

# **Process Mining Success Factors and Their Interrelationships**

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**Business & Information Systems Engineering (2024)**

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

# SUPPLEMENTARY DOCUMENT

This file contains complementary information supporting the paper titled: “**Process Mining Success Factors and their Interrelationships**”.

## A: LIST OF SECONDARY CASE REPORTS ANALYSED

This presents a list of published case reports used in Phase 2 of the study. They were retrieved from three sources:

- (i) Process Mining in Action (Reinkemeyer 2020) (SC1 – SC12),
- (ii) Task Force for Process Mining Case study repository<sup>1</sup> (SC13 – SC54) and
- (iii) BPM Cases Vol. 1 (vom Brocke and Mendling 2018) and Vol. 2 (vom Brocke et al. 2021) (SC55 – SC62)

Case ID	Case Report Title	Nature of Business	Industry	Process PM was applied to	PM Project Scope
SC1	Siemens: Driving Global Change with the Digital Fit Rate in Order2Cash	Industrial Manufacturing	Manufacturing	CRM (Order to cash)	Global
SC2	Uber: Process Mining to Optimise Customer Experience and Business Performance	Service	Technology	CRM (Customer support)	Global
SC3	BMW: Process Mining @ Production	Manufacturing	Automotive	Manufacturing (vehicle painting)	Manufacturing plant
SC4	Siemens: Process Mining for Operational Efficiency in Purchase2Pay	Industrial Manufacturing	Manufacturing	SCM (purchase to pay)	Organisational
SC5	athenahealth: Process Mining for Service Integrity in Healthcare	Healthcare Administration	Service	Service (Administrative support)	Organisational
SC6	EDP Comercial: Sales and Service Digitization	Power Utility	Energy	Service (Sales to debt cycle)	Organisational

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<sup>1</sup> Retrieved from: <https://www.tf-pm.org/resources/casestudy>. Originally retrieved 5<sup>th</sup> June 2021, last accessed 5<sup>th</sup> Nov 2023.

<b>SC7</b>	ABB: From Mining Processes Towards Driving Processes	Technology	Power and Automation	Governance (Improving lead times and on-time delivery)	Global
<b>SC8</b>	Bosch: Process Mining—A Corporate Consulting Perspective	Technology and Energy	Technology and Service	Governance	Global
<b>SC9</b>	Schukat: Process Mining Enables Schukat Electronic to Reinvent Itself	Supplier	Technology and Service	Governance (Order processing)	Organisational
<b>SC10</b>	Siemens Healthineers: Process Mining as an Innovation Driver in Product Management	Medical Technology	Manufacturing	Product Lifecycle Management (PLM)	Large medical devices (CT Scans)
<b>SC11</b>	Bayer: Process Mining Supports Digital Transformation in Internal Audit	Pharmaceutical and Life Sciences	Pharmaceutical	Compliance and Audit (Internal Audit)	Global
<b>SC12</b>	Telekom: Process Mining in Shared Services	Telecommunications	Telecommunications	Finance and Accounting	Organisational
<b>SC13</b>	Analysing the Complaints Process at Granada City Council	Local Government Council	Government	Local Tax Agency	Appeals and complaints process
<b>SC14</b>	Neste - Big Data is the New Oil	Oil and Gas	Oil and Gas	Logistics	End-to-end process improvement
<b>SC15</b>	Cost Deployment with Process Mining	Healthcare manufacturing	Healthcare	Pharmaceutical manufacturing	Cost deployment in pharmaceuticals
<b>SC16</b>	Process Mining at The University of Melbourne	Tertiary Institution	Education	Student Admissions	Admission process
<b>SC17</b>	Understanding Acute Coronary Syndrome discharges in a hospital setting	Hospital	Healthcare	Cardiac medical ward	Discharge of coronary patients
<b>SC18</b>	Government Process Mining in the Brazilian Executive Branch	Federal Government	Government	Federal Executive branch	Federal regulatory process
<b>SC19</b>	Cancer Diagnostic Delay Reduction	Hospital	Healthcare	Patient treatment	"Fast path" treatment process
<b>SC20</b>	Philips Usage Profiles for System Requirements	Healthcare manufacturing	Manufacturing	Medical device usage profiling	Usage profiling
<b>SC21</b>	Interview with the Logistics Manager of the Year	Electroforming	Manufacturing	Logistics	Manufacturing process

<b>SC22</b>	VTB (Ramax)- Rethinking Banking in the 21st Century	Banking	Finance	Customer service	CRM, payroll
<b>SC23</b>	PostFinance - Redefining the Reality of Banking Processes	Banking	Finance	Bank operations	Internal process optimisation
<b>SC24</b>	PGGM Saves Time with Process Mining	Pension provider	Financial Service	Shared service centre	Accountability reports
<b>SC25</b>	Eissmann - Big Data-Powered Tuning for Fast and Secure Processes	Components manufacturer	Automotive	Multiple functions	P2P, data management, production, manufacturing management, purchasing
<b>SC26</b>	AkzoNobel - Embracing the Future of Team Support	Paint and special coatings	Paint	Accounts payable	Purchase to pay
<b>SC27</b>	Boskalis - Offshore with Full Speed Ahead	Offshore dredging	Maritime	Accounts payable	Purchase to pay, accounts payable
<b>SC28</b>	Customer Journey Mining - LOEN	Online entertainment	Technology	CRM	Customer journey
<b>SC29</b>	Process Mining Collective Behaviour	IT service management	Telecommunications	Service Management	Incident response
<b>SC30</b>	Siemens: Innovation is an Alliance with the Future	Industrial Manufacturing	Manufacturing	cross-functional	Global processes
<b>SC31</b>	Leveraging Human Process Knowledge via Process Mining	Electroforming	Manufacturing	Production	Production process
<b>SC32</b>	Beyond Assists – Uncovering The DNA Of Oranje	Sports	Sports	Team performance	Team performance
<b>SC33</b>	Automation and Process Mining: A Powerful Combination	Housing and Construction	Construction	Housing distribution system	Housing allocation process
<b>SC34</b>	Siemens: The World's Largest Process Mining User	Multi-sector	Multi-industry	Multiple	Multiple

<b>SC35</b>	EDEKA - Process Mining Success Story	Supermarket	Retail	IT service management process	Ticketing
<b>SC36</b>	Copenhagen Airports A/S - Process Mining Case Story	Airport	Travel	Luggage department	Bag tagging process
<b>SC37</b>	Improved Process Times for Bridge Loans	Loans Company	Finance	Loan department	Loan process
<b>SC38</b>	Improved Invoicing for Caverion	Construction	Construction	Invoicing	Invoice handling process
<b>SC39</b>	Process Mining in Invoice Handling Process	Software	Technology	Invoicing	Invoice handling process
<b>SC40</b>	Process Mining in the Health Care Domain: Case Study Isala Hospital	Hospital	Healthcare	Patient care	Patient care process
<b>SC41</b>	Process Mining Applied to the Refund Service Process of an Electronics Manufacturer	Electronics manufacturer	Manufacturing	Customer support	Refund process
<b>SC42</b>	Process Mining for Value Extraction	Paint and Coating	Paint and Coating	Procure to pay	Procure to pay process
<b>SC43</b>	Process Mining for Auditing	Audit consultants	Audit	Continuous Audit (internal audit)	Invoicing at Temporary Employment Agency
<b>SC44</b>	Process Mining for a Belgium Package Delivery Company	Package delivery	Delivery service	Delivery	End-to-end process (delivery process)
<b>SC45</b>	Process Mining in the Finance Domain: Improving the Procure-to-Pay Process	Finance	Finance	Procure to pay	
<b>SC46</b>	Process Mining at Seoul National University Bundang Hospital	Hospital	Healthcare	Outpatient dept	Outpatient care processes
<b>SC47</b>	Process Mining at Samsung Electro-Mechanics	Component manufacturers	Manufacturing	Manufacturing execution system	Manufacturing process
<b>SC48</b>	Process Mining at Suncorp: Reduction of the Processing Time of Claims in Australia's Largest Insurance Group	Insurance	Insurance	Claims processing department	Claims processing

<b>SC49</b>	Insight into Vaisala's Operations with Process Mining	Environmental and industrial measurement	Environmental and industrial measurement	End-to-end process improvement	Organisational
<b>SC50</b>	End-to-End Process Transparency Using Process Mining for Ruukki Construction	Steel and steel construction	Construction	End-to-end process improvement	Opportunity to delivery process
<b>SC51</b>	Process Mining for Ana Aeroportos de Portugal	Airline	Travel	Information and Communications Technologies Directorate	Change orders process
<b>SC52</b>	Process Mining Case Study within Bolton Council: Discovering Process Inefficiencies in City Government	Local government council	Government	Adult services dept	Adult support
<b>SC53</b>	Process Mining Case Study within Alliander: A Dutch Electricity and Gas Provider	Electricity and gas supply	Utility	Purchasing	Purchasing process
<b>SC54</b>	Intervention Management Use Case: Process mining in Support of Operational Excellence and Sales	Security services	Security services	Operational excellence	Intervention management
<b>SC55</b>	Mining the Usability of Process-Oriented Business Software: The Case of the ARIS Designer of Software AG	Software Development	Technology and research	User Experience	Improving software usability for client needs
<b>SC56</b>	Improving Patient Flows at St. Andrew's War Memorial Hospital's Emergency Department Through Process Mining	Hospital	Health	Emergency department patient flow	State hospital
<b>SC57</b>	Automate Does Not Always Mean Optimise: Case Study at a Logistics Company	Logistics	Logistics	Purchasing department	Purchase order and invoice approval processes
<b>SC58</b>	Exposing Impediments to Insurance Claims Processing Compulsory Third Party Insurance in Queensland	Insurance	Insurance	Compulsory third-party insurance claims	State level
<b>SC59</b>	Improving the Arthrosis Care Process at Maastricht UMC+: Unravelling Complex and Noncomplex Cases by Data and Process Mining	University Hospital	Health	Arthrosis care process	Inter-organisational care process at tertiary care facility

<b>SC60</b>	Enabling Process Mining in Airbus Manufacturing. Extracting Event Logs and Discovering Processes from Complex Data	Aircraft manufacturing	Manufacturing	Aircraft manufacturing process	Organisational
<b>SC61</b>	Analysis of the Customer Journey at the Pension Provider APG Using Self-Service and Data Hub Concepts	Pension provider	Financial Service	Customer journey	Nationwide
<b>SC62</b>	Making Processes Patient-Centric: Process Standardisation and Automation in the Healthcare Sector at Hirslanden AG	Hospital	Health	Process standardisation and automation (patient-centric processes)	Private hospital

## **B: ADDITIONAL DETAILS SUPPORTING DATA COLLECTION AND ANALYSIS**

### **B.1 Interview protocol(s)**

The case study interviews were semi-structured and consisted of three main parts:

- We commenced with an introduction (to the study and participants), ethics and overall plan for the interview (~ 5 mins).
- Part 1 was open-ended, where we asked each participant to describe the things they deem necessary and must go right / well for a PM project to succeed (~ 10-15 mins)
  - o Sample interview questions:
    - Identify and describe a process mining initiative you have been involved in.
    - Explain your role in this process mining initiative.
    - Which process mining approach/methodology was adopted for this process mining initiative?
  - o We also encouraged the participants to think about things that can lead to failed PM projects.
- Part 2 was a series of questions based on the latest PM CSF model (- that resulted from Phase 2 of the study), where each of the Success factors was explored – with the dual purpose of confirming the CSF and unveiling sub-factors (~ 20-30 mins)
  - o In your opinion, how did the following factors influence this process mining initiative negatively or positively?
    - Stakeholder involvement and support
    - Information availability etc
    - Were there any constraints for the process mining initiative you would like to share?
  - o At the end, we asked the participant (again) to share any new CSFs that they can think of as a means to close this section.
- Part 3 was specifically designed to identify potential interrelationships between the factors. (~ 10-15 mins)
  - o Here, we asked the participants to describe any relationships between the CSFs (-thus far discussed), as they have observed,
  - o After this, we triggered questions regarding the interrelationships identified via Phase 2, asking the participants if they (dis-)agree and why
  - o We also asked the participant to share any new interrelationships (again) as a means to close this section.
- The interviews closed with a question on stories that highlight the effect of process mining the case organisation.

The expert interviews were semi-structured and consisted of two main parts

- We commenced with an introduction (to the study and participants), ethics and overall plan for the interview. Here, we explained the distinct role of the expert interviews (to validate the forming interrelationships) and thus presented the current set of CSFs (per the outcomes from Phase 3) upfront. (~ 10-15 mins).
- Part 1 was open-ended, where we asked the participant to describe any interrelationships between the factors just presented. After this, interviewees were asked to indicate in what manner these interrelationships occurred (e.g. direct, indirect or bilateral)



- In Part 2, we showed the existing interrelationships (as identified till Phase 3) and asked the participants to comment on i.e. whether they agreed or not. If they confirmed that they agreed with the factors, we asked them to give examples from their practice. We also asked the participant to share any new interrelationships (again) as a means to close this section. (~ 35-45 mins)

## **B.2 Coding guidelines and rules**

**Rule 1:** The coding process for this research will follow the hybrid coding (abductive) approach, which combines both a confirmatory (deductive) and grounded (inductive) coding approach using the NVivo 12 software. The abductive coding approach applies an iterative and multi-phased technique to the coding process through multiple rounds of coding and refining to ensure that all ideas and concepts are conceptualised.

**Rule 2:** All case reports to be coded will be saved using the format: “Author\_Year\_Title”. Case study and expert interview files will be saved using the format: “Case#, R#” or “Ex#”.

**Rule 3:** Coding will also involve the setting up of attributes for each case report, case study and expert interview file based on identified features such as process mining tools in use, process(es) being observed and the organisational characteristics. These attributes will provide the opportunity to classify the reports based on common values such as organisation type, type of process, process mining outcomes, etc.

**Rule 4:** Memos and annotations will be made to codes and case attributes while coding. This is to provide a comprehensive and descriptive perspective and deeper reflection of the codes and attributes.

**Rule 5:** During coding, corroboration sessions will be held with the research team to ensure consistency in identifying appropriate content to code and proper labelling of codes.

**Rule 6:** Only text from case reports, case study and expert interview files that connote a necessary/sufficient condition for the success of PM initiatives or an interrelationship between success factors will be considered suitable for coding. (e.g., “The availability of information is essential for running process mining initiatives”, “the presence of technical experts such as data scientists influenced the quality of data and event logs produced for process mining”).

**Rule 7:** Codes will be extracted from the literature by considering one sentence at a time. Where a single idea is captured in multiple sentences, these sentences will be coded under that single idea.

**Rule 8:** Multiple coding is allowed where a sentence connotes multiple forms of process mining success factors. In such cases, annotations should be used to keep track of the different success factor types. Potential interrelationships that the text might reveal should also be noted and described using Memos.

**Rule 9:** A set of six success factors and their descriptions will be extracted as initial themes from the Mans et al. (2013) model to form an *a-priori* base.

**Rule 10:** There will be three rounds of coding. Details of this are shown in the stages of coding table below

<b>Round 1 – open coding</b>	<b>Round 2 – Axial coding</b>	<b>Round 3 – identifying interrelationships</b>
<ul style="list-style-type: none"> <li>• Extraction of relevant data (direct and indirect content relating to success factors) from case reports, case study and expert interview files using open-coding approach.</li> <li>• Extraction of open-codes with evidence of interrelationships</li> </ul>	<ul style="list-style-type: none"> <li>• Applying a hybrid (inductive and deductive) approach by grouping extracted codes under existing themes and create new (sub-)themes where necessary.</li> <li>• Reviewing open-codes and code groupings to ensure conceptual clarity and parsimony.</li> </ul>	<ul style="list-style-type: none"> <li>• Re-visiting codes with evidence of relationships from Round 1.</li> <li>• Running matrix intersection and “near” search queries to identify new potential relationships or to identify data to strengthen the relationships earlier observed.</li> </ul>

**Rule 11:** The original coding structures will still be maintained (i.e., the open-codes will remain as low-level codes). This is to be able to move things around if need be (e.g., during coder corroboration sessions).

## C: EXAMPLE QUOTES THAT SUPPORT SUCCESS FACTOR EXPLANATIONS

This section presents more detailed evidence to support the PM CSFs and sub-factors. They are from the case study interviews and secondary case study reports. Exact data sources are denoted as follows:

- For case studies: Respondent Id\_ Case Id (e.g., 'R2-C1' refers to Respondent 2 from Case 1). See Table 3 of the main paper for the details of the case respondents.
- For case reports: SCn (e.g., SC26 means this quote comes from Secondary Case # 26). See Section A above for the details of the Secondary Cases and SC number indexes

SN	Success factors and sub-factors	Short references	Sample data extracts
a.	Stakeholder support and involvement	R2-C1	"we had very good stakeholders who were able to push this, and together with the new Process Mining Tool, the Execution Management Tool that was part of our success, yeah."
		R1-C1	"So, we call this, um, Quarterly Business Reviews. So, once a quarter we are sitting together with our management, their management, and we are looking at what have we done, what have we planned, what have we achieved, what have we not achieved, what do we need to adjust, are we still reaching the goals, do we need to increase the goals, and so on and so forth."
a.1.	Management support	R1-C1	"So, process improvement was a core part of this global strategy that they announced, and what they want to do here is, first and foremost, to build a team: an operation excellence or process excellence team that brings the strategy into action at (Case 1)"
		R2-C2	"They (stakeholders) were the ones who were interested in understanding further about how higher degree research journeys actually take place in order to see potential improvements which can be made with the system"
a.2.	External stakeholder support	R2-C1	"the Order Management Manager is one of the sponsor, as well as the Supply Chain Manager is one sponsor, who also provides budget, of course."
		R2-C1	"there is now a project, together with supply chain, that the sales people know if they create a sales order, or if they sell something to the customer, they know how long it could take to deliver."
a.3.	Subject matter experts (SMEs)	R1-C1	"So, it was a top-down mandate, and then it was a very strong collaboration between business unit, so the shared service centre for order to cash, and the Process Excellence team that is supporting them in deriving requirements, designing the solution, implementing it together with (implementation partner), testing it, and then rolling it out to the users in the order to cash process."
		R1-C2	"Occasionally we would need some SME support. When we were trying to pulling up certain records and going look these ones seem a bit odd. And it was trying to work out is our interpretation of the data wrong or is there an issue in the data itself?"

a.4.	User groups	R3-C1	“We have 250 users for this app, it's basically the whole back office managing open orders in Europe, and that's the ... that's the highlight here”
		R2-C1	“We had not to convince them to use this, because they loved it from the beginning; it was very helpful for us”
b.	<b>Information availability</b>	R3-C1	“We needed the right contact persons to help us with the first extractions, the data access. That's common knowledge that this is one of the pain points, but we could get started, and the extraction server from Celonis with a direct connection to SAP is actually a very smart way to solve this access problem.”
		R2-C2	“the data was coming from (anonymised) because he was the one who was extracting the data, right. But he was extracting it from the RMS.”
b.1.	Event data availability	R1-C1	“before we implemented Celonis, the order managers, they worked with mainly two solutions. They had SAP, where they entered the customer orders and then edited the customer orders until they got shipped to the customer, and they had an Excel file where they tracked the status of the orders.”
		R1-C2	“we had a couple of different data sources that we used. One was research master, which was the system we were trying to replace and the key data for that was around milestones in the system and well, the significant dates that were called.”
		R2-C2	“we also got individual data sets for each of the eForms which are lodged by students. And that we had seven imports for which we had to analyse the data.”
b.2.	Availability of contextual information	R3-C1	“we do need to understand how SAP books stuff, and how purchase orders flow through the system, how sales orders flow through, where they are connected”
		R2-C2	“there were other people as well. So for example, yeah. So for example, (anonymised). And like there are other people who are not involved. There were other people involved in the team who are not that familiar with how the system works from inside, but they are very well aware of the processes, policies, rules and guidelines who were involved in the team.”
c.	<b>Technical expertise</b>	R1-C1	“So, this is the three main stakeholders that are doing the technical stuff. (Case 1) currently is heavily relying on (anonymised). This is why they are part of the program since two years. So, they have a very strong engagement with (anonymised).”
		R2-C2	“I would say interaction with stakeholders help you understand what direction to take, now that direction would be in terms of what skills you need, what tools you need. And what data you need in actually doing that”
c.1.	Process mining expertise	R2-C1	“the second role is I was the technical counterpart for the data engineers at (Case 1). So, we set up our technical things which are needed for process mining, threading the connection, testing the connection, do the SAP transports and so on.”

		R1-C2	“Yeah, that and from the side of us being able to get the data out to be able to do the process mining, but then that was feeding into more sort of the business analysis team, who would then take that and actually turn that into what the new processes should look like in the implementation.”
c.2.	Data extraction expertise	R1-C1	“we have the data analytics team at (Case 1); this is also a special team within the IT department. They own everything that has to do with data analytics, so they also own the BI solutions and stuff, so they are working together with them to make sure that they look at the right data, that they validate the data.”
		R1-C2	“We would have myself and a couple of other technical experts who are dealing with reporting or, you know, building the reports in the system data migration, working towards integrations”
		R2-C1	“so that was also my job; creating new activities, setting up the whole data model ... basically the whole ETL pipeline, from extracting transformation and loading for Order to Cash, and that was all my job”
c.3.	Process analyst expertise	R1-C1	“So, this is the solution where you draft, design, and store your business processes, like, you know, BPM models? This is what they do in BIC cloud. Also owned by the team that's owning Celonis, so they have a strong knowledge in business process management, and now also in process mining”
		R2-C2	“So based on the questions we tried to develop models; to develop models we used WoPeD”
d.	<b>Team configuration</b>	R1-C1	“my job was to steer all of the relevant persons in this set engagement, so you can imagine that on customer side, we are talking to ten to twenty people at the same time with different functions, so, IT procurement, the program managers, the board, of course, to really, you know, make sure that they can take a good decision and that they are fully aware of what's coming with the project”
		R2-C2	“There was an IT person, dedicated IT person as well. There were other people, business analysts out there. So that was an entire team.”
d.1.	Established units	R1-C1	“process improvement was a core part of this global strategy that they announced, and what they want to do here is, first and foremost, to build a team ... an operation excellence or process excellence team that brings the strategy into action”
		R3-C1	“I'm part of the Operational Excellence Team. My official role title is as generic as it can be, as a Transformation Manager”
d.2.	Ad-hoc units	R1-C2	“so I was working with people around configuration of the new systems that we we're implementing. I was working with them on Data migration on the integrations. I was sort of overseeing a number of those pieces, and so the process mining was part of that and I got involved from sort of a Technical Support perspective”
		R1-C2	“there was engagement from our team around ways that we could better be leveraging the expertise at the university in terms of the implementation of the project.”
d.3.	Consultants	R1-C1	“we understand our role as being an advisor to the customer and bring clarity to the whole project before the customer signs a contract. This is very important to understand, because we do not only tell the customer how the solution works and what it costs”

		R1-C1	“we found out that it's very, very fruitful to work together with the partner that we brought onto this project, because first, they had good resources, second, they had the knowledge for the processes that we needed and third, of course, they had a good commercial offer.”
e.	<b>Structured PM approach</b>	R1-C2	“the approach probably felt more discovery based to me in terms of we were pulling out. We did know that this was most likely the best data that we had, but the way that we pulled out the data and how much information we had with it and what that data meant, took a while for us to work through. And that was quite iterative, so there was sort of an initial export that we had that would then be looked at to go What do we have here”
		R1-C1	“as part of our engagement, we also design the solution together with the customer, and we create an implementation plan”
e.1.	Planning	R1-C1	“The first goal was to fully understand the process and derive inefficiencies out of those.”
		R3-C1	“we had a real problem with the Order to Cash Process; customers said, 'We are not satisfied with your performance,' and it was less that the overall Order to Cash Process of product delivery overall was bad.”
		R2-C2	“Alright, one of those multiple goals was clarity in higher degree journeys, right? And to understand the key decision points. So there are multiple goals. One of those multiple goals is high degree researcher and process mining was an enabler for that one goal”
e.2.	Extraction	R2-C1	“So, we set up our technical things which are needed for process mining, threading the connection, testing the connection, do the SAP transports and so on.”
		R2-C2	“So just to clarify, source is still one which is RMS and from that the data is not integrated. You're right, it's not together in one. There are separate tables in this same source and you extract data from those tables.”
e.3.	Data processing	R3-C1	“we are actually now cutting our data model into pieces. So, we started to do data modelling work, and we create a document centred data model.”
			“it made it very difficult to actually. You needed to sort of bring together multiple pieces of data and hope that it worked, and when we looked at it from a data quality perspective, there was a lot of issues in there.”
e.4.	Mining and analysis	R2-C2	“We used multiple different plug-ins in ProM. We used Disco as well to cross check the results and validate them. We also used WoPeD which is which is used to draw Petri Nets and process models.”
		R3-C1	“we had the beautiful analysis showing the typical stuff like undesired activities, then the analytics or throughput times”
		R2-C2	“we were very much interested to understand what are the possible indicators, risk indicators of withdrawing from a PhD journey that we can find from data.”
e.5.	Evaluation	R2-C1	“So, they promise a date, which we see in process mining, and their on time and for delivery is two weeks later, or even earlier. So, the customer wants to have a very transparent delivery date, and we saw that in

			process mining that they don't have this currently. The question then was why (Company 1) is not able to promise a good date for the customer, and the reason was ... is still, the supply chain.”
		R3-C2	“In terms of the outcomes for the project, the data we could pull in kind of demonstrated how long operationally, it took us to do things. So once the student submits, let's say a leave request or an extension request, it would take X number of days with the Supervisor, X number of days with the faculty, X number of days of us and the gate. So that gave us a benchmark”
e.6.	Process improvement and support	R3-C1	“So, there you had a project which started with the combination of RPA and process mining, the analytics behind it, some insights, and then a project that actually turned this into change actions and improving the process.”
		R2-C2	“we found deviations, we actually saw that there were I guess around 300 students who were actually doing annual progress report before the confirmation. So that was an interesting finding, which again resulted in a new intervention in the new workflow.”
f.	<b>Data and event log quality</b>	R3-C1	“So, data quality and data accessibility is a huge topic. In an ideal world, it's taken care of by a Data Integration Team in a corporate environment, and you just give them a call and say, 'Here's the table I need,' and they will get it for you. But we are far away from this.”
		R1-C2	“there was a little sort of a refinement of the data as well over time. Particularly looking at the types of events that we had recorded. In there, some of them were just not meaningful from a process mining perspective”
f.1.	Data pre-processing	R2-C1	“so, when cleaning the data, we haven't had any big problems with weird data. We just had problems with values of price values.”
		R1-C2	“the other one would just be generally the noise because you ended up with lots of things going on. Sometimes the records would get messy if you had a student who had you know, done a masters and then done a PhD because you might have some of the relics of when they did their masters in there as well, that the way that data was held was sort of a single record of a student, and normally it would clear out previous studies.”
f.2.	Event log quality considerations	R3-C1	“then you come to the point which is much bigger, it's the data architecture, data governance, and data ownership discussion. I think it's actually a key enabler for a good process mining, that people know where the data is coming from, who owns it, and who defines the quality standard”
		R2-C2	“in terms of provision, there was no one who provided us some systems or policies in order to rectify the data quality.”
g.	<b>Tool capabilities</b>	R1-C1	“the positive results were mainly impacted by the Celonis solution because we took the user requirements and then we built specific solutions in Celonis that exactly targeted those requirements”
		R2-C2	“say interaction with stakeholders help you understand what direction to take, now that direction would be in terms of what skills you need, what tools you need. And what data you need”
g.1.	Process discovery	R1-C1	“there are certain ways of how you can apply a process mining to a business process, and the most common, probably, is really to first and foremost get the 100% transparency on your as-is process”

		R3-C1	“so there was a presentation by the project team where basically students were made into little dots and you could see the entire journey they did and how many times they went in under review or whatever. And so I think that was in terms of an engagement exercise that was a really fantastic way of taking this really, you know, abstract information and being able to demonstrate in an animation, kind of the journey the student was running a really simple way. So, I thought that was really fantastic.”
g.2.	Process benchmarking	R1-C1	“So, there are certain ways of how you can apply a process mining to a business process, and the most common, probably, is really to first and foremost get the 100% transparency on your as-is process, and measure the process performance based on performance KPI's like, you know, throughput time, and how many process variants do we have, and stuff like that”
		R2-C2	“we actually again had comparative analysis where we divided the long into cohorts, and we had a cohort which took comparatively less time, which is around 3, 3½ years, and a cohort which takes more than 3½ years and tried to compare their processes.”
g.3.	Conformance checking / compliance	R2-C1	“There was also a conformance checker, that could create a BPM model, and compare the BPM model to the Process Mining Model; that was helpful”
		R2-C2	“Conformance was another thing that we did. So there for example. So according to the policies at (Case 2), the student should not be doing an annual progress report before confirmation. If they do an annual progress report before confirmation, it's just wastage of time for the student as well as resources for the university as well as time for the supervisor.”
g.4.	Pattern analysis	R2-C1	“What I liked, is we created a pattern analysis, so what I mostly do is to identify and find out undesired activities in the process”
		R2-C2	“were interested in risk indicators, so which was more of pattern analysis that we did. So what we tried to do is we manually edited the models again and we had Leave just before a milestone and just after a milestone. And then we simply ran the log on the manually edited process model to see how many students are actually having leave just before the milestone and then after that, do they end up withdrawing”
g.5.	Filtering	R2-C1	“we filtered on such problems in the whole analysis, and then we have more dashboards, just still filtered on such problems”
		R2-C2	“We wanted to filter things out and we used SQL Server for that. We wanted to check some records in detail and we used SQL Server for that.”
g.6.	Drill downs	R2-C1	“there was a lot of findings in there, so we identified price change every time the sales has been created by 20%. We question, then, why was that, and then we discovered, and we created a Drill Down based on the master data.”
		R2-C1	“I'd have to find out to cluster such problems, and some ... such organisations we haven't had any problems or such problem. So, we created Drill Down to understand the root causes.”
g.7.	Integration capabilities	R1-C1	“We have a new technology inside Celonis where you can connect your Celonis to a BI system, so we are also merging this now together.”



		R1-C1	“we also built a very strong integration with the SAP system so whenever an order manager is changing an order in Celonis, it gets written back to the SAP system.”
g.8.	Analytical scalability	R3-C1	“we moved from pilot to European license to global license, so the scaling works, to some extent, and we are able to offer, now, our subsidiary in the US, to basically repeat, to some extent, what we did in Europe”
h.	<b>Project Management</b>	R1-C1	“IT procurement, the program managers, the board, of course, to really, you know, make sure that they can take a good decision and that they are fully aware of what's coming with the project”
		R1-C2	“so the process mining part then came in specifically for HDR students, which was one of the streams of work that we were doing was to change how research students were being managed and the ways that they'd apply. And that we would look at the life cycle of students more generally.”
h.1.	Project scope	R1-C1	“the agreement, the RFX, it was all based around their goals that were derived out of this global strategy. So, they really broke it down, narrowed it down, and said, 'Hey, Celonis, this is what we need to achieve, we need to achieve employee efficiency, we need to achieve customer satisfaction, order to cash process, we need to achieve cost savings, improve our margins,' and so on, and so we definitely discussed very closely of how Celonis can help them reach their goals as part of this global strategy.”
		R2-C2	“at the top level we have the digital transformation, then digital transformation can be divided into multiple goals. Alright, one of those multiple goals was clarity in higher degree journeys, right? And to understand the key decision points.”
h.2.	Governance	R1-C1	“the governance needed some improvement, and by governance, I really mean the way how they set up the program management, how they set up the responsibilities within this whole organisation, how they set up the communication between business, IT, management and us.”
		R1-C2	“Process mining is good to do, but if you're not then going OK. If you don't have that structure of who your process owners are and the people, then feeling empowered to actually make the decision changes based on that, then it can end up just being a report, not actually something that's leading to positive change. And I'm not sure if there was enough of that structure in place to ensure that the results of this were well utilised.”
h.3.	Cost and budget	R3-C1	“there is some responsibility that comes with this, yeah, and we spend single digit millions on this, and you can always ask the question if that's worth the investment, yeah? And it should be asked every year and every time.”
		R3-C2	“So I think that It's about the value in what the actual service is, and then also finding the funding to actually engage with the project team to deliver on this.”
i.	<b>Change management</b>	R2-C1	“So, creating an app is not, um, is not by itself doing any optimisation; it's also change management. So, we change, together with a Change Manager, the whole order management process, and based on the new tool we created”
		R1-C2	“It's important to have an ongoing monitoring set up because then you can actually track change over time”

<b>j.</b>	<b>Training</b>	R1-C1	“so there are some people at (Case 1) who have really deep knowledge about Celonis based on our trainings and enablement, but also based on the day to day work with us, and so on. So, learning on the job, of course,”
		R2-C1	“what we've done, in the past, is to do shadowings, so they have been part of creating new dashboards so that they learn from me or from my colleague how to create dashboards, how to create tables to do sequel (SQL) things, and that they just hands on doing this together with us.”

## D: EXAMPLE EVIDENCE SUPPORTING THE VALIDATED CSF INTERRELATIONSHIPS

This section presents more detailed evidence to support the PM CSFs and sub-factors. They are from the secondary case study reports, case study interviews and Expert interviews. Exact data sources are denoted as follows:

- For case reports: SC<sub>n</sub> (e.g., SC26 means this quote comes from Secondary Case # 26). See Section A above for the details of the Secondary Cases and SC number indexes
- For case studies: Respondent Id\_ Case Id (e.g. ‘R2-C1’ refers to Respondent 2 from Case 1). See Table 3 of the main paper for the details of the case respondents.
- For expert interviews: EX<sub>n</sub> (e.g. ‘EX2’ refers to the 2<sup>nd</sup> Expert interviewed in Phase 3). See Table 4 of the main paper for the details of the expert interviewees.

RELATIONSHIP	EVIDENCE FROM SECONDARY CASE REPORTS (SC <sub>n</sub> ), CASE STUDIES (C <sub>n</sub> ) AND EXPERT INTERVIEWS (EX <sub>n</sub> )	
<b>PI:</b> Bilateral relationship between <b>technical expertise</b> and <b>stakeholder support and involvement</b>	SOURCE AND SAMPLE QUOTE(S)	
	SC26	“We are working in parallel with the Procurement and AP GPOs, the Business Process Managers, Service Delivery Managers and CI Team Leads, just to name a few”
	SC28	“... a marketer set the direction of analysis and conducted the process mining analysis using her domain knowledge.”
	R2, C2	“So you need to understand what are the key questions of interest. And those key questions were not possible to articulate without interactions with the stakeholders”
	R2, C2	“That is very important to keep on communicating the insights, intermediate insights from the stakeholders so that you are going in the right direction.”
Ex2	<p>“Sometimes people are very understanding we need a data engineer who's going to help us get into the source systems because we know that getting the raw system data is critical for process mining. But then they've often forgotten that kind of end analysis part like the data engineer, is not as good at then talking to the business and understanding well, what are the KPIs and metrics that show that that can you know? Help them demonstrate some of the impacts that again we've identified here and other times around it's the other way around.”</p> <p>“the subject matter experts and the process of their customer experience need to interpret that data with the. Data scientists or the data mining or the data resources to ensure that however they model that into the mining tool, then</p>	

	Ex5	it's captured in the right place against the right part of the process so that it makes sense. And that's where you need a really good business. SME or multiple SMEs across different parts of the process. To work with the. Technology and data people who are capturing blocks, interpreting those locks and then making sure qualifying when you run through the mining that actually the right things happening at the right time with the right timestamp and with the right interpretation”
<b>P1a: Structured process mining approach moderates technical expertise and stakeholder support and involvement</b>	SC50	“... the work was done in close cooperation with the customer’s system and process owners to verify the relevant data for the process discovery”
	SC41	“First, the concrete questions and problems were collected, and the IT logs of all cases from the running business year were extracted from the corresponding service platform. The log data were then analysed together with the process managers in an interactive workshop.”
	R2, C2	“Intermediate results were shown to the stakeholders so that if we are going in the wrong direction or if this is some information that the stakeholders don't require, then we change our approach and we start answering the questions that is more important for the stakeholders. And here the stakeholders that I mean are the project management team because as I mentioned they are the people who know about the guidelines, rules and policies from the outside.”
	R2, C2	“they were involved from the starting of the project and not only from this. In fact they were involved as I mentioned, I have been mentioning at almost all stages because we made sure that we show them the output time and again.”
	Ex3	“we do initial process discovery and then we go back with them and do some business workshop with them, finding our insights and things. Then the third of weeks, especially about the improvement option. So we usually separate our improvement into three things, automation, optimisation and reengineering. So we create preliminary recommendations from our insights and then validate that with them, which of this recommendation is actually is able to be implemented”
<b>P2: Technical expertise influences the impact of data and event log quality</b>	SC10	“Fortunately, thanks to the associative technology of the BI-based Process Mining solution and the close collaboration with the Process Mining Consulting team, data quality issues were quickly resolved.”
	SC11	“Although an activity that carries a timestamp can be formally presented as a process with the help of Process Mining, some areas such as production or HR are largely left out. The reasons are manifold, ranging from poor data quality in the SAP source systems, high sensitivity, or the fact that processes are not mapped in SAP systems and the required competence cannot be maintained within Internal Audit.”
	R1, C2	“because of the way that the data was structured and had a lot of issues with it, you couldn't have just had somebody come in and run a report and it'll be meaningful; you needed to have somebody who actually knew what all of the individual fields were and how it all fit together in the broader picture”
	Ex5	“if you look at the pure IT technology piece then you're right, you need some really good data scientists, data specialists and data scientists to understand and manipulate the data and redefine the data required. Because there's

		always different data stands across different systems. And then you have to understand and you capture the log data and reflect it and transition it into another standard for the mining to accept,”
<b>P3: Technical expertise</b> directly influences the ability to maximise <b>tool capabilities</b>	SC2	“This saw the creation of a small team of data scientists whose sole focus was ensuring the tool performed as needed and the end users were trained with the required skills to process mine.”
	R1, C2	“they connected (anonymised) to our Celonis just within one day, so they really built up this expertise of how to do it”
	R2, C2	“we tried to understand performance statistics which involves time and all for that. We used an appropriate plug-in from ProM or we used Disco at times. We wanted to filter things out and we used SQL Server for that. We wanted to check some records in detail and we used SQL Server for that.”
	Ex5	“Technology Team I guess is sit behind and support the core tool, whatever tool you're using and the database behind it and the architecture behind it and the the the the tables that need to be set up in the Arctic in such a way that you can cut. it any way you. Wish and integrate it with other systems, so I always like to design the architecture. Process architecture of the process, mining the risk and controls architecture”
<b>P4: Technical expertise</b> enables the overall <b>change management</b>	SC14	“To achieve this goal, change management was needed that has since then been driven by the Business Process Leadership (BPL) team, a corporate-wide Centre of Excellence consisting of business process managers and business process analysts – all with an extensive know-how of the digital solutions in use, as well as the configurations and the processes and business behind.”
	R1, C1	“they are creating change requests and managing those change requests. This is something that mainly they are doing with colleagues from (anonymised). Also, change requests to Celonis,”
	R2, C2	“Because once we came up with the process improvement initiatives, the discussions were around how to progressively introduce it and ensure that it becomes a part of the normal routine of staff and students”
	Ex3	“we do initial process discovery and then we go back with them and do some business workshop with them, finding our insights and things. Then the third of weeks, especially about the improvement option. So we usually separate our improvement into three things, automation, optimisation and reengineering. So we create preliminary recommendations from our insights and then validate that with them, which of this recommendation is actually. Is able to be implemented”

<b>P5: Information availability</b> can directly enhance or inhibit <b>Data and event log quality</b>	SC25	“Bernd Jacob, Head of Master Data Management, and his team are responsible for ensuring that the company’s master data is properly prepared and available in the right place at the right time.”
	SC2	“To compound this challenge, we also had constraints in obtaining “accurate” data since this capability was limited to specialised analytics teams.”
	SC43	“Both data availability, data quality, resulting from poor general it controls, are hurdles we need to overcome.”
	R3, C1	“then you come to the point which is much bigger, it's the data architecture, data governance, and data ownership discussion. I think it's actually a key enabler for a good process mining, that people know where the data is coming from, who owns it, and who defines the quality standard”
	Ex1	“If you haven't got data to analyse something, you won't have an output. If you've got data that you're working with data that is impaired with data quality issues or whatever, you won't be able to create an output from the analysis.”
<b>P6: Tool capabilities</b> mediates <b>stakeholder support and involvement</b> and <b>change management</b>	SC6	“The capability of benchmarking inside the same process using different context is especially useful to understand how the process owner could make some process improvements to increase the entire process performance”
	SC10	“The Process Mining solution was quickly accepted by the users as it was seamlessly integrated into the analytics platform.”
	R2, C2	“What we also did is comparative analysis. So we divided the log into multiple cohorts. So one of the questions of interest was to see how processes are deviated across faculties. So we had faculty as an attribute within the log and we divided the log across those faculties. And then we tried to find the differences for a particular process across the faculties. Interestingly, there shouldn't be any differences and that led to a case of standardisation for running of those processes across those faculties.”
	R2, C2	“So that's one example of conformance that we were trying to find, there were others as well. And we found deviations, we actually saw that there were I guess around 300 students who were actually doing annual progress report before the confirmation. So that was an interesting finding, which again resulted in a new intervention in the new workflow.”
	R2, C2	“we used process discovery algorithms, but we had to show those models to the stakeholders in order to ensure that; so those stakeholders were domain experts, that that made some form of sense, and if not, then we manually edited the models and the plug-in itself so that it reflects the truth. And then we use that as a standard, let's say, of how the student should actually progress the student journey.”
		“So I've used the mining tool to help me build that picture of saying we have a big problem, and if you continue to try and fix it the way you've always fixed it, you'll continue to have this problem because that's the way you've

	Ex5	always done it. So here's what's really happening. So that's why I use the mining tool in addition to other insights I have. But the process mining tool is a critical great graphical way of doing it and it's helped made an influence and flip the bank in working a very different way.”
<b>P7: Training</b> directly influences <b>stakeholder support and involvement</b>	SC5	“Custom classroom trainings were developed to fully engage the true end users and immerse them in the world of Process Mining”
	SC5	"... it begins with putting the end users through the athenahealth custom training to get them familiar with Process Mining terminology and data requirements”
	SC6	“The upskilling of Process Mining knowledge can be implemented in different ways, through online or on-the-job training, webcasts for specific topics, workshops, and open sessions.”
	SC12	“During the implementation we had various training sessions with internal customers of our Shared Service Centre, who were then not only interested in the results of Process Mining on our shared service centre processes.”
	R1, C1	“And for the users, the operative users that we had the solution towards, before they get a user, or Celonis, they need to do small training. So, we have a governance for enablement here to make sure that when they start working with Celonis, that they understand how the solution works.”
	Ex1	“And this is something like you need to have enabled users, right? Because any, any company that starts off with process mining and basically the users aren't enabled and they don't know what they are doing. You will either have wrong results, you will have problems in the end because they can't handle any extraction questions. They aren't able to create either PQL or signal codes or whatever because you need to have some sort of a more, at least to some extent, you need to understand what you are doing, how you create KPIs and so on”
<b>NEW CSF INTERRELATIONSHIPS FROM CASE STUDIES AND EXPERT INTERVIEWS</b>		
<b>P8: Technical expertise</b> directly influences <b>team configuration</b>	R3, C1	“I think having a skilled implementation team is absolutely critical. You need your data engineers and data scientists.”
	R3, C1	“I spent the last couple of weeks with the SAP Basis Team to sort out the real-time extraction challenge; that shouldn't be me doing this. I should have a person who's closer to the SAP Basis Team to just sort this out and get back to me and say, ‘We fixed it.’”
	R3, C2	“I do think as a project team we looked at the information that we believe was available. But I think we identified that within the project team itself we didn't really know how to pull this information.”
	Ex2	“I kind of find just looking at the way that you you've structured this and this is kind of overall process mining expertise, yes, extraction and then the kind of the transformation work and how to build the analysis model. I kind of find that a lot of projects, the expertise is in one or two of those areas but not all three. So when I come in, I

		usually have in my own kind of approach to a kind of like assessment of the team of where their weakness is, and then me and my implementation team usually cover the weakness rather than the team comes in and they've got all parts of the technical expertise that you would need. So sometimes they're very good at the initial abstraction and initial transformations, but not so good at then thinking about what the business KPIs that will need to then model in the solution to be able to show what that impact could be. Other times it's the other way round."
<b>P1b: Team configuration moderates technical expertise and stakeholder support and involvement</b>	R3, C1	"we had this Data Engineering Team who developed the analysis, and then we needed to validate it with a business again...data engineer needs to be very well informed about what's happening in the business, and that close connection of business domain knowledge, data analytics, process knowledge with the data engineer, it only means you need to have an integrated team. So, the collaboration with domain experts, data engineering, analysts, is absolutely necessary."
	Ex4	"configuring A-Team and how you exactly configure it I think it's a bit scenario dependent. Again like do you need a lot of data engineering then you would have to put more data engineers in your team whereas if you have high quality clean data maybe, you need more data scientists or process mining experts. So I think that the balance depends on the case, but I think establishing a team leads to more multidimensional view on everything.....you have someone in charge of data cleaning the data engineer, you have the data scientist and then you have the process analyst or the process mining analyst and then you have say the SME or the domain expert, maybe users, yeah, maybe a champion. And maybe a consultant also coming in to help with this or that or you know project manager, things like that"
<b>P9: Stakeholder support and involvement influences team configuration</b>	R1, C1	"Process improvement was a core part of this global strategy that they announced, and what they want to do here is, first and foremost, to build a team ... an operation excellence or process excellence team that brings the strategy into action at (Case 1)"
	Ex4	"without domain knowledge, you often really miss a lot of vital knowledge to make the analysis work. So you you do see those 3 personas often when you see, I don't know. Companies presenting on how they conducted such. Projects and I think you often see that the variation is then."
<b>P10a: Team configuration moderates between stakeholder support and involvement and Project Management</b>	R1, C1	"So, we really created a lighthouse (project), which then led to a visibility on the board level that they said, 'Wow, what the Navy Seal team is doing there, it's really working well. Let's increase the team, let's increase the mandate that they have, let's really make it a big program."
	Ex3	"Project management wise, there's basically just one person is either me or one of my team members that handle the projects that also with the projects and get the main impact as the consultancy and for the cost and the budgeting itself is then by my managers that get the office budget first, so we offer we send them the proposal first with the use of cost and the time it took and then after that it's basically leading the projects either by me or one of my team members leading. In the data working with their database administrators and then their process owners"
	Ex4	"because there's a team, there will be more stakeholder support and involvement. And because you established A-Team because you invest, expectations are going to be higher, but also clearer because there's more at stake. So I think those in my view are the most beneficial aspects of. Hopefully configuring A-Team"



<b>P11: Team configuration influences Training</b>	R2, C1	“a lot of trainings were done, a lot of documentation for the sales reps, how to use (Case 1) in the daily business”.
	R1. C2	“at various points we would have training support as well within the team”
	Ex5	“we utilise the vendors to come in because they're the experts and it's in their interest to make sure that we get it working correctly to get the benefit out of it. UM and help the training initially to get people up to be best practise”
<b>P12: Team configuration influenced various aspects of the structured process mining approach</b>	R1, C1	“we have the Process Excellence team, they are really responsible for all of the Celonis process mining and process improvement stuff”
	Ex4	“I think it's generally beneficial, so I think working in a team, it will probably lead to higher quality results in general of the analysis of the insights”
<b>The CSF interrelationships were identified from secondary data and case studies only therefore, not reported in the main paper.</b>		
<b>Tool capabilities mediates structured process mining approach and project management</b>	SC51	“The application of Process Mining capabilities, such as automatic process discovery, allowed the DSTIC team to quickly identify improvement opportunities, prioritise them, and achieve benefits.”
	SC28	“Another issue related to choosing the correct level of detail. For instance, we could include each individual process step in the customer journey or only the executed processes, without the individual steps.”
	R1, C1	“So, yes, the positive results were mainly impacted by the (Company 2) solution because we took the user requirements and then we built specific solutions in (Company 2) that exactly targeted those requirements”
<b>Structured process mining approach influences Data and event log quality</b>	SC15	“80% of the effort with this Data Science project was related to data preparation and processing. These data preparation tasks included extraction, modelling, storing, transforming data, dealing with missing data, and the dealing with process changes that affected the data composition.”
	SC13	“Given that the data preparation steps are now in place and can be easily repeated on new data, we can now continue to analyse and quantify this process to continuously improve it.”
	SC4	“Firstly, it is recommended to have one central data source where P2P data are being collected in real-time no matter what type of relational database technology is being used. A strong architecture landscape is key to a successful Process Mining implementation.”
	SC3	“To be able to apply Process Mining in our production processes, relevant sensor data needed to be extracted. Therefore, it is of great benefit that BMW Group is using (almost) the same IT system in (almost) all plants to collect and store this data.”

	R3, C1	“and then you come to the point which is much bigger, it's the data architecture, data governance, and data ownership discussion. I think it's actually a key enabler for a good profit management, a good process mining, that people know where the data is coming from, who owns it, and who defines the quality standard that you don't have to take care of it.”
<b>The CSF interrelationships were identified from secondary data only therefore, not reported in the main paper.</b>		
<b>Technical Expertise</b> contributes to <b>Training</b>	SC2	“This saw the creation of a small team of data scientists whose sole focus was ensuring the tool performed as needed and the end users were trained with the required skills to process mine. This team served as points of contact for other business departments to help them scale out the capability locally; essentially we created a CoE for Process Mining.”
<b>Technical Expertise</b> contributes to <b>Training</b> as part of the <b>Structured Process Mining Approach</b>	SC22	“Ramax extracted all of the relevant data, which mainly came from Siebel CRM, created an event log, set up the data model, worked on the dashboards that contain the process flows and KPIs, and also trained the VTB staff to use the software.”
<b>Technical Expertise</b> enable overall <b>Project Management</b>	SC2	“The implementation of Process Mining within Uber’s community operations team was largely a success given the huge efficiency gains and the small amount of resources involved in implementation (team of four comprising of myself, Uber IT engineer, and two data scientists from our vendor).”
	SC12	“One major attempt was to accordingly build data engineering and data science expertise from the early beginning during the implementation. This helped us learn during the project phase and to implement new use cases in short time frames without external support later.”

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