

AI RELOADED - AI APPLICATIONS IN THE INDUSTRY

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6000 technologists with 42 offices in 15 countries



Partner for technology driven business transformation



SHAPING THE INDUSTRY AS A THOUGHT LEADER



AI IS ON THE RISE

“About 30 percent of organizations with more than 1,000 employees have adopted AI, and an additional 25 percent plan to adopt the technologies in the next 12 months.”

Spiceworks Survey 2018

(<https://www.spiceworks.com/press/releases/spiceworks-survey-tech-spending-expected-rise-budgets-stabilize-2018/>)

INTELLIGENT EMPOWERMENT

- Empower and augment human intelligence
- Enable machines to work with humans “hand-in-hand”
- Help humans to become more efficient and work with higher quality
- Automate routine work and give humans more time for difficult and strategic work
- *“Forklift for the Brain”*

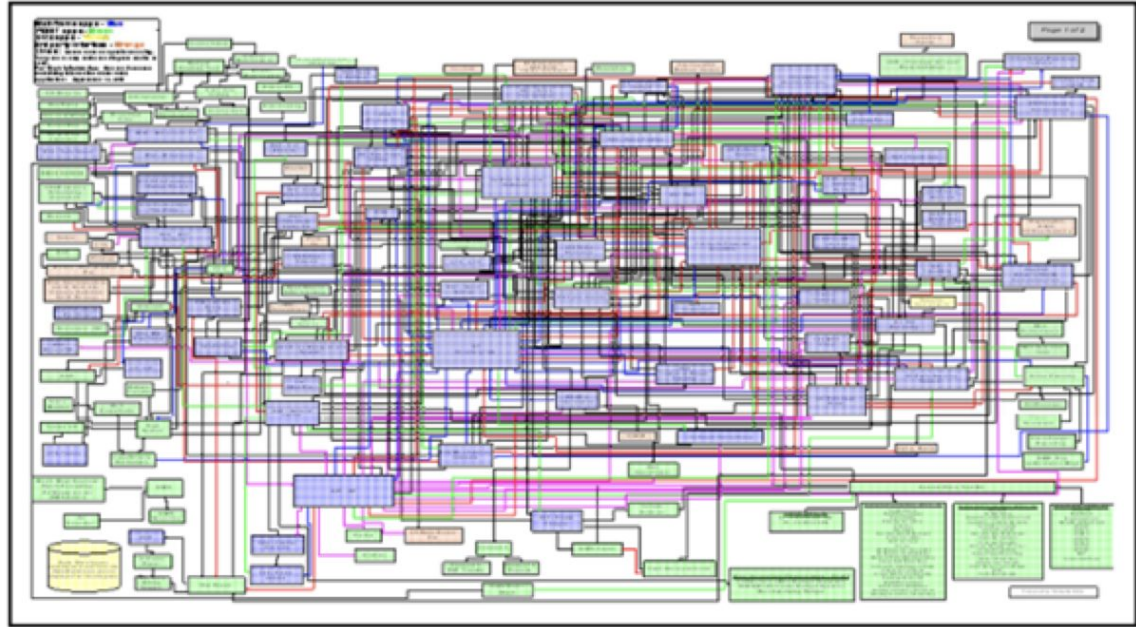


AGENDA

- **It is all about data**
- What can AI do today?
- Continuous Intelligence

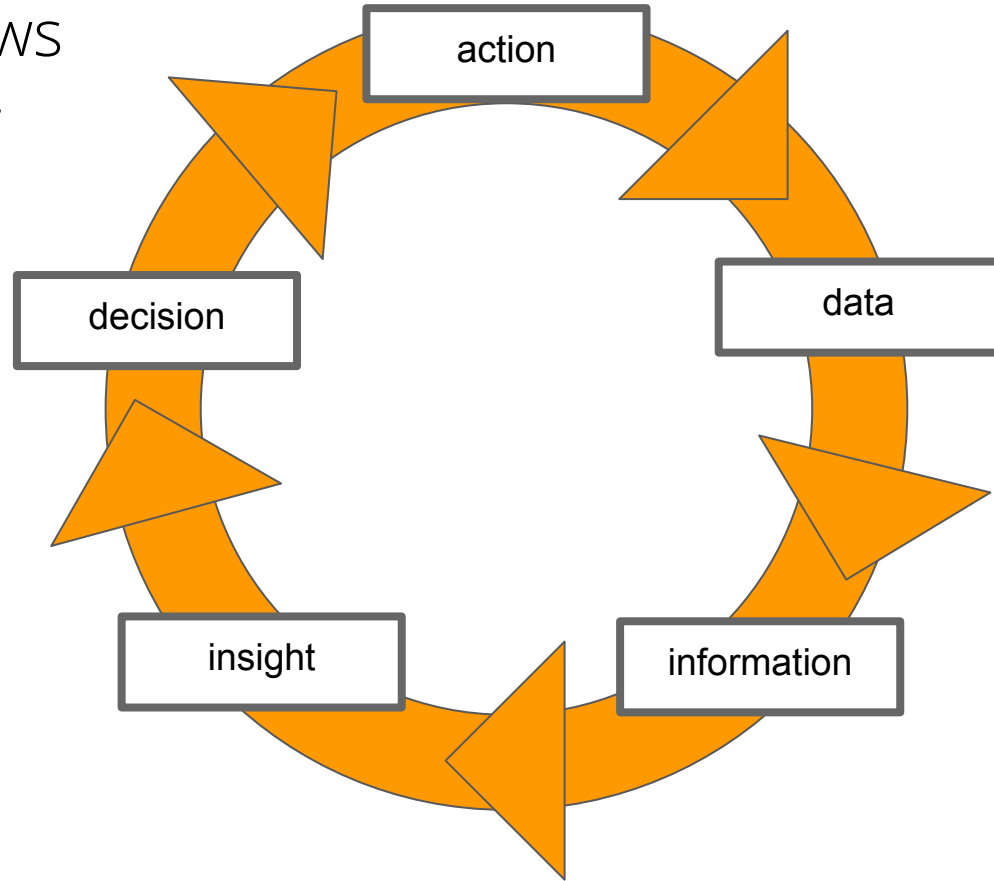
EMPOWER YOUR DATA

- “Data First” is not just another module – but the redesign of the entire IT Data Architecture
- A “Data Lake” is not the solution!
- Data Management and Data Governance are required

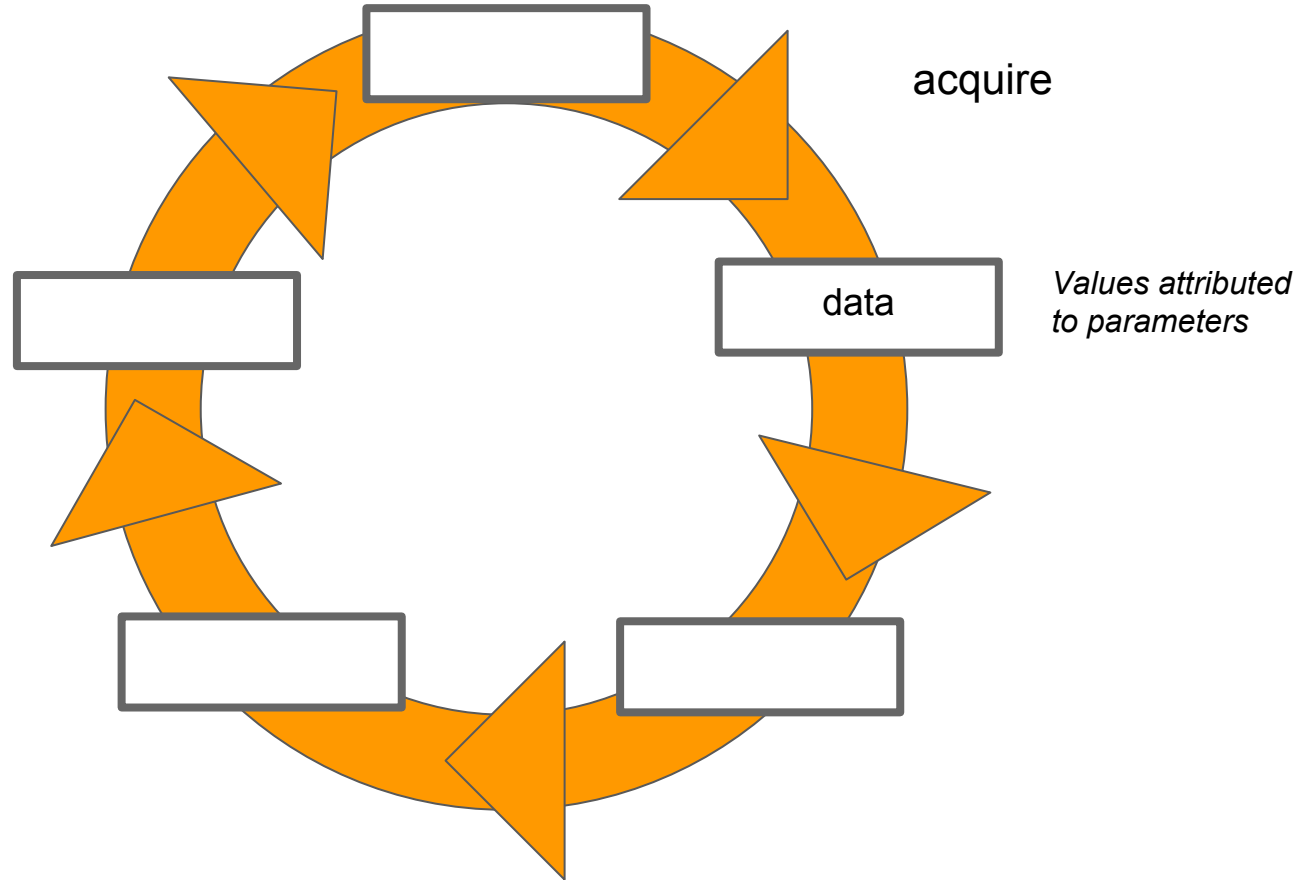


THE DATA-INFORMATION-INSIGHT-ACTION CYCLE

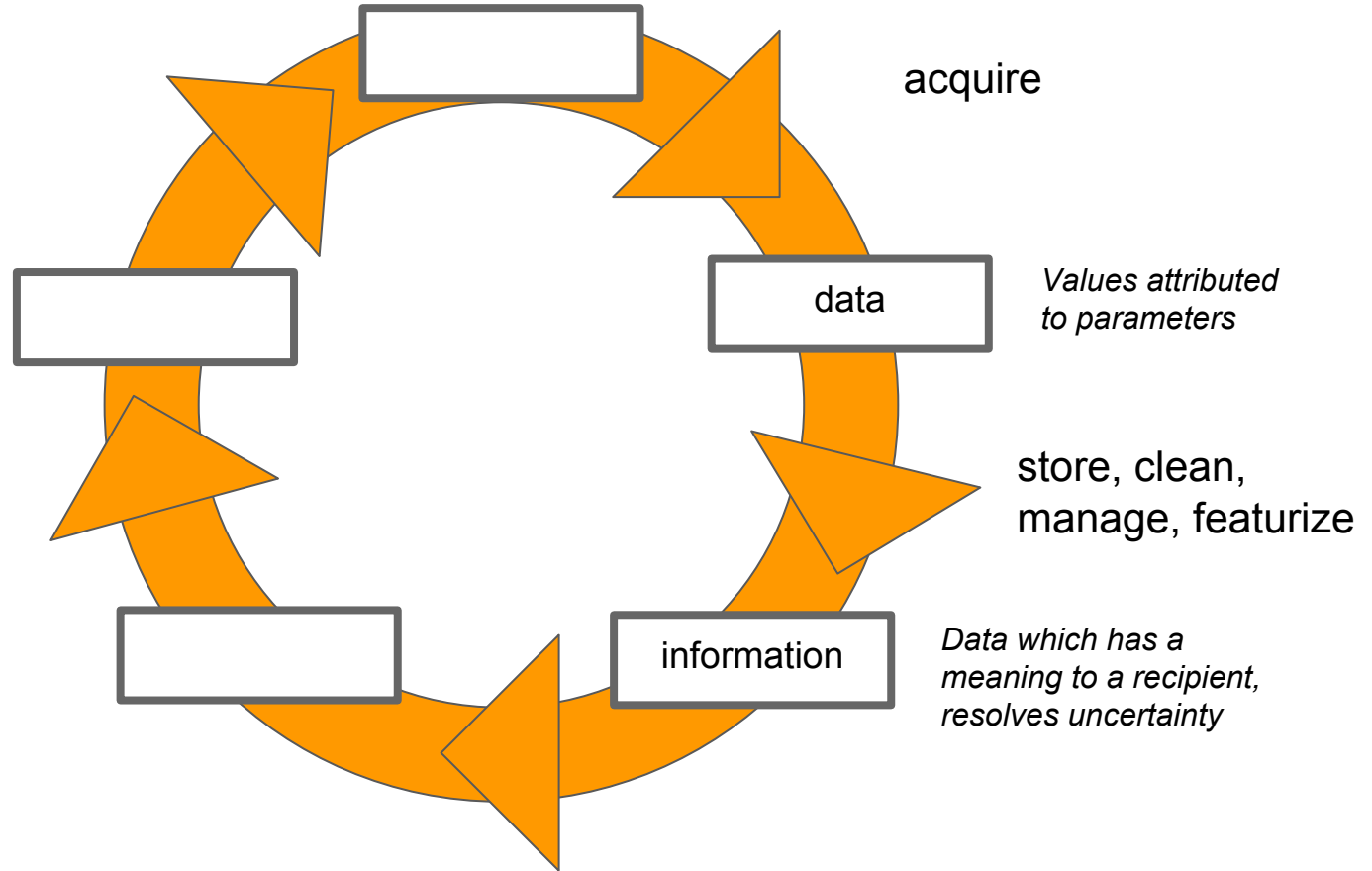
How data flows
through your
organization



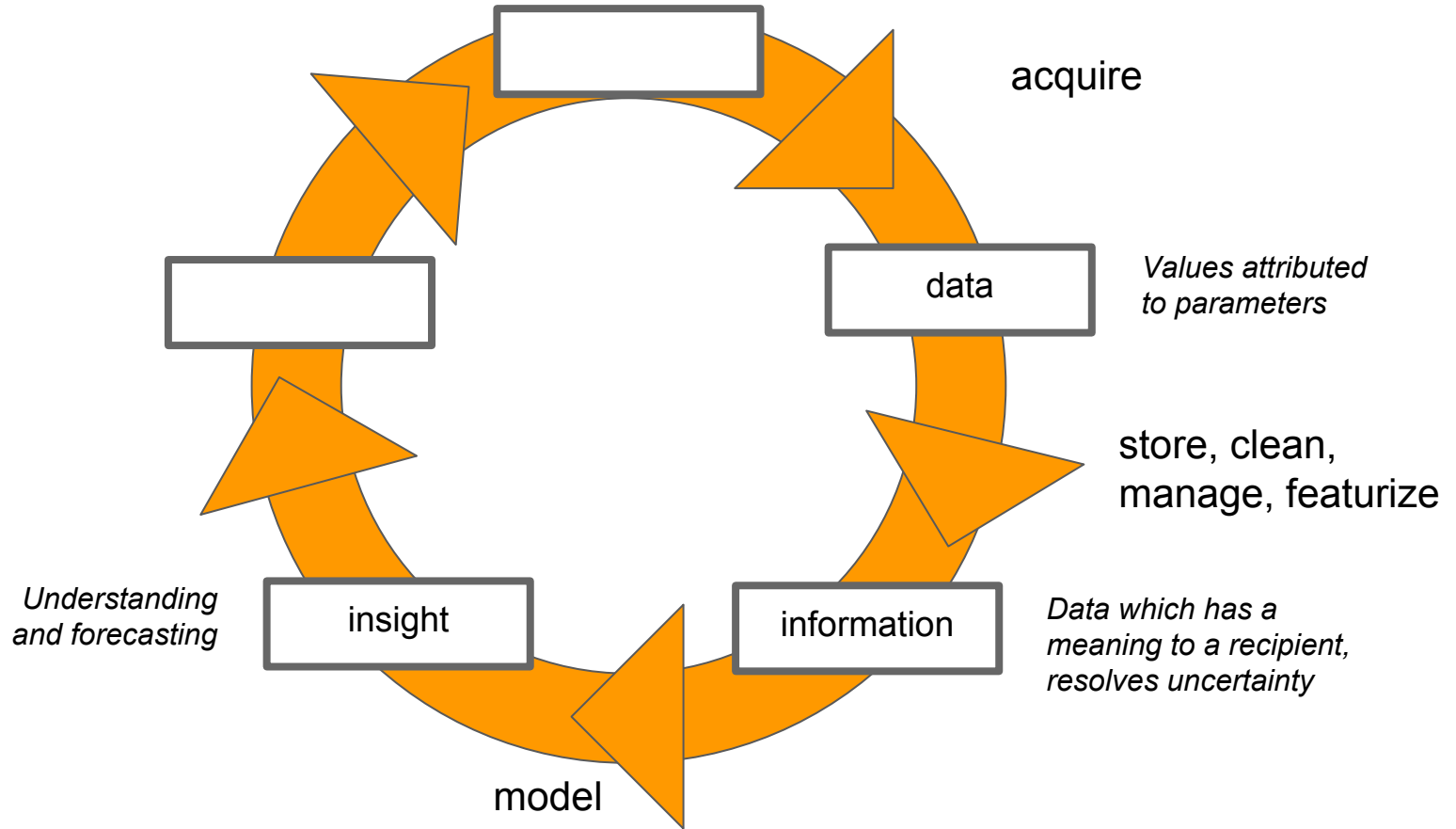
THE DATA-INFORMATION-INSIGHT-ACTION CYCLE



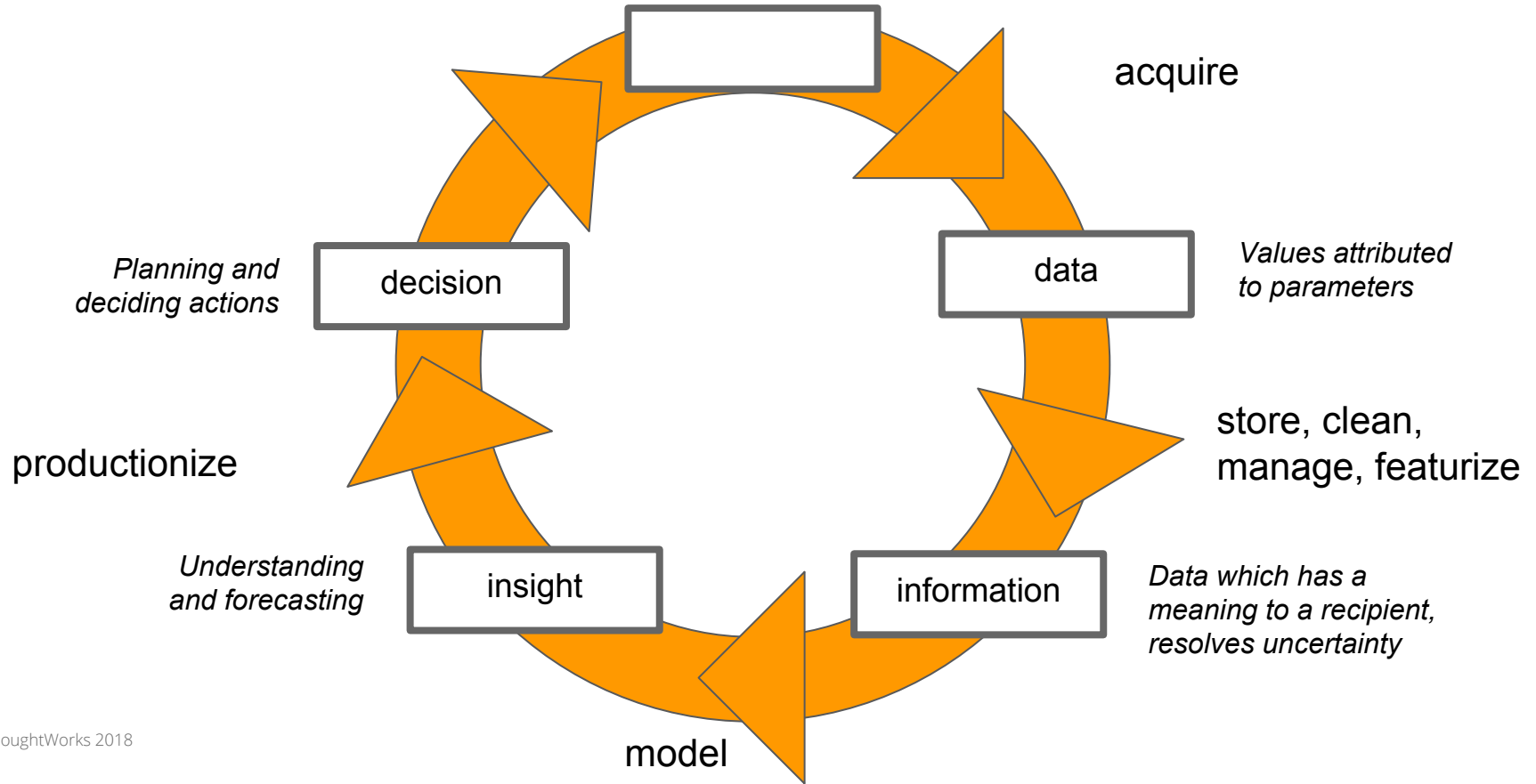
THE DATA-INFORMATION-INSIGHT-ACTION CYCLE



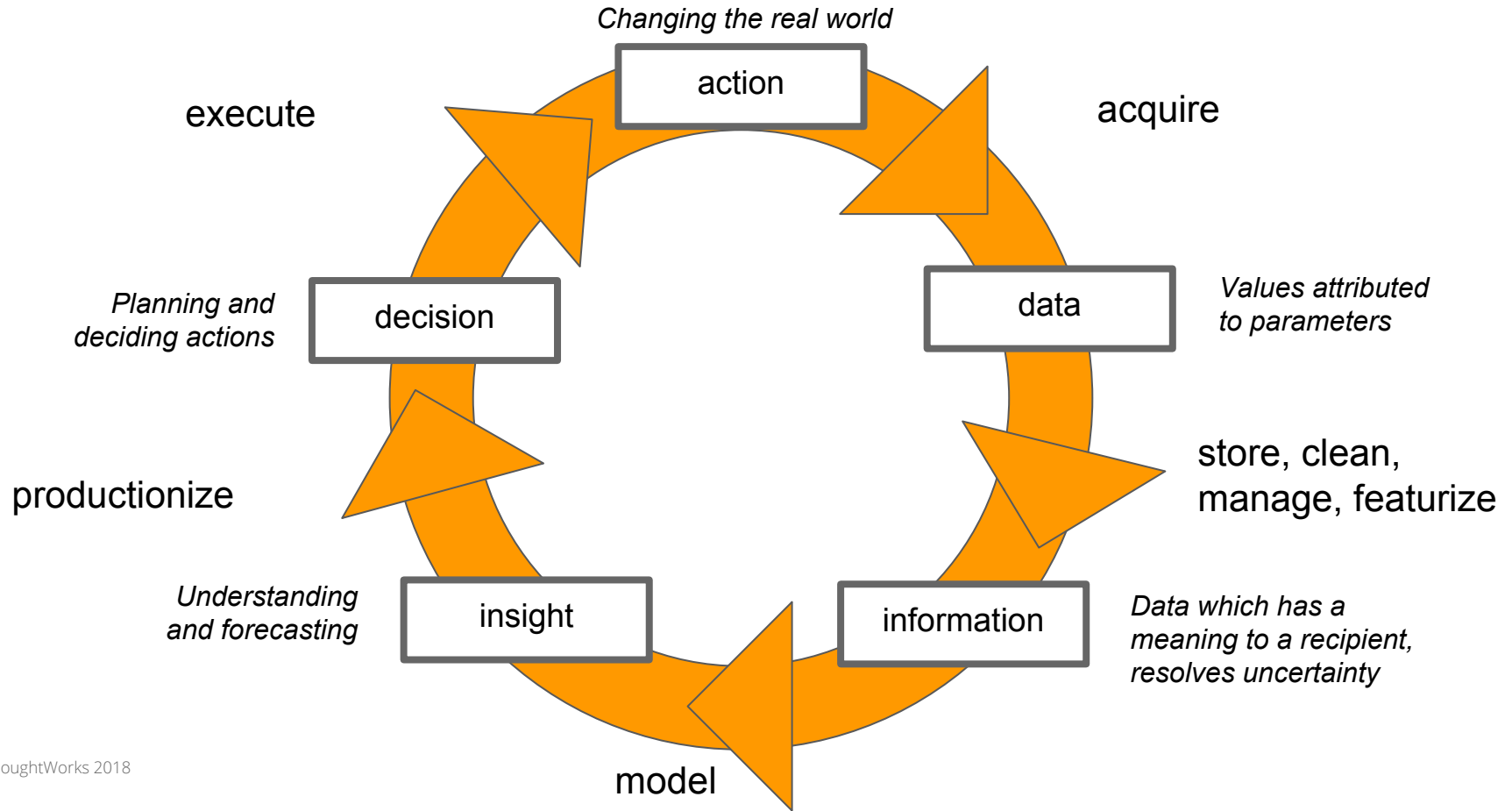
THE DATA-INFORMATION-INSIGHT-ACTION CYCLE



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AGENDA

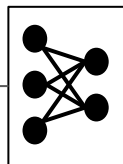
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NARROW AI IS COMPOSABLE

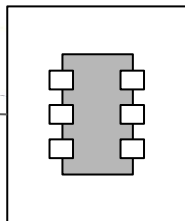
- Today AI is narrow
- ML modules can be composed like microservices
- The gradient can be back propagated through the different modules (end-to-end learning)

AI Building Block	Example
Regression: Predict a number	<ul style="list-style-type: none">• How much will this house sell for?• How many dresses will sell next week in this shop?
Categorization: Predict a category	<ul style="list-style-type: none">• Is this customer NEW, LOYAL, FICKLE, ...?• What's the probability that this transaction is fraud?• Recommend what a client is most likely to buy next based on his buying history
Recognize and generate sequences formed by rules	<ul style="list-style-type: none">• What is the utterance of this sentence?• What is the sentiment of this sentence?• Translate from language A to B
Learn a strategy of actions to reach a goal (Reinforcement Learning)	<ul style="list-style-type: none">• Win Atari Games, Chess, Go• Drive a car• Control an air condition to minimize energy consumption

PROJECT EXAMPLE: REAL ESTATE COMPANY (1 / 2)



Construction:
WOOD



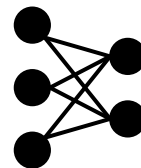
EXIF Location

Distance to
city: 10km



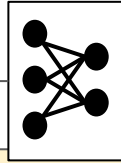
Bedrooms

Bedrooms:
3

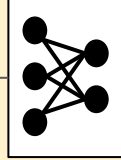


Price: \$1M

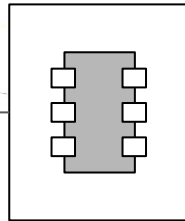
PROJECT EXAMPLE: REAL ESTATE COMPANY (2 / 2)



Construction:
WOOD

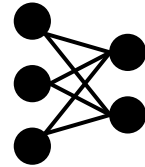


Condition:
GOOD



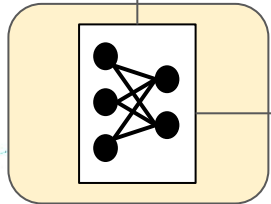
Distance to
city: 10km

Bedrooms:
3

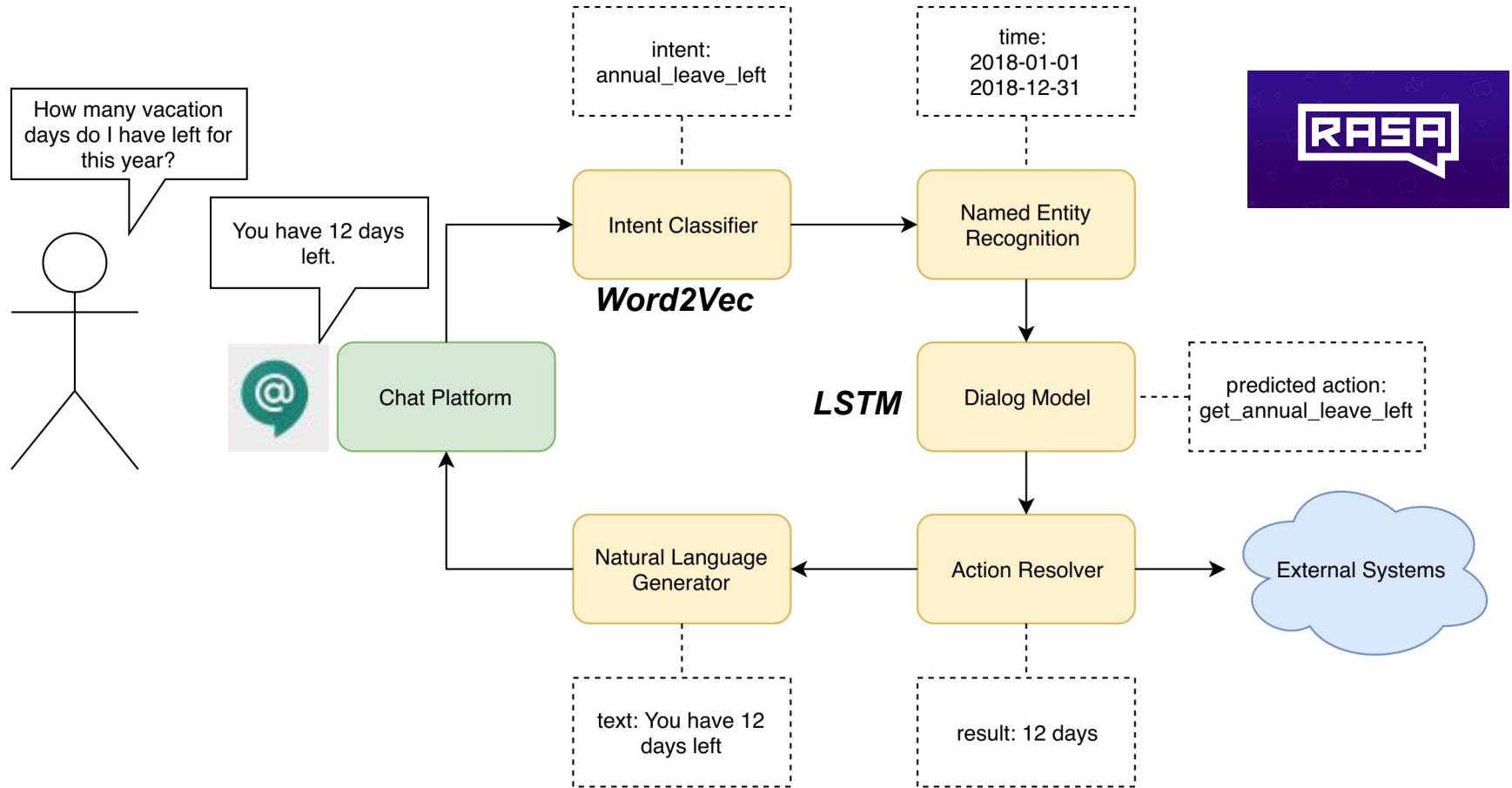


Price: \$1.1M

Location



PROJECT EXAMPLE: CHAT BOT



AGENDA

- It is all about data
- What can AI do today?
- **Continuous Intelligence**

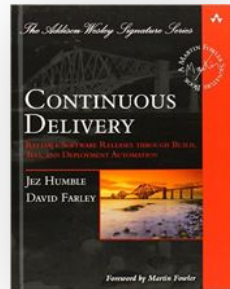
CONTINUOUS DELIVERY

“Continuous delivery (CD) is a software engineering approach in which teams produce software in short cycles, ensuring that the software can be reliably released at any time.”

Wikipedia

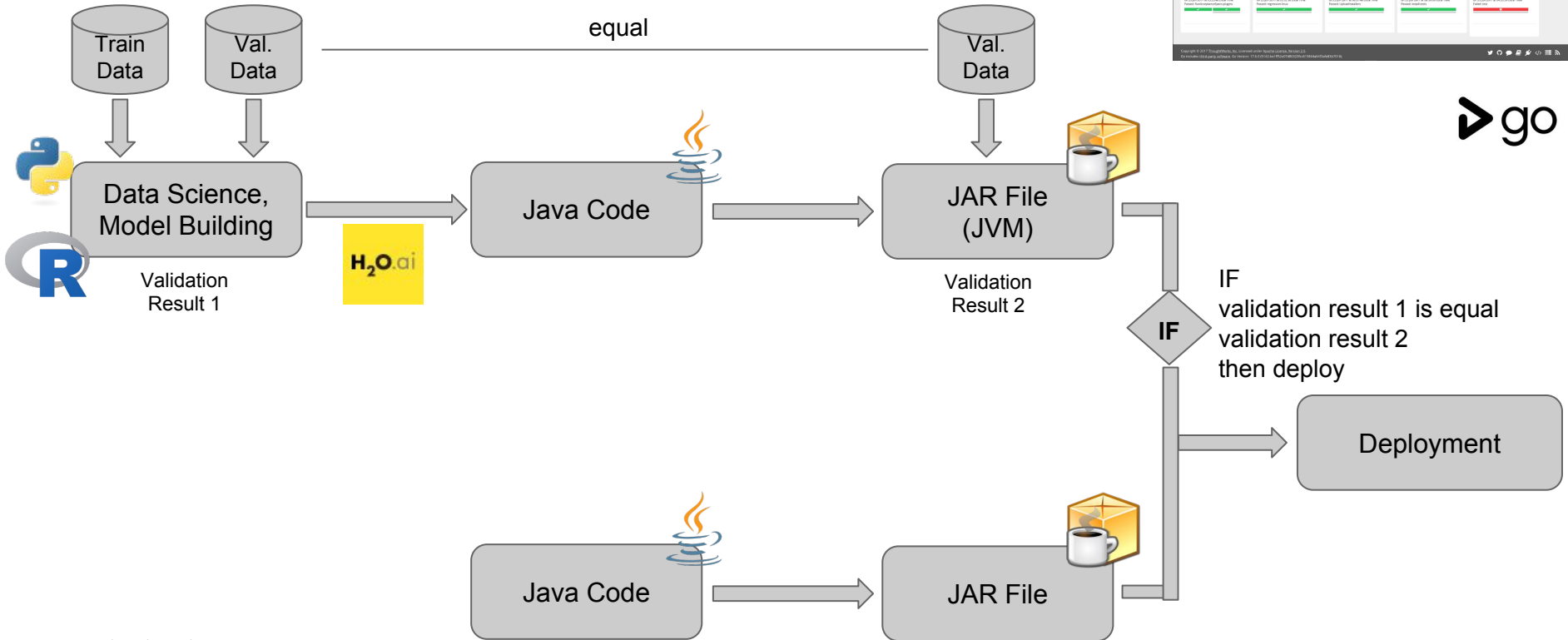
Principles of Continuous Delivery^(*)

- Create a Repeatable, Reliable Process for Releasing Software
- Automate Almost Everything
- Build Quality In

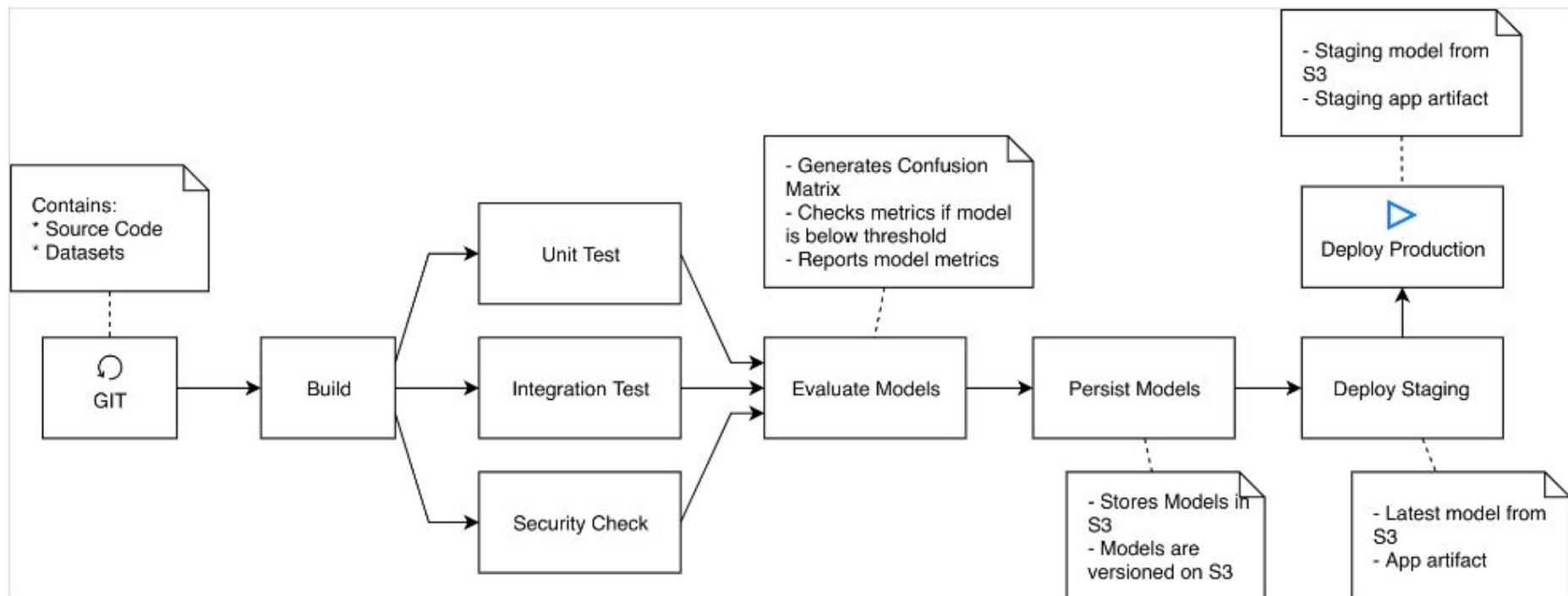


(*) From Jez Humble, David Farley: Continuous Delivery, Addison-Wesley, 2011

PROJECT EXAMPLE - PRICE ESTIMATION

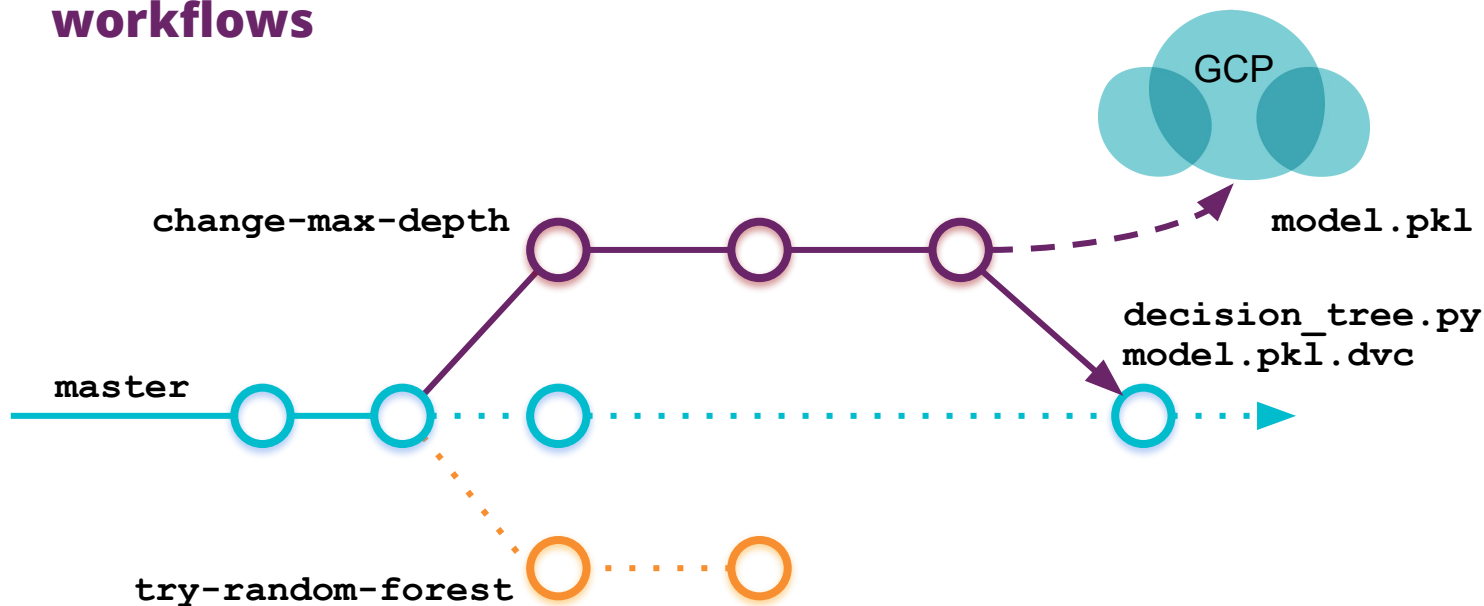


PROJECT EXAMPLE - CHATBOT



dvc - data science version control

- **dvc is git porcelain for storing large files using cloud storage**
- **dvc connects model training steps to create reproducible workflows**



CONTINUOUS INTELLIGENCE

- We can put data science work into a Continuous Delivery workflow
- Proper data/model versioning tools enable reproducible work to be done in parallel
- **Result:** Continuous, on-demand AI development and deployment, from research to production, with a single command
- **Benefit:** production AI systems that are always as smart as your data science team

THANK YOU!

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