# IT4IT™

## An analysis of the IT4IT KPIs
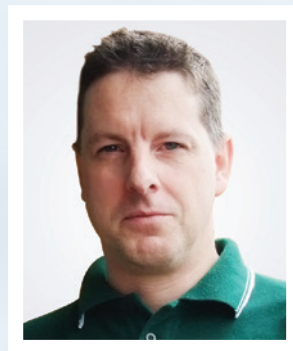
*Peter Harrad*

# Introduction

The latest standard to come out of the Open Group is the IT4IT™ standard – a value chain based reference model for the management of IT. There's a lot of good material in this standard, but one aspect particularly caught my eye – the standard proposes a range of key performance indicators for each of the four value streams that it identifies. This is a very sensible addition, as KPIs are an excellent way to shed light on operations – and traditional business complaints about IT being unaccountable are rooted partly in their inability to understand IT and how it is performing beyond a sense of satisfaction (or more usually, the opposite).

So the introduction of KPIs in IT4IT is an excellent step and most of the KPIs are spot on. However, as someone who's been tasked with suggesting KPIs at various organizations I notice issues with some of them. There's also value in discussing the KPIs that are perfect, in the intent of assisting those who might need to adapt the KPIs to their own organization. In this paper I'm going make observations on each of the IT4IT KPIs.

Having said this, I will sound a cautionary note before carrying on – which is that the purpose of key performance indicators is to provide insight. Which is to say that like money, KPIs make good servants but bad masters. A classic pitfall with KPIs is to mindlessly set targets for them as the sole measure of evaluating overall performance - the effect being that people invariably find local maxima for these KPIs to the detriment of the overall business. A well-known example is the case when Amazon customer service reps were measured solely on the number of calls that they answered – meaning that they would simply hang up on calls that were taking too long to resolve.

# Choosing Key Performance Indicators

When we're defining key performance indicators, we need to start by defining what performance actually is. A standard method is define Critical Success Factors – the things that the organization needs to be doing. One good reference is the paper "A Primer on Critical Success Factors" by Christine Bullen and John Rockart. They identify three aspects of critical success factors.

- *Internal v 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 versus 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.

The IT strategic plan will be a primary source here – however, it may be useful to drill down from higher level objectives into lower-level operational goals. The COBIT 5 standard will be an excellent resource in this respect – it defines a 'goals cascade' where business drivers drill down to business goals and then to IT goals.

The next step in identifying key success factors is defining how these CSFs can be measured. Now for some CSFs it may seem impossible to measure them at first glance. How can we measure something like 'improved agility?' In any case where this becomes a problem, the important question to pose is "Why do we even care?" In other words, why do you want increased agility? What is it that you hope will change as a result of this? The desired results provide the proxies that you can use to measure the underlying (but not directly observable) quality.
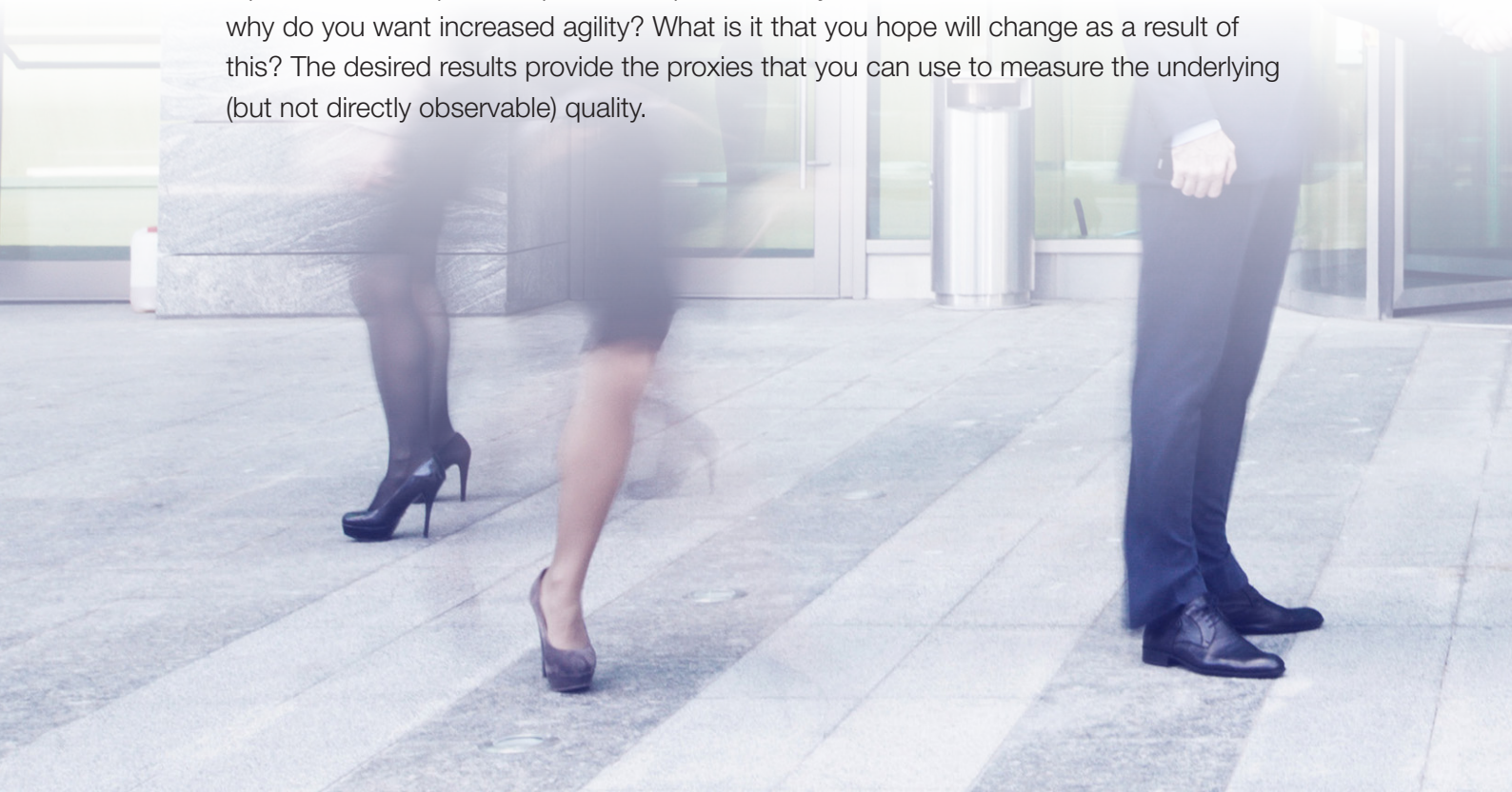
In defining KPIs some sources suggest to apply the SMART approach to defining KPIs. While different sources use different definitions for the letters, I'll quote from Wikipedia;

- *Specific* – target a specific area for improvement.

- *Measurable/Ordinal* – quantify or at least suggest an indicator of progress. The opposite is a qualitative KPI, that merely requires that something exist… the issue being that such a KPI cannot show any change

- *Assignable* – specify who will do it.

- *Realistic* – state what results can realistically be achieved, given available resources.

- *Time-related* – specify when the result(s) can be achieved.

As with the use of KPIs themselves, the one caveat here has to be that these five aspects of a KPI should guide the definition of a KPI – they should never be applied if they harm the intent of the KPI, which is to gain insight into how a particular success factor is changing. From past experience, I also have one other concern to add – the cost of collecting the information for a KPI should be small – otherwise the cost incurred by the measurement outweighs the benefit of having it.

With these observations made, we're ready to look at the KPIs that IT4IT offers.

# Strategy to Portfolio (S2P) Value Stream

## Business and IT Alignment

### KPI

Ratio of new versus maintenance services.

### Analysis

Our first KPI in the set presents some issues. First, the definition of what a new and what a maintenance service is, is unclear – at what point does a new service become a maintenance service? Immediately on implementation? After three months?

## Accurate Visibility into Overall Demands from Business

### KPI

Demand requests, types, and delivery per service % of overall IT budget that can be traced to formalized demand requests.

Structured and rationalized Demand Management with ongoing efforts to minimize the number of demand queues that staff must respond to.

### Analysis

An excellent KPI -  it shows an unambiguous quantitative measure

The second sentence listed for this CSF is really a separate KPI. This KPI is a little ambiguous but it's purely qualitative. However, the definition does suggest an improvement in the description – monitoring the number of demand queues would provide a quantitative KPI

## Service Portfolio Rationalization

**KPI**

A formal Service Portfolio functional component process exists under the ownership of the Service Portfolio Management process owner.

Taxonomies for understanding functional and technical redundancy and business value of the IT service are implemented.

Processes for consistently evaluating and tagging portfolio entries are implemented.

Service portfolio is subject to ongoing rationalization using the taxonomies, implemented as continuous improvement.

Service and IT Portfolio Management are themselves rationalized with clear scoping and relationship established.

**Analysis**

This actually presents five different KPIs, all of which are qualitative, 'on/off' KPIs. Unfortunately, all refer to the implementation of models so that in this case, there seems no other option.

## Service Portfolio Financial Analysis

**KPI**

Accounting records are produced on a regular basis to show the ongoing "investment & spend" in each service/application. These are compared with business outcomes and financial objectives that have been achieved.

**Analysis**

This is another qualitative KPI in that it's a checkbox – either it happens, or it does not. Although two operations are described, it's still just one KPI as producing the accounting records without using them is pointless.

## Service Portfolio Reporting and Analysis

**KPI**

A service portfolio exists and is used as the basis for deciding which services to offer.

**Analysis**

This presents another qualitative KPI that, alas deals with existence of process, making it hard to provide a quantitative KPI.

## Service Investment Tracking

| KPI | Analysis |
|-----|----------|
| The investment in each service is quantified in the service portfolio. | This is a qualitative KPI, but in truth it deserves to be a quantitative KPI – the percentage of services for which investment is quantified. The reason why I make this distinction is that some services are probably easier to quantify than others – so a single 'on/off' measure makes it tempting to accept wild estimates |
| **KPI** | **Analysis** |
| Investment in each service is reported, starting with the initial investment, and followed by monthly, quarterly, or annual reporting of the ongoing budget spend (total cost of ownership). | A qualitative KPI, although it could be made into a quantitative KPI after the first period. The actual spend could be tracked against planned spend, or (more usefully) historical spend into order to give insight into either seasonal cost of service provision or yearly trends in cost bases. |

## Improve Customer Satisfaction

| KPI | Analysis |
|-----|----------|
| Satisfied customers per service/ application. | The description of this KPI seems to imply that there is a customer satisfaction survey that is sent out for each service… which offers up two considerations. |

## Stewardship of IT Investment

| KPI | Analysis |
| --- | --- |
| Software license percentage in use. | At first glance, a nice quantitative and unambiguous KPI. However, it requires two areas of implementation. First, accurate tracking of licenses needs to be in place. Second, it does ignore enterprise licenses. A possible KPI for these would be to track users per enterprise license |

| KPI | Analysis |
| --- | --- |
| Planned versus actual service costs. | Here the KPI is unambiguous and quantitative. However, it does require an estimation of service costs. So until data exists actual implemented service costs, tracking this KPI should be hedged with high leeway on disparity of estimation. |

| KPI | Analysis |
| --- | --- |
| Average cost of IT delivery (per service/application) per customer. | Again, a quantitative KPI that faces issues with accurate information collection. There will need to be a means to match not only services to customers, but the cost per service per customer. Careful consideration of how this could be achieved is necessary before implementing this KPI. |

## Enterprise Security Alignment

| KPI | Analysis |
| --- | --- |
| Frequency of security assessments against latest standards and guidelines. | This is a nice unambiguous KPI that also meets an important test – low cost of collection. |

| KPI | Analysis |
| --- | --- |
| Noted deficiencies against security standards and policies. | Again, a good quantitative KPI; however it might be interesting to break it out by minor and deficiencies similar to common practice in audits. |

# Requirement to Deploy (R2D) Value Stream

## Improve Quality

| KPI | Analysis |
| --- | --- |
| Number of escaped defects | As with the previous value stream, the first KPI seems good in intent but is harmed by ambiguity. From the context I would assume that 'escaped defects' means 'defects present in the first release to customers'. Escaped here would mean 'that didn't get released – it escaped'.<br><br>This KPI would normally be broken out by service and but there may also be value in breaking it out by service grouping |

| KPI | Analysis |
| --- | --- |
| % of actual versus planned executed tests | Tracking actual versus planned tests can be useful, but the one worry with this measure is that it probably should be seen as a success measure. If a test shows that an entire set of subsequent tests cannot be executed, there should be no penalty for simply cancelling them. |

| KPI | Analysis |
| --- | --- |
| % of critical defects found early in unit testing versus UAT | Unfortunately, this KPI has an Achilles heel – what is 'early'? From the reading and the context, I suspect that the intent is simply to compare defects in unit testing versus UAT. It does, however, ignore other stages of testing such as integration testing. Given that bug tracking software is so widespread, % of defects found at each stage of testing would be a useful measure. |

# Improve Project and Feature Execution

| KPI | Analysis |
| --- | --- |
| % of projects (project tasks, stories, other demand requests) on time | A fairly standard, even traditional project measure. |

| KPI | Analysis |
| --- | --- |
| % of healthy projects (projects without unresolved urgent issues) | As with several other KPIs that IT4IT proposes, this is a reasonable KPI assuming that definitions are in place. Specifically, definitions of 'unresolved' and 'urgent'. |

| KPI | Analysis |
| --- | --- |
| Deviation of planned to actual work hours | A fairly standard, even traditional project measure |

| KPI | Analysis |
| --- | --- |
| Number of identified issues | Again, a standard KPI, but it would normally be broken out by some measure of importance |

| KPI | Analysis |
| --- | --- |
| Number of opened risks | Again, a standard KPI, but it would normally be broken out by some measure of importance a Again, a standard KPI, but it would normally be broken out by some measure of importance and potential impact nd potential impact |

| KPI | Analysis |
| --- | --- |
| Amount of backlog/work-in-process | A fairly standard, even traditional project measure |

| KPI | Analysis |
| --- | --- |
| Arrival and departure rate for work | This KPI suffers from a slightly unclear definition in that 'work' is not defined. It could be taken as the number of requests, but perhaps a better measure would be the number of function points aggregated over user stories for each request. |

## Improve Stewardship of IT Investment

| KPI | Analysis |
| --- | --- |
| % of actual versus planned project cost | A good, unambiguous project measure that faces one issue – the fear of being wrong. I've stated earlier that KPIs can only be one way of gaining insight and this is particularly true of this KPI. Until enough historical data is in place, inaccurate estimates should not be seen as a failure. |

| KPI | Analysis |
| --- | --- |
| % of change in project cost | A fairly standard KPI – this one is probably best used to look for trends between and amongst projects. |

| KPI | Analysis |
| --- | --- |
| % of budget at risk | The one issue with this KPI is defining the percentage of budget at risk. We could define it as a sum of the weighted risk amounts for the overall IT risk register; however, the question with this KPI is 'what would this information be used for'? |

## Increase Automation Adoption

| KPI | Analysis |
| --- | --- |
| % of automated tests | A pretty good KPI in that it is unambiguous; however, it runs the risk of been seen as a target; as stated previously, setting targets for KPIs needs to be taken with caution. For example, setting a target for % of automated tests disincentives manual testing. A complementary measure would be number of automated tests. Both KPIs would normally be broken out by project. |

## Achieve Development Process Excellence

| KPI | Analysis |
|---|---|
| % of requirements tested, authorized, completed | A reasonably standard requirements KPI with no issues. |

| KPI | Analysis |
|---|---|
| % of requirements traced to tests | A reasonably standard requirements KPI with no issues. |

| KPI | Analysis |
|---|---|
| % of reviewed requirements | A reasonably standard requirements KPI with no issues. |

| KPI | Analysis |
|---|---|
| % of successful builds | A reasonably standard requirements KPI with no issues. |

| KPI | Analysis |
|---|---|
| % of changes resulting in Incidents | Here there is one problem – knowing for sure that a specific change resulted in an incident; correlation does not always mean causation. Of course, this matching could be done manually. Hence, this is a KPI that needs to be taken in the context stated above. |

| KPI | Analysis |
|---|---|
| Ratio of detected to closed defects at release | A reasonably standard development KPI with no issues. |

## Improve Early Life Success of Releases

| KPI | Analysis |
|---|---|
| % of Incidents during warranty period | A reasonably standard release management KPI with no issues. |

| KPI | Analysis |
|---|---|
| % of successful/unsuccessful deployments for the project | Here there is one issue – the definition of 'unsuccessful'. |

| KPI | Analysis |
|---|---|
| % of emergency changes | A reasonably standard release management KPI with no issues. |

| KPI | Analysis |
|---|---|
| Pass rates on UAT/validated requirements | A reasonably standard release management KPI with no issues. |

## Operations and Development Collaboration

| KPI | Analysis |
|---|---|
| Trend on early life support/UAT success metrics. | Unfortunately, this is not really a usable KPI in that it isn't really defined. |

| KPI | Analysis |
|---|---|
| % rework. | While this KPI seems simple at first glance, questions arise on how to calculate it. The most sensible approach would seem to be the amount of time spent on rework. |

## Improve Financial Visibility

| KPI | Analysis |
|---|---|
| Planned cost versus actual cost. | As with the other 'planned versus actual' metrics, the caveat I would give to someone implementing this KPI is that you can initially expect some wild variance in estimation – so setting targets for this KPI in the initial stages is inadvisable. |

## Maintain a Linkage between Business Services and IT Initiatives

| KPI | Analysis |
|---|---|
| Aggregate (roll up) service development costs by business service. | A good KPI with no issues. |

## High Quality Service Design Specifications at the Outset

| KPI | Analysis |
|---|---|
| % reduction in the rework required for new or changed service solutions in subsequent lifecycle stages. | A reasonable KPI. |

## Integration Test Success

| KPI | Analysis |
| --- | --- |
| Trend on the number of installation errors in all the packages in the integration environment. | The one issue that I have with this KPI is that it is a KPI on a KPI – monitoring trends should be implicit in the management of KPIs in general. |

| KPI | Analysis |
| --- | --- |
| Number of applications or services that require exceptions outside of the existing infrastructure portfolio. | A reasonable KPI. |

## Design-Review to Ensure Application Design Complies with all Policies, including Security

| KPI | Analysis |
| --- | --- |
| Number of application designs that pass a security policy review. | Another nice clear quantitative KPI. |

## Early Testing of Applications for Security Vulnerabilities

| KPI | Analysis |
| --- | --- |
| % of severity 1 security defects fixed before application is released. | An excellent KPI. I've not seen any organizations that do not classify defects, and the release of an application is an unambiguous event. |

# Request to Fulfill (R2F) Value Stream

As we move along the value chain into the Request to Fulfill stream, the KPIs tend to become more obvious.

## Ability to Meet Customer Expectations

| KPI | Analysis |
|-----|----------|
| New or modified Subscriptions per time period. | A good quantitative KPI that in keeping with the mindset of IT4IT does presuppose a SAAS-based approach |

| KPI | Analysis |
|-----|----------|
| % and number of Subscription requests complying or breaching SLA or OLA agreements. | A good KPI with no issues. |

| KPI | Analysis |
|-----|----------|
| Number of Subscription requests accepted and rejected by the requestor for the first time right delivery/fulfillment. | A good KPI with no issues. |

| KPI | Analysis |
|-----|----------|
| Variation in the average time to fulfill Subscription requests for the predictability of delivery. | A good KPI with no issues. |

| KPI | Analysis |
|-----|----------|
| Number of Incidents related to request fulfillment. | A good KPI with no issues. |

| KPI | Analysis |
|-----|----------|
| Arrival and departure rate of service requests. | A good KPI with no issues. |

## Reduce Costs

| KPI | Analysis |
| --- | --- |
| Costs (burned resources) per service and per fulfillment step. | This KPI does require a very tight understanding, not just of the cost for each service but also for each step in provision of the service. So it seems very much as an end-goal KPI rather than one that could be implemented immediately. |

| KPI | Analysis |
| --- | --- |
| Breakdown of self-source fulfillments versus one-off fulfillments. | Here, the only issue is precisely defining what a one-off fulfillment is. |

| KPI | Analysis |
| --- | --- |
| % and number of fulfillments requiring human intervention to be completed. | A good pair of KPIs with no issues. |

| KPI | Analysis |
| --- | --- |
| % and number of fulfillments requiring human intervention to be completed. | A good pair of KPIs with no issues. |

| KPI | Analysis |
| --- | --- |
| Number of service request queues being managed. | A good KPI with no issues. |

# External Service Provider Compliance

| KPI | Analysis |
| --- | --- |
| Number of purchase orders per time period. | A good KPI with no issues. |

| KPI | Analysis |
| --- | --- |
| % and number of orders delivered and accepted complying with underpinning contract agreements. | A good KPI, but it and the following KPI effectively form a spanning set of all delivered orders – meaning that tracking both independently is superfluous. |

| KPI | Analysis |
| --- | --- |
| % and number of delivered orders breaching underpinning contract agreements. | As described above. |

| KPI | Analysis |
| --- | --- |
| Number of Incidents related to the purchase order fulfillment. | A good KPI with no issues. |

| KPI | Analysis |
| --- | --- |
| Number of purchase orders unfulfilled at the end of a given period. | A good KPI with no issues. |

| KPI | Analysis |
| --- | --- |
| Number of orders delivered and accepted by the requestor per time period. | A good KPI with no issues. |

| KPI | Analysis |
| --- | --- |
| Number of purchase orders rejected via no delivery or cancelled purchase orders. | A good KPI with no issues. |

# Increase Speed/Agility/Flexibility (Operational Performance)

| KPI | Analysis |
|-----|----------|
| Completed service requests. | A good KPI with no issues. |

| KPI | Analysis |
|-----|----------|
| Service request work-in-progress. | A good KPI with no issues. |

| KPI | Analysis |
|-----|----------|
| Number of interactions with consumers per service during delivery. | This KPI seems reasonable, but it will require a very disciplined approach that requires all interactions to be logged in order to provide accurate statistics. |

| KPI | Analysis |
|-----|----------|
| % of work-in-progress within SLA. | A good KPI with no issues. |

| KPI | Analysis |
|-----|----------|
| % of completed work within SLA. | A good KPI with no issues. |

# Detect to Correct (D2C) Value Stream

A running theme through the Detect to Correct value stream KPIs is that they are defined as sets of goals. However, the KPIs implied by the goals are usually very clear and of high quality, as they are as they are

1) Quantitative,

2) Unambiguous,

3) Easily Measured

## Ability to Meet Customer Expectations

| KPI | Analysis |
| --- | --- |
| Events:<br><br>• Increase in breadth and depth of monitoring endpoints<br><br>• Reduction of escalated events (via filtering/correlation/ automated resolution)<br><br>• Reduction of false positives<br><br>• Reduction of the number of security events that cause business disruption. | The second, third and fourth of these KPIs are OK, but in keeping with a running theme elsewhere the first and third KPIs depend on accurate definitions.<br><br>Specifically, the 'breadth and depth' of monitoring endpoints need definition. |

| KPI | Analysis |
| --- | --- |
| Incidents:<br><br>• Incident reduction,<br><br>• Reduction of escalated Incidents,<br><br>• Reduction of false positives,<br><br>• Reduction in the total number of security-related Incidents. | A good family of KPIs with no issues. |

| KPI | Analysis |
| --- | --- |
| Problems:<br><br>• Increase Problems identified<br><br>• Increase Problems eradicated. | A good pair of KPIs with no issues. |

| KPI | Analysis |
| --- | --- |
| Changes:<br><br>• Reduction of change-related outages<br><br>• Reduction of emergency changes<br><br>• Reduction of unplanned changes<br><br>• Reduction of security vulnerabilities introduced during Change Management. | A good family of KPIs with no issues. |

| KPI | Analysis |
| --- | --- |
| Knowledge:<br><br>• Increase Known Error availability (enrich Known Error database)<br><br>• Increased usage. | A good pair of KPIs with no issues |

## Improve Customer Satisfaction

| KPI | Analysis |
|-----|----------|
| OLA/SLA: <br><br> • Reduction of failed agreements | For once, we have a D2C KPI that I'm not comfortable with; in that the term 'failed agreements' is unclear. It would seem that this refers to the number of events that break the terms of an SLA/OLA, but |

| KPI | Analysis |
|-----|----------|
| Availability of critical business systems: <br><br> • Increase uptime <br><br> • Decrease MTTR <br><br> • Increase MTBF | Three good KPIs that do form a logical family |

| KPI | Analysis |
|-----|----------|
| Performance (user experience) of critical business systems: <br><br> • Decrease user complaints. | A good KPI with no issues. |

| KPI | Analysis |
|-----|----------|
| Incidents: <br><br> • Increased rate of first call resolution | A good KPI with no issues. |

| KPI | Analysis |
|-----|----------|
| Self-service: <br><br> • Increased success rate for user self-fix | A good KPI, but thought will need to be applied to how this could be measured. Number of visits to self-service resources such as a knowledge base gives some indication, but it does not unambiguously show whether the issue was actually resolved. |

## Improve Staff Effectiveness

| KPI | Analysis |
| --- | --- |
| Events:<br><br>• Increase automatically remediated Events<br><br>• Increase the percentage of Events correlated to a business service | A good KPI with no issues. |

| KPI | Analysis |
| --- | --- |
| Incidents:<br><br>• Reduction of re-opened Incidents<br><br>• Increase percentage of first call resolution<br><br>• Reduction in average time to close an Incident<br><br>• Increase automatically remediated Incidents<br><br>• Reduce average handling time<br><br>• Reduce rejected Incidents. | A good family of KPIs with no issues. |

| KPI | Analysis |
| --- | --- |
| Changes:<br><br>• Increase automatically remediated changes. | A good KPI with no issues. |

## Improve Staff Effectiveness

| KPI | Analysis |
| --- | --- |
| Cost:<br><br>• Increase percentage of time invested on business-critical services. | A good, quantitative, unambiguous KPI with one caveat - it does require a clear definition of which business services are critical however. |

| KPI | Analysis |
| --- | --- |
| SLA/SLO:<br><br>• Increase percentage of business-critical services with defined Service Level targets. | Again, a good, quantitative, unambiguous KPI with the same one caveat - a clear definition of which business services are critical is needed. |

| KPI | Analysis |
|---|---|
| Services: | A good family of KPIs with no issues. |

- Increase number of business services defined

- Decrease percentage of business-critical services

- Decrease number of CIs that are not linked to a business service,

- Increase "quality of service" monitoring for internal and external business services.

| KPI | Analysis |
|---|---|
| Security: | A good pair of KPIs with no issues. |

- Number of security-related outages to business-critical systems,

- Number of security Incidents causing financial loss, business disruption, or public embarrassment

- Number of security Incidents resolved without business impact.

## About Peter Harrad

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