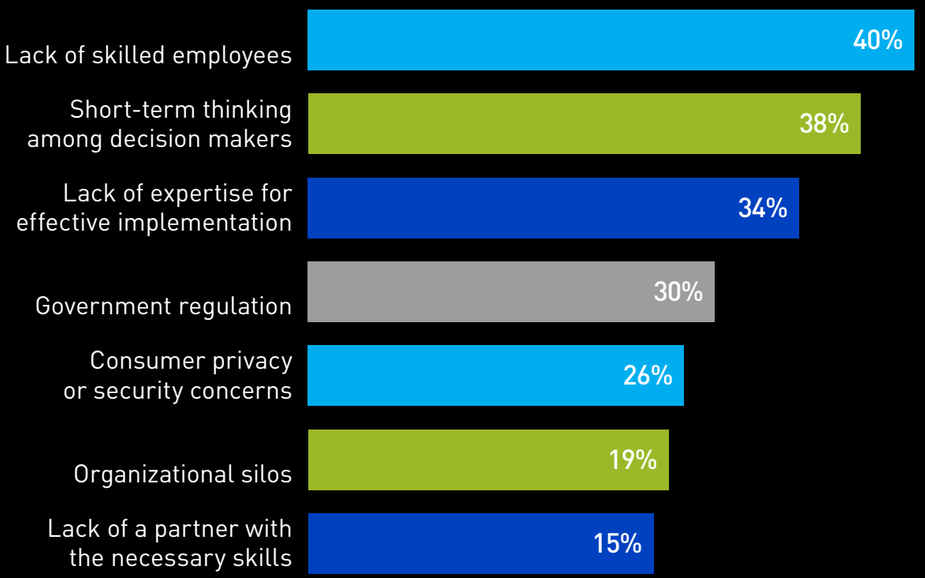
Keys to fulfilling AI's potential

Many are enthusiastic about Artificial Intelligence's potential for personalization, optimizing content by segmentation and even in computer-generated imagery and character development. But many also acknowledge that there are still significant challenges to successful adoption, starting with identifying the right strategic partner for implementation.

2 in 5 cite lack of skilled employees

blame short-term thinking among decision makers

Major challenges to adoption of disruptive technologies



"It's all about ROI. Short-term vs. long-term thinking."
– Manufacturing executive

Automation and Robotics are poised to provide significant benefits to Manufacturing

Automation, Robotics and Autonomous Vehicles are related technologies where machines take on certain routine tasks, freeing up human workers to focus on value-added activities. Manufacturers see great promise in these technologies.

Manufacturers believe they can derive the most benefit from technological innovation through automation software that simplifies processes and integration of Robotics into operations. Many top supply-chain challenges can be partially addressed through automation: errors from manual data entry, lack of streamlined communications among owners of various parts of the order's life cycle plus out-of-sync information systems.

see increased automation and use of Robotics as most beneficial

1 in 3

believe Autonomous Vehicles will play an important or indispensable role in their business

Supply-chain challenges

74%	Goods delivered late/to wrong place
71%	Manual data entry prone to human error and backlog
63%	Lack of streamlined communication in order life cycle
55%	Management information systems not in sync
45%	Unreliable or overstressed infrastructure
45%	Multiple channel support for ordering, payments, etc.
45%	Difficulty tracking goods or materials
39%	Inability to see where an order is in its life cycle

"The benefits of automation include reduced cost and faster time to market."

– Manufacturing executive

Artificial Intelligence and personalization projected to play big roles in growth

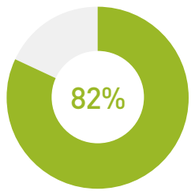
Adoption of AI in Manufacturing is expected to reach 43% in the near future, rising from 23% today. Half of manufacturers believe AI will play an important or indispensable role by 2025.

Personalization will have many facets

One important application of AI is personalization, which manufacturers believe is important to their future success. Most manufacturers see personalization as less about creating unique products at mass scale than making it simpler for customers to engage with the company, customizing offerings for every customer and using data analytics to predict and impact purchase behavior.

What personalization means to manufacturers

29%	Making it simpler for customers to engage with the company
21%	Being able to customize services and offerings for every customer
18%	Using customer data analytics to predict and impact purchase behavior
16%	Having the technology to create unique products in mass scale
11%	Having versatile supply-chain tools to create a variety of products



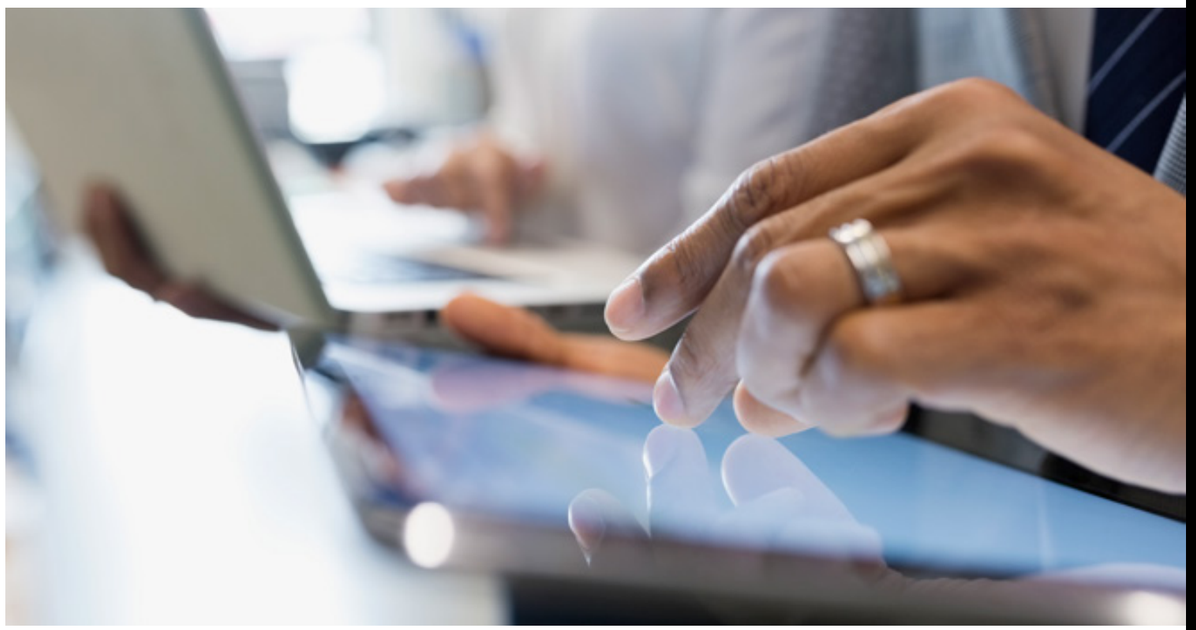
growth in AI adoption in the near future

4 in 5 expect to be able to fully personalize customer engagement in 5 years

Manufacturers place a high priority on personalization

More than 50% of manufacturers believe that using consumer data to develop better, more personalized products is the future of the business vs. 40% among all industries.

This stance could certainly lead to innovation by Manufacturing, but at the same time could expose them to reputation risk if they fail to take great care in the way they use consumer data.



Disrupting the status quo in Manufacturing, right now

As you read this, decision makers in Manufacturing are revolutionizing every aspect of their industry with disruptive technologies.

They're disrupting human error with automation.

They're disrupting a one-size-fits-all approach to customers with personalized engagement.

They're disrupting lack of insight into the life cycle of an order with the Internet of Things.

They're disrupting management by hunches with management by data through Artificial Intelligence.

The leaders surveyed in this report recognize that disrupting barriers creates opportunities. That the biggest risk will impact those who wait. And that change waits for no one, especially in Manufacturing, where things are about to get interesting.

Want to learn more or speak to an expert about disruptive technologies and your industry?

Contact us: na.panasonic.com/ca/DSQcontact
Learn more: na.panasonic.com/ca

Creating the technologies that move us

At Panasonic, we anticipate the future, innovate continuously and integrate disruptive technologies into breakthrough solutions for our customers. Our goal? Create technologies that move us toward a better life and a better world.

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