Microsoft

Three ways AI is changing BI

Justyna Lucznik
Senior Program Manager

Agenda

The evolution of Business Intelligence

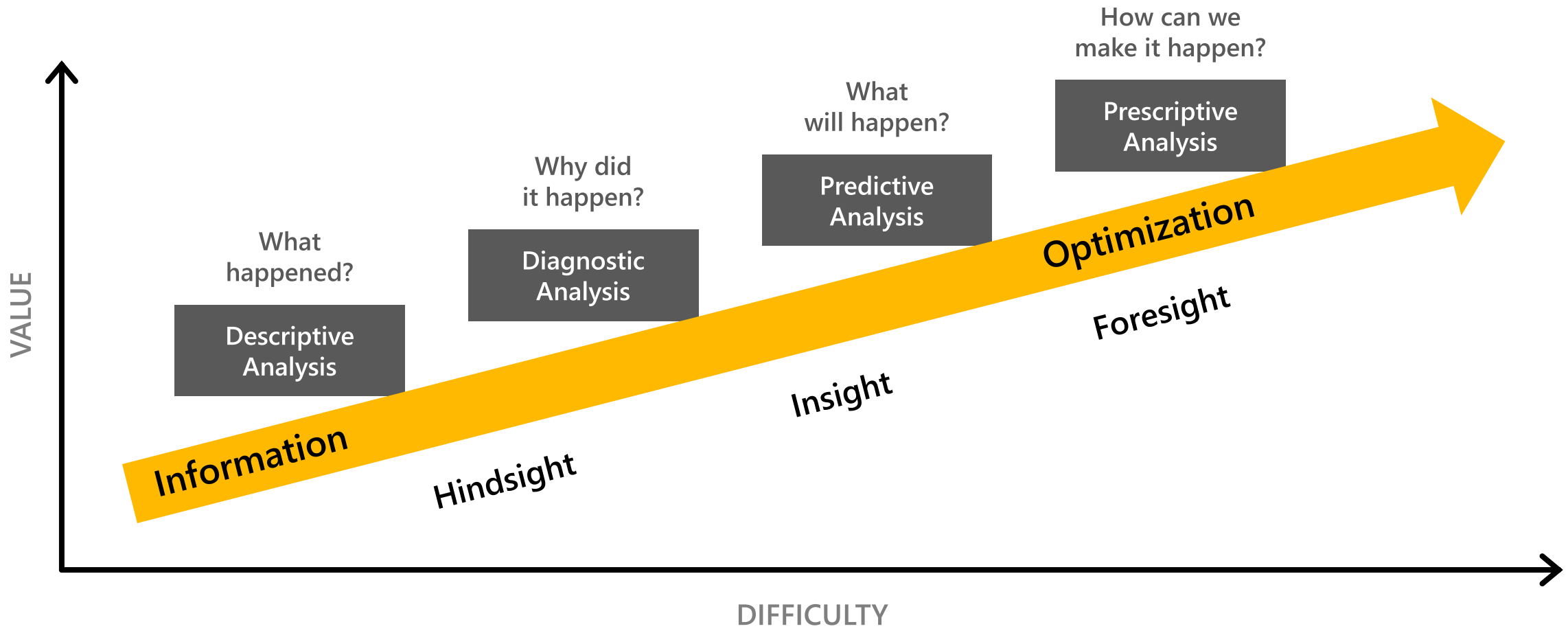
Top three trends

- From data to answers
- Democratizing insights for all
- Automated and transparent machine learning

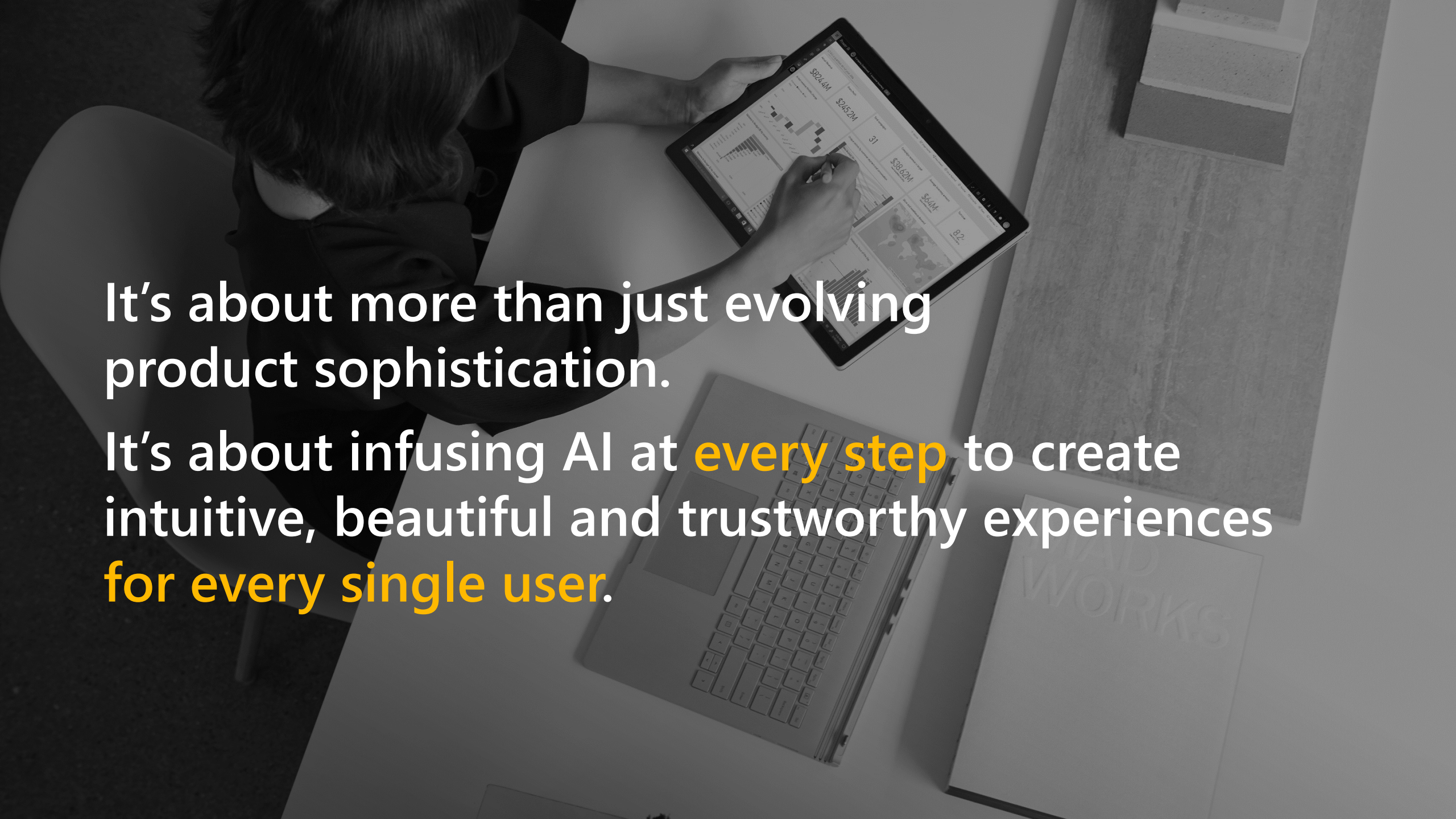
Examples in Power BI

Takeaways and action items

The evolution of the BI industry



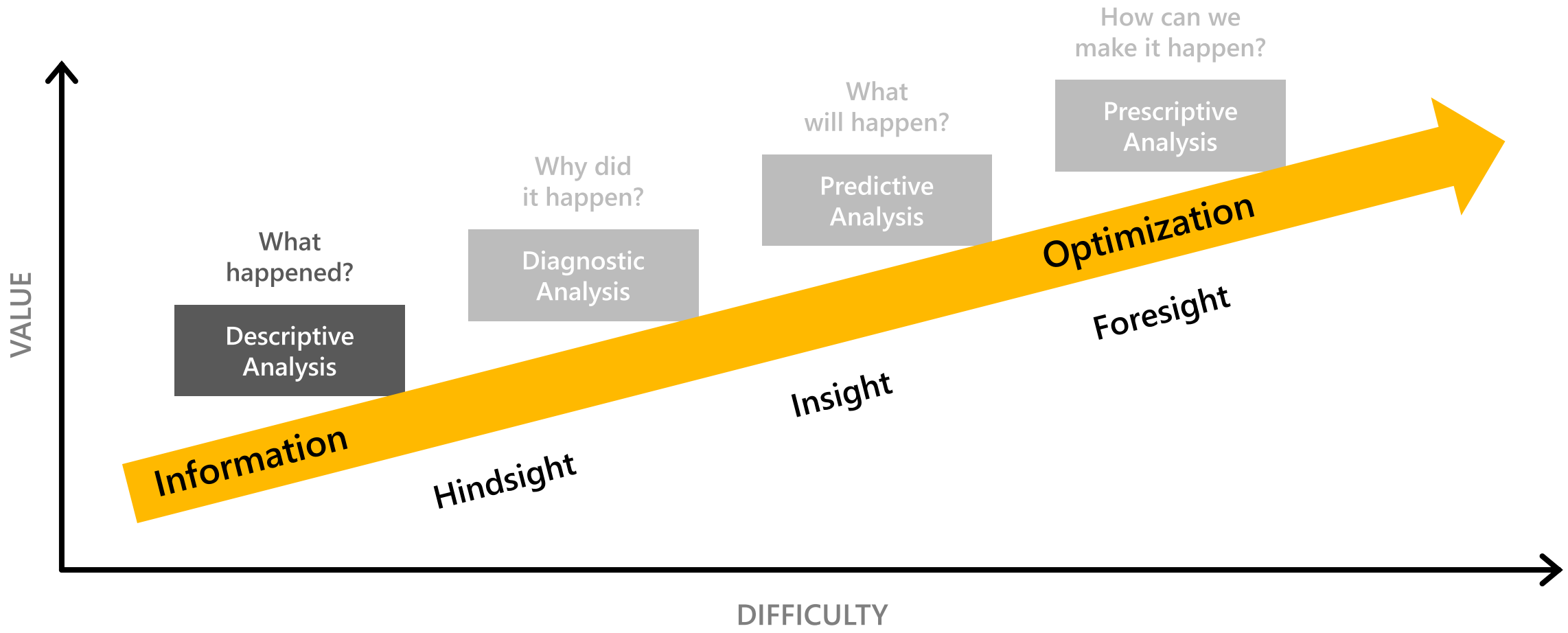
Gartner "IT Glossary_Predictive Analytics" http://www.gartner.com/it-glossary/predictive-analysis



It’s about more than just evolving product sophistication.

It’s about infusing AI at every step to create intuitive, beautiful and trustworthy experiences for every single user.

The evolution of the BI industry



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Trend 1: From data to answers

From data to answers

End users increasingly need immediate answers

It’s impossible to anticipate every question

Not every business user is well versed in analytics

Natural language considerations

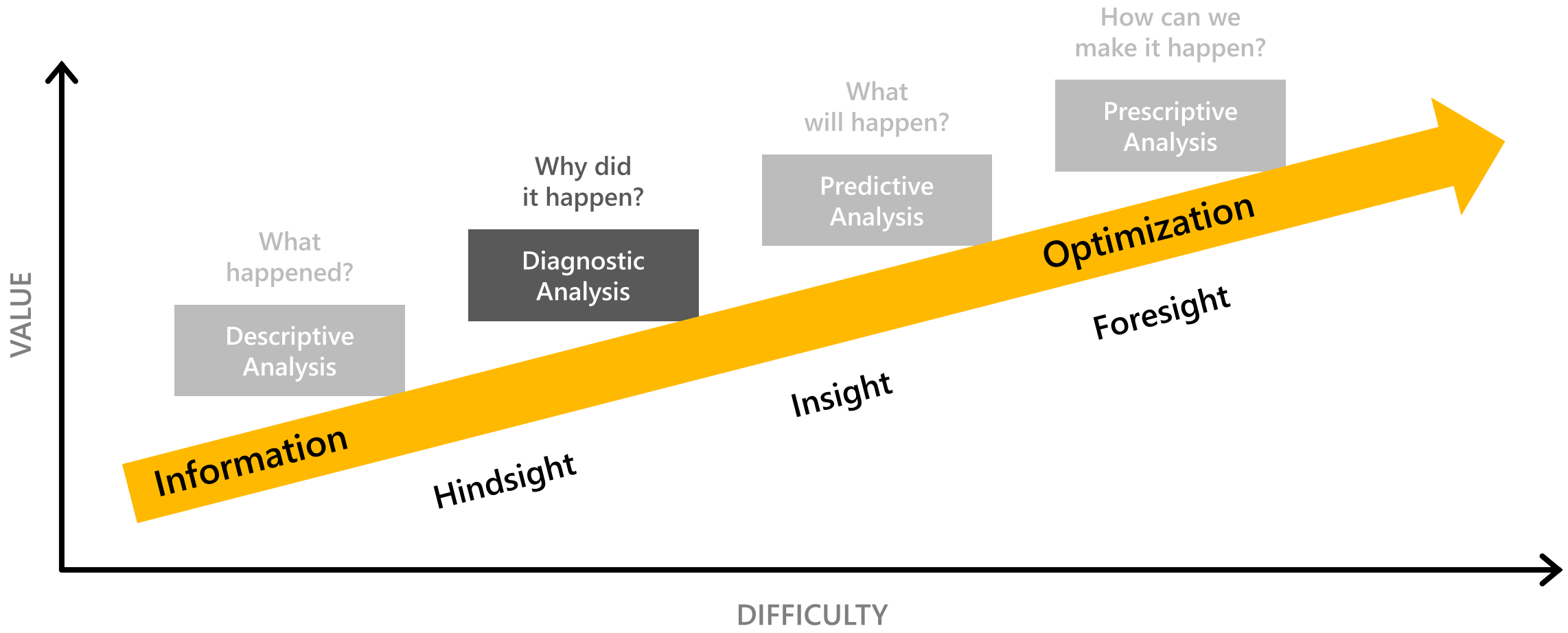
Everyone asks questions differently

Going from questions to reports must be seamless

Systems must get better with time

Demo: Q&A in Power BI

The evolution of the BI industry



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Trend 2: Democratizing insights for all

Democratizing insights for all

End users have many different types of ‘why’ questions

Getting answers requires time and investigation

Democratizing insights for all

Historically speaking

- Statistical methods for more sophisticated insights have been around for over 100 years
- These require statisticians and tools like R and Python

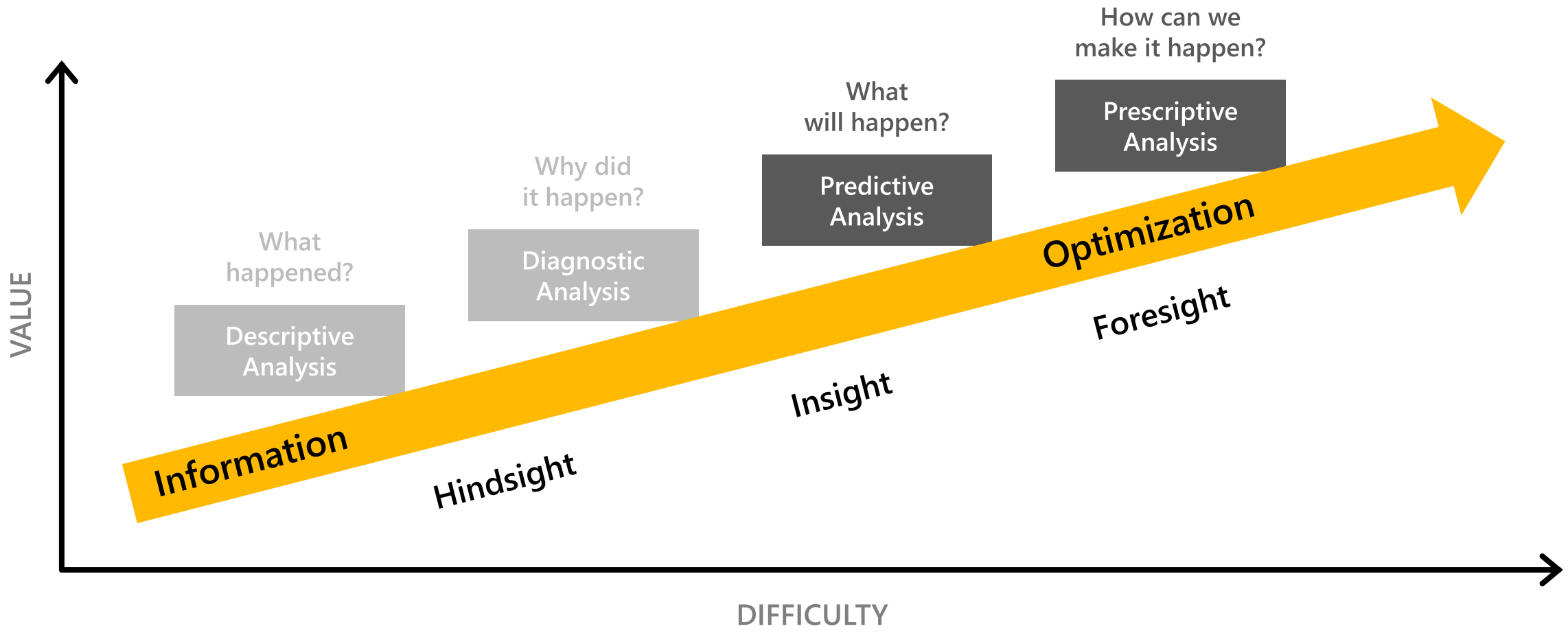
```
Call:
lm(formula = ViolentCrimesPerPop ~ population, data = crimeData)

Residuals:
    Min      1Q  Median      3Q     Max
-0.5850 -0.1549 -0.0749  0.0851  0.7786

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) 0.208435   0.006224   33.49   <2e-16 ***
population  0.646540   0.040125   16.11   <2e-16 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.2217 on 1607 degrees of freedom
Multiple R-squared:  0.1391,    Adjusted R-squared:  0.1386
F-statistic: 259.6 on 1 and 1607 DF,  p-value: < 2.2e-16
```

The Challenge

How do we expose methods like regressions and decision trees to naturally, non-intrusively, and transparently answer business questions?

Demo: AI Visuals in Power BI

The evolution of the BI industry



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Trend 3: Automated and transparent machine learning

Why machine learning?

Elevate your analytics solutions to the next level

BI solution:

“Why did my customers churn?”

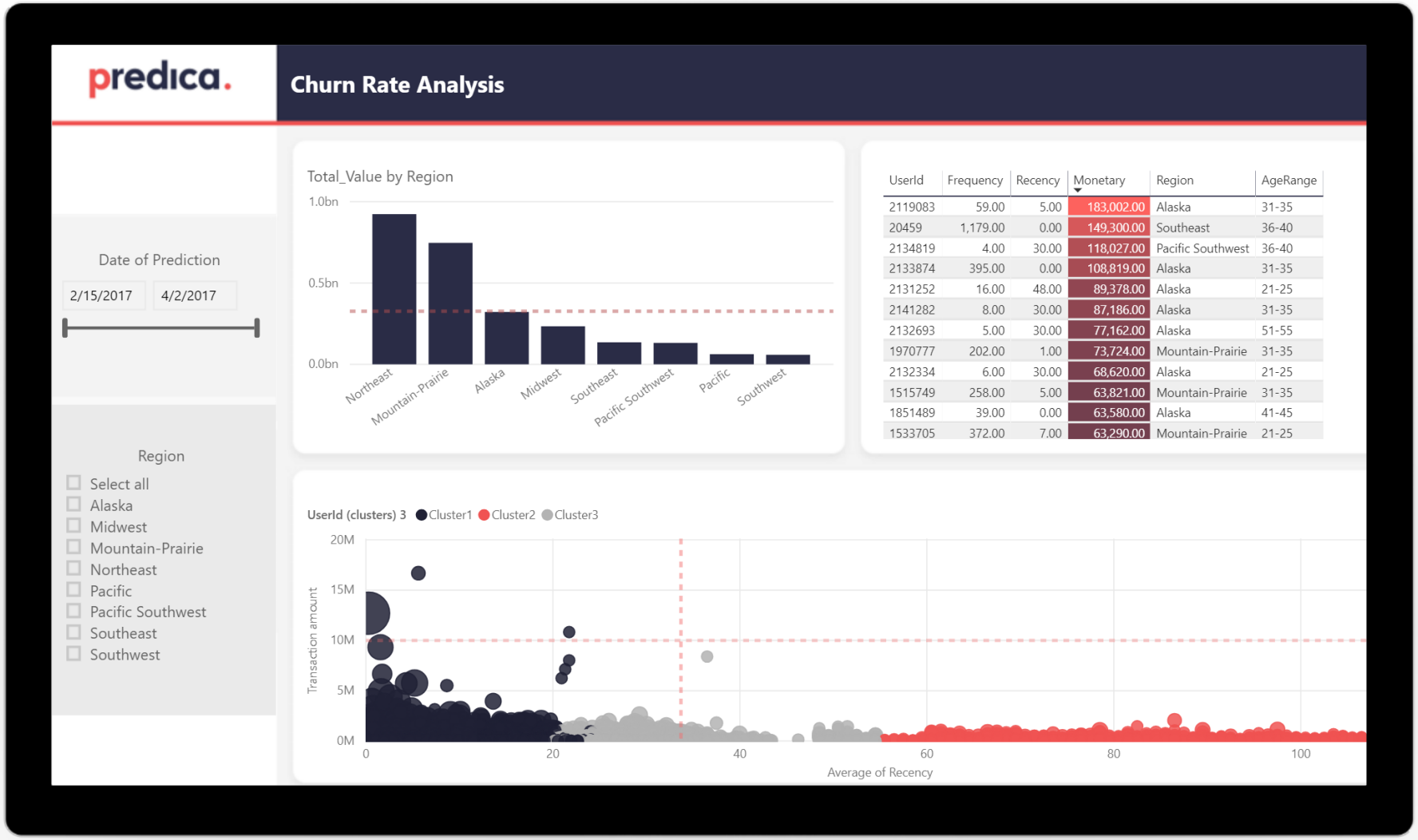
AI solution:

“Which customers will churn next month?”

Combining BI with AI:

“Of my customers that will churn next month, which should I target with a marketing campaign?”

Partner solution example

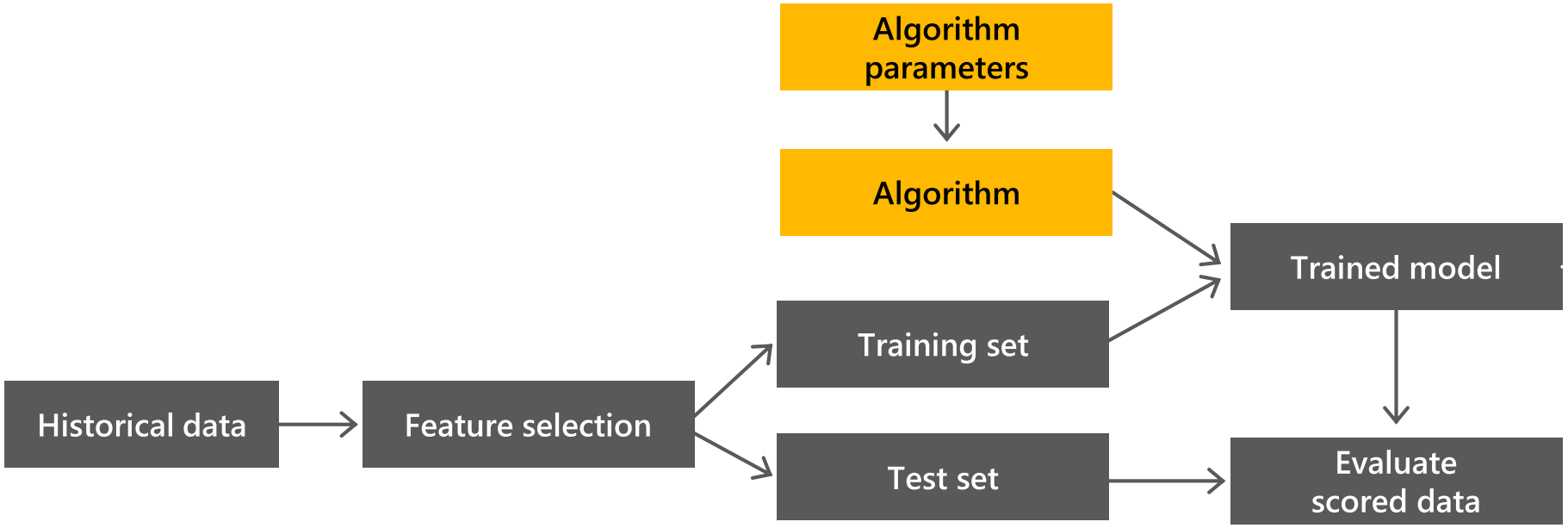


Machine learning challenge

Blending machine learning and BI creates a huge value proposition

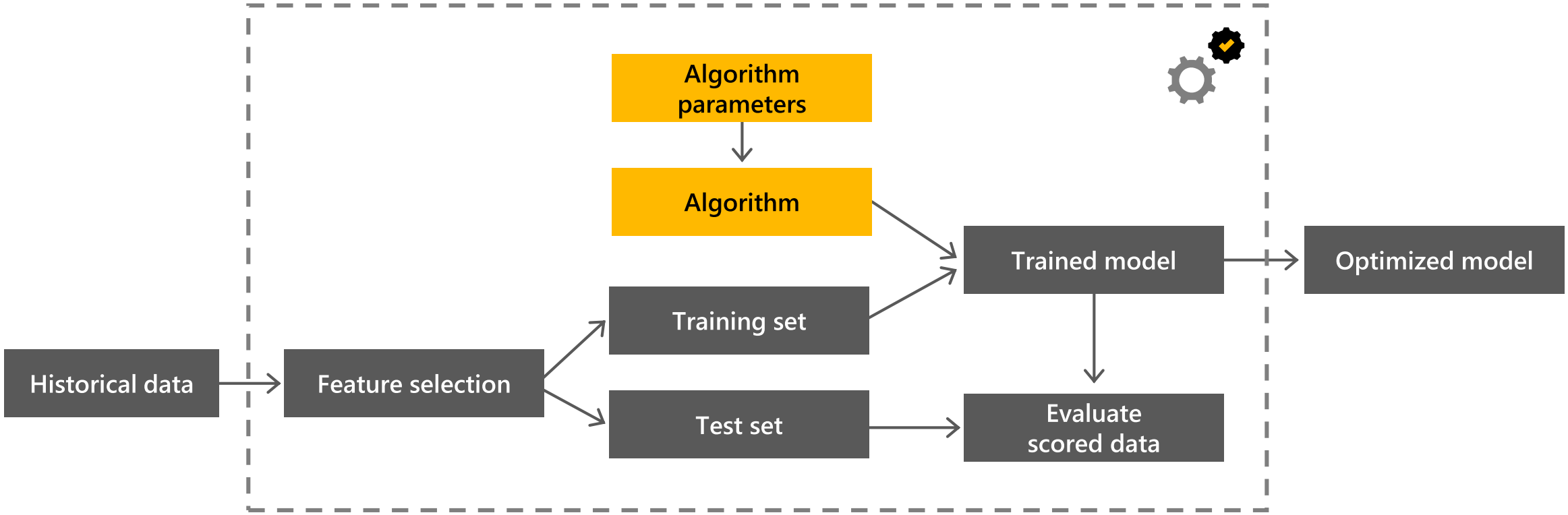
We don’t have enough data scientists to address every issue

Automated and transparent machine learning



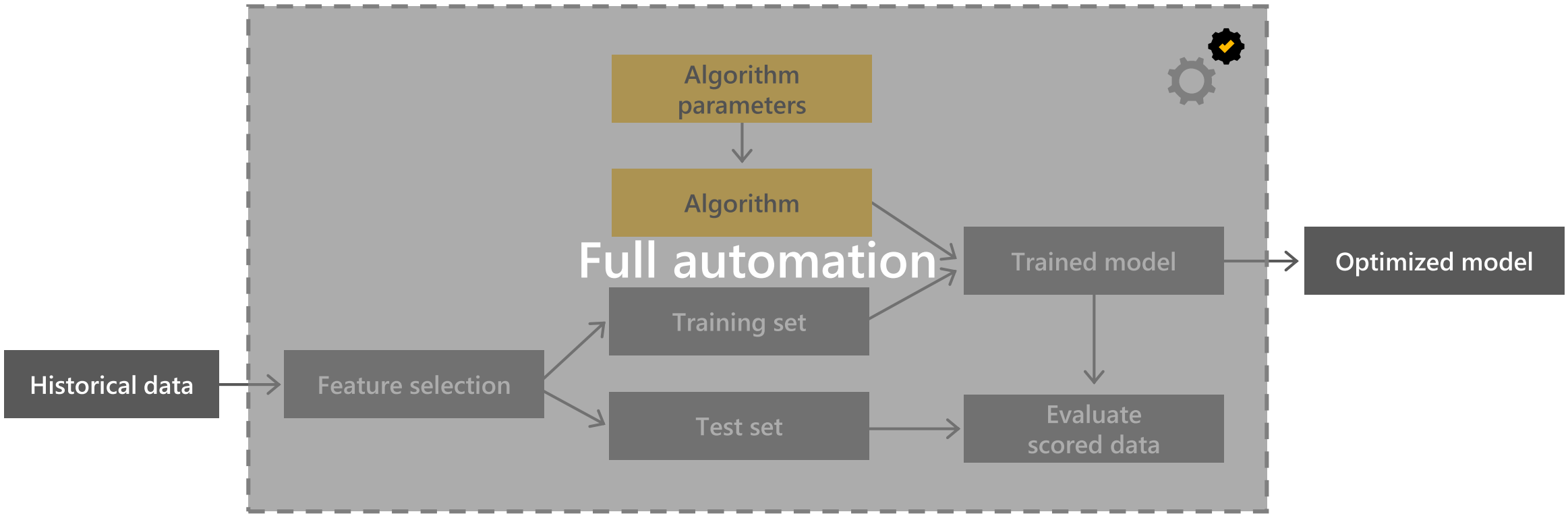
Typical training process of a machine learning model

Automated and transparent machine learning



Creating the best model requires lots of iterations

Automated and transparent machine learning

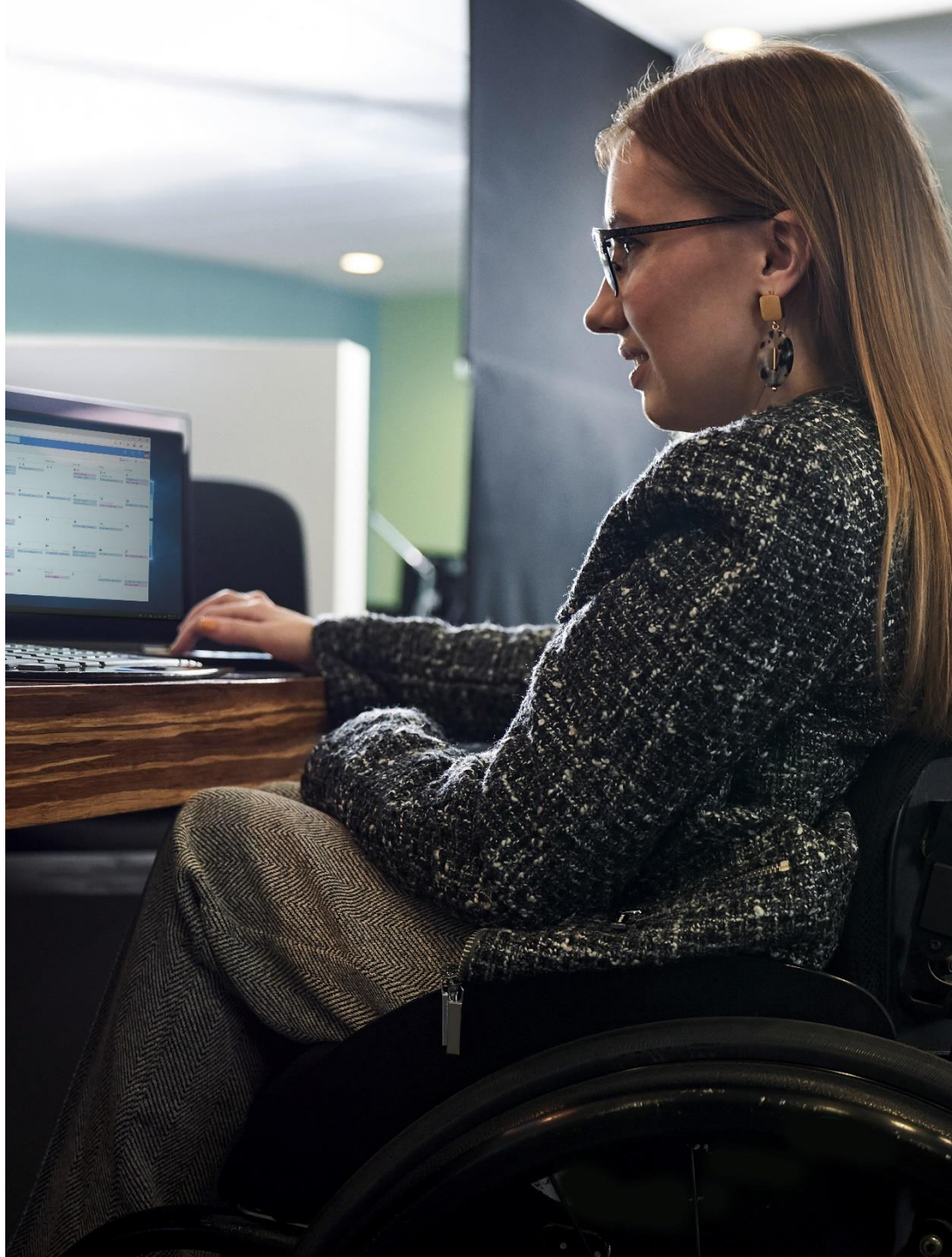


Automated and transparent machine learning

It’s not enough for the machine learning process to be automated.

The automation must be transparent in how it:

- Transforms the data
- Creates the model
- Explains the results



The importance of explainable AI

The goal of explainable AI

Credit: AI and Machine Learning: Key FICO Innovations

Demo: Automated ML in Power BI

Takeaways

There is a rise of citizen data scientists who can leverage ML methods

Innovation comes from democratizing existing statistical methods

Users need answers about their data quickly and intuitively

No matter whether we are catering for a data scientist, an analyst or an end user, these new experiences we develop must be trustworthy, intuitive and beautiful to be successful.

Action Items

- Download the Power BI Desktop to try out the AI visualizations and Quick Insights: https://aka.ms/pbidesktopstore
- Get started using natural language: https://docs.microsoft.com/en-us/power-bi/visuals/power-bi-report-visualizations
- Learn more about AutoML in Power BI: https://docs.microsoft.com/en-us/power-bi/service-machine-learning-automated

Q&A