

# Agile Development Methodologies: a Catalyst™ to Success



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## I. Introduction: What's the Difference?

### The vision of a risk-free project is now in focus

If you're questioning whether a specific methodology can make a difference in the success and return on investment of your project, talk to Sanjiv Augustine. He is the Director of Technology at CC Pace Systems, and one of their many brain-trusts on agile management in the financial services industry. He has deployed the Catalyst™ agile development methodology at large financial institutions, managing several successful projects varying in size from five to over one hundred people.

Augustine understands when business managers are skeptical about the value a progressive methodology might bring to their projects. He says, "With the dismal record of the software development industry, it's easy to fall into the trap of believing that things 'just can't be done any better.'" While agile methodologies are no panacea, they offer managers strategic and operational benefits such as lower costs, lower defect rates, flexibility to change, and the ability to leverage new technical or business information." So what makes Catalyst unique among these methodologies? Augustine says, "Catalyst pulls all stakeholders together. It combines XP [*extreme programming*] with the benefits of agile project management, agile methodologies and usage-centered design. The bottom line is that because of the comprehensive involvement of developers, management, and users, every product that comes out of Catalyst is usable and fully functional."

Less than a year ago, Augustine deployed Catalyst on a project for a Fortune 500 company in the mortgage industry. The project was thirteen months behind schedule with almost seven hundred bugs. "The users were frustrated and angry," Augustine states. "The technology team was demoralized. They were working over one hundred hours a week because they couldn't keep up with the constantly changing requirements." Augustine and his team at CC Pace were brought in to deploy Catalyst to the project. He says, "In five months Catalyst took them to on-time, on-the- due-date delivery, with very few bugs. There were over hundreds of thousands lines of code and we took it down from seven hundred bugs to ten." How does Catalyst make this happen?

### Agile Assessment

*"We need to make our software development economically more valuable by spending money more slowly, earning revenue more quickly, and increasing the probable productive lifespan of our project. But most of all, we need to increase the options for business decisions"*

*—Economics of Software Development, XPEX, p. 11*

## II. What Makes Catalyst Work?

### The Critical Components

CC Pace designed Catalyst as an agile, flexible process for the creation of strategic business options. Below are the backbones of Catalyst that generate operational and economical benefits. They strongly emphasize lowering costs, quality and testing, flexibility in responding to changing requirements, and an ability to take advantage of new information, good or bad—technical or business related.

**1. eXtreme Programming (XP)** At the base of Catalyst's foundation rest the practices of eXtreme Programming (XP). XP is an adaptive, humanistic methodology that uses four values and twelve simple practices to achieve a deliberate, disciplined and iterative software development approach. Catalyst embraces these practices and adapts them to each client's unique situation.

XP leads the way in creating new frontiers in development. It's not about abandoning discipline, but the excessive formality that often gets mistaken for discipline. Using XP in Catalyst provides a breakthrough approach in delivering high quality software faster and more flexibly.

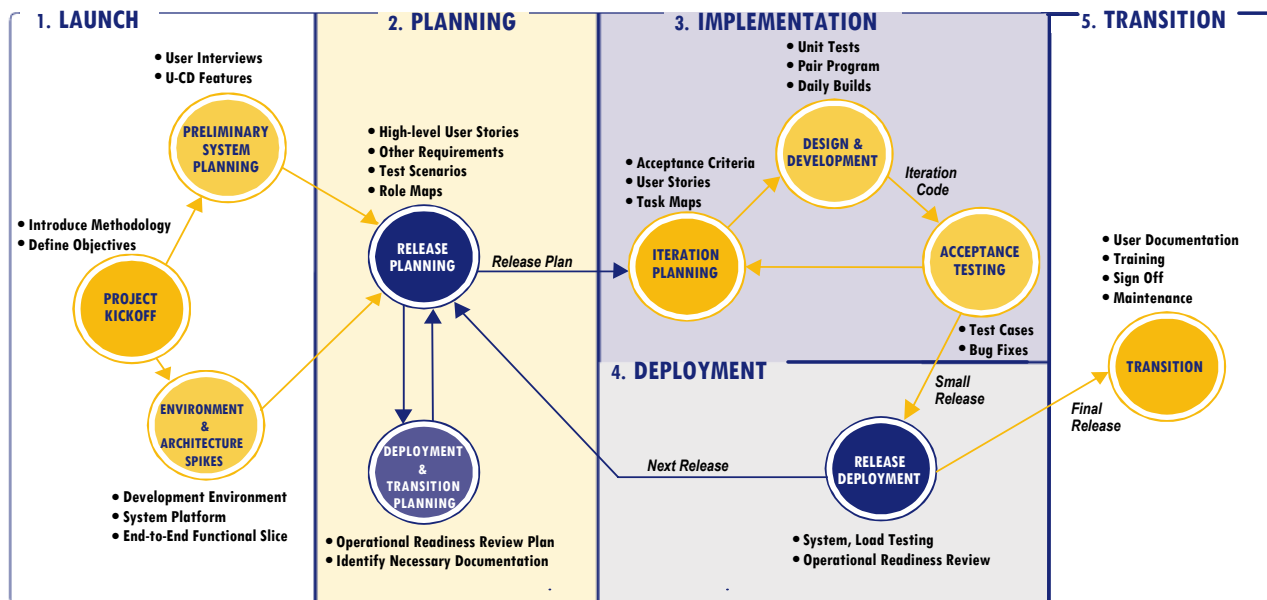


Figure 1

## II. What Makes Catalyst Work?

**2. Agile Project Management (APM)** Catalyst builds on XP's principles of agility with the concept of Agile Project Management (APM). APM is a simple set of rules based in complex adaptive systems theory that yields teams able to manage and adapt to change. It advocates the overall problem-solving approach that is humanistic in that:

- APM relies on the collective ability of autonomous teams as the basic problem solving mechanism;
- APM considers all employees skilled and valuable stakeholders in team management; and
- APM limits up-front planning to a minimum based on an assumption of unpredictability. Instead, it stresses adaptability to changing conditions.

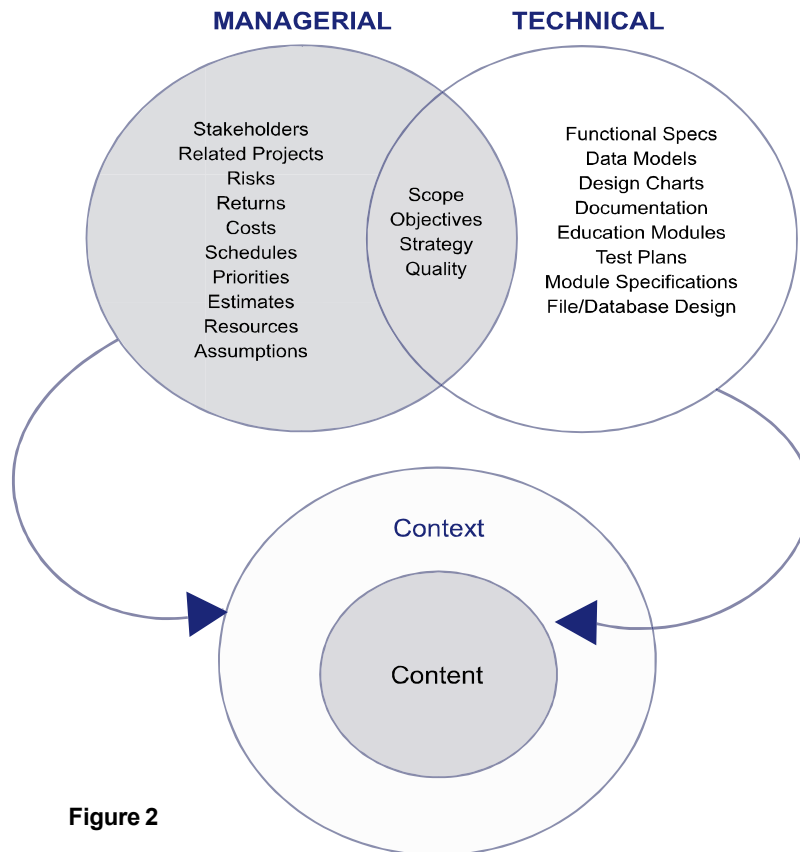


Figure 2

**APM is about the management of business context and technical content.**

*Source: The Thomsett Company. Used by permission.*

## II. What Makes Catalyst Work?

**3. Usage-Centered Design (UCD)** Usage Centered Design is a method for producing usable software that truly meets the needs of its users. UCD identifies system requirements by determining the identity and goals of end users. Then, the system's features and interface are designed to serve those goals. UCD validates the usability of designs and usefulness of features by rapid incremental testing.

Thanks to the tight feedback loops provided by agile development processes, designs are confirmed at all stages of production with both customers and end users. This provides a clear view on how the system performs and explicit directions for improving it. These closely integrated teams communicate openly and see to it that the designer's intentions and motivations are clearly expressed. Finally, direct involvement of the designer in system development acts to eliminate misunderstandings as systems are built from prototypes. This also increases development efficiency and comfort through expert assistance in front-end development.

| UCD in a Nutshell                            |  |
|--|--|
| <b>Audience Identification</b>               | <ul style="list-style-type: none"><li>· Determine a set of unique User Roles</li><li>· Record user attributes relevant to UI design</li><li>· Illustrate interconnections between User Roles</li><li>· Identify usability testing candidates (end users)</li></ul> |
| <b>Task Definition</b>                       | <ul style="list-style-type: none"><li>· Define how users will use the system to accomplish their goals</li><li>· Understand differences among tasks across user roles</li></ul>  |
| <b>Usability Review (for legacy systems)</b> | <ul style="list-style-type: none"><li>· Determine areas in need of usability improvement</li><li>· Perform competitive analysis</li><li>· Establish usability goals</li></ul>  |
| <b>Use Case Modeling</b>                     | <ul style="list-style-type: none"><li>· Define User and System intentions and responsibilities in Essential Use Cases</li><li>· Define interactions between task-specific use cases</li></ul>  |
| <b>Iterative Design</b>                      | <ul style="list-style-type: none"><li>· Evaluate lo-fit prototypes with end users and customer</li></ul>   |
| <b>Development</b>                           | <ul style="list-style-type: none"><li>· Specify user interface details, such as screen layout and object behavior</li><li>· Pair with developers to implement design</li></ul>   |
| <b>Usability Testing</b>                     | <ul style="list-style-type: none"><li>· Test system with end users</li><li>· Validate results against usability goals</li></ul>  |


If you've come this far in investigating and evaluating which methodology will bring you measurable results, you probably have a solid commitment to making your technology one of the key components of your competitiveness. If technology can be relied upon for anything, however, it's that it moves more quickly than perhaps any industry in history. Catalyst can carry your development to the next level. Are you ready to achieve this?

### III. Benefits of the Catalyst Methodology

#### A competitive advantage now, a competitive requirement soon

To catch a glimpse of the benefits afforded by this methodology, all you have to do is look at mortgage industry giant Freddie Mac. Why did they use Catalyst for a key project? Pete Maselli, Freddie Mac's senior vice-president of Mortgage Services, says, "Freddie Mac is focused on leveraging technology to enable lenders to streamline and simplify the mortgage loan origination process. Catalyst allowed us to do this rapidly, on time and with minimal defects. With on-line vendor services and e-closing and storage services, we continue Freddie Mac's direction to enable a faster, easier and more efficient lending experience for the mortgage professional and homebuyer." Of course, these benefits go far beyond simple convenience and accessibility, but focusing on product usability and streamlined usage are basic tenets of the Catalyst methodology.

Every company should constantly be on the lookout for ways to develop software and manage projects that reduce cost, improve productivity and accuracy, and enhance responsiveness to customers and clients. A Catalyst project offers these benefits in comparison to other methodologies:

|  CATALYST                      | Traditional Development  |
|---|--|
| System is usable every 2-3 weeks  | System is usable at release  |
| Scope creep is managed by time-bound development cycles   | Scope creep is allowed by malleable development phase boundaries                               |
| Requirements are allowed to be dynamic and evolving   | Requirements are forced to be static after project initiation                                  |
| Customer sets development priorities<br>Quality is enforced through rapid automated unit and acceptance testing | Developers set development priorities<br>Quality is dependent on time-consuming manual testing |
| Code improvement is encouraged by automatic testing framework   | Code improvement is risky due to unknown dependencies  |
| Project management focuses on a dynamic project and team environment  | Project management focuses on arbitrary schedules and hierarchies                              |
| Open, frequent communication between customer and developers  | Controlled, infrequent communication between customer and developers                           |
| Architecture is built iteratively based on empirical performance data   | Architecture is built all at once in a vacuum  |
| Documentation is created as needed  | Documentation is created arbitrarily   |

GigaWorld IT Forum attendees responded to a number of polling questions related to agile processes (See Figure 3) in 2002. Those attending the session "Agile Processes for Development and Integration" had both baseline knowledge of legacy agile development methodologies and an interest in the emerging agile processes. Still, the responses did vary, and we can draw some interesting conclusions from this data. Following a brief explanation of methodologies, the audience was polled to see why they were interested in these types of processes. Figure 3 shows that time-to-market pressure dominates the interest level. Interestingly, customer involvement was a strong second. Many IT managers recognize the value in having strong and ongoing customer involvement on every project.

### III. Benefits of the Catalyst Methodology

#### Agile Assessment

*"In times of great stress (such as today's climate where the Internet is impacting every facet of an organization), having an adjustable software development process can be a key source of competitive advantage. A valid adjustable process must allow an organization to adapt to internal and external business objectives while allowing an application to be developed, deployed and evolved in discrete chunks of functionality."*

—Giga Information Group 2002

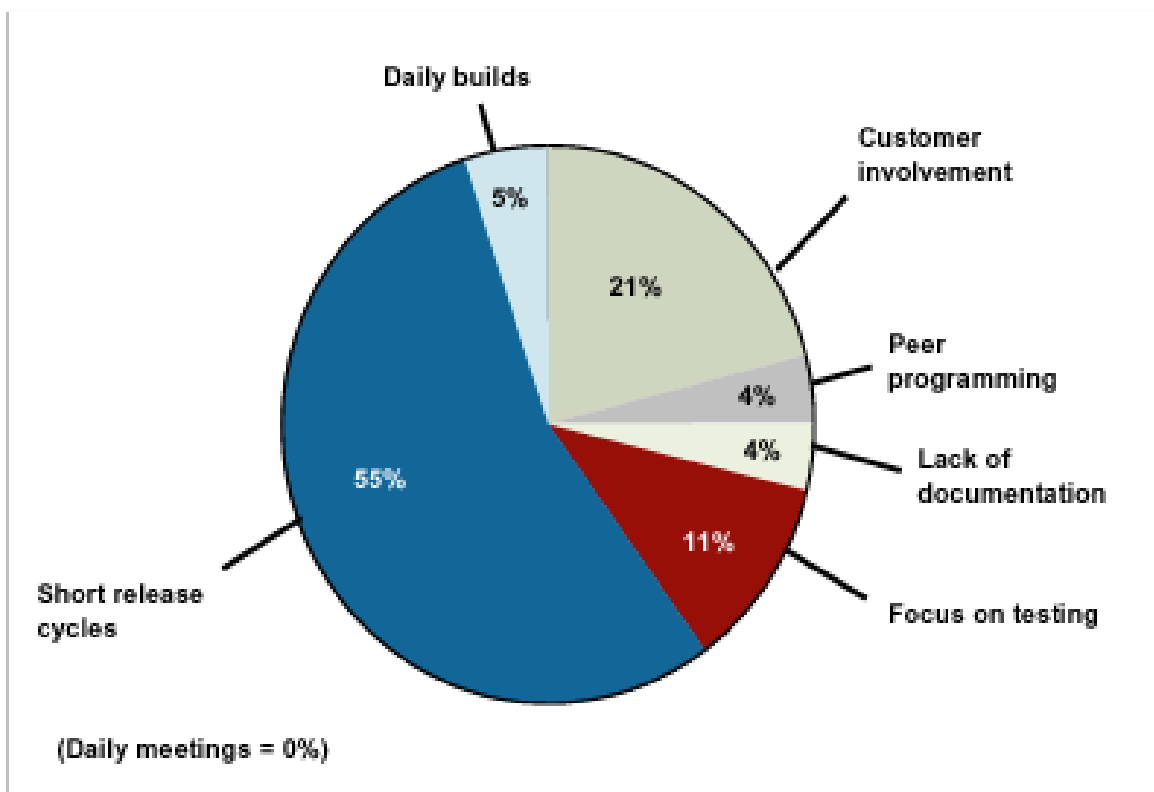


Figure 3

What do you find most appealing about agile methodologies?

Source: Giga Information Group

## IV. Why Do Companies Hesitate in Adopting Agile Methodologies?

### Catalyst promises more than a poor gamble.

Despite media hype and pressure from IT organizations, coupled with the continued pressure on time to market *and* increased quality, senior managers have yet to fully embrace an agile methodology. The problem is, that for years, the volatile market and the methodologies have been uneven in terms of content quality. Moreover, sizeable institutions that typically run larger, more complex projects still consider agile methodologies too extreme for large-scale use and are skeptical of its benefits. As mentioned in the previous section, Catalyst methodology is the first of its known kind to be scaled to a large project successfully and on time. CC Pace deploys Catalyst to numerous Fortune 500 financial institutions and designed it specifically to scale to any of their project environments, independent of team size, application complexity, or organizational structures.

### Agile Assessment

52% of projects are 189% over budget. For every 100 projects started, 94 will be restarted at least once.

—The Standish Group

According to E.M. Bennatan, a Senior Consultant at the Cutter Consortium, you occasionally hear the following arguments against the use of agile development methodologies:

| Why?   | Because  |
|--|--|
| These methods are all theoretical; in the “real world” things are done differently.  | Any effective method contains some theory, just as these methodologies do. This method has been successfully applied by companies and has produced a drastic reduction in the cost of software development and a significant rise in the quality of software.  |
| Project managers are too formalistic; they request everything in writing.  | Orderly written record keeping ensures that verbal communications are understood correctly. If changes and other instructions aren’t documented and approved, then the development may proceed in the wrong direction. A documented list of approved changes provides traceability and accountability. |
| We can’t afford the luxury of all these lengthy procedures.  | A question to reflect on is: “Just how successful has our software development really been?” A new approach to software development may be a necessity, not a luxury.  |
| We’ll lose money and customers if we start wasting time on all these methods.  | Being unable to deliver a product when promised and poor software quality is what disappoints customers and ultimately loses them.   |
| The method is good, but unfortunately, now isn’t the right time to implement it. We hope to be able to use it one day, but not just yet. | The more time and effort invested in poor development methods, the more difficult they are to change. A good methodology will increase the quality of a company’s software while reducing the cost of development.   |

Figure 4

The measured approach towards adopting agile processes is natural and stems mainly from a misalignment between the assumptions and practices of traditional management and those of agile development methodologies. So, what approach do you take when selecting the methodology that best fits your business plan?

## V. Your Baseline Strategy

### Recognize value and integrate it to your enterprise

No doubt you've done this with other IT investments, but here's a cheat sheet in determining what works best for your project development plan, just in case:

#### Tips for Selecting the Right Methodology—Giga Information Group® 2002

- Put pressure on tool and infrastructure vendors to supplement their tools with best practices, techniques and sample deliverables from their products. In many cases, these should not be sold as individual products but rather should be viewed as necessary components to ensure the tools' success.
- If engaging any systems integrator or consulting firm, tap into its internal methodology wherever possible. As most won't sell them, the only way to gain access to the firms' experience base is through a consulting engagement. However, it is possible to continue to use its processes (probably without any support) once the project is complete.
- Consider supplementing custom/vendor processes with practices from agile processes. These can provide practical and usable solutions to team interactions, productivity and IT/business communications. Look for consultants who are infusing agile concepts (in part or in full) to their methodologies and who can also accommodate legacy processes and cultures.
- Rightsizing a methodology is a necessity. If it's too complex or rigid, it'll quickly become shelfware. It's key to evaluate a methodology's ability to adapt to your environment and culture.
- Keep current: This is one area where the industry and independent press, as well as academic organizations, continue to publish articles and research on emerging processes.

Make sure the methodology you select offers you both operational and strategic economic benefits. Your strategic options must include:

| Strategic Options  | Financial Analysis  |
|--|---|
| <ul style="list-style-type: none"><li>• Checkpoints after every iteration where you can make mid-course decisions</li><li>• Talented, trained personnel able to switch course rapidly with new or modified stories</li><li>• Technologies and practices that keeps cost to minimum if the project is modified or cancelled</li></ul> | <ul style="list-style-type: none"><li>• You have the option to learn more about where you want the project to go</li><li>• You have the option to delay the inclusion of a feature.</li><li>• You have the option to abandon the project at any time and be left with a useful, working system reflecting investment to date.</li></ul> |

Remember, the best approach to adoption is to implement a methodology that addresses your problems uniquely. Monitor and measure the value received by adopting the methodology.

Unless you've adopted Catalyst, don't expect a methodology to be rolled out in one shot. You may never be 100 percent compliant with another methodology, but with Catalyst you can expect to see benefits on projects. Never stop asking how your projects can be delivered better.

## V. Your Baseline Strategy

The Catalyst methodology is neither a fad nor a trend. It is a foregone conclusion awaiting a mass-adoption status that becomes more apparent every business day. CC Pace, with its 20-plus years helping financial and mortgage institutions achieve their business and technology goals, is well positioned to offer unparalleled expertise in agile methodology with Catalyst—and deliver solutions that take the idea of development with measurable ROI to stunning reality.

### Agile Assessment

#### Loan Guaranty eXpress: a CATALYST™ Success

CC Pace recently developed an Internet-based exchange that lets lenders access the Veterans Administration EDI process for paperless loan guaranty.

Using **CATALYST™** allowed the development team to deliver a quality product quickly, with much better code than a typical development process. The team benefited from frequent, detailed client feedback. The clients felt a far greater sense of control over the process. They reported a greater understanding of the requirements, and greater ability to refine the requirements.

*"[With **CATALYST™**] the project moves much quicker. It's given me better understanding of the system, so I'll be able to train much better and answer my employees' questions more effectively. My buy-in is huge."*

*—Jadean Day, Vice President,  
Government Insuring, Accubanc*

## VI. CC Pace Systems

### Providing the technology that fuels financial institutions

Founded in 1980, CC Pace is national, privately owned and headquartered in Fairfax, Virginia. We bring together our 20-year history of application development and industry-specific expertise to create solutions that deliver measurable business value. Our financial services solutions streamline processes, improve customer relationships, increase capacity, and positively impact your bottom line.

Our clients include members of the Fortune 100, as well as industry entrants and mid-size firms. They include Chase Manhattan Mortgage Corporation, Credit Suisse First Boston, E-Trade, Freddie Mac, The Municipal Securities Rulemaking Board, and The Carlyle Group. When these clients want the best business thinking and the sharpest information technology, they call CC Pace.

CC Pace was created over two decades ago, when a New Jersey-based consulting firm decided to spin off its Washington branch. Three employees, including CC Pace's current President, Michael Gordon, purchased the branch and formed the Cabot Consulting Group. By the early 1980s, Cabot Consulting had grown significantly, with a systems practice and a strategic planning and management practice. In 1989 the systems practice split to form a separate company, CC Pace Systems.

We earned a stellar reputation and solid client base within the niche market of mortgage banking. While retaining this industry focus, we've applied our expertise in complex, mission-critical financial systems to expand into other financial services markets including capital markets and consumer banking.

**For more information about the Catalyst™ Agile Development Methodology, please visit our Web site at [www.ccpace.com](http://www.ccpace.com), email us: [ccpace@ccpace.com](mailto:ccpace@ccpace.com), or call: 703.631.6600.**