Elements of a Good Information System

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SIAPS Systems for Improved Access to Pharmaceuticals and Services

World Health Organization REGIONAL OFFICE FOR Europe

Stop TB Partnership

Overview

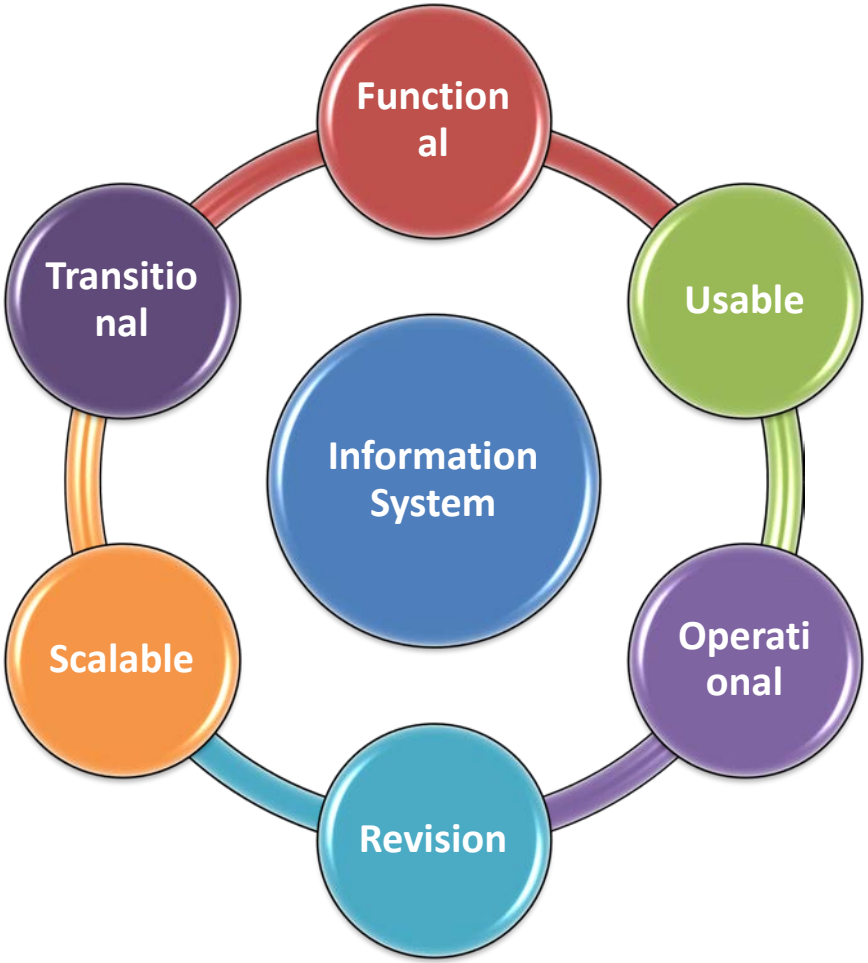
- Key feature of information system
- Maximizing information systems
- Most common challenges
- Critical factors to successful implementation and use

Understand the Context

Define the problem/problem statement:

- What is the problem that needs resolution?
- What are the expectations from the software & how will the software solve the problem?
- How much resources need to be allocated for the software?
- What and who benefits from this software?

Key Elements



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Functional Characteristics

- Adopts/conforms to *industry best practices*
- Reduces data burden on *users*
- Promotes evidence-based decision making
  - Reports, indicators/KPIs
- Cost effective

Usability Characteristics

- **Correctness**: The software should meet all the stated specifications.
- **Usability/learnability**: The amount of effort or time required to learn how to use the software; how user-friendly the software is.
- **Integrity**: Software should not have/create any adverse side effects.

Operational Characteristics

- **Reliability:** Software should be defect-free. It should not fail during execution.
- **Efficiency:** Software should make effective use of resources.
- **Security:** Software should not cause ill effects on data and hardware. The data should be kept secure from external threats.

Revision Characteristics

- **Maintainability:** Software maintenance should be easy for any kind of user.
- **Flexibility:** Changes in software should be easy to make.
- **Testability:** Testing the software should be easy.
- **Extensibility:** Enhancing functionality should be easy.

Scalable Characteristics

- **Scalability:** Easily upgradeable for more work or for larger number of users
- **Extensibility :** Accessible across multiple platforms/devices
- **Modularity:** Separate independent units/modules that can be modified and tested independently

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Maximizing Information Systems

- **Interoperability:** Ability of the software to exchange information with other applications and make use of information transparently

- **Portability:** Ability to perform the same functions across all environments and platforms

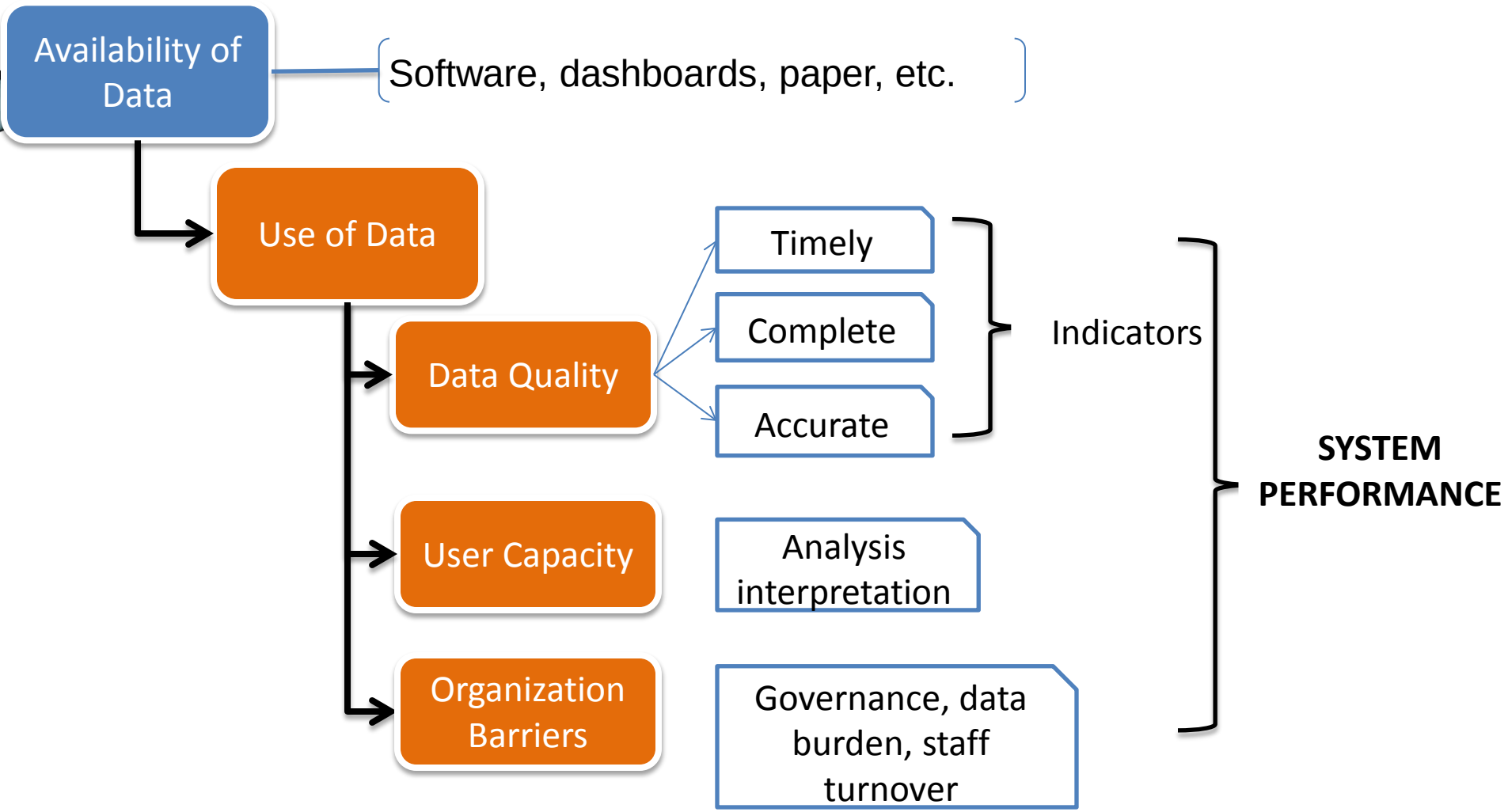
- **Reusability:** Ability to modify code for a different purpose and reuse it

Maximizing Information Systems…(2)

- **Integration:** Bringing together various disparate systems to act as one system

- **Interface:** Ability to transform or map data to the receiving application's requirements while the message is in transit so that the data can be accepted by the receiving application

Data for Decision Making



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Data Quality

- **Accuracy:** Data gathered by the system should be error free.
- **Completeness:** The software should be designed to gather as much data as required.
- **Relevance:** Data gathered should fulfill specific need.
- **Accessibility:** The software should allow the correct user to retrieve the data when required.
- **Consistency across data sources:** In a system with distributed storage of data, all sources should have the consistent data.

Data Standards

- Document agreement on representations, formats, and definitions of common data.
- This provides a method to codify—in valid, meaningful, comprehensive, and actionable ways—information captured in the course of doing business.
- Good data definitions and standards can dramatically increase application interoperability and interface.

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Most Common Challenges

- Length of time: 12-18 months
- Business as usual during implementation, training, and migration
- Inadequate training and continuous process changes
- Time-consuming data entry
- Lack of support post go-live

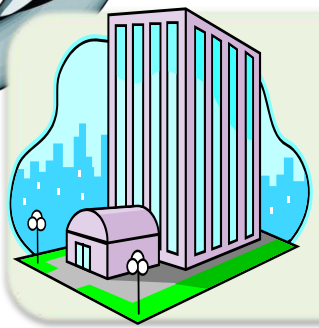
Suboptimal Software Implementation

- Designed for data entry only
- Tries to resolve too many varied problems
- Duplication of efforts and parallel system
- Lack of standard reports/indicators, leading users to create their own
- User resistance to adoption

Critical Factors to Success

- Good, robust software solution
- Implementation expertise and experience
- Stakeholder buy-in and commitment
- Sustainability and local ownership

An enabling environment

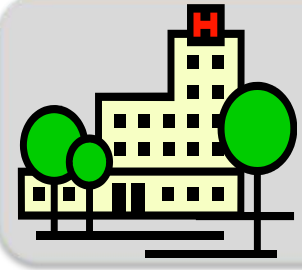


National

GOVERNANCE

DATA STANDARDS

TECHNICAL STANDARDS



Program matic

DATA/ REPORTS

ACCOUNTABILITY

OWNERSHIP

Sites

SOP ADHERENCE

ROLL-OUT/SUPPORT

SUPERVISE

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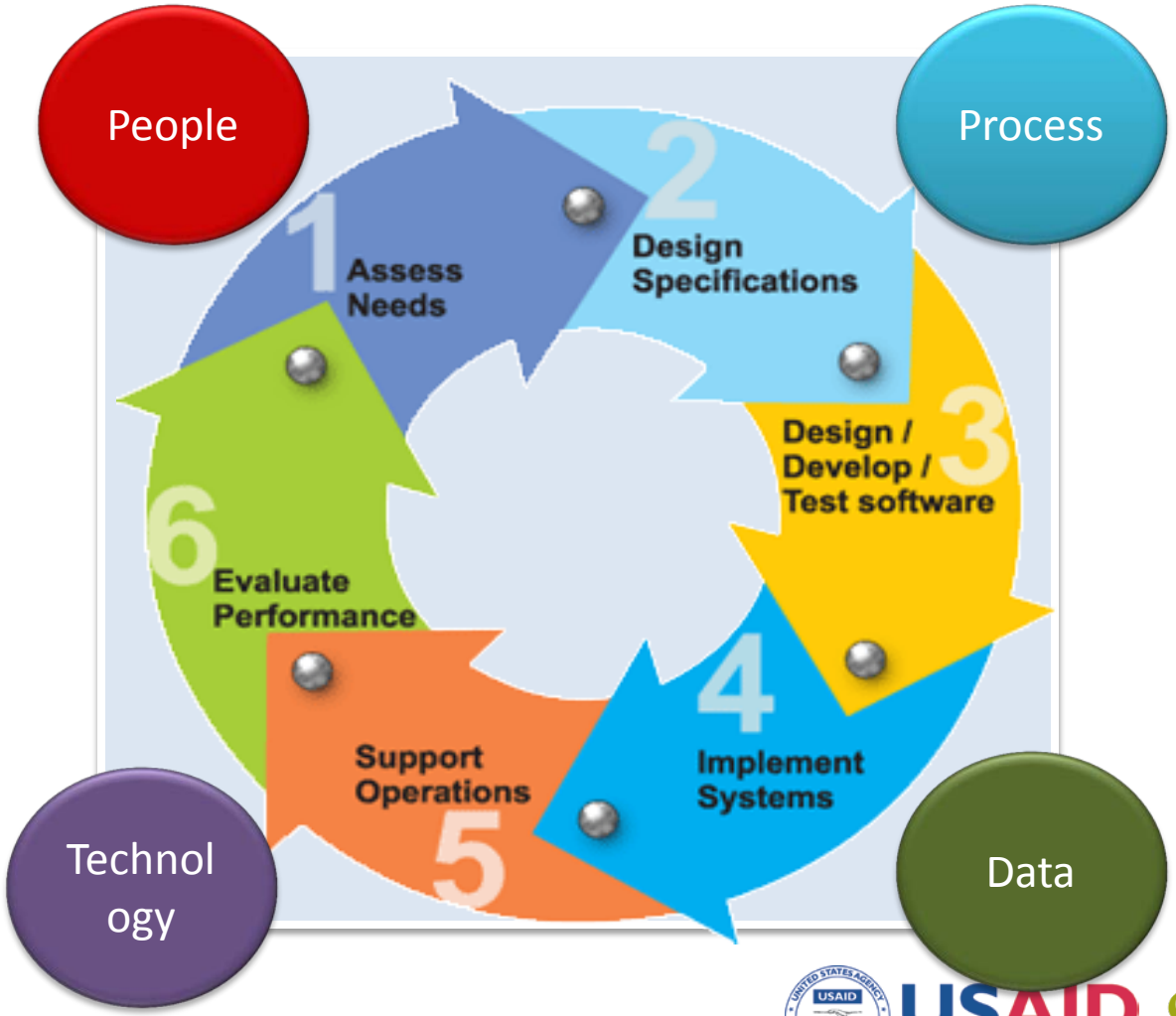
Software Development Best Practice



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