Adoption and Maturity Management Add-on For HP PPM™

A Holistic Approach to PPM
Data Quality Management

Introduction

The popular definition of high data quality "*if they are fit for their intended uses in operations, decision making and planning*" (J.M. Juran, 1999[i]) can be effectively applied to Project Portfolio Management (PPM). From a decision-making perspective, PPM data must be accurate enough for executives to effectively make portfolio decisions such as approving project proposals, or terminating redundant projects. From a planning perspective, PPM data must reliably contain the information needed by planners who decide when to launch approved initiatives, or how many resources to allocate for each initiative. Finally, from an operations perspective, PPM data, such as small work items, must represent the actual nature and status of the work items with sufficient accuracy that they can be reliably used to manage the queues of work.

While these generic, role-based needs for *data quality* (DQ) in PPM are clear, definitions of DQ that incorporate the unique business processes and needs of specific organizations tend to be more elusive. Different parts of the organization may have different perspectives on the need for DQ, and these needs change. Furthermore, forcing sources of data (both people and systems) to adhere to an organization's DQ definitions can be extremely difficult. Thus, data errors arise. These lead to heavy manual communication among the IT staff, sub-optimal decision-making among management, and poorer-than-expected delivery outcomes.

Recognizing the significant cost of DQ problems, PPMetrics has focused on management of PPM DQ as one key areas resolved by the Adoption and Maturity Management (AMM) add-on. This paper articulates AMM's uniquely effective approach for managing PPM DQ.

The AMM Add-on and the Four Dimensions of Data Quality

The quality of data is typically evaluated on multiple *Dimensions* – those aspects or features of the data used to define, evaluate, and manage its quality. While different industry and academic sources have proposed different versions of dimensions and definitions, the following list represents the most common and intuitive items. Each dimension on this list is described in the table below, and demonstrated through out-of-the-box capabilities of AMM:

Data Quality Dimension	Key Question	AMM Add-On Validation and Constraint Examples
Accuracy	Do distinct data instances provide conflicting information about the same underlying information?	• All active work items must be assigned to enabled system users. • 'Target Resolution Date' of active issues must be a future date.
Completeness	Is all the requisite information available? Are data values missing, or in an unusable state?	• Requests must have certain document references attached to them.
Consistency	Do distinct data instances provide conflicting information about the same underlying information?	• Active projects set to be integrated with Time Management must have time logged against them within X weeks of their creation. • There must be reasonable consistency between projects and their associated approved proposals.
Timeliness	Is the data satisfactorily current for their intended use?	• Active projects must have active work plans, updated within the last X days. • Budgets/staffing profiles of

		active projects at a certain phase must have been updated within the last X days.

The AMM Add-On's Approach to HP PPM Data Quality Management

The following list describes the key aspects of the AMM add-on's approach to DQ management:

1. *Rule-Based Data Validation:*

Preventing DQ problems is much less costly and more effective than curing them (Redman, 2001[ii]). Therefore, PPM customers should take different measures to minimize the input of data errors. These measures may be classified into two categories: technical measures, such as system configuration that technically enforces data entry into required fields; and managerial measures such as DQ policies, training etc. However, unfortunately some data errors do enter PPM systems, either because they are not caught by input checking, or because they are entered via other paths, such as through legacy data systems. To address these errors, AMM validates the quality of stored data by applying a set of DQ rules, which can be customized for each PPM implementation. To rephrase the old computing maxim, AMM practices *Garbage In, Error Messages Out*.

2. *Centralized Framework:*

AMM enables DQ management in a highly holistic fashion. Such an approach is easier to manage, and offers unique advantages not available through typical point solutions commonly implemented by HP PPM customers in the form of custom reporting. Some of the key benefits of the AMM's centralized DQ management framework include:

- *Unified Interface* – Users create and view all the system's DQ rules in a single interface. This architecture facilitates creation of new rules, and evaluation of the DQ rules 'inventory'. Users can easily review rules classified by their operational status: *in production*, *pending creation*, etc.

- *Write Once, Use Everywhere* - The results of a DQ rules' evaluation is displayed in over 10 out-of-the-box visualizations as well as email notifications.

- *Data Quality Scoring* - Different DQ rules carry different level of importance to customers. The AMM add-on allows customers to associate a weight to each DQ rule that reflects the rule's relative importance to the organization. AMM then calculates the *Quality Score* of each system entity – such as a project or a program – by summing the weighted rule importance across all rules and data errors.

- *Group-level Data Quality Evaluation* - AMM allows customers to define an unlimited number of monitoring groups of interest, using a familiar PPM user interface. For example, many customers define groups of projects based on their organizational unit association, type, or project manager. Once these groups are defined, AMM rolls up the DQ metrics of each entity into its associated group(s), enabling calculations of group-level DQ scoring such as average or median quality scores, comparison of DQ metrics across different organization units, etc.

3. Out-of-the-box and Custom Data Quality Rules:

AMM is delivered with over 40 heavily used DQ rules, and new quality rules are constantly developed and sent to customers. At the same time, since HP PPM is a highly configurable tool and no two PPM implementations are exactly alike, AMM contains a user interface which customers use to create their own custom DQ rules based on their system configuration. Customers who have created the equivalents of DQ rules through custom reporting may easily convert their existing logic into AMM's interface and reap the benefits of the platform.

4. Time Variant DQ Metrics:

To significantly improve DQ problems, large organizations must commit time and staff to address them[iii]. In support of such efforts, AMM maintains and provides historical measurements of DQ metrics. Among other benefits, this capability enables customers to execute trending reports, as means of assessing DQ changes over time.

[i] Juran, Joseph M. and A. Blanton Godfrey, *Juran's Quality Handbook*, Fifth Edition, p. 2.2, McGraw-Hill, 1999.

[ii] Redman T.C., *Data Quality: the Field Guide.* Digital Press 2001

[iii] David Loshin, *The Practitioner's Guide to Data Quality Improvement*, Morgan Kaufmann, 2010.