

# AI/Deep learning Projects and Community

March 2018

[Working Area and Wiki](#)

<https://pistoiaalliance.atlassian.net/wiki/spaces/PUB/pages/106889308/AI+Deep+learning+Community+of+Interest+Col>

# Project investment Portfolio

FY'18  
Themes

**Lab of the  
Future:**  
IoT POC  
Methods DB

**AI/Machine  
Learning:**  
Best Practices  
Data Quality

**RWD:**  
CDx & Regs  
FAIR

Active

**ONTOLOGIES  
MAPPING**

**HELM**  
Hierarchical Editing Language for Macromolecules

**CHEMICAL  
SAFETY LIBRARY**

**CSCS**  
CONTROLLED SUBSTANCE COMPLIANCE SERVICE

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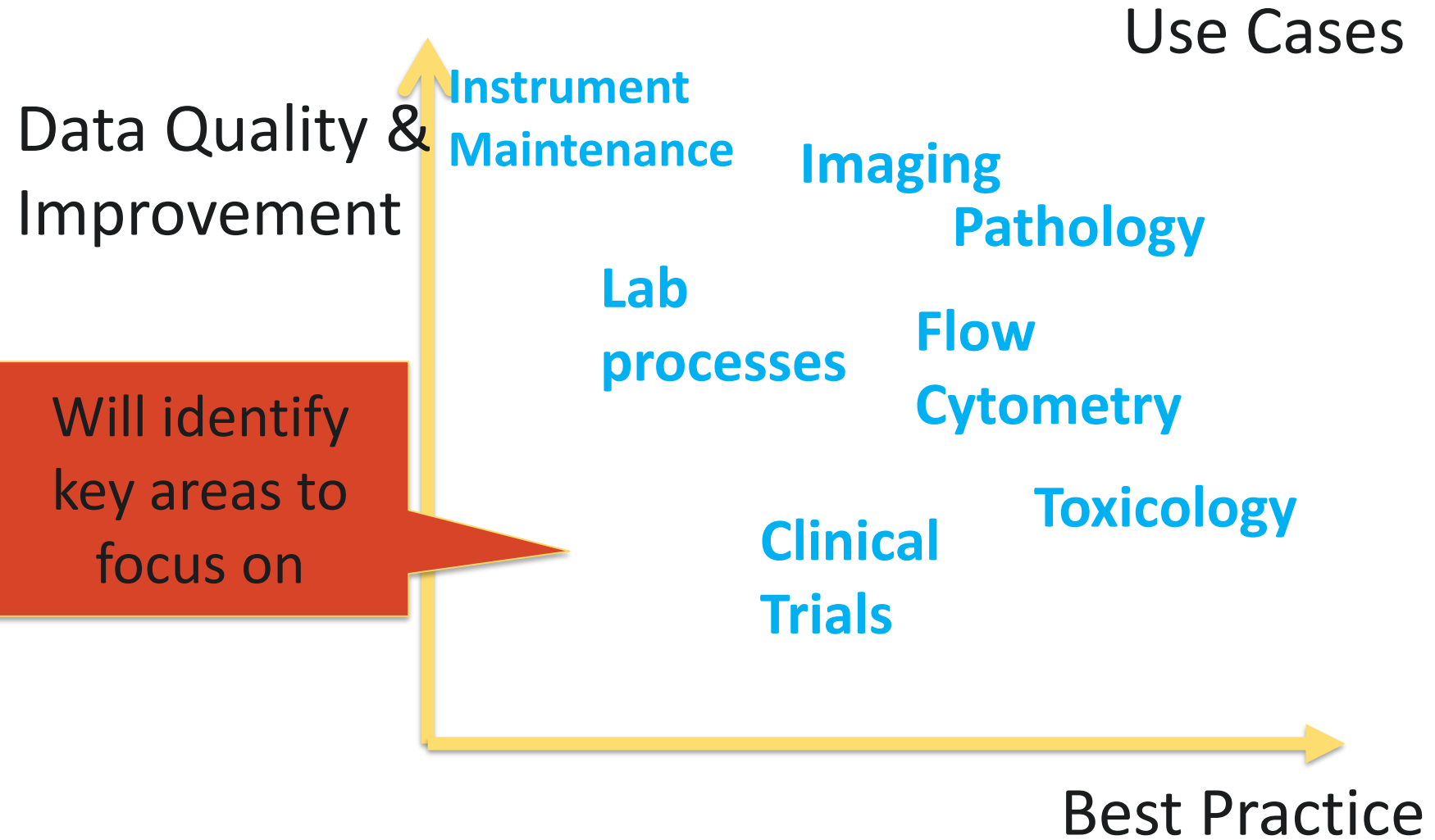
**AbVance**

PISTOIA ALLIANCE  
USER EXPERIENCE  
FOR LIFE SCIENCES

Data Sharing, Best Practice and Standards/Tools

Communities of Interest: LotF, AI, RWD and Non-Clinical Development, Blockchain (forming)

# Key Dimensions and Use Cases



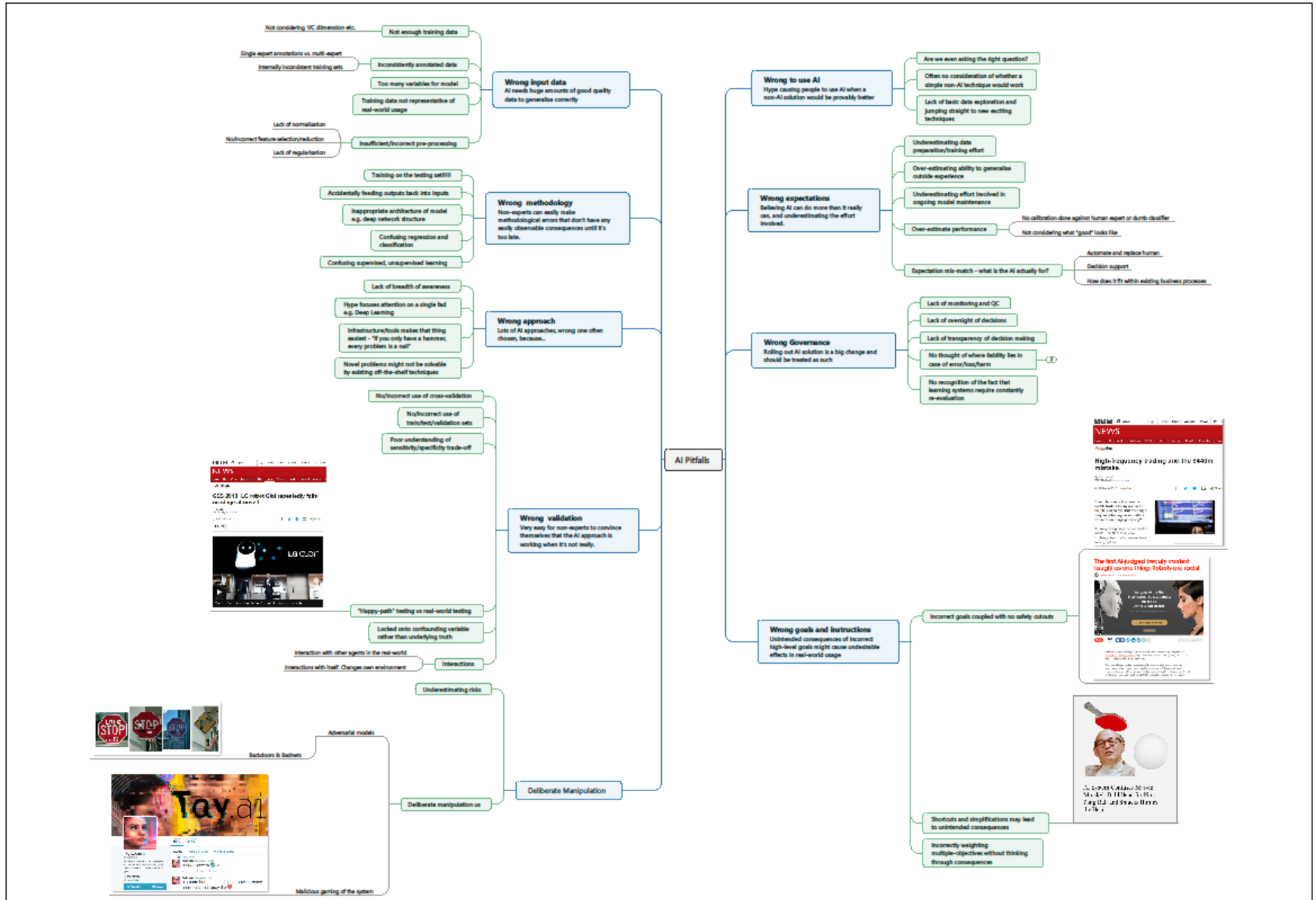
# AI Best Practice in Life Science

## Area 1: Adoption and best practice in AI Life Science Capability

- Support the awareness and adoption of AI within Life Science
- What could help groups get started with their strategy and looking ahead
  - Avoiding pitfalls
  - Model use best practice (examples good & bad)
- What could help those further ahead with adoption
- How can we utilise learnings from other industries

AI = Machine learning, NLP and Neural networks

# AI Pitfalls



# Data Quality

## Area 2: Data improvement supporting AI use cases for Life Science

- Develop data improvement best practice
  - Industry best practice
- Show the value of this approach within a Life Science use case (key use cases & capabilities)
- Benchmark datasets
  - comparing/normalising data sets & approaches to support this
- Opening up data for AI uses
- Run Challenges across the data improvement
- Interactions with FAIR principles

# Data Use Cases – Common Template

- What is the business issue/challenge that could be addressed with AI
- What would be the benefits?
- What could be the deliverables? And early pilots
- Who should we get involved?
- What aspects of the data needs addressing, eg
  - Is it about Quantity of data, Labelling?, Aggregation?
- Risks & issues (Could be a checklist to rank likelihood of success)
  - Minimal set of data points
  - Widely observed issue or small community
  - Impact on drug discovery process. How does it impact a drug project
  - Critical Metadata (minimum information standards for area)
  - Confidence in each of the data sets being used/combined
  - Domain knowledge for the area
  - Alignment to FAIR principles

# Data Use Cases

Area	Summary
<b>Instrument Maintenance issue prediction</b>	Focus on maintenance information and prediction of issues (Instruments, Devices and sensors) not just from lab but wider data collection tools
<b>Flow Cytometry</b>	<a href="#">Summary of Flow Cytometry</a> - development of Auto gating process
<b>Toxicology</b>	Picking from Pre-clinical, clinical or post marketing Link to data sources (such as eTox, Toxcast,eTransafe) and other groups who are collecting data
<b>Clinical Use Cases</b>	Patient recruitment, data quality analysis, modeling
<b>Rare Disease areas</b>	Are there suitable groups to partner here? Building on Hackathon example
<b>Omics</b>	Key questions within Omics use cases (expression data)
<b>Reproductive Tox</b>	Prediction for reproductive Tox in Zebrafish



# Proposed Project areas

## **Area 3: Cross Company Model Building from private data**

- Work with existing groups on this
- Identify exemplar use case(s) and validate

Working with IMI Groups to understand the next steps

# Forthcoming events

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## Lab of the Future and AI Workstreams Face to Face Meeting

### Date/Time

Date(s) - 13 Mar 2018

9:00 am - 5:30 pm

### Location

[Millennium Hotel](#)

### Categories

- [Pistoia Alliance](#)



The Lab of the Future and Artificial Intelligence are two of our key strategic themes and we have very active communities helping us shape project ideas and business cases in this area.

The aim of this session is to:

- Bring our communities up to date on project ideas and business cases
- Evaluate additional areas of interest for Lab of the Future and AI
- Set direction for our business case teams

# Next Steps

- Next Week Pistoia Conference and meet ups
  - 13 March AI meeting London
  - 14 March Conference
- Business cases review and funding reviews
- Next Community meeting topics