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**TM Forum**

**Portfolio and Product Management**

**Quick Start Guide: Cable Business Intelligence**

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# Glossary of Terms

|  |  |
| --- | --- |
| KPI | Key Performance Indicator |
| BI | Business Intelligence |
| Business Unit | A department or functioning unit within an MSO |
| MSO | Multi-System Operator, or Cable Company |
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|  |  |
|  |  |

# Introduction

Getting started on a transformation project that includes Business Intelligence (BI) features can be a daunting task. You find yourself asking 'hasn't someone done this before, and isn't there some sort of guidebook to help me along the way'?

Of course the answer is 'yes' to both questions. But we are unaware of a transformation guidebook specifically tailored to Cable. That is, until now.

The Business Intelligence workgroup within the Cable Initiative in the TM Forum set out to solve this problem in 2011, and the document you are reading is the result of that effort. Our goal was to produce working documents that could be used in a wide variety of projects in virtually any industry (though specifically stress tested for Cable).

These documents are not intended to do the work for you, but to give your initial days in the project some concrete direction. Nor will these artifacts solve all your problems, in fact they should make you ask more, and deeper, questions about what you are trying to accomplish. If so, then we have succeeded.

## Project Document Output

Our workgroup produced several documents as outputs from our project. These are discussed briefly here:

1. The Quick Start Guide for BI (this document) is intended to provide an overview of all the project outputs and recommendations for use of each output artifact.
2. The KPI Meta-Data Collection Guide is a template that can be extended and scaled for virtually any BI project
3. The 50 Sample Cable KPIs provides recommendations for 50 of the most common KPIs used in Cable. These are the KPIs reviewed by our team and approved for presentation to the entire TM Forum Community.
4. The 20 Cable KPIs Mapped to eTOM. These are preliminary mappings which will be discussed in more detail by an expanded committee prior to full approval.

# KPI Meta-Data Collection Guide Overview

We will not presume to understand your technical environment, so the heavy duty IT material is not included here. Schemas, ETL methodologies, normalization, data governance, these things are very 'personal' to each business and technology, and are therefore out of scope of this paper.

You will not find a comprehensive list of key performance indicators in this guide, others have attempted that for a variety of verticals, with varying success. Chances are you have a pretty good idea what to measure, you just need a little help getting started, and a couple of concepts to stir up some really healthy conversations.

Measurement is commonly MUCH more difficult than you initially expect. The data you need for good measurements may not be readily available, if at all. And it is also common for the business rules of measurements to heavily debated, with the 'truth' somewhat difficult to ascertain. Concessions may be required to move forward.

Measurement alone is not enough in most situations. Consider what you are going to do about poor performance as you create your KPIs. Telling someone they are not performing well enough does not provide enough direction for improvement, your measurements will need to be a lot more specific. Craft your performance indicators with very granular detail: it is easy to aggregate from specific to general.

Finally, knowing what performance area needs improvement, even if very specific, is also not enough in most circumstances. Your line workers may need to have support in the form of training to actually improve their performance. With a very specific performance issue, you may find opportunity in very short, focused training programs that don't take your workers out of their jobs for very long while providing excellent benefits in the long run.

# KPI Meta-Data Collection Guide Detail

The KPI meta-data collection guide created for the TM Forum provides a structure for business units to use and modify as needed. This guide is designed to be:

* Extensible – add whatever you need, remove what you don’t
* Scalable – small or large, this guide can help
* Agnostic – this guide will work for any business unit

The TMF BI workgroup identified 22 different pieces of information that are interesting for any given KPI. There is no requirement to detail each of these data points for every single project and every single KPI. These merely represent things you may want to consider as you lay out your transformation project.

1. Actor  
   Who is the individual being measured? If the responsibility for a given measurement cannot be attached to a person, how will you take steps to improve a KPI that is not meeting expectations? Who will receive credit for exceptional performance?
2. Related Actor(s)  
   Who supports the actor above? Whose goals are misalligned with the actor above in a way that will work against this KPI?
3. KPI  
   What is the name of this KPI? It is important to have clear terminology to make communication succinct and accurate.
4. Related KPI(s)  
   Are there KPIs that are related and/or causal? Are there KPIs that compete against this KPI? One example of competing KPIs are quantity and quality; initiatives that drive higher quantity of output may have the undesireable effect of driving down quality.
5. Impact of defect  
   For quality type KPIs, can a cost or impact be associated with this defect? Understanding the full costs of any defect in workmanship allow for ROI modeling, which in turn allows for proper prioritization of defect remediation efforts.
6. Urgency of correction  
   For quality type KPIs, how important is it to drive down the defect count? Executive initiatives may drive efforts even though specific ROI analysis has not been performed.
7. eTOM Domain  
   What is the level 0 domain mapping for eTOM?
8. eTOM Domain  
   What is the level 1 mapping for eTOM?
9. eTOM Domain  
   What is the level 2 mapping for eTOM?
10. eTOM Domain  
    What is the level 3 mapping for eTOM?
11. SID Domain  
    What is the level 0 domain mapping for SID? SID mapping was beyond scope for this project, but more and more companies are adopting the SID model, therefore it was important to include reference to SID here.
12. SID Domain  
    What is the level 1 domain mapping for SID?
13. SID Domain  
    What is the level 2 domain mapping for SID?
14. SID Domain  
    What is the level 3 domain mapping for SID?
15. Measurement Technique  
    What are the exact business rules for measuring and calculating this KPI? Are all business units calculating this KPI in a consistent manner? This can be especially difficult for the larger MSOs, where each division and/or market has a history of measuring (and compensating) in their own way.
16. Leading or Lagging measure  
    Does this KPI merely represent history, or can it be used to predict the future? Upon deeper reflection, virtually every lagging measure can be used in some predictive fashion, but how meaningful are those results?
17. Barriers to measurement  
    Many KPIs have some types of barriers to measurement, ranging from disparate data sources to data entry inaccuracy to gaming of the system for personal gain. Having a full understanding of these barriers if the first step towards the creation of an approach to resolve.
18. Performance targets / Goals  
    What are the desired levels for this KPI? Do you want to drive towards 100% or 0%? Is there a range of performance that defines ‘success’? Are there thresholds of performance at which someone should be notified?
19. Optimization techniques  
    What should be done when performance goals are not achieved? Is training available, or can you reasonably expect performance approval simply by identifying poor performance?
20. Consequences  
    How do you recognize and applaud consistently excellent performance? Are there consequences of persistent poor performance? Should there be rewards for excellence and disincentives for mediocrity?
21. External systems  
    Once you have polished a KPI to a high degree of accuracy, should or can it be exported into other systems? Does your Business Intelligence system then feed into compliance, HR, or other similar systems?
22. Notes  
    What information needs to be saved concerning this KPI, but does not fit nicely into any of the buckets below?

Our team found these 22 items of interest for many of the KPIs that we reviewed and approved. Again, not every one of the 22 items was of interest for every KPI.

# The 50 Approved Cable KPIs

The target for our work group was to produce a list of at least 50 KPIs across 6-7 business units. The full detail of this list is available in a separate spreadsheet and the summary list is presented here.

|  |  |
| --- | --- |
| **Business Unit** | **KPIs** |
| Field Operations | Repeat Trouble Call Rate  Service Call on Install Rate  Productivity – Points per Time Period  Met Appointment Rate  Customer Satisfaction  Truck Inventory Management  Time to Repair  Trouble Call Rate  Days Out  First Appointment Arrival/Shift Start  Truck Idle Time  Work Order Mix |
| Call Center | Work Order Accuracy – Points Allotment  Work Order Accuracy – Service/Rate Code Selection  Avoidable Truck Roll Rate  First Call Resolution Rate  Average Handle Time  Calls Per Headset Hour  Abandon Rate  On Time Answer Rate  Average Hold Time  ARPU  Upsell Rate |
| Network/Plant | Mean Time to Restore Service  Network Outage Minutes per Sub  Network Outage Count per Sub  Network Availability  Congestion  Access Round-Trip Time |
| Services | Service Outage Minutes per Sub  Service Outage Count per Sub  Service Availability  Transaction Success Rate |
| Marketing | Service Not Available as Advertised  Service Not Available at Price Advertised  Market Share  Conversion Rate  Churn  ARPU  Total Campaign Value  Number of New Customers per Campaign  Average Customer Acquisition Cost  Average Revenue per Sales Person |
| Billing | Billing Cycle Run Completion Time  Statement Mailing Time  Billing Accuracy – out-of-range  Sampling Accuracy  Recurring Payment Accuracy |
| Unassigned | Self Install Kit Success Rate |

# KPI Mapping to eTOM

Mapping of KPIs to eTOM was a key deliverable for this project. Our goal was to map at least 20 KPIs out of the group of 50 total approved KPIs. As we worked through this exercise, we discovered that most of the KPIs could arguably be mapped to more than one Level 2 in eTOM. Our primary recommendations for mapping are listed below, and the full primary and secondary recommendations are in a separate spreadsheet.

## Call Center KPIs Mapped to eTOM

|  |  |  |  |
| --- | --- | --- | --- |
| **Call Center/Care** | **Primary eTOM Domain** | **Primary eTOM L1** | **Primary eTOM L2** |
| Work Order Accuracy - points allotment | Operations | Fulfillment/ CRM | Order handling |
| Work Order Accuracy - service/rate code selection | Operations | Fulfillment/ CRM | Order handling |
| Avoidable Truck Roll | Operations | Fulfillment/ CRM | Problem Handling |
| First Call Resolution | Operations | Fulfillment/ CRM | Customer Interface mgmt |
| Average Handle Time | Operations | Fulfillment/ CRM | Customer Interface mgmt |
| Calls per headset hour | Operations | Fulfillment/ CRM | Customer Interface mgmt |
| Abandon rate | Operations | Fulfillment/ CRM | Customer Interface mgmt |
| % answered on time | Operations | Fulfillment/ CRM | Customer Interface mgmt |
| Average hold time | Operations | Fulfillment/ CRM | Customer Interface mgmt |
| ARPU | Operations | Fulfillment/ CRM | Selling |
| Upsell Rate | Operations | Fulfillment/ CRM | Selling |

## Marketing KPIs Mapped to eTOM

|  |  |  |  |
| --- | --- | --- | --- |
| **Marketing** | **Primary eTOM Domain** | **Primary eTOM L1** | **Primary eTOM L2** |
| Service not Available as Advertised | SIP | Marketing & Offer Mgmt/ Product Lifecycle Mgmt | Prod Mktg Comm & Promo |
| Service not Available at price advertised | SIP | Marketing & Offer Mgmt/ Product Lifecycle Mgmt | Prod Mktg Comm & Promo |
| Sales Conversion rate | Operations | Fulfillment/ CRM | Selling |
| Churn | Operations | Assurance/CRM | Customer QOS/SLQ mgmt |
| ARPU - average revenue per unit | Operations | Fulfillment/ CRM | Selling |
| Total Campaign Value | SIP | Marketing & Offer Mgmt/ Product Lifecycle Mgmt | Prod Mktg Comm & Promo |
| Number of new customers generated Total Campaign | SIP | Marketing & Offer Mgmt/ Product Lifecycle Mgmt | Prod Mktg Comm & Promo |
| Average Customer Acquisition Cost | SIP | Marketing & Offer Mgmt/ Product Lifecycle Mgmt | Prod Mktg Comm & Promo |
| Average Revenue per Sales Person | Operations | Fulfillment/ CRM | Selling |

## Billing KPIs Mapped to eTOM

|  |  |  |  |
| --- | --- | --- | --- |
| **Billing** | **Primary eTOM Domain** | **Primary eTOM L1** | **Primary eTOM L2** |
| Billing Cycle Run Completion time | Operations | Billing & Revenue Mgmt/CRM | Bill Invoice Mgmt |
| Statement Mailing Time | Operations | Billing & Revenue Mgmt/CRM | Bill Invoice Mgmt |
| Billing Accuracy - out-of-range | Operations | Billing & Revenue Mgmt/CRM | Bill Invoice Mgmt |
| Sampling accuracy | Operations | Billing & Revenue Mgmt/CRM | Bill Invoice Mgmt |
| Recurring payment accuracy | Operations | Billing & Revenue Mgmt/CRM | Bill Pmts & Receivables Mgmt |

# Recommended Use of the Quick Start Guide

There are many different ways an MSO could use this Quick Start Guide. Two possible uses are outlined here to get you thinking about how this Guide might prove valuable in your organization.

This guide and the KPI Meta-Data Collection Guide are not intended to tell you how to run your project; rather they have been designed to start you on the path to asking the right questions. These are flexible structures that you can re-organize to fit your very specific needs.

## Use Case #1 – Leverage KPIs Already Mapped

There is a good chance that your next Business Intelligence project will involve one or more of the business units involved in our study. We looked at measurements for the following business units:

* Field Operations
* Cal Center
* Billing
* Marketing
* Services
* Network/Plant

If any of these business units are involved in your project, it would make sense to leverage our project work wherever possible. Our documents are very flexible, and were built on the following foundation:

* Scalable – use the structures for 1 KPI, or a thousand.
* Extensible - add or remove data collection points as appropriate for your project.
* Agnostic – the structures we have designed should work for any business unit in a Cable MSO, or any other Industry/Vertical for that matter.

Below are a series of steps you can use as a guideline for developing your project charter.

1. Open the ‘KPI Meta-Data Collection Guide’.
2. Save with a new name to protect the template you just opened.
3. Personalize the guide for your company and project.
   1. Delete tabs from the spreadsheet that are not applicable to your project.
   2. Replace the TM Forum logo on each page with an appropriate logo for your company.
4. Review the 22 meta-data collectors and determine if each is appropriate for your company. Remove any that are not appropriate.
5. Are some interesting pieces of information not already included in the 22 collectors? Add any and all that will provide additional value to your project.
   1. What is the approval process? Do you need additional rows showing approval dates and names of approving stakeholders?
   2. Are there due dates for achieving approval milestones?
6. Review existing KPIs for each valid business unit with the team leadership.
   1. Is the name of the business unit (name of each tab in the worksheet) correct for your organization? Modify as required given your terminology.
   2. Is this KPI interesting to you? If not, delete that column.
   3. Is the name of the KPI appropriate? Change the name as needed to avoid terminology conflicts and misunderstandings.
   4. Is this KPI assigned to the correct actor? Who ‘owns’ this measurement, and is ultimately responsible for achieving the desired service levels?
   5. Consider carefully the ‘impact of defect’, properly assigning the value of correcting and avoiding each individual defect will help to drive the all-important Return On Investment analysis.
   6. Review our measurement technique. This sometimes detailed description of the specific business rules of measurement may not be just right for you. Use what you can and change/add what you must.
   7. The ‘Consequences’ row is something our team wanted to include in the template, but chose not to actually populate. It is up to you to determine how poor performance may lead to disciplinary action, as well as how consistent excellence should lead to recognition, compensation and/or promotion.
   8. Consider making certain data collectors mandatory for your project. The name of the KPI and the measurement technique are two natural candidates for being required. What other rows of meta-data should also be required?
7. Take inventory of the KPIs you already track and document them here, if not already clearly documented in a similar fashion.
   1. Does this collection document make you want to reconsider some of your techniques already in play?
8. Add tabs for all applicable business units.
9. Add columns for additional KPIs not included in our document. Our review of 50 KPIs is a very small sample indeed intended to stress test the data collectors and our process, it was not intended to create a complete library of desired measurements.
10. As you add KPIs to the KPI Meta-Data Collector Guide, you may find the opportunity to add data collection rows. Some of these may prove valuable enough to require reviewing previous KPIs again.
    1. This can be a living document that grows an changes during your project
11. Review your KPIs with your IT team.
    1. Is the measurement technique appropriate given available data? What challenges can be discussed early in the process?
    2. Are the measurement techniques detailed enough for the technical team?
12. This document will now be a powerful tool for managing meetings, gaining consensus, and creating a clear set of objectives for your BI project.

## Use Case #2 – Build Your KPIs from Scratch

Your project may involve business units or KPIs that we have not explored and documented. If so, then you can take our document and build from scratch.

Below are a series of steps you can use as a guideline for developing your project outline.

1. Open the ‘KPI Meta-Data Collection Guide’.
2. Save with a new name to protect the template you just opened.
3. Personalize the guide for your company and project.
   1. Delete all tabs but the ‘Overview’ and one of the business unit tabs.
   2. Replace the TM Forum logo on each page with an appropriate logo for your company.
   3. Delete all rows which contain KPIs.
   4. Update the color scheme to meet your needs.
4. Review the 22 meta-data collectors and determine if each is appropriate for your company. Remove any that are not appropriate.
5. Are some interesting pieces of information not already included in the 22 collectors? Add any and all that will provide additional value to your project.
   1. What is the approval process? Do you need additional rows showing approval dates and names of approving stakeholders?
   2. Are there due dates for achieving approval milestones?
6. Take inventory of the KPIs you already track and document them here, if not already clearly documented in a similar fashion.
   1. Does this collection document make you want to reconsider some of your techniques already in play?
7. Add tabs for all applicable business units.
8. Add columns for additional KPIs not included in our document.
9. As you add KPIs to the KPI Meta-Data Collector Guide, you may find the opportunity to add data collection rows. Some of these may prove valuable enough to require reviewing previous KPIs again.
10. Review your KPIs with your technical IT team.
    1. Is the measurement technique appropriate given available data? What challenges can be discussed early in the process?
    2. Are the measurement techniques detailed enough for the technical team?
11. This document will now be a powerful tool for managing meetings, gaining consensus, and creating a clear set of objectives for your BI project.

# Summary

Every Business Intelligence project has some unique characteristics that make it special. And some of the characteristics are the same for virtually every BI project. You have things that you want to measure, you want to measure them consistently across the enterprise, and you want to be able to take action when your performance does not achieve desirable levels.

The template we have designed allows you to get a quick start on your project, ensuring that you achieve consistency where needed, and also have the flexibility to manage all of the characteristics of a project that tend to differ slightly.

# Administrative Appendix

This Appendix provides additional background material about the TM Forum and this document. In general, sections may be included or omitted as desired, however a Document History must always be included.

## About this document

This is a TM Forum Guidebook. The guidebook format is used when:

* The document lays out a ‘core’ part of TM Forum’s approach to automating business processes. Such guidebooks would include the Telecom Operations Map and the Technology Integration Map, but not the detailed specifications that are developed in support of the approach.
* Information about TM Forum policy, or goals or programs is provided, such as the Strategic Plan or Operating Plan.
* Information about the marketplace is provided, as in the report on the size of the OSS market.

## Document History

### Version History

<This section records the changes between this and the previous document version as it is edited by the team concerned. Note: this is an incremental number which does not have to match the release number>

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date** | **Author** | **Comments** |
| 0.1 |  | Paul Ousterhout/BATMANN | Draft |
| 0.2 |  | Paul Ousterhout/BATMANN | Added use cases & minor editing |
| 0.3 |  | Paul Ousterhout/BATMANN | Add About the Team, Glossary, eTOM mapping and minor editing |
| 0.4 | 25 Oct 2011 | Alicja Kawecki | Minor cosmetic and formatting corrections prior to web posting and ME |
| 0.5 | 11 May 2012 | Alicja Kawecki | Updated to reflect TM Forum Approved status |

### Release History

<This section records the changes between this and the previous Official document release>

|  |  |  |  |
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| **Release Number** | **Date Modified** | **Modified by:** | **Description of changes** |
| <<Release Number >> | DD/MMM/YY | <<name>> | Description e.g. first issue of document |
|  |  |  |  |

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Paul Ousterhout, CTO at BATMANN Analytics, acted as Chair of the BI Workgroup.

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