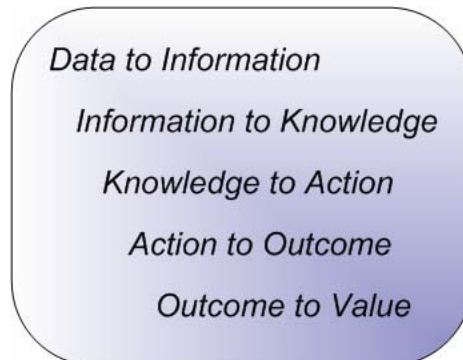


## Introduction

Webster defines Intelligence as the ability to learn or understand from experience and to respond quickly and successfully to new situations. Business Intelligence (BI) is a term used to describe processes and activities for increasing the effectiveness of an organization through intelligent use of available data in decision making. These processes work to fulfill the *BI Value Chain*:



Achieving the end goal of the BI Value Chain depends on the success of the BI system implementation. As with any business software implementation, success hinges on how well the requirements for the system are defined. A BI solution is generally comprised of one or more software applications. Developing a BI application presents many of the same kinds of risks and challenges encountered when developing non-BI applications. Defining and managing requirements is still the best tool we have for reducing those risks.

One important aspect of requirements discovery is the understanding of what business questions will be answered with the BI implementation. It is the business stakeholders who identify the business questions, and their relative priorities. The BI project team analyzes the requirements and works with stakeholders to define the scope of the BI application by considering costs, benefits and whatever constraints may exist, and it is the requirements that drive these activities.

To address the challenge of working with business stakeholders to define requirements in a highly compressed timeframe, CSG has developed the Rapid Requirements Discovery™ for Business Intelligence (RRD-BI) technique.

## ***What is Rapid Requirements Discovery for Business Intelligence?***

RRD-BI is a specialized adaptation of the Rapid Requirements Discovery (RRD) technique created by CSG from over a decade of developing custom software applications for business and governmental organizations. RRD-BI is an agile technique used to quickly and effectively define requirements for BI applications, while avoiding the “analysis paralysis” trap.

## Conversations with Business Stakeholders

The cornerstone of the RRD-BI technique is the “conversation”. The conversation is conducted as a facilitated workshop. For a typical BI implementation project there will be a series of conversations staged with relatively small groups (3 to 6 people) of business stakeholders, and potentially others within an organization that can provide useful input to the requirements. The conversation participants, under the leadership of a skilled facilitator, interact and collaborate to identify and capture the “essential elements” of requirements for the BI application.

## Capturing the “Essential Elements”

The conversations focus on specific aspects of the business that stakeholders want to target for the BI implementation. As the participants engage in discussion of the business, the essential elements of requirements will surface in the discussion. Essential elements are categories of information from which requirements are derived. The participants are trained to recognize the essential elements and capture the information on index cards. There are ten categories of elements which are useful in defining requirements.

<b>The Ten Essential Elements of BI Requirements</b>	
<b>Business Goals</b>	Strategic statements of the BI application’s business responsibilities
<b>Decision Makers</b>	Roles of people that interact with the BI application
<b>Assumptions</b>	Statements made about the BI application not based on fact; they carry a degree of uncertainty, and therefore risk
<b>Constraints</b>	Restrictions or rules imposed on the BI application which define boundaries or conformance standards for the application
<b>Subject Areas</b>	Logical groupings or categorizations of information pertaining to business functions or domains
<b>Business Processes</b>	Formal and informal workflows and procedures that fulfill the business functions and operational necessities required to achieve business results
<b>Data Sources</b>	Data repositories that contain business data from which business intelligence can be derived. These are typically the transactional databases that support the organization’s core business applications
<b>Business Questions</b>	Questions which are important to the tactical or strategic success of the business (or, what “keeps one awake at night”). Business questions must be aligned with stated business goals
<b>Measures</b>	Data values necessary to answer one or more business questions. Measures may be “base” (directly captured in operational software systems) or “calculated” (derived from one or more base measurements, often referred to as “Key Performance Indicators or KPIs”)
<b>Dimensions</b>	Definable data attributes used to group or organize measures. Each dimension may contain one or more levels for sub-totaling or “drilling down” on measurements

The essential elements are not requirements by themselves, but they are the “raw materials” from which requirements are derived.

## **Business Questions, Measures and Dimensions**

Of particular importance within the essential elements are the Business Questions, Measures and Dimensions. The purpose of a BI solution is to get answers to the important business questions. Identifying all of the questions stakeholders need, therefore, is of obvious importance in the requirements discovery process. Measures and Dimensions are important for both framing the questions and extracting the answers. Measures are the data collected by the business which reflect business results (e.g. sales revenue). Dimensions represent the multitude of ways that Measures may be examined (e.g. by product, by quarter, by sales rep, etc.). In many BI applications, the combination of a Business Question, Measures and Dimensions is called a “cube”. Decision Makers (or their staff) interact with the cubes within a BI application to gain answers to the business questions, thus fulfilling the purpose of the BI implementation.

## **It’s in the Cards**

As described earlier, as information pertaining to essential elements surfaces in the conversation workshops, the information must be promptly captured and further discussed by the group. To accomplish this important task quickly and efficiently, RRD-BI uses color-coded 4x6 index cards to record the information, with each type of essential element represented by a unique card color. The use of index cards emphasizes the “rapid” aspect of RRD-BI; a card is large enough to capture only the key information about the element, but too small for writing a novel.

Working with the cards is a group process, involving all participants of the conversation. The group is instructed to be on the lookout for essential elements that are invariably revealed in discussions the group will have about the business. When an essential element is exposed, a card is created to capture the information. When creating a card the participants use a bold marker pen to label the card and provide a brief description of the element. Once created, the card is placed at the center of the table for all participants to review. All participants are encouraged to create cards whenever they hear a new element mentioned in the conversation. In doing so, the cards serve to further stimulate the conversation and the identification of additional elements.

The ground rules for a RRD-BI conversation are simple: any participant may identify an essential element and “create a card”, and once created, a card may be eliminated only by group consensus.

The key to getting the desired results from a RRD-BI exercise is effective facilitation. An effective facilitator is able to guide and direct the conversation, focusing the group discussion around specific topics of interest, avoiding tendencies to dwell on any topic too long, actively involving all group participants and enforcing the ground rules. It is useful, but not required, for the facilitator to be an individual without a stake in the BI application; this fosters a more objective outcome without the danger of the facilitator inadvertently skewing the conversation.

## **Follow-Up Requirements Analysis**

Following each RRD-BI conversation workshop, the BI analyst (ideally the conversation workshop facilitator) completes the work of refining and transforming the essential elements and related information captured from the conversations into requirements artifacts that are useful and necessary for defining the BI system. The results of this effort are combined within a consolidated document known as the Conceptual View.

The BI analyst will follow up with each of the business stakeholders who participated in the conversation workshops, providing them with a copy of the Conceptual View document. The stakeholders are encouraged to review the document and provide additional input. Specifically, stakeholders are instructed to rank the business questions documented from the conversation workshops based on the business payoff potential. For each business question, the stakeholders assign a measure business payoff potential; using a scale of 1 to 10, where 10 represents the greatest potential. These rankings are consolidated and summarized by the BI analyst and the Conceptual View document is updated with these results.

### **Assessing Implementation Effort**

The requirements derived from the RRD-BI conversations identify what “can” be done, but not necessarily what “will” be done. To decide what will be implemented in the BI solution, the business stakeholders must be able to evaluate implementation options from a cost perspective in addition to the business payoff potential.

Estimating implementation costs requires involvement of the technical team members. They must work with the requirements to estimate the effort and time required to implement each of the business questions under consideration. Examples of technical analysis include:

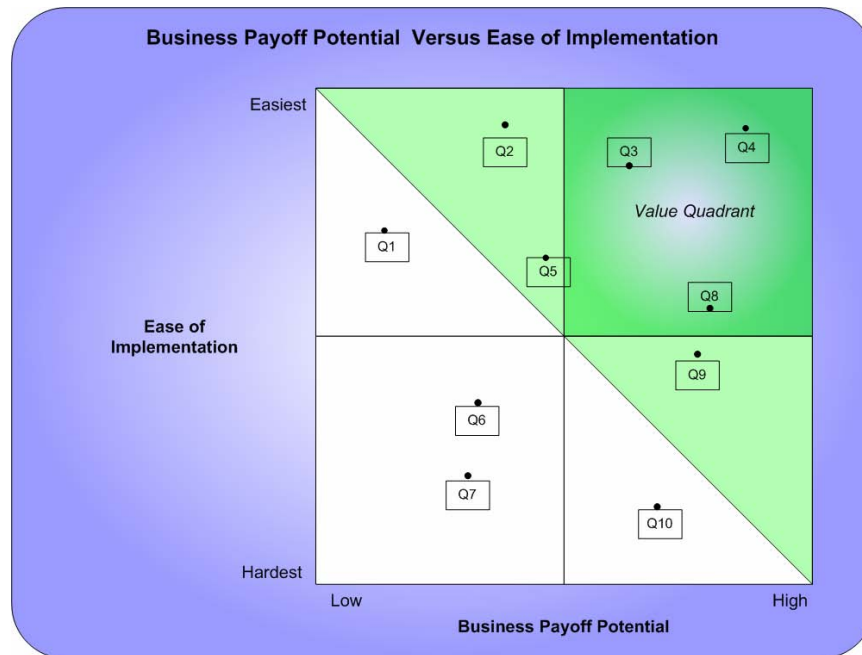
- The number of “cubes”, if any, that may be needed to answer the business question
- The availability of data in existing on-line transaction processing (OLTP) systems to provide the measurements and dimensions
- The complexity of extracting and transforming available data
- The quality of the data that will feed the BI system
- The complexity of deriving calculated measures and Key Performance Indicators

The technical team can also provide a perspective on the risks associated with the various implementation options.

The result of this preliminary technical analysis is the ranking of business questions based on ease of implementation. The technical team ranks each of the business questions with an effort assessment on a scale of 1 to 10 with 10 being the greatest ease of implementation. These results are consolidated and added to the Conceptual View document.

### **Assessing Business Payoff versus Implementation Effort**

The BI analyst now has two data points for each of the business questions: Business Payoff Potential and Ease of Implementation. In order to provide stakeholders with the most complete information available for use in setting priorities for the BI implementation, the analyst produces a scatter graph that clearly shows the relationships of the business questions to one another relative to business payoff potential and ease of implementation. The graph is included in the Conceptual View document. An example of this graph is provided below.



The relative value graph depicted here provides stakeholders with a useful perspective of the business questions with regard to the potential for highest value (most payoff potential with greatest ease of implementation). Any points falling within the green area are the most likely to yield the highest value. In particular, points falling in the Value Quadrant are excellent candidates for implementation.

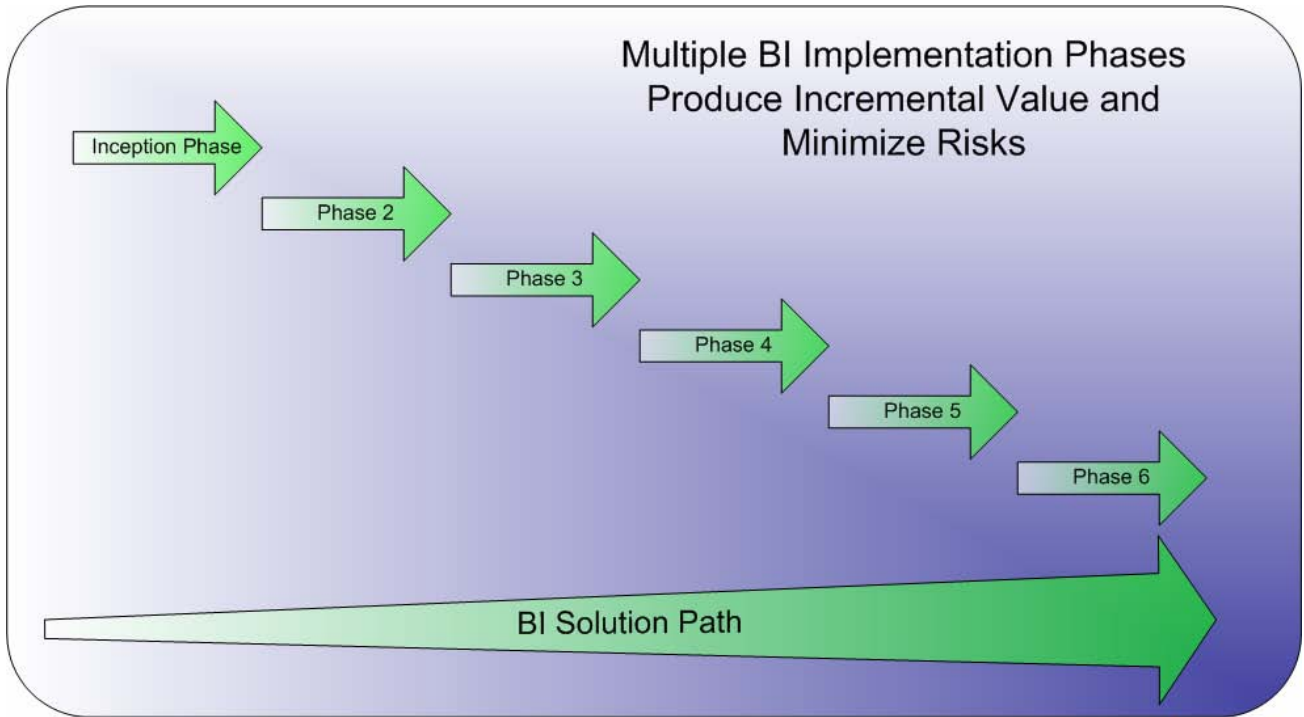
However, this graph provides a perspective, not the answers about which business questions should be given the highest priorities. This is a judgment call that the stakeholders make based on all of the information available. It could be determined that Q10, for example, has enough payoff potential to be included in the implementation.

Setting priorities is a critical success factor for the BI implementation. It is important to focus first on the business questions that can provide the best payoff in the quickest possible timeframe, while working within cost constraints.

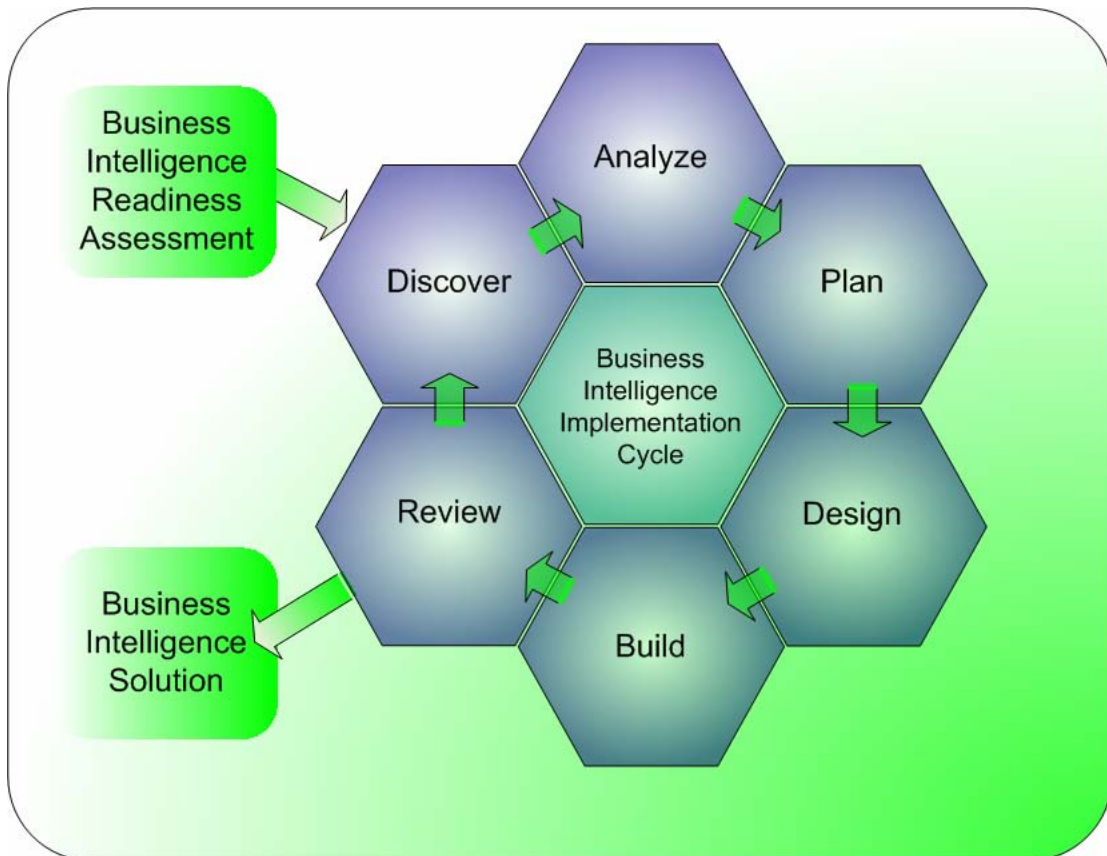
***Where does RRD-BI fit within the full BI implementation process?***

CSG advocates a Phased Implementation approach for implementing BI solutions. This idea is consistent with modern software development practices, and has been proven effective in delivering business value in a shorter timeframe, while minimizing risk.

The diagram below depicts the flow of multiple implementation phases, staged in sequence to build an increasingly comprehensive BI solution.



Each Implementation Phase is a cycle consisting of six workflows including: Discover, Analyze, Plan, Design, Build and Review. The RRD-BI technique spans the Discover and Analyze workflows. The diagram below illustrates the circular nature of the implementation cycle.



Further explanation of the Phased Implementation approach is provided below.

### **Inception Phase (typically 1-3 weeks)**

- Assess the organization's infrastructure and environment to determine its readiness to develop and support the BI implementation
- Conduct RRD-BI conversation workshops
  - ✓ Identify the essential elements of the BI application
- Complete follow-up requirements analysis and transform essential elements into usable requirements artifacts
- Complete preliminary technical analysis
  - ✓ Conceptual design
  - ✓ Implementation effort estimates
- Prioritize requirements and business questions based on business value potential and implementation effort

### **Subsequent Implementation Phases (typically 1-4 weeks for each iteration)**

- Refine the Business Question requirements as identified during the Inception Phase
- Design the multi-dimensional model needed to address the Business Questions
- Design the Extraction, Transformation & Load (ETL) process needed to populate the multi-dimensional model
- Construct and test the software solution
  - ✓ Testing is done by querying the software cube and comparing the results with corresponding queries of the underlying operational software systems
- Deploy the software solution and train stakeholders on the use of the visualization tools
- Evaluate the Implementation Phase Results
  - ✓ Conduct additional RRD-BI exercise if appropriate
  - ✓ Re-evaluate the business value and implementation effort of existing Business Questions if appropriate
  - ✓ Select the next Business Question(s) to implement in the subsequent phase (if required)
  - ✓ Review the implementation process and make improvements based on experience gained

## **Summary**

Business Intelligence solutions can provide tremendous potential for increasing business effectiveness. Getting the right answers means asking the right questions. Rapid Requirements Discovery for BI is a technique that can help your BI implementation team quickly and efficiently discover the essential requirements necessary to achieve success in implementing your BI solution.