Designing a method for identifying organization-specific goals for Master Data Management

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Industry partner: Organization from the financial services sector

Submission date: 07.10.2013

Type: Master's Thesis

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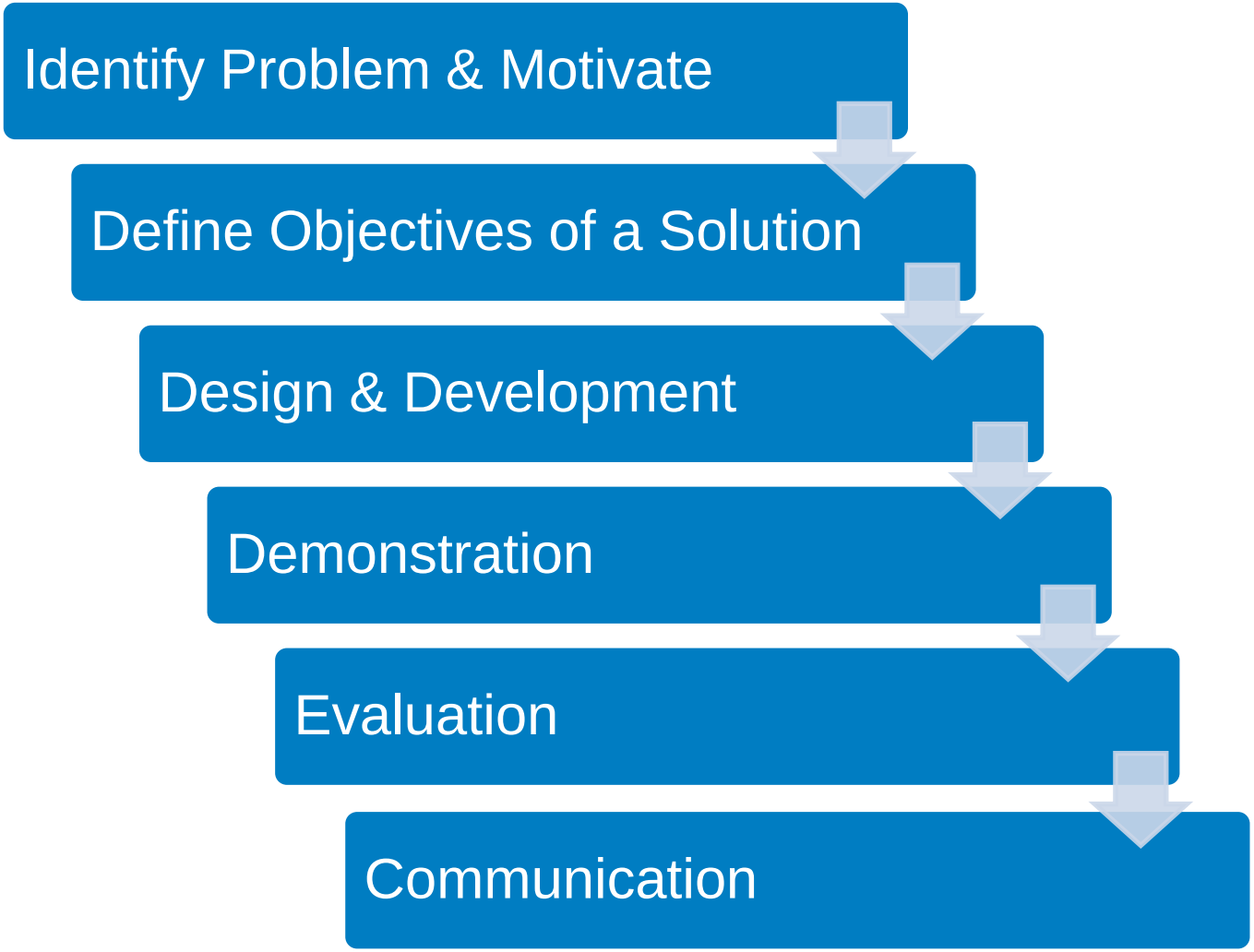
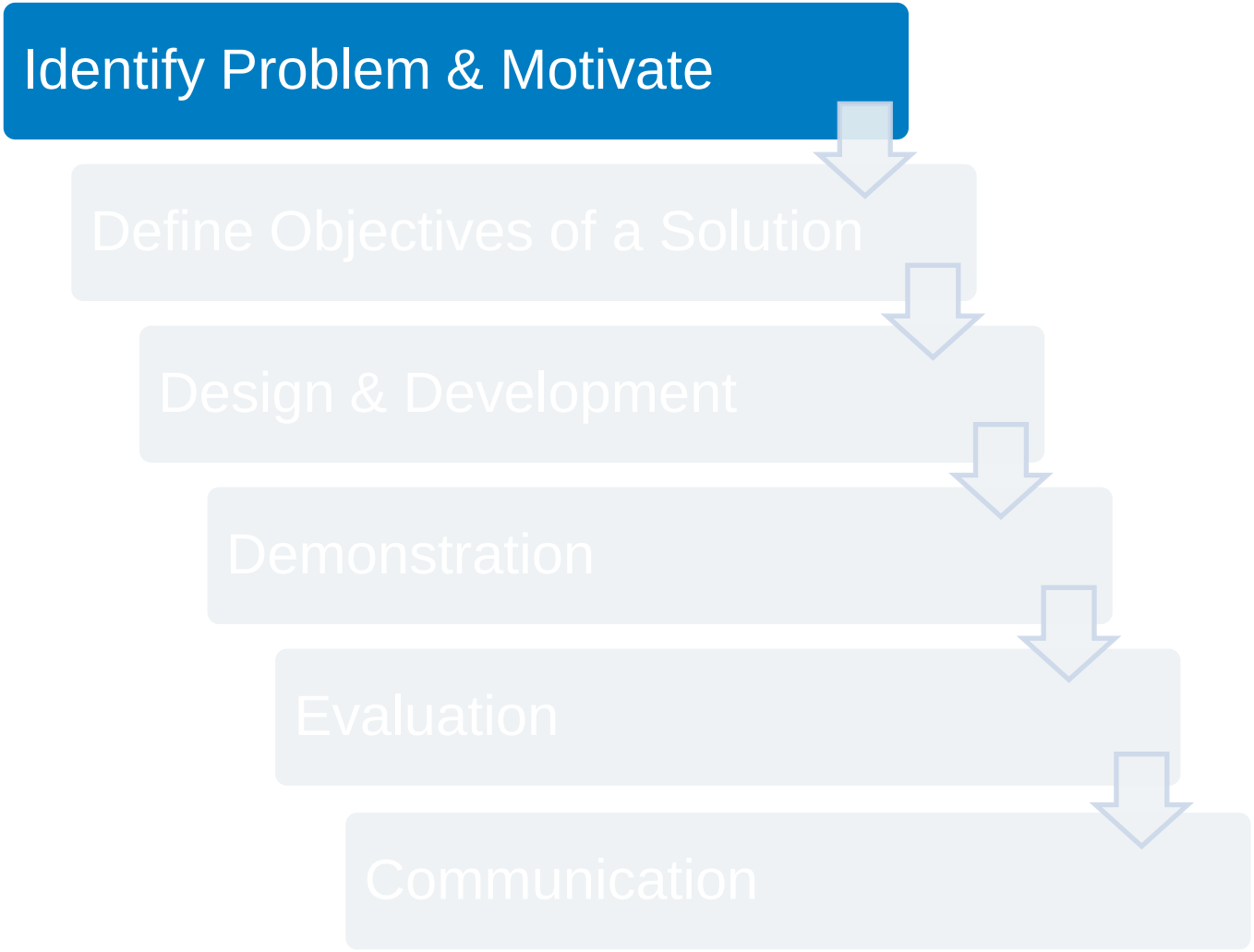
Agenda and research steps



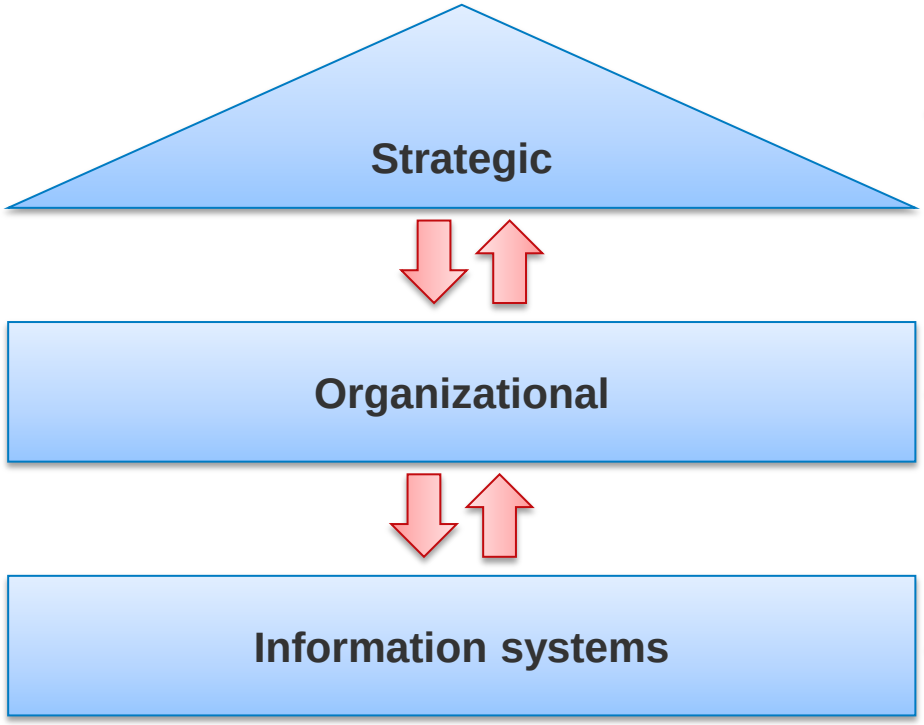
[PTR+'07]

Agenda and research steps



Complexity of MDM

Multidisciplinary task comprising design activities on a strategic, organizational and information systems level. Introducing MDM has to be seen as a medium- to long term business transformation.



- Vision and goals
- Scope of domain and distribution

- Roles and responsibilities
- Processes

- System topologies
- Functional capabilities

[OH'09], [BD'11, p.27]

Motivation, research questions and approach

Motivation

- Identification and communication of business justification for MDM is essential [BD'11, p.27] [SGZ'12, p.38]
- Historic (master) data management approaches at the industry partner failed to attract and sustain senior management support
- Literature lacks method for identifying and documenting business-oriented and measurable MDM goals

Research questions

1. How does a method to identify organization-specific MDM goals look like?
2. How can MDM goals be documented in a structured manner?
3. How can the achievement of MDM goals be measured?

→ To answer these research questions, the *Design Science Research Methodology* by Peffers et al. [PTR+'07] was adopted

Agenda and research steps

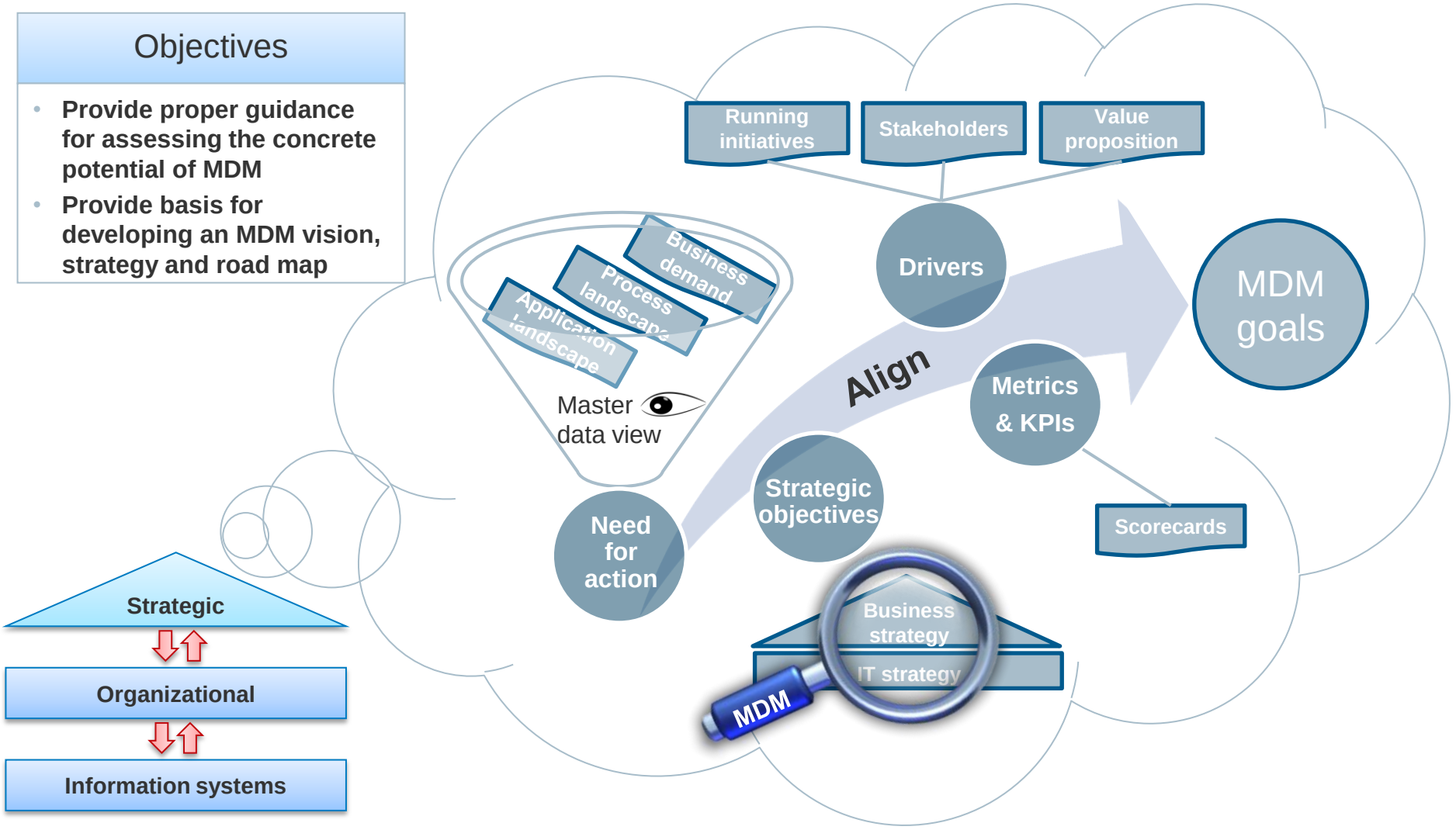
Overview: Idea and objectives of thesis

sebis

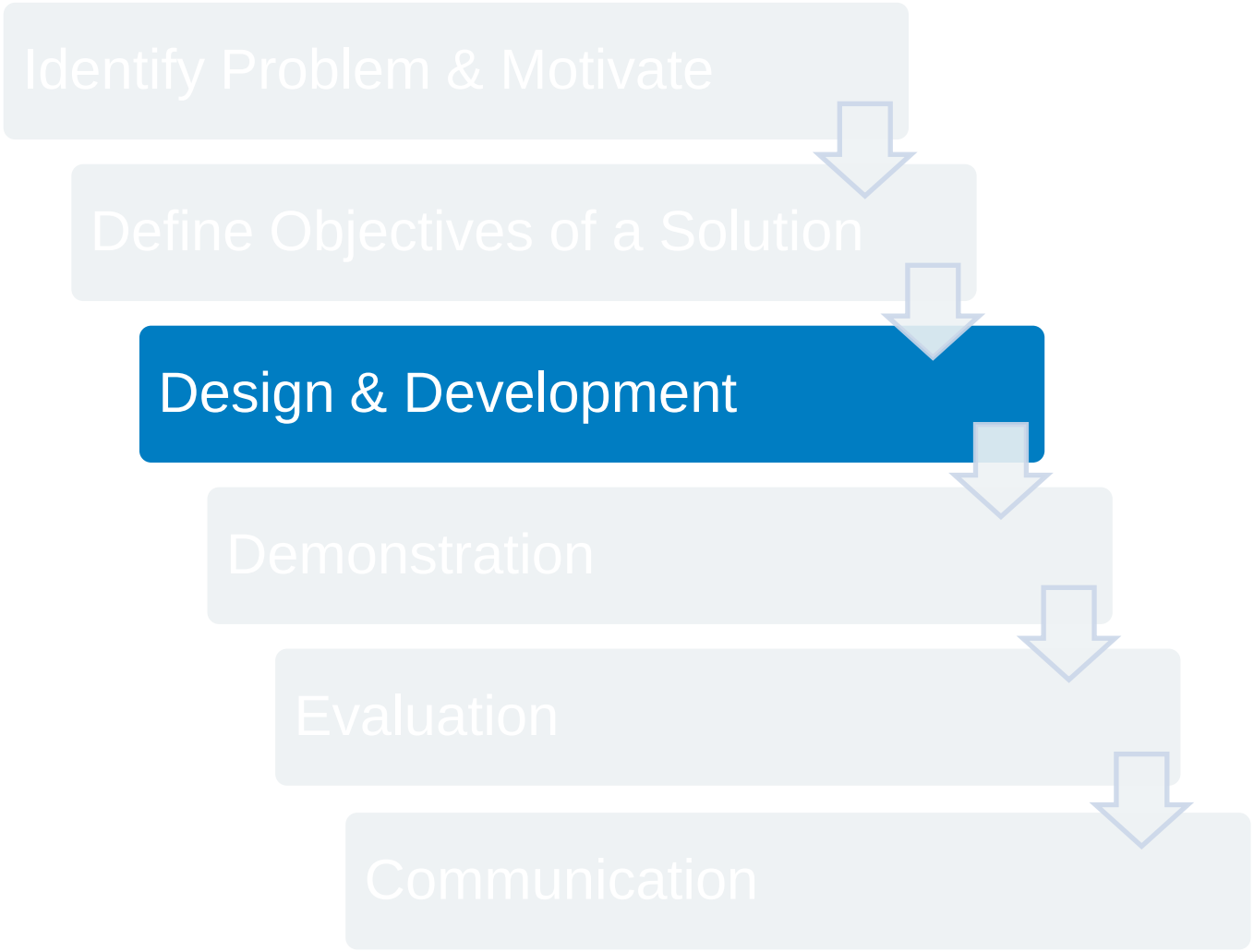
Identify Problem & Motivate | **Define Objectives of a Solution** | Design & Development | Demonstration | Evaluation | Communication

Objectives

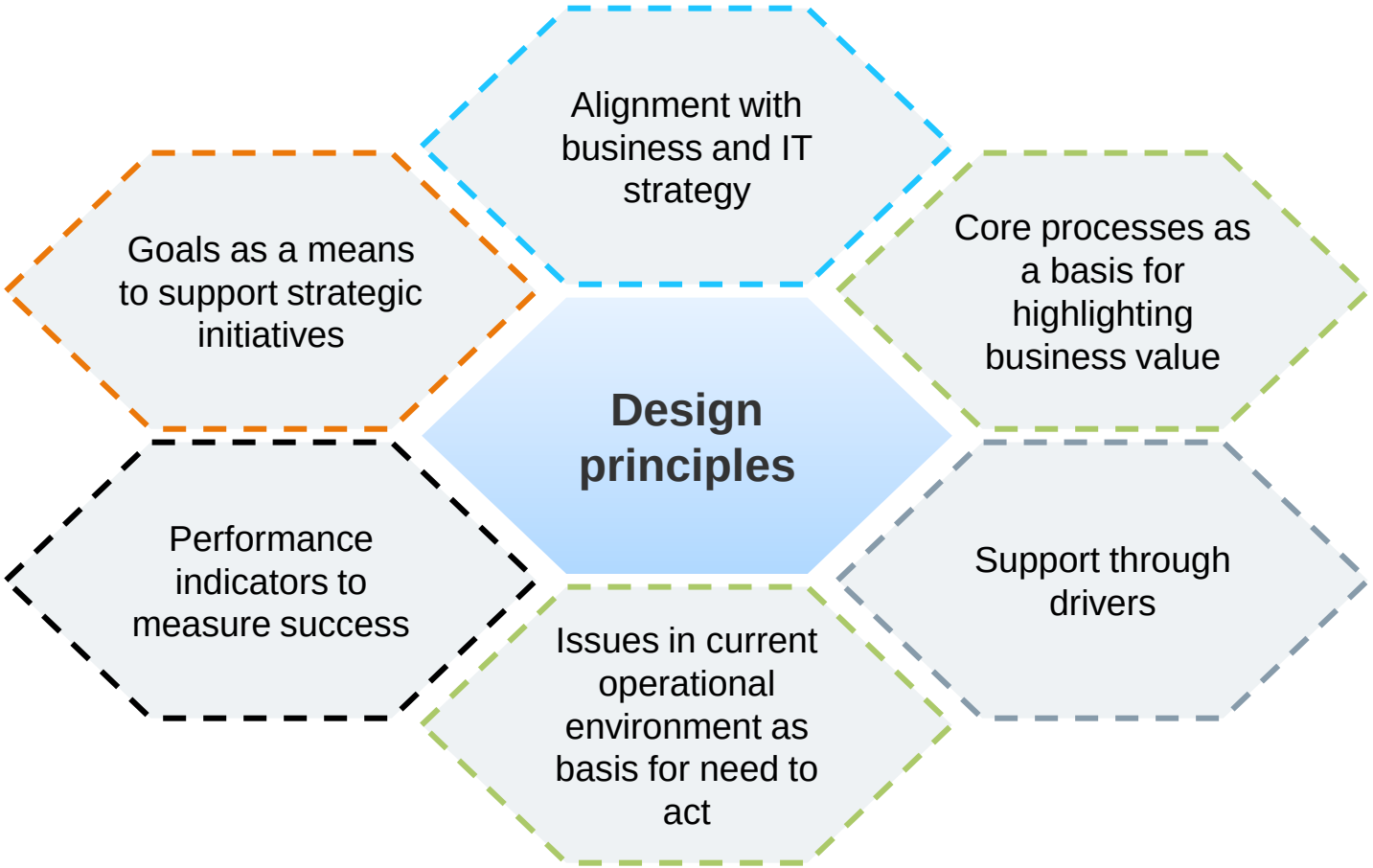
- **Provide proper guidance for assessing the concrete potential of MDM**
- **Provide basis for developing an MDM vision, strategy and road map**



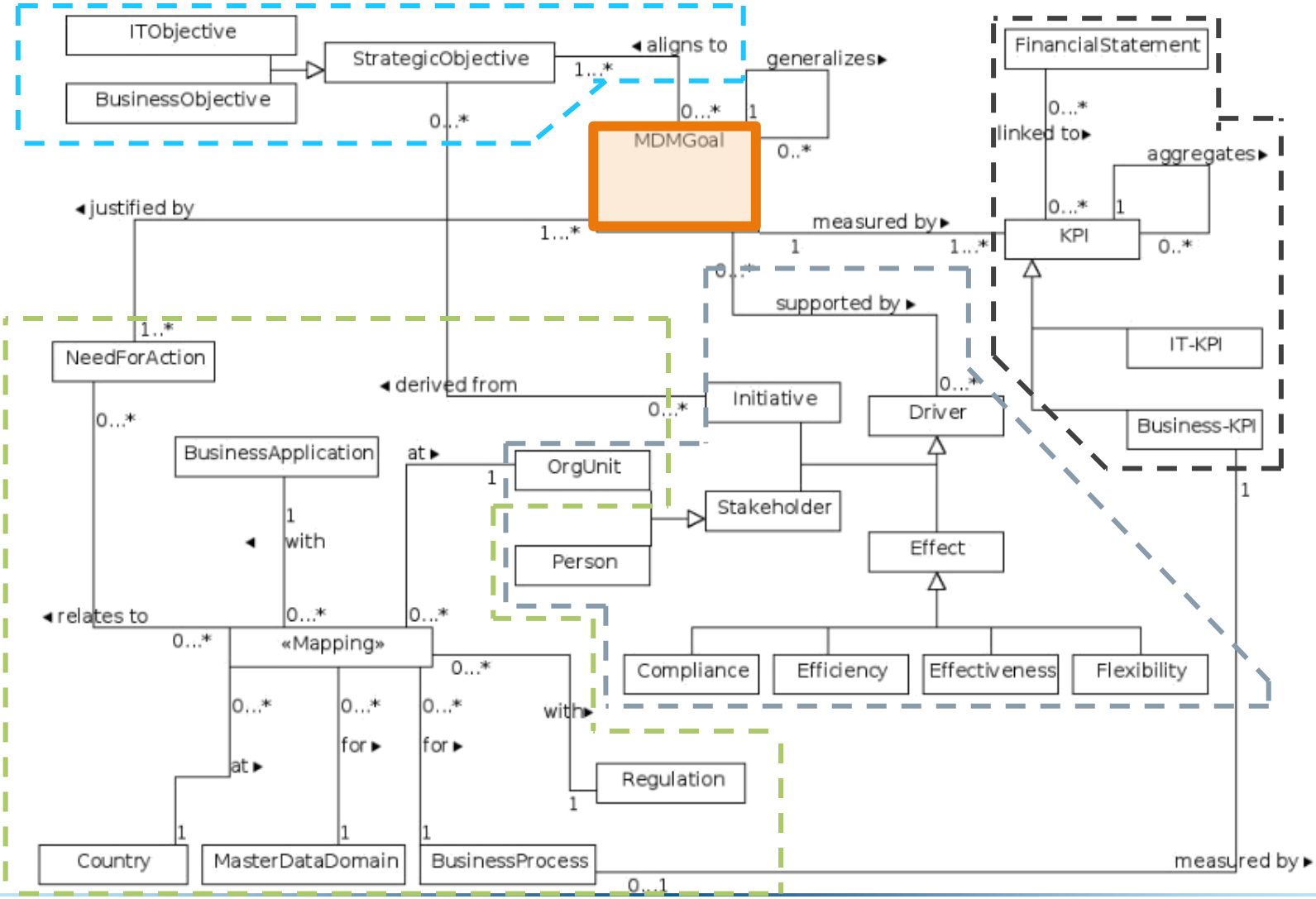
Agenda and research approach



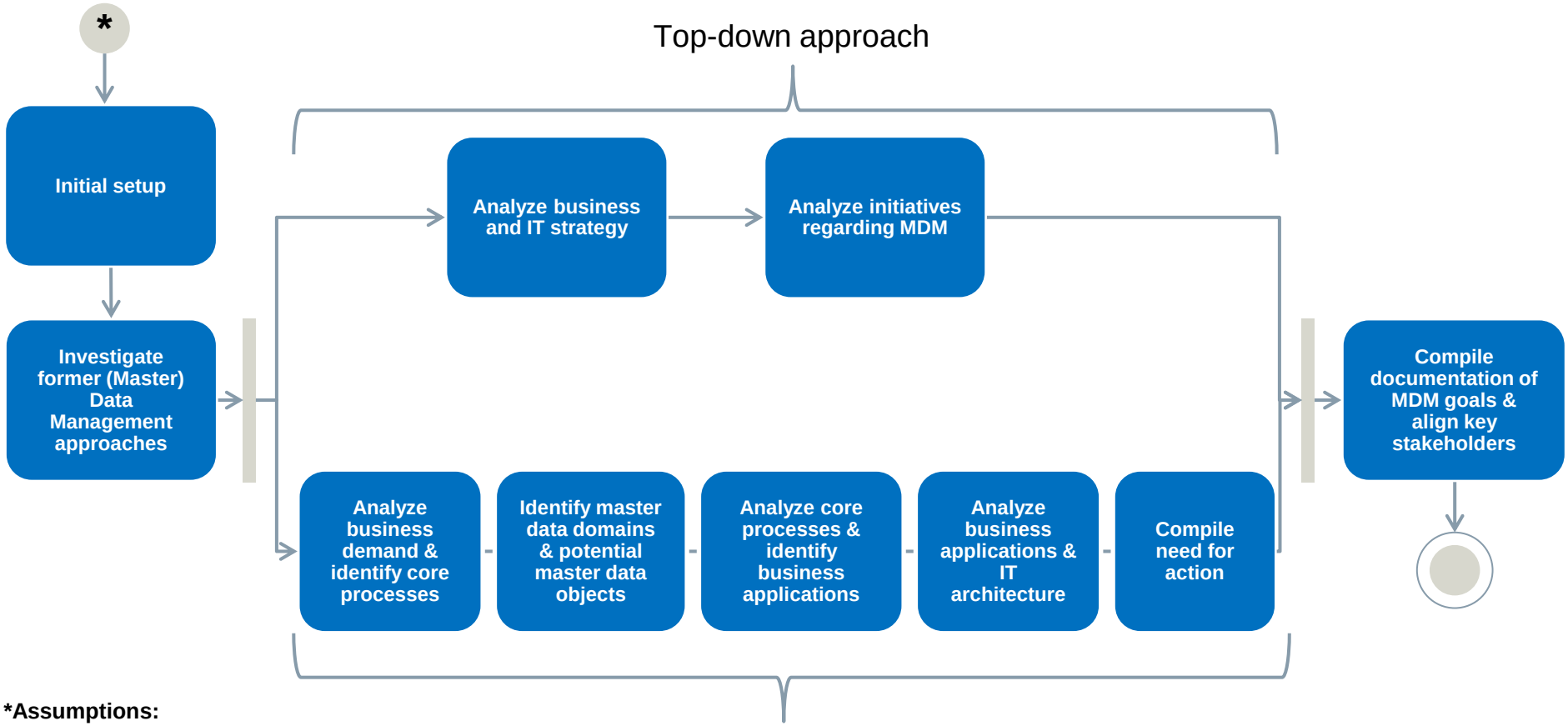
Design principles



Conceptual model (UML)



Process steps of method



***Assumptions:**

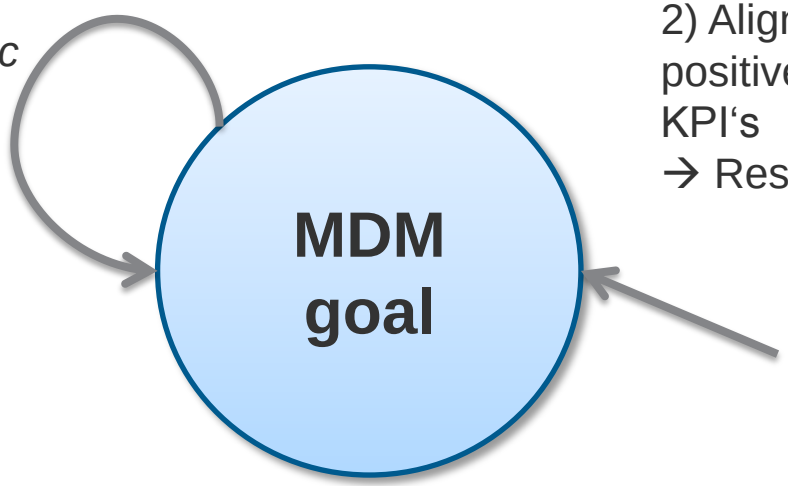
1) Demand(s) from business can be mapped to the topic Master Data Management
2) Sponsorship and budget for preliminary investigation is assured

Template for defining process steps

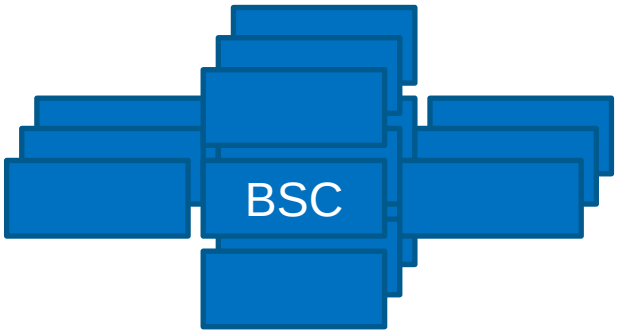
Activity	<<Name of process step>>
Activity details	<<Detailed description of process step>>
Input	<<Required input>>
Questions to answer	<<Questions in focus of the activity>>
Output	<<Desired output of process step>>
Techniques	<<Techniques applicable to answer questions>>
Information sources	<<Possible information sources to answer questions>>

Approach for measuring MDM goals

1) Define goal specific performance indicators to measure goal achievement.
→ *Goal, Question, Metric* approach [CBR94]



2) Align goal achievement with positive influence on established KPI‘s
→ Researching available scorecards



Example:
MDM Goal „Avoid process errors“

→ Average process runtime

→ Operational expenditures (OPEX)

Template for goal documentation

Identify Problem & Motivate | Define Objectives of a Solution | **Design & Development** | Demonstration | Evaluation | Communication

Name:

<<Name>>

Rational:

Need for action:

<<Bullet points describing need for action>>

Drivers:

Category	Description

Strategic alignment:

Corresponding business objectives:

<<Bullet points with related business objectives>>

Corresponding IT objectives:

<<Bullet points with related IT objectives>>

Measurability:

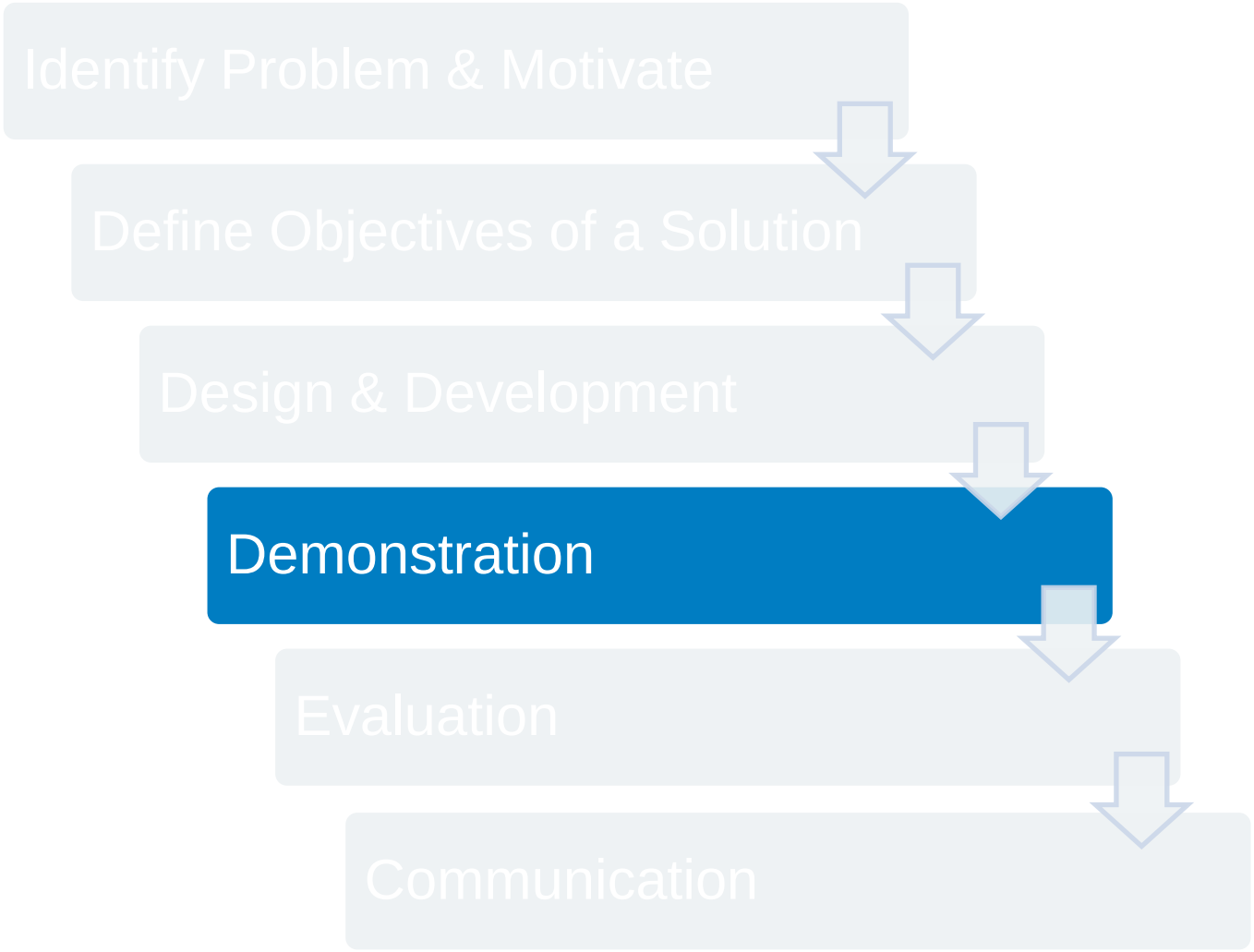
Performance indicators for goal achievement

Name	Description	Calculation rule	Baseline	Positive development

Goal achievement has impact on established KPIs

Name	Origin	Description	Impact

Agenda and research steps

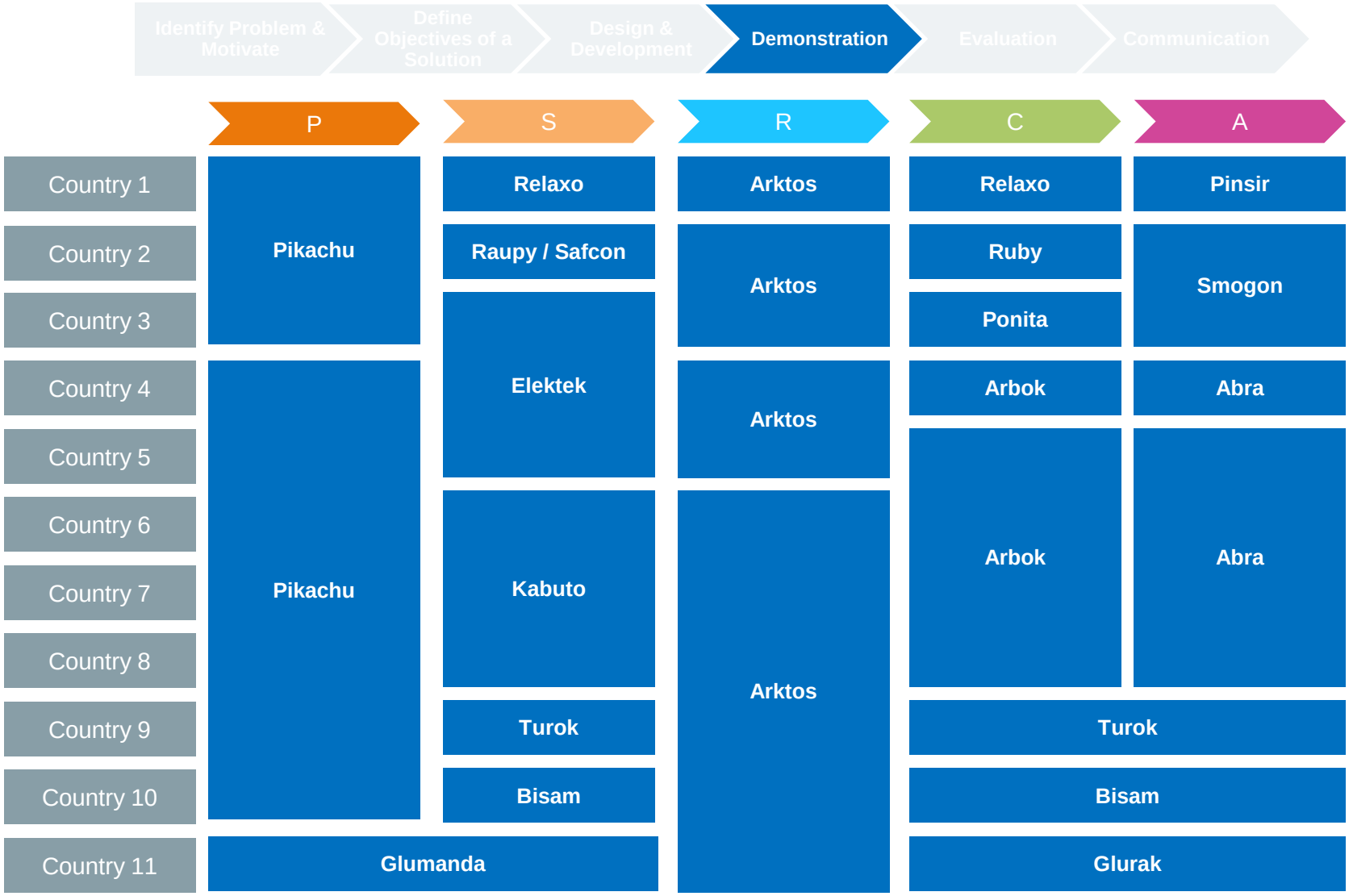


Exemplary CRUD mapping for business process

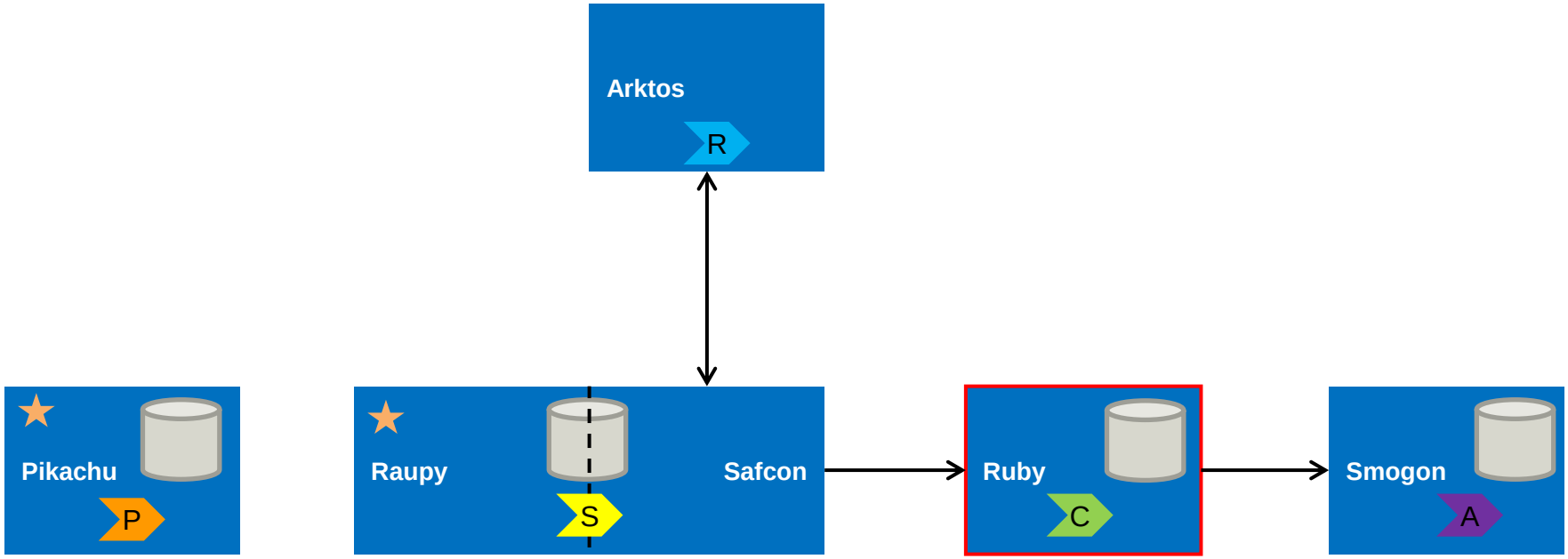
	P	S	R	A / C 1	A / C 2	A / C 3	A / C 4
Create BP	X	X					X
Read BP	X	X	X	X	X	X	X
Update BP	X	X	X	X	X		
Delete BP							

BP: Business partner master data

Exemplary process support map



Exemplary BP data flow for a specific country



BP: Business partner master data

: Creates BP

: BP data storage

: BP interface

: Leading system / „truth“

: Business application

Exemplary need for action

Business application silos

Business partner master data is managed by up to four different business applications per country that are not in sync

Redundant data creation and contradictory data on business partners

Media breaks along process and significant manual reconciliation effort

Country silos

Lack of business partner integration across countries

No unique identification and clustering (e.g. by group affiliation) of business partners on a transnational level

Underperforming risk management and marketing

Exemplary strategic alignment

Business strategy

- Higher customer satisfaction and retention
- Foster cross-unit and cross-regional collaboration

IT strategy

- Improve BI capabilities
- Workflow automation

MDM for business partner data

- Single source of truth for business partner master data supports sales and service processes
- Addressing data integration needs provides foundation to foster collaboration capabilities
- Supports BI capabilities by providing a consistent foundation for business partner master data to further downstream applications (e.g. data warehouses)
- Supports reduction of lead times and manual effort by optimizing data flows

Goal example 1/2

Name:

Towards a business partner centric view

Rational:

Need for action:

- **Business partner data are managed independently in various systems**
- **No unique identifier across systems**
- **Business partner structures not consistently visible**
- **Mapping of business partners and structures from different systems for reporting is time consuming and error prone**

Drivers:

Category	Description
Organizational units	Business Unit L, IT, Marketing, Compliance & Legal, Risk Controlling
Compliance	Improve risk management
Effectiveness	Understand business partners
Flexibility	Pursue new business opportunities
Initiative	Target BI landscape

Strategic alignment:

Corresponding business objectives:

- **Increase customer satisfaction and retention**
- **Improve Compliance, Security and Risk capabilities**
- **Foster management reporting capabilities**
- **Foster cross-regional and cross-unit collaboration**

Corresponding IT objectives:

- **Improve BI capabilities: Management Reporting**
- **Improve BI capabilities: Risk Management**

Goal example 2/2

Measurability:

Performance indicators for goal achievement:

Name	Description	Calculation	Baseline	Positive development
Rate of clustered BP records	Indicates how many BP records belong to a BP cluster	Number of BP records having a relationship to other BP records divided by total number of BP records	-	Increasing
Rate of uniquely identifiable BP records	Indicates how many BP records have an unique identifier compared to all BP records	Number of BP records with global ID (e.g. IfA) divided by total number of all BP records	-	increasing

Impact on established KPIs:

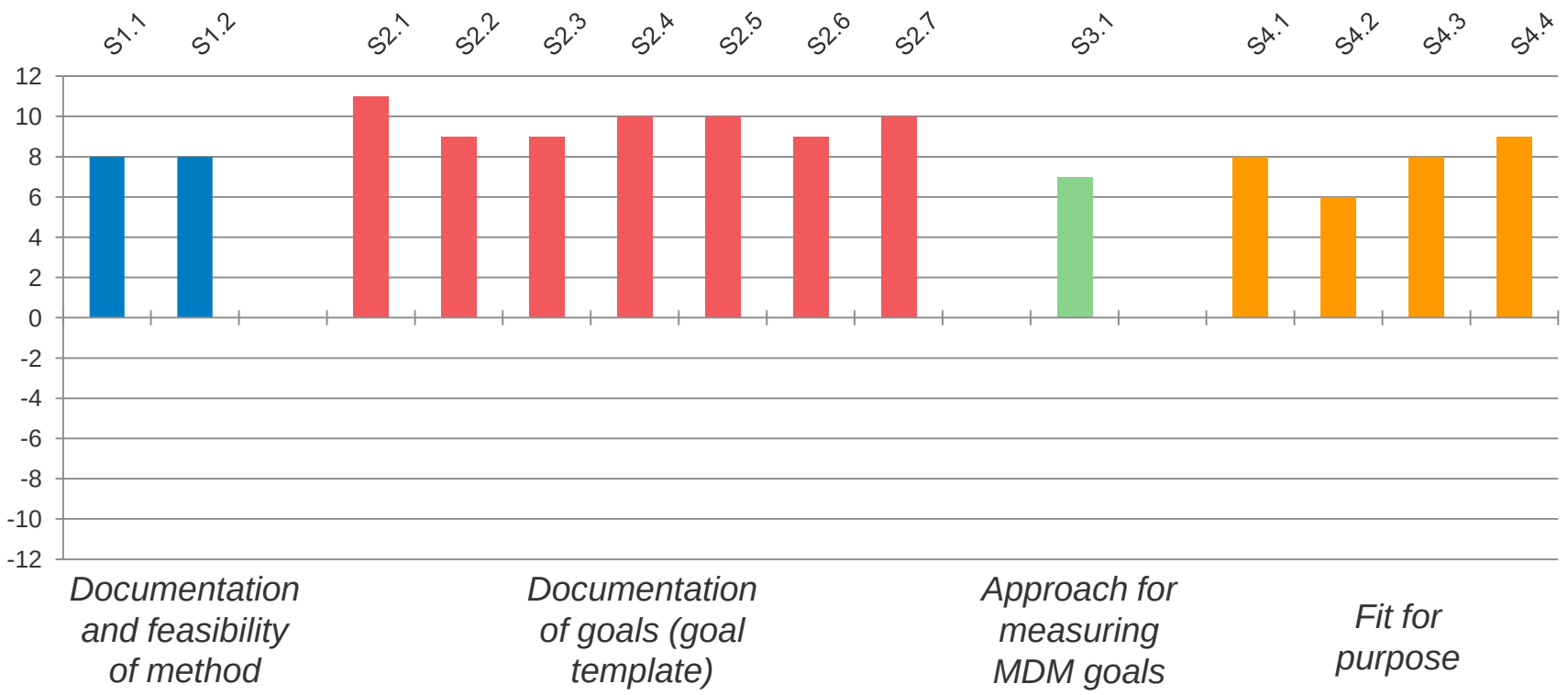
Name	Origin	Description	Impact
CSI scores	Business scorecard	Customer service index scores	Comprehensive BP information enables better customer service
Customer retention	Business scorecard	Average duration of business relationship with customer	Increased service capabilities foster customer relations

Agenda and research steps

Evaluation overview

Identify Problem & Motivate | Define Objectives of a Solution | Design & Development | Demonstration | **Evaluation** | Communication

- Expert survey among 6 data management professionals at the industry partner
- 14 statements in four categories to evaluate solution design using five-point Likert scale
- Numeric values applied for analysis: „Strongly agree“ = +2; „Strongly disagree“ = -2 → [-12;12]

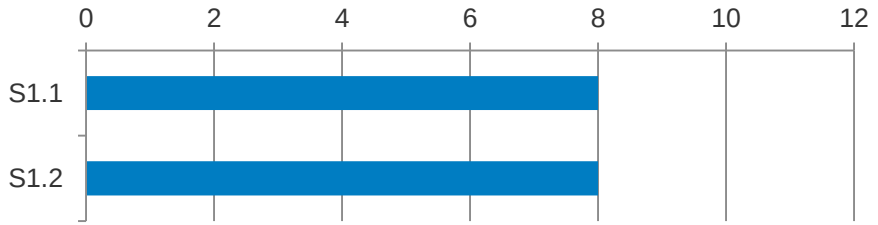


Evaluation results detailed 1/2

Documentation and feasibility of method

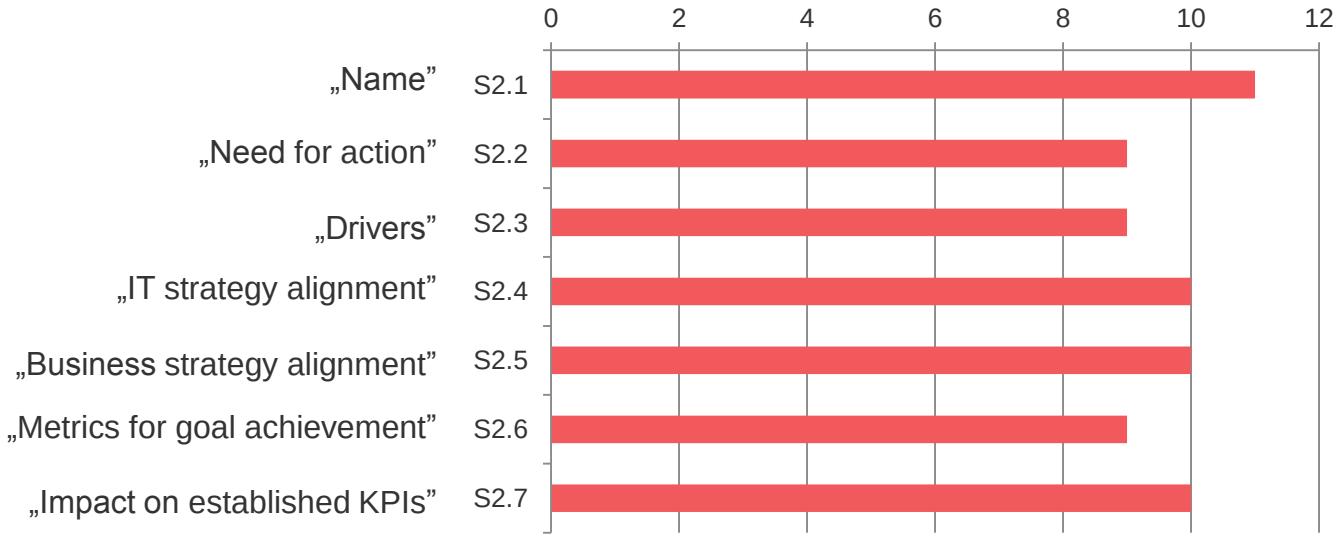
„The documentation of the process steps is adequate and understandable”

„The composition of the process steps is comprehensible”



Documentation of goals

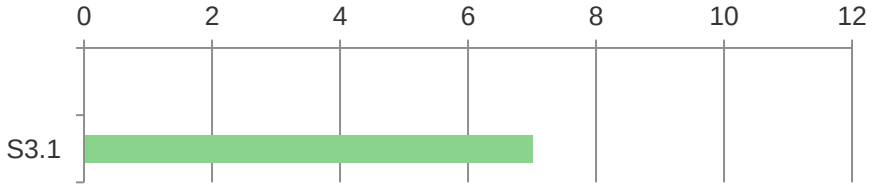
„Following structure elements should be part of an MDM goal template:”



Evaluation results detailed 2/2

Approach for measuring MDM goals

„The chosen approach seems adequate to measure MDM goals”



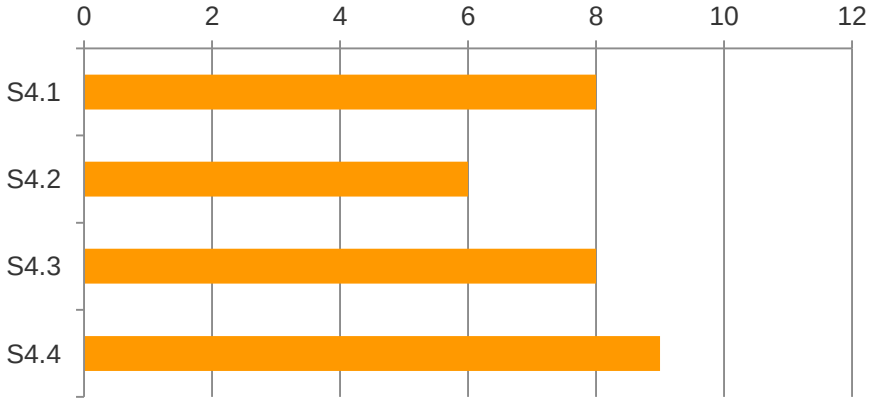
Fit for purpose

„The proposed method is appropriate to identify and document goals for MDM”

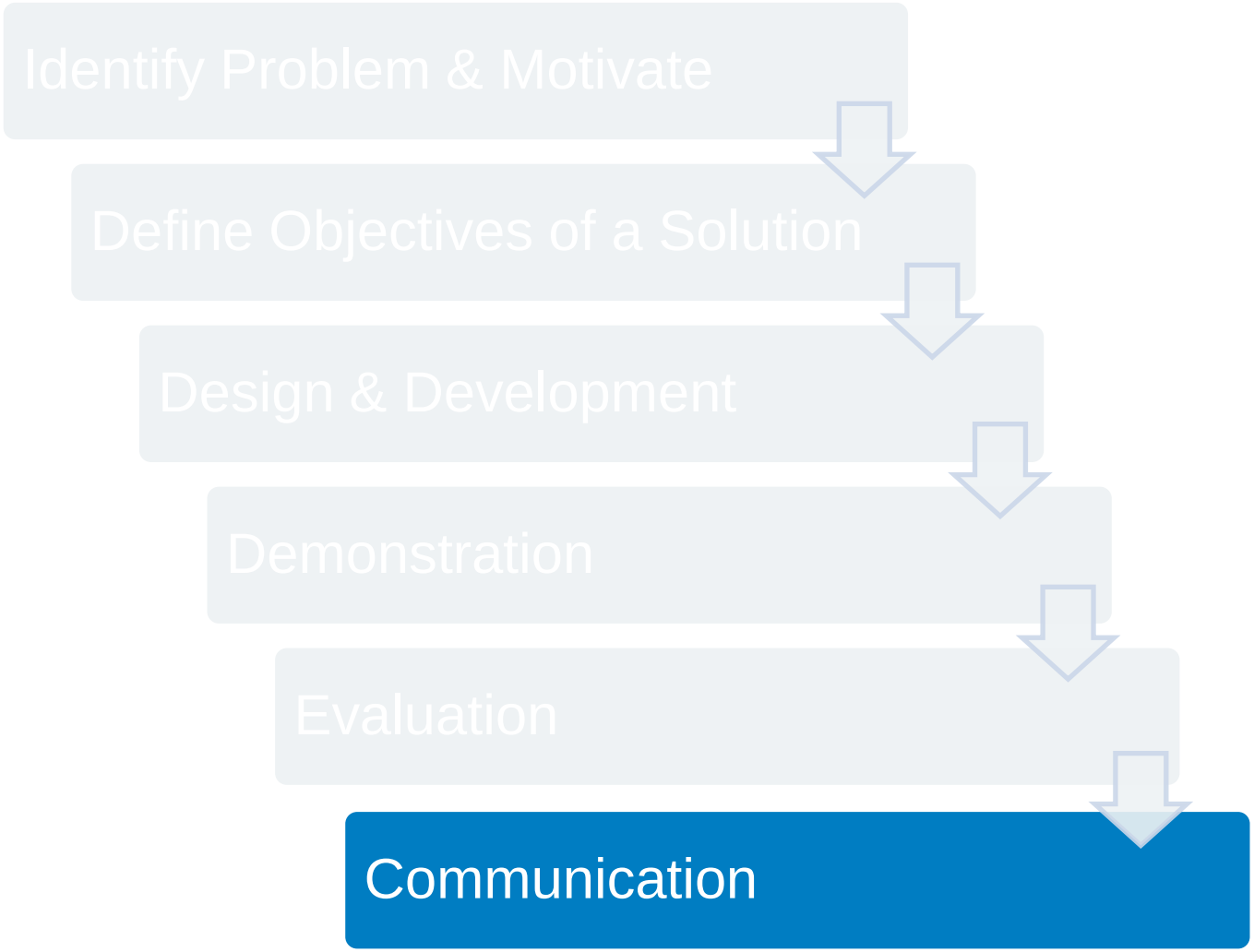
„ Respective goals are appropriate to foster management involvement for MDM”

„The output of the method (all artifacts) is seen as useful input for developing an MDM business case”

„The proposed method is appropriate to support the development of a vision, strategy and road map for MDM”



Agenda and research steps



Communication approaches

- Presentations at industry partner (IT Board, Demand Managers)
- Presentation at sebis
- Publish thesis for the public domain
- Further application and communication of method at the industry partner

Summary, critical reflection and future research

Summary

- Development of a method to identify organization-specific goals for MDM
- The method serves practitioners as a guideline for preliminary assessing MDM for their organization
- Assessment is supported by theoretical part of thesis to foster overall understanding of MDM

Critical reflection

- **Method design:** only one design iteration → limited incorporation of feedback
- **Evaluation:** only six participants in expert survey → limited expressiveness regarding evaluation of solution design
- **Scope:** focus on one business unit and one master data domain → no exhaustive analysis and therefor goal definition

Future research

- Continuous evolution of method (e.g., prioritization of goals, incorporating a rough cost-benefit analysis)
- Development of guideline how to transform specific goals into concrete recommendations for the organization and information systems level of MDM

…questions?

Literature

• [OH'09] Otto, B., & Hüner, K. (2009). Functional Reference Architecture for Corporate Master Data Management, *BE HSG / CC CDQ / 21*. https://www.alexandria.unisg.ch/Publikationen/214250

• [BD'11] Berson, A., & Dubov, L. (2011). *Master Data Management and Data Governance* (2. Auflage.). Mcgraw-Hill Professional.

• [PTR+'07] Peffers, K., Tuunanen, T., Rothenberger, M. A., & Chatterjee, S. (2007). A design science research methodology for information systems research. *Journal of management information systems*, *24*(3), 45–77.

• [CBR94] Victor R. Caldiera, Gianluigi Basili, and H. Dieter Rombach. The goal question metric approach. Encyclopedia of software engineering, 2(1994):528–532, 1994.

• [SGZ'12] Scheuch, R., Gansor, T., & Ziller, C. (2012). *Master Data Management: Strategie, Organisation, Architektur* (1., Auflage.). dpunkt.verlag.

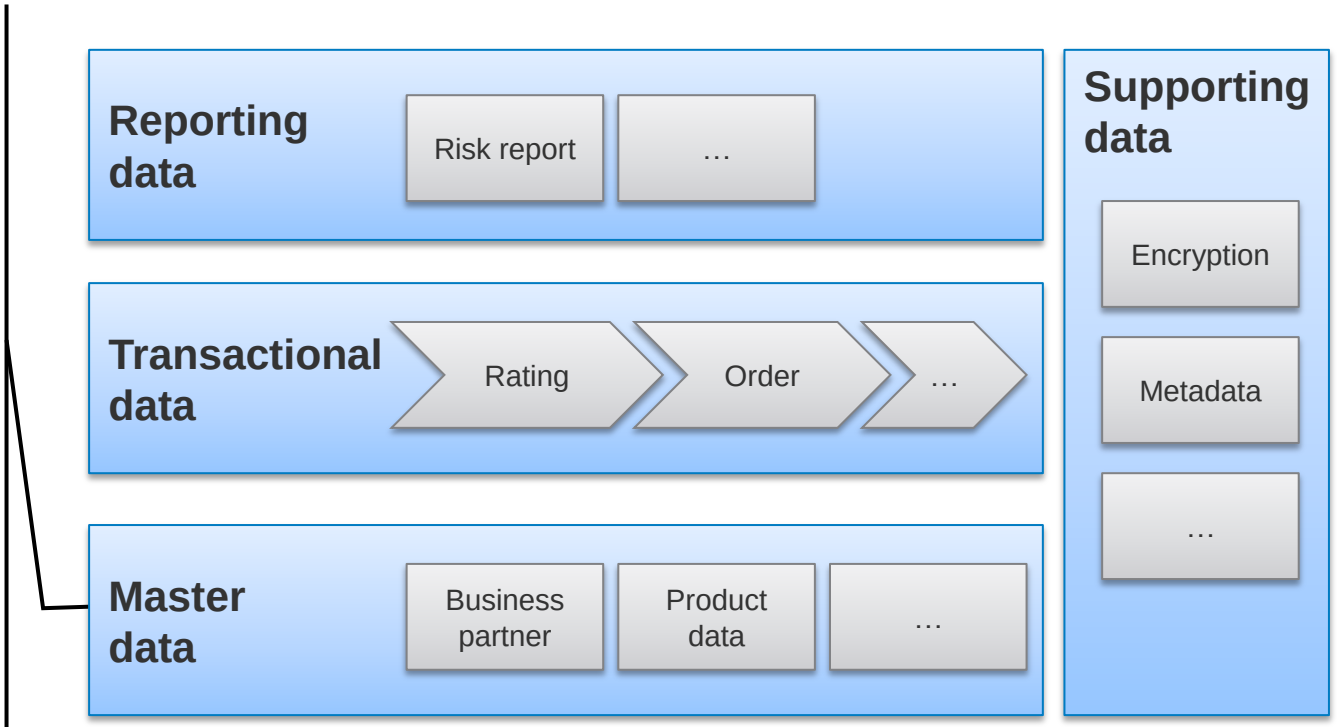
• [OO'11] Otto, B., & Ofner, M. (2011). Strategic Business Requirements for Master Data Management Systems. *AMCIS 2011 Proceedings - All Submissions*.

Backup

Master data

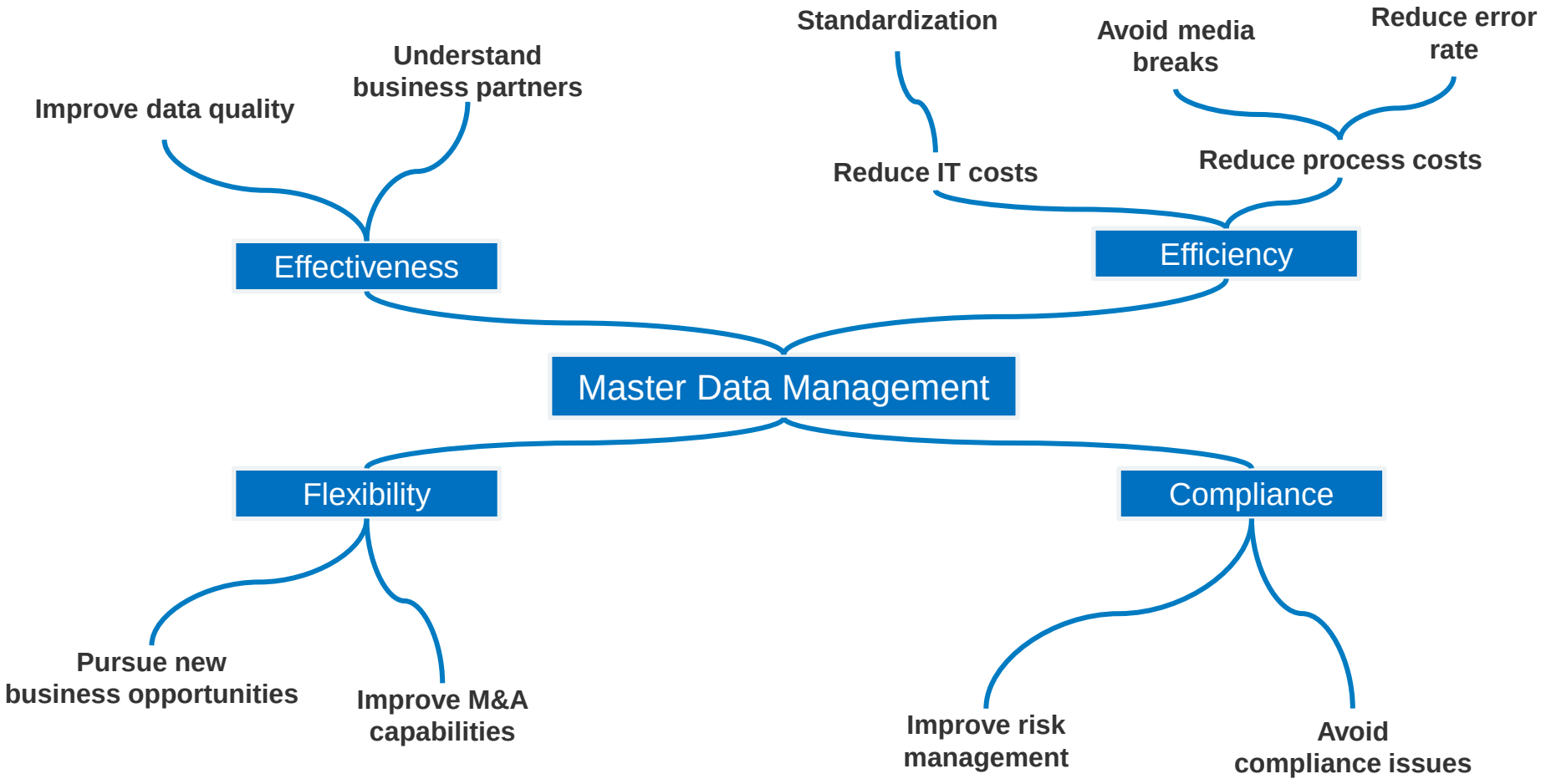
Master data are data, that are

- typically reused in a variety of different business transactions,
- posses a well defined and organization-wide accepted semantic,
- are stable, change not frequently, and have a long lifecycle.



[OH'09], [OO'11]

Generic value proposition of MDM



[SGZ12, p.23]

Risks & Challenges of MDM

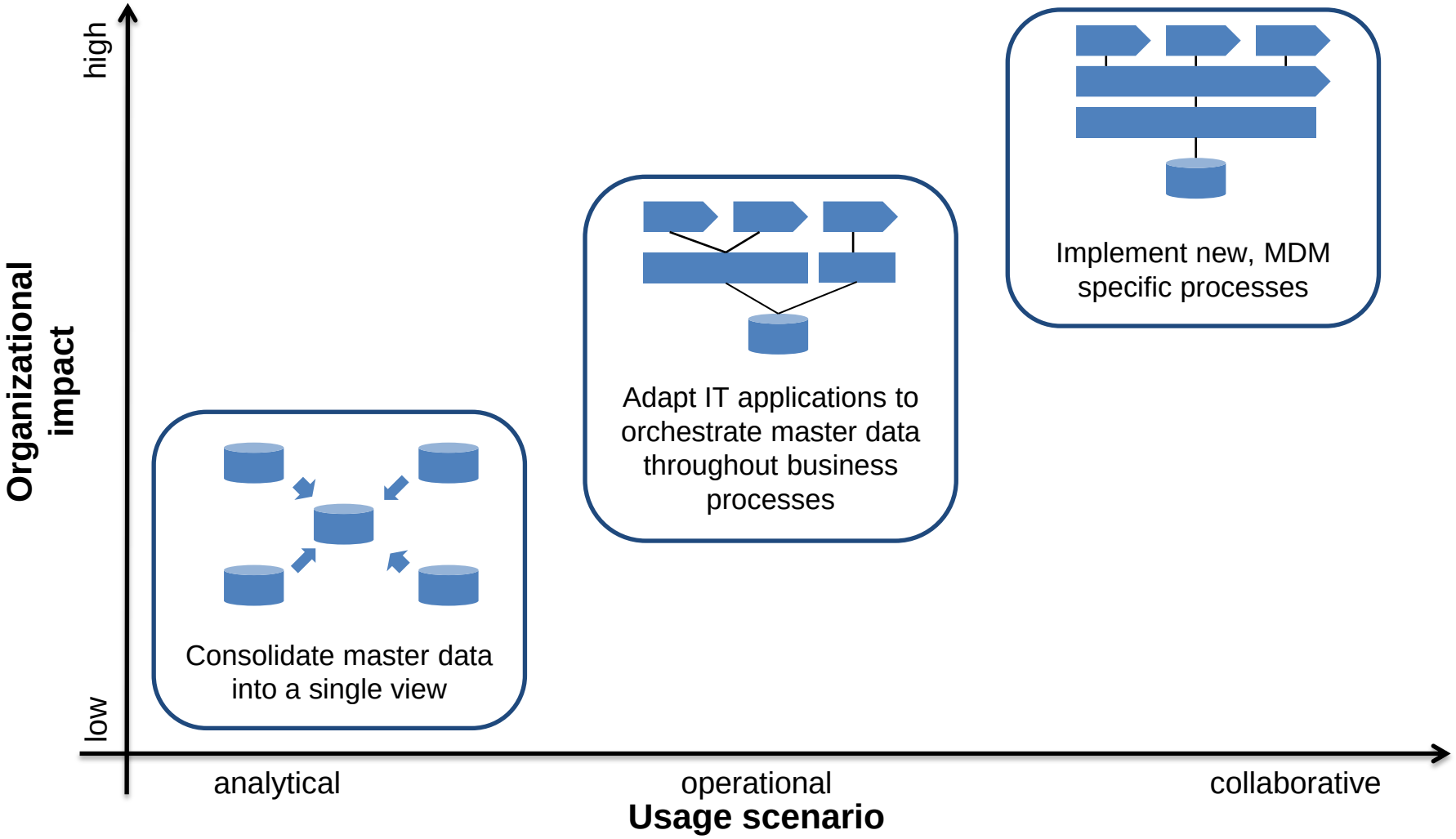
Business oriented challenges

- Attracting enough management attention
- Change management and communication
- Focus on vendors and solution offerings too early
- Definition of semantically consistent data definitions across organizational units

Technical challenges

- Integration and adaption of legacy data stores and applications
- Regulations may restrict information sharing
- Complexity of record matching in a global context

Usage scenario and organizational impact



[SGZ12, p.77]