

# Tech Disruption

An Examination of Emerging  
Technologies That May Impact  
the Edmonton Metro Land  
Development Industry



Urban Development Institute  
EDMONTON REGION

# Executive Summary

“In ten years, there isn’t going to be a discernible difference between a real estate company and a technology company.”

– Brad Greiwe | Fifth Wall Ventures, ULI Fall 2018 Magazine

## Introduction

*Tech Disruption: An Examination of Emerging Technologies That May Impact the Edmonton Metro Land Development Industry* is a qualitative research report produced by the Urban Development Institute – Edmonton Region (UDI-ER). This document provides UDI-ER Members with a very brief high-level overview of some of the major emerging technological disruptions that are likely to have an impact on the land development industry.

## Why Tech Disruption?

Disruption in technology occurs when technological advancements significantly change the nature of an industry by displacing the status quo. This disruption is not necessarily negative – but it does mean significant change.

Over the last few years, changes in technology have been significantly impacting various industries at an exponential rate and according to many experts, are likely to impact the land development industry as well. Therefore, in order to stay competitive, it is crucial for companies to examine the technological changes that are occurring and plan for the consequences that they may have.

## Structure of the Report

The report provides an overview of the following six overarching technological changes: Autonomous Vehicles, Augmented Reality, Big Data Analytics, Construction Automation, The Future of Commercial & Industrial and Smart Cities. Each section provides a brief description of what the technological change is, why it is significant and finally, how it could impact the land development industry.

In reading this report, please note that this is by no means an exhaustive list of the number of new technological changes occurring. Furthermore, while the technological changes chosen have been separated into individual sections for the purpose of giving this report structure, most of these technological innovations overlap each other. As an example, smart cities operate largely by capitalizing on big data analytics.

This document’s purpose is to be a launching off point for any Members who may wish to look further into the topics discussed. Therefore, please note the bibliography/further reading section at the back, which provides a list of sources for additional analysis.

Thank you for taking the time to read this report. We hope you find it beneficial.

1 Fully Autonomous Vehicles

2 Augmented Reality

3 Big Data

4 Construction Automation

5 The Future of Commercial & Industrial

6 Smart Cities

1

# Fully Autonomous Vehicles

“ [Autonomous vehicles] promise to change the way we understand transportation, how we manage time and, yes, how we build our houses and cities.”<sup>1</sup>

## What is it?

Fully Autonomous Vehicles (AVs) work by applying artificial intelligence to the navigation of vehicles, negating the need for human driving.

## Why is it significant?

There are competing opinions among experts on when commercially available AVs will be obtainable (i.e. anywhere from 10 - 50 years), but there is consensus on the critical impact they will have on how cities are designed.

## How could it impact the industry?

- Fully Autonomous AV's will greatly alter the way people commute. The diminishing burden of physically driving along with the ability to perform other tasks while commuting may encourage people to actually live farther away from city centers.
- AV's are likely to significantly reduce the need for parking space. This reduction will open up a considerable amount of urban land for development.
- AVs will ideally drive more efficiently, allowing for higher speeds and smaller leeways – creating a likely change in the design of roadways.
- As many AVs are likely to be electrically powered, a reduction in noise may ease current setback requirements.



<sup>1</sup> Martinez-Almeida, Pablo. (2017). *Beyond PropTech: how technology will change construction and the real estate industry.*

## 2 Augmented Reality

“Several factors are working together to drive the use of [Augmented Reality] in real estate.”<sup>2</sup>



<sup>2</sup> T4G. (2017). *Augmented & Virtual Reality Is Set to Disrupt Real Estate.*

### What is it?

Augmented Reality (AR) is similar to virtual reality but different in that it imbues or superimposes visual information on top of real surroundings, using a smart phone or tablet application.

### Why is it significant?

Experts are predicting AR to have a significant impact on marketing and cost savings within the real estate industry. Apple CEO Tim Cook has stated that AR will have as big an impact as smartphones.<sup>3</sup>

### How could it impact the industry?

- As a developer, it is often hard to have prospective buyers visualize the end product; this technology adds reality to something which seems otherwise intangible.<sup>4</sup>
- In addition to its marketing capabilities, many experts predict that AR will be an extremely popular tool to utilize amongst the next generation of home buyers (Gen Z).

<sup>3</sup> Ibid.

<sup>4</sup> Forbes Real Estate Council. (2017). *Eight Ways Virtual And Augmented Reality Are Changing The Real Estate Industry.*

## 3 Big Data

“The ability to collect, analyze, and visualize vast amounts of information could be the new competitive advantage.”<sup>5</sup>



<sup>5</sup> Kiger, Patrick J. (2018) *The Developing Power of Big Data.* Sourced from the Urban Land Institute (ULI) Fall 2018 Magazine.

### What is it?

Big Data utilizes technology to capitalize on the vast amounts of real-time information for the purpose of providing more certainty and conviction to business making decisions.

### Why is it significant?

Although still in its formative stages, companies are beginning to capitalize on big data's potential in multiple industries, including real estate.

### How could it impact the industry?

- Detecting ideal zones – big data technologies can be utilized to help choose the optimal location of a particular development by factoring in endless amounts of information.
- Certain companies are beginning to utilize artificial intelligence to perform predictive analytics in 5 minutes, whereas previously it took from 3 to 6 months of careful work by experts.<sup>6</sup>

<sup>6</sup> The Startup Magazine. (2019). *How Big Data Has Transformed the Real Estate Industry.*

# 4 Construction Automation

“For the past 200 years, humans have been constructing buildings in the same way – until now.”<sup>7</sup>



<sup>7</sup> Geniebelt. (2019). *Construction automation: What does it mean for the future of the industry?*

## What is it?

Construction Automation is an overarching term to describe the automation, digitization and revolution of the construction process. This technological change is largely focused on two key factors: reducing costs and increasing workplace safety.

## Why is it significant?

Although this technology is in the incubation phase, experts are predicting disruption is likely sooner rather than later.

## How could it impact the industry?

- The automation of prefabricated home construction leverages existing infrastructure for transportation and warehousing. Prefabricated parts are constructed in a warehouse and then transported to construction sites – thereby reducing required labour and waste.
- Future innovations in 3D Printing, Unmanned Aerial Vehicles (i.e. Drones) & Robotics are also areas to keep a significant eye on as construction automation evolves.

# 5 The Future of Commercial & Industrial

“Warehousing and distribution markets have experienced an increasing demand due to the yearly growth in online purchases.”<sup>8</sup>



<sup>8</sup> Forbes Real Estate Council. (2017). *Eight Ways Virtual And Augmented Reality Are Changing The Real Estate Industry.*

## What is it?

Recent technological changes are disrupting both commercial and industrial real estate.

## Why is it significant?

These disruptions include multiple asset classes: workspaces, retail shopping centers, distributions centers and office.

## How could it impact the industry?

- Brick and mortar retail is transforming due to the significant increase in e-commerce. In 2017, online retail sales in Canada grew by an estimated 30%.<sup>9</sup>
- Largely driven by the need for automated distribution centres that are accessible to major urban areas and strategically located (e.g. the Amazon model), industrial land is becoming highly sought-after.
- Traditional office space is being replaced by a demand for flexible shared-office space.

<sup>9</sup> BDO Canada. (2018). *Four Key Disruptors in Canadian Commercial Real Estate.*

# Smart Cities

“Smart cities are more than a trend—they’re the wave of the future because the world is becoming more urban, with 60% of the population expected to live in cities by 2050.”<sup>10</sup>

## What is it?

A smart city is when you can derive data from everything that is connected and utilize it to improve the lives of, and improve communication between, citizens.<sup>11</sup>

## Why is it significant?

Across the globe, smart city technology spending reached \$80 billion in 2016, and is expected to grow to \$135 billion by 2021.<sup>12</sup>

## How could it impact the industry?

- Smart Homes and Smart Buildings – buildings retrofitted with sensors to ensure public safety or to monitor the structural health of buildings by detecting wear and tear and notifying when repairs are necessary.
- Smart Infrastructure – sensors can detect leaks in water mains and other piping systems – thereby reducing costs and improving efficiencies.



<sup>10</sup> Tech Republic. (2018). *Smart cities: A cheat sheet.*

<sup>11</sup> Ibid.

<sup>12</sup> According to the International Data Corporation (IDC).

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The Urban Development Institute-Edmonton Region (UDI-ER) is a non-profit association representing the land development industry in Edmonton Metro. Recognizing that the development of land is an essential function of our economy, UDI-ER's activities and objectives focus on Building Communities Together by promoting wise, efficient and productive urban growth.

We welcome the opportunity to continue the dialogue and develop innovative solutions to preserve affordability.

**Let's continue the conversation.**

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