Managing Off Shore Development Centre (ODC)

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Ikeda-san was sitting in his office late afternoon and wondering “Managing customer and an ODC together is like being sandwiched”. Ikeda-san felt that he is compressed between his customer stringent requirements and his off shore software development center delivery quality issues.

Ikeda-san started his career at Taichi Company which is headquartered at Japan and is a major semiconductor chip vendor worldwide. Ikeda-san joined Taichi Company 23 years back as a fresh college graduate. He could recollect the different technology areas he has worked over last 23 years at Taichi Company. He still remembers way back in June 2002 when his boss Odani-san came and told him “can you join me for the meeting with Shinji Company next week?” Shinji Company is one of the biggest customers for Taichi Company. Ikeda-san first visit to Shinji Company was just as an observer. He was returning back from Shinji Company along with Odani-san when he was asked “what do you think of Taichi Comapny chances of getting this order?” Ikeda-san could not speak any word for a while. Odani-san smiled at him – “you need not answer, it is ok”. Since then Ikeda-san is working with Shinji Company for many products in the digital product development areas like DVD players, Digital TVs, Audio receiver, Portable Media players,etc. Taichi Company has provided System on Chip (SoC) for digital products of Shinji Company. Ikeda-san goes on a weekly basis and meets his counterparts at Shinji Company. Ikeda-san has built a good reputation with Shinji Company primary representative – Nakamura-san in last 12 years.

An afternoon mail:

It was an afternoon on 14 April 2012 when Ikeda-san came back from an internal meeting when he got a mail from his Shinji Company primary counterpart Nakamura-san– “We are planning an excellent Digital Television (DTV) with enhanced Audio. I want to meet you in this regard on Friday this week”. Ikeda-san felt very happy and he replied back promptly “Definitely, I will come to meet you”. The meeting started for this project with Nakamura-san and finally Ikeda-san managed to get a consensus from Shinji Company to start the project. It was a very profitable project for Taichi Company because Shinji Company agreed to pay the development cost as upfront fee and the royalty for each device sold by Shinji Company. Odani-san appreciated Ikeda-san in the

Taichi Company all employees meeting for this project. Ikeda-san was very happy to see the feather in his cap as he was also promoted as Senior Manager in recognition for his work to get this project.

ODC at India:

Ikeda-san knew that Taichi Company at Japan does not have enough skilled resources to meet the project software development requirements. He knew Taichi has been running its ODC at India – Taichi India Centre (TIC) from last 7 years primarily for the software development. Ikeda-san knew that Japanese companies like Shinji company are very much quality conscious and follows a Six Sigma[1] method to avoid even 3.4 defects per million lines of software code. He decided to meet his team to discuss his idea of allocating some part of the software development modules to Indian ODC - TIC.

One of his leader "Chan-san" raised the issue in the meeting "how do we ensure that Six Sigma[1] standards are met for the delivery from TIC?"; "Has TIC delivered any project meeting Six Sigma standards in the past?" The team had a long discussion and finally agreed to allocate major software development modules to TIC. Ikeda-san quickly noted all the inputs from his team. Ikeda-san was thinking – "Is this sufficient? Overall testing of TIC releases and release to customer is a big task. I know Shinji Company is very quality conscious since they are from hardware development background. They have their own test set up which they will never release to Taichi Company due to confidentiality and infringement reasons". Finally, Ikeda-san came up with a solution of setting up testing environment which will be closer to the test environment of Shinji Company. This test environment was prepared using earlier version of DTV evaluation platform prepared by Taichi Company for Shinji Company. Taichi Company Japan Centre will perform system testing and TIC scope will be limited to perform unit testing.

Ikeda-san decided to speak to his boss Odani-san with his proposal of work sharing with Indian ODC - TIC. Ikeda-san explained his proposal[2] to Odani-san next day and got an approval for the project.

Ikeda-san initiated project with TIC in June 2012.

[1] Refer to "Exhibit A" for an overview of Six Sigma methodology
[2] Refer to "Exhibit B" for details of Stake Holders

Development with TIC (Taichi India Centre):

Ikeda-san contacted TIC GM – Kaku-san and explained the project work. Kaku-san allocated – Dhinesh (TIC Manager) for this project. Discussions started between Ikeda-san and Dhinesh for setting many project related items like issue tracking tool, release management tool,etc. Ikeda-san felt – "There were too many items to setup for ODC. It is better to ask TIC manager Dhinesh to travel to Japan and setup everything". Dhinesh travelled to Japan to explain his project proposal to Ikeda-san.

There were lots of discussions during the project discussion focusing mainly on quality management. Dhinesh explained the quality management system followed at TIC complying with CMMI[3] Level 5. Ikeda-san enquired "Are you aware of the Sig Sigma method for software quality?" Dhinesh kept silence for some time and then replied "It may be possible for us to learn it during the development of this project. May be we will try to hire some person from the industry who has experience on Six Sigma". Ikeda-san asked again "Are you sure that you will be able to add Six Sigma analysis to control the quality of software releases from TIC?" Dhinesh replied "We will try our best Ikeda-san. Anyway we have internal Quality Management System (QMS) and Product Validation (PV) team". Finally, it was agreed by Ikeda-san and Dhinesh that TIC will release software on weekly basis and Taichi Company's Japan team will check and report in case of any issues. The work started and TIC has been delivering the unit tested package on weekly basis. Taichi Company team at Japan were integrating the software with the rest of the software stack and performing system testing. Ikeda-san initiated progress review meeting with TIC team on weekly basis. Discussion from the weekly progress meeting in June 2013:

[3] *Refer to "Exhibit C" for an overview of CMMI*

Ikeda-san:	What is your idea of the number of defects reported on TSIP weekly releases?
Dhinesh:	I suppose we cannot avoid all the defects since we do not have Shinji company environment
Ikeda-san:	This is not acceptable. I request you to make a plan to control the defects in releases from TIC
Dhinesh:	I will check the defect data and prepare an action plan to control the same
Ikeda-san:	Have you noticed that there is peak defects density in the month of April and May?
Dhinesh:	It may be because some members have left the team during April and May
Ikeda-san:	What do you mean? You didn't have any back up for these members?
Dhinesh:	We had backup but they were not very effective to test the software
Ikeda-san:	This kind of situation can arise any time. What is your plan to control the quality of releases from TIC? You have informed that you will implement Six Sigma control in your development. Can you prepare your analysis from such view point?
Dhinesh:	I will work on this and come back next Tuesday.
Ikeda-san:	I will look for a concrete analysis and plan from your side by Tuesday

Dhinesh started wondering "I already promised that I will hire Six Sigma expert to Ikeda-san but I could not get such expert member till now. I do not know how to analyze these defects from Six Sigma methodology. I think I have to manage this with some temporary arrangements from external consultant". It was not easy for Dhinesh to manage this since he was aware of many issues faced in his team. He called for a meeting with his leaders. The leaders immediately started bursting out:

- "We do not have customer environment", commented Pradeep(Testing Leader)
- "Why can't Shinji Company just share their environment? What is the big deal in sharing? We could avoid struggling to reproduce the issue for so many days." Commented Mahesh (Development Leader)

- “This weekly releases are a pain. Why can’t you convince Ikeda-san to make one release in 3 months” commented Pradeep again.
- “Our key members are leaving in frustration. TIC is not offering competitive salary in order to retain talent”, commented Mahesh again, “We have to keep on training new members. Most of our effort are going for training only”

Dhinesh tried to explain the complete situation to his leaders but he felt that there is need to improve the testing process within TIC. He has been working very hard to introduce the quality checks for the releases from TIC but he was aware that defects may have increased.

Managing Stakeholders:

It has been long experience since then for Ikeda-san. He needs to have call with Nakamura-san almost every day and also weekly call with TIC. Ikeda-san has been releasing the package from TIC to Shinji Company after feedback from his team’s verification. He was aware that Shinji Company is logging defects on the releases. It was a continuous struggle for Ikeda-san to maintain the balance between Shinji Company expectations and his Off Shore Development (ODC) team.

Nov 2014 – Ikeda-san was sitting and looking at the latest defect report from Shinji Company when his phone rang. It was known voice of Nakamura-san. “Arigato-goziamas, I have news for you”, Nakamura-san said. “We are planning a new product A2 but we are concerned”. There was a pause in the voice from Nakamura-san. Ikeda-san felt very anxious. “We analyzed the last two phases Phase1 and Phase2 and it seems total 366 issues were reported by us on the releases from your ODC company”. “Can you submit a concrete plan to ensure defect reduction, only then I can convince my boss to give this project to Taichi-san”, Nakamura-san said. Ikeda-san said “Arigatou gozaimasu, let me work on this. I will respond back by next Tuesday”.

Ikeda-san started checking and found following data summary[4] from Shinji Company for defects reported on TIC releases:

[4] *Refer to “Exhibit D” for Phase1 & Phase2 Defects reported by Shinji-san*

- Phase 1 (Jul 2012-Oct 2013) – 301 defects
- Phase2 (Oct2013 – Nov 2014) – 65 Defects
- Total 366 Defect
- Effort Spent by TIC to fix these Defects 387 man months.

Ikeda-san wondered “COPQ (Cost of Poor Quality) is too high. This needs some concrete action plan. I need to get more details from TIC manager - Dhinesh”.

Suddenly, many thoughts started pouring in his mind:

- Why Taichi Company is not able to find these defects?
- Are our test cases sufficient?
- Is this effort for fixing defects from TIC justified?
- Are there frequent changes of resources at TIC?
- Are there sufficient internal reviews at TIC?
- Are TIC member’s skills sufficient for this activity?

Ikeda-san wondered if he has become “Sandwich” between his customer (Shinji company) and his ODC (TIC). It is very important for Ikeda-san to maintain the credibility of Taichi Company since Shinji Company is launching this product using Taichi Company Chip in 21 model of DTV worldwide. Ikeda-san realized that it was already 11 PM. He needs to hurry up or else he may miss his last train.

Discussion Points:

1 Customer Shinji Company has clearly told Taichi Company to make plan to avoid defects in next product – A2. Ikeda-san has already committed that they will submit concrete plan to reduce the defects. As a Japanese Manager, what will you do to meet Taichi Company objective?

2 As a Japanese Manager what will you communicate to Shinji Company in order to gain the trust of customer and remove apprehensions?

3 How would you like to facilitate the TIC manager to meet Taichi Company objective?

4 What all controls would you build to ensure that defects are caught before release to Shinji Company?

[1] Exhibit – "A" – Six Sigma Overview

Source: http://www.ge.com/en/company/companyinfo/quality/whatis.htm

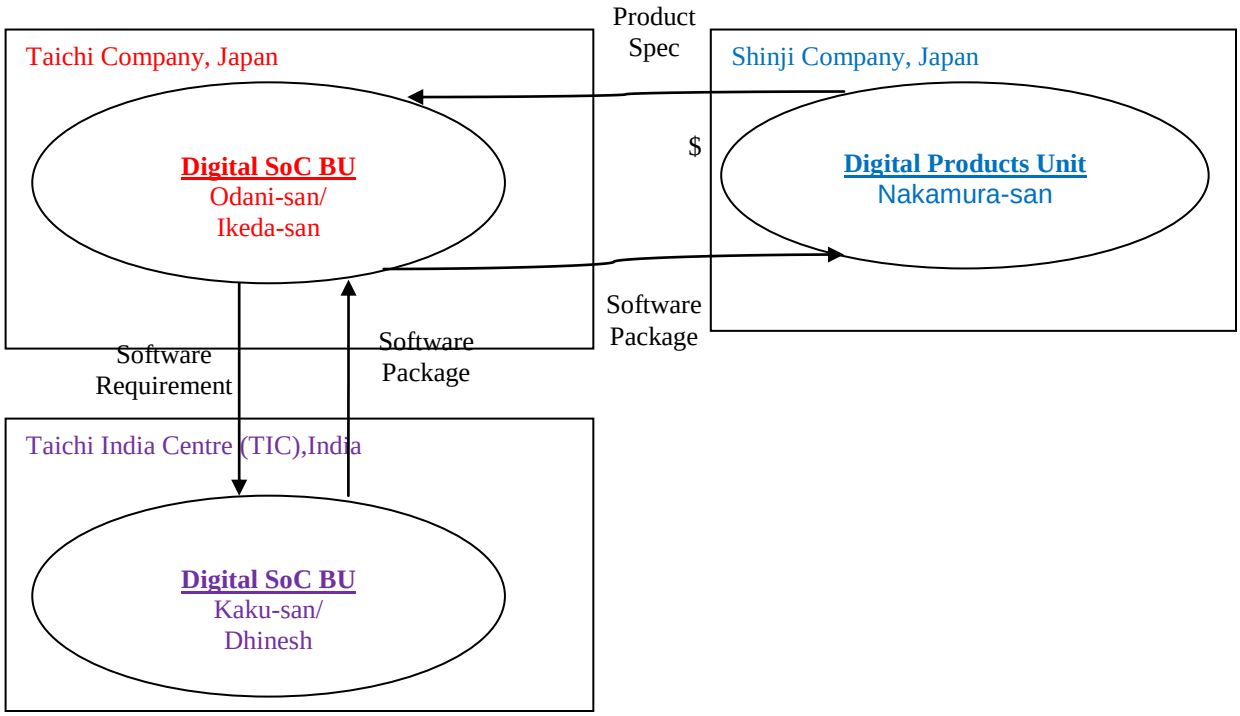
Six Sigma is a highly disciplined process that helps us focus on developing and delivering near-perfect products and services.

Why "Sigma"? The word is a statistical term that measures how far a given process deviates from perfection. The central idea behind Six Sigma is that if you can measure how many "defects" you have in a process, you can systematically figure out how to eliminate them and get as close to "zero defects" as possible. To achieve Six Sigma Quality, a process must produce no more than 3.4 defects per million opportunities. An "opportunity" is defined as a chance for nonconformance, or not meeting the required specifications. This means we need to be nearly flawless in executing our key processes.

Key Concepts of Six Sigma

Critical to Quality:	Attributes most important to the customer
Defect:	Failing to deliver what the customer wants
Process Capability:	What your process can deliver
Variation:	What the customer sees and feels
Stable Operations:	Ensuring consistent, predictable processes to improve what the customer sees and feels
Design for Six Sigma:	Designing to meet customer needs and process capability

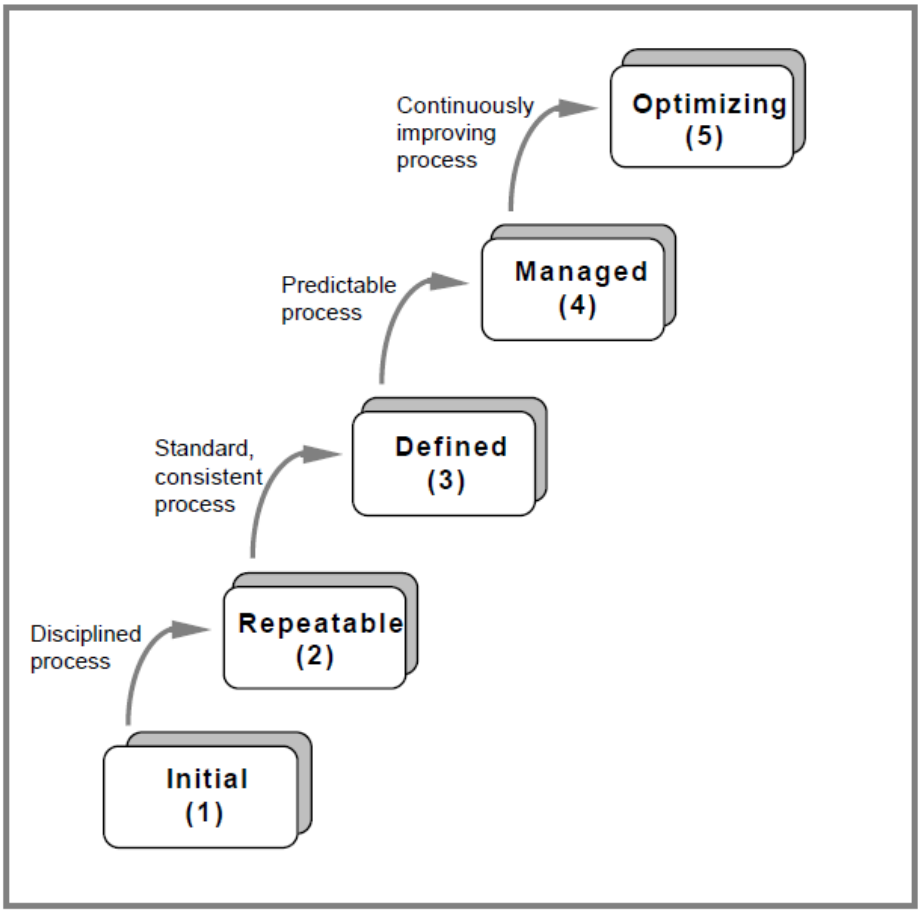
[2] Exhibit – "B" – Stakeholder Diagram



[3] Exhibit "C" – CMMI Level 5 brief Introduction

Source: http://www.sei.cmu.edu/reports/93tr024.pdf

The Five Levels of Software Process Maturity



The following characterizations of the five maturity levels highlight the primary process changes made at each level:

1) Initial The software process is characterized as ad hoc, and occasionally even chaotic. Few processes are defined, and success depends on individual effort.

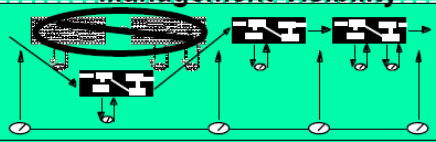
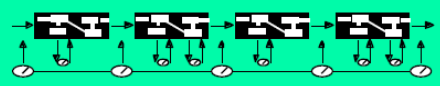
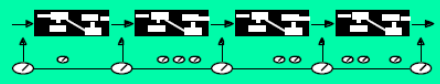
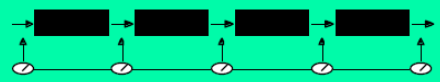
2) Repeatable Basic project management processes are established to track cost, schedule, and functionality. The necessary process discipline is in place to repeat earlier successes on projects with similar applications.

3) Defined The software process for both management and engineering activities is documented, standardized, and integrated into a standard software process for the organization. All projects use an approved, tailored version of the organization's standard software process for developing and maintaining software.

4) Managed Detailed measures of the software process and product quality are collected. Both the software process and products are quantitatively understood and controlled.

5) Optimizing Continuous process improvement is enabled by quantitative feedback from the process and from piloting innovative ideas and technologies.

CMMI Maturity Levels:
Source: http://se.inf.ethz.ch/old/teaching/2010-S/0050/slides/02_softarch_lifecycle.pdf

Level	Process Characteristics	Management Visibility
5 Optimizing	Focus is on continuous quantitative improvement	
4 Quantitatively Managed	Process is measured and controlled	
3 Defined	Process is characterized for the organization and is proactive	
2 Managed	Process is characterized for projects and is often reactive	
1 Initial	Process is unpredictable, poorly controlled, and reactive	

[4] Exhibit "D" – Phase 1 & Phase 2 Defects reported by Shinji Company on TIC releases