

Driving transformation in research & technology organizations

Using key performance indicators to catalyze change



Research and Technology Organizations (RTOs) are under growing pressure to stay abreast of rapidly evolving business or national science and technology priorities and to demonstrate greater impact. They therefore undergo continual strategic and operational change to adapt, but in some cases, transformation programs can underperform. Often this is because there is no real incentive to behave differently due to problems with how performance is measured and reported, and how incentives are created and aligned. Based on good practices gathered from our work with more than 60 RTOs and corporate innovation centers over the last decade, we present our approach to using steering key performance indicators (KPIs) to drive transformation.

The two main types of Key Performance Indicator

RTOs undergo continual transformation to deliver against changing national science priorities and the evolving needs of their customers and other stakeholders. As a result, they continually need to find ways to drive change and measure performance – and KPIs are an important tool to enable this.

KPIs typically comprise a mixture of measures of inputs and activity and, the outputs and impact of research. They can be used for two purposes – Reporting and Steering.

RTOs use **Reporting KPIs** to demonstrate their performance to the complex array of stakeholders that fund and govern them. Usually this involves demonstrating that money is being spent wisely on good-quality science, and that impactful results are being achieved (Figure 1). Common KPIs include metrics associated with science quality, such as the number of researchers recruited in the last year and the number of high-impact journal articles published. Financial performance is also tracked through metrics, such as revenues from patent royalties and income from commercial customers.

Figure 1: The differences between Reporting and Steering key performance indicators

	Reporting indicators	Steering indicators
Description	<ul style="list-style-type: none"> A measure of performance, which can be used to compare between and benchmark against other RTOs 	<ul style="list-style-type: none"> Measure progress towards delivery of strategy and transformation programs, as well as steer and drive behaviors during a transformation program
Applications	<ul style="list-style-type: none"> Demonstrate and justify activities and outputs to a large range of external stakeholders, often based on demonstrating scientific quality, integrity and impact 	<ul style="list-style-type: none"> To steer the organization in the context of a strategic and/or transformation plan to guide the organization and identify performance against targets
Audience	<ul style="list-style-type: none"> Customers Internal staff Other RTOs 	<ul style="list-style-type: none"> Senior Management Whomever the RTO reports to overall Internal staff
Types of KPIs	<ul style="list-style-type: none"> Usually easily measurable Comparable with other institutions for the purposes of benchmarking Often academic measures 	<ul style="list-style-type: none"> Often more subjective Not easily comparable with other institutions

Source: Arthur D. Little

Steering KPIs measure progress against the delivery of a strategic or transformation plan associated with a desired future state and are used to direct an RTO towards achieving its strategic ambitions. Steering KPIs seek to drive actions to be taken to reach a goal or target, rather than report past performance (Figure 1). Examples include the financial growth of a new business function if a new science area has been identified, the number of projects initiated with large customers if key account management is a priority, or an increase in customer satisfaction if a drive towards customer focus is desired.

While Reporting KPIs are used systematically across RTOs and innovation centers, greater difficulties are encountered when trying to set Steering KPIs because of the challenges of:

- Aligning them with strategic objectives
- Cascading Steering KPIs into effective performance drivers

This article describes the reasons these difficulties arise, and sets out a practical approach for addressing them to assist RTO leadership teams tasked with driving change and transformation.

Challenges in deciding what to measure

Deciding what to measure is especially difficult for RTOs because of the many different stakeholders involved in governing their directions. These could be government funders and policy-makers, industry clients, and research staff, who all have very different expectations about what direction the RTO should be heading in.

For multidisciplinary RTOs, this is even more challenging, as tensions between different parts of the organization (e.g. scientific vs. commercial functions) can make agreeing on an organization-wide plan very challenging. The KPIs which help to steer any transformation can end up being a compromise.

The main issues we have encountered when helping RTOs to set KPIs are:

- A desire to **retain old and superseded KPIs** and simply adding further performance metrics to an existing set
- **Setting KPIs without accompanying targets** or time scales, or else having targets based on current (or recent) performance, rather than seeking to drive a strategic priority. This anchors performance at current levels and fails to create the “performance tension” required for change
- A tendency among science-intensive organizations to pick **KPIs which can be readily quantified and supported by evidence**, which creates a habit of favoring input indicators (e.g., size of budget) and output indicators (e.g., number of patents per researcher) **rather than outcome based KPIs which can be more valuable to driving meaningful**

change in behavior, such as customer satisfaction or research impact

- **Picking the indicators which shows the strongest performances**, sometimes in response to stakeholder pressures. This makes the RTO look good in the short term, but may contribute to postponing or avoiding making important strategic long-term decisions
- Using Reporting KPIs rather than Steering KPIs to try and drive a transformation program

With these issues in mind, we find that setting effective Steering KPIs to drive change involves working out what to measure and how to measure it, and then identifying a realistic target.

Identifying effective KPIs to drive transformation

In our work supporting RTOs with strategy and transformation, we typically begin by **identifying and engaging with the main internal and external stakeholders to understand the measures of performance that they need information on** to fulfill their own agendas, and over what time frame these need to be delivered.

In terms of stakeholders, it is important that their needs and aspirations are identified and prioritized so that KPIs can be developed which are meaningful to each of them.

Once this context has been established, **Steering KPIs that will drive change in the RTO are best developed in participative workshops involving RTOs and external stakeholder representatives**. A critical input here is a clear vision of what change the KPIs are trying to encourage, usually set out in an RTO change or transformation plan. We typically begin by deconstructing these priorities, making them as explicit as possible and then working with stakeholders to develop a total of five to eight Steering KPIs that can be used to track progress against achieving strategic objectives. At the top of the organization, generally metrics which track outputs or impact should be focused on.

Critical to the introduction of these types of KPI is to highlight their relevance to achieving the strategic goal of the organization, as well as the importance of these indicators in predicting future performance, while not necessarily favoring those which are accurate to quantify or easy to measure. Scientists, by nature, have very strong views on data quality and integrity. Therefore, scientific organizations often discard any KPI which is not adequately quantified and supported by evidence. This creates a tendency to favor input indicators (e.g., size of budget) and output indicators (e.g. patents per researcher). As opposed to those that may be more relevant to driving change, but it can be more difficult to gather

data for them (e.g., customer satisfaction, internal processes and overall scientific impact).

As part of this process, and to achieve stability in the KPI set over a longer period and avoid proliferation of too many KPIs, a good approach is to **select a small number of categories and agree in advance with all stakeholders which indicators matter most (and why)**, and then to commit to this KPI set for a number of years. Identification of stakeholder needs at the start of the process and linking them to the strategic goals of the transformation plan will inform what these categories should look like. Although this type of debate is often difficult, one of the key benefits of engaging stakeholders in this way is to align senior RTO staff more closely with stakeholder needs and increase their awareness that guiding activities and behaviors in support of the KPIs is more important than just reporting.

We then advocate **setting performance targets and timelines for the Steering KPIs of the organization as a whole to measure performance against plan, as well as to adjust targets according the situation of specific departments or divisions**, given that each may be at a different starting point. For example, in a recent ADL benchmark on measures to improve gender diversity in RTOs, we found that some science disciplines had much better gender balance than others, which created a need to begin with different baselines.

While setting organizational-level targets may seem obvious, we often see that RTOs have KPIs linked to strategic goals, but are unable to measure whether they are on the right track. Our experience is that for each Steering KPI, there should be an estimated performance target level set for the future, so that progress against plan can be monitored. These performance targets can be difficult to set, but benchmarking of the RTO against peers (both leading organizations and comparator organizations) or of similar past initiatives can provide guidance to set the right level.

In selecting the right targets, we encourage RTOs to **consider carefully trade-offs in performance which need to be made explicit**. Usually, some existing targets need to be relaxed in order to accommodate new ones. For example, if the strategy involves strengthening industrial research then RTOs have to accept that this will result in fewer publications per researcher. In our experience, the choice of which performance levels are relaxed is just as important as the ones for which tough attainment targets are reached, because both send a strong message to staff about what will be rewarded.

Cascading KPIs into effective performance drivers

The final step is to translate an agreed set of KPIs into metrics which are appropriate for each part of the organization and, ultimately, for individual roles. At an individual level, KPIs drive behavior – but the choice of KPIs as performance drivers is difficult, because sometimes a KPI which makes sense

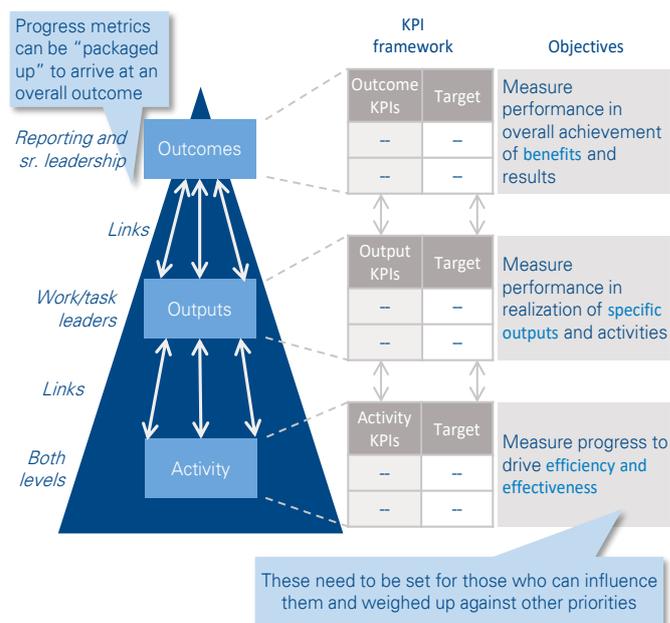
strategically may have some unwanted behavioral side effects in certain levels of the organization. The challenge is to cascade the KPIs down to all relevant levels of the organization and make them consistent across departments.

As a result, RTOs, like many other organizations, often translate overall strategic objectives and KPIs into effective performance drivers at an individual level. Cascading KPIs down throughout the organization involves considering what control each individual has over the influence of a top-level output or impact KPI, then tailoring the metric to that particular business function. The desired outcomes that steer the organization as a whole are translated into outputs that research program leaders and department heads are expected to deliver against, and ultimately into more granular outputs and activities that researchers, principal investigators and administrative staff help to deliver.

To give an example, an RTO which sought to become more commercially relevant to address changes in national industrial strategy would typically set a Steering-outcome KPI as the percentage of commercial revenue obtained from the private sector. This would then change the activity metrics for marketing functions in terms of who to target and how, and researching program leaders in terms of which organizations to approach for funding.

By applying this logic at all levels within the organization and properly aligning the priorities, meaningful KPIs can be derived for each level while linking to the high-level outcomes.

Figure 2: A framework for cascading KPIs within the organization



Source: Arthur D. Little

Developing an efficient cascade implies taking a bottom-up approach i.e., having the departments propose the key success factors and their links with processes and projects and the

related KPIs. The benefit is twofold: better identification of the real performance levers and increased buy-in to the various management layers, with a common understanding of priorities. A good rule of thumb is that the senior staff should mainly have outcome and impact indicators, while mid-level staff should have output and efficiency indicators.

Conclusions

Most RTOs are familiar with Reporting KPIs, but could benefit from introducing a range of **Steering metrics** to drive progress against delivery of a strategic and/or transformation plan. Good practices include:

1. **Recognize which KPIs are important to drive change, and which are important to demonstrate value to other stakeholders.** Be clear and prioritize. You can't deliver on everything, no matter how "ambidextrous" you are.
2. **Identify the right actors.** Identify the stakeholders/customers of innovation activity, as well as the internal stakeholders with the greatest influence.
3. **Pick a limited number of Steering metrics** by deconstructing strategic objectives for change and measuring them. Avoid using Reporting KPIs to measure changes in business processes.
4. **Cascade KPIs down through the organization**, but be mindful of what degree of control individuals may have over particular metrics.
5. **Reconcile what metrics are really needed.** Decide which legacy metrics are really needed, and aim for fewer, bigger, better multiples of performance.
6. **Include output and impact measures as well as those which track activity.** These may be more difficult to estimate and prone to variation, but can be made more standardized by issuing guidelines.
7. **Only set KPIs where the necessary underpinning data is available to measure them.** For example, identifying innovation outputs per staff member can be difficult to measure in very large, decentralized organizations.
8. **Aim for KPIs that drive long-term performance, but be prepared to "retire" Steering KPIs once a transformation has been achieved.** While Reporting KPIs are often stable, Steering KPIs seek to drive particular transformational changes, and most change over time.

Contacts

Austria

taga.karim@adlitttle.com

Belgium

vanoene.frederik@adlitttle.com

Brazil

guzman.rodolfo@adlitttle.com

China

pell.russell@adlitttle.com

Czech Republic

brabec.dean@adlitttle.com

France

bamberger.vincent@adlitttle.com

Germany

doemer.fabian@adlitttle.com

India

srinivasan.srini@adlitttle.com

Italy

caldani.saverio@adlitttle.com

Japan

harada.yusuke@adlitttle.com

Korea

lee.kevin@adlitttle.com

Latin America

casahuga.guillem@adlitttle.com

Middle East

kuruvilla.thomas@adlitttle.com

The Netherlands

kolk.michael@adlitttle.com

Norway

thurmann-moe.lars@adlitttle.com

Singapore

harada.yusuke@adlitttle.com

Spain

ali.salman@adlitttle.com

Sweden

lenerius.bo@adlitttle.com

Switzerland

doemer.fabian@adlitttle.com

Turkey

baban.coskun@adlitttle.com

UK

eagar.richard@adlitttle.com

USA

beaumont.mitch@adlitttle.com

Authors

Phil Webster, Ben Thuriaux-Alemán

Arthur D. Little

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