

Issues Facing the Agri-Food Sector

November, 2018

1. Overview of the Canadian Agri-Food Sector

The agri-food sector is a key contributor to the Canadian economy, including GDP, employment and exports

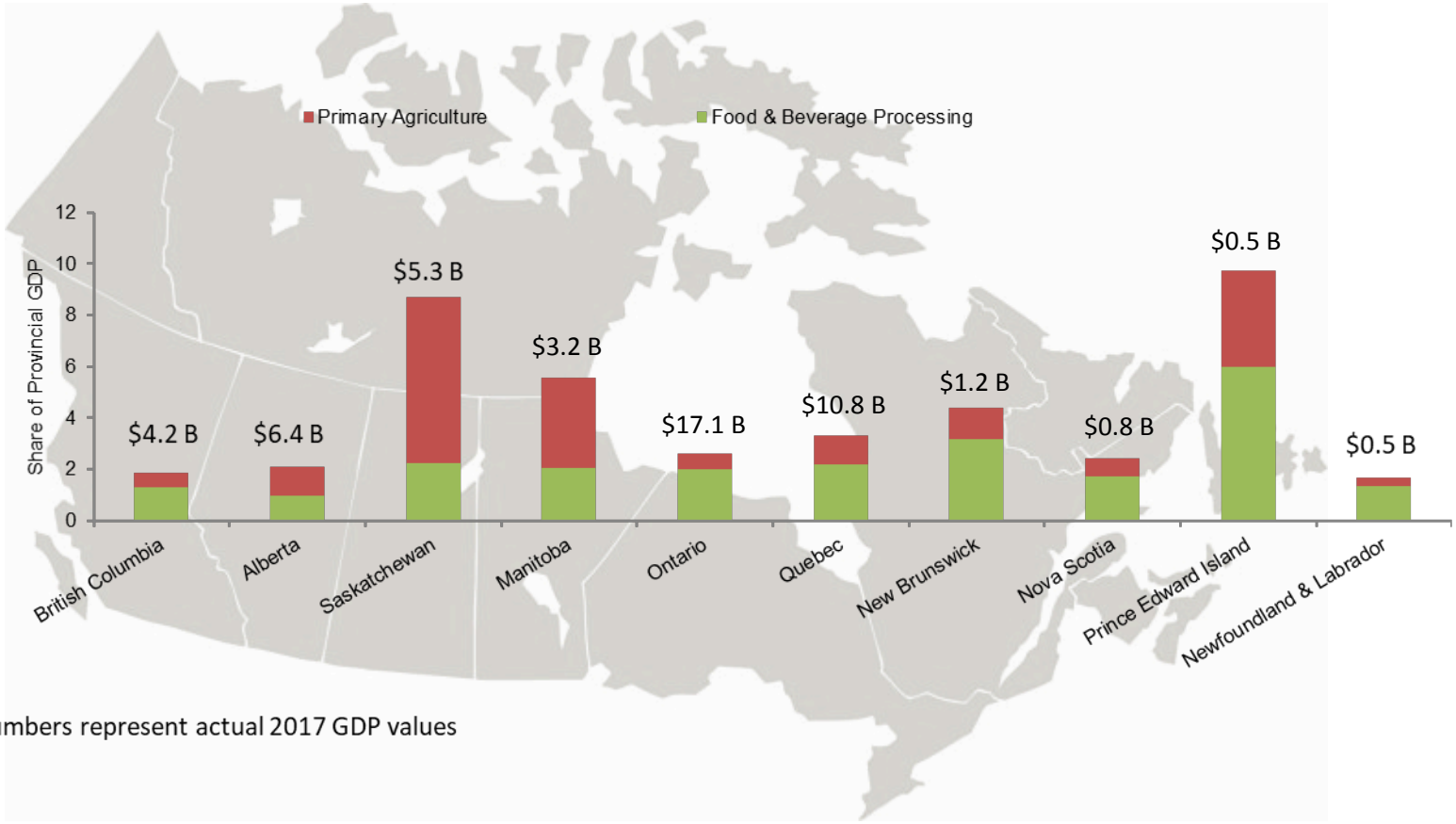
	Agriculture	Fisheries & Aquaculture*	Food & Beverage Processing
GDP ($B)	18.5	1.7	28.6
Exports ($B)	27.3	6.5**	30.5
Employment	265,700	18,200	278,800

*Fisheries and aquaculture data is from 2016.
** Exports of fish and seafood includes both primary and food processing sales.

The linkages across components and to international markets are significant

- Primary agriculture exports sales represent 45.1% of total primary agriculture sales
- The processing sector purchases 38% of Canadian agricultural production

The relative contribution of the components of the agri-food sector to provincial economies varies across the country…



… with food processing being the leading contributor in all provinces, except for Alberta, Saskatchewan and Manitoba, where primary agriculture leads.

The processed food sector is facing issues, such as investment, and their domestic sales are significant but stagnant

DOMESTIC MARKET:

Sales:
(2016)

$76 billion

1%

annual sales growth

of industry growth since 2010

REST OF THE WORLD:

Sales:
(2016)

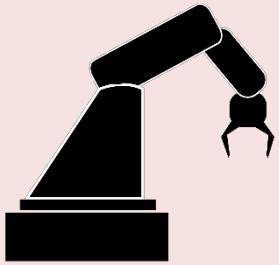
$33 billion

8%

annual sales growth

of industry growth since 2010

CAPITAL INVESTMENT:



Investment in machinery and building as a percentage of sales trending downward

$1.2B

1.6%

2002

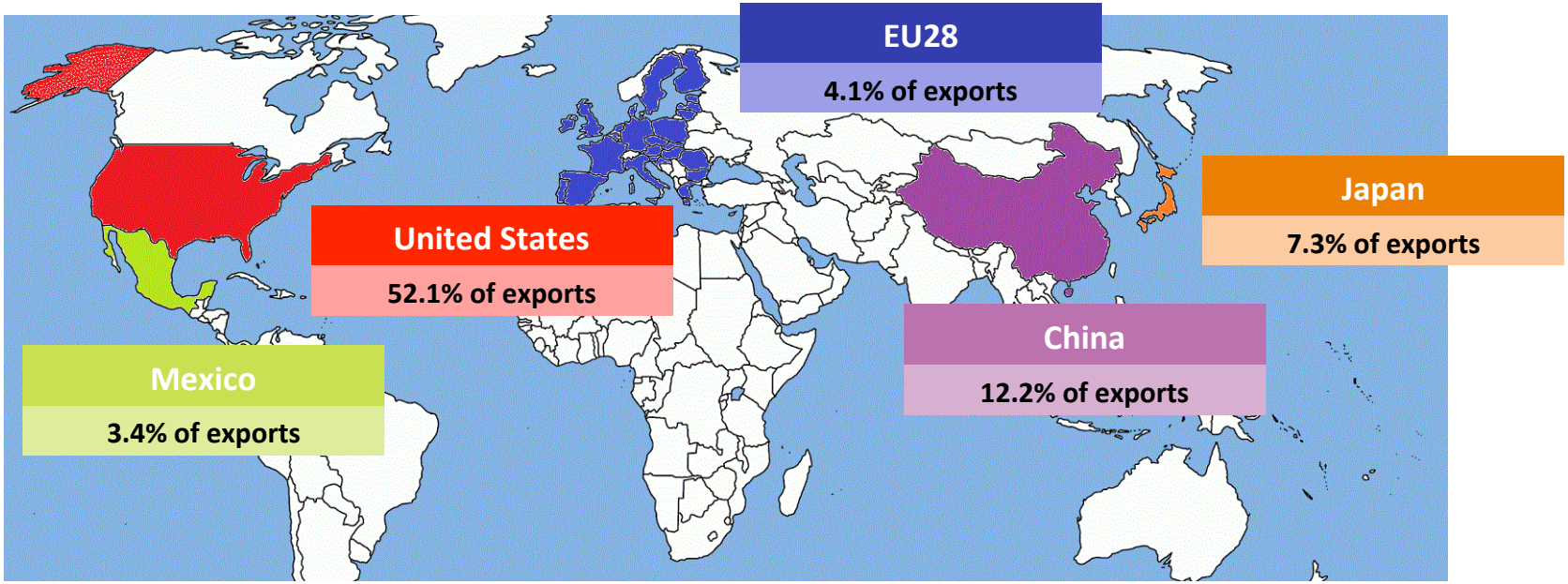
1.2%

2016

Source: Statistics Canada

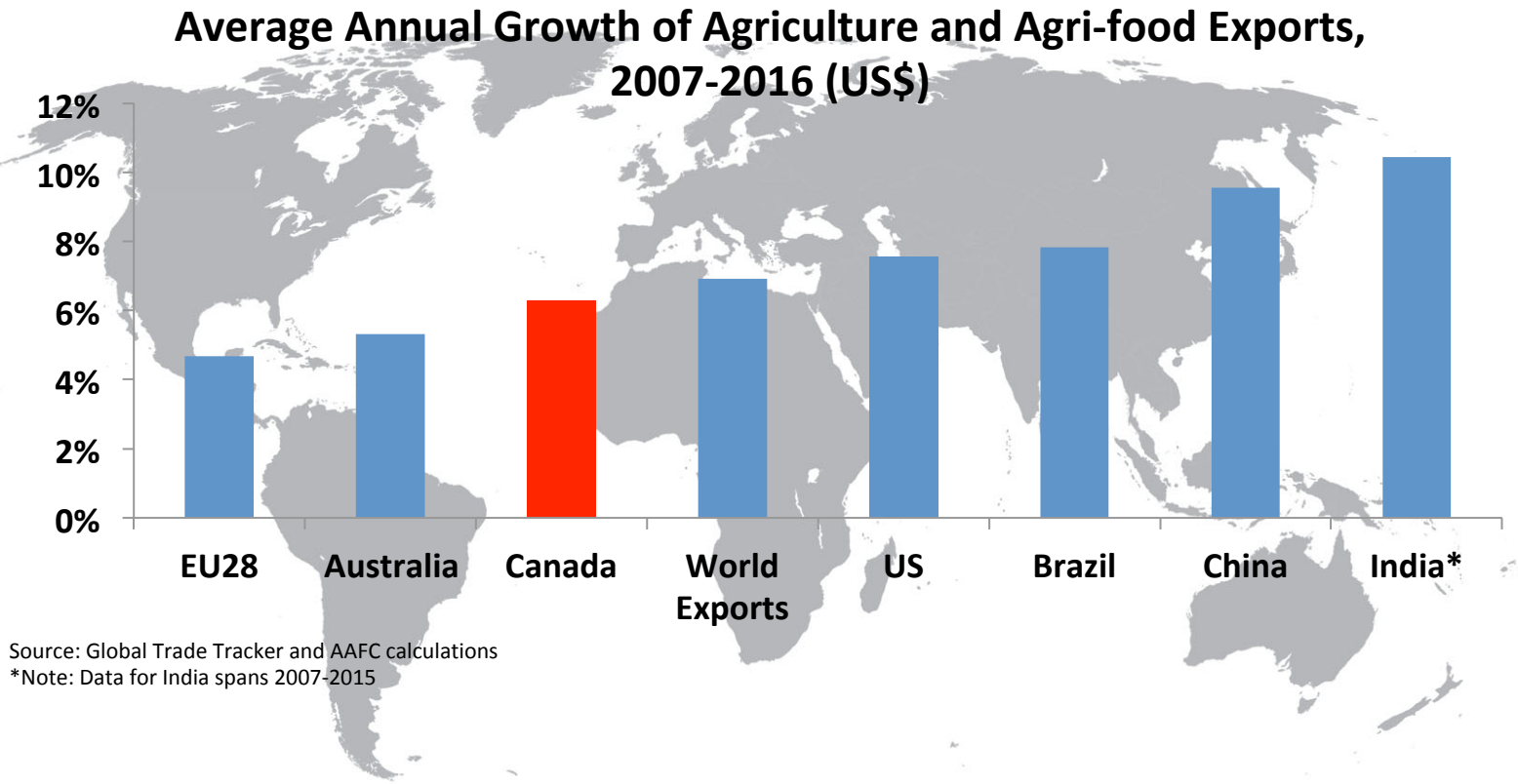
Canada has a strong international profile for agri-food products around the globe

Top Export Markets for Canadian Agriculture and Agri-Food (2017)



In 2017, top exports were:		
1	Oilseeds and oilseed products	$14.8B
2	Grains and grain products	$13.0B
3	Live animals, red meat and red meat products	$9.5B
4	Fresh & processed fruits & vegetables	$5.0B
5	Dried pulses	$3.3B

However, competition is increasing in the race to seize opportunities



Source: Global Trade Tracker and AAFC calculations
*Note: Data for India spans 2007-2015

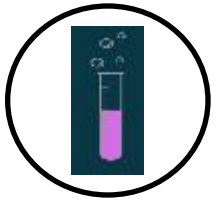
2. Opportunities and Challenges

Canada is well-positioned to be a global leader in agri-food

Abundant land and water resources

Positive global reputation as a trusted supplier of safe food in foreign markets

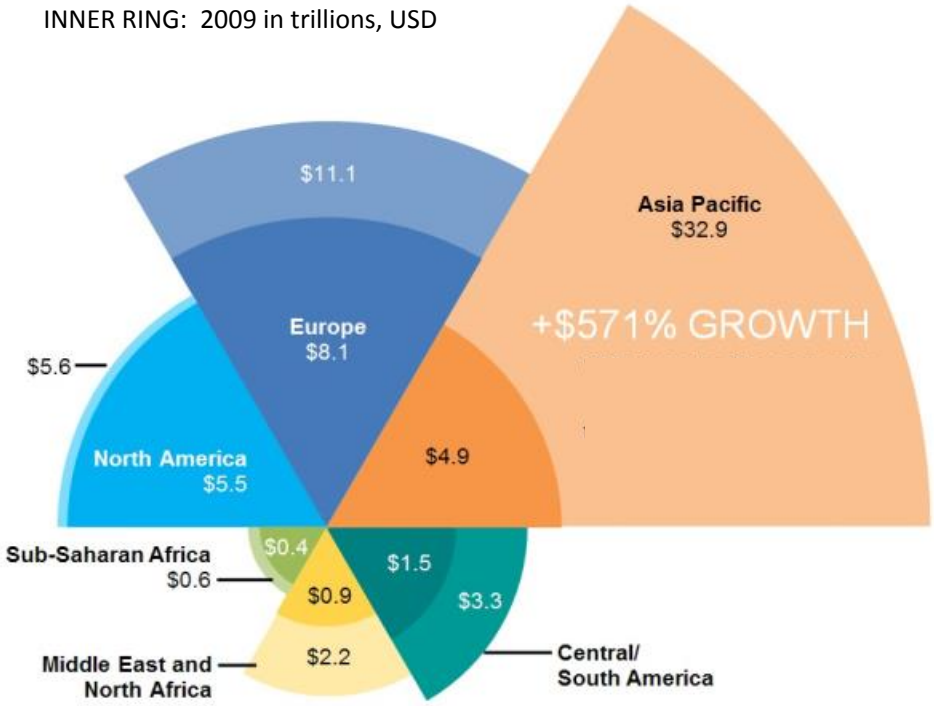
Well-placed to access global markets



Strong R&D capacity, particularly in agriculture

Increasing global wealth is driving significant opportunities, particularly in emerging countries

MIDDLE CLASS CONSUMER SPENDING
OUTER RING: 2030 in trillions, USD (projected)
INNER RING: 2009 in trillions, USD



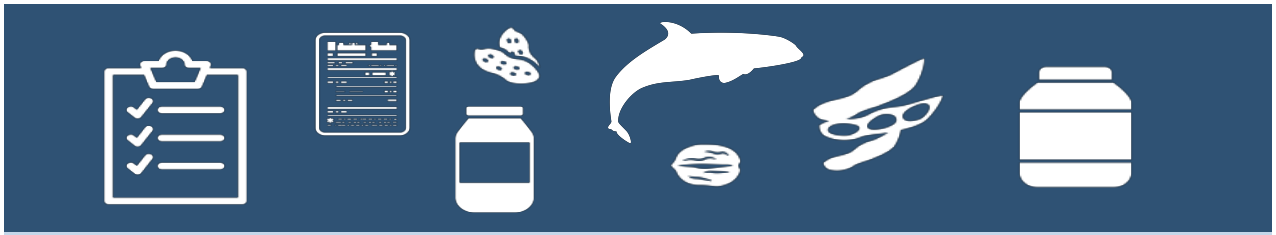
Per the FAO, global agricultural demand is expected to increase significantly…

50%

2013 ⇨ 2050

… meaning that, in the next 40 years, we will have to produce as much food as we have in the last 10,000 years

The composition of demand is also changing to reflect cultural, health, social, and environmental factors…



Within this global demand for food, specific products will be demanded:

- Dairy products
- Alternate proteins, particularly plant-based and fish/seafood
- Lean meats
- Processed foods with enhanced health benefits
- Labelling that highlights specific information on source, attributes, production methods, among others

… and new technologies are needed to extract more value from what we produce

To seize this significant opportunity, many contributing factors must work together

Science & Innovation

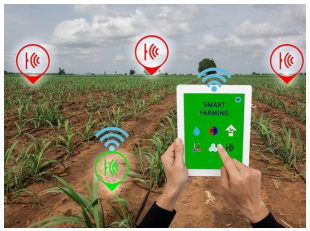
Technologies beyond agri-food have the potential to unlock greater productivity, efficiency, and value-added

Big data

Precision agriculture: more data being generated/ captured during production (i.e., sensors, measurement tools). Data has become a valuable resource for farmers, changing the way they manage operations and opening new possibilities

Big data enabling value chain stakeholders (i.e., handlers, processors, retailers, etc.) to identify opportunities for efficiencies

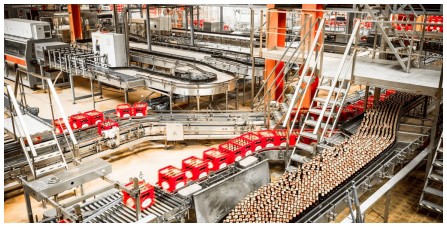
Artificial Intelligence



AI algorithms being used to assist producers with decision-making.

AI is enabling greater use of autonomous vehicles, robotics, and automated production systems (e.g., advanced greenhouses)

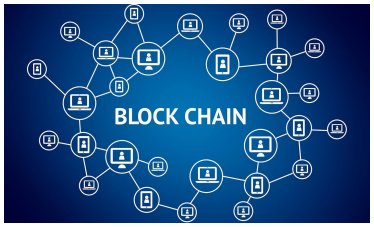
Internet of Things



F&B processing sector has opportunities to embrace IoT. Benefits include: leaner operations, greater traceability and quality control (including food safety), on-time delivery, etc.

Farms of the future will have multiple connected equipment and field sensors

Blockchain



Blockchain technologies can be used for smart contracts, traceability, product certification, etc.

Science & Innovation

The agri-food innovation ecosystem has its challenges in exploiting these opportunities

Domestic R&D spending is focused in certain areas

- Strong government R&D spending, particularly in primary agriculture
- Private R&D spending, particularly in the food processing sector, is low

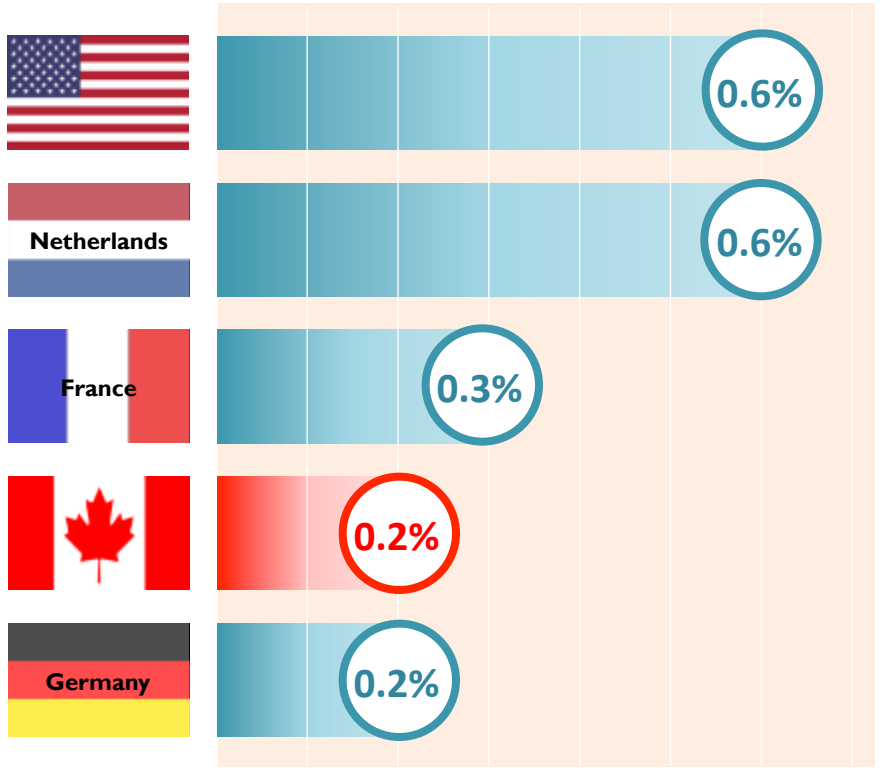
The focus of innovating is changing

- Our competitors are beating us in integrating innovation into business practices

Innovation is increasingly collaborative

- Science clusters have been a success, but more coordination possible
- Pre-commercialization collaboration across industry players is lacking

Private R&D expenditures as a percentage of sales in the food processing sector, 2010

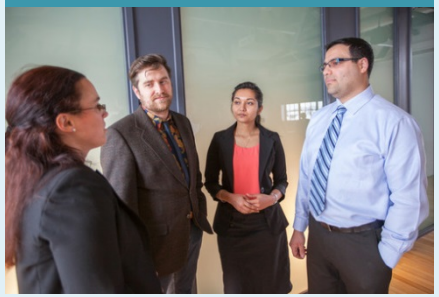


Labour & Skills

Labour is a key component of the agri-food sector's current ability to prosper, particularly low-skilled

Low-skilled jobs account for the majority of all food manufacturing jobs

8%	3%	22%	66%
Managers	**Professionals**	**College or apprenticeship**	**Low-skilled workers**



Of the low-skilled workers, temporary foreign workers are an important, and increasing, source of labour for the sector. The demand for temporary foreign workers is greatest in primary production, reaching nearly 40,000 workers in 2014.

Labour & Skills

Challenges exist in finding the right level and mix

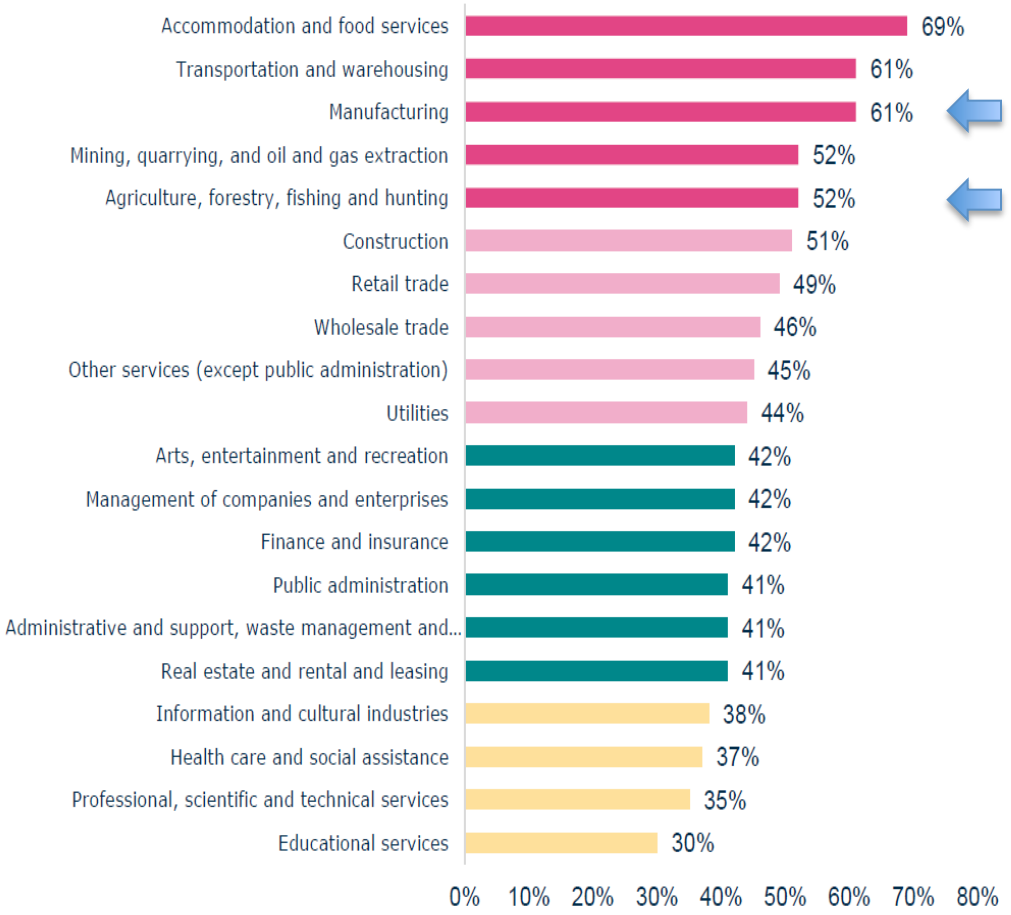
- Across skill levels, the problem of finding labour is proving highly difficult
  - Low-skill labour
    - Not a first-choice career given wages, profile, working conditions
    - Food processing industry has the highest vacancy rate in manufacturing, with 7,000 positions unfilled
  - High-skilled management professionals

- Key groups are underrepresented in the sector
  - Number of young farm operators (< 35 yrs of age) is growing but average producer age is still high
  - 2 of 100 farm workers are Indigenous
  - Managerial and professional positions occupied by women in food processing in 2011 (36%) were higher than in total manufacturing (25%), but still below labour force availability

Labour & Skills

But the labour and skills inventory of the future will be quite different

- Agri-food jobs are some of the most susceptible to being automated across the economy, potentially leading to significant changes (see right)
- With the necessary investment and innovation, job growth will be with high-skilled workers, similar to the effect in manufacturing overall
- Identifying and preparing for the shift of skills from low-skilled work to the need for highly-qualified personnel from a range of fields will be a key challenge



Source: McKinsey Global Institute (2017), BII+E analysis

Investment

Investment in the food processing sector is low

Labour productivity is lower in Canada

Real production value per hour worked is about 75% of U.S. value

Industry recognizes the need to increase its level of automation by over $1 billion annually

KPMG automation study reaffirmed that the **Canadian food processing industry is less automated than that of the U.S.**

Regulations

Canada's current regulatory approach underpins the performance of the agri-food sector

Rigorous system provides confidence to Canadians about safety and quality

Evidence-based approach provides predictability in the market that supports innovation and investment

Canada's regulatory system provides assurance to foreign buyers

International rules and harmonization efforts reduce barriers and facilitate trade

Market Access

Reliable and unfettered access to international markets is critical for an exporting nation

- Canada's production base is geared towards selling products internationally
  - Significant production in key commodities that are globally demanded (e.g., canola, lentils, mustard seed)
- United States is a key stepping stone for Canadian exporters
  - Integrated markets, common economic ties, complementary transportation infrastructure
- Canada is in the midst of a significant, decades-long effort to significantly expand global opportunities
  - NAFTA, TPP, CETA, and bilateral explorations in the Asia-Pacific region
  - Coupled with efforts to enhance the international rules-based system
- Access to world markets is a key consideration for investments by international enterprises

Market Access

Canada may not be realizing the full potential of global trade

- Canada's current trading profile is not focused on longer-term growth potential
  - Focused on US; Asia-Pacific region is small, but growing, component
  - Canada's export profile is not is not keeping up with the products of most rapid growth

- There are opportunities to better seize the full potential of trade agreements and market access openings

  - Industry may be reticent to take entry risks in key markets, such as China and India
  - Full of potential but difficult to understand and navigate

- Market access issues can disrupt trade and dampen desire for further exports

Infrastructure

Ensuring infrastructure is positioned to support growth will be central to meeting changing global demand

- Canada has a strong network of transportation infrastructure
  - Reflects needs as exporting country with small population and large land mass
  - For example, significant volumes of Canadian grain continue to be moved by Canada's rail transportation system, alongside trucks and planes for more processed foods
  - Key points, particularly where exports leave the country, have been the focus of additional investments

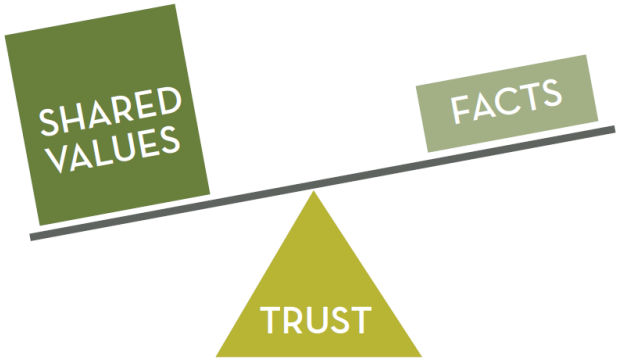
- Increased growth, particularly in value added to new markets, could have significant implications for the existing model
  - With increased exports, potential for bottlenecks at transportation nodes
  - Ports will be evermore critical nodes for reaching emerging markets in the Asia-Pacific region
  - Trucks and planes will increasingly be important for delivering increased volumes of processed foods from and to diverse locations on exact delivery schedules

- IT/broadband infrastructure enables the sector to fully participate in the digital economy
  - New technologies, such as precision agriculture, are increasingly reliant on high-speed, reliable internet availability

Public Trust

Consumers are increasingly discerning of sector practices, and look to industry to lead

- Today's consumers are increasingly discerning of what makes up the food they eat, and expect the sector to "*do the right thing*"
- Showing an understanding and communicating how sector practices coincide with the public's values are key to building trust



Research has shown that shared values are 3-5x more important than a company's demonstration of competence

Source: Canadian Centre for Food Integrity 2016 Public Trust Research

Source: 2017 Eldelman Trust Barometer (Canadian Sample)

- 77% of Canadians expect that industry can improve economic and social conditions – while increasing profits
- Public trust requires more than transparency and communication, but a willingness to adapt and continuously improve sector practices as public values evolve

Public Trust

Public trust is needed for sustainable sector growth

- As the sector looks to achieve economic growth (through innovative technologies, new production practices, etc.), it will face heightened pressure to engage with the public and demonstrate how social and environmental outcomes are *also* being achieved
- A cohesive sector-wide approach to support sustainable sector growth will be required
- Transparency in how decisions are derived and evidence to support how public values are being met will be paramount

These challenges align with what industry has been outlining through various fora on what Canada needs to do

Strong trade agenda

Collaborative approaches to innovation between government and industry

Reduction of regulatory barriers to growth

Ensuring that industry has the tools needed to grow

- Labour
- Transportation and knowledge infrastructure

Significantly enhanced investment in the sector to increase productivity and stimulate innovation

An approach focused on more than the bottom line

- Public trust
- Environmental sustainability

Examples of current and future research

- Benchmarking Cost Competitiveness in Canadian Food and Beverage Manufacturing
- Exports and Establishment-Level Performance in Canadian Food and Beverage Manufacturing
- Trade:
  - Canada-China free trade impacts, Options for NAFTA renegotiations, Impacts of US. Steel and aluminum tariffs, Brexit, diversification using similarity indexes.
- Productivity
- Innovation
  - Benchmarking Canada against selected EU countries
  - Degree and extent of Innovation
- Investments in the sectors
- Global value chain analysis

Policy questions for potential future research

- What are the barriers in Canada to adding value or increasing competitiveness/productivity and how can the barriers be addressed?
- How can we increase investments, including foreign investments, in the Canadian food processing sector and enhance the industry's competitiveness as a whole?
- What are the returns on R&D by agriculture and agri-food sub-sector and what are the implications for policy?
- What are the impacts of artificial intelligence and other advanced or disruptive technologies in the Canadian agriculture and agri-food sector?