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Building an outcomes-driven KPI framework

A guide to empower your DevOps and Agile teams with structured and automated metrics

The ability to track and measure is not just a nice-to-have. As your business delves deeper into complex environments, KPIs and measuring points can mean the difference between funding and failure, or stagnation and success.

This white paper looks in detail at how you can create a framework for KPIs that not only supports your DevOps initiatives, but also allows the business to gain highly valuable insight on a regular basis.

PART ONE:
The why

In this first section, we will look at why KPIs continue to be a core component in the world's most successful DevOps implementations. We'll explore what the key drivers are for implementing a KPI framework and how it can tangibly impact the business.

Introduction

The vast majority of businesses are actively dealing with transformation on some level, be it on a large or a small scale. As DevOps is becoming the approach of choice for enterprises to manage the transformation process, Key Performance Indicators (KPIs) are now a critical component to consider.

The role of KPIs in DevOps

When it comes to DevOps, KPIs are absolutely essential. They are the measurement points we use to prove the progress of any improvement project and to justify the investments made by the business. KPIs empower managers to make timely decisions, supported by the right level of information. As the importance of KPIs is already widely recognised in successful businesses, the aim of this white paper is to share insight into how to manage KPIs effectively in order to make them useful to your business.

Some of our clients measure almost nothing, while others have several hundred metrics. We encourage businesses to stop worrying about the number of KPIs and focus on measuring only what is relevant to them and their current transformational goals.

Are your KPIs right for YOUR business?

A company's KPIs should represent its core business, its needs and its growth. This is why each KPI must be specific for the organisation. While it is helpful to understand the KPIs widely used in similar organisations, it's not possible to buy a KPI framework or system off the shelf like software. Your KPIs must align with your organisational goals and strategy. They should reflect your value streams and help you to measure areas of improvement.

Although it can be tempting to measure everything you can, it is important to educate your team to measure only what is relevant to your current strategy goals.

"The price of light is less than the cost of darkness."

– Arthur C. Nielsen

All KPIs and metrics should be measurable – but not necessarily quantitatively. Some performance indicators are qualitative, such as customer satisfaction and employee morale. Qualitative metrics are equally important and can often be used to support the quantitative metrics.

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Why KPIs are important

Do you – and your teams – truly know why KPIs are needed?
Often the lack of buy-in to analytics and measurements comes from an inability to understand how they play into the overall business objective. Unless there is an immediate result, it can be hard to motivate staff members to invest their time and energy into measuring and reporting on performance.

5 vital reasons for defining the right KPIs

1. Business decisions supported by data rather than instinct
We all wish there was a magic pill to give us all the insight we need to make the best decisions for the business. With a well-defined KPI framework, you can use data to validate your decisions and move towards achieving your business goals.

2. Shed light on any problem areas that require attention
You can't fix a problem that you don't know about. By identifying weak areas and bringing them into focus, you can make the necessary changes to improve performance across the business.

3. Empower your managers
Without relevant data and analytics, managers can be left feeling like they are "sailing blind". Having the right metrics to hand, however, makes it easier to make decisions – better and faster than before.

4. Avoid the numbers game
If we don't know which data we need, it's easy to start collecting a vast amount of metrics that don't benefit the business. This isn't just a waste of time but can also be very expensive and even drive bad decisions. Save yourself the time and money by making sure your measuring points are the right ones for your organisation.

5. Get the right measurement procedures for your organisation
It's not just about the individual metrics, but your organisation also needs to define the right measurement procedures, as well as the ideal frequency of collection and methods of interpretation.

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PART TWO:
The how

It's time to move on to the more hands-on elements of KPI frameworks. In this part, we will explore the more practical aspects of KPI measurement and get a good foundation for how your own, custom model can be built.

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## Grouping KPIs to provide meaningful data to stakeholders

KPIs need to be grouped in order to offer meaningful information to different stakeholder types. Organisations typically group their KPIs into four common perspectives, to build their Balanced Scoreboard: Financial, Customer, Internal Process and Innovation or learning.

We encourage our customers to consider any additional perspectives which may be relevant for them – such as HR or DevOps, based on current organisational focus. Our approach includes grouping KPIs and metrics using three different dimensions: Strategic, Tactical and Operational.

STRATEGIC - Enables senior executives to execute strategy, manage performance, and drive new initiatives across the enterprise.

TACTICAL – Helps mid-level or department managers to optimise performance of people, process and technology.

OPERATIONAL – Enables front-line employees to monitor and control the processes under their remit.
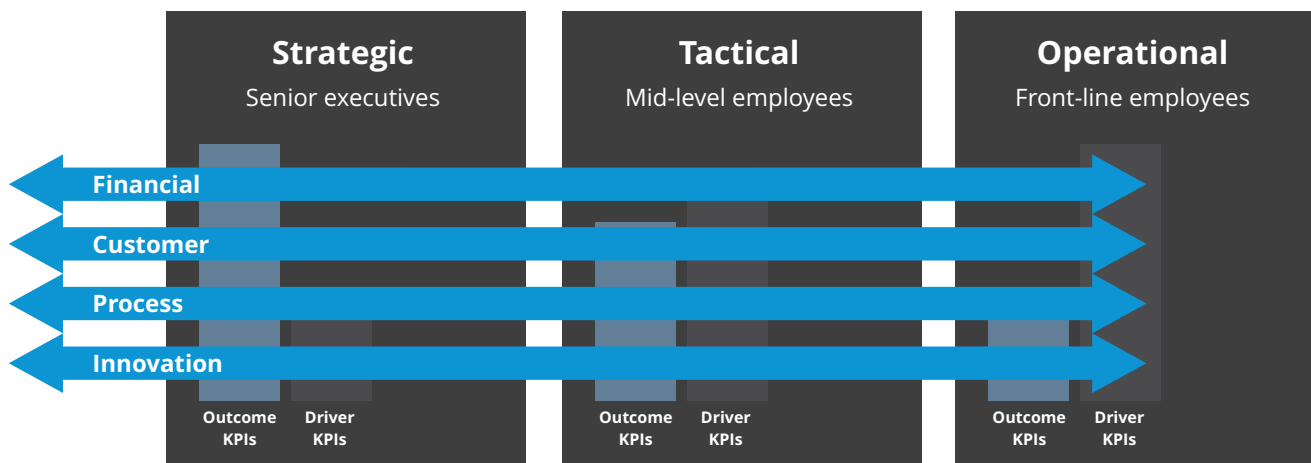
Outcome KPIs – measure past performance on an infrequent basis, usually aggregated from low-level KPIs

Driver KPIs – Operational metrics or KPIs which drive high-level KPIs

Choose KPI grouping based on how you want to manage your performance

1. What level of information is needed by various stakeholders or management: Strategic, Tactical or Operational dashboards and scoreboards?

2. What perspectives does the enterprise want to use to track performance: Financial, Customer, Internal process, or Innovation and Learning?

3. What KPI angle is important for the business: Outcomes (used for retrospectively analysing data), or Drivers (helping to track current and future states)?

How to manage the KPI lifecycle

The main objective of KPIs is to measure performance against goals. This means that KPIs should be driven from strategic goals. We understand that KPI management is not always straightforward – especially when it comes to encoding performance on a strategic level.

Typically, an organisation will manage a handful of KPIs in a strategic context, which are generally rolled up from low-level metrics. So, how do we figure out which low level metrics to turn into high level KPIs – and how do we aggregate them?

Our approach is to simplify the KPI management by breaking down the KPI lifecycle into clearly defined activities, and providing guidance to choose the KPIs that are not too complex and most beneficial to your organisation.

Creating and managing KPIs
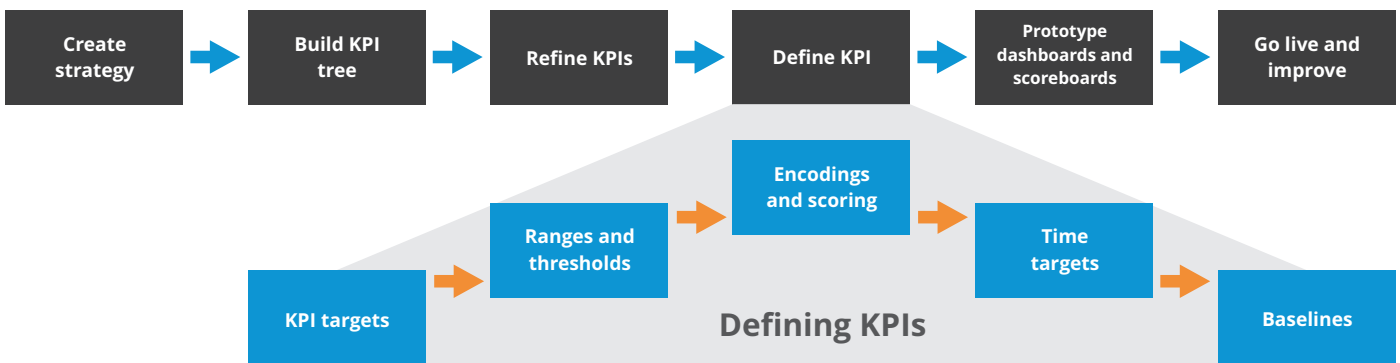
Business performance management using KPIs

1. Define strategic goals, objectives, value streams, and benefits

2. Plan budgets, targets, and improvement initiatives

3. Monitor dashboards, scoreboards, reports, analytics

4. Interpret data to make decisions, adjustments and take action

KPIs are a critical part of performance management at all levels. Organisations starting to use KPIs for performance management should begin with simply displaying the metrics. This will help identify any areas that need immediate attention and will help to define and standardise the KPI framework.

The next step is to use the KPIs to manage performance across different dimensions such as people, process and technology. The resulting defined KPIs will naturally start to direct and drive enterprise strategy.

How can you model KPIs that fit your organisation?

It's important to understand why you need KPIs before modelling them

> Do you need to focus on learning and improvement?

> Is compliance a critical issue?

> Do you need to improve the performance of operations?

Avoid common mistakes
Often KPIs are over-used. This leads to two key problems: Measuring everything (as long as it is easy to measure) and reporting on everything that is measured.

Align with the strategic map
KPIs should be clearly linked to the strategic objectives of the business to track progress, manage and improve business performance.

Select your KPIs
Select the metrics that capture the best quality data and management information to inform managers in their progress against strategic objectives and operational performance targets.

Define the KPI template
The template should include the purpose of the KPI, KPI unit, data collection method, KPI target, frequency of collection, metric tests, and reporting details.

Centralise management
It is important to agree on enterprise-wide data definitions and to manage KPIs within the template in a central repository. This will help when comparing data across departments.

How to shortlist KPIs

KPIs to discard

✓ Data that is not important enough in terms of business strategy

✓ Metrics that are difficult to measure or report on

✓ Metrics that can be measured but would be extremely time-consuming and costly to report on

KPIs to focus on

✓ Keep a primary list to drive strategic objectives and manage business performance

✓ Eliminate the KPIs in the Discard List to avoid wasting time and money

Importance (vertical axis) / **Availability** (horizontal axis)

Aspire list
> IT skills availability
> Number of manual signoffs per change
> Time spent in handoffs
> Environments waiting time

Primary list
> Release cycle times
> Mean Time to Recovery
> Employee Satisfaction Index
> Average Project Cost Variance
  Number of security breaches

Discard list
> Work log time by role or individual
> Average cost of defect resolution

Caution list
> Number of defects found per release
> Number of releases per year
> Number of production incidents per year

PART THREE:
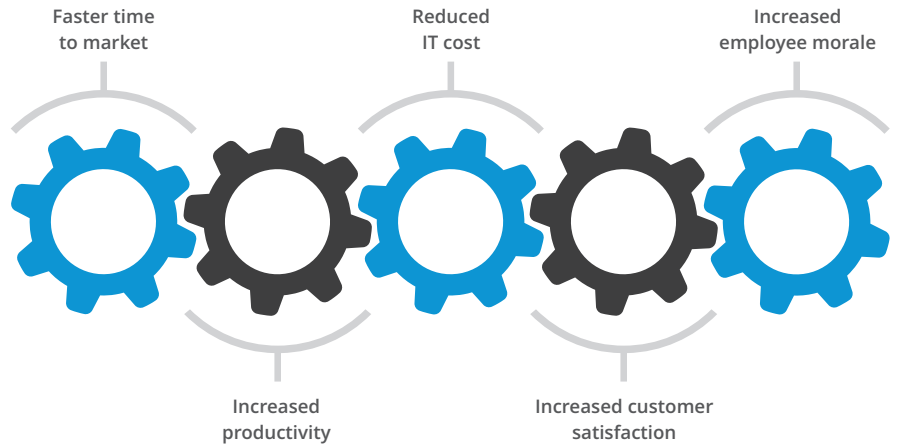## Putting KPIs into practice for DevOps

In this section, we'll show you some examples of KPI documentation and templates that you can implement into your DevOps teams.

Although these examples represent typical business requirements during a DevOps transformation, they may not be a perfect match for your own needs. They can however be useful as a guide to creating a custom template and framework.

Example KPIs for DevOps transformation (1 of 3)

For an organisation focusing on DevOps, their business goals would typically be about introducing efficiencies in the business to deliver more customer value. Each metric should be traceable to one of the organisational or transformational goals. Metrics that are not linked to business goals are cost with no benefit.

Typical DevOps objectives

Faster time to market

Reduced IT cost

Increased employee morale

Increased productivity

Increased customer satisfaction

DevOps balanced scoreboard framework: An example

Finance
What are the financial goals?

| Increased revenue | Increased productivity | Reduced risk | Increased employee morale |

Customer
What are the goals for your key stakeholders?

| Increased speed | Increased quality | Increased customer satisfaction | Product innovation |

Innovation and Learning
What capabilities are needed to achieve the goals?

| Continuous delivery | Continuous testing | Cost-effective compliance | Lean & agile |

Internal Process
What problems do we need to solve?

| Automation | | | Collaboration |
| Continuous delivery | Release process management | Value stream optimisation | Infrastructure pptimisation |

Example KPI definition template (2 of 3)

KPI Basic Information

Reference / ID	Name	Description	Owner Accountable	Unit £ / ratio / percentage

KPI Purpose

Strategic Objective Link to strategic Objective	Intent of the Indicator Context of why this metric is produced	How will this metric be used?

KPI Tests

Confidence Level How well is this indicator measuring performance?	Cost to collect data Indicative costs - admin, outsourcing, software, analysing and reporting	How will this metric be used? How easy is to get a realistic value?

Data Collection

What is the source of the Data? Where does the data come from?	How will it be collected? Surveys / ALM / CR tool / interviews / Automation	Who is responsible for collecting the data?
What is the method of derivation? Formula; aggregation / Assessment / scales / index	How often does it need to be collected? Surveys / ALM / CR tool / interviews	Where is the data stored? Ideally in a central repository, but it can be in more than one location.

KPI Targets

What are the Target & Performance Thresholds? Specific and time bound Absolute or Relative	Source and Approach to Target How the target was derived and why	Target Owner Person who is accountable for the target	Who is responsible for setting the target?

KPI Reporting

Who is the audience of the KPI?	What are the reporting channels?	What are the dashboards reporting this KPI?	Who is responsible for reporting the data?

Example KPIs for DevOps transformation (3 of 3)

DevOps objectives and indicators: An example list

Indicators and their associated weight scoring are shown aligned with objectives. This means there is no ambiguity around what the impact of any improvement in one of the indicators means.

Objectives	Indicator	Formula	Weight (percentage)	Target	Unit
Faster time to market and increased productivity	Reduced lead time		100	5%	Lapse time
	Reduced cycle times		100	10%	Man hours
	Increased frequency of deployment		80	25%	Number
	Increased speed of deployment		50	50%	Man hours
	Release success rate		100	99%	Percentage
	Increased speed of build verification		70	20%	Lapse time
	Cost of QA (based on the strategy)		80	Observe	£/$
	Reduced cost of infrastructure		50	10%	£/$
	Average project cost variance		50	< 10% total project cost	£/$
Increased customer satisfaction	Customer satisfaction scores		100	> 6	Index 1-10
	Percentage issues resolved within SLAs		100	95%	Percentage
	Mean time to recover		80	> 10%	Lapse time
Increase employee morale	Increased staff retention rate		70	> 20%	Percentage
	Staff satisfaction Index		60	> 8	Index 1-10
Compliance and security	Number of security breaches		100	< 10	Number

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PART FOUR:
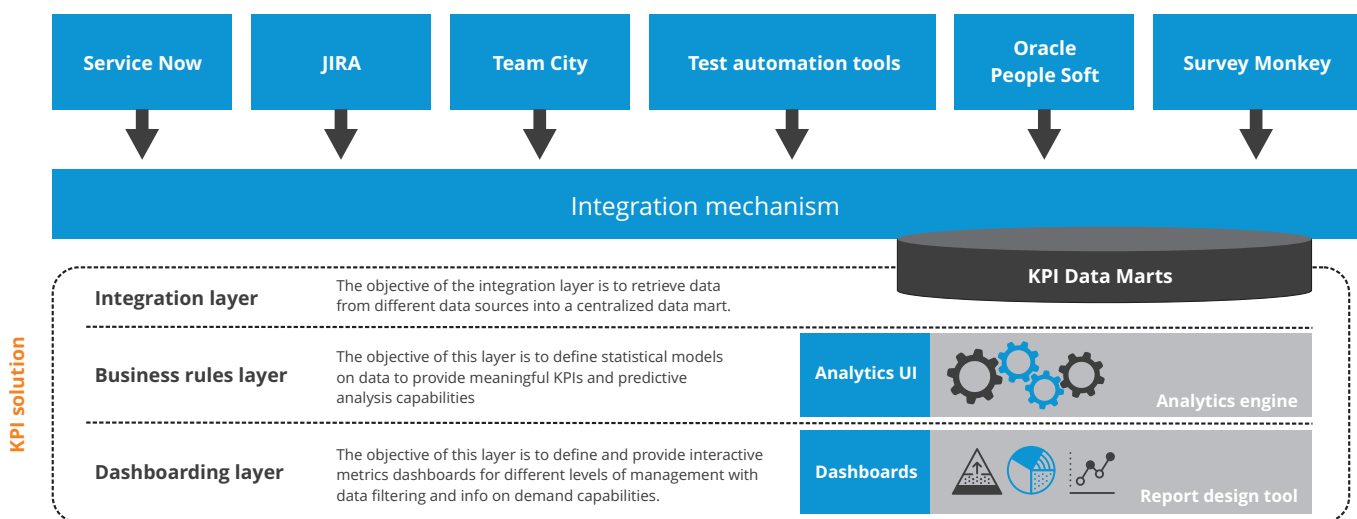## Automating your KPI framework

In this section, we'll show you the high-level design of a typical KPI automation framework. The systems mentioned in this section are examples, in general the data can be collected from any SLDC systems in your organisation.

Although this example represents a possible solution, it will need to be tailored to fit your business, systems, and choice of technology.

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Example KPIs for DevOps transformation (3 of 3)

How to reduce the overhead of managing your KPI framework

To ensure that your KPI framework is efficient and low maintenance, it needs to be fully automated. There are many market solutions available with a wide choice of dashboarding and analytics tools. Here is an example high level solution overview which could be tailored to suit your needs.

Service Now	JIRA	Team City	Test automation tools	Oracle People Soft	Survey Monkey

Integration mechanism

KPI Data Marts

KPI solution

Integration layer	The objective of the integration layer is to retrieve data from different data sources into a centralized data mart.	
Business rules layer	The objective of this layer is to define statistical models on data to provide meaningful KPIs and predictive analysis capabilities	**Analytics UI** / Analytics engine
Dashboarding layer	The objective of this layer is to define and provide interactive metrics dashboards for different levels of management with data filtering and info on demand capabilities.	**Dashboards** / Report design tool

Integration layer

Objective:
The objective of the integration layer is to pull data from different data sources into one or more centralized data marts by applying data aggregation rules as per the customer requirements. One option is to use TIBCO Spotfire Data Connectivity plugins which can connect to multiple data sources and transactional systems. In case of restricted data connectivity, the data can be exposed via APIs and the integration can be achieved by custom Python scripts.

Suggested resources required:
- Relational Database for KPI DataMart
- TIBCO Spotfire Data Connectivity Component
- Custom Python Scripts

Outcome: Centralized Data Marts

Business rules layer

Objective:
The objective of this layer is to define the statistical models on the data to provide meaningful metrics. If required the business layer can be extended to provide predictive analytics capabilities. This layer will also provide a runtime environment for execution of the statistical models. Statistical models are generally based on S+, R, SAS, TERR, MATLAB languages.

Suggested resources required:
- TIBCO Spotfire Analyst for defining the statistical models
- TIBCO Spotfire Statistical Services for execution of statistical models

Outcome: Generated metrics ready to be displayed in the dashboards.

Dashboarding layer

Objective:
The objective of this layer is to provide interactive dashboards of metrics. The presentation layer will be designed to the needs of the stakeholders at different levels. The UI should also have features to see the data in different views and filter data. The dashboards should also provide capabilities to drill down to low-level information.

Suggested resources required:
- TIBCO Spotfire Analyst for defining the visualization
- TIBCO Spotfire Web Player for accessing the KPI visualisations over a Browser

Outcome: Metrics dashboards

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Summary

As we've seen in this paper, building a fit-for-purpose KPI framework in your business is critical. However, actually defining, implementing and managing these metrics can be tedious - and poorly managed metrics framework can become an overhead.

As a consultancy partner, we have helped our clients to identify the right metrics based on their strategic objectives and outcomes, and we have designed and built optimised solutions to capture and manage KPIs. With our experience in building custom KPI solutions using a wide range of market leading analytics tools, we add instant value in setting up a fully customised KPI framework.

Our KPI solution offerings for DevOps come with a pre-defined set of KPIs and a high-level solution which helps our customers to establish a basic framework within six to eight weeks. In cases where new software is being adopted, we accelerate the process by leveraging our partnership with software vendors to tackle integration more effectively. Typically, we can have a KPI system up and running for the client within three months.

We can do the same for you.

Want to know more?

Contact us on +44 20 7680 7105 for a conversation around how we can support your team in successfully defining the right KPI frameworks for you.

Get to know us

We are a global integrator, specialising in all areas of DevOps to help clients deliver a 'digital first' strategy. With a team of highly skilled professionals, we deliver Advisory, Management and Technology consulting innovation for clients in some of the most demanding, regulated industries throughout the world.

Your success is our success
Here at Sandhata, we take pride in delivering high calibre services, with a dedicated and hands-on approach that truly sets us apart from the crowd. By tailoring our services to your organisation's unique needs, our experienced consultants are able to work in a genuine partnership with you to facilitate cultural change and support your own teams in harnessing the powerful DevOps tools and processes. Thanks to our unique Advisory model, we also complement our technical consultancy with supporting strategic decision making and change management at board level.

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