



# Pmsa

PHARMACEUTICAL MANAGEMENT  
SCIENCE ASSOCIATION

PMSA GLOBAL SUMMIT 2023

**From Proof of Concept to Production and Beyond for AI/NLP Solutions in Medical Affairs**

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# WHO WE ARE?



**Dr. Ben Collins**

Chief Product Owner



**Jens Barthelmes**

IT Project Manager



**Paolo Sammicheli**

Scrum Trainer & Coach

# AGENDA

1

OUR CHALLENGE IN  
THE **GO TO MARKET**  
**(GTM)** ORGANIZATION  
IN THE PHARMA  
INDUSTRY

2

CASE STUDY:  
**KNERD**

3

THE **INNOVATOR'S**  
DILEMMA

1

OUR CHALLENGE IN THE  
**GO TO MARKET (GTM)**  
ORGANIZATION IN  
THE PHARMA INDUSTRY

# OUR CHALLENGE

Approx.

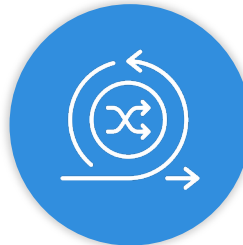
**80%**

of enterprise data  
is **unstructured**

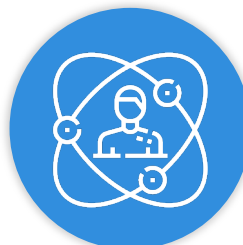
Source: Gartner (2017)



— Not enough FTEs and time  
to analyse unstructured data



— Reactive use of unstructured data



— Lack of in-house capability and expertise

# OUR VISION: SIMPLER INSIGHTS FOR HUMANS

## VALUE FROM DATA

From unstructured data to insights to a **differentiated customer experience to better serve patients**

## TRANSFORM ROLES

From maintaining or analyzing data to **enabling AI models and generating insights**

## ENABLE RE-USE

From siloed solutions to **re-use of NLP assets by other capabilities**

2

CASE STUDY:  
**KNERD**

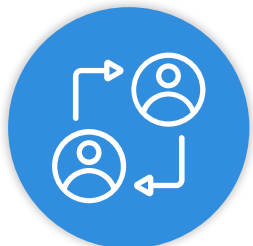
# SCENARIO



Ideation workshops carried out with a total of **approx. 70 stakeholders** across the go-to-market organization



A PoC was completed for **one use case**



Transition from the PoC to the KNERD platform in 2020, **scaling up** from a small team to a larger team



The platform should cover requirements from **4 use cases** from very different kind of stakeholders from medicine and commercial business



**Full remote team** due to the Covid-19 Pandemic

# ORGANIZATION: SCRUM

## WHY WE CHOSE SCRUM

Teamwork based, foster collective intelligence

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Adaptive framework, perfect with high-complexity projects

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Frequent feedback loop with business, reducing the risk of building low-value stuff

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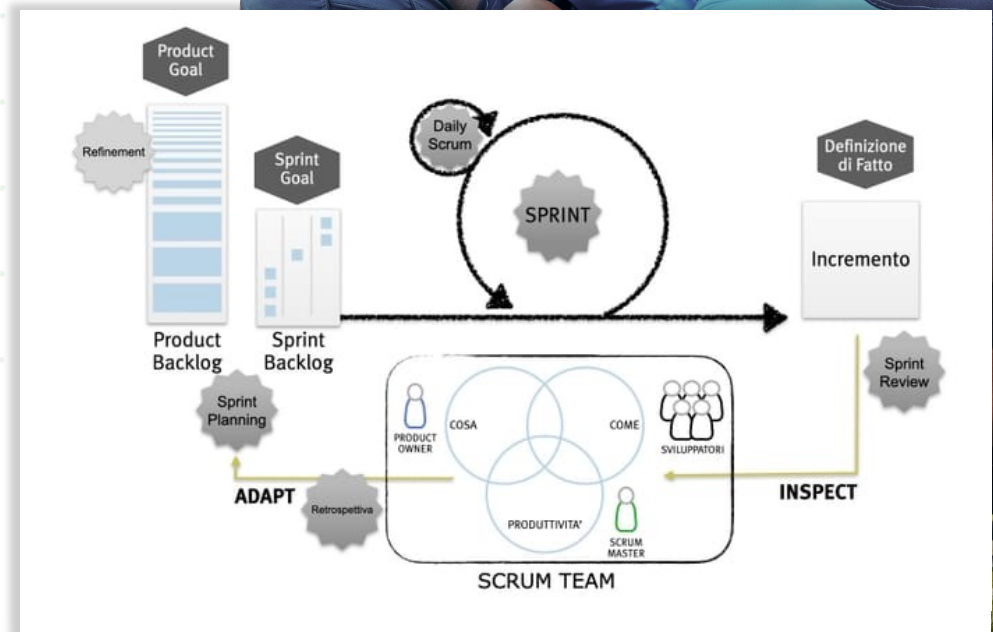
Retrospectives: continuous improvement built-in

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Visual management limits bureaucracy to a minimum

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Process framework effective with both co-located and remote teams



# SCALING CONFIGURATION

**CHALLENGE:** To cover all the skills, we needed 16 people

- Teams larger than 10 are known to be unproductive
- Scrum@scale addresses this issue with the “Team of Teams” approach called the “Scrum of Scrums” pattern
- This also applied to the product management (Product Owner Team)

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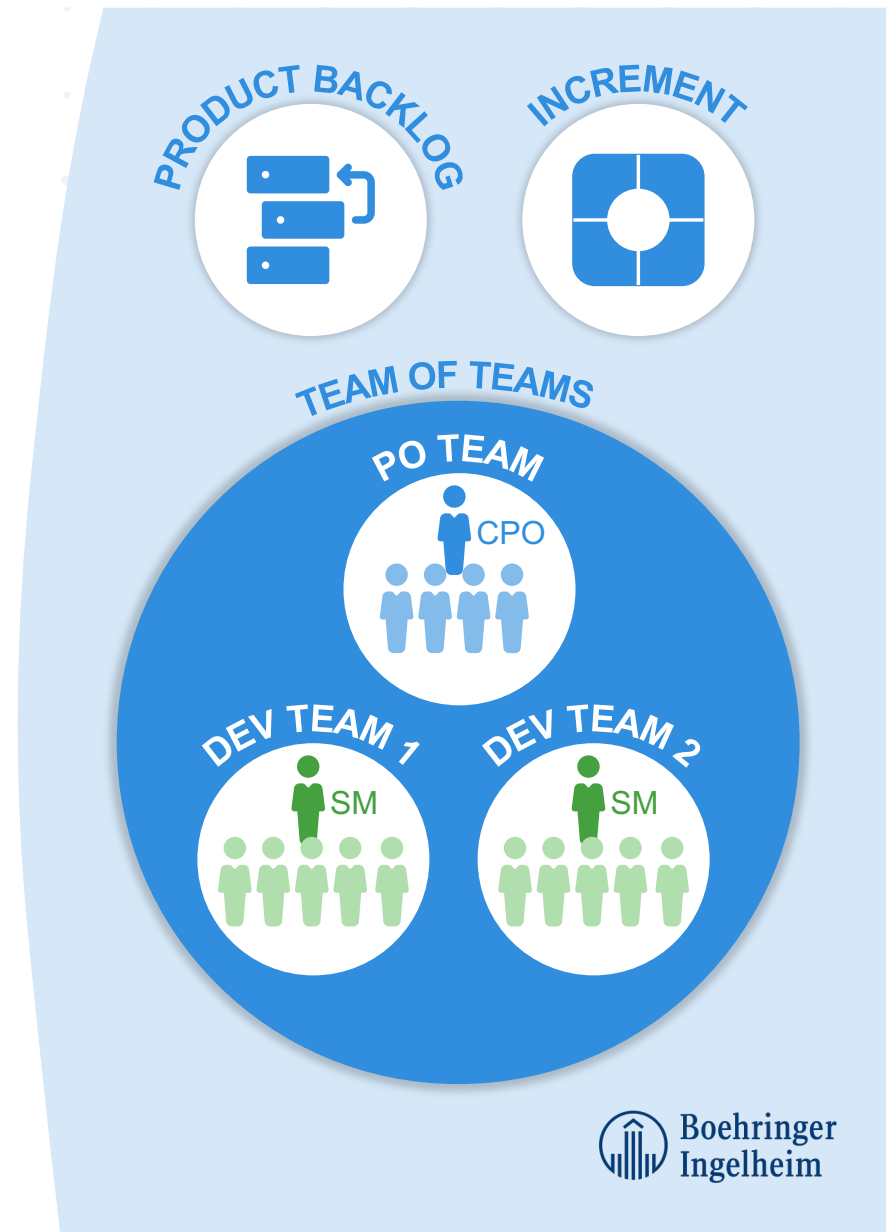
The **Team of Teams** is composed of **One PO Team** and **Two Development Teams**

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From the outside world is perceived as **One Team:**  
One Product Backlog, One Sprint Planning, One Review,  
One Increment every Sprint

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Just like any Team, **“accountability belongs to the Team as a whole”**



# “PRODUCT OWNER TEAM” PATTERN

«The Product Owner has more to do than a single person can handle well, therefore create a Product Owner Team, led by the Chief Product Owner, whose members together carry out product ownership»

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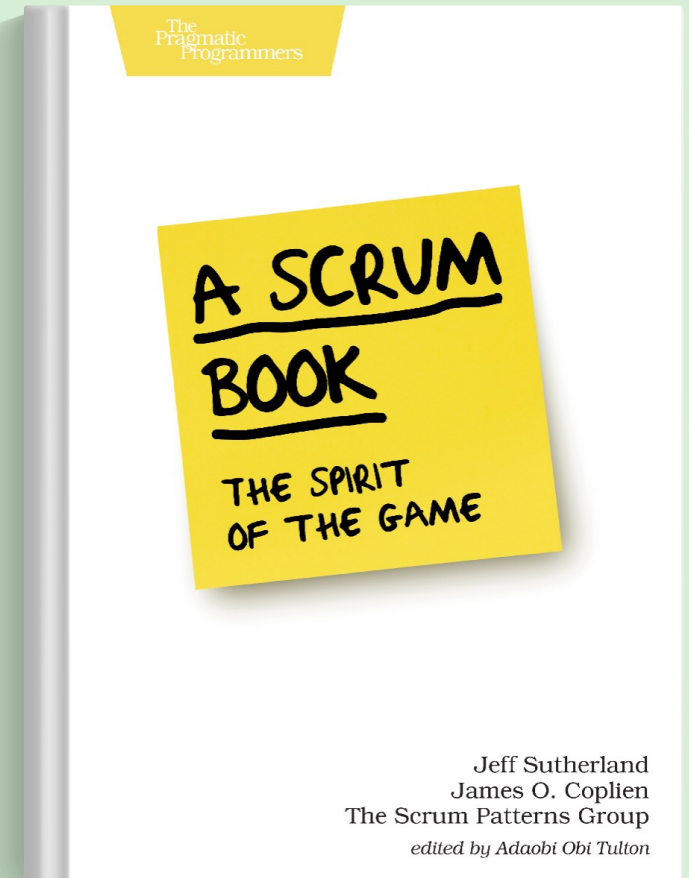
The outside world perceives this team as a **Single Product Owner**

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Team tries to work on a **consensus** based approach leaving the last decision to the CPO if needed

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Team periodically meets with Key Stakeholders at the **MetaScrum** event



# A COLLABORATIVE FRAMEWORK



## A cohesive group of decoupled teams

- Contract-first design
- MetaScrum
- Architecture Canvas
- Onsite Lift Off to align on vision and goals



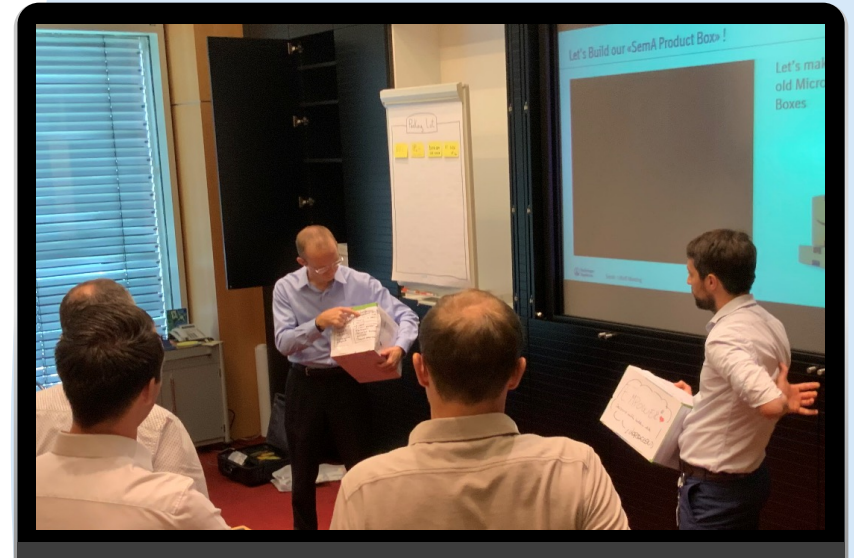
## Sprint reviews

- Interactive feedback with instant polls



## Early adopters

- Business SMEs performed manual data labelling
- Access to the QA environment to try features and give early feedback
- User interviews to pull feedback actively



# ORGANIZATION VS. ARCHITECTURE

**Conway's law:** the product mistakes reflect the organizational mistakes

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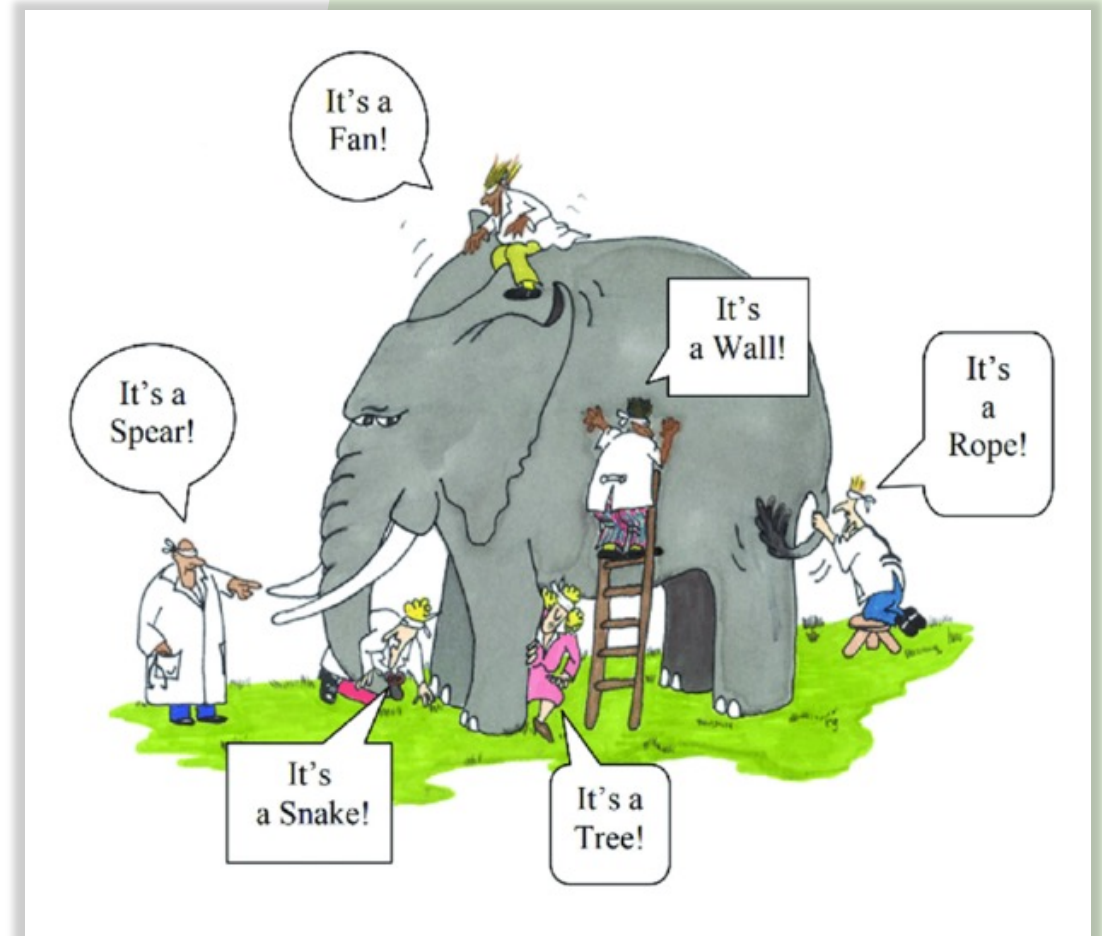
**Agile architecture:** the structure of the product allows us to move and change direction quickly and with ease

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**Team Structure** and **Product Architecture** needs to be aligned to be agile

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**Used Metaphors** to facilitate communication about architecture



# ARCHITECTURE CANVAS TO FACILITATE CONVERSATION

ILLUSTRATION	DESCRIPTION
<p><b>VEHICLE</b> (Application)</p>  <p>Business User  <b>“I want to visually and interactively explore data and generate hypotheses”</b></p>	<div> <p><b>ENGINE</b> (Enriched Data Store)</p>  <p>Data Scientist, Analyst, Developer  <b>“I want to query a harmonized pool of enriched content”</b></p> </div> <div> <p><b>BATTERIES</b> (Data Science Microservices)</p>  <p>Data Scientist, Developer  <b>“I want to enrich text”</b></p> </div>
	<p><b>VEHICLE SCOPE:</b></p> <ul style="list-style-type: none"> <li>• UI/UX / Front-End</li> <li>• Middleware (light-weight!)</li> </ul> <p><b>ENGINE SCOPE:</b></p> <ul style="list-style-type: none"> <li>• Data Provisioning</li> <li>• Data Ingestion &amp; Harmonization</li> <li>• Data Processing Orchestration</li> <li>• Data Storage</li> <li>• File Storage</li> <li>• Data Request API (data &amp; files)</li> </ul> <p><b>BATTERIES SCOPE:</b></p> <ul style="list-style-type: none"> <li>• NLP Microservices (REST APIs)</li> <li>• Data Science Microservices</li> <li>• Data storage independent!</li> </ul>

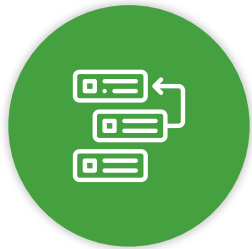


Challenges  
**PRIORITIZATION**

# REQUIREMENTS FOR 10 YEARS OF DEVELOPMENT



# CHALLENGES - PRIORITIZATION



— **10 years of requirements** –  
how to prioritize?



— **How to achieve alignment?**



— **Team of product owners,**  
each representing a  
different use case



— **Value Poker**



Challenges  
**QUANTIFICATION  
OF VALUE**



# CHALLENGE – QUANTIFICATION OF VALUE



— Typically, **stakeholders try to shout the loudest for their goal**



— If the potential business value is not quantified early on, and a feature is implemented based on voting or shouting only, **then there is a risk of developing something that addresses the issues but does not provide an ROI**



— **Highly burdensome process** – most of the time business is not measuring the pain



— **If you insist on measuring the value**, sometimes use cases are dropped as it turns out that the business priority is actually not that high

# LEARNINGS

# LEARNINGS



**Synergies are attractive but hard to leverage for a diverse set of use cases**

Scope was reduced due to lack of alignability of requirements



**“Big data” expectations but in reality “small to mid size data”**



**Data availability seems straightforward** but sharing can be complex in a highly regulated environment



**Frequent communication with sponsors** due to high turnover of senior managers

# IMPACT ON BUSINESS



Focus on measures that **provide tangible insight** into business value



Created quick survey feature in application to **measure value**

## In less than one month:

**499** queries submitted

**171** response packages opened

**14** request emails for response packages sent

Between 22<sup>nd</sup> August – 17<sup>th</sup> September

**30 minutes – 4 hours** saved per response package\*

\*Based on feedback from subject matter experts

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# THE INNOVATOR'S DILEMMA

# BE READY TO ITERATE



# BE READY TO ITERATE

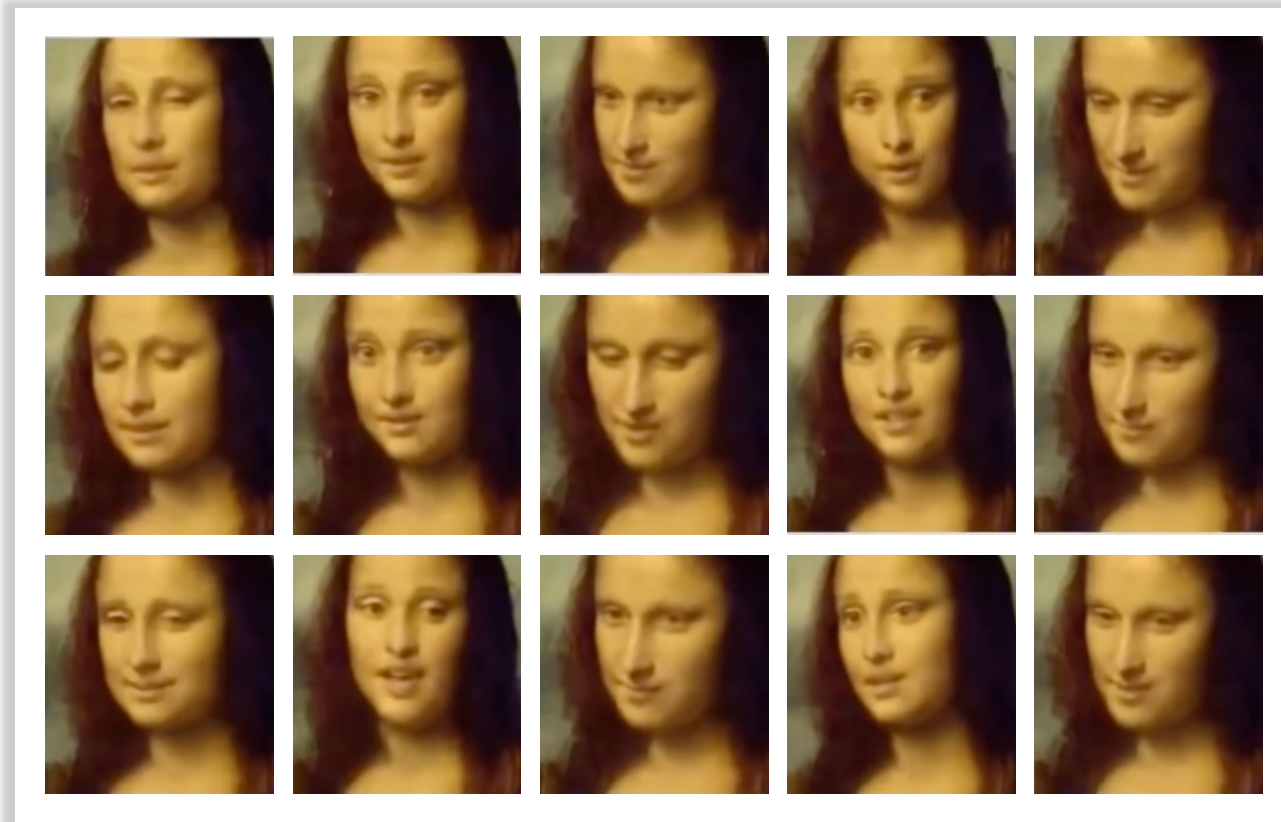


Image: <https://analyticsindiamag.com/artificial-intelligence-brings-mona-lisa-to-life-using-gans/>

«Art is never finished, only abandoned»

*attributed to Leonardo Da Vinci*

# THANK YOU



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**K**NOWLEDGE

**N**ETWORKS

**E**MERGING FROM

**R**AW

**D**ATA



## Data science wrapped into an easy-to-use application to analyze unstructured, natural-language data



Automatic topic & trend identification



Automatic summarization (key statement extraction)



Similarity search across all sources



Detection of call to action, information need, and reasoning statements



Push notification via email alerts



Custom data upload & custom auto-tagging



Correlation by brands, countries, indications, topics and more





# Q&A