Care for babies in the right place, at the right time

A DATA ARCHITECTURE TO STRUCTURE DATA FLOWS IN ORDER TO MANAGE THE BED CAPACITY IN BIRTH CENTRES

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Applied Data Analytics in Medicine

IMAGR NICU Psychose UWI

EDEN Reuma UrStatus IC-cap

ADAM

Predict

Optimize bed capacity at the Intensive Care Unit for babies (NICU) by using prediction models

Content

- Neonatale Intensive Care Unit (NICU) healthcare
- Predict project
- Our project: Care for Babies
- Phase 1: Problem Investigation

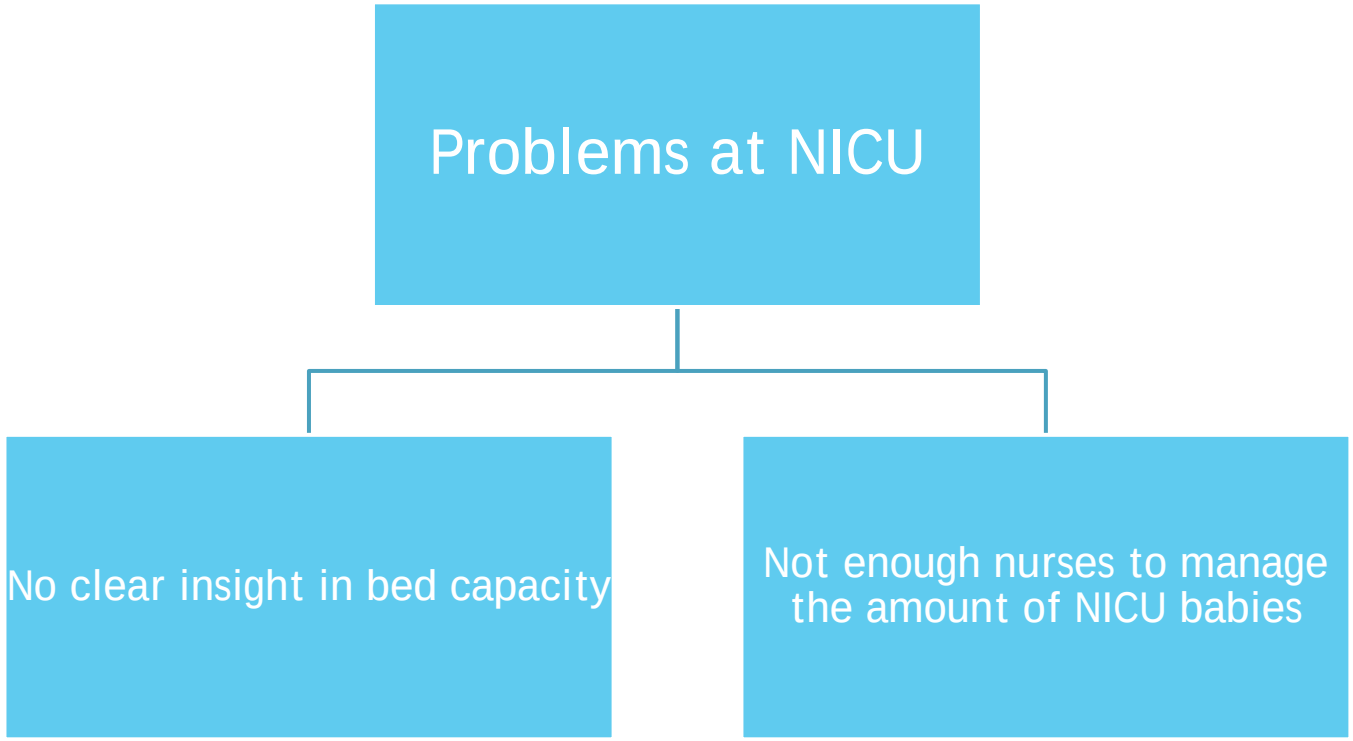
NICU Healthcare

Medical complications
Prematurity
Sepsis
Low weight
Breathing problems
Heart disease

Medical staff
Pediatricians
Residents
Specialists
Nurses

Nurses influence the bed capacity in the birth centre!

Predict Project



Capacity in healthcare

Manage your variability by creating flexibility

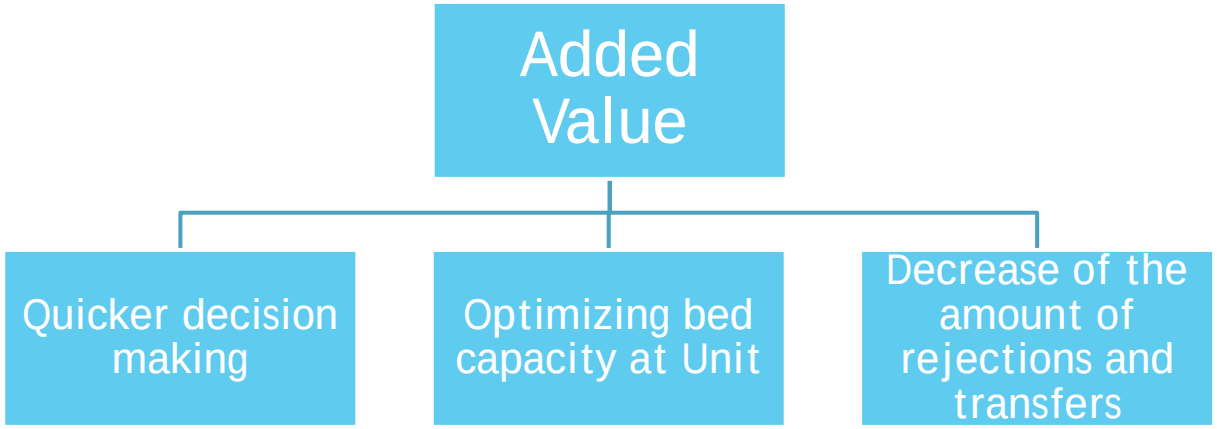
- Prof. Erwin Hans, University of Twente

Prediction models – Capacity algorithm

Output

- <12 uur
- <72 uur
- niet binnen 72 uur
- Bevalt niet

Which patient is going to deliver a NICU baby?



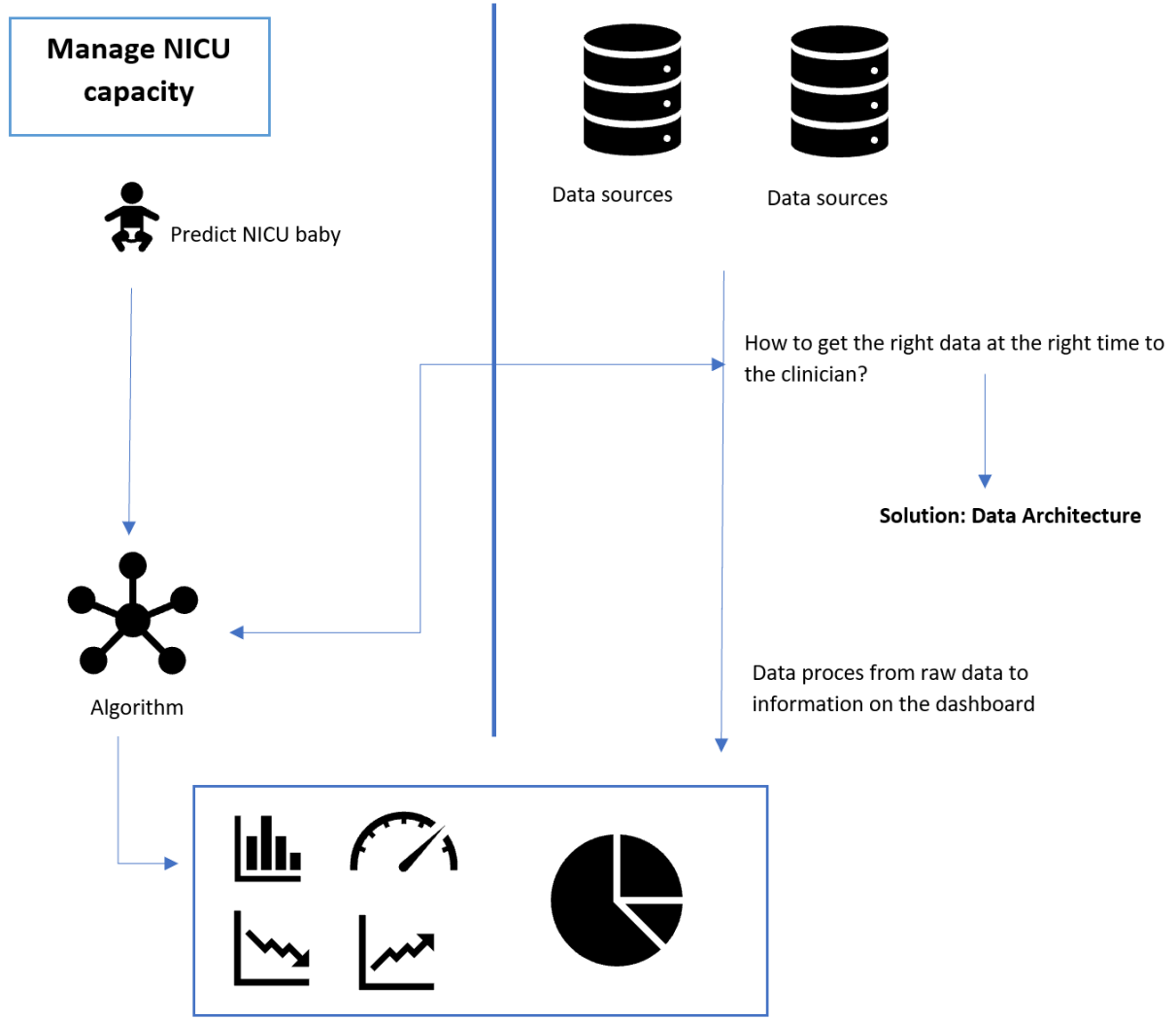
Prediction models – Complication algorithm

Output

- Zeer waarschijnlijk (….%)
- Waarschijnlijk (…%)
- Mogelijk (….%)
- Onwaarschijnlijk (..%)

Not yet connected to the capacity problem!

Overview Predict and Care for babies

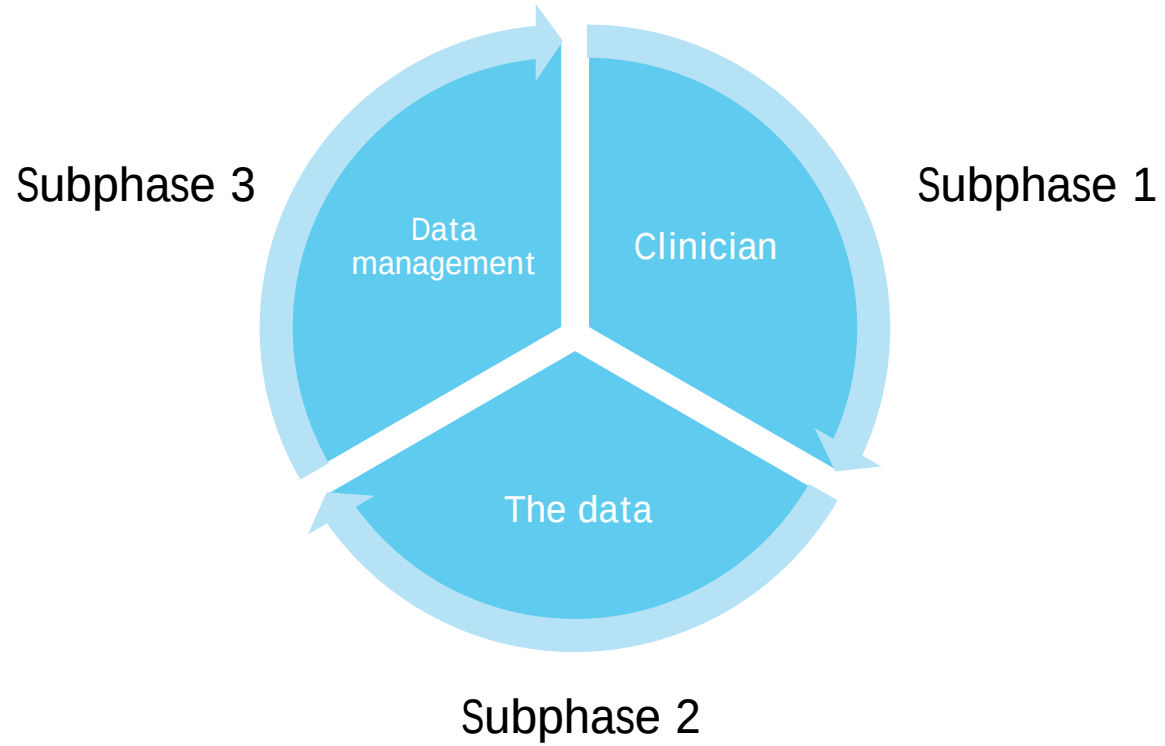


Predict

Care for babies

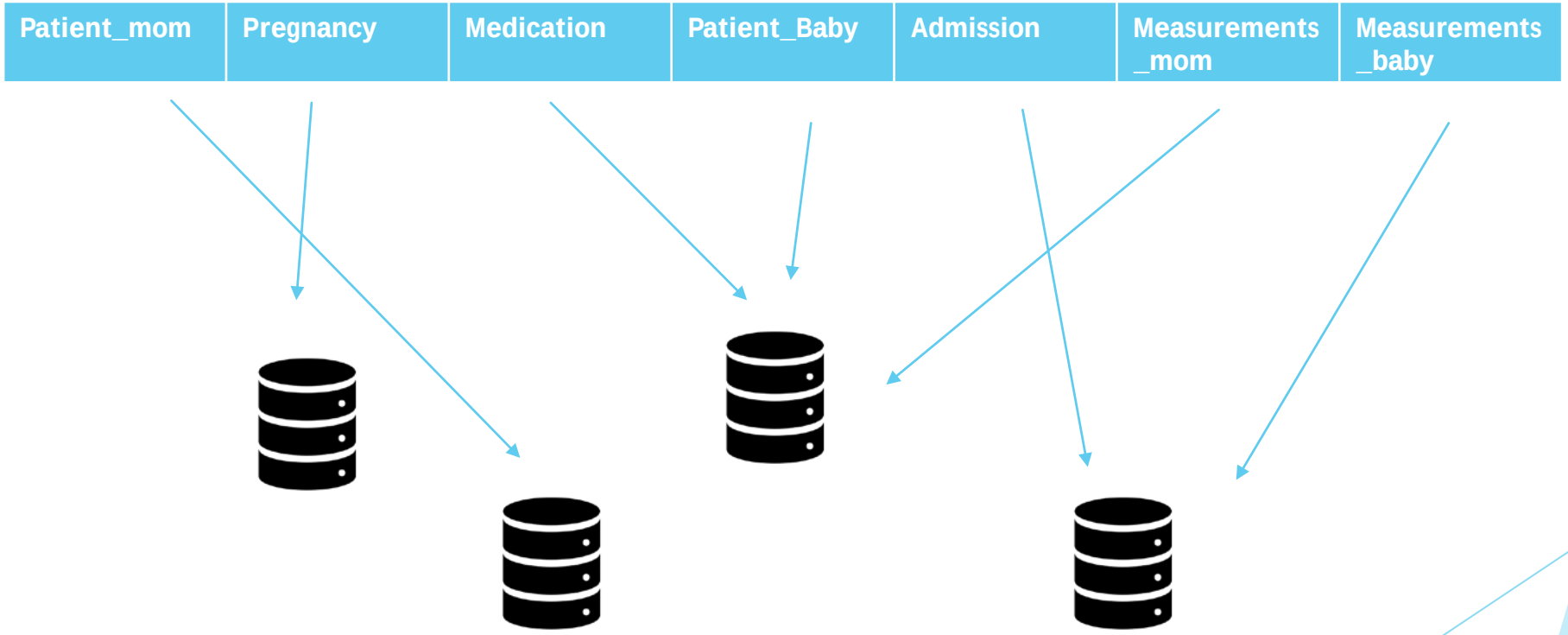
Research outline – Problem Investigation

Research Question: How can we develop a data architecture that manages real time data to improve the bed capacity in the birth centre?

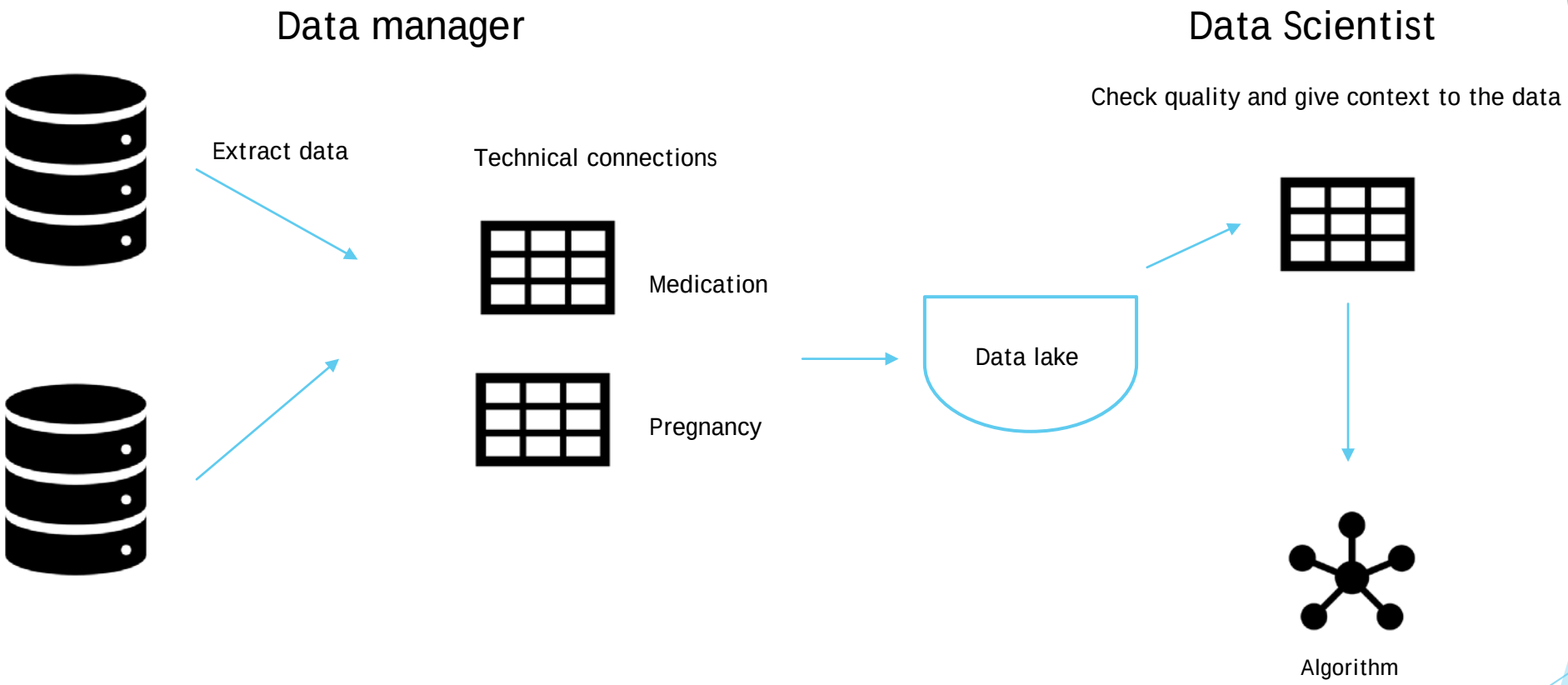


Phase 1: Problem Investigation

Complete a pregnancy data set



Phase 1: Problem Investigation



Phase 1: Problem Investigation

Challenges!

- Incomplete data
- Quality of data
- Technical connections to complete a pregnancy
- Time consuming proces

Thank you!