

Navigating the Landscape of Organizational Process Mining Setups

A Taxonomy Approach

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Appendix (available online via <http://link.springer.com>)

Appendix A – Overview of improvement suggestions as part of the evaluation

Table 13: Overview of improvement suggestions for the taxonomy from the evaluation interviews

Dimension	Suggested changes	Expert ID	Decision
Degree of centralization	It could be clarified that this refers to execution and not to budget.	I3	We consider this clear since the dimension belongs to the layer governance and structure and not the layer <i>funding and planning</i> . Also, this point was only raised by a single expert.
Institutionalization	<i>Standalone department</i> and <i>Standalone CoE</i> can be merged.	I2, I6, I10, I16, I17, I18	This suggestion has been incorporated by merging the two characteristics.
Key activities	<i>Demand generation</i> is too narrow and should be expanded to cover the collection and assessment of use cases and initial assessments like a Proof of value (PoV).	I10, I17, I18	This suggestion has been incorporated by renaming <i>demand generation</i> to <i>demand generation and assessment</i> .
Key activities	<i>Governance and steering</i> cover a lot of different aspects, such as enablement, standardization, framework development, reporting success, justifying investments, building support structures, and onboarding/offboarding. While the overarching term is well chosen, this should be mentioned in the text.	I6, I13, I15, I18	We consider all mentioned aspects covered by the term <i>governance and steering</i> but have enhanced the textual description to be more specific and explicitly mention these aspects.
Key activities	Community management within an organization becomes more and more important.	I6, I13, I15, I16, I17	This suggestion has been incorporated by renaming <i>change management</i> to <i>community and change management</i> . Furthermore, we have incorporated it in the text of Section 4.
Prioritization of projects	The dimension should be non-exclusive.	I7, I10, I13, I16, I17	This suggestion has been incorporated by changing it to non-exclusive (“N”).
Prioritization of projects	In a few exceptional cases, the business functions solely do the prioritization. This happens when the business funds the whole initiative. This is probably too specific to be incorporated in the taxonomy but could be mentioned in the text.	I3	This suggestion has been incorporated in Section 4 as an example.
Budgeting	Some organizations call it <i>initiative-based</i> rather than <i>project-based</i> .	I6, I3, I13	We adhere to the original terms but added clarifications in Section 4.
Budgeting	In rare cases, an individual reallocated the budget from other projects to fund PM activities. This is an absolute exception, but it could be an illustrative example.	I10	We have not incorporated this suggestion as it was mentioned only by a single expert and claimed to be an exception. However, we added it in Section 4 as an example.
Internal cost management	There are organizations where, for example, license costs are covered by the PM unit and not charged to internal customers. However, the consulting services are charged regularly.	I3, I16, I17, I18	This suggestion has been incorporated by adding the characteristic <i>Hybrid</i> for this dimension.

Internal leadership	A champion can also be part of the IT, so the term <i>Business Champion</i> is a bit misleading.	I2, I6, I17	This suggestion has been incorporated by renaming <i>Business Champion</i> to <i>Champion</i> .
External support	Support by freelancers is still rare but is becoming more popular nowadays.	I10	We consider this to be covered by the characteristic <i>Consultancy</i> ; however, we added it as an example in Section 4 of the text.
External support	Research projects with universities, e.g., developing and testing new capabilities and functionalities, are rare but possible.	I7, I17	We have not incorporated this suggestion as it was mentioned only by two experts who acknowledged it to be a rare case. However, we added it in the text of Section 4 for clarity.
Data ownership	It would be helpful to clarify that this refers to the source data, not data generated within a PM software (e.g., KPIs).	I6, I12, I17	We have incorporated this suggestion by reframing the corresponding guiding question.
Tool ownership	It's a rare case, but there is also the possibility of a managed service, where the consultancy owns the license, and the end customer uses it. This is primarily relevant for small and medium-sized businesses without a dedicated PM unit.	I3	We have not incorporated this suggestion as it was mentioned only by a single expert who claimed it as a rare case. However, we added it in the text of Section 4 as an example.
New	Add <i>value proposition</i> as a dimension (e.g., platform-as-a-service, transformation-as-a-service) because you need a different skill set depending on its manifestation.	I6, I16	This suggestion was also mentioned during the iteration 2 interviews. We deliberately decided against incorporating this specific dimension since we perceive this to be a strategic and not an organizational question.

Appendix B – Taxonomy development process

During the development of our taxonomy, we went through a total of four iterations. In the following, we report on the challenges, learnings, design decisions, and specific adjustments made during each iteration in detail. We shed light on each of the steps displayed in **Figure 3**. Furthermore, we provide the interim versions of our taxonomy at the end of each iteration.

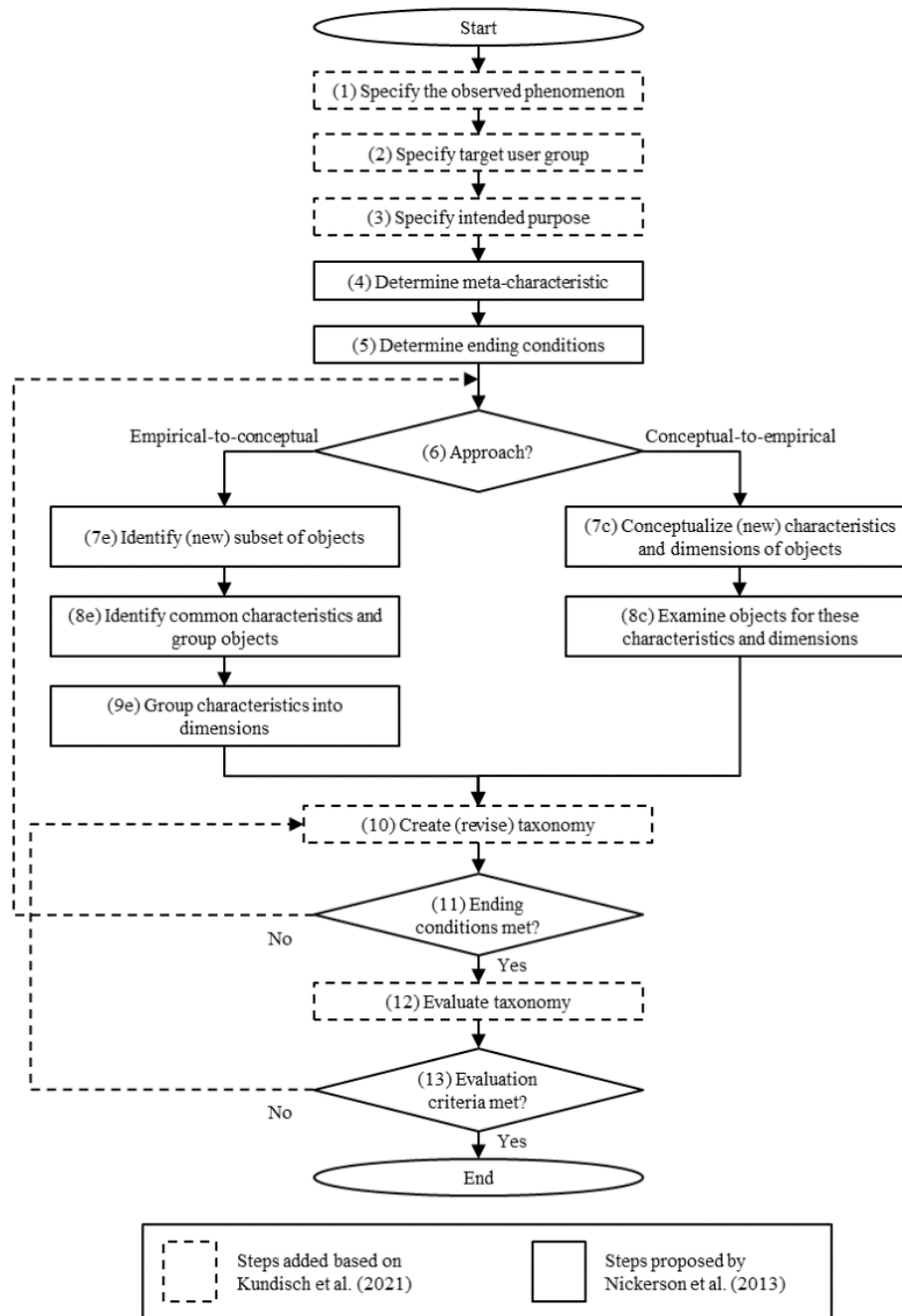


Figure 1: Taxonomy development process proposed by Fabri et al. (2023)

Step 1: We observed a predominantly technical focus in PM literature (vom Brocke, Jans, et al., 2021), overlooking the complex organizational dynamics essential for embedding PM within the organizational structures (Martin et al., 2021). As a result, practitioners report challenges such as unclear organizational

anchoring, reflecting a broader complexity in effectively integrating PM into organizational structures (Martin et al., 2021).

Step 2: As our taxonomy is inherently concerned with a topic of practical relevance, we defined the target group as medium-sized and large organizations at any stage of PM maturity without being limited to a particular industry. We envision its application by individuals supervising or managing PM initiatives and consultants and vendors supporting their customers.

Step 3: We defined the taxonomy's purpose to provide practitioners with initial guidance for integrating PM into organizational structures. Hence, we envision the taxonomy as a modular system, facilitating the initial assembly of a PM unit. Furthermore, the taxonomy is designed to outline relevant design options for targeted adjustments. Therefore, we intend to use the taxonomy to evaluate and refine an existing PM setup.

Step 4: Next, a meta-characteristic is defined as a foundation for determining which characteristics should be included in the taxonomy, with each characteristic being logically derived from the meta-characteristic (Nickerson et al., 2013). We defined the meta-characteristic as *characteristics of organizational PM setups*.

Step 5: Nickerson et al. (2013) suggest that the objective ending conditions can be chosen by consensus among the authors. After screening all objective ending conditions proposed by Nickerson et al. (2013), we opted for the following three: every dimension is unique and not repeated; every characteristic is unique in its dimension; no new dimensions or characteristics were added in the last iteration. We have chosen these three specific conditions to ensure that our taxonomy structure is unique (i.e., uniqueness of dimensions, uniqueness of characteristics) and stable (i.e., no addition of new elements in the last iteration). Specifically, we uphold a clear conceptual separation within the taxonomy by mandating unique dimensions. Ensuring the uniqueness of characteristics reinforces this goal by preventing overlap across the characteristics. Finally, the condition that no new dimensions or characteristics were added in the last iteration indicates the taxonomy's maturity and completeness, suggesting that it has reached a point of sufficient depth and detail to represent the domain in question comprehensively.

Regarding the subjective ending conditions, we followed Nickerson et al.'s (2013) recommendation and opted for concise, robust, comprehensive, extendible, and explanatory.

Iteration 1

Step 6: While we initially reviewed the literature on governance in PM, we identified limited conceptual knowledge and very few approaches that specifically address selected aspects of governance structures for PM (Badakhshan et al., 2022; Brock et al., 2023; Eggers & Hein, 2020). At the same time, two of the authors were involved in an extensive study on PM CoEs with 214 PM adopters worldwide. Given the rich empirical data at our disposal contrasted with the limited conceptual understanding, we adhered

to the guidance proposed by Nickerson et al. (2013), opting for an E2C iteration that identified common characteristics across the objects.

Step 7e: The study we built on involved 214 PM adopters distributed across North and South America, Europe, Middle East, and Asia. All participants had a minimum of six months of experience with PM. To leverage the data for our taxonomy development, we first identified a relevant subset of objects from the study for subsequent classification. Of the 214 PM adopters that participated in the study, 27 reported having no organizational structure for PM, so we excluded them from our focus. Additionally, 46 reported having an organizational structure other than a CoE and 141 reported having a CoE, which be both considered highly relevant. We filtered the study results to extract all information about the organizational setup, excluding details unrelated to our taxonomy focus, such as success factors, hurdles, and return on investment in PM. Despite potential biases introduced by the focus on CoEs, we deemed this dataset a reasonable starting point and solid foundation for our classification, given that many study participants also had organizational structures different from CoEs. Sample questions from the study concerning the organizational setup in a broader sense are included in Appendix C.

Step 8e: Within this step, we conducted a workshop among the authors to identify and discuss characteristics of organizational PM setups that can be derived from the study data. The workshop aimed to extract a comprehensive set of characteristics and develop a shared understanding of their meaning. Each identified characteristic was rigorously assessed to determine its distinctiveness, as its utility depended on the ability to distinguish between objects. Characteristics that lacked distinctiveness were deemed redundant and subsequently excluded.

Step 9e: Given this set of characteristics, the authors clustered the characteristics into coherent groups within another workshop. Given the exemplary survey questions in Appendix C, it becomes clear that the questionnaire already provided some structural elements that simplified the grouping process. Nevertheless, the large number of real-world objects resulted in deviating classifications by the author team, which were resolved through intensive discussions. Thereby, we employed both manual and graphical methods to facilitate this grouping. Specifically, we used a digital whiteboard to group the characteristics and assign conceptual labels to them. This step was pivotal in forming the initial dimensions of our taxonomy.

Step 10: We assembled an initial version of our taxonomy, which included 16 dimensions and 58 characteristics. The taxonomy is depicted in Table 14.

Step 11: This first version of our taxonomy did not meet all objective and subjective ending conditions. For example, it violated the objective ending condition that no dimensions and characteristics were added in the last iteration. As such, we decided to perform a second iteration.

Table 14: Intermediary taxonomy after iteration 1

Dimension	Characteristics						E/N
Leading activities	Process expertise	Data science & engineering	Project management	Change management	Training		N
Supporting activities	Process expertise	Data science & engineering	Project management	Change management	Training		N
Prioritization of use cases	Roadmap			Ad hoc			E
Organizational institutionalization	Part of IT department	Part of business department	Part of a shared service	Part of another CoE (e.g., BPM)	Dedicated department	Dedicated CoE	E
Role allocation	Per business department		Per BPM activity	Per end-2-end-process		Flexible	N
Reporting/Sponsorship	C-Level / Management board		Senior management	Head of department		Not defined	N
Financial resources	Global	Project-based	Process-based	Per department		Not defined	E
Governance approach	Unified governance approach			Adaptive governance approach			E
Standards and methods	Guidelines		Frameworks		Training/Enablement		N
Data ownership	IT centrally		Hybrid (depending on topic)	Business		CoE	E
Tool ownership	IT centrally		Hybrid (depending on topic)		Business		E
Centralization/Distribution	Central		Hybrid		Decentral		E
Organizational anchoring	IT	Business	Other CoE	BPM Unit/Team		Shared Services	N
Change management	Per implemented use case		PM community of practice		Overarching approach across the organization		N
Training	Per implemented use case		PM community of practice		Overarching approach across the organization		N
Data integration	One-time extracts			Continuous data integration			E

Iteration 2

Step 6: As previously discussed, the first sample of data we analyzed was slightly biased regarding the structures and practices prevalent in CoEs. However, our meta-characteristic allows for different setups, so a further iteration outside the CoE focus was necessary. The team of authors, therefore, discussed strategies to enrich our existing data sample with underrepresented characteristics. For this reason, we decided to conduct interviews and use our existing taxonomy to structure them. Hence, the chosen approach for iteration 2 is another E2C iteration.

Step 7e: We conducted 15 semi-structured interviews (Myers & Newman, 2007) with PM experts, utilizing purposive sampling (Etikan, 2016) to select knowledgeable individuals across various industries and PM maturity levels. As we also included PM vendors and consultants with various clients, this strategy aimed at capturing a comprehensive view of organizational PM setup besides CoEs. Following Myers and Newman (2007), we started each interview with an introduction to our research topic. We then asked the interviewees about their current PM setup, which dimensions are relevant, and how

specific characteristics are determined. Regarding consultants and vendors, we instructed the interviewees to think about their clients and give a broad overview of their setups. We allowed for follow-up questions to be raised if, for instance, an interviewee raised a topic not included in the initial version of our taxonomy. By doing so, we analyzed 15 new real-world objects. The underlying questionnaire for the interviews is depicted in Appendix D.

Step 8e & Step 9e: Following the 15 interviews, three team members used selective coding (Wolfswinkel, Furtmueller, & Wilderom, 2013) to extract the relevant insights from the new data individually. Afterward, the author team conducted a workshop to discuss the taxonomy's refinement. Thereby, we first reviewed the coding results and established a common understanding of the interviewees' input. We then clustered statements, for example, when interviewees expressed similar ideas. Afterward, we gradually reviewed the clustered statements and decided how to incorporate them into the taxonomy. As a result, new dimensions and characteristics were added, existing ones broadened, or irrelevant ones removed. We also incorporated feedback regarding the exclusivity of dimensions. The individual changes and justifications for their implementation are listed in Table 15.

Table 15: Taxonomy changes as part of iteration 2

Dimension(s)	Type of change	Before	After	Justification
Leading activities, supporting activities	Merging dimensions	<i>Leading and supporting activities</i> as two dimensions	A single dimension <i>key activities</i>	Interviewees do not see a clear distinction and/or cluster different activities as leading or supporting activities, making a clear distinction very difficult.
Key activities	Removing characteristic	<i>Process expertise</i>	-	In the interviews, it emerged that this task lies within the business; it was also noted that it is more of a skill than an activity.
Key activities	Renaming characteristic	<i>Training</i>	<i>Enablement</i>	Interviewees have commented that training as a term is too narrow. Enablement as a term is somewhat broader and more accurate.
Key activities	Adding characteristic	-	<i>Value creation</i>	Interviewees often mentioned value creation and, according to their assessment, goes beyond project management.
Key activities	Adding characteristic	-	<i>Demand generation</i>	Demand generation was considered an important activity by the interviewees for their day-to-day work activities.
Key activities	Adding characteristic	-	<i>Governance & Steering</i>	Some interviewees noted that this aspect of their work is not yet reflected in the current characteristics.
Key activities	Adding characteristic	-	<i>Value realization</i>	Many of our interviewees pointed out that a significant share of their daily work is centered around the business value of PM and that there is a need to add a corresponding key activity.
Centralization/Distribution	Renaming dimension	<i>Centralization/Distribution</i>	<i>Degree of centralization</i>	We have adopted this name because we noticed in the interviews that these are the words that the interviewees, and therefore our target group, naturally use instead.

Prioritization of use cases	Renaming dimension	<i>Prioritization of use cases</i>	<i>Prioritization of projects</i>	The interviewees pointed out that prioritization does not occur at a use case level but on a project level.
Prioritization of projects	Adding characteristic	-	<i>Mid-term pipeline</i>	The interviewees noted that ad hoc and roadmap are the two extreme ends of the dimension and suggested adding a mid-term pipeline in between.
Prioritization of projects	Renaming characteristic	<i>Roadmap, Pipeline, and Ad hoc</i>	<i>Long-term roadmap, Mid-term pipeline, Short-term ad hoc</i>	The interviewees frequently used these terms in their way of communicating and added long-term, mid-term, and short-term to describe the range of this dimension.
Organizational anchoring	Renaming dimension	<i>Organizational anchoring</i>	<i>Anchoring</i>	For the sake of brevity, the team of authors has decided that the addition of "organizational" is not necessary here.
Anchoring	Removing characteristics	<i>Other CoE and Other BPM unit/team</i>	-	There is no clear distinction between the dimensions of institutionalization; moreover, all interviewees found these two characteristics irrelevant.
Anchoring	Changing exclusivity of dimension	<i>Non-exclusive</i>	<i>Exclusive</i>	Eliminating the two previous characteristics resulted in a more precise differentiation of the characteristics in this dimension, enabling exclusivity.
Anchoring	Adding characteristic	-	<i>Executive level</i>	Some of the interviewees noted that they are anchored to an executive department.
Organizational institutionalization	Renaming dimension	<i>Organizational institutionalization</i>	<i>Institutionalization</i>	For the sake of brevity, the authors decided that adding "organizational" is unnecessary here.
Institutionalization	Merging characteristics	<i>Part of IT department and Part of business department</i>	<i>Integrated in a department</i>	Most interviewees considered this distinction redundant and already covered by the organizational anchoring dimension.
Institutionalization	Removing characteristic	<i>Part of shared service</i>	-	Most respondents considered this characteristic redundant and already covered by the organizational anchoring dimension.
Institutionalization	Renaming characteristics	<i>Part of another CoE</i>	<i>Integrated in another CoE</i>	The author team has decided that this term is more precise and serves to differentiate it from organizational anchoring.
Institutionalization	Renaming characteristics	<i>Dedicated department</i>	<i>Standalone department</i>	The author team considers this term to be more precise.
Institutionalization	Renaming characteristics	<i>Dedicated CoE</i>	<i>Standalone CoE</i>	The author team considers this term to be more precise.
Institutionalization	Adding characteristic	-	<i>Cross-functional organization</i>	Our interviewees considered this new characteristic important because it covers the case where the degree of centralization is decentralized.
Financial resources	Renaming dimension	<i>Financial resources</i>	<i>Budgeting</i>	We have received feedback that the naming of this dimension is more reminiscent of the number of financial resources, which is why budgeting would better fit the meaning of the origin of funds.
Budgeting	Removing characteristic	<i>Not defined</i>	-	None of the interviewees could confirm that financial resources could be undefined.

Budgeting	Changing exclusivity of dimension	<i>Exclusive</i>	<i>Non-exclusive</i>	Several interviewees remarked that they regularly draw financial resources from multiple budgets, which is why non-exclusivity would suit this dimension better.
Role allocation	Renaming characteristic	<i>Based on BPM activity</i>	<i>Based on key activity</i>	The interviewees suggested that a role allocation based on BPM activities alone is not comprehensive enough.
Governance approach	Removing dimension	<i>Governance approach</i>	-	All interviewees had difficulties understanding and applying this dimension to their daily work. They also noted that the entire taxonomy corresponds to their governance approach.
Training	Removing dimension	<i>Training</i>	-	For most interviewees, it was unclear to what extent this dimension is necessary. It was merely seen as a specification of the key activity training, which was perceived as too specific compared to the other dimensions and characteristics. The inconsistency in specifying training and not specifying all other key activities was also criticized, which is why we decided to remove this dimension.
Change management	Removing dimension	<i>Change management</i>	-	After comparing the other dimensions and characteristics, the authors agreed that the change management dimension currently only specifies the key activity, making it redundant. Furthermore, it would be inconsistent only to specify change management and not the other characteristics of key activities.
Standards and methods	Removing dimension	<i>Standards and methods</i>	-	The interviewees gave us feedback that this dimension is too operational compared to the others and does not provide any added value regarding the meta-characteristic.
Data integration	Removing dimension	<i>Data integration</i>	-	The interviewees gave us feedback that this dimension is too operational compared to the others and does not provide any added value regarding the meta-characteristic.
Reporting / Sponsorship	Removing dimension	<i>Reporting / Sponsorship</i>	-	The interviewees noted that from a practitioner's point of view, there is significant overlap between this dimension and organizational institutionalization and anchoring. For clarity and simplicity, we have decided to remove this dimension.
Internal leadership	Adding dimension	-	<i>Internal leadership</i>	During the interviews, it became clear that with PM, many different leadership roles may exist in an organization. This was considered especially important as many interviewees suggested that executive sponsorship is a success factor for PM.
Internal leadership	Adding characteristics	-	<i>Process Mining lead, Executive sponsor,</i>	The interviewees mentioned several different internal leadership roles they employed within their organization. After grouping them, the authors found

			<i>Business champion</i>	that these three characteristics are the most comprehensive.
External support	Adding dimension	-	<i>External support</i>	Many of our interviewees suggested that with PM, there is often a strong collaboration with external partners that should be considered.
External support	Adding characteristics	-	<i>Vendor, Consultancy, None</i>	The interviewees noted that in the initial stages of PM implementation, support from the software vendor is often provided. Also, there might be consultancy support. In the later stages, there might be no external support at all.
Internal cost management	Adding dimension	-	<i>Internal cost management</i>	Some interviewees pointed out that the origin of financial resources within the budgeting dimension alone is insufficient. It is also important how costs are allocated, which is considered with this new dimension.
Internal cost management	Adding characteristics	-	<i>Profit center, Cost center</i>	The interviewees noted that these are the two relevant modus operandi. While there are other variations, these two are the minimum requirement.
Tool ownership	Adding characteristic	-	<i>Process mining unit</i>	The interviewees gave us the feedback that, analogous to data ownership, the responsibility can also lie with the PM unit.
Tool ownership	Renaming characteristic	<i>IT centrally</i>	<i>IT</i>	Standardization with other dimensions that list this characteristic.
Tool ownership	Removing characteristic	<i>Hybrid</i>	-	Since we have specified our dimension, we wanted to remove this somewhat fuzzy characteristic and allow non-exclusivity instead. This allows us to see more precisely how ownership is distributed.
Tool ownership	Changing exclusivity of dimension	<i>Exclusive</i>	<i>Non-exclusive</i>	Since we specified our dimension, we removed any somewhat fuzzy characteristics and allowed for non-exclusivity. This allows us to see more precisely how ownership is distributed.
Data ownership	Renaming characteristic	<i>CoE</i>	<i>Process mining unit</i>	The authors realized that the previous data sample strongly influenced the term and that PM unit is a more generic term.
Data ownership	Renaming characteristic	<i>IT centrally</i>	<i>IT</i>	Standardization with other dimensions that list this characteristic.

Step 10: We assembled the second version of our taxonomy, which included 12 dimensions and 43 characteristics. The taxonomy is depicted in Table 16.

Step 11: This second version of our taxonomy did not meet all objective and subjective ending conditions. For instance, we had added multiple dimensions and characteristics, which is why it violated the objective ending condition that no dimensions and characteristics were added in the last iteration. As such, we decided to perform a third iteration.

Table 16: Intermediary taxonomy after Iteration 2

Dimension	Characteristics						E/N
<i>Key activities</i>	Data science & engineering	Project management	Change management	Governance & steering	Value realization	Demand generation	N
<i>Internal cost management</i>	Profit-center			Cost-center			E
<i>Prioritization of projects</i>	Long-term Roadmap		Mid-term pipeline		Short-term ad hoc		E
<i>Budgeting</i>	Global	Project-based		Process-based	Per department		N
<i>Degree of Centralization</i>	Central		Hybrid		Decentralized		E
<i>Anchoring</i>	IT	Business		Shared Services	Executive Level		E
<i>Institutionalization</i>	Integrated in a (business) department	Integrated in a CoE	Cross-functional organization	Standalone department	Standalone CoE		E
<i>Role allocation</i>	Based on (business) department	Based on key activity		Based on end-to-end-process	Flexible		N
<i>Internal leadership</i>	Process mining lead		Executive sponsor		Business Champion		N
<i>External support</i>	Vendor		Consultancy		None		N
<i>Data ownership</i>	IT		Business		Process Mining unit		N
<i>Tool ownership</i>	IT		Business		Process Mining unit		N

Iteration 3:

Step 6: Since our first two iterations were E2C, we followed Nickerson et al.'s (2013) recommendation to switch to a different approach to gain new perspectives on the taxonomy. Hence, we conducted a C2E iteration based on a literature review. Our primary goal was to enrich our practice-oriented approach with literature from the fields of PM and BPM governance as well as organizational science. For this iteration, we set the goal of deriving layers from the literature to structure our dimensions further. Furthermore, we wanted to verify whether the dimensions and characteristics are comprehensive enough and if there are established terms in the scientific literature that we currently overlook. Therefore, we also set ourselves the goal of validating the naming of our dimensions and characteristics.

Step 7c & 8c: Starting with our goal of deriving structuring layers from the literature, we expanded our literature review beyond PM governance to include related areas like digital units in general, BPM, or RPA governance. This broader approach allowed us to capture a wide range of relevant studies. Our most important findings are summarized in Table 17.

Table 17: Findings from literature analysis as part of iteration 3

Reference	Suggested structuring elements	Learnings
Rosemann and vom Brocke (2015)	Strategic alignment, Governance, People, Culture, IT, Methods	While the suggested structure would already bring a lot of structure and value to our taxonomy, we cannot serve all areas, such as culture. Furthermore, the

		layers would be imbalanced as, for example, Methods/IT would only contain data and tool ownership.
Dumas, La Rosa, Mendling, and Reijers (2018)	Process identification, Process discovery, Process analysis, Process redesign, Process implementation, Process monitoring and controlling	While the lifecycle phases are suitable for sequencing BPM activities, they have a strong operational focus and do not cover everything needed to describe a PM setup.
Anagnoste (2018)	Organizational structure, Governance, Processes & KPIs	Since the proposed layer “organizational structure” is similar to our meta-characteristic, this structure of layers is rather unsuitable for our taxonomy.
Hammer (2007)	Leadership, Culture, Governance, Expertise	As with Rosemann and vom Brocke (2015), we cannot serve all areas, such as culture. Furthermore, the layers would be imbalanced as, for example, Expertise would only contain key activities.
Frey, Hund, and Beimborn (2022)	Organizational level, Team level	We found this categorization too coarse to provide added value for our taxonomy.
Fuchs et al. (2019)	Objective & Scope, Staffing & Collaboration, Funding, Governance & Structure, Origins	We found this structure to provide a lot of value for our taxonomy. However, we cannot use it as is, as certain elements, such as origins, are unsuitable for us. Nevertheless, we acknowledge that it highly influenced our final choice of layers.
Jöhnk, Röglinger, Thimmel, and Urbach (2017)	Scope, Institutionalization, Accountability, Location, Staffing, Technical integration	Since Institutionalization is identical to one of our dimensions, we cannot use this structure as is. Furthermore, we do not provide dimensions that would suit location or staffing.

In essence, we found that none of the suggested structuring elements in the literature are suitable for our taxonomy in their present form. As a result, we decided to combine individual structural elements and adapt them to the requirements of our taxonomy. This resulted in three layers that we decided to use:

- **Governance and structure**, including *degree of centralization, anchoring, and institutionalization*.
- **Strategy and scope**, including *key activities, budgeting, internal cost management, and prioritization of projects*.
- **Roles and responsibilities**, including *role allocation, internal leadership, external support, data ownership, and tool ownership*.

Next to the proposed layers, we also investigated our existing dimensions and characteristics. As expected, we did not find extensive descriptions of our dimensions in the context of PM in the literature, as the area has not yet been sufficiently researched. Nevertheless, based on our research, we were able to validate better some of the statements and suggestions made by our interviewees. For example, many interviewees suggested including *evangelism* as a key activity. Upon reviewing the relevant literature (e.g., Meiners, Schwarting, and Seeberger (2010)), we found that evangelism marketing may be considered a combination of demand generation and change management, therefore already being included in our previous characteristics. Similarly, the authors discussed extensively whether profit and cost centers sufficiently describe internal cost management. Upon reviewing the relevant literature (e.g., Choudhary and Vithayathil (2013)), we found that there are several different subdivisions, such as *service centers* or *revenue centers*. Nevertheless, profit and cost centers were the two most common variants, considering all other alternatives. Like these two examples, we found many scientific papers that use similar

terminology in other areas outside of PM. For this reason, no further adjustments to our dimensions and characteristics were made in these two steps. In summary, we did not add any new dimensions or characteristics based on the literature. Nonetheless, we could still add guiding questions to our taxonomy to help us improve understandability.

Step 10: We assembled the third version of our taxonomy, which included three layers, 12 dimensions, and 43 characteristics. The taxonomy is depicted in Table 18.

Table 18: Intermediary taxonomy after Iteration 3

Layer	Dimension	Characteristics						E/N
Governance and structure	<i>Degree of Centralization</i>	Central		Hybrid		Decentralized		E
	<i>Anchoring</i>	IT		Business		Shared Services	Executive Level	E
	<i>Institutionalization</i>	Integrated in a (business) department	Integrated in a CoE	Cross-functional organization	Standalone department	Standalone CoE		E
Strategy and scope	<i>Key activities</i>	Data science & engineering	Project management	Change management	Governance & steering	Value realization	Demand generation	N
	<i>Budgeting</i>	Global		Project-based		Process-based	Per department	N
	<i>Internal cost management</i>	Profit-center			Cost-center			E
	<i>Prioritization of projects</i>	Long-term Roadmap		Mid-term pipeline		Short-term ad hoc		E
Roles and responsibilities	<i>Role allocation</i>	Based on (business) department	Based on key activity		Based on end-to-end-process		Flexible	N
	<i>Internal leadership</i>	Process Mining lead		Executive sponsor		Business Champion		N
	<i>External support</i>	Vendor		Consultancy		None		N
	<i>Data ownership</i>	IT		Business		Process Mining unit		N
	<i>Tool ownership</i>	IT		Business		Process Mining unit		N

Step 11: Although no dimensions and characteristics were added in this iteration and no further objective ending condition was violated (Kundisch et al., 2021), we chose to conduct a fourth iteration because we found that the taxonomy might not be robust enough, hence violating the subjective ending condition *robustness*. According to Nickerson et al. (2013), a taxonomy that lacks robustness cannot adequately differentiate among objects. While there was a common understanding of the taxonomy among the authors, we realized there might be ambiguity in naming its elements. Hence, our target group might not be able to correctly classify their PM setup, leading to categorizations that would not differentiate adequately among objects. Even though Nickerson et al. (2013) relate this ending condition to the fact that a taxonomy has too few characteristics and dimensions, we still felt that ambiguity in naming would have the same overall effect on the perceived utility by our target group.

Iteration 4

Step 6: Since our violated subjective ending conditions inherently focused on using our taxonomy by practitioners in a real-life setting, we conducted another E2C iteration.

Table 19: Taxonomy changes as part of iteration 4

Dimension(s)	Type of change	Before	After	Justification
Institutionalization	Merging characteristics	<i>Standalone department, Standalone CoE</i>	<i>Standalone department / CoE</i>	Interviewees suggested that both characteristics are solely different regarding the naming of the unit.
Key activities	Renaming characteristic	<i>Demand generation</i>	<i>Demand generation and assessment</i>	The interviewees suggested that demand generation is too narrow and should be expanded to cover the collection and assessment of use cases and initial analysis like a proof of value.
Key activities	Renaming characteristic	<i>Change management</i>	<i>Change and community management</i>	The interviewees agreed that community management within an organization is becoming increasingly important.
Key activities	Renaming characteristic	<i>Value realization</i>	<i>Value management and scaling</i>	Interviewees suggested that value realization is not enough; instead, this activity requires the continuous management and scaling of value.
Prioritization of projects	Changing exclusivity	<i>Exclusive</i>	<i>Non-exclusive</i>	Several interviewees noted that this dimension must be non-exclusive since there might be multiple parallel ways of prioritizing projects: for example, an ad hoc re-prioritization of projects does not eliminate the existence of a long-term roadmap.
Internal cost management	Adding characteristic	-	<i>Hybrid</i>	In the interviews, we found there are organizations where, for example, license costs are covered by the PM unit and not charged to internal customers. However, the consulting services are charged regularly, so a hybrid characteristic was necessary.
Internal leadership	Renaming characteristic	<i>Business Champion</i>	<i>Champion</i>	The interviewees noted occurrences where the champion is not in the business but in IT.
Data ownership	Adjusted guiding question	<i>...the data used...</i>	<i>...the source data used...</i>	The interviewees said it would be helpful to clarify that this refers to the source data and not data generated within a PM software (e.g., KPIs)

Step 7e: To verify the validity and practicality of the most recent iteration of our taxonomy, we chose to apply it within the scope of our 12 evaluation interviews. We used eight real-life objects we already had in our existing data sample and four completely new ones. Within the interviews, we gathered feedback regarding the dimensions and characteristics of our taxonomy.

Step 8e: The results of the interviews were discussed within the author team. The changes resulting from these discussions are listed in Table 19, together with the reasons for their implementation.

Next to these changes, we also decided to implement the following adjustments regarding the layers:

- **Governance and structure:** *degree of centralization, anchoring, and institutionalization.*
- **Operationalization and scope:** *key activities and prioritization of projects.*
- **Funding and planning:** *budgeting and internal cost management.*
- **Roles and responsibilities:** *role allocation, internal leadership, external support, data ownership, and tool ownership.*

Step 10: We assembled the fourth and final version of our taxonomy, which included four layers, 12 dimensions, and 43 characteristics. The complete taxonomy with guiding questions is depicted in Table 3 of this paper.

Step 11: Since we added a characteristic in the last iteration, one of the objective ending conditions was violated, which would technically require another iteration of taxonomy development. However, since the adjustments were only slight, and the violation of the ending condition was due to a single instance of adding a characteristic, we instead decided to share the refined taxonomy with the experts, highlighting the modifications very transparently. All experts unanimously approved this revised version with no further requested changes. Since the authors agreed that all subjective ending conditions were met, we decided to terminate the taxonomy development process.

Appendix C – Sample questions from the study used in Iteration 1

Do you have a Process Mining CoE (Center of Excellence) at your company?

- Yes
- No

Do you have a sponsor?

- No
- Yes

What is the role of your sponsor? Which part of the organization does he/she belong to?

- IT
- Business
- Other: _____

What is the organizational setup of your CoE?

- IT Led (CoE is embedded in the IT organization)
- Business Led (CoE is embedded in the business function, such as Accounting)
- Chief Digital Officer Led (CoE is associated with a Chief Digital Officer)
- Inhouse Consulting (CoE is embedded into the Inhouse Consulting unit)
- Shared Services (CoE is embedded in a Shared Services Unit)
- Holding structure / Private Equity (CoE is embedded in a Holding structure)

Which of the following best describes the operating model of your CoE?

- Platform-as-a-service: CoE provides a technical platform and is a facilitator for operational users
- Process Mining-as-a-service: CoE drives process insight and provides operational transparency
- Execution Management-as-a-service: CoE drives Execution excellence and leads organizational change

Which of the following tasks and topics does your CoE cover?

	Not covered	Partially covered	Fully covered
User Administration and Governance			
1st level technical support			
1st level support on tool functionalities			
Infrastructure management			
Data protection and security			
Data access, connectivity, and replication			
SaaS & Services Commercial Framework Agreement			
Technical training and enablement			
Functional training and enablement			
Build & operate user dashboards			
Community & Communication, share successes			
Drive process transformation and automation			
Drive change management			
Establish and track improvement measures			
Drive value realization and measurement			

Appendix D – Questionnaire for the interviews conducted in Iteration 2

General information

Date and time of interview:

Interviewee:

Interview ID:

Interviewers:

Duration of interview:

Interview questions and notes

1. **Leading activities:** In which activities does your CoE have a leading role? (n.e.)

☐ Process expertise	☐ Data science & engineering	☐ Project management	☐ Change management	☐ Training
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Notes:

2. **Supporting activities:** In which activities does your CoE have a supporting role? (n.e.)

☐ Process expertise	☐ Data science & engineering	☐ Project management	☐ Change management	☐ Training
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Notes:

3. **Prioritization of use cases:** How are use cases processed in your CoE? (e.)

☐ Roadmap	☐ Ad hoc
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Notes:

4. **Organizational institutionalization:** How is your PM constitutionalized? (e.)

☐ part of IT department	☐ part of Business department	☐ part of a shared service	☐ part of another CoE (e.g., BPM or Data)	☐ dedicated department
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Notes:

5. **Role allocation:** How are roles allocated within the PM team? (n.e.)

☐ Per business department	☐ Per BPM activity	☐ Per end-2-end-process	☐ Flexible
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Notes:

6. **Reporting/Sponsorship:** Who does the PM CoE report to? (n.e.)

☐ C-Level / Mgmt Board	☐ Senior Management	☐ Head of department	☐ Not defined
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Notes:

7. **Financial resources:** Where does the budget for PM activities come from? (e.)

☐ Global	☐ Project-based	☐ Process-based	☐ Not defined	☐ Per department
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Notes:

8. **Governance approach:** Do you adjust your level of support among different units? (e.)

☐ Unified governance approach	☐ Adaptive governance
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Notes:

9. **Standards & methods:** Which standards and or methods does the PM CoE provide? (n.e.)

☐ Guidelines	☐ Frameworks	☐ Trainings/Enablement
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Notes:

10. **Data ownership:** Where does the ownership for process data lie? (e.)

☐ IT centrally	☐ Hybrid (depending on topic)	☐ Business	☐ CoE
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Notes:

11. **Tool ownership:** Where does the ownership of the PM software lie? (e.)

☐ IT centrally	☐ Hybrid (depending on topic)	☐ Business
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Notes:

12. **Centralization/distribution:** How is the organizational setup of your PM CoE? (e.)

☐ Central	☐ Hybrid	☐ Decentral
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Notes:

13. **Organizational anchoring:** Where in the organization is your PM CoE anchored? (n.e.)

☐ IT	☐ Business	☐ Other CoE	☐ BPM Unit / Team	☐ Shared Services (Internal cons.
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Notes:

14. **Change management:** What is the level of change management activities carried out by the PM CoE? (n.e.)

☐ per implemented use case	☐ PM Community of Practice	☐ Overarching approach across the organization
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Notes:

15. **Training:** What is the level of training provided by the PM CoE? (n.e.)

☐ per implemented use case	☐ PM Community of Practice	☐ Overarching approach across the organization
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Notes:

16. **Data integration:** Which type of data integration is used to load data into the PM software? (e.)

☐ One-time extracts	☐ Continuous data integration
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Notes:

Possible follow-up questions

Possible follow-up questions in the introductory part:

- How is your process mining unit currently structured?
- What do you do in the area of process mining?
- What is your / their role?
- Why do you do process mining? What do you want to achieve with it?
- Is PM only used by a “silo,” or is it adopted company-wide?
- When did you start with process mining?
- How many processes have you already connected/analyzed?
- How many areas/teams/departments are doing process mining?
- What is the goal? How do you want to develop process mining further? What is the next development step?

Possible follow-up questions for later parts:

- Who do you report to?
- How is the internal support? Do you have a champion/sponsor?
- How are you set up in the area of process mining? (Centralized team, number of people, roles, tasks, value proposition, data ownership, financing/budget, tool (process-aware, non-process-aware IS, main activities ...)
- What is going well regarding your organizational setup?
- What is going badly regarding your organizational setup?
- What is very important regarding your organizational setup?
- What would you like to change regarding your organizational setup?