A Statistical Analysis of the Accounts Payable Process

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Executive Summary

Every business wants to improve its business processes to make things smoother, more efficient, and to gain more profits. This paper highlights our findings and solution recommendations for inefficiencies within the Accounts Payable data set for Company X. First looking into specific vendors, we found that IDES AG is our biggest vendor, accounting for almost 50% of our total cases. They have a 66% efficiency rate compared to our standard process. However, there are some inefficiencies with this vendor we want to improve such as the due date passing early, cancelation of the invoice receipt, changing payment term, and change baseline date. However, there are some inefficiencies with this vendor we want to improve such as the due date passing early, cancelation of the invoice receipt, changing payment term, and change baseline date. Looking at business relations with IDES Canada, business is not profitable. Canada accounts for 14% of our overall cases. Almost all these cases (97%), end in the cancelation of the invoice receipt. This was a red flag that signaled that we need to meet with our Canadian vendors to talk about potential solutions as this if very unprofitable. Moving into the smaller vendors, the United States and United Kingdom, we see more positive business relations. The US performs 13% of our business, with 84% of these efficiently following our standard process and an average throughput time, like our overall average. The UK only accounts for 7% of our business, but they have a 96% conformance rate with a doubled throughput time compared to our standard. This shows we have inefficiencies we need to solve, but overall business is efficient. Next, looking into employees and automation we found that our business, Company X, has an 87% efficiency rate. On average, each of our employees perform 4% of the total activities, with two employees performing at 7% and four employees performing at only 3%.

Finally, looking into individual process variants, overall throughput times, and main violations we found a few different issues. In variants #4-9, which consists of almost 3,000 cases, one violation (due date passes before the invoice is scanned) adds 343 days to our standard process that typically takes less than 30 days. This is significant because we are adding almost a year to a simple process. This results in less cases being completed each year. The next problem is in Variant #3. All these cases end with the step ‘Cancel Invoice Receipt.’ This means our employees are taking many steps that eventually get canceled which is a poor use of our employees work time.

To solve inefficiencies, improve business relations, and boost profits we are recommending a few solutions. In the short run, we want to meet with vendors to talk about efficiencies and inefficiencies in our relations and propose our solutions to some main issues. We also want to train employees to better follow our standard process, inform every employee of their current performance, and set a benchmark for our employee performance rates. These solutions will begin immediately and continue while we work on implementing our long-term solution.

Our long-term solution is the implementation of evaluated receipts settlements. Having automated invoices will help us solve issues such as due date passing early because of lost or forgotten invoices. It will reduce the number of canceled goods receipts as a result of manual invoice errors and pricing discrepancies. Overall, it is going to standardize our main process, speed up our throughput time, and allow employees to work on other ways to improve our business relations to increase revenues. Along with these solutions we talk about the value associated with them and how they will allow us to process more orders in a shorter time and expand our business over time.

Introduction

Our group was tasked with The Execution Capacity Challenge: Find $10 million. We were presented with several data sets from an anonymous multinational home goods retailer, challenged to discover the operational deficiencies within their business processes. We were given a clear outline of goals to accomplish: present compelling software demo to their executives for buy-in and create comprehensive, interactive analysis for data validation. We then worked to discover clear, quantified, identified value in inefficiencies that can be unlocked, project ideas to implement process changes to realize this trapped value, and complete a final value presentation customized to the client's needs, accounting for the power of human capital, company buy in, and an implementation roadmap. By the end of our research, we would have the opportunity to pitch our value proposition and solution to the Executive Buyers of the client.

Our anonymous client, 'Company X', has been in the consumer retail space for 14 years, specializing in home goods (Celonis Company Background, 2021). They're considered a smaller competitor to major brands like Whirlpool and Electrolux (Comparably, 2021). Despite experiencing massive growth, with headquarters in Stuttgart, Germany and San Francisco, United States, and shipping worldwide, they're suffering loss from process inefficiency. This year, Company X reported their profit margin was trending smaller and they had a lower automation rate in their processes compared to their competitors. Company X is particularly underperforming in its more traditional processes, such as accounts payable and request for payment. They have an average automation rate that is 10 percentage points below the German industry average (Celonis Company Background, 2021).

Our team chose to investigate Company X's accounts payable dataset. Accounts payable are the amounts due to vendors for goods or services received by the business (Zarzycki, 2019). These goods and their sums are documented in invoices. Invoices are the driving factor within accounts payable, and we see that the standard process flow in accounts payable revolves around creating, entering, and clearing invoices (Murphy, 2021). Following the flow of our standard path, first the vendor creates the invoice, which is a statement of the goods or services received and the sum due. Next, scan the invoice is an automated way of digitizing the invoice into your system. Enter in SAP means that transaction has been entered in the SAP software, which stores and tracks your data. Book the invoice acts as a record of the invoice and clear invoice means the bill has been paid. The due date passes following the clearing of the invoice and the process ends successfully.

Figure 1: Accounts Payable standard process path

However, this standard process path isn't ideal in terms of automation and efficiency, and it isn't followed all the time. Recurring violations and bottlenecks interrupt the standard process flow, increasing throughput time and decreasing case completion. On a broad scale, our team is attempting to discover and solve the issues causing these violations to increase operational efficiency. More specifically, our team outlined several distinct research questions we'd like to answer by the end of this challenge.

1) Which vendors can we rely on for expansion? How can we work with overperformers to increase globalization, and how can we correct underperformers?
2) How can we improve individual employee performance?
3) How can we increase automation in accounts payable to simplify and standardize our process flow?
4) How will our solutions increase profits and allow for an increase in orders?

Methods

Before we even received the data, we started by doing process mining trainings. Process mining is defined by Celonis as, "a technology that enables businesses to visualize, analyze, and improve their processes in an automated way using the objective data from their IT systems" (Celonis, 2021). All three of us became certified in Process Mining Fundamentals, and two of us got certified at the expert level. The next step was us listening to speakers explain what process mining is and what Celonis does. Soon after, we received multiple data sets. Our group sat down and skimmed through to decide which data set we wanted to work with over the next 15 weeks. We settled on Accounts Payable. Next, we individually dug into the data using Excel and Celonis EMS, writing in a shared document any comments or interesting things we noticed. After looking at the data and seeing different vendors, part of our group looked into the main vendors (IDES AG and IDES Canada). We looked into laws, travel restrictions, trade restrictions, etc. We also used Excel and Celonis to look at each individual employee in the company. Throughout the semester we continued digging into different components of the Accounts Payable data on our own, as a team, and with the help of our outside resources. These resources include more guest speakers, class time with our professors of different study, and our Celonis representative Elsa Welshofer. We met as a group biweekly out of class, had time to talk to our professors in class biweekly, and we met with Elsa once a week or every other week depending on her availability. Over the course of the semester, we also gave multiple presentations and received feedback from peers, professors, Celonis representatives, and some local business representatives. We finished our research by using outside articles to answer any specific questions we had about definitions, business values, or company backgrounds.

Results and Discussion

Finding #1: IDES Canada

Insight

IDES Canada is Company X's second highest producing vendor, accounting for 14% of our data, or 4,066 cases out of 29,988 cases. However, Canada's standard process path, visualized in Variant 1, ends with 'Cancel Invoice Receipt' as the last step before the process ends (Figure 2). Cancel invoice receipt signifies that the check has not been issued or has been canceled, effectively canceling the entire order when occurring at the end of the process path (Oracle, n.d.). Invoice receipts may be canceled for a variety of reasons, ranging from the invoice not being paid on time, the order being wrong, or there could be an error on the invoice itself (Indiana University, 2021).

Data

Variant 1 accounts for 97% of all cases under Canada. Therefore, 97% of cases end in cancellations after a short duration of 8.6 days. To further investigate the remaining 3%, we used the conformance check tool and compared all of Canada's cases to the standard process flow. We found that there are 0% conforming cases, even within the remaining 3% of cases outside of Variant 1 (Figure 3). This means out of 4,066 cases not even one follows the standard process flow. Using root cause analysis, we found that 'Cancel Invoice Receipt' occurs 100% of the time in all of Canada's cases, whether as the last step or somewhere else in the process flow. The other violations consisted of 'Change Payment Term', 'Remove Payment Block', 'Set Payment

Block', or Set Dunning Block.' However, each of these only occur in 15 cases or less, establishing 'Cancel Invoice Receipt' as Canada's main bottleneck.

Root Cause

Next, we wanted to step back and evaluate the effect of invoice receipt cancellations on our data, since they largely dominate Canada's process flows. We found that 4,847 cases flow through 'Cancel Invoice Receipt', with 4,738 of these ending the process as the last event. Therefore, nearly 98% of the time the order is being canceled with this final step. Examining specific vendors that experience 'Cancel Invoice Receipt' is crucial, especially to see if Canada is the main culprit. Using an OLAP Table, we found that IDES Canada is the main offender with 3,977 canceled cases (Figure 4). The other three vendors are significantly lower and frankly incomparable to Canada's root contribution to this violation.

Action

We've concluded that with this current business model the relationship with Canada is not beneficial for Company X. Issues are pervasive with this vendor and we recommend immediately creating a task force of efficient employees within the accounts payable department to solely specialize in monitoring and improving these issues. Based upon the severity of these numbers, it might also be beneficial to assign a supervisor to IDES Canada. We feel that the costs of these employee reallocations and supervisor assignment will be miniscule compared to the money being lost in our business with Canada right now. Canada should be put on an 'emergency notice' that doesn't end until the standard process flow is realized and at least 50% of cases conform to the standard path.

Business Value

Correcting the violations within IDES Canada, especially the invoice receipt cancellation, will standardize 14% of our data. The amount of case cancellations will drop, amounting to more completed orders. This will increase company revenue as well as strengthen Company X's establishment in the North American market.

Finding #2: IDES AG (Germany)

Insight

IDES AG accounts for nearly half of all our cases with 49% or 14,671 cases. Using the conformance check tool, we found that 66% of cases follow the standard process flow. However, there are 10 concerning violations causing issues within IDES Germany (Figure 5).

Data

The most severe of these are 'Vendor Creates Invoice' followed by 'Due Date Passed,' which is evident in 17% of cases, and 'Change Baseline Date', which appears in 10% of cases. 'Enter in SAP is followed by Clear Invoice' and 'Cancel Invoice Receipt' are also notable for occurring in 4% of cases each. The remaining violations are so infrequent they're labeled as occurring in 0% of the data. The effects of these higher violations are demonstrated in several variants in IDES AG, which jump from our standard process time of 24 days to times nearing a year.

Root Cause

This ends up negatively impacting Germany's overall throughput time, which is 86 days. Granted, cases and events through Germany are at a much higher volume per day than other vendors (Figure 6). We must acknowledge the increased potential for mistakes and violations under a higher volume of production, but these violations are still making a major impact. This is significant as they provide 50% of the company's products. Company X's business is only as

good as their relationship with IDES AG. Once the vendor creates the invoice it's entirely in the company's hands, declaring the need for internal company improvements.

Action

We suggest designating two to three high-performing employees in the accounts payable department to oversee relations with IDES AG. They will specifically be responsible for monitoring and mitigating any violations or bottlenecks that occur with Germany. We want to show Germany that we're prioritizing the relationship with them over any other vendor.

Business Value

Since IDES AG accounts for nearly half of all our products, prioritizing relations with Germany and eliminating bottlenecks should double our process efficiency. Having a solid, consistent relationship with Germany will allow Company X to tackle the North American market while knowing they can rely on Germany back in Europe.

Finding #3: IDES United States and United Kingdom

Our next finding for this project is about our relationship with the United States and the United Kingdom. Unlike Germany, the United States and United Kingdom are smaller vendors. Overall, they produce fewer cases, but the cases made by the US and UK are performed at high efficiency.

Insight

The United States accounts for 4,010 cases out of 29,988. This is roughly 13% of the total cases within the Accounts Payable data. In process overview, we utilized the attribute selection setting. We see that the algorithmic happy path is ideal (reference Figure 1). The US vendor follows a happy path at about 84.1% (Figure 7) efficiency. There are also frequent activities that are included in some transactions. These include: 'Change Payment Term', 'Change Baseline Date', 'Set Payment Block', and 'Cancel Invoice Receipt.' These four activities are creating increased throughput time for our company and are not on the ideal happy path. They can create problems and decrease efficiency for our company.

The United Kingdom is the smallest vendor compared to Germany, Canada, and the United States. Despite only providing 7% of our products, the UK is worth pinpointing because it is extremely efficient. The UK follows the happy path of 96.1% (Figure 8). The four frequent activities for the US were: 'Change Payment Term', 'Changing Baseline Date', 'Set Payment Block', and 'Cancel Invoice Receipt'. Remove payment block is the only difference between the US and UK in frequent activities. This means that the UK has one more factor that is interfering with the efficiency of the business. Removing these or finding ways to make the process faster would benefit the company.

Data

One of the main bottlenecks within the United States vendor occurs between 'Clear Invoice' and 'Due Date Passed'. This step has an average of 16 days of increased throughput time. Also, this affects 95% of cases within this vendor. That means that if the step from 'Clear Invoice' to 'Due Date Passed' could be quickened then 16 workdays would also be eliminated. This is the slowest bottleneck that the United States vendor has.

The biggest bottleneck from the United Kingdom is vendor creates invoice to scan invoice. This bottleneck increases the process by 49 workdays for all the cases. 100% of the United Kingdom cases are held up between when the vendor creates invoice and when the invoice is scanned. The simple solution is to create an automation system to decrease this throughput time. We will discuss how that can be implemented in the action section.

Root Cause

The United States is not following the happy path as well as they could be. The United States has a huge bottleneck between 'Clear Invoice' and 'Due Date Passed.' This is slowing the process down by about 16 workdays in 95% of the cases. The root cause of this problem likely has to do with the due date passing. Seeing that this is happening in 95% of cases, it is a major problem to fix.

The United Kingdom has some violations regarding the step of 'Vendor Creates Invoice to 'Scanning Invoice.' This bottleneck occurs in *every* case and is increasing the process by 49 workdays. There could be a few different reasons why this is happening. Perhaps the employees are busy and do not have enough time to scan the invoice in a timely manner. This would result in the invoice sitting in a pile for 49 days before it is even touched. Another reason this could be happening is because the employee was not aware that the invoice was created and needed scanning. This is a problem that could save the company money and about 49 days of time.

Action

In the United States data, to fix the issue between the 'Clear Invoice and 'Due Date Passed' we recommend having our bills paid on the due date. This will decrease the number of cases where the due date passes weeks after the transaction.

Overall, the UK is performing extremely well. We recommend creating an automation system that will help the process decrease time. The United Kingdom could become more efficient with a notification implemented between when the invoice is created and when it is scanned. When the vendor creates an invoice there will be an automatic email or text sent to the company that an invoice has been created and needs to be scanned. Then, the company will be notified about this and is more likely to scan it in a timely manner.

Business Value

Since we have beneficial relationships with the United States and the United Kingdom we are not changing much in our relations with these vendors, our business value should stay consistent with what it is now. We may see a positive change due to the overall changes we are recommending in our later findings.

Finding #4: Employee vs Automation Rates

Insight

Three quarters of all companies use some form of automation in their business processes (Moran, 2021). Automation can improve, standardize, and speed up many different activities within a business.

Data

When first looking into our company's data, it looked as if there was a blank user for almost 25% of the activities performed (Figure 9).

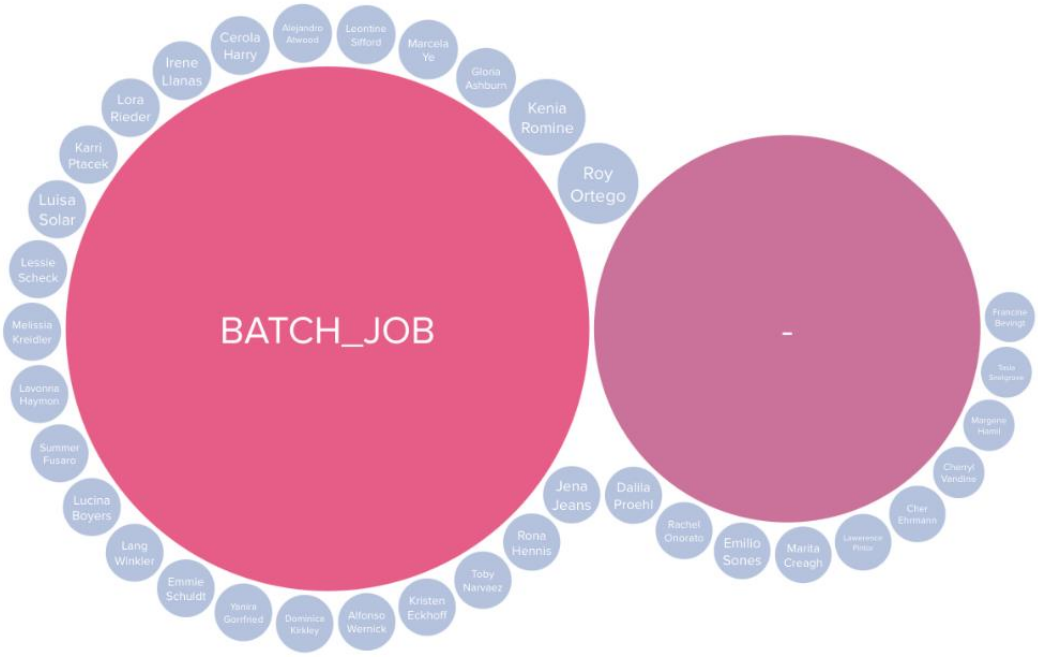

Figure 9: Total Task Completion by User

Digging deeper into the data using the Celonis tool, we found that the only two activities assigned to the blank user are ‘Vendor Creates Invoice’ and ‘Due Date Passed’ (Figure 10). As these are activities that occur automatically in the process but are not performed by our business, we ignored this user before looking more into the data. Using the Attribute Selection tool in Celonis we can determine that the overall automation rate is 87%. We then used the same process to examine each individual user. 28 of the 34 employees each performed 4% of the total activities.

Root Cause

There were 4 employees who only completed 3% of the total activities each, and there were 2 overperforming employees who each achieved 7% of the total activities performed.

Action

To increase automation rate, we are suggesting the use of Evaluated Receipts Settlements (ERS) which will be described in the next finding. To increase employee efficiency, we are suggesting employee training, the use of benchmarks, and employee efficiency monitoring. The benchmark that we are recommending is only a small increase to 5% of total activities completed compared to the current average employee rate of 3-4%. We suggest that the four underperforming employees should be made aware of their performance and continue to be closely monitored and compared to overall user averages. On the flip side, those over performing employees should be rewarded and utilized to train the low-mid performing employees to hit the 5% benchmark.

Business Value

To compute the value of this increase, we did a few calculations. We first determined how many total events the employees performed. Note that we did not include the two overperforming employees as they already met our benchmark. The 33 remaining employees

performed a total of 39,435 activities. Then we took the average of the top 2 performing employees (2,279.5 events) and multiplied the average events by 33.

2,279.5 average events * 33 employees = 75,223.5 events at a 7% benchmark.

Since we only need our employees to hit a benchmark of 5%, we then divided this number by 7% and multiplied it by 5% to establish what the total employee event count should be for a 5% benchmark.

(75,223.5/0.07) * 0.05 = 53,731.1 events at a 5% benchmark.

Next, we took the difference between what our employees should be performing and what they are currently performing to find what the increase in events would be if our employees were reaching the recommended 5% benchmark.

53,731.1 - 39,435 = 14,296 event increase.

To convert events into cases, we first used simple counts in Celonis. We calculated events or activities per case by dividing the total event count of 200,000 by the total case count of 29,988 to get 6.669 events per case. Then, we took our 14,296 event increase and divided it by 6.669 events per case to determine that by meeting the benchmark set, our employees could handle an increase of 2,143.66 cases.

14,296 event increase / 6.669 events per case = 2,143.66 case increase.

Finally, we calculated the actual value by multiplying the 2,143.66 case increase by the average value of completed cases of $4,713 to get a total potential value of $10,103,069.60.

2,143.66 case increase * $4,713 average value of completed cases = $10,103,069.60

This is what our current employees would be able to complete if performing at this benchmark of 5%. To see this value, our business would have to have a big enough increase in orders to allow our employees to reach this potential. However, as most businesses hope to expand and grow larger, we can be confident that our employees could handle an increase in cases if our business did indeed grow.

Finding #5: Evaluated Receipts Settlement

Insight

Throughout the Accounts Payable dataset, there were multiple issues that all led to the same solution of an Evaluated Receipts Settlement. The first of these issues is that the throughput times drastically rise after the third most common variant.

Data

Variants #1 and #2 take 24.6 days and 30.6 days respectively to complete. This makes up 70% of the total cases. Excluding Variant #3 (mentioned later), Variants #4-9 make up 13% of the data and jump to an average throughput time of 360.3 days to complete. By first filtering on Variants #4-9, then using process flow selection in Celonis, we see that over three quarters of

this 13%, almost 3,000 cases have one violation occurring that adds 343 days to the throughput time as seen in Figure 11.

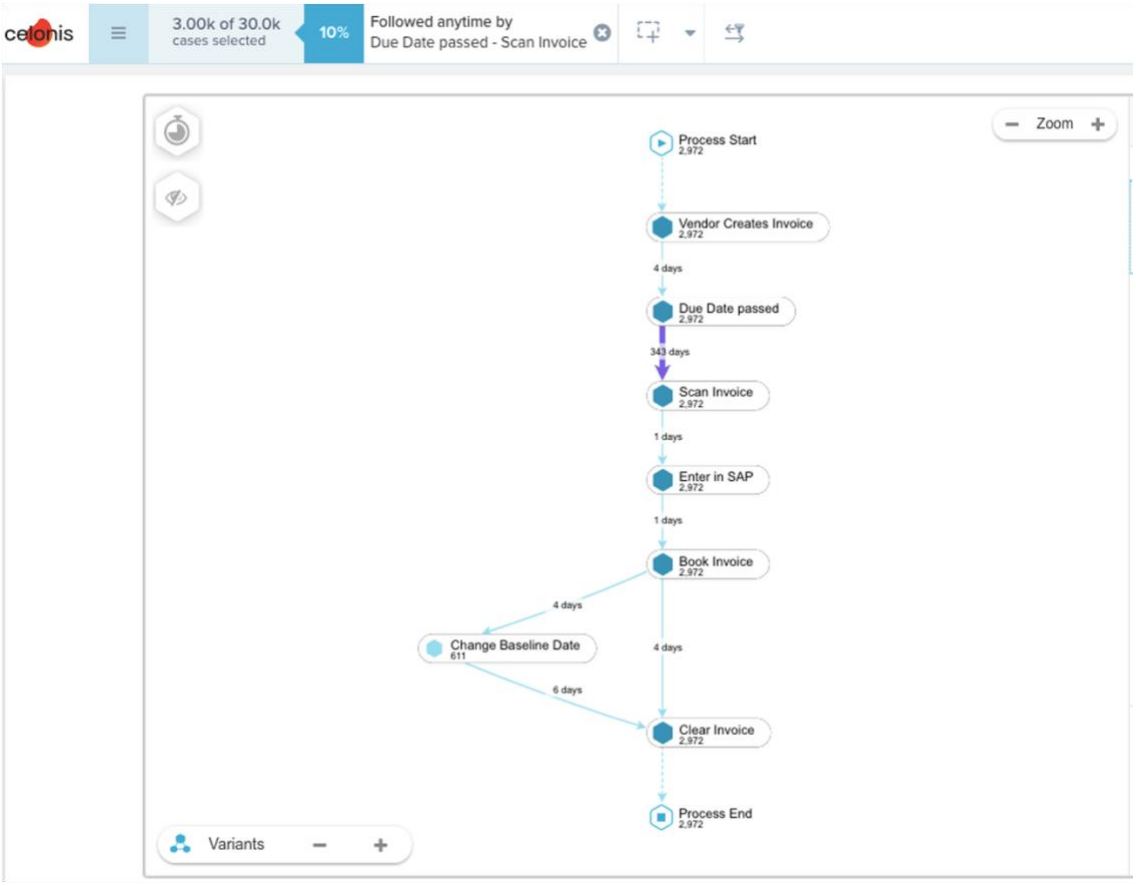

Figure 11: Main Violation of Variants #4-9

Root Cause

This main violation is the due date passing before the invoice is scanned. In a manual system, the invoice is scanned and entered before the payment occurs. This violation can happen if an invoice is forgotten, lost, or ignored. With the resolution of this one violation, 10% of the data should see a reduction in throughput time of almost a year. Paying bills late can create bad relations with vendors. From a business standpoint, we do not want to pay bills early, but since we do not want to pay them late either we want to make sure they are being paid as close to the due date as possible.

The next issue that leads into our solution appears in Variant #3. Variant #3 makes up 16% of the total Accounts Payable data. Every case in this variant ends in the cancellation of the invoice receipt. This can be for a variety of reasons including errors on the invoice, the order being canceled, and pricing errors. It is unknown how many of these cases are completely canceled and how many just need corrections made before they can be processed. If there is only an error that needs to be fixed, there is about 9 days on average wasted before the invoice receipt is canceled which would then still need to be fixed and resubmitted. If the order is completely canceled, this is another issue as this can create bad relationships with vendors if it occurs frequently.

Action

These issues lead to our long-term solution: evaluated receipts settlements (ERS). ERS is the process of settling goods receipts automatically without having to be mailed or sent the invoice. The invoices are automatically posted through the system based on a previously agreed upon price per unit between each vendor and the business. The payment information is then based on the purchase order and goods receipt. The purchase order shows the order details, both types and quantity of the products the buyer needs, the payment terms, and the delivery dates. When the goods have been delivered you then have the goods receipt. The goods receipt is an electronic acknowledgement of the items that were physically delivered as this may differ from what was requested. These combined elements determine the actual amount owed and when the bill is due.

The ERS will increase automation because many parts of the process will now be done through the system instead of needing to be done manually, such as scanning and entering the invoice. It will also standardize and streamline the process by removing the steps 'Scan Invoice', 'Enter in SAP', and 'Book Invoice'. These steps are eliminated because with the use of ERS there is no physical invoice. If the system is set up correctly, the ERS can be made so that bills are paid on the due date through the system. This will remove our first issue of the due date passing before the invoices are scanned. Having automated invoices will also reduce our second problem of canceled invoice receipts by reducing manual invoice errors and pricing errors. Since the system is completing the invoice, there should be no writing errors, and specific prices are set up with each vendor and put in the system so there should also be a reduction in these errors. It will not solve orders being canceled completely for reasons unrelated to the invoice.

Business Value

It can be difficult to put precise dollar amounts to how this automation will affect our business as the evaluated receipt settlement will cause a significant overhaul in our standard process. With an evaluated receipt settlement, some violations such as Change Payment Term may be eliminated because the payment terms are explicitly stated in the agreement between the business and each vendor and should not change frequently. As discussed in Finding #5, overall throughput time will decrease as we eliminate three entire steps from our process along with eliminating violations such as due date passing before the invoice is scanned. Eliminating these violations will allow us to have better relations with our vendors. These things in conjunction will allow our company to increase business and revenue as we could produce more orders in the same amount of time and have higher order completion. This allows us to compete with larger competitors in the industry.

One of those similar competitors that has implemented automated receipt settlements is Whirlpool, who also happens to be a Celonis client. Whirlpool partnered with an outside company to help them execute this concept. This company provides a platform to enable the development of processes that can potentially eliminate the need for manual data entry and make data retrieval easier. After applying this, Whirlpool was able to handle an increase in orders due to their acquisition of Maytag by having more orders automated by their SAP system. This also allowed them to eliminate order backlogs, reduce the average order entry time, and put all documents into a cloud instead of physical storage which also reduces paper use. Whirlpool reported a cost savings from their 2006 Maytag acquisition of $460 million which was $60 million more than they had expected. In 2008, they reported a 41% rise in annual net earnings (Jacobs, 2008). Part of these savings and profits are due to the ERS implementation.

As a similar company we should see these same benefits on a smaller scale. This potential could open us up to handle more cases and compete with major brands like Whirlpool. According to Lockstep, businesses can see anywhere from a 30-80% savings from automating invoices (Lockstep, 2021). These savings come from the elimination of repeated invoices, saving postage and processing costs, and completing cases earlier with the use of reminders. The cost of processing the invoice can be reduced from more than $10-15 to less than $5 per invoice. The investments that need to be made to implement this automation component include the software, installation costs, training costs, and occasional updates. Even with these costs, the return-on-investment will be significant in relation to the investment expenses.

Conclusion with Recommendations

In conclusion, we investigated the Accounts Payable dataset over the last 15 weeks for Company X. The standard flow for our main process is 'Vendor Creates Invoice', 'Scan Invoice', 'Entered in SAP', 'Book Invoice', 'Clear Invoice', 'Due Date Passed', and then the 'Process End.' As you have learned throughout this report, not every vendor is performing the ideal, happy path for transactions. As a group we looked into why, how, and who is causing inefficient business decisions. In the introduction we asked four questions. They were:

1) Which vendors can we rely on for expansion? How can we work with overperformers to increase globalization, and how can we correct underperformers?
2) How can we improve individual employee performance?
3) How can we increase automation in accounts payable to simplify and standardize our process flow?
4) How will our solutions increase profits and allow for an increase in orders?

We reported five findings:

1. IDES Canada
2. IDES AG (Germany)
3. IDES US and UK
4. Employee vs. Automation rates
5. Evaluated Receipts Settlement

Our first finding was with our vendor IDES Canada. This was our second highest producing vendor and accounted for 14% of our data. Canada had a common bottleneck that involved canceling invoice receipt. We also discovered that 97% of cases end in cancellation of the invoice receipt after about 9 days. The remaining 3% of the cases did not follow the standard process flow either. Canceling invoice receipts is occurring in 100% of Canada's cases. This indicates that IDES Canada is currently not a reliable vendor for the company.

IDES Germany was the second vendor we investigated. Germany is a major vendor and accounts for about 49% of the total cases. 66% of the cases follow the standard process flow. The most severe problems are 'Vendor Creates Invoice' followed by 'Due Date Passed' and 'Change Baseline Date.' The other, smaller, violations account for about 24 days of increased throughout time. Seeing that Germany has a 66% happy path, we can indicate that they are a reliable vendor for Company X.

The United States and the United Kingdom were our joint third finding. Despite being smaller vendors, they are extremely efficient and reliable for Company X. Together the US and UK have an 88.39% happy path. The two most prominent bottlenecks in these two vendors are long throughput times between 'Clearing Invoice' and 'Due Date Passed', and 'Vendor Creates

Invoice' to 'Scan Invoice'. Fixing these two bottlenecks are not a huge priority right now, because these two vendors are already performing so well. Overall, the US and UK are reliable vendors for the company at this moment.

Our fourth finding is Employee vs Automation. For this finding we dug deep into the efficiency of employees. Some employees were performing as low as 3% of total activities while others were performing up to 7%. We concluded that if we could create a benchmark of 5% then the company would save money. The higher performing employees could train the underperforming employees. This would increase efficiency and globalization in Company X. In this finding we found the biggest amount of money that can be saved. We found $10,103,069.60 that can be saved if the employees, theoretically, performed at a 5% efficiency level.

Our last finding was the implementation of the evaluated receipts settlement. The solution to this finding is automation. Throughout the processes within the vendors, there are minor issues that creates problems that last days, weeks, or months for employees to fix. There are long and short term solutions to these problems. An automated system would be great here to eliminate the steps: 'Scan Invoice', 'Enter in SAP', and 'Book Invoice'. These steps could be eliminated with the use of ERS as there is no physical invoice. If the system is set up correctly, the ERS can be made so that bills are paid on the due date through the system. In accounts payable, this would simplify and standardize our process flow.

We are confident that these solutions have the potential to save Company X 10 million dollars. With the implementation of evaluated receipts settlements and employee training, million of dollars can be saved. We know that these solutions can save the company money and improve efficiency as we have seen while researching similar companies.

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Appendix

Figure 1

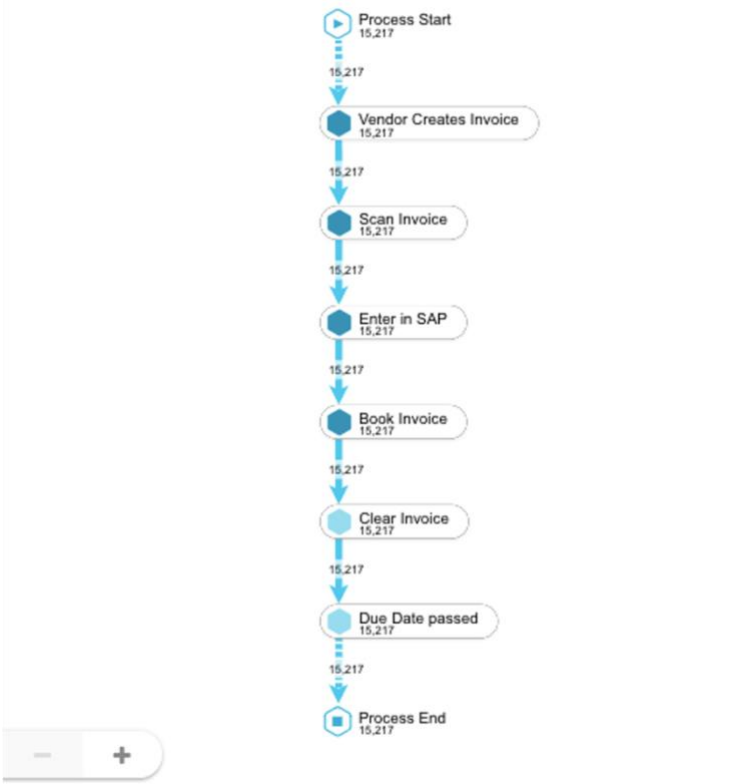


Figure 2

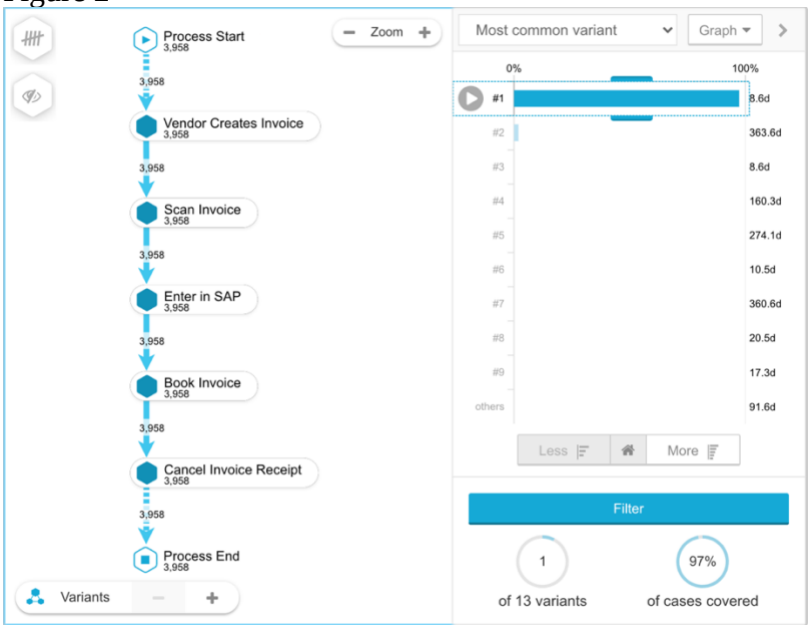


Figure 3

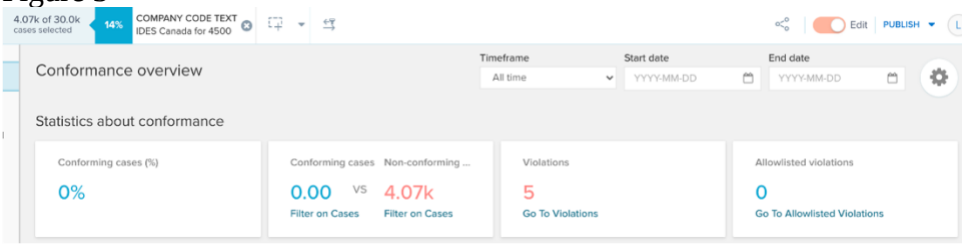
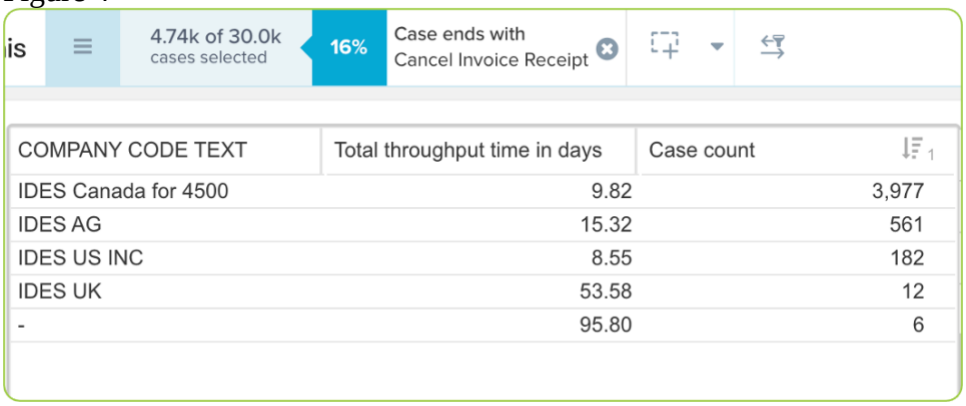


Figure 4



COMPANY CODE TEXT	Total throughput time in days	Case count
IDES Canada for 4500	9.82	3,977
IDES AG	15.32	561
IDES US INC	8.55	182
IDES UK	53.58	12
-	95.80	6

Figure 5

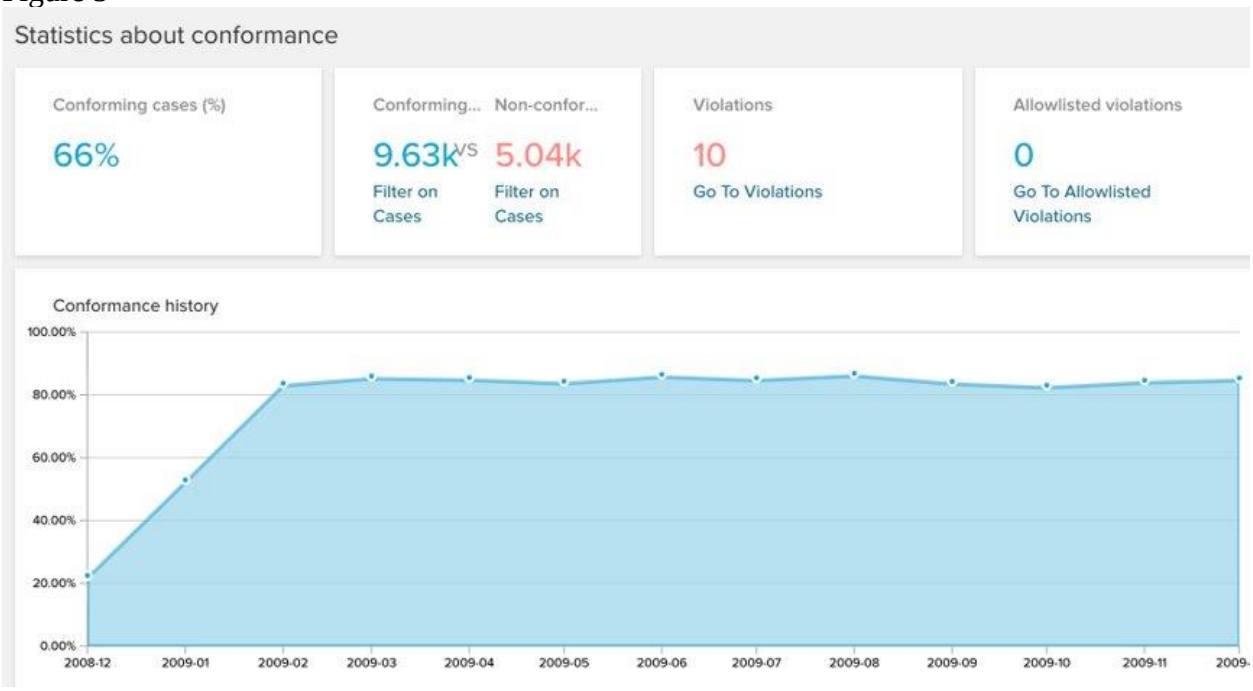


Figure 6

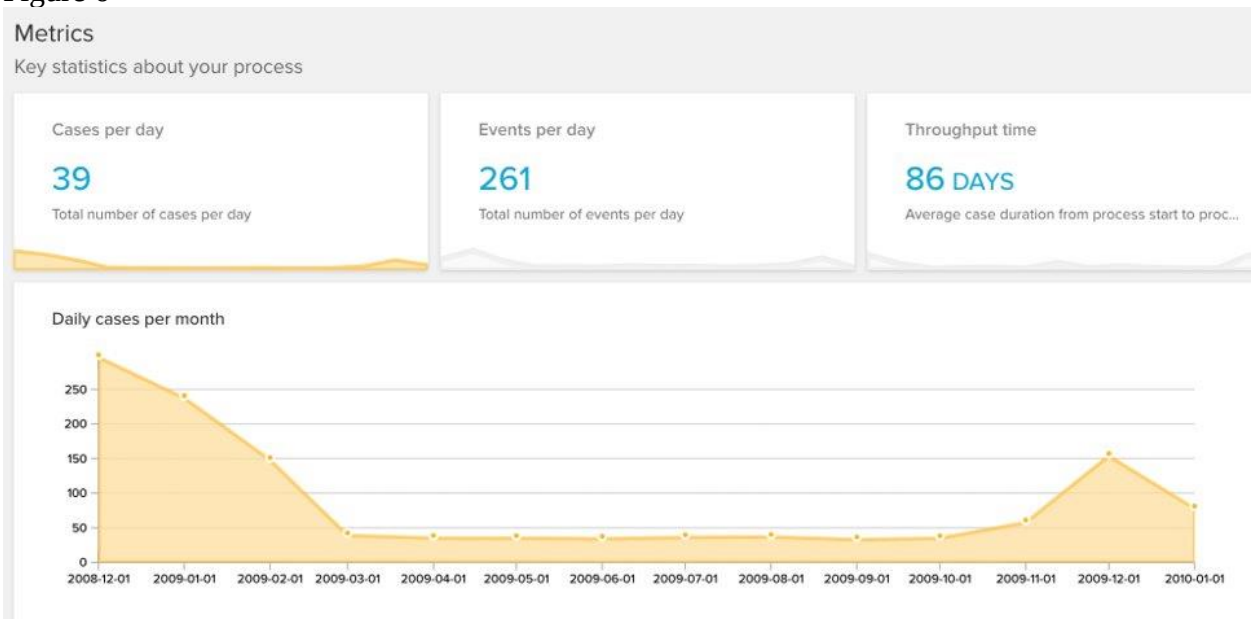


Figure 7

Figure 8

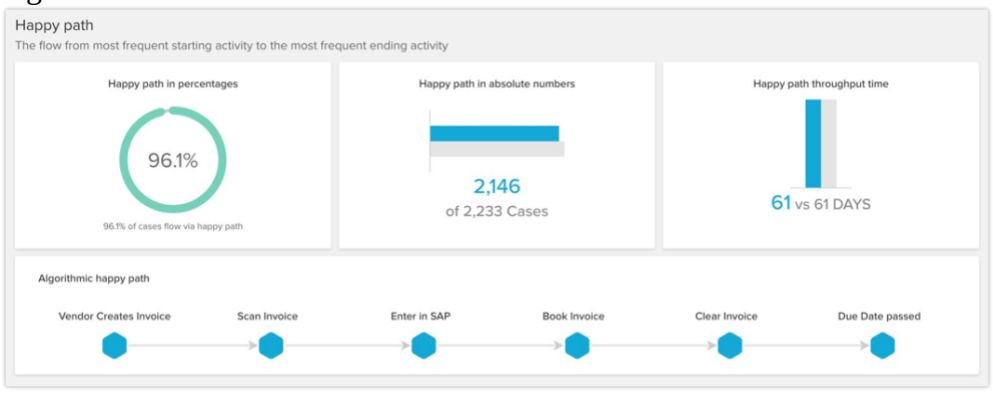


Figure 9

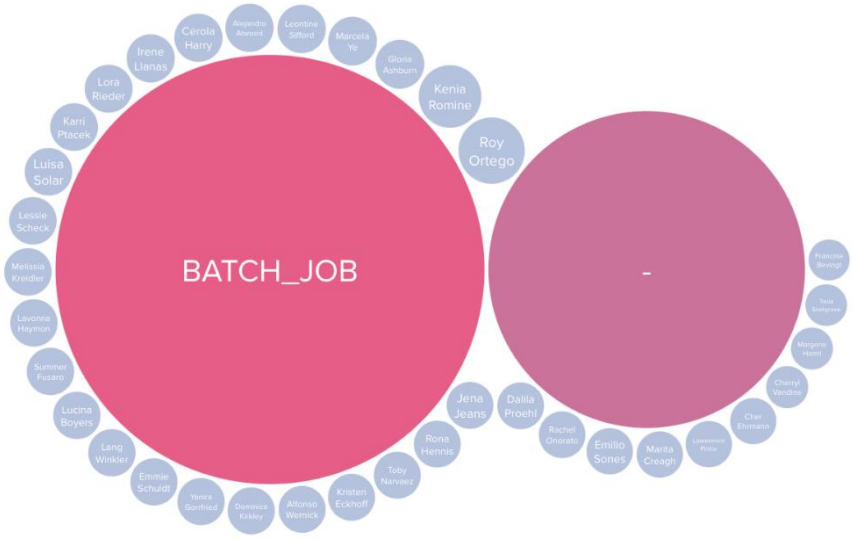


Figure 10

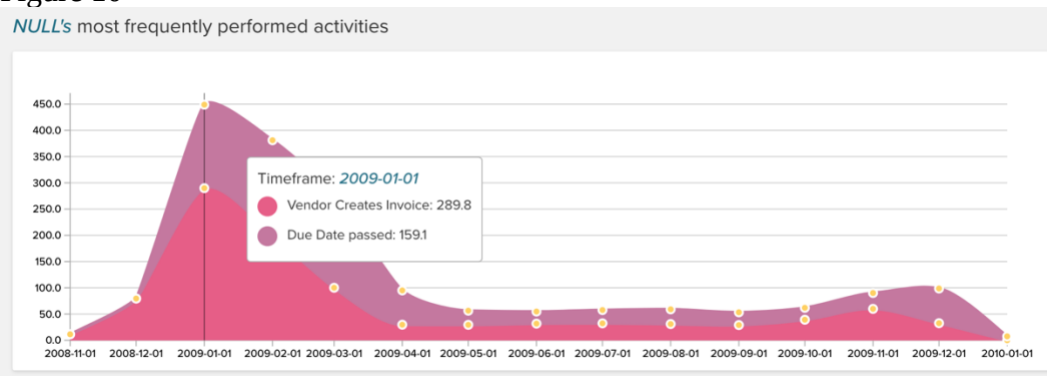
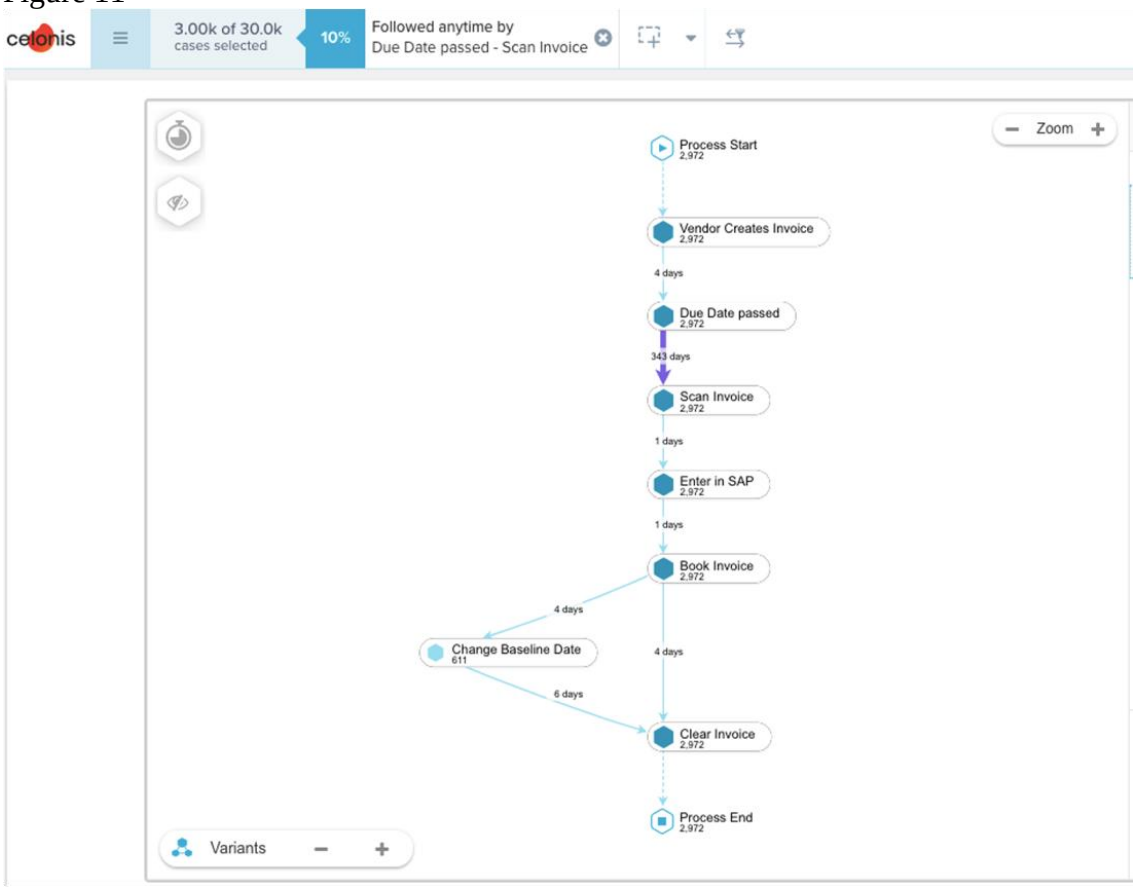


Figure 11


celonis
3.00k of 30.0k
cases selected
10%
Followed anytime by
Due Date passed - Scan Invoice
Zoom
Process Start
2,972
Vendor Creates Invoice
2,972
4 days
Due Date passed
2,972
343 days
Scan Invoice
2,972
1 days
Enter in SAP
2,972
1 days
Book Invoice
2,972
4 days
Change Baseline Date
611
4 days
6 days
Clear Invoice
2,972
Process End
2,972
Variants