Technical and Organizational Challenges of Implementing Process Mining At Lufthansa City Line & Ways to Move Forward

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Introduction

In 2018, Lufthansa CityLine (LHCL) earned the 18th spot out of twenty spots in the Official Airline Guide (OAG) rankings, which rank airlines for their punctuality and their ability to operate as per schedule (Bohm et. al, 136). These delays lead to lower customer satisfaction and result in additional costs to the airline, such as ticket reimbursements, flight re-bookings, hotel bookings, and airplane parking charges, among other fees (Bohm et. al, 136). In the aviation industry, an airline only generates revenue when an airplane is in the air, and not when it is on the ground, even if it is for necessary tasks such as catering, cleaning, and fueling (Bohm et. al, 137). Keeping this in mind, we can conclude that improving an airplane's turnaround time can help boost profits (Bohm et. al, 137). Therefore, Philipp Grindemann was appointed to revamp our business processes at LHCL, and decided to opt for process mining as he believed that it was the right technology to identify and improve the issues in LHCL's workflow (Bohm et. al, 137).

Process mining is defined as the methodology of applying data science and analytics principles to expose issues in the operational workflow of an organization (IBM). Once the issues are identified, organizations can mine log data from their information systems to better understand the bottlenecks in their infrastructure and pinpoint areas for improvement (IBM). Philipp met with the team at Celonis, and both sides agreed about the potential benefits of implementing process mining at LHCL and that it could eventually lead to more reliable and on-time flights (Bohm et. al, 138).

As you know, we decided to implement process mining for the ground operations and maintenance processes as these two processes have the biggest impact on the likelihood of a flight being delayed (Bohm et. al, 138). Right from the beginning, Celonis started to face challenges as they did not have experience with the aviation industry and had to re-think their model on how to approach business processes, customer needs, and IT infrastructure (Bohm et. al, 138). But it is worth the effort, as the successful implementation of this project can approximately save LHCL 50,000 minutes of delays and 100 cancellations per year (Bohm et. al, 138). Now, we will review the main technical and organizational challenges that Celonis faces and take a gander at their game plan for overcoming these prime challenges.

Technical and Organizational Challenges and How to Overcome Them

Process mining is a complex undertaking, and the organization needs to have a clear goal in mind and have the necessary infrastructure, such as technological equipment, datasets, and skilled labor, to make the project a success (Camelot). As per Camelot, the biggest technical challenge that organizations face is that they do not generate enough data that is required for mining. This can be due to several reasons, such as missing data, poor data quality in event logs, and problems with event log time stamps (Camelot). This is partly true for LHCL in that one part of the process data is stored on the servers of an external data services provider and the other part is stored on premises on LHCL servers (Bohm et. al, 139). Due to the data being stored on various sources, the underlying source data has to be modified by Celonis to achieve a process flow that could be further analyzed, which they have assured us they are capable of doing (Bohm et. al, 139). To speed up this process, Celonis has provided technical support to LHCL in the form of data scientists to help integrate LHCL's on-premises systems with Celonis's software (Bohm et. al, 139). The data scientists will also be responsible for creating dashboards to help the departments at LHCL better understand the results of the process mining analysis (Bohm et. al, 140).

A major organizational challenge with implementing process mining is taking into consideration the feelings of the personnel or employees who will be directly or indirectly involved in the project (Fluxicon). This can be a key issue and a possible roadblock, as process mining can feel threatening to employees who feel as if the results might negatively impact their employability at the company or reduce their overall worth to the organization (Fluxicon). Therefore, it is imperative that employees feel that they are a part of the decision-making process and not a variable on whom the decisions are being made (Fluxicon). To mitigate this issue, it is important to establish a culture of cooperation and transparency around the objectives of the project with clear lines of communication (Fluxicon).

To promote healthy communication, Celonis has established a Center of Excellence (CoE) between LHCL and itself (Bohm et. al, 139). The purpose of the CoE will be to foster harmony between different departments and to accurately match a task with the employee who is skilled enough to handle it to ensure smooth project execution (Bohm et. al, 139). Furthermore, we will be holding regular performance review meetings to isolate problems and deploy countermeasures (Bohm et. al, 139).

As mentioned earlier, people can feel threatened by such a project, and in order to address this concern, LHCL will make it clear to the departments that they are solely responsible for optimizing their business processes based on the analysis generated from the process mining (Bohm et. al, 140). Additionally, Celonis will also provide training to employees to help them get accustomed to the software (Bohm et. al, 140).

Conclusion

In this report, we presented the main technical and organizational challenges that Lufthansa CityLine (LHCL) faces for the successful implementation of process mining. We presented our argument in collaboration with our partners at Celonis to better explain what steps have been taken or will be taken to mitigate these potential concerns. With a project of this magnitude, it is likely that we will still run into some unforeseen situations, but having seen Celonis's systematic approach to process mining projects, we can say with certainty that Celonis can hold down the fort, and this project will definitely showcase its value to us in the long run.

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