

THE IQ SOLUTION CYCLE

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Abstract: There is a repeatable series of phases that a data quality initiative will move through as an organization first attempts to achieve a corporate goal and ultimately implements a solution that rectifies the data quality problems that hinder the goal. The IQ Solution Cycle is the series of three phases, Awareness, Quantification, and Implementation that the data quality project team will implicitly or explicitly follow in the course of deploying a solution. From identifying the problem and making the decision to proceed, to solution research and project approval, organizations go through a number of stages before they reach the implementation phase of an information quality initiative. This paper discusses in depth each of the twenty-one stages aided by the actual experiences of Generico, Inc. the fictional name of a real firm. As with all good quality processes and methodologies, the IQ Solution Cycle is repeatable, and the paper concludes with an exposition on “round-tripping” through the cycle, and the benefits derived by the data quality practitioner for simply knowing the cycle exists.

THE IQ SOLUTION CYCLE

Introduction

For years data quality consultants and vendors have been helping clients overcome critical data quality problems in order to achieve their business goals. Exposure to the goals, problems, and needs of these many clients over many years is a unique opportunity gather empirical data on the processes that organizations follow when attempting to solve their data integrity issues. The challenge and opportunity is to see the forest for what the trees make it. In working with clients to implement a solution, both good and bad practices are exposed, in addition to those strategies and tactics, or lack thereof, that a firm will use to push forward an information quality (IQ) initiative. From the time a firm becomes aware they have a data quality issue to the point where they place into production and monitor the solution is defined as the IQ Solution Cycle.

This paper presents an overview of the three-phase IQ Solution Cycle. It explores the successive stages in each phase of the cycle from when the organization first becomes aware of their data problem, to the subsequent struggle to quantify the problem and the eventual work of designing a solution for implementation. The paper also explores “round tripping” through the cycle and how each successive trip improves the data quality knowledge, capabilities, and infrastructure of the organization.

Until very recently there has been no accepted methodology to guide an organization and its managers through what is now defined as the IQ Solution Cycle. As a result, it has been known to take years for an organization to become aware of data quality impacts, quantify those impacts, plan a solution, and finally implement the solution. Many costly and unnecessary detours could be avoided if a knowledgeable data quality practitioner were able to guide their organization through the IQ Solution Cycle.

THE IQ SOLUTION CYCLE

The IQ Solution Cycle is defined as having three distinct phases. They are:

- 1. Awareness
- 2. Quantification
- 3. Implementation

The onset of the IQ Solution Cycle is triggered by the emergence of a business problem that is caused by the quality of the organization’s data. The problem is generally critical in nature and directly related to the ability to accomplish a specific business goal. Responding to a competitive challenge, a regulatory mandate, emerging business opportunities, mergers, reorganizations, strategic growth initiatives...any or all of these imperatives can create an environment where the information assets of a business must be leveraged in previously unforeseen ways.

Consider the following example:

Generico, Inc., a global manufacturer of computer power supplies, established the goal of increasing both revenues and profits. Better insight into the needs of their existing customer base is one way to achieve that goal. The company wants to identify selling opportunities that are either not being pursued or are being lost to their competition. Creating one master customer information file would involve merging data from 19 different sources across the Generico enterprise. The problem? Each data source is rife with duplicate customer records, outdated accounts, defective addresses, non-standardized product codes, and conflicting rules that prevent matching and standardization of the files. Poor data quality is seen as a major obstacle to achieving this particular business goal. The emergence of the problem triggers the onset of the IQ Solution Cycle (as depicted in Figure 1) for Generico though the organization may not yet recognize it as such.

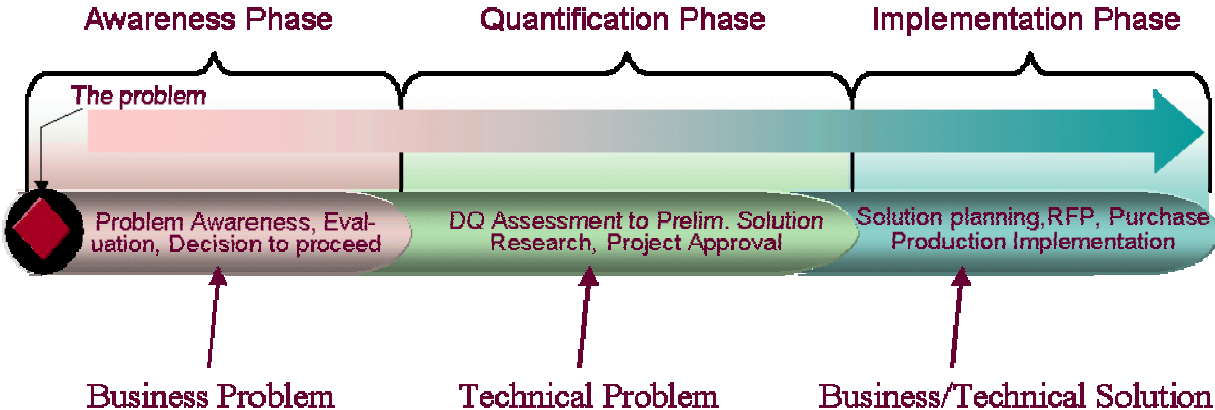


Figure 1

Phase 1: Awareness

The first phase of the IQ Solution Cycle, the Awareness phase, consists of four stages:

1. Problem Awareness
2. Emergence of a data quality champion
3. Problem evaluation
4. Problem decision

Overall, this phase involves the greatest amount of ambiguity and uncertainty as the organization begins to grapple with their business problem. First they must recognize it, then establish responsibility for its investigation, and finally to decide if the problem should be fixed. For those familiar with software development vernacular, the Awareness phase of the IQ Solution Cycle can be characterized as the “fuzzy front end” of the data quality project. Figure 2. depicts the Awareness phase inside the entire solution cycle.

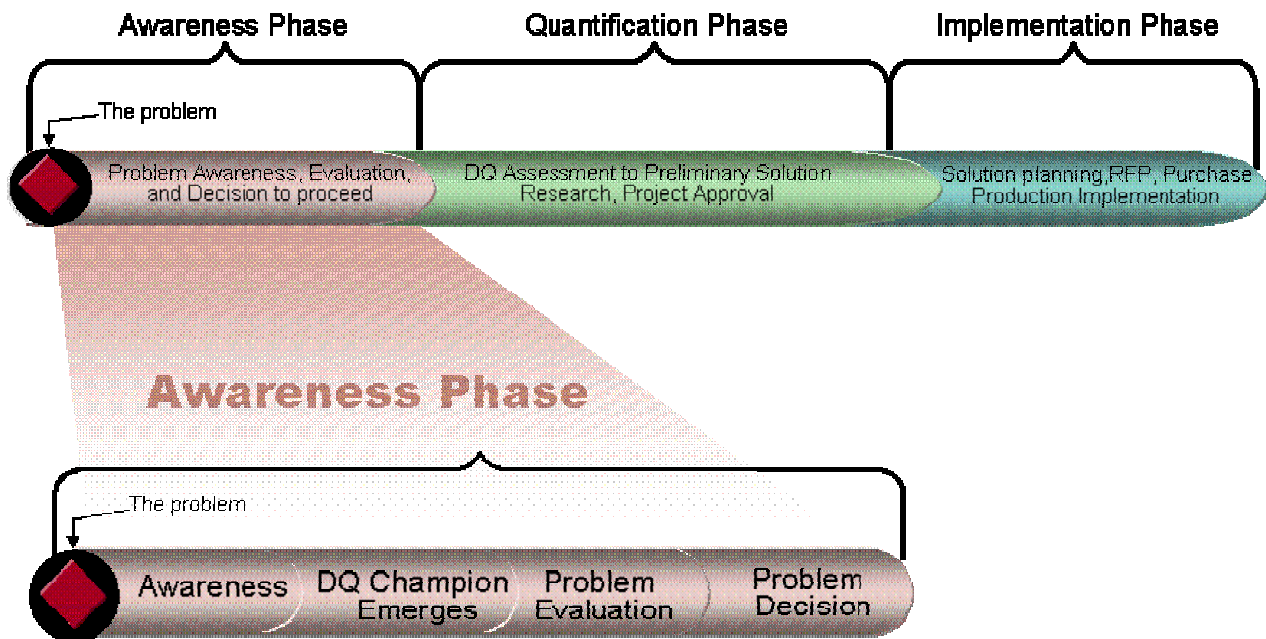


Figure 2

Reaching the **awareness** stage within the Awareness phase, where recognition of the problem occurs, does not happen overnight. In some organizations it may be a gradual process requiring a critical mass among a group of affected stakeholders; in other organizations it may be as simple as one frustrated manager taking the position that “enough is enough, this problem needs to be addressed.” At this point in the cycle, the organization feels the need to remediate their data quality issue(s), yet without a formal process in place it often falls to one individual to lead the charge.

The **emergence of a data quality champion** represents the second stage of the Awareness phase. The term “champion” is not a formal job title or description, but rather a general term to denote a concerned and knowledgeable individual who seeks to correct the problem. A data quality champion may emerge through self-actualization (such as a concerned manager), or they may be appointed by organizational leaders to research the problem. The champion may also be a veteran of the organization’s previous experience with the IQ Solution Cycle, as is discussed later in this document. Data quality champions can

be assigned a formal job title – typically that of project manager – and will include the name of the operation most affected by the data quality defects, such as integration project manager, or customer data project manager.

It is important to note that unless the data quality champion is professionally and positionally motivated to find a solution to the problem, they are unlikely to succeed in their role. What is important in this context is the resolution of the problem will not proceed until the champion emerges to take on the task. In the case of the second, third, or subsequent round trips through the cycle, the emergence of a data quality champion may be replaced by assigning the problem to a data quality project manager. More sophisticated organizations will have a data quality center of excellence who's purpose is to shepherd both new and existing initiatives. Successive trips through the cycle increase the probability that a formal data quality function or stewardship program will be created. Regardless, the emergence of the champion or appointment of a project manager signals the start of the problem evaluation stage.

Once the organization has a person responsible for investigating the problem, the firm is positioned to begin **problem evaluation**. In this stage the organization faces the challenge of determining the general nature and scope of their data quality problem. They essentially seek to answer two questions: What is the problem? How difficult is the problem to solve?

Problem evaluation can take a number of forms. The data quality champion may solicit feedback from the stewards of the impacted operations. In the case of a critical failure, anecdotal evidence - such as an irate, influential donor calling to complain about acknowledgment letters being addressed to her husband - may be more than enough to justify correcting the problem. In other situations a more robust assessment of the problem may be required.

In the first trip through the cycle the data quality champion is new to their role and new to the problem, and they face a substantial learning curve at this stage of the cycle. They may spend many days, if not weeks, educating themselves and their stakeholders on data quality concepts. In the case of Generico the challenge of trying to reconcile data quality issues across 19 different data sources was daunting and complex. At this stage in the IQ Solution Cycle, the data quality champion may seek external support in the form of a qualified data quality consultant who is able to perform a detailed assessment of the defects and how the defects are specifically disrupting operations. For Generico this meant evaluating the issues with merging 19 different source systems. An investigation of the issues turned up problems with duplicate records inside each system, duplicate customers across systems, inconsistent formatting and standardization rules, names spelled and abbreviated differently, addresses out of date, etc.

Having completed the initial evaluation of their data quality problem, the organization now enters the **problem decision** stage. It is fair to say that at this very early point in the IQ Solution Cycle the organization is still hoping the problem will go away. Therefore, the questions the firm seeks to answer in this stage are: What do we intend to do about the problem? Can we live with it, or should we fix it? The decision to move forward and address the problem not only depends on the magnitude and severity of the problem, but also the effectiveness of the data quality champion. How well has the champion (or project manager in later iterations) researched the problem? Have they been able to present their findings in a clear and concise manner that compels management to act? For Generico this was a crucial moment. If senior management was unconvinced they could tell IT to just force extracts from the 19 systems into one common “super” record structure, then sort on last name and address, eliminate the obvious duplicates and be done with it. Fortunately, the data quality champion clearly articulated the need for the four levels of CRM hierarchy (organization, customer, contact, and event) and explained that “over-householding” disparate customers into super accounts in one system would be worse than having 19 separate systems.

If the organization makes the decision to postpone further action on their data quality problem the Awareness phase will continue to repeat itself as the problem re-emerges. The problem won't go away unless the original goal of the organization is scrapped, or it is fixed. Making the decision to fix the problem is the stage-gate into the second phase of the cycle, the Quantification phase.

Phase 2: Quantification

The second phase of the IQ Solution Cycle, the Quantification phase, consists of seven stages:

1. Data quality assessment
2. Defect analysis
3. Impact assessment
4. Preliminary solution research
5. Initial cost estimate
6. Build justification
7. Obtain project approval

In this phase activities shift from a business problem orientation to a technical problem orientation. During the Quantification phase formal project management practices become predominant. The data quality champion who emerged during the Awareness phase evolves into a data quality project manager in the Quantification phase. This is because passing through the problem decision stage-gate formalizes the project with organizational approval and an official project manager is appointed. The project manager is responsible for collecting and evaluating data to support the justification of a specific solution. Figure 3 depicts the Quantification phase within the IQ Solution Cycle.

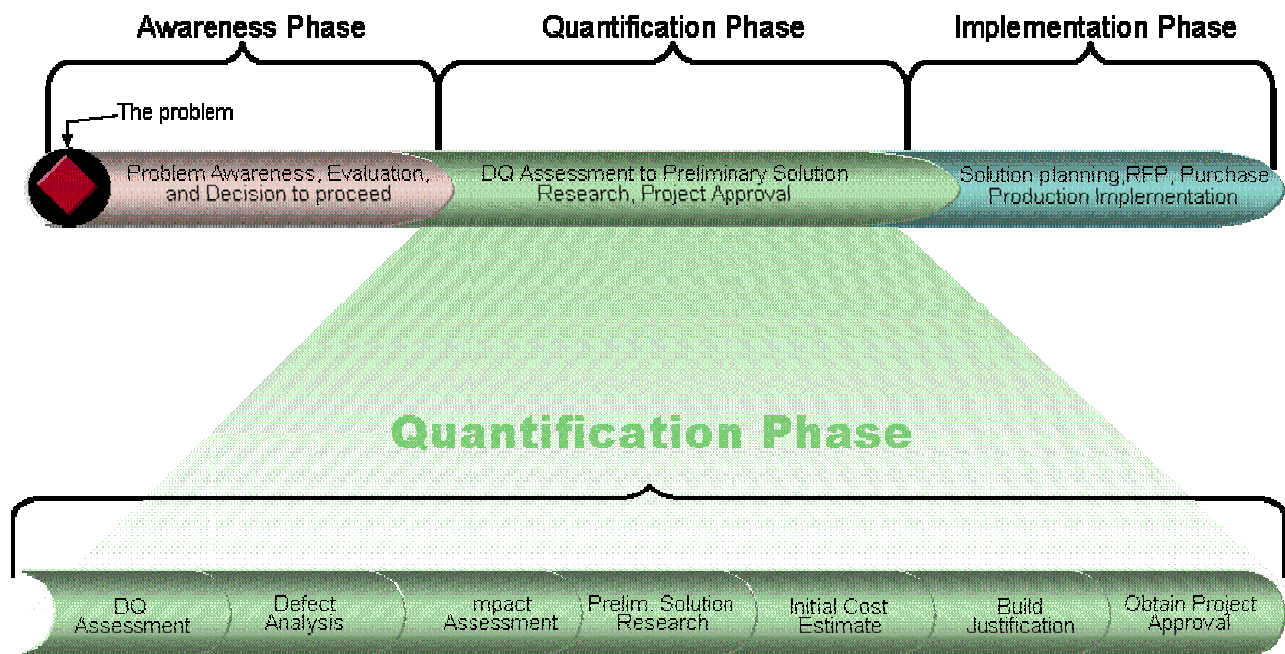


Figure 3.

The first stage of the Quantification phase focuses on a formal **data quality assessment**. Here the data quality project manager is tasked with validating data against the organization's business rules, verifying data against trusted data sources, and inspecting the data through advanced analysis and query mechanisms. Upon completion of the assessment(s) it is possible to proceed to the next stage: **defect analysis**.

Activity in defect analysis is focused on identifying how the data defects were created. An effective analysis will do more than reveal process flaws, it will also identify where and when those process flaws

occur. Efforts in this stage frequently involve interviewing personnel who manage and participate in the processes. Do their processes lack data quality validation checks, field edits to limit data input to a specific format, or sufficient emphasis on data quality standards? The work of defect analysis can be quite rigorous and is essential to the success of the eventual solution. Unless the cause of the defects is ascertained any subsequent remediation program or cleansing operation would simply address the symptoms, not the underlying illness.

Impact assessment is the next stage of Quantification, where the organization, having identified the cause of their data quality issues, seeks a clear understanding of the impact on their operations. Impact assessment is particularly useful in establishing priorities for the subsequent solution considerations. The more critical the operational impact, the greater the priority that will likely be placed on eliminating the cause of that problem.

Identifying potential solutions occurs in the next stage: **preliminary solution research**. In the problem evaluation stage of the Awareness phase the data quality champion researched the problem and potential solutions to just the depth necessary to determine if the problem was curable. What the champion found was a plethora of potential solutions with a range of costs and with a range of components. The principal components being people, process, and technology. In the problem evaluation stage this is where the champion usually pauses their research because the organization now has enough information to make the simple decision to live with the problem or fix it. In the **preliminary solution research** stage the data quality project manager resumes where the earlier research was paused, and begins to refine the component mix. For Generico this meant deciding (at a high level) what integration processes need to be designed implemented, identifying what personnel would know the business rules involved in matching customer accounts, and what – if any – commercial software was needed for the integration process. The purpose of *preliminary* solution research is two fold, a) get a rough, high-level idea of what one or two solution alternatives would look like, b) develop a ROM (rough order of magnitude) cost estimate. The project team knows full well the preliminary designs they develop are subject to change, perhaps major change, once they enter into detailed project planning. The team will know this if they have been educated on the IQ Solution Cycle. They will know how far to iteratively extend their research and planning in each of the IQ Solution Cycle phases:

- **Problem Evaluation** in the Awareness phase: to a cursory level
- **Preliminary Solution Research** in the Quantification phase: to a design alternative level
- **Project Planning** in the Implementation phase: to the detailed task implementation level

Segmenting solution research in three stages allows the organization to allocate resources and time in accordance with the need at that point. Planning and research is therefore invested optimally, maximizing the time value of money.

Developing an **initial cost estimate** is the next stage. The ROMs of personnel time, process redesign and implementation, tool procurement, etc. are inputs to developing the initial cost estimate. The cost estimate enables the data quality project manager to establish the cost/benefit scenario. The project team is thus positioned to make a decision: By estimating what the organization and its senior management is likely to approve and under what conditions the team can adjust the cost/benefit scenario. If the initial cost estimates are too high by the team's judgment then the preliminary solution design is altered to find a more cost effective approach. For Generico, the data volumes in the 19 source systems was over 10,000,000 rows in key tables. Along with substantial cumulative volume, matching complexity was also an issue. They first needed to format, then standardize, correct, and then match and consolidate the customer, contact, and event records across those systems into a single robust repository. Moreover, they needed to do it at a level of quality to support corporate decision. These factors warned the team against cutting corners in the system to reduce cost, but to instead work hard on the benefits case. They felt they had one chance to do the project right and if they developed a system that failed to meet the corporate goals then someone's career was going to suffer.

At Generico once the cost estimates were compiled they entered the next stage – **build justification** – of the Quantification phase. They armed themselves with two design alternatives, the rough cost data they need, and the conviction that integrating their 19 sources systems into a single customer view would have substantial impact on company revenue. Their challenge became putting the conviction to work, and tying it to their design and cost data in the form of a project justification. The justification must be compiled and presented, usually to senior management (the next stage), for the purpose of obtaining budgetary approval for the project. Building a credible case for project funding will include a strategic assessment of data quality improvement opportunities and the associated benefits to the enterprise. For Generico this meant interviewing key project stakeholders in marketing and sales and learning how sales and marketing intended to increase sales through the use of the new repository. What were the revenue projections? How did they differ from a Generico without the new master customer information system? The numbers were calculated, and a three year ROI projection was run out. The team was conservative in its approach, it focused only on cross-sell/upsell projections, and ignored other benefits such as finding delinquent account receivables, improved and consistent customer communications, reduced operating expenses through consolidating billing and mailings, and reduced marketing expenses through eliminated duplicated catalogs. They were concerned if they made the picture look too good they'd never be believed.

The final stage of the Quantification phase, **obtain project approval**, forms the stage-gate into the next phase of the cycle, the Implementation phase. Once project approval is gained, the fuzzy front end is at an end, and actual implementation tasks become predominant. One salient event dominates the project approval stage -- the presentation. The project team presents their case to senior management and a number of outcomes can result, all of them dependent on how well the team has presented their case. Preparation is key. The project can be approved as is, rejected out of hand, or sent back to planning for adjustment. The best strategy for winning project approval is to make it a fait accompli. This is accomplished by diligently working the case and value proposition with each member, one on one, of the deciding executive committee. At Generico this meant meeting with the CFO early to elicit his concerns and determine his criteria for approval. Then meeting again with the CFO asking for a preliminary review of their case and if he saw any holes. They doubled checked their revenue projections with the VPs of sales and marketing. They ensured the VP of corporate data architectures was supporting their case. And finally they engaged the COO (who headed up the committee) and informed him about where the project was heading and solicited his early comments. When it came time for the final presentation to the committee as a whole there were no surprises and the meeting ended early. Three days later after further consultation with the CFO and COO, one-on-one, to answer questions and not so-subtle lobbying by sales and marketing executives, the project was approved. One other tactic the Generico team employed during the presentation was to include an outside data quality consultant. The consultant spoke to what other firms in the high-tech industry were doing in regards to data quality, and the common practices and solutions for integrating disparate customer views. The presence of the outside consultant lent an air of objectivity, and the benchmarking of best practices was considered crucial to expediting project approval. Approval could have been obtained without the consultant, but their assistance made the entire process shorter and easier.

With project approval the cost estimate of the solution is added to the budget for the current year or the next year depending on when the project is approved in relation to the budgetary cycle. While the funds have been ear-marked, project approval does not mean the team can immediately spend the money. Some of the funds may soon be spent on new staff (for example), but the bulk of the funds are spent in the later half of the implementation phase after the final project plans are finished and vendors are selected.

Phase 3: Implementation

Obtaining project approval serves as the stage-gate into the next phase of the cycle: Implementation. This third and final phase of the solution cycle consists of ten stages...

1. Project planning
2. Solution research
3. RFP process
4. POC process
5. Purchase approval
6. Purchase
7. Implementation
8. Testing
9. Production
10. Tracking and monitoring

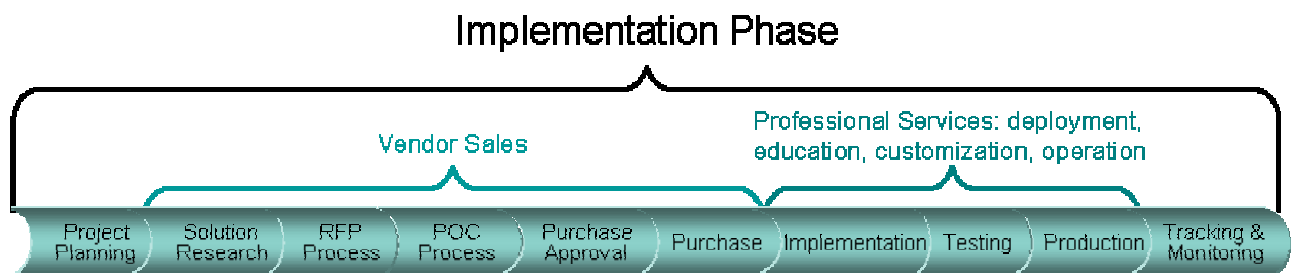


Figure 4

Prior to the Implementation phase, the IQ Solution Cycle is largely problem-centric. First the organization becomes aware of the business problem posed by their data quality and then they evaluate their problem from a technical perspective. In the first two phases potential solutions to the organization's data quality problem are dealt with at a relatively high level. There would be little merit to investing time or resources in a detailed solution plan when there is a risk the project will not pass the stage-gates of the Awareness or Quantification phases.

Now that the project has been approved work of implementing the solution can begin. The first stage of the Implementation phase focuses on **project planning**. The plan encompasses a detailed description, task-list, and time-line of how data cleansing, training, and monitoring will be accomplished to support the organization's data quality strategy. Changes to workflow processes will be covered by the plan, as will specifications relating to data quality technology functionality and deployment mechanisms. Up to this point we have strictly focused on the stages of the solution cycle. Here, because of its importance to project planning, data quality strategy development must be at least briefly addressed.

Data quality strategy development is a formal process of evaluating the organization's goals, problems, needs, and examining how those needs manifest themselves in the requirements of the project. When the needs are documented the data quality project team considers the six factors in a data quality strategy. Those six factors are:

- Context - the type of data and the purposes for which it is used
- Storage - where the data physically resides in the organization
- Data Flow - how the data enters and moves through the organization
- Work Flow - how work activities interact with and use the data

- Stewardship - people responsible for managing the data
- Continuous Monitoring - processes for regularly validating the data

By integrating these six factors in the formulation of their data quality strategy, the organization has effectively created a program plan to serve as a framework for the project planning to follow. Work on the strategy or program plan occurs through out the Awareness and Quantification phases. However, serious work is usually started in the problem evaluation stage and more content is added in the defect analysis, impact assessment, and preliminary solution research stages. Drafting the strategy document (program plan) can be done in one stage, but strategy is dynamic and any good program plan should be a living document. From the program plan – which does *not* include detailed tasks, time estimates, or staffing assignments, the project manager develops the project plan. Bear in mind, depending on the scope of the program plan, multiple project plans may be spawned from it.

With a project plan in place the organization now moves on to **solution research**. In truth, project planning and solution research overlap to some extent because data gathered during solution research will impact the project plan. For example, requirements laid out in the plan may not be achievable exactly as specified. The organization is, however, now positioned to search for a very specific data quality solution that will specifically meet their criteria. For instance, Generico was looking to implement a solution that would allow them to match contact name and address data and would operate in an Oracle® database environment on Sun Microsystems® Solaris®.

With a short list of service providers and tool vendors in hand (having identified them through solution research), the project team sends a **request for proposal (RFP)**, the name of the next stage, to each of the external parties. If part of the solution is slated to be built internally then an internal RFP is sent to the internal function or division. In Generico's case they distributed two sets of RFPs, one set of RFPs went to three different data providers that supply NCOA (National Change of Address) updates, and demographic data to aid in enhanced matching, and update aging addresses. The second RFP was sent to three vendors of data cleansing software they believed met the bulk of their needs: Address cleansing, name standardization and formatting, and complex multi-level, multi-criteria matching to the corporate householding operation.

Of all the stages in the IQ Solution Cycle, the next stage **POC (Proof of Concept)** is the most optional. Some organizations will conduct a POC, some will skip it depending on their level of comfort with the vendor selection process and the depth and robustness of on-site demonstrations previously conducted. A POC is an on-site installation and test of the vendor's software connected to the client's data systems, running on the client's data. POCs can involve a substantial amount of time (a month or longer) and labor for both the vendor and the client. Because of this POCs are usually reserved for the top one or two vendors. A challenge with POCs is the more complex the customer environment and operation the less likely the POC will mirror the operation and provide true comparative results. At Generico, they wanted to see the solution run on their data. Since they were unwilling to release their data for an off-site test because of confidentiality requirements they had all three vendors install their software and run it for a week on-site on extracts of the data. While the POC was not implemented in the real customer data integration project (it hadn't been built yet!) Generico could still see how the customer records were cleansed, matched and consolidated under their own control. The POC process with all three vendors took two months even though the individual tests ran a week each. Various challenges were scheduling on-site times with the vendors, gaining access permissions for the vendors, mining the business rules to implement in the POC, configuring application parameters to match the business rules, and working through the installation and test issues each vendor experienced in Generico's complex networked environment. The Generico data center manager said afterwards, "If we had this to do again, we would have done the POC with the preferred single vendor, and if successful, we would have left the install in place with the business rules already programmed in. As it was, we had to rip it all out so the next vendor wouldn't gain competitive intelligence."

Upon completion of POC testing, the data quality team is ready to enter the **purchase approval** stage. Here the solution alternatives have been narrowed to one through the results of the RFP and POC processes. The final costs are calculated along with the ROI. The final solution mix is confirmed: Amount of in-house custom programming, personnel training and education, process redesign and optimization, and commercial technology procurement. Some of the justification work performed in the earlier **obtain project approval** stage is duplicated here, but in an abbreviated fashion. The original presentation is dusted off and updated. The stakeholders are again engaged one on one to ensure they have not forgotten the importance of the project and they still support it. A final purchasing presentation is made to the senior management team and if the process had been diligently followed, authority to make the expenditures is granted. At Generico, the data quality project manager remarked “When it came time to actually spend the money, it was amazing how hard it was to get all the senior managers in one room. But we did it. Fortunately it wasn’t August, or vacation schedules would have delayed approval by a month.”

The next stage, **purchase**, would seem to be simple. However, the organization’s formal purchasing function, if not involved before, becomes involved now. They enter the cycle to in order to gain the most favorable terms from the selected solution provider. Once the final negotiations are completed, the contracts, statements of work, and license agreements are sent to the respective legal departments for review and approval. Generico’s legal department fortunately requested only fifteen minor changes to the contract and license agreement. The changes were transmitted between both parties and completed in a week.

With the success of the project team completing the procurement of all components of the solution comes the next stage, **implementation**. Here a myriad of activities are begun. New personnel are recruited and hired. Education and training is conducted on the redesigned and improved processes. Custom programming is begun. Commercial software applications are installed. Training on the new applications is conducted. Business rules governing the operation are collected and applied to the applications. For Generico that meant a substantial effort of interviewing subject matter experts for rules that identified duplicate contacts, accounts, and customers. They had to address the fact that the definition of customer was different depending on who was using the data, therefore different match criteria and scenarios were established. Those rules were then entered into the cleansing, matching, and consolidation software through the application user interface.

The **testing** stage logically follows implementation. In this stage the complete system is rigorously tested on a variety of conditions to ensure it is ready for production. Using the organization’s actual data sets, testing has two requirements: Verify the solution exhibits the expected behavior, and ensure the solution is improving the data in the manner intended. Only when the team is satisfied, and testing has confirmed the solution’s performance will the project proceed to the next stage, **production**. For Generico the business rules, the people, the process, and the software were tested end-to-end with the resulting output record sets closely inspected. While Generico wanted to build a single customer repository that contained a 360 degree view of its client base, it also knew that special views of the data were needed to support its product catalog operation, for example. In this case the project needed to demonstrate that it could extract data from the repository in accordance with the specific business rules used to identify who a specific catalog would be sent to.

In the **production** stage the data quality solution is placed into operation. The operation can be run hourly, daily, weekly, monthly, or even in real-time depending on the nature of the solution. A closely related stage and the final one in the IQ Solution Cycle is the **tracking and monitoring** stage. Here the performance of the operation is monitored and tracked against the goals of the project established in the Awareness phase and the requirements established in the various stages of the Quantification phase. At Generico that meant reviewing the regular output reports from the individual cleansing and matching functions in the solution. It also meant running a regularly scheduled data profiles on key tables in the new master customer information system. The profiles included a series of tests – business rules – and compared them against the data. Alerts were set that would trigger an E-mail message if any of the test

scores from the monitored data columns fell below a set threshold. What Generico wanted to see, and what they indeed found, was a sharp rise in the level of quality in the data as established from a baseline assessment. The level of quality increased further as adjustments were made to the system and new capabilities added. For the Generico data quality project manager it was gratifying for him to see upstream operations improvements reflected in the downstream monitoring measurements. They could directly verify what actions were positively impacting the level of data quality.

Progressing Through the IQ Solution Cycle

With the phases and stages of the IQ Solution Cycle now identified many organizations begin to wonder: How long does it take to advance through the cycle? While there is no existing formula to arrive at the answer, recognizing the stage the project is in helps the organization make an educated guess as to when the end of the Implementation phase may be reached. Factors that can impact the duration of the IQ Solution Cycle are varied and include the following considerations:

- Maturity of the organization, specifically with regards to change management. How adaptable is the organization, and how quickly can they embrace new business processes?
- Familiarity with data quality best practices. Are there people within the organization who are knowledgeable about data quality, and if so what will be their availability throughout the project?
- Resources (financial, technical, staff) available to the organization as they work to achieve a solution.
- Previous experience with the IQ Solution Cycle. Has the organization implemented data quality processes and infrastructure as a result of earlier trips through the cycle?

Projects have been known to progress through the cycle in as little as two months. Others have taken as long as 36 months to progress through all three phases. The Implementation phase is often seen as the most predictable as the tasks in its stages are more defined and less subject to ambiguity and uncertainty. Eliminating uncertainty is the implied goal of the Quantification phase. In a survey of 452 data quality Webinar attendees conducted by Firstlogic, Inc. (a data quality solution provider) it was found that 62 percent of those attendees were either in the Awareness or Quantification phases of their project. A substantial number of those same attendees went on to say that their immediate data quality need was not for a software solution, but for assistance in understanding their data quality issues. In other words, they were seeking consulting help to understand their problem which corresponds to the nature of the tasks in the Awareness and Quantification phases.

Repeating the IQ Solution Cycle

Cycles are by nature repetitive. When one cycle completes the next begins. This continuous looping, or “round-tripping,” is inherent in the philosophy of Total Quality Management (TQM).

Round-tripping through the IQ Solution Cycle embodies the practitioner's attempts at not only continually improving their information – a principle of TQM – but more importantly, demonstrates the desire of the practitioner to expand the application of data quality practices across an increasingly greater range and scope of data. Typically, each successive trip through the cycle is more advanced and sophisticated than the previous endeavor. Lessons learned in previous cycles are accumulated and hopefully applied in each new cycle making the following cycles shorter, more precise, and with less risk.

SUMMARY

A benefit of knowing the IQ Solution Cycle exists and the details therein (specific stages) is the improved planning which increases confidence in the successful outcome. With this increased confidence the practitioner can more quickly proceed through the effort of building their initiative because they have a road map. They know what stage-gates bar their path and what keys can be used to pass through the gates. Knowing what stages and phases lie ahead, what actions will be carried out, what documents and designs they'll need to draft, what presentations they'll need to deliver, and what expectations they'll need to set, removes the uncertainty inherent in the project. Removing uncertainty reduces risk. Moreover, just knowing the cycle can and will repeat itself suggests to the project manager the option, if necessary, of delaying more challenging features of a project to the next iteration of the cycle. This provides the program manager with a framework in which to build a long-term, comprehensive data quality strategy. Such a strategy implemented through a series of iterations of the IQ Solution Cycle can carry an organization from a single pilot (point project) through an enterprise-wide initiative. It's worth restating in the final sentence: Understanding the IQ Solution Cycle reduces data quality project risk.