

# **Big Data Business Cases and Data Collection**

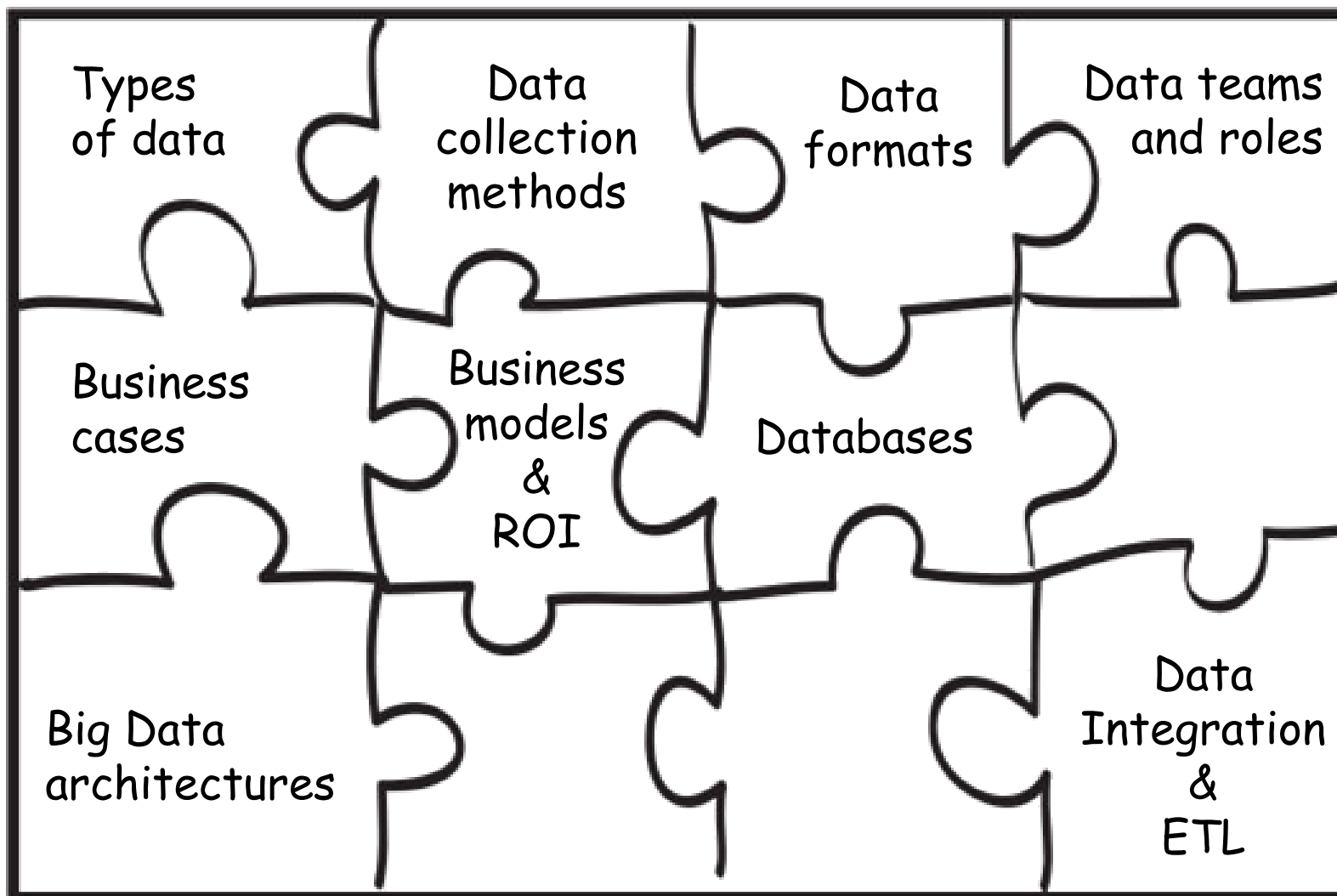
## **CEBD 1150**

**Session 07 – Strategic Analysis**

Session: Fall 2019

Instructor: Adrian Gonzalez Sanchez

# Previously... on CEBD1150



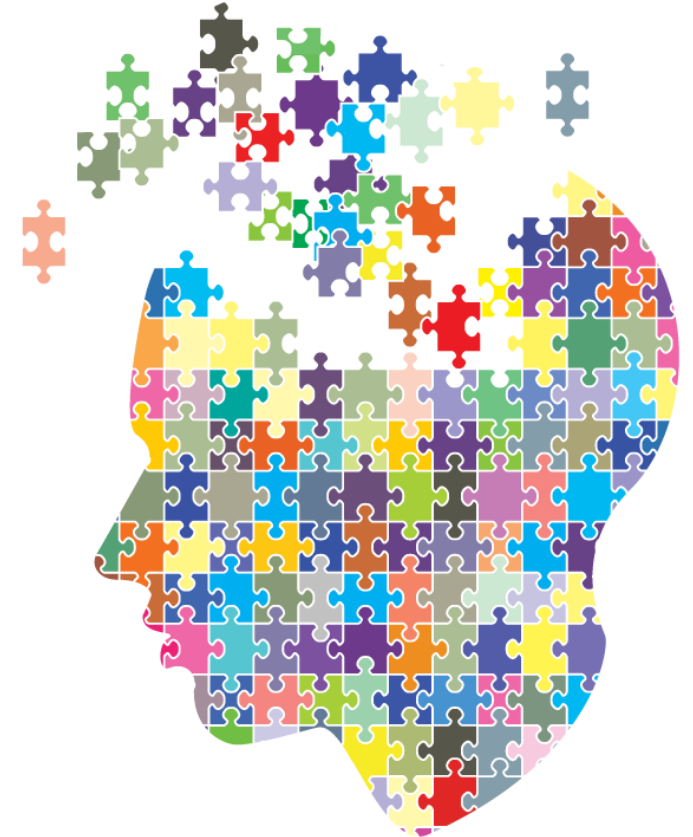
# Schedule

- Session 01 (Sep 22) – Intro to Big Data Business Cases
- Session 02 (Sep 29) – Understanding Data Sources
- Session 03 (Oct 06) – Working with Data Teams  
-- THANKSGIVING WEEKEND --
- Session 04 (Oct 20) – ETL and Integration Tools
- Session 05 (Oct 27) – Alteryx Workshop
- Session 06 (Nov 03) – Business Models for Big Data Projects
- **Session 07 (Nov 10) – Strategic Analysis**
- Session 08 (Nov 17) – Legal and Ethical Aspects
- Session 09 (Nov 24) – Data Tools Overview
- Session 10 (Dec 01) – Pitching a Big Data project



# Our learning goals today

- Understand the richness of the **Big Data and Artificial Intelligence ecosystem** in Montreal and Canada
- Learn about frameworks for **strategic analysis**
- Understand the **risks and challenges** of Big Data projects
- Create **roadmaps** for big data initiatives





# BEFORE STARTING...

# Scrum review for TEAM PROJECT

1. What have you completed since the last meeting?
2. What do you plan to complete by the next meeting?
3. What is getting in your way?



# New roles: AI Ethicist



The image is a screenshot of a news article from WSJ PRO. The header is dark blue with the WSJ PRO logo and the word 'ARTIFICIAL INTELLIGENCE' in gold. Below the header is a row of social media icons: email, print, Facebook, Twitter, and a magnifying glass. The article title is 'Need for AI Ethicists Becomes Clearer as Companies Admit Tech's Flaws' in large, bold, black font. Below the title is a sub-headline in a smaller, grey font: 'While the position is still rare and being defined, it's likely to become much more common.' The author's name, 'By John Murawski', is in a small, italicized font. The date and time, 'March 1, 2019 5:30 a.m. ET', and the WSJ PRO logo are in a small font. The main text of the article is in a standard black font, starting with 'The call for artificial intelligence ethics specialists is growing louder as technology leaders publicly acknowledge that their products may be flawed and harmful to employment, privacy and human rights.' The text continues with 'Software giants Microsoft Corp. and Salesforce.com Inc. have already hired ethicists to vet data-sorting AI algorithms for racial bias, gender bias and other unintended consequences that could result in a public relations fiasco or a legal headache. And a number of universities are offering courses on AI ethics, not only to...'

WSJ PRO  
ARTIFICIAL INTELLIGENCE

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## Need for AI Ethicists Becomes Clearer as Companies Admit Tech's Flaws

While the position is still rare and being defined, it's likely to become much more common.

*By John Murawski*  
March 1, 2019 5:30 a.m. ET | WSJ PRO

The call for artificial intelligence ethics specialists is growing louder as technology leaders publicly acknowledge that their products may be flawed and harmful to employment, privacy and human rights.

Software giants Microsoft Corp. and Salesforce.com Inc. have already hired ethicists to vet data-sorting AI algorithms for racial bias, gender bias and other unintended consequences that could result in a public relations fiasco or a legal headache. And a number of universities are offering courses on AI ethics, not only to...



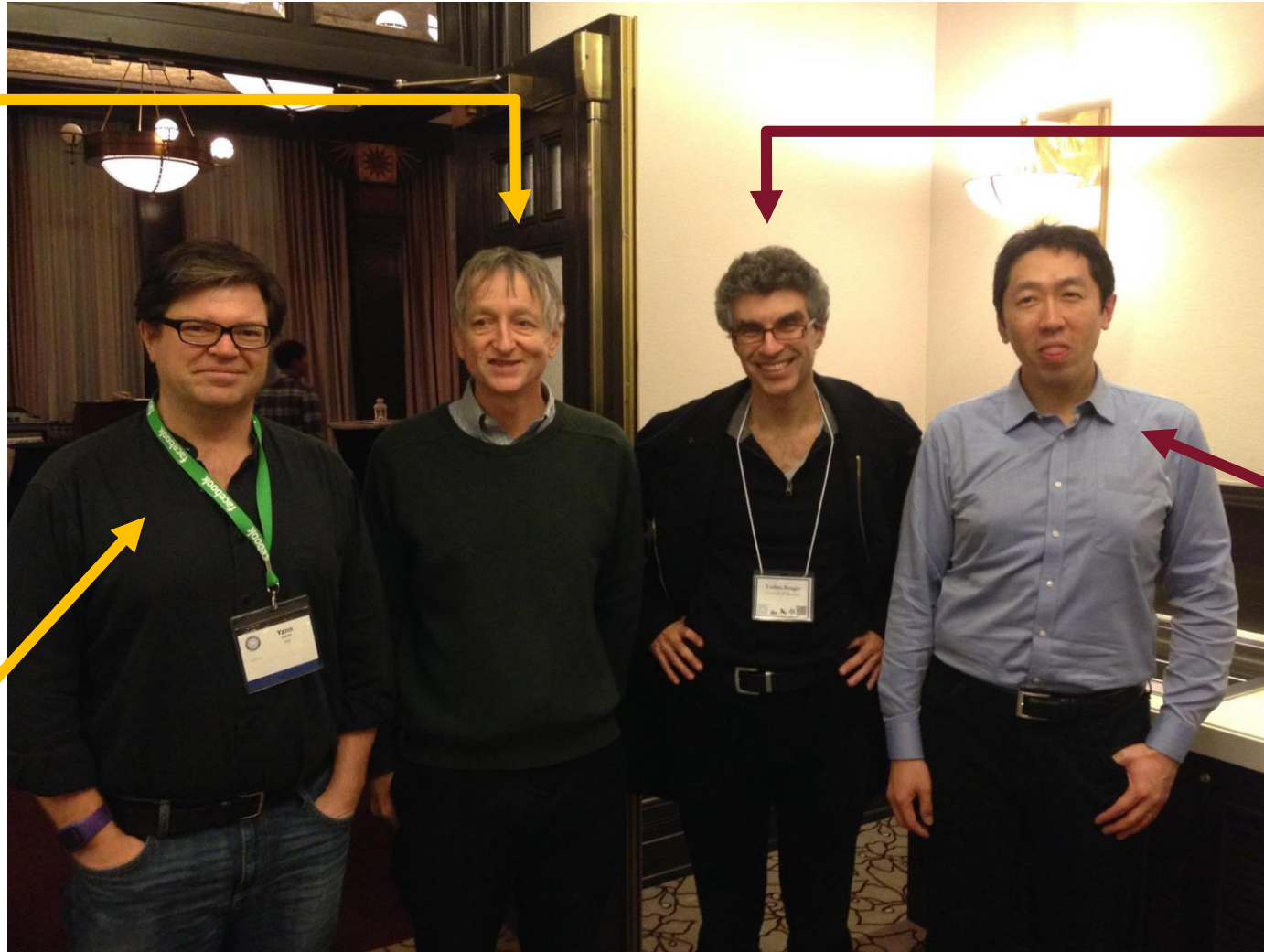
# **MONTREAL BIG DATA AND AI ECOSYSTEM**



# AI researchers: The new superstars

**Geoffrey Hinton**  
Google Brain  
University of Toronto

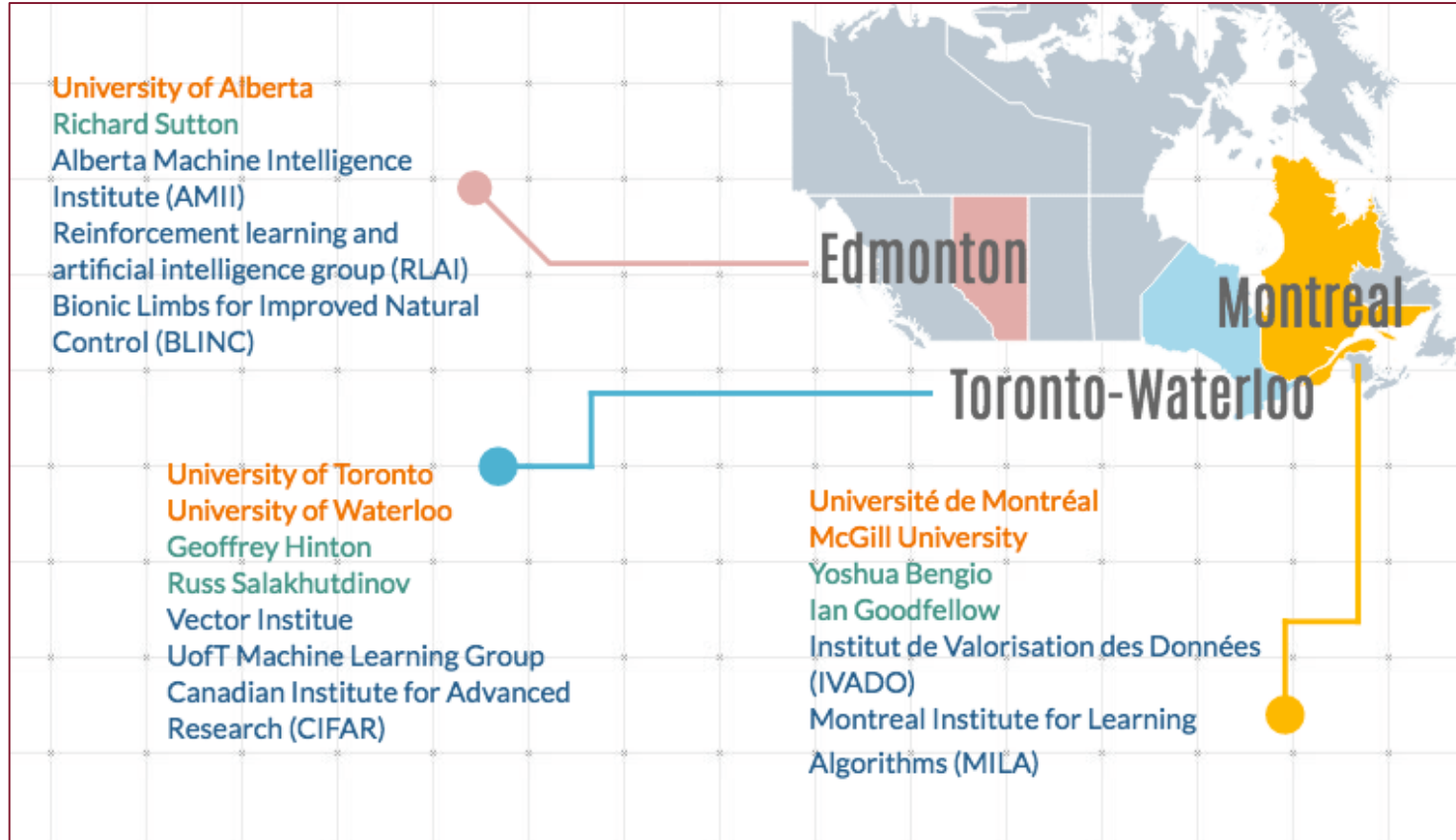
**Yann Lecun**  
Facebook  
New York University



**Yoshua Bengio**  
Université de Montréal

**Andrew Ng**  
Landing.ai  
Stanford University

# Canadian AI



Source: <https://syncedreview.com/2017/06/23/building-ai-superclusters-in-canada/>



# Canadian AI

## Canadian AI Ecosystem 2018

ELEMENT AI

Startups & Enterprises

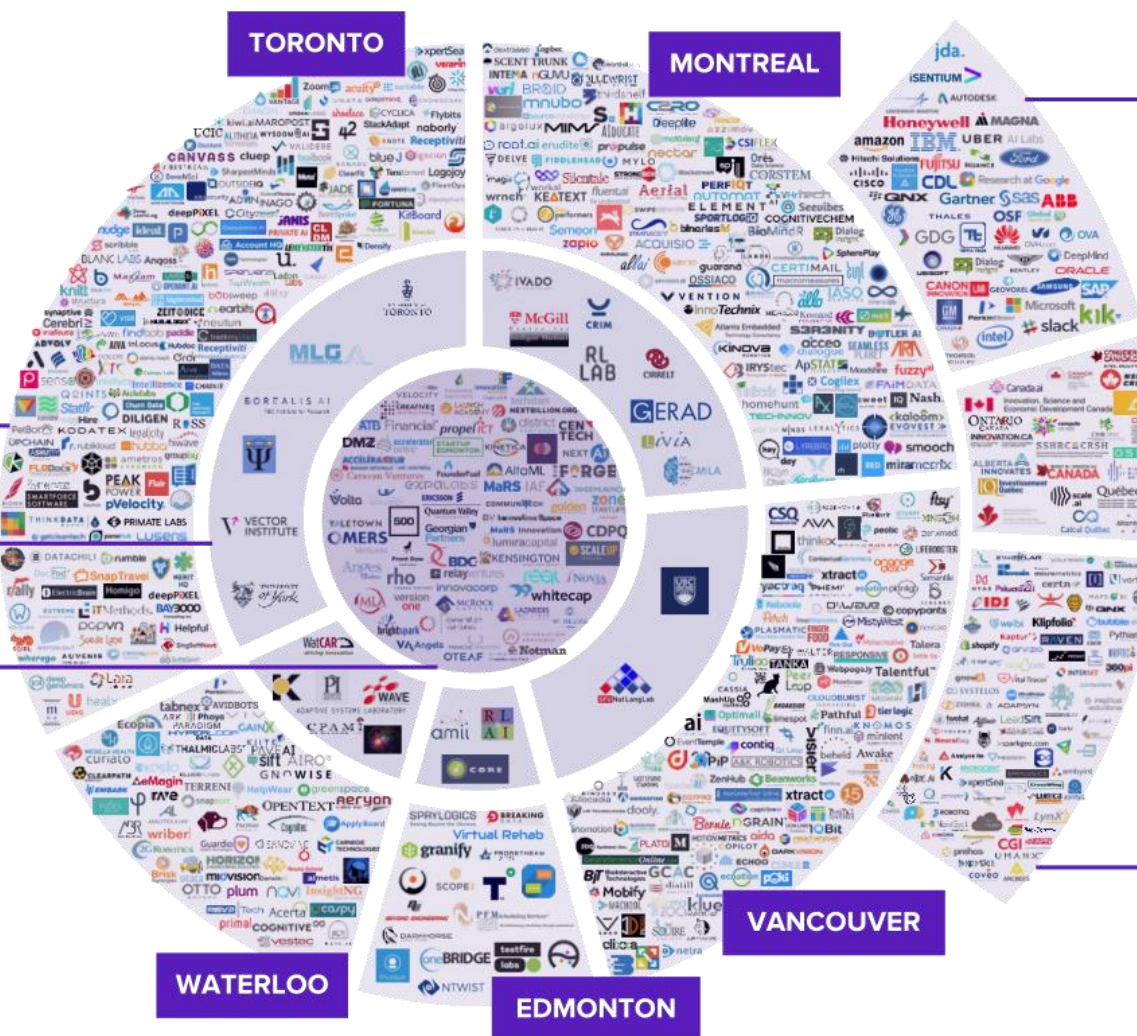
Academic Labs

Incubators, Accelerators  
& VC (Pan-Canadian)

International Players in  
Canada (Pan-Canadian)

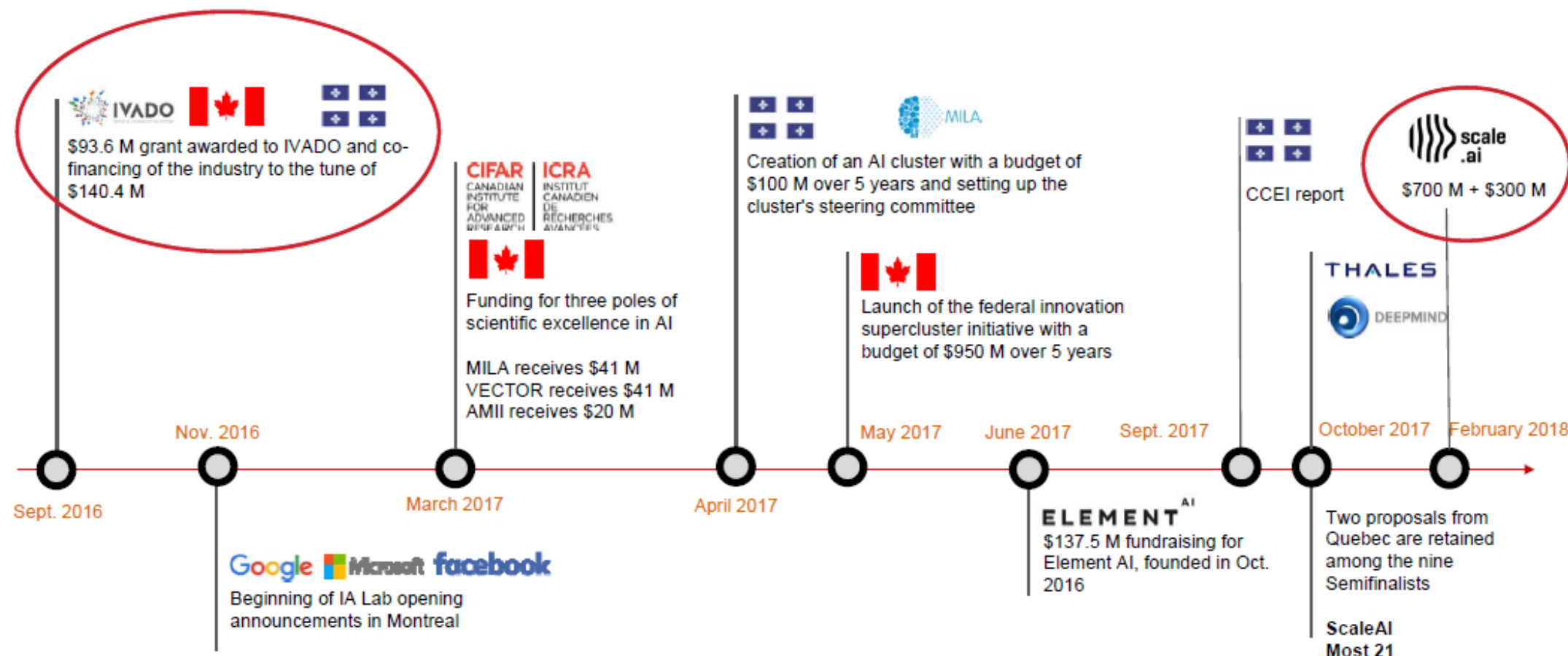
Public &  
Non-Profit

Startups & Enterprises  
(Outside of Cluster Cities)






2018-05-01

# Montreal's ecosystem



# BUSINESS MODELS (BIS)

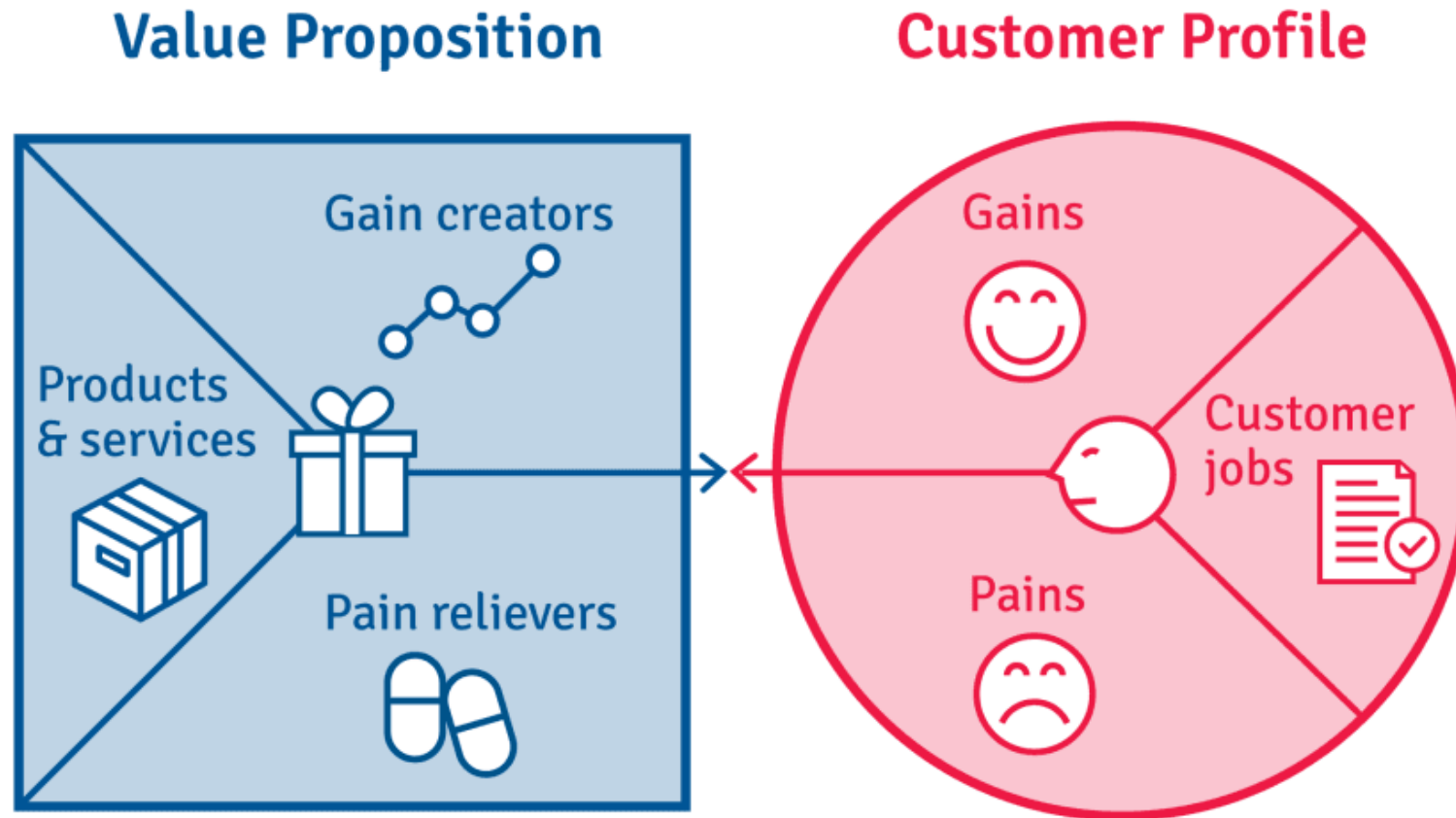
# It is always about value proposition

 <p>Trello lets you work more collaboratively and get more done.</p> <p>Trello's boards, lists, and cards enable you to organize and prioritize your projects in a fun, flexible and rewarding way.</p> <p>Sign up - it's free.</p> <p>Already use Trello? Log in.</p>	 <p>YOU GET WHAT YOU PAY FOR</p> <p>Gillette</p>	 <p>Lose the ability to slip out of meetings unnoticed.</p> <p>The Economist</p>
<p><b>Trello</b></p> <p>Trello is a Kanban platform targeted at people who have never heard of Kanban. As such, they focus on the benefits you'll get from their platform: increased productivity, increased collaboration, more enjoyment in your work and more flexibility.</p> <p>You might notice that they don't show the platform, since its simple layout doesn't intuitively match the promises offered here.</p>	<p><b>Gillette</b></p> <p>Gillette are fending off their new rivals, Dollar Shave Club. To do this, they use the imagery of the dollar bill, and cover George Washington in cuts.</p> <p>This is highlighting the pain of bad blades, inferring that a cheaper product will lead to worse results. They make no apologies for their price, showing disdain for the low-cost alternatives, and encouraging you to do the same.</p>	<p><b>The Economist</b></p> <p>The Economist are not discussing their magazine or their articles. Instead, they emphasise the kind of person you'll be if you subscribe, in this case a more valuable, knowledgeable and sought-after professional.</p> <p>The Economist are selling career progression, and the respectability of being a well-informed person.</p>

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Source: <https://isaacjefries.com/blog/2018/12/21/creating-compelling-value-propositions>

# Value Proposition Canvas



GUIDE: <https://isaacjeffries.com/blog/2018/2/27/how-to-fill-in-a-value-proposition-canvas>



# BIG DATA STRATEGY



# Why Big Data Strategy



HARVARD | BUSINESS | SCHOOL

## WORKING KNOWLEDGE

Business Research for Business Leaders

21 AUG 2017 LESSONS FROM THE CLASSROOM

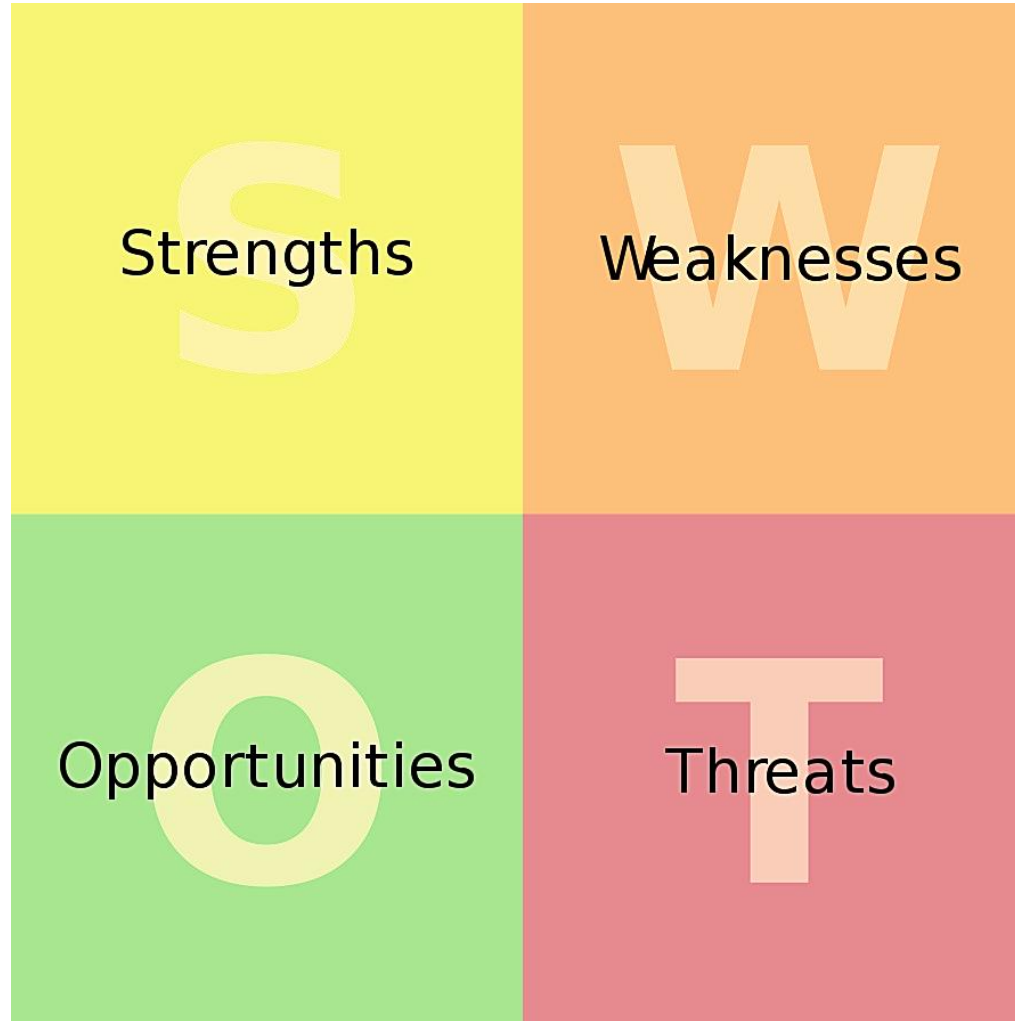
### Companies Love Big Data But Lack the Strategy To Use It Effectively

by Dina Gerdeman

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Big data is a critical competitive advantage for companies that know how to use it. Harvard Business School faculty share insights that they teach to executives.

# SWOT analysis



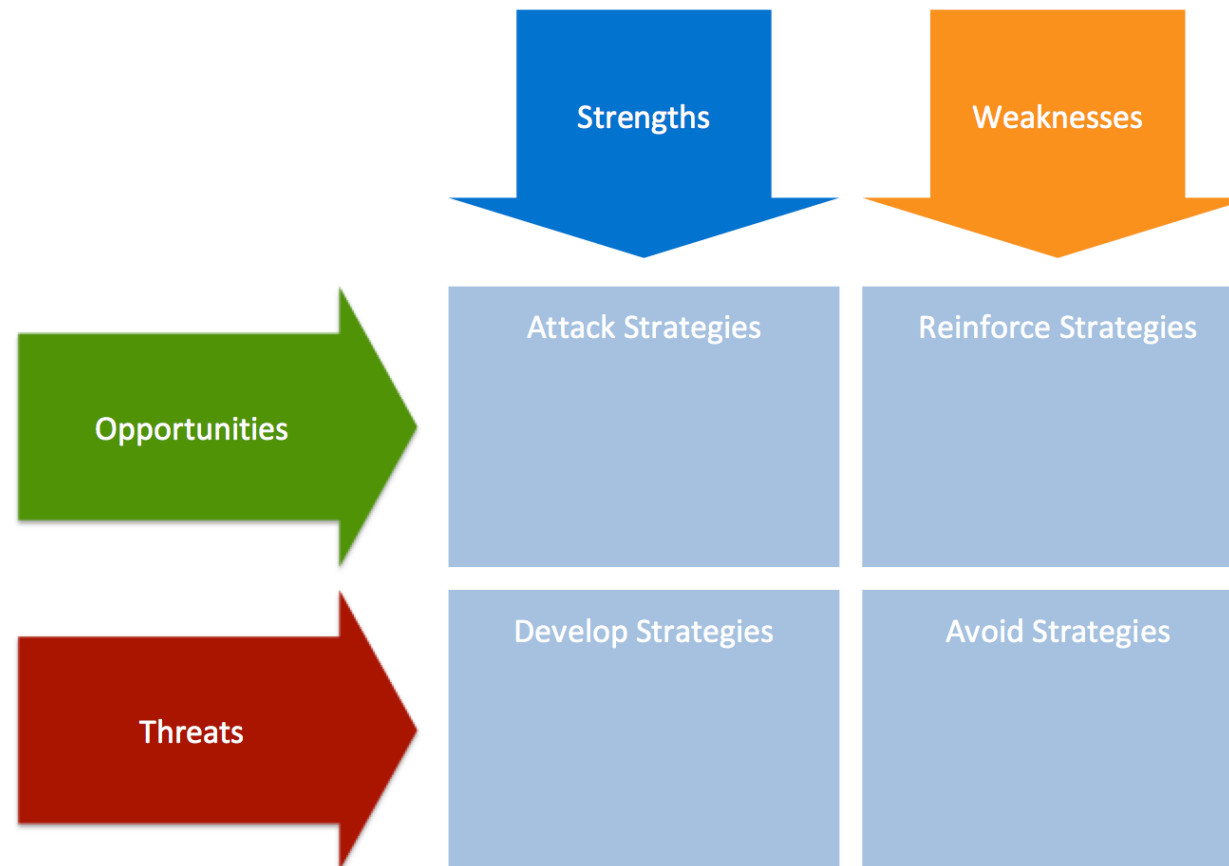
“**SWOT analysis** is a framework used to evaluate a company's competitive position and to develop strategic planning.”

- *Investopedia*

# SWOT analysis (components)

- **STRENGTHS** are an internal assessment of the product's attributes that give it an advantage over other products. These can be features of the product or characteristics of the business.
- **OPPORTUNITIES** are usually external to the product and can range from partnerships to new markets. These can also be future product expansion opportunities — expressed as unmet customer needs that the team has identified.
- **WEAKNESSES** component of the SWOT analysis is an internal assessment of the product's attributes that put it at a disadvantage when compared to alternatives.
- **THREATS** are typically external factors impacting the product. These factors can be anything ranging from economic factors to emerging technology. Ultimately, these threats are the obstacles facing the business and what could adversely affect the product in the future.

# SWOT analysis (template)



Source: <https://www.aha.io/roadmapping/guide/templates/swot-analysis>

# How to fill your SWOT analysis

<b>S</b> <b>STRENGTHS</b>	<b>W</b> <b>WEAKNESSES</b>	<b>O</b> <b>OPPORTUNITIES</b>	<b>T</b> <b>THREATS</b>
<ul style="list-style-type: none"><li>• Things your company does well</li><li>• Qualities that separate you from your competitors</li><li>• Internal resources such as skilled, knowledgeable staff</li><li>• Tangible assets such as intellectual property, capital, proprietary technologies etc.</li></ul>	<ul style="list-style-type: none"><li>• Things your company lacks</li><li>• Things your competitors do better than you</li><li>• Resource limitations</li><li>• Unclear unique selling proposition</li></ul>	<ul style="list-style-type: none"><li>• Underserved markets for specific products</li><li>• Few competitors in your area</li><li>• Emerging need for your products or services</li><li>• Press/media coverage of your company</li></ul>	<ul style="list-style-type: none"><li>• Emerging competitors</li><li>• Changing regulatory environment</li><li>• Negative press/media coverage</li><li>• Changing customer attitudes toward your company</li></ul>

WordStream

# Uncle Bill's advice

## 5 Steps to Building a Big Data Business Strategy



By Bill Schmarzo

September 25, 2017

*"The problem is that, in many cases, big data is not used well. Companies are better at collecting data – about their customers, about their products, about competitors – than **analyzing that data and designing strategy around it.**" – ["Companies Love Big Data but Lack the Strategy to Use It Effectively," Harvard Business Review](#)*

How can this still be the case? I mean after 5+ years of experience with Big Data, have we not learned a darn thing? We get the following observation from no less than the Harvard Business School:

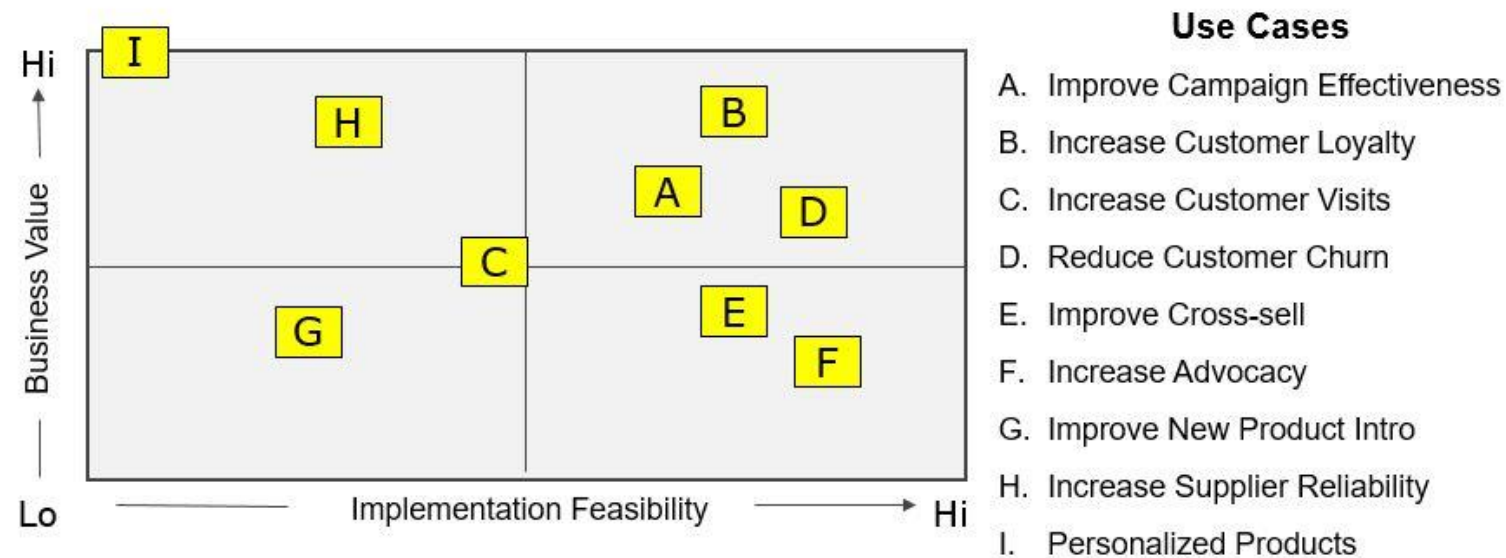
*"The new attention being given to data today is because suddenly, everywhere, it's become much cheaper to measure," says John A. Deighton, the Baker Foundation Professor of Business Administration at Harvard Business School. "Used well, it **changes the basis of competition in industry after industry.**"*

Source: [https://infocus.dellemc.com/william\\_schmarzo/5-steps-to-building-a-big-data-business-strategy/](https://infocus.dellemc.com/william_schmarzo/5-steps-to-building-a-big-data-business-strategy/)

# Uncle Bill's advice

## Create Use Case Roadmap

Leverage facilitation techniques with key business constituents to prioritize use cases vis-à-vis business value and implementation feasibility



Source: [https://infocus.dellemc.com/william\\_schmarzo/5-steps-to-building-a-big-data-business-strategy/](https://infocus.dellemc.com/william_schmarzo/5-steps-to-building-a-big-data-business-strategy/)



# Uncle Bill's advice

## Map (Prioritize) Data Sources to Use Cases

Identify, brainstorm, and map internal and external data sources against top priority use cases

Data Sources	"Increase Same Store Sales" Use Cases (\$191M)						
	Improve Campaign Effectiveness	Increase Customer Loyalty	Increase Customer Store Visits	Reduce Customer Attrition	Improve Customer Cross-sell	Increase Customer Advocacy	Improve New Product Introduction
	\$62M	\$56M	\$26M	\$24M	\$14M	\$18M	\$27M
Point of Sales	√	√	√	√		√	√
Market Baskets	√	√	√		√		√
Store Demographics				√	√	√	√
Local Competition	√			√			
Store Manager Demo		√		√	√		
Consumer Comments		√					
Social Media	√	√		√		√	√
Weather			√			√	√
Local Events	√		√		√	√	
Traffic			√			√	

Source: [https://infocus.dellemc.com/william\\_schmarzo/5-steps-to-building-a-big-data-business-strategy/](https://infocus.dellemc.com/william_schmarzo/5-steps-to-building-a-big-data-business-strategy/)



# Uncle Bill's advice

## Estimate Economic Data Value Vis-à-Vis Use Cases

Leverage data science techniques to assess (weigh) relative importance of each data source against individual use cases

Key Business Initiative: Increase Same Store Sales by 7%								
(Estimated value of Business Initiative: \$191M annually)								
Data Sources	Increase Store Traffic via Local Events Marketing	Increase Store Traffic via Loyalty Program	Increase Shopping Bag Revenue	Increase Corporate Catering Revenue	Increase Non-corporate Catering Revenue	Improve New Product Introduction Effectiveness	Improve Promotional Effectiveness	Value of Data Across All the Use Cases
Financial Value (\$M)	\$62.0	\$56.0	\$26.0	\$24.0	\$14.0	\$18.0	\$27.0	
POS Transactions	4	4	3	2	2	3	4	\$47.4
Market Baskets	4	4	4	2	2	3	4	\$49.6
Local Demographics	3	3	2	4	4	2	2	\$44.1
Traffic	2	1	1	1	1	1	1	\$17.8
Weather	3	1	1	1	1	1	1	\$20.9
Local Events	4	1	1	0	0	1	4	\$20.2

Source: [https://infocus.dellemc.com/william\\_schmarzo/5-steps-to-building-a-big-data-business-strategy/](https://infocus.dellemc.com/william_schmarzo/5-steps-to-building-a-big-data-business-strategy/)

# RISKS AND CHALLENGES

# Risks and challenges

## THE DECISION MAKER

### 7 CHALLENGES OF IMPLEMENTING A BIG DATA & ANALYTICS SOLUTION

Posted by Austin Wentzlaff on Apr 13, 2015 12:59:00 PM

- Data Quality
- Understanding Analytics
- Quality Assurance
- Performance
- Designing the Solution
- User Acceptance
- Cost

SOURCE: <http://blog.onapproach.com/7-challenges-of-implementing-a-big-data-analytics-solution>

# About AI adoption

## The 4 Biggest Barriers To AI Adoption Every Business Needs To Tackle



**Bernard Marr** Contributor ⓘ  
Enterprise & Cloud

**f** Research shows that AI adoption across industry is speeding up – with [one report](#) finding that, of over 2,000 organizations surveyed, 47% had implemented it in at least one function, compared to 20% during the previous year.

**in** On top of that, 71% of respondents expected AI investment to increase over

- Cultural barriers
- Fear
- Shortage of talent
- Lack of a **STRATEGIC APPROACH**

SOURCE: <https://www.forbes.com/sites/bernardmarr/2019/02/25/the-4-biggest-barriers-to-ai-adoption-every-business-needs-to-tackle/#12be81132731>

# ROADMAPS

# About roadmaps

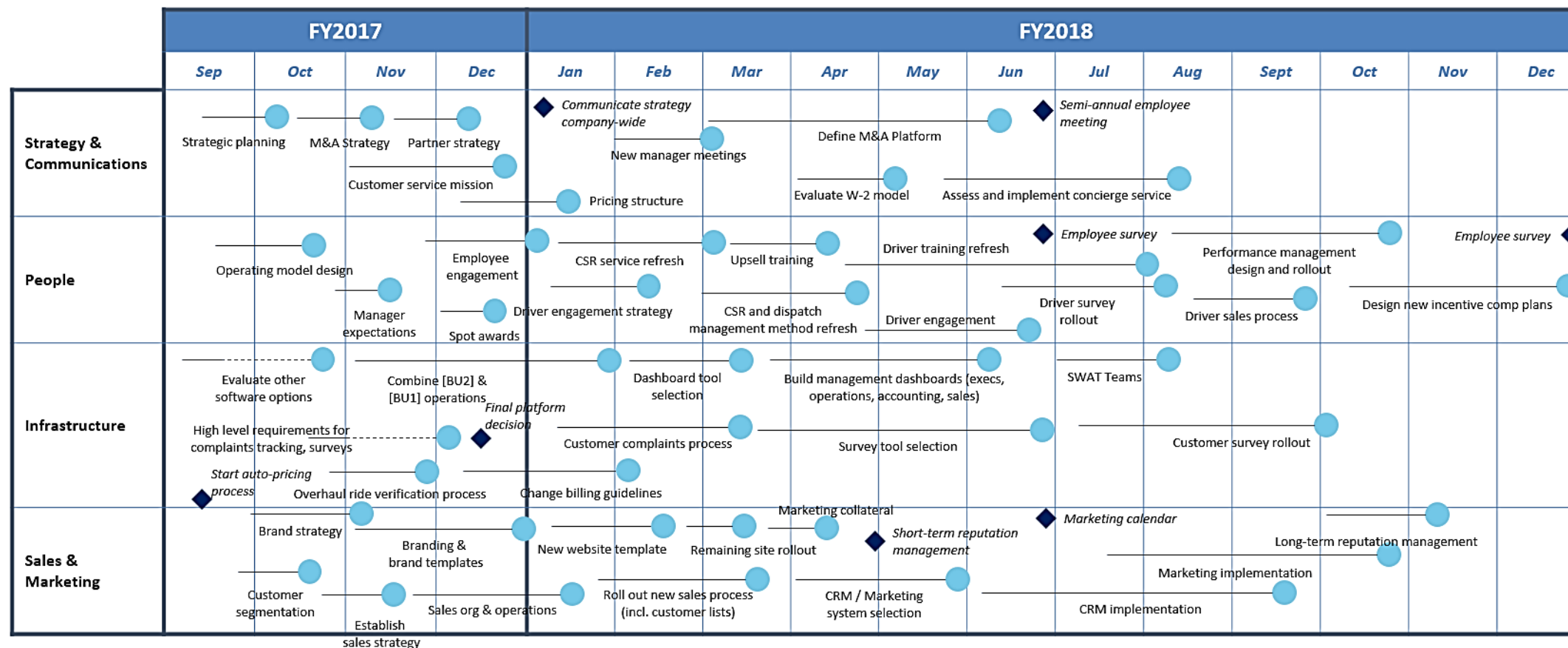
*“You have an idea for an important project, you ask a manager to execute it, and it works well for a week or two. Then a big issue occurs which everyone scrambles to fix, and the project falls to the wayside.*

*...A roadmap helps executives invest in and manage a list of projects that align with their strategy for the company. It benefits owners, executives, and managers, and encourages collaboration that aligns everyone on priorities and new investments.*

*...Most importantly, a strategic roadmap provides a clear picture of how to achieve your strategy. Business strategies most often fail because of poor execution.”*

Source: <https://www.citrincooperman.com/infocus/why-you-need-a-strategic-roadmap>

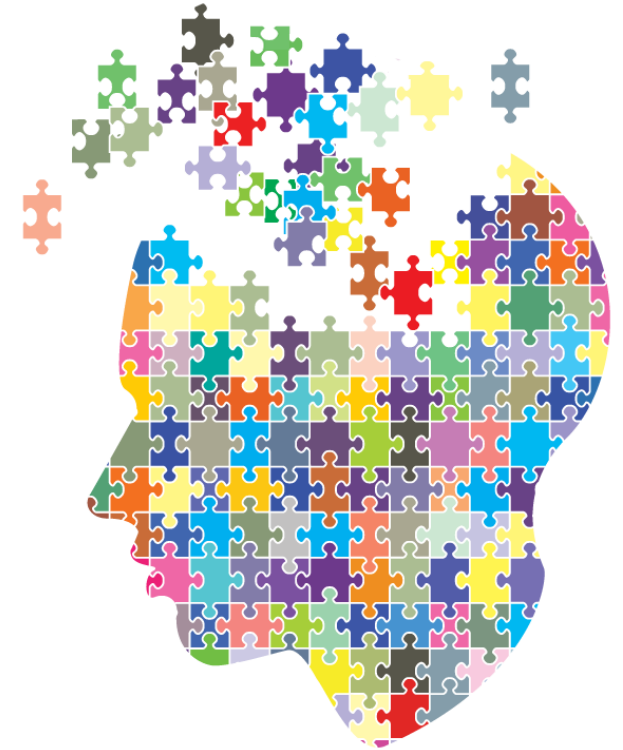
# Strategic Roadmap



Source: <https://www.citrincooperman.com/infocus/why-you-need-a-strategic-roadmap>

# Our learning goals today

- ✓ Learn about frameworks for strategic analysis
- ✓ Understand the risks and challenges of Big Data projects
- ✓ Create strategic roadmaps for internal initiatives
- ✓ Understand the richness of the Big Data and Artificial Intelligence ecosystem in Montreal and Canada





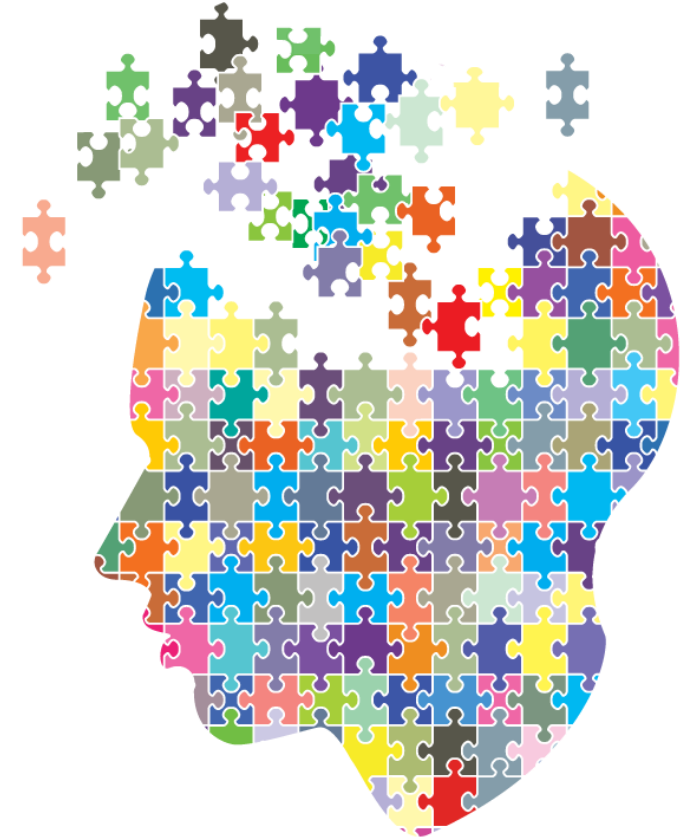
# TEAM WORK

- Definition of the business case
- Business Model Canvas
- Value hypotheses and ROI
- **Value Proposition Canvas**
- **SWOT analysis**
- **Risk and challenges**
- **Strategic Roadmap**



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FOR NEXT WEEK...

# For next week

- ✓ Submit the **Weekly Learning Journal** for Session 7 (ASAP)
- ✓ Continue working on your **Team Project**
  - Definition of the business case
  - Business Model Canvas
  - Stakeholders and ROI analysis
  - **Value Proposition Canvas**
  - **SWOT analysis**
  - **Risk and challenges**
  - **Strategic Roadmap**

An abstract graphic featuring overlapping, wavy shapes in a vibrant blue and a deep red. The shapes create a sense of movement and depth, with a dark blue/black area in the center where the text is located.

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