

Managing Uncertainty: Challenges & Opportunities for Manufacturers

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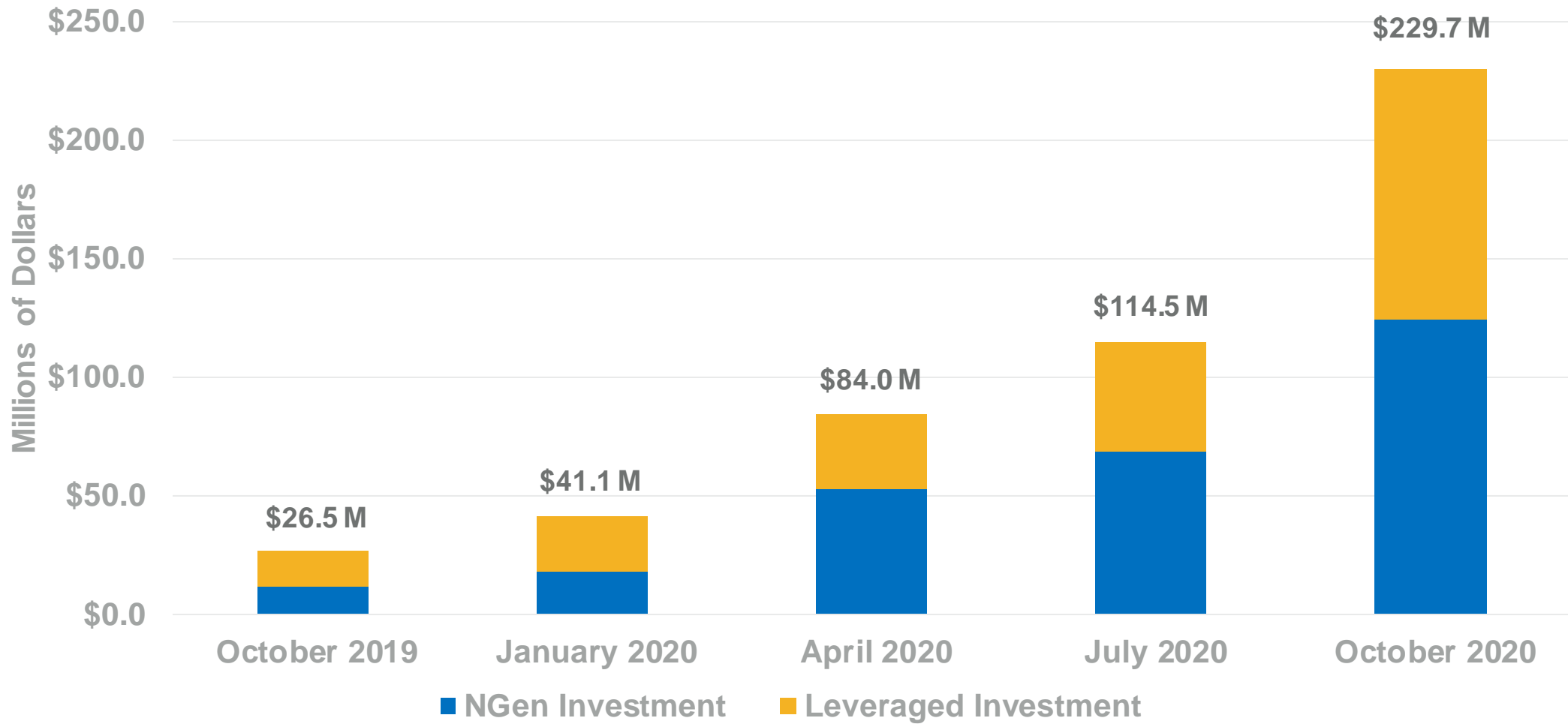
November 17, 2020

 **NGen** Next Generation
Manufacturing Canada

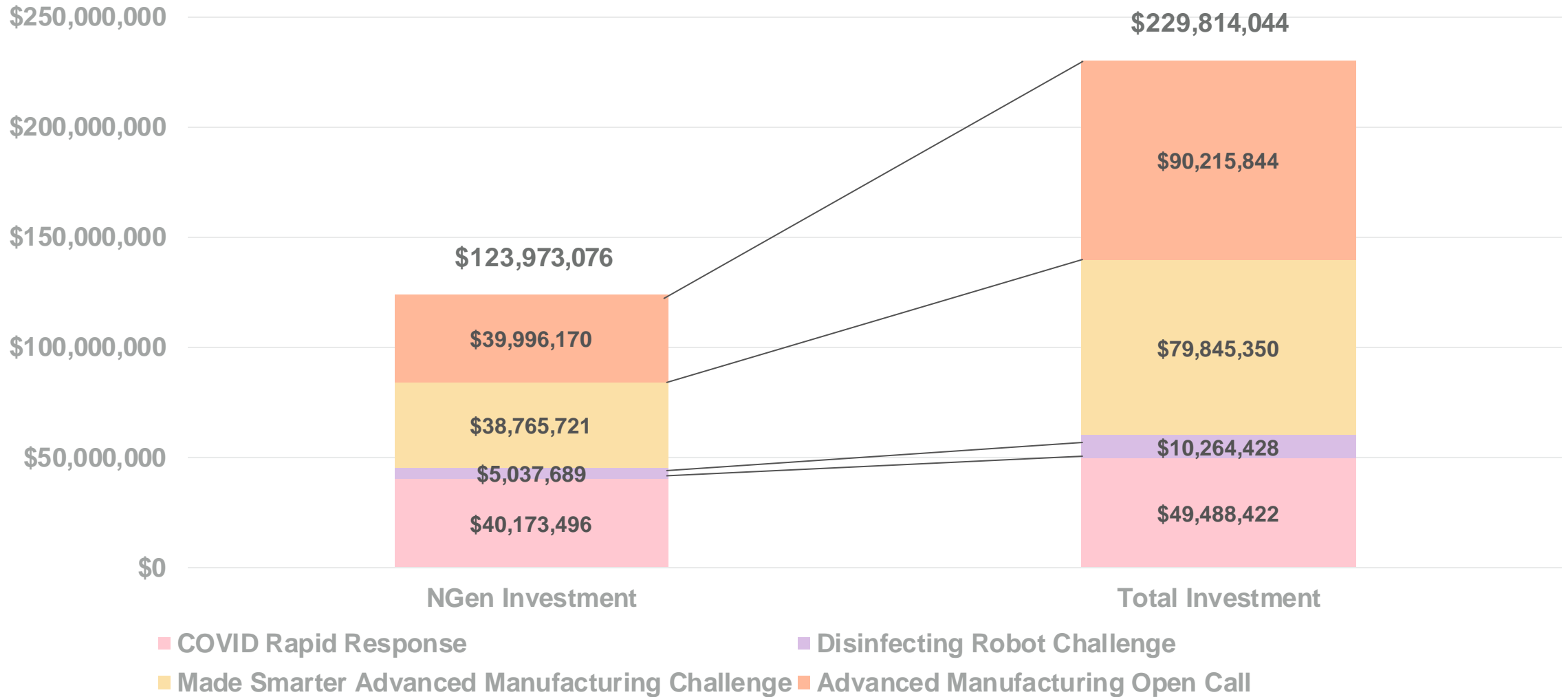
NGen: Supercluster Update

- Next Generation Manufacturing Canada (NGen) leads Canada's Advanced Manufacturing Supercluster
- Committed to building world-leading advanced manufacturing capabilities in Canada
- Supporting and strengthening collaboration across Canada's advanced manufacturing ecosystem
- Supporting skills development and advanced manufacturing management capabilities
- Co-investing in collaborative, industry-led projects that have the potential to create unique competitive advantages for Canadian manufacturing

Growth in NGen Project Funding



Approved Project Leverage



Project Participation



479 Project Partners



468 SMEs



134 Partners (excl. Cluster Building)



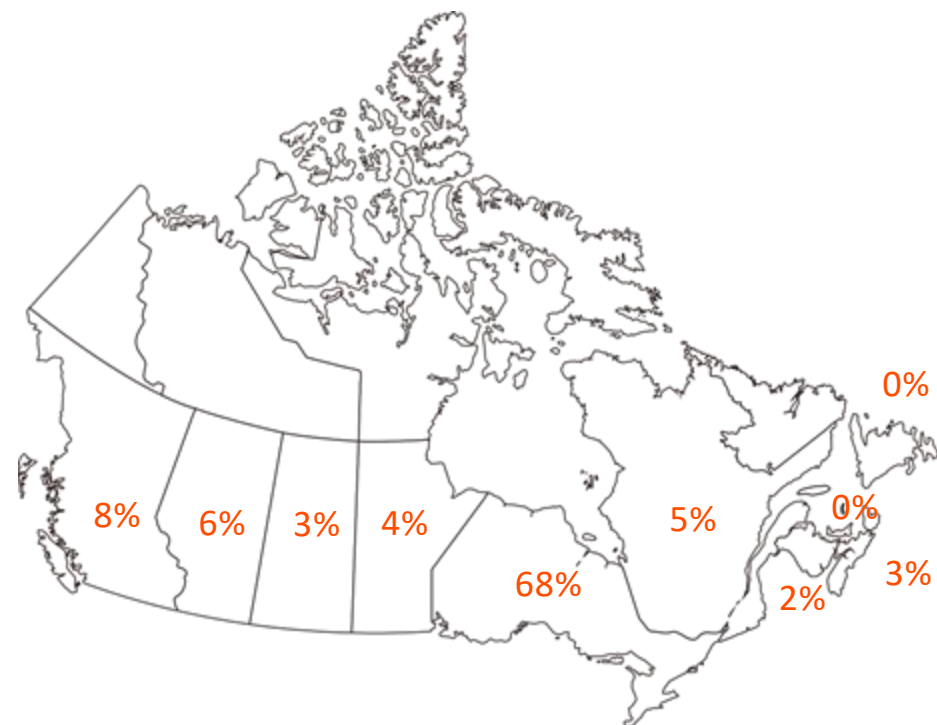
123 SMEs (excl. Cluster Building)



345 Cluster Building Partners

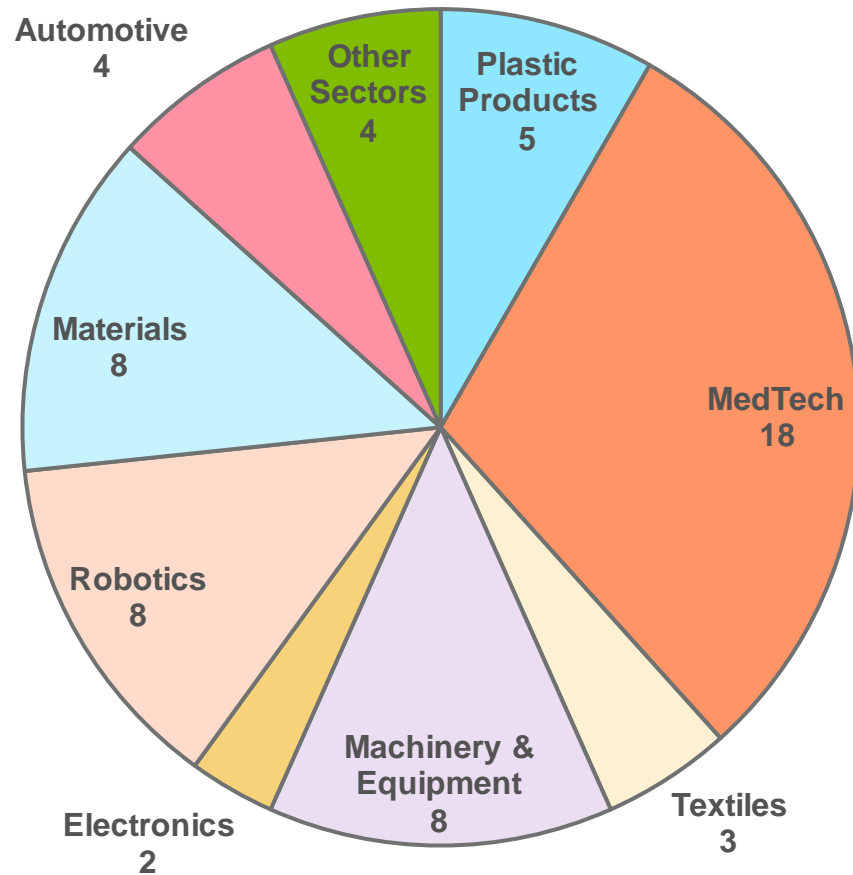
Project Participation across Canada

(Excl. Cluster Building)

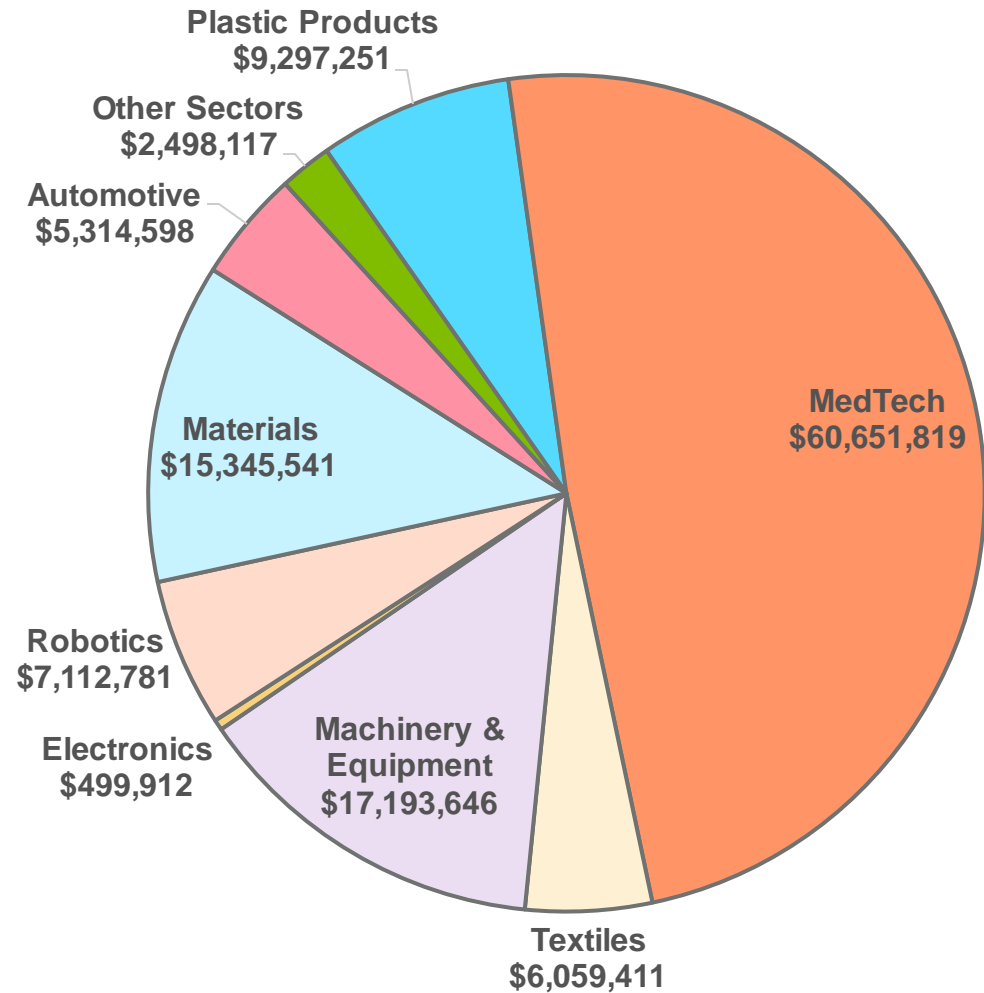


Project Portfolio by Sector

Number of Projects



NGen Investment



Impacts ... to Date

 \$225 million+ purchase orders



16 additional funding partners



54 IP strategies



24 academic and research partners



35 new products



4 new companies created



36 products to fight COVID-19



963 jobs directly supported by projects



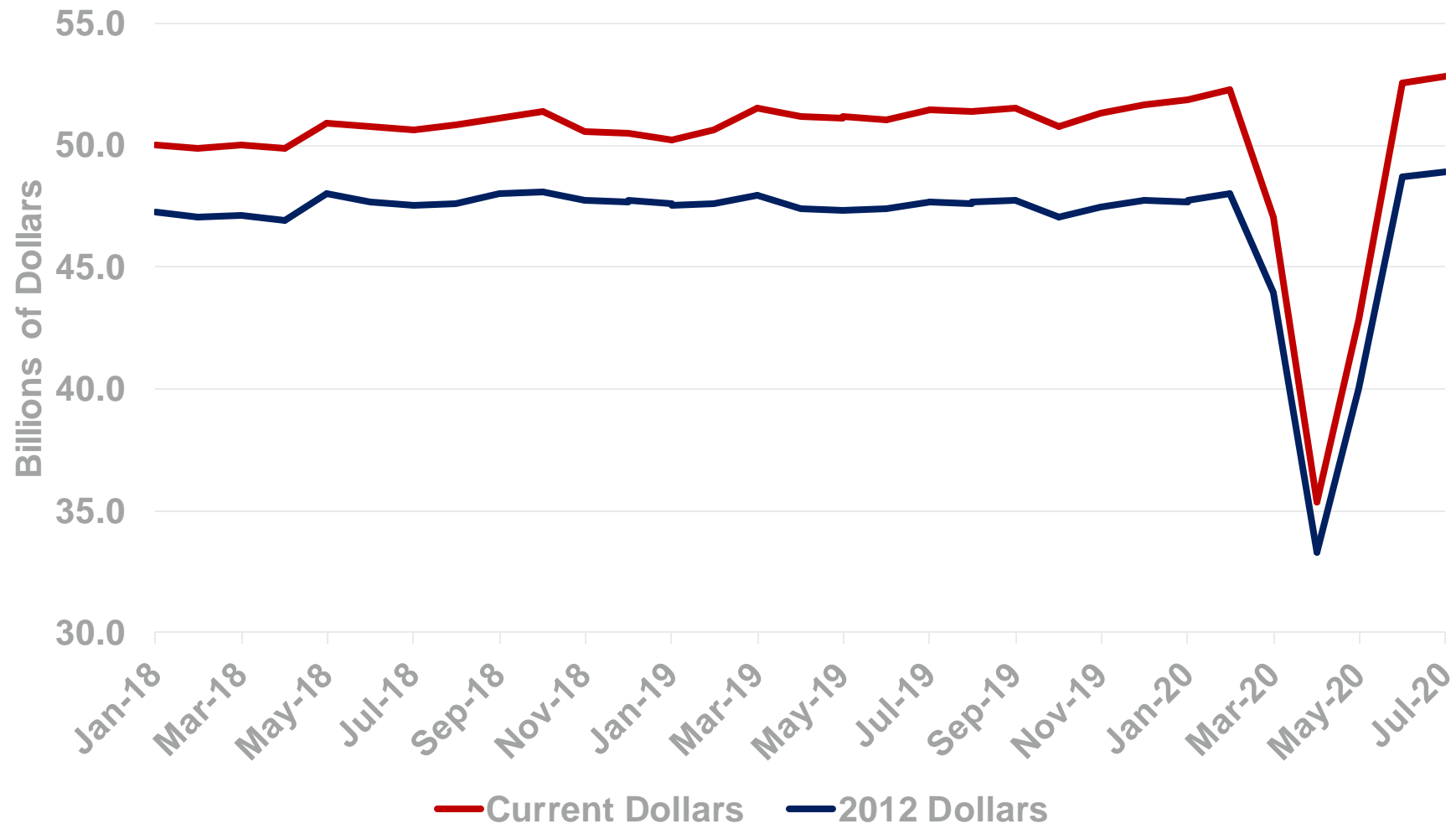
47 new production processes



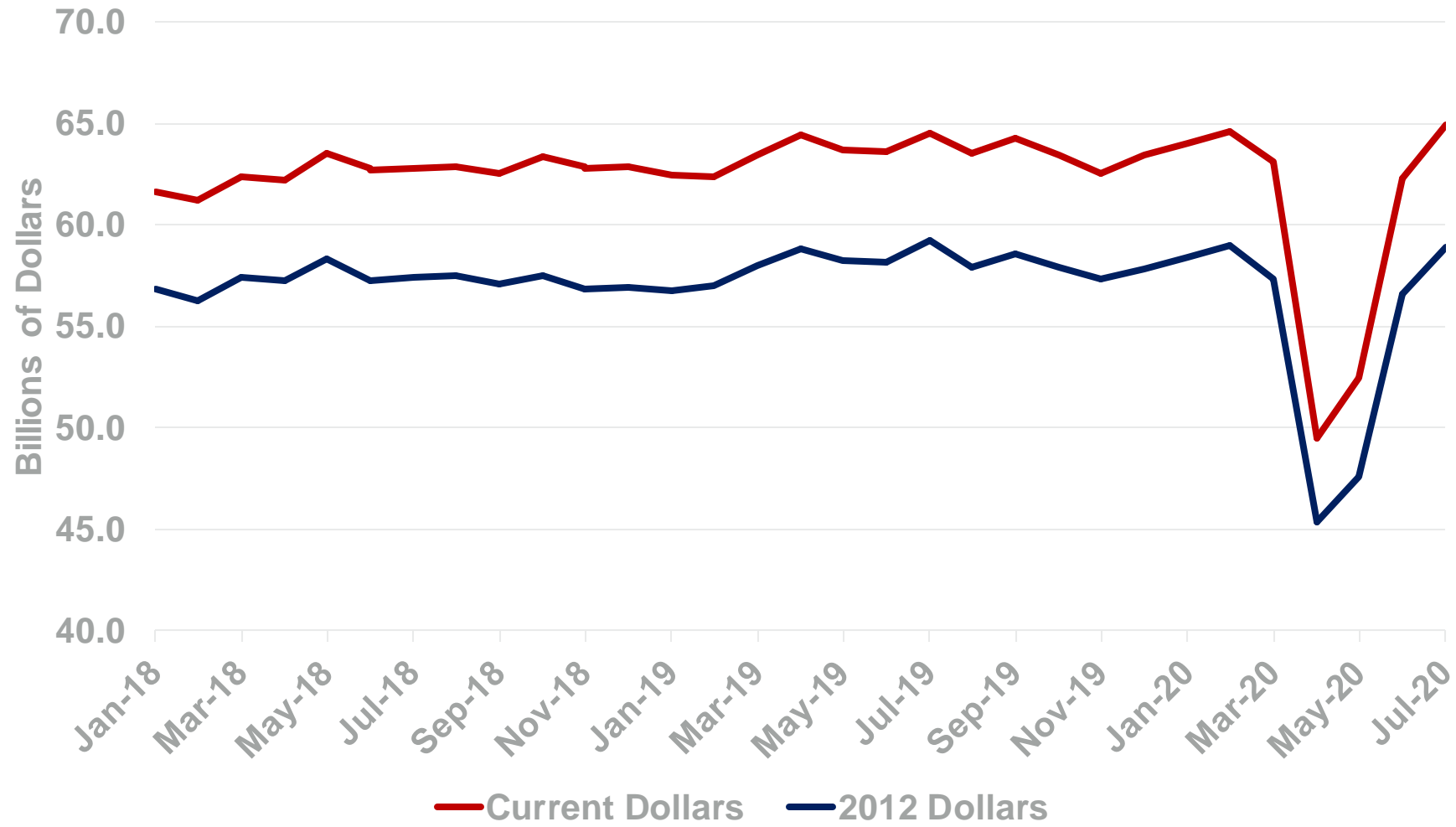
7,014 new jobs projected over ten years

COVID-19: Knock-Down & Recovery

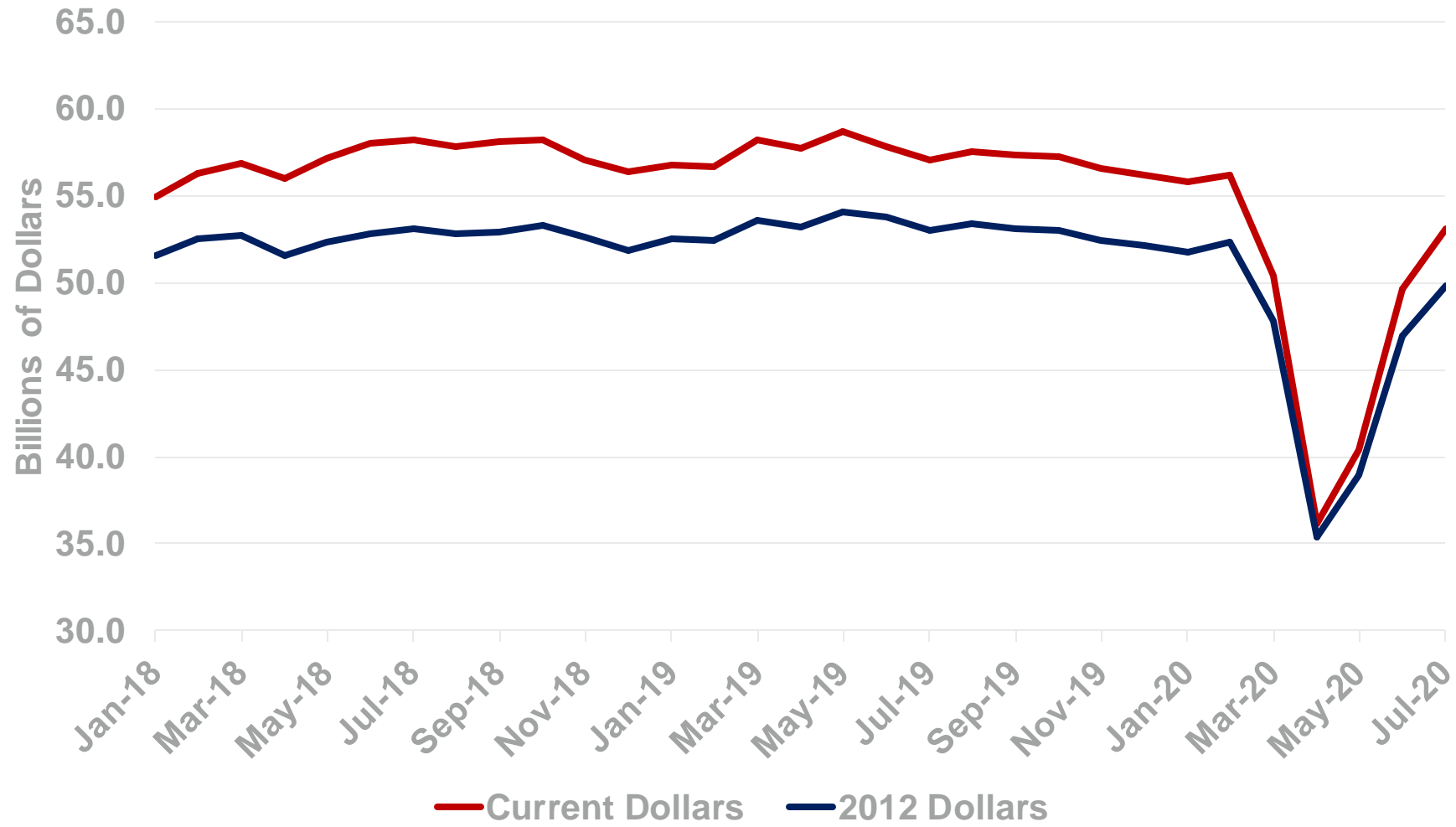
Canada: Monthly Retail Sales



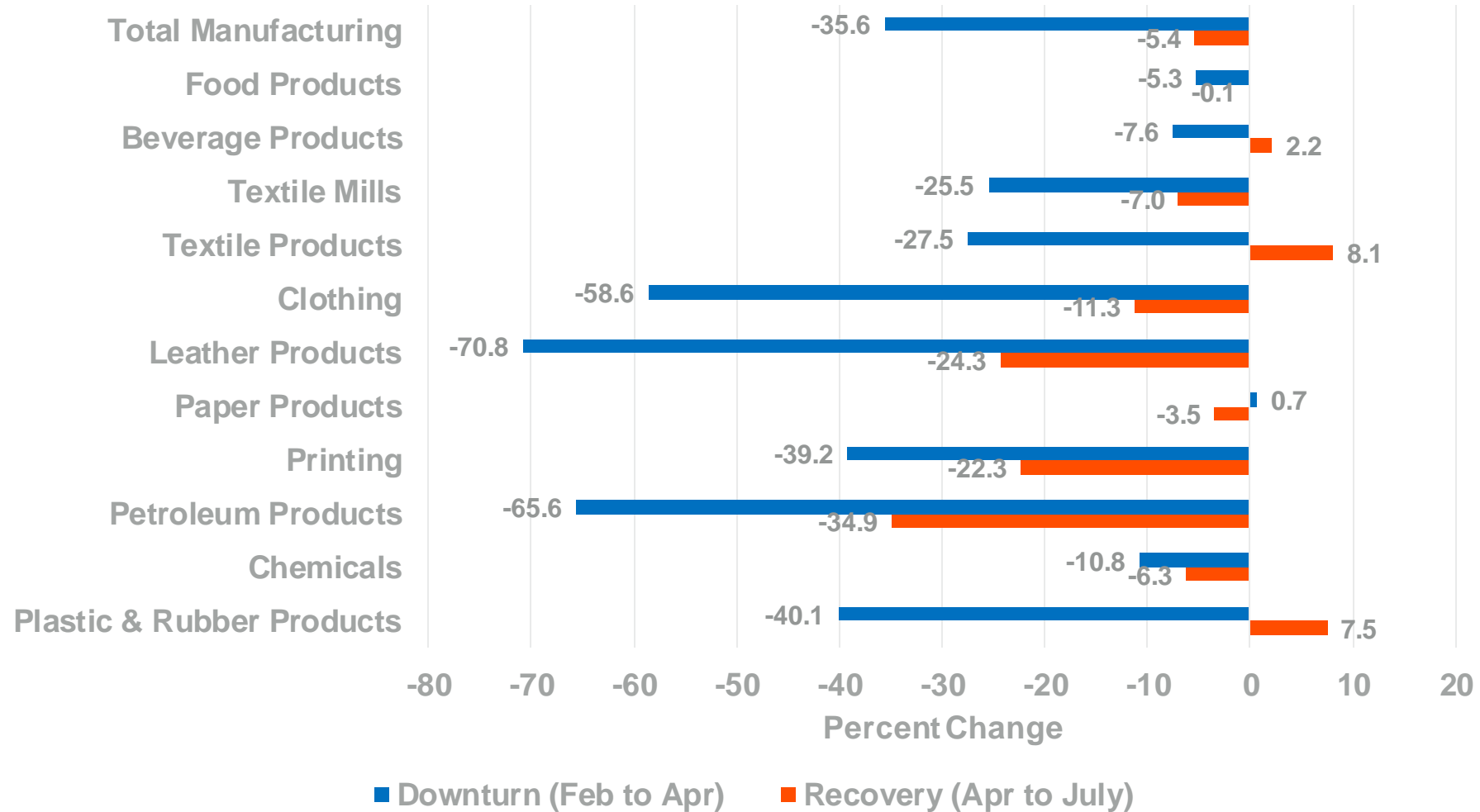
Canada: Monthly Wholesale Sales



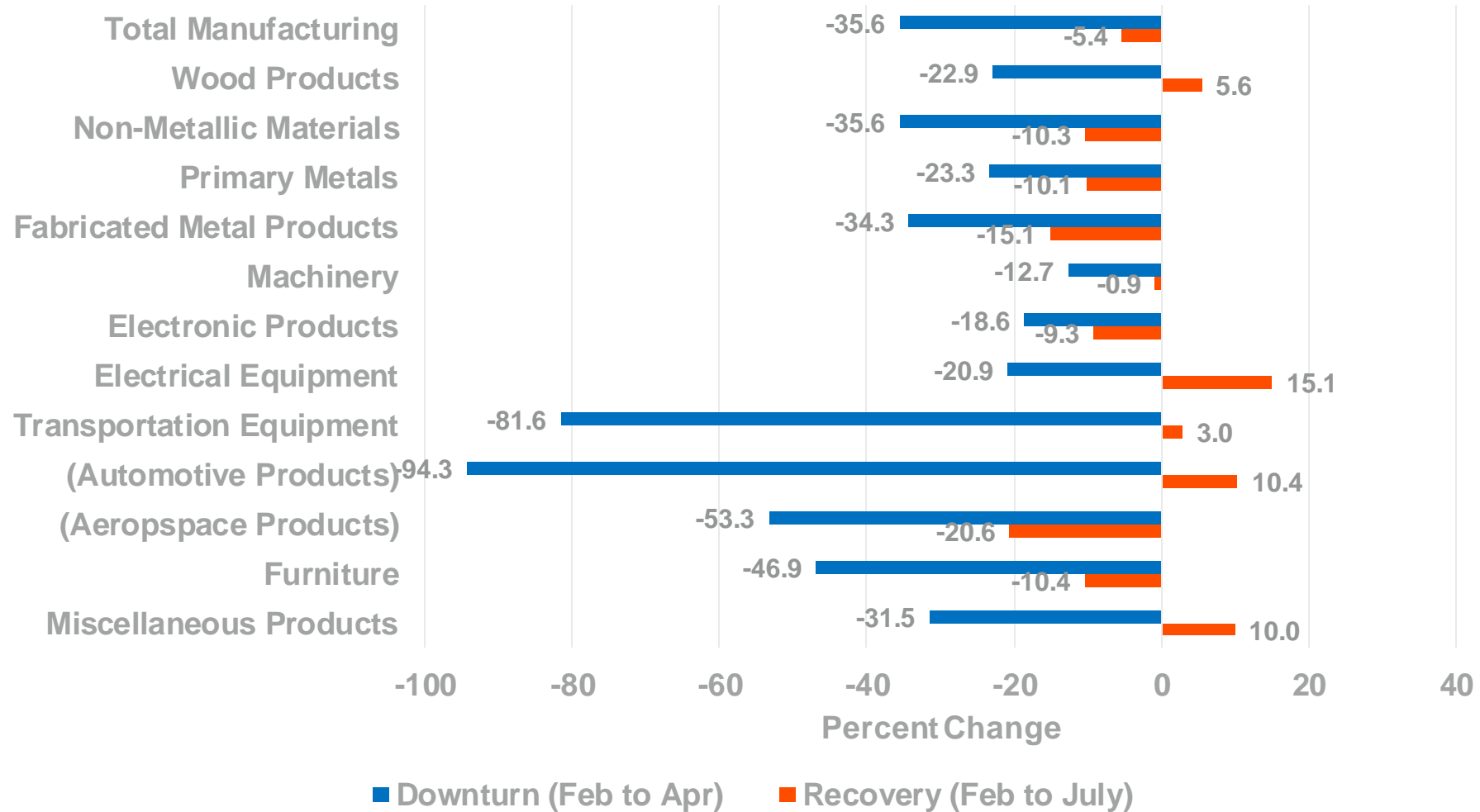
Canada: Monthly Manufacturing Sales



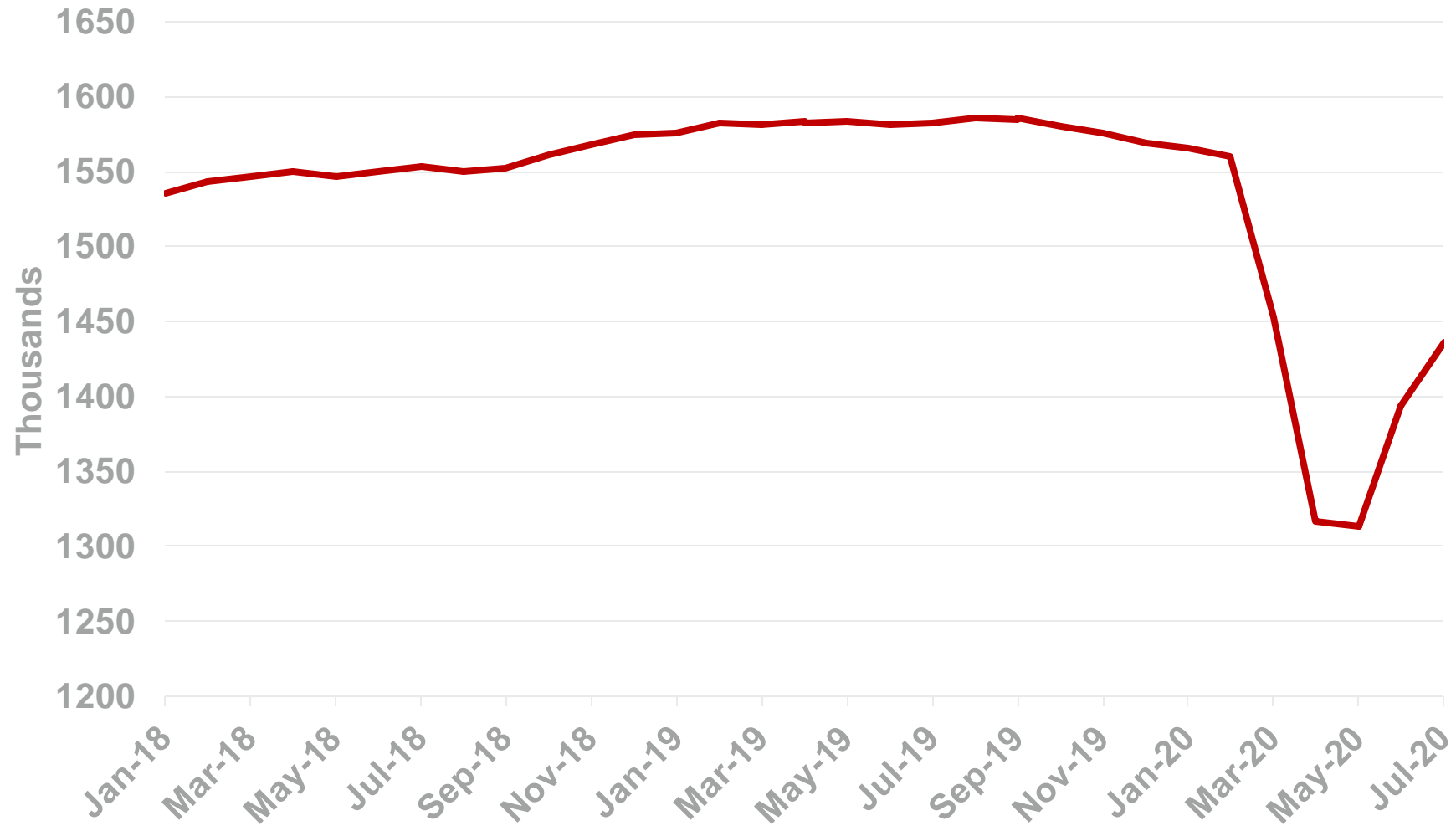
Downturn & Recovery: Non-Durable Manufacturing



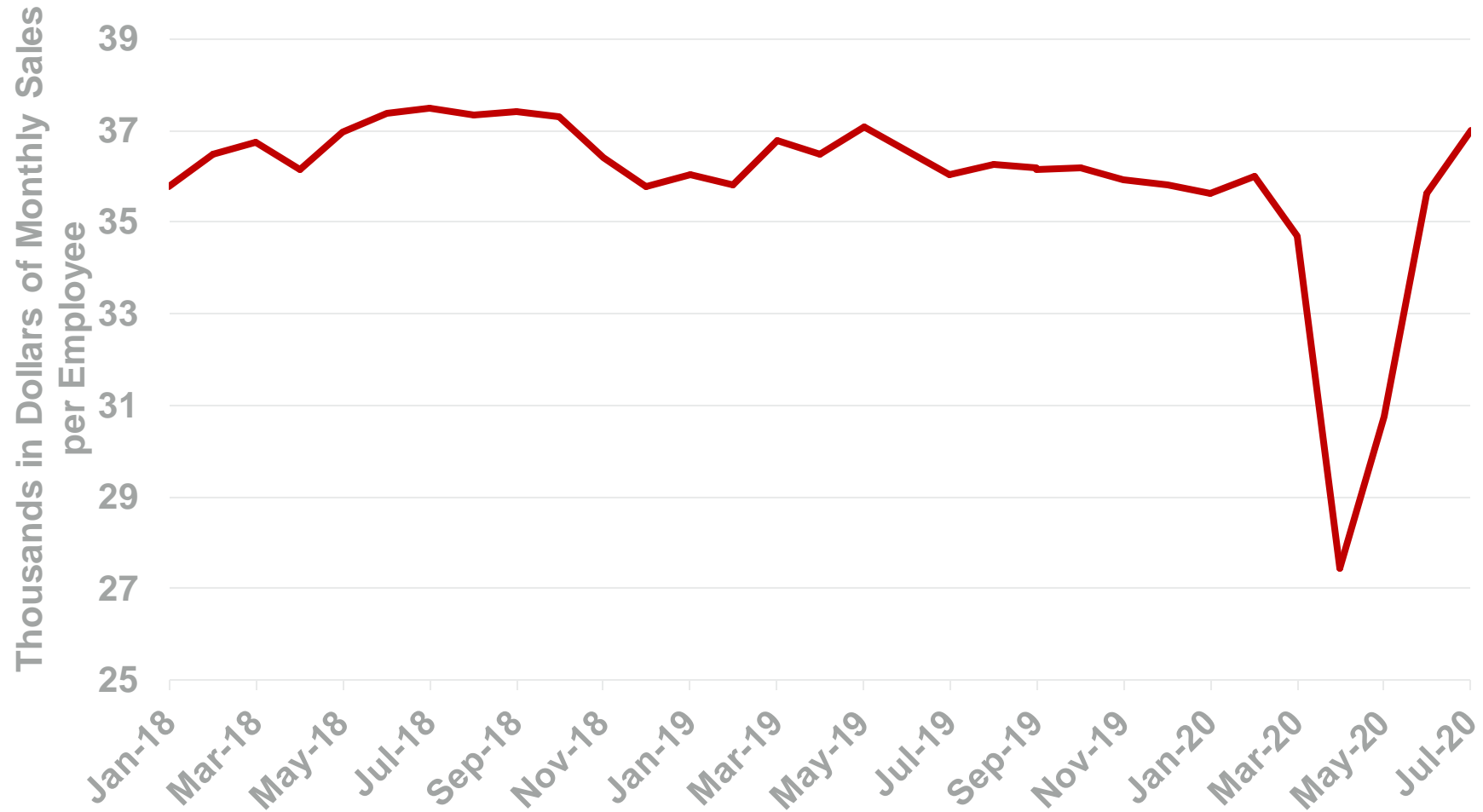
Downturn & Recovery: Durable Manufacturing



Manufacturing Payroll Employment



Manufacturing Productivity



Protocols for Healthy & Safe Workplace

Customer Demand Down

Supply Chain Disruptions

Disruptions in Operating Processes

Cash under Pressure

Cost Reduction

Focus on Critical Investments

Heightened Risk

New Opportunities

The Pandemic has Aggravated Business Conditions that were already Challenging Manufacturers

- Weakening global demand
- Intense competition for customers, talent, investment, product mandates
- More demanding customer and stakeholder expectations
- Concerns over supply chain resiliency
 - Costs, quality, reliability, security
- Growing protectionism and heightened political risk
- Aging workforce
- Falling oil prices
- Disruptive impact of advanced technology
- Heightened cybersecurity risks

... and Accelerated Changes already Reshaping the Business of Manufacturing

- Connectivity – workforce, factory, customers, suppliers
- Manufacturers becoming solution providers
- Smart materials, products, processes – data platforms enabling new services
- Advanced technologies helping to enhance agility, flexibility, productivity, integrating design/engineering/testing/production systems
- Increasing use of AI-enabled prediction, machine learning
- Supply chain traceability, quality control, stress testing
- Near-shoring – especially critical, high-value materials and components
- Collaboration – outsourcing of inputs and services, more integrated supply chains, innovation partnerships transforming supply chains into value networks

Looking Ahead

- Recovery is slowing down
- Significant uncertainties remain
- Need for short-term rapid response to changing business conditions
- Also need for longer-term plan to sustain competitiveness and take advantage of new opportunities
- Advanced technologies will play a key role in transition – but also requires business leadership, excellence in process management, and people with the right skills mobilized to deliver results
- How companies work to ensure the health and safety of their workforce will be key in both rapid response efforts and long-term business sustainability



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