Micro Projects Cause Constant Change

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ABSTACT
This paper contains new research on project success and failure, including results from The Standish Group's latest CHAOS study and CHAOS University® 2000. The body of CHAOS research currently spans over 30,000 project cases, the summary of which is presented in the report. This paper is an excerpt from our latest research report, "Extreme CHAOS 2001," [1] and is a continuation of our CHAOS research updated with our most recent findings.

Keywords

CHAOS, Success, Failure, challenged, projects, micro projects, project manager, iterative development process

1. INTRODUCTION

The Standish Group predicts that the dominant number of projects started and resolved this year will be micro projects – lasting no more than four months with four people. Our CHAOS research shows minimization as a key factor in successful projects. The micro project is the ultimate in minimization. Many micro projects last only three to four weeks. One should not confuse micro projects with milestones, for micro projects live and die on useable deliverables.

The Web and standard infrastructure have made micro projects a viable entity. New versions of applications can be brought up quickly – bugs can be found, corrected online and benefits can be realized immediately. There's no need for release dates, shipping codes or drawn out user training. One of our Fortune 500 clients mandated micro projects. Any project that has an estimated cost of over $100,000 must have the approval of the company's president.

The timeline of the seven years of The Standish Group's CHAOS research shows decided improvement in IT project management. This year project success rates, while modest, are up again across the board, while cost and time overruns are uniformly down. Time overruns have significantly decreased from 222% over the original time estimates in 1994 [2] down to 63% in this latest study. New starts in 2000 went up by almost 100,000 projects to 300,000 this year and more than half a million will be resolved in the next 12 months. Most of these new projects are well within The Standish Group's criteria established in "CHAOS: A *Recipe for Success, 1998"* which limits the size of projects to six months and six people.

Figure 1

Cost overruns have gone from 189% over the original cost estimates in 1994 down to 45% in the 2000 study. This year's research shows 67% of the required features and functions. This notably increases end-user satisfaction in terms of time, cost and features.

The best news is that we as researchers and you our readers are learning how to succeed more often. According to 1994 results, only 28,000 application development projects met the criteria for success – completed on time, on budget and with all the features and functions originally specified. This year's results show that 78,000 U.S. projects were successful.

The reasons for the increase in successful projects vary. First, the average cost of a project has been more than cut in half. Better tools have been created to monitor and control progress and better skilled project managers with better management processes are being used. The fact that there *are* processes is significant in itself.

However, Nirvana is still a long way off – 137,000 projects were late and/or over budget, while another 65,000 failed outright. The reason most of these projects failed was not for lack of money or technology; most failed for lack of skilled project management and executive support.

	1994	1996	1998	2000
Succeeded	16%	27%	26%	28%
Failed	31%	40%	28%	23%
Challenged	53%	33%	46%	49%

Chart Caption: *Project success rates are rising. This chart depicts the resolution of the 30,000 applications projects in large, medium, and small cross-industry U.S. companies tested by The Standish Group since 1994 [ref 1-4].*

The Standish Group categorizes projects into three resolution types:

- *Successful:* The project is completed on time and on budget, with all features and functions originally specified.
- *Challenged:* The project is completed and operational, but over-budget, over the time estimate, and with fewer features and functions than initially specified.
- *Failed:* The project is cancelled before completion or is never implemented.

Tracking U.S. project outcomes showed that in 1994, 28,000 projects were successful, while over the last twelve months, 78,000 projects were successful - a three-fold increase. Conversely, failed projects amounted to 54,000 in the 1994 study versus 65,000 in the year 2000 study. This was an 18% increase while overall project growth totaled over 60%. Challenged projects grew at a rate of 49% to equal 137,000 over the 1994 number of 93,000.

Cost overruns in 1994 equaled 189% over the original estimate. This was reduced from 69% in the 1998 study and down to 45% in the 2000 study. Time overruns dropped from 222% in 1994 to 63% in 2000. Another piece of good news is that in 1994 only 61% of the required features were delivered on challenged projects, compared to 67% in the 2000 study.

Overall, the outlook is good. Project success rates are up, and overruns are down. More importantly, although the number of projects is expected to double this year, the rate of failure is expected to take a major downturn.

3. RECIPE FOR PROJECT SUCCESS: CHAOS TEN

What makes a project successful? The original CHAOS study, conducted in 1994, identified 10 success factors. We have updated the CHAOS Ten for the year 2000. Although no project requires all 10 factors to be successful, the more factors that are present in the project strategy, the higher the level of confidence.

Executive support	18
User involvement	16

Lack of executive support has replaced user involvement as the number one cause of project failure. Without a staunch project champion with a solid business vision, projects can drift into a technological or political abyss. Project stakeholders must create business value by improving customer service, communicating a clear business plan and delivering a competitive advantage.

2. PROJECT RESOLUTION: THE HISTORICAL PERSPECTIVE

Project success rates are up across the board, while the frequency of cost and schedule overruns is declining. The development community has made noticeable strides on the road to success. The CHAOS research timeline is evidence of the steady improvement in IT project management. In 1994, only 16% of application development projects met the criteria for success - completed on time, on budget and with all the features/functions originally specified. This year, 28% of projects were in the successful column.

Experienced project manager	14
Clear business objectives	12
Minimized scope	10
Standard software infrastructure	8
Firm basic requirements	6
Formal methodology	6
Reliable estimates	5
Other	5

Caption: *Each factor has been weighted according to its influence on a project's success. The more points, the lower the project risk.*

1. **Executive Support**: Traditionally the number two spot was occupied by executive support. This is now the number one factor in project failure. Executive support influences the process and progress of a project. Lack of executive input can put a project at a severe disadvantage.

2. **User Involvement**: Lack of user involvement traditionally has been the number one reason for project failure. Conversely, the number one contributor to project success has been user involvement. Even when delivered on time and on budget, a project can fail if it does not meet users' needs or expectations. However, this year it has moved it to the number two position. It is not that user involvement is less important, but it is just that IT professionals have centered in on this and, in effect, solved this major problem.

3. **Experienced Project Manager**: Moving up to the number three slot is an experienced project manager. Ninety-seven percent of successful projects have an experienced project manager at the helm.

4. **Clear Business Objectives:** Clear business objectives has moved from down one spot to fourth place not because it is less important, but because evidence shows experienced project managers increase success rates.

5. **Minimized scope:** Rounding up the top five is minimized scope. Time is the enemy of all projects. Since scope impacts time, or project duration, they are linked - by minimizing scope, time is reduced and therefore minimizing scope increases chances of success. Minimized scope replaced small milestones. While these two factors are similar, the act of minimizing scope leads to greater success than that of creating small milestones. Small milestones are within the "minimized scope" category, others have been moved to formal methodology and others to categories. Concentrating on the top five will give up 70 success points.

6. **Standard Software Infrastructure:** Requirements are in a state of constant flux, but the infrastructure needs stability. The Standish Group's research shows that 70% of application code is infrastructure. Some of this code is unique to the application; nonetheless, much of it is code that could be purchased from an infrastructure vendor.

   By using standard infrastructure, the application development team can concentrate on business rules rather than technology. Many application development projects fail not in the development of the stand-alone application, but in the integration of existing applications. Here, standard infrastructures can shortcut application integration.

7. **Firm Basic Requirements:** The key to understanding this item is the word "basic." This refers to base level requirements. By creating a minimal, obtainable base level of requirements and then developing those features, the effect of change will be reduced. Changing requirements is as certain as death and taxes. Delivering minimal features allows users and executive sponsors to see results quickly. As a result, an added benefit is that project managers are better prepared to articulate the needs and priorities of the next phase of the project.

8. **Formal Methodology:** Does having a formal project methodology increase success rates? Formal project management provides a realistic picture of the project and the resources committed to it. Certain steps and procedures are reproducible and reusable; thus, the tendency to reinvent the wheel is minimized and project-wide consistency is maximized. Lessons learned can be incorporated into active projects. The process encourages a go or no-go decision checkpoint. A project team can proceed with a higher level of confidence or steps can either be halted or altered to fit changing requirements. This ability to adjust in real time enhances project skills and reduces project risk. CHAOS research shows that 46% of successful projects used a formal project management methodology, compared to 30% of challenged and failed projects. Therefore, this factor should increase chances of success by about 16%.

9. **Reliable Estimates:** When developing a systematic approach toward project estimating, again, being realistic is necessary. Estimating is just plain hard. Add to the difficulty the developing and purchasing of components and their integration into existing applications, package applications and outside services. As mentioned earlier, IT managers must use all their collective knowledge and experience to come up with estimates that reflect the true effort required.

10. **Other Criteria:** In last place is a collection of other factors. These factors include small milestones, proper planning, competent staff and ownership. In the past, each of these factors was represented as a category by itself.

The CHAOS Ten success factors continue to be a valuable tool to assess project success potential. While there is no magic formula that can guarantee project success, ensuring the presence of the CHAOS Ten can increase the odds in one's favor.

CHAOS research shows the smaller the project, the greater the success for example in the 1998 a project that had a labor budget under $750,000 had a 55% chance of success, while a project that had labor cost of greater than $750,000 had only a 33% chance of success. As the labor cost went up the chances of success went down until over $10 million it reach a statistical zero or less than 1%. In 1995 The Standish Group published the Iterative Development Process [5] and in 1999 *CHAOS: A Recipe for Success* was published, which further spelled out much of basic elements of a micro project. Since *CHAOS: A Recipe for Success*, we have seen the advent of the micro project. Here we add in our criteria to provide a firmer definition of a micro project and the process in which a micro project gets resolved.

A micro project is any project that lasts three months or less and costs $250,000 or less in labor. Micro projects contain four major elements: iterative development process, standard infrastructure, collaboration management and automatic testing and inspection. Many of our clients have instituted this philosophy and have found success. One client in particular had zero success prior to implementing micro projects, in their first year this rate went up to 50% and they cut their waste to value ratio by 70%.

4. SUMMARY

It is good news on the project management front that project managers are learning how to become more successful at IT project management. The reasons for the increase in successful projects vary. Some of the reasons are: the average cost of a project has been more than cut in half; better tools have been created to monitor and control progress; and more highly skilled project managers with improved management processes are being used. The fact that there *are* processes is significant in itself. We have turned the corner and success is just around it.

5. INFORMATION AND QUESTIONS

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General Reference

The Standish Group's CHAOS research is the largest sustained research project in the history of information technology, and the results are the most widely quoted statistics in the industry. This paper contains details the results of 30,000 completed IT projects, over 300 workshops, focus groups and group therapy sessions.