

Splunk Business Flow at Deutsche Bahn



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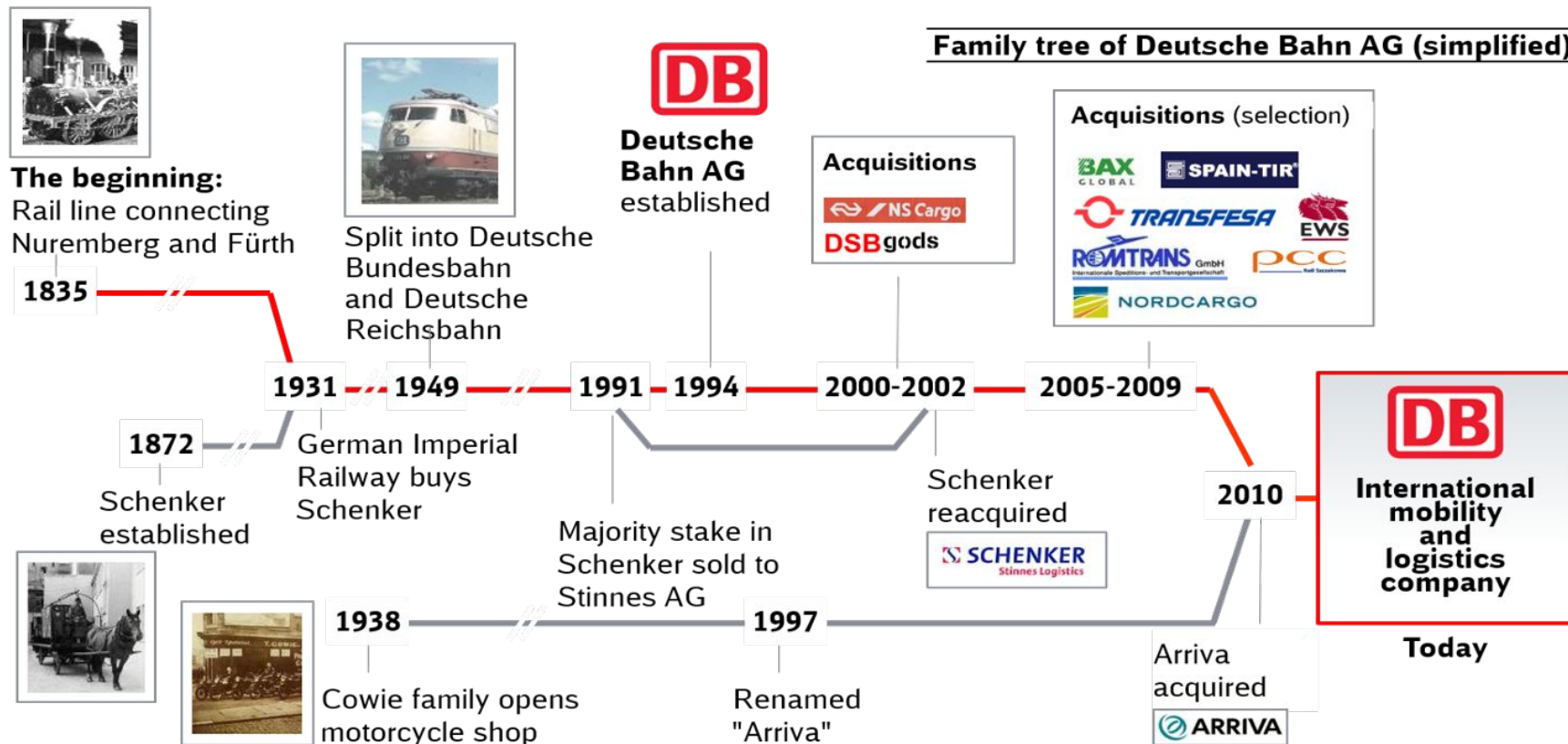


Ilario Angilletta

Founder & Jack-of-all-trades | DB Systel GmbH

Deutsche Bahn

DB is an international mobility and logistics company that was formed from several large, long established companies



Deutsche Bahn

Through its eight business units¹, DB operates in every segment of the transport market



Passenger Transport:
Moving people from A to B –
in Germany and throughout Europe

- **DB Long Distance**
Long distance rail passenger transport²
- **DB Regio**
Regional and local passenger transport in Germany
- **DB Arriva**
Regional and local passenger transport in Europe³



Freight Transport and Logistics:
Smart logistics by land, sea and air

- **DB Cargo**
European rail freight transport
- **DB Schenker**
Global logistics services

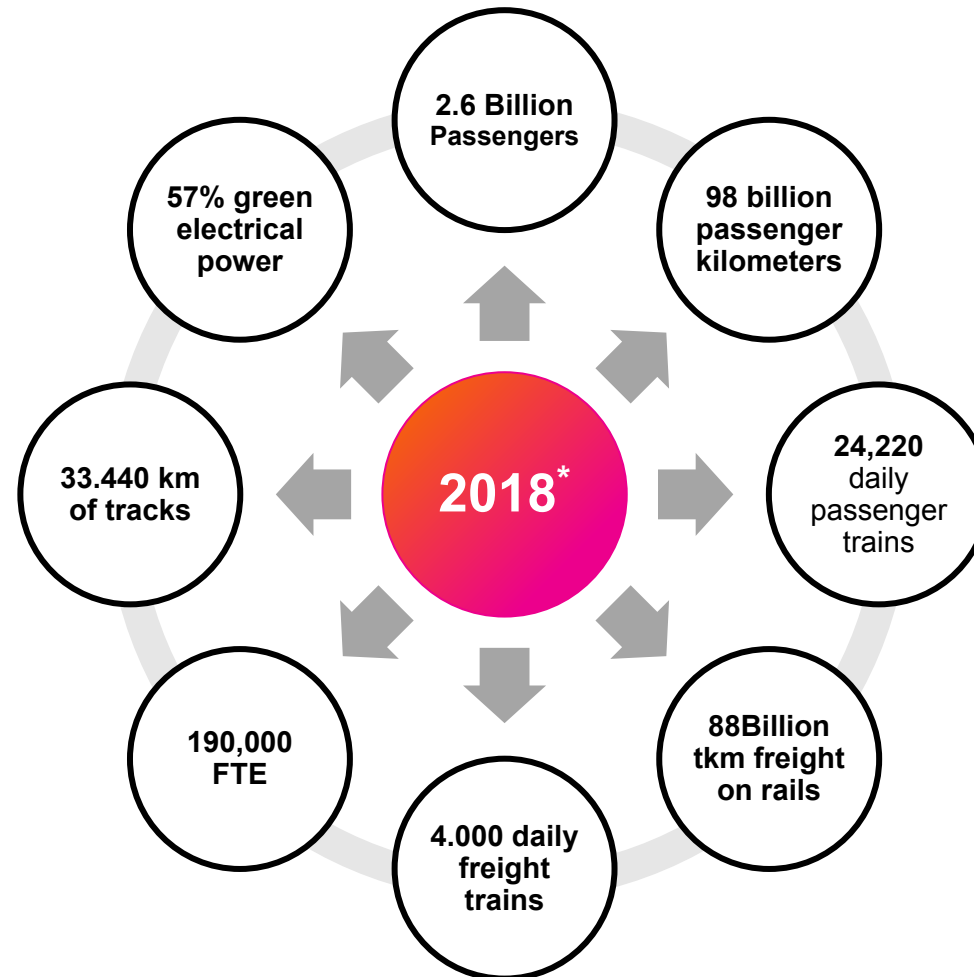


Infrastructure:
Efficient, future-oriented rail infrastructure in Germany

- **DB Netze Track**
Rail network
- **DB Netze Stations**
Passenger stations
- **DB Netze Energy**
Traction power

¹ The former DB Services Business Unit has been dissolved and its responsibilities distributed across the DB divisions; ² In Germany and cross-border transport
³ And long-distance rail transport in the UK, through CrossCountry, an Arriva subsidiary
Deutsche Bahn AG

Deutsche Bahn – Facts and Figures



* German Business only



Process Mining for Dummies

Emergency Example



What is a Process anyway?

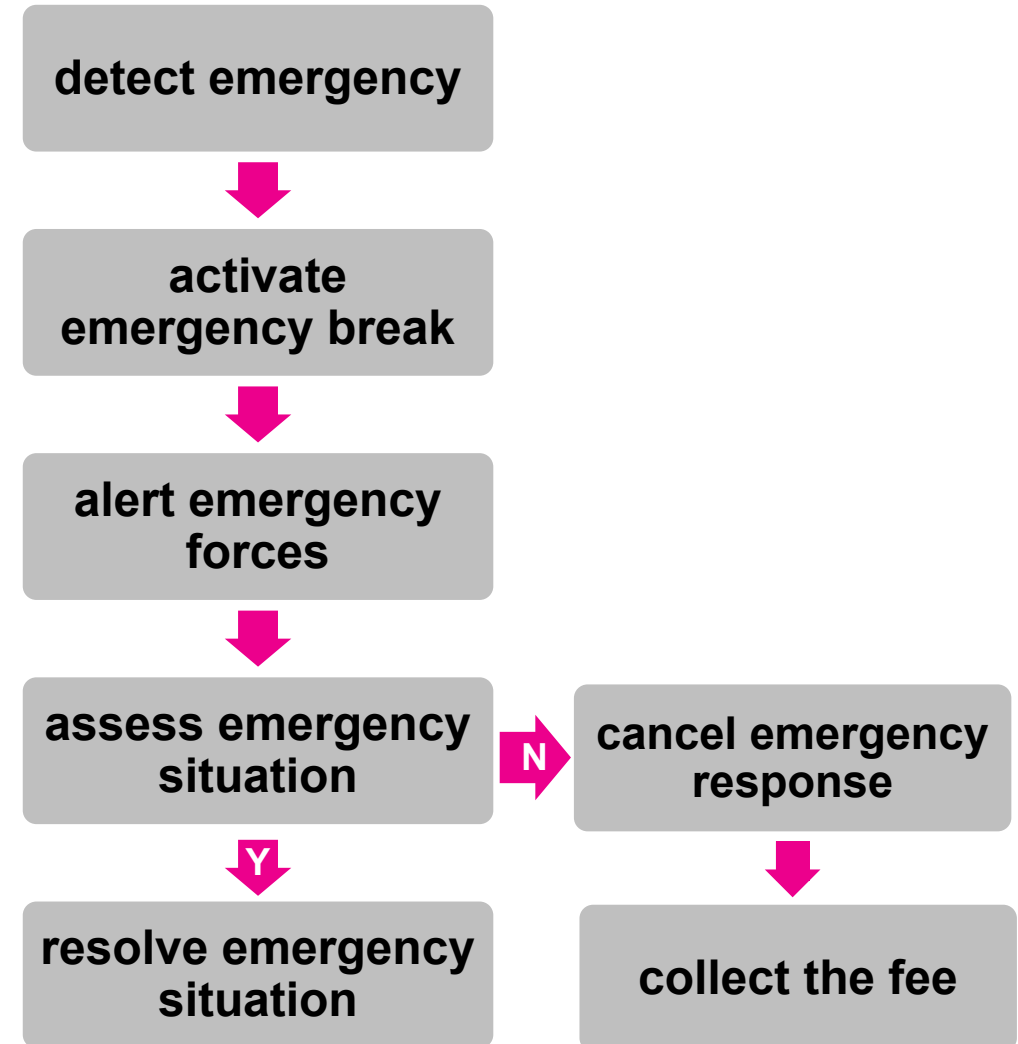


By Chaerani (Meutia Chaerani – Indradi Soemardjan). - Own work., CC BY 2.5, <https://commons.wikimedia.org/w/index.php?curid=780107>

What is a Process?

A Process is a collection of activities, which are executed to achieve a business relevant result. The activities are described by the means of:

- **Activity Name and description**
describe what the activity is about
- **Sequence of activities**
predecessors, successors, conditions and branches
- **Responsibilities**
acting parties, which perform the activity
- **Tools**
list all machinery or ICT equipment needed for the task
- **Input and output**
documents or data is required or produced



Benefit of Process Mining

Business driver

- any alarm produces delays of all trains on the path
- resulting SLA infringements may cause penalties and loss of reputation

Which of these options result in best ROI?

1. Train the vehicle staff to handle emergency situations efficiently
2. Increase the fee to cover all costs
3. Avoid false alarms: educate the passengers about emergency situations

Some information you need to evaluate option 1

- How long does it take to assess the emergency situation?
- Is it ensured, that alerts, assessments and cancellations are performed in the prescribed sequence?
- Does the necessary time for the assessment correlate with any attribute like train type, number of passengers, staffing, type of emergency situation etc?



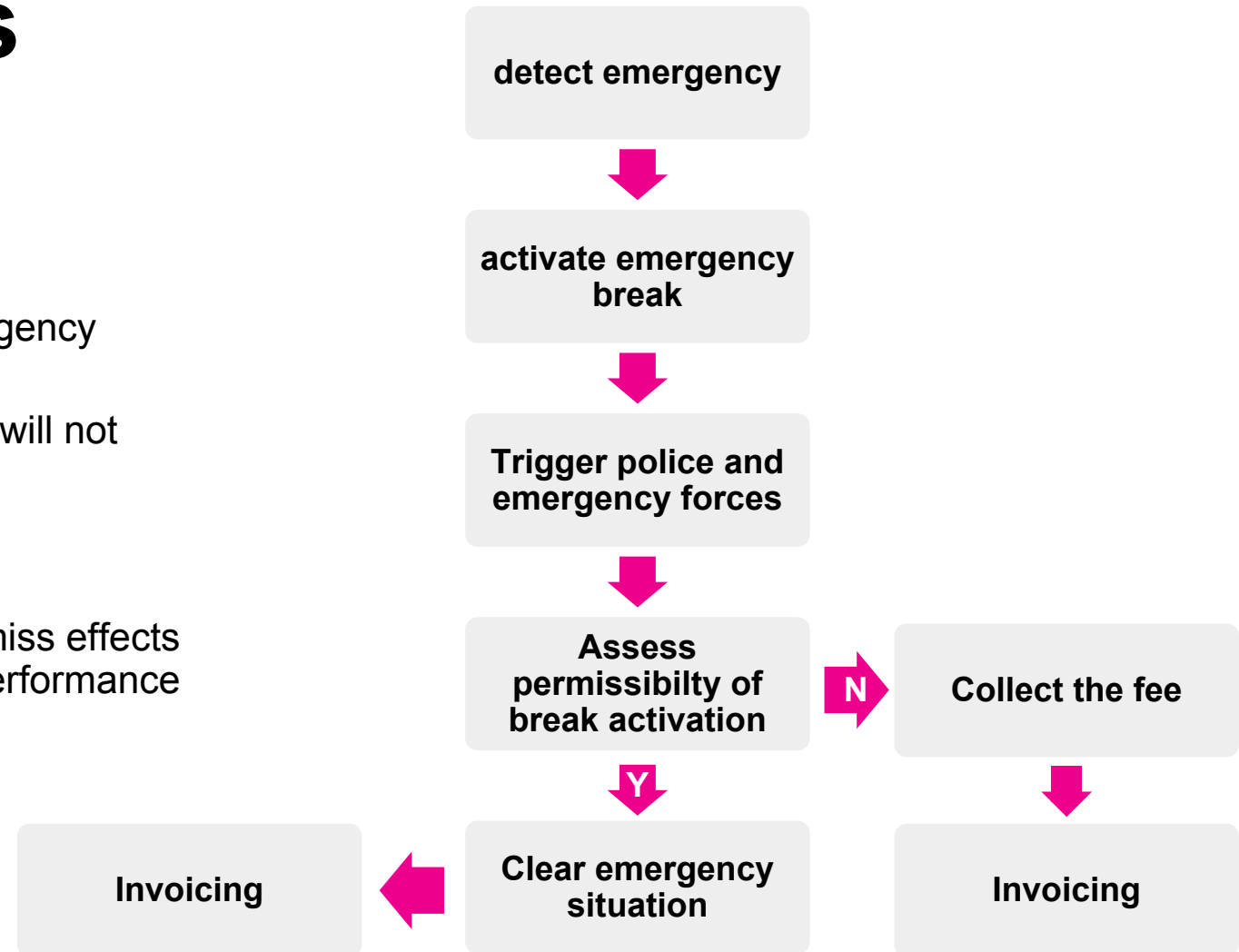
Process Analysis

Why Process Mining?

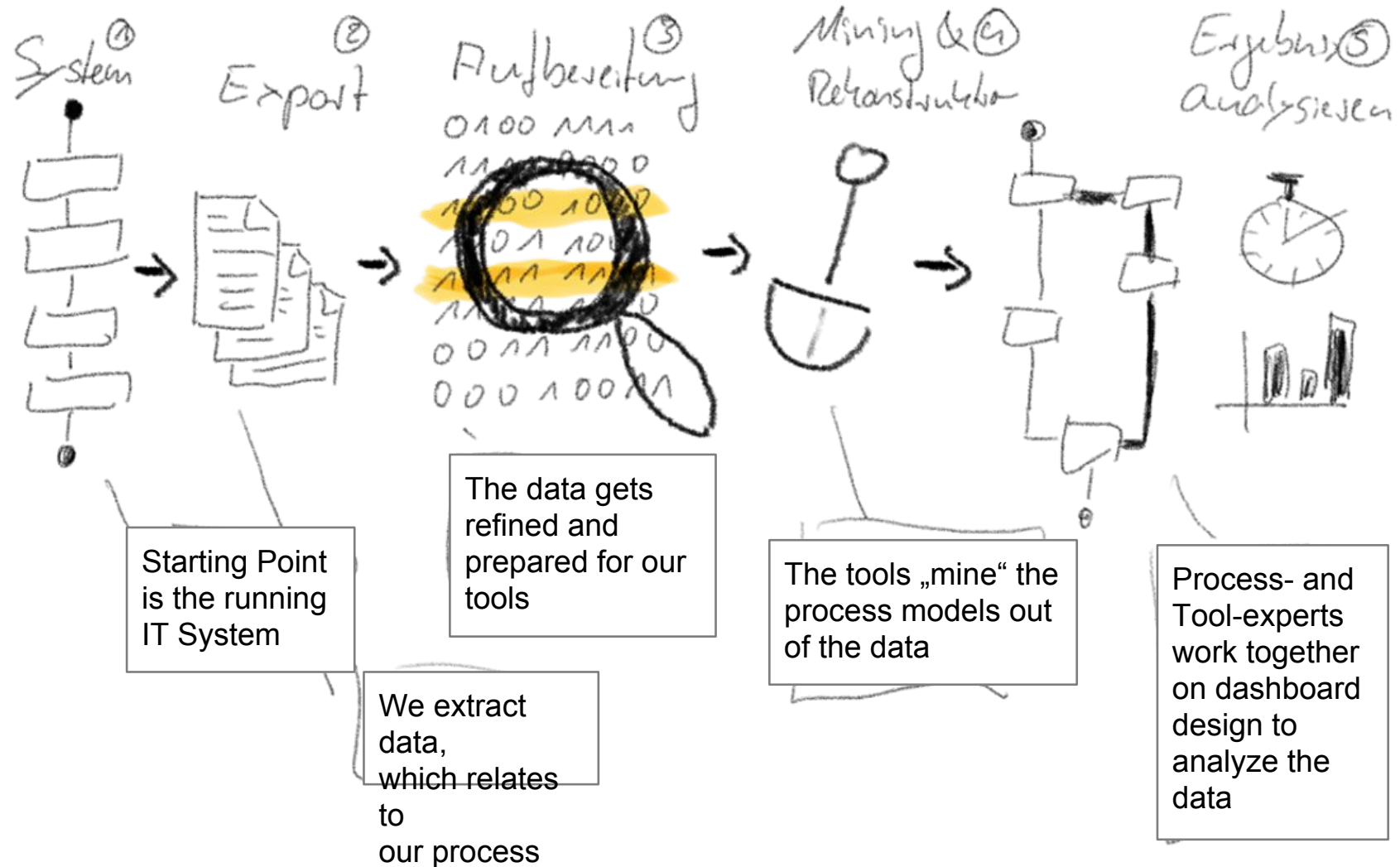
- manual measurements is not feasible in emergency situation
- interviewing of the survivors of an emergency will not create reliable data
- digital traces in on board electronics and staff smartphones are available
- continuous measurements make sure not to miss effects of any change to the system or simple poor performance

More data = better insights

- link all false alarms with financial data
- find out, whether effort of debt collection increases with higher fees



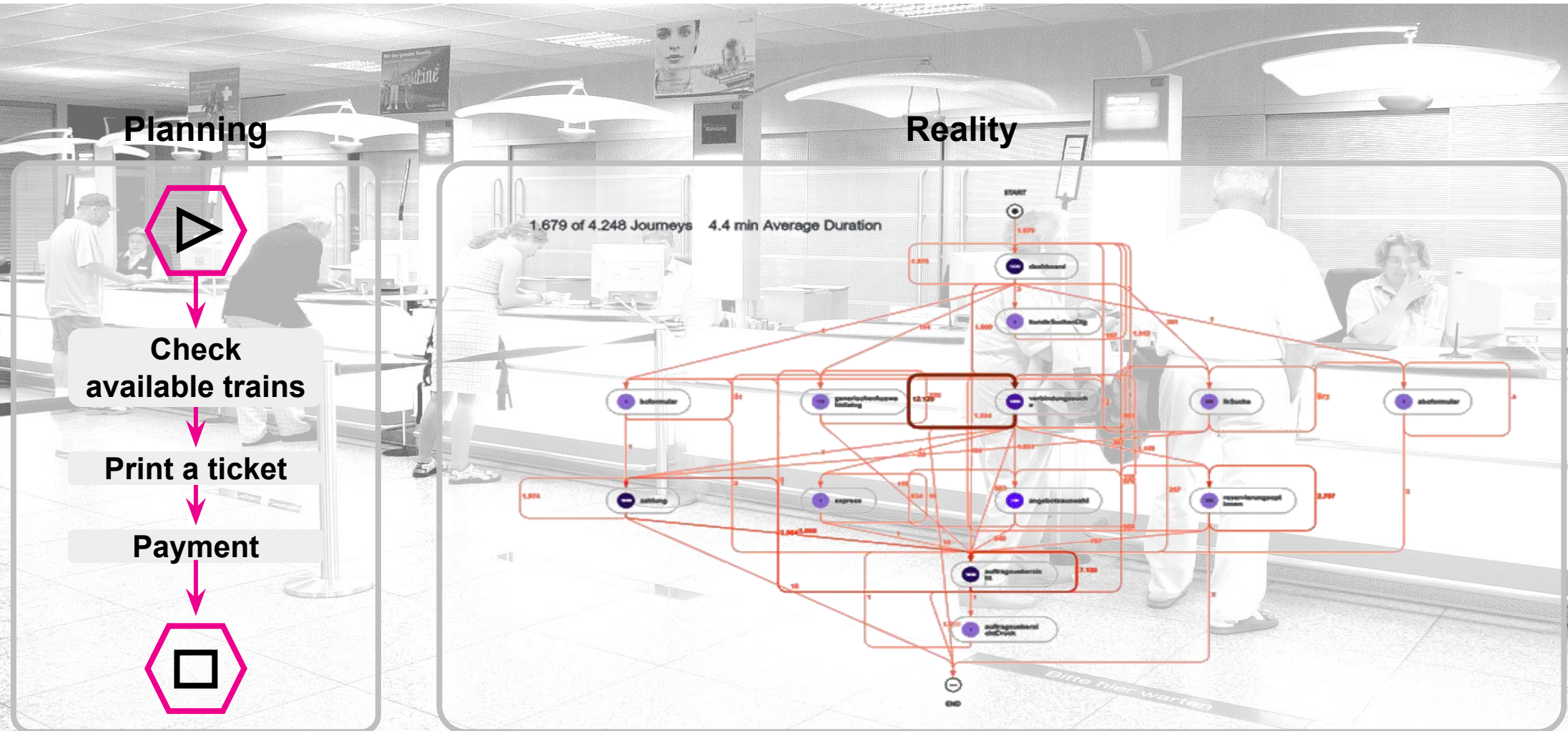
How does it work





Use cases

From Application-Logfiles





- URL indicating the activities and product categories
- Timestamp
- Case ID (derived data)
- Location of Point of Sales (IP-Address)

- Calculate all process variants of the cases and merge them in one graph
- Select cases by any attribute in the dataset
- Show number of activations or duration of each process step in the graph
- Calculate KPIs of the current selection and show them in classical charts
- Compare KPIs and process graphs of different Cases
- Select cases with certain subsequences of steps

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Benefits we are looking for

Business Driver

- queues reduce customer satisfaction and may cause customer churn

Which of these options result in best ROI?

1. make the products simpler to sell
2. train the PoS-staff to use the software better and to get straight to the point with customers
3. define preferred payment modes

Some questions you may want to research

- How much time does the sales process take for a specific product category?
- How often do I have to loop through the product details before selling the ticket?
- How often is the counter blocked with information requests?

More data

Some more retrievable information

- Number of journeys with no payment (just information request)
- Duration and number of sales journeys
- Duration of payment process
- All KPIs either for all cases, per product category or per IP-Address

More details to be added in future

- More Ticket details - What makes a product difficult to explain in detail?
- Payment details - Which is the most time consuming way to pay?
- Weather - Are the queues Weather dependent?
- Holidays - Do business customers need less ticket consulting?
- Traffic situation - Does a train failure have impact on the information needs of customers?
- Queuing System - How many people where waiting in the line during the sales process?

Use-Case Overview of Process Mining

Supporting Processes

Procurement

- Purchase2Pay
- Purchase orders

HR

- Recruiting
- Onboarding

IT

- Fulfilment process

Operational Processes

Infrastructure

- Maintenance of fixed infrastructure

Sales

- Ticket Sales
- Customer Order Management

Transportation

- Maintenance of rolling stock
- Wagon disposition

Defy Demographic Change

From Avature (SaaS)



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Benefits to Recruiting-Process

Business Driver

Deutsche Bahn employs over 20K new employees per year. Each application costs the company a lot of money, which is wasted, when the application gets cancelled late in the process. The goal is to reduce late cancellations.

Which of these options result in best ROI?

1. Produce more precise job descriptions
2. Give timely feedback to ensure, that the applicant feels cared about
3. Increase speed of processing an application

Some questions you may want to research

- How many applicants have been rejected, because they do not fit?
- Measure the time between feedbacks in different stages of the application
- How long do we need to process applications and where do we loop through the same steps?

Planning Accuracy in Maintenance

from SAP-PM





Benefits to Maintenance-Process



Business Driver

- Increase planning accuracy and avoid clash between maintenance and operation

Which of these options result in best ROI?

1. Optimize stock of material
2. Adjust the capacities to avoid bottlenecks
3. Optimize duration of maintenance steps

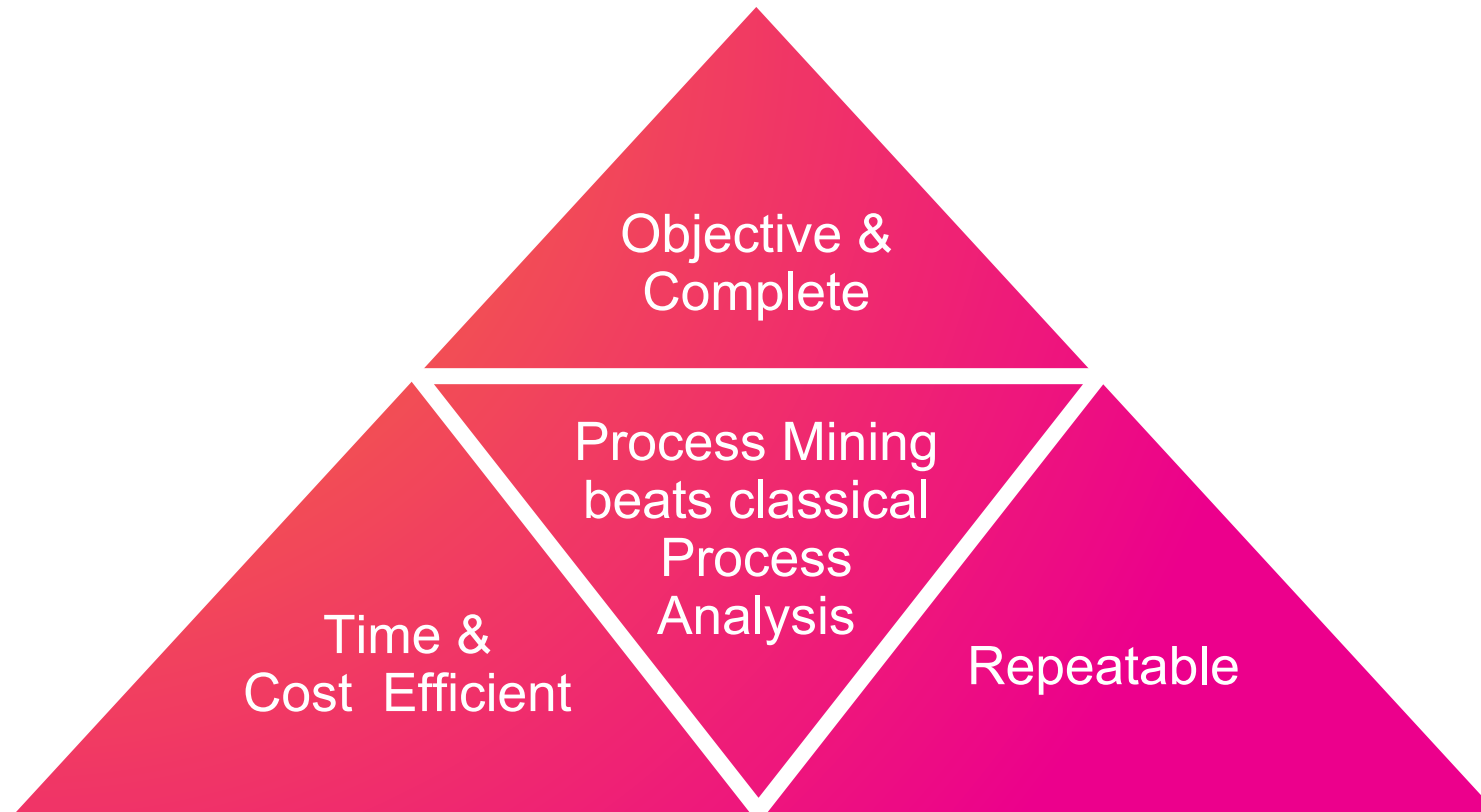
Some questions you may want to research

- Analyze, in which occasions material is frequently out of stock
- Retrieve realistic durations of distinct maintenance steps to be considered in planning phase
- Analyze, whether conditions of fast projects differ from general setup



Talk about Process Mining

Advantages of Process Mining



- ## How does Process Mining add value to your business?



Manage your Stakeholders to succeed



Business Experts

- Pilot-provider
- Paying customers



Technical Support

- Cloud- and Software-gurus
- DevOps



Vendors

- Provide cool tools
- Support your ideas



Further Team setup

- Process Mining Consulting
- SPOC-function for data engineering, PM customization and operation



Management

- Provide „venture capital“ for best Business Case ever
- Support C-Level communication

Splunk helps us delivering our promises



Operation

- Splunk is widespread in use at DB for IOT and Security topics
- Dev-Ops Know How already available in House



Functionality and Performance

- Basic and advanced Process Mining capabilities available out of the box
- Process Mining data volumes are tiny compared to traditional volumes



Efficiency

- Reuse of existing structures
- Competitive pricing



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Thank

You



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