



# Power Your Curriculum With Predictive Analytics Webinar

## Please Note

This webcast is being recorded and will be made available on the ERPsim website. Please be aware that questions you ask or discussions you participate in will be recorded as a part of the presentation.

By attending this online event you are giving your permission to being recorded. Participant names / photos / video (if connected to event via webcam) may be shared. If you do not wish to be recorded, please disconnect from the webcast at this time.

Cortex Webinar  
Online | August 12<sup>th</sup>, 2021

**ERPsimLab**  
**HEC MONTRÉAL**

Serious games to learn enterprise  
systems and business analytics

# Your Speakers Today



**Jean-François Michon**  
M.Sc.  
Director of Operations, ERPsim Lab



**Ferdaous Somrani**  
M.Sc.  
Research Associate, ERPsim Lab

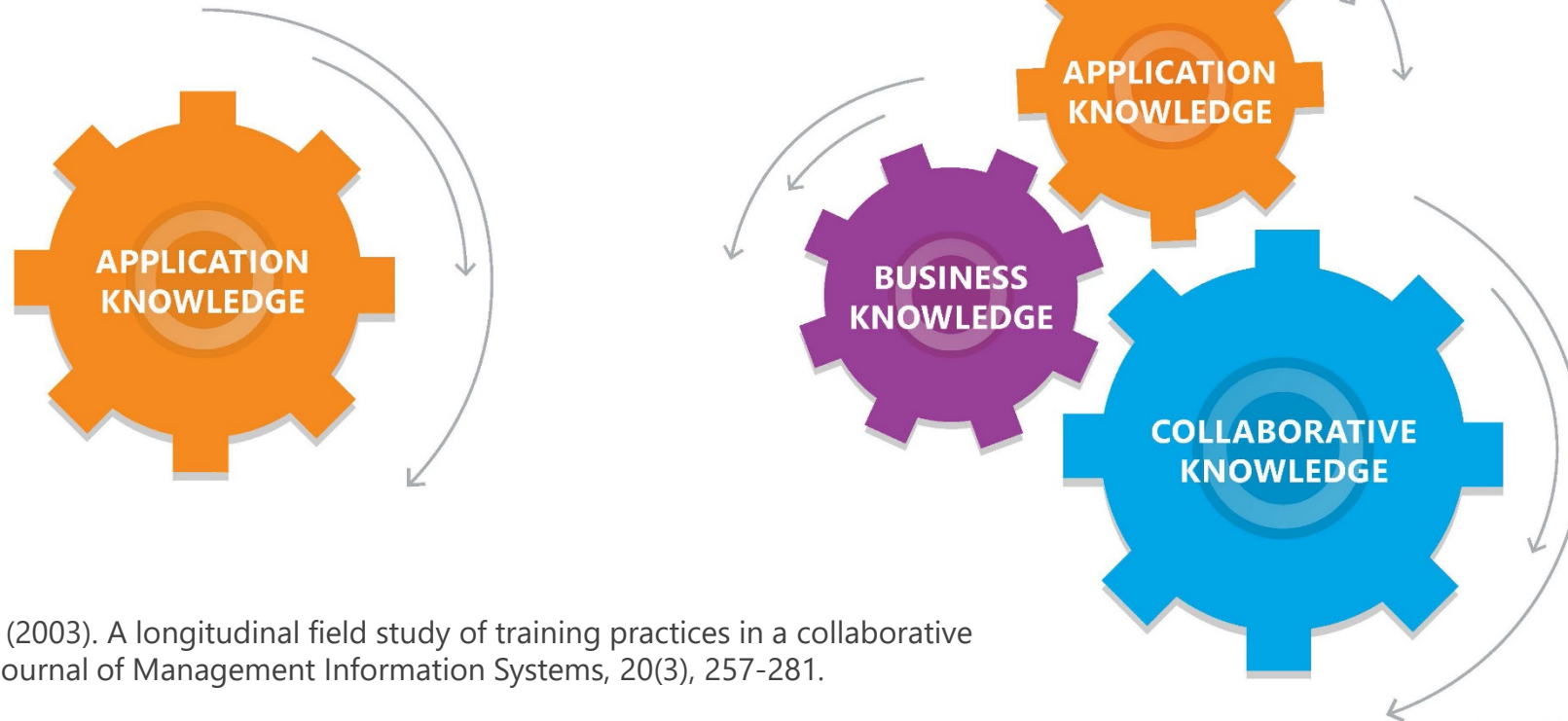
# Agenda

1. Introduction
2. The benefits of gamification
3. Why Cortex?
4. What is Cortex?
5. The Scenarios
6. Learning with Cortex
7. Teaching with Cortex
8. Get started
9. Q&A

# A Competency Approach

*From a standard approach...*

*... to a competency approach*



Kang, D., & Santhanam, R. (2003). A longitudinal field study of training practices in a collaborative application environment. *Journal of Management Information Systems*, 20(3), 257-281.

# Active Learning

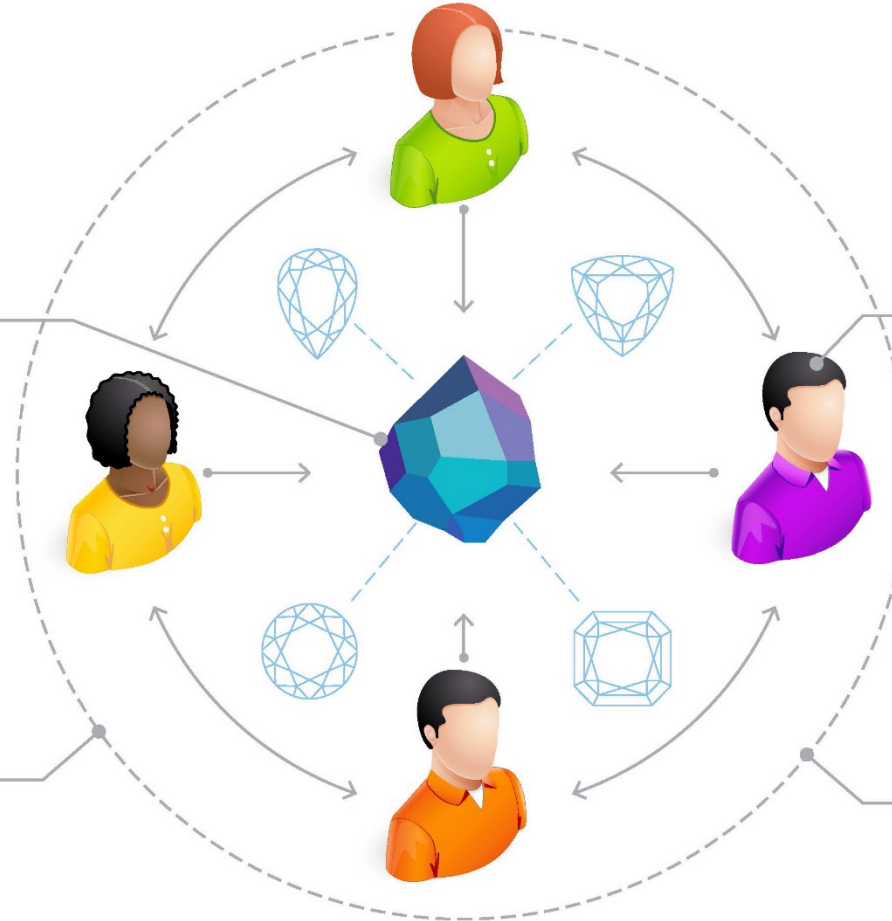
## Problem Based Learning Approach

Léger, P. M., Cronan, P., Charland, P., Pellerin, R., Babin, G., & Robert, J. (2012). Authentic OM problem solving in an ERP context. *International Journal of Operations & Production Management*, 32(12), 1375-1394.

**AUTHENTICITY**  
Realistic situations



**TEACHER**  
acts as facilitator  
or tutor

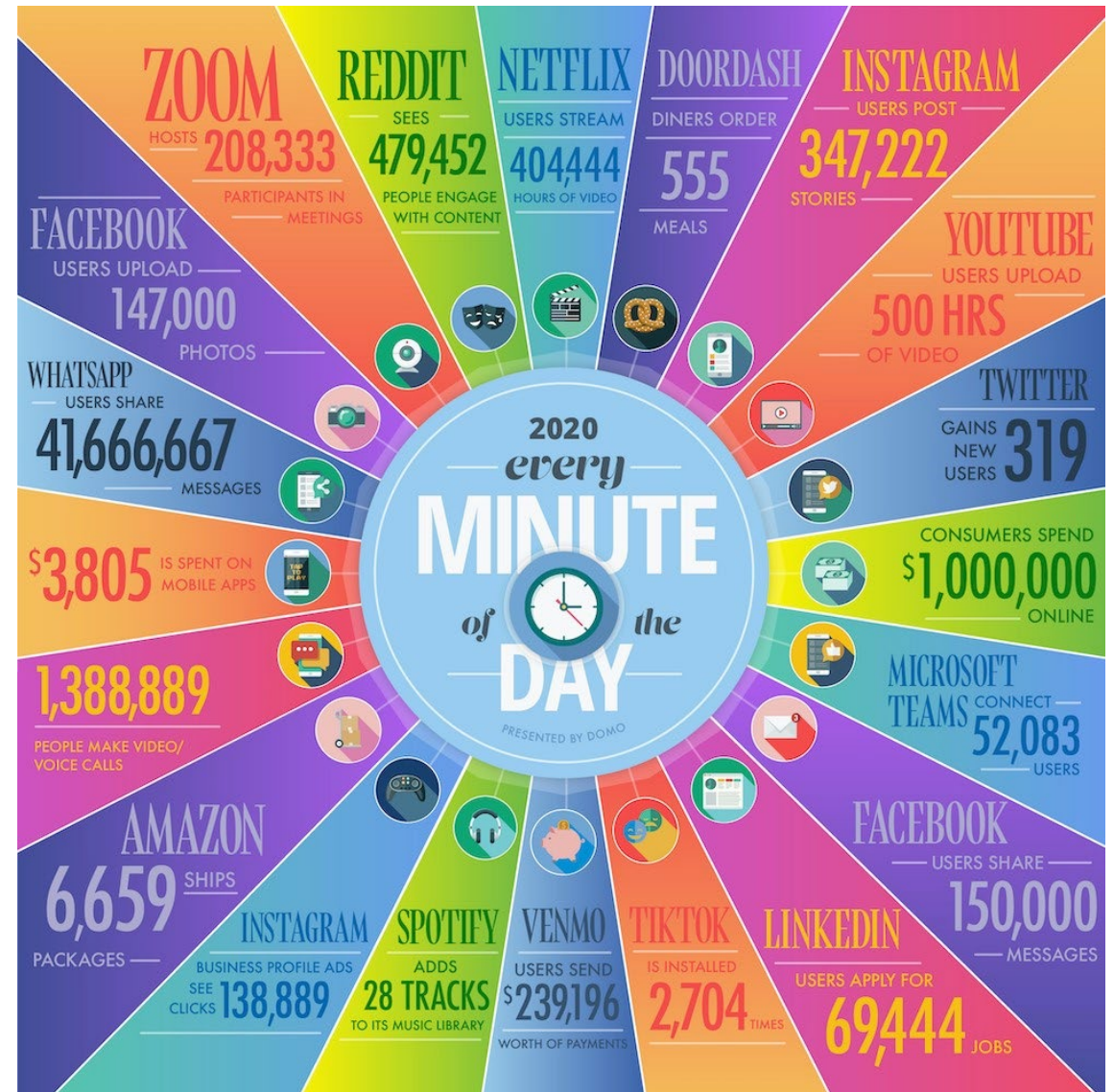


**STUDENT CENTERED  
APPROACH**

**COMPETITIVE  
ENVIRONMENT**



# Why Cortex?



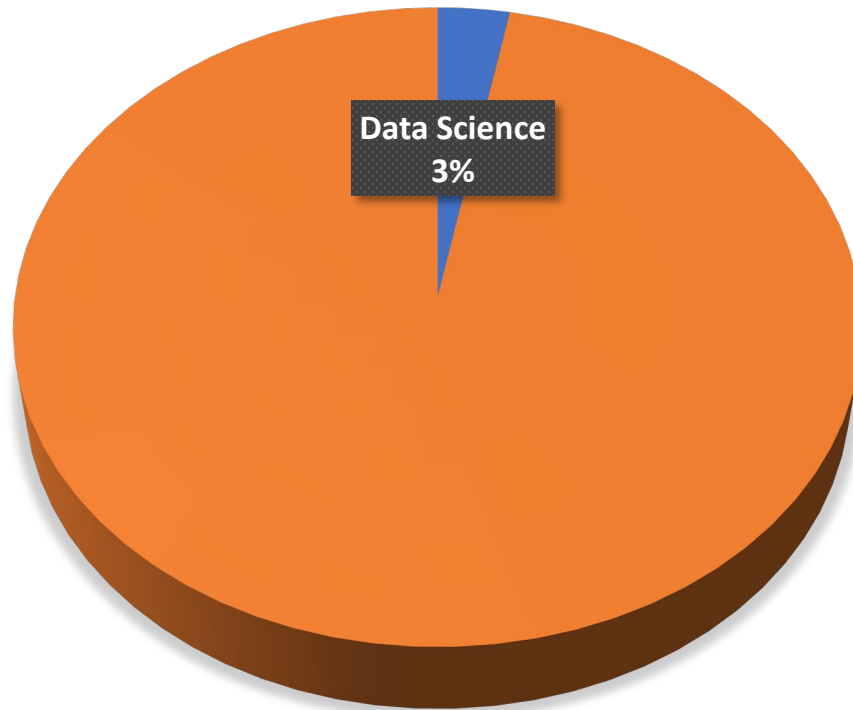
Source: DOMO Data Never Sleeps 8.0

# Big Data Statistics

- In 2012, only **0.5% of all data** was analyzed (The Guardian)
- **Unstructured data** is a problem for **95% of business** (Forbes)
- Using big data, Netflix **saves \$1 billion** per year (Statista)
- The market of Big Data **analytics in healthcare** could be worth **\$67.82 billion** by 2025 (Globe News Wire)
- Data science **jobs** in US reached **2.7 million** in 2020 (Forbes)

# Big Data Literacy

Business School Students



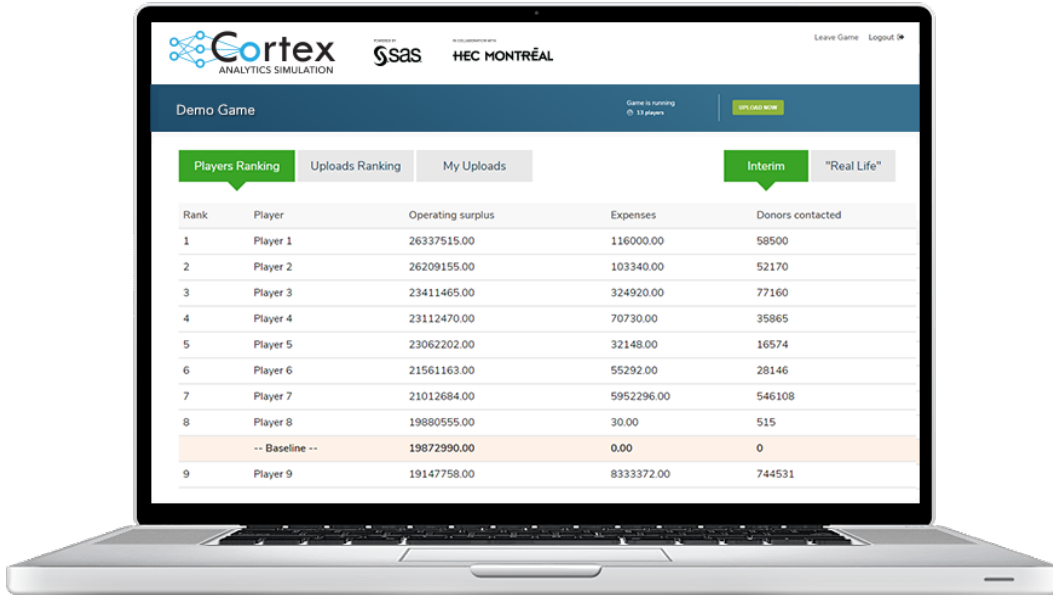
*“The growing gap between the need for a data savvy citizenry and the data science education of students is equally astonishing, greatly troubling, and extremely perplexing.”*  
(Finzer, 2013:1)

FINZER, W. (2013). The data science education dilemma. Technology Innovations in Statistics Education, 7(2).



# What is Cortex?

# Cortex Analytics Simulation



Rank	Player	Operating surplus	Expenses	Donors contacted
1	Player 1	26337515.00	116000.00	58500
2	Player 2	26209155.00	103340.00	52170
3	Player 3	23411465.00	324920.00	77160
4	Player 4	23112470.00	70730.00	35865
5	Player 5	23062202.00	32148.00	16574
6	Player 6	21561163.00	55292.00	28146
7	Player 7	21012684.00	5952296.00	546108
8	Player 8	19880555.00	30.00	515
--	Baseline --	19872990.00	0.00	0
9	Player 9	19147758.00	8333372.00	744531

- Virtual or in-class instructor tool
- Includes case study, dataset, online leaderboard, tutorials
- Acquire skills with professional-grade software, including SAS Enterprise Miner
- Teaches predictive modeling concepts in fun and hands-on environment.

POWERED BY  


IN COLLABORATION WITH  


# The benefits of gamification



# Observed Benefits

- Increased engagement
- Desire from students to know more
- A surge in the number of hours willingly spent by students for the course
- Risen awareness of students in the feedback session

# The Scenarios



# Scenarios Features

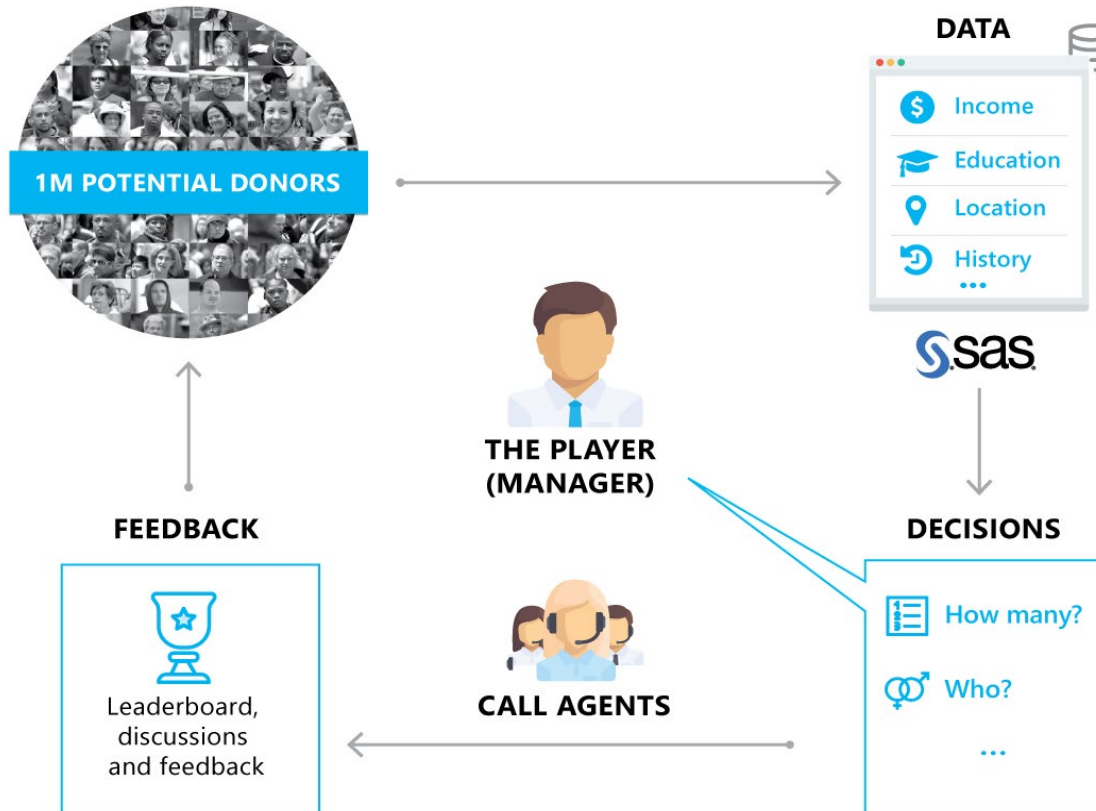
	<b>Fundraising Scenario</b>	<b>Credit Risk Scenario</b>	<b>Retention Scenario</b>
Level	Beginner	Intermediate	Advanced
Datasets	✓	✓	✓
Case study	✓	✓	
Game instructions	✓	✓	
Pre-built diagrams	✓		
Teaching notes	✓		
Videos	✓		

# Fundraising: Turnkey Solution

## Fundraising Scenario

### GOAL

Maximize the Net  
Raised Funds

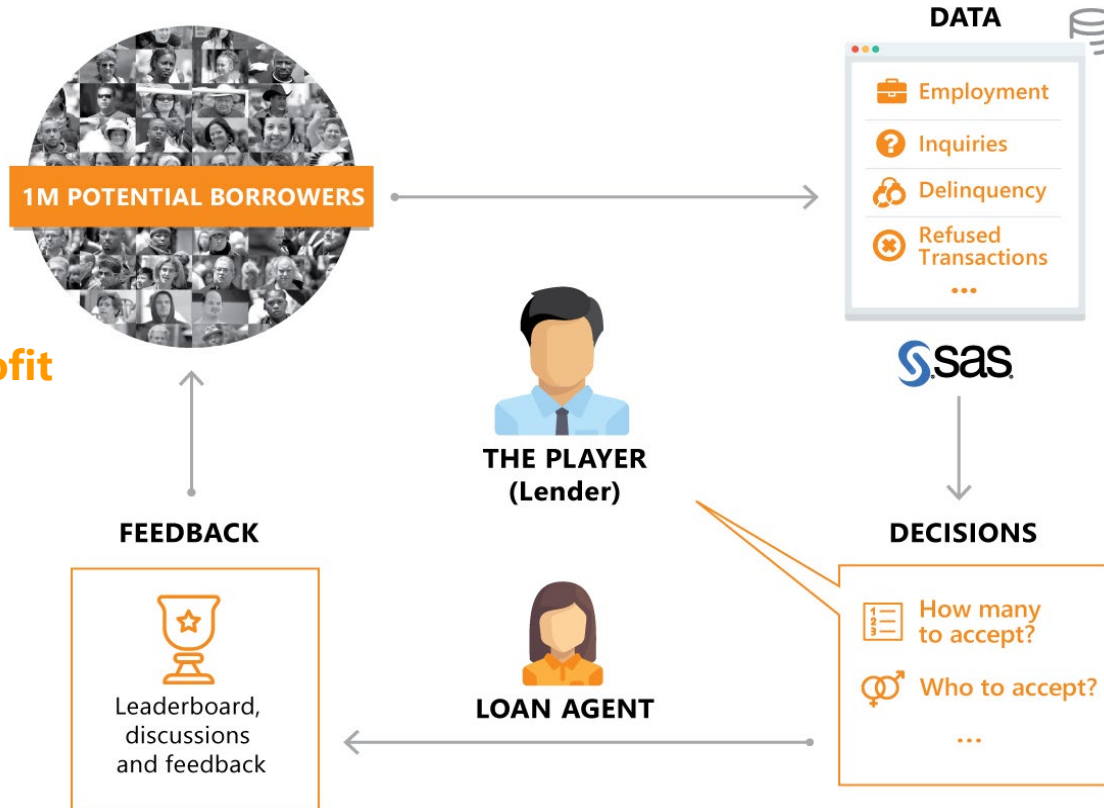


# Credit Risk: Intermediate Level

## Credit Risk Scenario

### GOAL

Maximize Net Profit  
after 2 years

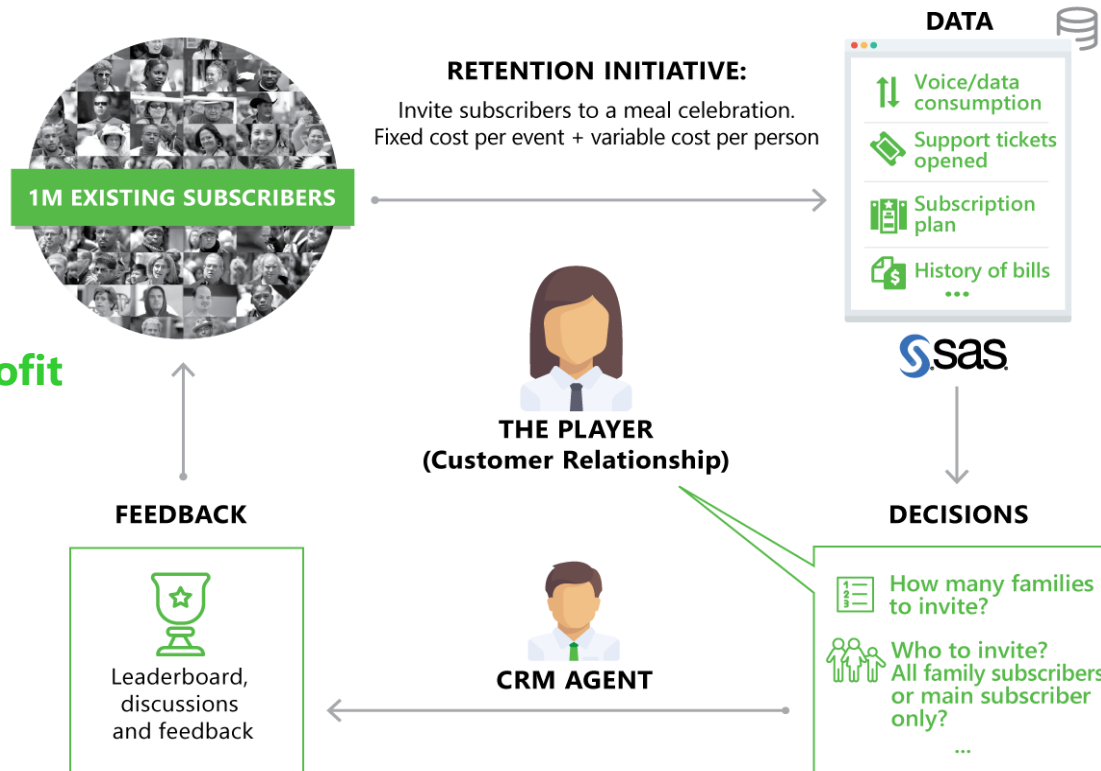


# Retention: Advanced Level

## Retention Scenario

### GOAL

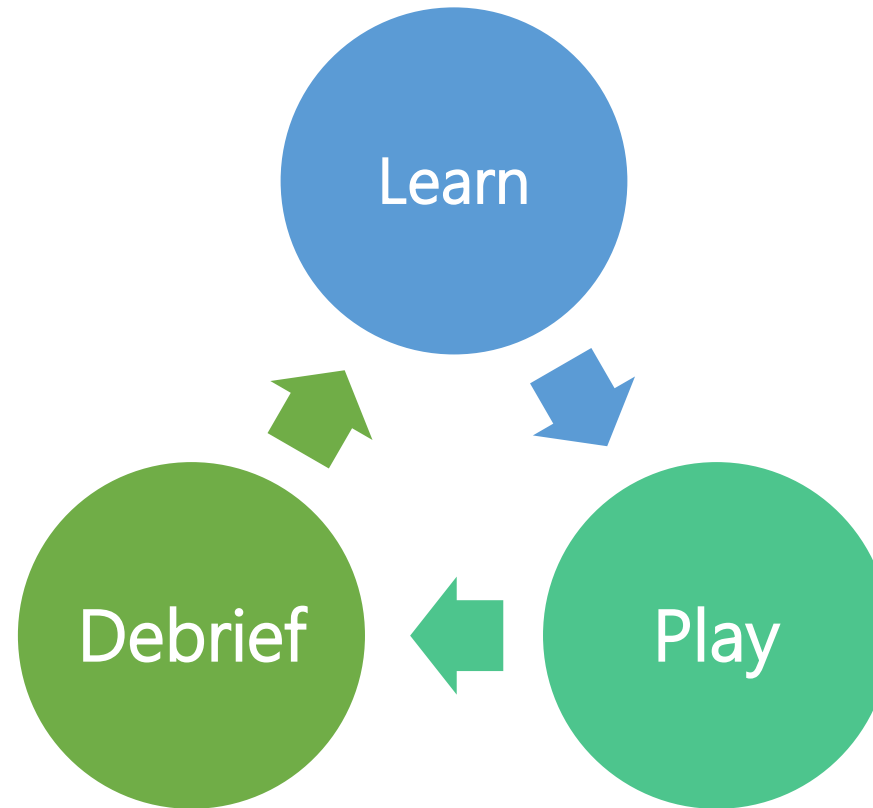
Maximize Net Profit  
after 2 years



# Learning with Cortex

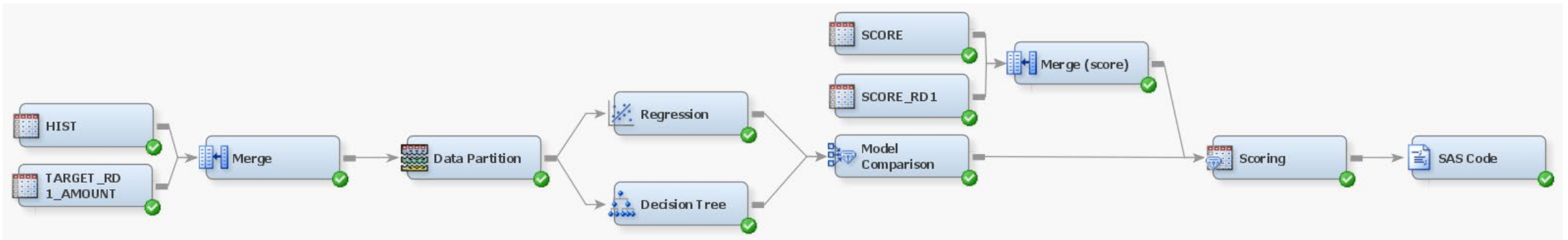


# How to play the game?



Task: Predict the amount given in the current year

# Round 1: Beat the Baseline



Players Ranking

Uploads Ranking

My Uploads

Interim

"Real Life"

Rank	Player	Operating surplus	Expenses	Donors contacted	Method	Uploads #	Selected
	-- Baseline --	\$7,602,655.00	\$0.00	0	-- Baseline --	0	Selected

# Game Demonstration

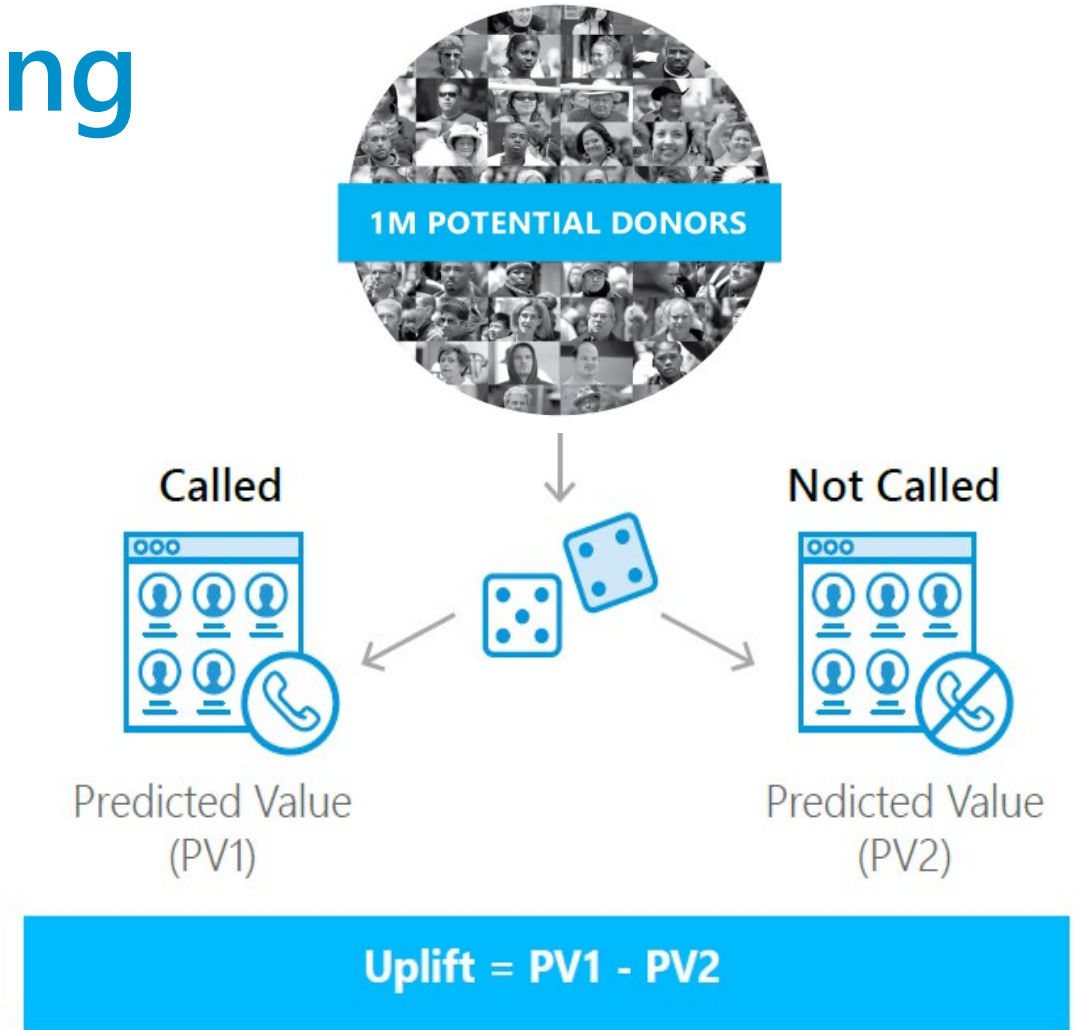
Task: Calculate the incremental value of a call

## Round 2: Uplift modeling

*There are many approaches to 2-stage modeling, but in most cases these steps are required:*

- 1 Predict the value if a person receives a treatment (here called or contacted)
- 2 Predict the value if a person does not receive a treatment (here not called or not contacted)
- 3 Compute the difference between both (i.e. the uplift generated by the treatment or targeted action: here the call)

*The Idea is to contact people who yield higher uplift (value) when called.*



Task: Calculate the incremental value of a call

## Round 2: Two-stage modeling

*One way to improve your predictions is to adopt a two-stage modeling approach*

To do so:

- 1 Fit a model to determine the probability **P** that an individual will give
- 2 Keeping only the data of those who gave, fit a model for **M** (the amount gave)
- 3 Use both models to make predictions on the population
- 4 Compute **P\*M** to determine the 'expected donation' of each individual

### MODEL



Probability of giving

**P**

### MODEL



Conditional amount if they give

**M**

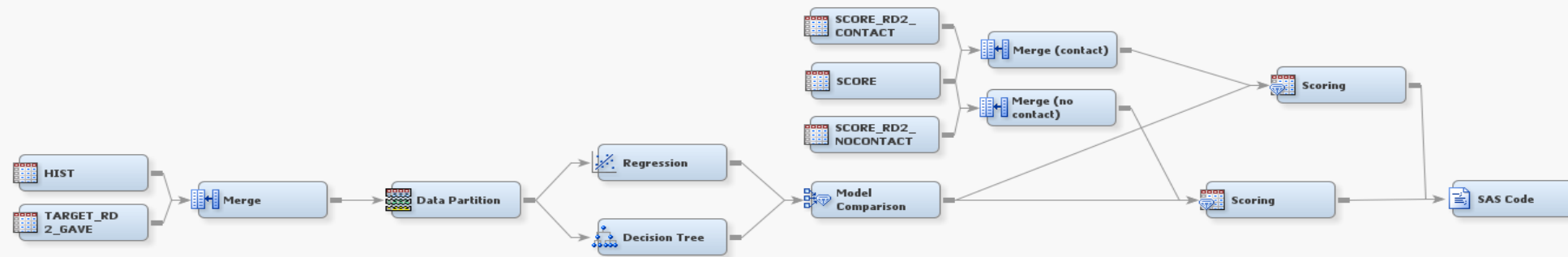
**Expected Donation =  $P * M$**



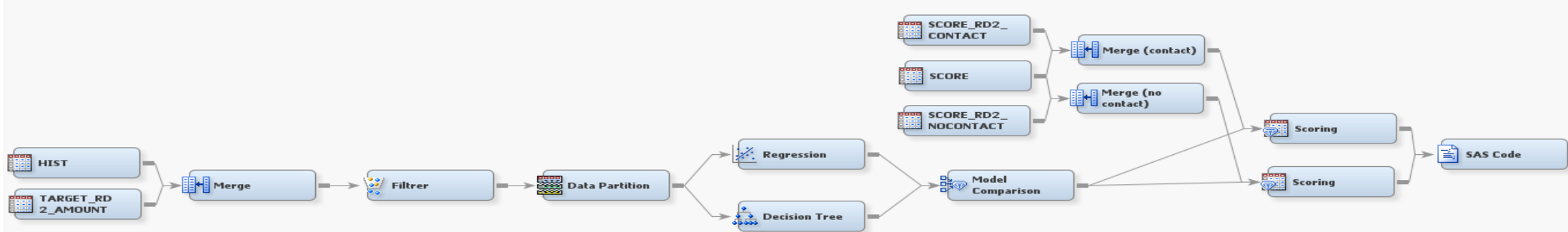
Tasks: Predict the Probability and Conditional Amount

## Round 2: Uplift Modeling

Stage 1: predict the probability of giving



Stage 2: predict the conditional amount



# Teaching with Cortex

# A Complete Solution

## Gamified Platform

Three scenarios where participants will design models and generate results that will be submitted for scoring, providing immediate feedback.

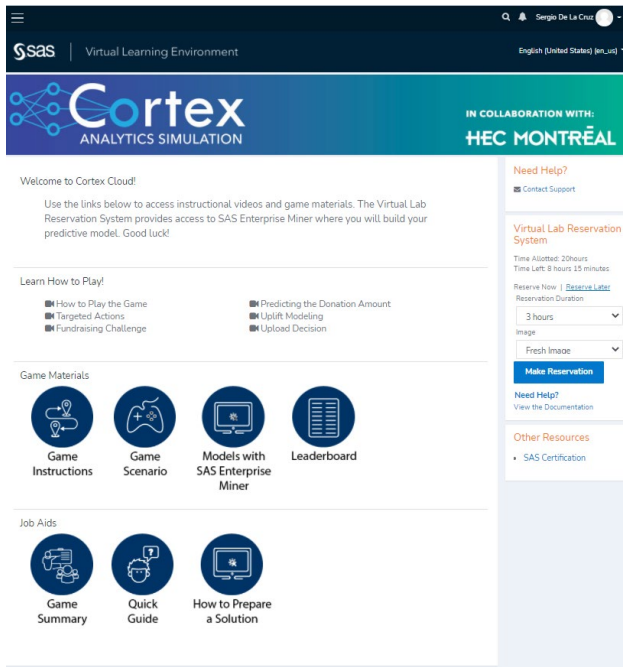
## Instructional Assets

Ensure that students have a quick start and minimize the preparation time required by the professor.

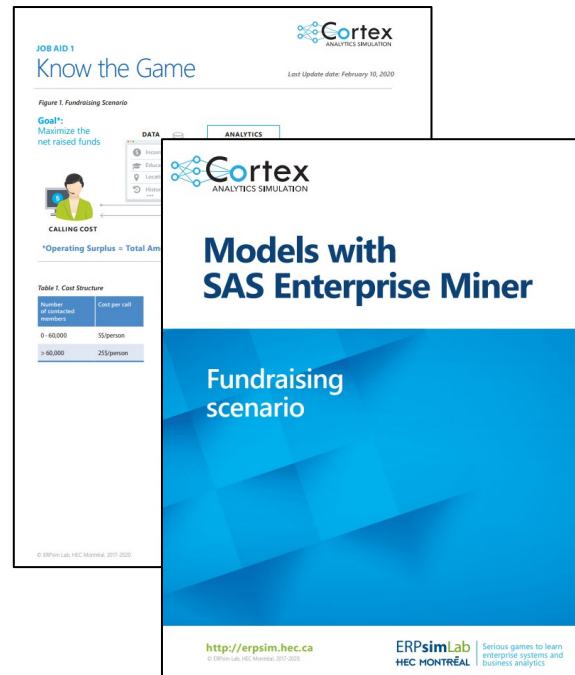
## Specialized Support

We accompany you by providing technical and pedagogical support for a seamless journey!

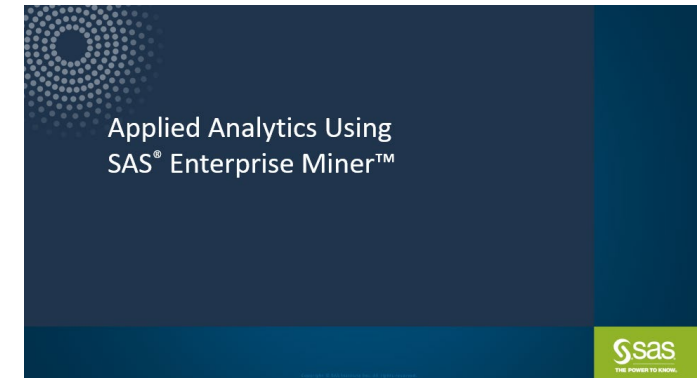
# Instructional Assets and Support



Virtual Learning Environment



Teaching Guides



Extended Learning



Technical and Pedagogical Support

# Get Started with Cortex

Discover what Cortex has to offer, learn how to play the game, know how to manage the game for your students and get ideas on how to incorporate Cortex into your curriculum.

Register at  
[erpsim.hec.ca/cortex/training](https://erpsim.hec.ca/cortex/training)

## Online Course

Complete the  
Online Course  
in self-study mode



## Session with our team

Register for a  
one-on-one session with our  
team. We'll answer all your  
questions!



Receive your instructor digital  
badge and start using Cortex  
right away!



# Price and Purchase Options

Free for Eligible Faculty Members

## Cortex Desktop

\$50 USD\*

Get the game materials and use your own installation of SAS Enterprise Miner software to play the game

## Cortex Cloud

\$100 USD\*

Get the game materials and access up to 20 hours of SAS Enterprise Miner software in the cloud.

\* Order Multiple Licenses option available

[erpsim.hec.ca/amcis2021](https://erpsim.hec.ca/amcis2021)



## Are you attending AMCIS 2021?

Book an appointment with a member of our team to discover  
ERPsim and Cortex!

[Book an appointment now >](#)

# linkedin.com/company/erpsimlab

The screenshot shows a web browser window with the LinkedIn URL <https://www.linkedin.com/company/erpsimlab>. The LinkedIn navigation bar is visible at the top, including the search bar and icons for Home, My Network, Jobs, Messaging, Notifications (91), Me, and Work. The company header for "ERPsim Lab - HEC Montréal" is displayed, with a "Super admin view" button and a "View as member" button. Below the header, a tab menu shows "All Pages" (selected), "Products", "Content", "Analytics", and "Activity" (62). The main content area features a banner image of a person working on a laptop with a tablet displaying a dashboard. The company name "ERPsim Lab - HEC Montréal" is prominently displayed, followed by the tagline "Leader in serious games solutions to teach and learn enterprise systems and business analytics". The location "Information Technology & Services · Montreal, Quebec" and "248 followers" are also shown. "Edit Page" and "Share Page" buttons are located on the right side of the company information section.

# Questions

# Thank You!

Website: [erpsim.hec.ca/cortex](https://erpsim.hec.ca/cortex)

Email: [cortex@hec.ca](mailto:cortex@hec.ca)