InfoPos: Effects of Knowledge and Data Positions on ML-Assisted Solution Design for Industrial CPS

Dynamics-Based Maintenance (DBM)

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WP3

Data position

- Data collection is never perfect or complete
- There are many dimensions to data quality
- There is more to data quality when targeting ML
  => Raw data quality
  => ML dataset quality
- Multivariate data has dissimilar metric qualities

The need

Data is to be:
Extracted, Collected, Analysed, Evaluated, Augmented

Knowledge position

- Available knowledge is never ideal
  => Knowledge artefacts
- Access itself could be a limitation
  => IP protection, intentional compartmentalisation
- Knowledge and data are not always clearly related
  => Varying knowledge usability levels

The need

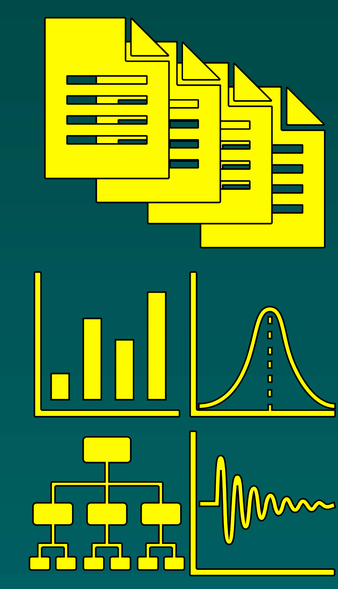
Knowledge is to be:
Extracted, Collected, Analysed, Evaluated, Augmented

Deduce data position for available data sources

WP4

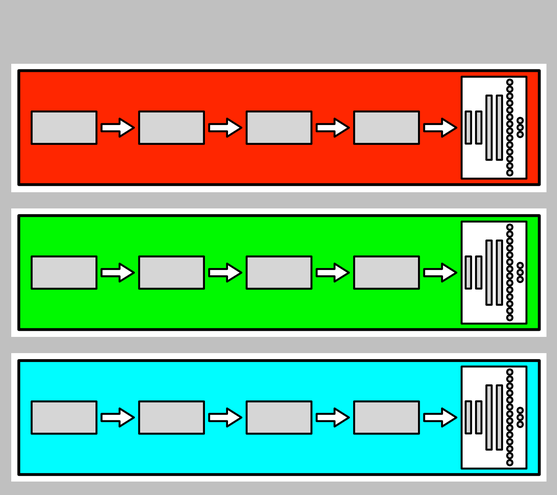
Data position \ Knowledge position	Black box		White box
Coarse	Poor data Poor knowledge	Poor data Mid. knowledge	Poor data Rich knowledge
	Medium data Poor knowledge	Medium data Medium knowledge	Medium data Rich knowledge
Granular	Rich data Poor knowledge	Rich data Medium knowledge	Rich data Rich knowledge

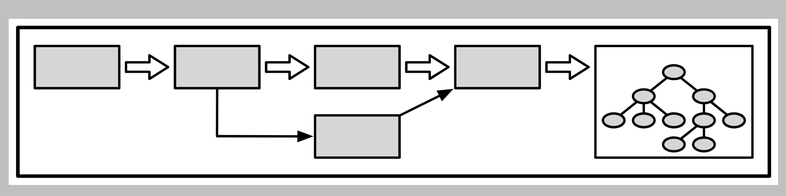
Deduce knowledge position from available artefacts

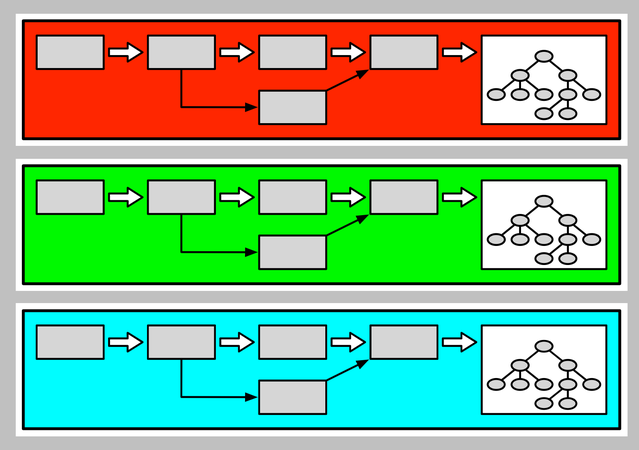


WP2

Solution variety







Configuration variety

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Zorro — Zero downtime in cyber physical systems

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