

# BUILDING FUTURE FIT ORGANISATIONS

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## Guide to establishing a construction sector performance measurement system

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**Resilient**   
**ORGANISATIONS**  
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# Project background

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This guide been created as part of a BRANZ-funded project which aims to inform the development of a performance measurement framework for the New Zealand construction sector. The contents of this guide have been developed based on lessons learnt across a number of international and cross-sectoral performance measurement systems.

For the full report, see Brown et al. (2020). Construction Sector performance measurement: Learning lessons and finding opportunities, <https://www.branz.co.nz/pubs/research-reports/er55/>.

## Acknowledgements

We would like to thank BRANZ for co-developing this project and funding it through the Building Research Levy. This project demonstrates the Building Levy being applied to better support not only the safety of our buildings but to enhance the wellbeing of the construction sector and the community the sector serves.

We are also grateful for the time and insight offered by industry practitioners, peak body representatives, government officials, and researchers that have contributed to this research. We hope that this project contributes toward a more sustainable and resilient future for the construction sector.

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# Introduction

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This guide is designed to support the creation, ownership, and administration of a construction sector performance measurement system. It sets out a framework for performance measurement in simple terms, despite the complexity that can exist throughout establishment, use and maintenance. It describes complexity but does not attempt to present solutions, because these need to be worked through, collaboratively, by sector members. It also highlights the opportunities that exist for measurement systems, integrated with sector-wide performance management systems, to support performance improvement in the sector.

## Who should use this guide?

This guide is primarily intended for entities that have a coordinating or governance role in the sector, for example MBIE or the Construction Sector Accord.

However, the principles are useful for any entity wanting to undertake performance measurement within the construction sector or in any other industry.

## How to use this guide

The first section of the guide focusses on the key steps for developing a sector level measurement system to help monitor and evaluate sector performance.

The second section of the guide discusses mechanisms to develop a culture of measurement throughout the construction sector, that help to drive sector performance improvement.

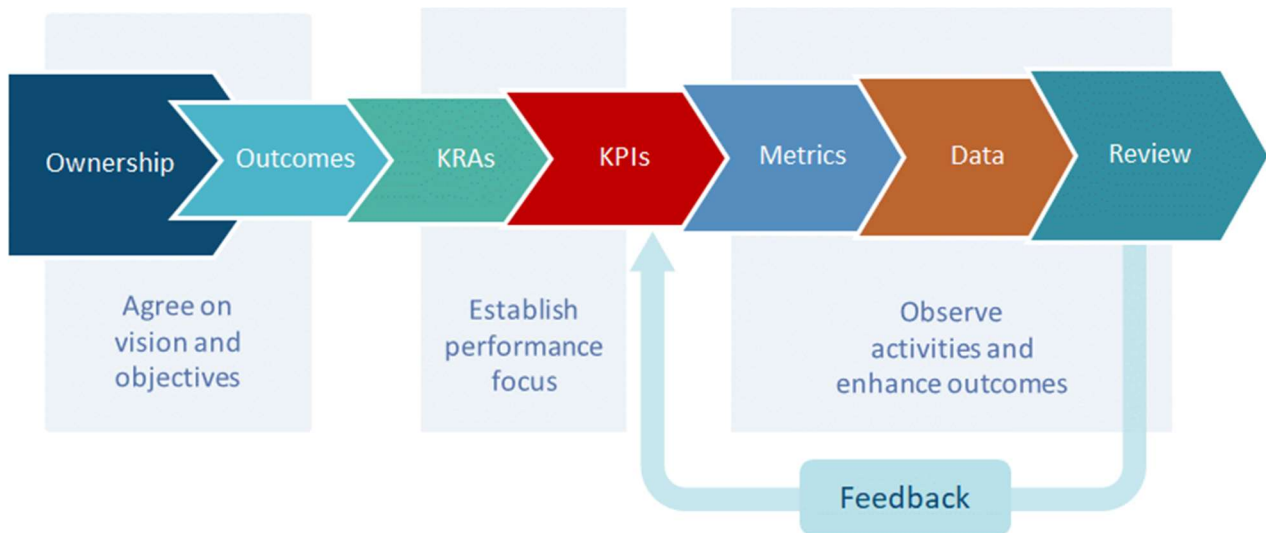
# Glossary of terms

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| <b>Indicator</b>                       | An observable measure.   |
| <b>Key Performance Indicator (KPI)</b> | An observable measure of a factor critical to performance.   |
| <b>Key Result Area (KRA)</b>           | An area of activity that is agreed as important to reaching goals/outcomes.  |
| <b>Metric</b>                          | Precise definition of a concept in empirical terms that is ready for data collection.  |
| <b>Performance</b>                     | The achievement of intended outcomes for the effort expended.  |
| <b>Performance measurement</b>         | The process of quantifying and communicating performance.  |
| <b>Performance management</b>          | A system which deploys policy and strategy and obtains feedback from various levels in order to enhance the performance of the system. |
| <b>Output</b>                          | Goods and/or services produced.  |
| <b>Outcome</b>                         | The broad goal of sector, group, organisation, or project.   |
| <b>Results</b>                         | A tangible statement of what has been achieved.  |
| <b>Stakeholder</b>                     | An individual or group that can affect, or is affected by, a process or outcome.   |

# A journey

This guide outlines a process to establish and operate a performance measurement system. It frames a sequence that begins with sector engagement and agreement on ownership, followed by a focus on desired sector outcomes, and leading to observation and measurements, with review and feedback over time.



## *Performance measurement framework development process*

While the process presented is linear, in reality it is iterative and continually evolving. Once a regime is working, it will require review and possibly adjustment over time, both to find the most appropriate and reliable measures, and to tweak or replace them as the sector environment or performance circumstances change.

For these reasons, performance measurement should be regarded as an evolving journey of engagement, collaboration, visioning, defining, measuring, reviewing, and repeating.

### **TIP**

Resist the temptation to say ‘let’s just measure this’. The journey of understanding what is important to stakeholders is an essential part of building an enduring performance measurement system.

# Process overview

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## Ownership

A sector measurement system needs a 'home', a budget, and a clear commitment from relevant stakeholders to invest in long-term sector measurement. As such, performance measurement should begin by a deliberate bringing together of stakeholders, to form a representative governance group and a management team responsible for the process over its intended life.

Construction sector stakeholders are many and diverse, including government departments and agencies, industry, and professional bodies. And therefore, a planned engagement will be needed. Engagement is an ongoing and evolving process and must be open to new entities as the sector evolves.

The Construction Sector Accord has recently been formed in New Zealand as '*a shared commitment between government and industry to transform the construction sector*'. It therefore seems an ideal foundation to create a working group for performance measurement, both to set up and oversee the process and to create on-going management and operational structures.

## Purpose

It is essential that sector stakeholders have a shared purpose for performance measurement, or in other words, a clear understanding why they are measuring performance.

A measurement system could be used for one or more of:

- Improving performance or sustainability
- Quality management
- Continuous learning
- Policy evaluation
- Demonstrating regulatory compliance
- Verification of attributes to customers or community
- Monitoring activity or cause and effect analysis
- Valuing benefits of innovation

The agreed purpose drives who should be involved in designing the measurement system, the type of indicators you will collect, and who you gather data from. If the purpose of measurement is to help drive performance improvement in the sector, then behavioural incentives and performance management mechanisms need to be considered. This is best done at sub-sector level and is discussed in the *Lifting sector performance* section below.

### TIP

Performance measurement should be entered into with a shared willingness to learn. This may be a cultural shift for some. For more see the last section of this guide: *Cultivate a learning culture*.

## Outcomes

Once the governance group is brought together it can begin creating expressions of desired outcomes for the sector, which will form the foundations of the performance measurement system.

This can be done by asking questions such as:

*“What is it that matters to us or our customers, reflecting our broader purpose?” (our vision)*

*“What are we trying to achieve toward that vision?” (outcomes)*

The diversity of the sector means identifying the vision and objectives to define outcomes may be challenging. Therefore, it could be useful to frame/align outcomes with an existing process or framework. For example, the Construction Sector Accord Transformational Plan or the NZ Treasury Higher Living Standards Framework.

Selection of outcomes is best done through an inclusive facilitated workshop, with independent leadership.

Note there is no concern with what to measure or how, at this stage.

### WHY HAVE CLEAR AND SHARED OUTCOMES?

Over recent years, the construction industry has made significant improvements in health and safety outcomes. It is widely recognised that these improvements are due to a shared understanding and ownership by all parties to make things safer for all.

### Example

#### Sector performance measurement framework

**Outcome 1**  
Safe and durable  
homes and  
infrastructure

**Outcome 2**  
Productive  
and resilient  
enterprises

**Outcome 3**  
Skilled  
and well  
workforce

## Key Result Areas (KRAs)

Having identified things that matter, a vision and a set of intended outcomes, the next stage toward performance measurement is to identify and select areas of sector activity that are critical to reaching desired outcomes. The common term for these is Key Result Areas (KRAs).

KRAs are fundamentally a narrowing of the scope of one or more outcomes into mutually agreed subject areas. KRAs should be about principles and not detail, for example ‘being on time’ and not ‘finish by Christmas’.

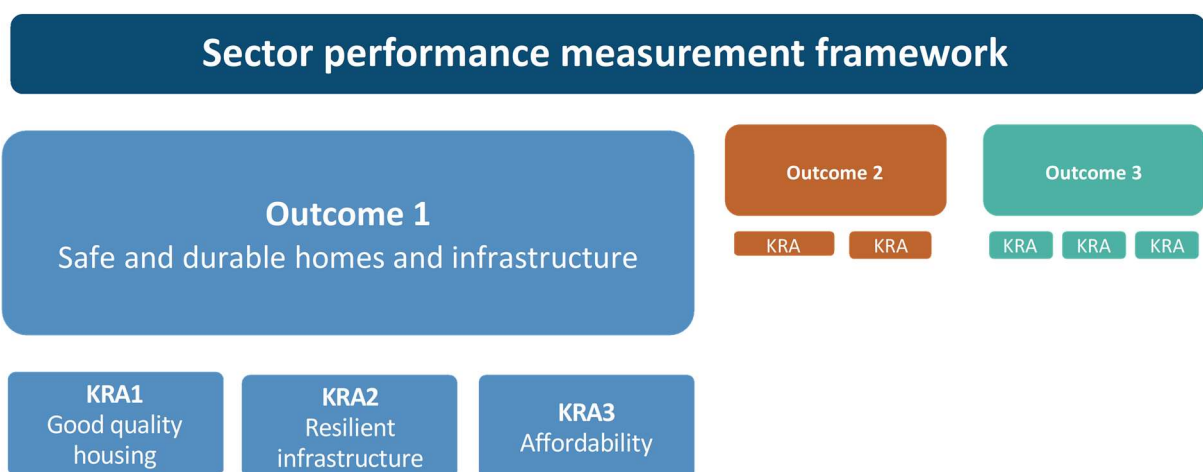
For each outcome, ask the question:

*“What are the key elements that will help us reach this outcome?”*

Note that establishing KRAs, like outcomes, is best done by a managed collaborative process, in a facilitated workshop environment.

It is sensible to limit the number of KRAs for each outcome, to create focus and enable ease of communication. If there are more than two to four KRAs per outcome there is a risk that the complexity will dilute the impact.

### Example



## Key Performance Indicators (KPIs)

The next step in the process is to identify important aspects of performance which contribute toward each KRA. These are commonly known as Key Performance Indicators (KPIs). It is recommended that at least two KPI's be identified for each KRA but no more than four. This is mainly to limit the complexity of the performance assessment, so it is easily communicated and understood by interested parties.

For each KRA, ask the questions:

*“What does success look like?”*

*“How will we know we are performing well?”*

The answers to these questions will indicate the activities or components that could form a KPI. Note that KPIs are not metrics in themselves, but subjects within which one or more metrics will be established to provide data and information on performance. There will generally be several options for metrics within each KPI.

There are no simple rules to choosing KPIs. The process is open to judgement and not proscribed. As with KRAs, this is best carried out in a facilitated workshop with collaborative engagement, with ideas coming from as many interested parties as possible and a managed buy-in and selection process.

It is normal for many potential KPIs to be identified in this process. It should be acknowledged at the outset that ‘there are no perfect KPIs’. All of them will be subject to limitations on the ability to identify a suitable metric (refer next section), achieve precision of measurement, or effectiveness of the results. Final KPI selection will be an iterative process with identification of metrics (refer next section).

### TIP

It can be daunting reducing a long list of indicators down to a manageable number. Remember that measurement systems evolve, and indicators can change over time if they are not working.

## Indicator types

It is useful to have a mix of indicator types within your KPI set. Below are some typical ways to categorize indicator types, which may help with selecting a balanced set of indicators.

### Leading and lagging

- *Leading indicators*: an action or process that predicts a future state (e.g. apprentice builders).
- *Lagging indicators*: something that has happened (e.g. houses built).

### Pressure-State-Response

- *Pressure indicators*: factors that change the state of a system (e.g. demand, technology, economy).
- *State indicators*: the condition of the system (e.g. profitability, quality, reputation).
- *Response indicators*: government or sector interventions (e.g. regulation, trade qualifications).

### Context-Practice-Outcome

- *Context indicators*: external factors that affect the system (e.g. service demand, technology changes, economic climate).
- *Practice indicators*: activities and processes in the system (e.g. training, H&S practices).
- *Outcome indicators*: performance of system (e.g. profitability, quality, reputation, houses built).

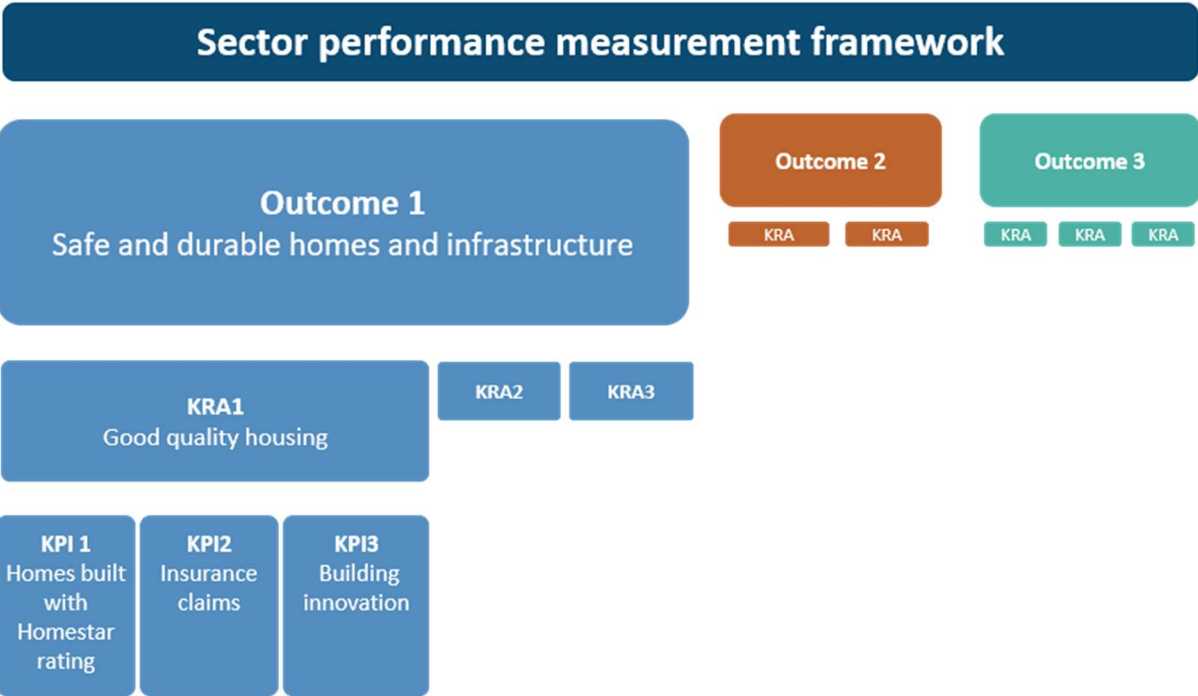
### Input output outcome impact

- *Input indicators*: resources put toward an activity (e.g. amount of investment, man hours).
- *Output indicators*: goods or services produced (e.g. kilometers of road built).
- *Outcome indicators*: result of sector activity (e.g. quality homes).
- *Impact indicators*: societal change as a result of sector activities and outcomes (e.g. healthy population).

## QUALITY INDICATOR CHECKLIST

- Simple*: easy to provide and interpret data
- Transparent*: clear what the indicator(s) does and doesn't measure
- Relevant*: indicator holds meaning for stakeholders (including sector members and customers)
- Balanced*: indicator set represents the spectrum of sector activities, including different market segments, professions, organisations and individuals.
- Positively framed*: where possible indicator is framed as desired behaviour (as opposed to avoided behaviour)
- Persistent*: indicator will provide consistent insight over time
- Predictive*: there is causal relationship between indicators and desired outcome

# Example



## Metrics

Having agreed KPIs, the next step is to identify performance metrics that will inform or illustrate each indicator. As with indicators, there are no perfect metrics. They will commonly involve some degree of inaccuracy, unreliability, inconsistency, and other shortcomings.

However, metrics are the end goal, providing the insight to performance and the enabler of change. 'If you want to know how you are performing, you had better start by measuring'.

Metrics ideally should be simple to create, and easy to collect and interpret. Simple metrics will achieve a much better recognition and greater buy-in from stakeholders, generating more reliable data, than those which are obscure, and heavily demanding of resources and time.

Selection of metrics may depend on

- reliability of data
- accuracy of data
- cost and resources required to collect data
- ability to achieve consistency across time and between those providing data

Metrics may already exist through existing data sources (see *Data* below) or new data may be required to populate the metrics.

There are obvious benefits to using existing data/metrics, including limited set up or establishment being needed and minimal work in data collection. However, there are also potential traps, especially that there may be process inadequacies in collecting or reporting data that are not visible from a distance, giving rise to unreliability or distortions. Careful consideration is required.

As with KPIs themselves, on-going evaluation of metric and data within the review period will show up whether resulting information is as it should be. If it falls short, then new metrics and processes will need to be established. In some instances the KPI may need to be revised if no suitable metric (or data source) is found.

## Data

Reliability of data is a prerequisite of a sound performance measurement process.

Care should be taken to ensure that those involved in administering measures and handling data understand its importance, share a recognition of its value to the wider process and will conform with their obligations. It is important that they have the training and resources they need to generate reliable results.

The effort required to collect and analyze is often under-estimated and needs to be factored into the management process and resourcing, particularly when curating data across multiple organisations and data sources. This is often not properly resourced and measurement system can fail as a result.

## National sources

There are a number of national data sources that could be used to populate the metrics in a construction sector measurement system. These include (but are by no means limited to):

- StatsNZ Longitudinal Business Database
- StatsNZ Indicators Aotearoa
- Other government agencies
- Constructing Excellence New Zealand annual survey
- Private databases such as Pacificon, BDO construction survey, Infometrics
- Special interest groups such as Construction Health and Safety New Zealand

There are a number of other bodies within the sector that regularly collect data. Often this data only represents a portion of the construction sector but is data that might be worth capturing. These include peak body groups, industry certification bodies, government agencies (through evaluation of capital projects).

In some cases, data direct from sector members, and not already collected through national or other statistics, will be vital for the sector-level measurement framework. In this case, data could be mandated or incentivized in other ways. Whether to mandate or incentivize is generally best determined based on the drivers and motivations of different sector groups (refer *Driving sector improvement* below).

## Review and feedback

The generation of data and reporting of results is not an end to the measurement process. The metrics and data need to be studied; results and trends analysed; and data needs to be presented and regularly reported to stakeholders. A successful measurement framework will then help inform subsequent action to support performance improvement.

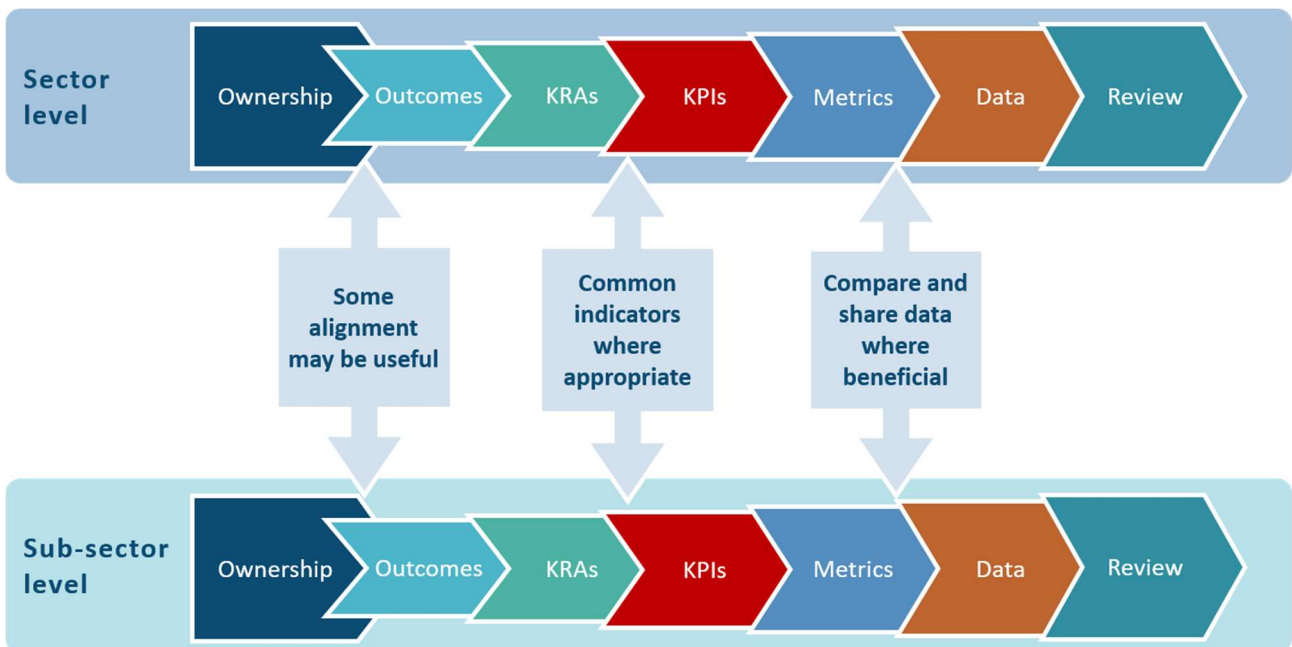
The measurement framework itself should also be reviewed. If the metrics are not supporting the evaluation and management of performance within the sector, they may need to be either amended or revisited. It is normal for metrics to be changed over time to enhance them or make them more relevant; for KPIs to be replaced (requiring new metrics), and; sometimes KRAs can be changed as the sector shifts attitudes about things that matter.

# Lifting sector performance

If the aim of a performance measurement system is in part to inform and help lift performance improvement, then sub-sector groups (such as plumbers, civil contractors, surveyors etc.) need to be empowered to carry out their own performance measurement and management systems.

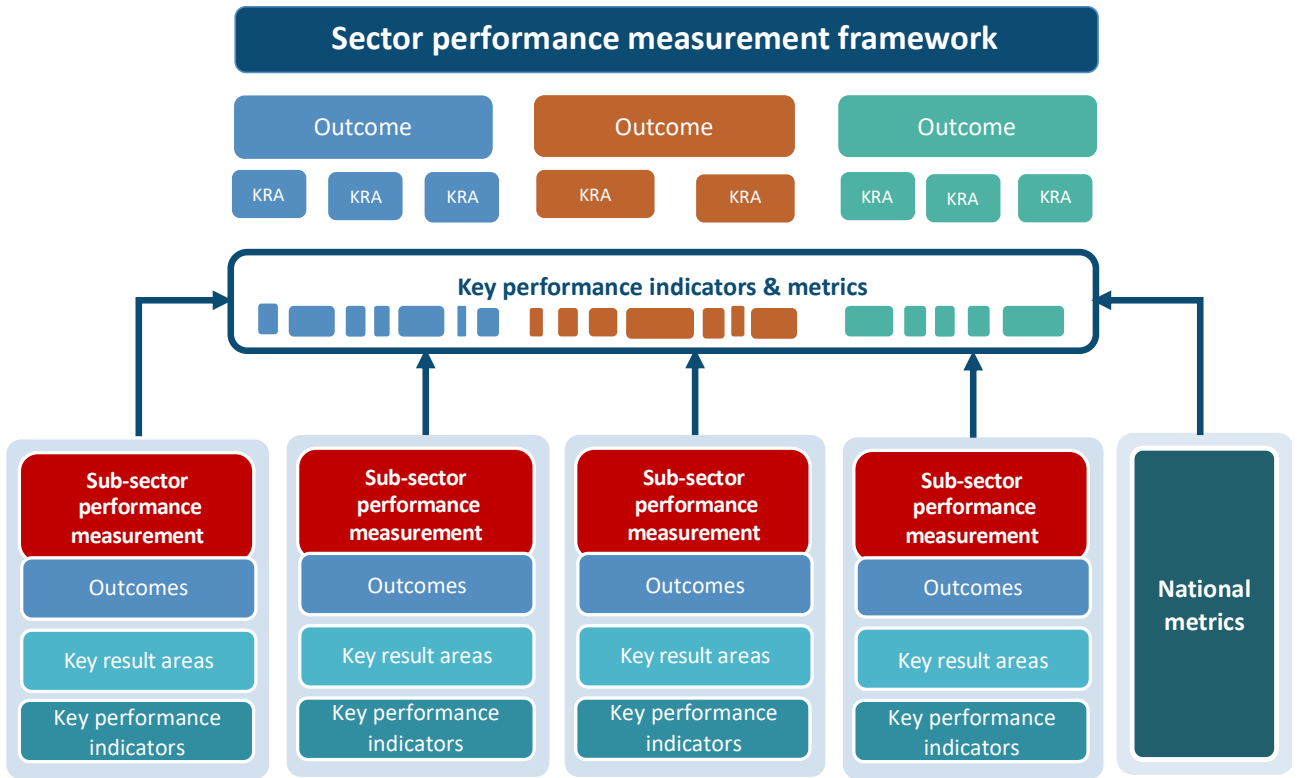
This can be facilitated by developing a measurement framework and principles for sub-sectors to adapt. Sub-sectors then have the freedom to use metrics around what is most pertinent and relevant to them. This encourages more sector-members to engage in the measurement and improvement process.

Sub-sectors could follow a similar process to that set out above, with outcomes, KRAs and KPIs adjusted to suit. But a common framework and language, established at sector level, would allow some alignment and open up the opportunity for sub-sector data to feed into a sector-level picture of performance.



*Sector and sub-sector measurement interaction*

Eventually the aim would be to create a network of sub-sector performance measurement frameworks across the sector, that in part feed into a national dashboard. To achieve this, and encourage sector-wide performance measurement, it is important to understand the drivers within the sector and to cultivate a culture of learning.



Network of sub-sector performance measurement systems

## Understand sector drivers

To create a sustainable and enduring performance measurement system, that nudges sector members toward improved performance and outcomes, it is necessary to understand what motivates sector members. Drivers could include market demands; societal desires; regulatory compliance; and/or business sustainability. If we understand the drivers of the various stakeholder groups within the sector, then we will know how best to advocate for performance measurement: empowerment, incentive, or mandate (refer below).

### Empowerment

Empowerment works where a group is already driven and resourced to succeed. All that may be needed for this group to measure performance, is some guidance and encouragement.

### Incentive

For groups that are not driven to measure their own performance, sector members need to see value in measuring their performance and how measurement can help them achieve their goals. There are a number of ways to incentivise performance measurement amongst sector-members, including contractual arrangements, accreditation, and benchmarking.

#### Contractual arrangements

Integration of performance measurement into procurement processes and contractual arrangements is already practiced by some government agencies (e.g. construction contracts in the transportation and education system). Systemisation of these types of construction contracts evaluation systems across government, using a set of shared measurement principles, would be a valuable data source for a national performance measurement framework and, when linked to financial or other incentives, can help to drive sector improvement.

#### Accreditation

Incentives can come in the form of accreditation programmes – where there is direct market feedback through increased sales or contract awards. An accreditation programme inherently requires users to measure and manage their own performance against an industry standard. An active example of this is the Infrastructure Sustainability Council of Australia.

#### Benchmarking

Benchmarking is a commonly used mechanism that encourages sector members to measure and compare their performance against others in the sector. Benchmarking is most successful where sector members are competitive; that is, where they are intrinsically motivated to do better than their peers. In this instance benchmarking can be an effective feedback mechanism to drive change and improvement.

Benchmarking must be conducted with care. There are a number of factors that can influence its outcomes including: firm size, geographic location, and economic context that should be considered in any comparative performance measurement. Ill-considered benchmarking, in a low trust environment, can have detrimental effects on performance and performance measurement.

## Avoiding perverse outcomes

Where measurement systems provide a direct incentive to performance, for example a financial reward, or reputational advantage, careful design of indicators is required to avoid perverse outcomes. Practice based indicators for example, that reward a particular way of doing something, can stifle innovation. The system needs to be designed so that users are not be penalised for using or developing practices that are more beneficial in achieving desired outcomes than those being measured.

Similarly, it may be necessary to have an audit system or similar in place to ensure transparency, fairness and honesty in reporting.

## Mandate

Regulatory compliance will be needed in some cases where data (and performance improvement) is vital to the sector overall but may not be in the interests of those providing data. Even where data may directly benefit the individual or business providing data, it may not be sufficiently high on their priority list to provide the data.

Regulatory compliance, however, tends to result in compliance behaviours rather than continuous improvement. That is, entities aspire to achieve the minimum standard and nothing more.

## Cultivate a learning culture

To achieve sustainable performance improvements, a sector-wide performance measurement system needs to be supported by a sector-wide culture of critical evaluation and learning.

A strong learning culture will raise stakeholder and participant understanding that performance measurement is a good thing, that will lead to improvements for all. It will also enable more effective communications between all stakeholders and will help to connect the sector toward a common goal.

The development and 'normalisation' of a measurement framework itself, with a shared set of outcomes, helps to create a common language that promotes positive conversations around performance. This creates a foundation for learning and demonstrates a collective intention to evaluate and improve performance. Regular reporting reinforces the shared desire to progress.

Feedback between data and performance is also an important component in cultivating a learning culture. The various incentive mechanisms described above, are all built around providing feedback and signals to sector-members on their actions. The more rapid the feedback on performance, the more likely behaviour change is. Where possible measurement systems should be designed to give feedback to users as quickly as possible; and in a format that informs practice.

To truly enable a learning culture, trust needs to be developed. In particular, trust is critical for open sharing of data. Depending on the group, trust may need to be built between organisations, within a sub-sector, or between sector members and government. Trust can be built through ongoing engagement and dialogue. Engagement needs to be given adequate time and resourcing in the measurement system development process.