# *Purchase Requisition*

Business Administration with Informatics
Faculty of Electrical Engineering
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Business Process Analysis

Submitted to:
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# Introduction

Our dashboard has three sheets which are named synopsis, specifics, and benchmark. These sheets can be used for process mining to visualize and monitor business processes as they run. It can also help in uncovering the root causes of process inefficiency. This dashboard benefits in the following ways:

- Increasing productivity through automation where it makes sense and reducing cycle times, for as by automatically converting free-text requisitions into purchase orders (POs).
- Improving supplier relationships and performance by making sure master data is always accurate, including lead times, pricing and quantity also course by making on-time payments.
- Getting purchase orders properly the first time and every time will help you cut costs.
- Reducing non-conforming buying by figuring out where and why it occurs so you can have the appropriate dialogues with the company.

This dashboard for purchase requisition gives details regarding purchase orders, purchase returns, material procurement time (throughput times), automation rate, rework rate, details of the item purchased, purchase order values, number of suppliers and comparison between the supplier's processes and the order details like the ordered quantity.

# Description of the KPIs of the Staples Inc purchase requisition dashboard

1. Purchase Order:

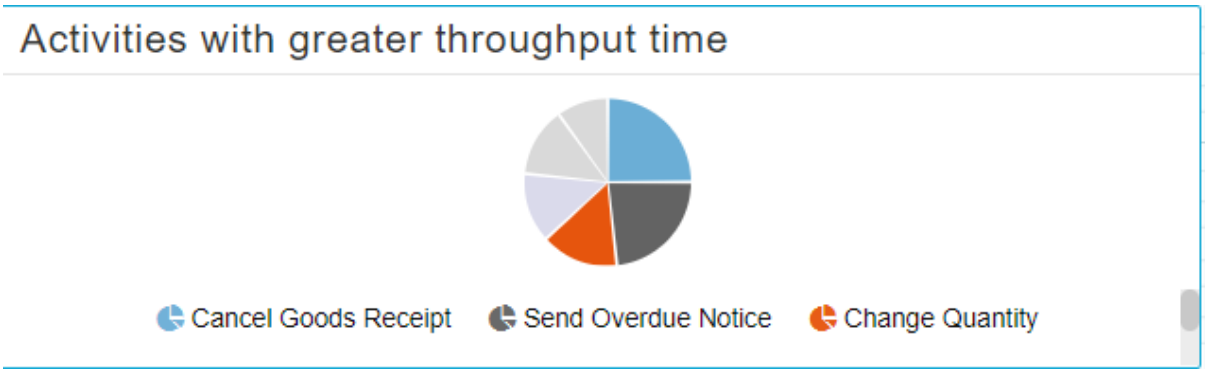
This metric helps to keep a track of the purchase value of the orders placed. Monitoring this metric enables us to put approximated value to every customer in a specific time frame that allows a better understanding of the customer purchasing patterns. Regulating daily transactions are essential for forecasting future revenues, costs, sales and are critical for a business to grow and operate. This is a part of **business value-adding activity** as it enables the analysis of trends and patterns in the purchasing patterns of the customers enabling them to recognize the pitfalls and take actions to improve them.

2. Throughput Time:

Calculating the median throughput time highlights the various factors contributing to the subsequent increase/decrease in the throughput time median. The value of this metric can yield valuable insights into the time taken to convert a purchase requisition query into a purchase order for a specific supplier/vendor. Categorizing processes and vendors/suppliers based on this metric can help to identify critical processes and suppliers which can be adhered to. Poor performing processes/suppliers can be replaced or worked upon to free up space for more strategic decisions. Feedback can help improve the process and lead to better throughput time and avoid unnecessary delays. This can enable to drive operational efficiency. This can be recognized as both **value-adding and business value-adding activity**. The **average** throughput time for the year is 29.86 days.

We have categorized vendors based on this average in green and red colors. Red color signifies the companies with a throughput time average of more than 30 days and green highlights the companies with an average throughput time lesser than 30 days. This helps us to have a clear overview of the cycle time process of companies and those highlighted in the red can be worked upon as needed.

| Name | Total throughput time in days | Clear Filter |
|---|---|---|
| | 26.47 | |
| ABC Dienstleistungs GmbH | 29.65 | |
| ACME Supply Company | 25.58 | |
| AFS-VENDOR | 31.05 | |
| ALVARO F2 | 32.75 | |
| AUTOBODY INTERNATIONAL | 35.20 | |
| Abbot Supplies Inc. | 32.04 | |
| Abele Intershop | 28.15 | |



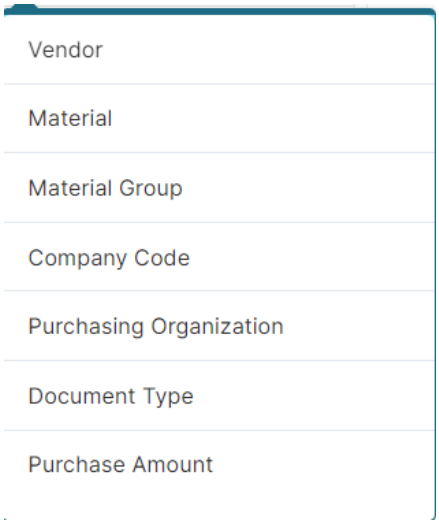

The pie-chart above highlights the activities/processes taking up throughput time. The table below shows the value in days and percentages.

| Activities | Throughput Time (Days) | Percentage (%) |
|---|---|---|
| Cancel goods receipt | 80.25 | 25 |
| Send Overdue Notice | 74.76 | 24 |
| Change Quantity | 47.28 | 15 |
| Remove Payment Block | 42.17 | 13 |

| | | |
|---|---|---|
| Set Payment Block | 42.02 | 13 |
| Others | 30.86 | 10 |

3. OLAP:

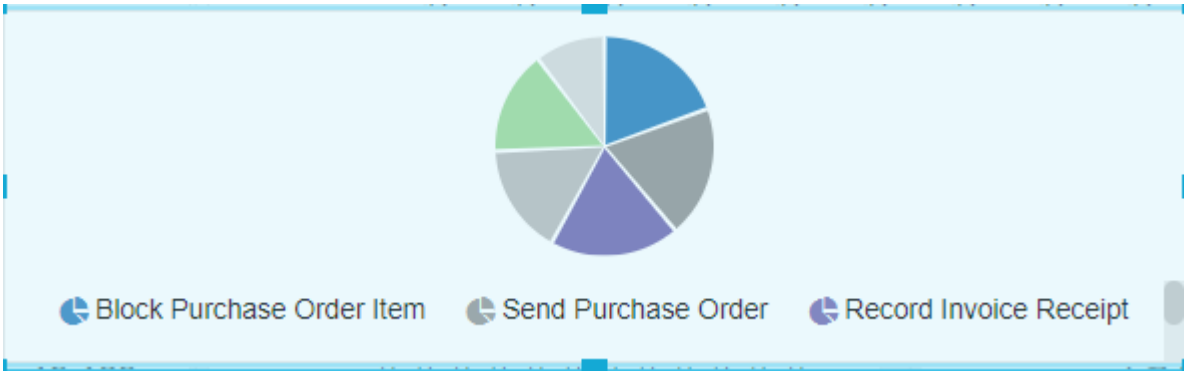
This component categorizes items purchased in a specific time frame based on the categories such as Vendor, Material, Material Group, Company Code, Purchasing Organization, Document type and the Purchase amount. The button dropdown component attached to the table enables us to choose from the different categories to organize the data. This gives us insights about a specific purchase by a vendor at a time for a particular item. This helps to **add value** to data as it provides a thorough understanding of the transactions. This metric provides in-depth knowledge about adequate inventory levels and revenue-generating elements which can help to rationalize the process based on factual data.




- Purchase Return: This metric guides us through the amount of purchase return items that were incurred during the year. The line chart shows upward and downwards trends which helps us to calculate the number of purchase returns for specific months during the year. Purchase returns can incur because of various reasons like a quality issue, pricing issues, delivery, and other products. Monitoring this metric can help us recognize the items returned by vendors and steps can be taken to improve the quality and delivery of the products.

- Automation Rate: This metric helps us to identify activities/processes which need automation. The amount of time spent on dealing with a purchase requisition order from signing documents and delivery can be propelled using automation. In the line chart, we can observe that the automation rate for the year ranges between 45-50%. This suggests the number of activities that were automated during the year.

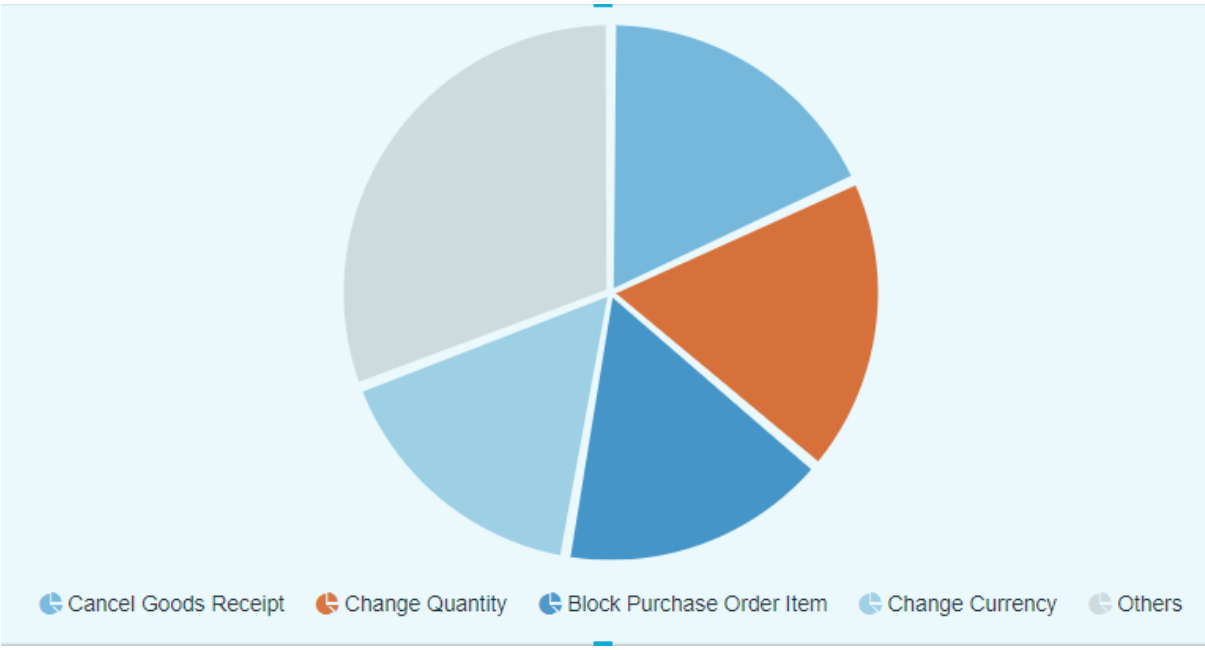
Automation can help to cut costs, improve productivity, and enable data-driven decisions which can help in negotiating, budgeting and identifying gaps in the process.




This pie chart highlights the top 5 activities which had the highest rate of automation.

| Activities | Automation Rate (%) | Percentage of Activities (%) |
|---|---|---|
| Block Purchase Order Item | 71 | 20 |
| Send Purchase Order | 71 | 19 |
| Record Invoice Receipt | 70 | 19 |
| Send Purchase Order Update | 59 | 16 |
| Receive Order Confirmation | 55 | 15 |
| Others | 37 | 10 |

- Rework Rate: This metric helps us to confirm the activities which were nonconformant. **Nonvalue-adding activities** or processes such as cancellations, changes in price/quantity or changes in order require to rework which leads to an increase in costs and loss in productivity and hurt profitability. Identifying such activities can help an organization reduce costs, increase profit and leads to optimization of the process. The line chart shows the rework rate between 27-32% during the year. An **issue register** can be maintained to identify the weaknesses and issues with the product/process and an analysis can be made to improve the process. Such an analysis can help the stakeholders like the managers, supervisors, and process participants to make better decisions.




The above pie chart describes the activities/processes which acquire the highest percentage of the rework

| Activities | Rework Rate (%) | Percentage of Activities (%) |
|---|---|---|
| Cancel Goods Receipt | 110 | 18 |
| Change Quantity | 110 | 18 |
| Block Purchase Order Item | 100 | 16 |
| Change Currency | 100 | 16 |
| Others | 189 | 31 |

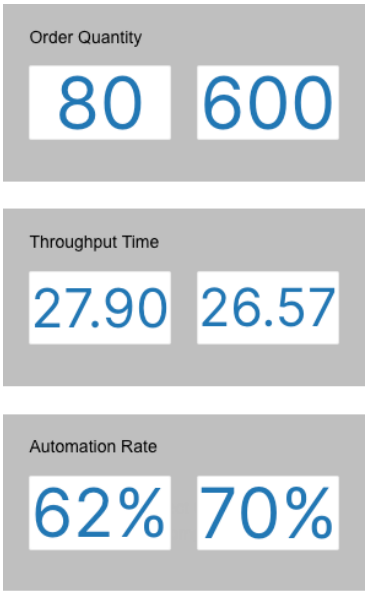
**Case Scenario**: If we select the supplier C.E.B Barcelona we can see the entire analysis of company. We can see the total order value is 223 million Euros. The average throughput time is 31.19 days which is highlighted in red that suggests that it needs some attention. We can see that this supplier had no purchase return. The automation rate ranges between 32-45% for this supplier and the rework rate ranges between 25-27%.

4. Specifics

In the specifics sheet of Staples Inc, there are various components like the button component, picture component, number component, column chart, pie chart and the OLAP table. The button components are there which can help the user to transfer to other sheets in the dashboard.

- The column chart named the Purchase order items by month shows the dimension Event time in months and the KPIs Total throughput time in days and purchase orders. This column chart shows the number of purchase orders every month during the year with the average time taken from start to end for each order to be processed. This can help the business to keep track of not only its inventory and to

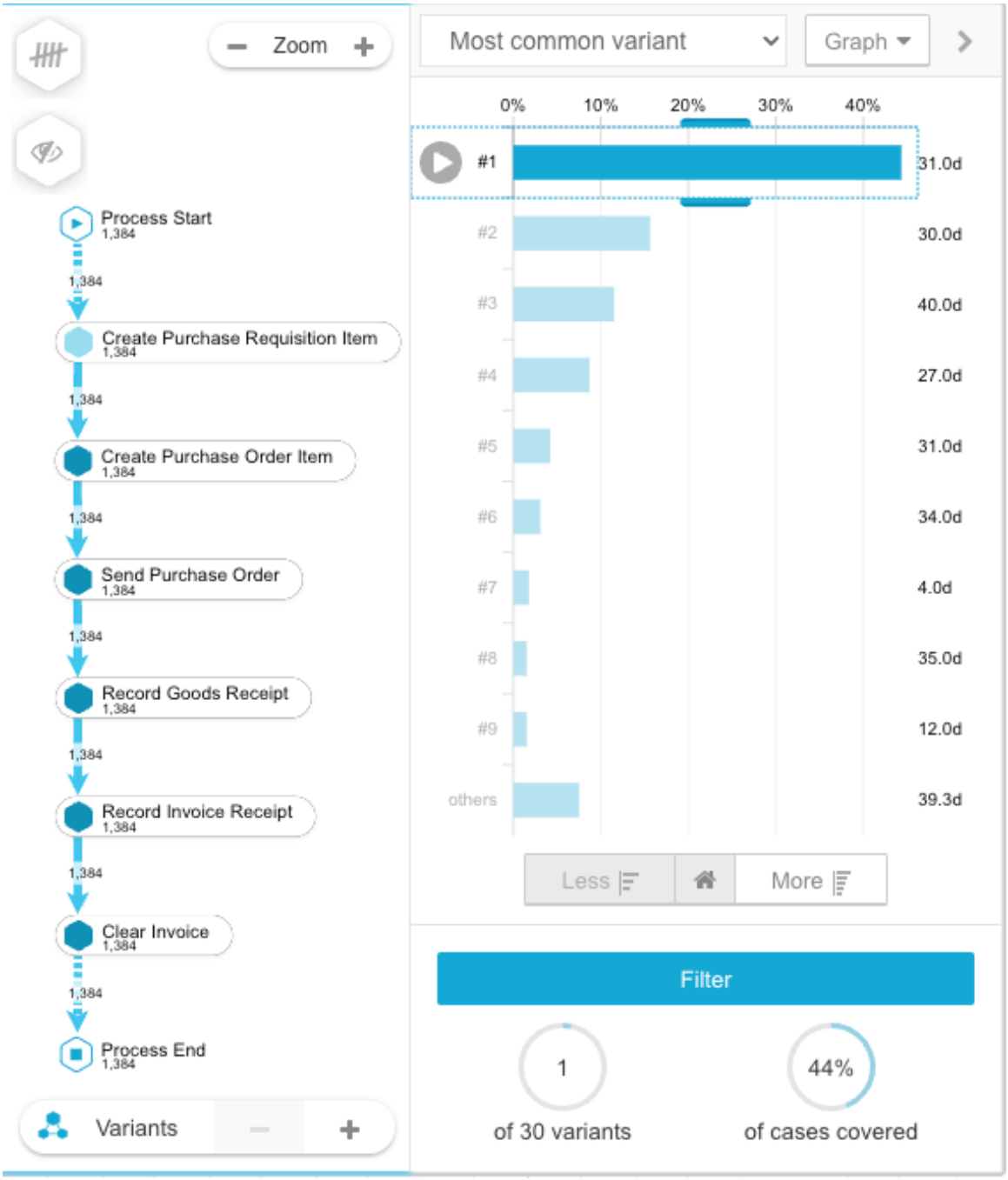
analyze the number of purchased items during the year but also the procurement time for the ordered items during the year.




- There is another column chart which shows the order trend. It has the dimension Event time in a month and the KPIs Purchase orders and order value. This chart signifies the direction of progress and growth of purchase orders and the net order value during the year. The information from this graph can be used to examine trends over time and the real operations and functioning of the company, particularly regarding predetermined targets or goals.

- The Online Analytical Processing (OLAP) table with the button dropdown component shows the information of vendors, material, material group, company code, purchasing organizations, document type and purchasing amount range concerning its average number of events per case, purchase order item quantity and order value. This table can help the business keep track of specific details concerning many things stated in the button dropdown component.

**Case Scenario** : The table also has a search button option to search for a particular item for example if the analyst wants to search items purchased with a specific company code number 5000 then by typing the number 5000 in the search entry box the analyst will be able to see details in the other parts of the OLAP table such as the number of events per case, purchase orders from them and the purchase value regarding the company code number 5000 only. It will also give information on the analysis in the other components of the dashboard for example in the order trend column chart, the graphical representation of the purchase orders with the order value can be seen by month throughout the year. If we put the cursor on one of the bars in the column chart on month, may we can see that the quantity of purchase orders is 176 and the order value for the same is €22,400. This case is for the company code 5000 – IDES Japan 5000.




5. Benchmark

The benchmark sheet includes a comparison of the company's vendors, which serves as a scale for assessing various pieces of information. It has two variant explorers of two separate vendors and the comparison of order quantity, throughput time and automation rate. Hence, this sheet can help the business to compare the operations and processes of two vendors. Benchmarking has several benefits since it allows businesses to implement best practices and raise process standardization by comparing process performance across regions, departments, teams, and industry leaders. With the use of this kind of process analytics, the business can benchmark across any period or dimension (region, team, department, etc.) to implement lessons learned across the entire organization. The process variation explorer can assist in identifying all the various ways the process might be carried out within an organization.

One of the analysis tools that aid in adopting an "exploratory" approach to ascertain how the process is functioning is the Variant Explorer (in the image above). There are various key performance indicators (KPI) that can be seen in the variant explorer. In the image below you can see various options displaying the case frequency KPI, activity frequency KPI, throughput time details, and automation rate details.


The case frequency KPI measures the number of distinct cases connected to a particular activity or relationship. Naturally, the number is the same for all actions and connections in a single variation. The activity frequency KPI might indicate rework, or the number of times a case has gone through an activity during the course of the process which are non-value-adding activities for the business. This often denotes an unwanted flow procedure. The variation explorer also displays a comparison of several versions at once to highlight how they differ and how they are similar. The throughput time KPI is particularly effective for reviewing when undesirable activities occur, such as when the price of one of the variants changes. The issue register in the analysis can aid in keeping, organizing, and prioritizing the issues by identifying the weaknesses of the processes (issues). The variant explorer also shows the number of variants and the cases the particular variant covers.

Besides the comparison of the order quantity and the throughput time in our benchmarking sheet, there is also the comparison of automation rate which assists in knowing the percentage of automated activities in the processes. A business can generally maintain improved productivity, reliability, availability, increased performance, and lower operating costs with the help of automation. Making the shift to lights-out operations benefits off well.

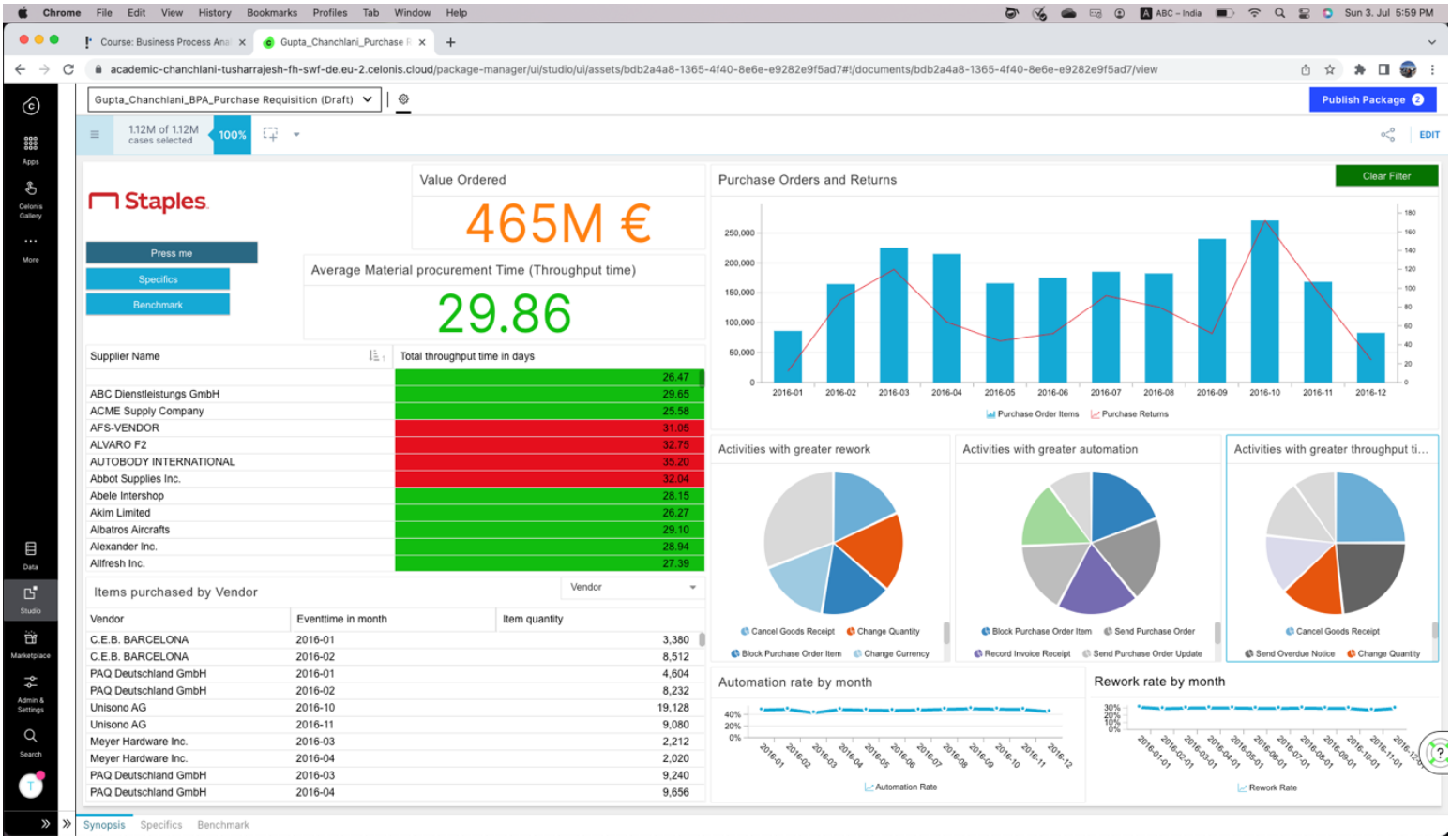
The above details of the variant explorer and the KPIs are used in the benchmarking sheet for comparison of the vendors. It can be used either for qualitative or quantitative analysis.

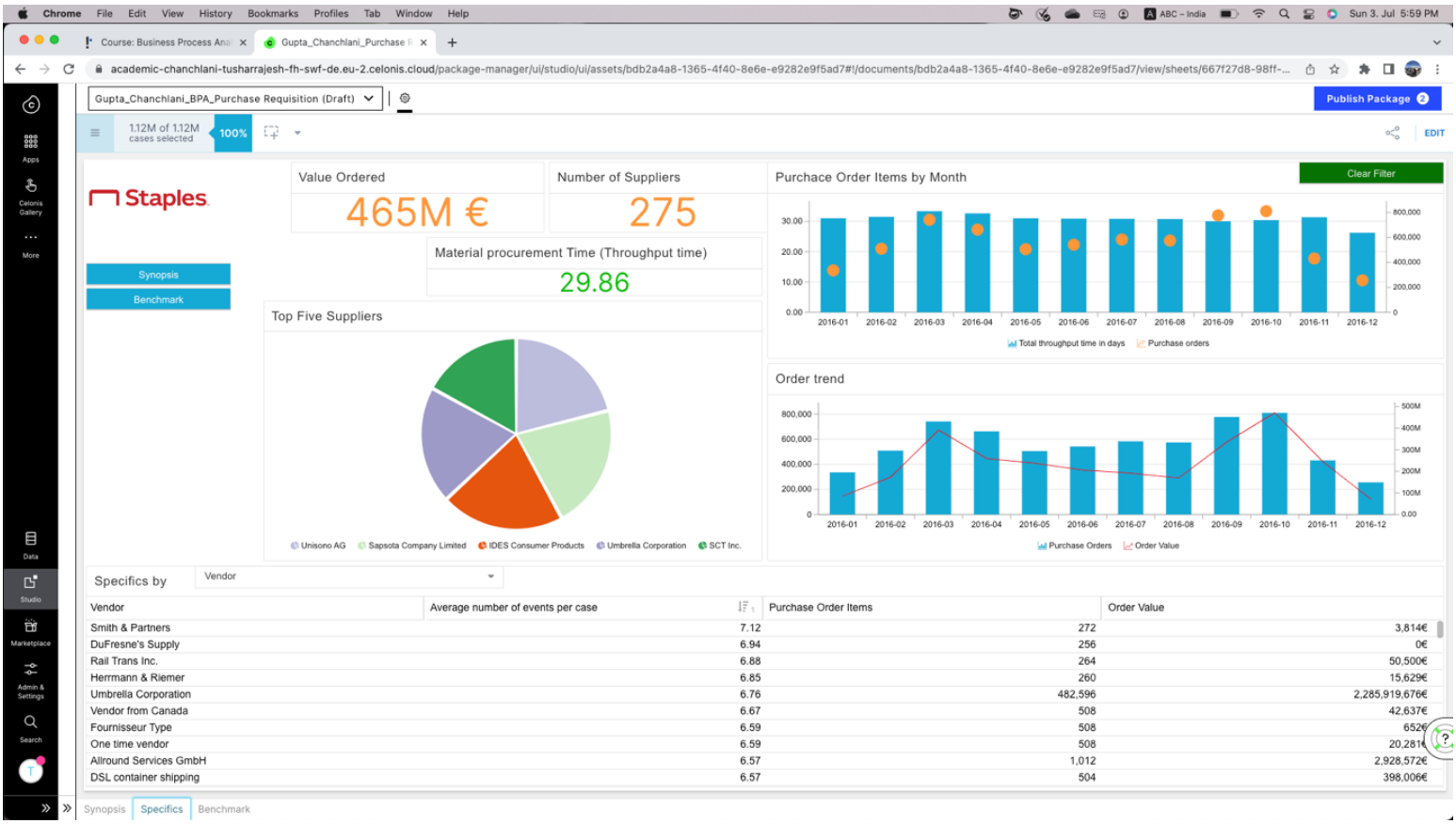
## Conclusion

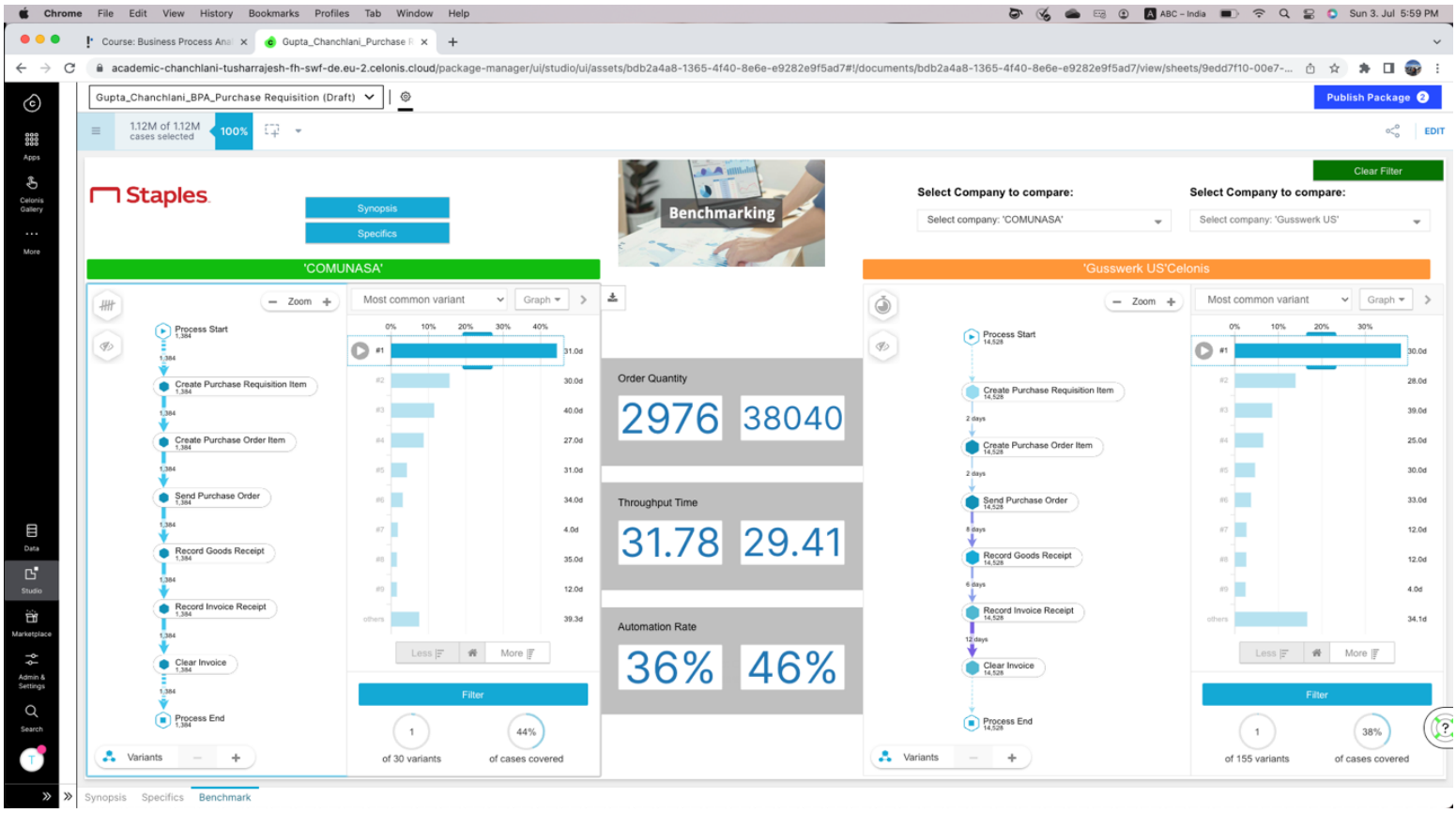
A business process is a framework for any business as it consists of any set of activities that accomplish a specific organizational goal. The purchase requisition process dashboard created here can help analyze which processes are happening and what is happening in the

processes. The analysis can help Staples Inc to monitor and examine its business process activities, understand trends and patterns, and add value by producing data driven results.

# Appendix


Gupta_Chanchlani_BPA_Purchase Requisition (Draft)
Publish Package
1.12M of 1.12M cases selected
100%
EDIT
Staples
Value Ordered
465M €
Press me
Specifics
Benchmark
Average Material procurement Time (Throughput time)
29.86
Purchase Orders and Returns
Clear Filter
Purchase Order Items
Purchase Returns
Supplier Name
Total throughput time in days
ABC Dienstleistungs GmbH 29.65
ACME Supply Company 25.58
AFS-VENDOR 31.05
ALVARO F2 32.75
AUTOBODY INTERNATIONAL 35.20
Abbot Supplies Inc. 32.04
Abele Intershop 28.15
Akim Limited 26.27
Albatros Aircrafts 29.10
Alexander Inc. 28.94
Allfresh Inc. 27.39
Activities with greater rework
Activities with greater automation
Activities with greater throughput ti...
Items purchased by Vendor
Vendor
Vendor
Eventtime in month
Item quantity
C.E.B. BARCELONA 2016-01 3,380
C.E.B. BARCELONA 2016-02 8,512
PAQ Deutschland GmbH 2016-01 4,604
PAQ Deutschland GmbH 2016-02 8,232
Unisono AG 2016-10 19,128
Unisono AG 2016-11 9,080
Meyer Hardware Inc. 2016-03 2,212
Meyer Hardware Inc. 2016-04 2,020
PAQ Deutschland GmbH 2016-03 9,240
PAQ Deutschland GmbH 2016-04 9,656
Automation rate by month
Rework rate by month
Synopsis
Specifics
Benchmark


Gupta_Chanchlani_BPA_Purchase Requisition (Draft)
Publish Package
1.12M of 1.12M cases selected
100%
EDIT
Staples
Value Ordered
465M €
Number of Suppliers
275
Material procurement Time (Throughput time)
29.86
Synopsis
Benchmark
Top Five Suppliers
Unisono AG
Sapsota Company Limited
IDES Consumer Products
Umbrella Corporation
SCT Inc.
Purchace Order Items by Month
Clear Filter
Total throughput time in days
Purchase orders
Order trend
Purchase Orders
Order Value
Specifics by
Vendor
Vendor
Average number of events per case
Purchase Order Items
Order Value
Smith & Partners 7.12 272 3,814€
DuFresne's Supply 6.94 256 0€
Rail Trans Inc. 6.88 264 50,500€
Herrmann & Riemer 6.85 260 15,629€
Umbrella Corporation 6.76 482,596 2,285,919,676€
Vendor from Canada 6.67 508 42,637€
Fournisseur Type 6.59 508 652€
One time vendor 6.59 508 20,281€
Allround Services GmbH 6.57 1,012 2,928,572€
DSL container shipping 6.57 504 398,006€
Synopsis
Specifics
Benchmark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Gupta_Chanchlani_BPA_Purchase Requisition (Draft)
Publish Package
1.12M of 1.12M cases selected
100%
EDIT
Staples
Synopsis
Specifics
Benchmarking
Clear Filter
Select Company to compare:
Select company: 'COMUNASA'
Select Company to compare:
Select company: 'Gusswerk US'
'COMUNASA'
'Gusswerk US'Celonis
Zoom
Most common variant
Graph
Process Start
Create Purchase Requisition Item
Create Purchase Order Item
Send Purchase Order
Record Goods Receipt
Record Invoice Receipt
Clear Invoice
Process End
Variants
Less
More
Filter
1
of 30 variants
44%
of cases covered
Order Quantity
2976
38040
Throughput Time
31.78
29.41
Automation Rate
36%
46%
1
of 155 variants
38%
of cases covered
Synopsis
Specifics
Benchmark