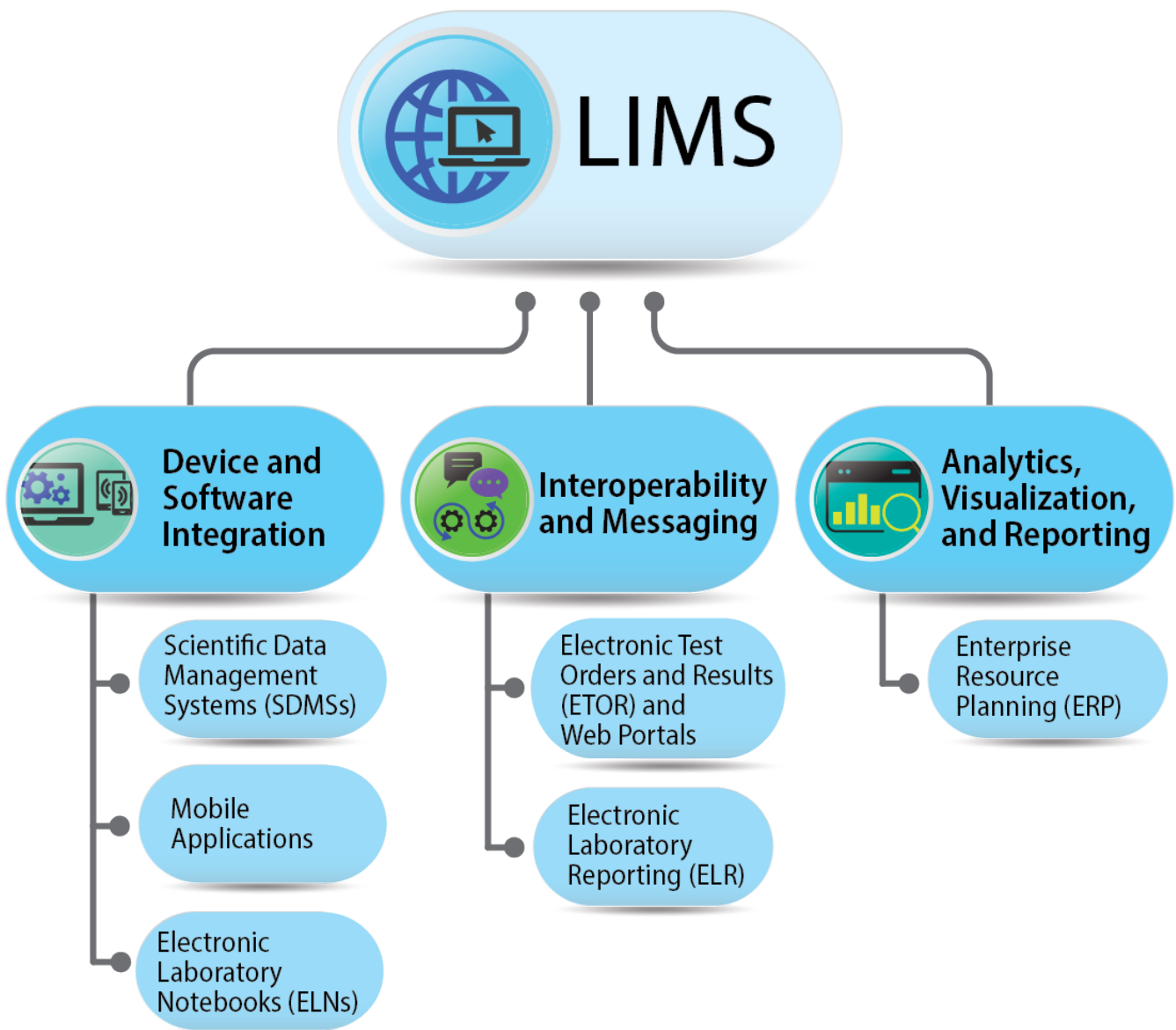


Laboratory Information Management System (LIMS): System of Systems Job Aid

Various information systems can work together as a “system of systems” that function together to fulfill the data and informatics needs of an organization. The laboratory information management system (LIMS) is an example of such a system of systems. The key principles for an LIMS system of systems approach are device and software integration, interoperability and messaging, and analytics, visualization, and reporting.

The LIMS as a system of systems:



Device and Software Integration

Device and software integration, also known as interfacing, with an LIMS can be unidirectional or bidirectional. Integration makes these activities faster and more efficient:

- Data and information input/output management
- Workflow management
- Data analysis, visualization, and validation
- Regulatory compliance control

These three items provide examples of integration with an LIMS:

- Electronic laboratory notebooks, which are alternatives to paper notebooks.
- Mobile applications, which connect securely to the LIMS from wireless devices in or out of the laboratory.
- Scientific data management systems, which are data warehouses used for document management.

Interoperability and Messaging

In information technology, interoperability is the ability of different systems and software applications to communicate, exchange data, and use exchanged data, regardless of their operating systems and physical design.

LIMS messaging helps laboratories manage and share data securely with third-party applications and stakeholders. Standardized LIMS messages support processes like electronic test orders and results, and electronic laboratory reporting.

Analytics, Visualization and Reporting

The LIMS provides many analytical, visualization, and reporting capabilities to support important functions:

- Communication with partners in patient care and public health.
- Administrative and managerial functions to run the laboratory via enterprise resource planning.