

Special CHAOS Report on  
**Digital Transformation Project**

Produced by:

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# Special CHAOS Report on Digital Transformation Project



Today's organizations are a complex knot of people, processes, rules, IT, responsibilities, tasks, and much more. Complexity begets inefficiencies, so to transform our businesses we need a new generation of organizational tools that lead to greater efficiency. Digital transformation means designing/re-designing and constructing/re-constructing an organizational process in the same way that an engineer would build a automobile, airplane, or computer. A digital transformation project (DTP) is one that completely automates a business workflow, including integration of third-party resources. What distinguishes DTPs from traditional IT projects that support businesses process is the elimination of all manual processes as part of the workflow, thus truly transforming the business. An example would be online voting. The Standish Group selected 5,140 projects within the CHAOS database that fit the DTP definition. We then compiled the results of these projects to present this special DTP report on project success.

The CHAOS database is coded with six individual attributes of success: OnTime, OnBudget, OnTarget, OnGoal, Value, and Satisfaction. Challenged projects fall outside one or more of these metrics, with some reasoning and flexibility that goes into our adjudication process. On the other hand, project failure always has the same definition. A failed project is one that has been cancelled before it is completed, or completed but not used. Those are the only two conditions that put a project into the failed category. Many people add "challenged" to the failed category to make failures look bigger, but you should resist this temptation. There are already enough failures without embellishing the numbers.

DTPs using the Traditional definition of OnTime, OnBudget, and OnTarget have a slightly lower success rate than the overall projects in the database. Our research shows 37% of 50,000 projects in the CHAOS database were successful, while 34% of DTP projects were successful.

| <b>Resolution by Traditional Measurement</b> |            |            |              |
|--|------------|------------|--------------|
| <b>Resolution</b>                            | <b>All</b> | <b>DTP</b> | <b>Delta</b> |
| <b>Successful</b>                            | <b>37%</b> | <b>34%</b> | <b>-3%</b>   |
| <b>Challenged</b>                            | <b>44%</b> | <b>45%</b> | <b>1%</b>    |
| <b>Failed</b>                                | <b>19%</b> | <b>21%</b> | <b>2%</b>    |

The Traditional resolution of all projects and DTP projects from FY2007–2016 within CHAOS database.  
Traditional resolution is OnTime, OnBudget, and OnTarget.

# Modern DTP Resolution



Our Modern definition of success 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. We consider Modern resolution to be a better definition of success than the Traditional definition because it combines the project management process and the end results of a project. We have seen many projects that have met the triple constraints of OnTime, OnBudget, and OnTarget, but the customers were not satisfied with the outcome and on many occasions refused to use the new system. This is evident in the data, which shows an 8% decrease in the success rate and a 6% increase in the challenged rate from 2007 to 2016.

Using the Modern measurement of OnTime, OnBudget, with a satisfactory result, DTPs had the same lower success rate as the overall projects in the CHAOS database. Our research shows 29% of 50,000 projects in the CHAOS Database were successful, while 28% of DTP projects were successful. However, using both Traditional and Modern metrics, DTPs failed 2% more than the projects overall.

| <b>Resolution by Modern Measurement</b> |            |            |              |
|---|------------|------------|--------------|
| <b>Resolution</b>                       | <b>All</b> | <b>DTP</b> | <b>Delta</b> |
| <b>Successful</b>                       | <b>29%</b> | <b>28%</b> | <b>-1%</b>   |
| <b>Challenged</b>                       | <b>52%</b> | <b>51%</b> | <b>-1%</b>   |
| <b>Failed</b>                           | <b>19%</b> | <b>21%</b> | <b>2%</b>    |

The Modern resolution of all projects and DTPs from FY2007–2016 within CHAOS database. Modern resolution is OnTime, OnBudget, with a satisfactory result.

## DTP Resolution by Size

Project size has always been a major element in the CHAOS research and DTPs are no exception. It was clear from the DTP data that project size is a major determinant if the project will be successful or return value. Only 5% of the very large or grand DTPs were OnTime, OnBudget, with a satisfactory result. The Standish Group revised the size scale from a pure labor cost based to a category a couple of years ago to reflect the changing labor costs and other factors, small is generally a same team for a few months, while it is a very large team over a few years. 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.

On the other hand, 57% of small DTPs came in OnTime, OnBudget, with a satisfactory result. Strangely, moderate-size DTP projects had a 58% chance of a successful result with fewer failures. For many years we have been recommending microprojects or small projects. Yes, less can really be more in the long run. We have seen a major uptick in the use of microservices, which is basically a microproject. However, while this does increase success rates microprojects come with a problem of coupling the services together. In order to overcome the coupling problem of microservices/ microprojects we are investigating a promising new method called Normalized Systems, which the Dutch Tax Office uses. A Normalized Systems method uses even smaller projects, and we have termed these types of projects nanoprojects or nanoservices.

| <b>DTP Size by Resolution</b> |                   |                   |               |              |
|-------------------------------|-------------------|-------------------|---------------|--------------|
| <b>Resolution/Size</b>        | <b>Successful</b> | <b>Challenged</b> | <b>Failed</b> | <b>Total</b> |
| <b>Grand</b>                  | <b>5%</b>         | <b>52%</b>        | <b>43%</b>    | <b>100%</b>  |
| <b>Large</b>                  | <b>12%</b>        | <b>58%</b>        | <b>30%</b>    | <b>100%</b>  |
| <b>Medium</b>                 | <b>17%</b>        | <b>57%</b>        | <b>26%</b>    | <b>100%</b>  |
| <b>Moderate</b>               | <b>58%</b>        | <b>35%</b>        | <b>7%</b>     | <b>100%</b>  |
| <b>Small</b>                  | <b>57%</b>        | <b>35%</b>        | <b>8%</b>     | <b>100%</b>  |

The resolution of DTPs by size from FY2007–2016 within the CHAOS database.

# Complexity



Complexity is one of the main reasons for project failure. The table on this page shows the resolution of DTPs by complexity from FY2012–2016 within the CHAOS database using the Modern definition of success. The results show that 35% of easy projects were successful. Very complex projects had both the highest challenged (60%) and failure (31%) rates.

Bear in mind, though, that inside of every complex problem are simple solutions. Complexity is often caused by size, conflicting goals, large budgets, and project sponsor egos. Complexity creates costs and confusion. The Standish Group believes that the Normalized Systems methodology has great promise in reducing complexity, since each nanoproject focuses on a narrow set of features and requirements, which users find easier to understand and absorb. The faster you can introduce smaller changes, the more acceptable they are and the easier to implement.

The Standish Group's The CHAOS Manifesto report introduced Absorption Theory. Absorption Theory includes continuous change, decreasing complexity, and maintaining familiarity. Absorption Theory is the ability of the organization to successfully grasp business and technical changes without disruption. Absorption Theory stems from the laws of Professor Meir "Manny" Lehman, who was the chairman of the Department of Computing at the Imperial College of London. From 1974 on Lehman worked on eight laws of software evolution. Lehman suggested there needs to be continuing applications and systems growth in order to maintain user satisfaction. Applications and systems growth will cause a decline in quality as well as increase complexity.

| <b>DTP Resolution by Complexity</b> |                   |                   |               |
|-------------------------------------|-------------------|-------------------|---------------|
|                                     | <b>Successful</b> | <b>Challenged</b> | <b>Failed</b> |
| <b>Very Complex</b>                 | 9%                | 60%               | 31%           |
| <b>Complex</b>                      | 13%               | 58%               | 29%           |
| <b>Average</b>                      | 27%               | 54%               | 19%           |
| <b>Easy</b>                         | 35%               | 46%               | 19%           |
| <b>Very Easy</b>                    | 34%               | 48%               | 18%           |

The resolution of DTPs by complexity from FY2007–2016 within the CHAOS database.

# Size-Complexity Matrix



Two of the major overriding attributes that determine the chances of a DTP success or failure are size and complexity. Size is determined primarily by labor effort. Labor effort is determined by the cost of normalized labor, number of persons, and the overall size of the team. We also consider the number of functions, lines of code, and other factors to determine size.

Determining complexity is more complex. We use about 25 project attributes to determine complexity, such as the number of stakeholders, diverse user profiles, and innovation descriptions, not to mention diverse locations. Complexity ranges from very complex to very simple. A few years ago The Standish Group created the Size-Complexity Matrix as a way to determine the estimated likelihood of success based on both a rating system and a color code. This matrix is based on more than 100,000 projects collected over 20 years. Green means the project has a good chance of success, yellow means the DTP will most likely be challenged, and red means the project has a very good chance of failure.

| Size-Complexity Matrix |          |             |        |                    |         |              |
|------------------------|----------|-------------|--------|--------------------|---------|--------------|
|                        |          | COMPLEXITY  |        |                    |         |              |
|                        |          | Very Simple | Simple | Average Complexity | Complex | Very Complex |
| SIZE                   | Small    | 100         | 250    | 400                | 550     | 625          |
|                        | Moderate | 175         | 325    | 475                | 625     | 775          |
|                        | Medium   | 250         | 400    | 550                | 700     | 850          |
|                        | Large    | 325         | 475    | 625                | 775     | 925          |
|                        | Grand    | 400         | 550    | 700                | 850     | 1000         |

The Size-Complexity Matrix provides guidelines for categorizing a project in order to assess the risk and effort. The Size-Complexity Matrix uses a 5-point scale for both size and complexity. The lowest-point project is a simple, small project and has 100 points. The largest and most complex project has 1,000 points. Green means low risk and effort, yellow means medium risk and effort, and red means high risk and effort.

It is easy to create your own Size-Complexity Matrix estimate using the following tables and guidelines. Size has two tables. The top table uses labor cost. Standish uses labor effort as a major ingredient to measure size; therefore, when selecting the project size in the table use normal United States labor rates. The bottom table uses team size. You can take the average of both tables or select the highest or lowest table. Remember these are guidelines, not rules.

| <b>Size Guidelines</b>             |                                      |                 |
|------------------------------------|--------------------------------------|-----------------|
| <b>Size Description</b>            |                                      | <b>Size</b>     |
| <b>Under \$1 million labor</b>     | <b>6 or less team members/months</b> | <b>Small</b>    |
| <b>\$1 million to \$3 million</b>  | <b>7 to 12 team members/months</b>   | <b>Moderate</b> |
| <b>\$3 million to \$6 million</b>  | <b>13 to 24 team members/months</b>  | <b>Medium</b>   |
| <b>\$6 million to \$10 million</b> | <b>25 to 50 team members/months</b>  | <b>Large</b>    |
| <b>Over \$10 Million</b>           | <b>Over 50 team members/months</b>   | <b>Grand</b>    |

Guidelines on how to measure the size of a project.

The complexity guidelines are more complex. You need to assign points and add up the points based on the attributes of the project per the complexity guidelines table. The higher the points, the more complex the project. We use two dimensions to complexity: environment and scope. If none of the attributes apply, then the project is very simple. If you score fewer than 3 points the project is simple. If you score 4 to 7 points the project is average, while at 5 to 9 points the project is complex. If you score above 10 points the project is very complex. There are a couple of ways you should use this matrix. First, determine the project forecast in terms of size and complexity. Then think of it in terms of your DTP experience as a role model. We had the benefit of 100,000 detailed projects to draw on as our role models, both good and bad.

| <b>Complexity Guidelines</b>               |               |
|--|---------------|
| <b>Environment</b>                         | <b>Points</b> |
| <b>Diverse User Base</b>                   | <b>1</b>      |
| <b>Multiple Team Locations</b>             | <b>1</b>      |
| <b>Multiple Stakeholder Locations</b>      | <b>1</b>      |
| <b>Uncooperative Peers</b>                 | <b>2</b>      |
| <b>Uncooperative Stakeholders</b>          | <b>3</b>      |
| <b>Scope</b>                               | <b>Points</b> |
| <b>Many Requirements - Large scope</b>     | <b>1</b>      |
| <b>Ambiguous Basic scope</b>               | <b>1</b>      |
| <b>Fuzzy Undefined Requirements</b>        | <b>1</b>      |
| <b>Diverse and Multifaceted Objectives</b> | <b>2</b>      |
| <b>Breaking New Ground</b>                 | <b>3</b>      |

Guidelines on how to measure the complexity of a project.



## Project Sponsor

The single most important person involved with a project and ultimately responsible for its success or failure is the project executive sponsor. The Standish Group's CHAOS database consistently shows that project improvement and success are dependent on the skills of the project sponsor. The larger and more complex the project, the more the skills of an executive sponsor can make a difference between success and failure. For example, The Standish Group 2016 CHAOS database shows that greater than 50% of successful very large, complex projects had a highly skilled project sponsor. On the other hand, over 60% of failed very large, complex projects had a moderate to poorly skilled project sponsor. Be advised that the project sponsor, depending on his/her skills, can make or break any project regardless of its size.

Before beginning any DTP project, Standish Group recommends that the organization find and appoint a skilled and responsible project sponsor. The purpose of the book *The Good Sponsor* (James Johnson, 2016) is to act as a guide and to help project sponsors understand their roles and responsibilities and to improve their skills. The book outlines the 10 attributes of a good sponsor. The Standish Group has an assessment test to determine the skill level of a project sponsor. A DTP requires a project sponsor who is either very skilled or at least skilled. Both the book and the assessment provide exercises to help project sponsors improve their skills.

| <b>DTP Resolution by Project Sponsor</b> |                       |                |                           |                       |
|--|-----------------------|----------------|---------------------------|-----------------------|
|  | <b>Highly Skilled</b> | <b>Skilled</b> | <b>Moderately Skilled</b> | <b>Poorly Skilled</b> |
| <b>Successful</b>                        | <b>36%</b>            | <b>33%</b>     | <b>20%</b>                | <b>11%</b>            |
| <b>Challenged</b>                        | <b>11%</b>            | <b>43%</b>     | <b>29%</b>                | <b>17%</b>            |
| <b>Failed</b>                            | <b>10%</b>            | <b>23%</b>     | <b>40%</b>                | <b>27%</b>            |

The resolution of DTPs by the skill level of the project sponsor from FY2007–2016 within the CHAOS database.



# Emotional Maturity



Another important factor for a successful DTP is the team's emotional maturity. In project management speak emotional maturity is the soft skills. The organization needs to be skilled at emotional maturity to have a healthy project ecosystem for a DTP. Emotional maturity supports and promotes the skills to be self-aware, socially aware, self-managed, and able to manage relationships, among other skills. In many ways, emotional maturity is the group dynamics of emotional intelligence. Emotional maturity is all about communicating what people are going to do and when they are going to do it, and making sure they do it.

For example, the team needs to continually provide updates to all stakeholders on what has been accomplished. This can be done in formal meetings or published updates. Weekly or biweekly updates during the heavier times in a project are beneficial. Always publish new information. The Standish Group's **Emotional Maturity Research Report** outlines and discusses the *Five Deadly Sins* of project management, which are:

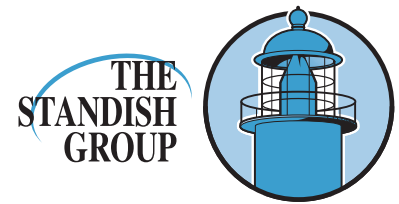
arrogance    abstinence    fraudulence  
ignorance    over ambition

Overcoming the five sins is the cornerstone of emotional maturity. These five sins are the subject of the book **The Public Execution of Miss Scarlet** (James Johnson, 2006). Other traits of emotional maturity include insisting that bad news travels fast. The organization's ability to manage expectations is also important, as are listening skills. Team members must be attentive listeners as well as both realistic and objective. Finally, the team must get good at gaining consensus to gain buy-in.

| DTP Resolution by Emotional Maturity |                |         |                    |                |
|--------------------------------------|----------------|---------|--------------------|----------------|
|                                      | Highly Skilled | Skilled | Moderately Skilled | Poorly Skilled |
| Successful                           | 34%            | 39%     | 19%                | 8%             |
| Challenged                           | 15%            | 27%     | 41%                | 17%            |
| Failed                               | 15%            | 14%     | 47%                | 24%            |

The resolution of DTPs by the emotional maturity skill level of the project team from FY2007–2016 within the CHAOS database.

# Capability



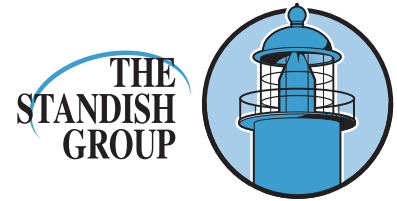
Successful projects need smart, trained people. We are not just talking about the IT team. Never underestimate the need to have a smart, engaged user community that accepts ownership of the project. After all, they will be living with it when completed. Not surprisingly, one of the key project success factors that Standish has identified since the beginning of the 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.

Capability is one of the seven constraints we use to prioritize your project portfolio. Constraints are limitations or restrictions. The other six are cost, risk, value, goal, timing, and exclusions. The table on this page shows the resolution of all DTP by capability from FY2012–2016 within the CHAOS database using the Modern definition of success. The results show that projects that had gifted resources had a 35% success rate. Projects that had unskilled people had the highest challenged (63%) rate, and projects with just able staff had the highest failure (26%) rates. One of the decisions around project priority includes: 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. For example, the Dutch Tax Office has a small staff of gifted people and they produce tremendous output.

| <b>DTP Resolution by Capability</b> |                   |                   |               |
|-------------------------------------|-------------------|-------------------|---------------|
|                                     | <b>Successful</b> | <b>Challenged</b> | <b>Failed</b> |
| <b>Gifted</b>                       | <b>35%</b>        | <b>43%</b>        | <b>22%</b>    |
| <b>Talented</b>                     | <b>28%</b>        | <b>54%</b>        | <b>18%</b>    |
| <b>Competent</b>                    | <b>27%</b>        | <b>52%</b>        | <b>21%</b>    |
| <b>Able</b>                         | <b>21%</b>        | <b>53%</b>        | <b>26%</b>    |
| <b>Unskilled</b>                    | <b>13%</b>        | <b>63%</b>        | <b>24%</b>    |

The resolution of DTPs by capability from FY2007–2016 within the CHAOS database.

# Optimization



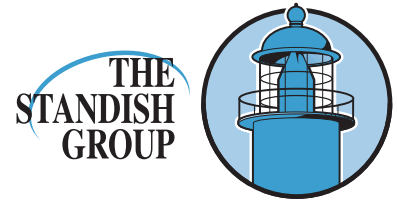
**Optimization** is another important factor for both success and value. Benjamin Franklin once said that a penny saved is a penny earned. In this regard a marginal and less important feature that is not included means the resources can be used for more value-based efforts for the organization. While many might consider every feature or function to have value, some are more valuable than others. However, The Standish Group has shown that only about 20% of features and functions get used frequently, while the other 80% either are not used very much or not at all. The Standish Group research shows that DTP teams that are skilled at optimization have a higher Modern success rate.

The Standish Group's optimization process allows you to measure features and functions relative to each other, thus making it clear which ones have the highest value. This enables the team to prioritize more easily and obtain value more rapidly. The tables below shows that highly skilled DTP teams with optimization have a 25% success rate versus only a 10% failure rate. The reason organizations need to be good at optimization is because of Constraints Theory. The Standish Group has identified several constraints to measure and optimize projects: money, time, timing, scope, capability, resources, complexity, risk, goal, and order. Each one of these constraints needs be assessed and balanced for true optimization.

| <b>DTP Resolution by Optimization</b> |                       |                |                           |                       |
|---------------------------------------|-----------------------|----------------|---------------------------|-----------------------|
|                                       | <b>Highly Skilled</b> | <b>Skilled</b> | <b>Moderately Skilled</b> | <b>Poorly Skilled</b> |
| <b>Successful</b>                     | <b>25%</b>            | <b>24%</b>     | <b>30%</b>                | <b>21%</b>            |
| <b>Challenged</b>                     | <b>13%</b>            | <b>24%</b>     | <b>30%</b>                | <b>33%</b>            |
| <b>Failed</b>                         | <b>10%</b>            | <b>21%</b>     | <b>31%</b>                | <b>38%</b>            |

The resolution of DTPs by the optimization skill level of the project team from FY2007–2016 within the CHAOS database.

# Agile Process



The agile process, such as Scrum, provides an enhanced method to execute DTPs. The table on this page compares the resolution of DTPs from FY2007–2016 within the new CHAOS database, segmented by the agile process and waterfall method. The total number of software projects is more than 5,000. The results for all projects show that agile projects were over three and a half times more successful than waterfall projects, and waterfall projects had three times the failure rate of agile projects. Other results are also broken down by project size: large, medium, and small. They clearly show that waterfall projects do not scale well, while agile projects scale much better.

| <b>Growth of Agile Projects</b> |                  |                  |                  |
|---------------------------------|------------------|------------------|------------------|
| <b>Method</b>                   | <b>2008-2010</b> | <b>2011-2013</b> | <b>2014-2016</b> |
| <b>Agile</b>                    | <b>6%</b>        | <b>8%</b>        | <b>23%</b>       |
| <b>Waterfall</b>                | <b>40%</b>       | <b>33%</b>       | <b>21%</b>       |
| <b>Other</b>                    | <b>54%</b>       | <b>59%</b>       | <b>56%</b>       |

Growth of agile projects and decline of waterfall projects within the CHAOS Database from 2008 to 2016.

The combination of Scrum and Normalized Systems creates a pipeline of nanoprojects. The pipeline works by creating output in a rapid process. Nanoprojects or services come into the pipeline, they get completed in a day to a week, then go into a rapid QA process, and are then sent to a user test group. If the project works it is implemented and absorbed by the user community. Nanoprojects that fail in either QA or user acceptance are reevaluated and may or may not be reintroduced to the pipeline. One of the most important benefits is the organization can take more risk since the failures are also very small, or nanofailures, that have little impact and cost for the organization.

| <b>DTP Resolution by Method</b> |                   |                   |               |
|---------------------------------|-------------------|-------------------|---------------|
| <b>Method</b>                   | <b>Successful</b> | <b>Challenged</b> | <b>Failed</b> |
| <b>Agile</b>                    | <b>36%</b>        | <b>54%</b>        | <b>10%</b>    |
| <b>Waterfall</b>                | <b>10%</b>        | <b>60%</b>        | <b>30%</b>    |
| <b>Other</b>                    | <b>33%</b>        | <b>48%</b>        | <b>19%</b>    |

The resolution of DTPs by agile versus waterfall from FY2007–2016 within the CHAOS database.

# Project Manager



For many years the project manager was considered the project's linchpin. Money poured into developing education, offering certification, building project management offices, and implementing enterprise project management tools. These investments were in hopes to change the direction to increase project success and improve value. In fact, Standish Group research shows that improvement in these areas actually caused the opposite effect while increasing the costs of projects and decreasing their value. We are not saying that project managers have no value. However, their value may be overrated. Project managers should have the basic mechanical skills of planning, tracking, and controlling. Project managers should provide an early warning system for projects that are not progressing. In the agile or Scrum world many consider the project manager unnecessary, since many of the duties are split between the product owner and the Scrum Master.

For DTPs there is a role for a project manager, the role is to be the eyes and ears of the project sponsor. We recommend that the project sponsor be the first person to join the project. The second person should be the project manager. The project sponsor should interview project manager candidates and choose one with whom he or she can work as an assistant. The Good Sponsor book has 25 suggested questions the project sponsor should ask a project manager. In the table below we can see that beyond the basic skills the project manager does not have a major impact on the success of DTPs.

| <b>DTP Resolution by Project Manager</b> |                       |                |                           |                       |
|--|-----------------------|----------------|---------------------------|-----------------------|
|  | <b>Highly Skilled</b> | <b>Skilled</b> | <b>Moderately Skilled</b> | <b>Poorly Skilled</b> |
| <b>Successful</b>                        | <b>31%</b>            | <b>37%</b>     | <b>23%</b>                | <b>9%</b>             |
| <b>Challenged</b>                        | <b>36%</b>            | <b>43%</b>     | <b>18%</b>                | <b>3%</b>             |
| <b>Failed</b>                            | <b>29%</b>            | <b>42%</b>     | <b>26%</b>                | <b>3%</b>             |

The resolution of DTPs by project manager skill levels from FY2007–2016 within the CHAOS database.

# Type of Projects

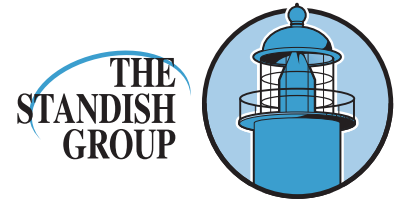


The type of project has a major effect on resolution. The table on this page shows the resolution of DTPs by project type from FY2007–2016 within the CHAOS database using the Modern definition of success. Projects using a modernization-in-place technique had the highest success rate at 55%. This is the process the Dutch Tax Office is using. They are modernizing their application suite by one tax process at a time and implementing it without changing other parts of the application suite or functions. On the other hand, DTPs that were developed from scratch using traditional languages and methods had the lowest success rate of 20%. The results also show that projects that were developed from scratch using traditional languages and methods had the highest challenged rate at 61%. The lowest challenged rate of 27% went to projects of purchased application software with modifications. The highest failure rate of 23% went to projects of purchased software with extensive modifications. Modernization-in-place projects had the lowest failure rate at 10%. Our research into the Dutch Tax Office using Normalized Systems as modernation-in-place approach is consistent with our finding that this is both a safe method and creates value.

| Project Type   | Successful | Challenged | Failed |
|--|------------|------------|--------|
| Developed from scratch using traditional languages and methods | 20%        | 61%        | 19%    |
| Developed from scratch using modern methodologies              | 23%        | 54%        | 23%    |
| Developed some components & purchased others                   | 21%        | 59%        | 20%    |
| Purchased components & assembled the application               | 24%        | 54%        | 22%    |
| Purchased application & extensively modified                   | 32%        | 45%        | 23%    |
| Purchased application & modified                               | 53%        | 27%        | 20%    |
| Purchased application & performed no modifications             | 46%        | 40%        | 14%    |
| Modernization  | 55%        | 35%        | 10%    |

The resolution of DTPs by type from FY2007–2016 within the CHAOS database.

# Goal



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 used to believe 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/goal have the opposite effect on higher satisfaction and success rates. The Standish Group uses goal as one of the seven constraints as part of our 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 with vague goals. 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. Consider value first and then goal. We see that many projects that achieve high value are distant from the goal. Therefore, it is imperative that the goal be downgraded to be less important for DTPs.

| <b>DTP Value by Goal</b> |                |              |              |              |                |
|--------------------------|----------------|--------------|--------------|--------------|----------------|
| <b>Value</b>             | <b>Precise</b> | <b>Close</b> | <b>Loose</b> | <b>Vague</b> | <b>Distant</b> |
| <b>Very High</b>         | <b>11%</b>     | <b>13%</b>   | <b>29%</b>   | <b>26%</b>   | <b>21%</b>     |
| <b>High</b>              | <b>8%</b>      | <b>15%</b>   | <b>26%</b>   | <b>27%</b>   | <b>24%</b>     |
| <b>Average</b>           | <b>19%</b>     | <b>25%</b>   | <b>31%</b>   | <b>16%</b>   | <b>9%</b>      |
| <b>Low</b>               | <b>23%</b>     | <b>27%</b>   | <b>23%</b>   | <b>10%</b>   | <b>17%</b>     |
| <b>Very Low</b>          | <b>22%</b>     | <b>25%</b>   | <b>26%</b>   | <b>12%</b>   | <b>15%</b>     |

The value of DTPs by goal from FY2007–2016 within the CHAOS database.

# Industry



Looking at project resolution by industry provides another view of the CHAOS database. The table on this page shows the resolution of DTPs by industry from FY2007–2016 within the 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 and financial projects had the lowest success rates at 14%, and government projects had the highest failure rate at 25%. Considering the industry results highlights the achievements of the Dutch Tax Office using Normalized Systems.

| DTP Resolution by Industry |            |            |        |
|----------------------------|------------|------------|--------|
| Resolution/Industry        | Successful | Challenged | Failed |
| Banking                    | 25%        | 58%        | 17%    |
| Financial                  | 14%        | 62%        | 24%    |
| Government                 | 14%        | 61%        | 25%    |
| Healthcare                 | 29%        | 54%        | 17%    |
| Manufacturing              | 24%        | 55%        | 21%    |
| Retail                     | 35%        | 47%        | 18%    |
| Services                   | 28%        | 51%        | 21%    |
| Telecom                    | 25%        | 51%        | 24%    |
| Other                      | 33%        | 46%        | 21%    |

Caption: The resolution of DTPs by industry from FY2007–2016 within the CHAOS database.

**The current CHAOS database** is not a collection of surveys, but rather a collection of project and organizational profiles. There are about 50,000 current project profiles and over 1,000 organizational profiles. The Standish Group collects, adjudicates, and approves about 5,000 new projects per year, or an average of five projects per organization. Each organizational profile has 24 data points and each project profile has over 80 data points. The database is used to create our research reports, general queries, single project assessments, future portfolio predictions, and performance benchmarks.





# Factors of Success/Value



In the **2016 CHAOS Report** we combined the success and value tables into one table called Factors of Success/Value. The table below reflects our opinion of the importance of each attribute and our recommendation for the amount of effort and investment that should be considered to improve DTP success and value. It is clear to us that creating a “winning hand” requires five elements: a small project using an agile process, with the three skilled areas of project sponsorship, technical staff, and an emotionally mature organization.

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. The Standish Group believes that 80% of your project improvement budget should be spent on these five areas. We also recommend reducing the high overhead of the other six areas to fund these five most important areas. 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.

| Factors of Success/Value                             | Points     | Investment  |
|--|------------|-------------|
| Small Agile Projects                                 | 25         | 25%         |
| Executive Sponsorship                                | 15         | 20%         |
| Emotional Maturity                                   | 15         | 20%         |
| Talented Staff                                       | 10         | 15%         |
| User Involvement                                     | 9          | 4%          |
| Optimization   | 8          | 4%          |
| SAME (Standard Architectural Management Environment) | 6          | 3%          |
| Modest Execution                                     | 5          | 3%          |
| PM/Process Expertise                                 | 4          | 3%          |
| Clear Business Objectives                            | 3          | 3%          |
| <b>Total Points &amp; Yearly Investment</b>          | <b>100</b> | <b>100%</b> |

# In Summary



**The Standish Group makes the following 10 recommendations to achieve value and success for a DTP.**

1. Pick a skilled project sponsor to head the project. The project sponsor job is outlined in The Good Sponsor book. The book identifies the 10 major attributes of a good project sponsor. There is also an online self-assessment test that will score the skill level of the project sponsor.
2. Test the team for emotional maturity. The Standish Group offers an emotional maturity test kit that includes self-improvement.
3. Create a small team of talented or gifted individuals whose skills match the project's technical and business requirements. A small group of talented or gifted individuals can produce more features and functions in less time than a group of mediocre staff.
4. Create a pipeline of small stepping-stone deliverables. This will create rapid feedback, quick adoption, or quick rejection. If rejected, find and fix the problem quickly and reintroduce.
5. Use an agile methodology such as Scrum to execute the project and pipeline.
6. Optimize stepping-stones by value, complexity, cost, and capability. The Standish optimization process can help you examine and optimize your deliverables.
7. The project sponsor should interview at least three project managers to provide assistance and progress information. The Good Sponsor book has 25 suggested questions that the project sponsor can ask the project manager.
8. Make quick decisions. Decision latency is a major cause of project stress, delays, and failures. The Standish Group has many examples of where a quick response was much better than a drawn-out response.
9. Watch out for project saboteurs. A project saboteur is a person who does not want the project to succeed and will take action or refrain from taking action to sabotage the project.
10. Only use trustworthy vendors and even then keep them on a short leash. Demand rapid deliverables, not promises.

# Value Optimization Service



Antwerp Management School

The Standish Group, in partnership with the **Antwerp Management School**, is currently offering a course on our Value Optimization Services Program. The program is delivered by students under the auspices of the Antwerp Management School and supervised by The Standish Group. Our program results in a closed-loop system of continuous self-reflection and improvement:

- 1. Employee Training and Development:** Preparing your team to perform the ongoing data collection, analysis, and development of recommendations that deliver continuous improvement to the participating organization.
- 2. Environmental Skills Benchmark:** The environmental assessment results in a certified benchmark for use as a baseline against which to measure organizational-level advancements/improvements.
- 3. Resolution Benchmarks:** The profiled closed projects are entered into the CHAOS database, which moves the environmental benchmark score up or down, resulting in a new baseline.
- 4. New Start Projects:** New projects are profiled and optimized using "course corrections" or adjustments that are indicated by the performance of the closed projects.
- 5. Optimization:** The participating organization's maturity level is reexamined and analyzed as improvements are put into place. Your improvement process is continually refined and repeated.

This new approach is a continuous project improvement program without changing or conflicting with any other ongoing program.

