Chapter XII

Measurement Issues in Decision Support Systems

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ABSTRACT
After a brief discussion on the history of decision-making, this chapter focuses on metrics for justifying investment in information systems and technology and for measuring business and management performance. The discussion of metrics is linked to current practices in decision support systems and focuses on the needs for future systems. With several examples drawn from contemporary practice, we introduce implementation guidelines for DSS development incorporating new metrics that go beyond ROI and Balanced Scorecard-like measures. Suggested guidelines include simplicity, selectivity, a focus on research and learning, and benchmarking. These guidelines suggest that future metrics to support decision support systems should be grouped into meaningful categories and tied more closely to system architecture.

INTRODUCTION
The past decade has seen tremendous progress in systems for information support including flexible and adaptable systems to support decision makers and
to accommodate individual needs and preferences. These model- or data-driven
or hybrid systems incorporate diverse data drawn from many different internal
and external sources. Increasingly, these sources include sophisticated enter-
prise resource planning systems, data warehouses and other enterprise-wide
systems that contain vast amounts of data and permit relatively easy access to
that data by a wide variety of users at many different levels of the organization.
Decision support and DSS have entered our lexicon and are now increasingly
common topics of discussion and development in large, and even in medium-
sized, enterprises.

Recent economic conditions, particularly the downturn in the fortunes of e-
commerce, suggest that the road ahead for DSS may be fraught with problems.
In our view, many of those problems have to do with inadequate procedures and
metrics for measuring business and management performance. As this is
written, in mid-2002, daily headlines about overstatement of revenues, and the
recording of expenses as capital expenditures at collapsing companies such as
Enron and WorldCom indicate that we clearly have problems with aggregate
metrics on issues previously thought to be well understood (revenues, expenses,
etc.), but the issue is also present at lower levels.

A SHORT DISCOURSE ON THE HISTORY OF
DECISION-MAKING

Decision-making as we know it today, supported by computers and vast
information systems, is a relatively recent phenomenon. But the concept has
been around long enough to permit the methods and theories of decision-making
to blossom into “a plethora of paradigms, research schools, and competing
theories and methods actively argued by thousands of scientists and decision
makers worldwide.”

The fundamental considerations of contemporary decision-making were
enunciated almost 100 years ago by the French philosopher and statistician Jules
Henri Poincaré. Here is a Poincaré quote from the source cited just above: “But
of all these paths, which will lead us most promptly to the goal? Who will tell us
which to choose? We need a faculty, which will help us perceive the goal from
afar. This faculty is intuition ... Logic and intuition both have a necessary part to
play. Both are indispensable. Logic alone can convey certainty: it is the
instrument of proof. Intuition is the instrument of invention.”

Intuition … perceiving the goal from afar. Today we use different terms,
such as judgment, experience, and soft data, but the ideas are the same as
Poincaré’s – we must find ways to combine logic (and technology) and the soft
skills and experience of managers to support decision-making.
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