

WELCOME

EPR Annual Conference 2025

Leading the Change in Rehabilitation:
Towards Future-Proof Services

5–6 June 2025 | Antwerp, Belgium



Open Spaces Workshops: Leadership and data management

- Sander Allert – Plain Sight
- Giada Venier – Fondazione don Gnocchi





LEADERSHIP AND DATA MANAGEMENT

PLAINSIGHT

Who Am I – Sander Allert

10 years of experience in Data Solutions

Co-Founder Plainsight

Experienced in ...

- Data Warehousing & Lakehousing

- Data Science & AI

- Data Architectures (On-Premise & Cloud)

- Self-Service Rollouts

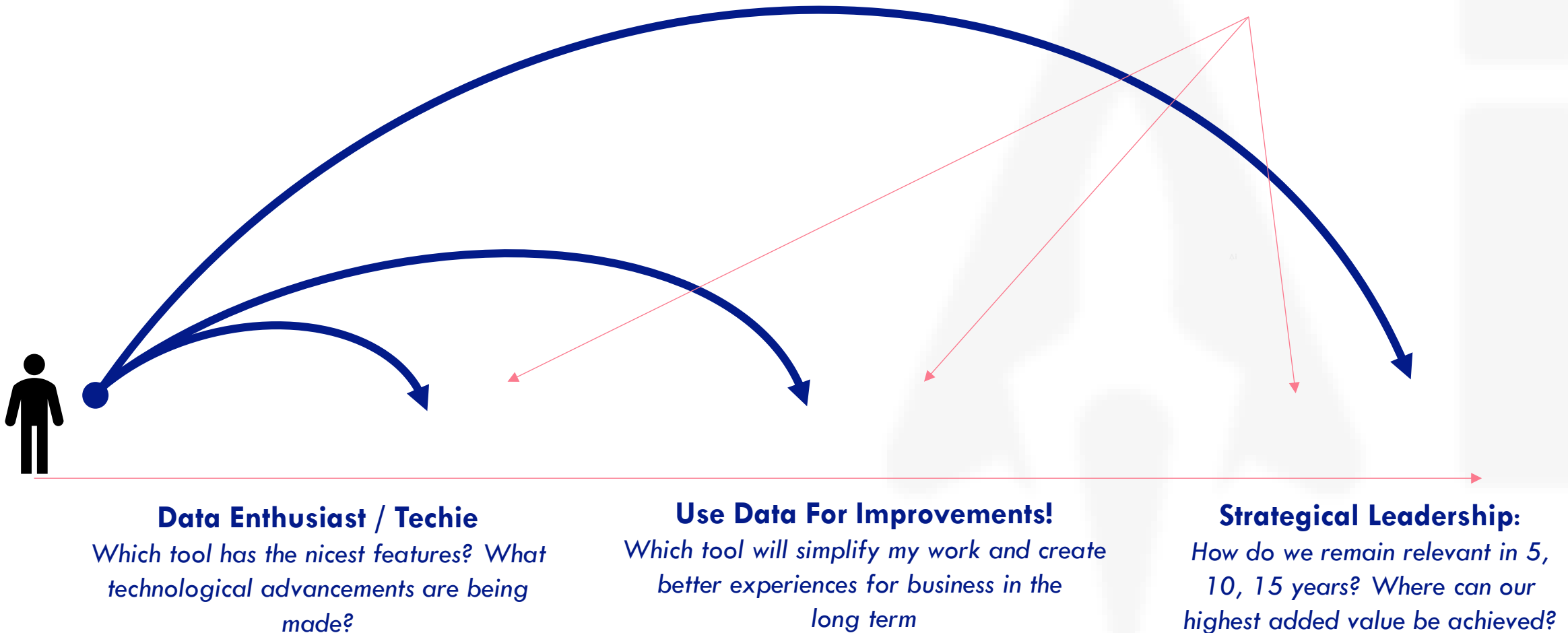
- ... Still developing and experimenting



What horizon are you looking at?

Stop thinking about the Now, start thinking about the Future!

These could conflict and bring you in another destination!



“

We need to implement
<< insert text here >>
in everything we do!

”

2010 : Hadoop

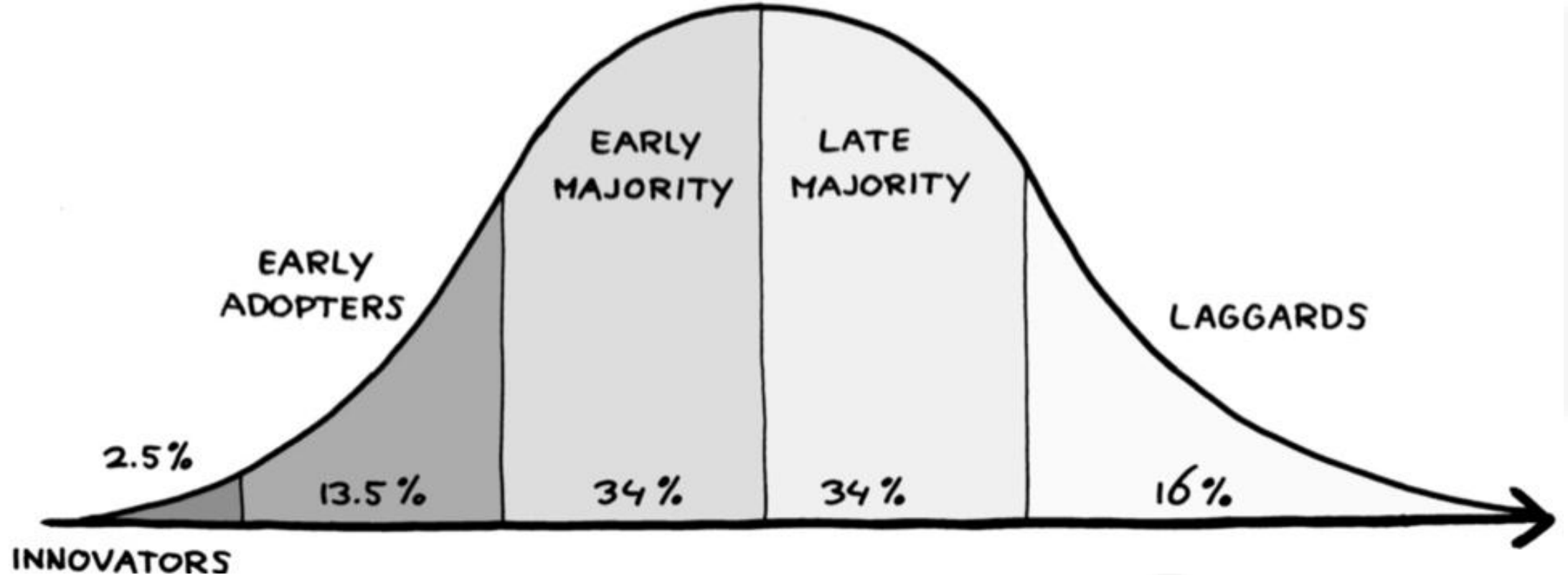
2015 : Blockchain / Bitcoin

2020 : Metaverse

2023 : Generative AI

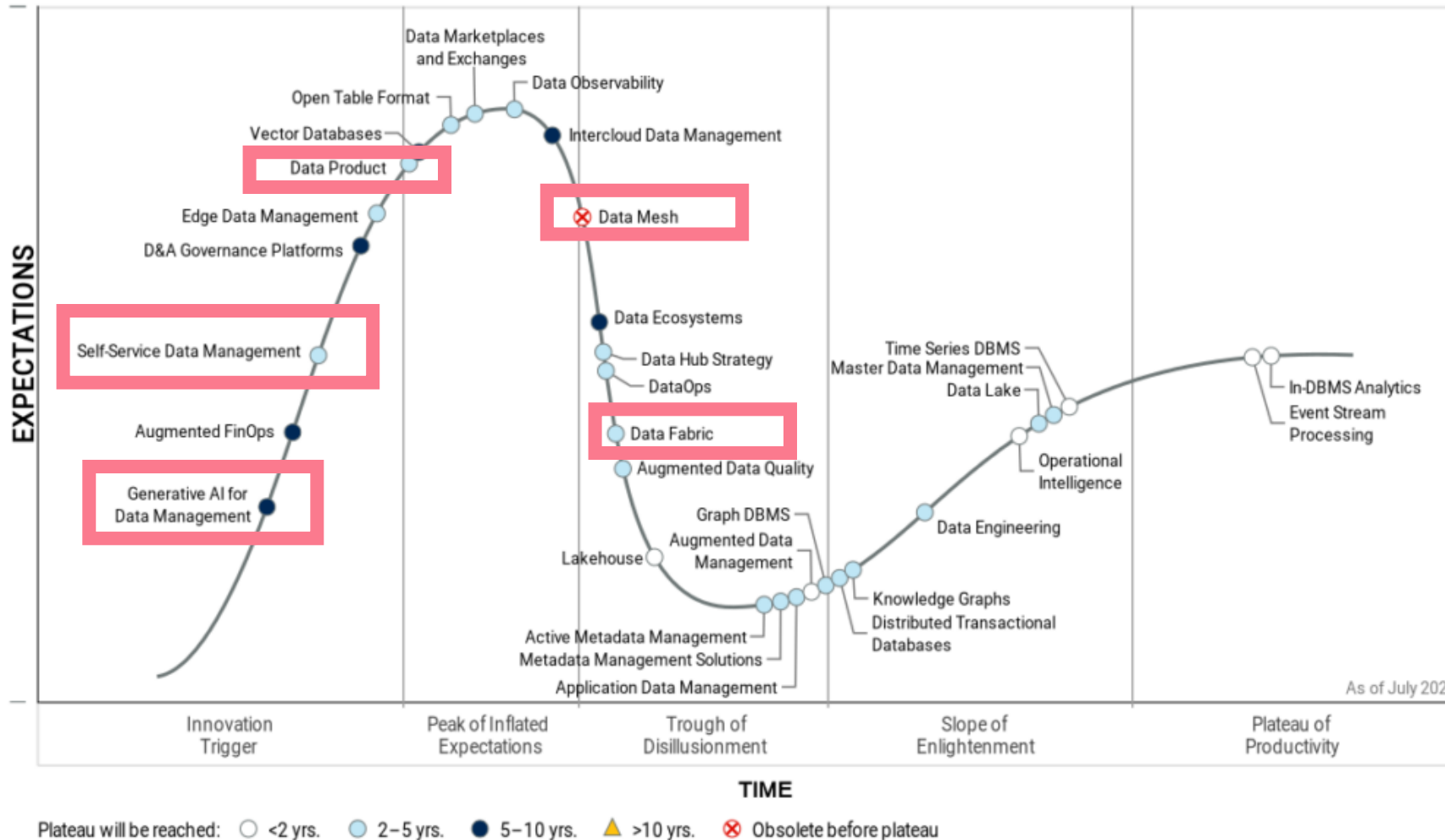
Where are you? Where do you want to be?

The Innovation Adoption Curve by E. Rogers

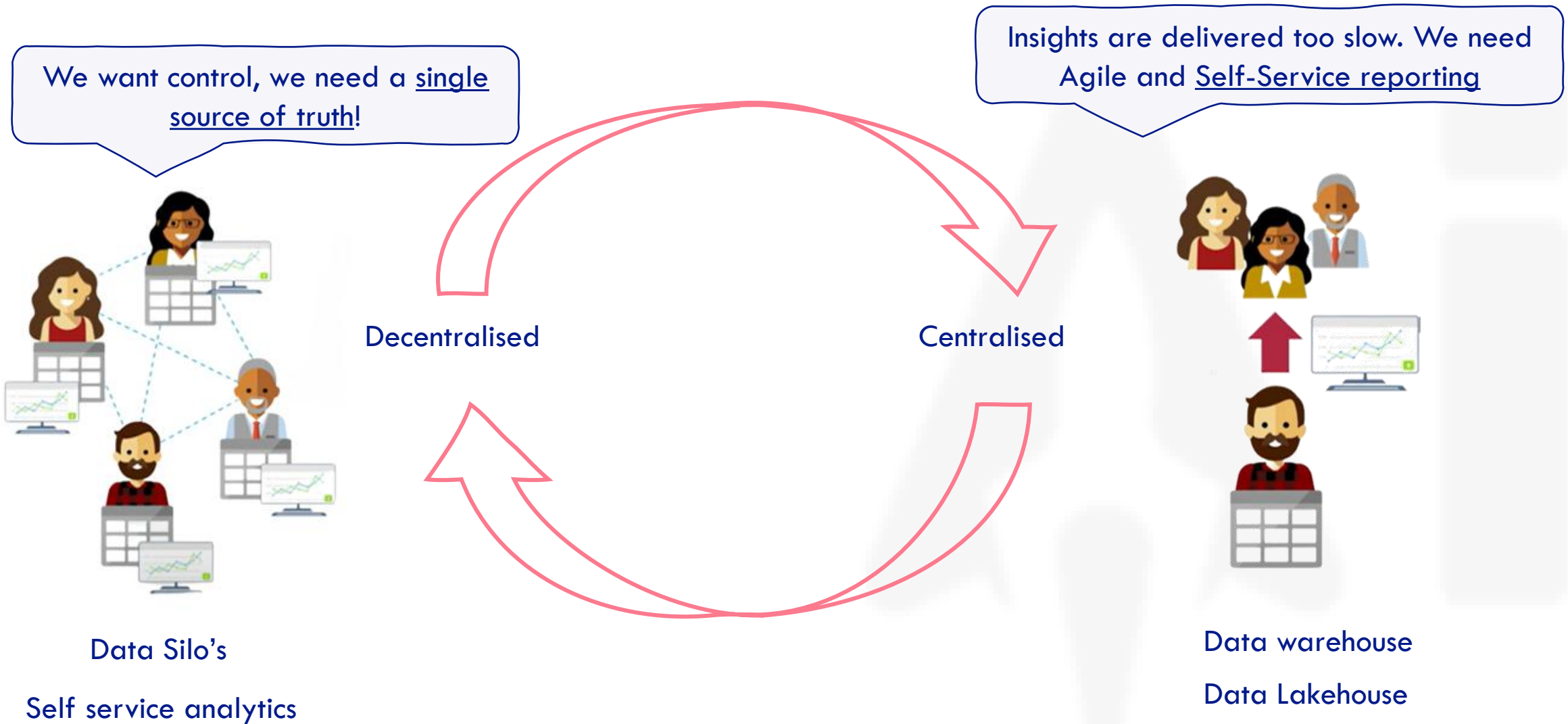


Hype Cycle according to Gartner

Hype Cycle for Data Management, 2024



Cycle of Control

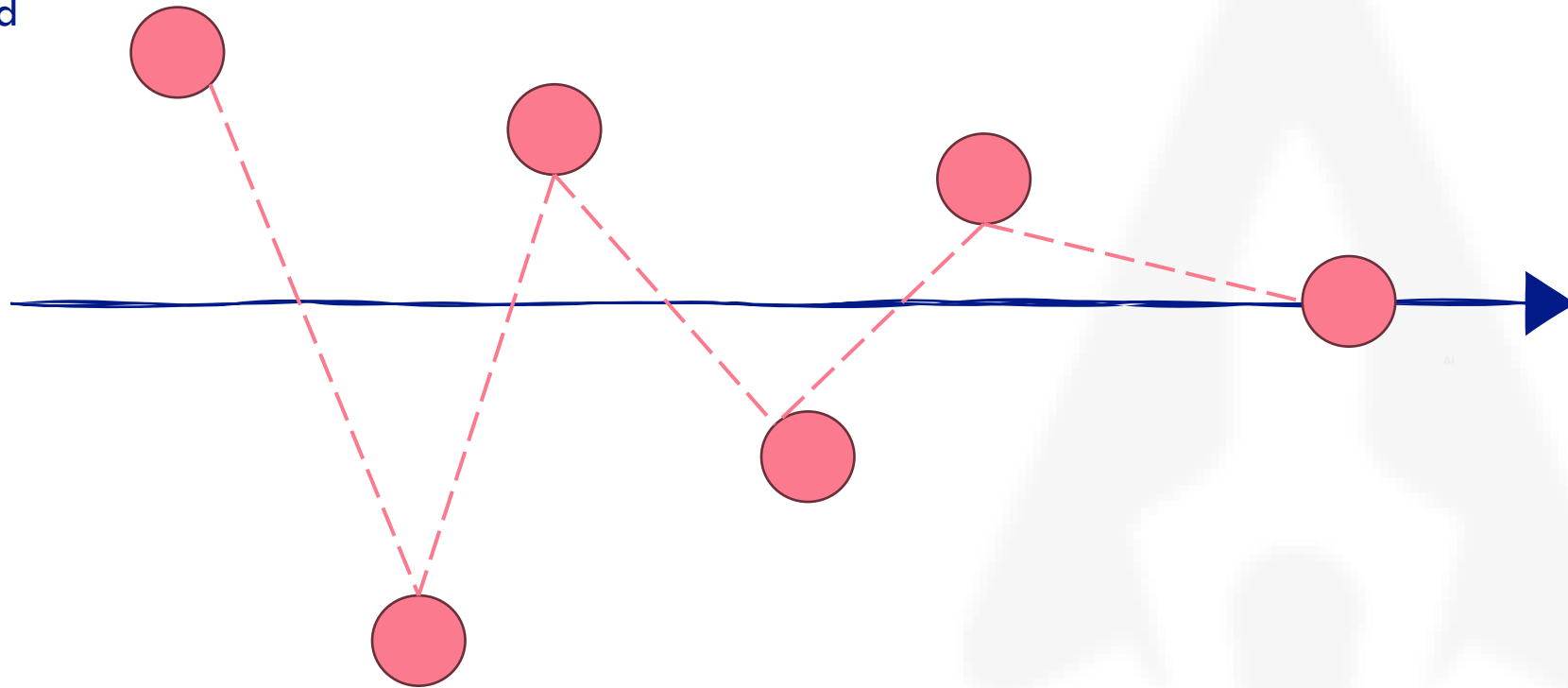


Macro data trends

It all comes together

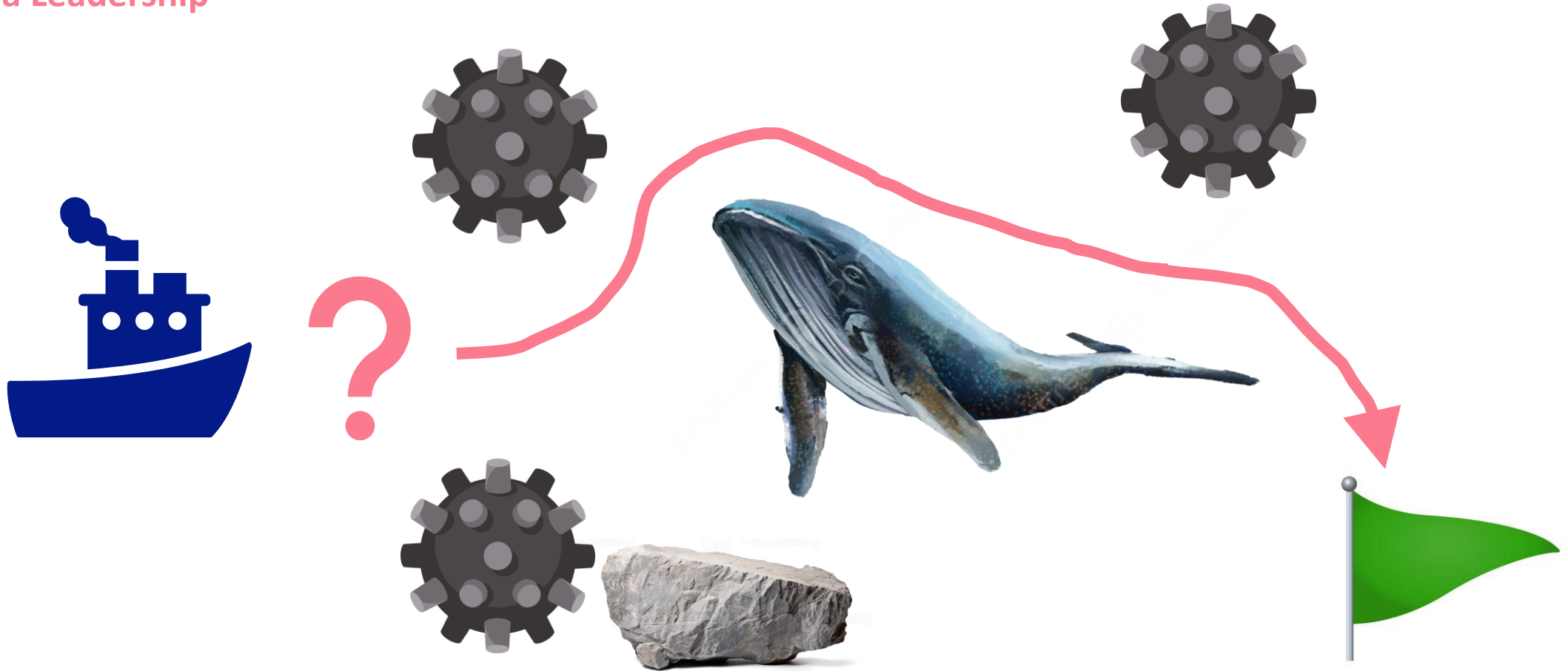
Decentralised

Centralised



Why We Need Data Management?

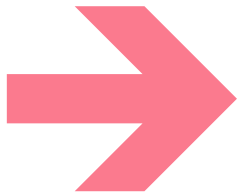
You, as a Leadership



An Example: Insights We Want To Achieve!

EU Directive on Pay Transparency: the five requirements

On 10 May 2023, the European Parliament approved the new directive on pay transparency. The objective of this directive is to address pay discrimination between men and women. Belgium has until 2026 to incorporate this directive into its national legislation; however, it is advisable not to delay action until 2026.



Equal pay for equal work

Transparency in setting remuneration

Transparency of remuneration in job advertisements

Transparency of remuneration by category

Reporting on the pay gap



Why do

DATA?

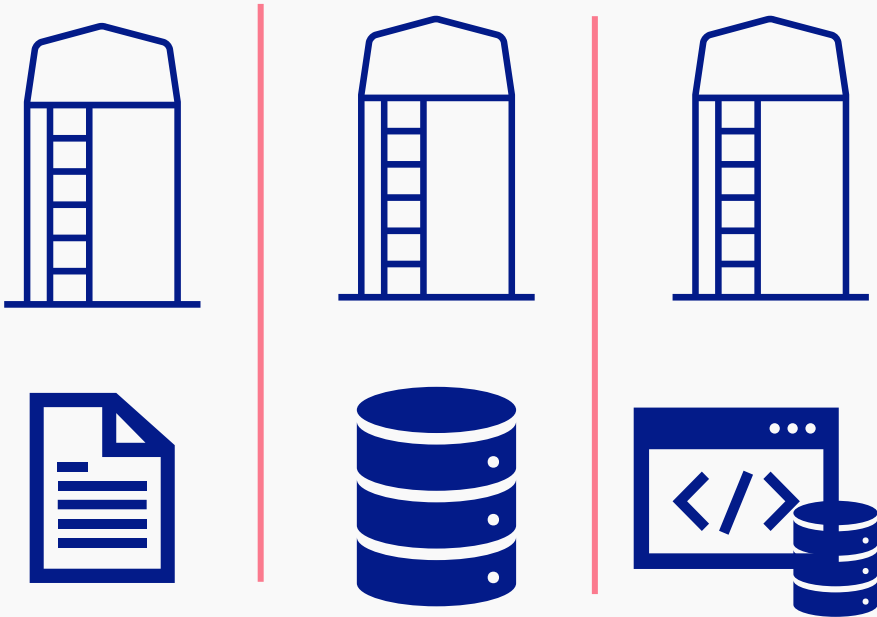
When does data get value?

EXPLAINED
WITH A STORY



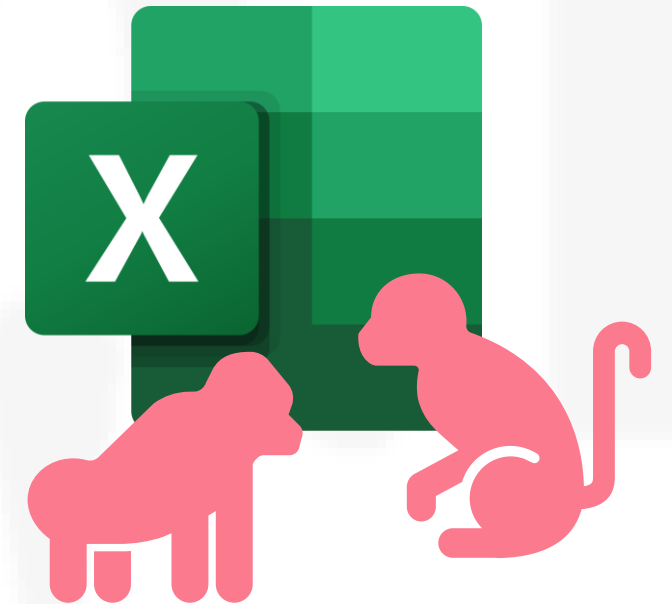
Enemy Number 1:

Data Silo's



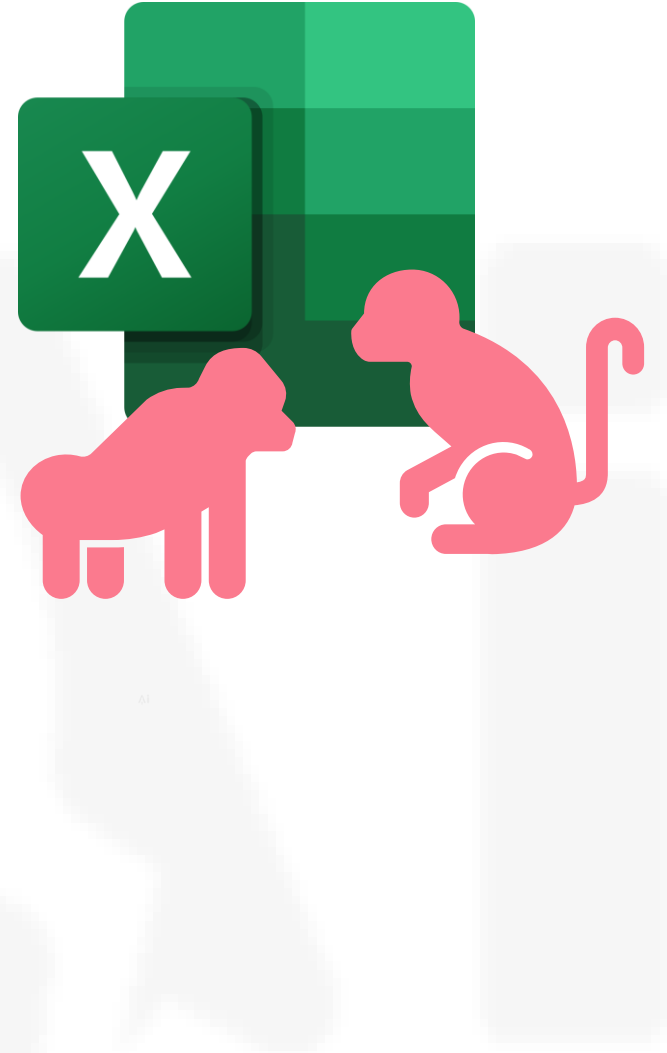
... Lead To:

Excel Monkeys



Excel Monkeys

- ⚡ Repeating Every Day/Week/Month!
- ⚡ Errors/Inconsistencies Incoming!
- ⚡ We all hate the #DIV/0!, #N/A, #NAME?, #NULL!, #NUM!, #REF!, and #VALUE!
- ⚡ Data is not accessible
- ⚡ Data is delivered too late, too much dependencies
- ⚡ ... Impacting the agility of our ship!



“

**Modern Platforms let you *chat* with your data
and surface insights instantly.**

”

LLMs for Data Analysis and Data Management?

Use Case

Analyzed ^

python Always show details ☒ Copy

```
import pandas as pd

# Load the CSV file
file_path = '/mnt/data/customers-1000.csv'
data = pd.read_csv(file_path)

# Display high-level overview of each column
overview = pd.DataFrame({
    "Column": data.columns,
    "Data Type": data.dtypes,
    "Non-Null Count": data.count(),
    "Unique Values": data.nunique(),
    "Missing Values": data.isnull().sum()
})

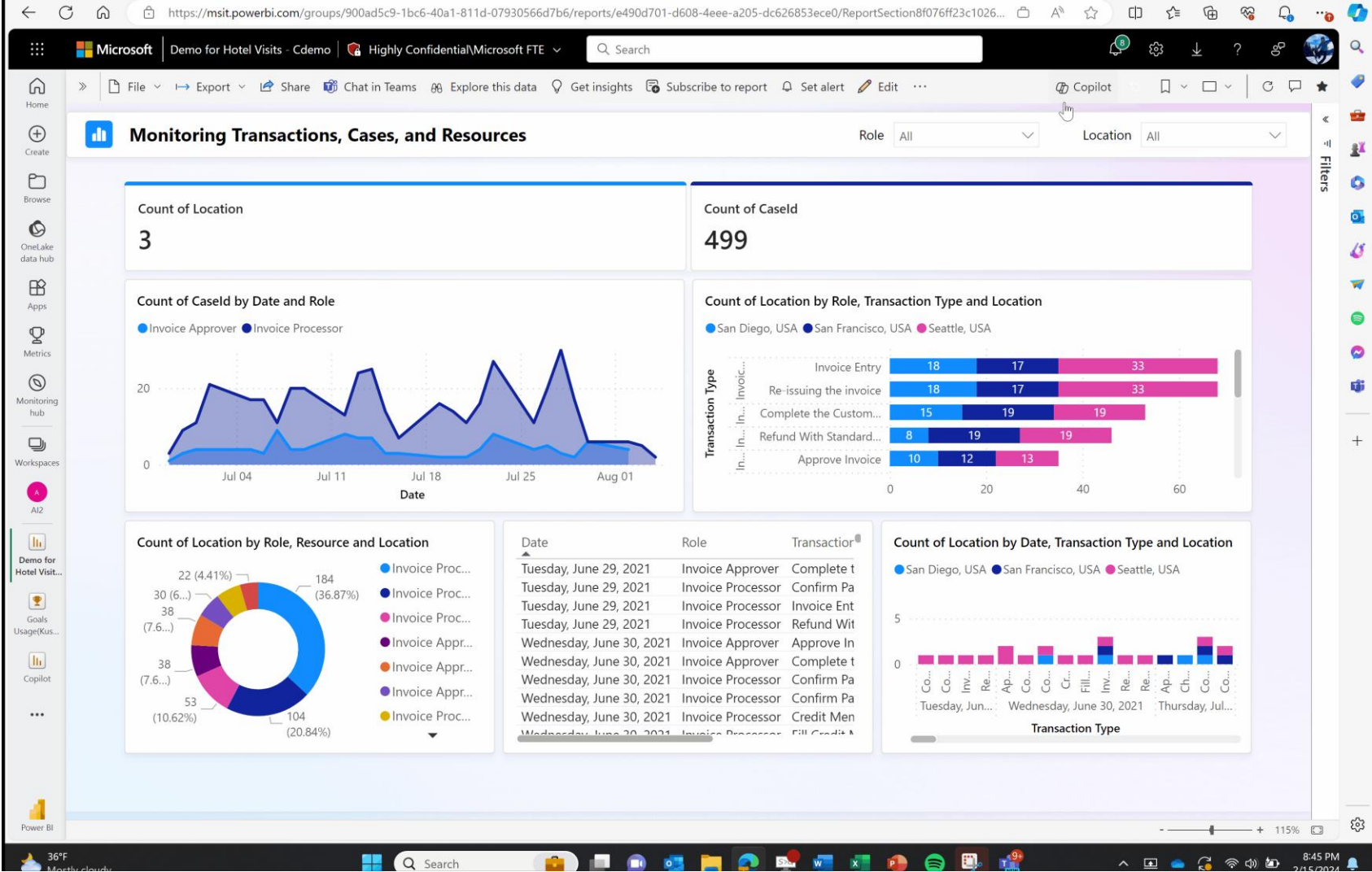
overview.reset_index(drop=True, inplace=True)
import ace_tools as tools; tools.display_dataframe_to_user(name="Column Overview", dataframe=overview)
```

Result

	Column	Data Type	Non-Null Count	Unique Values	Missing Val
0	Index	int64	1000	1000	
1	Customer Id	object	1000	1000	
2	First Name	object	1000	536	
3	Last Name	object	1000	622	
4	Company	object	1000	992	
5	City	object	1000	983	
6	Country	object	1000	240	
7	Phone 1	object	1000	1000	
8	Phone 2	object	1000	1000	
9	Email	object	1000	1000	
10	Subscription Date	object	1000	608	
11	Website	object	1000	973	

Power BI & LLMs

Ask Your Data



Databricks Genie

[illegible]

Will AI Solve Our Problem?

🚀 YES!!

- 🚀 ... If your questions are simple.
- 🚀 ... If your data is well-described.
- 🚀 ... If your data resides together.

🚀 NO!!

- 🚀 ... If your data is still in a silo.
- 🚀 ... If your data is difficult to interpret.
- 🚀 ... If there's a lot of constraint that need to be taken into account.



LET'S TALK LEADERSHIP & DATA MANAGEMENT

PLAINSIGHT



Leadership and Data Management

The case of robotic rehabilitation in Fondazione Don Gnocchi

WORKSHOP – EPR ANNUAL CONFERENCE 2025

GIADA VENIER – FONDAZIONE DON GNOCCHI

Summary of contents

1. Before: leadership choice to become «early adopters»
2. During: innovation management in the process of adoption
3. After: data management for informed clinical and administrative decision-making

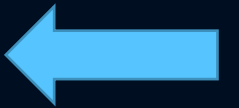
1. Before: leadership choice to become “early adopters” (2015)

The people involved



The drivers

- Long tradition of technological innovation
- Need for a more scientific and measurable approach in rehabilitation
- Potential savings thanks to new organisational model

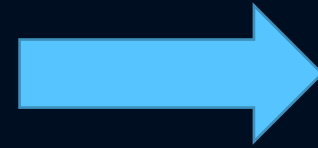


2. During: innovation management in the process of adoption



HTA survey co-created in a multidisciplinary equipe:

- Development & Innovation Dept.
- Doctors
- Physiotherapists
- researchers (both clinical and technology)
- IT Dept.
- Medical Director
- Clinical Engineering Dept.
- Administrative Director



**16 robotic
solutions identified
and ranked**



RANKING CRITERIA & HTA ALGORYTHM	%
Appropriateness for highly diffused diseases	5%
Capability to provide outcome indexes	15%
Capability to provide normality indexes as a reference	5%
Safety issues in highly diffused diseases	5%
Efficacy proven in scientific literature	15%
Evaluator's indication for priority + declared confidence	15%
Highest impairment targettable	10%
Maturity of the technology (1/0)	0=prototype 1=commercial
User interface customizability	10%
Efficiency indexes* (patient can/cannot use it autonomously, group therapy, nr of therapists needed)	20%

$$\text{RANKING} = \text{TechMaturity} \cdot \sum_i \text{ValueOfCriterion}_i \cdot \text{Weight}_i$$

16 ROBOTS IDENTIFIED		Nr.Val.	Average	STD	STD/AVE
ARMEO Spring	← TOO EXPENSIVE	6	1,29	0,27	21%
GAIT TRAINER TREADMILL (with Unweighing System)		1	1,27		
ERIGO		1	1,20		
PABLO	<u>UPPER LIMB</u> ; ANOTHER SYSTEM ADDED (« DIEGO »), EVALUATED LATER ON AND COVERING SOME UNMET FUNCTIONAL NEEDS (BILATERAL EXERCISES)		1,19		
AMADEO		4	1,14	0,30	27%
MOTORE		10	1,12	0,13	12%
RE-GAIT		1	1,09		
LOKOMAT		7	1,03	0,09	9%
ARMEO Power		3	0,99	0,21	21%
GEO SYSTEM		2	0,96	0,31	33%
GLOREHA		6	0,94	0,19	20%
REWALK		7	0,62	0,19	31%
EKSO		6	0,62	0,10	17%
REOGO		2	0,58	0,07	13%
ULTRA		2	0,51	0,00	
BRACCIO DI FERRO - PHYSIOASSISTANT	← NOT CE MARKED				



A step-by-step approach to adoption

In terms of costs



- First set of robots purchased was for the **upper-limb** → **CHEAPER** compared to lower-limb solutions

In terms of diffusion

- **Pilot study** in the centre of the clinical “champion” and her team of therapists (Rome) → well-established **TRUST**
- Development of a **dashboard for data management** and **organisational model**



The organizational model

Gyms organization	
08:00	outpatient
08:45	
09:30	
10:15	inpatient
11:00	
11:45	
12:30	
13:00	outpatient
13:45	
14:30	inpatient
15:15	
16:00	
16:45	outpatient
17:30	
18:15	

Time-slot organization to allow the integration of robotics into the patient's rehabilitation routine in compliance with NHS rules

1 : n model = 1 therapist follows 3 or 4 patients simultaneously

- Saturation of robotic gym
- Amortise initial costs of purchase and investment

Managing the scale up

Adoption in the FDG centre in Milan, where there was a bigger **cultural barrier** among healthcare professionals compared to Rome



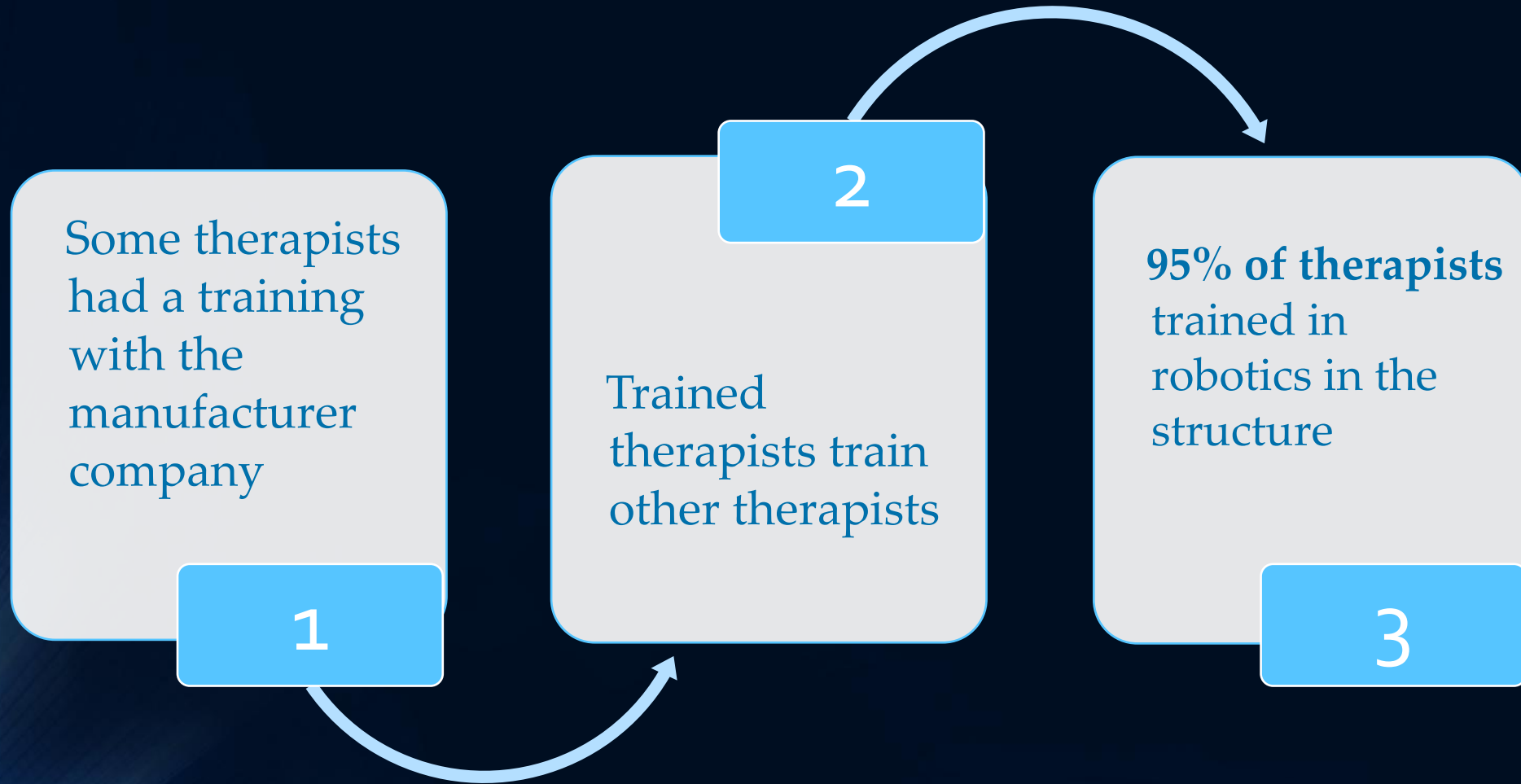
Step-by-step approach **in terms of culture**

Leadership approach:

- **Recommend** the use of robots instead of ordering it
- Take the backseat and leave the “**champion**” therapists at the **forefront** to teach the other therapists



The role of training



Rehabilitation robots in FDG today

More than 50 robots in 12 centres

TARGET	Upper Limb				Lower Limb –Trunk – Balance	Walk	
ROBOT	Pablo	Amadeo	Diego	Motore	Hunova	Geo System	C-mill
Parent company	Tyro Motion			Humanware	Movendo Technology	Reha technology	Motek Medical



3. After: data management for informed clinical and administrative decision-making



- Pre/post assessment with numerical data
- Feedbacks to maintain and involve subject's attention
- Constant and objective monitoring



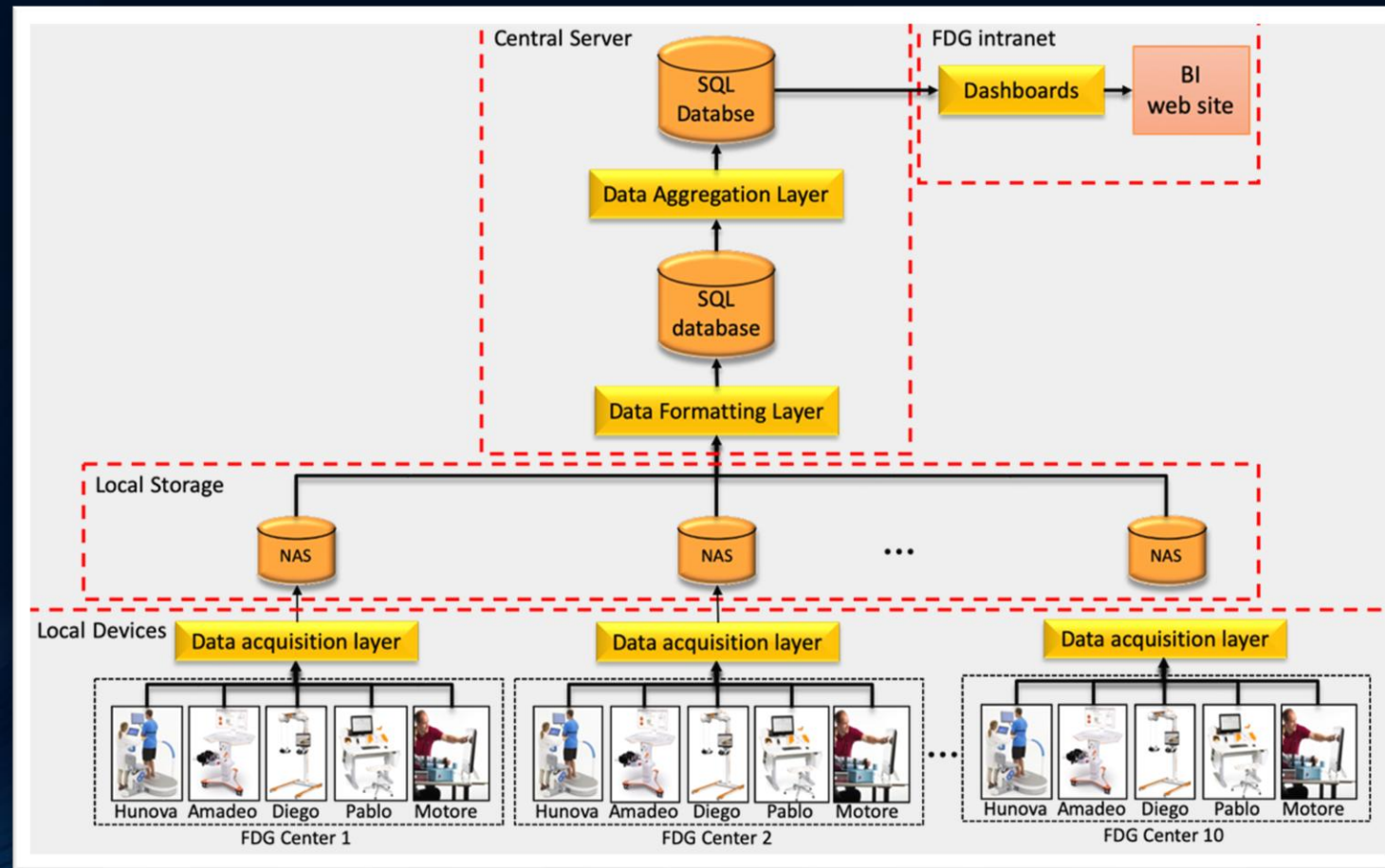
- Lack of standards in robotic rehabilitation (robots from different companies collect different data in different ways), today mostly – but not fully - overcome
- Therapists are not able to absorb all the information

Need to collect and visualise these data in a structured way to make informed data-driven decisions

Dashboards for data management

Vendors didn't consider this need or didn't have enough resources (SMEs)

Architecture for raw data collection built by the Dept. for Development & Innovation



Dashboard
for clinicians

Dashboard
for managers

Dashboard for clinicians

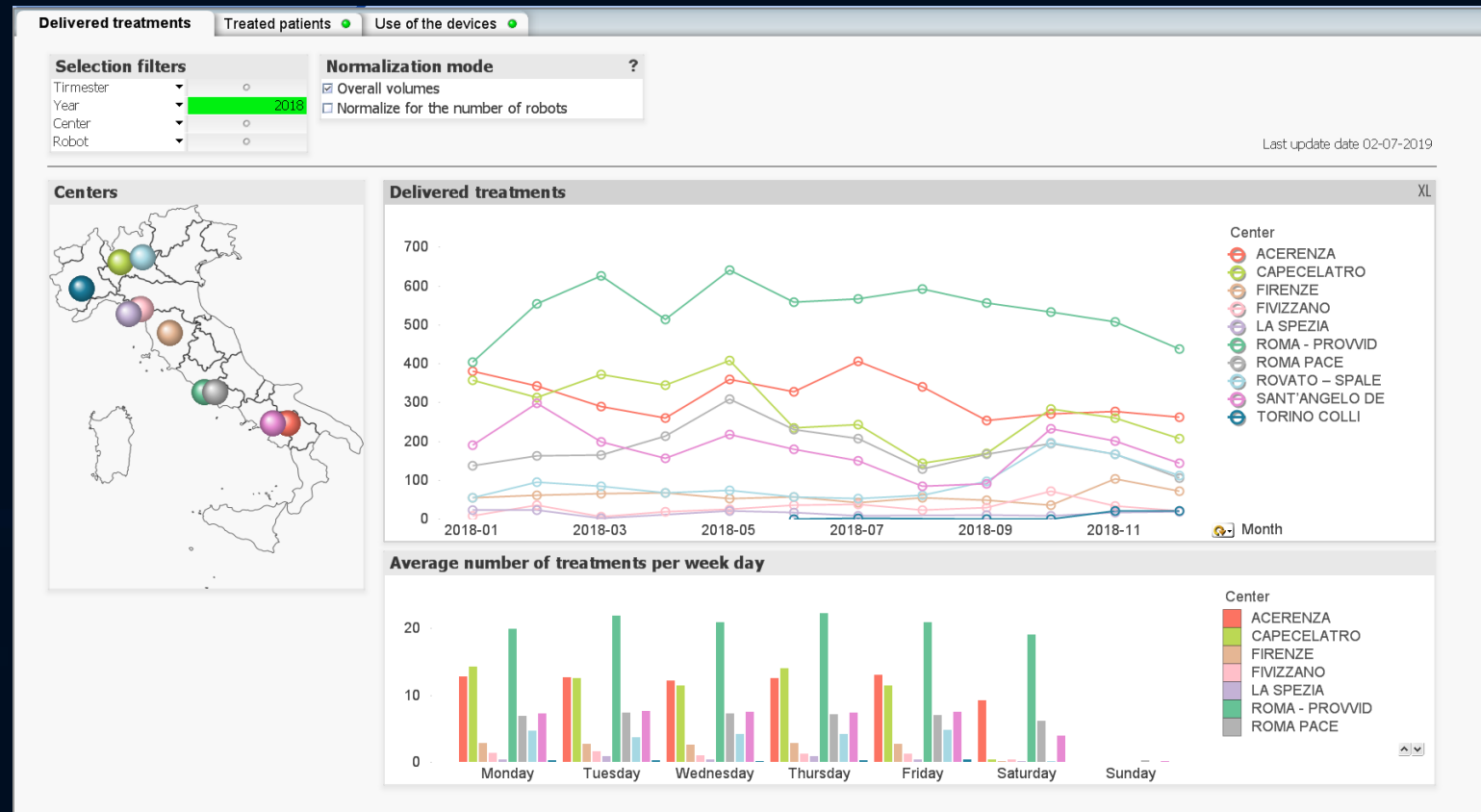
Co-created with them to develop report format that could be used in their work



Dashboard for managers

Provides data on usage of all robots in all FDG centers

- Verify **KPIs on (actual) adoption** of robotics
- Negotiate **maintenance contracts** based on actual use of each robot type (filters by type and frequency of use)
- Verify **economic sustainability** (usage vs purchase cost) and carry out multicenter efficacy study

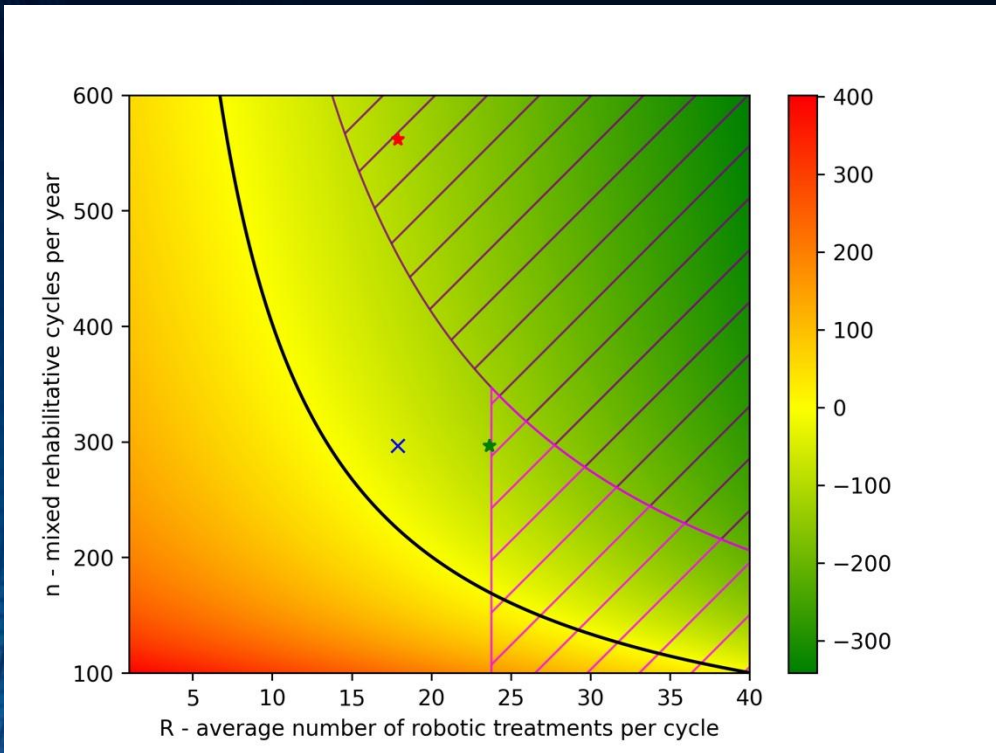


$$\text{VALUE} = \frac{\text{OUTCOME}}{\text{COSTS}}$$



- ✓ Expansion to other centers (from 20 to +50 robots)
- ✓ Purchase also lower-limb robots

From data to health economics

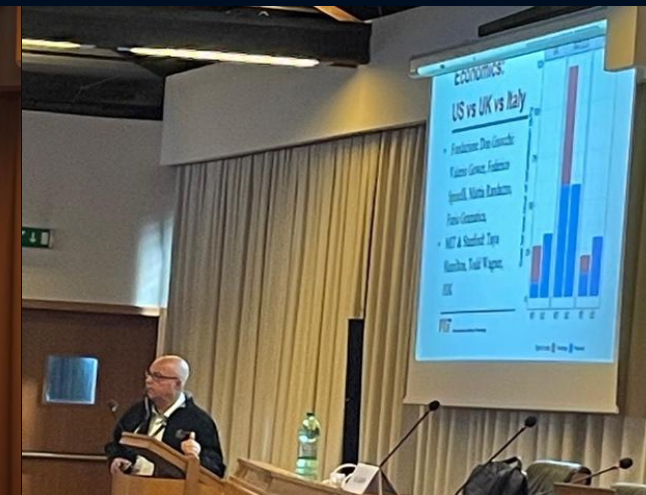
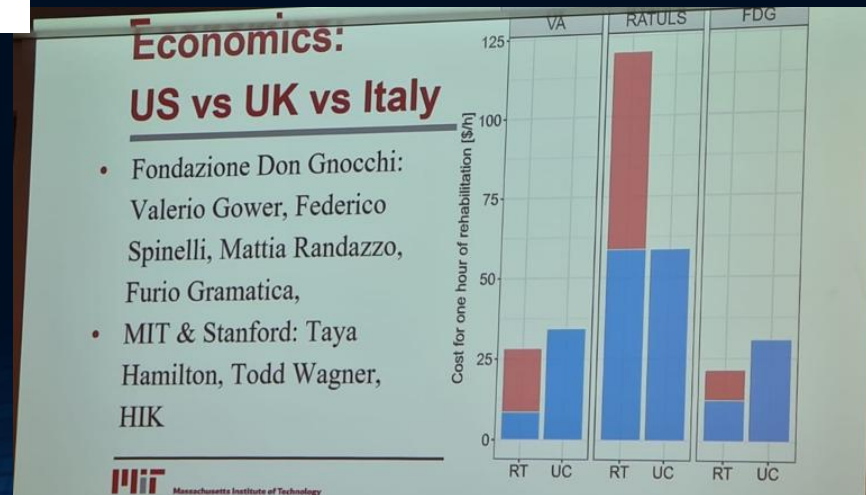


2) Comparative study on robotic rehabilitation in USA, UK and Italy with MIT and Stanford University (ongoing, unpublished)

1) Cost analysis for robotic rehabilitation [V.Gower et al. DOI: [10.3389/fpubh.2024.1445099](https://doi.org/10.3389/fpubh.2024.1445099)]

Results:

- Saving of 49.60 € per cycle (mixed robotics + conventional)
- Probabilistic simulations show $P > 98\%$ to save money in an optimized mixed rehab cycle
- Cost analysis → optimization → probabilistic approach



Conclusions

- Leadership is key at every step of innovation: before, during and after
- Leadership also means giving space to professionals to advance innovation themselves by engaging with their peers and build trust
- Tradition in innovation is an enabler. Organisation that don't have such tradition can learn from others through platforms like EPR
- Data provided by technology needs to be managed in a way that benefits professionals to be really useful
- Data-driven decisions allow to scale up an innovation with the right timing and in a sustainable way

Guiding questions

- *How can proper data management support leadership decisions in organisations aiming to be early adopters of (technology-based) innovations?*
- *What can you do if data management is bad?*
- *Can you do decent leadership without proper data management?"*



THANK YOU!

See you back at the
conference room!

