Use of performance dashboards in health care project management: a case of an international health development organization in Kenya

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Abstract

In this paper we document the use of dashboards in health care project management in an international health non-governmental organization. All projects at the organization monitor output performance on specific indicators against set targets and report these as project outputs performance report every month. In addition, projects prepare quality improvement report, compliance report and financial report. The four reports are then used to generate the monthly integrated performance monitoring and management dashboard which is shared with all staff and used by project managers and programme directors to review projects performance in the 4 parameters of measure and then used to provide appropriate technical support. We conducted a client satisfaction survey among staff to assess their levels of satisfaction with the dashboard and it came out that staff consider the dashboard as a "must have" monthly project management tool as it results in timely measurement of projects' financial performance, programmatic performance, quality of service performance and compliance performance at a glance without the need to go through detailed reports. Programme directors and project managers use the dashboard to quickly identify hotspots, detect outliers in indicators of measure in a project and use this to deeply analyse possible causes of poor performance in projects for targeted technical assistance.

Motivation for dashboards

In today's busy organizations, programme directors and project managers supervise more than one project and they need to know exactly how the projects they are responsible for are performing on a regular basis. However, they rarely have the time to read through detailed status reports covering all aspects of the projects. In most cases, these leaders manage multiple projects and need to know at a glance whether a particular project is on track with delivering targets in a timely manner and within budget. Project dashboards could be used to address this predicament of "time versus information". Dashboards originated from the automobile industry; a practical example is a car's dashboard which, at a glance, provides immediate and up-to-date information about the performance of the vehicle with regard to speed, amount of gas in the tank, engine temperature, etc. In a similar manner, project dashboards provide immediate and up-to-date information about the project's progress. Dashboards are therefore

defined as visual display mechanisms used in an operationally oriented performance measurement system that measures performance against targets and thresholds using right-time data [**1**]. A common and easily understood approach to using dashboards is to use red, yellow, or green colours that quickly identify whether the various parameters being measured are in good shape (green), require attention (yellow) or require urgent attention (red). This simplistic nature of dashboards enables managers to quickly identify project parameters that require urgent technical assistance. It is, however, noted that a dashboard is only as good as the inputs and it is important to ensure that the right parameters are monitored, cataloguing of the measures are well understood, and it remains simple with minimum distractions. The aim of this paper is to document the use of dashboards in project management at Amref Health Africa in Kenya. As at December 2017, the non-governmental organization had a total of 37 projects under the following four programme areas: - HIV/AIDS, tuberculosis, malaria, and non-communicable diseases programme with 8 projects; water, basic sanitation and hygiene, and neglected tropical diseases programme with 11 projects; Reproductive, maternal, newborn, child, adolescent, and youth health and nutrition programme with 15 projects and Health systems strengthening programme with 3 projects. Each of the programme areas is led by a programme director who offers strategic leadership and governance. Additionally, each of the projects has a project manager who oversees the day-to-day implementation of the project activities. All projects prepare and submit the following monthly monitoring reports by the 5th of every month: 1) Project's output report, 2) Quality improvement report, 3) Compliance report and 4) Financial report. These reports are consolidated to make the monthly integrated performance monitoring and management dashboard. The monthly dashboard is reviewed by programme directors and project managers to identify projects that are performing well, those that require attention and those that require urgent attention for targeted technical support.

Measurement parameters

We describe each of the parameters which go into developing the monthly integrated performance monitoring and management dashboards.

1) Project outputs report: all projects report outputs that emerge from processing inputs through planned activities. The outputs are reported in form of people reached with various services, categorized by age and gender. The age categories used are: below 1 year, 1 - 4 years, 5 - 9 years, 10 - 14 years, 15 - 19 years, 20 - 24 years, 25 - 49 years and 50 years and above. Each of the age categories are reported by gender. **Table 1** shows an example of project outputs. The reported outputs are used to generate programmatic performance (P) for each of the projects calculated as "year-to-date" the actual number of people reached with various services in a particular project as the numerator (N) and "year-to-date" target number of people to be reached with various services as the denominator (D) and calculated as a percentage. This is expressed as:

$$P=(N/D)*100\%$$

2) Quality improvement report: is a quantitative report which is generated from implementing continuous quality improvement (CQI) activities in a project. The organization embraces Plan-Do-Study-Act (PDSA) model as the primary tool to institutionalizing CQI processes. The PDSA cycle largely involves identifying a problem, analysing the problem, developing potential interventions to the problem, executing the proposed interventions in small scale, studying the results by gathering data emerging from the implementation of the proposed interventions and assessing whether the desired goals are achieved. If the goal is achieved, identify systematic changes and training needs for full implementation, plan on-going monitoring of the solution, and continue to look for incremental improvements to refine the solution, spread/scale up the improvement. If the goal is not achieved, refine the proposed interventions and try again as a pilot project. From implementing the above PDSA model, projects report on quality improvement indicators. **Table 2**, is an example of quality of service indicators by programme areas. Quality improvement performance (Q) is calculated as a percentage by dividing the achievements (numerator- N) and the targets (Denominator- D) and expressed as a percentage.

$$Q=(N/D)*100\%$$

3)Compliance report: is a quantitative report measuring staff adherence to organization and donor policies and procedures. **Table 3** is a sample of compliance areas and indicators reported by projects every month.

4) Project financial report: is generated at the Finance Department as a result of projects financial consumption in comparison to the board approved budgets. Financial performance (F) is calculated as "year-to-date" financial expenditure as the numerator (N) divided by "year-to-date" board approved budget as the denominator (D) and calculated as a percentage. This is expressed as:

$$F=(N/D)*100\%$$

Generating integrated dashboards

From the four reports, performance of 120% and above is categorised as over-performance (purple), performance between 80% and 119% is on track (green), performance between 60% and 79% needs close monitoring (yellow), and performance between 0% and 59% requires urgent attention (red). The programme directors and project managers use the dashboard to review projects performance in the 4 parameters and highlight early indications of progress or lack thereof in achievement of results or issues to do with the quality of project implementation. The consolidated dashboard is then shared with all staff with specific action points, presented at Senior Management Team (SMT) meetings and board of management meetings. **Table 4** is a sample of April 2017 integrated performance monitoring and management dashboard for selected projects.

Client satisfaction survey

To assess the levels of satisfaction with the integrated performance monitoring and management dashboard, we conducted a client satisfaction survey among staff who are the users of the dashboard. The satisfaction levels were measured using the likert scale: strongly agree, agree, disagree, strongly disagree and no opinion and the summary of the findings is as follows: about three-quarter (75%) of the respondents agree that the dashboard has become a "must have" monthly project management tool, 65% of the respondents agree that the dashboard helps with quick analysis of projects performance in the four parameters measured. In addition, 75% of the respondents agree that the dashboard is simple and easy to understand. Similarly, 75% of the respondents agree that the dashboard helps with quick identification of hotspots for targeted technical support. The following are some of the benefits of using the dashboard as shared by the respondents during an in-depth interview:

"Before it was very difficult to establish the trend of project performance, and even comparing performances of different projects was difficult but with the dashboard it's easy," said a project officer.

"Before we could not see at a glance where improvement was needed, this problem was solved by the use of a dashboard," remarked a project manager.

"Before the introduction of the dashboard, we were submitting separate reports using different formats. The dashboard has helped unify the reporting. The dashboard is also time bound and this necessitates need to have reports done on time," said a project officer.

However, one project manager had this to say: *"It has made little difference in the management of my projects."*

Projects performance after one year

We present findings of a review of projects performance for the period January 2016 to December 2016 when the organization used the integrated performance monitoring and management dashboard:

• **Financial performance:** the proportion of projects scoring red reduced from 38% in Quarter 1 (Q1) to 6% in Q4 (Quarter 4), and those scoring green significantly increased from 38% in Q1 to 68% in Q4

• **Programmatic performance:** proportion of projects scoring red reduced from 38% in Q1 to 10% in Q4 and projects scoring green increased from 25% in Q1 to 68% in Q4

• **Quality of service performance:** the proportion of projects scoring red and yellow reduced from 30% and 31% in Q1 to 27% and 3% in Q4 respectively while the proportion of projects scoring green significantly increased from 39% in Q1 to 70% in Q4.

• **Compliance performance:** the proportion of projects scoring red and yellow reduced from 56% and 22% in Q1 to 14% and 0% in Q4 respectively while the proportion of projects scoring green significantly increased from 22% in Q1 to 86% in Q4.

Figure 1 summarises the findings and demonstrates improved project performance in the four parameters of measure.

Lessons learnt

In this paper, the findings show that use of dashboards in project management has become popular among staff who consider these as "must have" project management tools. The staff have demonstrated the importance of dashboards in quick analysis of projects performance in the four parameters of measure and use these to monitor performance towards achieving the projects targets which contribute to achieving organizational objectives. The use of dashboards at the organization is sustained by the leadership that embraces its use and proper definition of the parameters of measure. The organizations' SMT insists on reviewing the dashboards every month for purposes of understanding the measures put in place by the programme directors and managers to address the hotspots. SMT has been doing this for a period of more than two years, a practice which has greatly sustained the use of dashboards within the organization. It is therefore important for senior management in an organization to stay involved to keep the dashboard initiative in the forefront [**2**, **3**]. Similarly, the dashboard is reviewed by the organization's board of management every quarter to keep abreast of programs performance progress.The improvements in project performance during the period January 2016 to December 2016 demonstrate that dashboards can be useful in improving project performance when consistently reviewed for action.

Conclusion

Use of dashboards in health care project management results in timely measurement of projects parameters such as financial performance, programmatic performance, quality of service performance and compliance to policies and procedures at a glance without the need to go through many project reports. This leads to quick identification of hotspots, detection of outliers, deep analyses of possible causes of poor performance in projects for targeted technical assistance. Programme directors, project managers, and other technical staff should encourage the use of such dashboards to design effective technical assistance remedies which lead to improved project performance hence overall improvement in quality of health care delivered in projects.

Competing interests

Authors declare no competing interests.

Authors' contributions

All the authors contributed to the development of the manuscript in one way or another. Samuel Muhula, Yvonne Opanga, and Peter Memiah contributed to the writing of the manuscript. Samuel Muhula reviewed project reports, summarised the data and interpretation of results. Maureen Kuyo, Zahida Qureshi, Meshack Ndirangu, and Peter Memiah critically reviewed and revised the manuscript including refinement of the ideas. All authors read and approved the final manuscript for publication.

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Tables and figure

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