A long journey

3rd Conference of the EURO Working Group on the Practice of OR:

Challenges in the deployment of OR projects

19-20 March, 2020

28-29 September, 2020

online: 28-29 September, 2020 + webinar series 5 Oct – 2 Nov

A new start:

4th Conference of the EURO Practitioners' Forum:

OR as a resilient technology

Now!

Conference committee

Inci Yüksel-Ergün (ZIB)

Thorsten Koch (ZIB)

Andrew Harrison (Inawisdom)

Timo Berthold (FICO)

Susanne Heipcke (FICO) - chair

Some statistics

134 registered participants (17 April, 2023)

Germany	77	Australia	1
France	8	Colombia	1
The Netherlands	8	Egypt	1
Sweden	4	India	1
United Kingdom	3	Latvia	1
Finland	2	Nigeria	1
Greece	2	Nothern Cyprus	1
Italy	2	Pakistan	1
Kosovo	2	Philippines	1
Luxembourg	2	Russia	1
Portugal	2	Switzerland	1
United States	2	Turkey	1
Algeria	1	*Not specified*	7

■ Industry   ■ Research Institute
■ Academia   ■ Not specified
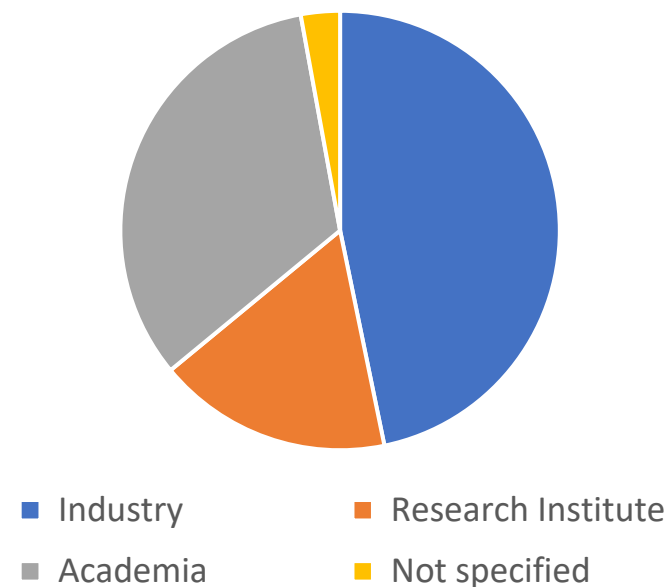
Programme

| 20 April	21 April
13:30 Opening session	9:00 Keynote 3
13:45 Keynote 1	10:00 Contributed talks C3
14:45 Contributed talks C1	10:40 *Coffee break*
15:45 *Coffee break*	10:55 Contributed talks C4
16:00 Keynote 2	11:35 Keynote 4
17:00 Contributed talks C2	12:35 *Lunch*
17:40 Discussion groups	13:45 Panel discussion: Quantum Computing
19:30 *Conference dinner*	14:45 Keynote 5
	15:45 Discussion groups summary and closing remarks

Sponsors

Conference dinner

Zuse Institute Berlin (ZIB)
Takustraße 7 | 14195 Berlin-Dahlem
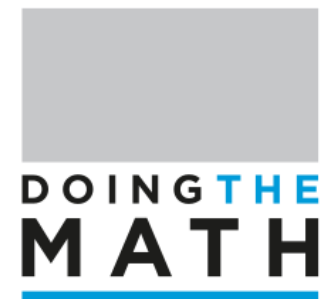
Dinner venue: D
eßkultur im Ethnologischen Museum
Address:
Takustraße 38/40, 14195 Berlin
Start time:
19:30

Discussion groups

1.   How will transportation and logistics change over the next 3 decades, how can OR help?
   - What will change and what will drive those changes?
   - What challenges will these changes bring?   **Room 3028**
   - How can OR help to address these challenges?

2.   Challenges in planning, investing, and operating resilient energy systems
   - What does the term "resilient energy systems" mean in your business?
   - What approaches do you adopt to ensure security of supply *vs.* cost efficiency?   **Room 4027**
   - What is the role of decarbonization in the decision making process?

3.   The OR/Analytics Supply Chain
   - How to procure the right people or the right software?
   - Are there enough people with those skills 'out there'?   **Room 4359**
   - How do we maintain a healthy pipeline?

4.   Delivering value with OR products in a practical context
   - What defines a good team setup and how does it relate to the development cycle?
   - How do we provide sufficient space for innovation, ideation and creativity?   **Seminar Room**
   - How can we break delivery of an OR product down into smaller increments?

Changes in transportation and logistics

Andy Harrison (Inawisdom)

- What will change?
  - Increases in shared mobility
  - Data platform across modes
  - Self-driving vehicles
  - Uberisation of the first and last mile
    - Liberalisation, flexibility, choice
  - Circular economy – resilient supply chain
  - Developing world is different
  - Energy costs
  - **Integrated multi-modal, multi-region**

- What will the challenges be?
  - Size and complexity
  - Different actors with competing aims
  - Incentives for cooperation
  - Complexity of models
  - Availability and sharing of data
- How can OR address the challenges?
  - Problem formulation
  - Process driven approach to identify the data needed
  - Evaluating the consequences of not having data

Challenges in Planning, Investing & Operating Resilient Energy Systems

Janina Zittel (ZIB), Matteo Pozzi (Optit)

- Initially suggested issues: resilience, security of supply, decarbonization

- Other issues emerged by the group:
  - Role of Energy Communities → good to educate people to adapt loads to "price" signals, yet a local / non systemic approach to resolving the future energy issues
  - Importance and impacts of distributed production (prosumers) vs. supply from the grid
  - Increasing role of end customer to face upcoming scenarios
  - Resiliency vs. uncertainty
  - Simulation in combination with OR
  - Case of industrial player that requires more energy than the distribution grid can deliver
  - How to manage grid to prevent/minimize impacts of fires in the Australian bush

# Challenges in Planning, Investing & Operating Resilient Energy Systems

Janina Zittel (ZIB), Matteo Pozzi (Optit)

- Main discussion outcomes:
  - Observation: In contrast to the covid pandemic and Russian attack on Ukraine, the disruptions of climate change seem to happen too slow for policy makers to take a strong position. In fact, speaking about the role of OR in supporting decision making, it is apparent how policy makers often do not listen to complex analysis or are moved by short term/tactical (gut-related) issues more than a rational and competent argumentation → decision science should involve more **social or psychological science** to have a higher impact
  - The above is even more relevant since **market** design is good for **short term**, but does not provide incentives to "do the right investments"
  - On a positive side: there are LOADS of opportunities to **recover energy**: waste heat, heat from wastewater, etc
  - The energy issue is intrinsically systemic: gas, electricity, heat, mobility are to get together (even more), and should also involve **water and agriculture/food** industry perspectives ….

OR/analytics supply chain

Ruth Kaufman (EURO-PF), Susanne Heipcke (FICO)

What is the chain?
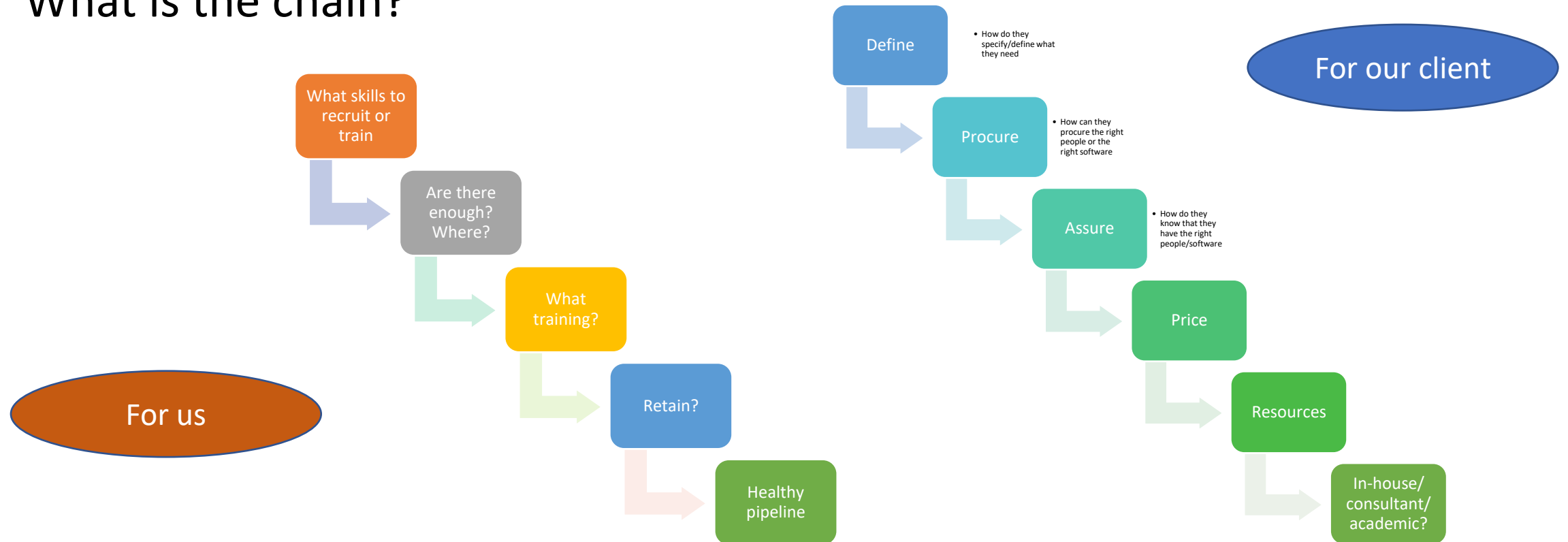
Delivering value with OR products in a practical context

Sander Van Aken (Flix SE), Vladimir Fux (Zalando SE)

Having a true business impact with OR models, algorithms and products requires teamwork. OR practitioners often ==collaborate== with clients, internal end-users, software engineers (within or across teams), and business stakeholders. For example, the agile philosophy, think about frameworks as Scrum and Kanban, has proven its value in delivering impactful results in line ==with (changing) stakeholder requirements== in traditional software engineering as well as other fields. From our past and present experiences, OR, and by extension data science and ML, projects tend to have a ==large degree of uncertainty== and potentially lengthy development cycles ==without the guarantee of having deliverable result==.

+- 15 people

• Mostly in-house or B2B software development working in cross-functional or R&D focussed teams

• ~10 use agile-based frameworks

Delivering value with OR products in a practical context

Sander Van Aken (Flix SE), Vladimir Fux (Zalando SE)

Meeting stakeholder requirements

- Early involvement of stable stakeholders and sponsors

- Working in small steps with continuous involvement

- UX research and design thinking approaches

- Explore existing solutions and research

- Value of sharing "scrappy" results

    - Early feedback

    - Discover hidden requirements

- After delivery: have health checks / shadowing sessions

Delivering value with OR products in a practical context

Sander Van Aken (Flix SE), Vladimir Fux (Zalando SE)

Space for creativity, research and experimentation

- Problem: not much time for true and deep exploration

- How to innovate away from the daily rush?

- "High-risk" projects by separate (R&D?) team

- Create dedicated space for experimentation and innovations

  - 2 days per sprint spent on testing ideas

  - Hackathons to show value of new ideas / features

  - Once results, try to business pull

Thank you!