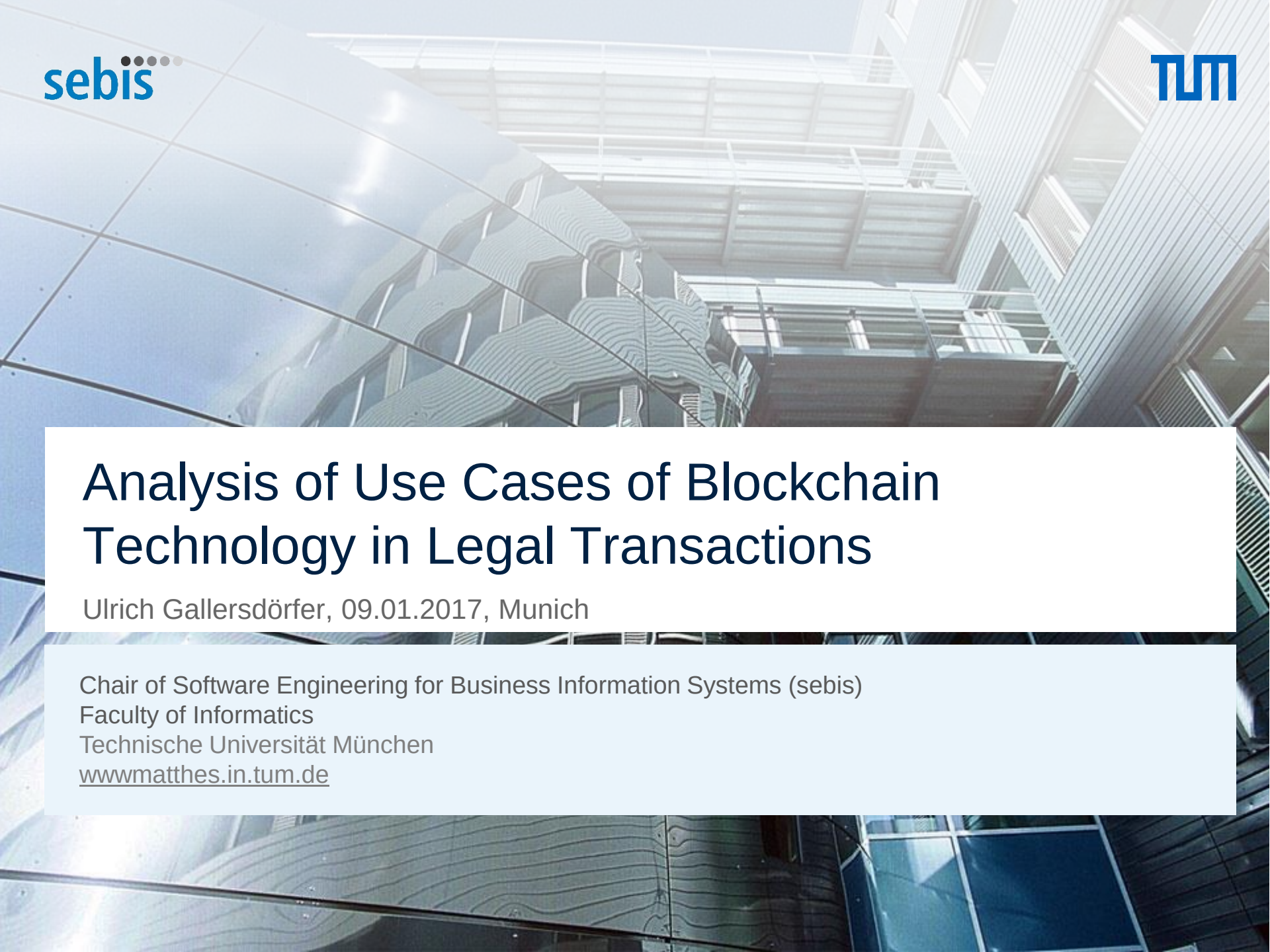

Analysis of Use Cases of Blockchain Technology in Legal Transactions

Ulrich Gallersdörfer, 09.01.2017, Munich

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Outline

1. Motivation
2. Research Approach
3. A deep dive into BlockChain Technology
4. Research Questions and Contributions
5. Thesis Timeline

Motivation

“Every informed person needs to know about Bitcoin because it might be one of the world’s most important developments.”
Leon Louw

Blockchain is Eating Wall Street | Alex Tapscott | TEDxSanFrancisco

TEDx Talks
vor 2 Monaten • 29.630 Aufrufe
Author of best seller "**blockchain** revolution", Alex share in this talk about how the **blockchain** the technology behind bitcoin Is ...

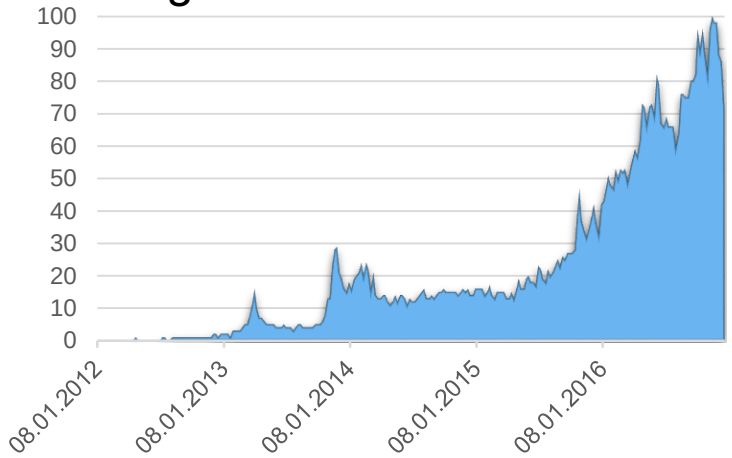
Blockchain: Ein revolutionärer Code?
heute.de - 10.12.2016
Die **Blockchain**-Technologie bietet die Möglichkeit, weltweit schnell und günstig Geld zu transferieren - und macht damit zumindest manche ...

Motivation

Exchange Rate Bitcoin

blockchain.info/de/charts/market-price

Google Trends “BlockChain”



https://www.google.com/trends/explore?q=Blockchain

https://twitter.com/paultoo/status/328969714283995136

B3i: Allianz und andere Versicherungsriesen gründen Blockchain-Initiative

heise online 20.10.2016 15:21 Uhr – Axel Kannenberg vorlesen

Die Blockchain wird zum goldenen Kalb der Finanzwelt: Nach den Großbanken gründen nun auch die Versicherer eine eigene Initiative zur Erprobung der Blockchain-Technik.

https://heise.de/-3355409

Motivation

„Blockchains are overhyped.“

Gideon Greenspan, Founder / CEO of Coin Sciences Ltd.

We want:

⇒ Down-to-earth view on BlockChain technology

⇒ Deep understanding of underlying technology

⇒ Assessment of risks and chances of this technology

http://www.multichain.com/blog/2015/11/avoiding-pointless-blockchain-project/

Setup of this Master Thesis

- **Title:** Analysis of Use Cases of Blockchain Technology in Legal Transactions
- **Author:** Ulrich Gallersdörfer (ulrich.gallersdoerfer@tum.de)

- **Advisor:** Bernhard Waltl (b.waltl@tum.de)

- **Start:** 15. November 2016
- **End:** 15. May 2017

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Research Approach

1. Research

- Literature Research

2. Conceptual BlockChain Architecture

- What is the blockchain and how can it be parameterized?
- Which value do blockchains add to a enterprise architecture?

3. Guided interview

- Understand enterprises‘ needs
- Gather and structure usecases

4. Implementation

- Implement a prototypical usecase

5. Evaluation

- Evaluate use case and different scenarios

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A deep dive into BlockChain Technology

A Definition of the Term „BlockChain“

“A blockchain […] is a **distributed database** that maintains a continuously-growing list of ordered records called blocks. Each block contains a timestamp and a link to a previous block. **By design** blockchains are **inherently resistant to modification** of the data: once recorded, the data in a block cannot be altered retroactively.”

https://en.wikipedia.org/wiki/Blockchain_(database)

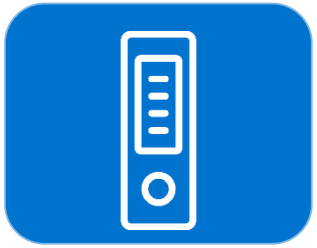
A deep dive into BlockChain Technology

BlockChain Overview

Data Structure

Consensus

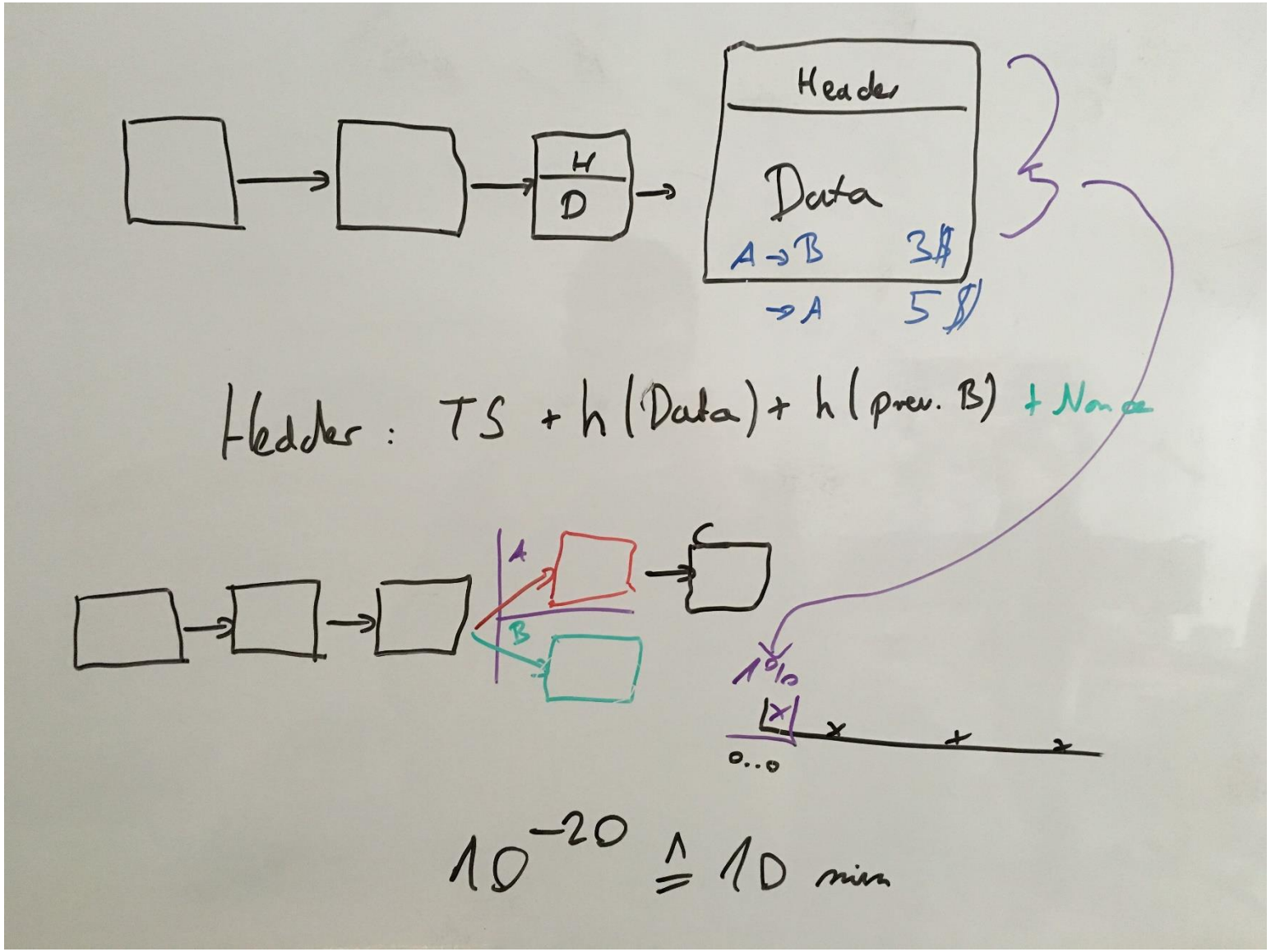
Mining



Ledger

See further explanations on the whiteboard.

Picture of the Whiteboard



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Research Questions

1. What are **parameters** of the blockchain technology?

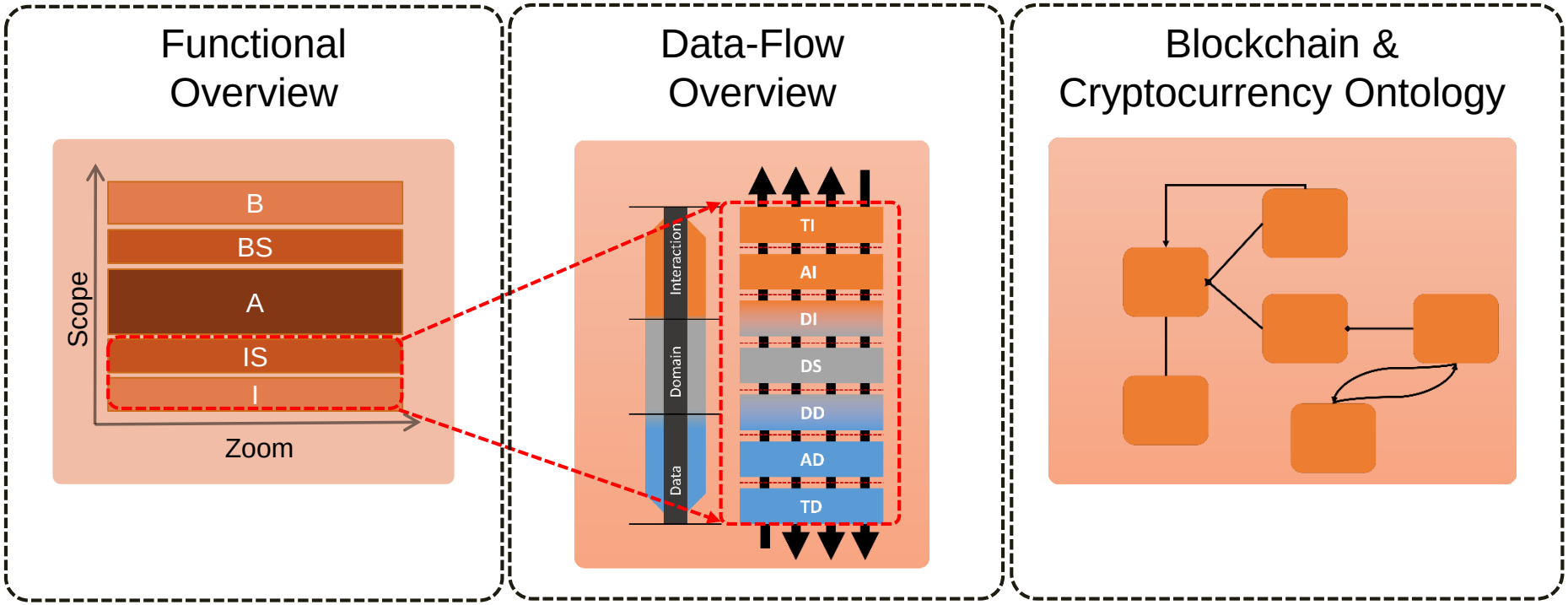
2. What are **usecases** based on blockchain technology and which **requirements emerge** from them?

3. How can blockchain technology be **integrated** in **enterprise architectures**?

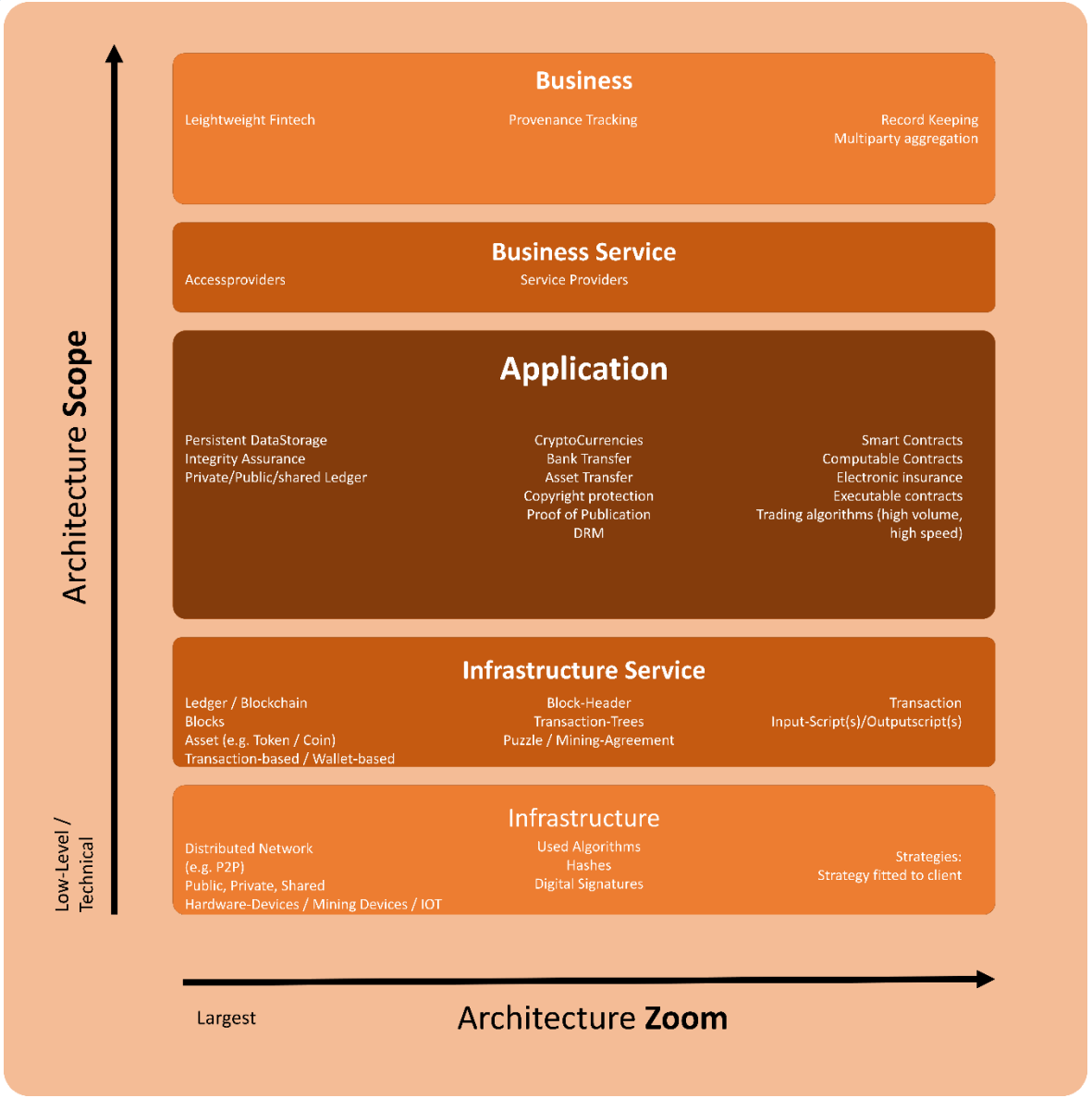
4. What are the **risks of applying blockchain** technology and how can they be **minimized**?

Preliminary Result: Blockchain Architecture

- Hardly any literature about a high-level overview on blockchain architecture
- Knowledge base to reflect in expert interviews



Preliminary Result: Blockchain Architecture



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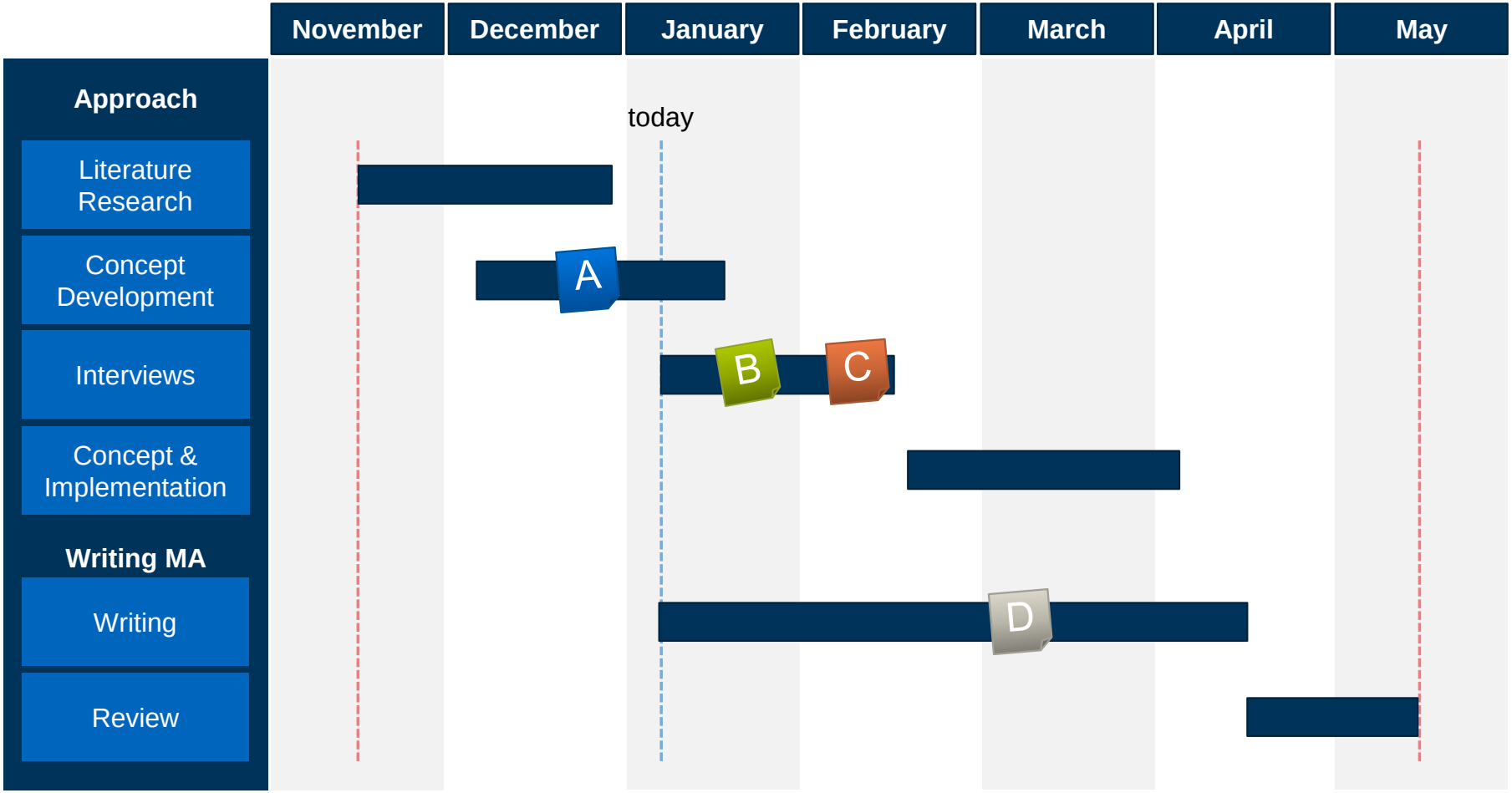
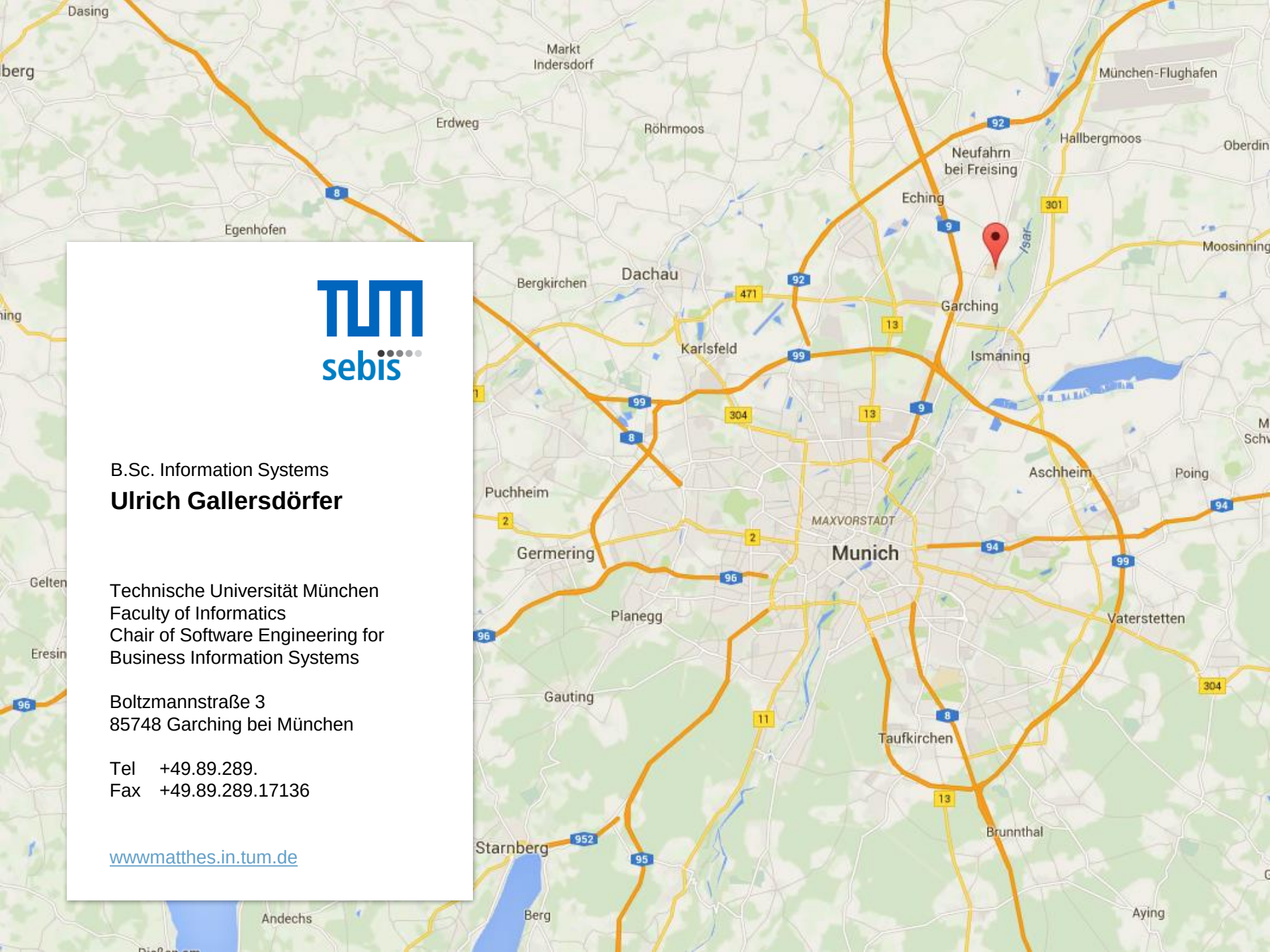
Timeline of Master Thesis



A B Research Questions



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Backup

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Sources

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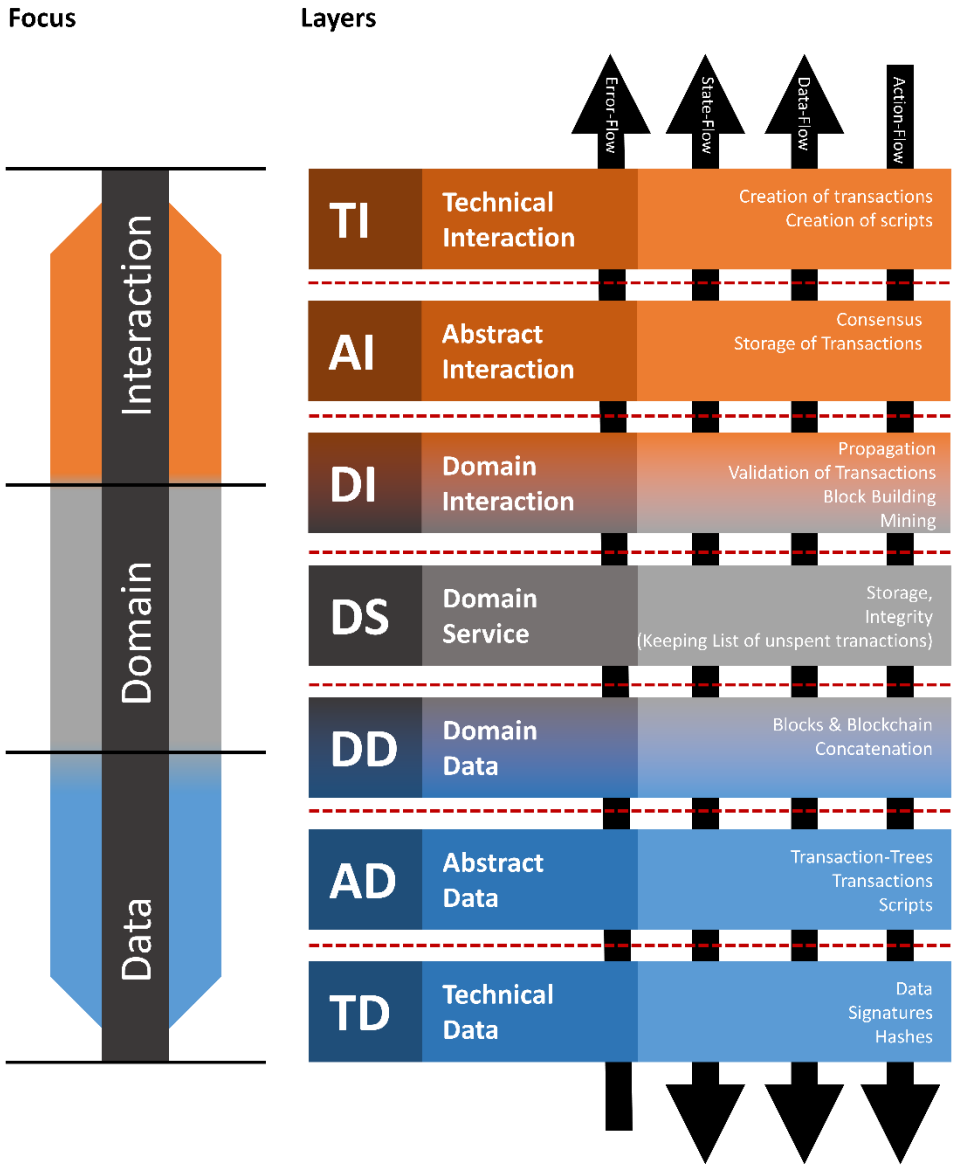
Blockchain Architecture



Blockchain Architecture