

Process Mining in the Finance Domain

Process Mining can be used as a powerful approach for organisations to increase understanding of their daily business and to discover how their way of working can be improved. This case study describes how Process Mining was used to improve the procure-to-pay process of a multinational banking and financial services company.



Introduction

This case study is conducted at the financial services department of a Dutch multinational banking and financial services company. The financial services department is responsible for handling all invoices (e.g. for office supplies, building rent, consulting services) that are sent to the company. In total the company receives more than half a million invoices a year, which makes it one of the largest financial services departments in the Netherlands.

The financial services department of this company is, despite its supporting function, very innovative. The manager of the department learned about Process Mining and its differentiating capabilities. In accordance with the department's innovative character and to further improve its already outstanding performance (based on KPIs) in the market, the manager conceived the idea to analyse and improve the procure-to-pay process using Process Mining.

Project details

To discover the priorities of the manager and to get acquainted with the procure-to-pay process, several interviews were conducted with the manager and other stakeholders. There appeared to be only a partial understanding of the way invoices were processed and the current process dashboard was rather basic.

One of the department's improvement objectives was to increase the amount of invoices paid 'on-time'. Also, segregation of duties (the concept of having more than one person required to complete a task) should be guaranteed in relation to fraud prevention. Hence, all stakeholders should have a targeted authorization profile that only allows execution of specific activities in the process.

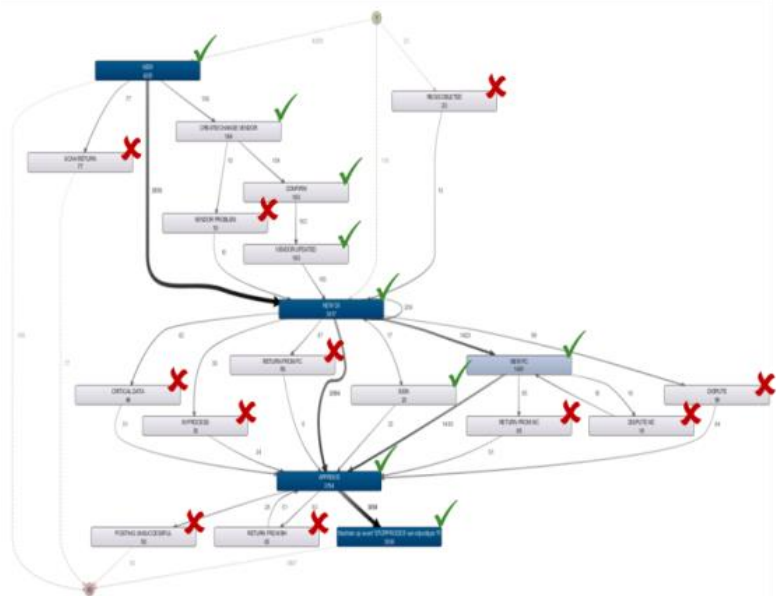


Processing invoices

Exploring how the invoices were processed and with which variations was quite simple. Automatically recorded data from the IT system supporting the process were used to define the main and designed process flow, including when and how invoice processing deviated.

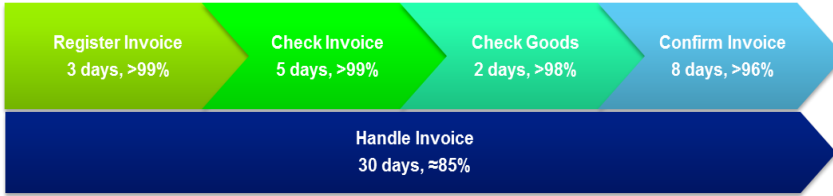
Together with the manager, all activities in this overall process flow were labeled as desired or not. Analysis of the effort that was spent on the latter pointed to several interesting areas for potential improvement.

For example, employees were spending a lot of effort in sending kind letters to suppliers that sent them a reminder to pay an invoice that has not been paid yet. However, most of those reminders were sent by a few big companies that send their invoice reminders automatically after two weeks, which is earlier than the agreed payment term. It could be concluded that in this case sending those kind letters was a waste of time.



On-time payment

Overall, about 85% of all invoices were processed within their payment term of thirty days. The four activities that were part of the main and desired process flow (register invoice, check invoice, check goods and confirm invoice) also had a specific deadline and scored rates of 95% and higher. The total lead time given the deadlines for the concerning activities was eighteen days, so well below the payment term of thirty days. Since the four concerning activities accounted for more than 90% of all executed activities it was remarkable that only 85% of the invoices were ultimately processed 'on time' (see figure below).



Process Mining results proved that there were two main reasons for invoices not being processed 'on time'. Firstly, due to a lack of knowledge and skills of some employees, quite some invoices were not registered correctly.

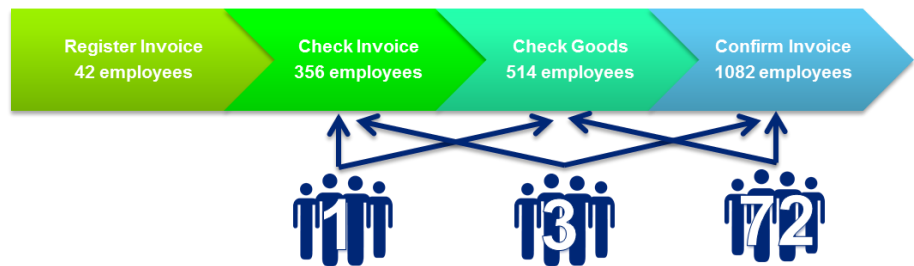
These wrongly registered invoices led to rework in the registration department which took place some days, or even weeks, later in the process. Secondly, employees who had to check within five days if an invoice was correctly registered could use a new status named 'dispute'. Since the activity of handling an invoice with status 'dispute' was not part of the main process flow, this activity has no deadline. Therefore some employees used this status to buy extra time - sometimes even more than a month - before they processed the invoice.

Separation of duties

To process and pay an invoice, different people are required to complete several (main) tasks in view of fraud prevention. Hence, all stakeholders should only have the authority to execute at most one of the four main activities, which was checked using automatically recorded data from the IT system supporting the process.

No exciting results were expected beforehand but (as a matter of fact) reality appeared to be quite different:

- 1) one employee was allowed to both check the invoice and check the goods,
- 2) a few employees were allowed to even check and confirm the invoice, and
- 3) several employees could check goods and confirm those invoices.



These results were quite alarming, since this process was apparently not compliant with regulations. On top of that, the resulting risk of wrong payments and its impact had gone unnoticed before. Of course, immediately a full authorizations check was performed and changes were made to restore compliance.

Concluding remarks

Management concluded that this Process Mining project was quite rewarding in several ways. Firstly, results proved how invoices were really processed and by whom, indicating concrete improvement areas. Secondly, new facts were found about process execution, having quite some impact on performance and main KPIs such as the fraction of invoices that is paid on time. Thirdly, new risks were revealed in process execution, helping to define mitigation and ensure compliance. This multinational banking and financial services company was now convinced of the power of Process Mining; Process Mining was embedded in daily practice to monitor the procure-to-pay process and allowing for analysis on a frequent basis. Furthermore Process Mining is now used in other areas and projects within the company as well.