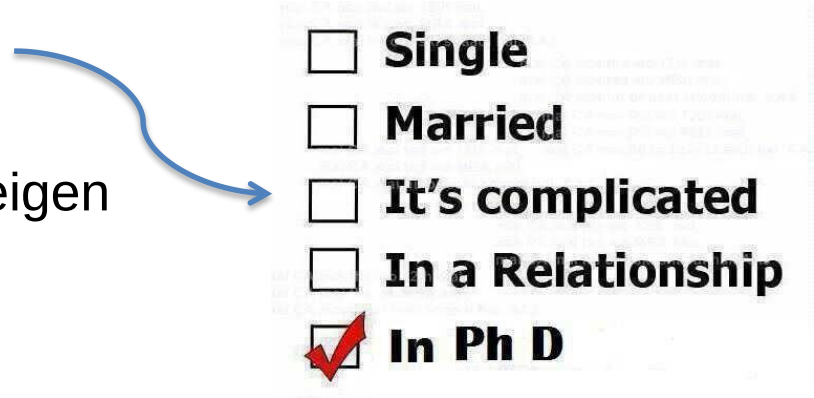
NTNU
Norwegian University of Science and Technology

SUBPRO
SUBSEA PRODUCTION AND PROCESSING

Optimizing Condition Monitoring For Dynamic Health And Risk Management

PhD candidate: Himanshu Srivastav
Supervisors: Prof. Anne Barros
Prof. Mary Ann Lundteigen

Date: 20.09.2017



Agenda

- Self Introduction
- Introduction about the PhD topic

✓ Research Scenario

✓ Research Challenges

✓ Research Methodology and Work Plan

1. Self Introduction

1. Self Introduction

- Himanshu Srivastav
- हिमांशु श्रीवास्तव

Snow

Particles

Pacifier or
calm as moon

1. Self Introduction

- Educational Background

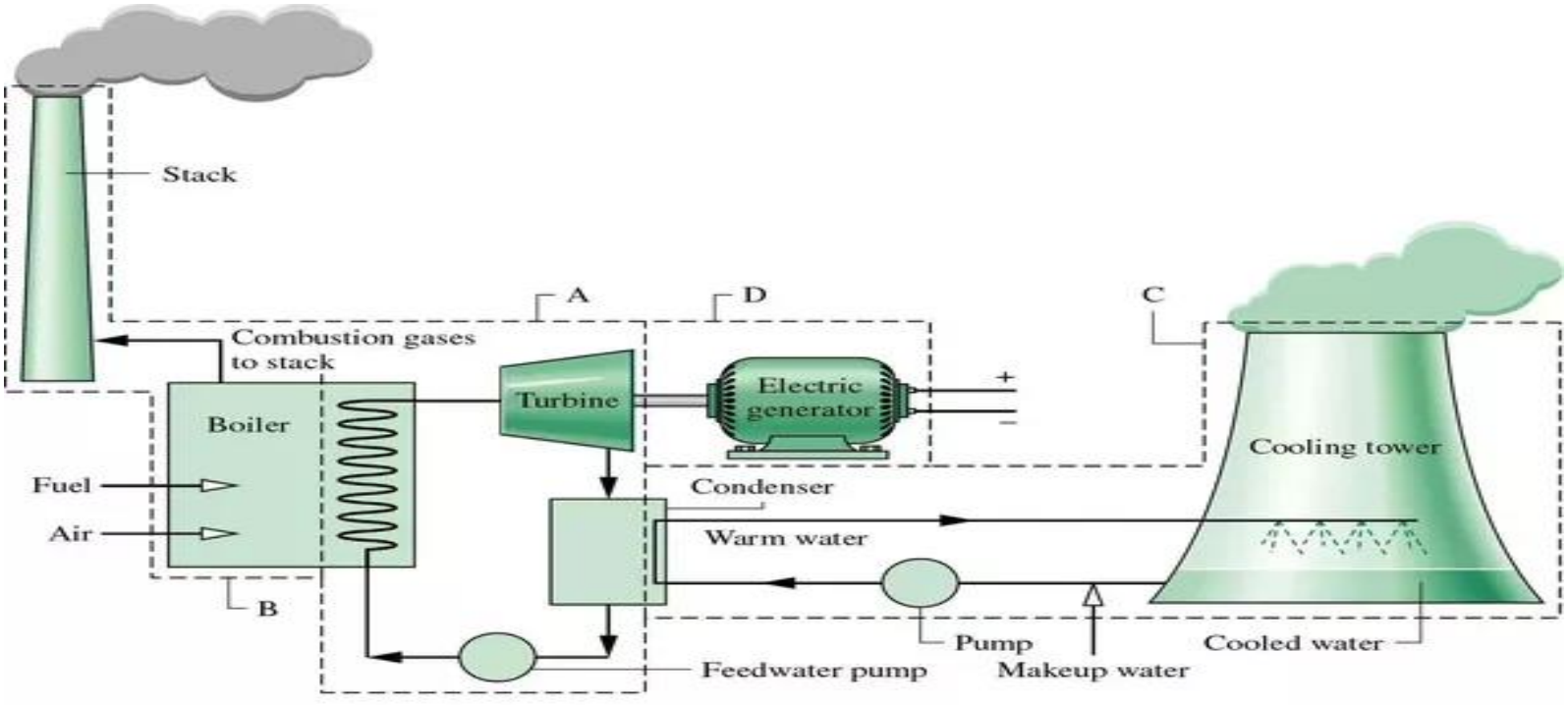
✓ M.Sc. in Mathematical Sciences with specialization in Statistics, from Norwegian University of Science and Technology, Norway (2015-2017)

✓ B.E. (Hons.) in Electronics and Instrumentation, from Birla Institute of Technology and Science, India (2005-2009)

1. Self Introduction

- Work Experience

✓ Bharat Heavy Electricals Limited (BHEL), India (Aug' 09 to Aug'15) as a Marketing Engineer

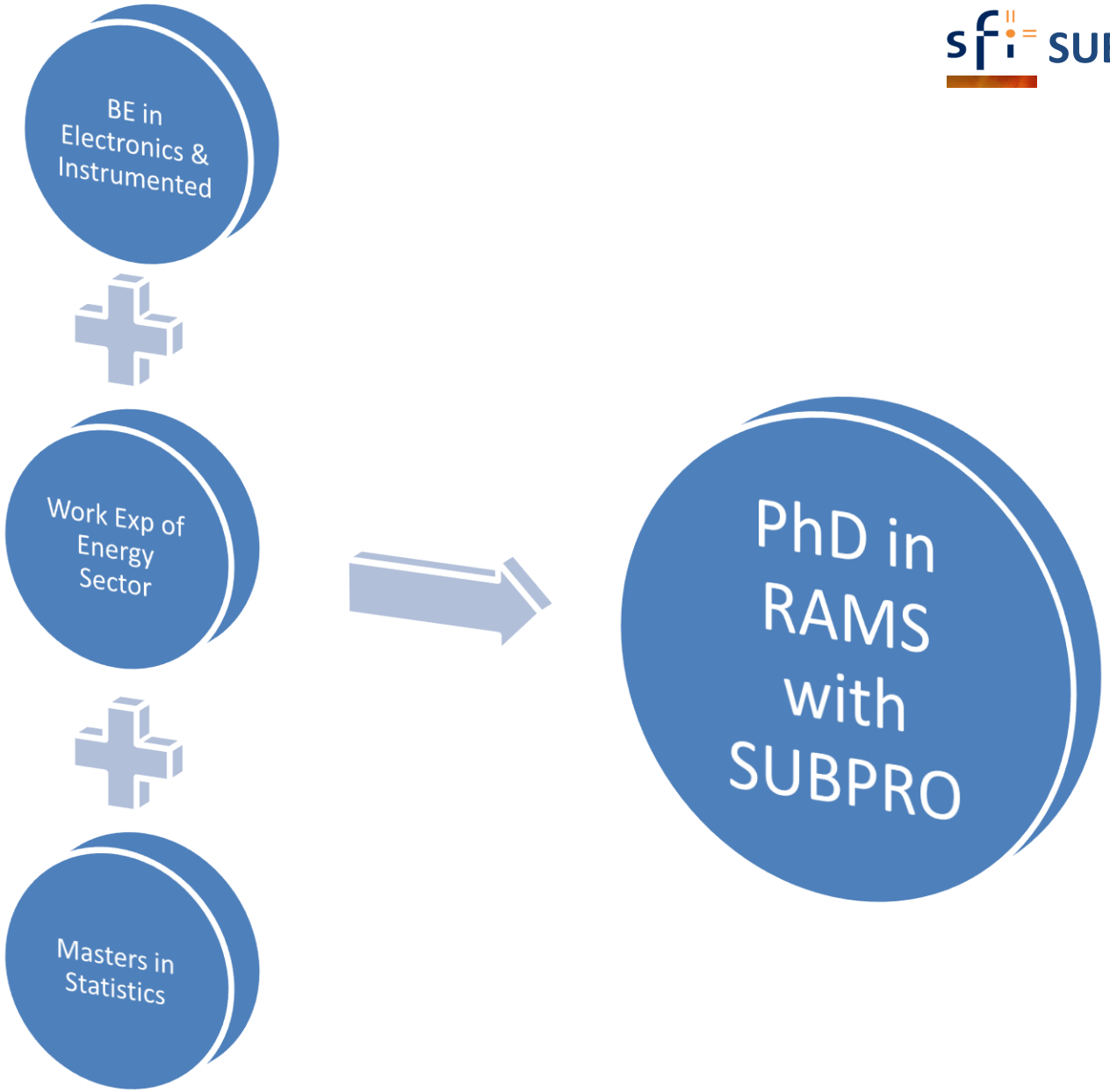


1. Self Introduction

1. Self Introduction

Start as Trainee → Write business letters → Promoted → High level business letters → 

→ 


BE in Electronics & Instrumented
Work Exp of Energy Sector
Masters in Statistics
PhD in RAMS with SUBPRO

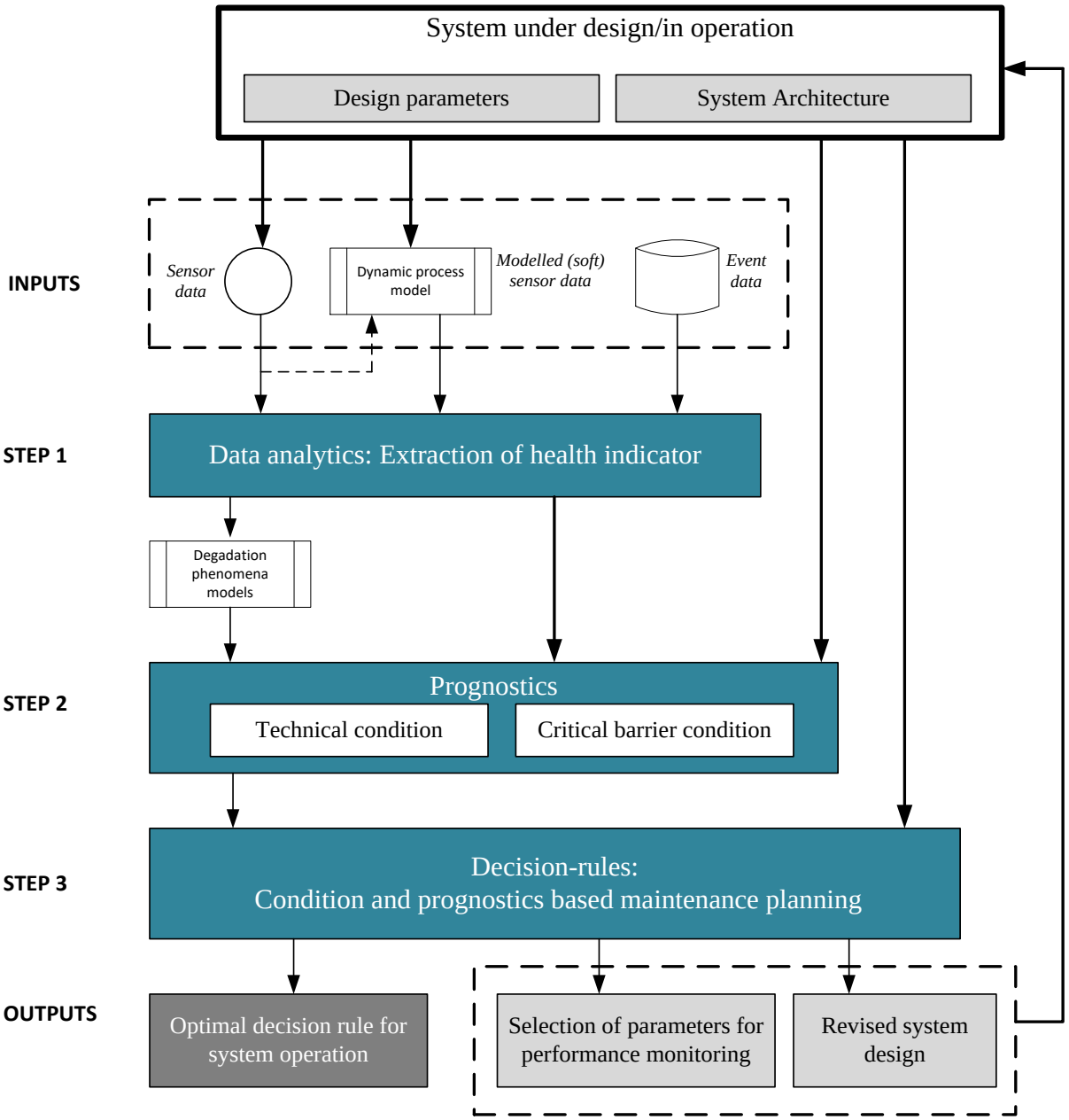

Welcome to Ph.D.
WARNING
Once you are in there is no way out

2. Introduction of PhD topic

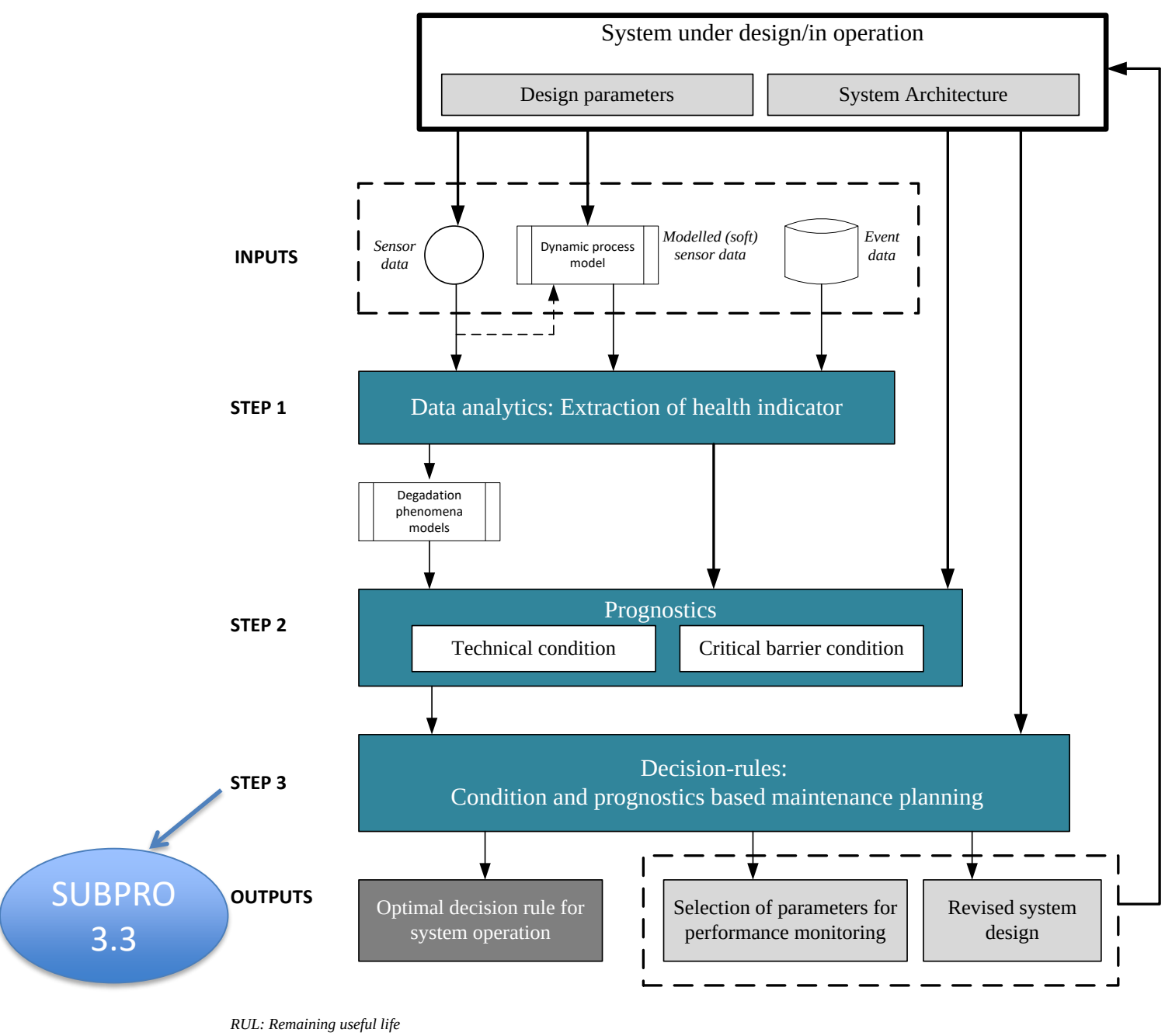
- Research Scenario

✓ Dynamic and predictive decision is key strategy for management of subsea facilities from cost and safety perspectives

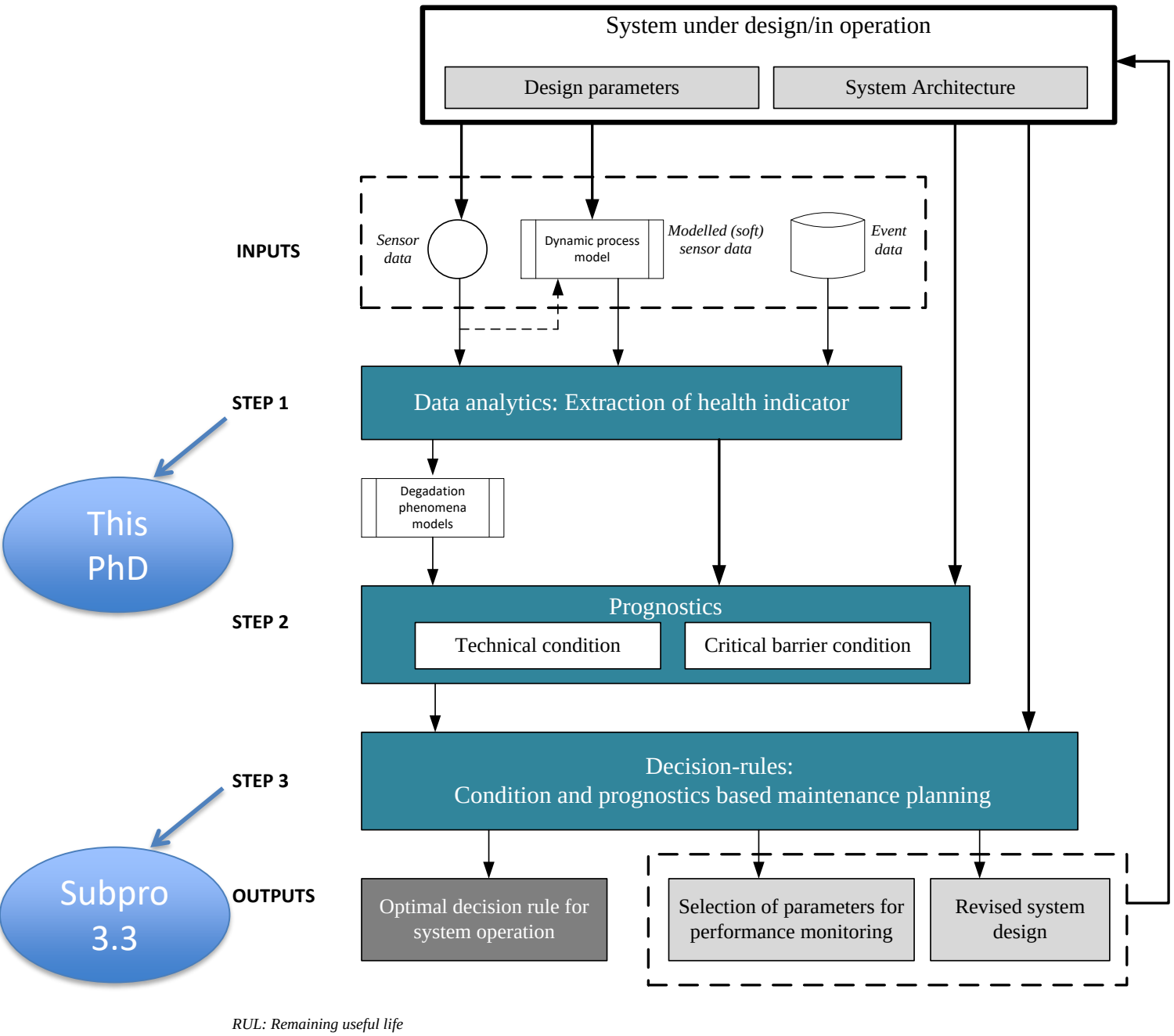
✓ Implementation relies on several interacting steps including data collection, data processing, prognostics, and decision-making optimization.



RUL: Remaining useful life



RUL: Remaining useful life



RUL: Remaining useful life

Research Challenges

In Design Phase:

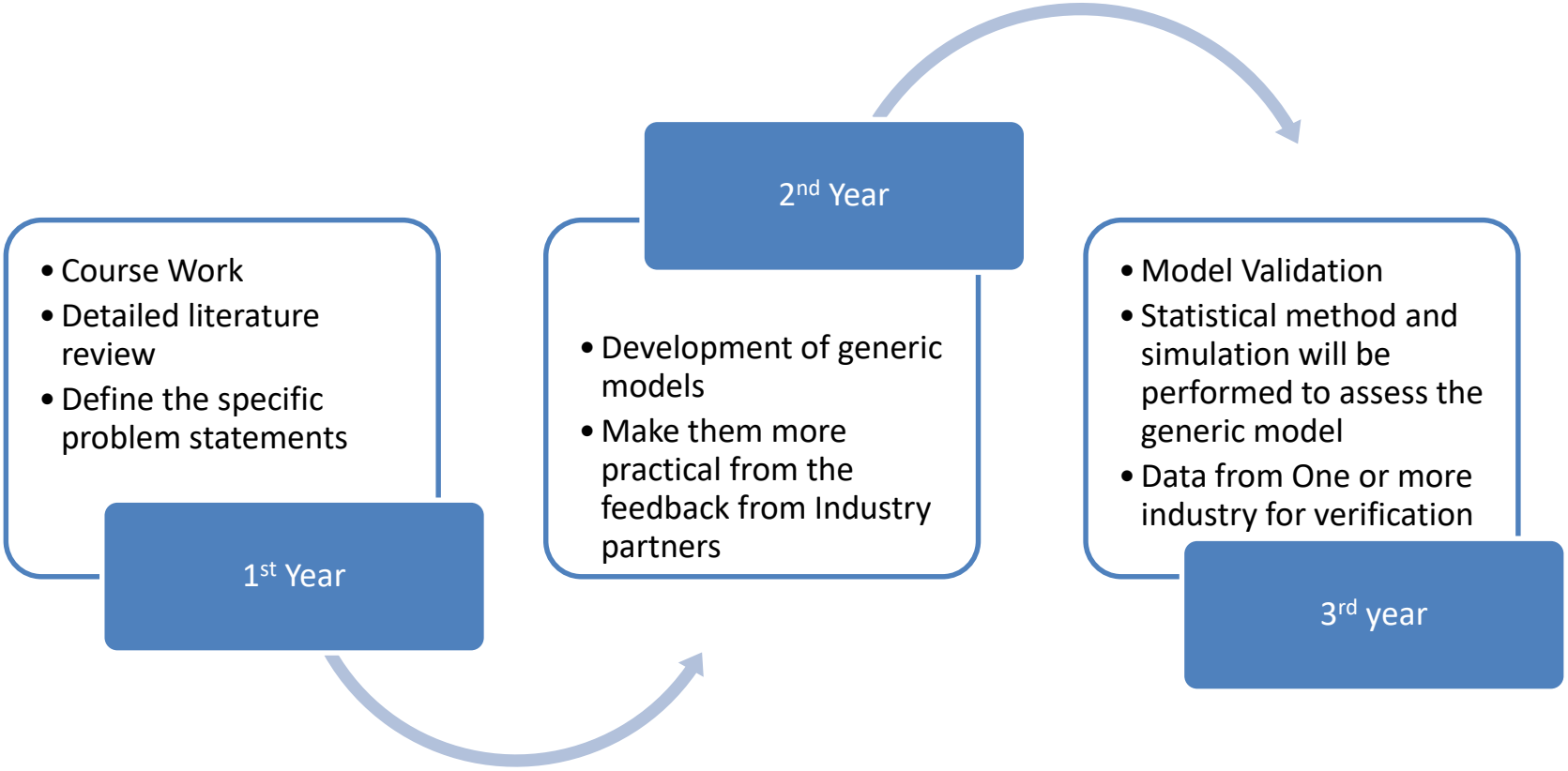
- Expensive (sensor/installation/operation)- optimize placement, redundancies, choice of technology
- Cheap – integration of sensors, choice of communication network
- Consequent decision: optimal wrt ROI for prognostic & predictive decision

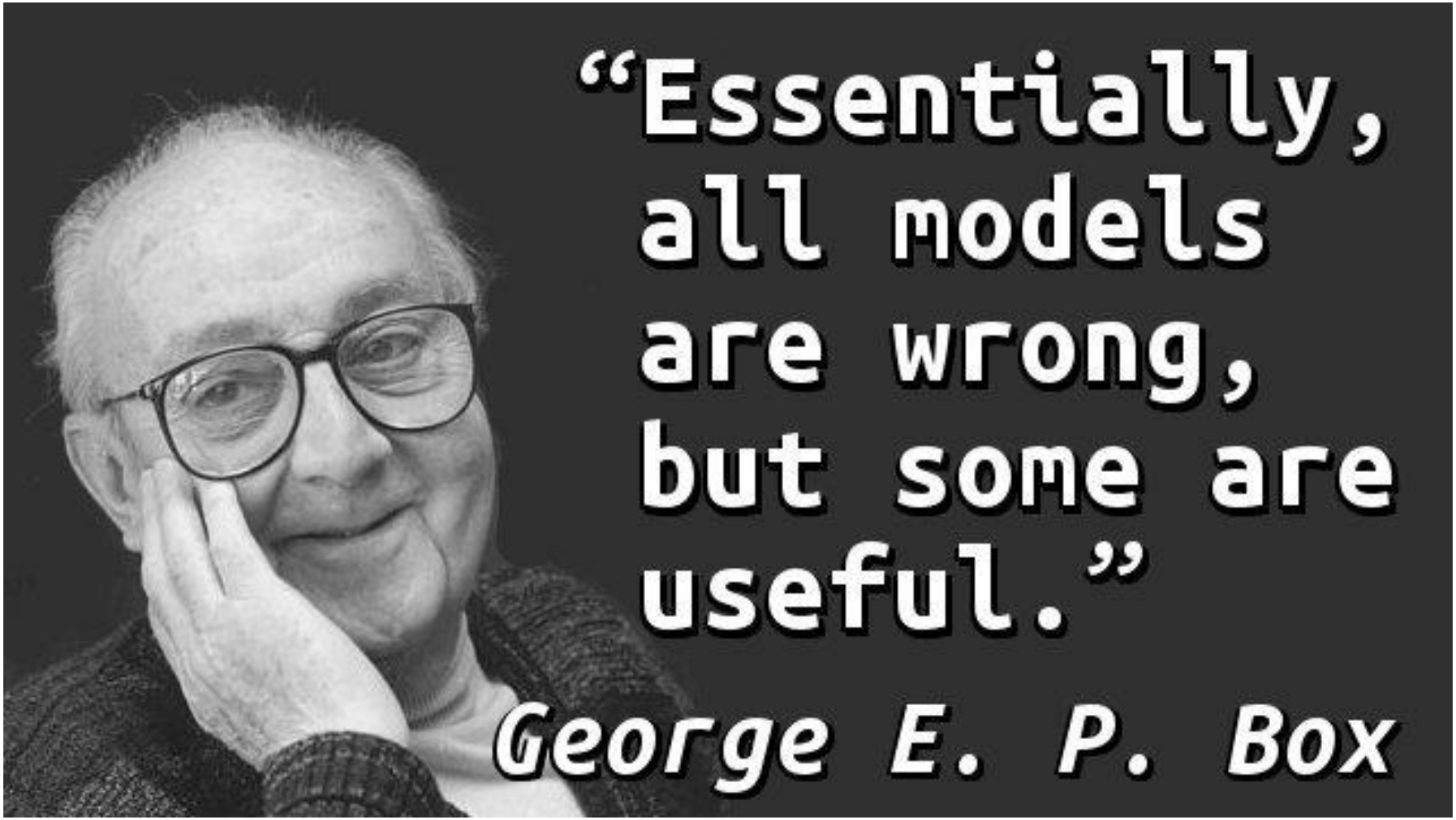
Research Challenges

In Operational Phase:

- Efficient models that utilizes data coming from subsea process/equipment for predictive decision
- Industrial usefulness of these models
- Consequent decision: optimal wrt ROI, for prognostic & predictive decision.
- Operating data intentionally not collected for condition monitoring based on the added value information to such models

Research Method and Work Plan




“Essentially, all models are wrong, but some are useful.”
George E. P. Box