Modeling Information Flow for Integrity Analysis

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Abstract

This paper addresses the research issue of developing Information Flow Model for implementing error detection and correcting mechanisms in IS in the form of feedback control based, on-line integrity technologies. Towards this, the paper begins by categorizing error components in IS in terms of errors with deterministic descriptions caused by singular events and errors with stochastic descriptions caused by general, judgmental, and systems factors. In the process, the paper studies the impact of man-IS interface and of changes in business and technological environments on integrity of information. Following this, the paper suggests a basic IS model to account for these error components, particularly those caused by judgmental and systems factors as they account for material impact of business changes and people on information integrity. Based on this study, the paper suggests that to undertake meaningful integrity analysis and to develop integrity technology, the Information Flow Model should take a holistic view of IS by viewing Data Origin Stage, Conversion (Application) Stage and Output (Information Use) Stage together. Accordingly, the paper identifies data processing activities under each of these stages and develops information flow models for each of the activities alongwith their respective integrity analysis implications.