

Chapter 10

IM/IT Value

Learning Objectives

- Specify why making IM/IT investment decisions based upon realized value rather than upon “anecdote, inference, and opinion” leads to better outcomes.
- Describe five changes that make today’s IM/IT investment decisions more challenging than in the past.
- Provide examples of IM/IT costs and outcomes changes that will “always” be adopted and examples that will “never” be adopted.
- Analyze how the major techniques used for evaluation of IM/IT investment differ.
- List the eight key steps in cost evaluation.
- Analyze why certain types of IM/IT applications are less likely to be performed.
- Describe value realization and total cost of ownership methodologies.

Overview

- Evaluation Problem
 - Benefit cost and cost effectiveness analyses
 - Challenges to evaluation
- Value realization methods
- IM/IT value findings

Value of IM/IT

- Value determination for healthcare IM/IT investment has become vital for competitive survival.
- Global competition and increased domestic competition lead to need to maximize value from investments.

Value Matrix

- Never adopt
 - Costs increase and benefits decrease or remain unchanged
- Always adopt
 - Costs decrease and benefits increase or remain unchanged
- Uncertainty
 - Costs increase and benefits increase, or costs decrease and benefits decrease

Technology Cost and Outcome Effect Decision Matrix

<i>Cost</i>	<i>Outcome Effect</i>		
	<i>Improve</i>	<i>No Change</i>	<i>Worsen</i>
Increase	1 ?????	2 Never	3 Never
No change	4 Always	5 ?????	6 Never
Decrease	7 Always	8 Always	9 ?????

Cost Benefit and Cost Effectiveness Analysis

- Developed to systematically define and measure comprehensive costs and benefits of technology as an aid to decision making
- Developed to assist in government decisions regarding investments not strictly governed by market transactions (national defense, public works, etc.)

Challenges to Evaluation

- Technology has been found to be selected for the wrong reasons, such as keeping up with the competition. While there might be good reasons to adopt technology that your competition is using, that alone is not sufficient to implement an IM/IT system or application.
- Knowledge, time, and money may prohibit adequate evaluation of technology. IM/IT leadership may have been too busy to spend the time conducting evaluations to determine value from the investment.
- The technology in place may have been a poor decision, but that knowledge will have no impact on the investment decision going forward. This “water under the bridge” argument might keep leaders from investigating prior failures seriously.

Challenges to IM/IT Value Maximization

● Documentation

- The comprehensive, reliable data on the clinical or business outcomes related to the technology and the true, full costs associated with selecting, purchasing, implementing, hiring staff, training staff, training users, and so forth, are difficult to obtain, synthesize, and report.
- It takes time and money to determine if the value from your IM/IT investments actually exists.

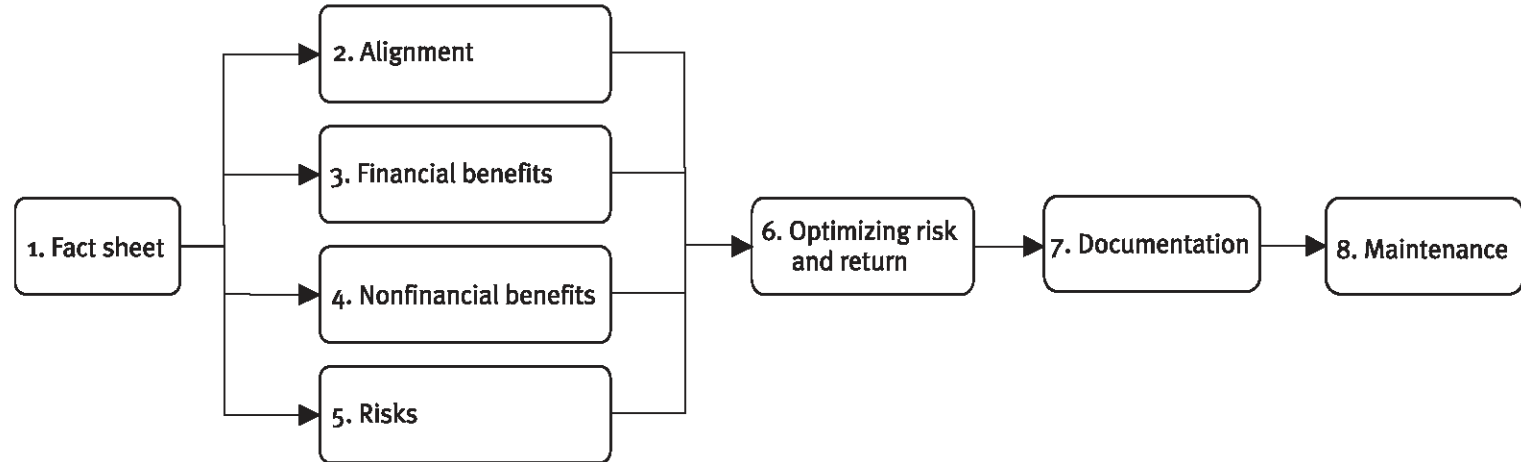
● Interdependence

- Even if data have been defined and collected, the pervasive nature of the influence of many IM/IT investments across functional areas in the organization makes determination of value difficult at best. Many systems have both direct and indirect cost and outcome effects across a wide number of portions of the organization; thus, assigning value to a particular investment is a major undertaking.

Four Key Questions for Value Realization

- Strategic question: Are we doing the right thing?
 - Is the investment aligned with broader business vision, is it consistent with principles, and does it contribute to strategic objectives?
- Architecture question: Are we doing it the right way?
 - Is the investment aligned with IM/IT architecture and consistent with architecture principles?
- Value question: Are we getting the benefits?
 - Do we have a clear understanding of the expected benefits, and do we have a process for realizing the benefits?
- Delivery question: Are we getting it done the right way?
 - Do we have effective and disciplined management, delivery, and change management processes with technical and business resources to deliver the promise of the technology investment?

Steps in Business Case Development



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Steps to Value Realization

- Build the fact sheet
- Alignment analysis
- Financial analysis
- Non-financial benefit analysis
- Risk analysis
- Optimizing risk and return
- Document business case
- Feedback mechanism

Building the Fact Sheet

- Gather all of the information relevant for making the appropriate IM/IT business decision.
 - Congruence (Alignment)
 - The investment must be consistent with documented business strategy, current IM/IT management practices, and government regulatory constraints.
 - Business outcomes
 - The investment must deliver an organizational need to achieve intermediate and final outcomes.
 - Financial benefits
 - Input for financial benefits should document cost saving, revenue enhancements, capacity/volume growth, or risk mitigation deriving from the investment decision. These include the tangible revenue enhancements or cost reductions in capital, operations, or risk.

Building the Fact Sheet (continued)

- Indirect benefits (Non financial benefits)
 - Some benefits are not easily quantified in financial terms, but must be seriously considered nonetheless.
- Costs (Resources and expenditures)
 - All categories of equipment, human resources, supplies, consultants, and other resources necessary for this IM/IT investment must be documented.
- Sensitivity (Risk)
 - Alternatives that quantify the risk in the investment must be identified.
- Model (Assumptions and constraints)
 - Understanding how the IM/IT investment will accomplish the desired outcomes, with associated benefits and costs, helps to determine the reasonableness of the subsequent analyses.

Alignment Analysis

- The selected IM/IT investment option must contribute to the objectives of the organization and be consistent with enterprise architecture.
- The investment should optimize net benefits from the scarce resources available.
- Alignment helps to ensure that the IM/IT-related investments support the organization's strategic business objectives.

Financial Analysis

- The final IM/IT investment project must have a demonstrated positive discounted net value (positive net present value, or NPV) and perhaps have better NPV than alternative investments so that the organization selects the best investment.

Non-Financial Benefit Analysis

- The non-financial aspects of business processes must also be considered.
- Building positive relations with constituencies external to the IM/IT function may create value for the organization.
- Consideration of the external or indirect effects of an investment may partially offset poor financial considerations.

Risk Analysis

- Assessing and documenting risks in outcomes, financial benefits, and resource use or costs are integral steps in the value assessment process.
- Both delivery risk and benefits risk are inherent in any IM/IT investment.

Optimizing Risk and Return

- IM/IT investment proposals must have the same sets of information collected and reported and that assessment must be done in a comparable manner.
- The best decision will evolve if valid comparisons are made by those (e.g. the portfolio management office) with the incentive to maximize value to the organization.

Document Business Case

- Documentation of data and information, assessment techniques, and findings all add to the “open architecture” framework for decisions – creating a culture of critical assessment so important to good decision making.
- The tendency to not reveal information as a mechanism to protect those making the decision may lead to poorer outcomes.

Feedback Mechanism

- IM/IT investment needs, organizational priorities, staffing constraints, and other environmental changes occur continuously.
- The information collected, assumptions made, benefits observed, and costs incurred related to an IM/IT investment should be reviewed throughout the lifecycle of the investment.
- While many decisions can not be “undone” as a result of such reviews, midcourse adjustments in investment scale and scope are often possible.
- If the organization veers off course as a result of an investment, having a feedback mechanism enables the organization to adjust to minimize loss.

IM/IT Value Findings

- Micro-evaluation studies
 - Hillestad et al. 2005
 - Pizziferri et al. 2005
 - Poissant et al. 2005
- Organizational study
 - Menachemi et al. 2006

Hillestad et al. 2005

- Potential EMR cost savings
 - Estimated short term (5 years) and long term (15 years) savings
 - Inpatient savings greatest with reductions in length of stay and nursing time the largest components
 - Outpatient savings lower with reduced drug usage providing most of the benefits

Pizziferri et al. 2005

- Physician time spent with patients in clinic setting
- No differences in time for
 - Direct care
 - Indirect care (reading, writing, etc)
 - Administrative activities
 - Miscellaneous activities

Poissant et al. 2005

- Physician and nurse documentation time with EHR
- Compared bedside EHR and central nursing station EHR options
 - Modest decreases in nursing documentation time
 - Increases in physician documentation time

Menachemi et al. 2006

- IM/IT adoption and hospital financial performance
- Florida hospitals
- Positive relations found for overall financial performance and operational improvement IM/IT investments in
 - Clinical systems
 - Administrative systems
 - Strategic IM/IT investments