

White Paper

Choosing your Architecture KPIs

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Peter has worked with modeling standards and techniques throughout his 20 years in IT, in a career that has covered software development, solutions architecture and international consulting.

Peter's particular areas of interest are opportunities arising from interdisciplinary touchpoints, how to balance practicality and rigor when modeling, and the importance of viewpoints in addressing different stakeholder perspectives.

When an organization invests in setting up a formal architecture practice, the organization leadership naturally wants some way to be able to monitor the success or failure of the initiative. So one aspect of setting up such a practice is establishing ways to monitor this, and the most common way organizations achieve such a goal is the establishment of Key Performance Indicators (KPIs) for the architecture practice.

Having been asked for suggestions more times than I can count, and having seen it done badly in some places and well in others, in this paper I'm going to present a framework for establishing KPIs based on existing best practices, and give an example of how to use this framework to derive key performance indicators for your architecture practice.

Initial Principles

The first thing to note is that key performance indicators need to be usable and part of how to accomplish this is to have a reasonable number of them. A rule of thumb is to look for around five to ten key performance indicators maximum. While it might seem that selecting 2 dozen KPIs to monitor results in greater effort and greater control, in practice this means that it is unclear precisely which measures are critical and which are not – effectively, the organization has not really identified what is key and what is not.

Second, while it should be obvious, it is important to remember to be wary of how a key performance indicator is monitored and used. To adapt a famous quote from Sir Francis Bacon, key performance indicators make good servants but poor masters. Business literature has

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plenty of examples of how, when an organization focuses on the key performance indicator instead of using it as one of several information sources, behavior changes and rarely for the better. In his book Amazonia, James Marcus describes how Amazon customer services reps were measured on how many calls they answered, so would simply hang up if a call was taking too long. The implication that we need to draw from this is that when choosing your key performance indicators, it is worth remembering that they are there as an information point, not as the goal of the initiative.

Identify the Critical Success Factors

I agree with David Parmenter (see references) when he says that in order to derive KPIs, you first need to define what performance is; in other words, what are the critical success factors for the organization? So first we need to consider our critical success factors.

A critical success factor is something the organization needs to be doing. A classic reference on critical success factors is “A Primer on Critical Success Factors” by Christine Bullen and John Rockart. In their paper, they identify three different dimensions of critical success factors:

- **Internal vs External:** whether the critical success factor relates to an area wholly under the organization’s control or not, For example, interaction with customers would be an external critical success factor.
- **Monitoring vs Building:** whether the critical success factor relates to improving existing operations versus implementing some form of change
- **Source:** where the critical success factor comes from. Bullen and Rockart identify 5 sources – the industry itself, the strategy of the organization, environmental factors, critical success factors that are derived from a specific role, and short-term critical success factors that exist temporarily to respond to an unusual event.

Establishing your CSFs and defining a motivation model

So, given that the critical success factors derive from the goals of the organization, we need to start by identifying what those goals are in respect of the architecture practice. A useful way to accomplish this is to establish a formal motivation model, linking drivers to goals and hence to requirements. A sample motivation model is below.

There are two useful sources that can help in creating the motivation model for the modeling initiative. First of all, in defining the business drivers for the initiative, I have found COBIT 5 to be a useful source. COBIT 5 defines 17 ‘enterprise goals’ in all, classified according to the

traditional balanced scorecard division of Financial, Customer, Internal, Learning and Growth, and then maps them to 17 IT-related goals, which are also classified according to the balanced scorecard divisions. These provide a set of IT goals that the initiative might be intended to address.

The second resource is a paper entitled “The Contribution of Enterprise Architecture to the Achievement of Organizational Goals: Establishing the Enterprise Architecture Benefits Framework”. In this paper, the authors apply an automated linguistic analysis to articles in the Enterprise Architecture space and define a set of possible benefits from engaging in Enterprise Architecture modeling.

Both sources are freely available on the internet, and by combining them it should be possible to derive a motivation model similar to the one shown.

Examining the motivation model given below, we’re going to identify the following three items as our critical success factors in the remaining discussion.

Critical Success Factor	Type
Map regulations to process, applications and data	External, Building, Environmental
Map operating processes and provide access via online portal	Internal, Building, Strategy
Single source of truth	Internal, Monitoring, Role

At this point it's worth noting something important about the first two critical success factors – both are ‘building’ type critical success factors. As described before in Bullen and Rockart’s classification, critical success factors that measure ‘building’ refer to the implementation of change (in this case, investigating and recording the relevant mappings). This implies that at some point, when the mapping has been mostly or completely established, the activity of doing so will move into maintenance mode and it will no longer be as critical.

Once this happy state of affairs is achieved, other critical success factors will need to be established by referring back to the motivation model. It may also be necessary to revise the motivation model at the same time, depending on changes in organization priorities and the operating environment.

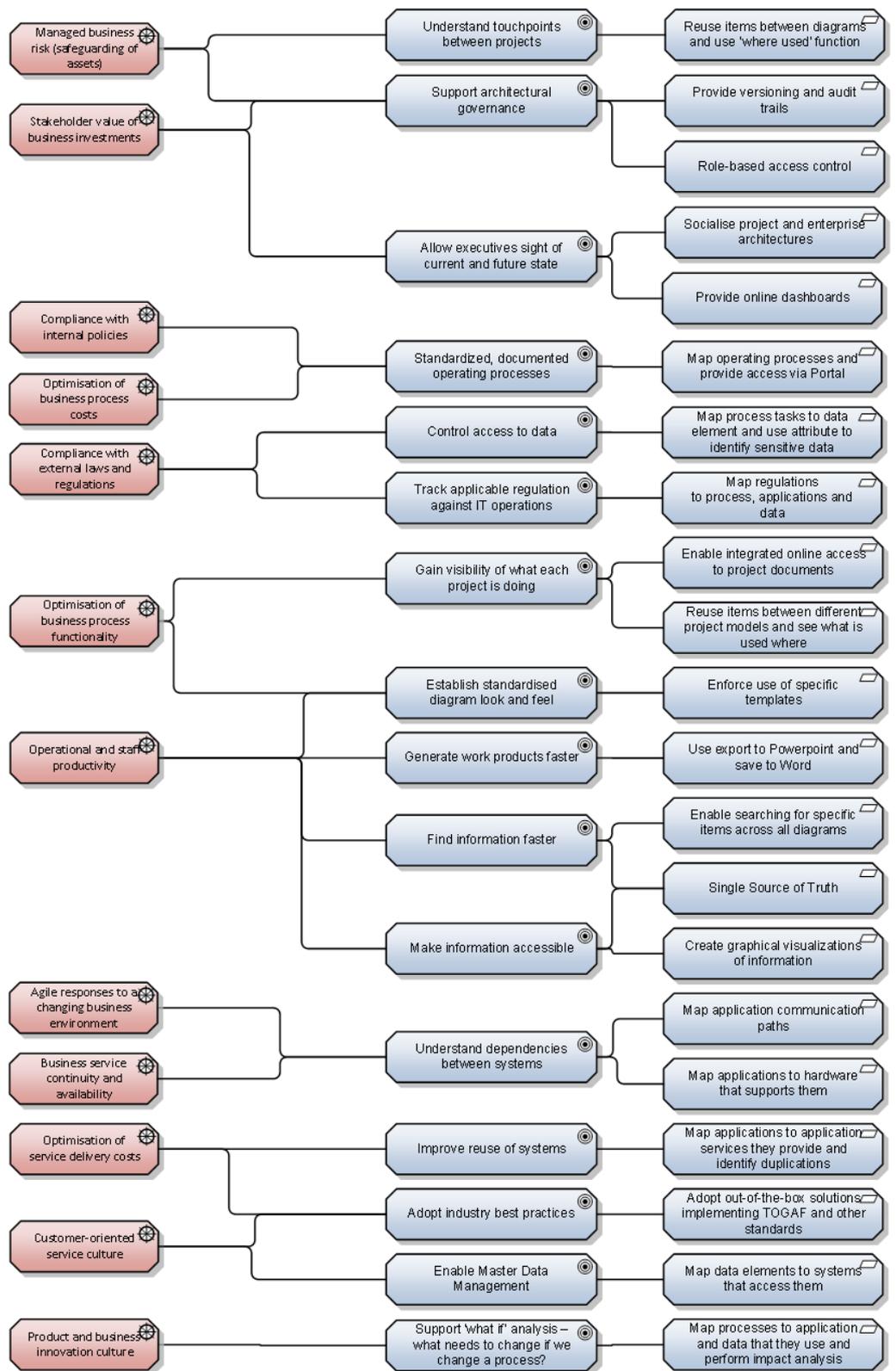


Figure 1 – a sample motivation model for an architecture model

Sidebar - The Problem of Measurement

Now, for some of the critical success factors that you establish, it can seem impossible to measure whether the desired activity is taking place. For example, in the motivation model shown previously, it's fairly obvious how to measure items such as 'Map applications to hardware that supports them', but how do you measure something such as 'Single Source of Truth'?

Here I'm going to reference Douglas Hubbard's excellent book "How to Measure Anything". Hubbard identifies that measurement is fundamentally about obtaining more information. He provides an interesting discussion on how extra information has value but involves costs to collect – so an important consideration when setting up measurement systems is to compare what the potential benefits are from collecting information, versus the additional costs of collecting that information.

A core insight that Hubbard notes in his book is that while a given condition (such as 'single source of truth') may not be directly measurable, it is possible to measure knock-on effects of that condition. For example, customer satisfaction may not be easily measurable (satisfaction surveys having the usual skewing effects, as they depend on customers completing them), but it can also be measured by things such as renewal of contracts, number of recommendations, and so on. This is sometimes referred to in other sources as measuring by proxies.

This gives us a technique that we can apply to measure more nebulous goals such as 'single source of truth'. In order to identify the proxies to use, ask the question: why do we even care about this? How is this going to improve things? Or to put it another way, what changes in the existing situation are you hoping to see as a result of accomplishing this?

So, a single source of truth might be desirable because:

- There have been numerous times projects have had to be reworked because there was no clear picture of the overall situation
- Architects report having to hunt around for information on the more obscure projects

Hence, the desired outcome is reducing both these numbers. The first can be measured through a combination of the architecture review process and self-reporting. The second will rely on self-reporting by the architects.

In both cases, it does require that people take the time to record this information, but it should be possible to create a low-overhead means to collect this information. As described above, any performance measure has a cost associated with it, even if the cost is trivial – it's a question of the value of this measure versus the cost imposed.

Deriving the KPIs

At this point, we've established our motivation model and have used it to identify our critical success factors.

Having established a motivation model above, we are in a position to establish some ways to measure the critical success factors and hence establish key performance indicators.

The first two critical success factors (“Map regulations to process, applications and data”, “Map operating processes and provide access via online portal”) are easy to establish KPIs for since they are explicitly demanding something that is measurable. We end up with a total of 5 key performance indicators since these critical success factors actually refer to multiple achievements.

The last critical success factor (“Single source of truth”) would seem harder to establish key performance indicators for as it is not directly observable: however, as we saw in the previous section, you can establish proxies to measure something like this by asking why you even care whether it happens – in other words, what do you hope to see change as a result?

With this in mind, we end up with the following 7 KPIs.

Key Performance Indicator	Critical Success Factor
Number of processes mapped to all appropriate regulations	Map regulations to process, applications and data
Number of applications mapped to all appropriate regulations	Map regulations to process, applications and data
Number of data entities mapped to all appropriate regulations	Map regulations to process, applications and data
Percent of operating processes mapped out	Map operating processes and provide access via online portal
Percent of operating processes published in online portal	Map operating processes and provide access via online portal
Number of projects requiring rework	Single source of truth
Number of times architects cannot find information that they need	Single source of truth

There a few remarks to make about these key performance indicators. As noted earlier, the first two critical success factors are ‘building’ type CSFs, meaning that they relate to the implementation of a change, and a time will hopefully come when the activity has effectively transitioned into maintenance mode and is no longer seen as a critical success factor. This in turn implies that there will be a need to select new key performance indicators to match the new activity.

Conclusion

Key Performance Indicators can be a valuable way to monitor the success of an architecture initiative, but it is important to establish useful KPIs. To accomplish this, you can adopt a 4 step process:

1. Define a motivation model for the initiative to explicitly state why you are undertaking the initiative
2. Identify what specific activities and accomplishments are critical to the success of the initiative
3. Use the motivation model to identify what observed outcomes you hope to achieve as a result
4. From this, define your key performance indicators

Too often I've seen KPIs chosen purely for the sake of having them (perhaps, to satisfy a management demand). The problem with this is that the indicators may not be feasible, they may not be useful and worst of all, they may not actually be measuring the things that are important to the business. Given that the whole goal of enterprise architecture is to align IT operations with business needs, failing to align your architectural key performance indicators with business goals is a strange way to start.

References

“A primer on Critical Success Factors” - Christine Bullen and John Rockart

“Developing, Implementing and Using Winning KPIs” - David Parmenter

“The Contribution of Enterprise Architecture to the Achievement of Organizational Goals: Establishing the Enterprise Architecture Benefits Framework” - Vasilis Boucharas, Marlies van Steenberghe, Slinger Jansen, Sjaak Brinkkemper

COBIT 5, figure 22 - ISACA

“How to measure anything” – Douglas W. Hubbard

“Building an Enterprise Architecture value proposition using TOGAF® 9.1. and ArchiMate 2.0” – Serge Thorn



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