PROCESS KPI REPORTING WITH PROCESS MINING –GUIDE

Building a powerful KPI reporting system and measuring performance continuously

QPR

QPR Software

Process KPI Reporting with Process Mining

E-mail: marketing@qpr.com

Web: www.qpr.com

Improve

In order to have a clear vision for your organization and make decisions based on facts and data, your management team needs to have a system of smart, effective, and realistic Key Performance Indicators (KPIs). However, many businesses struggle with their KPI-related tasks: perhaps it's taking too long to establish such a KPI measurement and reporting system, or people fail to understand the root causes of their problems.

Process mining is a great method for continuous KPI measuring and reporting, which undoubtedly are crucial components of strategy execution. In this guide, you'll see how QPR ProcessAnalyzer - QPR's process mining software - can be utilized for process KPI reporting. Moreover, you'll find out how to:

- reach process excellence with customer, flow, and automation KPIs
- apply the PDCA method for process KPIs
- build KPIs faster and with less effort compared to traditional BI
- understand root causes of your problems

Who
CAN - AND SHOULD - FOCUS ON PROCESS KPIS?

Any process-oriented organization will benefit from using process mining for process KPI reporting, enabling smooth business operations and fact-based decision-making.

Key Performance Indicators can be built in different ways and measure any performance-related metrics. This guide focuses on **process KPIs** that can be used to measure **internal efficiency, customer satisfaction, and automation** from a process point of view – not only to help you see if you are making progress toward your desired outcomes, but, ultimately, to reach process excellence.

How does it work?

QPR's process mining software, QPR ProcessAnalyzer, draws data directly from your IT systems (such as ERP, CRM and BPM systems) with built-in connectors. It then visualizes and analyzes process flows that take place in your organization, providing a holistic view of processes and identifying bottlenecks, variations, and underlying root causes of inefficiencies.

QPR ProcessAnalyzer can be used for KPI reporting in any industry. It is currently used in 70+ processes (such as PtP, OtC, logistics, and service management) and includes ready-made solutions for use cases such as Robotic Process Automation (RPA), Digital Transformation, and IT and ERP Development.

Focus on relevant KPIs

Continuously improve process performance by identifying relevant KPIs with process mining.

Uncover ROOT CAUSES

Instantly spot root causes of problems and poor performance.

Improve KPI QUALITY

Improve the quality of process KPIs and gain full transparency into outcomes.

Utilize PREDICTIONS

Get notified when a process step is going to take too long, affecting your KPIs.

CUSTOMER, FLOW, AUTOMATION
= Excellence

We have identified three sets of KPIs that play the most significant role in determining the success of companies' operational performance: Happy Customer, Happy Flow and Happy Automation. Together, they help you reach Process Excellence.

First of all, the happy customer KPIs mean keeping your promises to customers. For example, after customers make purchases with your organization, they should receive the order on time and in full. These KPIs aim to achieve high **customer satisfaction**.

Second of all, the happy flow KPIs assure that organizations follow the agreed process in order to accomplish **internal efficiency** – if keeping your customer promise means not following your process design, it's bad from an internal efficiency perspective. Conformance analysis is a powerful tool for this purpose.

Last but not least, the happy automation KPIs are used to monitor your process **automation progress.** The happy automation KPIs can applied for both individual steps and the whole end-to-end process. Examples include process automation rate, cost savings by automation and manual activities per case.

You can achieve process excellence for your organization when these three types of KPIs (happy customer, happy flow and happy automation) are reached. This framework of process excellence can be used to improve all processes in your business.

1

Happy Customer

Keep your customer promise.
Example KPIs:
• On Time In Full
• Invoicing Accuracy

2

Happy Flow

Follow the agreed internal process.
Example KPIs:
• First time right
• Lead time

3

Happy Automation

Automate steps while monitoring end-to-end processes.
Example KPIs:
• Touchless cases
• Automation rate

4

Process Excellence

=
• Customer Satisfaction
• Internal Efficiency
• Process Automation

1. Customer KPIs
SATISFACTION-RELATED PROCESS METRICS

The On Time in Full KPI provides full accuracy

The On Time in Full (OTIF) calculation in process mining is based on transactional event data extracted from your IT systems, meaning it is free of human errors and assumptions. QPR ProcessAnalyzer calculates OTIF on a case level based on the number of order lines that were delivered on time and in full.

This is the correct way to measure and reveal the process capability, not only for management reporting but also for process improvement. The reason for this is that a calculation based on delivery in quantity or monetary value only puts the focus on big orders, which means that it overlooks unsuccessful small orders that are hidden behind the average. OTIF should measure a well-functioning process in terms of both small and big orders and whether the orders are delivered as promised. This provides the most truthful and accurate information on the process performance of your organization.

Gain Full Transparency

Not only does process mining calculate OTIF accurately with simple and relevant logic, it also provides full transparency with drill-down capability into the KPI details. As process mining does not use data marts or cubes between the transactional data and the management report, the calculation and data transformation rules are transparent.

Any KPI with unexpected results can be broken down to the order line level to see what went wrong. The calculation transparency and the availability of facts on the lowest level of detail leave no room for argument or doubt of the results.

Delivered on Time

= Organizations define a time which they should be able to reach (this KPI can refer to the requested delivery date, production cycle, or agreed response time).

One typical on time criteria is that the delivery should not be late. However, it is equally important that it should not be too early, either: if a case closes much faster than average, it typically means some exceptions have occurred.

Delivered in Full

= The customer gets exactly the amount they have ordered (this is the most common way to measure in full)

However, for example, the manufactured batch size can vary in the medical industry, and the in full criteria should be defined so that the customer gets at least the amount they have ordered.

# MEASURE INTERNAL COMPLIANCE WITH
2. Process Flow KPIs

You strive to plan your processes according to the agreed policies and best practices. However, in reality, process execution rarely goes according to plan: lead times may not take as long as planned, steps in the process are performed in the wrong order and rework happens - a lot.

Process mining helps you see if your processes are performed in the way that they are designed, as well as perform process analyses that easily reveal bottlenecks, compliance violations, and process deviations.

Process flow KPIs are by default included in the real-time visualizations of the process flows that process mining provides. You can easily choose which KPIs you want to see: case counts, costs, durations - and whether you want to see these KPIs for flows or event types.

Process conformance is analyzed with process mining to compare your as-is processes to your designed processes. QPR ProcessAnalyzer then instantly presents conforming and nonconforming cases, conformance trends, reasons for deviations, and top violating variations. With the conformance analysis, you can easily edit the Design Model and the software will automatically update the analysis to check conformance with the new model.

Moreover, the **duration analysis** will highlight cases with the longest durations. It shows you how long cases take, how many of them fall in each duration slot, and the most common duration of a case. As a long duration is a clear indicator of problems in the process, this analysis is extremely helpful for spotting inefficiencies.
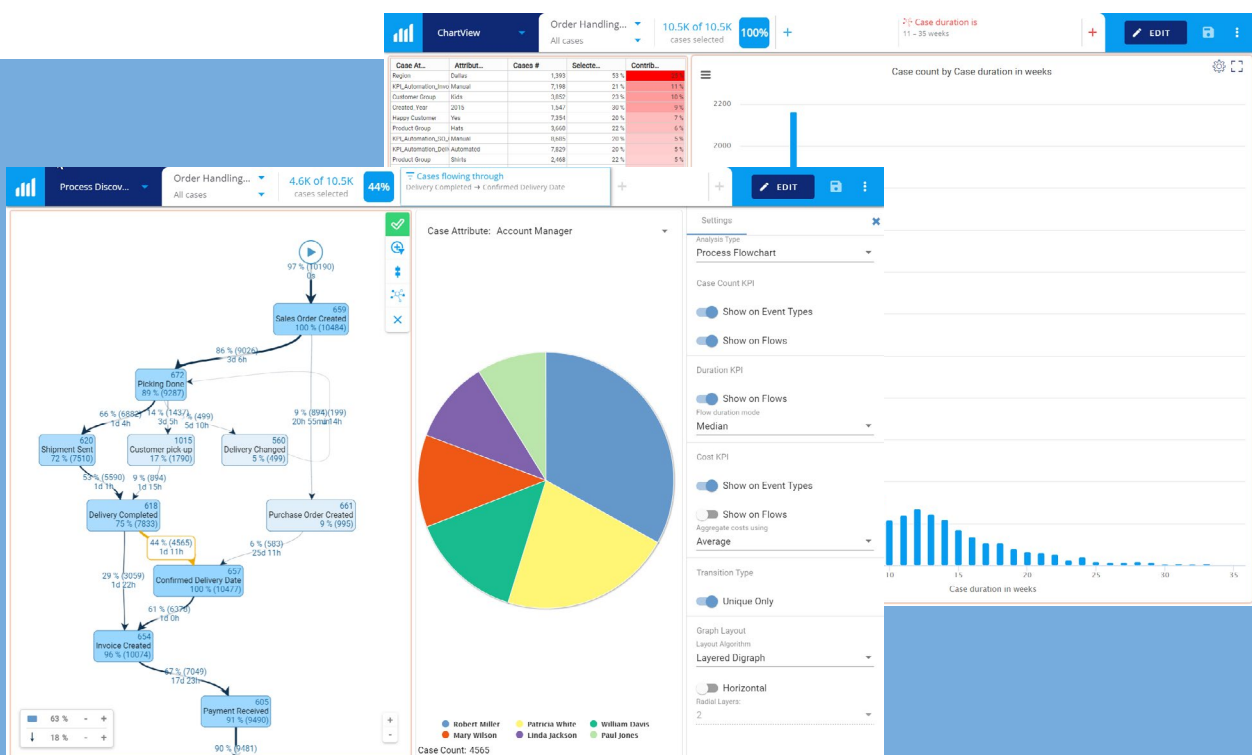
3. Automation KPIs
## MONITOR END-TO-END PROCESS AUTOMATION

Monitor Automation Rate Trends

With the Robotic Process Automation KPIs you get a quick overview of your automation progress within the end-to-end processes: monitor e.g. overall automation rate trends and automated activities per case.

For example, the **Automation Rate Trend** tells you what your end-to-end automation rate is today and whether it has improved. This way, it shows the progress and results of your RPA and automation efforts as a monthly trend. It is easy to see how the automation rate is increasing as a result of RPA activities. However, if the automation is not working fine, then the amount of other manual tasks within the process starts to increase. This is often caused by rework, manual work for fixing events performed by bots and manual work based on customer complaints.

Aim for Touchless Cases

Do you know how many times you need to manually touch a case in order to reach a goal? Manual Activities per Case is an easy-to-use way of showing the amount of manual activities needed to complete a case. Touchless cases are cases that complete automatically, without any manual activities. Other cases may need one, two, three, or even more manual user activities in order to complete.
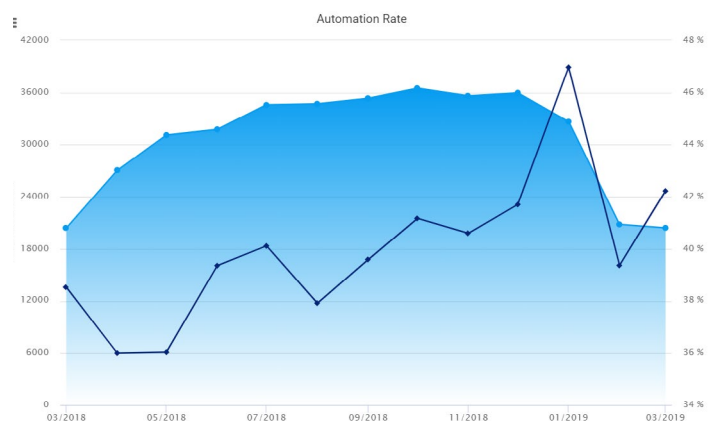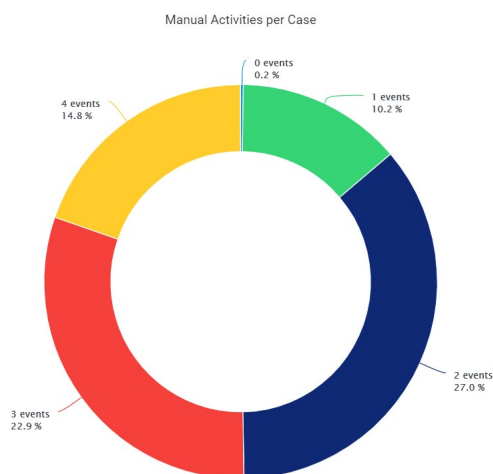
Examples of other Automation KPIs:

- **Case Duration vs. Manual Activities** - How much faster is the automated process?

- **Automation per Event Types** - Who does the work - manual users, bots or system automation?

- **Manual Activities Details** - Which manual events cause the longest lead times?
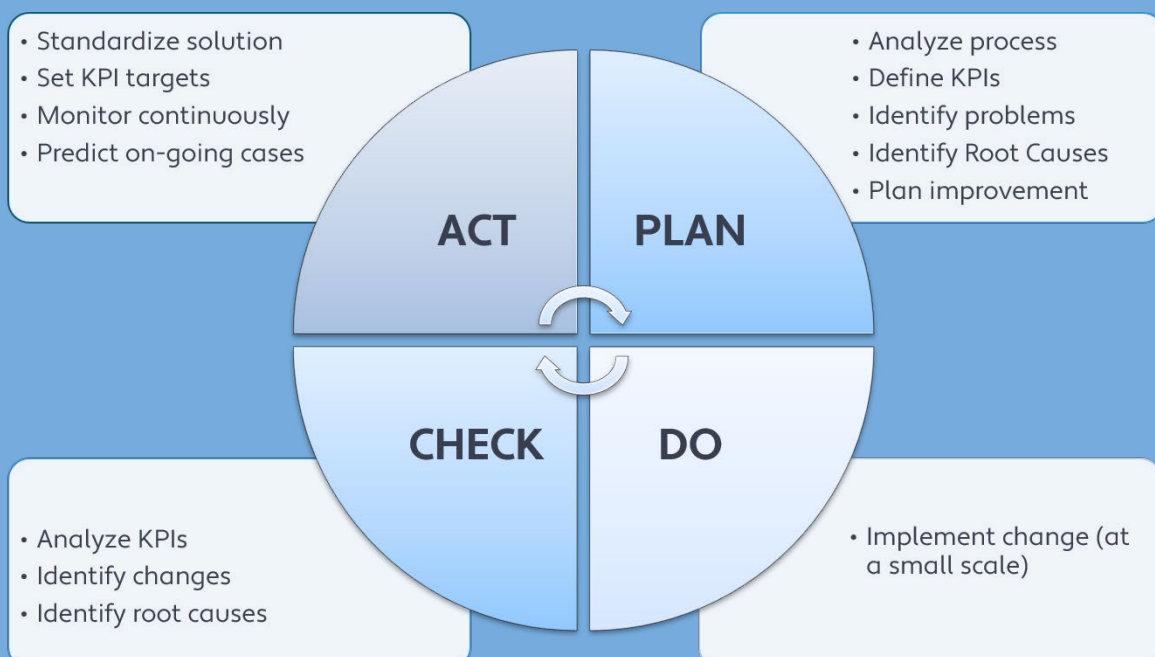
KPI-DRIVEN
Improvement

In order to improve your business, it is important that you gain a holistic view of your business operations and identify problems that are limiting your performance. Evaluating your success with KPIs is vital in this process.

All organizations in the world have some kinds of challenges - either within their own operations or in the external environment. From an internal perspective, one of the biggest challenges that organizations are now facing is **digitalization** - how to use digital platforms to make processes more efficient.

Traditionally, in process management, the lack of connections between enterprise information systems and business processes has required organizations to perform laborious manual steps to gather data about daily process performance. QPR ProcessAnalyzer's built-in connectors seamlessly collect and integrate data, enabling visualization of your as-is processes and advanced analytics on data from your systems.

"In business process reengineering, organizations are primarily interested in an improved 'to be' process, so often they have little interest in exploring 'as is', or how the process is currently performed. But understanding the current process is critical to knowing whether it is worth investing in improvements, where performance problems exist, and how much variation there is in the process across the organization. As a result, some companies tend to either skip current process analysis altogether, adopt shortcuts to it, or pay consultants a lot of money to analyze the "as is" process." -HBR

• Standardize solution
• Set KPI targets
• Monitor continuously
• Predict on-going cases

• Analyze process
• Define KPIs
• Identify problems
• Identify Root Causes
• Plan improvement

ACT **PLAN**

CHECK **DO**

• Analyze KPIs
• Identify changes
• Identify root causes

• Implement change (at a small scale)

PDCA Explained
PLAN - DO - CHECK - ACT

One way to support continuous, KPI-driven business improvement is using the iterative PDCA (Plan-Do-Check-Act) approach - also known as the Deming Cycle. By systematically testing different solutions, assessing the outcomes, and implementing the ones that work the best, you can improve the quality of your business remarkably.

Plan The starting point in process improvement is to discover your organization's problems and define meaningful KPIs. Thereafter, you identify the root causes of any problems you've identified - i.e. what is causing the issues. Only once your are done discovering your processes and their root causes should you start planning the improvement. This is where process mining software proves to be a powerful tool, as it can quickly discover your as-is processes, their inefficiencies and root causes based on your own data - event logs. After implementing process mining, you'll quickly get a complete X-ray of the processes based on your own systems and gain the confidence to make important and necessary decisions based on this fact-based data.

Do: This part happens outside of process mining. After process mining gives you an in-depth understanding of your own processes, problems, and root causes, you'll have a good idea about what you need to change. The outcome of the operational development change will then be visible in your transactional system data, such as the ERP, CRM, and Financial systems.

Check: Now is the time for you to analyze your KPIs to study the results that your changes bring about and see what is working and what is not. Did your activities lead to some changes? If not, check root causes again. Process mining is able to pick up these changes in the end-to-end processes and continue monitoring them for you, in contrast to traditional analytics, which are hard-coded and won't follow new changes in your process. Process mining helps you to verify if the changes are working as intended, and how much value is added to your process.

Act: If the changes that you made in the "Do"-step work successfully, you should then standardize the solution for your business. It's important to ensure the solution is implemented, standardized, taken into use, and that it will continue to stay in use. Setting KPI targets will help you stay on the right track, and you should continuously monitor your processes in order to timely react to future problems. Process mining is used to monitor the whole end-to-end process, confirming that the process improvement works as intended, while also identifying the new most important problems limiting performance.

BUILDING KPIS IN
Process Mining vs. BI

Process Mining gives you access to 1000+ standard KPIs by default

When starting a process mining initiative with QPR, our experts first build the process mining model for you. This is the starting point of any process mining project – it can't happen without a process mining model. Once this step is finished, **you right away have access to more than 1000 standard KPIs based on data from your own system.** Moreover, this data is transferred continuously from the source system to QPR ProcessAnalyzer with the QPR Connectors.

Additionally, with process mining, you can define the custom attributes that you want your KPIs to have, then include them in QPR ProcessAnalyzer to build a custom KPI. Consequently, you spend much less time and effort compared to the traditional business intelligence approach.

Building KPIs in traditional BI is slow and error-prone, and requires a lot of effort

Compared to process mining, building the KPIs with BI takes a lot of effort and resources. With traditional Business Intelligence, KPIs are built manually by taking into consideration various factors, such as reporting dimensions: when these factors change, all the process KPIs need to be rebuilt.

After you finish building this first KPI with this traditional methods, you take the original data, and move on to building the second KPI, then the third one, and so on. The amount of work needed to finalize one single KPI this way can take something between one day and 100 days, depending on the scale and complexity of that process. *Most importantly, building each of these KPIs will be an entire project of its own.* This is not the case in process mining.

PROCESS MINING

- Get 1000+ KPIs automatically
- Process analysts can easily build KPIs – the process mining model covers the technical parts
- Provides a holistic understanding of end-to-end processes
- Reveals the reality of processes and the root causes of problems - KPIS are based on facts, not assumptions

MANUAL BI REPORT

- KPIs are built manually and individually
- Building KPIs requires a data scientist
- Only provides a narrow scope understanding of individual KPIs
- Assumes processes are known and perfomed according to their design - KPIs are based on this assumption

Root Causes
IN BI VS. PROCESS MINING

Root causes are automatically identified with Process Mining

The most important difference between process mining and traditional BI is finding the root causes for problems in the process. Process mining with QPR ProcessAnalyzer reveals root causes automatically, and you can use the root cause analysis together with other types of analyses, such as conformance or duration analysis.

After you've set up your process mining model, you already have access to more than 1000 standard KPIs. This means that while the process mining model is created, the software calculates and gives you a considerable amount of extra information from your raw data.

This "extra information" also applies to finding root causes for problems identified in your process. For example, when you look at one KPI from these auto-generated KPIs, you now have 999 other KPIs as your potential root causes, and you can see which other KPIs correlate with this particular one.

Similarly, if you review your custom KPIs with process mining, you already have more than 1000 other standard KPIs as a source of information for your root cause analysis. Any data used in the process mining model can be analyzed as a possible root cause with QPR ProcessAnalyzer's build-in Root Cause analysis function.

Process mining helps you focus on problems with the biggest business impact

Process mining reveals problem areas in your processes by highlighting them in flowcharts and ranking them based on how they contribute to business outcomes. This tells you what to prioritize when you want to improve your business operations. In thi way, process mining provides answers not only to "what is happening", and "when is it happening" – but also "why is it happening".

Identifying root causes with traditional BI is difficult

In traditional BI, after you successfully build a KPI with the traditional business intelligence approach, you can, in theory, set up a manual root cause analysis for this KPI. However, this will require not only a huge amount of effort, but also access to many different types of extra data that correlates with this particular KPI.

"QPR is for us an easy tool to verify: is our business working this way?
Is it value-adding to change the process?"
-Terumo Europe
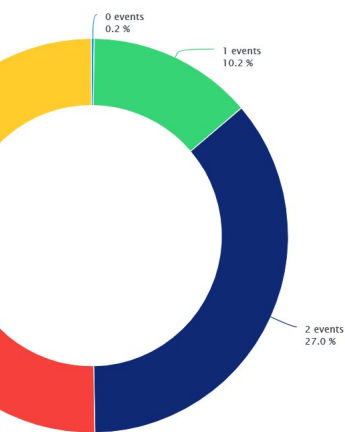
LEARN
More:

Process KPI Reporting Webinar
- <u>Process Flow KPIs</u>
- <u>Duration Analysis</u>
- <u>Process KPI: OTIF - On Time In Full</u>
- <u>Process KPI: Happy Customer</u>
- <u>Operations Overview</u>

Upcoming process mining events
<u>https://www.qpr.com/company/events</u>

Book an interactive online demo with one of our process mining experts <u>through this link.</u>

Get a tailor-made process mining deployment roadmap <u>through this link.</u>

QPR ProcessAnalyzer Recognitions
- <u>Forrester Now Tech for Process Mining 2020</u>
- <u>Gartner Market Guide Process Mining 2019</u>
- <u>Gartner Market Guide for DTOs 2020</u>

Our experience: 400+ process mining projects

2000+ customers, 1,000,000+ licences sold

365

Customer support in 50+ countries

Book a demo with us to see for yourself!

ABOUT QPR

QPR Software Plc (Nasdaq Helsinki) provides process mining, performance management and enterprise architecture solutions for digital transformation, strategy execution and business process improvement in over 50 countries. QPR software allows customers to gain valuable insights for informed decisions that make a difference. Dare to improve.