# Jordan Healthcare Digital Transformation… How we did it?

Ghassan Lahham

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**EHR READINESS**

BUILDING CONSENSUS ON THE READINESS FOR EHR IN LEBANON

**EHSI**

Electronic Health Solutions International

شـركة الحوسـبة الصـحية الـدولية

# Mr. Ghassan Lahham

Founder and CEO of Electronic Health Solutions International  (EHSI), Jordan

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Mr. Al-Lahham is a well-known expert in the use of automation in the public education and healthcare sectors. He has been recognized for his entrepreneurial accomplishments in achieving significant milestones in his career.  His main asset is combining the experience of a private sector entrepreneur, with his leadership of automation in world-class education and healthcare. He presents balanced and pragmatic perspectives from both the private and public sectors. Ghassan has been directly managing a number of projects that have rapid and long-term impact on the development of healthcare and education sectors in Jordan and the local region. In addition, he managed Jordan's biggest and most strategic IT project "Hakeem", which is responsible for the automation of the healthcare sector covering all public, military, and cancer centers countrywide

# EHSI

Electronic Health Solutions International

شركة الحوسبة الصحية الدولية

Where **HEALTHCARE**
Meets **TECHNOLOGY**

www.ehs-int.com

# Jordan Healthcare Digital Transformation…
# How we did it?

# Challenges Facing the Health Sector

Patient Safety
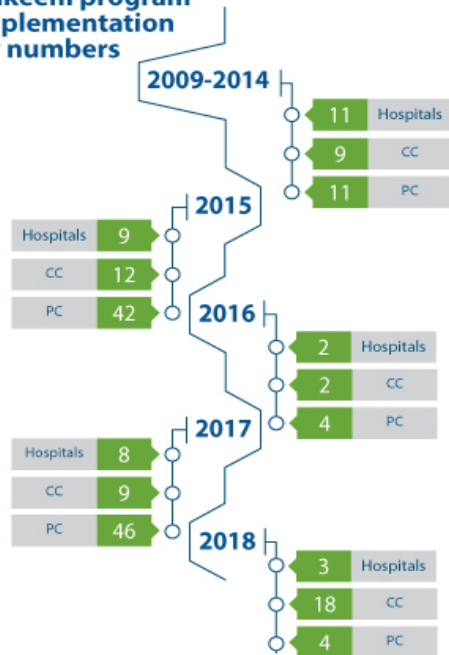
Bureaucracy

Paper Work

Process Efficiency

Waste of medications,
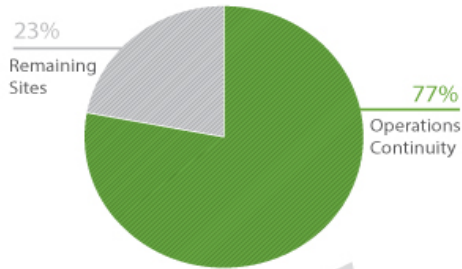lab tests and radiology films

# The dream

- Electronic medical record for each citizen
- Physician flexibility to help patients from any location
- Digital data to enhance public health
- Analytics based on big data
- High quality affordable diagnosis and treatments

# Dream Realization

## Hakeem program implementation by numbers

**2009-2014**
- 11 Hospitals
- 9 CC
- 11 PC

**2015**
- Hospitals 9
- CC 12
- PC 42

**2016**
- 2 Hospitals
- 2 CC
- 4 PC

**2017**
- Hospitals 8
- CC 9
- PC 46

**2018**
- 3 Hospitals
- 18 CC
- 4 PC

## #Hospitals

23% Remaining Sites

77% Operations Continuity

Irbid, Ajloun, Jarash, Ramtha, Al-Balqaa, Mafreq, Madaba, Amman, Zarqa, Al-Karak, Tafilah, Maan, Petra, Aqaba

**Completed Projects**

# 190

* In addition to 9 health directorates under the ministry of health

**Note:** This map has been updated on December 2018

- **Success record in 190 sites.**

- **Above 6,5 Million Registered Patients**

# Laying the foundation ….

- Political buy-in
- Standardization of coding
- Solid infrastructure
- Choosing the best fit solution
- Execute…Execute…Execute…

# Electronic Health Solutions International (EHSI)

EHSI is a health care IT company that focuses on the Middle East healthcare market. Headquartered in Amman and dedicated to helping healthcare organizations improve the quality of healthcare; through the use of highly effective technologies.

# Our Initiatives

**2009**

Aims to automate the public healthcare sector in Jordan by implanting electronic health record (EHR), offering a single record per patient nationwide that can be accessed through patient's ID number.

**2013**

The Electronic library of medicine provides healthcare professionals in Jordan with the latest evidence-based medical resources for free.

Aims to support researchers and decision makers in Jordan by extracting integrated and comprehensive data using business intelligence tools and solutions as well as analytical expertise.

**2019**

Build local capacity and aims to develop healthcare professionals, university students, and EHS employees in the fields of health informatics and information technology.

**2015**

## Why EHSI?

- Open source technology

- A blend of local and international experts combining the international standards and local awareness

- A specialized team of over 450 experts

- A 24/7 service center for the region.

# Hakeem Program

**Launched** in 2009, under the patronage of His Majesty King Abdullah II.



**Hakeem** program represents the first initiative of the company for computerizing the Kingdom's health sector.

**Hakeem** program aims to deploy

**EHR** in Jordan's health sector civil and military hospitals and clinics.

# Hakeem Program in four easy steps

## How does 'Hakeem' program work

**1 STEP ONE:**

**Obtaining your Electronic Health Record (EHR)**
The medical records department enters your personal information into the Hakeem program using your national ID number.

**2 STEP TWO:**

**How to book your medical appointment**
The medical records department will set an appointment electronically for your physician visit. This step saves you time and effort by providing you with the specific date and time of your next physician visit, as well as helping the doctors to easily track down their daily appointments and provide basic patient information

**3 STEP THREE:**

**When at the doctor's clinic**
The physician will do the necessary check-ups and directly enters your medical information into the Hakeem program, this information will be saved for future reference and can be pulled out from the system by an authorized personnel from any hospital or clinic which implements the Hakeem program within the same entity. This is an automatic and paperless process. (Entities: MoH, RMS, KHCC)

**4 STEP FOUR:**

**Obtaining proper healthcare**
According to the physician's instructions entered in your electronic health record, you will receive the required medical services from the laboratory or radiology departments. All test results and images will be sent to the doctor electronically without the need for the patient to pick them up personally. Also, your prescription will also be sent electronically to the pharmacy to be ready for pick up.

# Business continuity and support

**Change Management**

Enhance the system adoption by the staff

Periodic field visits to measure and evaluate

**Operations Management**

Qualified medical and technical staff

Client relationship management

Provide on site support

**Service Desk**

Remote technical support

Constant follow up on cases

24/7 operational support
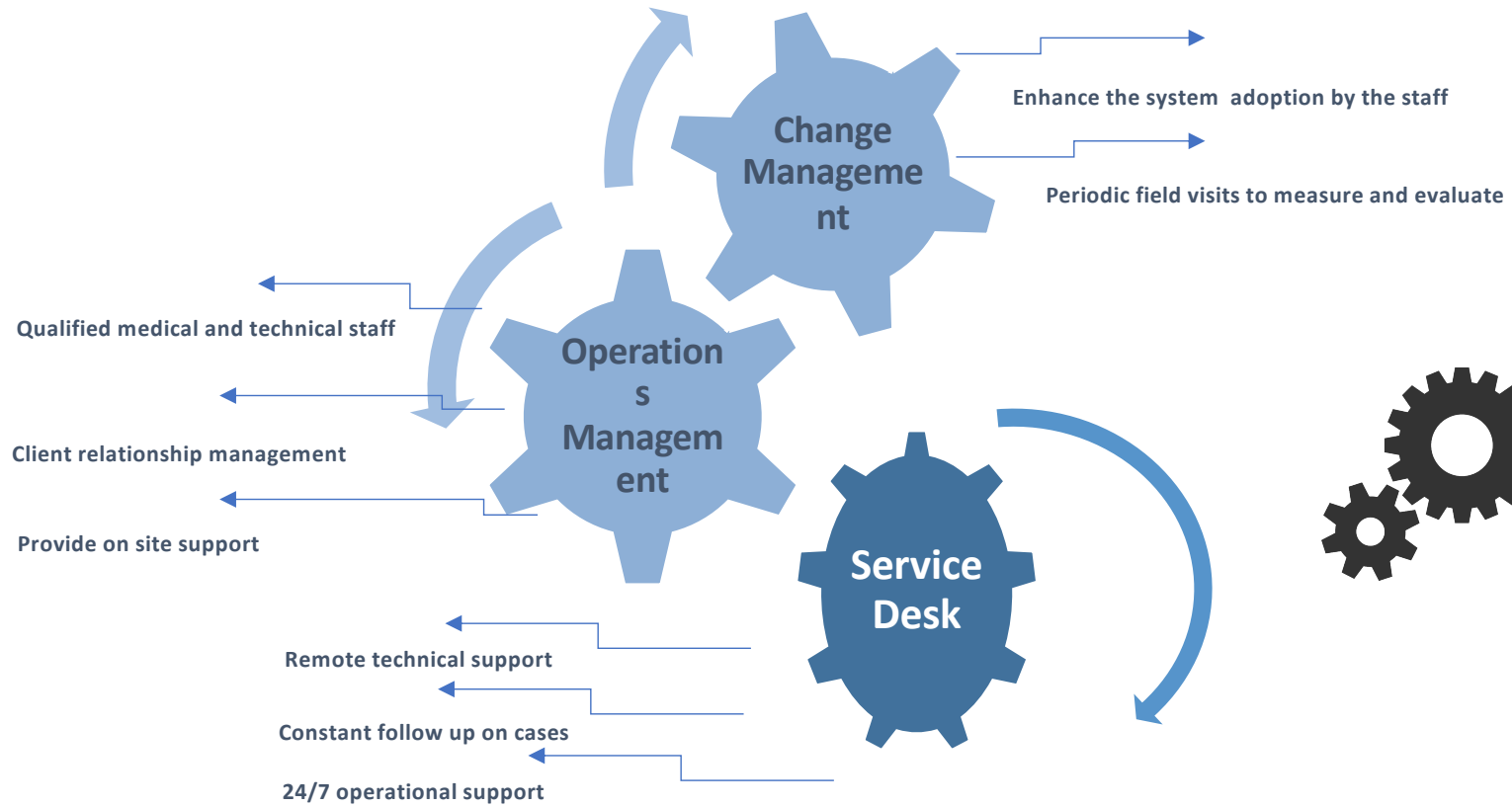
# USTDA study

**A study was conducted by U.S. Trade and Development Agency's study for medical expenditures to assess the impact of implementing Hakeem in the pilot sites in Jordan after 6 months of the implementation (Y2011- Y2012) :**

- Medication savings: 24 %

- Radiology Films :
- ✓ The Value of Saving in CT Scan films : 86 %
- ✓ The Value of Saving in x-ray films : 98 %
- ✓ The Value of Saving in MRI films : 91 %

# Benefits of Hakeem program

**Reduce operating costs**
- Assist in controlling lab tests, x-rays and drug duplication.
- Improving resources utilization in dispensing drugs

**Support research and decision making**
- Support the decision-making process, by providing necessary and periodic statistics
- Assist in providing necessary policies for the advancement of healthcare in Jordan
- Create a comprehensive database of Patients

**Positive patient experience**
- Health institutions workflow optimization
- Link the patient's health medical information electronically to a database exchange
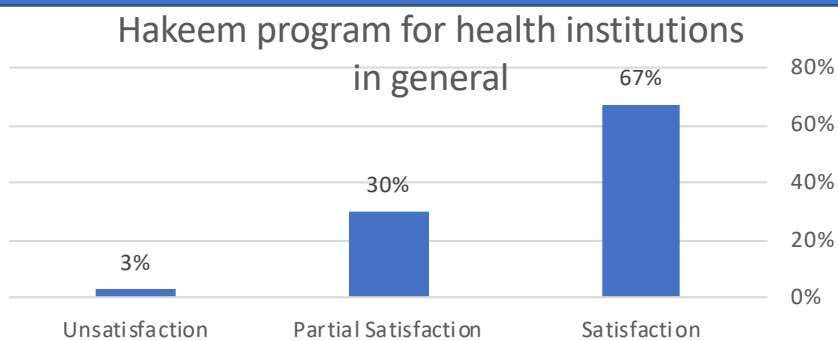- Enabling electronic referrals between facilities

**Improving healthcare services and reduction in medical errors**
- Enabling doctors to review the patient's full health record
- Improve patient safety (BCMA, drug-drug interaction, allergies alerts)
- Clinical reminders and Activation of preventive health care program

# 2016 study Included 2865 patients and 2250 end users in 20 sites

## End User sample survey

### Hakeem program for health institutions in general

- Unsatisfaction: 3%
- Partial Satisfaction: 30%
- Satisfaction: 67%

### Ease of retrieving radiology images

- Unsatisfaction: Hospital 0%, Clinic 2%
- Partial Satisfaction: Hospital 17%, Clinic 20%
- Satisfaction: Hospital 84%, Clinic 78%

Legend: ■ Hospital ■ Clinic
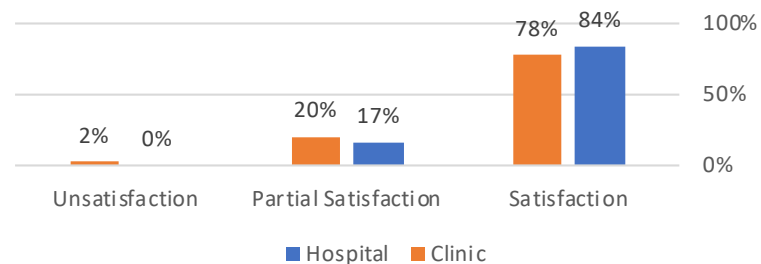
## Patients sample survey

### Patient satisfaction according to division

Divisions: Emer..., Radio..., Labor..., Phar..., Clinics, Nursing, Admi...

Legend: ■ Satisfaction ■ Partial Satisfaction ■ Unsatisfaction
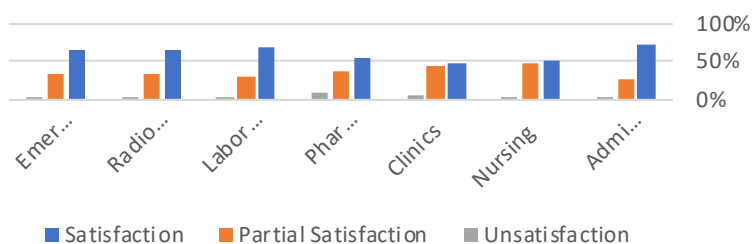
### Medication expenditure accuracy

- Unsatisfaction: 1%
- Partial Satisfaction: 31%
- Satisfaction: 69%
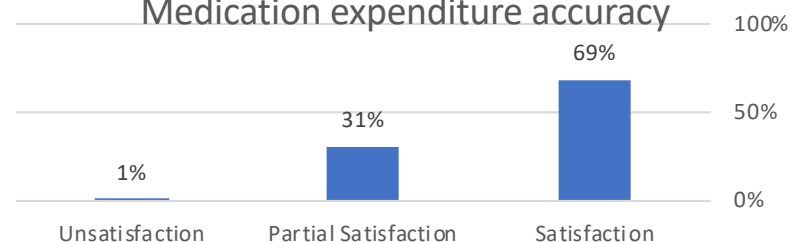
# About VistA

- **VistA has benefited from more than 30 years of continuous, clinician-driven improvement.**

- **VistA serves nearly 9 million Veterans as part of the largest healthcare system in the United States.**

- **VistA serves more than 1,800 hospitals and other healthcare providers around the world.**

# About VistA

- A comprehensive system for managing both large and small healthcare facilities, providing functions ranging from prescription refills to employee timekeeping.

- The New York State Office of Mental Health has chosen VistA system throughout its 24-hospital- 310-clinic healthcare system that provides mental health services to 700,000 people a year.

- West Virginia (WV) Department of Health & Human Resources (DHHR) has chosen VistA system throughout its 7 healthcare facilities through the Bureau for Behavior Health & Health Facilities (BHHF).

# Why VistA is the choice?

- VistA is compliant with international standards including: HIPAA, CCHIT and Meaningful use.

- A 2011 survey conducted by the American Academy of Family Physicians ranked VistA's primary user interface in the top 10 for user satisfaction, and first in several other categories.

- Medscape EHR reports from both 2014 and 2016 rank the VA's computerized record system number one with physicians and in its usefulness as a clinical tool.

Ref
http://www.medscape.com/features/slideshow/public/ehr2016#page=1
https://www.osehra.org/content/osehra-vista

## Top Rated EHRs Overall

| EHR | Rating |
|---|---|
| VA-CPRS | 3.65 |
| Epic | 3.45 |
| Practice Fusion | 3.44 |
| MEDENT | 3.44 |
| Amazing Charts | 3.39 |
| e-MDs | 3.31 |
| athenahealth | 3.24 |
| eClinicalWorks | 3.21 |
| Nextech | 3.11 |
| Cerner | 3.07 |
| Centricity | 2.99 |
| Sage | 2.96 |
| Practice Partner | 2.94 |
| Greenway | 2.93 |
| Allscripts Professional | 2.90 |
| Allscripts Enterprise | 2.88 |
| McKesson | 2.85 |
| MEDITECH | 2.84 |
| NextGen | 2.81 |
| AHLTA | 2.69 |

## Why VistA is the choice?

Cost effectiveness.

Building capacity and sustainability.

Built on evidence based medicine.

Low risk, large active community.

# Expected Challenges

- Funding
- Change resistance
- Standardization
- Choosing the right solution
- Lack of domain expertize

# Impact of EHSI on the Jordanian Economy

**Creating job opportunities**

Offering equal employment opportunities for Jordanians from both genders with different academic backgrounds across all governorates in the kingdom.

**Enhancing healthcare**

• Patient Safety
• Improving healthcare outcomes
• Providing necessary tools via health analytics (Preventive, Predictive & BI)

**Financial impact**

Financial saving and operational cost containment on the Jordanian government in the health sector.

**Building capacity**

Improving the quality of human resources through mentoring and consultancy services by US – VistA related SMEs including healthcare professionals in the area of health information technology.

**Innovation and giving back**

• Innovators in the area of health information technology regionally.
• Collaboration with the US open source VistA communities to support modernization and internationalization of VistA

**Partnering with international Companies**

Working with IT vendors in Jordan such as HP, DELL, CISCO, Lenovo, Microsoft, Vitel net, Metro, Mirth, Fidelity, etc… to provide the best quality infrastructure for healthcare institutions that implement Hakeem program.