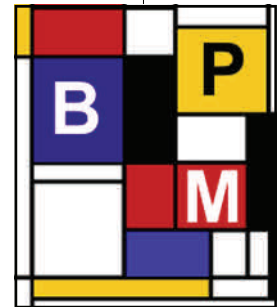# BPM NEWSLETTER

REFLECTING ON BPM 2016 IN RIO

The 14h BPM conference took place in Rio de Janeiro, Brazil. Flávia Maria Santoro and her team did a wonderful job. High-quality presentations illustrated progress in different BPM fields. Later in this newsletter, the different chairs report on the BPM 2016 conference.

ALSO IN THIS NEWSLETTER

Next to reflecting on BPM 2016 in Rio we also look forward to BPM 2017 which will take place in Barcelona, Spain! Josep Carmona, the general chair, will introduce the conference. The program chairs discuss the call for papers and the workshop chairs solicit workshop proposals.

This newsletter also includes an interview with the three founders of Celonis: Alexander Rinke, Bastian Nominacher, and Martin Klenk. Celonis is a young and rapidly growing process mining company. Next to the interview and information about BPM 2016 (Rio) and BPM 2017 (Barcelona), various new activities related to BPM are put forward in this 12-page newsletter.

- **Interview with the founders of Celonis**
- **BPM 2016 awards**
- **Report for the BPM 2016 PC chairs**
- **BPM 2017 in Barcelona**
- **BPM 2017 workshop proposals**
- **Process discovery contest**
- **MOOCs and books**
- **News from the BPM community**

THANKS FOR MAKING BPM 2016 A SUCCESS !

It was a great pleasure for me to organize BPM for the first time in South America. This was a great opportunity to increase the participation of Brazilian research and practitioner communities to BPM conference. While organizing BPM 2016 we faced three challenges: to increase the number of Brazilian participants, to increase visibility of BPM in Brazil and South America, and to bring Brazilian industry people to BPM. According to the numbers, I believe we achieved our goals! Participation was as hoped for (both qualitative and quantitative). Some researchers in Brazil (mainly from Computer Science) did not know the range of topics covered by BPM; so the conference helped to reach out to a wider community in Brazil. Many Brazilian students participated and got inspired to do research in novel areas. Participants from abroad were very happy to come to Rio and Brazil. The social program, including the Conference Dinner in the famous Rio Scenarium, was highly appreciated. In short, we consider BPM 2016 to be a huge success! Many people contributed to make BPM possible. Thanks to all!

Flávia Maria Santoro
(General Chair BPM 2016)
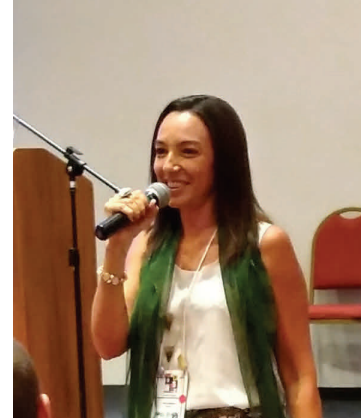
BPM 2017 WILL TAKE PLACE IN BARCELONA, SPAIN

The city of **Barcelona** is the second largest city in Spain, and the capital of Catalonia, with a population of 1,7 million inhabitants and 3 million in the metropolitan area. Its cultural richness, vibrant life, and splendid location has made it one of the most visited cities in the world, with over 4 million visitors per year. Barcelona became rather famous after the Olympic Games of 1992, just 24 years ago. The city is a cultural and shopping metropolis that offers a comprehensive variety of attractions.

You are invited to participate in the BPM conference in September and to contribute to shaping the BPM methods and technologies of the future. For the first time, the BPM conference visits Spain. The BPM community in Spain, both in academy and industry, is a very active group which will definitely contribute to the success of this important event. The **Universitat Politècnica de Catalunya** will host the conference, located in the pleasant neighborhood of Pedralbes.

Barcelona: several cities into one. Over two thousand years old, there is not just one Barcelona, but several. The old city (Ciutat Vella) offers the visitor a wide range of routes to follow and reconstruct the history of Barcelona by starting at the Roman walls, moving to the medieval streets of the Gothic Quarter and going to the popular promenade know as La Rambla. The city expansion, formed from 1860 to 1930, bears witness to the wealth brought about by the economic growth of the period. Barcelona is best known for its architectural treasures, featuring many unique buildings from the "Modernist" period (late 19th-early 20th centuries), seven of which have declared World Heritage Sites by UNESCO. Furthermore, in the last two decades, Barcelona has been an experimentation ground for the most innovative architectural concepts. Finally, Barcelona restaurants are delicious and well known around the world, offering a variety of food ranging from Mediterranean to international cuisine.

BPM 2017 will be a crucial event, not only to bridge northern and south Europe, but also to link continents as a follow-up from the successful BPM 2016 in Rio. Without doubt, many of the current challenges of the field will be considered in BPM 2017, and therefore it is a unique opportunity for staying aligned with the last advances in business process management.

Read more about BPM 2017 at: http://bpm2017.cs.upc.edu/.

Josep Carmona
(General Chair BPM 2017)

INTERVIEW WITH THE FOUNDERS OF CELONIS
A RAPIDLY GROWING PROCESS MINING COMPANY

Celonis is a **process mining company** that was founded in 2011 by three former students of the Technical University of Munich: **Alexander Rinke**, **Bastian Nominacher**, and **Martin Klenk**. Celonis' process mining software automatically analyses enterprise event data to bring end-to-end transparency and efficiency to business-critical processes. In 2015, Celonis signed a global reseller agreement with SAP, and many SAP customers use Celonis to analyze their processes. In the same year **Celonis won the Deloitte Fast50 Award i**ndicating that it was Germany's fastest-growing technology company. Companies such as Siemens, KPMG, Deloitte, Bayer, and Vodafone use Celonis Process Mining (Celonis4). For example, **within Siemens over 2000 employees use their software to get insights into the key processes**. Celonis also sponsored the **Process Discovery Contest @ BPM 2016** (organized by the IEEE Task Force on Process Mining). In recent years several new process mining companies emerged (next to Celonis, companies like Fluxicon, Minit, MyInvenio, ProcessGold, QPR, Perceptive, SNP, LANA, etc. offer process mining software) and many success stories were reported. Also within

the Business Process Management (BPM) conference one can see a remarkable uptake of process mining. Therefore, we interviewed the three founders of Celonis: Alexander Rinke, Bastian Nominacher, and Martin Klenk.

When and why did you get into process mining?

Bastian: In 2010, we did a joint project with TU Munich and a Munich based media company, the "Bayerischer Rundfunk". Our goal was to analyze and simulate processes in the IT service management domain. We looked into the Process Mining research done at TU/e in the group of prof. Wil van der Aalst and were fascinated by the potential of the process mining approach. In order to test it, we applied process discovery algorithms on the customer´s process data and presented the results back to them. In order to understand the user´s reaction to process mining, we printed over 300 discovered process models (for different timeframes, products, units etc.) in A3 format, put them up on a wall in a conference room and conducted a one-day workshop with the re-

sponsible process owners. It was amazing to see how fascinated the users were about the new kind of insights. And we knew that we had to start a process mining company!

Siemens is currently your largest customer. Can you describe how Siemens uses Celonis and what kind of benefits it delivers?

Alexander: Siemens uses process mining across a large number of different business processes and has over 2000 active process miners already (this number is expected to continue to grow quickly). We started working with Siemens in 2011, the first use case was to support Audit projects. Now, Siemens mainly uses Celonis to analyze Supply Chain processes such as source, make and deliver, financial processes and customer service. Benefits include efficiency gains, improved process quality and shorter throughput times. However, there is a lot more to come at Siemens, we are still at the beginning considering the enormous amount of processes in such a large organization. To me, this shows the incredible potential of process mining. If applied the right way, it can transform a whole business from the ground up.

In many process mining projects, most of the time and resources are used to collect the data. How to improve this?

Martin: I think, there are several ways to optimize this. Firstly, Process Mining products have to become even more flexible as to the type and structure of data they can work with. Secondly, we need to offer users standard connectors in order to make sure that they do not have to start from scratch every time. At Celonis, we now offer standard connectors to more than 50 different source systems. Thirdly, it is important to integrate with the most modern database and big data infrastructure technologies – such as SAP HANA.
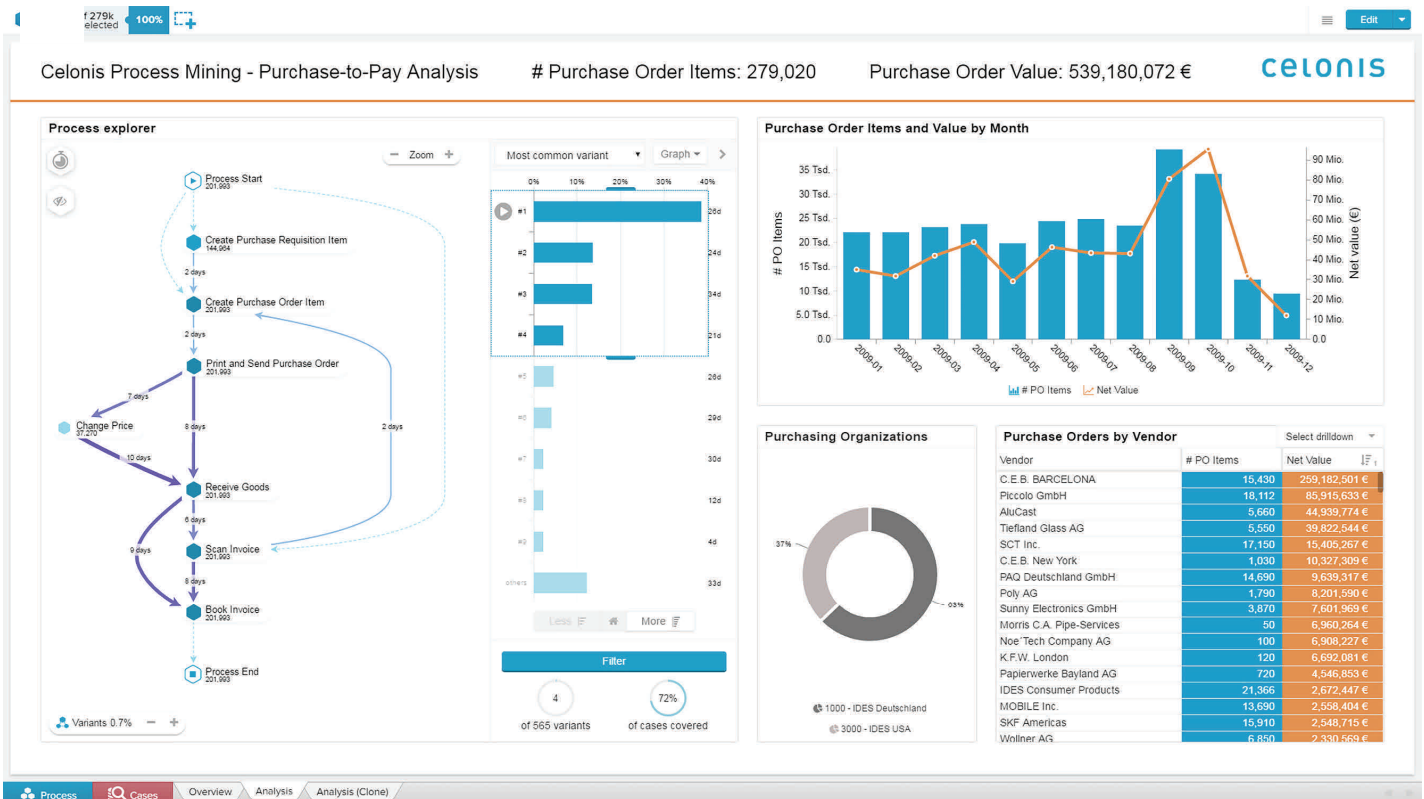
Celonis can run on top of SAP HANA. What kind of benefits does this bring? What is the largest data set that was analyzed using Celonis?

Bastian: SAP HANA offers a lot of benefits for process mining. The first benefit is that HANA can provide real time data on a very large scale. Siemens – for example – has more than 70 SAP ERP and non-SAP ERP systems generating more than 40 terabytes of data (compressed) around the world and all the data from these systems is available at one place in real time. This is a game changer. The second benefit is the in memory power. Celonis integrates natively with the HANA engine and can be used for ultra-fast processing of large event logs directly on the raw data. The largest event logs analyzed have more than a billion rows. Due to the column store architecture, the event logs can be correlated with hundreds of data attributes from the source system in order to automatically identify reasons for process deviations or inefficiencies.

Most of the commercial process mining tools focus on control-flow discovery and performance analysis. Conformance checking and discovering the other perspectives (data and resources) are rarely supported. Will Celonis offer such functionalities in the future?

Martin: Stay tuned (big smile).

What is the geographic distribution of Celonis customers? Why is adoption still limited in the US compared to Europe and Asia?

Alexander: Celonis now has customers on every continent. We just won a couple of customers in South Africa and Russia for example. Regarding the US: We are very active in the US market now and work hard on raising the awareness for process mining in the states.

What are the challenges you think the BPM community should focus on?

Alexander: I think the new technological developments such as IoT and big data will allow to build new kinds of processes – much more data driven, interactive, smart and personalized. Enabling and spearheading this development is what I believe should be the focus of the BPM community in the next years.

Thanks for the interview!

(See http://www.celonis.com/ for more information and software)

BPM 2016 AWARDS

The BPM 2016 best paper award was won by **Diego Calvanese**, **Marlon Dumas**, **Ülari Laurson**, **Fabrizio Maria Maggi**, **Marco Montali** and **Irene Teinemaa** for their paper "Semantics and Analysis of DMN Decision Tables".

The best student paper award went to **Felix Mannhardt** for his paper "From Low-Level Events to Activities - A Pattern-based Approach", which he co-authored with Massimiliano de Leoni, Wil van der Aalst, Hajo Reijers and Pieter Toussaint.

Hamid Reza Motahari-Nezhad received the best reviewer award.

The BPM 2016 best demo award was won by **Andrea Burattin**.

The winners of the BPI Challenge 2016, sponsored by GRADIENT ECM, were **Ube van der Ham**, with his submission entitled "Marking up the right tree: understanding the customer process at UWV" and **Sharam Dadashnia**, **Tim Niesen**, **Philip Hake**, **Peter Fettke**, **Nijat Mehdiyev** and **Joerg Evermann**, with their submission entitled: "Identification of Distinct Usage Patterns and Prediction of Customer Behavior".

The winners of the new Process Discovery Contest, sponsored by Celonis, were **Eric Verbeek** and **Felix Mannhardt**.

REPORT FROM THE BPM 2016 PC CHAIRS

The 14th edition of the Business Process Management (BPM) conference was held in Rio de Janeiro on 18-22 September 2016. The event attracted a large participation from academia as well as from industry, with many local practitioners attending the industry-focused event connected with the conference. Lively and vibrant discussions characterized the keynotes, paper presentations and tutorials.

The first event of the conference was the **Doctoral Consortium**, which was held on Sunday 18 September, gathering six PhD students who presented their work in the area of BPM. Next, on Monday 19 September, **ten workshops** related to the conference took place, covering a number of topics ranging from engineering aspects of the discipline through to decision modelling and process mining. The **conference reception** was held on Monday evening at the Rio Othon Palace Hotel, offering a great networking opportunity for the participants, in the good spirit of this conference.

The main research track was opened on Tuesday September 20, with a keynote titled "Don't Just Improve Work, Innovate Continuously" by **Brad Power**, Management Consultant in Process Innovation and Partner at FCB Partners, USA. Brad's talk stressed the importance of balancing an incremental improvement approach, proper of traditional Lean and Six Sigma-based BPM projects, with the need that modern organizations have to innovate via radical change. In the same morning, a session hosting three research papers on measuring the quality of automated discov-

ery was held. The day continued with two research sessions in the afternoon, where seven papers on the topics of automated process discovery and conformance checking were presented, including the paper that attracted the best student paper award. This award went to Felix Mannhardt for his paper "From Low-Level Events to Activities - A Pattern-based Approach", which he co-authored with Massimiliano de Leoni, Wil van der Aalst, Hajo Reijers and Pieter Toussaint.

Also on Tuesday afternoon, the first of three sessions dedicated to the new research track, the **BPM Forum**, was held, where five papers on process automation were presented. In parallel, John Krogstie gave a tutorial on how to ensure value of business process models through process model quality. The first part of the industry track also took place on Tuesday afternoon, where three case studies on BPM challenges were presented, followed by keynote presentations by Marlon Dumas, Michael Rosemann and Michael zur Muehlen, and by a panel with the three keynote speakers.

The next day started with a keynote on "Rethinking BPM in a Cognitive World: Transforming how we Learn and Perform Business Processes" by **Rick Hull** from IBM Research. Rick explored how business processes and their environments will change with the emergence of cognitive computing, enabled by advances in natural language processing, machine learning and artificial intelligence. Next, the research track continued with a session on modelling foundations with three papers being presented. Among these, the paper "Semantics and Analysis of DMN Decision Tables" by Diego Calvanese, Marlon Dumas, Ülari Laurson, Fabrizio Maria Maggi, Marco Montali and Irene Teinemaa, which attracted the best paper award. In parallel, the second session of the BPM Forum took place on the topic of process modeling. The morning also hosted a session of the industry track with case presentations on BPM for Governance. The day continued in the afternoon with a research

session on understandability of process representations, where three papers were presented; the third and last session of the BPM Forum, with four papers being presented on management aspects of the BPM discipline; and the last session of the industry tack with case presentations on BPM applications. The afternoon concluded with the demonstration session in the hotel's mail hall, while in parallel Barbara Weber gave a tutorial on the process of process modelling.

The **social event** in the evening included a guided tour of the Olympic esplanade followed by a reception at the **Rio Scenarium**, in Lapa, the hearth of the old Rio. Excellent drinks and a festive atmosphere created the perfect environment to honor the conferral of the conference awards.

The final day of the conference started with a keynote by **Giancarlo Guizzardi** on "The Inevitable Ontological Commitment or: How I Learned to Stop Worrying and Love Ontology". Giancarlo shed light on common misunderstandings around the role and value of ontologies and stressed their importance to gain a deep understanding of the concepts required to model any organizational aspect, including business processes. The day continued with the last two research sessions, one on runtime management and the other on predictive monitoring, each with three papers being presented. In parallel, Roel Wieringa gave a tutorial on how to write research papers using the design science research methodology.

A good mix of young PhD students and "seasoned" academics, besides international vendors and local practitioners, is evidence that BPM is a very active research field with a strong industry resonance. We enjoyed the conference and look forward to BPM 2017!

Marcello La Rosa, Peter Loos,
and Oscar Pastor
BPM 2016 PC Chairs

PROCESS DISCOVERY CONTEST 2016 & BPIC 2016

The objective of the **Process Discovery Contest (PDC)** was to compare the quality of techniques to discover process models without enforcing a particular notation. Process models can be seen classifiers that split the set of possible behaviors (traces) into fitting (i.e., possible) and non-fitting (impossible). For the contest, 10 "reference" models were created. For each process model, a perfectly-fitting training event log was generated. These training logs were used by the participants to discover 10 process models. For every process model, an undisclosed "reference" test log was created containing 20 traces: ten positive traces (traces recording behavior compliant with the "reference" model) and ten negative traces (the trace recording behavior not compliant with the "reference" model). The winner was the group that discovered the models with the highest accuracy, namely which contains the largest number of true positive and true negative traces.

Although the contest was organized for the first time, there were 14 submissions using a range of different discovery techniques. The winner of the Process Discovery Contest was the team of **Eric Verbeek** and **Felix Mannhardt** from TU/e. The team managed to correctly classify 193 out of 200 traces (96.5% of trac-

es). Special mention goes to two runner-up teams that have correctly classified 192 traces: **Moshe Steiner** and **Liat Bodaker** (Technion Institute of Technology - Israel), and **Raji Ghawi** (American University of Beirut - Lebanon).

The contest was organized by: Josep Carmona, Massimiliano de Leoni, Benoît Depaire, and Toon Jouck.

The contest was sponsored by **Celonis**, an innovative process mining vendor. The prize included the trip to BPM 2016 conference in Brazil for a presentation and receiving the award.

The Process Discovery Contest (PDC) complements the annual **Business Processing Intelligence Challenge (BPIC)**. The BPIC uses real-life data without objective evaluation criteria: It is about the perceived value of the analysis and is not limited to the discovery task (also conformance checking, performance analysis, etc.). The report is evaluated by

the BPIC jury which includes people from industry.

For 2016, the BPIC used data provided by UWV (Employee Insurance Agency), the Dutch administrative authority that implements employee insurances and provides labor market and data services in the Netherlands. BPIC 2016 was sponsored by **GRADIENT ECM** which sponsored the two selected winners to come to Rio de Janeiro to present their work and to receive the award. The winners were **Ube van der Ham**, with his submission entitled "Marking up the right tree: understanding the customer process at UWV", showing that by manually inspecting the data and using relatively standard data analysis tools many insights can be obtained, and **Sharam Dadashnia**, **Tim Niesen**, **Philip Hake**, **Peter Fettke**, **Nijat Mehdiyev** and **Joerg Evermann**, with their submission entitled: "Identification of Distinct Usage Patterns and Prediction of Customer Behavior" showing an innovative technique to predict the next action undertaken by users on the basis of the preceding ten tasks.

The 2016 edition of the Business Processing Intelligence Challenge (BPIC) was organized by **Boudewijn van Dongen** (as always).

See the web page of the IEEE Task Force on Process Mining (http://www.win.tue.nl/ieeetfpm/) for the datasets, reports and more information about both contests.

CALLING FOR BPM 2017 WORKSHOP PROPOSALS

Traditionally, the BPM workshops are aimed at consolidating and fostering the tradition of diversity and bottom-up community building that has characterized them for more than a decade. The **BPM 2017 pre-conference workshops** should not be an exception in this important role for the BPM community.

In this sense, the main goal of the BPM 2017 pre-conference workshops must be that of **facilitating the exchange of ideas and experiences** among active researchers (either well-established, young or newcomers), and to stimulate discussions on new and emerging perspectives in line with the conference topics.

Workshops may focus on specific research topics or be devoted to applications or standardization issues. Workshop proposals that expand the scope of topics and paradigms traditionally represented at the BPM conference series are encouraged. In particular, a special interest will be given to those proposals that seek to establish bridges between BPM and other disciplines. We also encourage the workshop proposers to integrate mechanisms in their workshop to stimulate discussion and interaction beyond what is possible in a plenary conference session.

A detailed call for workshop proposals can be found on the BPM 2017 conference web site:

https://bpm2017.cs.upc.edu/call-for-workshop-proposals/

The deadline for submission of workshop proposals is December 2, 2016. If you have an idea, don't hesitate to share it with us (the general workshop chairs) as soon as possible. We are very open to providing early feedback to prospective workshop proposers.

Ernest Teniente and Matthias Weidlich
(BPM 2017 General Workshop Chairs)
workshops-bpm2017@cs.upc.edu

BPM 2017: START WRITING YOUR PAPERS, NOW!

BPM is finally coming to **Barcelona**! Following on the heels of the successful BPM 2016 in Rio, we encourage BPM research along multiple directions. First, we seek papers in the traditional areas of interest of the conference, such as business process modeling, analysis, execution and mining, with a particular focus on approaches and tools that extend the state of the art in business process improvement and innovation. Next, we seek your help to expand the conference's traditional focus on operational BPM by submitting work on the management aspects of the discipline, such as BPM strategic alignment and governance, where now more than ever research is needed as organizations have reached high levels of BPM adoption. Finally, we encourage work that embraces emerging and interdisciplinary aspects of BPM, such as decision management and BPM, social BPM, collective adaptive processes and mobile processes, with the goal of pushing the horizons of the discipline. Boundary spanning work will receive special consideration.

These interests are reflected in the **six thematic areas** of the call for papers:

- BPM in a broader context
- Emerging areas of BPM
- Management aspects of BPM
- Process identification and modeling foundations
- Process analysis and improvement
- Process execution, monitoring and intelligence

In addition to the main research track, there will be a **dedicated industry track** to host papers reporting on problems and experiences related to the deployment of BPM in practice. Moreover, a new "**BPM Forum**" **track** made a successful debut in 2016 and will continue in 2017. We will gather a selection of papers with stimulating and innovative ideas that miss the main research track to be discussed at the conference.

See our **call for papers** at https://bpm2017.cs.upc.edu/. And if you plan to submit to BPM for the first time, you can ask to be considered for a pre-submission **shepherding program**, through which you can get advice on the positioning and presentation of your paper. If interested, contact the PC Chairs at **bpm2017@easychair.org** by January 23, 2017. The key dates for the main research track are:

- Abstract submission: 6 March, 2017
- Full papers submission: 13 March, 2017
- Notifications: 15 May, 2017
- Camera ready papers: 12 June, 2017.

Get to work! We wish to see a large number of submissions and a huge turnout at Barcelona!!

We are looking forward to your papers!

Josep Carmona, Gregor Engels and Akhil Kumar
(BPM 2017 Program Committee Chairs)

TOOL DEMOS AND TOOL DATABASE

The BPM Demos 2016 were chaired by **Cristina Cabanillas** (Vienna University of Economics and Business, Austria) and **Leonardo Azevedo** (IBM Research, Brazil; and Federal University of Rio de Janeiro State, Brazil). The track received 20 submissions of high quality BPM tools from which 14 were accepted. It was held on Wednesday, September 21st, and it was composed of 2 teasers and 1 demonstration session. Each teaser session comprised 7 demos where authors of each demo had 2 minutes to present their tool with the aim of attracting audience attention to visit their showcase in the actual demonstration session.

The audience awarded the best demo. Every conference participant was invited to award points to at most 5 contributions, i.e., each participant had 5 votes to assign 5 points, 4 points, 3 points, 2 points or 1 point to at most 5 different contributions.

The Best Demo Award went to **Andrea Burattin** for the tool "PLG2: Multiperspective Process Randomization with Online and Offline Simulations".

We encourage participants of the Tool Demos and all other BPM-researchers that have developed mature BPM tools to upload their tool information to the **BPM Tool Database**.

This database is available online via **bpm-conference.org**. The database is searchable using desired characteristics. For example, one can search for an editor supporting BPMN and Petri nets running on Windows or a process mining tool supporting both discovery and conformance checking.

The initiative has been triggered by the growing importance of BPM tooling and the need to share software and datasets. Most BPM papers describe tools ranging from stand-alone analysis tools to full-fledged BPM systems. Moreover, more and more BPM papers are of an empirical nature describing experiments that need to be reproducible.

If your BPM tool is not yet in the BPM Tool Database and is relevant for the BPM community (and still supported), it would be good to add it to the database so that people can find it. See bpm-conference.org for more information.

INTRODUCTORY MOOC—BUSINESS PROCESS MANAGEMENT: AN INTRODUCTION TO PROCESS THINKING

Marlon Dumas, Marcello La Rosa, Jan Mendling and Hajo Reijers run a 3-week introductory MOOC on **"Business Process Management: An Introduction to Process Thinking"** on the FutureLearn platform from 5 to 25 September. This free course attracted 9,845 participants, of which over 40% were active learners.

A second MOOC by the same authors, "Fundamentals of BPM", starts on 10 October. This latter MOOC, which was first delivered in the fall 2015, walks you through each phase of the BPM lifecycle, covering mainstream techniques and tools for process identification, discovery, analysis, improvement, automation and monitoring. It also shows how to apply these techniques and tools to a range of examples and case studies that show the power of BPM in practice. An important news item this year is an optional verified exam leading to a certificate of achievement issued by Queensland University of Technology.

In addition to lectures, interactive tasks, quizzes and an optional project, the course will feature special appearances by Michael Rosemann talking about innovation and strategic alignment of BPM, Anne Rozinat introducing the Disco process mining tool and Wil van der Aalst reflecting on the status and directions of process mining and of the BPM discipline.

Participants will also have the opportunity to practice their skills hands-on using Signavio (for process modeling), BIMP (simulation), Bizagi (automation) and Disco (process mining). Access to these tools will be offered to all course participants during the course.

The MOOC is divided into three parts of 4 weeks each, for a total duration of 12 weeks:

Part 1 – "Process identification and discovery": 10 October to 6 November 2016

Part 2 – "Process analysis and redesign": 21 November to 18 December 2016

Part 3 – "Process implementation and monitoring": 16 January to 12 February 2017

Registration is free. To join the course visit:
https://moocs.qut.edu.au/learn/fundamentals-of-bpm-process-identification-and-discovery-october-2016.

Business Process Management: an Introduction to Process Thinking
Understand the importance of value-driven process thinking in today's dynamic business environment.

NEW BOOK ON BEHAVIORAL MODELS BY KUNZE AND WESKE

Behavioral models are crucial in business process management, since they describe the execution semantics of business processes. The textbook **Behavioural Models: From Modelling Finite Automata to Analysing Business Processes** by **Matthias Kunze** and **Mathias Weske** takes a broad look on behavioral models by introducing the basis for modelling and analyzing discrete dynamic systems, such as computer pro-

grams, soft- and hardware systems, and business processes. Concrete modelling techniques are described, such as finite automata, state machines, and Petri nets. One chapter is especially devoted to business process models, workflow patterns and BPMN. The book investigates how the behavior of systems can be analyzed by introducing readers to state spaces, which are the basis for comparing behavior and verifying behavioral models.

The book was written for students of computer science and software engineering, as well as for programmers and system analysts interested in the behavior of the systems they work on. It takes readers on a journey from the fundamentals of behavioral modelling to advanced techniques for modelling and analyzing sequential and concurrent systems, and thus provides them a
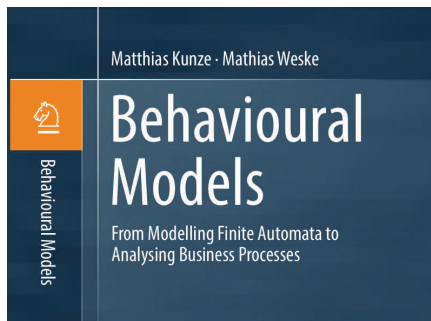
deep understanding of the concepts and techniques introduced and how they can be applied to concrete application scenarios. More information can be found at http://mod-book.com.

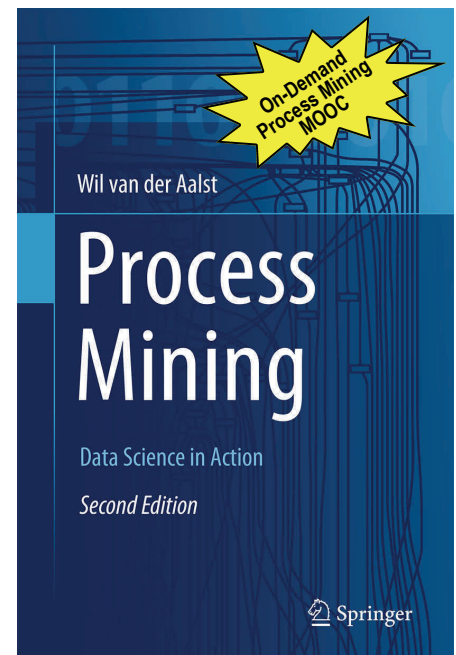# NEW PROCESS MINING BOOK AND ON-DEMAND MOOC

The second edition of Wil van der Aalst's seminal book on process mining now discusses the field also in the broader context of **data science** and **big data** approaches. It includes several additions and updates, e.g. on inductive mining techniques, the notion of alignments, a considerably expanded section on software tools and a completely new chapter of process mining in the large. It is self-contained, while at the same time covering the entire process-mining spectrum from process discovery to predictive analytics.

After a general introduction to data science and process mining in Part I, Part II provides the basics of business process modeling and data mining necessary to understand the remainder of the book. Next, Part III focuses on process discovery as the most important process mining task, while Part IV moves beyond discovering the control flow of processes, highlighting conformance checking, and organizational and

time perspectives. Part V offers a guide to successfully applying process mining in practice, including an introduction to the widely used open-source tool ProM and several commercial products. Lastly, Part VI takes a step back, reflecting on the material presented and the key open challenges.

Overall, the book aims to provide a **comprehensive overview of the state of the art in process mining**. It is intended for business process analysts, business consultants, process managers, graduate students, and BPM researchers.

The books is supported by the **Online Course "Process Mining: Data science in Action"** hosted by **Coursera**. This course is aimed at both students and professionals and has already been taken by **over 100.000 participants**! The course is now available via **Coursera's On-Demand Platform**. This implies that participants can take the course **at any time**. Moreover, it is possi-

ble to create special groups with private forums for **flipped classrooms** and **in-company** courses.
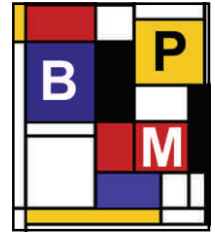
Register for this On-Demand MOOC via: http://www.coursera.org/learn/process-mining

Visit bpm-conference.org

This newsletter is a new activity related to the BPM conference series. The goal is to further strengthen the BPM community that formed over the last decade. 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.).

EVENTS AND ACTIVITIES OF THE COMMUNITY

The editors David Eyers, Avigdor Gal, Hans-Arno Jacobsen, and Matthias Weidlich invite submissions for the **special issue of the Information Systems Journal** on "Integrating Process-oriented and Event-based Systems". Submissions may address any aspect of the interplay of process-oriented and event-based systems. Both theoretical contributions as well as papers describing interesting applications are welcomed. The submission deadline is 15th December, 2016. Submit via http://www.elsevier.com/locate/infosys.

The 38th International Conference on Application and Theory of Petri Nets and Concurrency will also take place in Spain: Zaragoza. The conference solicits papers focusing on the **formal aspects of BPM**. Eike Best and Wil van der Aalst serve as PC chairs. The co-located workshop **Algorithms & Theories for the Analysis of Event Data (ATAED 2017)** aims to attract papers related to process mining, region theory and other synthesis techniques. For more information visit http://pn2017.unizar.es/.

The free online course "Introduction to Process Mining with ProM" hosted by **FutureLearn** starts on November 14th 2016. The course focuses on the **practical hands-on aspects of process mining and uses ProM extensively**. After the course you can work with the free and open source process mining tool ProM, process raw event data into an event log for further analysis, execute core process mining analysis techniques, and correctly interpret the results, gain concrete and actionable process insights from (your own) event data. Visit http://www.futurelearn.com/courses/process-mining to register (for free).

The editorial "Open Research in Business and Information Systems Engineering" aims to trigger a discussion on **"open research"**. There is a lot more to open research than just open access. **Should software reported in BPM papers be publically available? How can we ensure the reproducibility of results? How to ensure the availability of data over a longer period?** Interested to join the discussion? See http://link.springer.com/article/10.1007/s12599-016-0454-0.

The annual meeting of the IEEE Task Force on Process Mining took place after the BPI workshop as part of the BPM 2016 conference in Rio. See http://www.win.tue.nl/ieeetfpm/doku.php?id=events:2016_09_26_bpm for the minutes.

The **IEEE Draft Standard for** XES (eXtensible Event Stream - For Achieving Interoperability in Event Logs and Event Streams) was approved as a new standard by the IEEE-SA Standards Board on 22 September 2016. The standard will be published by the IEEE later this year. See http://standards.ieee.org/findstds/standard/1849-2016.html.