Welcome!
The presentation will begin shortly

@GLSummits
#AnalyticsSummit2020
Starting a Data Science Practice in a non-digitally native organization:

5 Things you need to know
Experience

Worked for a few years on our Advanced Analytics team at Steelcase
Currently lead the Applied Data Science team.

About myself

Practicing Data Science for over 8 years

Since 2011, I have been involved in Data Science initiatives at Steelcase that have resulted in powerful transformations for the organization.

Economics
Monterrey, MX
Actuarial Science

The University of Iowa

Tecnológico de Monterrey
Economics
What does a **Data Scientist** do?
What does a Data Scientist do?

Truth is, depends on where you work!
Everyone will have to be digital and Data Scientists play a crucial role in making that happen.

More than half of the Fortune 1000 companies have not achieved a full digital transformation.
How is this profession different across companies?

**Digitally Native**
- Google
- Amazon
- Apple
- Databricks
- Uber
- Stitch Fix
- Salesforce
- Netflix
- Microsoft

**Non-Digitally Native**
- Nike
- Ford
- Steelcase
- Ralph Lauren
- P&G
- Anheuser-Busch
- Coca-Cola
- Domino’s Pizza
- Walt Disney
What you end-up doing as a Data Scientist will depend on:
What you end-up doing as a Data Scientist will depend on:

- *How far an organization is on their digital transformation journey*

- *How fast an organization is moving on their digital journey*

- *Digital-dexterity across the organization*
5 things you should know

Data Science practices on a century-old organization presents certain challenges.

- People don’t know what to do with this skillset.
- Some teams are not ready to have a data science project
- Business doesn’t want to be disrupted.
- Legacy Data also requires transformation.
5 things you should know

Know your customer

# 1
#1 Know your customer

Who is your customer?

Who are you working for?

How do you work together?
Who is your customer?

You need to define/segment areas of the business and build your network.

Who are you working for?

Get together and talk about their business objectives.

How do you work together?

Start with the business problems, then allow those to help you build a backlog.
5 things you should know

Keep it simple but keep it creative
The true value of a Data Scientist will come from the ability to translate a business problem into a data problem that they can solve.

My most successful projects have had very basic modeling components.
$z = \frac{x - \mu}{\sigma}$

$\mu$ = Mean \\
$\sigma$ = Standard Deviation
DataScience

#2 Keep it simple but keep it creative

\[ z = \frac{x - \mu}{\sigma} \]

\[ \mu = \text{Mean} \]
\[ \sigma = \text{Standard Deviation} \]

\[ \int_{-\infty}^{z} \frac{1}{\sqrt{2\pi}} e^{-x^2/2} \, dx \]
Data Science
#2 Keep it simple but keep it creative

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\[ \int_{-\infty}^{z} \frac{1}{\sqrt{2\pi}} e^{-x^2/2} dx \]

Percentiles!
Predicting the Upcharge of a Custom Order
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If I have an average of how much it has cost me to make in the past, how much should I upcharge this custom order?

Will the upcharge that I suggested be enough to reach my margin goals?
Predicting the Upcharge of a Custom Order

If I have an average of how much it has cost me to make in the past, how much should I upcharge this custom order?

Will the upcharge that I suggested be enough to reach my margin goals?

\[
\begin{align*}
A & \rightarrow B \\
C & \rightarrow x \\
\begin{cases}
B \\
C \\
A
\end{cases}
\end{align*}
\]

(Rule of 3’s)
#2 Keep it simple but keep it creative

Extracting key features + configurations creates a data challenge

Almost impossible to do with regular tools like Excel, Tableau, etc.
We solve this by creating a lower dimensional representation of the data

(3 dimensional data in 2 dimensions)

We create a funnel that forces the product configurations to be described in 10 columns (instead of 250)
We obtain coordinates that are useful to measure distance (i.e. similarities)

The closer the points are together from each other, the more similar they will be.

*Actual 2-dimensional representation of the data.

Each dot is one particular product configuration.
We can now group products that are similar based on their distance.

Each dot is one particular product configuration.

Each dot is one group of products that are similar enough that we can group them.
Using these created groups of products makes it easier to do margin analytics.

Each dot is a group of products that are configured similarly.

This matrix helps us prioritize our areas of focus by looking at configurations that have high sales and low margins.
Confidence Intervals

Linear Models

K-Means Clustering

Basic Probability Distributions

(Normal, Log Normal, Beta, Weibull, Poisson, Binomial, Negative Binomial)
It’s not about building the most accurate or complex model...

...it’s about creative solutions that enable new capabilities and ways to use the data.
Those who tell the best stories, rule the world

5 things you should know
People respond more to stories than to any other narrative.
People respond more to stories than to any other narrative.

• What was the business problem we were after?
• What was the main challenge? Why was it important?
• How are we thinking about the problem?
• What is the main insight?
• What are the decisions that may result from this insight?
Data Science

Human-Centered Space Analytics

- **Gaining traction**
  - Changing people's mindset
  - Busting the myth that the data has no value

- **Building for growth**
  - Creating data as a barrier to entry
  - Setting industry standards and digital IP

- **This is a differentiator**
  - Expect a 2% increase in win rate → $200 M

- **User-centered analytics**
  - From data to insights to actions.

- **Rough start**
  - Our initial focus was more on the technology than the insights

- **Rebirth**
  - Redefine and focus
  - Customer point of view
  - Data Lake

- **"This is what I would be expecting out of a Space Analytics Report."**
  - "This is transformational."
  - "It is easy for someone off the street to look at this and start to make a decision."
You will fail before you succeed... And that’s ok
Most Data Science initiatives will fail.
Most Data Science initiatives will fail.

- Not enough data
- Lack of business engagement
- No efficient way to productionalize the work
- You tried to solve the wrong question
Most Data Science initiatives will fail.

- You tried to solve the wrong question
#4 You will fail before you succeed. And that’s ok.

Customer Churn  ➔  Predictive Leads
Customer Churn → Predictive Leads

**ALIGNMENT**
- Business Understanding
- Engaged Executive Leadership

**DEVELOPMENT**
- Solid foundation for new models from prior data investments for pricing analytics

**PILOT**
- Start small, Fail fast
- Agile approach to Data Science

**PLAN TO SCALE**
- Clear vision of the broader system.
- Maximize results by focusing on the user experience

**DEPLOYMENT**
- Integration with CRM Systems
- Training, Storytelling & Visualization

**SUSTAINMENT**
- Self-learning Analytical Model
- Transition to Sales Program Manager
- Share best practices & success stories

#4 You will fail before you succeed. And that’s ok.
Hedge your odds of failing by choosing a diverse backlog.
Data Science

#4 You will fail before you succeed. And that’s ok.

Hedge your odds of failing by choosing a diverse backlog.

“Moon Shot Approach”
(1 or 2 but very ambitious)

“Low Hanging Fruit Approach”
(Several ‘easy wins’)

“Data Approach”
- Lot’s of data available
- Lowest Technical Risky
- Highest risk for adoption

“Strategy-derived Approach”
- Importance to the business
- Highest Potential Value
- Will take time

- Ideal to gain traction across the organization
- Good for small pilots and POCs
You don’t need a Data Scientist...
You need a Data Science team!

# 5
The successful practice of Data Science in an organization is requires a mix of skills and personas.

Assuming that a single individual can handle Data Science initiatives from start to finish is risky.
#5 You don’t need a Data Scientist. You need a Data Science team
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- Data Scientist works with Business process owner to identify business problems and define solutions.

- Data Engineer works with business system owner and data scientist to develop data products
5 Things you should know

Quick recap

01. Know your customer

02. Keep it simple but keep it creative.

03. Those who tell the best stories, rule the world.

04. You will fail before you succeed. And that’s ok.

05. You don’t need a Data Scientist. You need a Data Science team.
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Thank you for attending!

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