A Metrics Makeover: Cognitive Science Principles Lead to Rapid Comprehension

Abstract

The Operations Division of a large health insurer underwent an extensive reorganization. Previously, operational resources had been controlled and optimized to the vertical unit, line of business. As a result of the reorganization, as well as business goals to expand the services only business to the national market, resources and processes were realigned and optimized in a consistent manner across the Division. Moreover, metrics were standardized and utilized in the appropriate context empowering the executive team to use the data in a more strategic manner.

The Challenge

Each business vertical had its own operational metrics and processes. As plans came together to unify the Operations Division, and thus permit optimal decision making, it became evident that data from each business vertical could not be easily and consistently aggregated. The executive management team could not effectively manage the business based on the metrics because they were unreliable, inconsistent, undocumented, and in some cases, conflicting. More specifically, the challenges included the following:

- Naming the metrics was ad hoc and undocumented. For example, "membership" had multiple definitions, resulting in uncontrolled semantics
- The units of measure and methods of calculating metrics were largely undocumented and unmanaged
- There was no list of reliable performance metrics, as well as no governance method
- The presentation of the aggregated performance metrics was complex, confusing, and missing key elements such as performance to goals (alerts), qualitative reference of reported value (is this number acceptable or not acceptable?), and performance metric trends over time
- Early stage process improvement initiatives were underway, based on Lean Six Sigma. These efforts were not yet related to the operational performance metrics and the process description and analyses techniques were not yet applied to the metrics lifecycle.

The Solution

An initiative, led by SDLC Partners resources, and supported by the client's Performance Metrics & Improvement (PM&I) staff, addressed the governance and lifecycle of performance metrics. A process was designed, approved, and documented, then applied to the monthly Operations Division performance metrics report. Performance Metrics were now treated as tangible assets, having value, requiring maintenance, production support, and version control so that they are kept current and interoperable along with other metric assets. The Object Management Group (OMG) standard for Business Process Modeling Notation (BPMN) was applied to the lifecycle of a performance metric. Emphasis on Quality Assurance was made to address client challenges regarding trustworthiness of data comprising the metrics.

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The Solution, continued

The presentation of the data to executives was addressed by administering best practice research in performance dashboard design. By applying proven cognitive science principles to the display of the performance metrics, the executive is able to understand the business metrics very rapidly. The units of measure, qualitative context, and performance relative to goals, and performance trends over time are presented in a graphical format that exploits the ability of the human brain to interpret shapes, images, and relative sizes into actionable decision inputs. Misuse of excessive colors and visual devices was avoided. The report was designed to accommodate color blind users, non-color reproduction, and could be produced as either an electronic document or printed media. The technology was intentionally selected to provide the PM&I team with all the functionality needed, but at a very low initial and recurring cost and effort level.

The Results

Performance metrics and key volume indicators are now reported monthly based on the metrics governance process, which provides greatly improved confidence in each metric. The presentation format enables this Division's executive team to understand operational performance in an efficient and comprehensive manner, allowing more focus on analysis and strategic decisions.

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