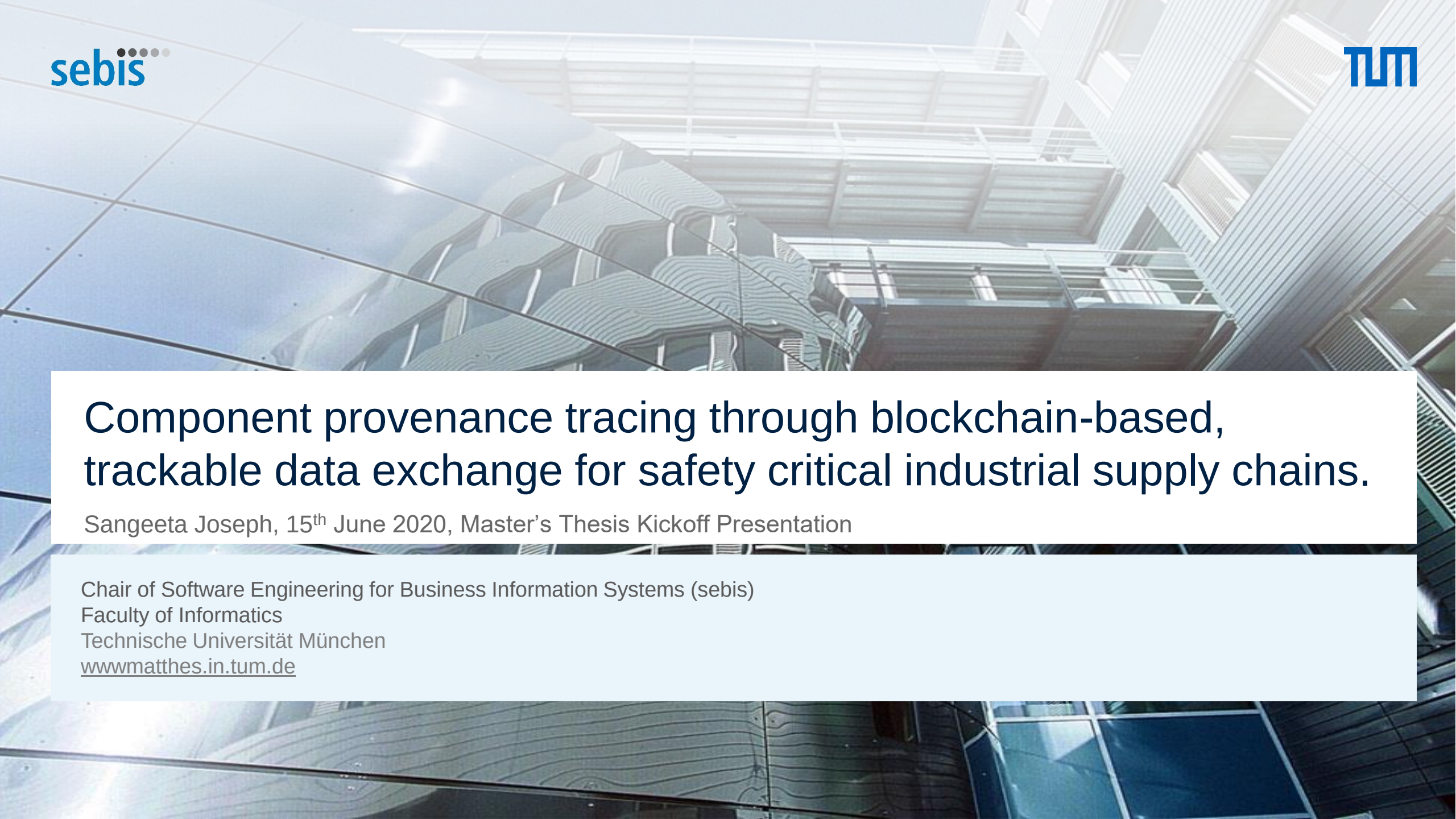

Component provenance tracing through blockchain-based, trackable data exchange for safety critical industrial supply chains.

Sangeeta Joseph, 15th June 2020, Master's Thesis Kickoff Presentation

Chair of Software Engineering for Business Information Systems (sebis)
Faculty of Informatics
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Outline

Motivation

Problem Statement

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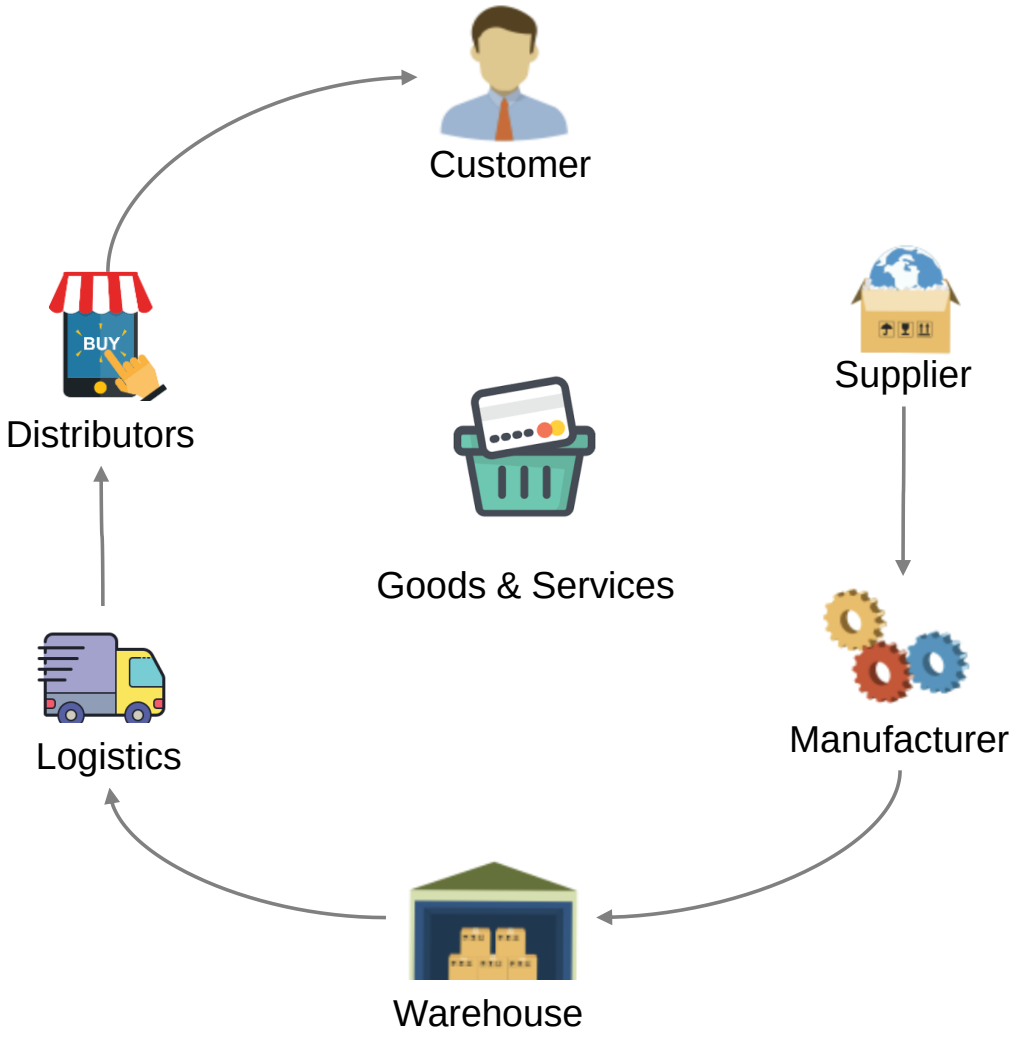
Approach

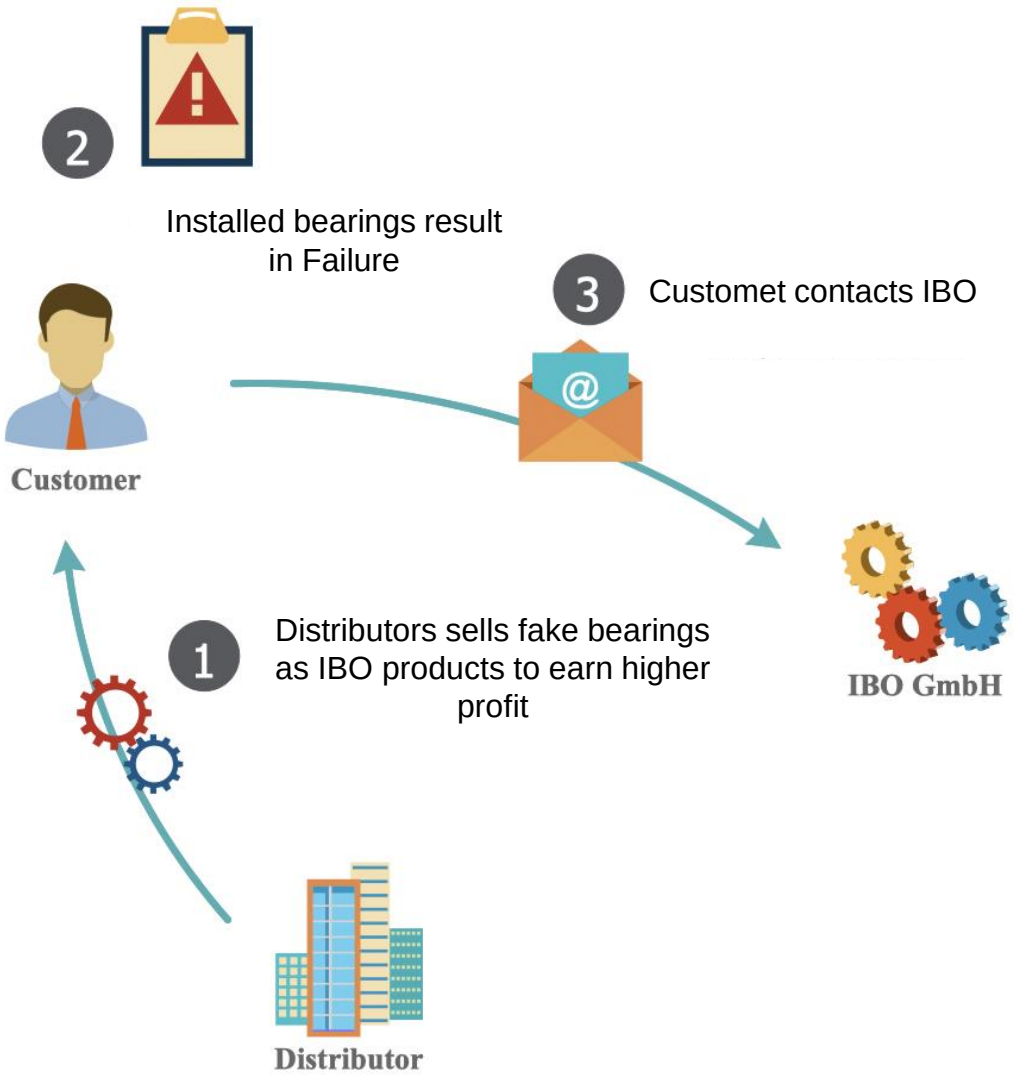
Timeline

Motivation



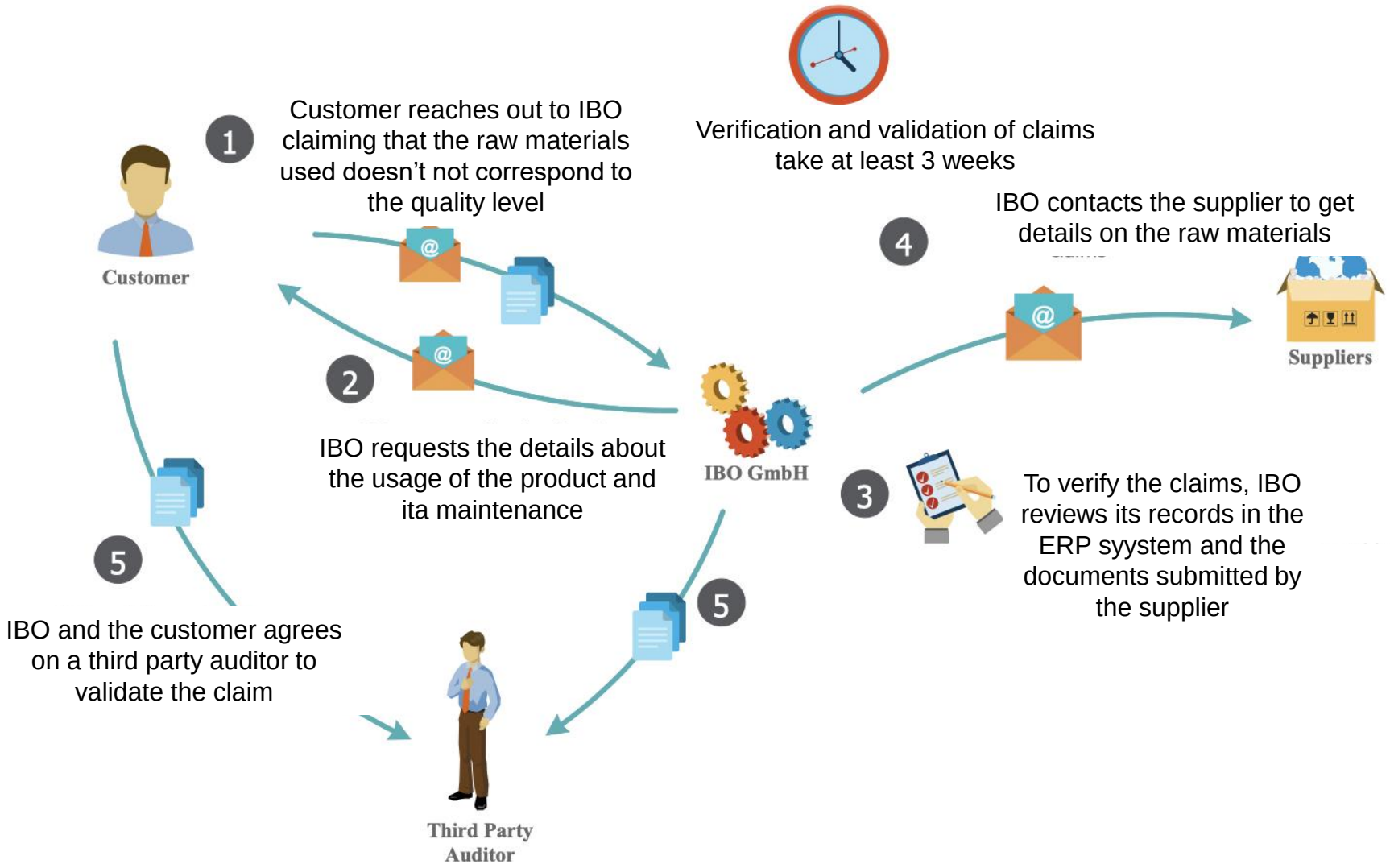
IBO GmbH is a SME, manufacturing roller bearings for safety critical domains.

Motivation



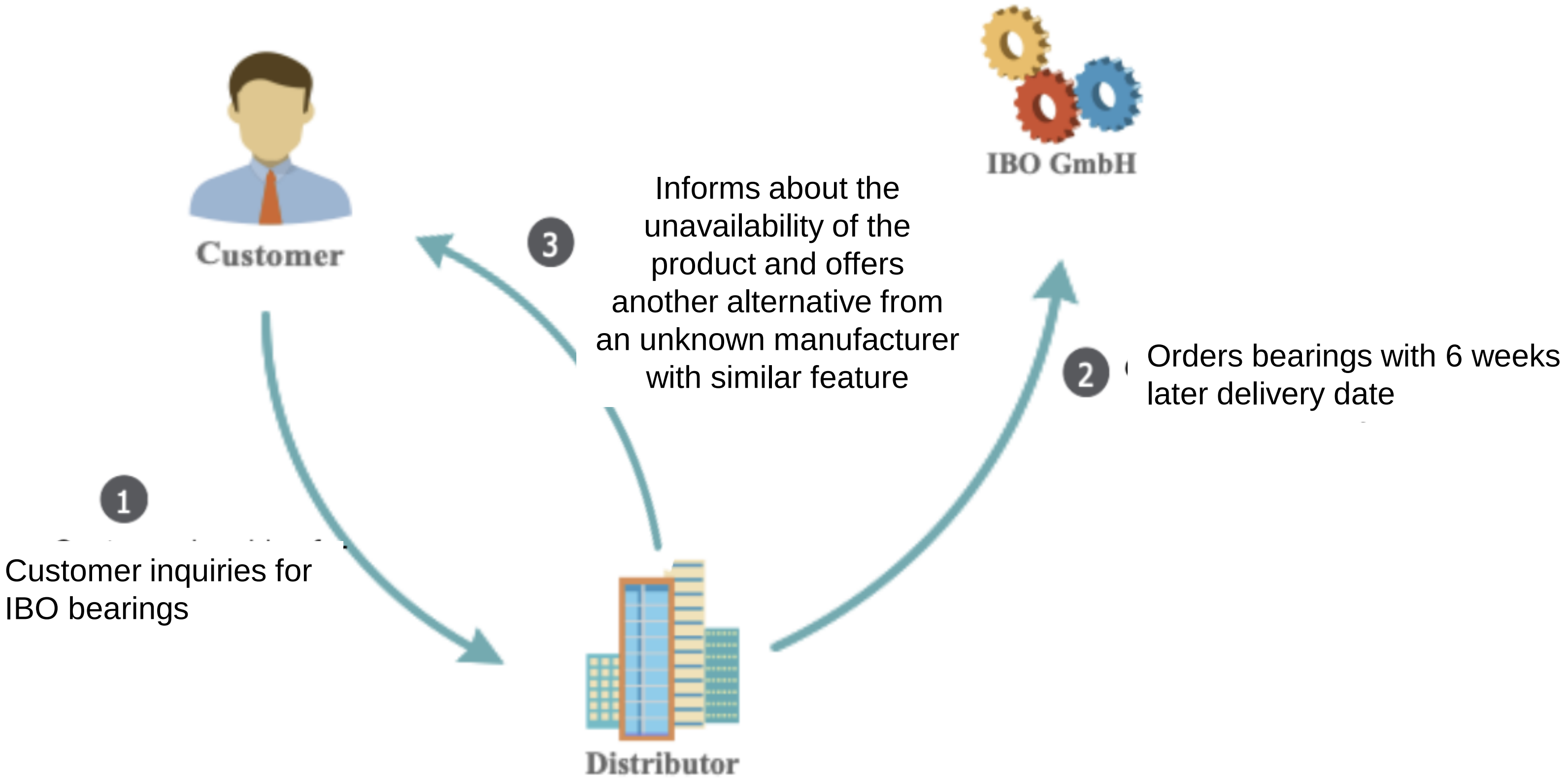
Track & trace for high-price products with ID numbers lasered in the product body as well as low-price products sold by batch.

Motivation



Transparent and trusted, fraud-proof data source for fast and efficient audit purpose

Motivation



Offering alternatives in the case of unavailability of a product without any reviews/ failure history about the new product.

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The goal of this master's thesis is to design and implement a blockchain-based supply chain solution for SMEs in safety critical supply chains in collaboration with IBO GmbH with a focus to provide transparent data flow and traceable product history without disclosing business secrets.

Data Provenance Tracking

Shared Distributed Single source of truth

WHY BLOCKCHAIN?

Time Reduction

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Research Questions

<RQ1>: What are the requirements for blockchain-based supply chain system to reduce fraud and improve supply chain management?

<RQ2>: What is an architecture of a blockchain-based system for fraud reduction and supply chain management?

<RQ3>: What is the prototypical implementation for a Blockchain-Based Supply Chain system for fraud reduction and supply chain management?

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Requirements:

- Interviews and workshops with IBO
- Understand the data flow in IBO's supply chain
- Literature research on existing supply chain system using blockchains
- Requirements elicitation and documentation

Architecture Design

- Literature research on blockchain technologies
- Choosing a blockchain technology that fit the requirements
- Architecture Design using the finalized technology
- Architecture using 4+1 view models

Implementation

- Development of the prototype using the technologies and the design to fit the requirements
- Evaluation of the system

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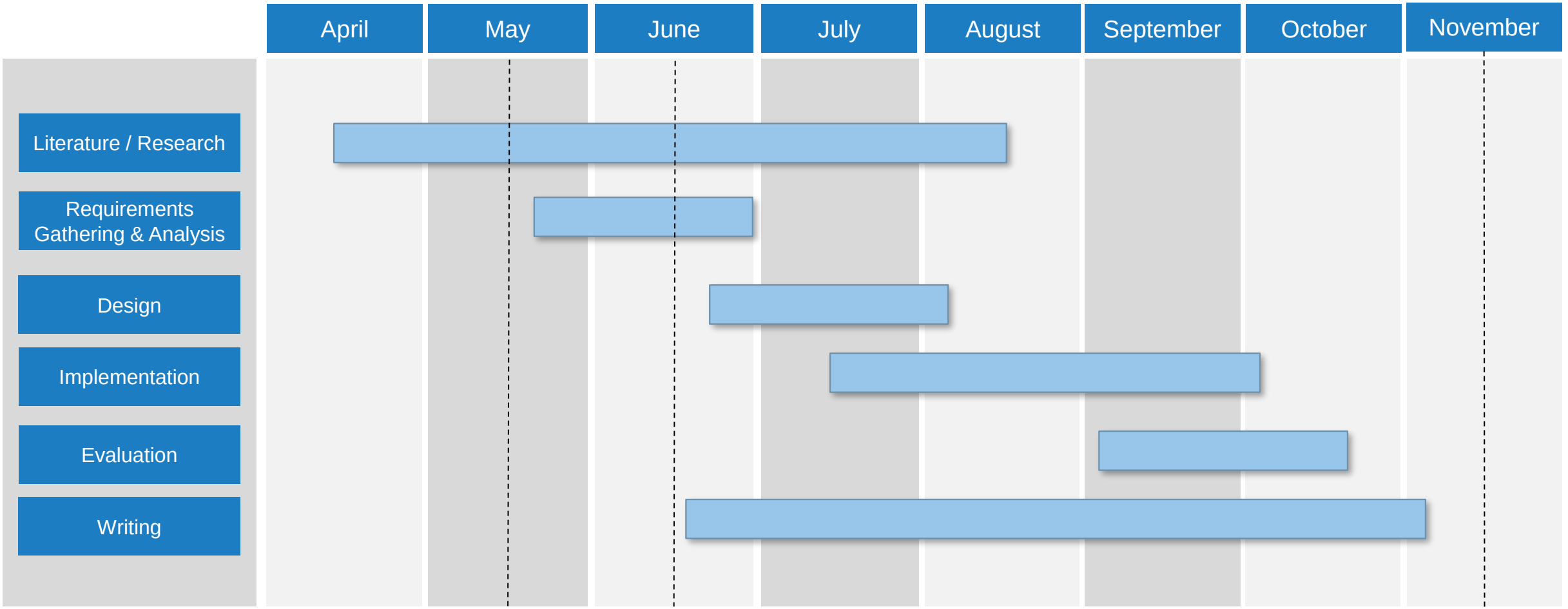
April
May
June
July
August
September
October
November
Literature / Research
Requirements Gathering & Analysis
Design
Implementation
Evaluation
Writing
Registration Date
Kickoff Presentation
Final Presentation

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