



Automated Web-Based Healthcare Quality Management Systems: Design and Implementation Considerations

Prof. Hassan M. Khachfe, Lebanese International University, Lebanon
Denise Kerbaj, PhD Candidate, UPEC - Paris, France / QualiZone,
s.a.r.l - Beirut, Lebanon

NexTech 2017, November 12 - 16, 2017 - Barcelona, Spain

The Plan

- **True stories**
- **Remarkable facts about the future of healthcare**
- **Healthcare industry challenges**
- **Why do we need automation?**
- **From paper to digital**
- **Automated QMS**
- **Automation steps**
- **System features**
- **System technology**

True stories

- Back in the 1990s a patient had a **wrong leg** amputation at the University of Florida Medical Center!!!

- The janitor pulled out the life support from a patient to plug in his floor waxing machine!!!

True stories

- A man was tested pregnant in a public hospital in Lebanon!



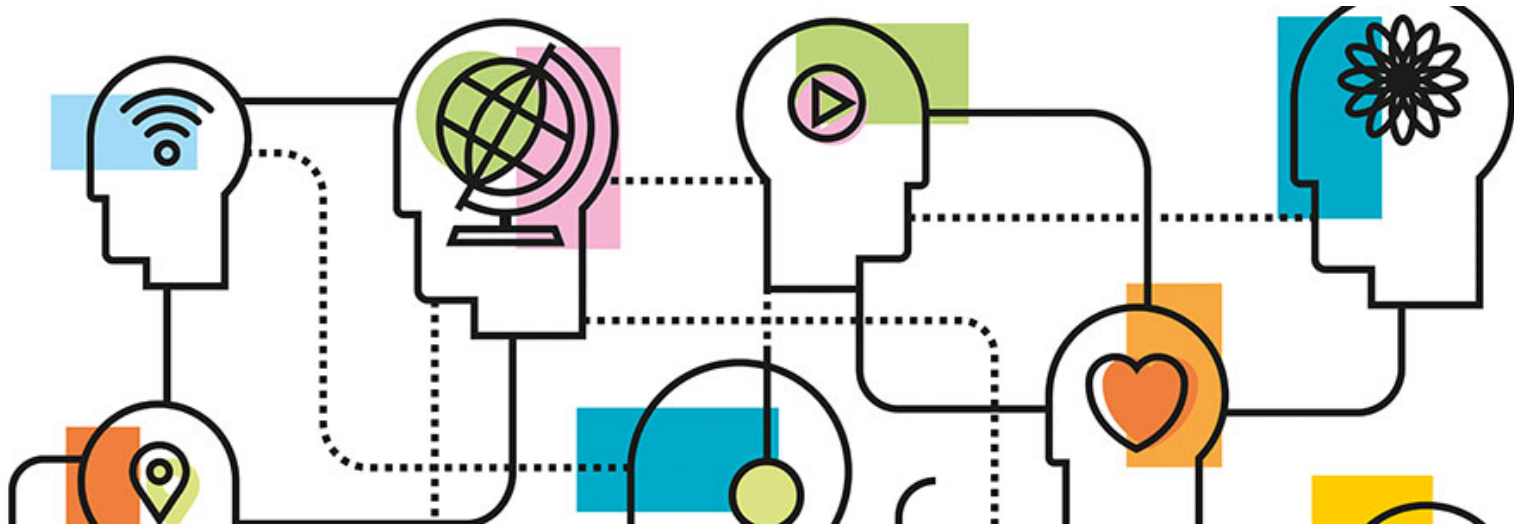
Facts about the future of healthcare

- **Preventive medicine will soar.**
- **Health care will go from general to personal.**
- **Robots will be optimized for health tasks**

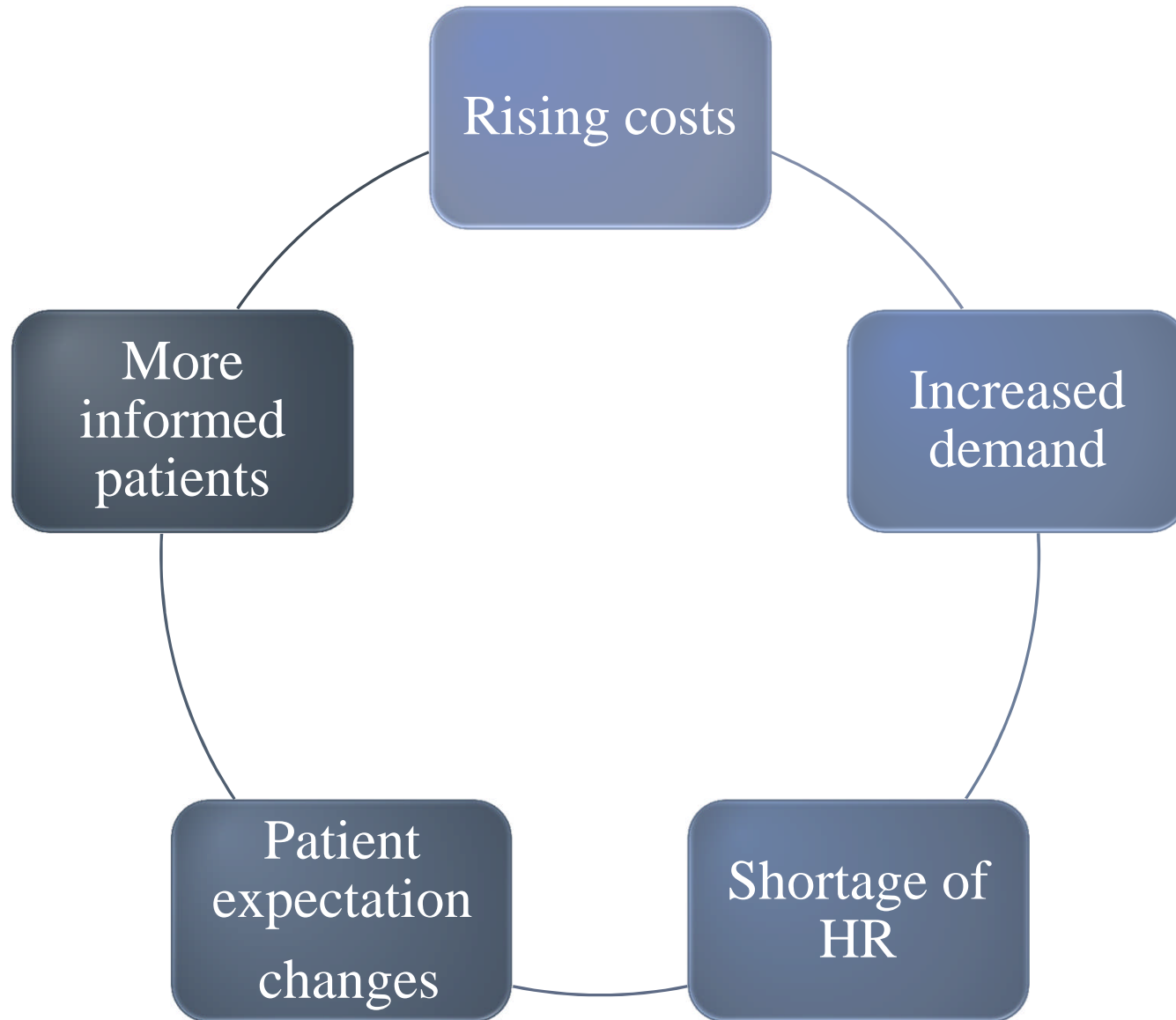


Facts about the future of healthcare

- **Collaboration will destroy silos.**
- **Doctors will have access to more data.**



Healthcare industry challenges



Need to improve Quality of services



Automation

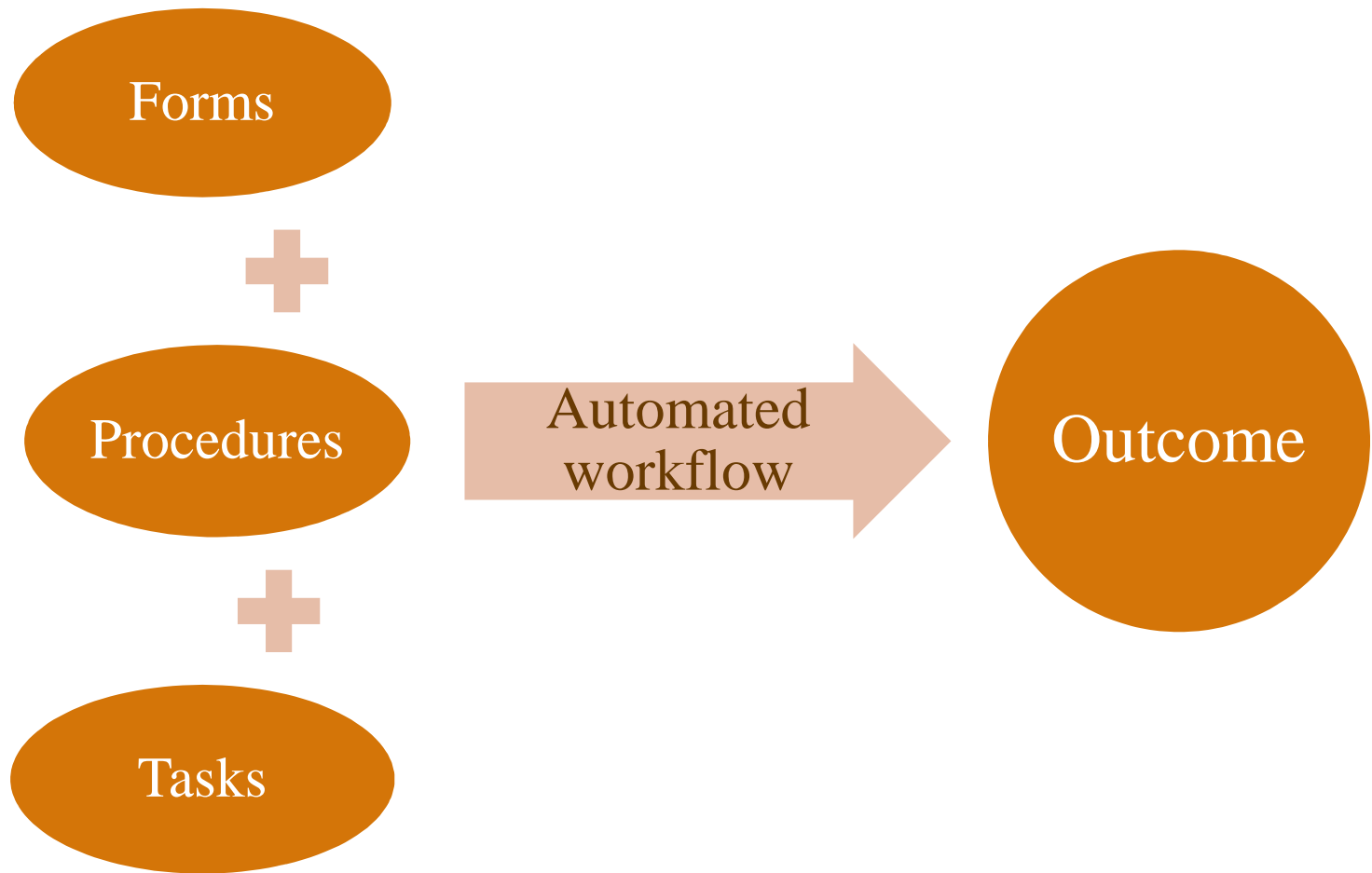
Operating or controlling a **process** by
electronic devices
with **minimal human intervention**



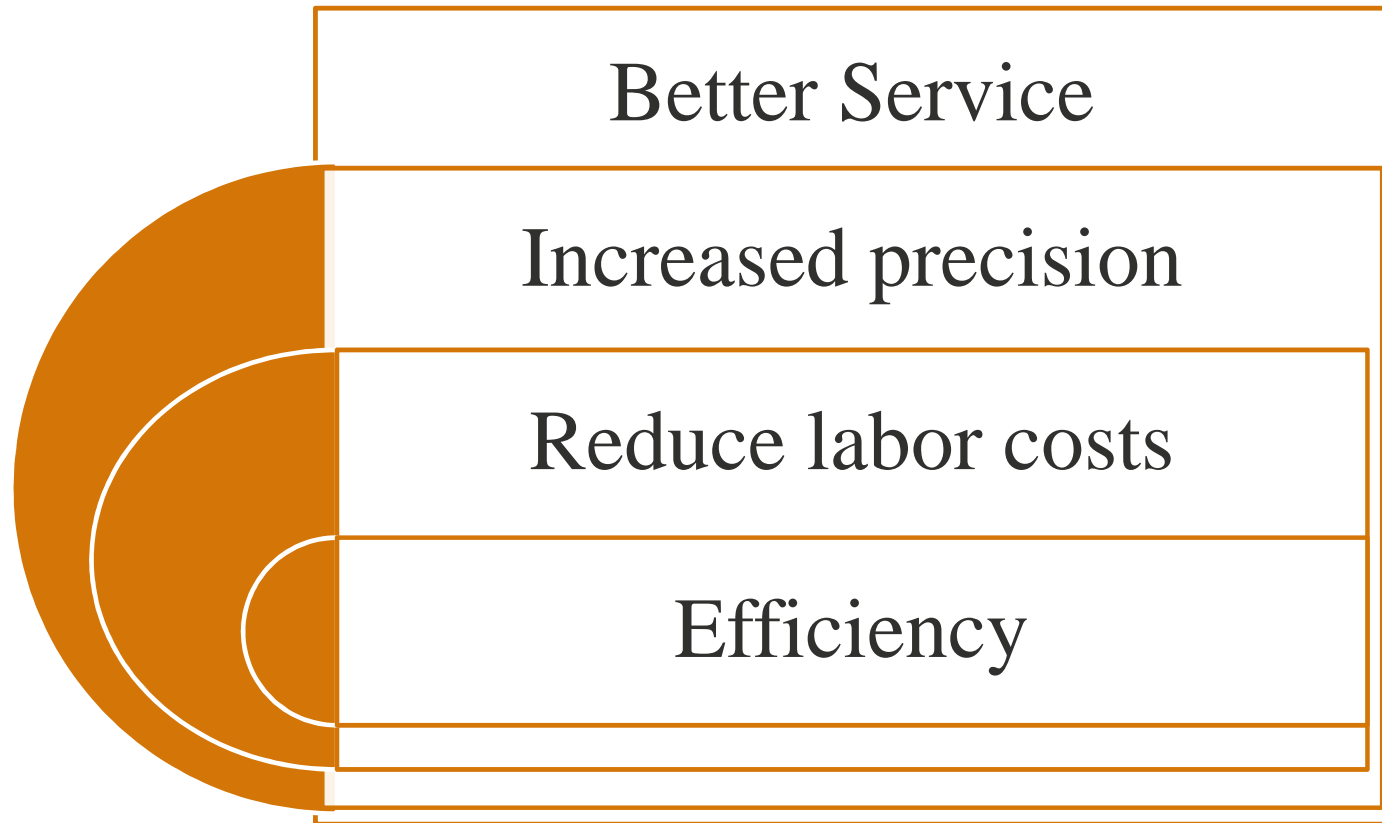
From paper to digital



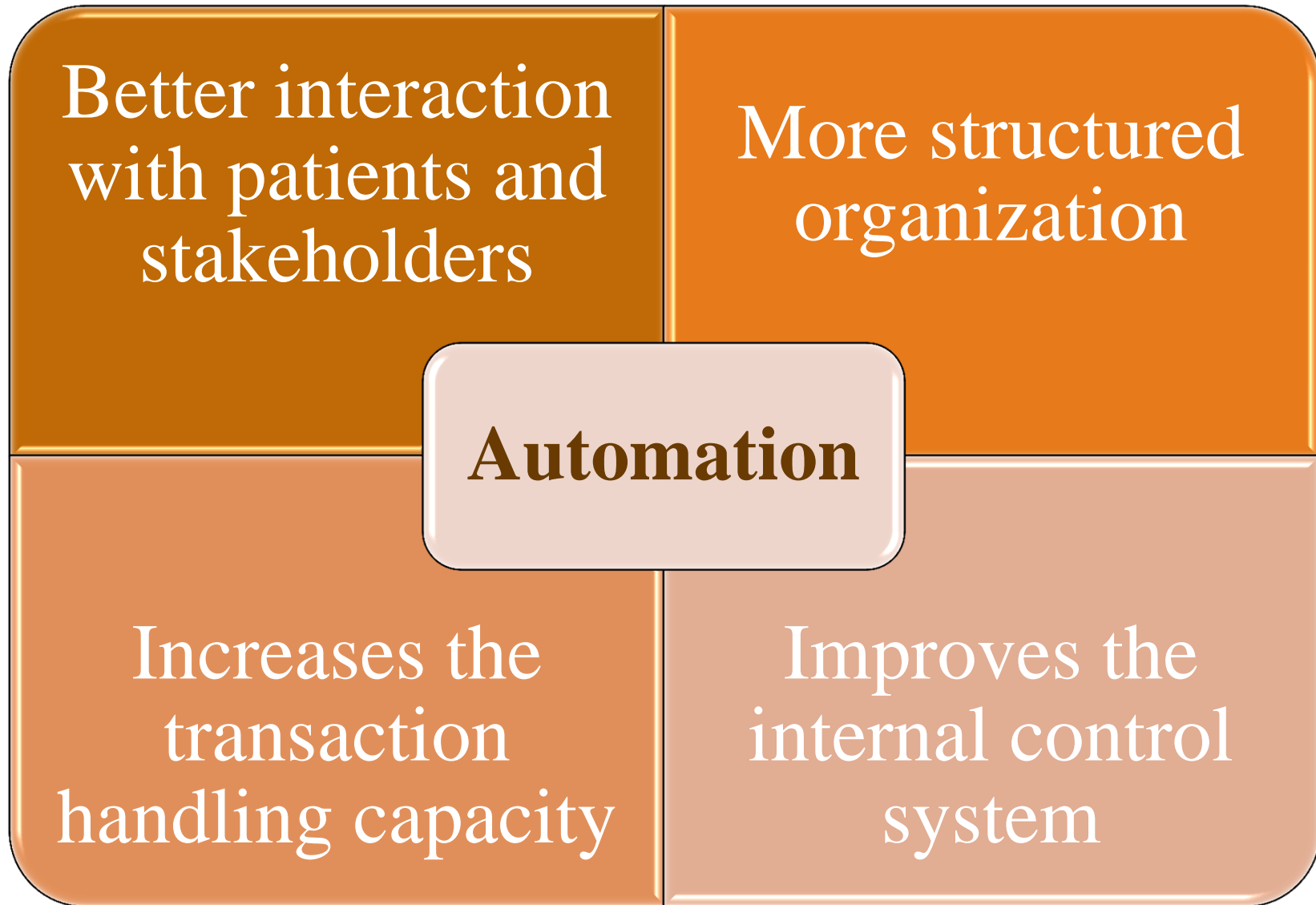
Applied in Healthcare



Why do we need automation?



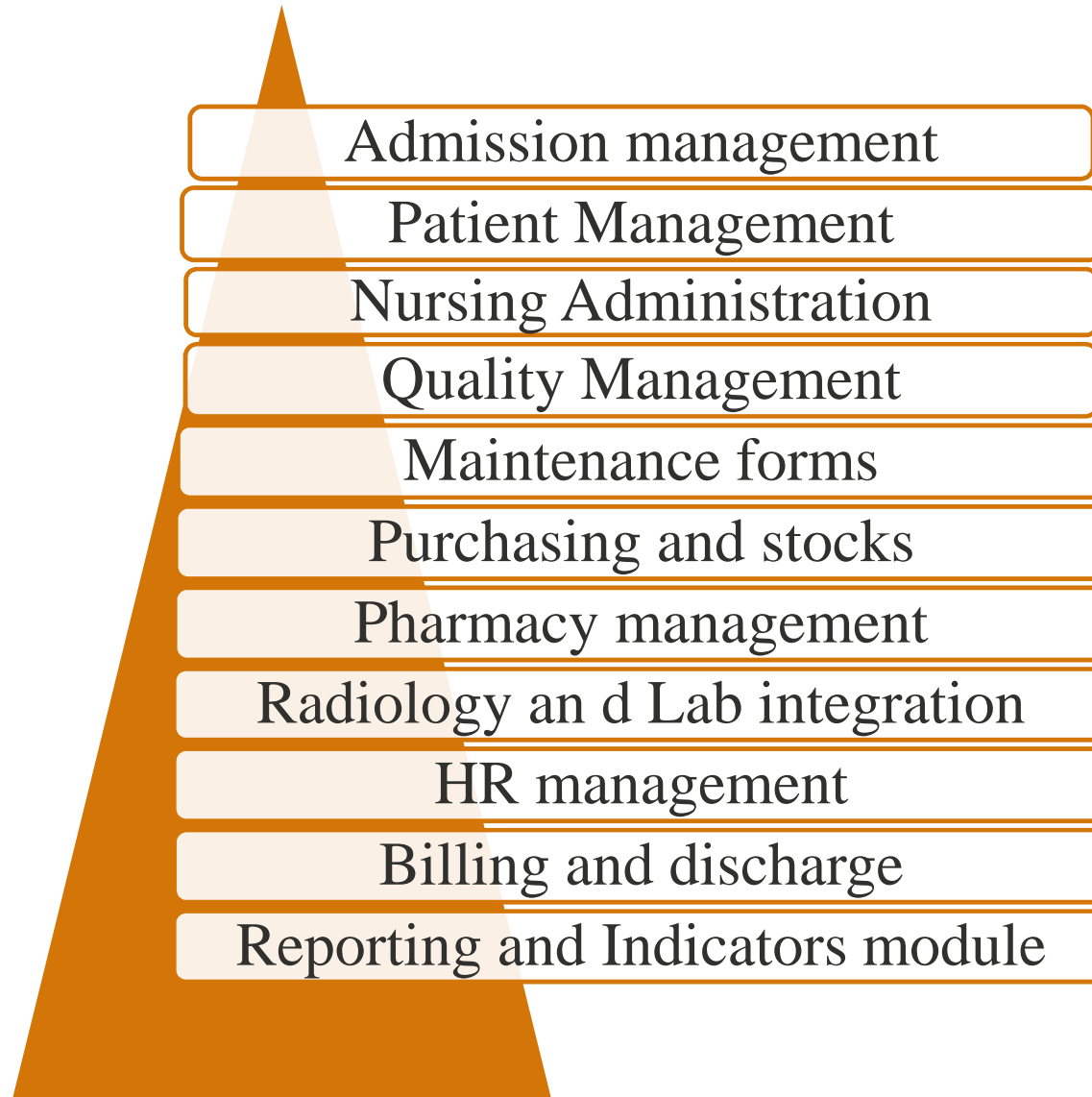
Why do we need automation?



Automated QMS

- Enterprise web-based system
- From admission till discharge
- Structured around the international standards for quality management
- A portal to critical quality information

Automated QMS



Patient Management

- **Patient files**
- **Patient medical history**
- **Laboratory tests and radiology archives**
- **Billing details**
- **Coverage details**
- **Appointments for out-patients**

Nursing Administration

- **Nursing schedules**
- **Task lists**
- **Activity reports**
- **Daily checkups**

Biomedical Module

- **Checklists**
- **Equipment life cycle documents**
- **Biomedical maintenance requests**

From paper to digital

Requirements gathering

Requirements analysis

Design

Implementation

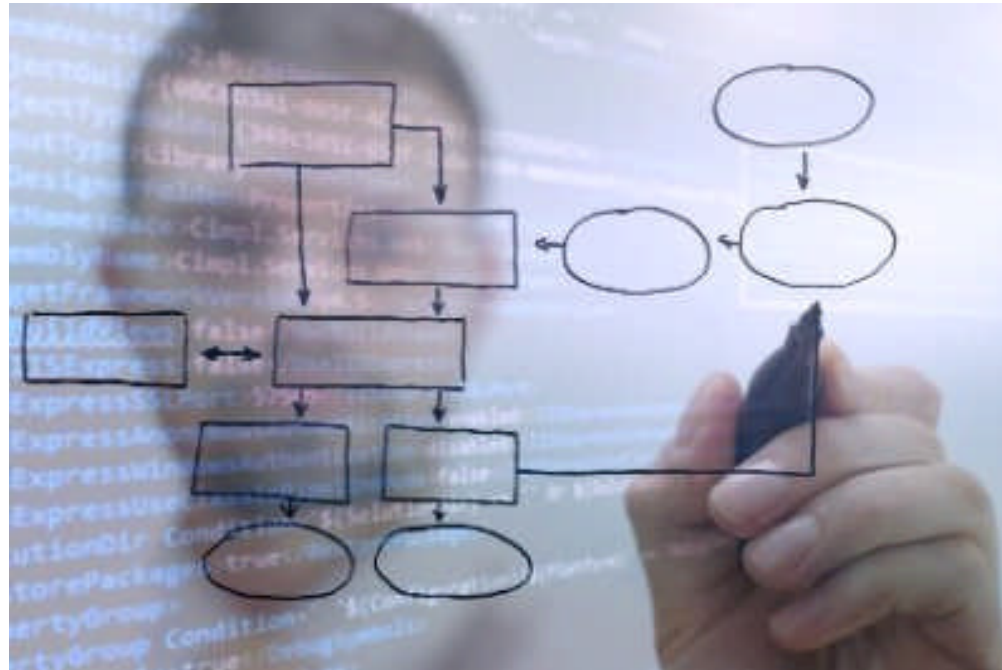
Testing

Operations & Maintenance

1. Requirements gathering

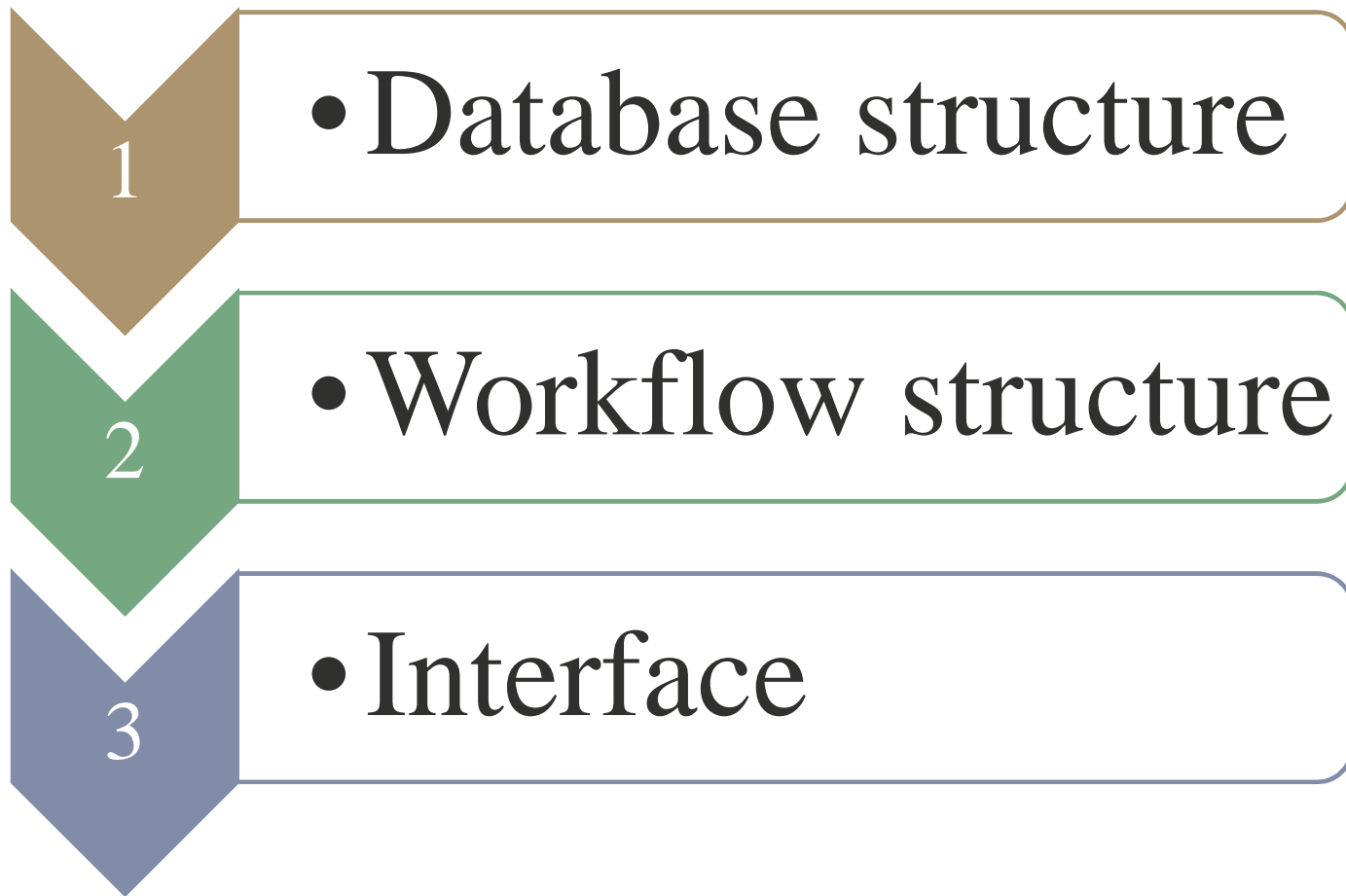
- Collect forms
- Collect Policies & Procedures
- Collect written workflow

2. Analyze requirements

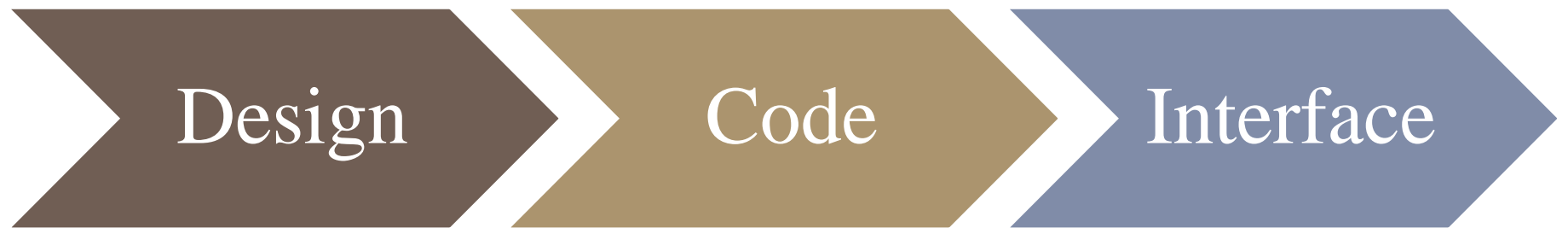


Who does what? How is it done?

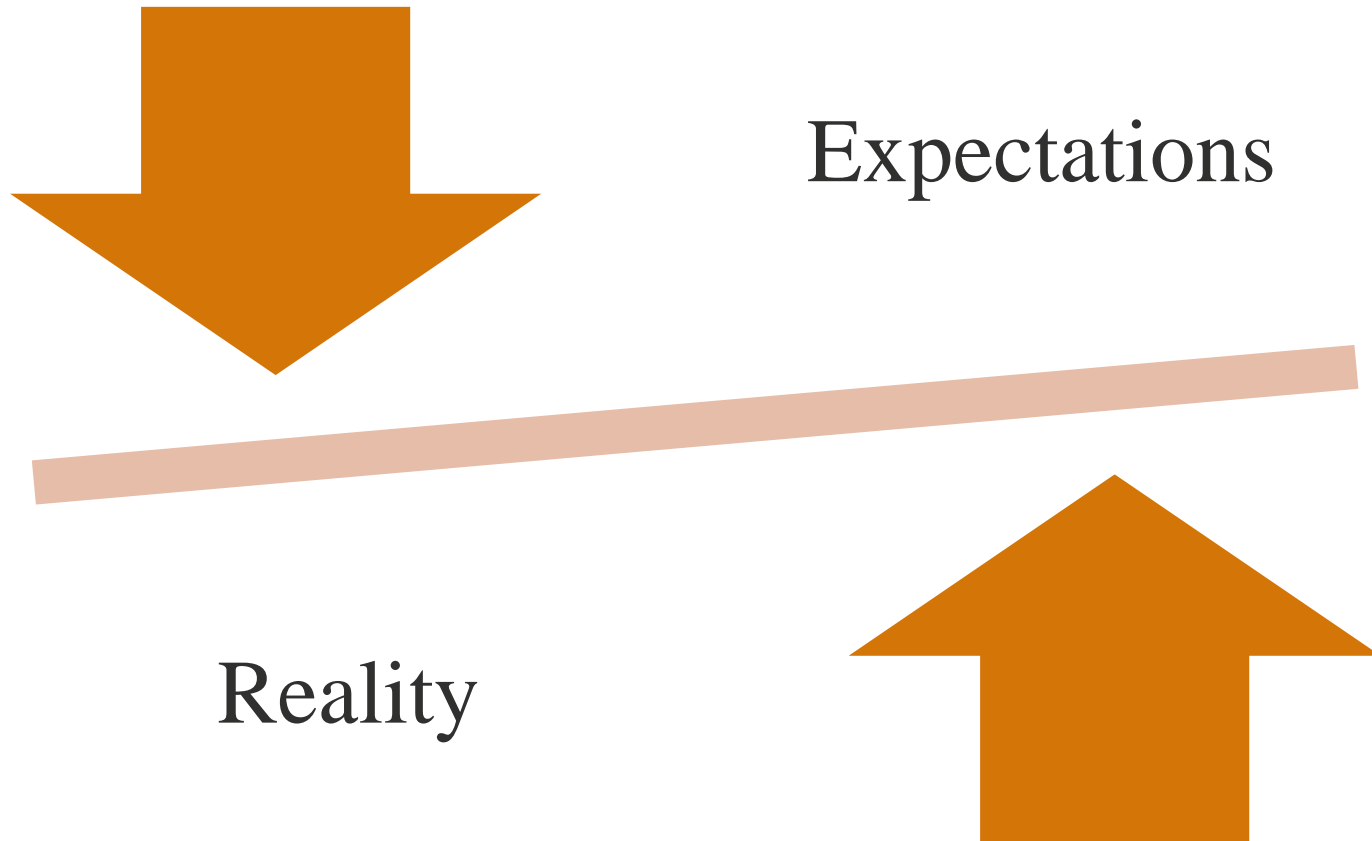
3. Design



4. Implementation



5. Testing



6. Operations & Maintenance

- **Get things into action**
- **Regular updates**
- **Regular enhancements**

System Features

Web-Application

Centralized database

Separate integrated modules

Configurable design

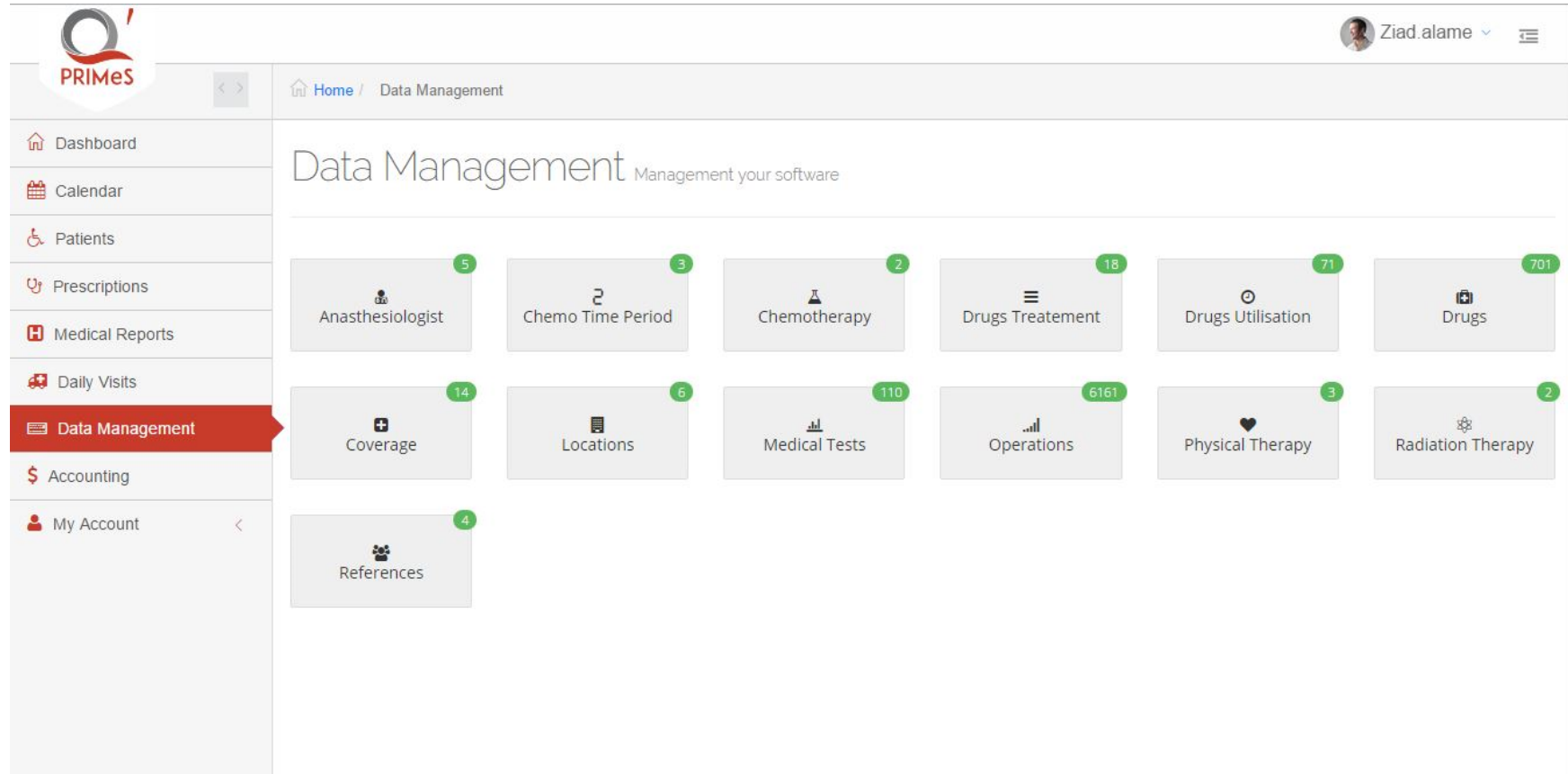
System Features

- **Accessible from any web browser**
- **Can be hosted on local servers**
- **Better control and governance**
- **Predefined content = easier reporting**

More features


- Automatic backup
- Integrated notification system
- Real-time tasks tracking
- Upload files
- Export data tables


An Example



The screenshot displays the PRIMEs Data Management dashboard. The interface includes a sidebar with navigation options: Dashboard, Calendar, Patients, Prescriptions, Medical Reports, Daily Visits, Data Management (highlighted), Accounting, and My Account. The main content area is titled "Data Management" with the subtitle "Management your software". It features a grid of 13 data management cards, each with an icon, a title, and a count in a green circle:

Category	Count
Anesthesiologist	5
Chemo Time Period	3
Chemotherapy	2
Drugs Treatment	18
Drugs Utilisation	71
Drugs	701
Coverage	14
Locations	6
Medical Tests	110
Operations	6161
Physical Therapy	3
Radiation Therapy	2
References	4




Ziad.alame


- Patients
- Prescriptions
- Medical Reports
- Daily Visits
- Data Management
- Accounting
- My Account

Patients

Overview
Lab Test
X-Ray
Drug
Operation
Chemotherapy
Physical Therapy
Radiation Therapy
Notes
Medical Reports

Payments
Images

Mr. Hassan Ali Ayach



Profile Information

Patient ID	201500003
First name	Hassan
Middle name:	Ali
Last name:	Ayach
Mother name:	maysaa
Gender:	Male

Medical notes:

Patient Medical History

Add New +

		Title	Level
		he did an operation test operation name	High
		important drug taken	Medium

Patient Visit History

Message Patient Board