

Brian Sandoval
Governor

Jeff Mohlenkamp
Director
David Gustafson
Chief Information Officer



STATE OF NEVADA
DEPARTMENT OF ADMINISTRATION
Enterprise I.T. Services

A TECHNOLOGY INVESTMENT REQUEST (TIR) GUIDE:
Defining, Mapping and Tracking Benefits
Related to Project Goals and Objectives

December 2, 2013
Version 3

A TIR Guide: Defining, Mapping and Tracking Benefits

CONTENTS

Introduction.....	2
Types of Benefits.....	2
Getting Started.....	3
Business Benefits: Goals and Objectives - Examples.....	3
Goal: Technology Improvements	4
Goal: Security Improvements	5
Steps in Developing Benefit Measures.....	6
Step 1. Identifying, Prioritizing, and Selecting a Primary Set of Benefits.....	6
Step 2. Defining How a Benefit Will Be Measured.....	6
Step 3. Projecting Ongoing Benefits	7
More Examples of Benefits	8
Financial Benefits	8
Example: Cost Saving Through Cost Avoidance.....	8
Example: New Revenue.....	9
Non-Financial Goals.....	10
Example: Improved Access to Service.....	10
Example: Improved Customer Satisfaction (continued example).....	11
Converting Non-Financial Benefits to Tangible \$\$\$.....	13
Conversion Using Established Standard Measures	13
Converting With Historical Data.....	13
Converting With External Sources and Databases.....	14
Using Measures From Others.....	14
Expert Estimation.....	14
Using Mapped Benefits in the TIR	14
Summarizing Mapped Benefits in the TIR Business Case	14
Transferring Mapped Financial Benefits to the S&RP	14
ROI & the Human Element: Measuring Adaptation to Culture Change in IT Projects	14
Reaction Data Example.....	15
Learning Data Example	15
Application Data Example	16
Accountability & Actual Returns on Investment	16
Credibility & Isolating the Effects of Your Program/Project.....	17
Mapped Benefits as Part of an Ongoing IT Management Program	17
References and Sources for Additional Help.....	19

A TIR Guide: Defining, Mapping and Tracking Benefits

INTRODUCTION

Benefits mapping is the process of describing anticipated benefits and showing how they will be measured and tracked in a way that meets the goals and objectives of the organization. Components included in the TIR Benefit Map are: the goal and objective that the benefit supports, a benefit description, a discussion of the current situation (baseline), a description of how the benefit is measured, a depiction of the estimated five-year financial benefits, and a cumulative five-year target. The process involves isolating, prioritizing, and fully defining the benefits, as well as coming up with a methodology for benefits measurement. Developing a measurement method includes:

- ◆ Identification of the thing to be improved
- ◆ Determining how to measure it
- ◆ Quantifying a baseline measure (the “as is” condition)
- ◆ Developing a reasonable target for improvement

The following sections define this process and provide examples for mapping both financial and non-financial benefits.

TYPES OF BENEFITS

The realization of benefits begins with careful identification and characterization of benefits with respect to the business goals they address. Benefits can be either financial or non-financial in nature. Financial benefits can take the form of revenue increases or they can result from cost reductions or avoidances. Non-financial benefits can also be measured, and often have to do with increased efficiencies or improved quality. Even customer satisfaction can be measured by tracking the reduction in complaints or through customer surveys.

Intangible benefits should also be addressed. These are benefits that can't be easily measured but play an important role in the success of the project. For instance, improved team relations, staff cooperation, and morale are all important improvements, yet all hard to quantify.

Technology projects are generally focused on business improvements and the resolution of business problems. New advances in technology have resulted in projects that focus on opportunities for improving business by applying these technologies. Service Oriented Architecture (SOA) which allows the sharing of data across diverse systems and platforms is a perfect example of this. Examples of possible business and technology benefits are outlined below.

A TIR Guide: Defining, Mapping, and Tracking Benefits

GETTING STARTED

The first step is to identify the major goals and objectives that guide the project. The following lists provide examples of Business Goals as well as Technology and Security Goals and Objectives. The business context of the project will help determine the selection of goals. If this is a Grant related project, it is possible that the grant objectives will be used. If the project is Federally funded and related to an Application Planning Document (APD) then it may be desirable to tie to the goals in the APD. TIRs in the biennial budget process may wish to tie to either goals such as the Governor's Strategic Initiatives or the Goals identified by the IT Strategic Planning Committee for the review and ranking of TIRs for the Governor's Recommends Budget.

BUSINESS BENEFITS: GOALS AND OBJECTIVES - EXAMPLES

Goal: Financial Benefits

Objectives:

- ◆ Increased revenue
- ◆ Improved capability to avoid costs
- ◆ Decreased operational costs
- ◆ Lowered constituent costs
- ◆ Improve ability to qualify for additional funding
- ◆ Reduced staff overtime
- ◆ Reduced program costs
- ◆ Reduced consumables
- ◆ Lowered maintenance costs
- ◆ Reduced communications costs

Goal: Public Safety

Objectives:

- ◆ Improved emergency response
- ◆ Improved staff safety
- ◆ Improved customer safety
- ◆ Improved adherence to public safety policies

Goal: Process/Operational Improvements

Objectives:

- ◆ Improved utilization of staff
- ◆ Eliminated process redundancy
- ◆ Improved process consistency
- ◆ Optimized resources
- ◆ Shortened service development cycle
- ◆ Realized economies of scale
- ◆ Improved internal controls

A TIR Guide: Defining, Mapping, and Tracking Benefits

- ◆ Improved record retrieval and more timely reporting
- ◆ Shortened processing time
- ◆ Stabilized IT environment
- ◆ Reduced need for future enhancements

Goal: Improved Service

Objectives

- ◆ Improved service or product quality
- ◆ Expanded range of services or distribution channels
- ◆ Improved access to service, equity of access or available locations or time of access
- ◆ Increased service delivery or more effective service
- ◆ Improved customer relations (tailored services, better online help, reduced complaints)
- ◆ Improved access to public information
- ◆ Improved information or resource sharing

Goal: Political Return / Public Satisfaction

Objectives

- ◆ Improved policy making or decision making capabilities
- ◆ Increased capacity to adapt to regulatory changes
- ◆ Increased participation of stakeholders in program or service
- ◆ Reduced digital divide (helping the “have-nots”)
- ◆ Reduced government “hassle factor”
- ◆ Improved image

Goal: Accountability / Strategic Alignment / Statutory Compliance

Objectives

- ◆ Achieved policy objectives
- ◆ Improved accountability
- ◆ Improved agency planning and strategic direction setting
- ◆ Improved tracking of agency performance indicators
- ◆ Enhanced service monitoring, such as the creation of a service “report card”
- ◆ Enhanced Business Intelligences for supporting Executive Branch decisions
- ◆ Improved integration of IT objectives with the agency’s mission
- ◆ Established IT standards
- ◆ Adhered to grant requirements
- ◆ Required by State statute

GOAL: TECHNOLOGY IMPROVEMENTS

There is ever increasing focus on cost savings through better planning and use of technology.

A TIR Guide: Defining, Mapping, and Tracking Benefits

Objectives

- ◆ Reduced IT Administration Costs
- ◆ Improved Disaster Recovery
- ◆ Better End-User Support
- ◆ More Cost Effective Application Development & Maintenance
- ◆ Standardized Workstation and Peripherals
- ◆ Optimized Servers, Mainframe and Storage
- ◆ Central Cost-Effective Network and Telephony
- ◆ Reduced technical staffing
- ◆ Increased staff productivity
- ◆ Reduced license and service fees
- ◆ Reduced power required
- ◆ Reduced footprint of physical equipment
- ◆ Extended product lifecycle & deferred replacement
- ◆ Reduced cost of equipment
- ◆ Reduced cost of service
- ◆ Increased bandwidth
- ◆ Faster response time
- ◆ Reduced complexity
- ◆ Quicker time to implement
- ◆ Easier management
- ◆ Increased expandability and extensibility
- ◆ Easier problem resolution
- ◆ Easier support of end users

GOAL: SECURITY IMPROVEMENTS

Objectives

- ◆ Improved Federal compliance (for instance, better meets federal IT security requirements such as HIPPA, NIST SP800.53)
- ◆ Improved State compliance (all current State IT Security policies)
- ◆ Increased IT security awareness and compliance
- ◆ Improved physical security
- ◆ Improved data protection
- ◆ Improved disaster recovery
- ◆ Improved continuity of operations

A TIR Guide: Defining, Mapping, and Tracking Benefits

STEPS IN DEVELOPING BENEFIT MEASURES

STEP 1. IDENTIFYING, PRIORITIZING, AND SELECTING A PRIMARY SET OF BENEFITS

The first step in the benefits mapping process involves creating a list of possible benefits from project stakeholders. This should be initiated during the early discussions of project goals and objectives. Each defined benefit should necessarily link to a project Goal and Objective.

Possible benefits can then be characterized using evaluation criteria:

- ◆ The relative size of benefit to be attained
- ◆ Timeliness of benefit realization
- ◆ Potential risks to realizing the benefit
- ◆ Ease with which meaningful measures can be developed for the benefit.

The audience for the Technology Investment Request (TIR) should also be considered. Financial benefits are strong selling points to fiscal stakeholders in both the Executive Branch (Budget Analysts) and at the Legislature (Legislative Fiscal Analysts and Auditors). The best non-financial benefits for making a business case are the ones that most closely align with the reason for the technology solution, as well as those that show improvements in core business. Existing performance indicators have the additional advantage of already being accepted as credible measures by stakeholders.

Benefits should be prioritized and screened. Generally, most of the value is represented by only a few of the total possible benefits. It also takes a bit of effort to fully define a benefit in a way that is credible to all stakeholders. ***Therefore, it is important to focus on a few primary credible measures, rather than a watered down shotgun approach.***

Prioritization should also consider stakeholders involved with IT governance. For instance, the measures should address major categories of benefits expected by the IT Strategic Planning Committee (ITSPC). (Note: the preceding list aligns with the ITSPC categories.)

STEP 2. DEFINING HOW A BENEFIT WILL BE MEASURED

It is important to have an estimation methodology that is understandable and credible. The following Benefits Map worksheet has been provided to help define the characteristics of a particular benefit and how it will be measured. An example benefit is mapped using this methodology.

EXAMPLE: An agency plans a project to consolidate and standardize departmental IT resources from four similar facilities into one. It predicts that there will be a significant decrease in the cost to maintain and support the IT environment once fully implemented. The baseline costs for the current IT facilities, operations, and maintenance are quantified for the multiple systems currently in place. A five year implementation is planned, absorbing one facility at a time over consecutive fiscal years.

A TIR Guide: Defining, Mapping, and Tracking Benefits

BENEFITS MAP				
Goal: Financial Impact (E)	Benefit Description	Baseline Measure	Measurement Methods	Estimate of Benefit
Objective: Cost Savings – Through Consolidation (E-1)	E1.1 Reduction in operational & maintenance costs by consolidating to a single computer facility	\$1,430,000 annual expenditure recorded in base year	Compare the fiscal year end financial management report to baseline costs.	10% per year savings based on recorded costs for similar operational improvements. ¹ Benefits will increase up to an ongoing 40% savings.

STEP 3. PROJECTING ONGOING BENEFITS

Considering projects generally take more than a year, much of the benefit will not be realized in the biennium in which it is funded. Therefore, a five year period has been used in the Benefits Map to capture benefits across an extended period. Return on Investment (ROI) estimates can be made by comparing the total financial benefits achieved in five years to the total cost.

EXAMPLE (Continued): The agency estimated savings of 10% per year to occur as the systems are consolidated over the next four years, and continue at that 40% savings level into the future. This could be viewed as either a 10% reduction in cost or as an actual benefit figure as shown in the following Benefits Map.

E-1.1 Cost Savings Through Consolidation	Base Year	Year 1	Year 2	Year 3	Year 4²	Year 5	Five Year Total
Existing Annual Operation Costs	\$1,430,000	\$1,430,000	\$1,430,000	\$1,430,000	\$1,430,000	\$1,430,000	\$7,150,000
Cumulative % Reduction (up to 40% of baseline.	n.a.	10%	20%	30%	40%	40%	40%
E-1.1 Estimated Savings	n.a.	\$143,000	\$286,000	\$429,000	\$572,000	\$572,000	\$2,002,000

¹ It is appropriate to footnote references used to make your projections.

² The benefit level would plateau at this point since there is no further anticipated cost savings after all operations are consolidated in the fourth year.

A TIR Guide: Defining, Mapping, and Tracking Benefits

MORE EXAMPLES OF BENEFITS

FINANCIAL BENEFITS

Financial benefits take the form of cost savings or revenue increases. Cost savings may be in the form of reductions (cost cutting as in the above example), or avoidance (costs not incurred). Revenue increases may come from either improved revenue from existing sources or generating revenue from a new revenue source. It is possible that there is more than one financial benefit which should be mapped.

EXAMPLE: COST SAVING THROUGH COST AVOIDANCE

A State agency receiving a Performance Grant must meet a projected level of caseload management. The agency cannot keep up with the caseload, and is projected to fall short of the required caseload level starting in the next fiscal year. A Federal penalty of 10% will be placed on this bi-annual entitlement grant when the caseload cannot be maintained at the projected level. The agency is proposing a technology project that will allow quicker processing of applicants' requests for service, more efficient triage to services, and better caseload management, thus keeping up with the projected caseload and avoiding the penalty.

The following table describes how the measurement will be calculated and the projected savings over five years.

BENEFITS MAP							
Goal: Financial Impact (E)	Benefit Description	Baseline Measure	Measurement Methods	Estimate of Benefit			
Objective: Cost Savings – Avoidance of Federal Penalties (E-2)	E2.1 Inability to meet grant requirements will result in a 10% reduction in initial grant funding	Inability to meet caseload next year will result in a 10% penalty.	Use the expected 10% penalty based on the expected grant amount for each year. Note: grant amount increases by \$250,000 each biennium.	10% per year savings are estimated based on the expected grant level. (Note a partial penalty in year 1 due to midyear implementation.)			
Cost Savings	Base Year	Year 1	Year 2	Year 3	Year 4	Year 5	Five Year Total
Existing Annual Cost of Federal Grant Penalty	n.a.	\$5,000,000	\$5,000,000	\$5,250,000	\$5,250,000	\$5,500,000	\$26,000,000
Estimated Penalty With Existing System	n.a.	\$50,000	\$50,000	\$52,500	\$52,500	\$55,000	\$260,000

A TIR Guide: Defining, Mapping, and Tracking Benefits

(10%)							
Penalty After Implementation	n.a.	\$25,000	\$0	\$0	\$0	\$0	\$25,000
E-2.1 Estimated Savings (Costs – Avoidance)	n.a.	\$25,000	\$50,000	\$52,500	\$52,500	\$55,000	\$235,000

EXAMPLE: NEW REVENUE

Occasionally, new revenue or an expanded revenue stream will result from a technology improvement.

EXAMPLE: A project will add new functionality to an existing licensing software application that enables it to collect application, licensing and testing fees from a new rural licensing population. Previously, the rural population had not been served by the agency. The total number of licensees is expected to go up by 50% once the application has been implemented and tested. A requirements study, software design and development will be performed in the first year of the biennium, with testing and implementation in the second year. It is proposed that the new licensing enhancement will rolled out for initial use in the later part of the second year and be fully functional in three years.

If the initial revenue is \$1.5 million a year and the projected increase is 50% once the system is fully implemented, revenue will increase to an annual level of \$2.25 million. Since the system will begin operation in the fourth quarter of Year 2, the Year 2 increase in revenue will need to be calculated. A benefit figure can be calculated by subtracting the base figure from the estimated revenue figures. The following table describes how the benefit will be measured, and gives benefit projections over a five year period.

BENEFITS MAP				
Goal: Financial Impact (E)	Benefit Description	Baseline Measure	Measurement Methods	Estimate of Benefit
Objective: New Revenue – Expanded fee base (E-3)	E3.1 Fees for a new rural licensing population will be collected using the new Web based application.	The number of the current urban business licenses is known	Calculate the number of rural businesses that have yet to be served. Multiply by the expected licensing fees. Partial benefits will begin in the last part of Yr. 2.	50% benefit is estimated to be fully appreciated in year three.

A TIR Guide: Defining, Mapping, and Tracking Benefits

New Revenue	Base Year	Year 1	Year 2	Year 3 ³	Year 4	Year 5	5 YrTotal
Existing Annual Revenues	n.a.	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$7,500,000
E-3.1 New Licensing Fees (Benefit)	n.a.	\$0	\$187,500	\$750,000	\$750,000	\$750,000	\$1,897,500
Total Projected Revenues	\$1,500,000	\$1,500,000	\$1,687,500	\$2,250,000	\$2,250,000	\$2,250,000	\$9,397,500

NON-FINANCIAL GOALS

Other measurable, non-financial benefits may relate to a variety of Project Goals including:

- ◆ Business Improvements (both Process Operational Improvement)
- ◆ Service Improvements
- ◆ Safety Improvements (including Security)
- ◆ Strategic Alignment
- ◆ Satisfaction (Political Return & Public Satisfaction)
- ◆ Accountability & Statutory Compliance
- ◆ Technology Improvements
- ◆ Security Benefits (see this section above).

Business improvement measures may exist in the form of process measures. A baseline may also already exist for service improvement. For instance, the average wait times for customers may be tracked and known. The technology improvements may result in improved system response at customer intake windows, thus resulting in a decrease in wait time. The closer the non-financial benefit measures are to core business functions and processes the better. Start by considering your existing performance indicators.

A couple of examples are provided here to show the mapping of non-financial benefits. The first provides a benefit mapping for a service improvement measure. The second example is for improved customer satisfaction.

EXAMPLE: IMPROVED ACCESS TO SERVICE

An agency is building a business case for a system application redesign that will result in improved system response time for inquiries on customer data. This information is critical for

³ The benefit level would plateau at this point as there is no further anticipated increase in revenues after the new licensing enhancements have been operational for a full fiscal year.

A TIR Guide: Defining, Mapping, and Tracking Benefits

client intake at a medical facility. Quicker access to this information affects the speed at which a client can be admitted for service. A quality audit indicated that there is an average 40-minute wait. During this period, the staffs conducting client intake often have to leave the area to look up information directly from the hard copy medical records in another portion of the building. It is predicted that system redesign and process re-engineering will allow the average window time to reduce to 10 minutes (2 minutes for data look up, and 8 minutes for customer form completion). Forty clients visit the facility on a daily basis, or 1,400 intake engagements in a year. This may be captured as savings in client hours. An estimated 1,400 clients will save half an hour in waiting time each (or 75% savings over prior wait time). This benefit can be mapped across 5 years, as shown in the next table.

BENEFITS MAP							
Goal: Business Improvement (D)	Benefit Description	Baseline Measure	Measurement Methods				Estimate of Benefit
Objective: Improved Business / Customer Service Access to Services (D.1)	D1.1 Reduction in time clients wait to be admitted to service	Current 40-minute average wait time per client	Reduction of wait by 30 min. per client. Tot time savings = (#clients * annual wait in hours). Accumulate savings.				Annual benefit for 1,400 clients (avg. annual intake) * .5 hr = 720 hrs / year
Service Improvement	Base Year	Year 1	Year 2	Year 3	Year 4	Year 5	5 Yr Total
Annual hours of customer wait time	5,760 hrs	5,760 hrs	5,760 hrs	5,760 hrs	5,760 hrs	5,760 hrs	288,000 hrs
Estimated % Reduction	n.a.	75% for half a year	75%	75%	75%	75%	n.a.
D1.1 Hours saved		2,160 hrs	4,320 hrs	4,320 hrs	4,320 hrs	4,320 hrs	19,440 hrs

EXAMPLE: IMPROVED CUSTOMER SATISFACTION (continued example)

Customer complaints about wait time should be reduced with the new system. Last year, 720 complaints were filed by intake clients accessing services (approximately 51.4% of the 1,400 annual intake clients). Management plans to reduce the complaints from intake clients to 2.5% per year by the second year of operation (36 complaints per year). The first year is a partial implementation year, and should result in reduced complaints for only the second half of the year. So, 360 complaints are estimated for the first 6 months, and a reduction in the second half of the year to 18 complaints, thus 378 (360+18) expected complaints for that full year (see below).

A TIR Guide: Defining, Mapping, and Tracking Benefits

BENEFITS MAP							
Benefit Type: Customer Satisfaction (H)	Benefit Description	Baseline Measure	Measurement Methods				Estimate of Benefit
Objective: Reduced Complaints (H1)	H1.1 Reduction in number of complaints concerning to access to services	Currently 740 complaints per year	Estimated reduction from 51.4% of client intake complaints to 2.6%. Only half of the first year will see this benefit reduction				There is a significant reduction from nearly 2 complaints every day to about 3 per month.
Reduced Complaints	Base Year	Year 1	Year 2	Year 3	Year 4	Year 5	5 Yr. Total
Average Annual Complaints	740	740	740	740	740	740	3,700
Complaints after new process	740	378	36	36	36	36	522
H1.1 Complaint Reduction	0	362	704	704	704	704	3,178

The two preceding examples show mapping estimates for non-financial benefits. It may be desirable to convert some of the non-financial measures to dollar values, creating additional financial benefit measures. For instance, savings in staff time may be converted if the amount of staff effort is known, and the average salary of the personnel involved is known. Fiscal stakeholders and individuals involved in IT governance are often suspicious of these conversions. It is advisable to review your conversion methodology with key financial stakeholders to assure that they think the resulting financial benefit is credible. Several methods for converting non-financial measures to believable financial benefits are used in the industry.

A TIR Guide: Defining, Mapping, and Tracking Benefits

CONVERTING NON-FINANCIAL BENEFITS TO TANGIBLE \$\$\$

Several methods are described in the professional literature for converting non-financial benefits to monetary values.⁴ This section discusses the conversion of “hard data,” such as the two measurable non-financial benefits listed above, to dollar benefit values. Hard data includes those benefits that can be counted or measured. Other good examples of non-financial, hard data benefits are reduction in reject rate and reduced number of errors.

Soft data, or intangible benefits, include those benefits that are difficult to count or measure, such as stress reduction, improved teamwork and job satisfaction. If a benefit is not measureable, it cannot be mapped as a benefit. It is possible to convert soft data to hard measures, which in turn can potentially be converted to dollar values. However, you should carefully consider the amount of effort to convert a measure to dollars, as well as the credibility of the result. While a conversion effort may not be worth pursuing, these intangibles should still be discussed in the TIR (Section 3.4: Primary Benefits),

Here is a listing of some of the credible means of converting non-financial benefits to dollar values.

CONVERSION USING ESTABLISHED STANDARD MEASURES

A standard measure is defined as a value that is accepted by an organization as the monetary value of a particular measure. This is the most credible technique of data conversion. This has typically low resource requirements and is a relatively simple conversion. Often, if it is important enough to measure in your industry, it may have been converted to a monetary value. A variety of quality measures have been converted to standard values for various industries including: defects, rework, processing errors, accidents, grievances, equipment downtime, system downtime, etc.

CONVERTING WITH HISTORICAL DATA

This involves the use of historical information to generate a conversion factor that can be used to change a particular measure to a dollar value. This often involves creating an average based on historic records. This can take time, and records may be incomplete or hard to locate.

Some things may be more feasibly approached than others. For example, a historical report shows the number of daily errors occurring in a system. There also exists a department indicator on the average amount of time it takes to fix an error. These two can be used to create an average annual effort to fix errors. An average support staff salary estimate can be used to establish an annual baseline cost. Similarly, a projected reduction in errors can be converted into the financial improvement, using this historically established baseline.

⁴ Data Conversion-Calculating the Monetary Benefits, Pfeiffer Measurement & Evaluation Series. Vol. 4, Phillips, Patricia & Holly Burkett, 2008, John Wiley & Sons

A TIR Guide: Defining, Mapping, and Tracking Benefits

CONVERTING WITH EXTERNAL SOURCES AND DATABASES

Exploring the Web through Web searches, general and specialized on-line directories, and search engines is an appropriate way to look for potential means of converting measures to monetary values.

USING MEASURES FROM OTHERS

It is possible that a similar project has mapped benefits which could apply to your project. Ideally, a similar project has already tracked actual financial benefits after its completion. This could be a rich source of credible benefits data.

EXPERT ESTIMATION

Experts can be used to provide estimates. Finding an expert with respected credibility among all stakeholders is a challenge. Credibility increases if there are several experts in agreement concerning a monetary conversion of a particular measure. For a good methodology for creating credible estimates from experts, see Phillips and Burkett (2008)⁵.

USING MAPPED BENEFITS IN THE TIR

SUMMARIZING MAPPED BENEFITS IN THE TIR BUSINESS CASE

In the TIR business case document, Section 3.3 Primary Benefits should contain a summary of the primary benefits you have mapped. The focus should be on linking the actual anticipated benefits to the project's purpose (Section 3.1 Business Reason), and objectives (Section 3.2 Business Objective) of the project. Details on the measurement methods, baseline calculations, etc. should be referred to in the Benefits Map (TIR Attachment B). This is also the place to discuss the project's intangible benefits.

TRANSFERRING MAPPED FINANCIAL BENEFITS TO THE S&RP

In the TIR Service and Resource Planner worksheet C9-\$Benefits provides a place for capturing financial benefits. Once the financial benefits have been defined and mapped, they can be recorded on this worksheet. This allows benefits to be compared to project costs, resulting in a Cost Benefit Summary and Project ROI.

ROI & THE HUMAN ELEMENT: MEASURING ADAPTATION TO CULTURE CHANGE IN IT PROJECTS

Intangible benefits such as improved morale, improved teamwork, stress reduction and job satisfaction were mentioned earlier. These factors are general improvements in business

⁵ Data Conversion: Calculating Monetary Benefits. Pfeiffer Measurement & Evaluation Series. Vol. 4, Patricia Phillips & Holly Burkett, 2008, John Wiley & Sons

A TIR Guide: Defining, Mapping, and Tracking Benefits

culture and environment. These human resource (HR) elements are best addressed by Return on Investment (ROI) methodologies such as the Phillips ROI Methodology™. This methodology, taught at the ROI Institute at Villanova University, addresses 5 levels of ROI data.⁶ Up to this point, the TIR has dealt with what the Phillips methodology classifies as Level 4 and Level 5 data. Level 4 is impact data – basically those benefits quantified in the Benefits Map. Level 5 is ROI data. In the TIR, Level 5 ROI data corresponds with the measures generated by the ROI calculator in the Service and Resource Planner (S&RP worksheet C-10). These two levels of data have historically been important in justifying IT projects.

While Level 4 and 5 data play a key role in project justification and funding, Level 1, 2, & 3 data of the Phillips ROI Methodology play key roles in the IT project planning and implementation lifecycle. Level 1 Reaction Data plays a role in the initial planning of the IT project, by assuring stakeholders are on board. Level 2 Learning Data and Level 3 Application Data help evaluate stakeholder engagement in your project, and how well the users learn and use the new IT processes in an effective and repeatable way. The following examples show the application of these types of measures to IT project planning and oversight.

REACTION DATA EXAMPLE

Prior to implementing a new on-line registration portal, business leaders decided to assure that this was truly a desirable improvement, as past registrants had mentioned several other possible improvements as well. A survey was distributed to the stakeholder groups to see how they would react to this possible IT project. The results (or “reaction data”) showed that among a list of 5 possible key improvements to the existing licensing application, on-line registration was ranked number one.

This example shows the collection of Level 1 Reaction Data. It is the first step in a comprehensive ROI program to evaluate the reaction to potential IT improvements. In times of tight funding, it is important that limited IT project funds are spent on those things most desired, and most beneficial to the involved constituent. This measure best corresponds with the early planning phase of the IT project lifecycle.

LEARNING DATA EXAMPLE

In planning for the on-line registration system, the managers wanted to assure that once developed the system would be successfully deployed and used. Currently, the employees suffered under a manual registration process that was heavily paper bound and had many redundancies and flaws. A survey of employees (Level 1 Reaction Data) showed a great desire for the on-line system. Requirements for the new system included input from both employees and potential license registrants. These later played a role in system design and user training. End user testing routines validated that the necessary user requirements had been

⁶ ROI Fundamentals: Why and When to Measure Return on Investment. Pfeiffer Measurement & Evaluation Series. Vol. 1, Phillips, Patricia & Jack Phillips, 2008, John Wiley & Sons.

A TIR Guide: Defining, Mapping, and Tracking Benefits

incorporated, and that the users had learned how to adequately use the system (Level 2 Learning Data).

This portrays the second level of a 5 level ROI methodology commonly used for HR programs. This type of data has obvious use in HR programs that involve interventions (often training programs) that will lead to business improvements. This data should be defined in project planning and further refined in the development of user acceptance testing. In other words, it is most useful after the IT “intervention” has been made, corresponding with user training. This measure best corresponds with the final phase of project implementation where an evaluation is made on the success of end user training and acceptance of the new IT application.

APPLICATION DATA EXAMPLE

Managers wanted to be able to show the Legislature that the funding for this project resulted in a positive impact for constituents (Level 4 Impact Data) and a good return on their investment (Level 5 ROI). They also wanted to show that there was a positive impact on the business, and that the system was successfully used. One year after original implementation, a random sample of users was selected and tested on system use (based on user testing a year before). An acceptable “passing” level was established for the new test. Results showed successful adoption of the new IT process, and indicated areas where future training was needed.

The initial functional requirements and user defined needs are important for designing these measures that are to be taken post implementation. This is much like the Impact Data and ROI measures that are initially designed in the TIR’s Benefits Map. Design occurs during planning and actual measurement occurs after implementation.

ACCOUNTABILITY & ACTUAL RETURNS ON INVESTMENT

Benefits mapping establishes targets to be achieved after the project is complete. Actual outcome data collected once the project is over should be compared to the projections made in the benefits map. Ideally, some of these measures may be adopted as program performance indicators.

Figure 1. *Association of Benefit Measures with the IT Project Lifecycle*, shows how the design of these benefit measures must occur during early planning, and be articulated in the TIR. Measurements should then be taken later in the lifecycle (during implementation for level 2, and after implementation for Level 3, 4 and 5 data), and compared to the anticipated targets. Results also serve as lessons learned related to initial project assumptions and objectives.

A TIR Guide: Defining, Mapping, and Tracking Benefits

CREDIBILITY & ISOLATING THE EFFECTS OF YOUR PROGRAM/PROJECT

It is possible that the projected benefits have been influenced, or are in part the result of factors outside of the project. Methods of isolating the effects of a program in its contribution to ROI are available.⁷ Care must be taken to isolate and adjust for the actual benefits of the IT project. Being conservative in your estimates, choosing credible data sources, and avoiding extreme data and unsupported claims are guiding principles of a ROI methodology.⁸

MAPPED BENEFITS AS PART OF AN ONGOING IT MANAGEMENT PROGRAM

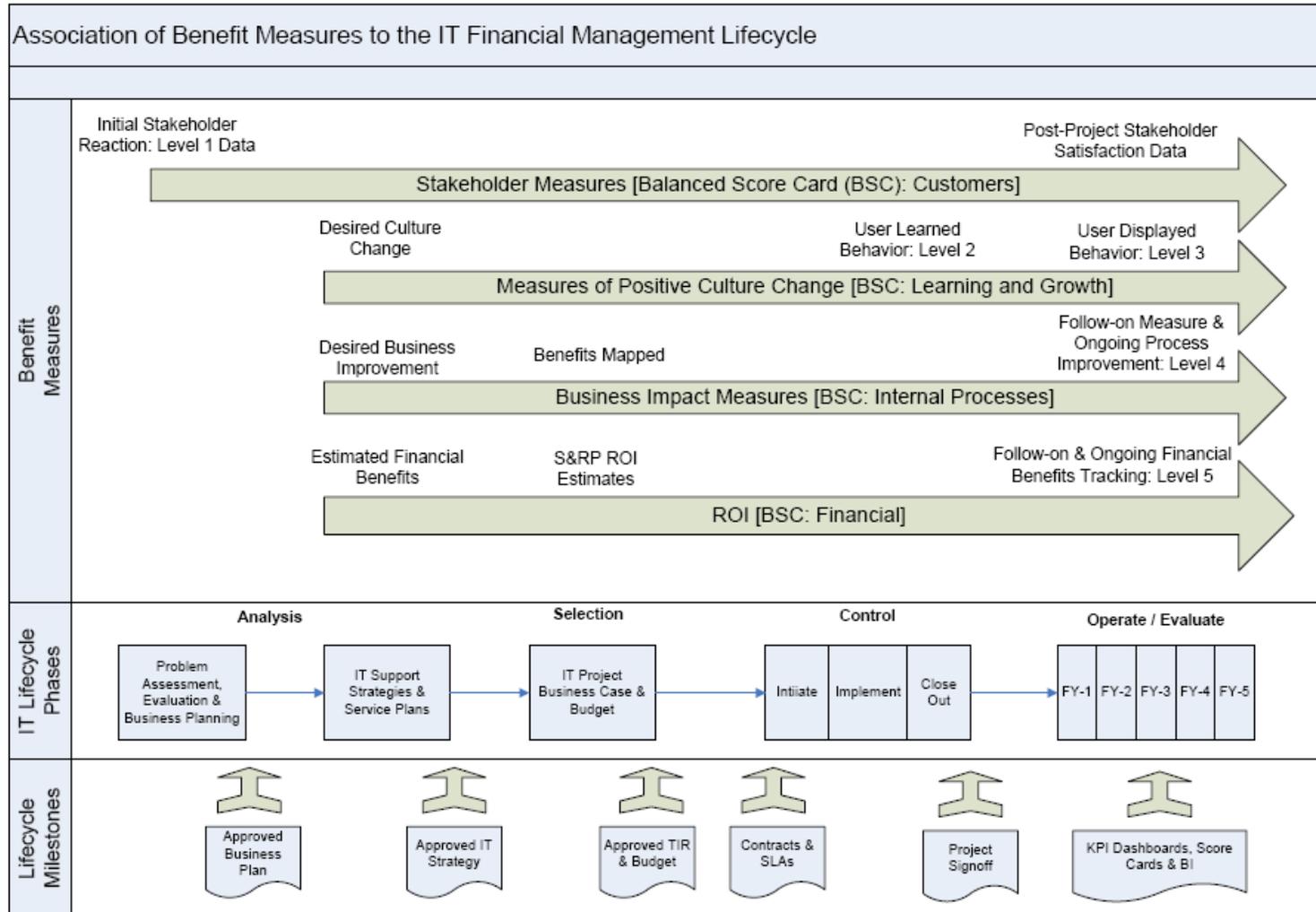
This guide has focused on identifying and detailing the expected benefits of IT projects. Projecting benefits is essential to making a strong business case for any technology investment. These methods, however, can also be useful in developing performance, process and outcome measures for ongoing programs. Tracking meaningful indicators is one way of assuring that there are continued benefits to the programs that your IT project was implemented to support.

⁷ Isolation of Results: Defining the Impact of the Program. Pfeiffer Measurement & Evaluation Series. Vol. 3, Phillips, Jack & Bruce Aaron. 2008, John Wiley & Sons.

⁸ ROI Fundamentals: Why and When to Measure Return on Investment. Pfeiffer Measurement & Evaluation Series. Vol. 1, Phillips, Patricia & Jack Phillips, 2008, John Wiley & Sons.

A TIR Guide: Defining, Mapping and Tracking Benefits

Table 1.



A TIR Guide: Defining, Mapping and Tracking Benefits

REFERENCES AND SOURCES FOR ADDITIONAL HELP

If you have questions concerning the completion of the Benefits Realization Map, please contact EITS Planning (684-5800).

Cresswell, Anthony; Burke, G. Brian; & Theresa A. Pardo

2006 Advancing Return on Investment Analysis for Government IT: A Public Value Framework. Center for Technology in Government, University at Albany, SUNY

Kost, J & A. Di Maio

2003 Creating a Business Case for a Government IT Project. Decision Framework, DF-19-0249. Gartner Research.

New South Wales, Office of Information Technology

2002 Business Case Development Guidelines, Issue No. 3.0

2002 Benefits Realization Guide, Issue No. 2.0

Phillips, Patricia & Jack J. Phillips

2008 ROI Fundamentals: Why and When to Measure Return on Investment. Pfeiffer Measurement & Evaluation Series. Vol. 1, John Wiley & Sons.

Phillips, Patricia & Holly Burkett

2008 Data Conversion: Calculating Monetary Benefits. Pfeiffer Measurement & Evaluation Series. Vol. 4, John Wiley & Sons

Phillips, Patricia & Cathy Stawarski

2008 Planning for and Collecting all Types of Data. Pfeiffer Measurement & Evaluation Series. Vol. 2, John Wiley & Sons

Phillips, Jack J. and Bruce Aaron

2008 Isolation of Results: Defining the Impact of the Program. Pfeiffer Measurement & Evaluation Series. Vol. 3, John Wiley & Sons

Phillips, Jack J. and Wendi Friedman Tush

2008 Communication and Implementation: Sustaining the Practice. Pfeiffer Measurement & Evaluation Series. Vol. 6, John Wiley & Sons

Phillips, Jack J. and Lizette Zuniga

2008 Costs and ROI: Evaluating at the Ultimate Level. Pfeiffer Measurement & Evaluation Series. Vol. 5, John Wiley & Sons

A TIR Guide: Defining, Mapping, and Tracking Benefits

Resource Management Systems, Inc

2004 Consolidated BCA, CBA, & ROI Training for State of Nevada DoIT: Seminar Workbook. IT Investment Management and Planning Series, RMS, Inc.

Whitmer, Gay Mary

2002 Sates' Methods of Calculating ROI on IT Projects. NASCIO Issue Brief