

INTRO TO ROBOTICS

A woman in a business suit and glasses is shown in profile, looking towards the right. The background is a blurred office setting with computer monitors. Overlaid on the image is a complex digital circuit pattern consisting of white lines, dots, and arrows on a dark background, extending across the width of the image.

Empower. Enable. Unleash.

Artificial Intelligence is here, now, for better, faster, more scalable competitive capabilities in all aspects of human endeavor.



RPA
ROBOTIC PROCESS AUTOMATION

ML
MACHINE LEARNING

CC
COGNITIVE COMPUTING

AI RPA
ML
CC

AI RPA
ML
CC

AI RPA
ML
CC

AI is changing the physics of financial services

weakening the bonds that have historically held together financial institutions, while creating new centres of gravity where new and old capabilities are being combined in unexpected ways

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CHANGING THE PHYSICS OF FINANCIAL SERVICES

AI is changing the physics of financial services, weakening the bonds that have historically held together financial institutions, while creating new centres of gravity where new and old capabilities are being combined in unexpected ways

AI USE CASES



Artificial Intelligence. Real-world Solutions.

Intelligently monitoring, analyzing and acting with precision, 24/7.
Wading boldly into the complexities of real-world challenges.

INTRO TO ROBOTICS

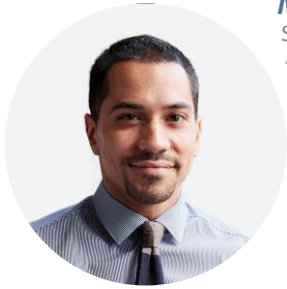
The Power to Do More. Now we can choose from a range of AI products for better, faster, more scalable competitive capabilities supporting *and driving* our core competencies.

At a glance – Robotics and Benefits.

- ✓ A smart, robotic workforce
- ✓ AI can mine client data so we can fine-tune personal experiences
- ✓ Strengthen brand affinity
- ✓ Amplify engagement for cross-selling and business expansion, retention

USE SCENARIOS AT NORTHERN TRUST

Use Case #1:



Marco
Systems
Analyst

Marketo Top Line Revenue

The traditional problems (or goals) of AI research include reasoning, knowledge representation and the ability to move and manipulate objects.

Use Case #2:



Zoe
Client
Services

Alt Assets Email Classification

AI research is defined as the study of "intelligent agents": any device that perceives its environment and takes actions that maximize its chance of successfully achieving its goals.

Use Case #3:



Charles
Investments
Advisor

Sanctions Monetary Risk

As machines become increasingly capable, tasks considered as requiring "intelligence" are often removed from the definition, a phenomenon known as the AI effect.

USE SCENARIOS AT NORTHERN TRUST

USE CASE

#1

**Marketo Top
Line Revenue**

USE CASE

#2

**Alt Assets Email
Classification**

USE CASE

#3

**Sanctions
Monetary Risk**

Now we can choose from a range of AI products for better, faster, more scalable competitive capabilities supportive to, and deeply within our core competencies.

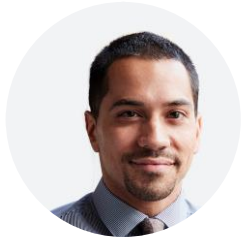
Use Case #1 for Artificial Intelligence

USE
CASE #1

Marketo
Top Line
Revenue

Ever-present, Smarter CRM. Now we can choose from a range of AI products for better, faster, more scalable competitive capabilities supporting and within our core competencies.

A smart, robotic workforce. AI can mine client data so we can fine-tune personal experiences that strengthen brand affinity and amplify engagement for cross-selling and business expansion, greater rates of client retention.



Marco
Systems Analyst

Artificial intelligence was founded as an academic discipline in 1956, and in the years since has experienced several waves of optimism followed by disappointment and the loss of funding followed by new approaches, and new funding.

USE CASE 1

TOP LINE REVENUE - MARKETO



Faster, more accurate, more intuitive.

AI techniques have experienced a resurgence following concurrent advances in computer power large amounts of data, and theoretical understanding. This raises philosophical arguments about the nature of the mind.

Inside factors unseen.

Now we can choose from a range of AI products for better, faster, more scalable competitive one personal.

USE CASE #2 FOR ARTIFICIAL INTELLIGENCE

USE
CASE #2

Assets Email Classification

Split-second decisions with higher levels of accuracy

Saving thousands of staff hours every day. Now we can choose from a range of AI products for better, faster, more scalable competitive capabilities supporting and within our core competencies.



Zoe
Client Services

Artificial intelligence was founded as an academic discipline in 1956, and in the years since has experienced several waves of optimism followed by disappointment and the loss of funding followed by new approaches, and new funding.

USE CASE 2

EMAIL CLASSIFICATION - ALT ASSETS



Inside factors unseen.

Now we can choose from a range of AI products for better, A smart, robotic workforce. AI can mine client data so we can fine-tune results. competitive one personal. A smart, robotic workforce

Faster, more accurate, more intuitive.

Now we can choose from a range of AI products for better, faster, more scalable competitive will not replace actual content and should be disregarded

Human-driven processing.

A smart, robotic workforce. AI can mine client data so we can fine-tune results.

Inside factors unseen.

Now we can choose from a range of AI products for better, faster, more scalable competitive one personal.

USE CASE #3 FOR ARTIFICIAL INTELLIGENCE

USE
CASE #3

Sanctions
Monetary
Risk

A watchful eye that never sleeps

Saving millions of staff hours. Now we can choose from a range of AI products for better, faster, more scalable competitive capabilities supporting and within our core competencies.

Alignment of resources. Now we can choose from a range of AI products for better, faster, more scalable competitive capabilities supporting and within our core.



Charles
Investment Advisor

Artificial intelligence was founded as an academic discipline in 1956, and in the years since has experienced several waves of optimism followed by disappointment and the loss of funding followed by new approaches, and new funding.

USE CASE 3

SANCTIONS MONETARY RISK

Faster, more accurate, more intuitive.

Now we can choose from a range of AI products for products for better, faster, content and should be disregarded.

A smart, robotic workforce. AI can mine client data so we can fine-tune results.

Inside factors unseen.

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Human-driven processing.

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COLLECTIVE SOLUTIONS FOR SUCCESS

KEY
FINDINGS

#4

Collective Solutions/ Shared Problems

New frameworks must emerge to enable shared accountability

Transcending Established Structures. Now we can choose from a range of AI products for better, faster, more scalable competitive capabilities supporting and within our core competencies.

Alignment of new working relationships. Now we can choose from a range of AI products for better, faster, more scalable competitive capabilities supporting and within our core.

TOP USES OF AI IN FINANCIAL SERVICES

*



Productivity

Increase productivity of advisors



Portfolio

Improve portfolio management



Cybersecurity

Detect and anticipate cybersecurity risks



Predictive

Improve predictive analysis



Recruitment

Find and attract investors



Auto-Advisors

Create automated financial advisors



Back Office

Optimize and streamline back office



Auto-Comply

Automate key elements of compliance



Opportunities

Track and assess market opportunities



Behaviors

Monitor investor behaviors

* Roubini Thoughtlab. <http://www.oracle.com/us/products/applications/wealth-report-summary-full-report-3942059.pdf>

NEW FRAMEWORKS AND COLLECTIVE SOLUTIONS FOR SUCCESS

*

Key Findings 4: **Collective solutions for shared problems.**



SAFETY

The safety of the financial system will be radically improved

If collective solutions succeed, real-time scanning using full market data has the potential to dramatically increase institutions' ability to react proactively to threats and catch malicious activities with improved

What is the right ownership framework for collective utilities to ensure their interests are aligned with their stakeholders?



COMPLIANCE

Efficient compliance will become a commodity

As institutions collectivize their shared compliance services, they will participate on the same competitive plane – removing efficiency of compliance as a competitive differentiator

How will liability for errors and compliance failures be shared between utilities, collectives and individual institutions?



ACCOUNTABILITY

Accountability and control must be renegotiated

As certain processes are shifted to shared utilities, institutions will seek to offload accountability to these central utilities as well, while regulators will push to hold the institutions accountable

Can cross-border solutions be developed given a growing divergence in financial and data regulations?



CYBER-RISKS

Growing cyber-risks present increasing operational challenges

Institutions must develop strategies to mitigate the increasing risk of abuse and leakage of highly confidential information at a customer and transaction level, as well as the increased risk-sharing of sensitive competitive information

How will the industry ensure leadership and investment across the financial system to overcome the barriers to collaboration?

NEW FRAMEWORKS AND COLLECTIVE SOLUTIONS FOR SUCCESS

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HOW DO WE ALIGN PEOPLE?



Organization

AI is a constellation of technologies—from machine learning to natural language processing—that allows machines to sense, comprehend, act and learn.



Governance

Artificial intelligence will transform the relationship between people and technology, charging our creativity and skills.



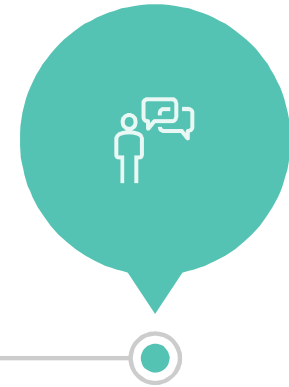
Leadership

The future of AI promises a new era of disruption and productivity, where human ingenuity is enhanced by speed and precision.



Interface

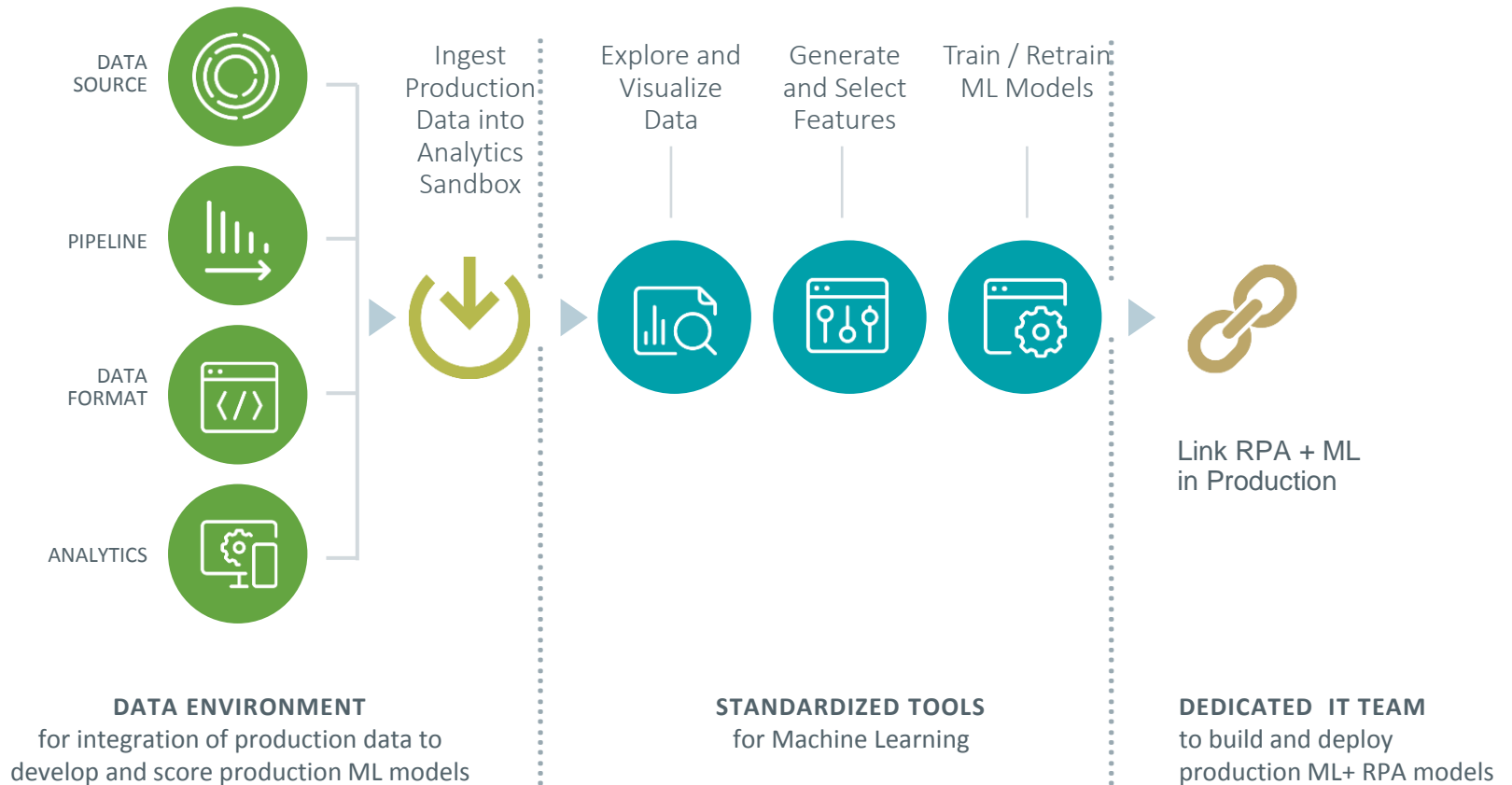
Companies recognize AI's strategic importance and its impact on their business, yet many are stalled in making it a key enabler for their strategy.



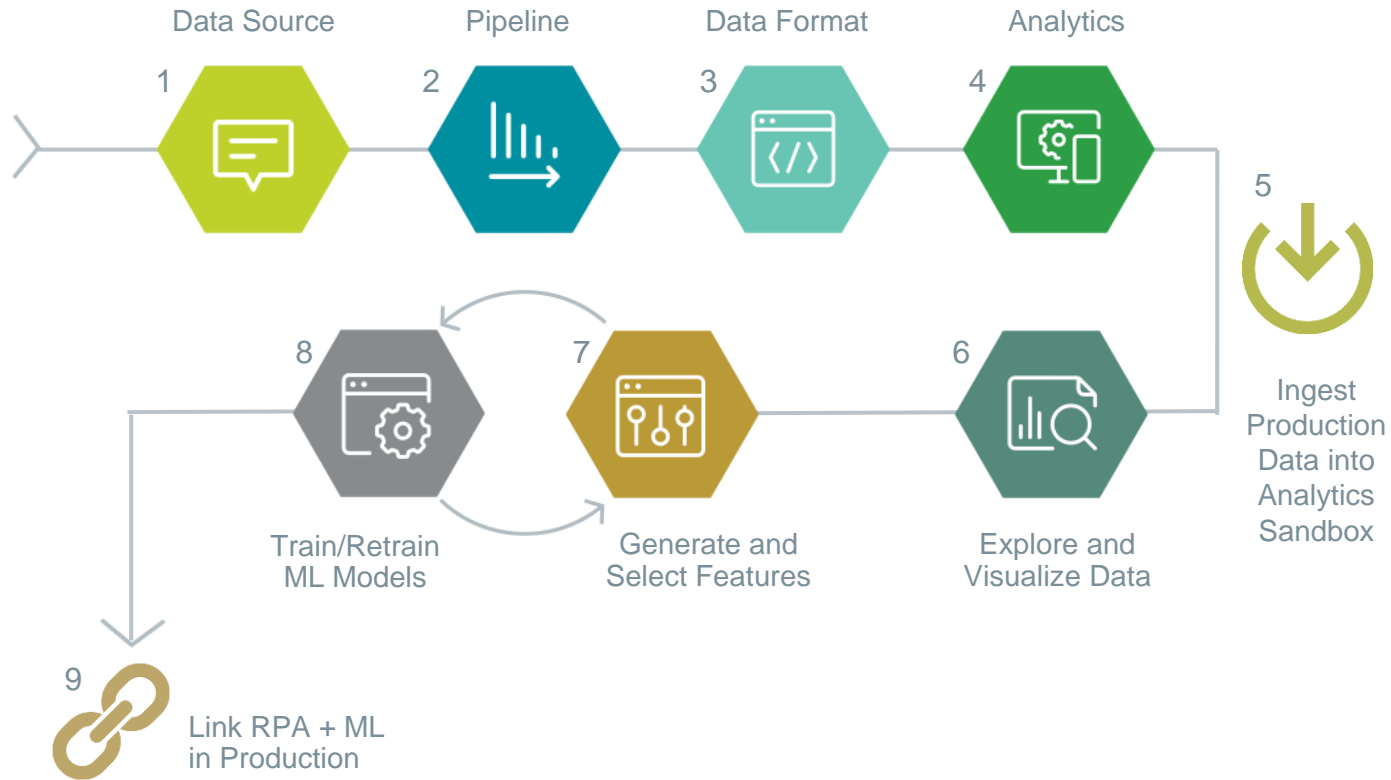
Communication

By raising AI for responsibility, fairness, and transparency, businesses can create a collaborative, powerful new member of the workforce.

WHAT TECHNOLOGY DO WE NEED?



WHAT TECHNOLOGY DO WE NEED?



INVESTOR SURVEY RESULTS:

56%

AI Integration:

56% expect to increase AI integration into the investment process¹

69%

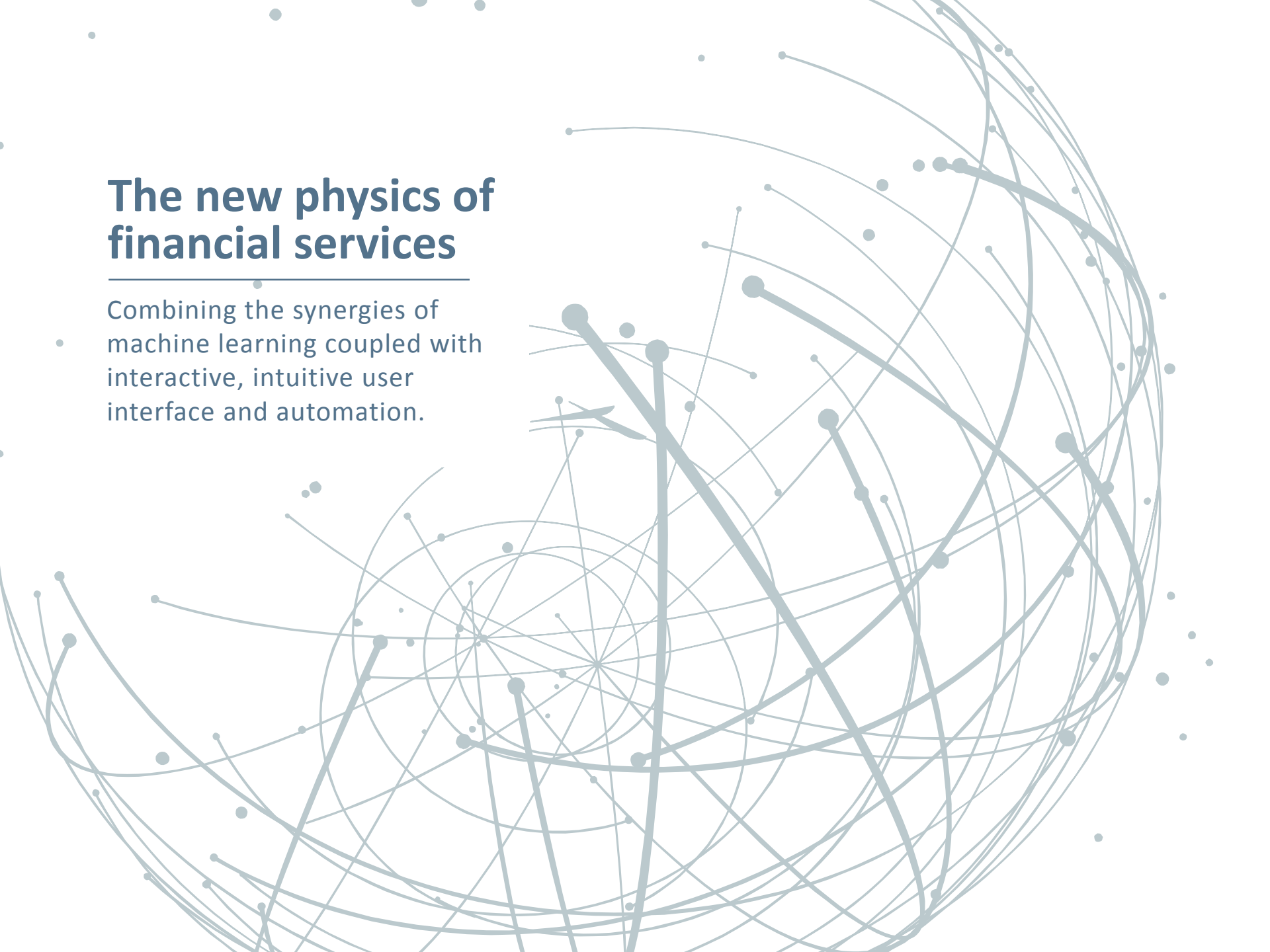
Data Sets:

69% think the number of data sets will increase significantly¹

1. Thomson Reuters and Greenwich Associates. <https://www.thomsonreuters.com/en/press-releases/2018/june/half-of-institutional-investors-expect-to-rely-more-heavily-on-ai-to-help-inform-investment-decisions-in-next-5-10-years.html>

The new physics of financial services

Combining the synergies of machine learning coupled with interactive, intuitive user interface and automation.





The new physics of financial services

Combining the synergies of machine learning coupled with interactive, intuitive user interface and automation.

An abstract graphic of a globe with various orbital lines and dots in shades of grey and blue, set against a white background. The lines are curved and intersect, creating a sense of motion and complexity. The dots are scattered across the globe, some larger than others, representing data points or celestial bodies.

The new physics of financial services

Combining the synergies of machine learning coupled with interactive, intuitive user interface and automation.

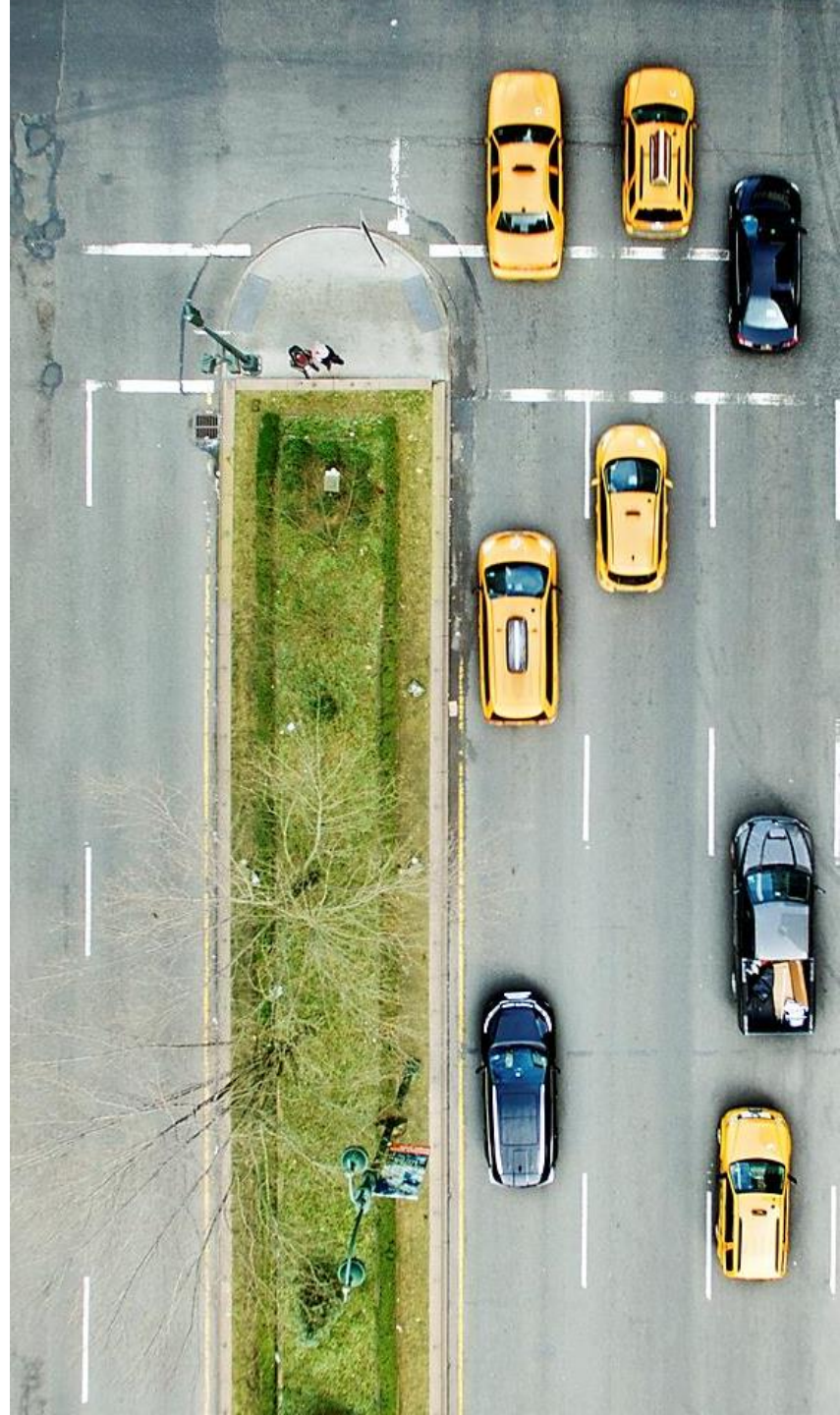
CONSIDER CENTERED / TWO COLUMN LAYOUT

Now we can choose from a range of AI products for better, faster, more scalable competitive capabilities supporting and within our core competencies:

- **Bullet point number one on display**
- **A second bullet point in this demo series**
- **And yet a third bullet point right in a row**
- **Okay, One more bullet point should do it**



Adobe and Consultancy. https://www.images2.adobe.com/content/dam/acorn/it/modal/pdfs/Econsultancy-2018-Digital-Trends-FS_EMEA.pdf





**NORTHERN
TRUST**

PRESENTATION COLOR PALETTE

These colors represent the palette for Northern Trust PowerPoint materials. The overall color scheme of the presentation should build on the primary color set by utilizing the cooler secondary colors (greens, blues and grays). The warmer colors (red and orange) should only be used as accents or to differentiate distinct facts or sets of data.

Series



Combinations

