



# MACHINE LEARNING

## WHEN PRIMARY RESEARCH BECOMES SECONDARY

NOVEMBER 2019



COMPETITIVE EDGE:  
**Disruption** **2019**  
by **Design** 



# SOME HISTORICAL BACKGROUND

THE COMPUTER AS A GENIUS!

THE COMPUTER AS A CALCULATOR

- Numbers
- Mathematical Logic
- Text?

3.14159      \$46.28      -1,007.8

IF \_\_\_\_ THEN \_\_\_\_ ELSE \_\_\_\_

ARTIFICIAL INTELLIGENCE /  
MACHINE LEARNING



# THE ARTICLE THAT CREATED THE FIELD

## THE VOICE OF THE CUSTOMER

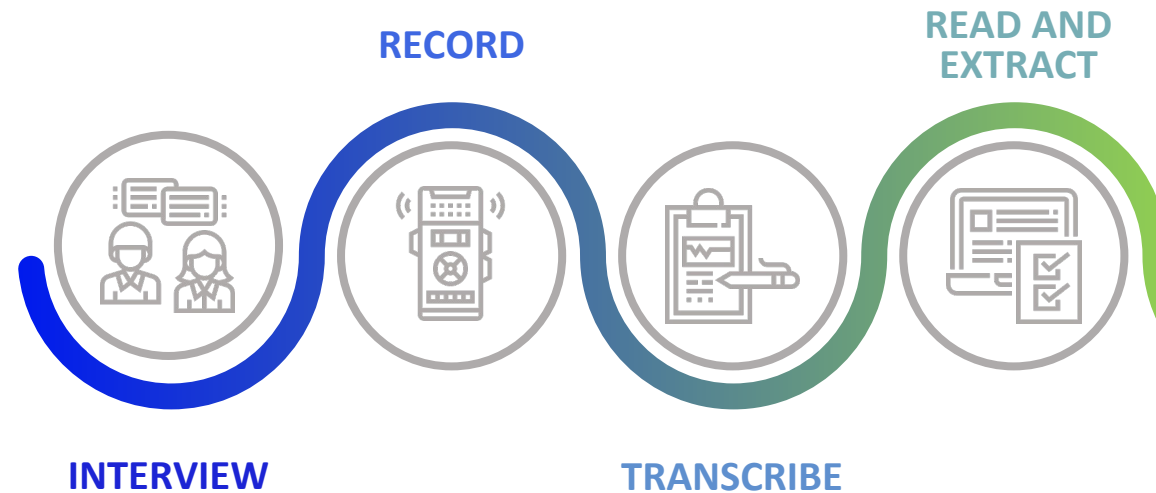
Abbie Griffin and John R. Hauser  
(Marketing Science: Winter 1993)

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# THE VOC PROCESS

## PHASE 1 WANTS AND NEEDS IDENTIFICATION



**CAN WE USE ARTIFICIAL INTELLIGENCE / MACHINE LEARNING TO  
AUTOMATE THIS TASK?**

**YES!**

NOT JUST FOR INTERVIEW TRANSCRIPTS,  
BUT FOR ANY KIND OF TEXTUAL MATERIAL.

NOT JUST NEEDS, INSIGHTS.



# IT'S HARDER THAN EVER TO FIND TRULY NEW INSIGHTS



Research budgets  
are smaller



Need to dig deep to  
find new insights



Traditional research  
can be expensive and  
time consuming



# THE GOOD NEWS

Can identify game-changing insights  
without collecting primary research data





# YOU MAY BE SITTING ON A GOLD MINE OF CUSTOMER INSIGHT



**3 BILLION +**  
ACTIVE SOCIAL MEDIA  
USERS

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**2 HOURS +**  
SPENT ON SOCIAL  
MEDIA PER DAY (ON  
AVERAGE)



**100,000+**  
ONLINE FORUMS

---



**60 MILLION +**  
HAVE POSTED REVIEWS  
ONLINE ABOUT  
PRODUCTS AND  
SERVICES



**265 BILLION**  
CUSTOMER SERVICE  
CALLS EVERY YEAR

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**11**  
CUSTOMER SERVICE  
INTERACTIONS PER  
YEAR





# CHALLENGE

HOW DO WE MAKE  
SENSE OF IT ALL?





# AI PRODUCED FASTER, BETTER INSIGHTS

MACHINE LEARNING MADE IT POSSIBLE TO MORE QUICKLY FIND  
INSIGHTS THAT MATTER



**FASTER**

Processing  
power



**BETTER**

Overcomes  
human bias



**CHEAPER**

UGC is virtually  
free



**COMPLETE**

Comments  
from  
thousands



**EASIER**

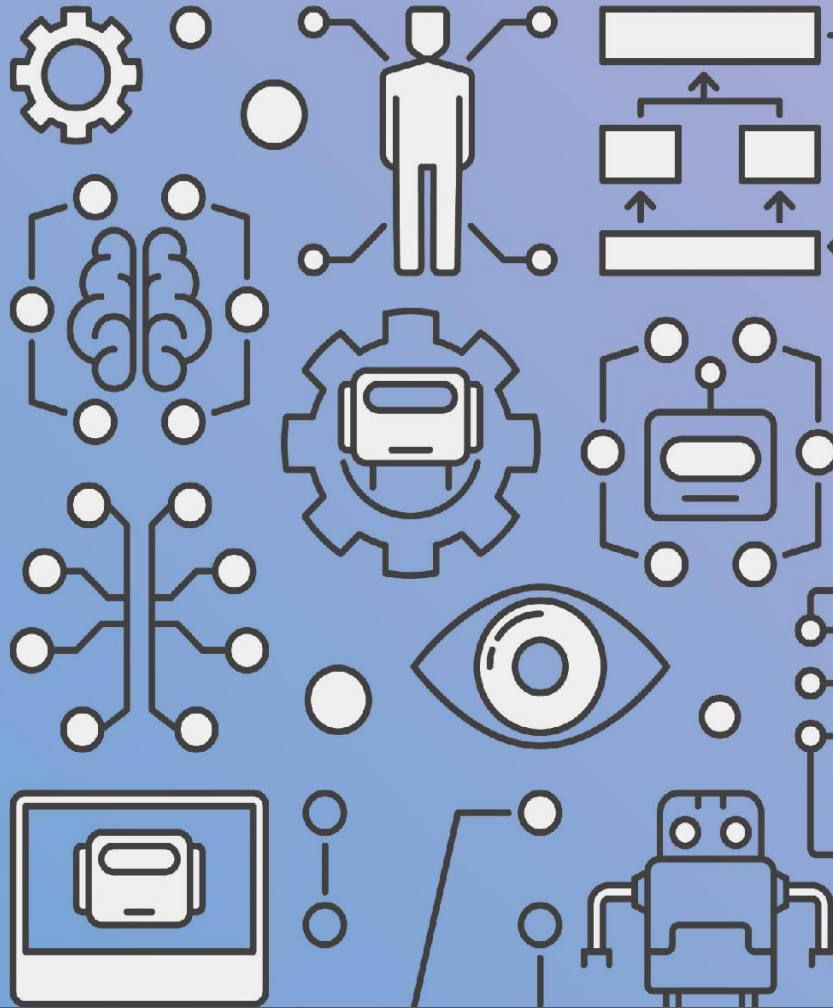
Machine does  
the heavy  
lifting



**RELEVANT**

Insights at the  
moment of  
truth





SOPHISTICATED ALGORITHM TO  
REDUCE A MASSIVE DATABASE  
THROUGH THE USE OF A  
CONVOLUTIONAL NEURAL NETWORK

# RESEARCHERS AT MIT PARTNERED WITH AMS TO BUILD ON THE LATEST DEVELOPMENTS IN MARKETING SCIENCE

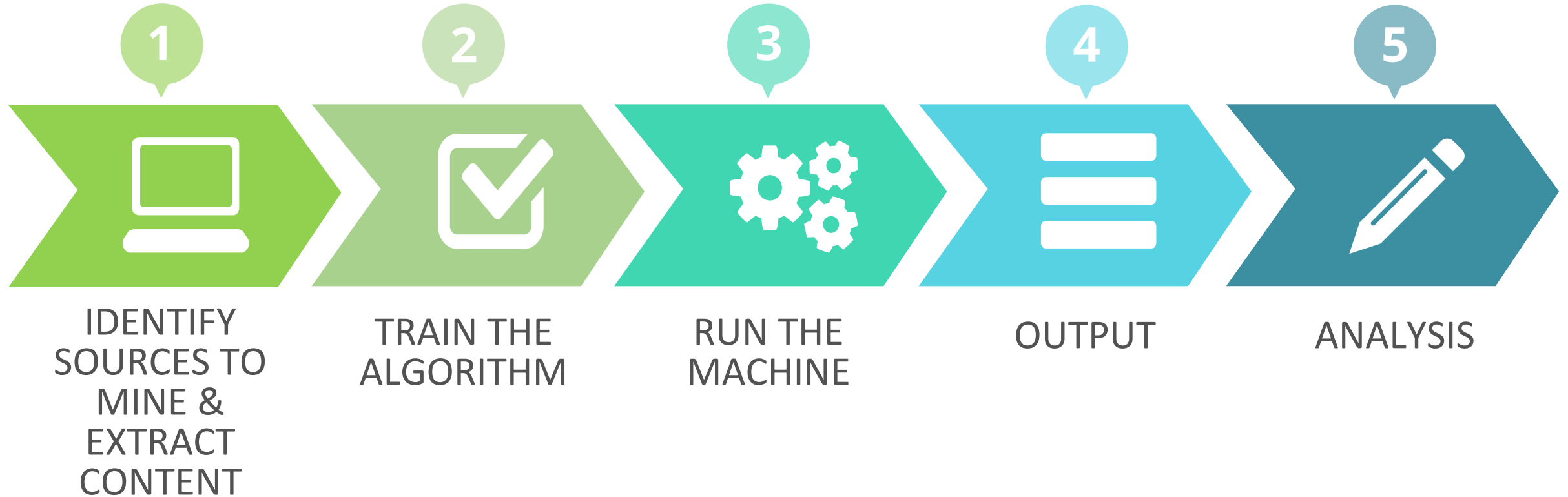
1. Insights identified were **comparable in both number and quality** to traditional methods
2. Compared to analyzing a random sample of UGC, **machine learning yielded better insights**
3. Were able to **identify important, infrequently mentioned** insights that were less likely to surface with traditional methods

“IDENTIFYING CUSTOMER NEEDS FROM USER-GENERATED CONTENT”

\*SSRN 2917 Artem Timoshenko & John Hauser, *Journal of Marketing Science*, January 2019



# MACHINE LEARNING ROADMAP



# WHAT IS NEEDED TO MAKE MACHINE LEARNING WORK

**2K**

## HIGH QUANTITY

2,000+ sentences

## SUBSTANTIVE SUBMISSIONS

At least 7 words per entry



## TEXT-BASED DATA

Not in pictures, charts, or other graphics

## RICH, INFORMATIVE CONTENT

Attributes, needs, problems, opinions and solutions





# APPLICABLE ACROSS ALL TYPES OF TEXTUAL DATA SOURCES

## USER GENERATED CONTENT

- PRODUCT REVIEWS
- ONLINE DISCUSSION FORUMS
- ONLINE COMMUNITIES
- BLOGS

## PROPRIETARY DATA

- CALL CENTER TRANSCRIPTS OR NOTES
- ONLINE CHAT DATA
- OPEN-ENDED SURVEY DATA





# SENTIMENT ANALYSIS AND FREQUENCY OF MENTION ADDS POWER

## SENTIMENT ANALYSIS

- Map and compare performance across brands, product skus or customer segments

## FREQUENCY OF MENTION

- Top of mind, moment of truth insights
- Often used as a proxy for importance





# HAVE NOW CONDUCTED DOZENS OF SUCCESSFUL APPLICATIONS

- UNCOVERING THE UNIVERSE OF NEEDS FOR INNOVATION
- IDENTIFYING ADJACENCIES
- DISCOVERING INSIGHTS ABOUT COMPETITORS
- TRACKING MARKET TRENDS
- NPS PROGRAM ENHANCEMENT
- DEVELOPING EFFECTIVE CLAIMS
- AS A COMPLEMENT TO TRADITIONAL RESEARCH



# CASE STUDY: MACHINE LEARNING FOR B2B

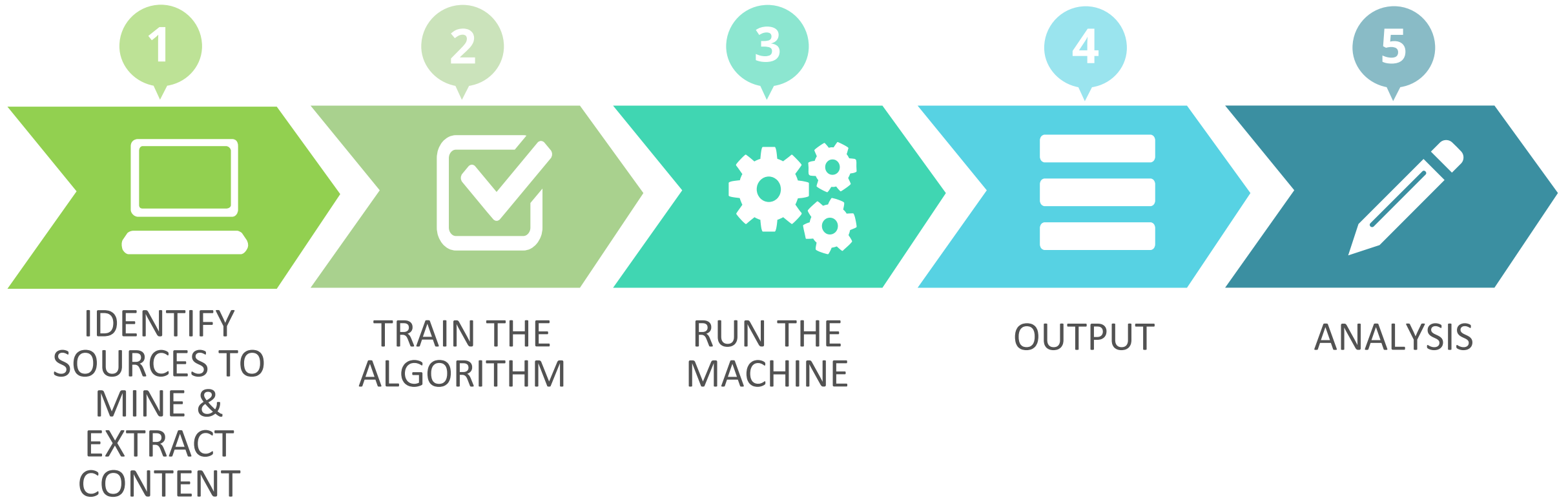
A black and white photograph of a snowplow truck clearing a snowy road. The truck is a heavy-duty pickup truck with a large red snowplow blade attached to the front. The truck's headlights are on, and it is driving through a deep snowdrift. The background shows a snowy landscape with trees and another vehicle in the distance.

## OBJECTIVE:

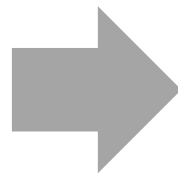
Identify customer needs and insights related to snowplows/spreaders to inform product development and marketing



# THE PROCESS



**21,000**  
SENTENCES



**117**  
UNIQUE INSIGHTS





# THE PROCESS WORKED EXTREMELY WELL

1

Obtained a detailed and comprehensive database of 107 unique needs

2

Covered numerous facets of the snow removal equipment industry

3

A repeatable process that can be efficiently scaled to dive into additional research questions/areas of interest



# THREE OF THE 107 INSIGHTS IDENTIFIED

## TOPIC

### LIGHTS

#### INFORMATIVE CONTENT

“The reason I don’t angle it is because I hate having the one side sticking out so far and it will block the headlight at some angles.”

#### INSIGHT

**ABLE TO MAINTAIN FULL VISIBILITY AT ALL TIMES, EVEN WHILE MY PLOW IS ANGLED (I.E., IT WILL NOT BLOCK THE HEADLIGHTS)**

## TOPIC

### SIDEWALKS

#### INFORMATIVE CONTENT

“The S70 is not the easiest to turn from one 48-inch walk to another 48-inch walk that is perpendicular. “

#### INSIGHT

**A SIDEWALK PLOW THAT IS EASY TO TURN (I.E., FROM ONE PERPENDICULAR SIDEWALK TO ANOTHER)**

## TOPIC

### SPREADER

#### INFORMATIVE CONTENT

“The top box keeps my tools safe and dry - do they still have plastic wheels? Good spreader but wheels keep cracking.”

#### INSIGHT

**ASSURED THE WHEELS ON MY SPREADER ARE DURABLE (I.E., WILL NOT CRACK)**





# PRODUCED GAME CHANGING INSIGHTS THAT WERE NEW TO INDUSTRY EXPERTS



Able to maintain full visibility at all times, even while my plow is angled (i.e., it will not block the headlights)



A sidewalk plow that is easy to turn (i.e., from one perpendicular sidewalk to another)



Assured I have de-icing material for all different types of road (i.e., gravel, paving, etc.)



Sand that will not strip away paint when applied (e.g., parking lines, etc.)

Algorithm identifies insights that are infrequently mentioned, but highly important





# KEY TAKEAWAYS FROM THE MACHINE LEARNING PROCESS



## MIX OF KNOWN /NEW RESULTS

- We got a mix of known and new result for product characteristics
- Known results increased confidence in validity of the process
- Unknown results increased confidence in the value of the process



## COST & TIME EFFECTIVE

- Very cost and time effective
- Rapid results
- Cost reasonable relative to other research processes



## RESULTS WERE OBJECTIVE

- Results were objective
- Found that the machine was as advertised – results not agenda driven





# VERIFIED THAT AI CAN BE USED TO GATHER BETTER, MORE COMPREHENSIVE INSIGHTS, FASTER AND CHEAPER



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## MACHINE LEARNING FOR INNOVATION

If you want to learn more, download our machine  
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[info.ams-insights.com/machine-learning-guide](http://info.ams-insights.com/machine-learning-guide)