CS473435

Behind the Numbers: How can we improve Construction KPIs

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Learning Objectives

- Understand why performance measurement is important and why we instinctively compare ourselves to our
- Understand the difference between lagging and leading indicators and the importance of focusing on taking action
- Learn how to document the leading indicators and data points you can take action upon through the use of an influence map.

Description

Much is made of the construction industry and how poor productivity is holding it back. This industry talk focuses on understanding how performance measurement should move from focusing on industry scale metrics to the action that project teams can take to better benchmark and understand performance. The talk will cover what to measure and how to build out a model to ensure that your efforts at the project level are driving results.

This talk is aimed at construction project teams, those individuals within construction companies that are responsible for functions such as safety, quality or cost, or those that are tasked with defining a digital strategy and need to justify the investment.

Speaker(s)

Matt Keen is a Senior Industry Strategist at Autodesk focussing on Construction. His primary remit is to identify and provide insight into the key construction markets for Autodesk and ensure that the market requirements are translated into actionable plans for the wider team. Matt works across the business to ensure that Autodesk's portfolio of construction products and solutions enable customers to achieve their desired business outcomes. He is a passionate advocate of construction technology and cloud transformation and has previously worked with many of the UK and Europe's largest contractors in defining their digital transformation strategies.

Before Autodesk, Matt worked for the UK contractor Willmott Dixon and is a Member of the Chartered Institute of Building. Outside of work, Matt is involved in a large home renovation and he tries to stay fit enough (running, cycling, etc.) to keep up with his two young daughters.

Introduction

This industry talk covers the following topics:

- Why performance management is important
- What to focus on to influence Key Performance Indicators
- How to capture data (through the use of digital technology) to learn and demonstrate performance improvement

At the end of this session attendees will be able to build a practical model to map the connection between KPIs and desired outcomes to the actions and data points needed baseline current performance and ultimately deliver value over time.

Why performance measurement is important

In all aspects of life, our actions are measured to define success. This includes our personal endevours, such as sport or education and in society at large including business, professional sport and government.

Data is gathered to determine performance and this allows us to compare ourselves to our peers, our competition and other countries in terms of how we are performing.

The construction industry has a reputation for poor productivity and performance, but focusing on macro level statistics, glosses over the efforts of project teams that deal with many competiting factors to deliver complex projects.

Lagging and Leading Indicators

For those of you tasked with affecting change through the implementation of digital technology, it's important to understand that to build the business case and demonstrate value to leadership, you must gather the data to justify the investment.

That data falls into two distinct categories:

- **Lagging Indicators** – reporting metrics that only become apparent after the activity has taken place or been completed. These metrics look back to see if an intended goal was achieved.
- **Leading Indicators** – behavioural metrics that define how activities happen and allow you to course correct in a timely manner. These metrics look forward to future outcomes and events.

To improve KPIs (lagging indicators) you must address how activities are carried out and monitor the behavioural metrics (leading indicators) that indicate what is being done and allow for learning to take place and make amendments.

In the class, I covered the story of the England Rugby team and how they have looked to a simple leading indicator (getting up off the floor following a tackle and back into the game) to improve their defence. You can find a link to the LinkedIn post I referenced here:
Why England's Rugby Team Don't Care About the Score - And What This Teaches Us

Changing your focus to the metrics you can influence, can have profound effects when it comes to measuring the successful implementation of digital technology on construction projects.

Defining your desired outcomes

When embarking on any technology implementation, it's important to define what you are trying to achieve. As a result of working with many leading customers, Autodesk has created a framework that articulates specific outcomes for key industries. Following extensive customer valiudation, we are scaling this approach across our business.

One of these industries is construction where we've aligned those identified outcomes to 5 key value drivers; winning business, cost, schedule, quality and Health, Safety & Environment (HS&E). This framework can be seen below:

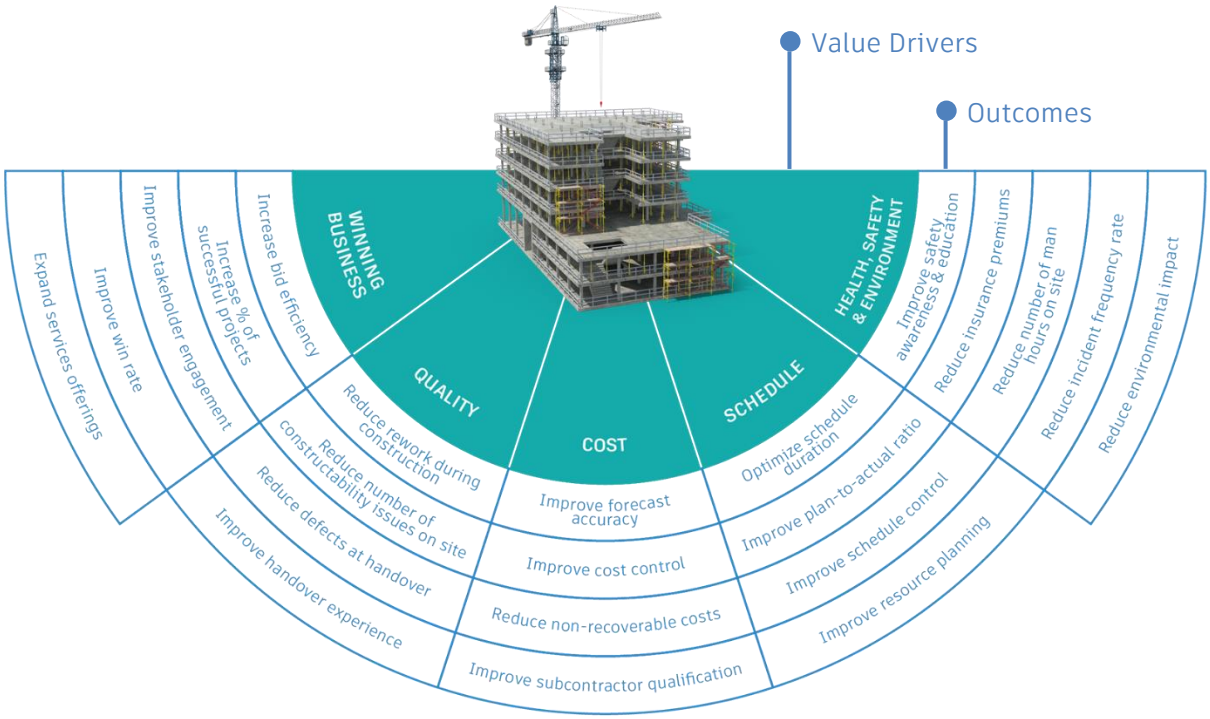

Fig.1 - Construction Outcomes Framework

Moving Upstream - Influence Mapping

Once you have identified the outcomes that you are trying to realise through digital, you now need to determine two things:

- What business benefit does it offer – this is usally termed as what is the return on investment (ROI)
- How do we know that it's going to deliver the expected results – this is usally termed as the success factors or measures

As part of the presentation, we shared a model that helps those that are tasked with answering those questions, build out a solution and determine what success is and how they measure it.

At Autodesk, we have used this model to determine the success of pilots, initial scaling efforts and widespread technology adoption across some of our largest construction customers.

It is called an influence map and is shown below:

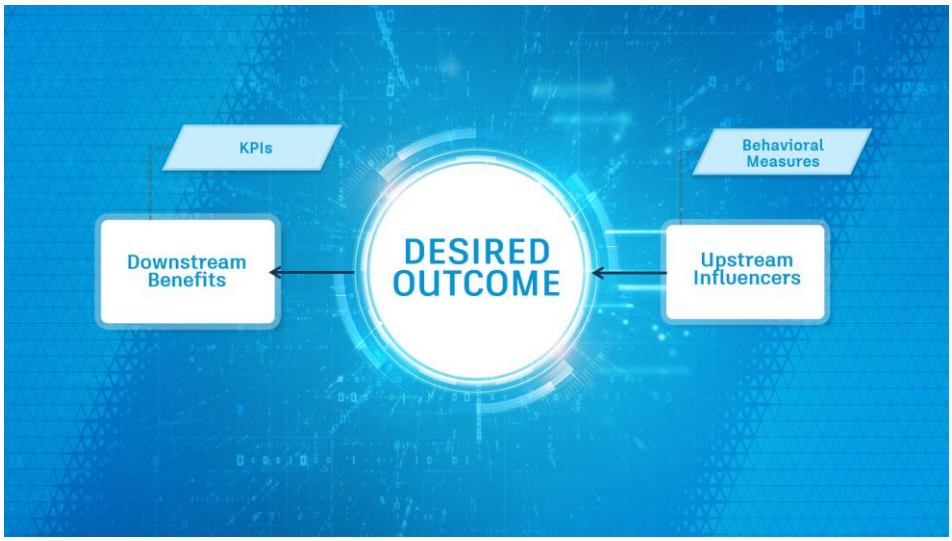

Fig.2 - Influence Map

This is how the model works:

Identify Outcomes, Benefits and KPIs

- You document your desired outcome in the centre of the model.
- To the left of the outcome you document the potential downstream benefits of achieving that outcome. You can map more than one, and we'd encourage you to look at how each downstream benefit links to one another.
- For each downstream benefit, identify the KPI (lagging indicator) that indicates that the outcome has been achieved. Through linking the downstream benefits together you can either identify dependencies between benefits or identify where specific benefits can directly/indirectly benefit other areas of the business.

Identify Upstream Influencers and Behavioural Metrics

- To the right of the outcome you document all of the potential upstream influencers. These are the things that help realise the outcome. You should look to connect these together too to identify dependancies.
- Lastly, identify all of the behavioural metrics (leading indicators) that can be used to understand whether those activities are being run effectively and in accordance with set standards. If no standard exists, this is your opportunity to set a baseline and us that baseline to drive performance improvement.

A working example – Reducing defects at handover/closeout

You were then walked through a working example of how to complete an influence map. Below are the outputs from the exercise split over two slides:

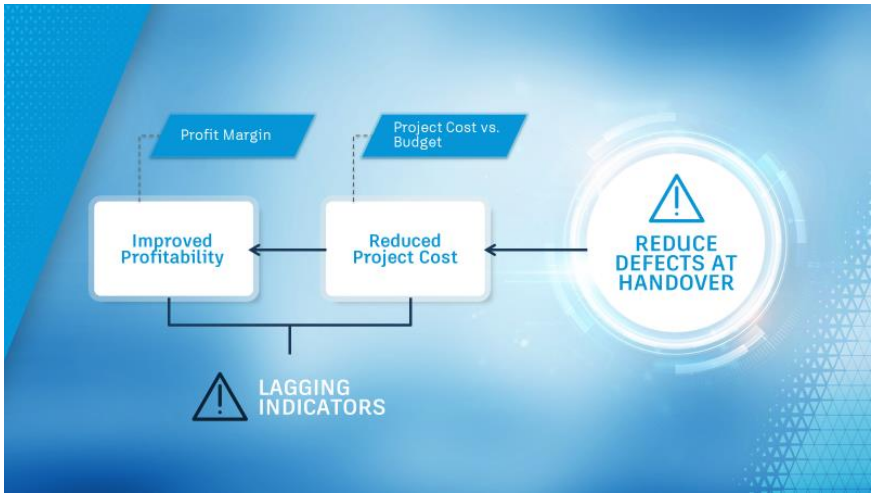

Fig.3 - Downstream Benefits and KPIs (Lagging Indicators)

Fig.4 - Upstream Influencers and Behavioural Metrics (Leading Indicators)

This example is a simple demonstration of how to build an influence map. If you would like to see a fully built out influence map for reducing defects, please request a copy directly in the Q&A section on the AU University Class landing page and I'd be happy to send it on.

Conclusion

Digital technology offers the potential to truly understrand how we execute construction projects through the collection and interrogation of project data. Key Performance Indicators are important, but they only tell part of the story. As such, we need to move upstream and focus on the leading indicators that are behavioural metrics. Capturing and monitoring these metrics help us define whether a solution is being adopted and that it's being used effectively to drive towards the outcome.

This session provided context into the importance of defining performance and measuring the right metrics and concluded with a structured walkthrough of a model that helps map out benefits, measures and activities that can be used to develop the business case for digital implementation.