OMG: Structured Metrics Metamodel (SMM)

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Table 1: Data sheet for Structured Metrics Metamodel (SMM)

Title	Structured Metrics Metamodel
Acronym	SMM
Version	1.2
OMG Document Number	formal/18-05-01
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About Specification	https://www.omg.org/spec/SMM/
Document	https://www.omg.org/spec/SMM/1.2/PDF

Note: The following is an excerpt from the actual document. It is provided here as a convenience and is not authoritative. Refer to the original document as the authoritative reference.

Scope

This specification defines a metamodel for representing measurement information related to any structured information model. Referred to as the Structured Metrics Metamodel (SMM), this specification is an extensible metamodel for exchanging both measures and measurement information concerning artifacts contained or expressed by structured models, such as MOF.

The SMM include elements representing the concepts needed to express a wide range of diversified measures. The specification does include a group of sample measures, but it is not asserting that the listed measures constitute standards themselves; these are supplied simply as non-normative examples. The SMM is a specification for the definition of measures and the representation of their measurement results. A library of measures consists of measure definitions and serves to establish the specification upon which all of the measurements will be based.

The SMM is part of the Architecture Driven Modernization (ADM) roadmap and fulfills the metric needs of the ADM roadmap scenarios as well as other information technology scenarios. SMM's scope, however, is broader than software modeling. This standard looks to fulfill the metric needs across the OMG's wide variety of interest from automotive and business architecture to space and telecommunications.

SMM measures describe methods of computing comparable values such as:

- *Counts (Votes in an election and lines of code measures exemplify the mechanism.)*
- *Direct applications of named measurements (One such named measure is Cyclomatic Complexity.)*
- *Simple algebraic change of calibration of already defined numeric measures. (e.g., the translation to miles from kilometers).*

- *Simple algebraic aggregations of numeric artifact features, including other measures, over sets of artifacts. (Determining an enterprise global sales by summing its regional sales.)*
- *Simple range-based grading or classification of already defined numeric measures. (Exams are frequently measured on a scale of 0 to 100 which is translated to A, B, C, D, and F grades.)*
- *Qualitative evaluations where the range of evaluations can be mapped to a linear order.*

The SMM specifies the representation of measures without detailing the representation of the entities measured. SMM anticipates that those entities are represented in other OMG metamodels. Measured artifacts or their features may be defined within Knowledge Discovery Metamodel (KDM), Abstract Syntax Tree Metamodel (ASTM), Value Delivery Modeling Language (VDML), other OMG metamodels, or other structured models.

The information captured in OMG models often evolves over time. Given the predicate value of metrics with respect to "downstream" problems, metrics are gathered into trends or viewed from historical perspective. As shown in 17.2.1 Historic and Trend Data, SMM addresses the issues of trend and history to model for system development as long as the historical links of the measured entities are provided.

Consistent with other models defined by OMG, the SMM will be defined using the MOF meta-modeling language. As such, it will have a standard textual representation presented by XMI. Consequently, the exchange of metrics defined by SMM will be in the XMI. These models will, similarly, be compatible with MOF repositories for storage and retrieval by various tools.