» **Executive Summary**

FAU 2021 Process Mining Survey
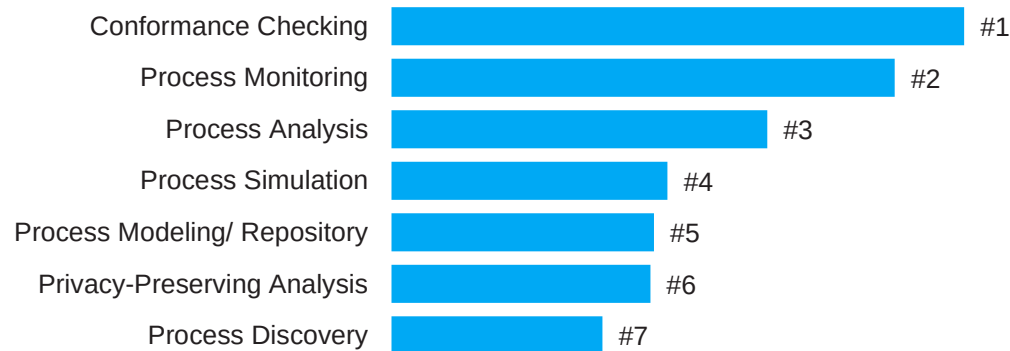
The importance of Process Mining software features: a practitioner perspective

Feature preferences by relative importance

Our results revealed underlying preferences of practitioners in a software selection scenario with regard to seven Process Mining software features. The following breakdown by relative importance shows which features were important for practitioners, and which less.

Feature	Rank
Conformance Checking	#1
Process Monitoring	#2
Process Analysis	#3
Process Simulation	#4
Process Modeling/ Repository	#5
Privacy-Preserving Analysis	#6
Process Discovery	#7

Process Discovery, the fundamental Process Mining technique, scored least in terms of relative feature importance. We did not find evidence for Directly-Follow Graphs being more preferred than process flow graphs with semantically correct process notations (e.g. BPMN, Petri nets).

For Privacy-Preserving Analysis, respondents favored Access Rights & Roles Management capabilities over data pseudonymization techniques. Significant preference differences in terms of region of residence (Western Europe vs. Rest of the World) were found for three features. Stakeholders from Western Europe attributed a higher importance to Process Analysis, while stakeholders from the rest of the world considered Process Modeling/Repository and Process Simulation more important than users from Western Europe.

Underlying user segments

The survey data revealed three salient user segments.

"**Compliance detectives**" represent the largest cluster and are characterized by high importance for Conformance Checking and Process Monitoring functionality.

"**Privacy-aware process miners**" prioritize Privacy-Preserving Analysis and Process Analysis over other features.

"**Process all-rounders**" had a relatively homogeneous set of preferences towards PM software features and attributed a higher importance to Process Modeling/Repository and Process Simulation than users of other segments. This segment is characterized by a smaller proportion of respondents from Western Europe than other segments, and by a higher proportion of managers than other segments.

Similar to the preferences across all respondents, all three types of users attributed a low importance to Process Discovery (PD), the fundamental Process Mining functionality. Potential reasons include: i) Users take PD for granted, not considering the functionality as a differentiator (i.e. minimum requirement), ii) PD is seen as a "starting point" only and is not used widely in practice, iii) limitation of research method due to the definition of PD (DFGs vs. semantically correct process notations)

Further software capabilities important to practitioners

Seven distinct themes emerged from an open-ended question on important Process Mining software features not mentioned in the survey. The following overview includes representative statements from respondents.

Data quality

Automated data validation and cleansing (e.g. Machine Learning-supported) to ensure high quality of ingested data

Event log capabilities

Multi-level (i.e. object-centric) process mining, for instance for orders and invoices (N:M relationship). Visualization of multi-level process flows for a holistic view on the process

RPA & Task Mining

In-built RPA capability, produce pseudo-code for potential automation, API to RPA; Task Mining capabilities

Integrability / IT ecosystem

Integration of process mining software in existing IT ecosystem (e.g. SAP, PowerBI, etc.) with write-back functionality to source system

ETL / Data connectivity

Ease of ETL, data preparation / pre-processing; data modeling; handling of huge datasets (e.g. 100m+ events), near real-time data processing; native connectors & APIs esp. for core ERP systems

Ease of use

Ease of use and customization by non-technical users; availability of training material if coding experience is required from users

Dashboards

Customizable dashboards and pre-configured dashboard templates for common processes like P2P, O2C, H2R, I2R, etc. – should be designed with executives in mind (easily interpretable results)

» Check out how Process Mining software currently fullfills these aspects on www.processmining-software.com

Research Method

Feature preferences of Process Mining practitioners were determined by means of a Conjoint survey. Using Sawtooth Software's state-of-the-art adaptive choice-based conjoint (ACBC) approach with Hierarchical Bayes (HB) estimation, respondents engaged in a trade-off scenario with hypothetical Process Mining tools (bundles of seven software features). User segments were identified with a k-means clustering method.

The survey responses were collected via an online survey from the end of February to the end of April 2021. A broad target group was defined and included professionals with prior Process Mining experience, general experience with process optimization or modeling, and those professionals generally interested in the Process Mining discipline. The respondents were primarily recruited via email invitations and LinkedIn InMails. Around 1,550 invitations were sent out in total. Recruiting channels included various conferences (e.g. PEX Live, ICPM), online events (e.g. camps by Fluxicon), and customers of Process Mining software vendors, to name a few.

A total of 344 respondents participated in the survey and completed 219 questionnaires. Out of these, 46 respondents (21%) were excluded based on a quality exclusion procedure, leaving a final sample size of 173. Vendor representatives and researchers were excluded. The median duration of the survey was 13.7 minutes and 8.1 minutes for the ACBC part of the survey.

Exhibit: Descriptive sample statistics for final research sample

Variables	Description	%
Region	Western Europe	60.7
	Central & Eastern Europe*	13.3
	North America	4.6
	South America	2.9
	Asia Pacific	12.7
	Middle East & Africa	5.8
Size of Organization	<50	22.5
	50-249	6.9
	250-999	11.6
	1000+	59.0
Job Role	Management / Sponsor	22.5
	Process Owner / Process Improvement Stakeholder	8.7
	Process/Business Analyst / Operations	22.0
	IT Professional	6.9
	Data Expert	8.7
	Consultant	31.2
PM Experience	No experience so far / Just getting started	9.8
	<1 year	19.7
	1-3 years	39.9
	3+ years	30.6
Primary Purpose	Create process transparency	15.6
	Guarantee compliance / minimize risk	8.7
	Reduce operational cost / Detect inefficiencies	17.3
	Continuous process improvement / Achieve Operational Excellence	35.8
	Identify automation opportunities	8.7
	Increase customer satisfaction	1.7
	Standardization and harmonization	3.5
	Decrease lead times	2.3
	Other	6.4
Experience with PM software	Yes	74.6
	No	25.4

N = 173
*Including Russia and Turkey

Exhibit: Respondent breakdown by country

Country	n	%
Germany	48	27.75%
Netherlands	17	9.83%
Switzerland	11	6.36%
Russia	8	4.62%
India	8	4.62%
Poland	7	4.05%
United States	7	4.05%
Australia	6	3.47%
Spain	5	2.89%
France	5	2.89%
Other countries	51	29.52%

Exhibit: Respondents' software usage

Software	%
Celonis	53.2%
Disco	30.6%
Academic tools	27.2%
UiPath	18.5%
Apromore	11.0%
ARIS	11.0%
PAFnow	11.0%
Minit	10.4%
Other	10.4%
Signavio	9.8%
MEHRWERK (MPM)	6.4%
ABBYY Timeline	5.8%
myInvenio	4.6%
LANA	4.0%
QPR ProcessAnalyzer	2.3%
EverFlow	1.2%
process.science	1.2%
ProDiscovery	0.6%
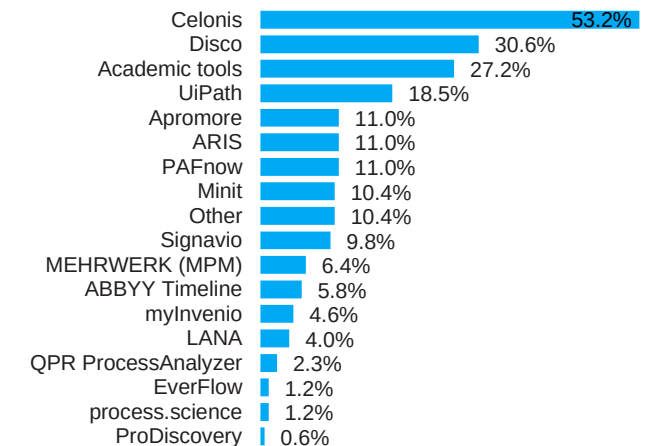
A respondent may select more than one software, therefore cumulated percentage is >100%

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Contact us

Get in touch with us for more insights!

Matthias Stierle

Researcher

FAU Erlangen-Nürnberg

Institute of Information Systems

matthias.stierle@fau.de

Daniel Viner

Research Assistant

FAU Erlangen-Nürnberg

Institute of Information Systems

daniel.viner@fau.de

Chair of Digital Industrial Service Systems

Prof. Dr. Martin Matzner

FAU Erlangen-Nürnberg

Institute of Information Systems

martin.matzner@fau.de

Mission

To inspire and educate, expand the boundaries of knowledge and create techno-logical solutions for the opportunities and challenges of digital transformation in industry and society.

Main fields of research

Digital Service Systems	Business Process Management, esp. Process Mining	Information Management

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