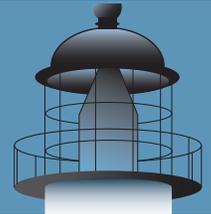


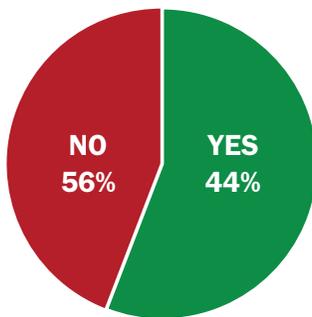
CHAOS REPORT 2015



The *CHAOS Report 2015* is a model for future *CHAOS Reports*. There have only been two previous *CHAOS Reports*, the original in 1994 and the 21st edition of 2014. This new type of *CHAOS Report* focuses on presenting the data in different forms with many charts. Most of the charts come from the new *CHAOS* database from the fiscal years 2011 to 2015. The *CHAOS* fiscal year starts March 1 and runs until the end of February. A few of the charts are from the new *SURF* database to highlight certain information. The purpose of this report is to present the data in the purest form without much analysis and little thought leadership. Analysis and thought leadership are offered in the *CHAOS Manifesto* series of reports.

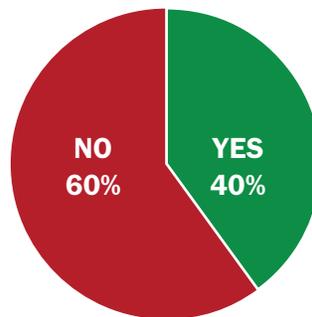
Another major change is how we define success. We have multiple definitions, including our newest. We coded the new *CHAOS* database with six individual attributes of success: OnTime, OnBudget, OnTarget, OnGoal, Value, and Satisfaction. Our Traditional definition is OnTime, OnBudget, and OnTarget. This means the project was resolved within a reasonable estimated time, stayed within budget, and contained a good number of the estimated features and functions. Our new Modern definition is OnTime, OnBudget, with a satisfactory result. This means the project was resolved within a reasonable estimated time, stayed within budget, and delivered customer and user satisfaction regardless of the original scope. We have the flexibility to present the results for one to six of these attributes in any combination.

ONBUDGET



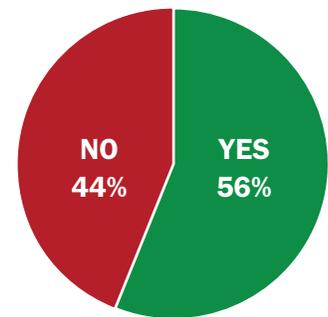
The percentage of projects that were OnBudget from FY2011–2015 within the new *CHAOS* database.

ONTIME



The percentage of projects that were OnTime from FY2011–2015 within the new *CHAOS* database.

ONTARGET



The percentage of projects that were OnTarget from FY2011–2015 within the new *CHAOS* database.

TRADITIONAL RESOLUTION FOR ALL PROJECTS

	2011	2012	2013	2014	2015
SUCCESSFUL	39%	37%	41%	36%	36%
CHALLENGED	39%	46%	40%	47%	45%
FAILED	22%	17%	19%	17%	19%

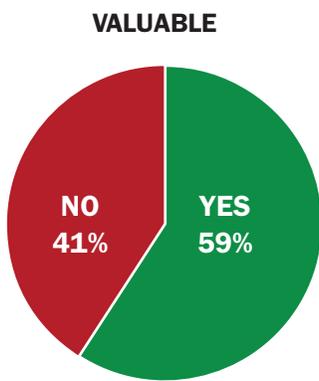
The Traditional resolution of all software projects from FY2011–2015 within the new *CHAOS* database.

*All data, unless otherwise noted, represents results from FY2011-2015. The total number of software projects is 25,000-plus, with an average of 5,000 per yearly period.

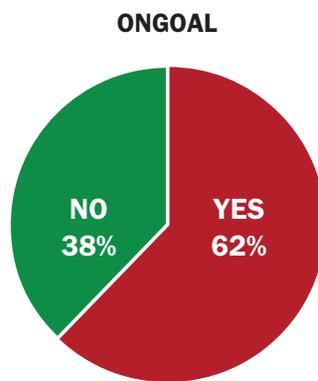
Our Modern Resolution definition is OnTime, OnBudget, with a satisfactory result. This definition encompasses both a success rate for the project management of a project and for the project itself. The Traditional Resolution of OnTime, OnBudget, and OnTarget clearly supports the goals of project management, but not the customer or user of the product or project. The reason we consider this to be the best definition is that it combines the project management process and the end results of a project. We have seen many projects that meet the triple constraints of OnTime, OnBudget, and OnTarget, but the customer was not satisfied with the outcome. This is evident in the data, which shows a 7% decrease in the success rate and a 7% increase in the challenged rate.



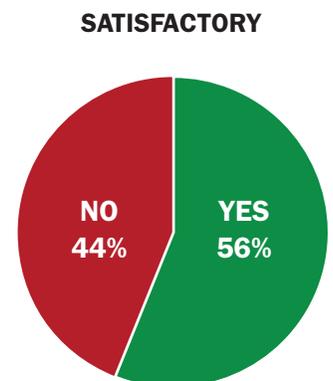
In changing from the OnTarget constraint to satisfactory we avoid penalizing a project for having an evolving target, which all projects have, even the very small ones. Customers have a clear opinion on the satisfaction level whether or not all the features and functions that they asked for in the beginning of the project are realized. In our research we found that both satisfaction and value are greater when the features and functions delivered are much less than originally specified and only meet obvious needs. In other research we found that most features and functions of software are not used. These additional features increase cost, risk, and quality but do not necessarily provide value.



The percentage of projects considered valuable from FY2011–2015 within the new CHAOS database.



The percentage of projects that were OnGoal from FY2011–2015 within the new CHAOS database.



The percentage of projects considered satisfactory from FY2011–2015 within the new CHAOS database.

MODERN RESOLUTION FOR ALL PROJECTS

	2011	2012	2013	2014	2015
SUCCESSFUL	29%	27%	31%	28%	29%
CHALLENGED	49%	56%	50%	55%	52%
FAILED	22%	17%	19%	17%	19%

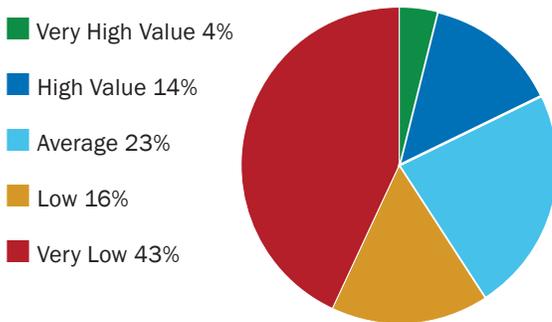
The Modern Resolution (OnTime, OnBudget, with a satisfactory result) of all software projects from FY2011–2015 within the new CHAOS database. Please note that for the rest of this report CHAOS Resolution will refer to the Modern Resolution definition not the Traditional Resolution definition.



Project size has always been a major element in the CHAOS research. It was clear from the very beginning of the CHAOS research that size was the single most important factor in the resolution of project outcome. On this page we show two tables: resolution of all software projects by size; and size of the software projects by resolution. These tables clearly show the impact of size on the results of Ontime, OnBudget, with a satisfactory result. It is also clear that the larger the project, the less valuable the return rate. In many cases larger projects never return value to an organization. The faster the projects go into production the quicker the payback starts to accumulate.

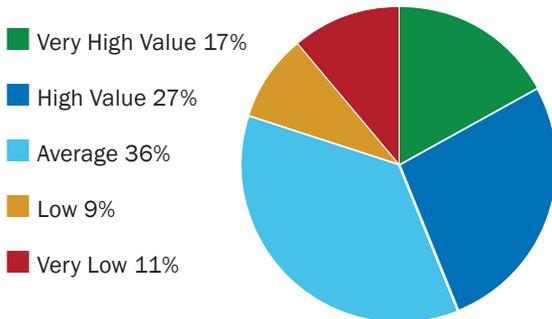
One of the major services of our Value Portfolio Optimization and Management Service is to break up large software projects into multiple small projects, with early delivery for success, quicker return on value, and greater customer and user satisfaction. We have found that most software projects only require a small team for a short duration in order to deliver value to the organization; only in very rare cases do projects need to be larger and longer. Most, if not all, large, complex, multi-year projects are unnecessary. This is especially true for standard infrastructure software—such as middleware, databases, and system management.

VALUE FOR LARGE PROJECTS



The return of value for large projects from FY2011–to 2015 within the new CHAOS database.

VALUE FOR SMALL PROJECTS



The return of value for small projects from FY2011–2015 within the new CHAOS database.

PROJECT SIZE BY CHAOS RESOLUTION

	SUCCESSFUL	CHALLENGED	FAILED	TOTAL
Grand	6%	51%	43%	100%
Large	11%	59%	30%	100%
Medium	12%	62%	26%	100%
Moderate	24%	64%	12%	100%
Small	61%	32%	7%	100%

The size of software projects by the Modern Resolution definition from FY2011–2015 within the new CHAOS database.

CHAOS RESOLUTION BY PROJECT SIZE

	SUCCESSFUL	CHALLENGED	FAILED
Grand	2%	7%	17%
Large	6%	17%	24%
Medium	9%	26%	31%
Moderate	21%	32%	17%
Small	62%	16%	11%
TOTAL	100%	100%	100%

The resolution of all software projects by size from FY2011–2015 within the new CHAOS database.

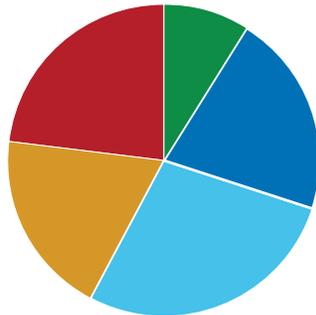


Looking at project resolution by industry provides another view of the CHAOS database. The table on this page shows the resolution of all software projects by industry from FY2011–2015 within the new CHAOS database. The results show that retail projects had the highest success rate at 35% using the Modern definition of success. The results also show that government projects had the highest failure rate at 24%, and financial and government projects had the highest challenged rate at 56%. The comparison of satisfaction level for banking versus retail shows that retail also has better results.

Many of our Benchmark clients like to compare their results to other organizations in the same industry and we do this as matter of course. However, we found that industry is not the most accurate or important metric of comparison. The most accurate is to consider industry as a minor filter, with project type, size, skills, and methodology as primary filters. Other minor filters would include organizational size and geography. In our Resolution Benchmark Membership we use this technique to benchmark project portfolios.

BANKING PROJECTS

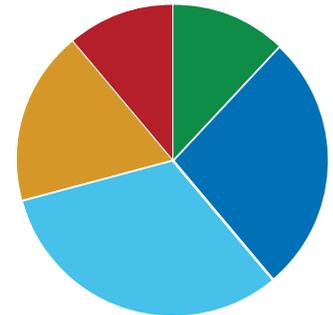
- Very Satisfied 9%
- Satisfied 21%
- Somewhat Satisfied 28%
- Not Satisfied 19%
- Disappointed 23%



The satisfaction level for banking projects from FY2011–2015 within the new CHAOS database.

RETAIL PROJECTS

- Very Satisfied 12%
- Satisfied 27%
- Somewhat Satisfied 32%
- Not Satisfied 18%
- Disappointed 11%



The satisfaction level for retail projects from FY2011–2015 within the new CHAOS database.

CHAOS RESOLUTION BY INDUSTRY

	SUCCESSFUL	CHALLENGED	FAILED
Banking	30%	55%	15%
Financial	29%	56%	15%
Government	21%	55%	24%
Healthcare	29%	53%	18%
Manufacturing	28%	53%	19%
Retail	35%	49%	16%
Services	29%	52%	19%
Telecom	24%	53%	23%
Other	29%	48%	23%

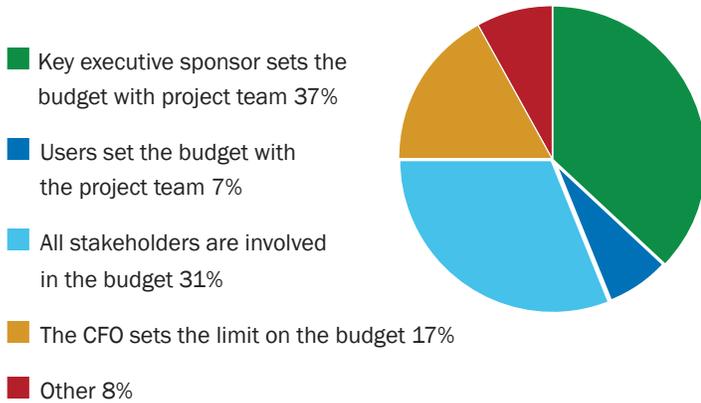
The resolution of all software projects by industry from FY2011–2015 within the new CHAOS database.



In our **CHAOS Report 2014** we showed that project resolution differed slightly by most of the areas of the world. In that report we used the traditional success metrics of OnTime, OnBudget, and OnTarget. In this report we used the Modern definition of success of Ontime, OnBudget, with a satisfactory result. We see a major bifurcation with North America and the rest of the world; North America has a 31% success rate versus Europe at 25%, Asia at 22%, and the rest of world at 24%. We have seen that North America has some of the highest emotional maturity skills. These skills include managing expectations and gaining consensus, which in turn would cause a high satisfaction level. On the other hand, Asia has the lowest emotional maturity scores according to our emotional maturity appraisals and benchmarks.

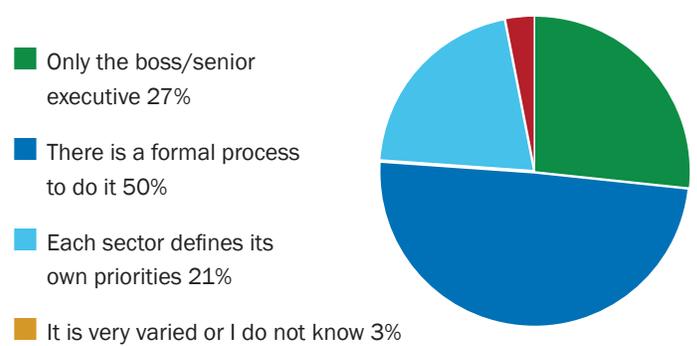
As we reported in the *Factors of Success 2015* report, emotional maturity is the second-ranked Factor of Success. In that report we stated that having a skilled emotional maturity environment helps 80% of projects enjoy success. The No. 1 Factor of Success is a skilled executive sponsor. These two factors, along with the other eight, are appraised as the first step in the Resolution Benchmark. If we find during the skills appraisal that the executive sponsorships and/or emotional maturity skills are deficient then we will provide advice on how to improve the score and help improve future Benchmark results. For more information on the Factors of Success, please see the *Factors of Success 2015* report.

BUDGET PROCESS



We asked IT executives, "What is your general practice on project budgeting and cost collaboration?" This is based on 300 responses in the SURF database.

PROJECT SELECTION PROCESS



We asked the 37% of SURF respondents who said that the key executive sponsor sets the budget with the project team, "In general, who participates in project selection/approval in your organization?" This is based on 111 responses in the SURF database.

CHAOS RESOLUTION BY AREA OF THE WORLD

	SUCCESSFUL	CHALLENGED	FAILED
North America	31%	51%	18%
Europe	25%	56%	19%
Asia	22%	58%	20%
Rest of World	24%	55%	21%

The resolution of all software projects from FY2011–2015 by the four major areas of the world.

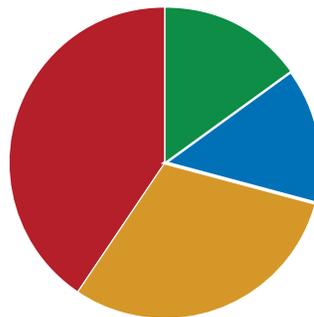


The type of project has a major effect on resolution. The table on this page shows the resolution of all software projects by project type from FY2011–2015 within the new CHAOS database using the Modern definition of success. Projects using a purchased application with no modification had the highest success rate at 57%. Projects that were developed from scratch using modern methodologies had a 23% failure rate. This is the highest failure rate other than the “other” category. The results also show that projects that were developed from scratch using traditional languages and methods had the highest challenged rate at 61%.

Modernization projects had the second highest success rate at 53%. The Standish Group has a very specific definition and development method for modernization projects. In fact, we modified “modernization” by adding “in place” so as not to confuse the general modernization of applications by the other techniques such as developing from scratch using modern methodologies or purchasing components. For more information on modernization in place, please see our *Modernization in Place* report.

ROI FOR REQUIREMENTS

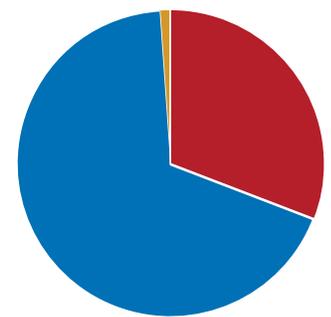
- Calculate overall project and allocate over individual requirements 15%
- Calculate each requirement and add up to overall project ROI 14%
- Calculate overall project, calculate major requirements, and allocate the rest 30%
- Do not calculate individual requirements 40%



We asked IT executives, “How do you calculate ROI for individual requirements?” This is based on 300 responses in the SURF database.

GAIN VERSUS RISK METRICS

- Painful 31%
- Restrained 68%
- Painless 1%



We asked the 40% of SURF respondents who said they do not calculate individual requirements, “How would you describe your organization’s efforts in developing and maintaining financial and risk metrics for project requirements?” This is based on 121 responses in the SURF database.

CHAOS RESOLUTION BY PROJECT TYPE

PROJECT TYPE	SUCCESSFUL	CHALLENGED	FAILED
Developed from scratch using traditional languages and methods	22%	61%	17%
Developed from scratch using modern methodologies	23%	54%	23%
Developed some components and purchased others	24%	59%	17%
Purchased components and assembled the application	25%	59%	16%
Purchased application and modified	42%	37%	21%
Purchased application and performed no modifications	57%	28%	15%
Modernization	53%	38%	9%
Other	28%	47%	25%

The resolution of all software projects by project type from FY2011–2015 within the new CHAOS database.

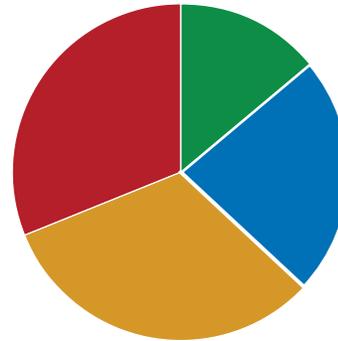


The table on this page compares the resolution of all software projects from FY2011–2015 within the new CHAOS database, segmented by the agile process and waterfall method. The total number of software projects is more than 10,000. The results for all projects show that agile projects have almost four times the success rate as waterfall projects, and waterfall projects have three times the failure rate as agile projects. The results are also broken down by project size: large, medium, and small. The overall results clearly show that waterfall projects do not scale well, while agile projects scale much better. However, note that the smaller the project, the smaller the difference is between the agile and the waterfall process.

As we stated in the *Factors of Success 2015* report, we have identified two trump cards that together create a winning hand. The trump cards are the agile process and small projects. As measured by Modern metrics, small projects using an agile process only have a 4% failure rate. For more information on trump cards, please see the *Factors of Success 2015* report.

TIME BOXES

- Always 14%
- Yes, most of the time 23%
- Yes, some of the time 32%
- No 31%



We asked IT executives, "In general, do you utilize time boxes to optimize your projects? This is based on 300 responses in the SURF database."

CHAOS RESOLUTION BY AGILE VERSUS WATERFALL

SIZE	METHOD	SUCCESSFUL	CHALLENGED	FAILED
All Size Projects	Agile	39%	52%	9%
	Waterfall	11%	60%	29%
Large Size Projects	Agile	18%	59%	23%
	Waterfall	3%	55%	42%
Medium Size Projects	Agile	27%	62%	11%
	Waterfall	7%	68%	25%
Small Size Projects	Agile	58%	38%	4%
	Waterfall	44%	45%	11%

The resolution of all software projects from FY2011–2015 within the new CHAOS database, segmented by the agile process and waterfall method. The total number of software projects is over 10,000.

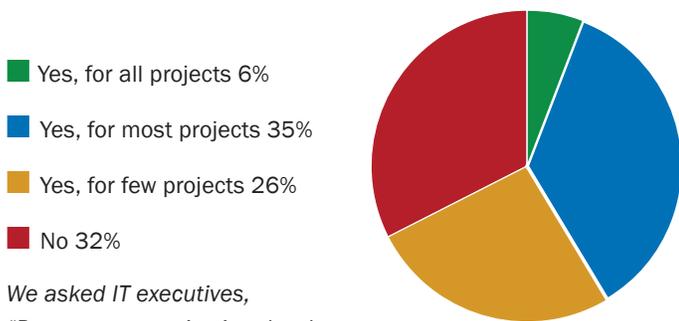


We use two tables to determine and appraise complexity. There are five attributes in each table. We then add up the points based on the attributes of the project to determine the complexity level. A complexity level is entered for each project in the CHAOS database. We also use the level in the Size-Complexity Matrix. Our Size-Complexity Matrix provides a guideline for categorizing a project either by size or complexity.

For more information about the Size-Complexity Matrix, please review prior *CHAOS Manifestos* including *CHAOS Manifesto 2014*. In addition, The Standish Group's Portfolio Optimization and Management Service can help develop strategies for reducing complexity and gaining success.

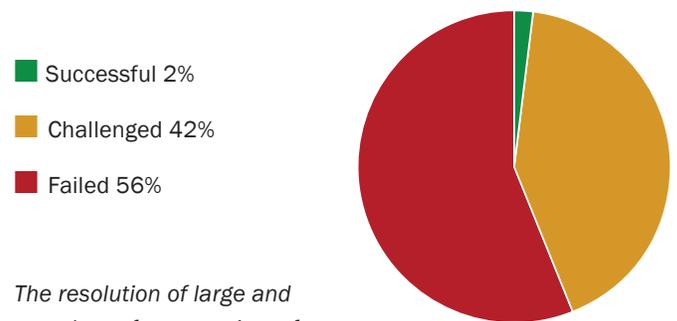
Complexity is one of the main reasons for project failure. The table on this page shows the resolution of all software projects by complexity from FY2011–2015 within the new CHAOS database using the Modern definition of success. The results show that 38% of very easy projects were successful. Very complex projects have both the highest challenged (57%) and failure (28%) rates. Inside of every complex problem are simple solutions. Complexity is often caused by size, conflicting goals, large budgets, and executive sponsor egos.

COMPLEXITY APPRAISAL



We asked IT executives, "Does your organization develop any appraisal of complexity on its projects?" This is based on 300 responses in the SURF database.

LARGE, COMPLEX PROJECTS



The resolution of large and complex software projects from FY2011–2015 within the new CHAOS database.

CHAOS RESOLUTION BY COMPLEXITY

	SUCCESSFUL	CHALLENGED	FAILED
Very Complex	15%	57%	28%
Complex	18%	56%	26%
Average	28%	54%	18%
Easy	35%	49%	16%
Very Easy	38%	47%	15%

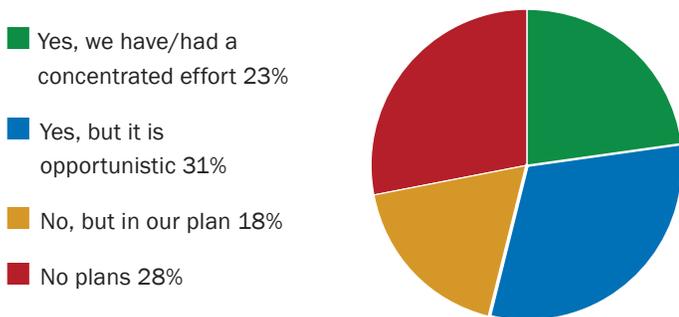
The resolution of all software projects by complexity from FY2011–2015 within the new CHAOS database.

The Standish Group has stated for many years that clear goals are achieved when all the stakeholders are focused on and understand the core values of the project. We believed that goal clarity and focus were essential to a successful project. However, measuring success by both the Traditional and Modern metrics we found the opposite to be true. We coded the database with a 5-point scale, from precise to distant, in order to measure the effect on success rates. It is clear from the research that goals closer to the organization’s strategy have the opposite effect on higher satisfaction and success rates.



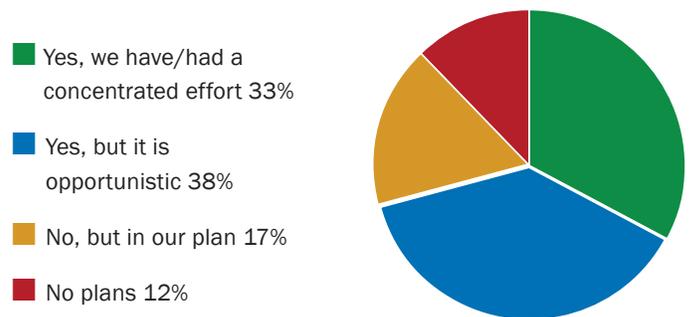
The Standish Group uses goal as one of the seven constraints as part of the Optimization Clinic. The Optimization Clinic is the third step in our Value Portfolio Optimization and Management Service. We also use goal as one of the measurements for our Resolution Benchmark. The Standish Group is now suggesting that your organization take action over trying to achieve clarity. Many of the most satisfying projects start out as vague. The business objectives are dynamic as the project progresses. Project teams should reduce or give up control of the business objectives to encourage and promote innovation.

LOW-VALUE BUSINESS PROCESSES



We asked IT executives: “Do you have an active program to optimize business processes by eliminating low-value business processes?” This is based on 300 responses in the SURF database.

COST/BENEFIT ANALYSIS



We asked IT executives, “Do you have an active program to optimize business processes by doing cost/benefit analysis for new business processes?” This is based on 300 responses in the SURF database.

CHAOS RESOLUTION BY GOAL

	SUCCESSFUL	CHALLENGED	FAILED
Precise	22%	53%	25%
Close	23%	54%	23%
Loose	27%	52%	21%
Vague	38%	46%	16%
Distant	34%	58%	8%

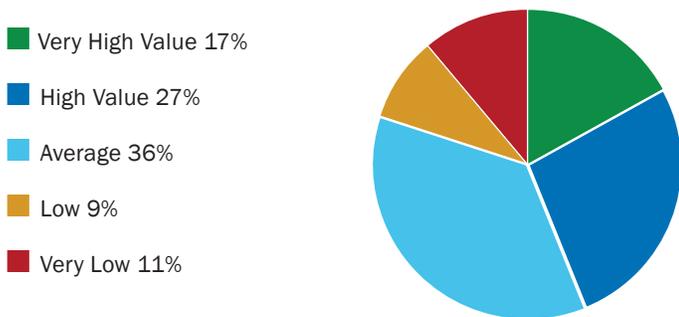
The resolution of all software projects by goal from FY2011–2015 within the new CHAOS database.



Successful projects need smart, trained people. Not surprisingly, one of the key project success factors identified in Standish Group’s CHAOS research is a competent staff. There are five key fundamentals to ensure staff competency. First, identify the required competencies and alternative skills. Second, provide a good, continuous training program to enhance the staff skills. Third, recruit both internally and externally to provide a balance of experiences. Fourth, provide incentive to motivate the staff. Finally, ensure the staff is project-focused. When a project has both teamwork and skilled resources, it can prevail under even the direst of circumstances. To ensure a competent staff you must match the skills of the team to correspond with the needed skills of the project. This is one of the seven constraints we use to prioritize your project portfolio.

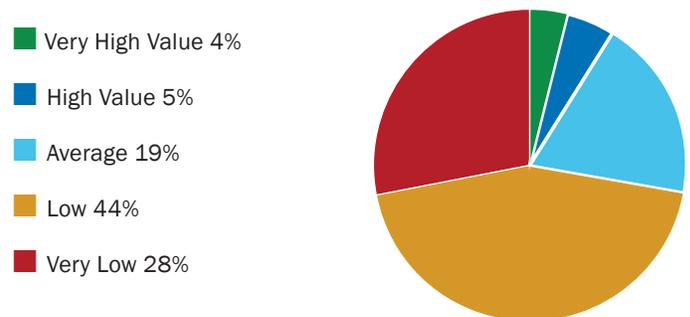
Here we look at project resolution by capability. The table on this page shows the resolution of all software projects by capability from FY2011–2015 within the new CHAOS database using the Modern definition of success. The results show that 38% of gifted resources were on successful projects. Projects that had unskilled people had both the highest challenged (60%) and failure (23%) rates. The decisions around project priority include: Do you go forward with a project if you lack skilled capability? This decision is especially pertinent for large projects with a large staff who have a mix of good and poor resources. This is one of the reasons that small projects have a higher success rate since small projects are easier to staff with high-performing teams.

GIFTED AGILE TEAMS



The value rating of medium to large original software development projects with gifted agile teams from FY2011–2015 within the new CHAOS database.

UNSKILLED AGILE TEAMS



The value rating of medium to large original software development projects with unskilled agile teams from FY2011–2015 within the new CHAOS database.

CHAOS RESOLUTION BY CAPABILITY

	SUCCESSFUL	CHALLENGED	FAILED
Gifted	38%	45%	17%
Talented	31%	53%	16%
Competent	28%	53%	19%
Able	24%	54%	22%
Unskilled	17%	60%	23%

The resolution of all software projects by capability from FY2011–2015 within the new CHAOS database.

As we wrote in the *Factors of Success 2015* report, the table below reflects our opinion of the importance of each attribute and our recommendation of the amount of effort and investment that should be considered to improve project success. It is clear to us that the four primary investments should be focused on: executive sponsorship skills, emotional maturity environment, user involvement, and optimization services. It is our tradition to assign points to each factor to highlight its relevance. These points should also be considered as an investment guideline for project management improvement. For example, if you are spending \$50 million on IT projects then 2% of the money should be going toward improving the value of those projects. Based on this amount, our recommended breakdown of money to be allocated to each factor is calculated next to the point value on the chart. So, if you want your projects to be more successful, with higher value and greater customer satisfaction, you should carefully consider where you invest your project improvement money.



The law of diminishing returns states that in all productive processes, adding one or more factors of production, while holding others constant, will at some point yield lower returns. Project management expertise, process methods, and tools are affected by the physics law of diminishing returns. The proof point of this law is the United States government. The U.S. government has the highest level of project management expertise, the most sophisticated tools, and the highest level of governance. Yet, U.S. government projects cost exponentially more than commercial projects and have greater failure rates. While the Factors of Success can help improve project performance, the key to project management success is moderation.

CHAOS FACTORS OF SUCCESS

FACTORS OF SUCCESS	POINTS	INVESTMENT
Executive Sponsorship	15	15%
Emotional Maturity	15	15%
User Involvement	15	15%
Optimization	15	15%
Skilled Resources	10	10%
Standard Architecture	8	8%
Agile Process	7	7%
Modest Execution	6	6%
Project Management Expertise	5	5%
Clear Business Objectives	4	4%

The 2015 Factors of Success. This chart reflects our opinion of the importance of each attribute and our recommendation of the amount of effort and investment that should be considered to improve project success.



ADDITIONAL RESOURCES AND RESEARCH

Other available research reports:

- Factors of Success 2015
- Modernization in Place
- CHAOS Manifesto 2014
- CHAOS Report 2014
- Exceeding Value



CHAOS Tuesday

THE
STANDISH
GROUP

Many of the subjects within this report are subjects of CHAOS Tuesday, our Internet radio program. These shows include:

CHAOS Tuesday #81 CRAPOLA

CHAOS Tuesday #78 Success Redefined

CHAOS Tuesday #77 Factors of Success

CHAOS Tuesday #76 Haze

RESOLUTION BENCHMARK

Our Resolution Benchmark Membership measures your project portfolio against like organizations with a similar project mix and skill maturity.

MEMBERSHIP BENEFITS

- Count what counts
- Increase project value
- Improve customer and user satisfaction
- Reduced project overhead
- Improve project environment





VALUE PORTFOLIO OPTIMIZATION AND MANAGEMENT SERVICE

Our Value Portfolio Optimization and Management Service is a forward-thinking and predictive visualization of the value of your software investments.

STEP 1: GETTING TO KNOW YOU

By focusing your project portfolio on value, our service frees your organization to create value. Our service offers the following benefits:

- High Returns on Investment
- More Innovations
- Greater Stakeholder Satisfaction
- Less Management Frustration
- Reduced Project Overhead

STEP 2: PROJECT PROFILES

The Value Portfolio Optimization and Management Service offers the following features:

- Rapid
- Simple
- Comprehensive
- Inexpensive
- Comprehensible

STEP 3: OPTIMIZATION CLINIC

The one thing we are not going to do is immediately change your process or try to sell you new and cumbersome tools. It really does not matter where you are in project management maturity. Our aim is to reduce or minimize the burden placed on you by expensive tools and complex processes. We do this through our three unique items:

- Research database of 50,000 projects
- Patented optimization formula
- Our insight into a broad set of projects

Our three-step method helps you focus on things that really count.

- **STEP 1:** Project Skills and Environmental Orientation
- **STEP 2:** Individual Project Optimization & Assessments
- **STEP 3:** Value Optimization Clinic

FOLLOW-UP: Each quarter The Standish Group will visit your organization to update your portfolio. Our Value Portfolio Optimization and Management Service helps you exceed and create value.