

Leveraging Project Performance analysis to achieve sustainable Business Goal

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**Conference Theme - Project Management Powering India's
Global Leadership**

Sub Theme - To accelerate Economic Growths

Key Words - Project Management, Project Audit, Project Performance Indication, Stagegate process, Project Constraints, Project Deliverables

Abstract

The Past has always helped us to make the Future Better. The mistakes made, the heart burnt & Success achieved will always teach us lessons & help us to pave the path of Gold. As a Project Manager we should always connect the dots looking backward & forecast the projected path to future. This will bring a prospective whether the current projected path & pace will take us to the desired destination. The past performance & remaining quantum of work in project will help us for the course correction.

Project manager always does a balancing act among the various Constraints set at start of project. To be in control of Project he always requires to have check on project performance. Project Performance Analysis is key for project manager to decide the revised rate of efforts to achieve desired goals.

Following process & indicator helps in establishing the project performance.

- Project Audits
- Analysis of stage gate deliverables
- Project Performance Indicator

At Mahindra & Mahindra we always strive to surpass the existing performance as “OK is no longer OK”. We conduct Project audits, evaluate stage gate deliverables & analyze Project Performance to enhance the project success rate. The project performance indicator are also linked to individual's goals for the accountability & responsibility of resources working on the project. This enables us to execute projects in better way for not only achieving business goals thereby contributing to economic growth.

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1. Introduction

In any Automobile Industry New Product Development is very complex process, it involves hundreds of part development, managing communication between multiple functions, synchronization of functional deliverables leading series of other dependent deliverables, & with all this complexity comes associated risks. All these factors & many more makes it very essential to have a robust process with continuous process improvement plan.

We at Mahindra Trucks & Bus (MTBD) have our own developed Mahindra Product Development System (MPDS) which handles the Product development complexity. This Paper emphasizes on the continuous Process improvement plan taken to contribute Organizational Business goals by improving the Project Process Quality Adherence. MPDS is a Gateway Process, at the end of every Gateway Project Quality Office (PQO) conducts the Gateway Audit & releases the Audit report with RYG status of deliverables based on the Quality & intent of Deliverables completed. The reports released by PQO were analyzed to identify trends & action plan for Process Improvement. The analysis has helped us to put up focused & specific action plan for improving the specific area in MPDS. It also helped to identify the focus functional deliverables & their linkages to other dependent deliverables.

This paper is mainly focused on the Gateway Audit process, analyzing the reports for taking corrective actions for process improvement & linking the project performance to individual goals for accountability & responsibility.

2. Product Development Process

The product development process in Automobile industry is a complex affair. Product under development varies in complexity, even in the least complex project, typically the project team has to develop hundreds of parts if not in thousands. This development also has to capture the customer needs, design feasibility, performance & safety targets, overall quality & reliability of product, real world usage conditions, etc the list of variables is unending.

Following are the major factors which contribute for making it very critical

1. **The simultaneous engineering & concurrent activities in the development of a new vehicle.**

This means that the outcome of an activity in one function could have a dependency/bearing on one or more activities at another location/ function. These dependent activities could themselves be happening concurrently or at a different point in time.

2. **The need for introducing first time Right Product in Right Market.**

We have to ensure that we identify the right market to compete in and offer the right products every time. With the time and effort that the organization invests in developing new vehicles, we cannot afford any failures.

3. **Every Product should contributes to Overall Organization Profitability.**

To ensure Profitable products in line with the company's overall business goals. The company needs to keep a firm grip on the financials and timeframes of the project.

4. **Critically handling the associated risks of running multiple Project / Programs at a time.**

Lastly, at any point in time, a large company like ours will have multiple projects in the pipeline that are at different stages of development. Here again, interdependencies between projects and the management of organizational manpower & capital resources becomes critical.

The Mahindra Product Development process (MPDS) which is a Stage – Gate process provides a disciplinary framework to the organization that enables it to manage all these factors effectively & efficiently. Over the time, it helps the organization shorten product development timeline and enables the detection and resolution of problems early in the development cycle. It is undoubtedly a necessity for any organization handling multiple projects and competing in a rapidly transforming market place.

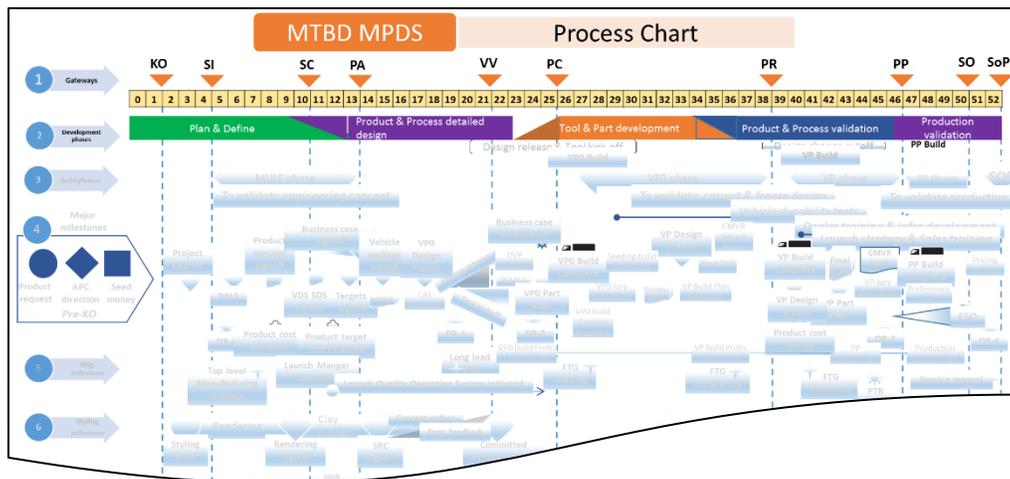


Image 1 – MPDS Process Chart

2.1 Stage Gate Process

In any Stage-Gate process there multiple gates with in all the process groups i.e. Initiation, Planning, Execution, Monitoring & Control & Project Closure. These gate are placed mainly because to assess the progress of project. In every gate there are specific deliverables to be completed, deliverables are nothing but activities which are input to next deliverable or critical for project success. On the same lines, MPDS process is a Stage-Gate process sub-divided into well-defined Gateway & deliverables for converting new product opportunities into Actual Product.

A Gateway requires the project team to complete a pre-defined set of deliverables, which are structured in a way that it considers the need of project in that phase. For example at Initiation phase the deliverables will focus on structuring the inputs for the process so as the requirements are captured effectively. The gateway are also names as per phase of project. The Stage-Gate model enables us to effectively manage the task of developing multiple products at the same time. Gateways and Milestones ensure that all the simultaneous activities occurring in a stage are synchronized to the progression of a project and that no activity is neglected.

2.2 The Gateway Audit Process

New Product Development Processes is our structured way of dealing with new product development. To ensure check and balance at the defined stage gates of new product development and hence to ensure effectiveness in process compliance and deployment, gateway assessment process has been established. Gateway assessment ensures evaluation of **“Quality of Event”** meeting with **intent of deliverables** as prescribed in the new product development process.

The gateway assessments is conducted based upon Project plan covering all scalability programs for Domestic and Export market segment. This procedure detail out gateway assessment and approval process for each Stage gates as referred in the new product development processes for each of the business unit.

At the end of every Gateway, there is a formal and comprehensive assessment of all the deliverables is done to ensure critical success factors are achieved for the gateway. These formal reviews are known as Gateway / Milestone Audits. The comprehensive review at the gateway / Milestones also ensures that information generated through these deliverables is taken into account before a decision is taken on advancing the project.

2.3 Audit Procedure & Audit Report

In a typical Project Gateway Audit in Mahindra

1. During the gateway, as per applicable deliverables the project team works on their functional activities & complete deliverables with documentation.
2. These documents are uploaded on server for Auditors review.
3. Post the auditor study of documents, the complete project team appears for the audit.
4. The auditor assess the document & evaluates whether the Quality of Event & intent of deliverable is met.
5. Based on the documents & clarifications given the auditor releases the assessment report with RYG status of deliverables.
6. The deliverables which are not meeting the intent are marked as Red. The Project team go back to board, workaround the deliverable to meet the intent.
7. Based on the deliverable status the auditor recommends the clearance of Gateway to Senior Management team.

8. Based on Auditor's recommendation the senior management team clears the Gateway.

3. Gateway Audit Report Analysis

As we discuss to improve future it very important to reflect on past, this gives us a prospective how we had performed & how we have to perform to meet the set objectives. The Gateway Audit enables the data on performance of projects. The auditor release the report based on the deliverable completeness in RYG status with his observations of things gone right & things gone wrong. The data of Project Audit reports (Ref Image 2) for past project consolidated to establish the trends & put up in different way to identify a specific area of improvements.

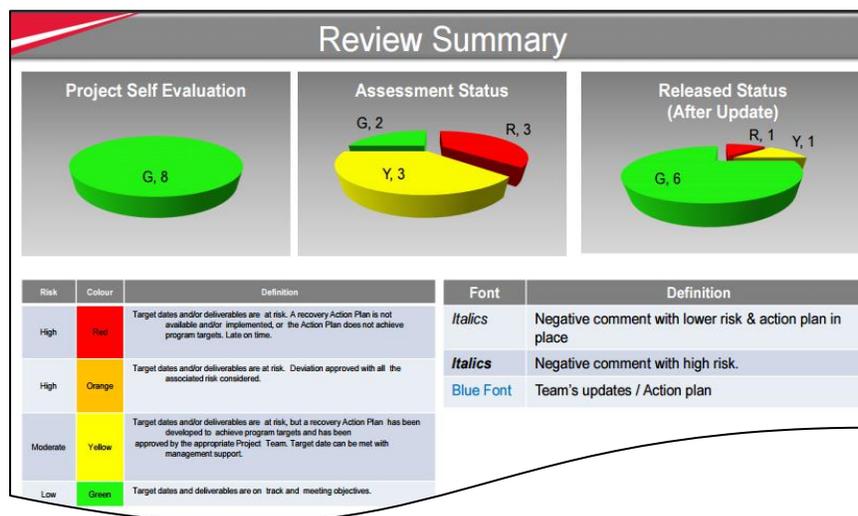


Image 2 – Gateway Audit Report

FY16 & FY17 Project Audit reports for multiple projects were taken & red deliverables consolidated at one place. The project were at different stages of development therefore at different gateway during the period under consideration. This actually ensured that the analysis of the entire process deliverables & come out with the dark spots, where the improvement can be planned. Following graphs help to represent the data according to different slices of deliverables.

1. The project under analysis with respect to their phase, the process they are following, etc. this helped to establish the view point & visualize the total spread of data. Under various platforms around 20 project & 400+ deliverables were under consideration for the analysis.

Platform	No of Projects	Phase 1	Phase 2	Phase 3	M2	M4	M6
Platform-A	6	0	1	2	3	3	0
Platform-B	5	5	0	0	0	4	1
Platform-C	8	3	4	0	1	2	5
Total	19	8	5	2	4	9	6

Image 3 – Project Distribution

2. To see the year on year comparison, the graph prepared (ref. Image 4). This analysis helped to shown that the quality of project process adherence performance has improved compared to last year. The no of Red deliverables has reduced. But the further details revealed that the rate of reduction was not up to the mark. This was the indication that for reducing the red deliverables a concrete action plan is required. But the ambiguity was which area to concentrate. For this we further drilled the data.

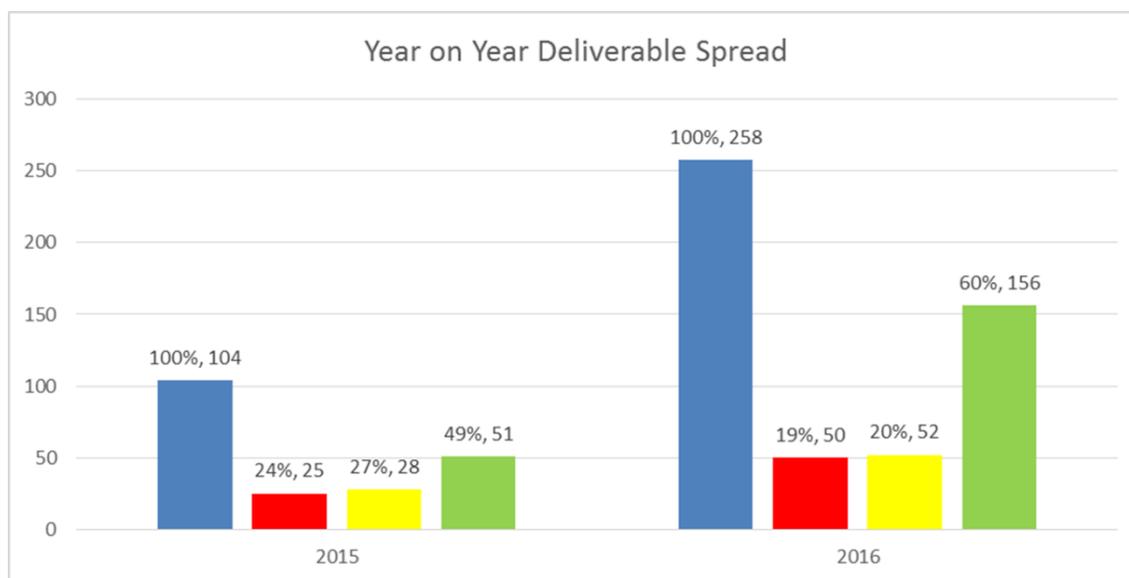


Image 4 – Year on Year Comparison

- For the getting the answer for focus area we put up the data with respect to different platform (Ref. Image 5). One of the conclusion was the red deliverables has reduced. We checked platform wise performance. This gave us some information one of the platform was lagging, but the project under analysis of platform-A were from third phase of process whereas other platform projects were mostly first or second phase. This was not leading precisely to some action points but it did pointed towards the last phase of projects, due some or other reason, no of Red deliverables will increase.

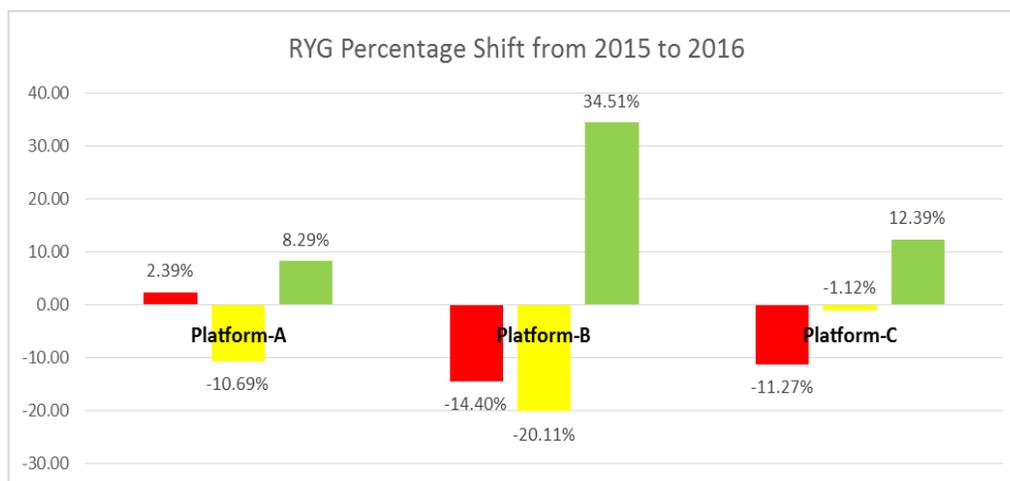


Image 5 – Platform Comparison

- The rearrangement of data to see the functional weightage of red deliverable (ref. Image 6). The outcome of this graph was out of total no of red deliverables 8% are coming from PD function. This was certainly a good pointer for planning improvement actions plan. The further analysis showed that the concentration of red deliverables of PD was more in the project which were in second or third phase of the MPDS process.

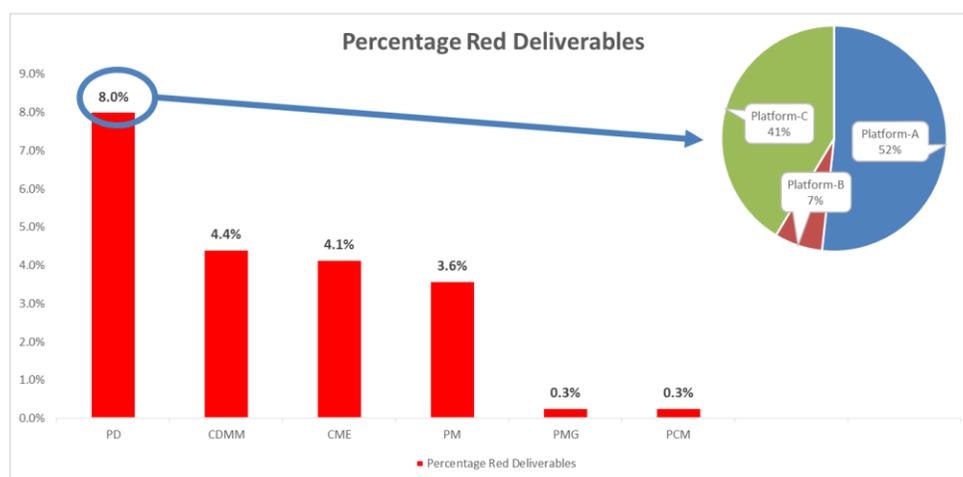


Image 6 – Functional Comparison

- The further analysis to explore the frequency of any specific deliverable has pointed to few critical deliverables & linkages. Out of all the red deliverables few deliverables repeated most number of times. The top most Red deliverables were related to Time plan tracking, Target setting, etc. These highlighted the need for improvement in these specific areas.

3.1 Driving Results from Gateway Audit Analysis

The analysis specifically highlighted key focus area to be concentrated. It was evident with analysis that the project team making same mistake time & again. The lesson learnt were not being cascaded to other project teams. It clearly explained the project teams will require the guidance from functional experts to meet the quality of deliverables. Based on the analysis the “Process Champions” announced (ref. Image - 7) so that the project team can look up to Champions getting knowledge expertise & guidance for the quality of deliverable. The Process champions also ensure the uniformity of quality across platform, this also helps to implement the lesson learnt.

Sr. No.	Processes	Process Champion	Lead Function	Support Function
1a	Project Initiation Phase		PMG	PL, PM
1b	Target Setting – Product Target		Customer Care	PL, System Team
	Target Setting - Quality & Reliability		QP	PL
2	Part Development Process & Associated Documentation		System Lead	EDMM
3	Project & Risk Plan (Assumption Analysis)		PMO	PH/PL/Functional Leads

Image 7 – Process Champions

4. Project Performance Indicator - Composite Project Rating.

We always plan for the future, the realistic planning considers the past performance rate. If we do not consider past performance rate the plan can never be reality. In any project it is required to reflect on past project performance to decide future course of action plan. At Mahindra, we reflect on past project performance with a Project Performance Indicator called as Composite Project Rating (CPR).

The CPR Score is a perfect representation of project performance it captures project performance in terms of

1. Time Adherence
2. Quality Adherence (Both Process as well as Product Quality)
3. Material Cost Adherence
4. Project Budget Adherence

The CPR is an indicator of Project health which consider above critical parameters. The most important aspect in an automobile industry is timely delivery of the project in market. The delay not only results into loss of volumes but also affects first mover advantage, in a way it's a double blow to an organization. First you have to get into the market on time, once your product are in market Quality of Product along with cost influences customer buying pattern. Quality & Cost of product differentiate your product with competition. Exactly these consideration were considered while deciding the weightages of time, quality, and cost were considered in Composite Project Rating. It makes it truly Composite.

At Mahindra, the intent of CPR score calculation is not merely limited to reflecting on past project performance but to decide on future trajectory. It also used for aligning CFT member's accountability & responsibility. The CPR score will be one of the Key Performance Indicator for the respective CFT member. This not only ensures the involvement of team members on project, but also improves the quality of deliverables completion as Quality is one of the parameter of CPR. This delegates respective responsibility to project team member & brings his ownership on the project

5. Conclusion

Gateway Audit analysis has helped in establishing the action plan for improving the Quality score of projects. The Process Champions has started helping to integration & synchronizing the inputs across platform. It is really helping project teams implement lesson learnt for respective deliverables & its relation with consequential deliverables. This is also helping to improve overall CPR score for the projects. Overall Project Performance is identified as Key Performance Area for respective CFT member which has enhanced the ownership on the projects. The outcome has helped us to improve up on First time right Product & also enhance the skills of people working on the project. Now people are empowered to handle more complex projects.

Success is not the destination, it's a Journey. The above step will definitely improve the Project execution in MTBD. It will also enable more way to enhance it even further. The Gateway audit analysis & Project Performance Index has enabled us to elevate the project performance which will help organization achieve sustainable growth & business goals, thereby contributing to overall economic growth.

6. References

1. M&M Gateway Audit Assessment Process
2. M&M Intranet Website
3. MTBD Process & Policies

7. Abbreviations

CFT	- Cross Functional Team
CPR	- Composite Project Rating
M&M	- Mahindra & Mahindra
MPDS	- Mahindra Product Development System
MTBD	- Mahindra Trucks & Bus Division
PD	- Product Development
PQO	- Project Quality Office
RYG Status	- Red, Yellow & Green Status