

## Crossing the Chasm: from managing through metrics to managing using High Maturity

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Figure : Categories of responses

## Abstract

Moving from managing through metrics to managing using high maturity requires a paradigm shift. In a scenario where the project managers are already trying to balance stringent deadlines, tough clients and demanding teams, it is a challenge for the organization to get a buy-in from the project managers to make this shift effectively.

In such a scenario, when the High Maturity processes are being rolled out for implementation in the organization, the project managers usually resist the change. These changes are perceived to require additional effort from the project and their benefits are not always immediately visible. These changes also bring out mixed feelings ranging from fear of change to "it's not applicable to my project" responses.

This paper describes an approach that would help an organization in rolling out the high maturity processes and getting the required buy in from project managers. In this paper we examine reasons for resistance to the shift and outline an approach based on our experience to "cross the chasm" from innovators to early adapters and then to a culture of high maturity.

## 1.0 Introduction

"...But this takes a lot of time and I am already tracking all the metrics"

"...Good idea, but my project is very unique and it may not work here"

"...We don't have the time to do all this, we are already running on stringent deadlines and I am tracking my cost and schedule diligently"

Does this sound familiar? It is very common to hear these kinds of responses when we introduce the concepts of High Maturity to the project managers. Project managers today manage complex projects. Every project revolves around deadlines and project managers are pulled in all directions. It is difficult for them to comprehend the benefits of high maturity at the first instance. Also, high maturity is perceived to take a lot of additional effort and time.

For an organization to implement these changes, it is critical to understand the reasons for resistance to this change and to build a strategy that would help in getting the appropriate buy-in from project managers

## 2.0 Assumptions

It is assumed for the purposes of this paper that the organization currently has a defined metrics program and the project managers are tracking the metrics for managing their project. This paper focuses on implementation of high maturity processes only.

## 3.0 Reasons for resistance to change

Any change brings with it sense of uncertainty. High Maturity related changes are no exception.

Software metrics itself is a relatively new concept with the first dedicated book on software metrics written in 1976 (Gilb). Given this, Software industry has adapted well to the usage of metrics for project tracking. Project managers today, are more at ease with the idea of using metrics, typically revolving around cost, quality and schedule, to track the status of the project.

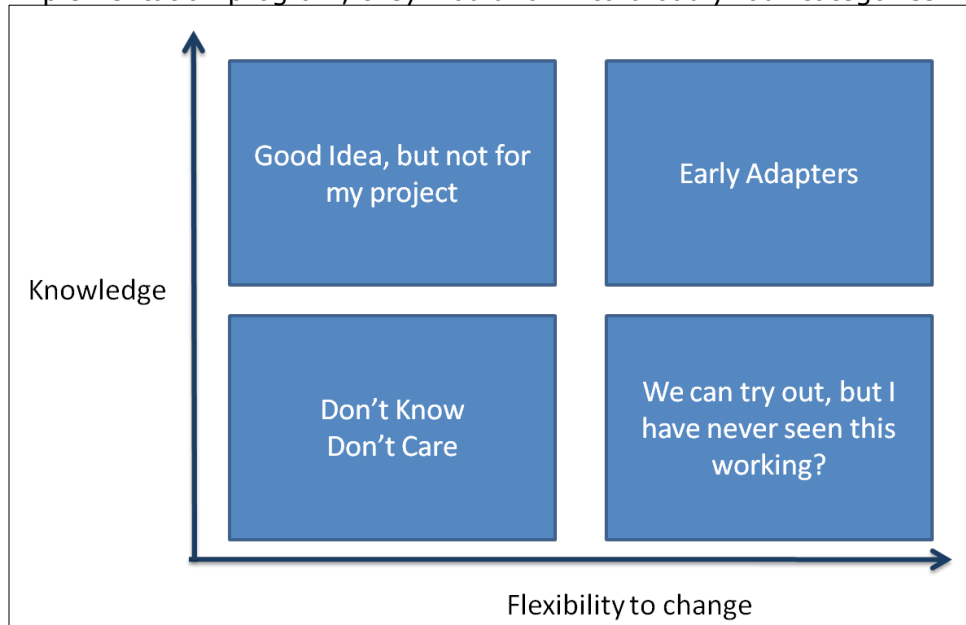
Implementing high maturity brings in additional challenges in such a scenario. High maturity not only expects projects to "track" the status of the project but also to analyze and predict the performance of the project using statistical tools.

Our experience shows that project managers usually resist high maturity for giving the following reasons:

- Takes too much of time
- Is too complex

- I don't understand it
- It's not applicable for my project
- Attitude: I am a techie and not a statistician

The real reasons for resistance could be range from lack of knowledge about benefits and implementation of high maturity to human tendency to reject anything new. It is usually a combination of the two. If we were to classify the responses to high maturity implementation program, they would fall into broadly four categories.



In order to implement high maturity practices in the organization it becomes important to identify the reasons for resistance and design the implementation strategy accordingly. There are two aspects of this implementation.

- Build the right product: Design organizational tools, templates and processes to make it user friendly, and convenient for the project managers to implement it
- Adopt appropriate change management strategy: Design a strategy that would help the project managers' move towards being early adapters.

#### 4.0 Build the right product

***Make it simple. Make it memorable. Make it inviting to look at. Make it fun to read.*** – Leo Burnett

Every product in the market needs to address its customer's problems in entirety before it can be widely used by the customers

If we were to look at high maturity processes as a product, then it should address the requirements of its users (Project managers) in entirety. The process should be designed in a way that is easy to use for the project managers and which would allow them to customize it for their projects. Some things that we found were useful were

### **1. Enhancing the existing template without building new templates**

Most of the high maturity processes are based on the data collected at CMMI ® level 2. A study by Pankaj Jalote shows that most of the organizations implementing high maturity programs have designed their metrics program around few key metrics - Project size, Effort, Schedule, Defects or Risks. (Jalote)

Based on this, it can be safely interpreted that most of the prediction models and analyses would also be based on these key metrics. Prediction models are built based on the data collected either at the organization level or by the project manager at the project level. Prediction analyses would be statistically done using the regression analyses and by simulating the data. All these models would require data which is already being collected by the projects in some template or tool. Hence instead of designing a new template to do the analyses, it would be advisable to use the same template to collect the data for analyses. If any additional attributes are required for the analyses, the existing templates can be updated to collect that information.

### **2. Automate to the extent possible**

CMMI® recommends using regression models, simulations and hypothesis testing as some of the mechanisms to perform the high maturity analyses. These analyses are complex and not all the project managers would know how to use these tools. It becomes increasingly difficult to get the required support from the project managers if it involves learning new tools and techniques.

These regression models can be embedded in the spreadsheets or in tools which are currently being used to track the project. For example if a spreadsheet is being used to track the number of defects by phase, then the same sheet can be updated to generate control charts using the same data. This would not require the project managers to enter the data again.

In case a tool being used by the organization cannot be modified to include such analysis then the next best option would be to integrate it with tools which perform such analyses, either directly or indirectly. Typically most of the metrics tools would support integration with spreadsheets and these analyses can be easily built into spreadsheets.

### **3. Focus on the interpretation of the results**

Most of the project team members may still like to be seen as technology experts. Many of the project managers may not have the required expertise to do complex statistical analysis. Initially, it helps if the SEPG team supports in identifying the right analyses, helping the project manager in performing the analysis. The templates and the tools defined can also support in performing the analyses while the project manager focuses on the business aspects of the analyses.

Over a period of time, project managers gain confidence in the results, the analyses too are refined based on the business requirements and project managers would then start participating more in such analyses.

All these things would help in reducing the effort from the project managers and in changing the perception that the high maturity implementation takes additional time and effort without delivering appropriate value.

## **5.0 It's all about managing change**

**People don't resist change. They resist being changed!**

*Peter Senge, management writer famous for the notion of the learning organization*

Geoffrey Moore, in his book "crossing the chasm" argues that there is a chasm between the early adopters of the [product](#) (the [technology](#) enthusiasts and visionaries) and the early majority (the pragmatists). Moore believes visionaries and pragmatists have very different expectations, and he attempts to explore those differences and suggest techniques to successfully cross the "chasm". The same concepts of Selling (in our case, "internal selling within an organization" can be applied to bring in higher acceptance of statistical practices.

**Figure Technology adaption lifecycle [Source : Geoffrey Moore in Crossing the Chasm (Moore)]**

Diffusion of innovation cycle in case of High maturity within the organization would be very similar to this. The challenge is not to find a few project managers who would be willing to experiment with high maturity, but find a way in which all the project managers, at least a *majority* would use high maturity practices as a means of planning and executing their projects. Crossing the chasm in this scenario would be to bring in a culture of high maturity compared to a few project managers who are using statistical tools for analyses. Once we have the right product, the next step would be to identify the target population who would be using high maturity.

### **1. Identifying the right set of people to be the early adapters**

Statistical analysis drives the two important aspects of high maturity project management, (a) assess the effectiveness of the actions taken and (b) predictive analysis. As a first step, SEPG team identifies projects\project managers who would be most likely to implement and benefit from such practices. These project managers would typically fall in the category of early adapters.

Some of the scenarios could be

- Projects which have reported high number of defects in the last six months - SEPG team could focus on implementation of CAR process and later in measuring the effectiveness of its implementation in such projects.
- Projects which have recently completed one module\release and are planning for next module\release – Focus on use of prediction models that would help in predicting the probability of that project reaching its target.
- Projects in the initial stage – projects discussing the contract terms and conditions, using historical data to predict the performance of such projects which can be used as an input during the project contract discussion.

SEPG team would need to work closely with the identified project managers to help them in the initial implementation. Once these set of projects start using these high maturity practices and can see the practical benefits, then they can act as evangelists for process change.

### **2. Positioning High Maturity within the organization**

One of the toughest roles that SEPG plays in an organization is to communicate the new process requirements to the implementation teams and to demonstrate its usefulness. The challenge is unless projects start following these practices, it is very difficult to demonstrate benefits, and unless we demonstrate the benefits, the projects would not be convinced to use it.

To win the early majority, we need to change the perception of a larger community. This can be done using various communication mechanisms and direct interactions which demonstrate the benefit of implementation.

A combination of easy to use process and templates and continuous demonstration from successes from other projects helps in converting the non believers into believers.

Some strategies that are observed to work are:

### 2.1. Communication campaign

Communication campaign either through mailers or through senior management town halls can be very effective in reinforcing the importance of usage of these tools. Mailers citing benefits derived from high maturity implementation from other projects and explaining the usage of these tools can help in getting buy in from project managers, especially those who resisted the change because of lack of knowledge.

### 2.2. Demonstration of benefits from other projects

Project managers who have participated in the initial implementation of these processes (early adapters) can act as evangelists and demonstrate benefits derived. They can share their experience on how they have used the concepts in different real life scenarios and how it has helped them in managing their projects proactively. These kind of messages would help in gaining early majority.

### 2.3. Support from senior management

Support from senior management and regular reinforcement of the importance of high maturity practices combined with communication messages would help in gaining the support of the "don't know don't care" kind of project managers. These are usually project managers who have been implementing traditional means of project management and are not very keen on changing to a new method. This group is usually the most difficult to convince. Continuous reinforcement messages combined with some senior leadership support can help over a period of time

Some of the common forms of resistance and how to manage those changes are listed here

| Common Complaint                                | Root Cause   | Suggested Strategy  |
|---|--|---|
| "This is just another 'flavor of the month.'"   | Multiple past initiatives have been launched with high fanfare and little results or staying power | <ul style="list-style-type: none"> <li>➤ Select the most challenging projects and implement high maturity there</li> <li>➤ Senior management review of projects using tools such as control charts and review of actions taken based on that</li> <li>➤ Demonstrate usage of high maturity in important client interactions and use prediction models as one of the inputs during contract discussions</li> </ul> |
| "I don't have time...cannot free up resources." | Too many projects/activities in process  | <ul style="list-style-type: none"> <li>➤ Provide support team to help in performing the analyses</li> <li>➤ No new templates introduced, only the</li> </ul>  |

|  |   |  |
|--|---|--|
|  |   | <p>existing ones have been enhanced</p> <ul style="list-style-type: none"> <li>➤ Automate to the extent possible</li> </ul>  |
| "This does not apply in my part of the business."                  | Misconception about how High Maturity Program works; lack of information about how it applies | <ul style="list-style-type: none"> <li>➤ Communicate and re-emphasise the message on how it can be applied in different scenarios</li> <li>➤ Other Project managers ( Early adapters) sharing success stories</li> <li>➤ Customizable process that can be adapted to any kind of project</li> </ul>  |
| "The results are not real."  | Lack of confidence that the results will materialize  | <ul style="list-style-type: none"> <li>➤ Deploy detailed, conservative method for tracking project results and share it on a regular basis with all other project managers</li> </ul>  |
| "How is this different from past quality/improvement initiatives?" | Fatigue from multiple quality initiatives   | <ul style="list-style-type: none"> <li>➤ Explain and demonstrate key differences.</li> </ul>   |
| "Is this just a way to cut headcount?"                             | Fear and/or mistrust  | <ul style="list-style-type: none"> <li>➤ <b>Focus on how productivity improvements and less defects would help in bringing in additional capacity that can be utilized to take additional business</b></li> <li>➤ <b>Focus on the impact this would have on the client relations and how this can lead to enhanced business opportunities</b></li> </ul> |
| "Is this incremental to my existing business plan?"                | Don't want to add to existing workload  | <ul style="list-style-type: none"> <li>➤ Align all High Maturity work to directly support the existing business plan, rather than developing a set of collateral goals.</li> </ul>   |
| "Does management really  | Lack of confidence  | ➤ Genuine leadership engagement  |

|                      |                           |   |
|----------------------|---------------------------|---|
| believe/support it?" | that everyone is on board | in the process is required – not just talk. |
|----------------------|---------------------------|---|

Table Common causes of resistance and suggested strategies

## 6.0 Conclusion

High maturity implementation requires a shift in the way our project managers manage their projects. This change is not easy to bring in an environment where project managers are already juggling multiple priorities.

An organization should adapt a structured change management program to help get the appropriate buy in from the project managers. The same principles of market segmentation and early wins can be adapted by the organization to internally market the High Maturity process. High maturity changes should be treated as a change initiative. Focusing on the real reasons for resistance, defining a strategy by segmenting the projects and selecting the right projects for piloting the process provides the right foundation for the organizations journey. Building the right product and internal marketing helps in converting the “Don’t know don’t care” group to early adaptors.

## 7.0 Appendix

### 1. 7.1 Bibliography

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SEI, CMMI®

### 2. Acronyms Used

CMMI ® : Capability Maturity Model Integrated®

OID: Organization innovation and deployment

SEPG: Software engineering process group

CAR: Causal Analysis and Resolution

### 3. Authors Biography

Lakshmi Abburu leads the process excellence and analytics team at Accenture Services Private Limited and is responsible for driving quality initiatives across the organization. With 12 years of experience in various aspects of Software engineering and Quality Management, Lakshmi has worked on driving CMMI® and PCMM® definition and implementation programs. In her past roles, Lakshmi has worked on defining estimators, CMM® Implementations and product data management systems.

Sreevidya Prasad is currently working as a senior manager, leading process definition and implementation at Accenture India Delivery Center. She has a total of 13 years experience in Software Engineering and Project Management. She worked as SEPG and process quality lead helping organizations globally in implementing CMM, CMMI® and ISO20000. Her work also includes providing facilitation and coaching for SPI efforts and model based process improvements. She holds a Bachelors Degree in engineering. She is a Certified Software Quality analyst (CSQA), Project Management Professional (PMP®), QMS Internal Auditor and in ITIL Framework.

Rajendra Prasad is currently working as a senior executive, leading quality at Accenture India Delivery Center. He has a total of 17 years experience in Software Engineering and Project Management. He worked as SEPG and process quality lead helped organizations globally in implementing CMM®, CMMI® and PCMM® models. His work also includes providing facilitation and coaching for SPI efforts and model based process improvements. He holds Masters Degree in engineering. He is Certified Software Quality analyst (CSQA), Project Management Professional (PMP®) and in ITIL Framework. He is an authorized CBAIPI Lead assessor. He has been a speaker in various national and international conferences on process improvement.

