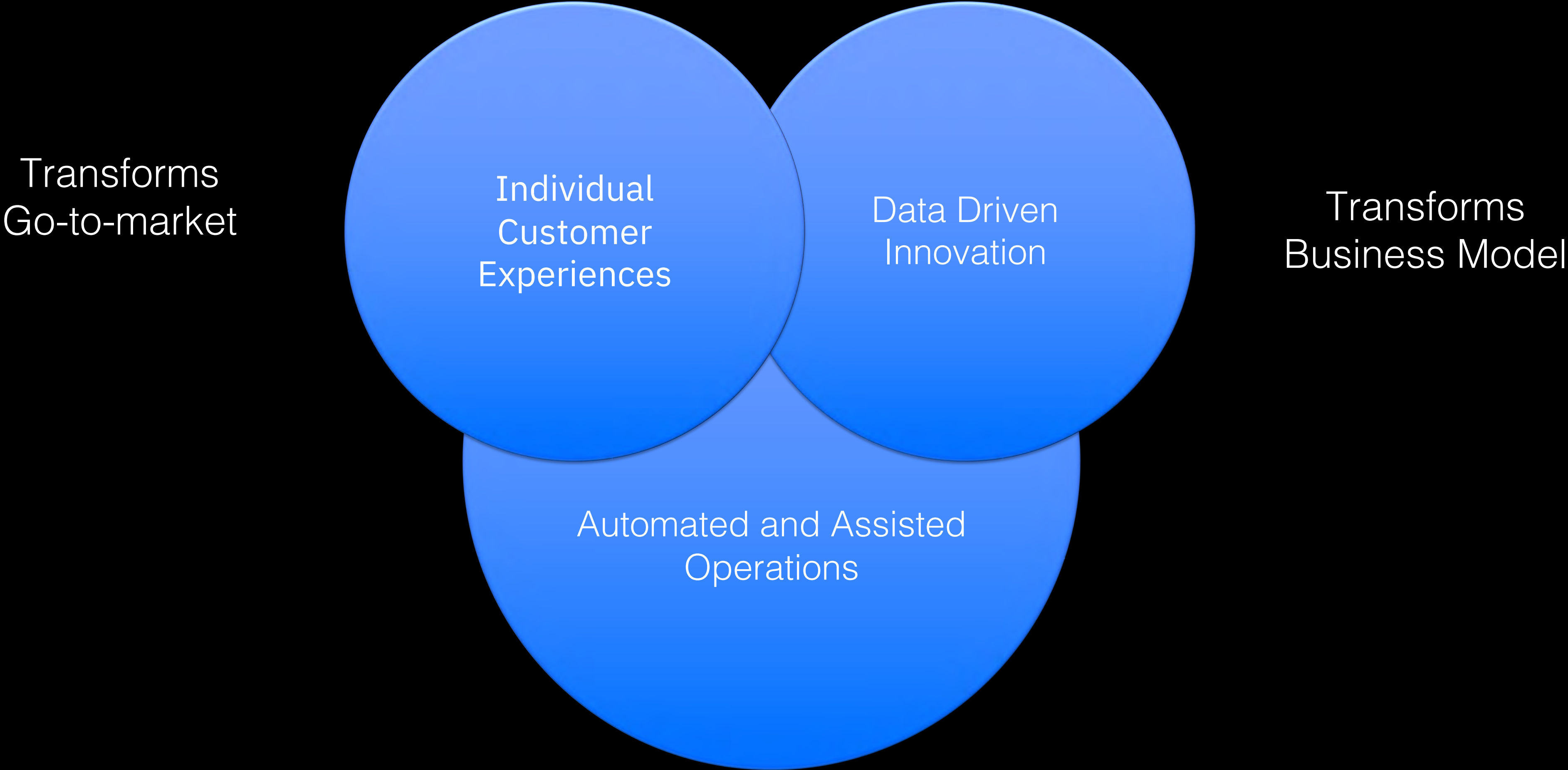# FIIF: AI/ML case studies –
*AI powered **Systems** from underground to space*

22.11.2018
Timo Rastas, IBM
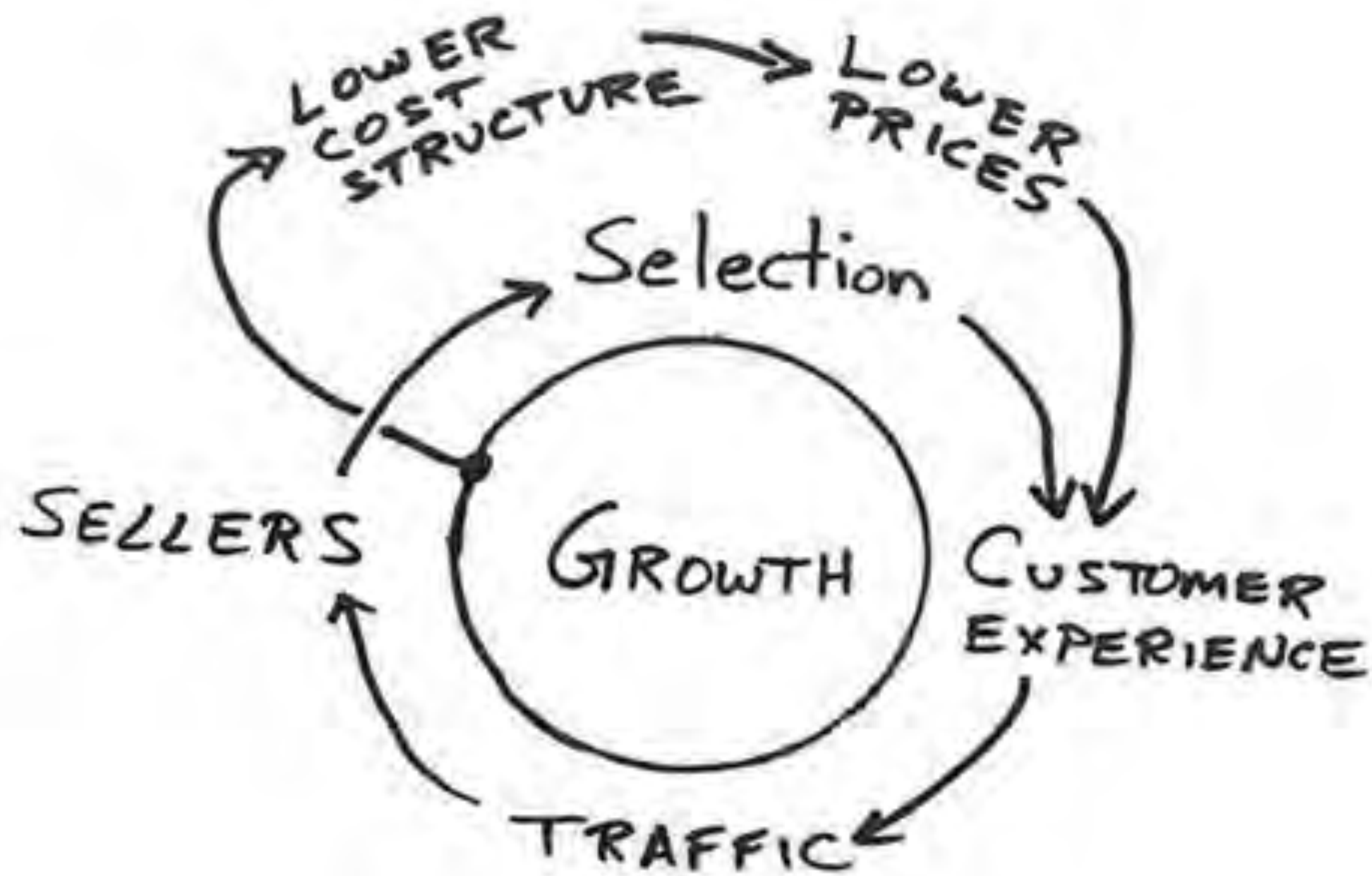
timo.rastas@fi.ibm.com

ML/AI Case Studies driving digitalisation
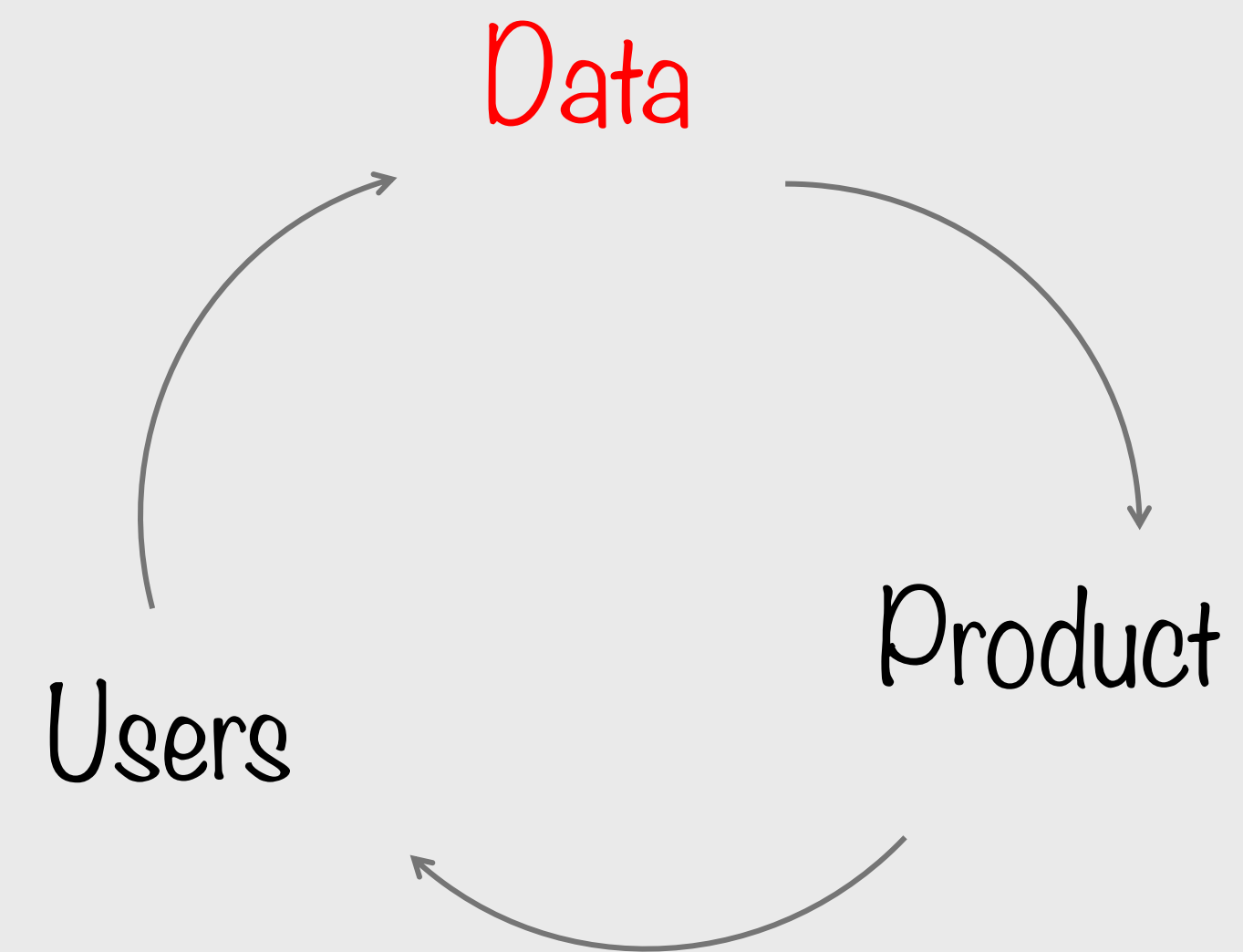
"Amazon Business Model"

Jeff Bezos 2001

"AI Business Model"

Andrew Ng 2017

Individual Customer Experiences...for all

"In order to be irreplaceable one must always be different"
 - Coco Chanel

Sandvik provides enhanced mine analytics and operations automation

Data: Detailed mine and individual equipment specific measurements, Equipment maintenance history

Product: OptiMine mine operations and predictive maintenance planning and optimisation

Users: Mining operators

Value: More tons, Safety, Automated 24/7 operations without shift breaks, radically lower cost per ton

https://youtu.be/mW0mL0QaMBQ

Medtronic transforms
individual diabetes care

Data: Detailed information of
individual glucose level, corpus of food,
collect contextual detail about meals

Product: Sugar.IQ advisor app features
real-time, continuous glucose
monitoring (CGM) to predict
hypoglycemia 2 to 3 hours in advance,
with an accuracy of 85-89%

Users: potential 415 million adults with
diabetes in the world – a number that
could grow to 642 million by 2040

Value: More effective patient
participation in care

https://youtu.be/Cj3ksIs1OAQ

Medtronic

Woodside Energy leverages AI to make relevant information available just by asking

Woodside Energy
CIO of the Year 2017
Industrial CIO of the Year 2017
Leading AI effort takes top Benchmark Award.

Data: 80,000 sensors, >1 million documents, and 30 years of lessons learned from employees

Product: Woodside operators and engineers can ask questions in natural language to maintain situational awareness and advice on complex equipment and processes

Value: Reduces time spent searching for expert knowledge by 75%

https://youtu.be/GFZ2IaTVkY8
https://youtu.be/yEdpSyk4jlE

Individual learning experiences for students and employees

Data: Employee/Student learning targets and history, Learning style preferences, Diverse training materials

Product: Individual learning program generation, learning offering generation

Users: Maintenance operations, Sales, Employees, Schools, …

Value: Effective learning, compilation of learning materials
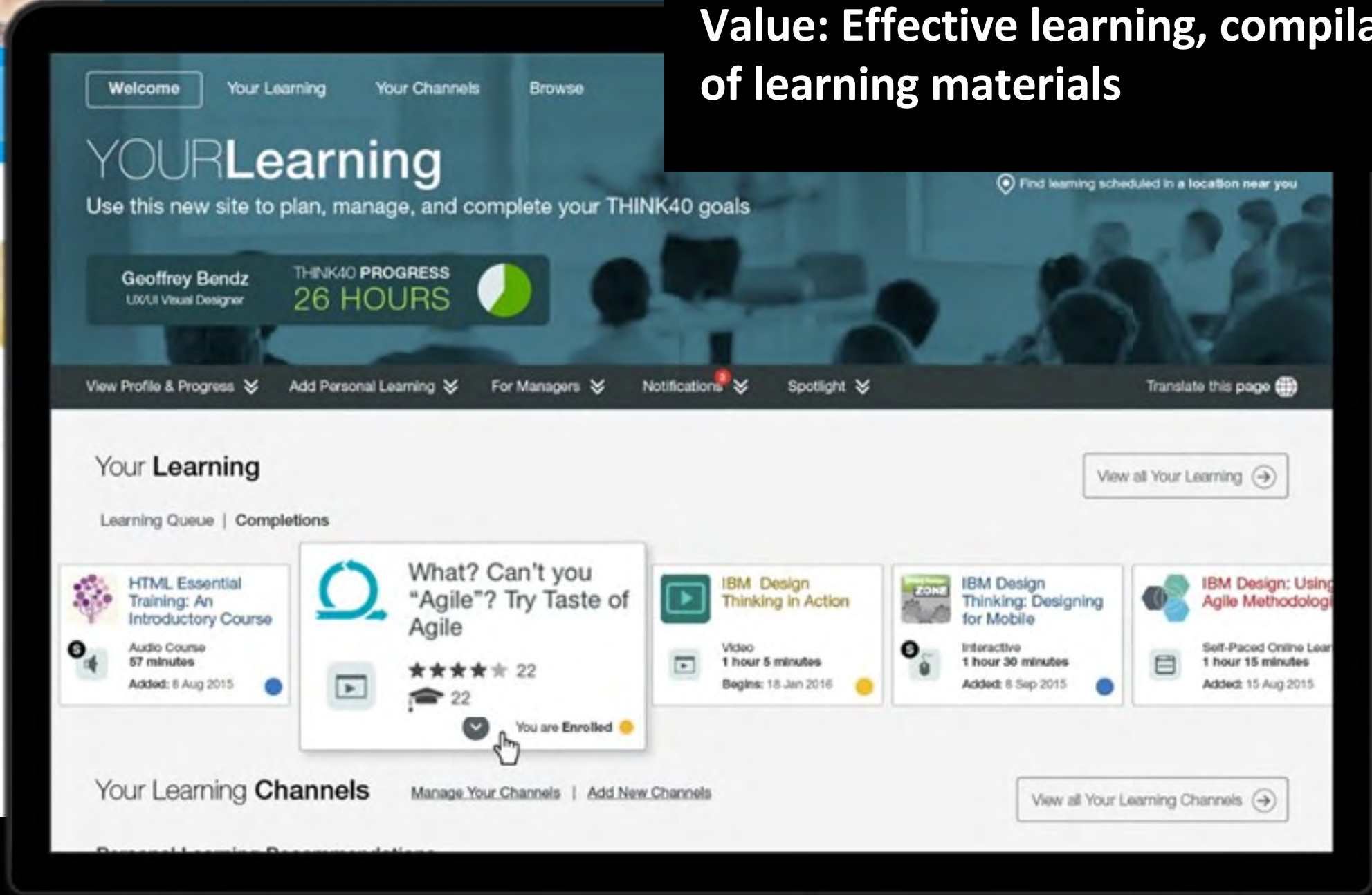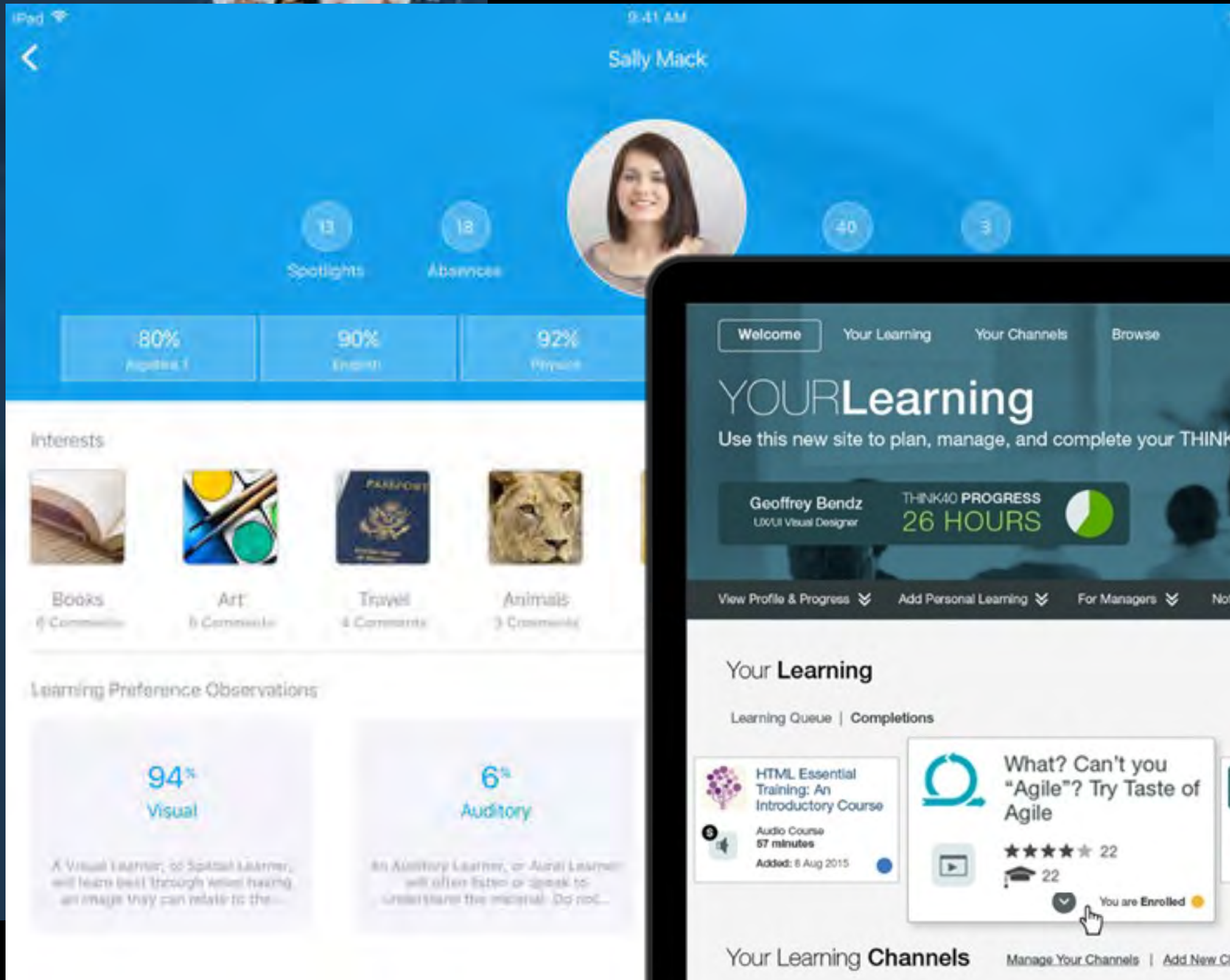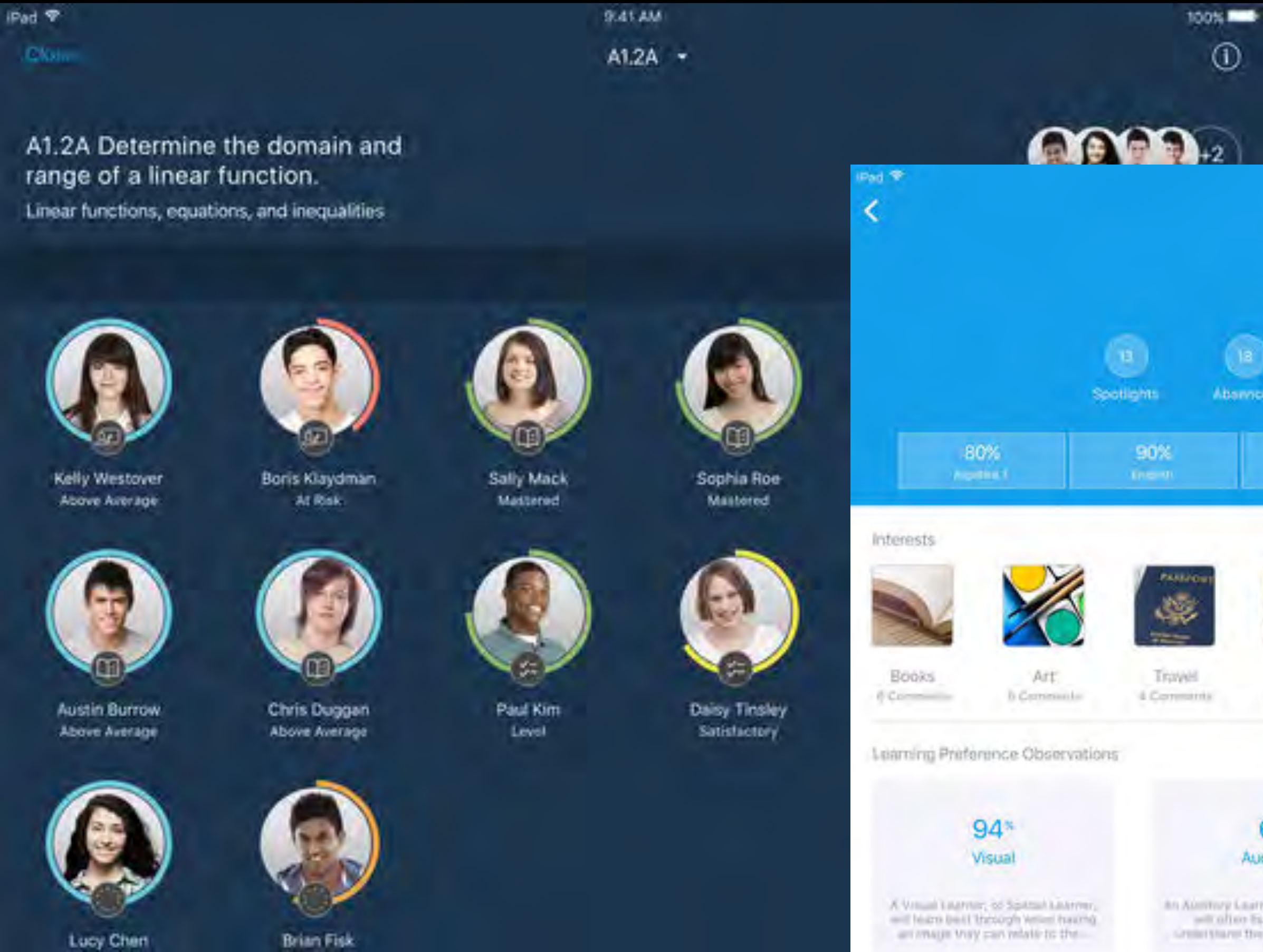
Ecosystem Data
Driven Innovation

"Things don't have to change the world to be important"
Steve Jobs

FRIDAY insurance leverages BMW CarData to create a Pay as you go insurance offering

Data: Detailed sensor information about comparative driving behavior and car use from BMW CarData combined with insurance statistics

Product: Pay as you go insurance

Users: BMW drivers

Value: Insurance for a fair and very competitive cost

FRIDAY in Kooperation mit

BMW

Das kann nur FRIDAY
Innovation zum Abfahren

- ✓ Top Kfz-Schutz zum fairen Preis
- ✓ Digitale, kilometergenaue Abrechnung
- ✓ Vollautomatisch dank BMW CarData

Angebot berechnen

Mehr erfahren

https://www.friday.de/lp/bmw-zahl-pro-kilometer

Virgin Holidays listens to consumers (15M posts) and 5000 rum recipes to create a new emotional rum for their brand

Data: Social media posts from travellers, Rum recipes, Emotion and flavor pairings

Product: Rum to keep memory of Caribbean vacation alive

Users: Virgin Holidays travelers to the Caribbean

Value: Brand strength, repeat sales

https://youtu.be/rGrXiQRJ0LA

EMOTION		FLAVOUR
HAPPY	>	VANILLA
EXCITED	>	SUGARCANE
CURIOUS	>	CINNAMON
ADVENTUROUS	>	ALLSPICE
RELAXED	>	COCONUT

Accelerating the Pace of Drug Discovery through interactions between diseases, genes and chemical compounds
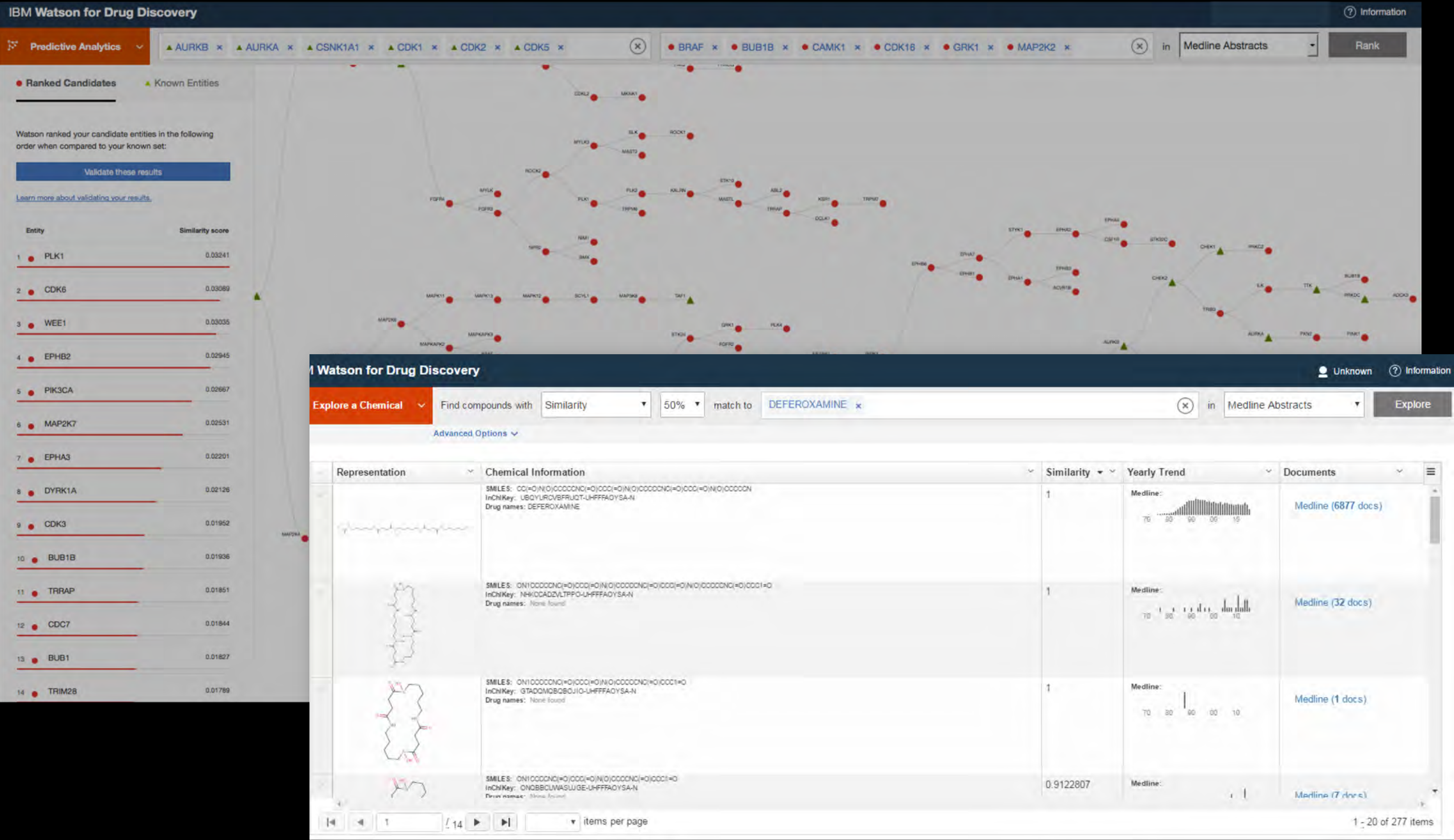
- Using AI to research **Immuno-oncology**

- Using AI to develop Diabetes treatments

- Using AI to identify new diseases for existing drugs

Data: Scientific articles, Patents, Medical literature, Clinical Trials, Drugs, Genes, Lab reports, Toxicologies, …

Product: New effective drugs or new uses for existing drugs

Users: Consumers

Value: Faster innovation and time-to-market with lower costs and risks

https://youtu.be/ohkOnaTzSlc?t=525

Automated and Assisted Operations

**"*Action is the foundational key to all success"*
 - Pablo Picasso**
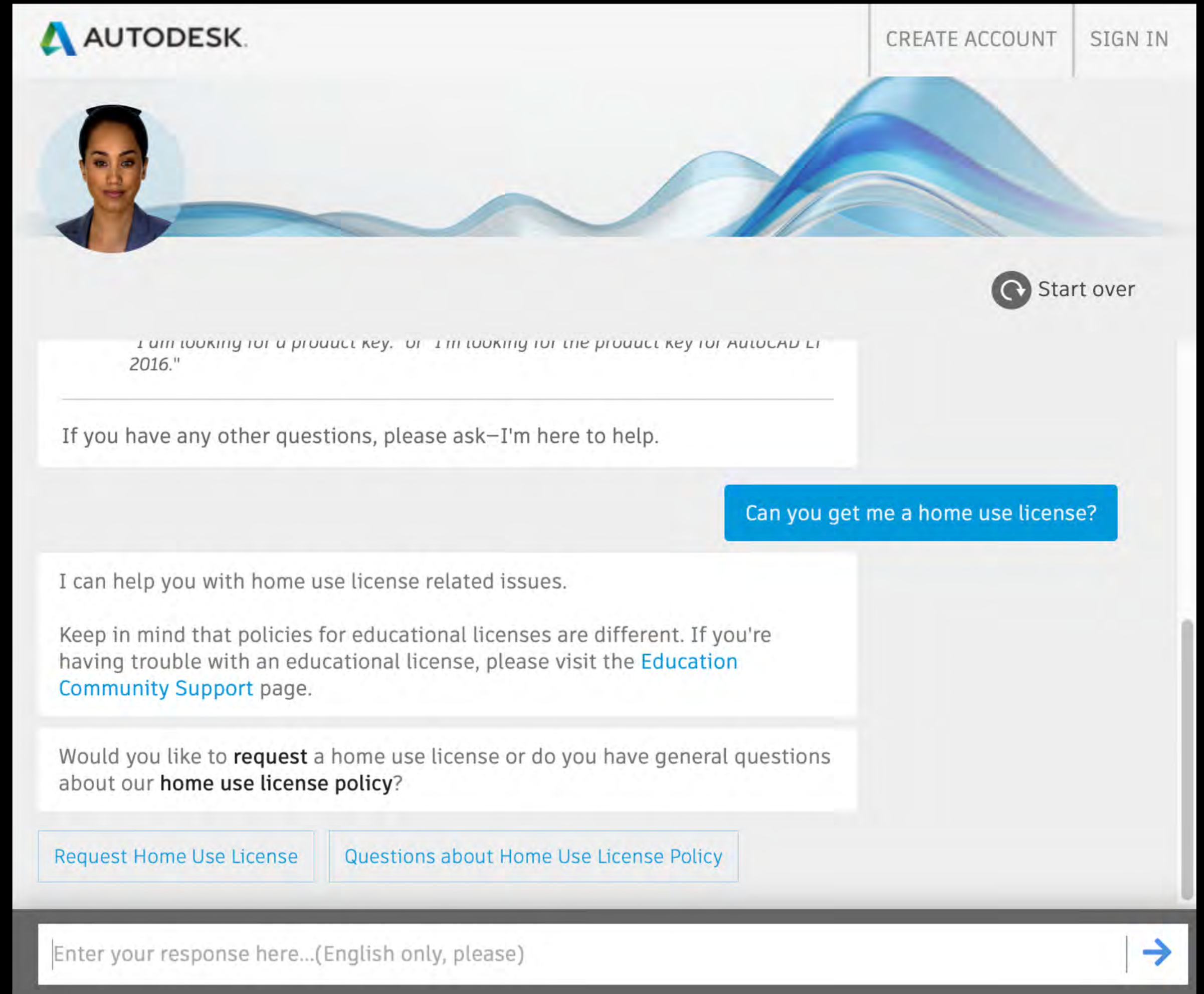
Autodesk (and Kela, OP, Vodafone...) automates contact center

- **Supports 30,000+ conversations per month**

- **Recognizes 40 distinct use cases to quickly resolve easy requests freeing agents to focus on customers with complex issues**

- **Cuts resolution from 38 hours to 5.4 minutes for most inquiries**
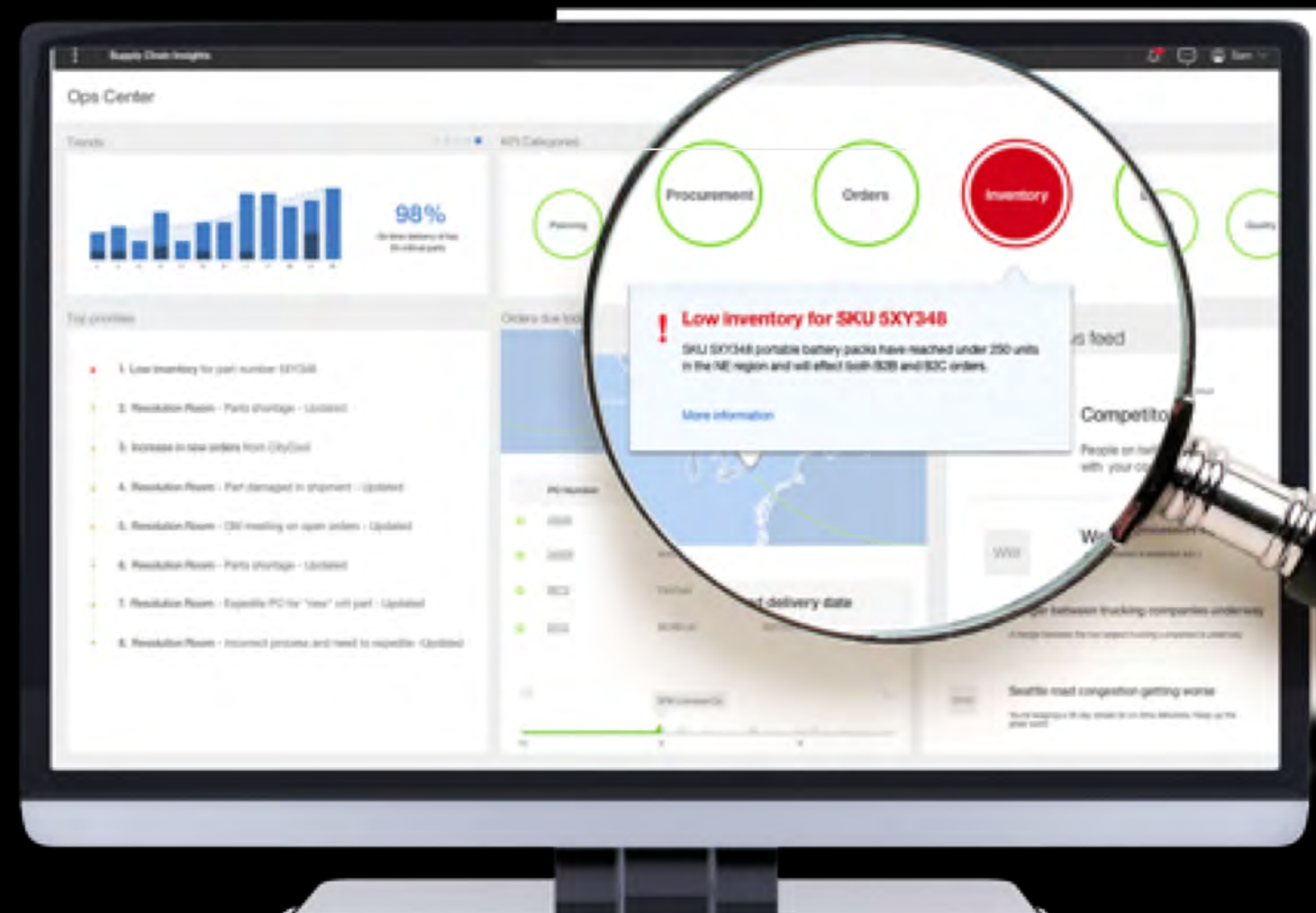
- **Cuts cost per case from $15-$200 to $1**

https://youtu.be/d402EY-AZ-w
https://youtu.be/mKZ84O1666g
http://www.chattirobotti.kela.fi

Lenovo uses virtual Supply Chain assistants to monitor and assist in solving issues in the end-to-end supply chain

Operations Center

Predictive alerts cut through data overload

Instantly assess financial impact of impending risks and disruptions

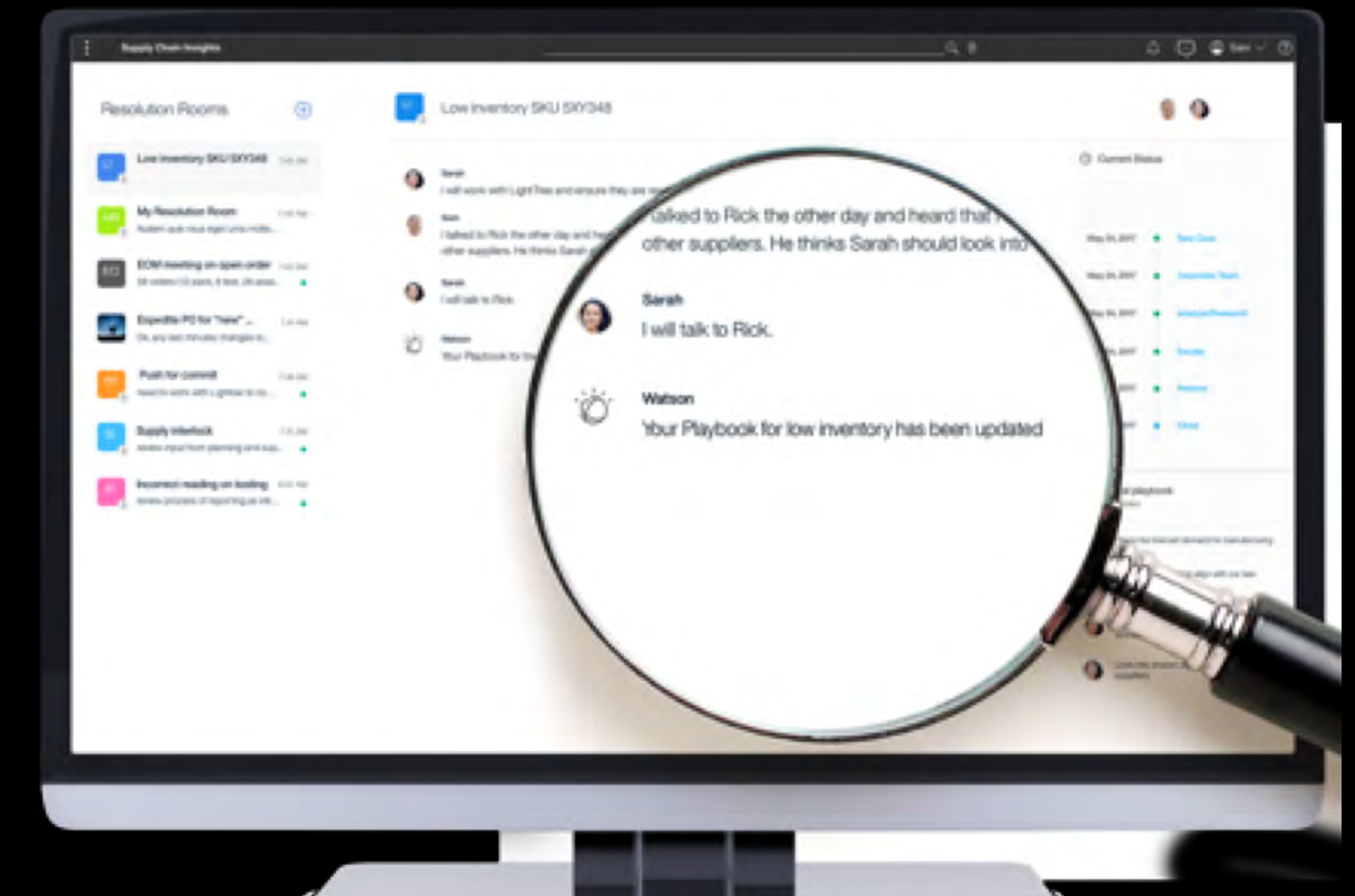Visibility across internal and external events affecting the supply chain lifecycle

Resolution Rooms

Online collaboration aided by cognitive insights to resolve disruptions and mitigate risks

Ask Watson AI to recommend experts, source key information and access knowledge from prior event resolution
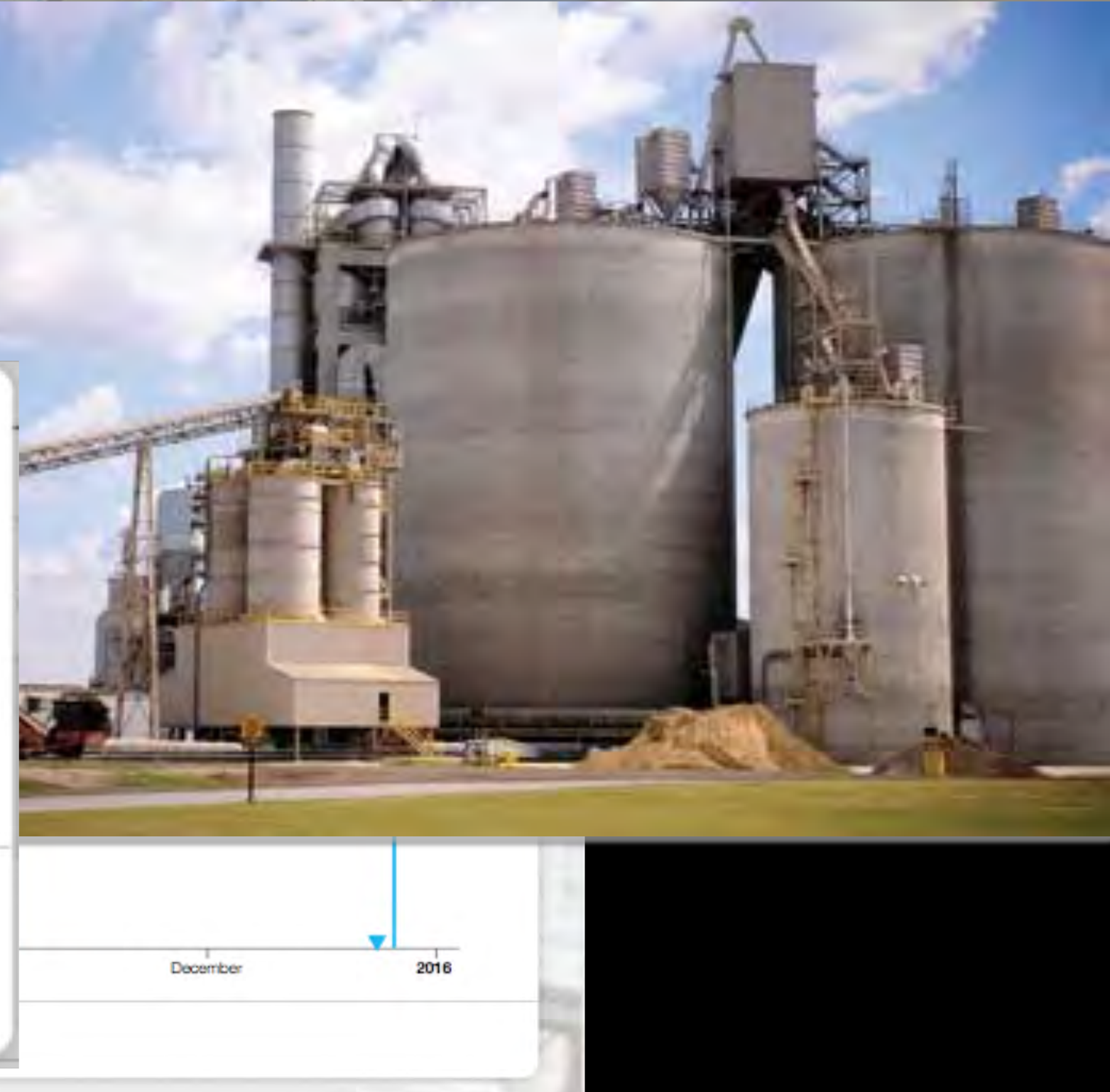
Digital Playbooks

Remembers actions and builds a body of knowledge by learning over time about how issues are addressed

Enables greater speed and accuracy in responding to future events

https://youtu.be/YMMf345dmPI

Optimal plant operations and digital twins

https://www.etz.de/6382-0-Lafarge+Holcim+setzt+auf+Predictive+Analytics.html

Airbus launches AI into space on ISS

https://youtu.be/afutNx1weec

Insights

1. **Start small - then combine to scale up**
   - *Classify images, MRO items or indirect purchases, inbound mails, harmonize ERP items*
   - *Predict sales, customer purchases, device failures*
   - *Build an internal HR/Finance/... chatbot*

2. **Begin treating and versioning Data as products**
   - *Plan and acquire external data as needed*

3. **Look for sufficient business potential (customers, reduced effort,...)**

4. **Focus on the "Job to be Done (JTBD)" not on individual tasks or tech**

5. **Exploit synergies with RPA, Blockchain, IoT, OCR, ... mobile, AR ...**

Some links for further discovery

AI Application samples: **https://developer.ibm.com/code/technologies/artificial-intelligence/**

Ready to use open source AI models: **https://developer.ibm.com/code/exchanges/models/**

Tutorials: **https://medium.com/machine-learning-in-practice/over-200-of-the-best-machine-learning-nlp-and-python-tutorials-2018-edition-dd8cf53cb7dc**

Competitions: **https://www.kaggle.com/competitions**

Ethics: **https://www.ibm.com/watson/ai-ethics/**

Tooling for managing bias and ethics in your projects: **https://youtu.be/udSKUkGANHA**