BPM NEWSLETTER

EDITORIAL

I am happy to address you for the first time as the new chair of the BPM Conference Steering Committee. In this newsletter, we have some exciting news to share.

Not only the chair of the BPM steering committee has changed. Mathias describes the contributions of the three retiring members and we will introduce four new members.

In September, we will celebrate the 21st edition of our conference series in the city of Utrecht. The local team and this year's PC Chairs have important announcements to make, which will increase your appetite to take part. We also take the chance to introduce you to the Utrecht team.

Then, we have an interview with an important BPM person. Stefanie had the opportunity to meet with Chiara Ghidini and talk about challenges and opportunities that recent AI advancements provide for BPM.

There are more important developments. First, we are happy to announce that there will be a new journal serving our community. We teamed up with the Steering Committees of the IEEE Task Force on Process Mining to that end. Second, we are glad to see a systematic approach of our conference towards diversity, thanks to Shazia, Adela and Jens!

Happy reading, all the best, and take care,

Jan
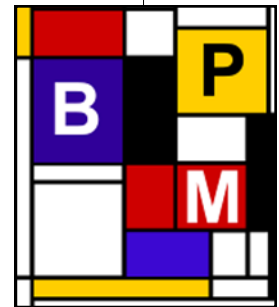
1st BPM 2003 Eindhoven

2nd BPM 2004 Potsdam

3rd BPM 2005 Nancy

4th BPM 2006 Vienna

5th BPM 2007 Brisbane

6th BPM 2008 Milan

7th BPM 2009 Ulm

8th BPM 2010 Hoboken

9th BPM 2011 Clermont-Ferrand

10th BPM 2012 Tallinn

11th BPM 2013 Beijing

12th BPM 2014 Haifa/Eindhoven

13th BPM 2015 Innsbruck

14th BPM 2016 Rio de Janeiro

15th BPM 2017 Barcelona

16th BPM 2018 Sydney

17th BPM 2019 Vienna

18th BPM 2020 Seville

19th BPM 2021 Rome

20th BPM 2022 Münster

21th BPM 2023 Utrecht

THANK YOU AND WELCOME:
THE NEW BPM STEERING COMMITTEE

With Wil van der Aalst, Jörg Desel, and Boualem Benatallah, three longtime members have resigned from the BPM Steering Committee. As former chairperson, I gratefully acknowledge their dedication and commitment.

Wil van der Aalst is often attributed godfather of process mining. But first and maybe foremost, he is the father of the BPM conference series. He organized the 1st International Conference on Business Process Management at TU Eindhoven in 2003. Wil was a BPM PC Chair in 2003 and in 2005, he established the BPM Steering Committee, and he chaired it until 2017. It is safe to say that Wil has been instrumental for the success of the BPM conference series.

Jörg Desel was PC Chair of the 2nd BPM conference that took place in Potsdam in 2004. Jörg has been an active member of the BPM Steering committee since its beginning. He was one of the colleagues representing the formal research methods in the Steering Committee. He was responsible for the Test-of-Time award. We remember his brilliant laudations for the award winners.

Boualem Benatallah joined the BPM Steering Committee after having served as BPM 2005 PC Chair. Boualem opened BPM towards the web services community, looking at process-related research from a software perspective. Boualem served as General Chair at BPM 2018 in Sydney, where the track system has been introduced. He helped the BPM newsletter in his role as interview editor, providing the BPM community with very interesting perspectives from experts in the field.

Thanks Wil, Jörg, and Boualem for your service to the BPM community, I truly enjoyed working with you!

Mathias

We are glad to welcome four new members of the BPM Steering Committee: Avigdor Gal, Chiara Ghidini, Adela del Rio Ortega and Matthias Weidlich.

Avigdor Gal is the Benjamin and Florence Free Chaired Professor of Data Science and the Co-chair of the Center for Humanities & AI at the Technion - Israel Institute of Technology. His research focuses on elements of process and data integration under uncertainty, making use of state-of-the-art machine learning and deep learning techniques to offer an improved data quality. When applied to process science, his work focuses on process mining in settings where log data is incomplete or stochastic in nature. His work on queue mining has awarded him a best paper award in BPM 2017. His research is implemented through his ties as a consultant. He was recently a member of a MAGNET project FoodIoT, where transfer of knowledge from academia to the food industry assists adopting modern process and data science techniques to improve their performance.

Chiara Ghidini is a senior Research Scientist at Fondazione Bruno Kessler (FBK), Trento, Italy, where she heads the Process & Data Intelligence (PDI) research unit and is responsible for the scientific ordination of the new centre of digital Health & Well Being. Her scientific work in the areas of Semantic Web, Knowledge Engineering and Representation, Multi-Agent Systems and Process Mining is internationally well known and recognised, and she has made significant scientific contributions in the areas of: formal semantics for contextual reasoning and multi-context logics; formal frameworks for the specification of deliberative resource bounded agents; ontology mappings and integration; collaborative modeling platforms, business process modelling, and predictive

business process monitoring. She has been involved in a number of international research and industrial projects.

Adela del Río Ortega is a Professor at University of Seville (US) and a member of the SCORE-Lab Unit of Excellence and the ISA Research Group. She obtained her international PhD in Computer Science Engineering in 2012. With her PhD thesis, she opened the research line of Business Process Management in her group. Her research mainly focuses on process performance indicators (PPIs). Other research interests include RPA, knowledge-intensive processes, decision management in BPM, conversational agents to support BPM in different ways or Workstream collaboration tools. She developed two registered software tools and has taken part in more than 10 R&D&I projects and has cooperated with several IT companies as a consultant and researcher.

Matthias Weidlich is a professor with the Department of Computer Science at Humboldt-Universität zu Berlin in Germany, holding the Chair on Databases and Information Systems. His research interests span the fields of process mining and automation, event stream processing, and exploratory data analysis; and his results have been published in leading journals and the proceedings of the premier conferences in the field. He is co-author of the textbook Conformance Checking, serves as Co-Editor in Chief for the Information Systems journal, and is a member of the steering committees of the ACM DEBS conference series and the BPM conference series. He is an expert on research at the intersection of database systems and BPM.

We are happy to have you on board and I look forward to the collaboration with you in the Steering Committee!

Jan

SUBMIT YOUR PAPER TO BPM 2023!

Are you interested in sharing your insights and knowledge regarding business process management? If so, then you should submit a paper to the upcoming BPM Conference in Utrecht.

The BPM Conference is a great opportunity for everyone interested in BPM to share their knowledge and expertise with the BPM community. This year's conference will be again structured into three tracks: (I) Foundations, (II) Engineering, and (III) Management. But which one is the track for you?

To put it in a nutshell:

- If you have a breakthrough BPM idea that has a formal, mathematical, conceptual or philosophical nature, Track I could be the right one for you;

- If your technique outperforms existing process modelers or process miners or if it overtakes existing systems for enactment of process models, then Track II is the excellent place to aim for;

- If your work has a strong socio-technical focus or has been applied in an organization and the evidence is significant, Track III is the home for your paper!

Additionally, make sure to look beyond the three main tracks. There are other specialized forums where you can present your work. You can always ask the track chairs if you have any questions, and you can check out the senior PC to see who will be assessing your paper.

In more detail, Track I revolves around topics that have a foundational nature - formal, mathematical, conceptual or philosophical nature. It includes the underlying principles of BPM, computational theories, formal methods, but also novel problems, languages, architectures, as well as conceptual frameworks and techniques. Empirical evaluation is not required. Technical quality and groundbreaking nature highly matter.

Track II deals with engineering aspects of BPM research. It covers, among other things, process modeling, the enactment of process models (including the interaction with services and deployment architectures) as well as business intelligence (including process mining techniques). All papers in this track should include rigorous and repeatable empirical evaluations that demonstrate the merits of the artifact introduced.

Track III invites papers that focus on the socio-technical, cognitive, or psychological aspects of BPM techniques/tools/methods as well as managerial aspects of BPM in and across organizations. It aims to advance our understanding of how BPM concepts, models, methods as well as the underlying information systems can be situated in and be used to transform organizations to deliver business value.

The submission deadline is soon! Abstracts are due on **March 15, 2023** (AoE)! Papers must be submitted in time via the BPM 2023 EasyChair submission site https://easychair.org/conferences/?conf=bpm2023. Please consider our published principles for open science and diversity, equity, and inclusion when you submit!

We are looking forward to seeing you in Utrecht,

Andrea, Chiara, Christian, and Shazia

(BPM 2023 program chairs)

General Chair

Hajo Reijers
(Utrecht University)

Main Conference PC Chairs

Track I (Foundations):

Chiara Di Francescomarino
(University of Trento)

Track II (Engineering):

Andrea Burattin
(Technical University of Denmark)

Track III (Management):

Christian Janiesch
(TU Dortmund University)

Consolidation Chair:

Shazia Sadiq
(The University of Queensland)

Publicity Chairs

Iris Beerepoot
(Utrecht University)

Andrea Delgado
(Universidad de la República de Uruguay)

Mahendra ER
(Institut Teknologi Sepuluh Nopember)

Proceedings Chairs

Xixi Lu
(Utrecht University)

Felix Mannhardt
(Eindhoven University of Technology)

Organizing Committee Chairs

Inge van de Weerd
(Utrecht University)

Jan Martijn van der Werf
(Utrecht University)

Pascal Ravesteijn (HU University of Applied Sciences Utrecht)

BPM 2023 WORKSHOPS: SHARE YOUR IDEAS!

BPM 2023 features several workshops dedicated to specific areas of business process management. Workshops offer a unique opportunity to share novel ideas and promising preliminary research results that can trigger in-depth discussions and reflection. As every workshop has specific topics of interest related to a research area, the audience and the discussions are more focused. This is a perfect setting to give visibility to your research in a more relaxed yet specialized environment.

Among the submitted workshop proposals, eight workshops were selected that featured at least at one previous BPM conference, while three workshops were added that offer entirely new themes.

These eleven workshops offer a rich spectrum of areas of interest related to business process management. Within the final catalog of BPM 2023 workshops, there is room for research on data- and process-mining techniques, artificial intelligence applied to novel technologies in conjunction with business processes, and methods and tools based on natural language processing. Research results addressing social and human aspects of business process management and declarative, decision-based, or hybrid approaches to process management problems are also welcome. Lastly, several workshops have a multidisciplinary focus and expand to neighboring research fields that have synergies with business process management, like operations management for data-driven process optimization, the Internet of Things (IoT) for improved process modeling and mining, and routine dynamics for better understanding the notion of change in business processes. The new workshops focus on formal methods in business process management, object-centric processes, and digital twins for business processes.

Moreover, every workshop will organize at least one interactive session beyond classical paper presentations, e.g. in the form of panel discussions, manifesto writing, competitions, challenges, and brainstorms. Furthermore, most of the workshops will make room for short papers in order to foster early career researchers to get a chance to present novel research ideas.

Considering this, we are happy to announce the following list of workshops for BPM 2023:

- Workshop on Natural Language Processing for Business Process Management (NLP4BPM)

- Business Process Management and Social Software (BPMS2)

- Workshop on Change, Drift, and Dynamics of Organizational Processes (ProDy)

- 2nd International Workshop on Data-Driven Business Process Optimization (BPO)

- 7th International Workshop in Artificial Intelligence for Business Process Management (AI4BPM)

- 19th Int. Workshop on Business Process Intelligence (BPI)

- 7th International Workshop on Business Processes Meet the Internet-of-Things (BP-Meet-IoT)

- 11th International Workshop on DEClarative, DECision and Hybrid approaches to processes (DEC2H)

- International Workshop on Digital Twins for Business Processes (DT4BP)

- Object-centric processes from A to Z (OBJECTS)

- First International Workshop on Formal Methods for Business Process Management (FM-BPM)

The submission deadline is May 30, 2023.

More details can be found on https://bpm2023.sites.uu.nl/workshops/

We are looking forward to your submissions!

Jochen De Weerdt and Luise Pufahl

(BPM 2022 Workshop Chairs)

KEYNOTES AT BPM 2023: THE POWER OF PROCESS

In the tradition of our conference series, BPM 2023 features three outstanding keynotes with different perspectives on business process management.

Marta Kwiatkowska, currently a Professor of Computing Systems and Fellow at Trinity College, University of Oxford, has an extensive background in academia, having previously held positions as a Professor in the School of Computer Science at the University of Birmingham, a Lecturer position at the University of Leicester, and an Assistant Professorship at the Jagiellonian University in Cracow, Poland. Her area of expertise

lies in probabilistic and quantitative verification techniques and the synthesis of correct-by-construction systems from quantitative specifications. Recently, she has focused on safety and trust in the fields of robotics and Artificial Intelligence, with an emphasis on safety and robustness guarantees for machine learning. Marta has been the recipient of two ERC Advanced Grants and an honorary doctorate from KTH Institute of Technology, and was the first female winner of the Royal Society Milner Medal. She is a Fellow of the ACM, a Member of Academia Europea, and a Fellow of the Royal Society.

During her keynote, Marta will delve into the ways in which formal methods and robust machine learning can be applied in the context of BPM.

Matthias Weidlich is a professor with the Department of Computer Science at Humboldt-Universität zu Berlin and a new member of the BPM Steering Committee (see page 2 of this newsletter).

Matthias' keynote will focus on the link between database systems and BPM. The execution of business processes is often driven by data; continuously changes data stored in external systems; and generates meta-data that is useful for process analysis. This creates manifold opportunities to leverage process insights to improve data management, as well as to adopt concepts of database systems for improved process automation and analysis. In this talk, Matthias will illustrate these opportunities by means of existing work at the intersection of database systems and BPM, before outlining directions for future research.

Marc Kaptein, who currently is a Medical Director at Pfizer, combines his former experience as a practicing physician with deep knowledge of research and development of innovative drugs and vaccines to ensure these innovations ultimately reach patients in need.

Marc studied medicine at the Vrije Universiteit Amsterdam. After graduating he practiced in the field of gynecology and obstetrics in Haarlem and Utrecht. He started his career in the innovative pharmaceutical sector with Organon, a women's health focused company, where he fulfilled various medical and

marketing roles in the Netherlands and the United States.

After his return in 2007 he joined Eli Lilly and start-up MyTomorrows with ever growing responsibilities. He started his current position as Medical Director at Pfizer in 2016. Pfizer is a US based pharmaceutical company with 88.000 employees worldwide solely focused on developing innovative drugs and vaccines. Pfizer strives to bring breakthroughs to patients in the field of rare diseases, oncology, infectious diseases, auto-immune disease & inflammation, cardiovascular and metabolic disease and pain.

During the corona crisis he played an instrumental role in the roll-out of Pfizer/BioNTech's corona vaccine. In his capacity as senior medical voice of the company he aimed to reduce vaccination hesitancy by being a transparent source of knowledge about the development of the vaccine, its safety, efficacy and manufacturing.

Next to his job Marc serves on the board of biotech association Holland-BIO, is a member of the Zorgambassade, and adviser to the board of EV Biotech and is someone who applies his LSS Black Belt experience to solve everyday problems.

INTERVIEW WITH CHIARA GHIDINI

Chiara Ghidini is a new member of the BPM Steering Committee (see page 2 of this newsletter) and a keynote speaker of BPM 2022 in Münster.

Stefanie: In your keynote you talked about the integrative power of BPM and how to use it for integrating data, conceptual knowledge, AI, and, of course, BPM. Which challenges and research opportunities do you see at the intersection of these areas?

Chiara: This integration is very typical in BPM. In process modeling and discovery, for example, data and conceptual models are already tied together. AI brought new challenges because apart from discovery you can do prediction and apart from control flow you can discover guards, data, etc. The first challenge is to understand what you discover. One example is that things that you discover might be unlikely or things that you discover are really impossible, and understanding the difference between the two is challenging and requires a conceptual understanding of what we discover and a representation of the real-world, e.g. based on ontologies.

Concerning AI, I see several challenges: first of all, AI can help past discovering business processes from other kind of data. Up to now the BPM community has focused a lot on structured data. There are other sources such as video, text, or audio. In that AI has a lot of power in information extraction. The challenge is to extract the kind of entities that are of interest to us which is not what the typical AI community does. For instance, typical image or video recognition algorithms do not capture an activity as it would be needed in process discovery.

Moreover, there are all the challenges that concern advanced services. AI is great in predictive techniques and there has been a good hybridation of BPM and predictive techniques in the form of predictive process monitoring. What is missing here is a tailoring of explainability to our predictive techniques. Up to now the BPM community just took what was ready in AI and applied it to explain what is the continuation of a control flow. We need to look more into devising our own explanation techniques, for instance, causal reasoning or

causal prediction. The other thing is on becoming proactive, being able to recommend what is best next.

Stefanie: What research question are you currently most excited about?

Chiara: First of all, we are currently going into the recommendation part, i.e., being able to learn good strategies from event logs using reinforcement learning. The challenge here is to deal with multi actor processes. We assume that we want to optimize the KPI for one of the actors, e.g., the customer or the bank. But the problem is that typically in reinforcement learning, for the environment, i.e., the non-agent part, you have a simulation for that. You are able to play this game between you and a simulator of the environment. But in BPM often we only have the data. Building good systems that overcome this challenge of having a good simulator for the environment, for everything that is not you or actors of the process that you are interested in is complicated.

The other thing we are exploring is again a source of recommendation, i.e., counterfactuals. This is typically used as an explanation technique. For example, instead of saying your loan in the bank is predicted to being rejected because XY, I say that the loan would be accepted if your salary would be higher. We are trying to use this as a source of recommendation. You want to change the outcome of the process. Then with the counterfactuals you can explore what you can change of your own story such the end becomes different.

The third thing is discovery from binary data which is not common in BPM. There was a long quest on the fact that all the process data are process data and there are no non-process-data. It was only about discovery from positive

traces. Now people are more and more thinking in terms of there are traces of Type A, e.g., patients that went well, and of Type B, e.g., patients that went bad, to be very simple. What we you want to learn is the model of the patients that went well focusing on what characterizes most the difference with the others. So you want to learn not just a picture of your data, but a picture of your data against another population.

And finally, I am interested in process extraction from text. With this large word models, e.g., GPT3, there are lot of resources.

Stefanie: We have often taken AI methods and applied them to BPM questions. Do you see any chance that from BPM we have questions to extend or even develop new AI techniques?

Chiara: I think and I hope so. For instance, for explainability, there is no satisfactory method for explaining temporal data that are not just time series data, but a sequence of events with attributes. If you feed complex multi-dimensional processes in current techniques, they often explode. We need to understand what is a good explanation of rich temporal data and this can be fed back to the AI community. For instance, for NLP, the experiments show that with GPT 3 temporal data, gateways, etc., cannot be discovered. Being able to overcome this would be also very important for AI people.

Stefanie: How much are AI people are aware of BPM?

Chiara: The communities are getting closer. There was an event organized by IBM plus BPM people at AAAI (https://ai4bpm.com/) to build an AI4BPM bridge. The doors are opening.

Stefanie: You have recently become a member of the BPM steering committee - congratulations! What are your plans for this new role?

Chiara: I want to help the community to grow and to integrate. I see myself as part of the BPM community and at the same time as an outsider. So I could bring the perspective of other communities such as the semantic web and AI community to BPM.

**Stefanie:** Thank you very much, Chiara!

GROUP COLUMN: FOCUS ON UTRECHT

The Business Process Management & Analytics group at Utrecht University is led by prof. dr. ir. Hajo Reijers and includes 15 researchers. Topics of interest include Robotic Process Automation, Workarounds and Process Mining. The group focuses on developing innovative BPM techniques and artifacts with a societal impact by working closely together with companies from the services and healthcare domains. This is reflected in their active involvement in Utrecht's AI Labs, where knowledge institutions collaborate with external organizations to solve societal issues pertaining to AI and data science. In particular, they coordinate the AI Lab for Public Services, which houses several PhD candidates doing research at ministries and other parties in the public sector. Moreover, they frequently contribute to activities of the interdisciplinary Future of Work Hub: a platform where researchers, policymakers and industry leaders from various disciplines work together to solve problems concerning work in its broadest sense.

The Process Innovation & Information Systems group at the HU University of Applied Sciences is headed by prof. dr. Pascal Ravesteijn and currently has 15 researchers. The group focuses on two lines of applied research. In the first line, they study the possibilities that technological developments (such as big data, blockchain, robotization, IoT and AI) can offer organizations. The second line of research is aimed at studying what competencies an organization needs to perform a digital transformation in a successful manner. The research group closely collaborates with ProcessCamp (formerly known as the BPM Forum in the Netherlands) which provides aspiring professionals with a knowledge platform of education, research and practice partners that supports the application of process management and related areas of focus in our rapidly changing world.
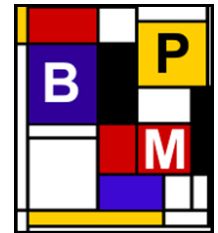
We look forward to combining forces and hosting the BPM 2023 conference!
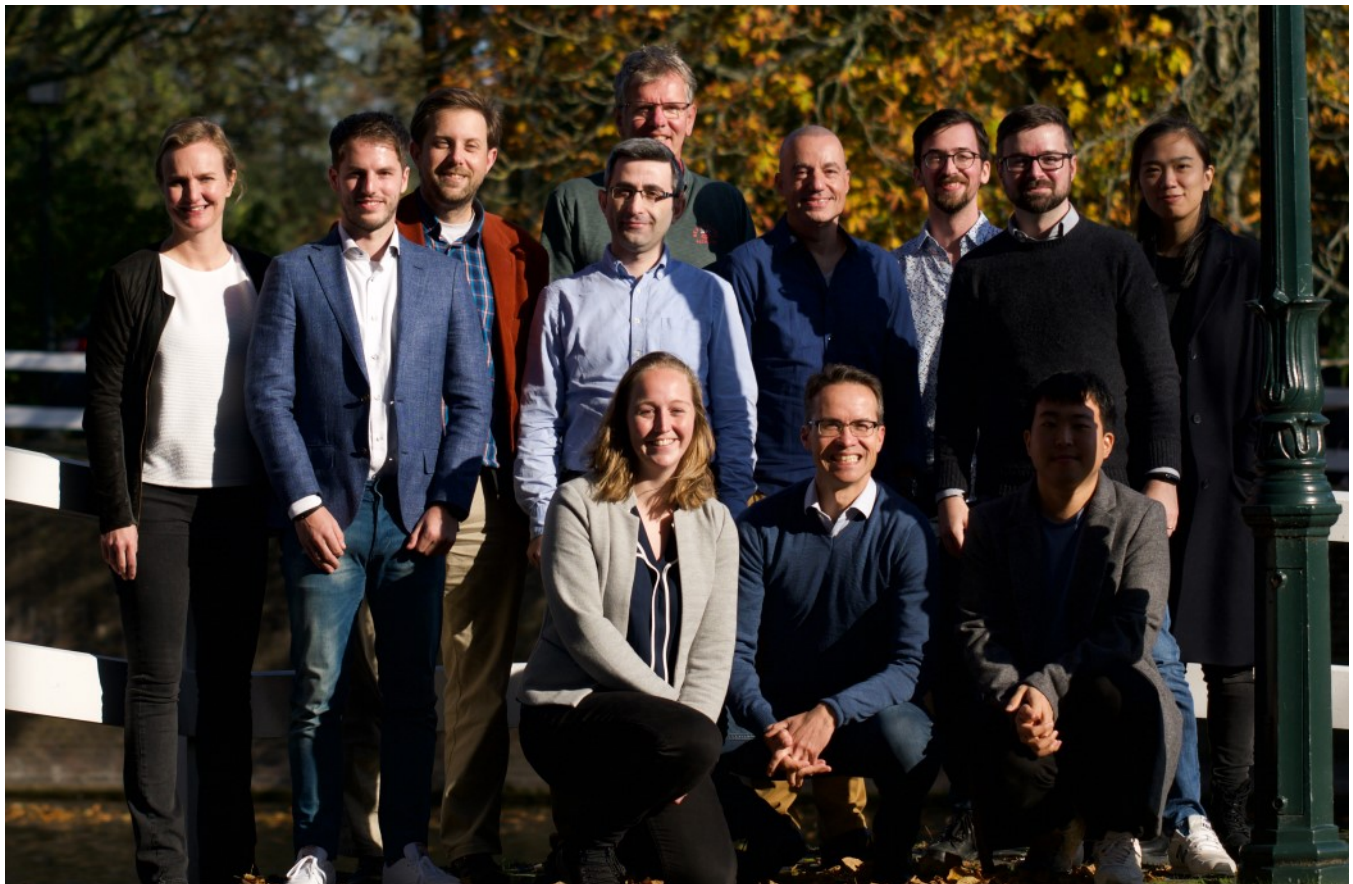
https://bpm-conference.org

This newsletter is an activity of the BPM conference series. The goal is to further strengthen the BPM community. This newsletter will appear twice per year. Input for the next newsletter is welcome (e.g. activities related to the BPM conference, interviews, contests, new datasets, tools, etc.); please contact jan.mendling@hu-berlin.de

ACTIVITIES OF THE COMMUNITY

Diversity, Equality, and Inclusion: We are thankful to Shazia Sadiq, Adela del Rio and Jens Gulden who initiated the first steps towards a systematic approach of the BPM conference to diversity, equality, and inclusion.

The BPM community is committed to the promotion of diversity, equality, and inclusion (DEI) in all aspects of our professional activities. We celebrate the diversity in our community and welcome everyone regardless of age, gender identity, race, ethnicity, socioeconomic background, country of origin, religion, sexual orientation, physical ability, education, and work experience. We encourage all participants to consider DEI in their writing, reviews, presentations, and all interactions related to the BPM conference.

The BPM2023 conference will include an inaugural Diversity and Inclusion sub-committee. The DEI sub-committee appointment in each year will be undertaken by the general chair of the BPM conference for the year. The sub-committee will reach out to the community to collect data and experiences e.g. through standard pre and post conference surveys, and coordinate with previous and upcoming committee members to create longitudinal data, track and report to the BPM steering committee on the diversity within conference committees, session chairs and speakers after each conference, and monitor and recommend diversity and inclusion activities at the conference in consultation with general and program

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The biggest business process management problems to solve before we die

Iris Beerepoot [a,*], Claudio Di Ciccio [b,*], Hajo A. Reijers [a,*], Stefanie Rinderle-Ma [c,*], Wasana Bandara [d], Andrea Burattin [e], Diego Calvanese [f], Tianwa Chen [g], Izack Cohen [h], Benoît Depaire [v], Gemma Di Federico [e], Marlon Dumas [i], Christopher van Dun [j], Tobias Fehrer [k], Dominik A. Fischer [j], Avigdor Gal [l], Marta Indulska [g], Vatche Isahagian [m], Christopher Klinkmüller [n], Wolfgang Kratsch [o], Henrik Leopold [p], Amy Van Looy [q], Hugo Lopez [e], Sanja Lukumbuzya [r], Jan Mendling [s], Lara Meyers [z], Linda Moder [j], Marco Montali [f], Vinod Muthusamy [m], Manfred Reichert [w], Yara Rizk [m], Michael Rosemann [d], Maximilian Röglinger [j], Shazia Sadiq [g], Ronny Seiger [t], Tijs Slaats [x], Mantas Simkus [r], Ida Asadi Someh [g], Barbara Weber [t], Ingo Weber [g,u], Mathias Weske [y], Francesca Zerbato [t]

chairs. This may include supporting the needs of conference attendees (e.g. accessibility needs or child minding), guidelines for inclusive writing and presentations, organizing of special sessions in the conference relating to diversity and inclusion.

The Biggest BPM Problems to Solve Before We Die: At the BPM2021 conference in Rome, Iris Bereeport, Claudio Di Ciccio, Hajo Reijers, and Stefanie Rinderle-Ma organized a witfully named Workshop on BPM Problems to Solve Before We Die. The workshop brought together nine papers exposing challenging problems that, if solved in one way or another, would constitute breakthrough advances to the state of art in the field of BPM. The presented problems relate to widespread pain-points, bottlenecks, and challenges faced by BPM practitioners at the enterprise level, at the process level, and at the activity or event level.

Following this successful workshop, the organizers and contributors summarized their research visions in an article in the April 2023 edition of Computers in Industry, titled "The biggest business process management problems to solve before we die". Signed by 42 researchers, the article provides a coherent research roadmap that will undoubtedly inspire hundreds of BPM researchers for decades to come. The article is available in open-access at:

https://doi.org/10.1016/j.compind.2022.103837

New Joint Journal: The Steering Committees of the BPM Conference and the IEEE Task Force on Process Mining have teamed up to establish a new journal on the research of our community. The new journal will be published by SpringerNature. This new journal will be called Process Science. Watch out for information to follow soon!