Business Processes Analysis and Analytics

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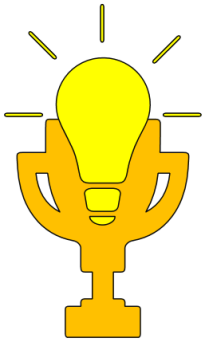
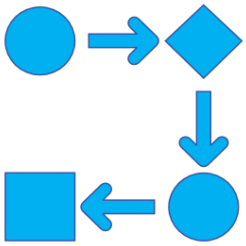
When it comes to improving and analyzing processes a data driven approach should be considered for use to generate clear evidence. By using Process Analytics we can help bridging any significant gap between what management oversees holistically and what specialists know in terms of details. Moreover, with the objective to improve business processes based on data evidence, the right insights into how an organisation's processes work are delivered to our clients.

Our consultancy spans a range of multiple topics for enhancing profiability of business processes, improving response time of service processes, and strenghtening control in production processes.

Rapid Time to Productivity when contracted.



Assess to Cutting Edge methods delivered



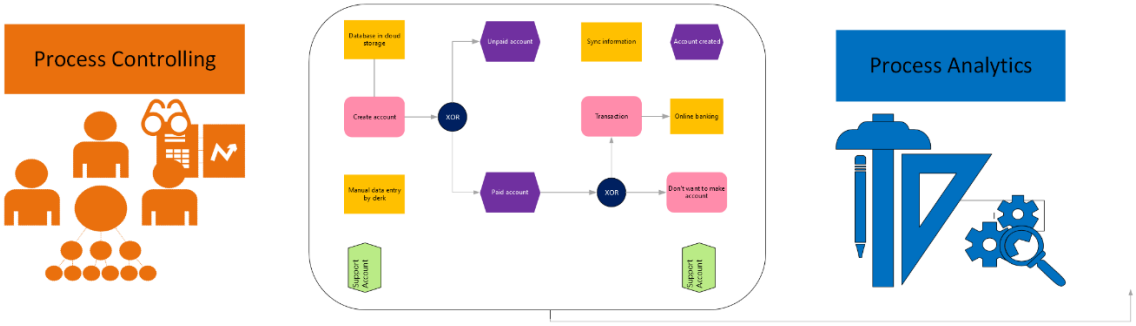
Best practice incorporated by use of modern commercial software.

How can Business Process Analytics be useful for Business Process Management?

Contact us for more information!

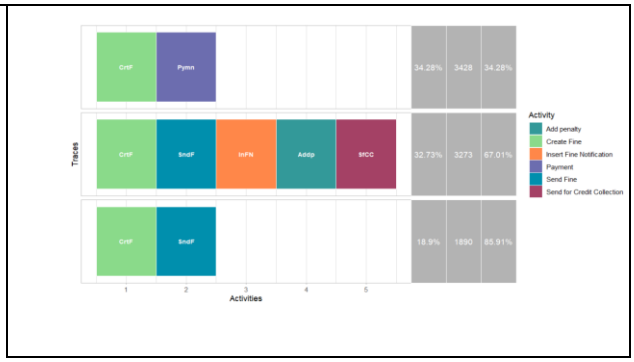
Analytics can help to detect weaknesses in the set-up and operation of business processes regarding the dimensions time, cost and quality.

Since Process Analytics is based on utilizing process data and analytical methods, data can be transform into insights. Gaps between what management oversees holistically in terms of the processes, and what employees know based on specializations, can be bridged when using insights drawn from Process Analytics.



Contact us for more information!

✓ A trace barchart is useful for illustrating specific sequences of process activities, e.g. ordering activities from most common to least common.



Methodology

Determining whether a process is effective requires quantification by using appropriate **measures of process performance**, financial or otherwise.

longer times. Stable processes show equilibrium between inflow and outflow rates in the long run, by which a **throughput** is measured as the average inflow (or outflow) rate. Throughput such indicates the average

then defines the Throughput R, the number of products exiting a stable process, as the average inventory divided by the average flow time.

$$I = R \cdot T$$

Taking the reciprocal of throughput, i.e. the time that is maximal to be spent per unit to allow customer demand, a **takt time** is defined. Furthermore by answering how many times the inventory is delivered per unit of time, one defines the **inventory turnover ratio** as

$$ITR = R/(R \cdot T) = R/I = 1/T$$

As shown by the equation: a high turnover ratio corresponds with a low average flow time.

For determing the **critical path** of a process flowchart one determines the flow time for each path and screens for the path the with longest flow time.

Process Mining

As a subarea of Process Analytics, Process Mining provides the means to compare observed process data with process rules and representations of process models.

Processes used to structure businesses, services and productions have logs with abundance of data. Each event in these logs is associated to an activity of the process. Such event logs not merely record these events and provide data evidence about the operational processes, but also these logs can be subject to data mining techniques to explore important insights about process bottlenecks.

Contact us for more information!

Systems and Process Simulation

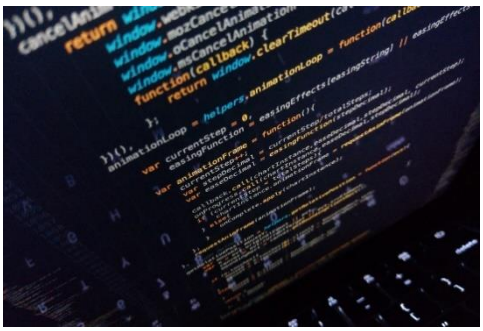
Simulation based evaluation has been established in recent decades for analyzing process performance and breaking points of sytems and processes. Simulation based approaches are useful in verifying assumptions and demonstrating the efficiency of processes prior to go live. Compared to graphical and analytical modelling, process simulation is often favorable.

For example, Discrete Event Simulation is a common standard for evaluating the efficiency of queues in supply chains and production processes.

Furthermore, System Dynamics is a standard for evaluating the impact of feedback in systems and processes. In addition to displaying the dynamic behaviour of systems in form of trends and breaking points, control related tasks are accessable by the System Dynamics simulation approach.

Discrete Event Simulation for Process Simulation

Contact us for more information!

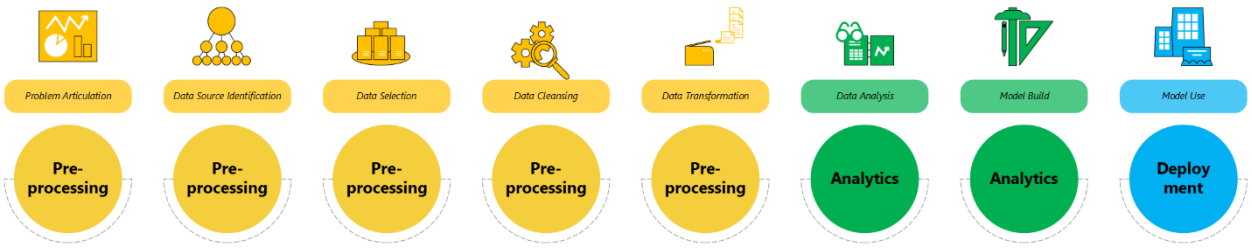


System Dynamics for Systems Behaviour and Process Simulation

Contact us for more information!

Marketing Analytics

As with all analytical methods derived from data, a structured approach commencing with preparing and analyzing data and ending with building and approving the final model is applied. This approach is illustrated in the below diagram, with data preprocessing steps used to find outliers, missing values, and interesting patterns in the data.



Customer Segmentation

What – Used in Marketing Analytics to understand customer structure.

Why – For targeted advertising based on customer segments.

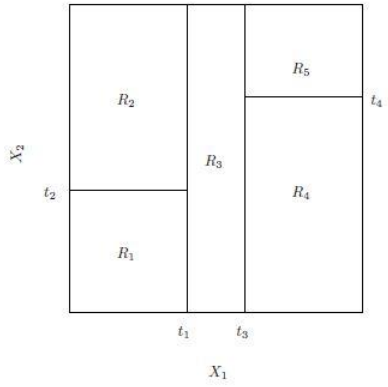
Data – Internal Fraud data.

Approach – Automation of Expert based approach and rules based on internal fraud experience in the business.

Outcome – Predicting / detecting fraud based on customer behaviour.

Corrective Action – Implementing updates on expert rules and adapting fraud detection processes to automated alerts.

Consequence – Reducing fraud rate and learning from historical fraud patterns.



Churn Prediction

What – Used in Marketing Analytics to predict customer churn.

Why – More beneficial to retain existing customers than to spend significantly on attracting new customers.

Data – Product & Service data, complaints data, demographic data.

Outcome – Identifying why the issue did arise to allow devising measures to counter customer churn.

Corrective Action – Implementing corrective actions based on the insight obtained from churn prediction.

Consequence – Reducing or removing churn to stabilize customer base over time.

Customer Lifetime Value

Contact us for more information!

The CLV is calculated typically for a certain period, often limited to next 3 years to avoid impact of forecast error. Further consideration should be given to practical choices of discount rates, to allow future income from customers to be accounted for at present times.

Profit Evaluation of Classification Models

Contact us for more information!

Human Ressources Analytics

Employee Turnover

What – Used in Human Ressources to understand drivers of employee turnover.

Data – Data on employee turnover and behaviour.

Outcome – Predicting employee turnover.

Corrective Action – Employee retention measures.

Consequence –Stabilize employee turnover at lower level.

Contact us for more information!

The Model Development Plan

As part of the planning and conceptualizaton phase, relevant information is gathered and the objectives, timings and scope are determined.

Our effective model development planning captures the relevant:

1. Evaluating the risk level.
2. Understanding your business model.
3. Engaging the stakeholders and tracing the key points of contact.
4. Developing a risk profile.
5. Considering external factors and emerging risks.
6. Identifying internal risks even those overlooked.
7. Assessing inherent and residual risks based on test plans.