The Future of Industrial Areas:

# ADVANCED MANUFACTURING


CUSHMAN & WAKEFIELD

# What is Advanced Manufacturing?

Industrial areas across the world are shifting due to increased use of technology in Advanced Manufacturing.  Also known as Industry 4.0, which refers to the fourth industrial revolution, this type of manufacturing is changing the way goods are produced and distributed.  Global trends point to this as a rapidly growing area of the economy with enablers such as robotics, artificial intelligence (AI), additive manufacturing (3D printing), and the internet of things (IoT) leading the way.  As well, Industry 4.0 refers to the end-to-end digitization of the production cycle and can also include value chain partners.

There is no one factor driving the industry forward, but recent catalysts include supply chain issues, increased transportation costs, and labour shortages.  And of course, the pandemic, which was an accelerator in many of these areas has caused industries to re-think how they operate. Ultimately, the use of digital technology in manufacturing can improve quality, speed time to market, reduce errors, and potentially drive down costs of goods.

Three of the most critical factors in choosing a site that is ideal for advanced manufacturing are:

**1** **Identifying a Suitable Ecosystem**

**2** **Procuring Serviced Land**

**3** **Sourcing Talent**

Advanced manufacturing is the use of technology or the combination of technologies that enhance efficiency, effectiveness, quality and logistics:

- Software enables operators to analyze and control industrial processes, on site or remotely.  Real time data provides feedback for immediate improvements.
- Hardware, such as robotics and IoT sensors, are an integral part of the production process and can speed time to market, reduce danger for labour, and improve quality.
- Advanced machinery, such as 3D printing, has completely changed the manufacturing process and printing parts may help suppliers rely less on remote supply chain partners.

# Talent: The New Manufacturing Employee

Sophisticated manufacturing requires workers who have not traditionally been part of the manufacturing industry. This includes tech workers who are used to AAA office space with perks and amenities.  These types of workers have high expectations, beyond what we would normally see in manufacturing environments.

While this includes gourmet food, conference facilities and collaboration areas, it also encompasses outdoor spaces, bike facilities, electric vehicle (EV) parking, and an overall focus on making the environment a stellar 'experience'.  Breweries and food 'manufactories' are starting to become a staple in many existing industrial areas and are often populated at night and on weekends by the surrounding communities.

Moreover, combining sophisticated workers, digital technology, and advanced manufacturing can be a catalyst for a facility that is a leap into the future.  Industrial facilities may also utilize 'factory built' construction, panelized systems, IoT embedded in construction materials, and SMART building technology. 3D printing is revolutionizing all sectors of manufacturing and can be used to print buildings and building components. Additionally net zero, closed loop, and biophilic environments are just a few of the innovations in industrial facilities that are becoming more frequent.

To attract and retain workers in the manufacturing sector, we must start thinking 20 years into the future.

**IMPORTANT FACTORS TO CONSIDER:**

- Does the population within a 60km radius indicate replenishment over a longer term?
- Are there targeted industry workforce concentrations above national average?
- Are workforce characteristics favorable for both pools of industrial workers and engineering/technician occupations?
- Is the area well served by public transportation?

**TYPICAL OCCUPATIONS**

**Industrial Workforce**

- Middle management occupations in trades, transportation, production, utilities
- Distribution, tracking and scheduling coordination occupations
- Industrial, electrical and construction trades
- Maintenance and equipment operation trades
- Other installers, repairers and servicers and material handlers
- Transport and equipment operation, related maintenance occupations
- Trades helpers, construction labourers and related occupations
- Processing, manufacturing and utilities supervisors and operators
- Processing and manufacturing machine operators, related production workers
- Assemblers in manufacturing
- Labourers in processing, manufacturing, and utilities

**Engineering / Technical Workforce**

- Engineering managers
- Civil engineers
- Mechanical engineers
- Electrical and electronics engineers
- Chemical engineers
- Industrial and manufacturing engineers
- Metallurgical and materials engineers
- Mining engineers
- Petroleum engineers
- Aerospace engineers
- Civil engineering technologists and technicians
- Mechanical engineering technologists and technicians
- Software Engineers
- Industrial engineering and manufacturing technologists and technicians
- Electrical and electronics engineering technologists and technicians
- Engineering inspectors and regulatory officers
- Power engineers and power systems operators

Source: Cushman & Wakefield

# Ecosystem: Canadian Investment

Canada is well positioned to embrace advanced manufacturing as a growing sector. According to Cushman & Wakefield's Global Tech Cities 2022 report, the tech labour market is strong across several cities with Toronto, Montreal, Ottawa and Vancouver consistently securing a spot on the top 20 list in North America.

Globally, Toronto and Montreal are ranked within the top 30 markets with the deepest talent pools, which includes computer programmers, IT network professionals, and analysts and data scientists; these fields are rapidly growing.

The recent government focus on Ontario as an Advanced Manufacturing Super Cluster has also spawned increased investments by companies to adopt new technologies within existing practices, expand, or grow into entirely new areas.

Foreign Direct investment (FDI) is strong in Canada with Toronto and Montreal leading the way. In fact, FDI in Toronto is larger than FDI in the entire state of California. Global occupiers seek Canada as an option for location due to a variety of factors including the stable political climate.

## CUSHMAN & WAKEFIELD'S KEY VARIABLES FOR SITE SELECTION

**Labour**
Do we have enough quality and trainable talent? Is this talent diversied to include labour in industrial and high tech professions?

**Cost**
Is the location affordable from the real estate, talent and supply chain aspect?

**Incentives**
What incentives are available to us and what we're trying to achieve?

**Access**
Can our talent access us, and can we properly access our clients?

**Business Environment**
Is there enough of an ecosystem to contribute toward our business lifecycle and talent retention?

**Real Estate Options**
Do we have existing options and enough land for eventual expansion of our operations?

**Quality of Life**
Are we located in an attractive area. Can this environment inspire talent to remain?

**Infrastructure**
Does the local infrastructure and its future development plans make the location more or less attractive?



# Land: Not Your Dad's Industrial Park

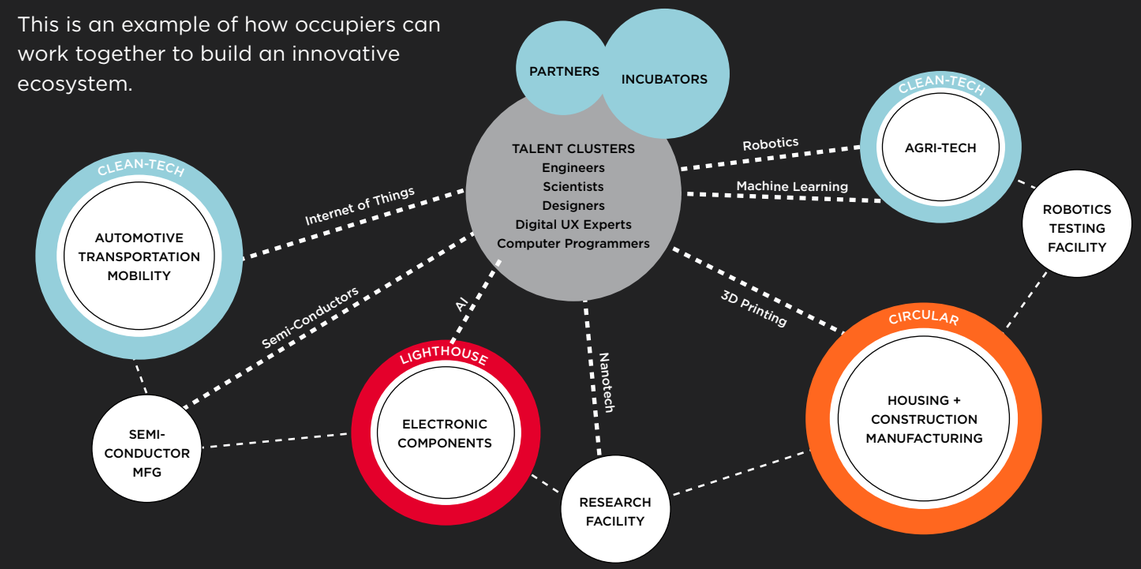
Gone are the days of the 1970s industrial park. Planning for advanced manufacturing districts requires that we re-envision how these areas are designed and operated – and how they are sustained throughout their business cycles. For example, advanced manufacturing districts may benefit from post-secondary presence as well as an incubator. They may also benefit from shared equipment which requires substantial investment, such as large-scale additive manufacturing.

Clusters of likeminded companies (agriculture, housing, or automotive) can benefit from forming their own ecosystem, but companies may also rally around 'the circular economy' or 'the clean tech' economy which becomes a cluster of its own and influences how the land is utilized. Districts should also consider how their infrastructure can play a role in attracting occupiers. District energy, bio sanitation, and waste-to-energy are all concepts that should be considered and could be anchors for a large development.

Most importantly, attracting sophisticated occupiers to an advanced manufacturing district requires A-list amenities, such as the ones that you might normally see in downtown areas. This includes food and beverage options that appeal to educated workers, outdoor spaces that encourage activity, and retail that offers a unique experience.

## POTENTIAL ADVANCED MANUFACTURING OCCUPIER ECOSYSTEM

This is an example of how occupiers can work together to build an innovative ecosystem.



# What Does This Mean For Canada?

Growth in manufacturing has typically occurred in many smaller communities, where land is cheaper and workers were plentiful. But with the emphasis on technology, is this likely to change? Perhaps; or perhaps not. For example, the Toronto Waterloo corridor is the largest tech cluster outside of Silicon Valley, which could mean that many of the communities in-between (Cambridge, Guelph) will continue to see growth in the future as demand for at-home manufacturing grows.

This may also drive manufacturing proximate to the large cities which are able to service complex equipment more easily and attract and retain younger tech workers. With industrial vacancy at an all-time low across the country and land prices continuing to climb, many companies may look for out-of-the-box solutions to accommodate their needs.

The table below refers to the latest Q3 2022 industrial trends across Canada's leading industrial markets. While these historical low vacancies are predominantly due to growth in last mile services, they have driven land prices upward and should place stress on developers, landowners, municipalities, and real estate professionals to be more innovative in how we use our limited supply of land.

**INDUSTRIAL REAL ESTATE TRENDS, Q3 2022 SELECTED MARKETS**

| | Vancouver | Calgary | Winnipeg | Toronto | Montreal | Halifax |
|---|---|---|---|---|---|---|
| **Inventory** | 226.8m sf | 138.1m sf | 80.2m sf | 805.5m sf | 340.5m sf | 8.5m sf |
| **Vacancy** | 0.5% | 3.7% | 0.8% | 2.1% | 1.9% | 4.5% |
| **Avg. Net Rent** | $21.15 | $11.05 | $10.52 | $15.77 | $12.48 | $8.56 |
| **Under Construction** | 8.6m sf | 8.4m sf | 0.5m sf | 21.4m sf | 3.1m sf | 0.2m sf |

Source: Cushman & Wakefield

# Market Perspectives

**MONTREAL**

**"Advanced manufacturing in Montreal is driven by innovation and our our universities are a catalyst. Automation and robotics are on the rise, especially with the tight labour market. Investment Québec also offers significant investment incentives for manufacturing which makes locating here advantageous for many companies."**

Andre Brussiere, Senior VP / Paul Fredette, Senior VP, Montreal

**TORONTO**

**"Most of the manufacturers that we work with in Ontario use technology in their operations and we have seen that investment grow over the years. It is the way of the future, and we must be prepared for the changes it will require in building typology and land use."**

Peter Schmidt, Executive VP, Toronto

**CALGARY**

**"Calgary has many advantages for advanced manufacturing, with the availability of land as a driver. In addition, there is a big push to diversify the economy, and to reskill the labour pool. There are university programs that focus on advanced manufacturing and are preparing people for the future in Alberta."**

Mike Warner, Executive VP, Calgary

**HALIFAX**

**"The low cost of living in the Eastern part of Canada makes it a great location for new incubating, emerging manufacturing operations – especially in sustainable energy – such as batteries for electric vehicles."**

Bill McAvoy, Managing Director & Managing Principal, Atlantic

**VANCOUVER**

**"Vancouver's abundance of skilled labour, attractive climate and quality of living, along with advanced research and development at leading universities, has proved an ideal environment for the growth of advanced manufacturing industries such as pharmaceuticals, security, clean energy and life sciences."**

Rick Eastman, Executive VP, Vancouver

## WINNIPEG: A HUB FOR ADVANCED MANUFACTURING

Winnipeg is one of the largest centres for transportation manufacturing in North America and is home to market leaders in aircraft and space components, transit electrification, coach bus, fire truck, mining, and agricultural equipment manufacturing. Many are recognized as trail blazers when it comes to developing technologies to cut greenhouse gas emissions – both in the products they produce and their operations. In 2021, Winnipeg manufacturing companies employed more than 35,000 people.  All Manitoba companies enjoy the lowest energy costs in North America and the benefits of clean, renewable hydroelectric power.

**"Winnipeg is a highly attractive city for manufacturers, suppliers and distributors alike,"** said Martin McGarry, president and CEO of Cushman & Wakefield | Stevenson. **"We have a highly-skilled labour force, a low cost of doing business and the infrastructure to help businesses thrive here. There is also a focus on doing things greener and cleaner than ever before."**

With the recent announcement of development in CentrePort South, there will also be more shovel-ready product coming to market to serve the needs of manufacturers looking to set-up shop in this well-connected metro area.

### HOW WE ADVISE ADVANCED MANUFACTURING

Total Workplace special services include developing in depth market guidance reports that include the following: Regional, National and Global Trends, Land Value Analysis, Land Use Concepts, Benchmarking and Marketing Strategies.



Photo Credit: © 2016 Andrew Stott

# Total Workplace Services

Total Workplace is a consulting division of C&W that is comprised of a diverse range of experts from across the world.

## SUITE OF CAPABILITIES

**Location Strategy**
**WHERE**
in the world?
In the city?

**Workplace Strategy**
**HOW**
we live, learn, work, play and shop?

**Portfolio Strategy**
**WHAT**
real estate solution?

## LOCATION STRATEGY: WHAT WE DO

**Workforce Analytics**
Scale, cost, quality, growth and sustainability of targeted talent pools or sectors.

**Site Selection**
Optimize locations for a client's overall business objectives; factors bespoke to a company's key priorities.

**Business Incentives**
Reviewing economic zones; identifying, negating, and securing municipal grants and incentives.

**Supply Chain Optimization**
Supplier and customer mapping to optimize supply chain, transportation and energy assessments.

**Consumer & Retail Portfolio Analytics**
Identification of optimal locations based on consumer purchasing behaviours and trade areas.

**Geographic Information Systems**
Spatial analytics to understand trends and patterns leveraging innovative visualization technology.

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## ABOUT CUSHMAN & WAKEFIELD

Cushman & Wakefield (NYSE: CWK) is a leading global real estate services firm that delivers exceptional value for real estate occupiers and owners. Cushman & Wakefield is among the largest real estate services firms with approximately 50,000 employees in 400 offices and 60 countries. In 2021, the firm had revenue of $9.4 billion across core services of property, facilities and project management, leasing, capital markets, and valuation and other services.

Cushman & Wakefield's clients across the globe can expect a strong bias for action, a rigorous focus on results, value created through insight, and the right people powered by the right platform — on every assignment, every time.

Our capabilities truly reflect client needs, and client success reflects the strategic execution of this business model, our progressive world view, and the value derived from the industry's top talent worldwide.


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