ESI WEBINAR DAY 2020 INTELLIGENT DIAGNOSTICS

15:30 – 17:00 (17:30)

Webinar 3

October 6, 2020

ESI

An initiative of industry, academia and TNO

INTELLIGENT DIAGNOSTICS - PROGRAM

	Moderator	*Harm Munk, ESI*
15:30	Welcome, introduction	Harm Munk, ESI (moderator)
15:35	The industrial perspective	Peter Kruizinga, Canon Production Printing
15:40	Diagnostics landscape	Harm Munk, ESI
16:00	The value of intelligent diagnostics	Steve P. King, Cranfield University, IVHM
16:30	Work processes, organisation, and tools for asset condition monitoring and energy management	Kim Alexander Jørgensen, Lundin Energy Norway
17:00	Webinar café	Informal discussion

ESI'S VIEW ON INTELLIGENT DIAGNOSTICS

Sketching the Diagnostics landscape

Harm Munk

ESI webinar day, October 6, 2020
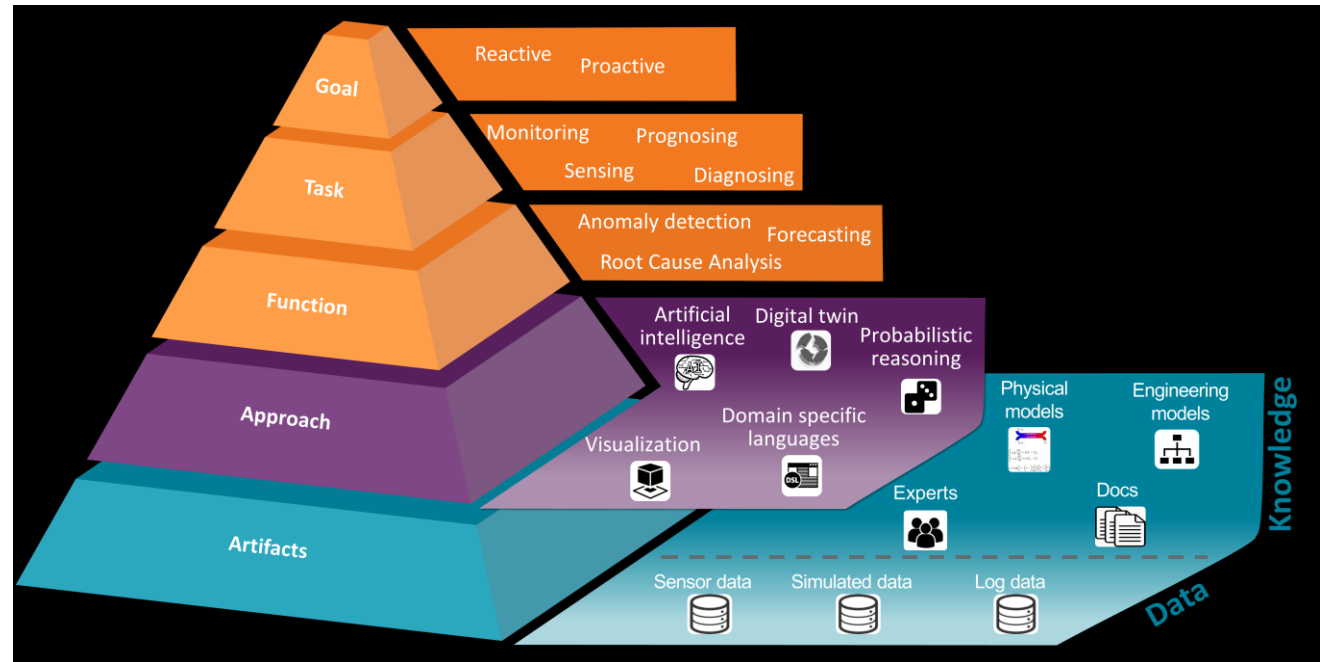
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INTRODUCTION

- (Intelligent) diagnostics in perspective
- Sketching the diagnostics landscape

Keywords

- Integration
- Maintenance
- Availability
- Performance

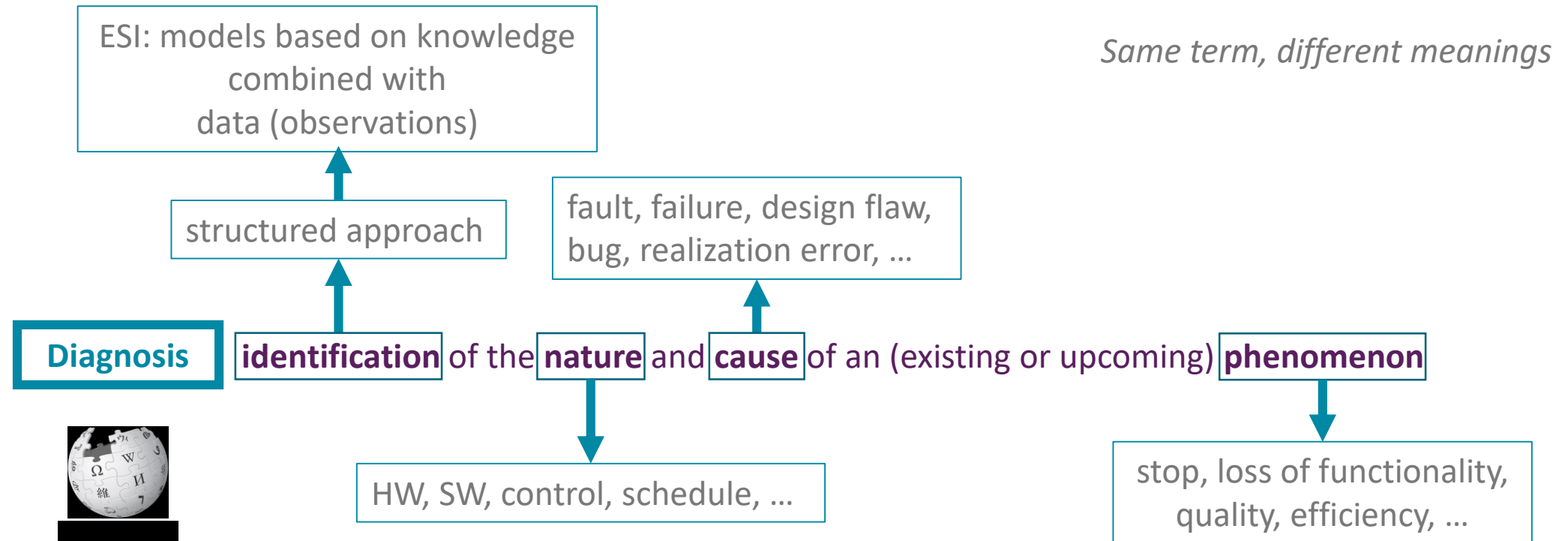# DIAGNOSIS IN PERSPECTIVE

Definition

Lifecycle

Process

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DIAGNOSIS IN PERSPECTIVE
DEFINITION

Partners: "Diagnosis is key element"

ESI: models based on knowledge combined with data (observations)

Same term, different meanings

structured approach

fault, failure, design flaw, bug, realization error, ...

Diagnosis — **identification** of the **nature** and **cause** of an (existing or upcoming) **phenomenon**

HW, SW, control, schedule, ...

stop, loss of functionality, quality, efficiency, ...

DIAGNOSIS IN PERSPECTIVE

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DIAGNOSIS IN PERSPECTIVE
SYSTEM LIFE CYCLE VIEW
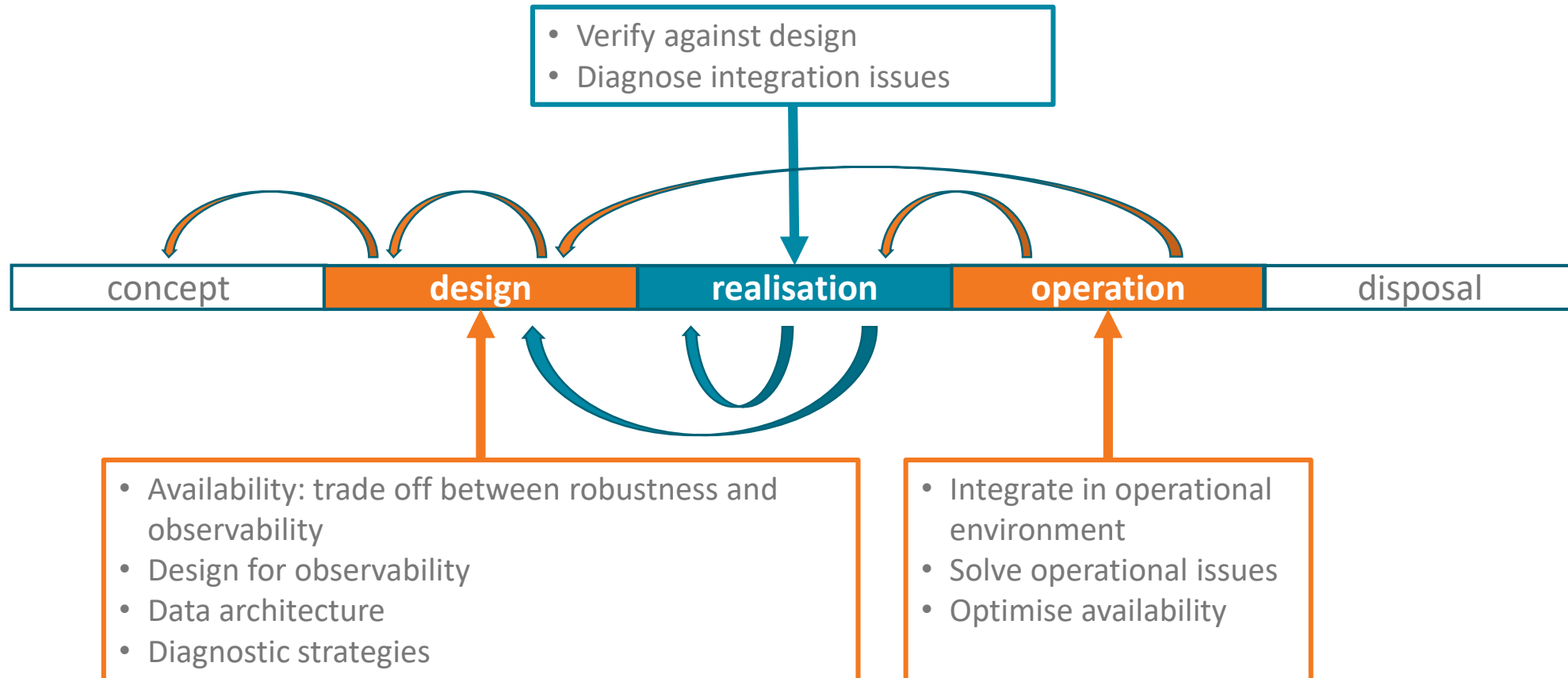
- Verify against design
- Diagnose integration issues

| concept | **design** | **realisation** | **operation** | disposal |

- Availability: trade off between robustness and observability
- Design for observability
- Data architecture
- Diagnostic strategies

- Integrate in operational environment
- Solve operational issues
- Optimise availability

DIAGNOSIS IN PERSPECTIVE

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(INTELLIGENT) DIAGNOSIS IN PERSPECTIVE
PROCESS VIEW

Reduce diagnostics time

06/10/2020 Webinar: Intelligent Diagnostics
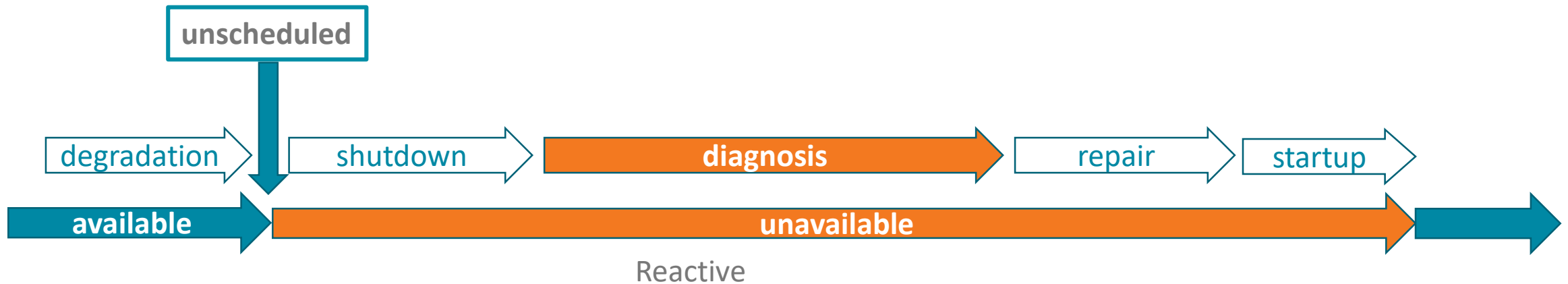
(INTELLIGENT) DIAGNOSIS IN PERSPECTIVE
# PROCESS VIEW: REDUCE PRODUCTIVE TIME
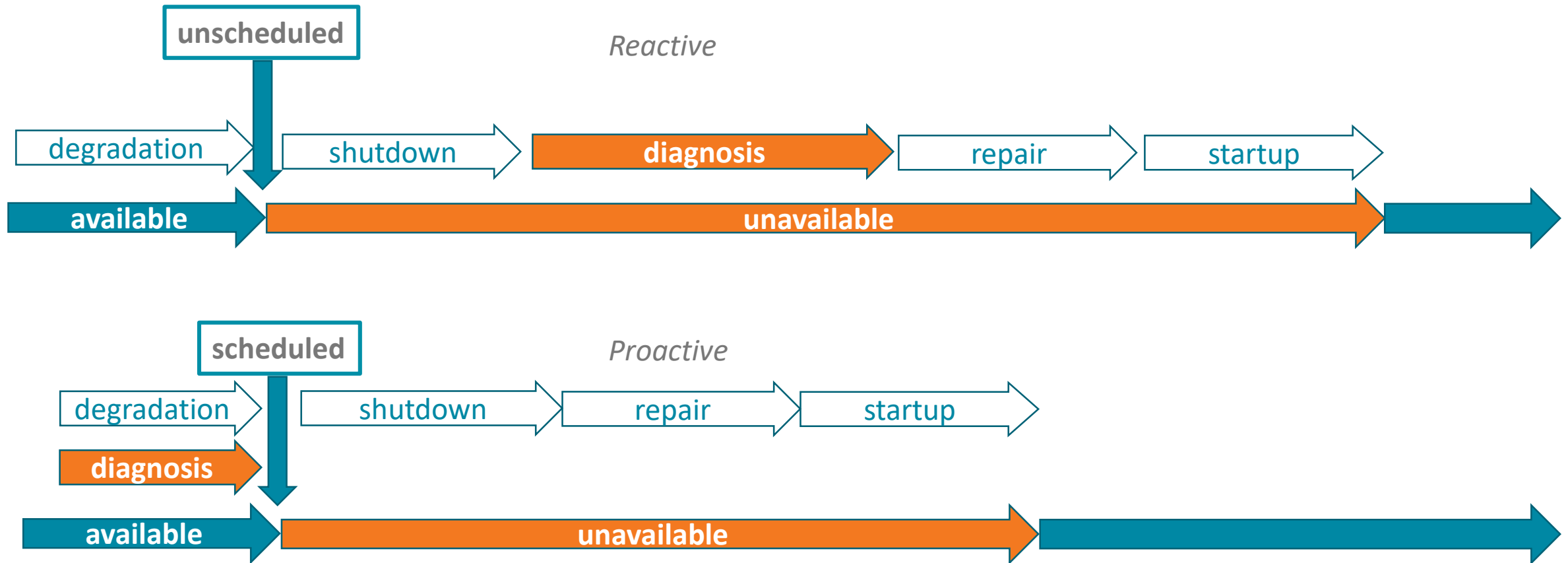
DIAGNOSIS IN PERSPECTIVE

- High Tech Industry: increasing demand for performance and availability

- Increasing system and systems' environment complexity

- Shift

  - From **service and repairs** to **full lifecycle performance**
  - From **perfect** system to **efficiently repairable** system
  - → Increasing focus on diagnostics

Diagnosis is a many faceted field, receiving increasing attention

SKETCHING THE DIAGNOSTICS LANDSCAPE

Starting point
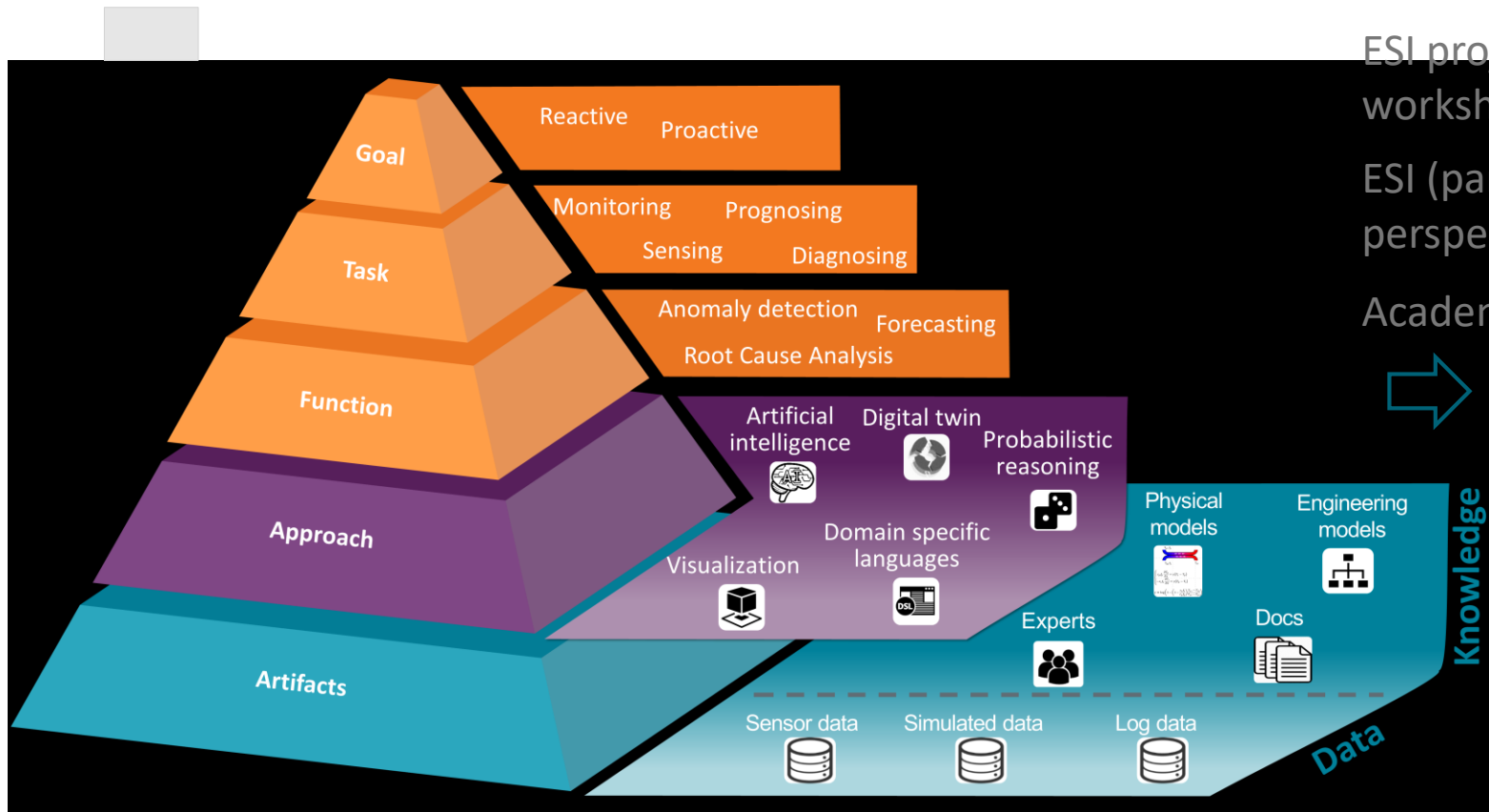
Process

ESI projects and workshops

ESI (partner) perspective — *State of practice*

Academia — *State of art*

➡ **ESI diagnostics** *roadmap*

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CHALLENGES ROADMAP

- Diagnosable by design
- Delta Designs, legacy
- Series of one

- Applied research
- Cross fertilisation
  - From single partner to multi partner projects

Time frame
- September – November 2020: interviews partners
- November: workshop first results

- April 20, 2021: ESI symposium

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*"From practical detail
to first-class citizen"*

"ESI: Positioned to Advance the State of Practice"

THANK YOU FOR YOUR ATTENTION

ESI symposium April 20, 2021