What is a Dashboard?

The term dashboard is used to describe the transformation of critical data into practical and actionable information through structure and visuals (e.g., graphs, maps, gauges, etc.) that provide managers and decision makers with information concerning a system’s past performance, its potential future performance and trends over time.

One analogy is a car dashboard where at a glance the driver sees:

- How fast the car is moving
- The distance travelled
- The amount of fuel remaining
- Whether the car is performing as expected

The car dashboard transforms complex data – for example, from the engine – into selective information that is useful to the driver but also requires analysis and interpretation. The engine warning light does not reveal the root causes...
that prompted its activation, but it does tell the driver to seek the assistance of a technician who can diagnose and resolve the problem.

The same applies to the immunization supply chain dashboard: It gives managers at any level of the supply chain the information necessary to make evidence-based decisions and take action informed by awareness of the larger context of the immunization programme. Dashboards are used by managers at diverse levels of a supply chain to better operate and plan activities. An immunization supply chain dashboard should help these users focus on the following key performance objectives:

- Availability of vaccines and immunization supplies
- Potency of vaccines
- Efficiency of the immunization supply chain

For the purposes of this document, it is important to stress that dashboards are not:

- Necessarily high-tech, nor do they require electronic data collection or comprehensive monitoring of all aspects of the supply chain. Manual, paper-based dashboards – in the hands of trained, goal-focused health workers and managers – are fully capable of providing the information necessary for evidence-based decision-making.
- Off-the-shelf tools; instead, they come in all shapes and sizes, tailored country by country according to the local context.
- Static charts and graphs; rather, they provide dynamic visualizations updated periodically to reveal key trends and actionable items for programme managers.
- A monitoring and evaluation framework, nor a periodic assessment, such as an Effective Vaccine Management (EVM) assessment.
In order for dashboards to be functional, the following components need to be linked seamlessly:

- **Technology (information systems):** The raw data that dashboard visualizations display are collected through the existing supply chain information systems within a given country. These information systems can include logistics management information systems (LMIS), distribution management, temperature monitoring and cold chain equipment monitoring.

- **People:** From the health facility workers who collect the raw data to the supervisors who take managerial actions based on the visualization, dashboards can be functional only with the avid participation of all relevant users.

- **Process:** Apart from the raw data required and the people required to put that data into action, adequate data collection, reporting and analysis processes, as well as supervisory practices, are all essential for realizing and adequately using dashboards.

**How do dashboards support your immunization programme?**

Having the right information at the right time is critical to making decisions about where and when to deliver immunization supplies. Dashboards give power through information for people to drive actions and change.

Dashboards – showing information such as where vaccines are needed, the rate of stock consumption and whether vaccines are adequately stored – provide a way for health workers to identify problems and determine possible corrective actions to take.

In summary, dashboards are beneficial because they can:

- identify important areas for performance improvement
- be used for advocacy to leadership
- support a results-driven organizational culture
- communicate progress and success at multiple levels
- be used to set goals for both team and processes
- support users and encourage feedback and feed-forward
- identify exceptions and signal alerts
- provide a common platform for interaction and data analysis
Depending on the speed of execution necessary for any given intervention, dashboards can be used to prompt three types of action: operational (urgent), tactical (medium-term) and strategic (long-term) action.

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Operational decisions (urgent)</th>
<th>Tactical decisions (medium-term)</th>
<th>Strategic decisions (long-term)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time frame</td>
<td>Day or week</td>
<td>Upcoming quarter and continuous</td>
<td>Annual planning cycle/next multi-year plan</td>
</tr>
<tr>
<td>Action</td>
<td>Repair broken cold chain equipment at health facility A</td>
<td>Change maintenance schedule and focus on preventive maintenance</td>
<td>Revise cold chain equipment specifications for national procurement</td>
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</tbody>
</table>

Operational actions address immediate programme needs, while tactical and strategic actions contribute to large-scale improvement of the immunization supply chain over a broader time span. Note that operational actions most often depend on the existence of processes and technology sophisticated enough to produce nearly real-time data, which may not be available in all country contexts. Accordingly, much of this guidance will focus on tactical and strategic actions based on dashboards.

The use of dashboards requires a distinct workflow, which can be visualized in the following manner:

In this generic example, health workers first collect and then report the data to the next level, where paper or electronic dashboards streamline, or ‘crunch’, data from what could be an overwhelming number of data points into indicator visualizations that are easily interpretable. The specific indicators used in the dashboard can clearly indicate areas that are performing well or performing poorly and, if the dashboard is electronic, even provide alarms. At this point, managers can provide health workers with the feedback and supervision necessary to address the problems immediately.
feedback and supervision necessary to address the problems immediately, but they can also initiate a root cause analysis to gain further insight into the reasons for the poor performance. From the supervision and root cause analysis, an adequate improvement plan for long-term actions can be drafted, and acting on it will ultimately improve both the indicator performance on the dashboard and the supply chain performance in general.

It should be stressed that although the dashboard can point out a problem, it often does not indicate its cause, meaning that further analysis is required to identify the right corrective action.

Figure 3 shows the results of a root cause analysis of a high rate of temperature alarms. The illustration indicates that the cold chain equipment is old, that there may be frequent power failures in the region and that there may be problems of human error or thermometer accuracy. Once the exact cause triggering the high alarm rate is found, the appropriate solution to the problem can be implemented.

The following country case study describes the above process in an actual setting.

Mozambique: Translating ‘visualize, analyse, improve’ into action.

In 2013, a new, electronic, approach to supply chain management was implemented in Niassa Province, the Sistema Dedicado de Logística (Dedicated Logistics System), aiming to increase on-time deliveries to 80 per cent and cold chain equipment uptime to above 95 per cent. Some of the challenges encountered in pursuing these goals, the root causes of poor performance and actions taken to resolve them are highlighted below:

**Problem identified: Distribution delays**

**Root cause:** Monthly vehicle maintenance was scheduled too close to each month’s delivery date, causing delays when maintenance was not finished on time.

**Action:** Vehicle maintenance was scheduled earlier each month to ensure that each vehicle was ready for each delivery round.

**Problem identified: Low cold chain equipment uptime**

**Root cause:** Lack of financial support to keep a cold chain technician...
on the delivery team lowered cold chain equipment uptime to the level it was before the technician joined the team.

**Action:** The dashboard was used to continuously advocate for more financial resources to keep the technician on the delivery team.

![Delivery intervals showing improvements starting in August after implementation of the improvement plan.](image)

An increase in uptime of the cold chain after the implementation of the improvement plan in August.