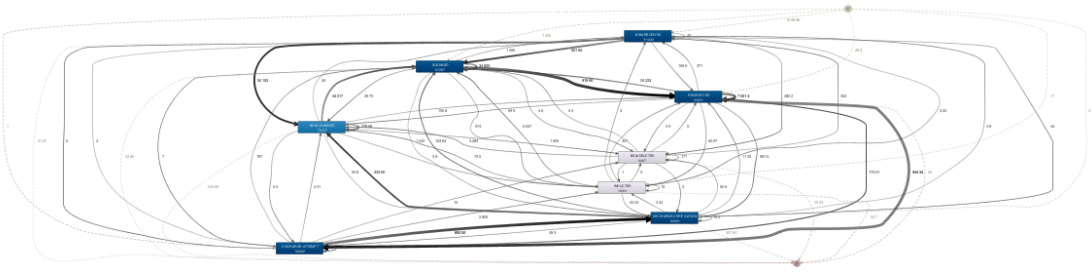
Copenhagen Airports A/S
Process Mining Case Story

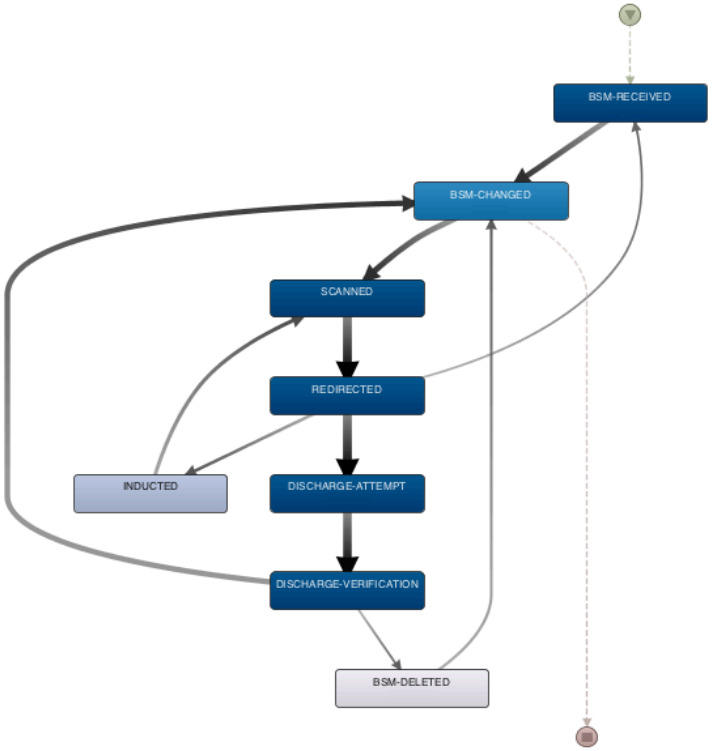
The Process Mining pilot case in Copenhagen Airports A/S was targeting Bag-tag data extracted from the Bag-tag system. Every bag being checked-in or transferred through the airport is having a bag-tag containing valuable information about the destination flight. All bags are handled in the baggage sortation factory, ensuring they end up on the right flight on time.

As the Bag-tag is scanned multiple times on its way from check-in, through the baggage factory, and to the aircraft – and needs to meet several performance KPIs, and because the process can vary significantly depending on different events such as need for storage due to early arrival etc., it was interesting to have a closer look at the process using Process Mining.

The approach to mining the data is to look at the data from two different process perspectives and analyse the results in iterative cycles. Using that approach the analysis revealed more details and insights as the analysis was re-generated.

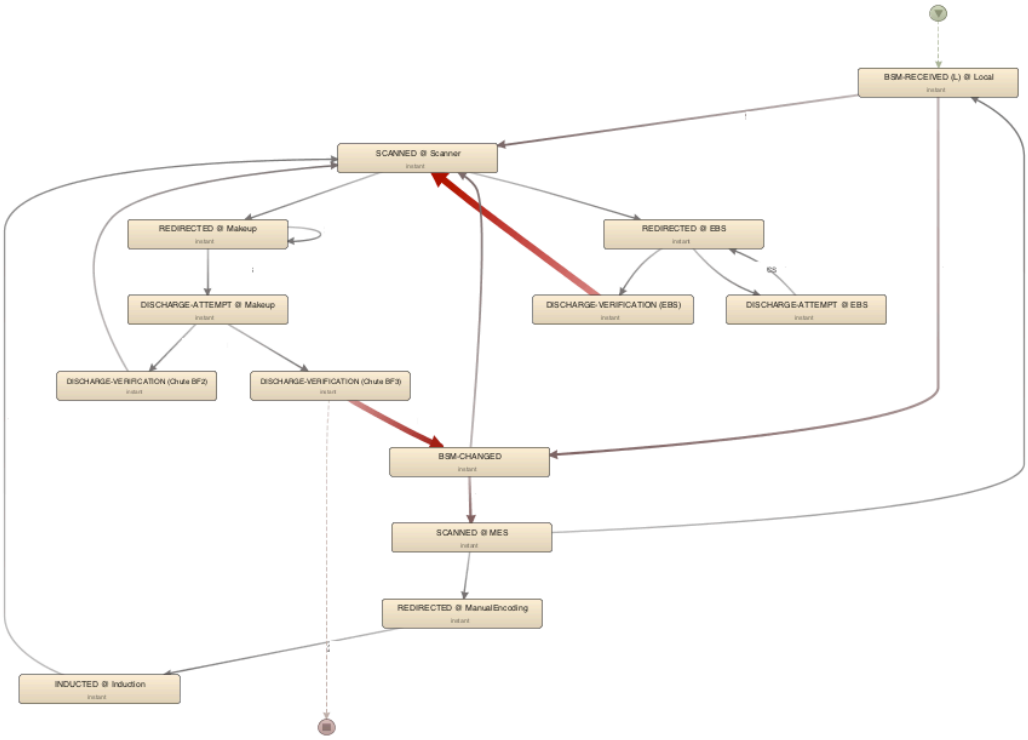
First the data was analysed in order to generate a process map and for getting to know the process in detail. This went from a spaghetti-like process overview into meaningful details by filtering and slicing the process data.





From the process map and related statistics, interesting details were discovered such as where are the bottlenecks? - and are those primarily in the baggage factory belts or in the surrounding events? Furthermore the bag throughput KPI was analysed and possible reasons for discrepancies were determined.

The last analysis iteration turned the process perspective, so that location was concatenated to the activity events. This perspective made it possible to easily see the performance in the process steps related to locations - e.g. the average number of minutes from operated check-in to the bag being seen for the first time in the baggage factory, or average time stored due to early arrival. Information like this is valuable, and having it right at hand is a huge advantage.



Process Mining Take Aways

Despite not having a specific hypothesis to check prior to the Process Mining analysis, it was possible fairly fast to identify valuable insights. Being able to map the main bag process, while still uncovering and analysing variations from this, was valued very much by the Copenhagen Airports analysts. The fact that it was possible to learn more about the process and discover new insights for each iteration was an advantage.

Take away highlights summarised in a bullet list format are:

- Interesting facts were easy to identify. E.g. weekends have more circulations than other days.
- Possible to identify likely reasons for KPI discrepancies.
- Being able to identify areas with potential process challenges prior to a more in-depth analysis, the analysis could be concentrated on areas with possible process challenges, as opposed to the traditional approaches where the process areas analysed in detail, are not necessarily those having the most challenges.
- The easy and fast way of looking at the process from two different perspectives revealed many new insights. The perspective could shift from KPIs and bottlenecks, to process performance related to locations.

- This also underlines that the Process Mining analysis is much dependent in getting the right data in, which was iteratively improved throughout the iterative work.
- The process bottlenecks are generally not related to the baggage factory belt performance.
- It is possible to compare process performance for special days (e.g. days with mechanical breakdowns) to average or good days.
- It is fast and easy to get an overview of the process performance.

Authors

John Hansen, ChangeGroup Partner
Author of the blogs:
www.processmining.dk
www.allaboutrequirements.com

And

Claudia Billing, Copenhagen Airports A/S