Chapter 2

Business Plus Intelligence
Plus Technology Equals
Business Intelligence

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ABSTRACT

In this article the authors will show how the parallel developments of information technology at the operational business level and decision support concepts progressed through the decades of the twentieth century with only minimal success at strategic application. They will posit that the twin technological developments of the world-wide-web and very inexpensive mass storage provided the environment to facilitate the convergence of business operations and decision support into the strategic application of business intelligence.

INTRODUCTION

Over the last decade or so, we’ve witnessed the growth of a seemingly new discipline, “business intelligence”, a discipline more prevalent in practice than in theory. While there are a number of professional and consulting organizations (e.g. TDWI, The Data Warehouse Institute) few universities have created or adapted their research, academic programs and their organizational structures to adapt to this change. There are many who say that business intelligence is just the latest incarnation of management information systems (MIS) but one could argue, as we will in this ar-
article, that we are seeing a fundamental change in
the organizational approach to the disciplines that
have fed into contemporary business intelligence
(BI). Despite years of mostly futile attempts at
organizational change, there was little penetration
of the “intelligence” into “business”. One will
probably react to the terms used in the previous
sentence. We hope, however, to show how these
terms represent two mostly parallel streams of
activity, streams with only the random connection.
It will take a number of technological develop-
ments to bring the Monongahela and Allegheny
into confluence to become the Ohio.

For the purposes of this article we will con-
sider “Business” to encompass all of the tradi-
tional functional activities in business such as
marketing, manufacturing, accounting, finance,
distribution and the support operations provided
by the transaction processing systems and other
basic technology. Whether it was the abacus, the
punched card tabulator or the first few genera-
tions of the business computer, the technology
played the role of number crunche or automated
record keeper.

The “Intelligence” component of the equation
includes all of the mathematical and statistical
tools developed to solve business “problems” over
this same period. Applied mathematics, statisti-
cal quality control, operations research and the
decision sciences flourished in academia with the
occasional foray into the “real world” to address
well-know problems. Consulting organizations
and even research groups within the larger cor-
porate enterprise made valiant attempts to “ap-
ply” their theories and algorithms to the business
problems, usually with only marginal success.

Why had this been so for most of the twentieth
century despite the best efforts of theoreticians
and forward thinking business leaders? We hope
to show in this article that the issues are based on
concepts of efficiency versus effectiveness and
why the needed technology had not penetrated
far enough up the operational-tactical-strategic
ladder to have the hoped-for impact. Through a
series of time-lines and application examples we
will show how the “Business” flow concentrated
on “efficiency” while the “Intelligence” focus
was more on “effectiveness”. It took two major
 technological developments in the 1990s to bring
these together.

Definitions and Assumptions

In this article we will examine the two flows and
their ultimate confluence along two major dimen-
sions: Efficiency-Effectiveness and Operational-
Tactical-Strategic. Both dimensions are part the
decision-making process. The decision-making
process has been examined in many arenas
from the psychological to the managerial. Some
decisions are for small issues while others have
enormous effect. The theoretical approaches have
always tried to maximize or optimize some form
of outcome through algorithms or formulae. The
practical approaches have usually tried to find
“satisfactory” answers through simulation and
heuristics. In the end, there are cost-effectiveness
tradeoffs that contribute to the selection of the
appropriate (or even feasible) decision-making
approach. These tradeoffs will be examined on
these two dimensions.

Efficiency is the measurement of Output as
a function of Input. The formula is simple: Effi-
ciency = Output/Input (e.g. miles/gallon). We fine
tune operations to make sure we wrest the most
out of precious resources to accomplish a goal.
The time-motion expert charts the operation with
stopwatch and clipboard hoping to save precious
seconds in highly repetitive operations, seconds
which add up to dollars with the operation is repeat
thousands or millions of times. On the other hand,
effectiveness is not so easy to define. Traditional
definitions like “successful in producing a desired
or intended result” leave us searching for more
definitions. What is the desired or intended result?
How do we determine what we should do doing?
Perhaps the simplified “Efficiency is doing things
right and Effectiveness is doing the right things”
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