

The Performance Metrics Dashboard – A Powerful Executive Management Tool

A dashboard is a simply way for executives to monitor key performance metrics from across the business. Typically, a dashboard is designed to support the following key objectives:

- To provide visual representation of key business areas. Usually, a traffic light (green, amber, red) concept is used to visually identify the status of performance indicators for the areas being monitored. Green status signals that all's well. Amber is a cause for alert – an early warning and proactive measures to change to a green status. Red is a cause for immediate corrective action, and a full performance review may be suggested.
- To provide contextual usefulness (interpretation) of data and performance results. Various indicators are selected for different levels of management and roles. Project measurements may be useful and appropriate for senior management, project managers, and anyone else from the project team. Project measurements roll up into organization measurements for executive management.

The choice of performance indicators is the key to a successful implementation of the dashboard and may include analysis, correlations and graphical representation of performance data, and trend analysis.

This presentation write-up describes the dashboard implementation in CMC Limited as a powerful executive management tool.

Why a Performance Metrics Dashboard?

Dashboard is a well-proven performance management practice that provides an organization wide perspective of business performance across multiple dimensions. Business performance indicators are defined in line with organization's business objectives /goals; measures at each level roll up (aggregate) to higher indicators, thus providing a means to assess performance at an organization level.

A dashboard enforces clear articulation of organizations business objectives/goals and management expectations. The organizations process improvement initiatives are aligned and directed towards the business expectations of stakeholders. Business data is converted into action-oriented information; the actions are coordinated amongst diverse stakeholders and the execution aligned with the strategic goals.

A dashboard implementation within an organization will standardize data sharing and performance measurement practices across the enterprise. Performance data from various data sources is consolidated and presented to the decision makers. Decisions are based on fact rather than judgmental inference, performance metrics are used to drive productivity and the dashboard implementation provides a platform for business and operational excellence. The dashboard also facilitates and ensures goal alignment across the organization, thus establishing the foundation for benchmarking organizational processes.

In essence, the dashboard facilitates the alignment of people, supports the implementation of strategies and provides a means to measure performance at various levels, and across multiple dimensions.

The Performance Management Model

The performance management model is based on three distinct management actions:

Setting Expectations for Performance

The cycle of alignment with corporate strategies begins with an assessment of organization's preparedness for a change along with a review or establishment of corporate mission /vision. Corporate objectives and goals are finalized in line with its management philosophy and communicated to all stakeholders involved in execution of the strategy.

Business performance indicators are defined in line with organization's business objectives /goals. These indicators, associated metrics and measurements serve to define the data elements of the dashboard.

Establishing Action Plans and Executing them to Achieve Desired Performance

The organization's strategy translates into plans – Business /operational /projects /services /technology /training and other plans with well-defined action plans and milestones. The execution of these plans feed data to the dashboard.

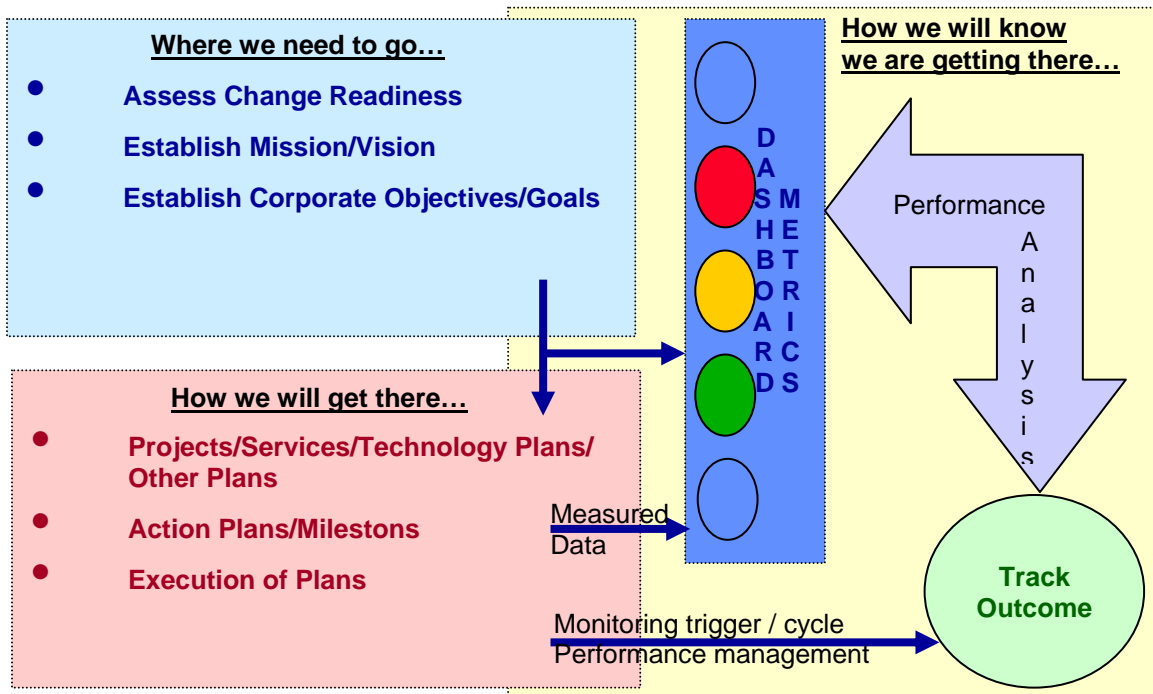
The dashboard (with data) provides visibility /insight into project /organizational performance.

Tracking Progress

The visual representation of project /organizational performance through the “traffic light” provides the alerts (triggers) for timely corrective action. The dashboard also serves as a performance diagnostic tool – facilitating informed decisions rather than judgmental inferences. Also, it promotes a collaborative approach to close findings and decisions through coordinated actions amongst diverse stakeholders.

The performance management model is generic – the dashboard can be designed to adopt various management philosophies and can be easily modified to support hybrids and in-house initiatives.

The Performance Management Model



Evolution of Performance Metrics Dashboard at CMC

The dashboard at CMC has evolved with the process improvement initiatives of CMC (Western Region). It started as a simple management tool, focusing on engineering practices, to provide a consolidated view of project's performance. This was in 2001 when CMC was assessed at S/w-CMM level 3. During CMC's level 4 initiatives, the dashboard was enhanced to include project management data as well as business performance indicators from sales performance. As the performance of projects improved and aligned to management targets, the design of the dashboard underwent a major change towards business performance. When CMC was assessed at level 5 in April 2003, its business planning processes were also brought under the purview of assessment; the dashboard displayed data from projects, sales, and regional profitability.

At this time, the company experienced a major change – the status of the company changed from a government/public sector owned enterprise to a member of the Tata Group of Companies. There was a demand to align the business and operational processes to the parent/group company and a need to get alignment across all strategic business units and locations. With the dashboard, this alignment was easily achieved.

Setting up the Performance Metrics Dashboard

The effectiveness of the dashboard is described through the Key Performance Indicators (KPIs) and associated metrics that an organization chooses to implement. Identifying the right KPIs is essential to correctly reflect the management philosophy. The responsibility for ensuring this rests with several individuals/groups. The process advisory board and various steering committees have a significant role to play in finalizing the KPIs. Moreover, feedback is sought from Executive Management before the performance metrics program is rolled out to the organization. Also, organizations must establish a mechanism for periodic review of KPIs based on changed management philosophies /objectives /goals, and the demonstrated performance of the organization.

The requirements for a dashboard are thus summarized as follows:

- An important point for consideration is the target audience. To ensure alignment with management goals, the dashboard must target all levels of the organization through the identified KPIs and associated metrics. That is, individuals must be able to relate the KPIs and goals in the context of their work.
- To undertake meaningful analysis through measured data, summarization at various levels is recommended. Typically, summarization would happen at a level where action plans can be implemented with single ownership. Accordingly, autonomous units / profit centre-wise summarization may be

necessitated. The following dimensions were used in the summarization and analysis of measured data:

- Organization /department (strategic business unit)
 - Business areas determined by profit centre location /industry practice /service practice.
- Drill down through connecting levels and links of the key business area must also be facilitated for further analysis. Finally, the “owners” must undertake proactive correction through recommendations based on current performance and trends demonstrated through the data.

Dashboard Perspectives

Typically, a balanced scorecard approach is adopted when identifying the KPIs. This ensures that a full view of the organization is considered. More importantly, a corporate perspective allows for correlating organizational performance across the distinct perspectives of financial, customer, internal, and learning and growth.

The following critical success areas were identified across the four perspectives.

- Financial Performance – business results, market growth, sales force performance, strategic partnerships
- Customer – customer retention (satisfaction)
- Internal – project performance (quality), business excellence enablers
- Learning and Growth – organizational effectiveness (survey), technology penetration, training alliances

Fundamentally, the business objectives of the organization serve to describe the inputs when designing the dashboard. A mapping of dashboard perspectives to the business objectives translates to KPIs /metrics for the dashboard implementation.

The following is a summary of the business objectives (and KPIs) of CMC that were considered when designing the dashboard:

Financial Objectives

- Revenue /BDE 10CR with profitability 2CR
 - Sales performance – target vs achievement
 - Sales productivity – prospect conversion ratio, cycle time
- Revenue from new customers – should target 35% of total revenue
 - Business from new customers / total revenue
 - Revenue from acquired strategic partnerships
- Minimal Value Addition 1L per person month with an established exit criteria 60K per month

- Revenue from overseas project – 30% of total revenue

Non-financial Objectives

- Customer retention (satisfaction) 90%
 - CMC share of customer IT spend
 - Lost business opportunities with existing customers
 - Customer satisfaction index (survey)
 - Rolling 12 month outstanding / revenue ratio
- Quality of service and delivery
 - Schedule variance /schedule slippage 0 days
 - Defect density /Testing effectiveness 95%
 - MTTR /MTTS
- Manpower utilization – 95%
 - Productivity
 - Effort variance
 - Training effectiveness
- Employee satisfaction
 - Index (survey)
 - Salary – best in class for top 5%
- R&D projects/year – 2
 - Number of R&D projects moving to productization
- Reusable components/project – 1
- Advanced certification for 85% of employees
 - Number of professional certifications in line with business strategy
- Salary – best in class for top 5%
- World class infrastructure

The performance indicators address the varied needs of individuals at different levels, namely, executives, senior management and project managers. The organization structure is also an important point of consideration. Given the type and sensitivity of data, appropriate security also needs to be implemented based on access rights/roles in the organization.

The data for performance indicators comes from one or more of sales and CRM systems, projects, finance and accounts. It is important to isolate the data source for each performance indicator individually; that is, which system(s) or database(s) is an authentic data source and how will the data feed to the dashboard. That is, information design with respect to data sources as well as process for data cleaning, data review and data aggregation, roll-up and drill-down analysis, is also a fundamental requirement for establishing a dashboard.

To summarize, the identification of performance indicators is based on a need to establish factual data by categorizing information and identifying data sources in line with the objectives of the dashboard.

Dashboard Implementation

Once there is agreement on dashboard design, the implementation process begins. The implementation must be simplistic – easily usable, accessible and adaptable. The rules for access/update along with ownership for data must be clearly defined.

Effective dashboards require live data feeds with “real-time” data; the data integration process is complex because of multiple data sources. The definition of “real-time” is broad and would cover various cases:

- Online data from running systems.
- Export (batch) of data from one or more systems.
- Knowing the needs of the executive management and the current processes of the company, a decision on how current the data needs to be on the dashboard is taken. There is data that flows weekly, fortnightly, monthly, quarterly and half-yearly.
- Data that is consolidated, maintained and archived would also be used for trend analysis.

A typical dashboard implementation follows the **Plan-Do-Check-Act** cycle. Implementation steps include:

Plan

- Identify dashboard indicators.
- Assess feasibility and identify data source(s).
- Assign metric (data) accountability.
- Develop implementation plan (define data flows, periodicity, and establish timeline)
- Describe monitoring, interpretation, feedback, corrective procedures /guidelines

Do

- Collect metrics data
- Compute KPIs
- Establish targets, internal /external benchmarks

Check

- Assess performance (vis-à-vis targets /benchmarks)
- Generate recommendations

Act

- Implement actions (in support of recommendations)

A successful implementation of a dashboard requires an organization to demonstrate sound measurement and improvement processes. The pre-requisites for implementing a dashboard are:

- Clearly articulated business and dashboard objectives.
- A well-established measurement program that ensures consistent and valid data.
- Quantitative management insight – statistical analysis and interpretation of data
- Basic technology infrastructure that supports fixed data sources, access and consolidation mechanisms, and performance results publishing

The key players in the implementation cycle are:

- Executive Management
- Senior Management
- Sales Manager(s)
- Project Manager(s)
- Test and QA Manager(s)
- Data Manager(s)

Evolution of Data

In starting a dashboard initiative, an organization must adopt an evolutionary approach. In CMC, the dashboard was driven by a need for strong internalization of processes and the need to see a quick ROI from process improvement efforts – CMM/ITIL/Six Sigma/CMMI. CMC's approach was based on the following focus:

- Initiated for systems engineering processes
- Spread to include sales processes
- Enhanced for business (financial) perspective

Clearly, there is inter-dependency between the focus of an organization and the maturity of its processes. The evolution of KPIs is determined by the availability and maturity of data, usefulness (value) of the data, and the organization's maturity in quantitative analysis.

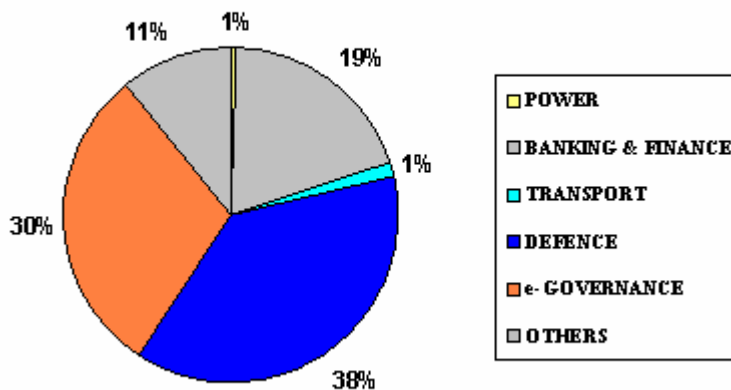
Power of the Dashboard

The performance metrics dashboard is targeted to the Executive Management, the primary purpose being to consolidate critical information that includes financial and operational data from varied data sources. The data from the field is rolled up to answer fundamental questions about the business at different levels of stratification and aggregation.

The power of the dashboard to support the decision process and facilitate proactive actions in alignment to recommendations and the addressal of risks is demonstrated through the following performance views on CMC data. The performance views are based on CMC's financial /non-financial goals and associated KPIs as described earlier. The drill-down on data will be demonstrated through a set of associated KPIs.

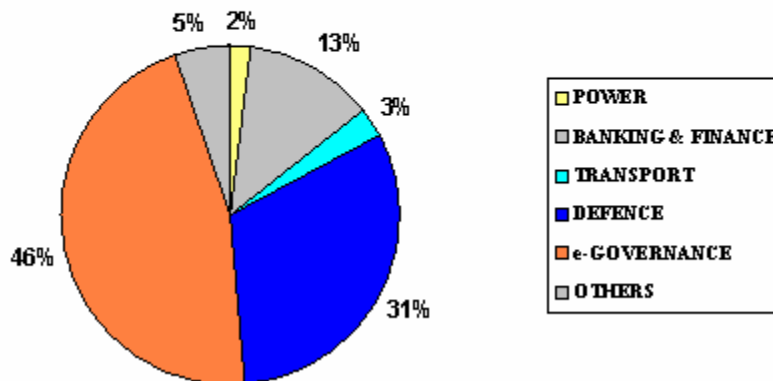
Following charts show IP wise sales and revenue - VA figures for 2003-2004 :

IP Wise – Sales 2003-2004



Need... transport and power sector need to be reviewed

IP Wise – Rev-VA 2003-2004

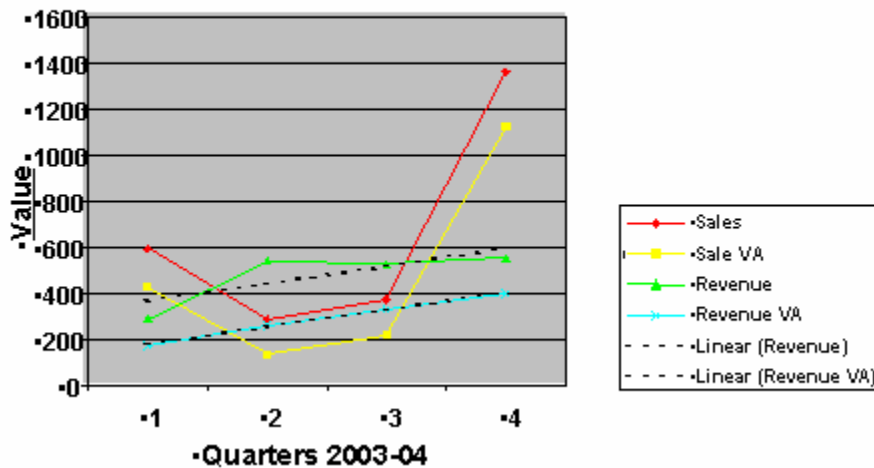


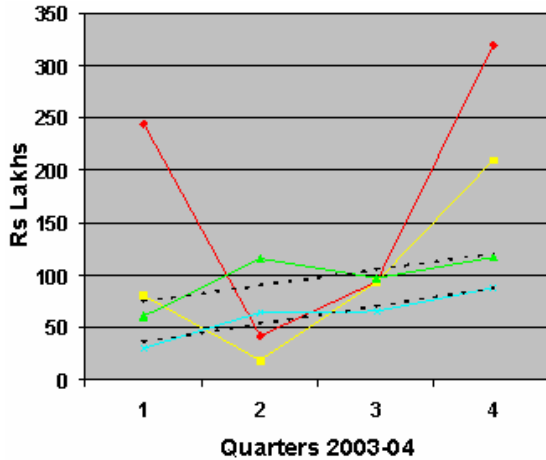
The figures indicate that contribution to Sales and Revenue-VA from power and transport IP are quite low. On further analyzing and drilling down to sales force deployment in these sectors, the effort utilization data, the expenses, and win/loss ratio, the figures call for a review in the strategy of these two sectors.

Major share of the company revenue has been through sale of hardware and infrastructure development. The strategy of the company in the changed scenario has been to use the existing customer base to leverage the VA services expertise and increase profitability.

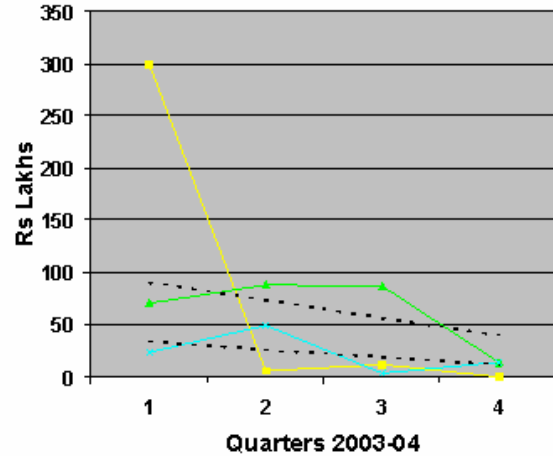
The figures below track the above strategy of the executive management.

Regional Performance : 2003-04

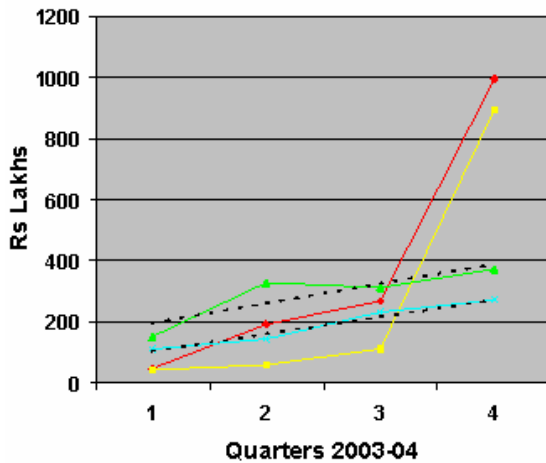




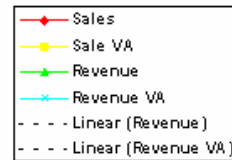
Location 1



Location 2



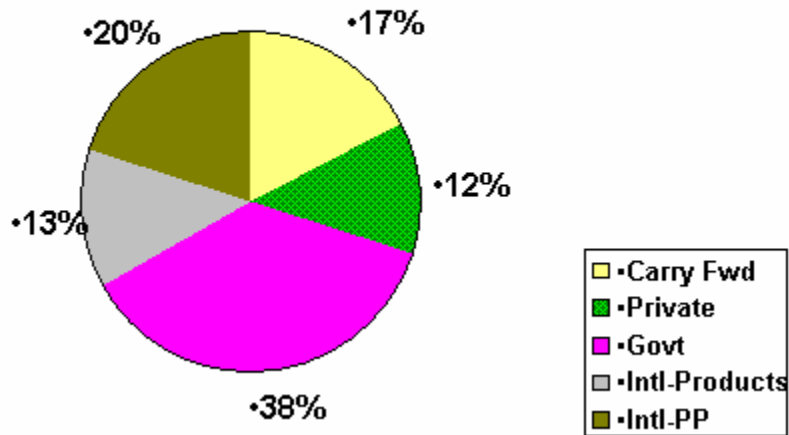
Location 3



Drill-down Quarter-wise performance

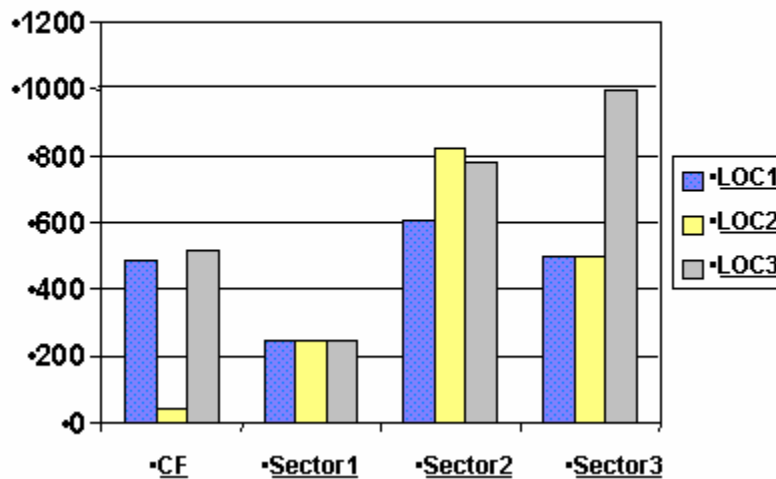
The figures below show sector wise revenue generation. The bar graph shows a summary of location wise performance on revenue generation. The dashboard provides a sector-wise revenue generation summary with a location-wise breakup.

Revenue Generation

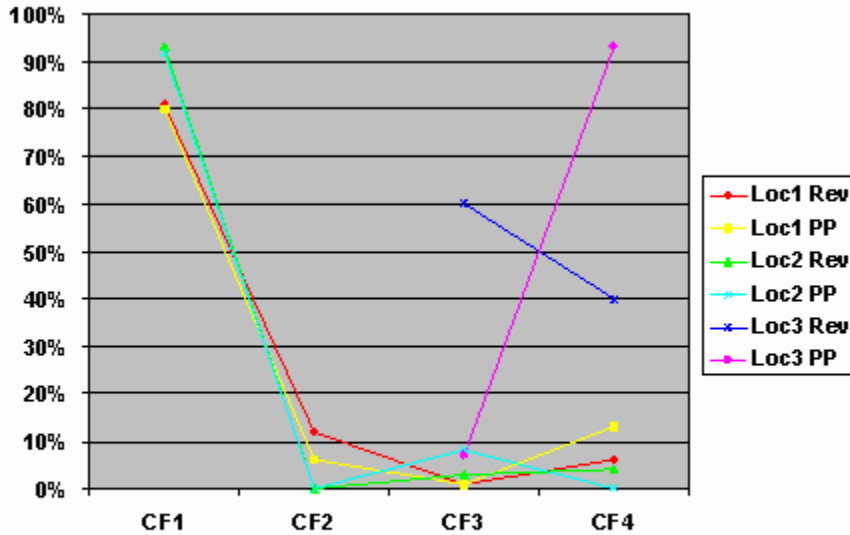


Taking it further, a drill down could be a distribution against the break-ups below for each sector from different locations.

Revenue Generation



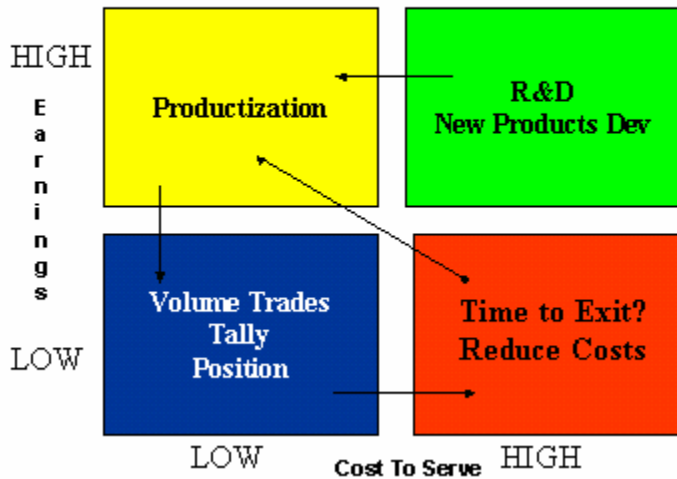
Analyzing location wise Person-Power vis-à-vis Carry Forward revenue generated (graph below), the data indicates that PP deployment strategy in location3 is not aligned and requires corrective action.



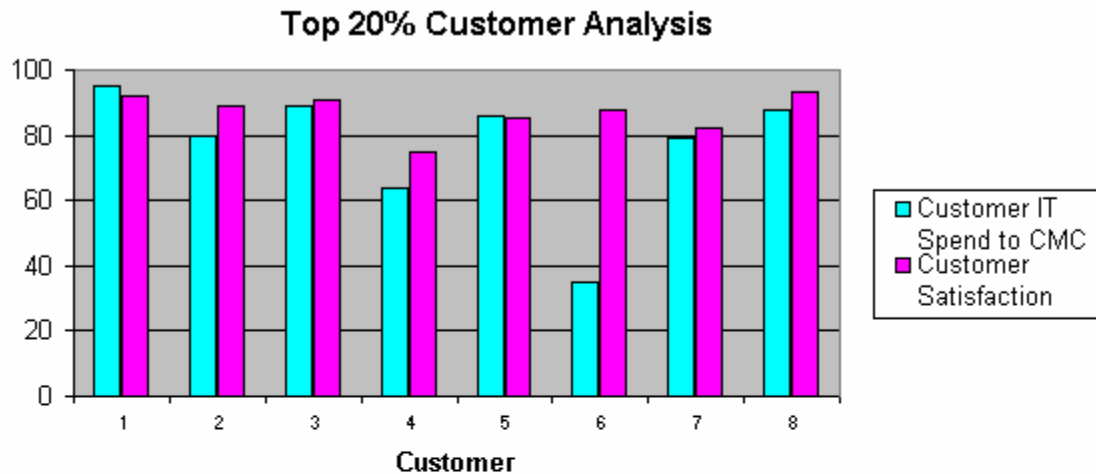
CF Revenue Vs PP Deployment

The alignment of R&D groups with the business strategy is determined by defining quantitative criteria for productizing R&D work. Also, tracking the overall profitability against revenue generation helps to define the exit criteria from products and customers.

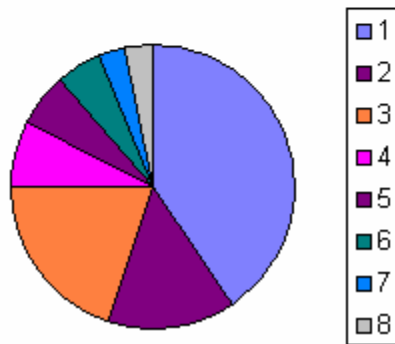
Earnings versus Cost



Customer Retention in the government sector is 95 % whereas retention of major customers in the private sector is 70%. Customer retention is measured in terms of percentage of IT spend of existing customers.

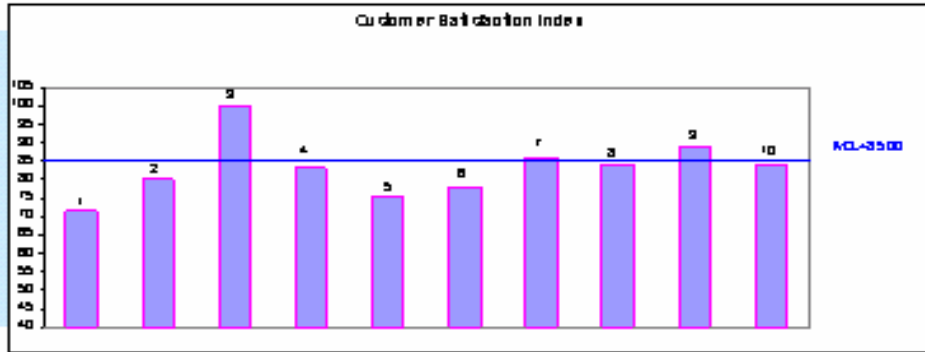


Customer -Wise Revenue Distribution

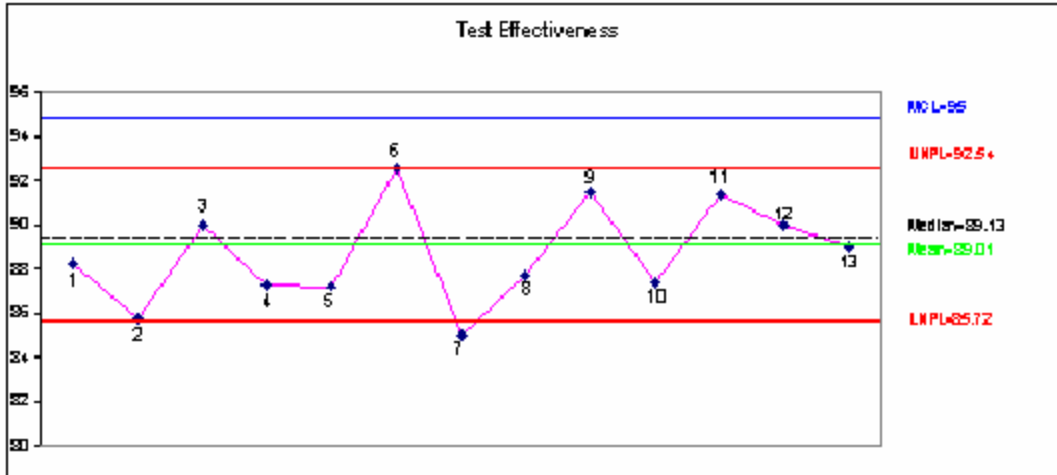


The chart below shows customer satisfaction level against a target of 95% for all customers. Satisfaction index for customers in the private sector is in the range of 70 – 75 %. (This index is computed based on a survey - internal as well as external executed half-yearly).

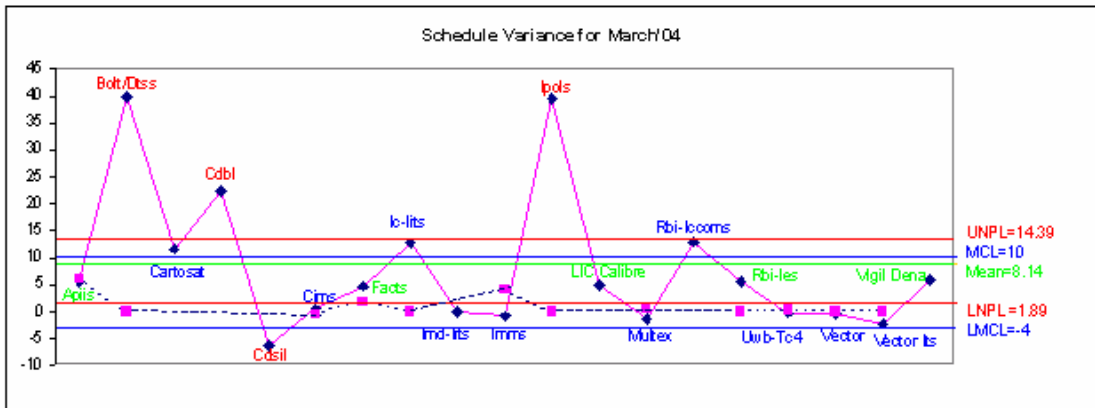
Customer Satisfaction



Customer satisfaction data was analysed and the engineering activities associated with the quality and timeliness of service/delivery. The Test Effectiveness of the projects completed in the last quarter was analyzed. The mean value is yet to reach the management's target of 95 %, which will bring the organization's figures within the best-in class value.



Management has fixed the target for schedule slippage at zero days and to achieve this, schedule variance (original and revised) is monitored very closely. In case of effort variance, projects report effort utilization data per month, which is also backed by the effort variance on the project. There is an MCL at -10% EV to contain surplus resource on projects. The process contributes management target of 95 % effort utilization.



Data points are moving average for 3 months

UNPL and LNPL are 0.5 sigma values

: Within Management Control Limits and Natural Process Limits

: Beyond Management Control Limits and out of Natural Process Limits - immediate corrective action required

: Within Upper Natural Process Limit but beyond Management Control Limit and within Lower Management Control Limit but beyond Lower Natural Process Limit - Call for an alarm

— : Schedule Variance (Original)

- - - - : Schedule Variance (Revised)

General Benefits of the Dashboard

While the power of the dashboard has been demonstrated through the analysis of certain KPIs in CMC's content, the overall benefits of a dashboard implementation may still be generalized as follows:

Focus on Key Business Processes

Corporate vision and strategy has guided the development and the implementation of organizations tactical plans. Since the strategy, goals and targets are clearly articulated, the key business process areas can be identified. Hence the performance in these areas is tracked and monitored resulting in focused effort of the organization in these areas.

Goal Alignment

The dashboard is generated through a collaborative effort of the projects, sales force, finance and accounts, and process improvement groups. The management expectations are clearly articulated and quantified and the dashboard is accessible to all stakeholders. It is thus a powerful tool for goal alignment across the organization.

Management Visibility

The metrics dashboard ensures total transparency in operations to the lowest level and provides visibility to executive management on organizational performance (against the set targets /goals) across various levels and dimensions, allowing correlations on the data to be established.

Coherent Actions

Since diverse groups at all levels within the organization look at the same metrics data, and since the management expectations are clearly defined, coherent action plans may be formulated across the stakeholders to achieve the desired levels of performance.

Competition

Finally, the dashboard induces peer pressure and healthy competition in the organization and a self-sustained process improvement culture.

ROI from a Dashboard Implementation

Traditional productivity gain is one of the direct ROI of a dashboard implementation. On account of transparency of operations, proactive tracking using well defined monitoring mechanism and the right indicators to assist decision-making and timely corrective actions. This results in a highly productivity sales force, improved product /service deliveries and easy monitoring of expenses, cash flows and operating profits.

Second /third-tier benefits are seen through better (proactive) project tracking with timely corrective action. The monitoring mechanisms are well-defined.

Critical Success Factors for a Strong Implementation of the Dashboard

CMC has reaped good benefits from the dashboard. This has been possible due to the sound measurement foundation that the organization has had. There is an organization-wide measurement program and the quantitative management plan along with targets for each segment of the organization. Identifying the right metrics (all levels of the organization) is key – the selected metrics should be reliable indicators of performance. In CMC, the measures /metrics have evolved over a period of four years now and they have proven to be reliable indicators of performance.

Every 3-6 months, the executive dashboard goes through a quick check-up or recalibration. This exercise evaluates the fit between strategies, leadership style, organization processes and information systems and the dashboard measures /metrics. Typically, this is aligned with the assessment of the organizations measurement program.

The infrastructure and process to consolidate the data has been facilitated by the process improvement group under the guidance of the Process Advisory Board. The process framework and supporting technology infrastructure supports the implementation. Moreover, metrics have been identified for the monitoring process.

A strong data analytical ability must be developed and encouraged. Maturity in interpreting metrics, analyzing results, establishing contextual analysis through correlations, and translating performance metrics into clear improvement opportunities usually builds over time though a collaborative interpretation of the data values at various levels, and is primarily driven through realistic targets that are set at the lowest levels.

In CMC, the dashboard has fully integrated with the way the organization works. There is ownership on the goals /targets and accountability for results. The data analysis of performance metrics translates into clear improvement opportunities, which is backed by a strong improvement process. So, there is an ownership for timely corrective actions facilitated by the organization's environment for continuous process improvement.

A recommendation, start simple, ensure usefulness, acquire buy-in and establish ownership for (data) results.

Pitfalls

Common error to avoid is the selection of sophisticated tools when starting a dashboard initiative. There are misconceptions that the success of a dashboard initiative is dependent on the IT spend. An organization must leverage the existing technology infrastructure – a low-cost (MS-office/HTML generator) is as

effective as high-cost (collaborative dashboard solutions from BI vendors). More importantly, reconsider the KPIs /metrics rather than the tools when the desired results are not seen – what matters is the right choice of metrics, right data source (no sampling), current and meaningful data upload to dashboard and ownership for data.

Annexure 1 - About CMC

CMC is one of the leading Systems Integrator in the country with multi-faceted expertise in Information Technology. CMC has extensive expertise in real time, on-line systems, process control, transaction processing, image processing, data communications, networking, parallel architecture etc. As an organization, it is structured into the following five Strategic Business Units.

System Integration

System Integration SBU develops Software and offers other allied services like System Study, System Design, Software Maintenance, System Integration etc.

Customer Services

Customer Services SBU is the IT infrastructure development unit that procures Hardware, supplies and commissions it to its customers. This SBU also offers services such as Hardware Maintenance, Facilities Management and Networking.

Education & Training

CMC Limited offers a wide range of Education & Training services, both in India and abroad. CMC has training centers apart from 26 other franchisee centers. CMC also organizes courses at any other city if desired by the customer.

IT Enabled Services (ITES)

ITES is CMC's data network, which supports both TCP/IP and X.25 Network Protocols. It is approved by the Department of Telecommunications.

International Business

Globalisation of CMC's products and services is a thrust area for the company and is provided by our International Operations SBU.