Closed-loop operational performance management

Enabling the performance dialogue in the digital era

Why it is relevant

Now, more than ever

Companies typically have a corporate strategy in place that covers the overall scope and direction of the organization and the way in which its various business operations work together to achieve particular goals. However, performance management on operationalized objectives derived from this strategy – operational performance management (OPM) – is often ill-executed, if done at all. At the same time, survey after survey reveals that most strategy implementations fail. A 2015 survey of more than 400 global CEO's[1] found that executional excellence - translating a strategy into results - was the number one challenge facing corporate leaders. OPM provides a mechanism that enables organizations to increase strategic success, not solely by continuous performance tracking, but by incorporating corrective actions to steer in case objectives are not met. Special attention is paid to OPM in the current digital era, as new technologies enable organizations to execute OPM more effectively and efficiently.

> *At a large Dutch bank we implemented the OPM system, supported by crisp and clear visual dashboards that showed the same – and far less than before – KPIs at all levels. By translating and enriching operational data from a number of sources to real process data, business end-users got tailor-made portals and reports: providing every role with the information required for that role – no more, no less - and providing a "single point-of-truth" and "dynamic action management" to support the right performance dialogue: fact based, on actual data.*

Performance management as we refer to in this document should not be confused by the commonly used interpretation of performance management as "the process by which managers and employees work together to plan, monitor, and review an employee's work objectives and overall contribution to the organization". The typical manifestation of the latter are individual key performance indicators (KPIs) that are being reviewed during a (semi-)annual employee performance review. OPM as we see it includes all activities which ensure that organizational goals are consistently being met in an effective and efficient manner. This implies that OPM is not only about looking back at the operational performance of an organization in the past hours, days or weeks, but also about decision making on how to improve operational performance and monitoring the progress of such improvements, making it a closed-loop management system. To emphasize the focus on operations in the widest sense, we use the name operational performance management.

Typical motivation for organizations to establish an OPM system are the desire for successful strategy implementation, improved productivity, and improved **decision making.** However, what we see at various organizations is that implemented OPM systems hardly work and don't bring the expected value. There are numerous barriers that frustrate a successful OPM system and that can originate from a diversity of factors, such as:

- There is a lack of performance culture.
- Goals and objectives are not cascaded throughout the organization.
- Reliable performance information is not available, or not at the right moment and in the right format.
- An organization's KPIs are not a good indicator of what is happening in the business or are not in line with strategy.
- An organization does not devote attention to gaining insights from the data and information that comes from OPM systems to drive improvement ('just looking back').

Whatever the reason for a suboptimal or failing OPM system may be, this should not have to be the case. We will demonstrate this by not only giving a comprehensive insight into what an OPM system should look like, but also showing the road to reaching the OPM summit in this digital era.

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[1]Harvard Business Review, "Making Strategy Work", March 2015
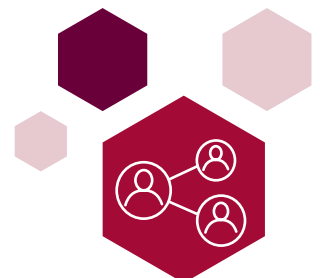
What does it look like?

What closed-loop OPM systems should look like

In its bare essence a closed-loop OPM system is quite straightforward: management formulates strategic objectives based on the organization's mission statement. Consequently, a set of KPIs (including target values) is defined for each organizational level that is completely in-line and directed towards achieving that set of objectives. To make it a closed loop, the performance on KPIs against target values is monitored and corrective actions, including the monitoring of the effect of these corrective actions, are added in case targets are not met. Only in very exceptional cases the target value itself may be adjusted, following strict guidelines.

Such an OPM system implies that all levels report around the same set of KPIs, resulting in a very straightforward management information (MI) process; each level higher consists of an aggregation of the figures of the levels directly below.

Figure 1 shows the logic of a closed-loop OPM system in more detail. The upper layer of the pyramid typically is the place where strategic objectives and directions are formulated: what is the "True North" for our organization? All efforts in the organization should be directed towards these objectives and in order to be in control of the progress towards them KPIs are formulated that can be linked back to these strategic objectives. For example, when timeliness is key for customer retention, then the (same) KPI about timeliness should be in place at every level, of course with specific target values.

This is shown by the grey downward arrows, which reflect the translation of strategic objectives to performance metrics and accompanying target values on successive organizational levels.

The pyramid also shows an upward "performance dialogue" arrow. This arrow represents the management information flow towards (higher) management levels. Starting at the operational level, for instance a single shift, employees and their team-lead typically discuss the last shift's performance in a so-called daily stand-up meeting: what did we achieve, did we reach our target for our KPIs, what issues did we come across and what is the progress of ongoing improvement initiatives? For issues that can be influenced it is decided to solve the issue and an owner is assigned who is responsible for solving it. If possible issues are assigned at the team level, only when an issue is "too big/complex" (e.g. cross-departmental) is it taken to the next level performance meeting where the same logic is applied. The higher the level where the action is assigned, the more complex and impactful the solution will be. For improvements that are limited in time and impact ("mini-projects"), A3 management[2] is used to monitor progress and results, larger projects will require a more sophisticated form of project management.

The closed-loop aspect is completed by the yellow downwards dashed arrows (see figure 1). This refers to the implementation of corrective actions and the monitoring of the progress on such corrective actions. Setting up such an OPM system is a highly structured and visible process promoting visibility, buy-in, alignment, and team-work.
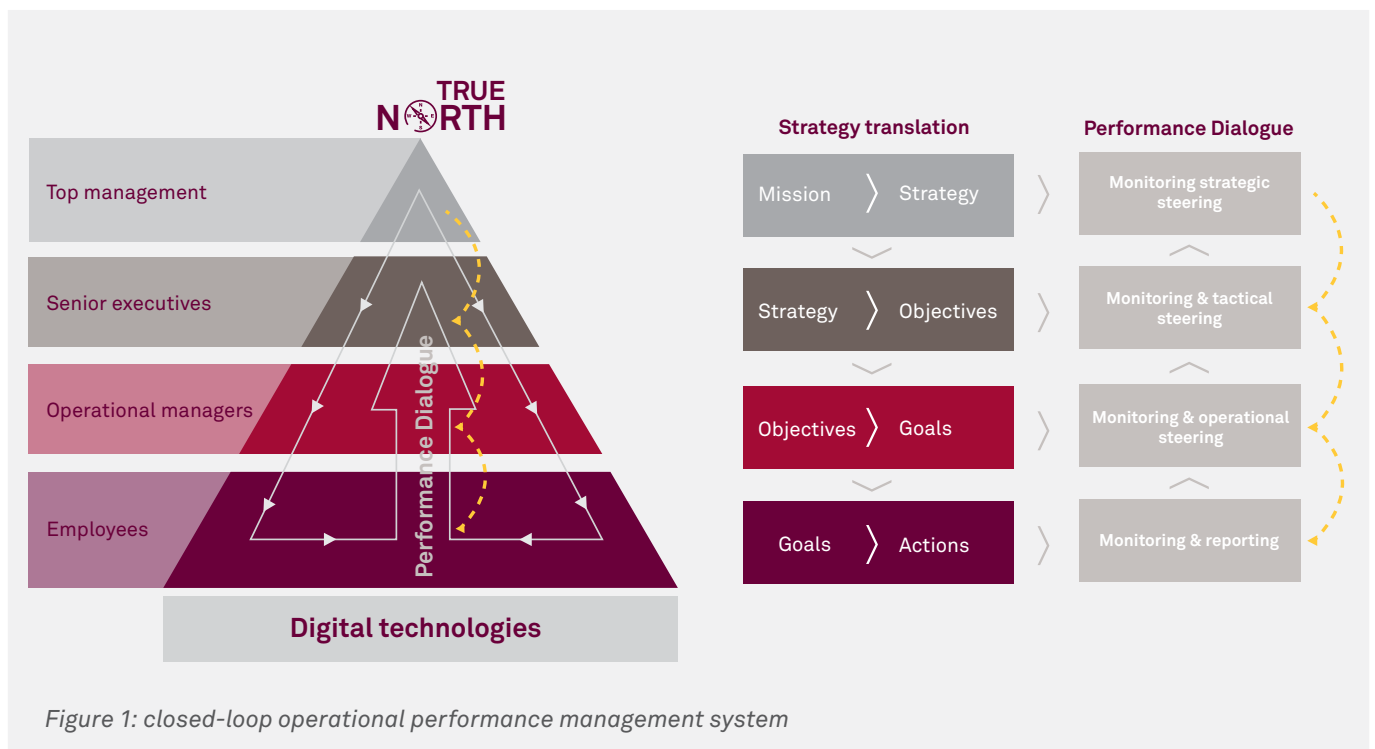

Figure 1: closed-loop operational performance management system

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[2]A3 management is a problem solving approach to structure and "discipline" the improvement process. The one-page format forces concise thinking (get to the point!). A3 thinking embeds continuous improvement in "business as usual".

The bigger picture

The OPM system as described should be an integral part of the bigger (performance) management system cycle that is widely known as Planning, Budgeting, and Forecasting (PBF). PBF should serve to support the business in understanding how its ongoing activities contribute to delivering its future longer term strategy. It is a method for allocating scarce resources in-line with the strategic intent of the business and for planning actions to help it meet its strategic goals in response to changing circumstances.

As shown before, having a suitable meeting structure is part of the OPM system. The PBF high-level plans and forecasts in particular, are important inputs for the OPM system that translates these to manageable units. At the operational level monthly forecasts are made in routine meetings. The resulting monthly forecast typically is converted in weekly plans during a highly structured weekly operating meeting (WOM): the last week is reviewed and plans are made for the next week, taking reviews of previous periods into account. The previously mentioned daily stand-up meeting is the place where short interval control happens for maximum effect.

This process fits perfectly with the OPM process described above and depicted in figure 1. Having problem-solving loops in place at every reporting point together with the KPI-setting process and connected information flows, creates the closed-loop OPM system. As the scope of this document is the operational performance management, we will not further zoom in on the separate elements of the bigger picture.

How to realize it?

It all starts with a "True North"

It may seem so obvious that each organization has a mission statement with a related "True North", but in our experience it isn't that obvious at all. An organization's mission, in our view, is the reason for existence - your purpose of being as an organization. By examining customer value (the "Voice of the Customer" notion within operational excellence) and the value stakeholders expect from you, you begin to understand what you should be doing. True North is an unchanging, invisible landmark where lines of longitude converge at the "top of the world". In a business context it is a means of quantifying the mission to some extent, breaking it down into manageable pieces synergistic with business fundamentals versus business functions. The True North is a decision-making tool that the management team can use to choose their path forward and should literally be giving direction to the whole OPM system.

A few mission statements that we think are strong as they are clear, memorable, concise and at the same time open regarding the "how":

- "To make the world's information universally accessible and useful" (Google);
- "To experience the joy of advancing and applying technology for the benefit of the public" (Sony);
- "To spread the power of optimism" (Life is Good);
- "To make everyday life better for our customers" (Ikea).

Translating direction into action

In order to create the closed-loop OPM system, high-level notions like the mission statement and True North have to be translated to operational goals with accompanying metrics. Therefore, organizations need to cascade down their organization strategic plan. This can be done by a process that often is referred to as "catch ball". Catch ball drives the strategic planning process into every level of the organization and every employee and provides them the opportunity to define how they will contribute to that success. Applying this method creates a comprehensive communication system between all levels of employees, keeping everyone focused on meeting the organization's goals. It achieves this by aligning the goals of the company (Strategy) with the plans of middle management (Tactics) and the work performed by all employees (Operations). The "catch ball" environment is created, where goals, strategies and action items are tossed back and forth between management and employees. By initiating this dialogue between the various organizational levels, organizations are able to refine their strategic goals so that they drive progress and action at every level within an organization. This will form the basis for achieving success. Result:

- Organizational objectives are clear and performance measures are in place in order to link goals to targets from corporate to individual levels.
- Information to support the understanding of performance is readily available and used to add value in decision-making.
- Systems and processes regarding performance management are consistent, simple and competent.
- People have suitable skills and feel accountable for their own, their team's, and organizational performance.
- At every step, leaders are identified and engaged. There is a clear governance structure in which stakeholders are identified and engaged.

Case description

At a leading European automotive firm, around 10,000 cylinder heads are produced per day in a complex production process. The production line generated data but the firm struggled to use the data effectively, failing to identify what quality parameters affected the quality of its cylinder heads and caused delays. We assisted the company in implementing a data-mining and analytics solution with the clear and strategic aim of maximizing the number of flawlessly produced cylinder heads. This resulted in:

- *a 25% increase in productivity*
- *a 50% reduction in the time taken to ramp up the process to target levels*
- *the capability to monitor the process in near real-time and make agile adjustments*

So far, so good. But what is new?

Going Digital

So why is it that digital makes OPM of renewed importance today? As we all know organizations increasingly become more digital in the way they operate: digitisation of processes, automation of activities, use of digital tooling. All these changes result in the availability of more data than ever before and from a broader set of sources. In order to build a successful OPM system, organizations should focus on leveraging these sources of information. Digital tooling significantly impacts the way organizations are able to collect, visualize, analyse, and draw conclusions from data, impacting various aspects of the OPM model depicted in figure 1. These developments provide significant opportunities for OPM systems to become a more effective and efficient mechanism to govern operational performance. Organizations that are able to successfully unlock this potential and integrate these developments into their OPM systems are able to understand their operations to a greater extent in a shorter time frame, make the right fact-based decisions and focus their corrective actions on the biggest value drivers.

How Digital affects Operational Performance Management

In this paragraph we describe a number of digital developments that impact OPM to varying degrees. We don't have the illusion to be complete, but we will address some of the major disturbers or, positively stated, opportunities we see in relation to the closed-loop system we depicted in figure 1.

Digital technologies generate vast amounts of data

A key driver that impacts the way operational performance management systems functions, and which provides the basis for below paragraphs, is the availability of data within organizations due to digital technologies employed in such organizations. While previously organizations had to dedicate significant effort and resources towards finding data that could function as relevant input to understand its operations, nowadays organizations generate data "on the fly". The often mentioned fourth industrial revolution with the Internet of Things at its core will without a doubt significantly impact the amount of data generated and the ability of organizations to obtain real-time insight in operational performance. This results in completely new data being available regarding operational performance through, for instance, embedding sensors in production assets. This even goes as far as being able to predict when certain assets will break down so that a maintenance employee can be send over. This availability of data through the use of digital technologies in contemporary operations impact how data is collected, communicated, analysed and even what and when corrective actions are to be implemented.

Digital technologies enable real-time data collection

Digital technologies considerably impacts the way in which organizations collect data. Previously, organizations put significant effort in collecting data about, for instance, process performance through interviews and process mapping workshops or on sales performance by combining individual order books from various sales representatives. As this data is now readily and centrally available in many systems, less effort has to be dedicated towards data collection activities. Besides that, organizations that aim to increase their knowledge on operational performance are able to equip employees with mobile devices to collect data on many relevant aspects. Sales employees nowadays can enter, or automatically generate, relevant customer (visit) data while at customer sites. Engineers can download equipment performance data straight from machines, automatically linking this to the type and time of the visit and the actual service performed. By collecting such data in real-time with minimal human interaction, OPM systems become significantly more valuable as they incorporate voluminous amounts of data from various sources. In short, digital technologies allow for efficient data collection at lower costs, with richer sets of data, obtained (near) real-time, enabling fact-based analysis of operational performance.

While there are many opportunities in the way data is collected, there are also several noteworthy challenges. First of all, it is key that organizations understand which data is relevant to measure their operational performance. A deep understanding of the operational system and its underlying performance drivers is crucial so that the right data can be collected. Secondly, we experience that even when collecting data through digital systems, data quality and consistency remain a challenge. In order to be able to draw valuable insights from large amounts of data, organizations and their employees need to be disciplined in how they design and implement digital systems so that they collect data consistently amongst various user-profiles that use the system. Moreover, if data is still entered manually, standardisation of the input (what, how, when) is key.

Case description

At a global air cargo company a number of dashboards were used, created from data available in the operations-supporting ICT applications. This enabled them to focus performance discussions around kilos and numbers of output, instead of other less meaningful units of measure. By combining and enriching the data already used with data available in a number of log files as well as in the SAP HR system, we were able to give insight in actual process performance at activity level and efficiency on division, unit, shift and employee level. Not unwelcome in this time of shrinking margins and fierce price competition…

Digital technologies enable tailor-made cockpits

Increased utilization of digital dashboards and mobile devices unlock opportunities to communicate and visualize OPM information in an interactive and (near) real-time way, irrespective of the geographical location in which employees reside. Well designed digital performance cockpits encourage real-time engagement, empowerment, and self-management. The ability to measure performance as it is occurring is a major step forwards in the professionalism of OPM: starting with fact-based insights, the organization can have its performance dialogue and choose the right interventions in order to achieve and measure the desired impact. Data visualization is about displaying data and information to convey ideas and conclusions effectively, both in terms of aesthetic form and functionality, thereby reducing perceptions and opinions about different individual's interpretations about the end result.

Operational Excellence adepts used to preach about being present at the work floor as a crucial instrument to improve communication and therefore performance. Daily stand-up meetings, where a team's performance was reviewed, took place on the actual work floor. Paper charts showed how well the team did on a number of KPIs and necessary actions to improve were initiated. Nowadays however, technology advancements make physical get-togethers less needed, since it is residing within our fingertips; for many (service) organizations the work floor is everywhere, 24/7, in our hands or certainly within reach of some mobile device. In addition, "new way of working"-concepts that allow employees to work anywhere, anytime, have replaced the traditional work floor, making the daily physical stand-up meeting a kind of relic. In short, digital technologies allow for data visualization at lower costs, fed by richer sets of data in (near) real-time, that enables fact-based communication of operational performance.

Organizations should keep in mind that it requires techno-logical and analytical capabilities to build and continuously feed interactive dashboards with data relevant for operational employees and managers. Having the right capabilities in-house ensures valuable insights can be communicated; lacking such capabilities will significantly impact the value of the operational performance management system. Also, it should be noted that through digital communication the power of persuasion may decrease because the receiving side may read and interpret the data differently from how it is originally intended.

Digital technologies accelerate (root cause) analysis

Tooling to analyse the data organizations produce are increasingly more versatile and provide ever increasing opportunities to understand the root causes of deviations from expected performance and to support decision making on corrective actions. All this while spending a fraction of the time required for the same understanding before. Connecting data

Case description

Oil and gas companies are faced with intense pressure to deal with low oil prices. A big leading E&P (exploration and production) company found it difficult to compete in this downturn because of inconsistent data quality that resulted in deficient decision making throughout the organization. Examples included fragmented and outdated spreadsheets from numerous reporting systems and the inability for all personnel to view and analyze the same data. Without all divisions of the workforce having near real-time data access, they were unable to communicate and collaborate to make fast, actionable data driven decisions that focused on production trends and downtime to improve operational effectiveness. By analyzing downtime data across multiple dimensions, we were able to visualize the most significant downtime reasons and implement different operation methods and design. We have reduced downtime by 50%. Used the company to be at about 5% companywide downtime, we have cut it in half in terms of % of production loss.

sources boosts analytics by making it possible to discover completely new causal relations. Making analytics an essential part of the decision making process in operations enables companies to make a more informed choice – increasing the chances of success.

Analytics in operations is increasingly seen as a strategic priority for organizations. Over 80% of respondents in a recent survey[3] agreed that analytics in operations plays a pivotal role in driving profits or creating competitive advantage. With business analytics, organizations are able to analyse process performance in (near) real-time and make the right evidence-based adjustments. Digital enablers and creative transaction stream analytics make it possible to detect modern wastes[4] that often do not have physical characteristics. Using the voluminous amounts of structured, semi-structured and unstructured data collected by organizations for analytic purposes brings new opportunities: data-driven operational excellence as the modern and improved variant of traditional operational excellence. In short, digital technologies facilitate data analysis of larger datasets at lower costs enabling fact-based insights on operational performance.

These huge amounts of data make it seemingly more straightforward to understand what is going on in your business. However, root cause analysis also becomes increasingly complex when there are many sources of data. The challenge is in finding relevant correlations that drive or hamper operational performance. Besides, when using analytical tooling, for instance process mining tooling, specialist knowledge is required to be able to provide a comprehensive understanding of the operational performance of an organizations or specific process within an organization.

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[3]Going Big: Why Companies Need to Focus on Operational Analytics, Capgemini Consulting, 2016.

[4]Waste or 'Muda' in Japanese: meaning "Anything that uses resources but doesn't create value". Eight types of common waste are waiting, overproduction, repair, motion, over-processing, inventory, transport and the waste of human capital.

Case description

For a large governmental department, process analyst were busy for months to map their processes and to get agreement about these mappings at all stakeholders. By importing already available data, including time stamps, from their data warehouse into a process mining tool we were able to show the actual process flow (including all variations) in a timeframe of several hours. And what's more, we could also show outliers, undesirable process deviations, loops in the process and all kinds of exceptions like activities for cases that were already closed for a long time. All of this before actually starting with our own analysis; these insights that pointed out potential improvement areas were just being thrown out to us by the tool.

Digital technologies enable fact-based corrective actions

By combining different (digital) data sources, organizations are more than ever able to dive into root-causes of operational performance issues and determine corrective actions. By linking operational performance data with other data sources one can grasp a more complete picture of the factors that influence performance; e.g. how sales performance is affected by weather influences or societal demographics. The insights derived by combining data from several sources increases an organization's ability to influence its operational performance successfully and with more impact. The use of advanced data analytics and algorithms even allows organizations to predict how their operational systems will behave and enable pro-active implementation of corrective actions even before an issue, like a machine's breakdown, occurs. In short, digital technologies enable organizations to implement corrective actions through fact-based insight that enables to improve, and in some cases even predict, operational performance more effectively than before.

It is inevitable that digital more and more will impact the choice for, and implementation of, corrective actions. At the same time organizations will have to prepare for this development, as success will not come automatically. They have to equip themselves in order to be able to draw conclusions from data based analysis and to quickly act on conclusions made. A large part of our customers currently doesn't have that agility in their DNA. And although it may seem obvious to many, it will require a major shift in mind-set and decision-making culture throughout all levels of the organization to reap the benefits of more advanced developments as predictive modelling. Organizations need to dedicate a significant amount of resources to keep pace with the never ending stream of new possibilities and to be able to translate these developments to a use in which they bring value towards both the organization as its customers, also known as two-sided solutions.

Case description

For an international consumer products organization we analysed the successfulness of its customer loyalty initiative based on a large dataset of user data. Initially there were many hypothesis of the loyalty program performance but the organization lacked the ability to draw fact based conclusions based on actual customer behaviour. By collecting data from various sources and putting this together in a model, we were able to quickly map actual customer behaviour in the first 100 days after they created a loyalty program account. By exactly understanding what was happening based on data, namely that 40% of the customers did not show any activity anymore after day 1, we were able to initiate corrective actions to solve this issue. We introduced a targeted marketing campaign directly after customers subscribed, to stimulate user activity in this period.

Conclusion

OPM systems have had their place for some time now, and while there is ample room for improvement at many organizations regarding conventional OPM systems, digital developments are able to contribute significantly to more effective and efficient OPM systems. This provides an indispensable opportunity for those that aim to more successfully put strategic goals into operational action and track on progress towards success.

By leveraging digital technologies to collect, communicate, and analyse data organizations are able to significantly increase the efficiency of their OPM systems. Previously, data collection was a cumbersome process that required significant ongoing resource investment. With digital technologies such as operational intelligence software and sophisticated analytics tooling, we can now automatically extract data from various systems, and visually deliver insights to employees, irrespective of geographical location; providing a rich intelligence about an organizations operational performance that enables better decision-making. While significant investment is often required to put such automated connections in place, the benefits it can provide within a well set-up OPM system by far exceed the investment required.

Digital technologies also strongly impact the effectiveness of OPM systems, as it impacts the degree to which organizations are able to collect voluminous amounts of data, visually communicate it, determine the root causes of lower operational performance, and determine which corrective actions to implement. Fact-based operational and process data analysis, such as process mining, gives organizations the opportunity to focus on improvement initiatives that fight root causes instead of "fire-fighting" at the wrong place, something that is all too present in many organizations.

Therefore, OPM systems that leverage current digital opportunities to increase its effectiveness and efficiency are potentially the most suitable mechanism to build an "operational excellent" organization in line with the strategic direction of your organization in the current digital age.

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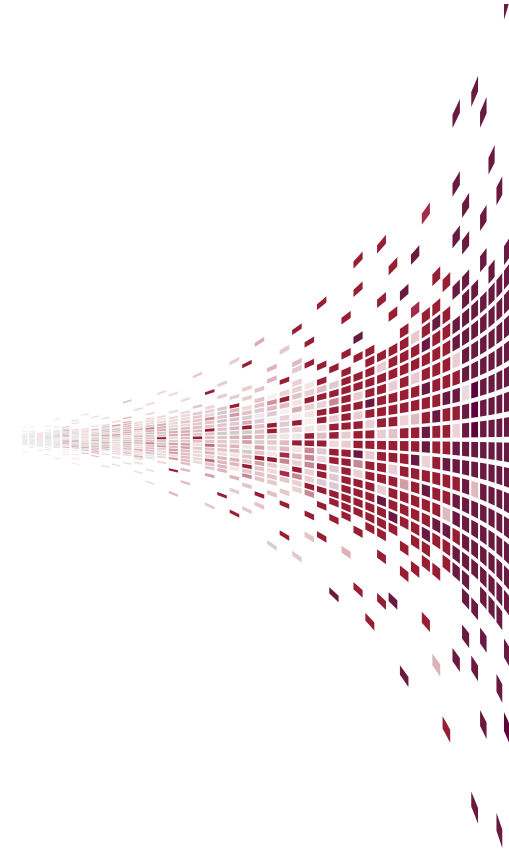
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