

# Democratization of industrial AI

by  **innoSEP**

“McKinsey”

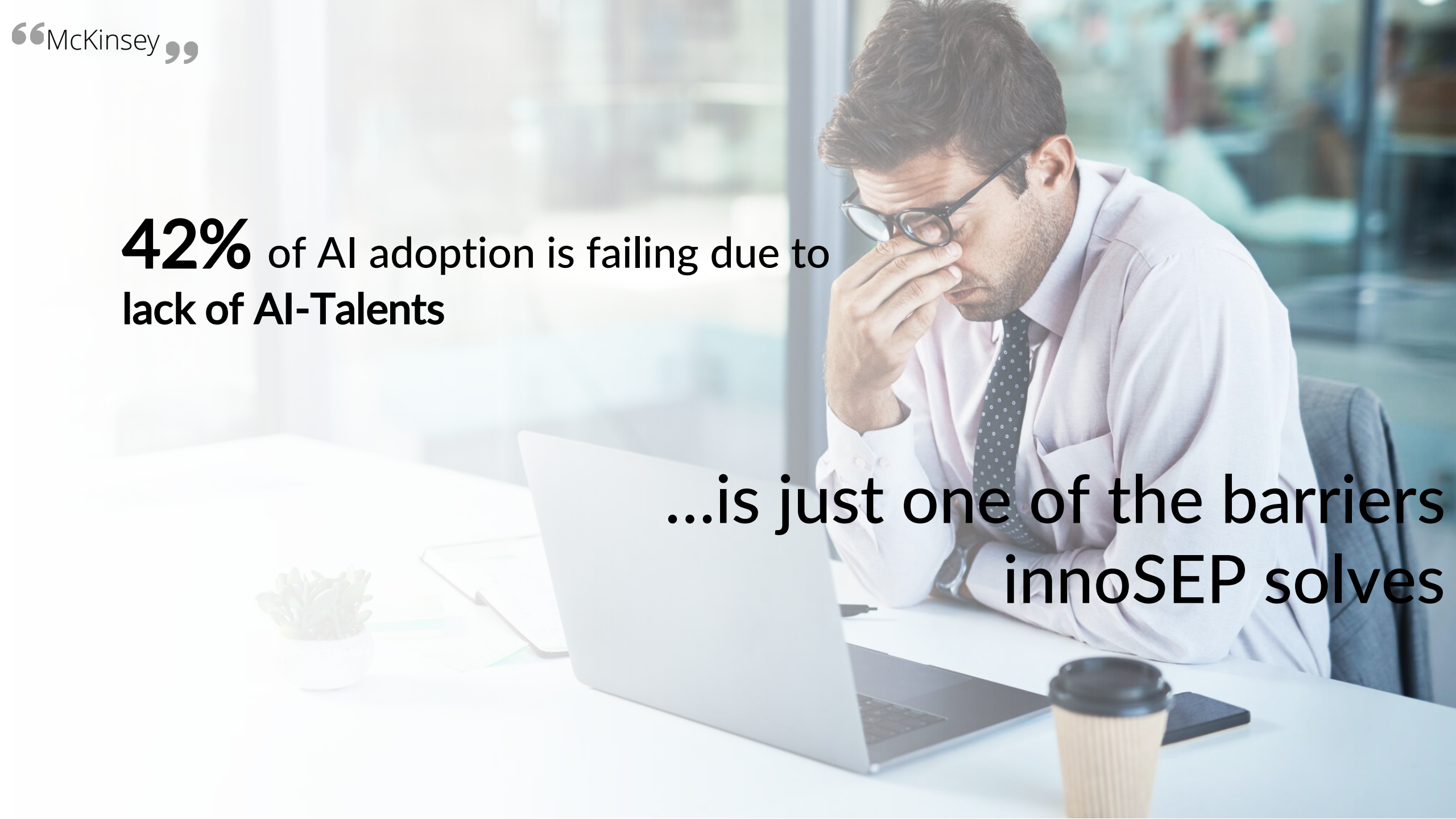
at least **5% of EBIT**  
attributable to AI

C H A N C E

significant benefits come from adopting AI:  
**80% in manufacturing**  
**76% in product/service development**

**42%** of AI adoption is failing due to  
**lack of AI-Talents**

**...is just one of the barriers  
innoSEP solves**

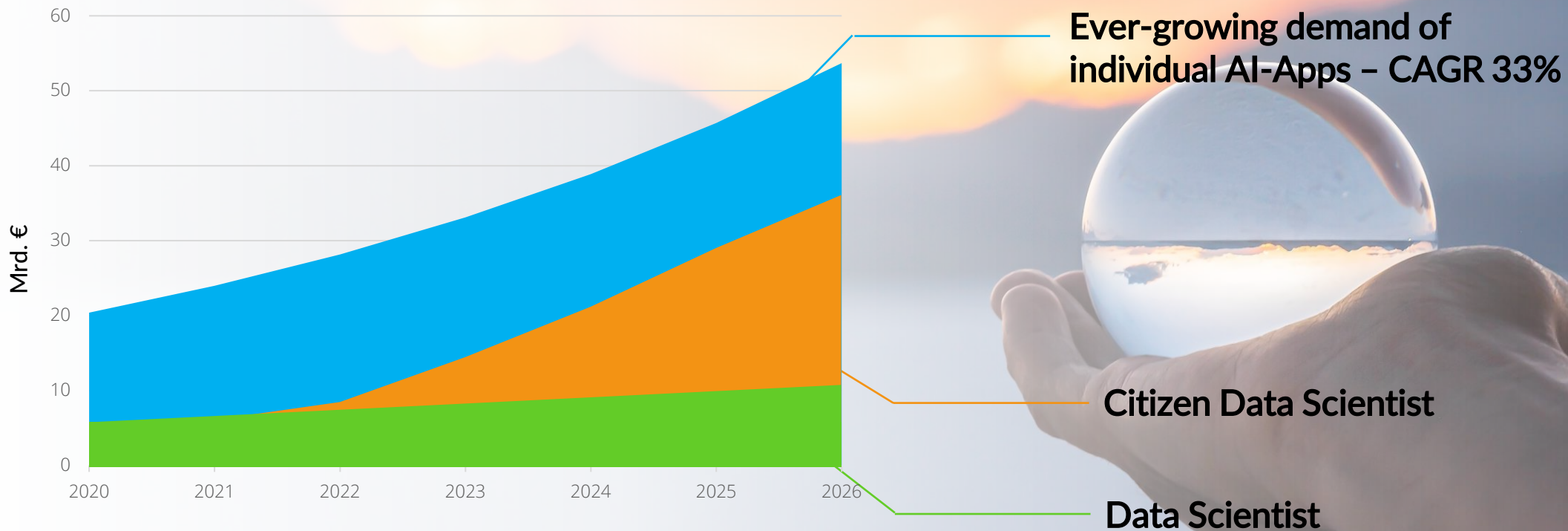


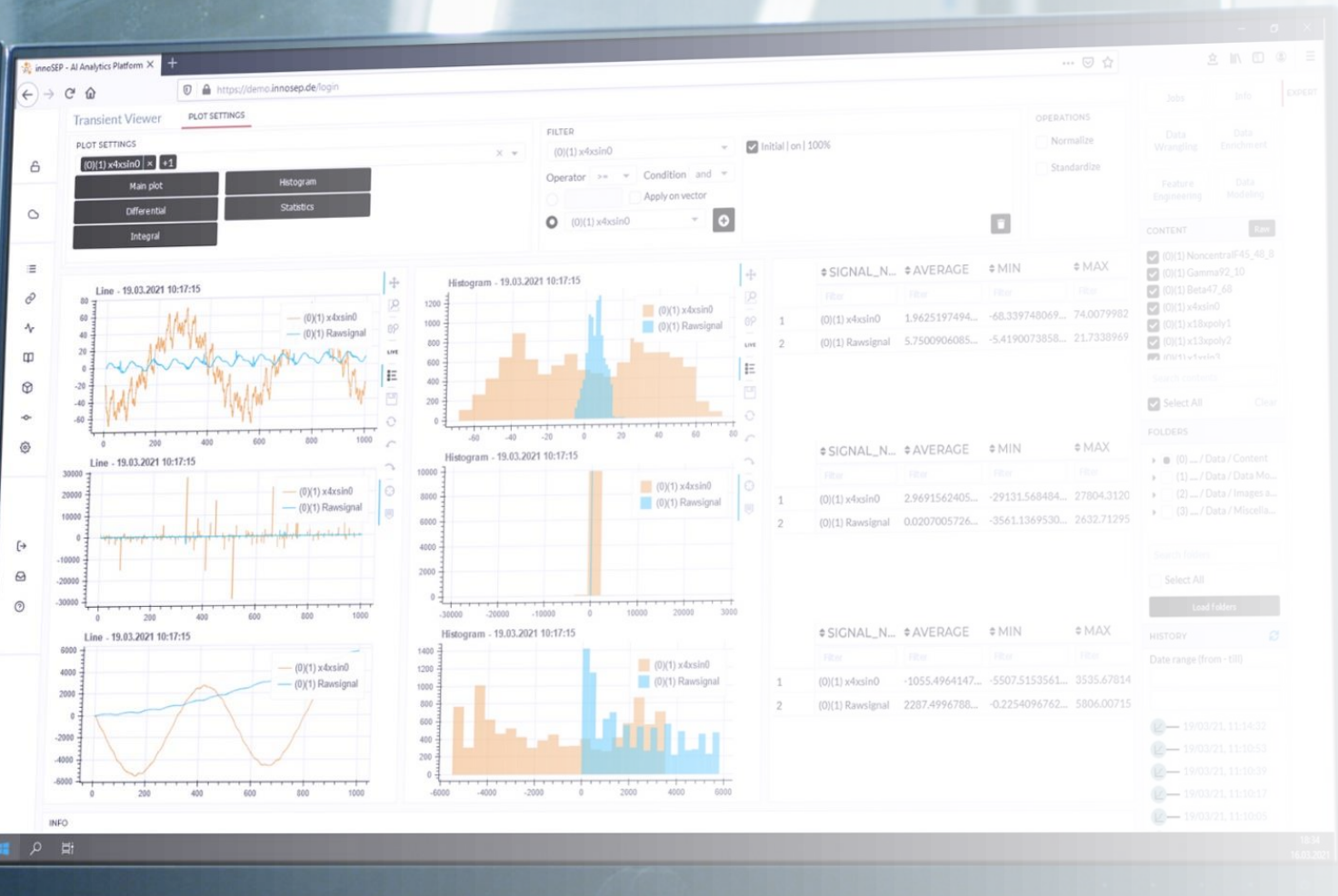
Offer a **no-code Platform** to become  
**“Citizen Data Scientist”**

...Industrial experts establish an AI pipeline  
in less than **30 days**



# How the future of AI adoption can look like





✓ 42 AI Use-cases solved in no-code



DAIMLER



FESTO



EVONIK INDUSTRIES

A worker in a white hard hat and high-visibility yellow jacket is seated at a workstation in a control room. The workstation features multiple computer monitors displaying various data visualizations, including charts and graphs. The worker is looking at the screens, and their hand is near a mouse. The background is slightly blurred, showing other parts of the control room.

# AI-based machine control

at test rigs to avoid dangerous failure

Time-critical operations are  
**deployed on the Edge**  
to ensure real-time reaction

A man wearing a blue hard hat and a high-visibility green and blue jacket is sitting at a workstation with multiple computer monitors. He is looking at the screens and pointing at one of them with a pen. The background is a blurred industrial or control room environment.

Executed by a **Testing Engineer**

- not a Data Scientist



# Demand Forecasting

in Production Planning to react  
on unexpected events

Weekly Forecast  
**provided automatically**  
to support decision-making



Co-created with a **Production Planner**

- not a Data Scientist - basic Analytics skills



SEND MONTHLY REPORT BEFORE 02.10.19  
CALL ROBERT  
MEETING MONDAY 09.10.19  
ANSWER Anna

# Decision-Support System

for enhanced product assessments via  
damage prediction

Flexible and adaptive Analytics environment

**deployed on-Premise**  
to support daily engineer processes



Driven by a **Development Engineer**

- not a Data Scientist - basic Matlab skills

# Predictive Quality solution

in manufacture line to correlate quality issues with machine control settings

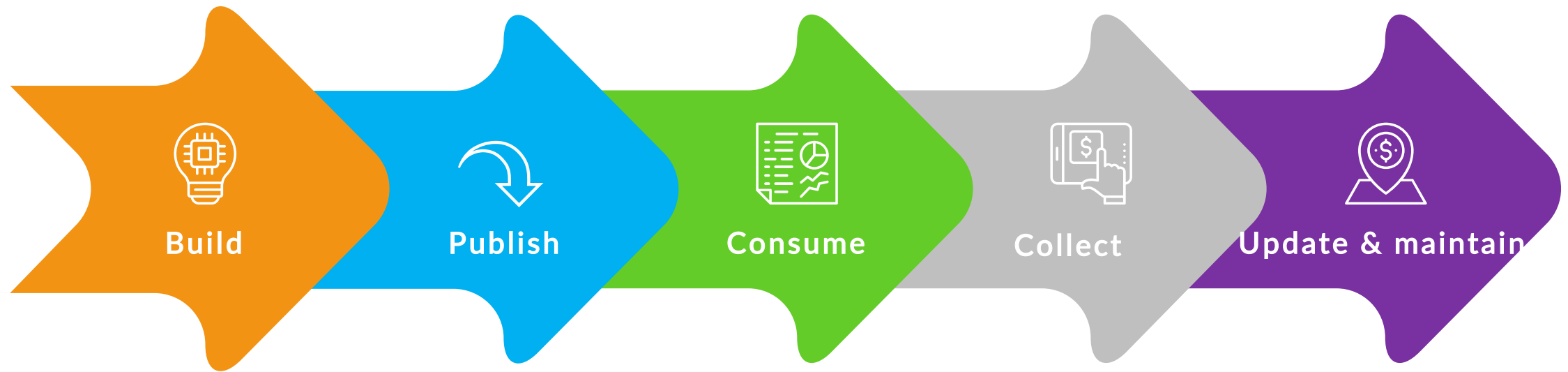


**Multiple data sources in shopfloor**  
are aggregated and analyzed

# Guided by a **Process Engineer** - not a Data Scientist



# The empowering work-flow of democratizing AI



Builds Analytics Apps

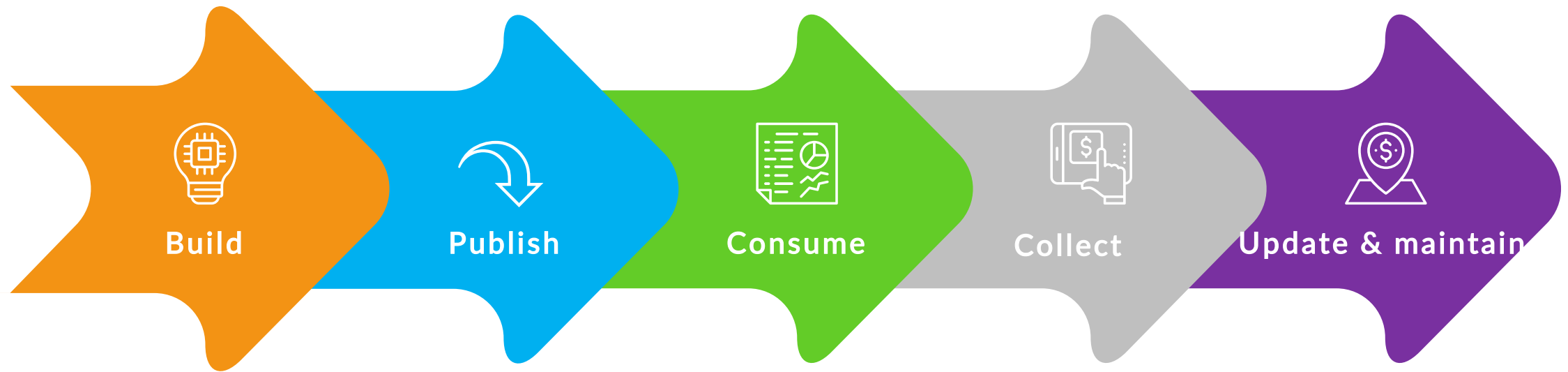
Publish stand-alone Applications

Assigned End-User have access to published services

Collect user experience and feedback

Optimize and maintain your application

# The empowering work-flow of democratizing AI



## Citizen Data Scientist

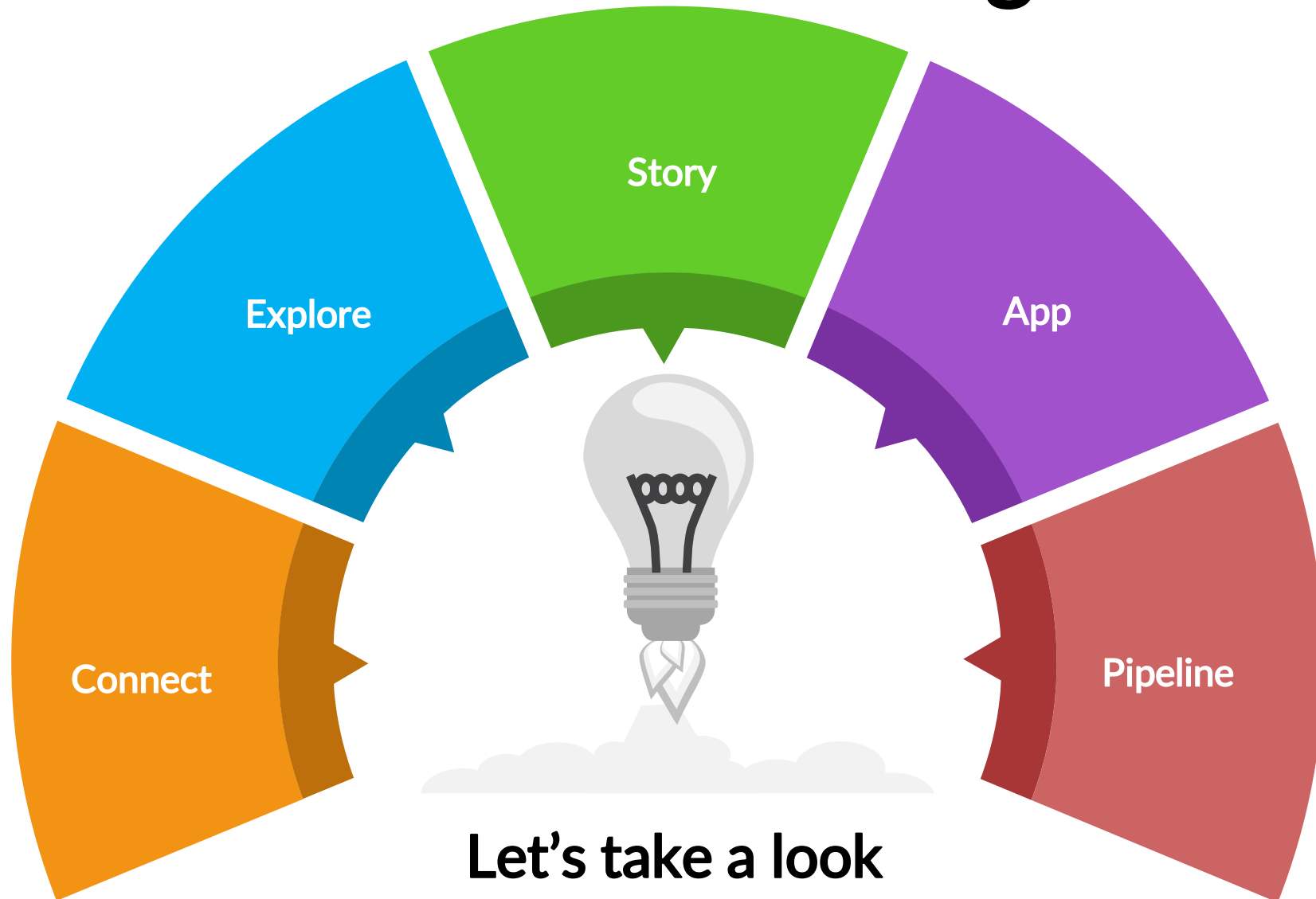
- ✓ Empowered to adopt AI
- ✓ Gain value from automatization and AI-Services

## End-User

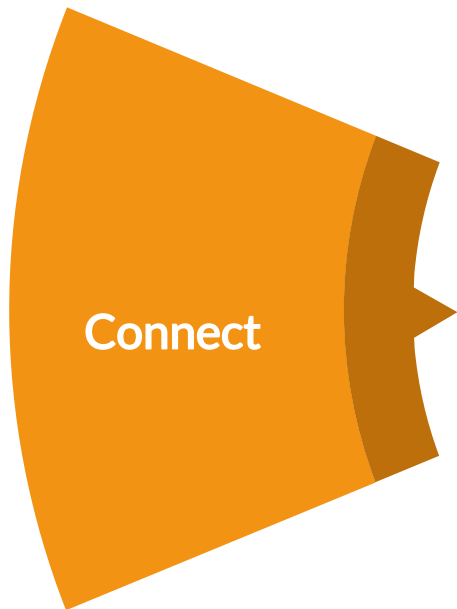
- ✓ Gain value from AI-Services



# End-2-End Product walkthrough



I can connect to  
databases and  
streaming nodes  
to collect the data



Connect



Explore



Story



App



Pipeline



### Machinery Fault Data

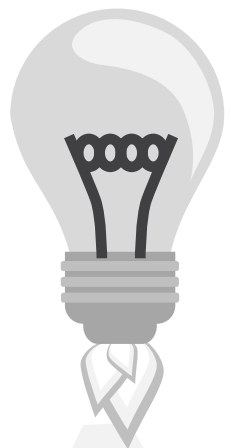


I can explore and crunch my data – train and validate AI-Models

Explore

I can connect to databases and streaming nodes to collect the data

Connect



**End-2-End  
Product walkthrough**

Explore

DATA

- ▶ imbalance6g\_26\_8288
- ▶ imbalance6g\_25\_3952
- ▶ imbalance6g\_24\_576
- ▶ imbalance6g\_23\_552
- ▶ imbalance6g\_22\_7328
- ▶ imbalance6g\_21\_7088
- ▶ imbalance6g\_20\_2752
- ▶ imbalance6g\_19\_6608
- ▶ imbalance6g\_18\_432
- ▶ imbalance6g\_17\_408
- ▶ imbalance6g\_16\_1792
- ▶ imbalance6g\_15\_36
- ▶ imbalance6g\_14\_336
- ▶ imbalance6g\_13\_9264
- ▶ FE\_normal\_train\_first40
- ▶ FE\_imbalance\_train\_first\_40
- ▶ FE\_test\_nor\_imb
- ▶ FE\_test\_cropped
- ▶ FE\_train\_concat
- ▶ train\_FE\_pca
- ▶ Online sensor data\_imb35g
- ▶ Demo\_connection
  - ▶ Pressure
  - ▶ MagFlow
  - ▶ Temperature
- ▶ Data Models
- ▶ Public: innoSEP Test Files
- ▶ Public: BugReport
- ▶ Public: Bearing Fault Classification
- ▶ Public: Google Smartphone Decimeter Challenge

filter

Select all

Expand/Collapse all

OPEN IN:

TV CV GV DSV CBV SV

Data Wrangling Data Enrichment

Feature Extraction Data Modelling

Code Execution

Jobs

INFORMATION

	PROPERTY	VALUE
1	Name	Demo_connection
2	Key	mongodb~RFOE9zZ6bvJq3qrB...
3	Category	Incoming Connection
4	Path	MongoDB → isepstorage1 → db...
5	Count of Contents	3
6	connection_name	Demo_connection
7	connection_mode	Listen
8	connection_location_key	mongodb~RFOE9zZ6bvJq3qrB...
9	connection_type	Subscribe_to_MQTT_Broker
10	connection_type_settings	{'Broker URI': 'ws://broker.mqtt...
11	connection_copy_location_key	
12	streaming_interval	
13	initial_load_inteval	
14	buffering_interval	
15	receiving_mode	KeepLatest
16	connection_description	
17	image	None

I can link relevant operations to a senseful story and re-run the analytics pipeline

I can explore and crunch my data – train and validate AI-Models

Explore

Story

I can connect to databases and streaming nodes to collect the data

Connect



**End-2-End  
Product walkthrough**



Connect

Explore

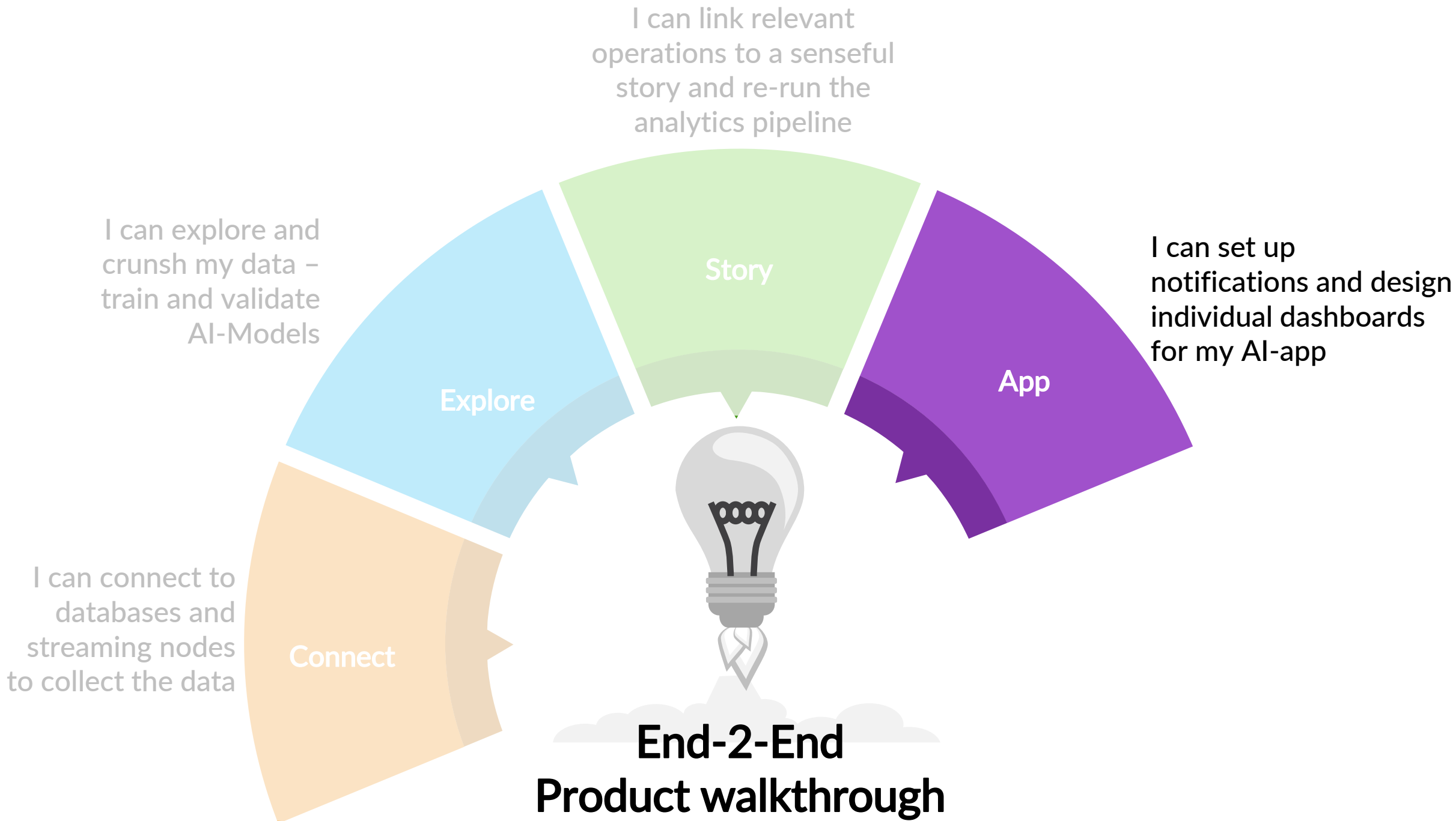
Story

App

Pipeline

### Machinery Fault Data







innoSEP - AI Analytics Platform

Correlation Viewer **PLOT SETTINGS**

PLOT SETTINGS

X-AXIS:

Y-AXIS:

Z-AXIS:   Dist.

SIZE:

COLOR:

FILTER

Initial | on | 100%

Operator  Condition

Apply on vector

12.09.2021 14:47:41

imbalace35g

normal

imbalace6g

INFO ERRORS

EXPERT

Data Wrangling Data Enrichment

Feature Extraction Data Modelling

Code Execution

Jobs

CONTENT

(0)(386) Techometer\_raw\_1s1\_min

(0)(386) Techometer\_raw\_1s1\_max

(0)(386) Techometer\_raw\_1s1\_mean

(0)(386) Techometer\_raw\_1s1\_medi...

(0)(386) Techometer\_raw\_1s1\_std

(0)(386) Techometer\_raw\_1s1\_quan...

Search contents  Select All

FOLDERS

Data Container 1

Content

Data Models

Jobs

Signal Processing - Dimension & ...

Search folders  Select All

HISTORY

Date from

Date till

fft 12.09.21 16:43:43

12.09.21 16:42:44

12.09.21 16:42:37

12.09.21 16:42:25

fft 12.09.21 16:38:25

Product Walkthrough



Navigation bar with five colored buttons:

- Connect** (Orange): icon of two linked rings
- Explore** (Blue): icon of a pulse line
- Story** (Green): icon of an open book
- App** (Purple): icon of a folder
- Pipeline** (Red-Orange): icon of a node-link diagram

Vertical sidebar navigation menu with icons for:

- Home
- Connect
- Explore
- Story
- App
- Pipeline
- Settings
- Help

### Machinery Fault Data



## Dipl.-Ing. Kerim Galal

Diploma degree (1.3) in mechanical engineering at Leibniz University of Hannover – Top 2% of class

Co-Founder and CEO from innoSEP since 2016



Founded 2016





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EUROPÄISCHE UNION  
Europäischer Fonds für  
regionale Entwicklung



## Contact

**Dipl.-Ing. Kerim Galal**  
CEO | Co-Founder

[k.galal@innosep.de](mailto:k.galal@innosep.de)  
0163 601 65 96



Hanomaghof 2  
30449 Hannover

[www.innosep.de](http://www.innosep.de)

Amtsgericht Hannover:  
HRB 214034