Investigating information needs for specific processes in real estate to prioritise data

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Universität Stuttgart | Institut für Bauökonomie | Wiebke Uhlenbruch

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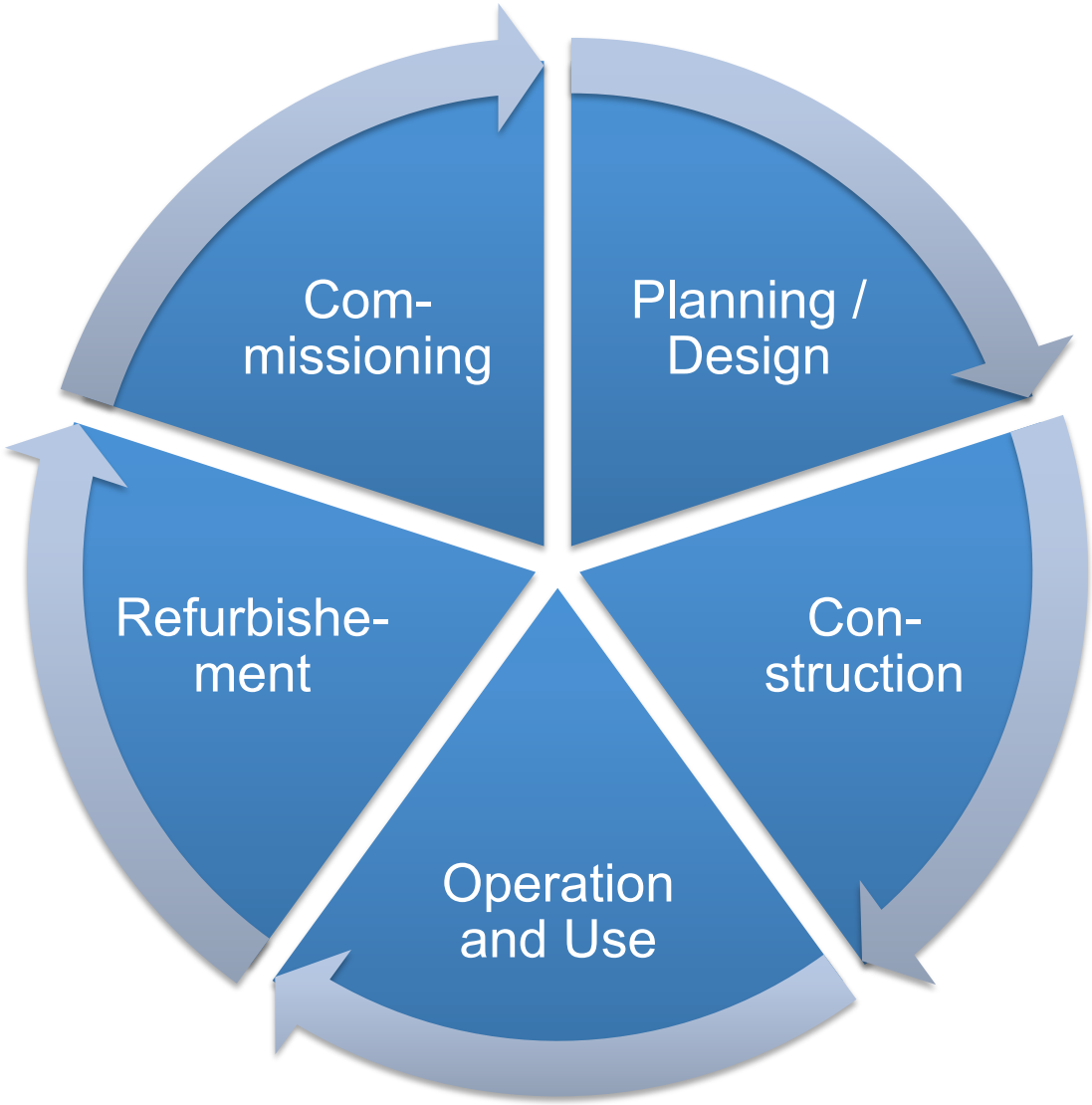
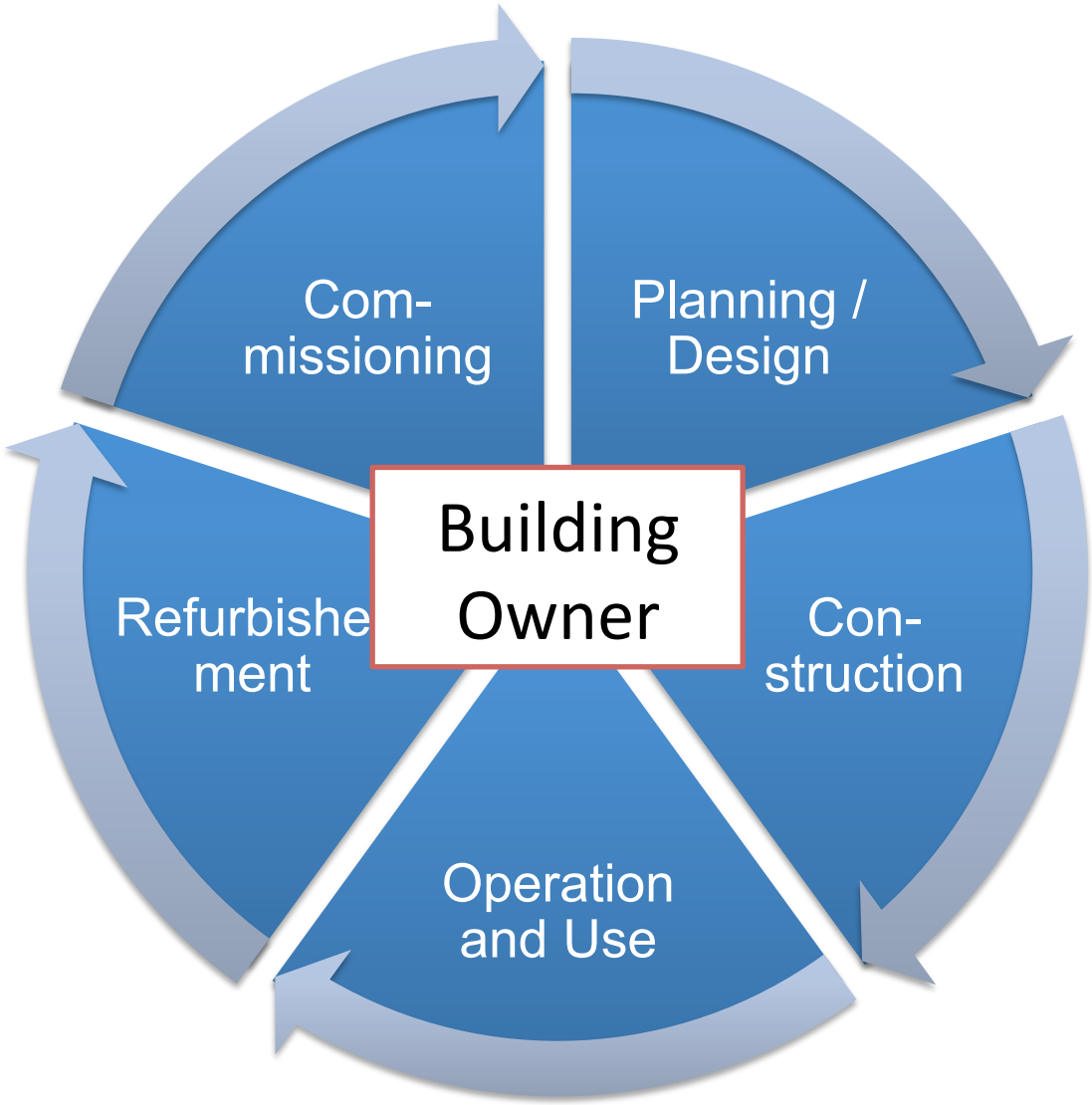
Lifecycle of a Building



Lifecycle of a Building



Information in Real Estate

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Starting point of the research

Background

„Clients have to be capable of defining their BIM requirements when tendering design and construction works.“

(Federal Ministry of Transport and Digital Infrastructure (2015), Road Map for Digital Design and Construction, p. 5)

Background

The professional building owner has a key role

- To specify the information demand
- To organize the information transfer
- To assure the quality of information

Background

The professional building owner has a key role

- Specify the information demand
- Organize the information transfer
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Aim of the Research

The aim is to provide a building owner with a tool to specify the most relevant information during planning, construction and operation.

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The aim is to provide a building owner with a tool to specify the most relevant information during planning, construction and operation.

The outcomes can be used as a basis for

- Building owner‘s information requirements
- Information delivery manual
- Project Execution Plan

Aim of the Research

The data model

- From the perception of the professional building owner
- Catalogue with Objects and Attributes
- Structured and filterable according to processes / tasks and phases
- User-friendly
  - clearly arranged
  - intuitive
  - extensible
- Focus on operational phase and on information transfer

Aim of the Research

Relevant sources

- ‚Merkmalsserver' ÖNORM A-6241 (http://db.freebim.at/ and https://dev.plandata.at/freebim-import/)
- bSDD - buildingSMART Data Dicitionary (http://bsdd.buildingsmart.org/#)
- ‚BIM Profile', CAFM Connect (https://www.cafm-connect.org/bim-profile/)
- BMW Group - Level of Development Generator

Proceeding of the Project

Identification of processes and tasks

- Catalogue of processes and tasks from literature
- Expert interviews ➢ Ranking of processes and tasks

➢ Determination of a set of the most relevant processes and tasks

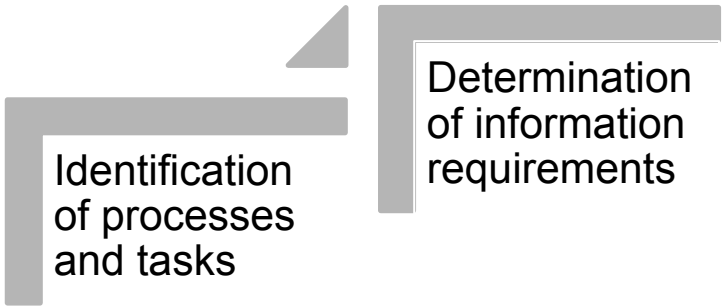
Identification of processes and tasks

Proceeding of the Project

Determination of information requirements

For each process / task in each relevant phase

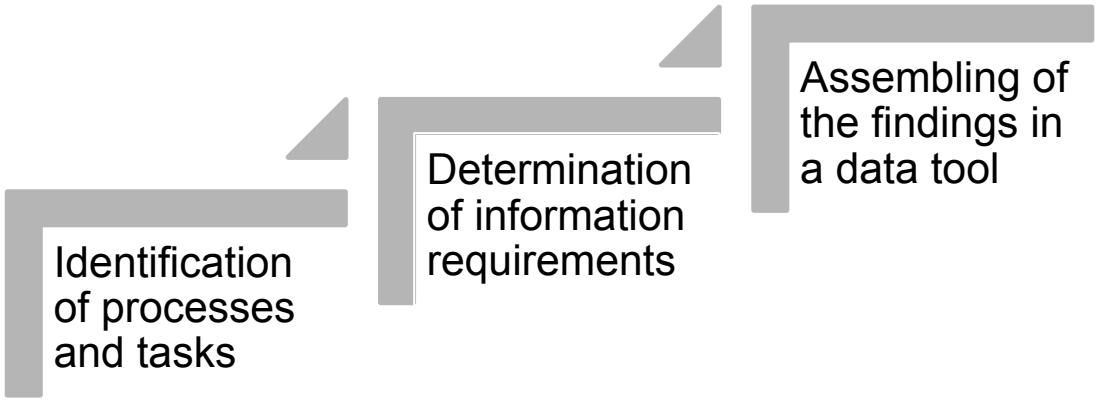
- Expert interviews ➢ Designation of concrete information:
  - (building) elements with attributes,
  - graphical representation,
  - documents



Proceeding of the Project

Assembling of the findings in a data tool

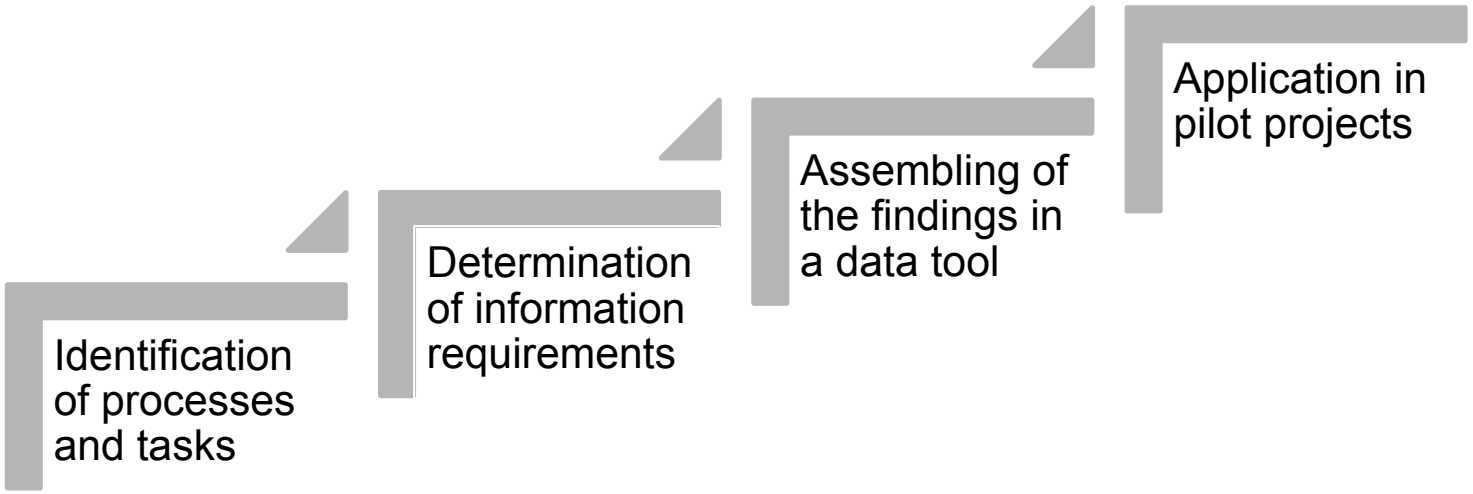
- User interface: filterable, clearly arranged, intuitive
- Compose the information from different processes / tasks to form one database



Proceeding of the Project

Application in pilot projects

- Within in organization of the project partners
- Examination, adaptation and extension of the data model



First findings

Most relevant processes and tasks:

- Life Cycle Cost Management
- Space management and Area evaluation
- Plant identification system
- Description of conditions (for asset management)
- Visualisation
- Cleaning management
- Use of Field BIM
- Key management / locking system management
- Commissioning management
- Deficiencies management
- Bearing structure (in operation, permitted load / actual load)
- Product selection, description of product information and manufacturer information

First findings

Example: Space management and Area evaluation

➢ Phases

Leistungsphase nach HOAI	„LP0“: Bedarfsplanung	LP1: Grundlagenermittlung	LP2: Vorplanung	LP3: Entwurfsplanung	LP4: Genehmigungsplanung	LP5: Ausführungsplanung	LP6: Vorbereitung der Vergabe	LP7: Mitwirkung bei der Vergabe	LP8: Objektüberwachung	LP9: Objektbetreuung	„LP10“: Betrieb
Interview 1											X
Interview 2	**X**	X	X	X	X	X	X	X	X	X	**X**
Interview 3	X	X	X	X	X	X	X	X	X	X	X

First findings

Example: Space management and Area evaluation

➢ Elements

- Site (Grundstück)
- Building (Gebäude)
- Floor (Ebene)
- Utlisation area (Nutzungseinheit)
- Room (Raum)
- Partial area (Teilfläche)
- Cleaning area (Reinigungsfläche)

First findings

Example: Space management and Area evaluation

➢ Attributes

For the Element “Room“ - Examples

- Room-ID (unique indentification)
- Building allocation
- User of the room (belongs to department…)
- Number of workstations (TARGET/PLAN/ACTUAL)
- Area (NRF-Nettoraumfläche) in m² (TARGET/PLAN/ ACTUAL)
- …

Status

Current Phase: Determination of information requirements - completed

- For each process / task two to three expert interviews are conducted

☑ Space management and Area evaluation
☑ Plant identification system
☑ Description of conditions (for asset management)
☑ Cleaning management
☑ Use of Field BIM
☑ Key management / locking system management
☑ Commissioning management
☑ Deficiencies management
☑ Bearing structure
☑ Life Cycle Cost Management
☑ Visualisation
☑ Product selection, description of product information and manufacturer information

Status

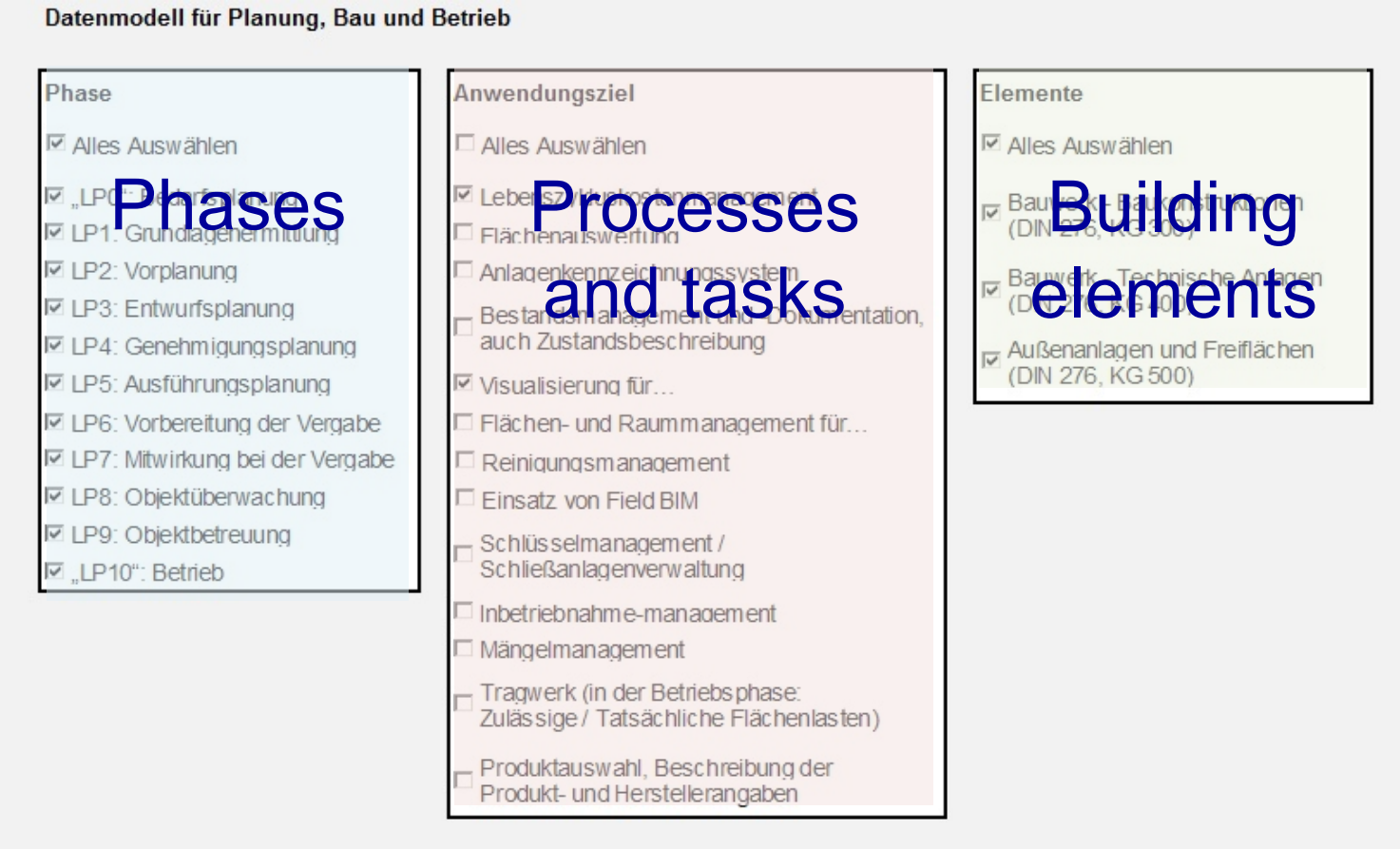
Current Phase: Harmonisation of data

- For each process and task

- For the combination of processes and tasks

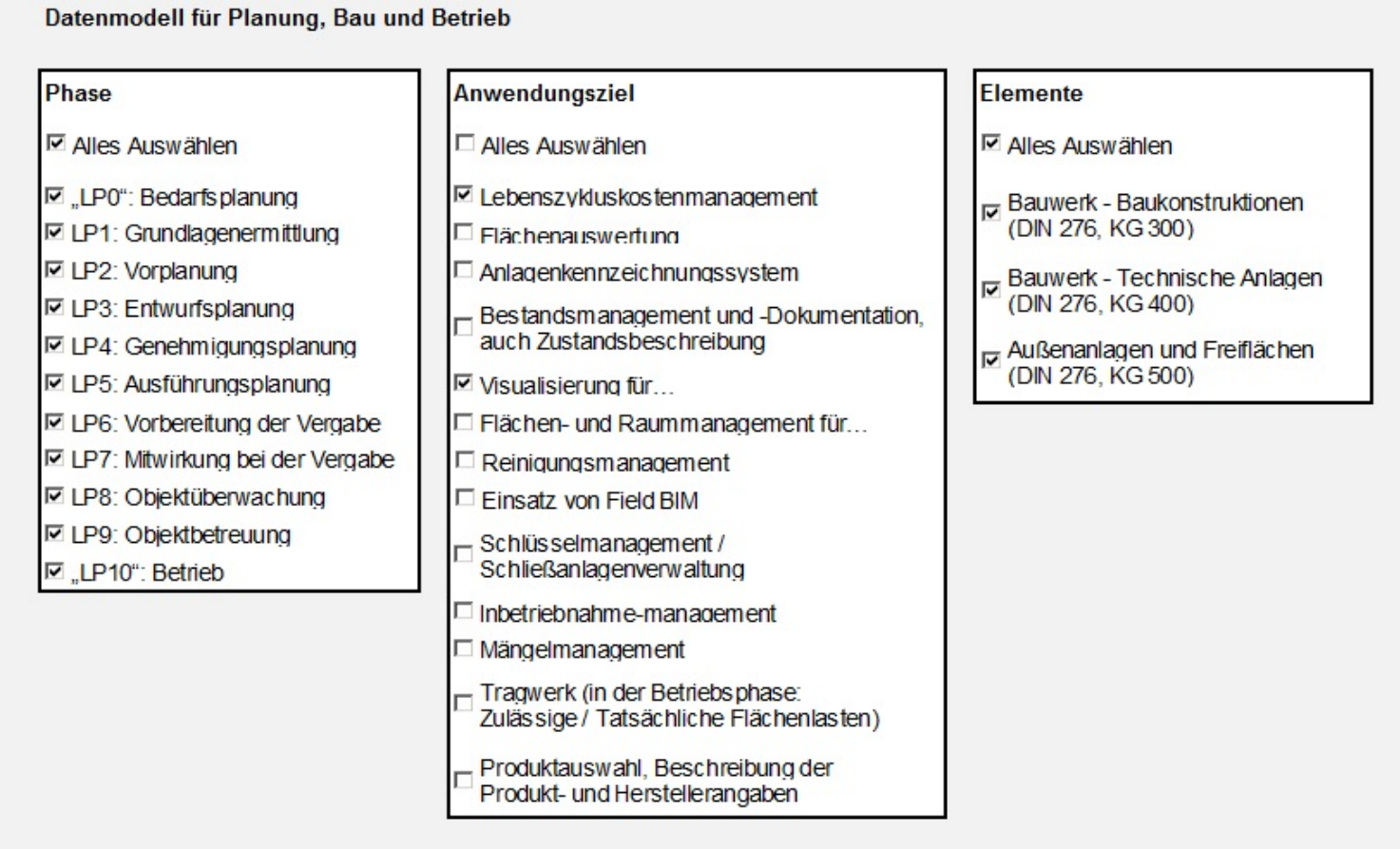
Outlook

User interface



Outlook

User interface



Outlook

Data output

430						
431	**Lüftungsanlagen**					
	Abluftanlage					
	Grafische Darstellung	Nein				
	Attribut	**Erläuterung**	**Mengen/Maßeinheit**	**Datentyp**	**ab Phase**	**ID Anwendungsziel**
	Standortkürzel	Kurztext, entsprechend Location Code		Text	5	ID 50
	Gebäudenummer	Entsprechend Location Code		Zahl	5	ID 50
	Gewerke-Schlüssel	Abkürzung für Gewerk nach AMEV		Liste	5	ID 50
	Anlagen-Schlüssel	Abkürzung für Anlage nach AMEV		Liste	5	ID 50
	fortlaufende Anlagennum	Eindeutige Nummer, vierstellig		Zahl	5	ID 50
	Komponenten-Schlüssel	Abkürzung für Komponente nach AMEV		Liste	5	ID 50
	fortlaufende Komponente	Eindeutig innerhalb Anlage und Komponentenart		Zahl	5	ID 50
	Filteranlagen					
	Grafische Darstellung	Nein				
	Attribut	**Erläuterung**	**Mengen/Maßeinheit**	**Datentyp**	**ab Phase**	**ID Anwendungsziel**
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	Lüftungsanlagen					
	Grafische Darstellung	Nein				

Thank you!

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