

Information management throughout the life cycle of buildings – Basics and new approaches like blockchain

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Source: <https://pixabay.com/de/illustrations/blockchain-netzwerk-bin%C3%A4r-manchatten-3866139/>

There are three major trends in real estate ...

Life cycle analysis



Source: Isendorf, Björn/Väth, Arno: *Lebenszyklus von Immobilien*, in: *Immobilienökonomie* (Bd. 1)

- Analysis of entire life cycle
- Information chains get longer and more complex

Real world decisions



Source: <https://pixabay.com/de/photos/schach-strategie-schachbrett-316658/>

- Real world decisions based on data
- Need for information responsibilities and traceability

Digitalization



Source: <https://pixabay.com/de/photos/einschalten-ausschalten-industrie-2923046/>

- Increasing number of tools available

Research Questions

How can traceability and responsibility be assured over growing information chains?

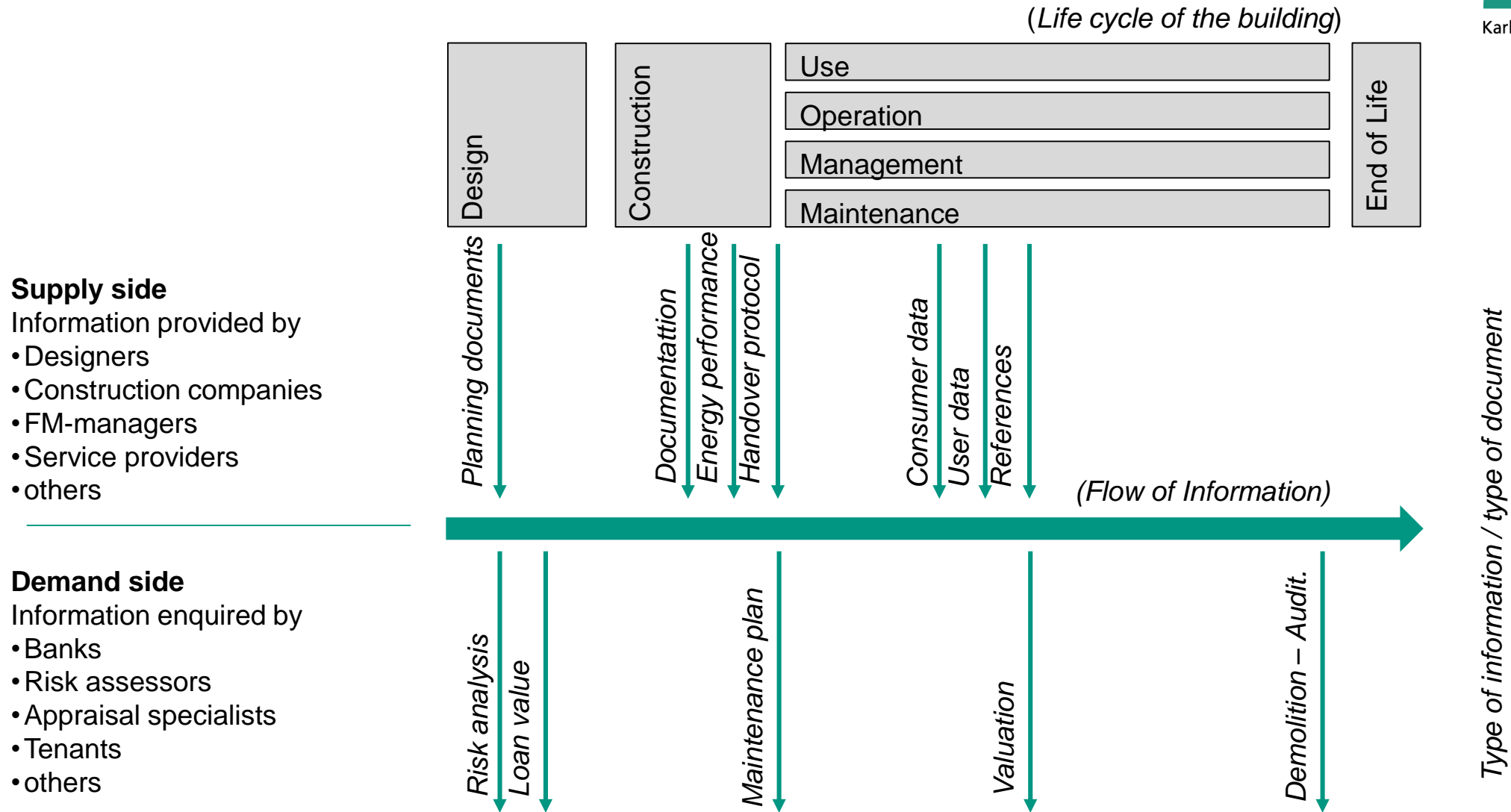


Which technological tools are currently available to support these trends?

Structure of the presentation

- **Information flows during the real estate life cycle**
- **Use cases and tools**
- **Questions/Requirements**
- **Results**
- **Recommendation and outlook**

Flow of information in the life cycle of real estate



Collecting building related data is a crucial factor for sustainability in real estate

Use cases

- **Life cycle assessment (LCA)**
- **Building passport**
- **Life cycle cost calculations (LCC)**

Technologies

- **Building Information Modelling (BIM)**
- **Blockchain**
- **Clouds and databases**

Collecting building related data is a crucial factor for sustainability in real estate

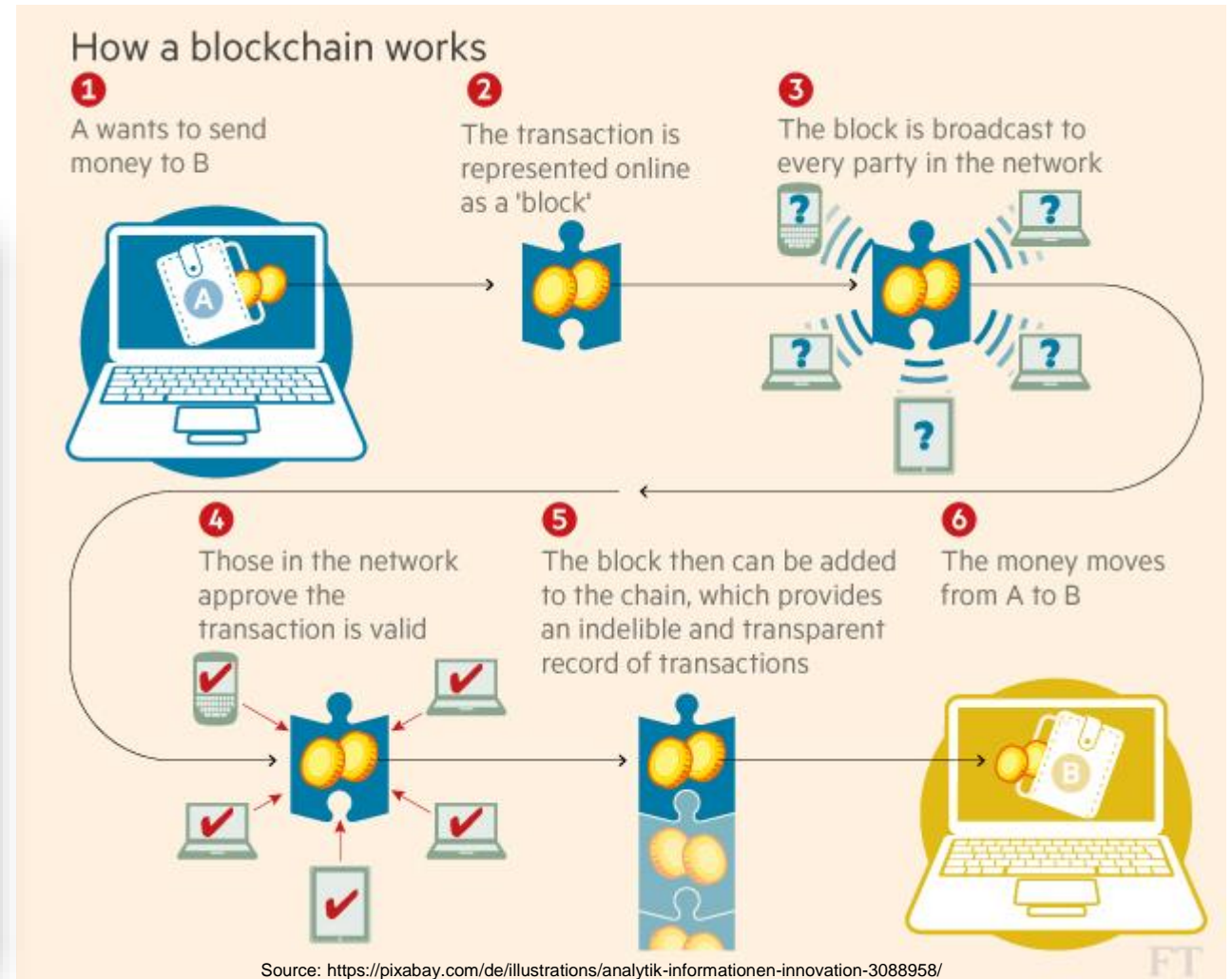
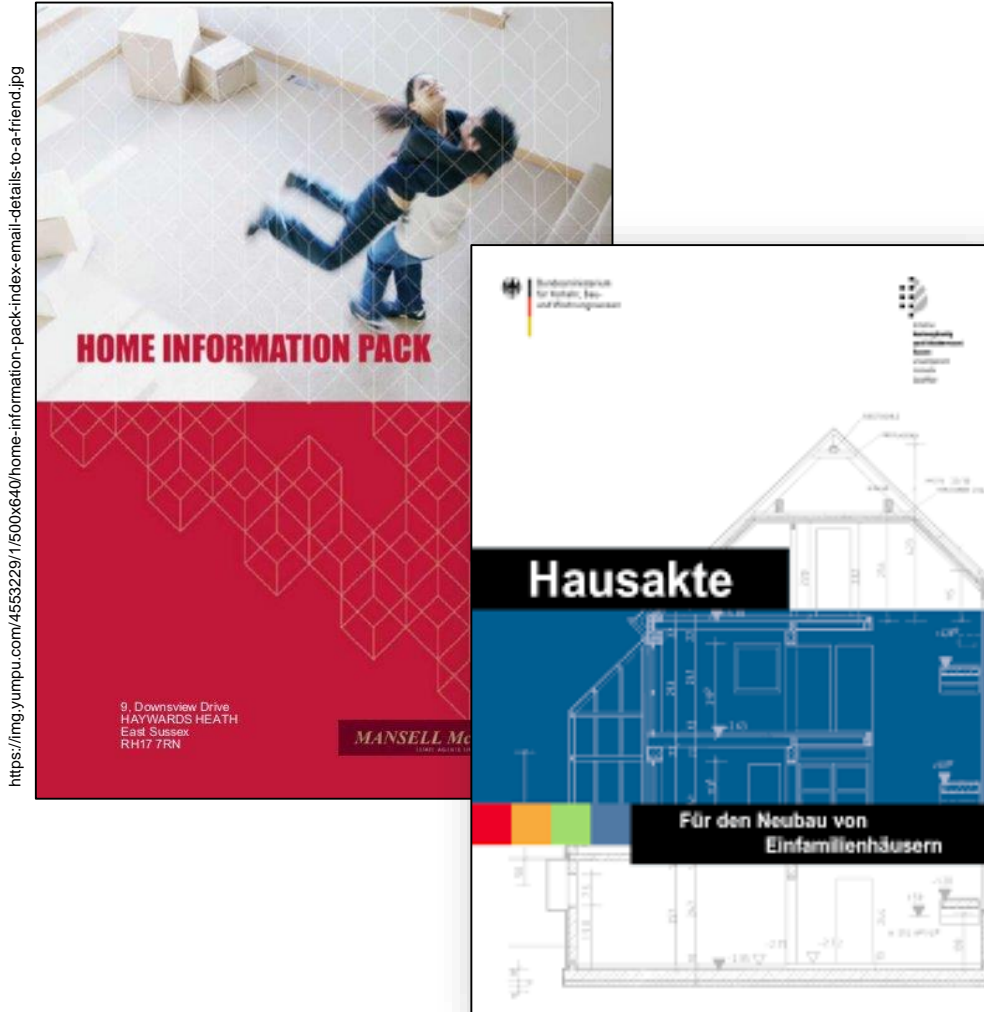
Use cases

- Life cycle assessment (LCA)
- Building passport
- Life cycle cost calculations (LCC)

Technologies

- Building Information Modelling (BIM)
- Blockchain
- Clouds and databases

Example: Blockchain and building passport



Source: <https://pixabay.com/de/illustrations/analytik-informationen-innovation-3088958/>

Four key questions were answered when analysing the potential of the considered tools

1) How to support data generation and storage within the life cycle and how to encourage actors to compete?

2) How to assure a high data quality and how to store it over a long period of time?

**Building
related
information**

3) How to assure that all data user can track down the data owner at any point of time to clarify on compliance and legal issues?

4) Are there any new business models or new scopes for designer or other service providers?

Data generation



- Blockchain can be used as underlying technology for BIM
- Benefits:
 - Efficient transition from BIM to Blockchain
 - High data security during the construction phase
- Incentivised data generation leads to complete dataset

Data quality



- Blockchain as the most secure data base
- Thanks to technology fraud impossible
- Information stored in a blockchain can not be deleted
- Not possible to change past data secretly

Example Blockchain – part II

Data traceability



- Blockchain possible to track down owners at any point in time
- Ownership will always be stored

New business models



- Land registry
- In combination with smart contracts as contract management tool
- For designers and architects it is important to be BIM/Blockchain ready

Recommendation for action

- Keep technologies in mind and keep up-to-date with developments
- There are use cases where it makes sense to implement already
- Blockchain not always beneficial – case analysis recommended



Outlook

- Incentives for Blockchain have to be investigated
- “Make Real Estate Blockchain Ready” will be an interesting business model



Thank you for your attention

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