

Diagnosing Requirements Failure

A benchmark of the current capability of organizations in doing business requirements and an assessment of the underlying causes of poor quality requirements

EXECUTIVE SUMMARY

This report presents the findings from surveys of over 100 companies and presents definitive findings on the importance and impact of business requirements on enterprise success with technology projects. The survey focused on larger companies and included an average project size of about \$3 million.

This white paper is one of three extracts of the study: Business Analysis Benchmark, the Impact of Business Analysts on North American Business, and Technology Projects. This volume focuses on uncovering why businesses fail to do a good job on business requirements. There are two parts to the report:

- Benchmarking the current state of organizations and their capability in completing business requirements
- Diagnosing organizational and project risk factors to determine effective risk control measures for project managers.

Major conclusions of this study include:

- Over 50% of organizations surveyed do not have even basic pieces in place to be successful at business and software requirements
- 70% of organizations do not have the fundamental competencies within business requirements discovery to consistently bring in projects on time and on budget.
- Companies can achieve success rates in excess of 80% on a consistent basis. The greater the organizational focus on the combined aspects of business requirements (people, process and enabling tools), the better the expected project outcome.
- The focus of companies must shift to the quality of Requirements Discovery as a process and away from “Business Requirements” as a thing that either happened or didn’t at the beginning of a project if they hope to consistently deliver successful projects.

Perhaps the most critical findings of this report: Point changes to organization and deliverables don't yield meaningful change to results in and of themselves. Only when elements associated with the process of requirements discovery are considered in combination with these other organizational elements is meaningful change to performance realized. It is this finding that leads IAG to conclude that many companies simply do not visualize business requirements as, first and foremost, a process rather than a document. ***The focus of companies must shift to the quality of Requirements Discovery as a process and away from "Business Requirements" as a document that was either completed not at the beginning of a project if they hope to consistently deliver successful projects.***

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DIAGNOSING ORGANIZATIONS

Most organizations surveyed were larger corporations which have an inherent level of complexity which may not be experienced by very small companies. The IAG survey focused on companies spending in excess of \$250,000, with the average project surveyed being \$3,000,000. This type of project is strategic to the company, and the findings would be applicable to the larger projects of a mid-sized company, or many projects of a very large multinational.

Further demographics:

- Median number of people impacted by the solution: 250. Because of some very large projects, the average is skewed to ~1,300
- The median number of stakeholders involved in defining requirements: 15. Again, because of some very large projects the average is skewed to 35.
- Nearly 70% of companies have more than 5 locations or are multinationals

These results are descriptive of Fortune 1000 companies or the very large projects of mid-size companies within North America.

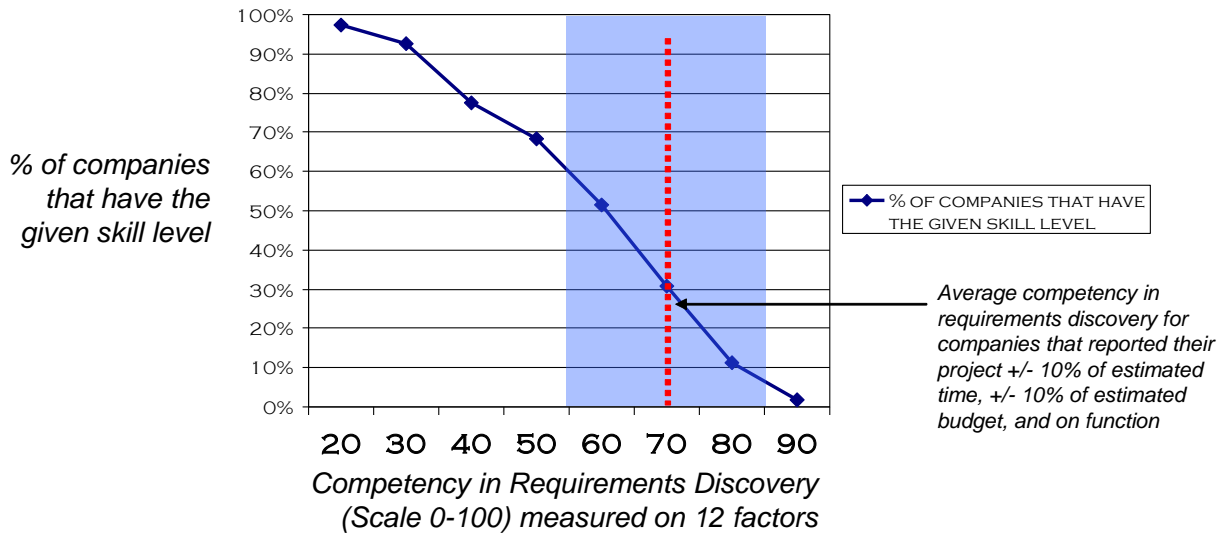
In general: most organizations are not well set up to be successful in getting business requirements right – over 50% of them do not have even basic pieces in place to be successful at business and software requirements and 70% of organizations do not have the fundamental competencies within business requirements discovery to consistently bring in projects on time and on budget.

The chart below illustrates a significant underlying problem:

- The red line indicates the average competency score for organizations that were +/- 10% on budget and time for projects was 70 (read from the horizontal axis). The blue line indicates the proportion of organizations that have the given skill level meaning that only 30.8% of organizations have this skill or roughly 70% of organizations lack the requirements discovery competence needed to deliver predictable project success.
- 40% of organizations have *significantly* less competency than is needed for predictable success (1 standard deviation is the left edge of the blue shaded area). These organizations will have significantly more trouble

bringing in projects on time and on budget. In fact this group fails 3 times more often than succeeds and reports an average budget overrun of 195%.

The findings here map closely to Scenario 1 and Scenario 2 findings presented earlier.



N=109

Source: IAG Business Analysis Benchmark, 2008

Business Implications in the Data

Having a competency score of 70 is critical to predictable IT performance. There is the further implication that if an organization is consistently better than most of their competitors in this area, there should be a noticeable performance difference in the company as a whole versus its competitors. Capital dollars in information technology for Scenario 2 companies are simply better allocated.

Companies should realize that the competency bar for achieving sustained performance difference is quite high. This performance gain is not realized by simply implementing a tool, or training analysts for a few weeks. Achieving change will require a holistic approach to developing people and processes. The level of effort and investment needed should not be underestimated.

SNAPSHOT OF THE CURRENT STATE OF ORGANIZATIONS

The data table below shows that more than 50% of companies do not have professional, trained staff dedicated to the function of getting requirements, and the vast majority view the process of getting requirements to be inefficient. In general, the current state of capability in organizations in requirements discovery is poor.

Snapshot of the Organization: Do you agree with the following?

	Per Cent of Respondents that Agree with Statement
Business requirements are traceable, and well integrated into testing at our organization	47%
Our organization treats business analysis as a profession and has trained staff dedicated to this function	46%
Our organization has a formalized approach to doing business requirements which is consistently followed by business analysts on projects	42%
Our organization is excellent at transitioning requirements from business departments into the information technology department	36%
Our organization has defined standards for business requirements documentation quality, and assess the work of analysts against these standards on projects	34%
Our organization can predict how much stakeholder time will be needed, and which stakeholders will be involved in the requirements phase of a project	33%
Stakeholders feel that the process of extracting and documenting requirements is efficient at our organization	29%

N=110
Source: IAG Business Analysis Benchmark, 2008

One observation about the above table: IAG believes that it is unlikely that so many respondents had traceability through testing. Probably this should be interpreted as “47% of respondents use the requirements documentation in testing”. To achieve traceability (what requirement is linked to which process and strategic objective of the project, AND, assuring that the code delivered matches up to the requirements) a fairly high quality requirements document is needed and the data clearly indicates that companies are not producing the requisite quality level.

In another interesting observation, IAG’s analysis found that not one of these organizational improvement variables is individually highly correlated with

successful project outcomes. In the table below, only the top two variables stand out as something a CIO could implement on a stand-alone basis and expect to get improvement on individual projects as an outcome. In the Tactics for Tomorrow section (following), IAG will review these two areas in more detail.

<u>Area of improvement</u>	Correlation 1 is perfect 0 is no relationship
<i>Our organization has defined standards for business requirements documentation quality, and assesses the work of analysts against these standards on projects</i>	0.38
<i>Stakeholders feel that the process of extracting and documenting requirements is efficient at our organization</i>	0.32
Our organization treats business analysis as a profession and has trained staff dedicated to this function	0.25
Our organization has a formalized approach to doing business requirements which is consistently followed by business analysts on projects	0.24
Our organization can predict how much stakeholder time will be needed, and which stakeholders will be involved in the requirements phase of a project	0.23
I believe the automated business analysis tools that we currently have in place are excellent at helping us manage requirements and requirements change	0.23
Our organization is excellent at transitioning requirements from business departments into the information technology department	0.21
I believe the automated business analysis tools that we current have in place are excellent at helping us elicit requirements	0.20
Business requirements are traceable, and well integrated into testing at our organization	0.17

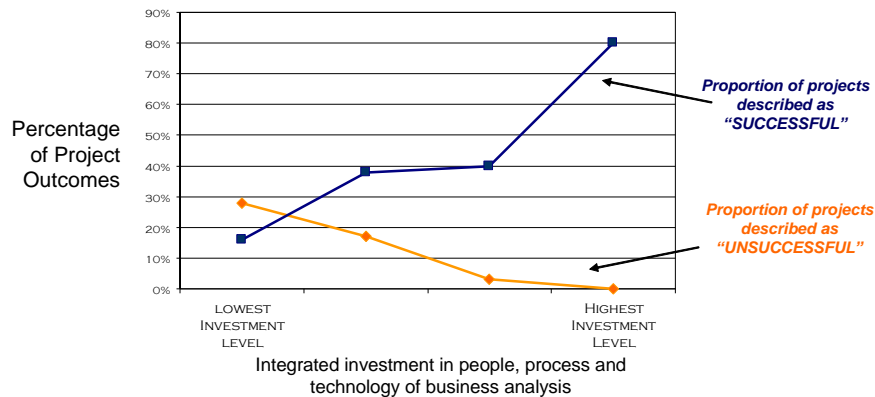
N=110
Source: IAG Business Analysis Benchmark, 2008

The conclusion from the above: there is no single silver bullet for making organizational improvement. CIOs must look at making improvement across all the areas of people, process, and tools used to support processes to gain organizational improvement.

Only a systematic change to all areas of people, process and enabling tools yields material improvement. 80% of projects from the companies which had made these broad-based changes had successful projects. ***It is an almost a linear progression – the greater the organizational focus on the combined aspects of business requirements (people, process and enabling tools), the better the expected project outcome.*** We describe this approach of focusing on all areas of business requirements “Integrated Investment” and show the project success ratios of 4 groups from lowest to highest in the chart above. Every increase in the level of investment brings about a meaningful result.

Business Implications in the Data

This data demonstrates that point changes made to organization and deliverables doesn't yield meaningful improvement. Only when the process is considered in combination with these other items is meaningful improvement to performance realized. It is this finding that leads IAG to conclude that companies simply do not visualize business requirements as, first and foremost, a process rather than a document. ***The focus of companies must shift to the quality of Requirements Discovery as a process and away from "Business Requirements" as a thing that either happened or didn't at the beginning of a project if they hope to consistently deliver successful projects.***



N=109
Significance: a difference will be found in performance 99.97 times in 100
Source: IAG Business Analysis Benchmark, 2008

ORGANIZING BUSINESS ANALYSTS – UNCOVERING THE MYTH OF BUSINESS REQUIREMENTS LEADERSHIP

Who should have primary responsibility for business requirements – non-IT business management or Information Technology? The question is essential to knowing how to effectively organize business analysis skill sets and position them optimally into an organizational structure. IAG asked which area had primary responsibility for business requirements, and looked at how successful each group was in bringing applications in on time, on budget and on target function.

The data here was insightful:

- Non-IT business analysts: On average, applications based on analysis by non-IT business professionals came in at almost 200% of budget and over 245% of time, while delivering beyond the original functionality specification.
- IT-managed requirements analysis: Generally performed better on budget and time than the non-IT business analysts, but delivered less functionality than was expected by the business.
- Jointly owned requirements analysis: This was found to be the optimal approach, with the lowest overall time and budget expenditure and generally on-target application delivery.

Who Owned Primary Responsibility for Requirements?	Budget % of target	Time % of target	Functionality % of Target	Stakeholder time % of Target
IT Organization	162.9	172.0	91.4	172.9
Non-IT Business	196.5	245.3	110.1	201.3
Jointly Owned	143.4	159.3	103.7	163.4

N=109
Source: IAG Business Analysis Benchmark, 2008

The characteristics of each grouping suggest that the '*process of requirements*' changes depending on which organization is has primary responsibility for the activity. This process change is positive when business requirements are considered a joint activity involving the business, and negative when business does requirements without contribution from the IT organization. Success rates are almost exactly the same for all organization types. This means that while budgets and timeframes can be better managed by implementing either IT or joint ownership of business requirements, success rates are governed by a completely different and independent variable. The data presented earlier in this report demonstrates that success is driven by the competency of the business requirements team.

The idea of a center of excellence for business requirements is gaining momentum particularly for larger companies with a need to deal with complex projects. In the absence of this structure it is harder to manage the requisite competency base of the corporation, and optimize the use of elite analysts across the enterprise.

Business Implications in the Data

These findings indicate that enterprises would be best served by creating an independent Center of Excellence for business requirements which is jointly owed by business and IT. Institutionalizing joint ownership appears to positively influence the cost and timeliness of application delivery, while a correctly established center of excellence can be charged with maintaining the appropriate work standards and be effective in this role. Only when both structure and high levels of competency are brought together are superior resource efficiency *and* superior success rates achieved.

ASSESSING ORGANIZATIONAL AND PROJECT RISK FACTORS

This report is designed to help the C-level executive take action to improve results. To meet this need IAG focused on diagnosing various types of project risks to analyze underlying issues impacting project failure rates. The analysis looks at three major areas:

1. The impact of project objective types on project success.
2. The impact of project size and budget on project success.
3. The impact of adopting packaged versus a custom build approach on project success.

The findings indicate that success rates are changed by some of these variables, but perhaps not in the way people might think. In conclusion to this section, IAG presents a project risk assessment tool designed to help project executives proactively identify increased potential for failure at the start of a project.

ASSESSING THE RISK ASSOCIATED WITH COMPLEX PROJECT OBJECTIVES: THE DOWNFALL OF THE AVERAGE PRACTITIONERS VERSUS THE ELITE PRACTITIONERS OF REQUIREMENTS DISCOVERY

Companies have been grappling with getting requirements right for a long time. More mature companies often have large business analyst teams tasked to working projects. The ratio at a few companies IAG works with is 1 analyst for every 2 developers. The challenge is that many of these people will simply not be effective in certain roles. Data from this project underscores the real issue: ***the “average” business analyst team will fail to get successful results in over 60% of projects where a significant change to the existing approach to doing business is needed.***

IAG investigated the connection between the competencies of the business analysis team and certain business outcomes expected by the business such as cutting costs, launching new products, regulatory compliance, reengineering the business, etc. The results demonstrate a remarkable difference between the performance of ‘average’ analysts and elite practitioners where process change is an expectation of the project. The elite analyst MUST be following a different process than the average analysts to create their success. There is no other explanation for elite being successful in achieving objectives on 80% of projects, while in 60% of cases the average analyst fails to achieve the same objective.

IAG speculates that the underlying variable driving the discrepancy is the degree to which analysts can rely on their personal industry or company understanding versus relying on the requirements discovery skills of a professional analyst. To elaborate – take the insurance industry example:

An insurance company adding a new product (a coverage) is a fairly well established process. There is a well established business pattern and information set needed (rating rules, exclusions, terms, etc); the analyst can simply ‘fill in the blanks’. Most new products do not have significant process or processing changes so the average analyst with a high degree of industry or company understanding would perform the task very well.

There is limited process change in the above example – therefore the average analyst should perform quite well. If the new product had significant process change, then the analyst would not perform well.

Dealing with compliance issues in insurance – the average analyst may perform well since changes tend to effect how the company rates rather than its business process – while in pharmaceutical industries the average analyst probably performs poorly since regulation changes tend to significantly effect operation and distribution processes.

Business Implications of the Data

In business requirements, there is a difference between the “elicitation” methodology used by companies that achieve expectations when there is a significant degree of process change expected in the project and those that don’t. Analysts must be able to bring consensus amongst stakeholders on requirements even when the business processes are totally different or they will fail.

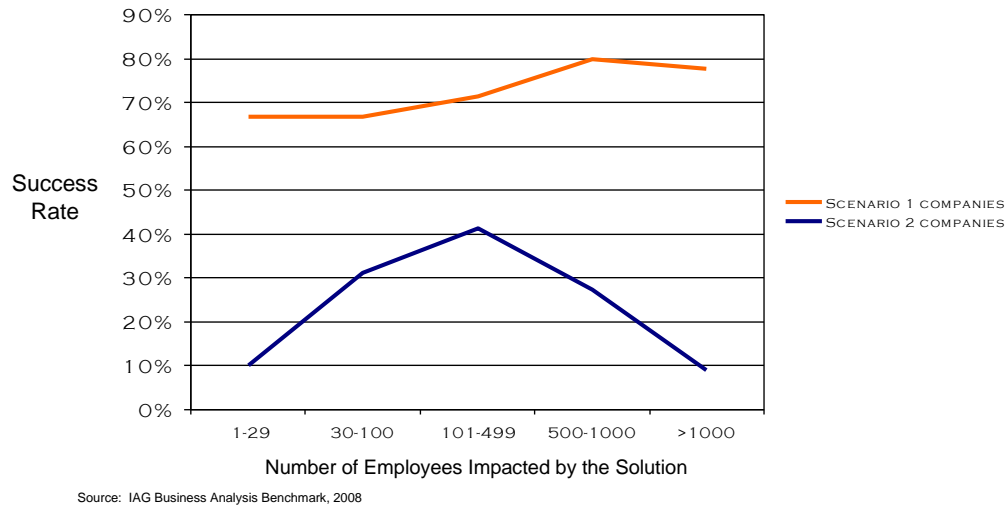
ASSESSING THE RISK ASSOCIATED WITH PROJECT SIZE

It is a common belief: large projects have large risk and small projects have small risk. While this may be true from a financial perspective, there was no correlation or meaningful pattern that exists in the data between overall budget and project success rates. The risk – regardless of budget – lies in the number of stakeholders impacted by the solution and secondarily, by the number of people required for requirements gathering, rather than specifically project budgets.

The data here is unusual, and revealing.

In the data presented to the right, projects which impact a small number of employees can be as risky as massive roll-outs that affect thousands or tens of thousands of employees. IAG’s expectation prior to the survey was that there should be a simple relationship between the size of the stakeholder group and the success rate of projects (the larger the group, the lower the success rate). Looking under the data, projects that impact a small number of stakeholders have expectation management problems. Specifically:

1. The amount of time needed to implement the solution versus expectation
2. The amount of personal time consumed versus expectation



Business Implications of the Data

There are three key messages in this data for both business and IT executive:

1. Simply because a solution is small, or impacts few stakeholders, does not mean that this project is pre-disposed to success. The data shows quite the opposite.
2. Companies need to do a better job of scoping smaller projects which have process change to better set time expectations and control costs. The project governance frameworks at many companies may not be placing enough scrutiny on these smaller project types to make them more efficient.
3. For larger projects, there is a vast difference in performance success rates between the average analyst, and highly skilled analysts. Companies need to reconsider the wisdom of using the same people to perform all project types.

SUCCESS OF COMMERCIAL PACKAGED SOLUTIONS AND BUSINESS REQUIREMENTS

Which best describes the solution deployed?	Proportion On Time On Budget, on Function	Proportion Considered Successful
Developed ourselves	32%	46%
Based on Custom Software - Outsourced Development	9%	36%
Based on packaged with no modifications	45%	47%
Packaged: with high degrees of customization	28%	36%

There is an unusual belief that pervades the industry that an organization can simply pick a package and implement it – and they will be successful so long as few modifications are made. The idea is that the ‘best-of-breed’ processes within the application displace the existing processes of the company. The data finds that this is simply not true.

While commercial off-the-shelf (COTS) solutions with few modifications are more frequently delivered on time, budget and function than other approaches to development, there is very little difference in the success rate between companies that developed the solution themselves and the packaged solution approach. Secondly, neither the average success rate for COTS nor the proportion of projects delivered on time and budget is better than 50%.

Focusing on unmodified COTS implementation will not bring about a systematic predictability in success rates or time/budget performance of projects.

Implementing a COTS solution without a solid foundation of business process and information flow understanding will most often lead to a marginal project implementation which is deemed “neither a success, nor a failure”. This projects, for example, have the expected functionality delivered, but business benefits anticipated are not realized or the cost of changing processes to match the design of the system are far higher than expected.

As with all development approaches, the competencies of the requirements discovery team strongly influences the probability that the implementation will be deemed “successful” by participants. The average skill level of analyst teams implementing COTS successfully is as high as those implementing through other

solution approaches. An interesting quirk of findings: unlike all other categories where the skill of the analyst team is equally effective at creating success as it is at mitigating the probability of failure, in COTS failure seems to be influenced by factors other than the skill of the business analysis team (i.e., the skill of the team could be relatively high, and the implementation still may not be successful).

In general, it appears that other processes within the generally accepted approach to selecting and implementing COTS are getting in the way of competent analyst teams actually achieving success. Some possible explanations of this “good execution with poor results” phenomenon associated with COTS:

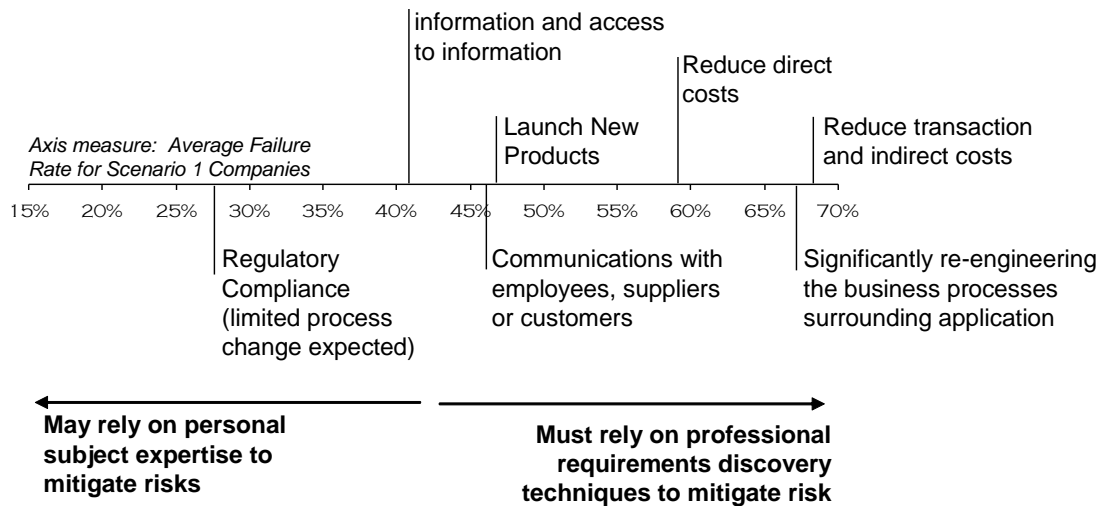
1. Organizations are selecting and purchasing an inappropriate application – THEN – trying to do the detailed analysis of how the company processes will work.
2. Some other process is more heavily influencing and creating failures despite stronger analysis skill, such as:
 - a. The quality of the software
 - b. The contracting or project management approach.
 - c. The IT department’s approach to gap analysis and implementation.
 - d. The software vendor’s processes or implementation approach.

Business Implications of the Data

Companies with business analysis centers of excellence will need to look at the process of COTS selection and implementation. As with other areas of system development, the quality of business requirements discovery should be strongly correlated with achieving successful outcomes. Where this is not the case, there is likely a process failure which needs to be addressed.

RISK ASSESSMENT MODEL

From the above data, the one factor that enables executives to proactively predict project success risk is the type of business objectives being pursued in the project. Using this, an executive can better forecast the risk of project failure, and take action to manage this risk.



Source: IAG Business Analysis Benchmark, 2007

Above is a business requirements discovery risk scale designed for project managers to describe the probability of a failure to meet specific business goals unless mitigating action is taken. Specifically, the table illustrates the expected failure rate to achieve a given business objectives for Scenario 1 companies. Failure rates for high process change objectives are in excess of 60%.

In order for the Scenario 2 company to achieve success when facing high risk objectives, it must adopt the practices of a Scenario 1 company. In Scenario 1 companies, the process of elicitation and the competencies of the analysts deliver *success* rates of between 73% and 88% for the same set of objectives.

Since companies seldom have only one business objective on a project, they should consider the relative importance of these objectives and plot the overall project's business requirements discovery risk. The higher the risk level (to the right on the scale) the more often companies did not achieve their expected business objectives of the project. ***IAG believes that as risk levels rise, companies must take steps to mitigate this risk.***

The research shows that companies mitigate risk when significant reengineering is required, but will tend to overlook the need for elite analysts when cost-reduction goals are targeted.

Business Implications of the Data

The potential for failure on projects can be mapped based on the business objectives targeted by that project. Companies can, and do, mitigate this risk by engaging elite analysts which are consistently successful at achieving business objectives. However, companies tend not to apply this risk mitigation when cost cutting is a key goal of the company, and will therefore tend to under-achieve the goals targeted.

Companies must develop or have access to elite analysts to achieve certain business objectives of application implementation. Failure to deploy this asset will generally result in high failure rates. The Center of Excellence approach can be used to provide the resources capable of assessing the business objectives risk of a project (using the scale above), and to provide a supply of elite analysts to engage in projects where risk is unacceptably high.

CONCLUSIONS IN DIAGNOSING ORGANIZATIONS

Most organizations are not well set up to be successful in getting business requirements right – over 50% do not have even basic pieces in place to be successful at establishing business and software requirements, and 70% of organizations do not have the fundamental competencies within business requirements discovery to consistently bring in projects on time and on budget. Having the requisite competencies is critical to controlled IT performance. It also means that if an organization is consistently better than 70% of their competitors in this area of competency, there should be a noticeable performance difference in the company as a whole versus its competitors. Capital dollars in information technology for Scenario 2 companies are simply better allocated.

Companies should realize that the competency bar for achieving sustained performance difference is quite high. This performance gain is not realized by simply implementing a tool, or training analysts for a few weeks. Achieving change will require a holistic approach to developing people and processes. The level of effort and investment needed should not be underestimated.

The data supports the creation of an independent Center of Excellence for business requirements which is jointly owed by business and IT. Institutionalizing joint ownership positively influences the cost and timeliness of application delivery. A well-established center of excellence must be charged

with maintaining the appropriate work standards if it is to be effective at influencing the quality of results as well as the cost. Only when both of these factors are combined are superior resource efficiency *and* superior success rates achieved.

The concept of Center of Excellence is further supported by the need for elite business analysts on certain types of projects. Companies must develop or have access to elite-competency analysts to achieve certain business objectives of application implementation. Failure to deploy elite analysts in these situations will generally result in a failure to achieve the target business objective.

Companies with business analysis centers of excellence will need to look at the process of COTS selection and implementation. As with other areas of system development, the quality of business requirements discovery should be strongly correlated with achieving successful outcomes. Where this is not the case, there is likely a process failure which needs to be addressed.

Perhaps the most critical findings of this sub-report: Point changes to organization and deliverables don't yield meaningful change to results in and of themselves. Only when elements associated with the process of requirements discovery are considered in combination with these other organizational elements is meaningful change to performance realized. It is this finding that leads IAG to conclude that many companies simply do not visualize business requirements as, first and foremost, a process rather than a document. ***The focus of companies must shift to the quality of Requirements Discovery as a process and away from "Business Requirements" as a document that was either completed not at the beginning of a project if they hope to consistently deliver successful projects.***

ABOUT THE SURVEY

This survey is designed to scrutinize the impact of business analysts on North American business, and the technology projects of these companies. The study started with a random sampling of approximately 400 projects and winnowed this down to the 110 projects which fit precise criteria. These criteria are:

1. The project budget must be in excess of \$250,000 for development, software and external services. This means we eliminate simple or routine projects that lack a moderate amount of complexity.
2. The project must involve software development or application implementation. This means that we eliminate infrastructure or technology-only roll-out projects.

3. The project must deliver of business capability or software functionality that is significantly different than those which existed prior to the project. By this we eliminate most maintenance, bug-fix, or technology re-platforming projects which do not really change the business.

Using these criteria, IAG removed bulk of maintenance or technology-only projects, and focused on a subset of larger projects that are truly strategic to a company. In numbers, this subset may account for less than 10% of total projects completed by the IT organization in a year, but is also likely to account for as much as 50% of project spending. In fact, over 75% of projects reviewed in our research were considered either “critically important” or “very important” to the enterprise. This special class of project is typically:

- Fundamental to the performance of the business.
- Larger, and typically cross-functional in nature with a high potential for project interdependencies.
- Represents the bulk of larger-scale project work which is initiated at companies today.

This is a difficult class of projects for companies. Our research finds found only 20% delivered on time, a mere 28% are delivered on budget, and less than 45% that delivered the full functionality expected at the outset of the project. As a class, this grouping represents a significant amount of expenditure – and an area of generally poor performance for large companies.

This survey was developed by IAG Consulting and Michael O’Neil, and fielded in association with InfoTech Research Group.

ABOUT IAG CONSULTING

IAG specializes in business and software requirements. Since 1997, our company has worked with 300 of the Fortune 1000 companies, completed over 1,300 requirements projects, and trained more than 100,000 business analysis professionals. Our organization focuses on a practical and practiced approach that is efficient for all stakeholders in both business professional and information technology departments. We bring measurable gains to our clients:

- Reducing time needed to complete requirements
- Ensuring completeness in documentation and reducing change requests
- Issuing RFPs where vendors can bid accurately and clients get better terms
- Reducing costs in systems development
- Salvaging troubled projects

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