Operations Technology Solutions

Trends in operations management

March 2019

powerful forces reshaping Canada's economy

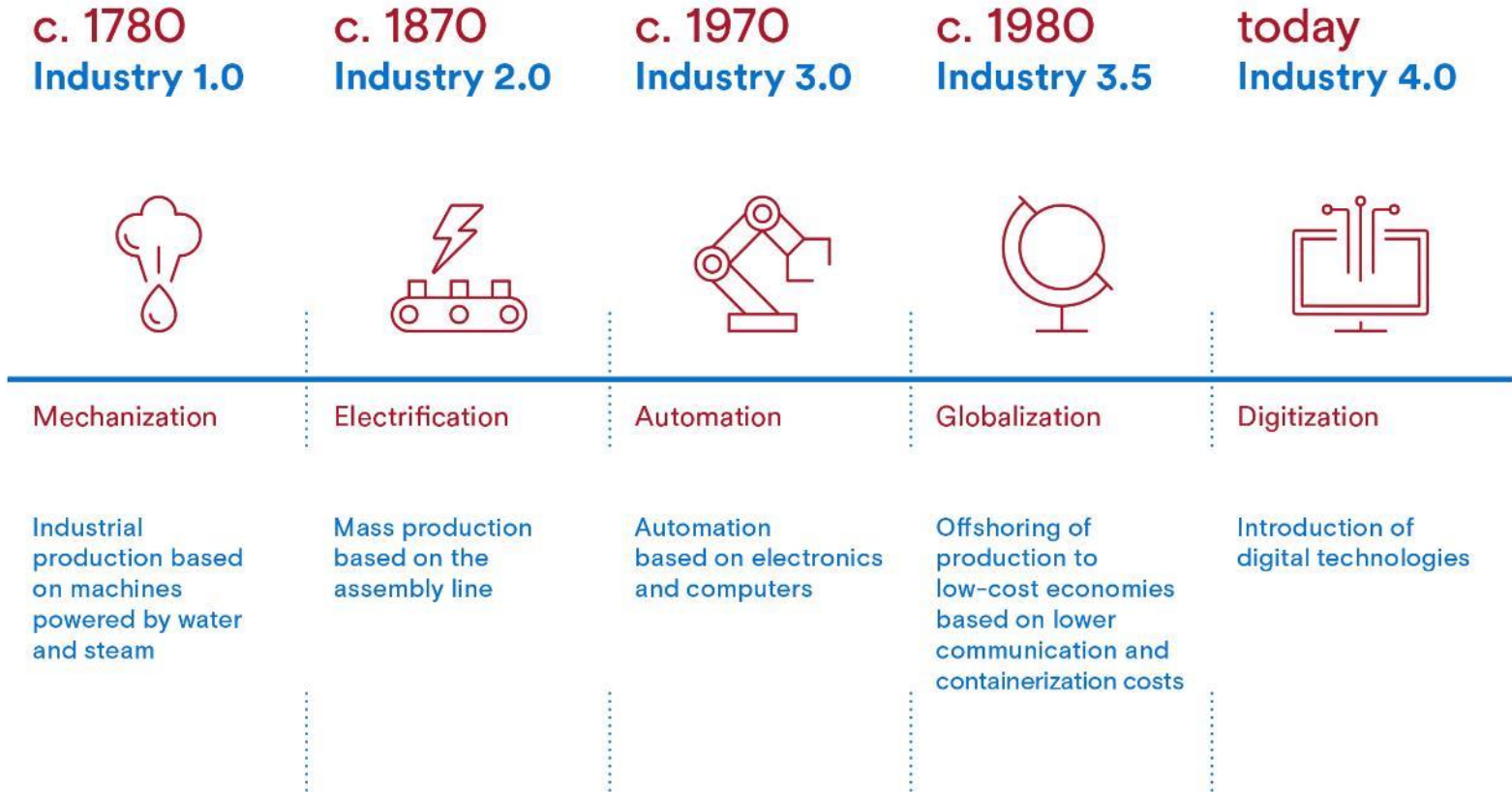Shifting workforce dynamics

Emergence of digital technologies

"We're working hard to adopt new technology and become more efficient."

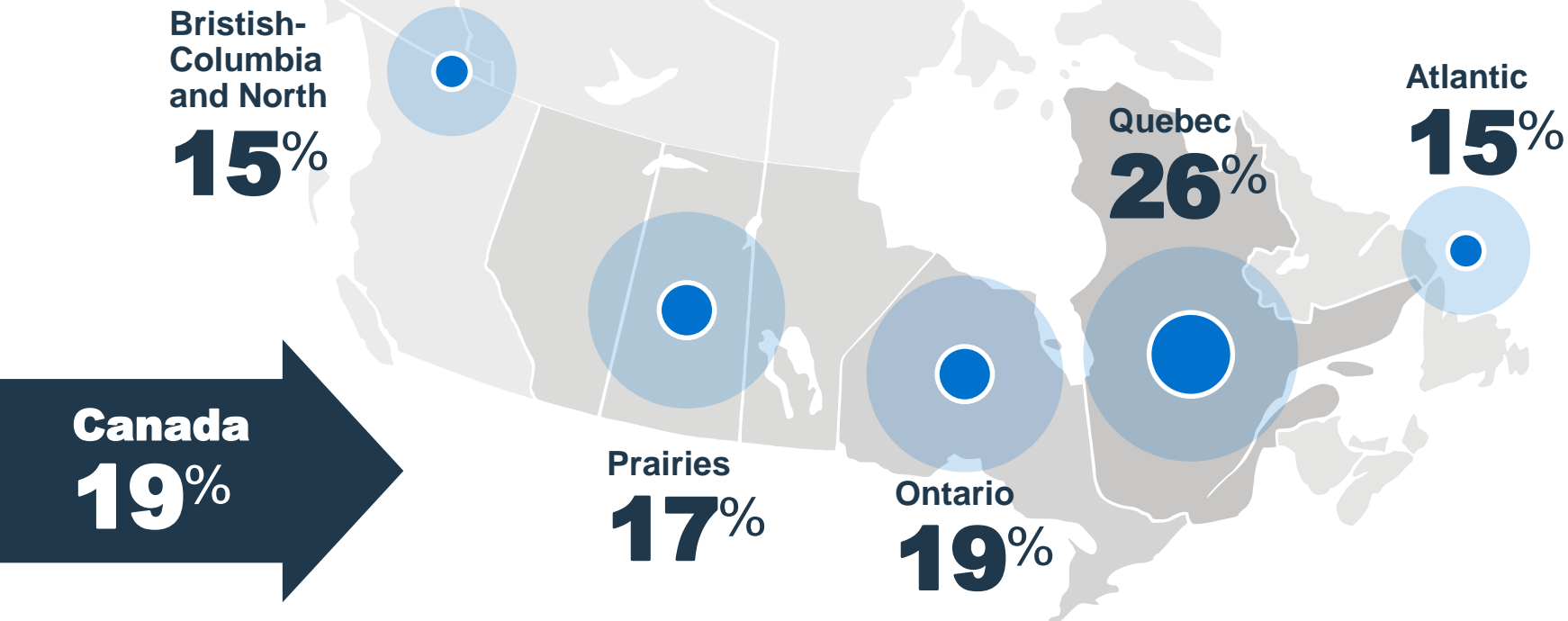**Nicolas and Jean-François Drouin**
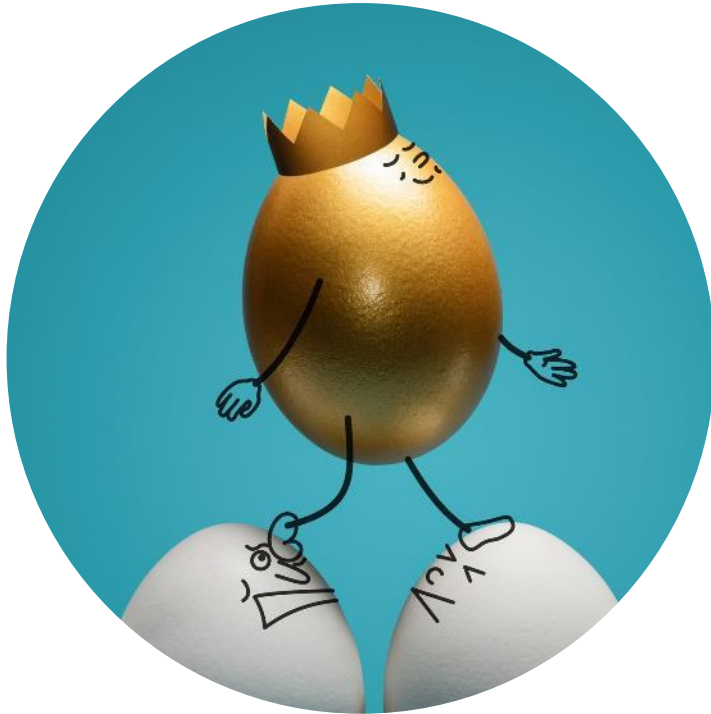Co-CEO, Produits Matra

Industrial revolutions over the ages

c. 1780	c. 1870	c. 1970	c. 1980	today
Industry 1.0	**Industry 2.0**	**Industry 3.0**	**Industry 3.5**	**Industry 4.0**

Mechanization	Electrification	Automation	Globalization	Digitization
Industrial production based on machines powered by water and steam	Mass production based on the assembly line	Automation based on electronics and computers	Offshoring of production to low-cost economies based on lower communication and containerization costs	Introduction of digital technologies

Digital maturity levels in Canada

% of businesses that are digitally advanced, by province

Bristish-Columbia and North
15%

Prairies
17%

Ontario
19%

Quebec
26%

Atlantic
15%

Canada
19%

Digitally mature companies

1	Higher sales

2	Higher profits

3	More likely to export

4	More likely to innovate

Manufacturers who adopted Industry 4.0 saw real benefits
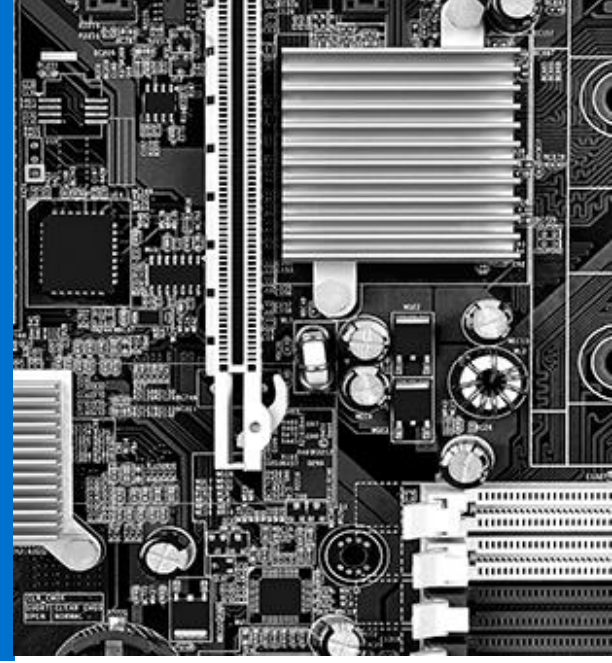
60%
Boosted their productivity

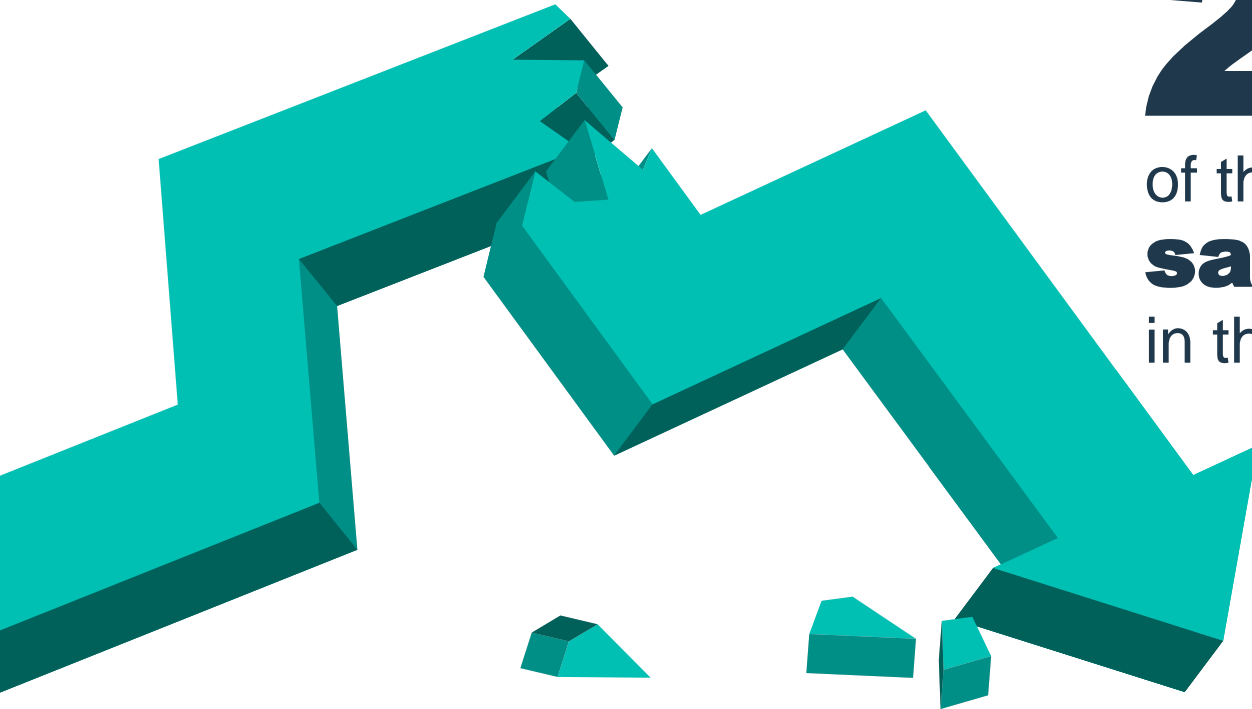**50%**
Reduced operating costs

42%
Improved overall product quality

Businesses with
low digital maturity

25%

of them have seen
sales plummet
in the last three years

"If you're dependent on manual, traditional ways of doing things, you can't scale your business."

Scott Hodson
President and CEO,
Superior Cabinets

The power of digital technologies for operations

Operations Technology Flywheel

A key driver in optimizing resources, processes and information

Live dynamic demand planning

Smart sensors

Real-time dashboard results, configured to smart phone

Automated work balancing - signal to reallocate resources

Supervisor (proactive) daily management system

Weekly Operations planning

End of the day operations reporting

Look for bottleneck

Supervisor reaction

Add new resources to be trained

Cross-training in digital work instruction Q/A included

Typical operations

Operational technology acceleration

IoT: A good place to start

Improve your decision-making systems

01 ERP	02 MES	03 SCADA	04 PLCs	05 SENSORS
Governance and planning system and corporate or enterprise level	Manufacturing execution control at management level	Equipment and process control at supervisory level	Instrumentation sensor and data control at factory level	Field level deployment

| Pyramid	Timeframe	Management
ERP	**Hours**	**Business management**
MES	**Minutes**	
SCADA	**Seconds**	**Production management**
PLCs	**1/10 Second**	
SENSORS	**1/100 Second**	**Production control & automation**

Traditional topology

Benefits

→ Affordable

→ Be proactive

→ Reduce delays

→ Improve efficiency

→ Generate more value

Challenges

→ Timeframe

→ Expertise
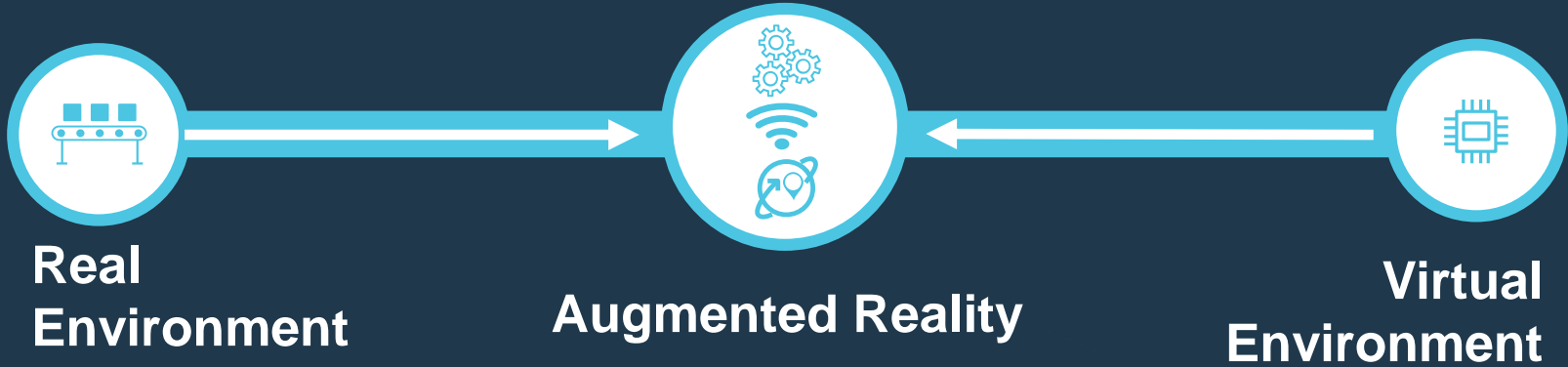
→ IT implication

→ Reliance on others

→ Cybersecurity
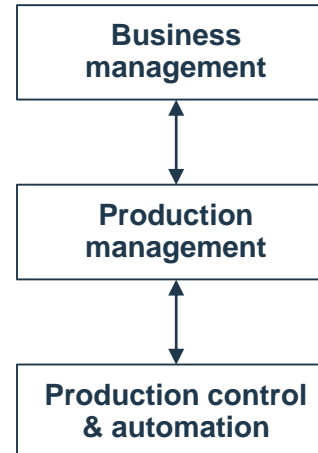
Your data is valuable!

Real-time dashboards
Real-time decisions

Augmented Reality

Real Environment → **Augmented Reality** ← **Virtual Environment**

- Complex work instructions
- Expert support & training
- Maintenance & repair
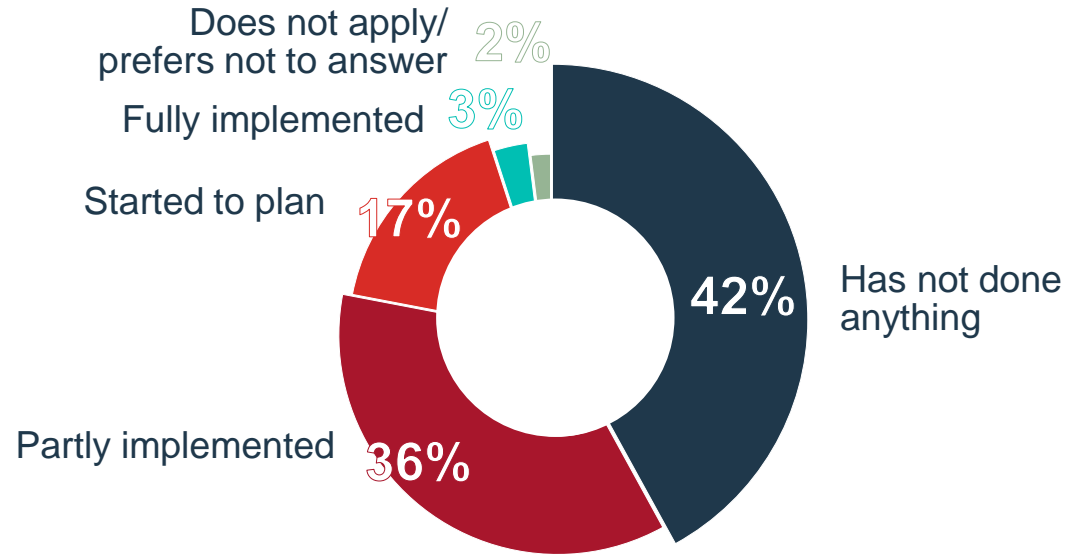- Quality Assurance
- Automation control

3D Printing

Manufacturers are in the early stages of digital adoption

40% of small and mid-sized manufacturers have implemented 4.0 projects.

Q. To what extent have you implemented digital technologies (Industry 4.0 projects) in your company?

Does not apply/ prefers not to answer — 2%

Fully implemented — 3%

Started to plan — 17%

Has not done anything — 42%

Partly implemented — 36%

Client story

**Vladimir and
Natasha Bolshakov**
Geometrik Manufacturing

How to make the digital shift in your business?

3 ways to introduce digital technologies into your business

→ **Build a digital factory**

→ **Provide a digital customer experience**

→ **Create digital products**

① Build your strategy

Start small. But think big.

②
Establish a culture of change. Make technology *useful and fun!*

③

Scale fast and
never stop
improving.

The bottom line

It pays to be digitally advanced.

Embrace change and invest now to future-proof your business

Digitize Now

Measure up and transform your business.

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