PROJECT TRACKING

KPIs and Best Practice in a Project-driven Business

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Project Controlling | Resource Utilization

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Project Tracking – KPIs and Best Practice in a Project-driven Business

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1 Introduction

Diethard Engel, Business Transformation Manager with a solid background in Finance

In many of the businesses I've been a part of, the solutions provided to customers come in the form of substantial, intricate projects. The success, and sometimes even the very survival of these businesses, hinges on the timely and high-quality execution of those projects. Having a reliable project tracking and performance management system in place offers peace of mind to project managers, CEOs, and shareholders, allowing them to rest easy at night.

Selecting the appropriate Key Performance Indicators (KPIs) is vital for gauging the success and progress of projects. The industry traditionally evaluates multiple facets of project performance, offering valuable insights for decision-making and enhancement. In the sections that follow, I delve into a range of standard KPIs commonly applied in project-driven enterprises, with a particular emphasis on resource allocation, adherence to schedules, and risk management.

2 KPIs in a Project-driven Business

2.1 Project Profitability & Cash Flow

Project and finance management go hand-in-hand for cash flow planning

In measuring the financial success of a project, several KPIs such as gross margin, net profit margin, return on investment (ROI), and cash flow specific to individual projects, hinge on accuracy and availability of relevant data. Relevant data will be sourced from financial systems, but also include a project manager's assessment of future project expense**.**

Project Profitability routinely also evaluates how well the project is managing its budget. It includes metrics such as actual project costs compared to the budgeted costs and calculates a cost variance.

Diligence and effectiveness of these KPIs might vary across entities, locations, or groups, unless governed by a strict process that would describe how to measure and assess risk. Common understanding of the corporate approach to estimate future cost and resource needs is essential for a weighted and balanced presentation of a project's outlook. The result of the process drives PoC (Percentage of Completion), and thus is relevant (and auditable) input for the business' financial results.

2.2 Resource Utilization

Next to project profitability, resource utilization is generally viewed as the most important KPI for project-oriented businesses. Resource utilization-metrics track the efficiency of resource allocation and utilization in the project, but also across the entire business. It includes metrics like resource utilization rate (including "the bench"), availability of key resources, and resource allocation balance.

Measuring resource utilization is an ongoing process. Month-end visibility is helpful to assess overall performance. Project work, however, is executed concurrently. Therefore, it is important to establish clear metrics, track them consistently, and regularly (at least weekly if not daily) analyze the data to identify trends, patterns, and areas for improvement. Effective resource utilization metrics can optimize resource allocation, improve project performance, and maximize the efficiency and productivity.

- Time Tracking
  Implementation of a time tracking system or software allows project team members to record the time spent on different tasks and activities. Effective time tracking will help identify how resources allocate their time across projects and specific tasks, providing insights into their utilization. Activity buckets should reflect the nature of the project and its breakdown into meaningful task-subsets. They usually include direct time spent on

    - Project Management,
    - Contract Management,
    - (Pre-) Engineering and Planning,
    - Software development and PLC programming,
    - Installation,
    - Testing,
    - Other relevant activities like Procurement (if linked to a project directly).

- Resource Allocation Rate
  RAR measures the percentage of time that resources spend on project-related activities compared to their total available time. This metric indicates how effectively resources are allocated to projects and helps identify any potential over or underutilization on individual basis.
  Individuality is particularly important if project success hinges on availability of one or just a few key people with specific skills or capabilities, for example in project management or in specific IT environments.

Resource planning and allocation to projects is of vital importance if a business runs several projects in parallel

- Resource Availability
  Resource availability defines the availability of key resources and their capacity to take on additional work. This can be done through a resource management system or even spreadsheet where you maintain information about resource availability, including vacations, training, and other non-project-related activities.

- Utilization Ratio
  This metric compares the actual time spent on project work to the available time. For example, if a resource worked 30 hours on project-related tasks out of a total available time of 40 hours, the utilization ratio would be 75%. This metric helps assess the efficiency of resource allocation, past and future.

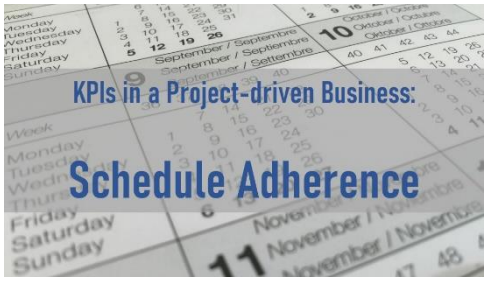
  Projection of utilization rates is essential for planning timelines for new projects. Creating cross-business visibility of actual and projected resource utilization could systematically identify underutilized resource, thus unlock further benefits.

  Utilization ratios allow for several secondary KPIs, for example:

  - *Resource Over-allocation* identifies instances where resources are allocated more work than they can handle within the given timeframe. Over-allocation can lead to project delays, decreased productivity, and increased stress for team members.
  - *Bench Time* measures the time when resources are idle or not actively engaged in project work. Bench time indicates underutilization and can be costly for the business.
  - *Workload Balance:* Resource allocation rates and resource availability enable a business to analyze the workload distribution among resources to ensure a balanced allocation. Uneven workloads can lead to resource bottlenecks, burnout, or underutilization. Workload balances support assessing the distribution of tasks and workload across team members to optimize resource utilization by entity or across the group.

2.3 Project Schedule Adherence

Project planning usually identifies a series of milestones, plotted on a timeline. Project Schedule Adherence tracks the project's progress in meeting scheduled milestones and deadlines. It includes metrics as percentage of tasks completed on time, variance in project schedule, and overall project timeline adherence, and is usually fed by a project management software, but might also be calculated manually.



Everyone has a schedule. Adherence to it is key.

Best practices to effectively manage project schedule adherence include:

- Detailed Project Planning
  A well-defined project plan sets a strong foundation for managing schedule adherence. Investing time and effort in thorough project planning will improve the chances of success. The project plan breaks project down into smaller tasks, estimate durations, and establish clear dependencies and milestones.

- Realistic Deadlines
  Deadlines for each task and milestone should be realistic and achievable. Overly optimistic or aggressive timelines lead to schedule slippage (and potentially to financial risk).

- Project Management Software
  Application of project management software allows for efficient scheduling, resource allocation, and tracking of tasks. These tools can provide visibility into project timelines, critical paths, and potential bottlenecks, enabling effective schedule management.

- Monitoring Progress
  Progress monitoring against the planned schedule, involving regularly tracking, and updating of task status, identification of deviations, and promptly addressing issues or delays will help in identifying schedule risks early and taking necessary corrective actions.

- Critical Path Analysis (CPA)
  CPA determines the sequence of tasks that set the overall project duration. Focusing on managing tasks on the critical path and ensuring their adherence to the schedule will avoid delays, which would directly affect the overall project timeline.

- Communication and Collaboration
  Maintaining open and effective communication channels with the project team and stakeholders drives transparency and team commitment. Project schedules, deadlines, and expectations should be regularly communicated to team and stakeholders. Fostering collaboration among team members to address schedule-related challenges will improve the quality of identified solutions in many cases.

- Change Management
  Successful project managers deploy a structured change management process to manage scope changes effectively. They evaluate the impact of requested changes on the project schedule and assess their feasibility before making adjustments. Changes require proper documentation and approval.

- (Resource and Risk Management, Lessons Learned and Continuous Improvement and their impacts on successful project management are discussed separately.)

2.4 Risk Management

Moving from issue to risk management marks the summit in project organization

This KPI focuses on identifying and mitigating project risks. It includes metrics such as the number of identified risks, risk severity ratings, risk mitigation actions taken, and overall risk exposure.

For effective risk management, each project has a risk register that is reviewed with management regularly. The risk register identifies project risk topics, mitigating measures and a mitigation status. Risks typically include availability of key resources, risks to the timeline, and customer financial risk.

Risk management should be an ongoing and proactive process throughout the project lifecycle focusing on risk recognition and avoidance rather than on incident management. Risk management minimizes the likelihood and impact of potential issues and enhances project success rates. The business standard for risk management follows a number of steps:

- *Risk Identification* to recognize potential risks that could arise during the project lifecycle. This involves conducting a comprehensive risk assessment by reviewing project documentation, engaging stakeholders, and leveraging past project experiences. Brainstorming sessions, checklists, and risk templates can also aid in identifying risks.

- *Risk Analysis and Assessment* to analyze identified risks to determine their potential impact and likelihood of occurrence. Risk analysis assesses the severity of each risk and prioritizes risks based on their significance to focus resources and attention on high-priority risks that require proactive mitigation.

- *Risk Response Planning* will result in a risk response plan to address identified risks. This involves defining appropriate strategies for each risk, such as:
  Avoidance: Take actions to eliminate or avoid the risk altogether, such as changing the project approach or scope.
  Mitigation: Implement measures to reduce the likelihood or impact of the risk, such as additional quality checks or redundancy in resources.
  Transfer: Transfer the risk to a third party, such as through insurance, subcontracting, or partnerships.
  Acceptance: Acknowledge that the risk exists and determine how to effectively respond if it materializes. This can involve creating contingency plans or reserves to mitigate the impact.

- *Risk Monitoring and Control* to monitor identified risks throughout the project lifecycle. It tracks the status of each risk, going along with assessing any changes in risk severity or likelihood, and ensuring that risk response strategies are implemented effectively.

- *Risk Communication* to keep stakeholders informed about project risks by providing regular updates on risk assessment, mitigation activities, and any changes in risk profiles. Effective communication ensures that stakeholders are aware of potential risks and their associated impacts.

- *Risk Documentation* to keep track of all identified risks, risk response strategies, and their outcomes.

- *Centralized Risk Register* to track and monitor risks systematically. This documentation serves as a reference for future projects and supports organizational learning and improvement.

- *Lessons Learned* or post-mortem exercises at the end of a project to feed a continuous improvement process with insights and experiences related to risk management.

2.5 Project Quality

A project quality-KPI measures the quality of deliverables and outcomes. It may include metrics like defect rates, customer satisfaction ratings, adherence to quality standards, and number of rework or corrective actions.

Project quality has a direct impact on project expense (thus profitability), and on the probability of doing repeat business with a customer. Measuring defects will also provide input to discussing supplier issues and potentially claims.

2.6 Project Scope

This KPI assesses the project's adherence to the defined scope and its ability to manage scope changes. Metrics may include the number of scope changes, scope creep percentage, and customer change requests. It is a metric for project planning quality.

2.7 Less Critical Performance Indicators

- Customer Satisfaction
  This KPI measures the satisfaction level of project stakeholders, including clients, end-users, and other relevant parties. It can be measured through surveys, feedback ratings, or other qualitative and quantitative assessments.

- Project Team Performance
  This KPI measures the effectiveness of the project team in terms of collaboration, productivity, and overall performance. It may include metrics like team satisfaction ratings, employee turnover rate, and team productivity metrics.

- Stakeholder Communication
  This KPI evaluates the effectiveness of communication within the project and with external stakeholders. Metrics may include the frequency and quality of project updates, stakeholder feedback, and communication response times.

- Resource Productivity
  Resource Productivity is used to assess the output and deliverables produced by each resource within a given timeframe. This metric focuses on the quality and efficiency of work completed by resources, providing insights into their productivity and contribution to project outcomes.

- Feedback and Performance Reviews
  Best-in class businesses regularly gather feedback from project managers, team members, and stakeholders regarding resource utilization. They conduct performance reviews to assess individual and team performance, identify strengths and weaknesses, and provide constructive feedback to enhance resource utilization for future endeavors.

3 Software Solutions to Track Resource Utilization

Specific Project Management Software is not a requirement, but might help in attaining business goals.

In an ideal scenario, a business would implement standardized software packages across all its entities to harness synergies. The process of planning and deploying a group-standard software package in medium-sized businesses typically takes between 6 to 12 months, contingent on the scope and the ease of data transfer.

The software market provides a multitude of solutions, each with specific features and functionalities that may differ based on the software version and configuration. Below is a concise introduction to a selection of tools that offer features for customer project management and control.

Disclaimer: Functionality is subject to change and may not be accurately represented. We strongly advise reaching out to the software company or an authorized distributor to assess a software's suitability for your specific needs.

Please note that the author is neither affiliated with any of the software companies nor receives a commission.

3.1 Microsoft Dynamics

Microsoft Dynamics offers resource management capabilities through its Project Operations module. This module is designed specifically for project-driven businesses and provides tools to track and manage resource utilization.

Microsoft Dynamics offers following features:

- *Resource Planning*
  Microsoft Dynamics allows definition and maintenance of a centralized resource pool that includes information about the organization's resources, such as skills, availability, and capacity. The owner can create resource profiles for each team member, specifying their skills, roles, and availability.

- *Resource Allocation*
  With Microsoft Dynamics, resources can be allocated to specific projects and tasks. The software enables a business to assign resources based on their availability, skills, and workload. It allows to view resource allocations across projects, ensuring efficient utilization and avoiding over- or underutilization.

- *Resource Tracking*
  Microsoft Dynamics tracks resource utilization by capturing actual work performed by resources. Team members can log their time and effort directly within the system, indicating the tasks they have worked on and the hours spent. This data is captured and associated with specific projects and resources.

- *Workload Management*
  The software provides visual tools and dashboards to help manage resource workloads. It allows to view resource allocations, capacity, and availability, enabling workload balancing and ensuring that resources are not overwhelmed or underutilized.

- *Resource Reporting and Analytics*
  Microsoft Dynamics offers reporting and analytics capabilities to provide insights into resource utilization. It allows to generate reports and dashboards that show resource allocation, actual

hours worked, and performance metrics. This data allows you to analyze resource utilization trends, identify bottlenecks, and make informed decisions.

- *Integration with Project Management*
  Microsoft Dynamics integrates with Microsoft Project, enabling seamless communication between the resource management module and project planning. This integration allows for a synchronized view of resource allocation and project schedules, ensuring that resource utilization aligns with project timelines and milestones.

- *Collaboration and Communication*
  Microsoft Dynamics provides collaboration tools to facilitate communication among team members, managers, and stakeholders. It allows to share project information, resource availability, and updates within the system, promoting transparency and effective resource coordination.

3.2 Oracle NetSuite

Oracle NetSuite provides resource management capabilities to track resource utilization with following features:

- *Resource Planning*
  NetSuite allows maintaining a centralized resource repository that includes information about your organization's resources, such as skills, availability, and capacity. It allows to define resource profiles, specifying their roles, skills, and availability.

- *Resource Allocation*
  With NetSuite, one can allocate resources to specific projects and tasks. The software enables you to assign resources based on their availability, skills, and workload. It allows to view and manage resource allocations across projects to ensure efficient utilization.

- *Time and Expense Tracking*
  NetSuite offers time and expense tracking features, allowing team members to log their time and expenses against specific projects and tasks. This data captures the actual hours worked by resources, providing visibility into resource utilization.

- *Workload Management*
  The software provides tools to manage resource workloads. It allows to view resource allocations, availability, and capacity to balance workloads effectively. This helps ensure that resources are not overloaded or underutilized.

- *Resource Reporting and Analytics*
  NetSuite offers reporting and analytics capabilities to analyze resource utilization. It allows to generate reports and dashboards that show resource allocation, actual hours worked, and performance metrics. This data allows you to identify resource utilization trends, assess productivity, and make informed decisions.

- *Integration with Project Management*
  NetSuite integrates with project management functionality, allowing seamless communication between resource management and project planning. This integration ensures that resource utilization aligns with project schedules and milestones.

- *Collaboration and Communication*

NetSuite provides collaboration tools for effective communication among team members, managers, and stakeholders. It allows to share project information, resource availability, and updates within the system, promoting transparency and coordination.

- *Resource Forecasting*
  NetSuite offers resource forecasting capabilities to plan resource allocation in advance. It allows to analyze historical data, project requirements, and resource availability to forecast future resource needs and ensure optimal utilization.

3.3 Other Popular Options

Market research has identified several other reputable resource tracking alternatives. The following options offer the advantage of not being tethered to ERP solutions. Therefore, they present the opportunity for a relatively swift implementation as standalone packages, suitable for a group-wide rollout.

- *Resource Guru*
  Resource Guru is a cloud-based resource scheduling and management tool. It allows to track resource availability, allocate resources to projects and tasks, and monitor resource utilization in real-time. The software provides a visual interface to manage and optimize resource allocation.

- *10,000ft by Smartsheet*
  10,000ft is a resource management software that offers features for tracking resource utilization. It allows to view and manage resource allocations, track time and effort, and analyze resource utilization trends. The software provides reporting and analytics capabilities to gain insights into resource utilization across projects.

- *Float*
  Float is a resource management and scheduling tool that enables to track and manage resource utilization. It provides a visual interface for allocating resources, monitoring availability, and tracking time spent on tasks. Float offers reporting features to analyze resource utilization and optimize resource allocation.

- *Hub Planner*
  Hub Planner is a resource management software that offers comprehensive resource tracking capabilities. It allows to assign resources to projects, track their availability and workload, and monitor resource utilization in real-time. The software provides reporting features for analyzing resource utilization and optimizing resource allocation.

- *Teamdeck*
  Teamdeck is a resource management tool that allows to track and manage resource utilization. It offers features for assigning resources to projects, monitoring availability, and tracking time and effort. The software provides visual reports and dashboards to analyze resource utilization and make informed decisions.

- *Saviom*
  Saviom is a resource management and workforce planning software that enables tracking of resource utilization. It allows to allocate resources, track their availability and workload, and analyze resource utilization across projects. Saviom provides reporting and analytics features to optimize resource allocation.

About the author

Hailing from Germany, Diethard Engel is an independent consultant and interim manager with a primary focus on Business Transformation, Post-merger Integration, Carve-outs, and Executive Finance. Diethard has successfully overseen numerous post-merger integration and carve-out projects for international businesses, with a significant emphasis on those engaged in the delivery of large customer projects.

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