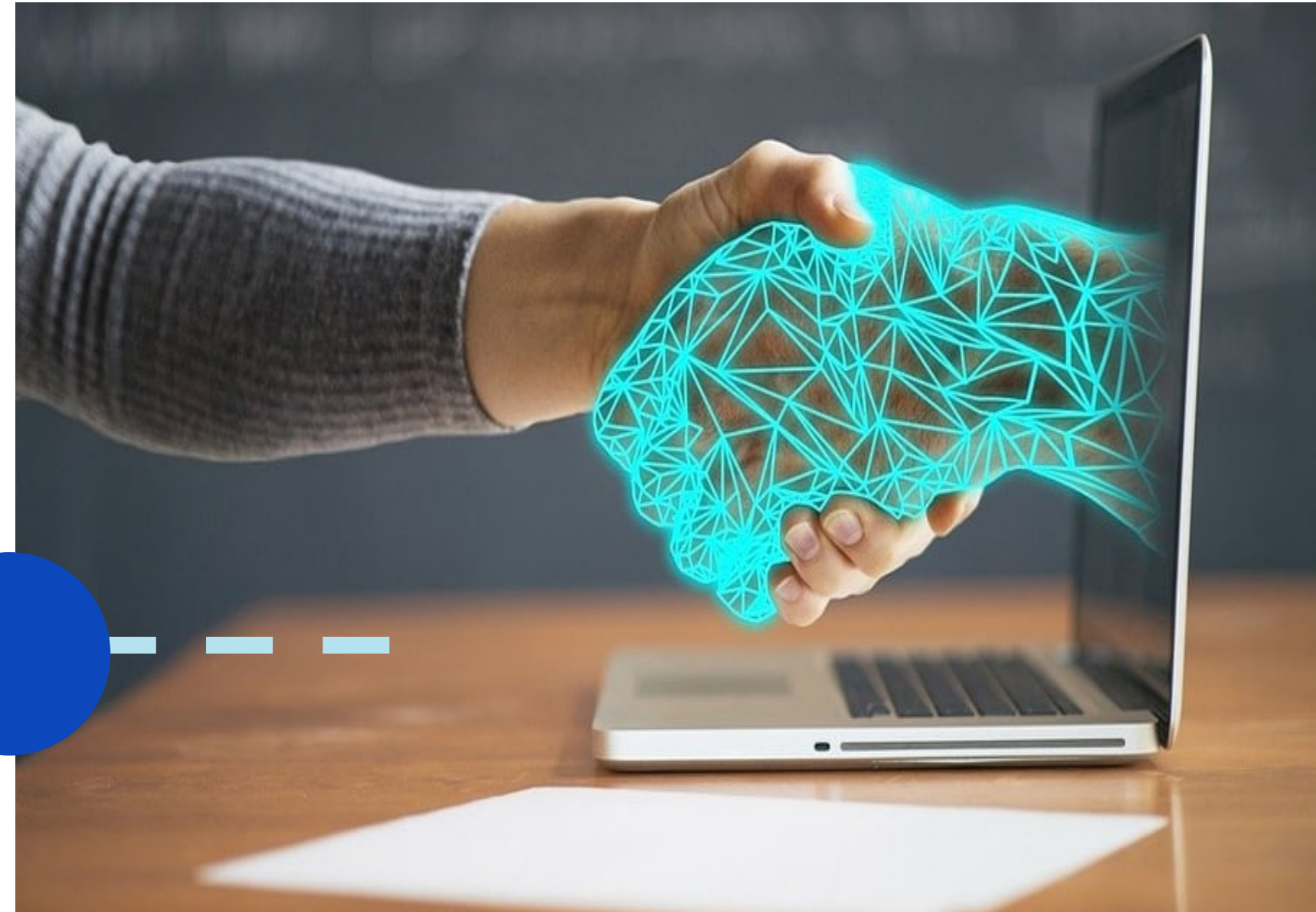


# ***Nxtgate Connect***

*- Elevate, Connect, Innovate:  
Powering Tomorrow's Interaction with Today's System Interface Engine*

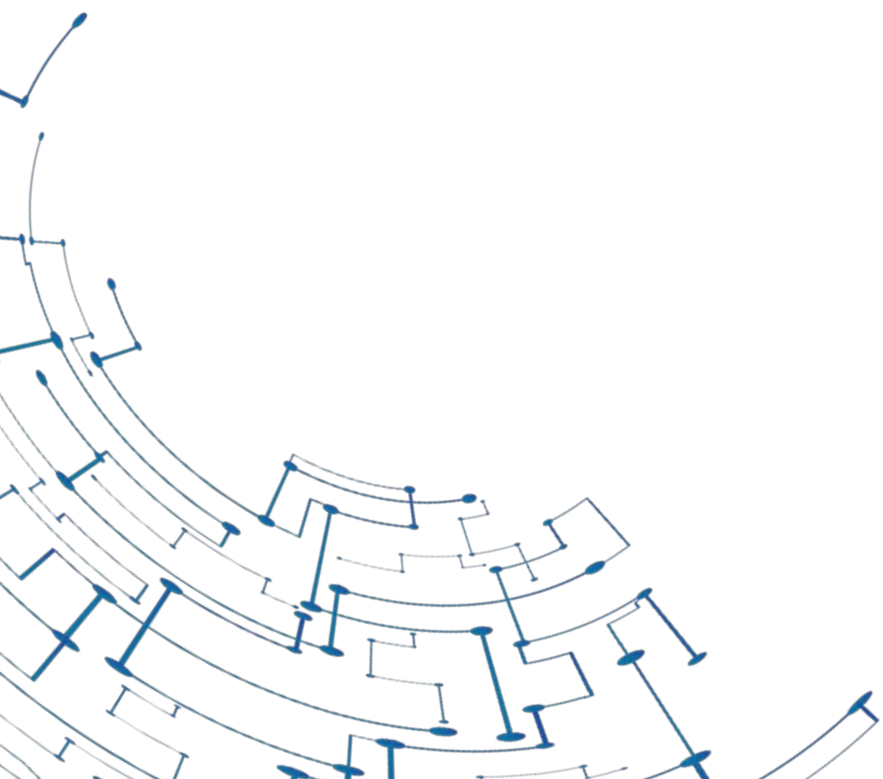
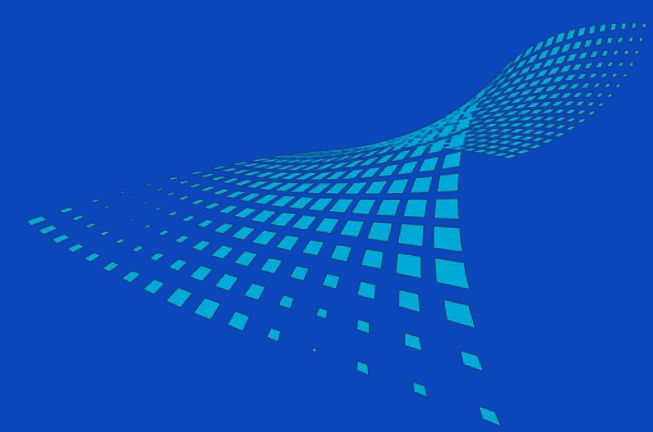
Aug 2023



# Agenda

## Bringing Interoperability to Life

- ✓ Digitalizing Healthcare – “*The Good, the Bad and the Ugly*”
- ✓ The Digital Radiology Department
- ✓ Interoperability – The Ways Moving Forward
- ✓ Living Interoperability – Use Cases



# Digitalizing Healthcare

*“The Good, the Bad and the Ugly”*



Source: <https://apacmed.org/digitizing-healthcare/>

- Benefits of Digitizing Healthcare
  - Improves accuracy of diagnosis
  - Improves quality of healthcare
  - Improves access to healthcare
  - Reduces cost of healthcare
  - Increases efficiency



Benefits

- Healthcare Digitization around the World
  - Electronic health records
  - Telemedicine
  - Wearable devices
- Challenges in Digitizing Healthcare
  - Regulations and legislations
  - Reimbursement
  - Interoperability
  - Digital literacy
  - Data security and privacy
  - Willingness to adopt technology



Proprietary Interfaces



Disconnected Workflow and Data



# The Digital Radiology Department

Best of both worlds – Efficiency and Effectiveness

## ✓ The Digital Radiology Department

### Clinical

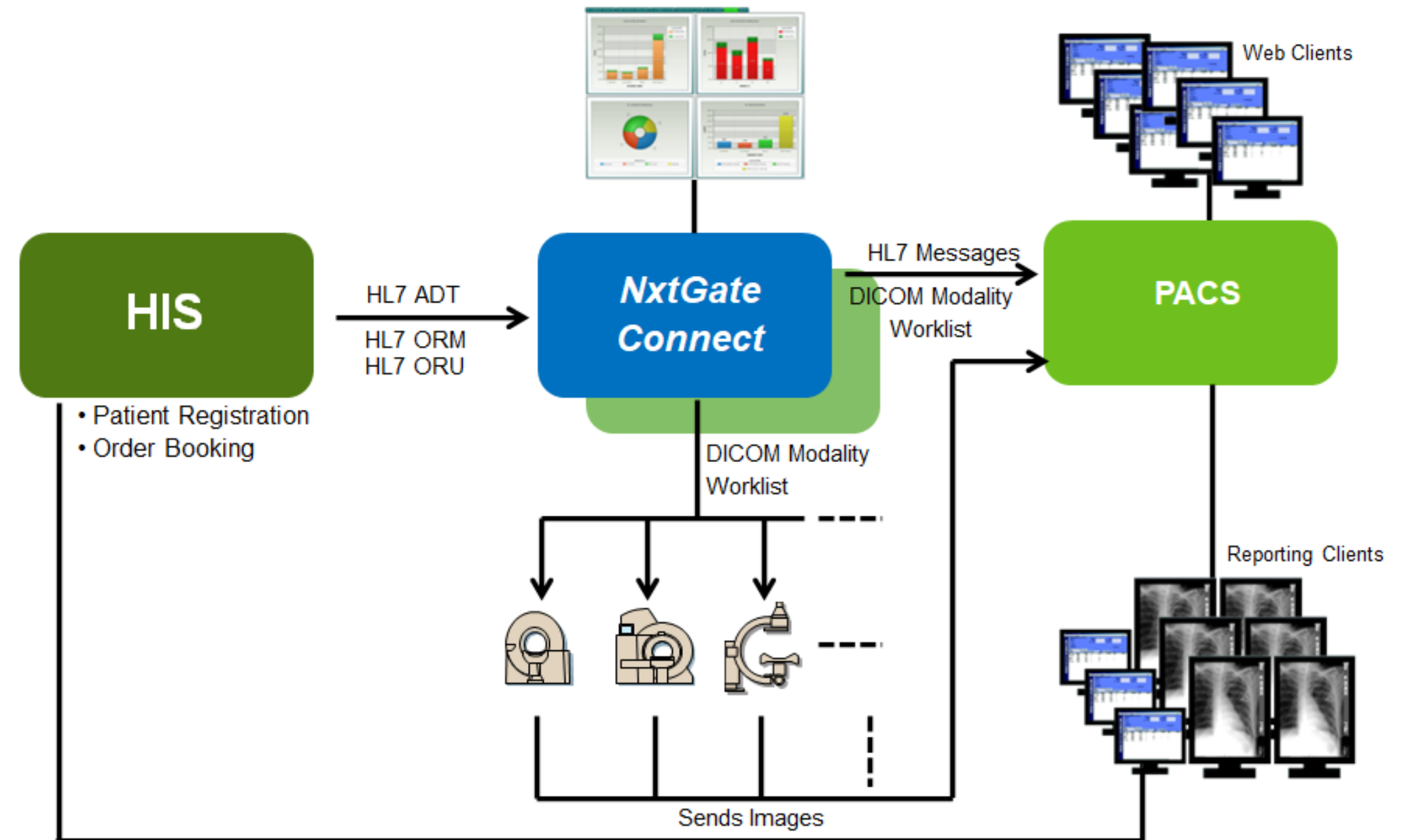
- Replace data entry time to spending more time with patients
- Efficient flow of data for faster outcome

### Operation

- Data connected/driven department for productivity gain
- Data automation for efficient workflow (e.g. automated data provisioning at the modalities)

### Financial

- Connect islands-of-efficiency to maximize Return-of-Investment
- Enhance key KPI → Report Turnaround Time



# The Digital Radiology Department

## Data at Your Fingertips

- ✓ From HL7 messages to real-time operational data at your fingertips

### Dashboard – Instant KPI

- Patient throughout
- Number of examinations by modality type
- Number of examinations in each room
- Statuses of examinations by modality type
- Statuses of examinations in each room

Or the next slide



# Your real-time KPI Dashboard

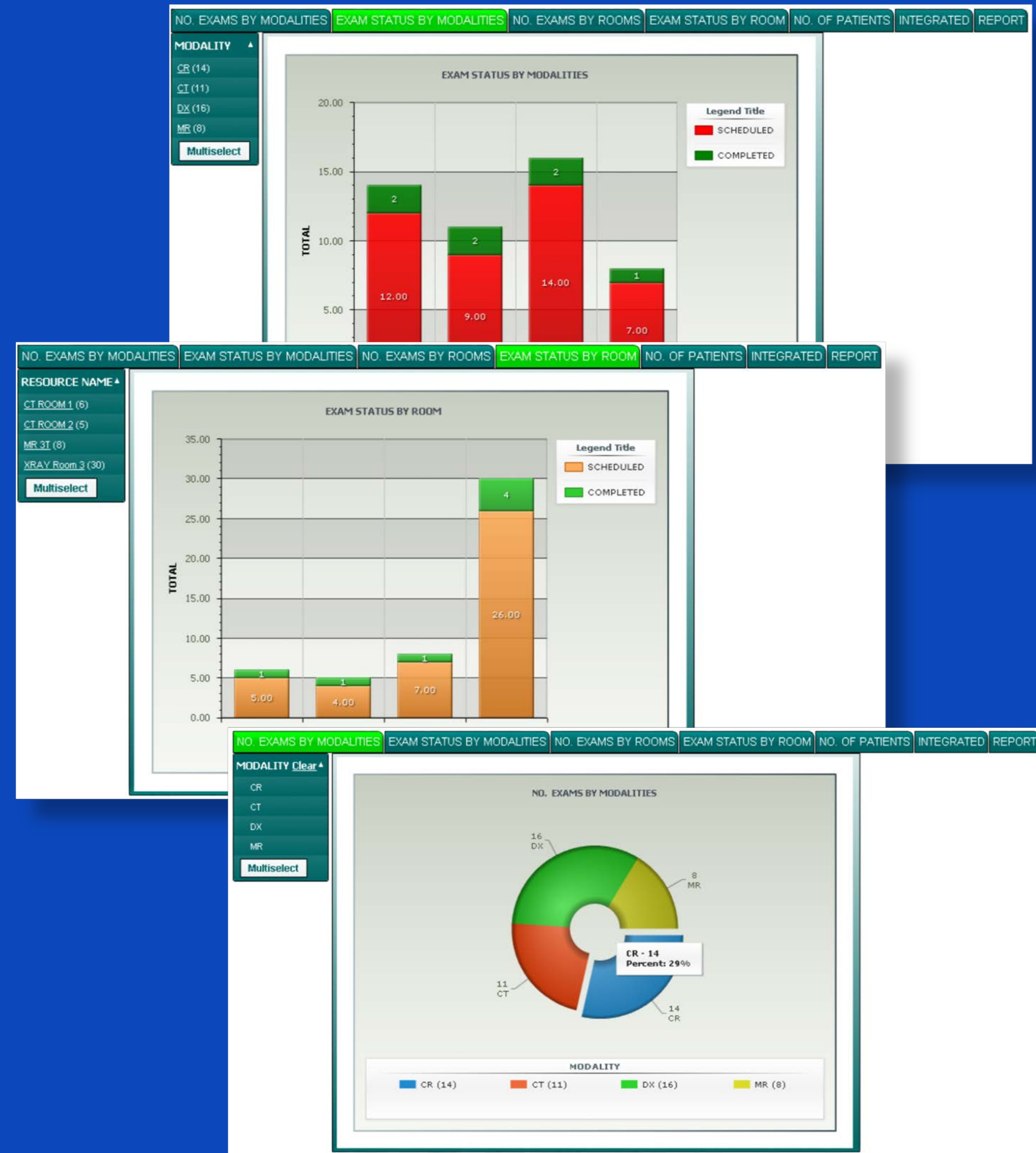
Key Operational Data  
At Your Fingertips

Web-based charts  
on workstations and mobile devices

Displays key parameters  
such as examinations by modalities  
or rooms etc

KPIs at your fingertips  
KPI tracking using real-time data  
exchanges

Access from anywhere  
Using personal computer or mobile devices





# Interoperability – The Ways Moving Forward

Broker between Proprietary Systems and Standards-based systems

## Normalization of System Interfaces

Supports proprietary and standards-based inbound and outbound system interfaces

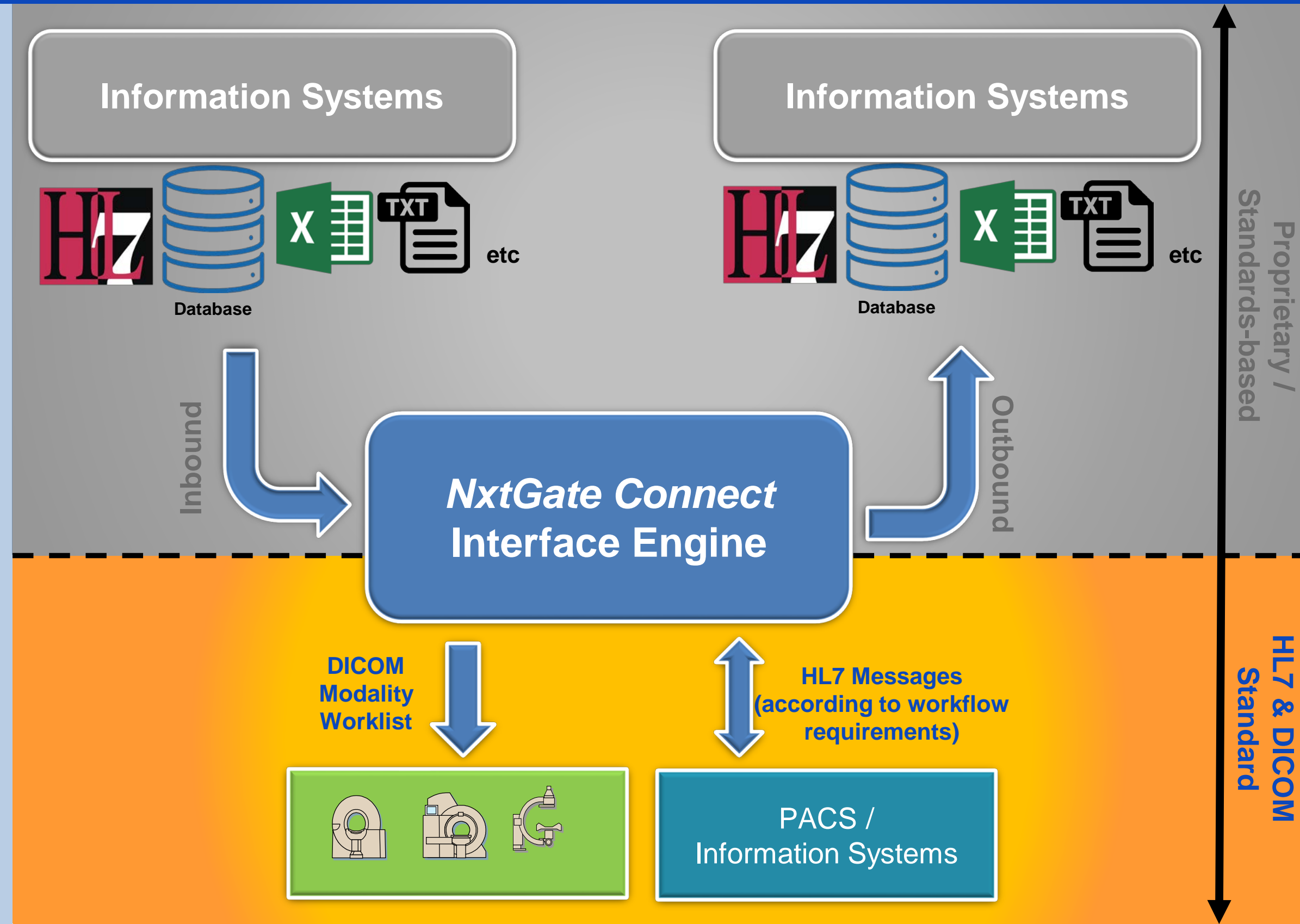
## Preserve existing IT Investments

Maximize utilization of existing IT Systems' investment

## Connected Systems; Connected Workflow

Orchestrate overall workflow via connected systems

## Improved Productivity & Improved Patient Safety



# Living Interoperability – Use Case Example 1

## Meaningful Use of Data

### From Technical Data to Operational Data

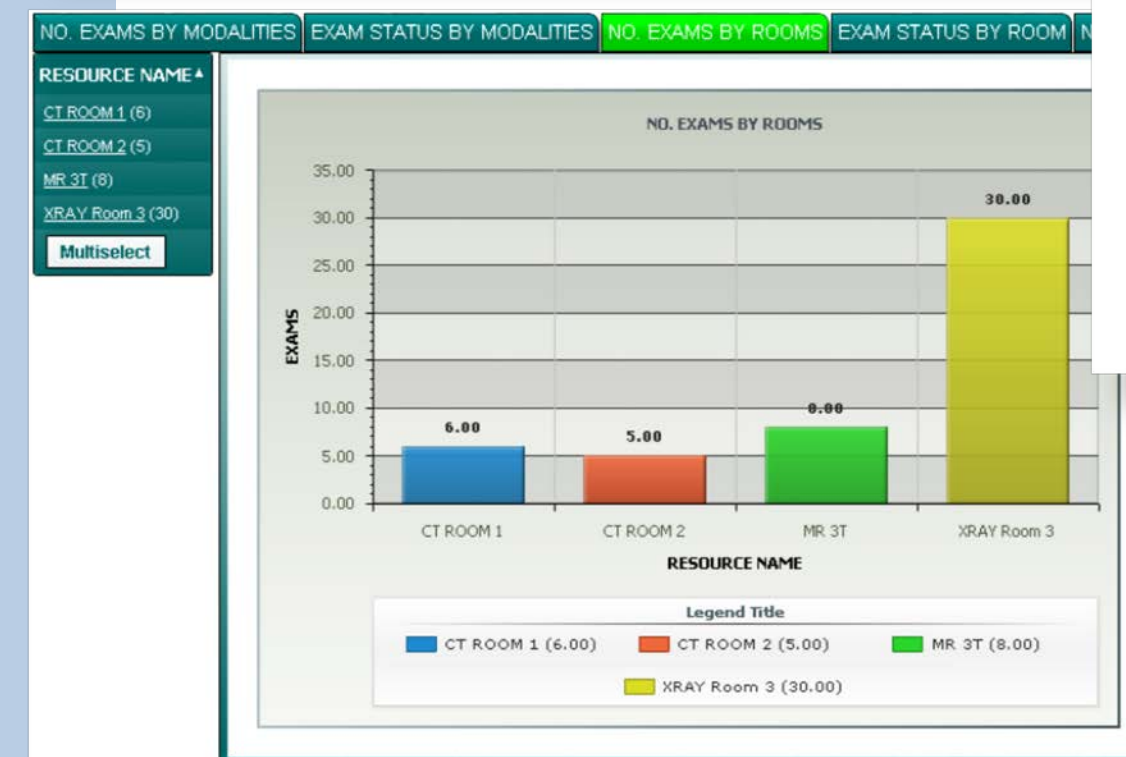
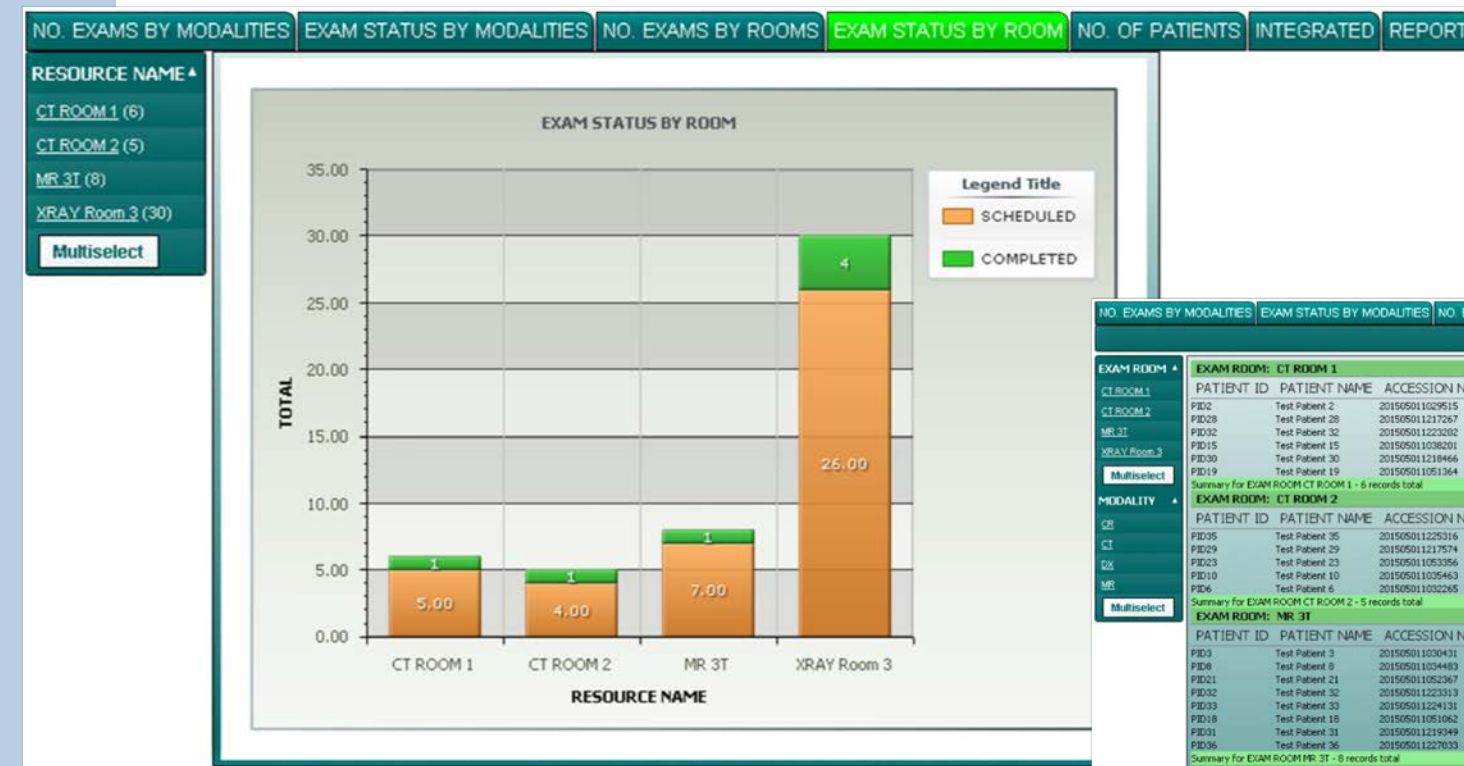
Translate HL7 data content into meaningful operational representation

### Operation Statuses at a Glance

Quick overview of exam statuses, room utilization and patient wait-times

### Operation Data Transparency

Know latest scanner operation statuses



NO. EXAMS BY MODALITIES | EXAM STATUS BY MODALITIES | NO. EXAMS BY ROOMS | EXAM STATUS BY ROOM | NO. OF PATIENTS | INTEGRATED | **REPORT**

EXAM ROOM: CT ROOM 1

PATIENT ID	PATIENT NAME	ACCESSION NUMBER	EXAM START DATE	EXAM START TIME	MODALITY	EXAM DESCRIPTION	WAITING TIME	EXAM STATUS
PID2	Test Patient 2	201505011029515	20150501	1029	CT	CT BUNG	591	COMPLETED
PID28	Test Patient 28	201505011217267	20150501	1217	CT	CT BUNG	587	SCHEDULED
PID32	Test Patient 32	201505011222002	20150501	1223	CT	CT BUNG	586	SCHEDULED
PID15	Test Patient 15	201505011036201	20150501	1036	CT	CT BUNG	586	SCHEDULED
PID30	Test Patient 30	201505011218466	20150501	1218	CT	CT BUNG	586	SCHEDULED
PID19	Test Patient 19	201505011051364	20150501	1051	CT	CT BUNG	673	SCHEDULED

Summary For EXAM ROOM CT ROOM 1 - 6 records total

EXAM ROOM: CT ROOM 2

PATIENT ID	PATIENT NAME	ACCESSION NUMBER	EXAM START DATE	EXAM START TIME	MODALITY	EXAM DESCRIPTION	WAITING TIME	EXAM STATUS
PID35	Test Patient 35	201505011225316	20150501	1225	CT	CT BUNG	579	COMPLETED
PID29	Test Patient 29	201505011217574	20150501	1217	CT	CT BUNG	587	SCHEDULED
PID23	Test Patient 23	201505011053556	20150501	1053	CT	CT BUNG	671	SCHEDULED
PID10	Test Patient 10	201505011025463	20150501	1035	CT	CT BUNG	689	SCHEDULED
PID6	Test Patient 6	201505011032265	20150501	1032	CT	CT BUNG	692	SCHEDULED

Summary For EXAM ROOM CT ROOM 2 - 5 records total

EXAM ROOM: MR 3T

PATIENT ID	PATIENT NAME	ACCESSION NUMBER	EXAM START DATE	EXAM START TIME	MODALITY	EXAM DESCRIPTION	WAITING TIME	EXAM STATUS
PID3	Test Patient 3	201505011030431	20150501	1030	MR	MR COT SONG	597	SCHEDULED
PID4	Test Patient 4	201505011034483	20150501	1034	MR	MR COT SONG	589	SCHEDULED
PID21	Test Patient 21	201505011052367	20150501	1052	MR	MR COT SONG	575	SCHEDULED
PID32	Test Patient 32	201505011223313	20150501	1223	MR	MR COT SONG	494	SCHEDULED
PID33	Test Patient 33	201505011224131	20150501	1224	MR	MR COT SONG	483	SCHEDULED
PID18	Test Patient 18	201505011051042	20150501	1051	MR	MR COT SONG	569	COMPLETED
PID31	Test Patient 31	201505011219349	20150501	1219	MR	MR COT SONG	488	SCHEDULED
PID36	Test Patient 36	201505011227033	20150501	1227	MR	MR COT SONG		SCHEDULED

Summary For EXAM ROOM MR 3T - 8 records total

EXAM ROOM: XRAY Room 3

PATIENT ID	PATIENT NAME	ACCESSION NUMBER	EXAM START DATE	EXAM START TIME	MODALITY	EXAM DESCRIPTION	WAITING TIME	EXAM STATUS
PID35	Test Patient 35	201505011225224	20150501	1225	DX	AP	482	SCHEDULED
PID24	Test Patient 24	201505011054067	20150501	1054	DX	AP	573	SCHEDULED
PID27	Test Patient 27	201505011214556	20150501	1216	DX	AP	491	SCHEDULED
PID7	Test Patient 7	201505011033421	20150501	1033	DX	AP	510	SCHEDULED
PID20	Test Patient 20	201505011052090	20150501	1052	DX	AP	576	SCHEDULED
PID4	Test Patient 4	201505011031199	20150501	1031	DX	AP	596	SCHEDULED
PID22	Test Patient 22	201505011052627	20150501	1053	DX	AP	567	COMPLETED
PID9	Test Patient 9	201505011035207	20150501	1035	DX	AP	507	SCHEDULED
PID12	Test Patient 12	201505011036520	20150501	1036	DX	AP	581	SCHEDULED
PID14	Test Patient 14	201505011037530	20150501	1037	DX	AP	583	COMPLETED
PID7	Test Patient 7	201505011033321	20150501	1033	DX	AP	580	SCHEDULED
PID18	Test Patient 18	201505011050574	20150501	1050	DX	AP	577	SCHEDULED
PID4	Test Patient 4	201505011031103	20150501	1031	DX	AP	576	SCHEDULED
PID33	Test Patient 33	201505011224018	20150501	1224	DX	AP	481	SCHEDULED
PID31	Test Patient 31	201505011219261	20150501	1219	DX	AP	489	SCHEDULED
PID32	Test Patient 32	201505011222341	20150501	1222	DX	AP	485	SCHEDULED
PID34	Test Patient 34	201505011224445	20150501	1224	CR	XQUANG NGUC	489	SCHEDULED
PID5	Test Patient 5	201505011031549	20150501	1031	CR	XQUANG BUNG	586	SCHEDULED
PID17	Test Patient 17	201505011050228	20150501	1050	CR	XQUANG PHOC	570	COMPLETED
PID30	Test Patient 30	201505011218370	20150501	1218	CR	XQUANG BUNG	486	SCHEDULED
PID1	Test Patient 1	201505011029943	20150501	1029	CR	XQUANG BUNG	580	SCHEDULED
PID1	Test Patient 1	201505011029147	20150501	1029	CR	XQUANG NGUC	580	COMPLETED
PID16	Test Patient 16	201505011038569	20150501	1038	CR	XQUANG BUNG	580	SCHEDULED
PID16	Test Patient 16	201505011039647	20150501	1039	CR	XQUANG PHOC	580	SCHEDULED
PID11	Test Patient 11	201505011026208	20150501	1026	CR	XQUANG NGUC	511	SCHEDULED
PID25	Test Patient 25	201505011216248	20150501	1216	CR	XQUANG BUNG	471	SCHEDULED
PID6	Test Patient 6	201505011032411	20150501	1032	CR	XQUANG PHOC	571	SCHEDULED
PID6	Test Patient 6	201505011032457	20150501	1032	CR	XQUANG PHOC	571	SCHEDULED
PID13	Test Patient 13	201505011037239	20150501	1037	CR	XQUANG BUNG	580	SCHEDULED
PID17	Test Patient 17	201505011050138	20150501	1050	CR	XQUANG NGUC	571	SCHEDULED



# Living Interoperability – Use Case Example 2

## Automated PhilHealth Forms / Claims Submission

### Effective & Efficient Data Input

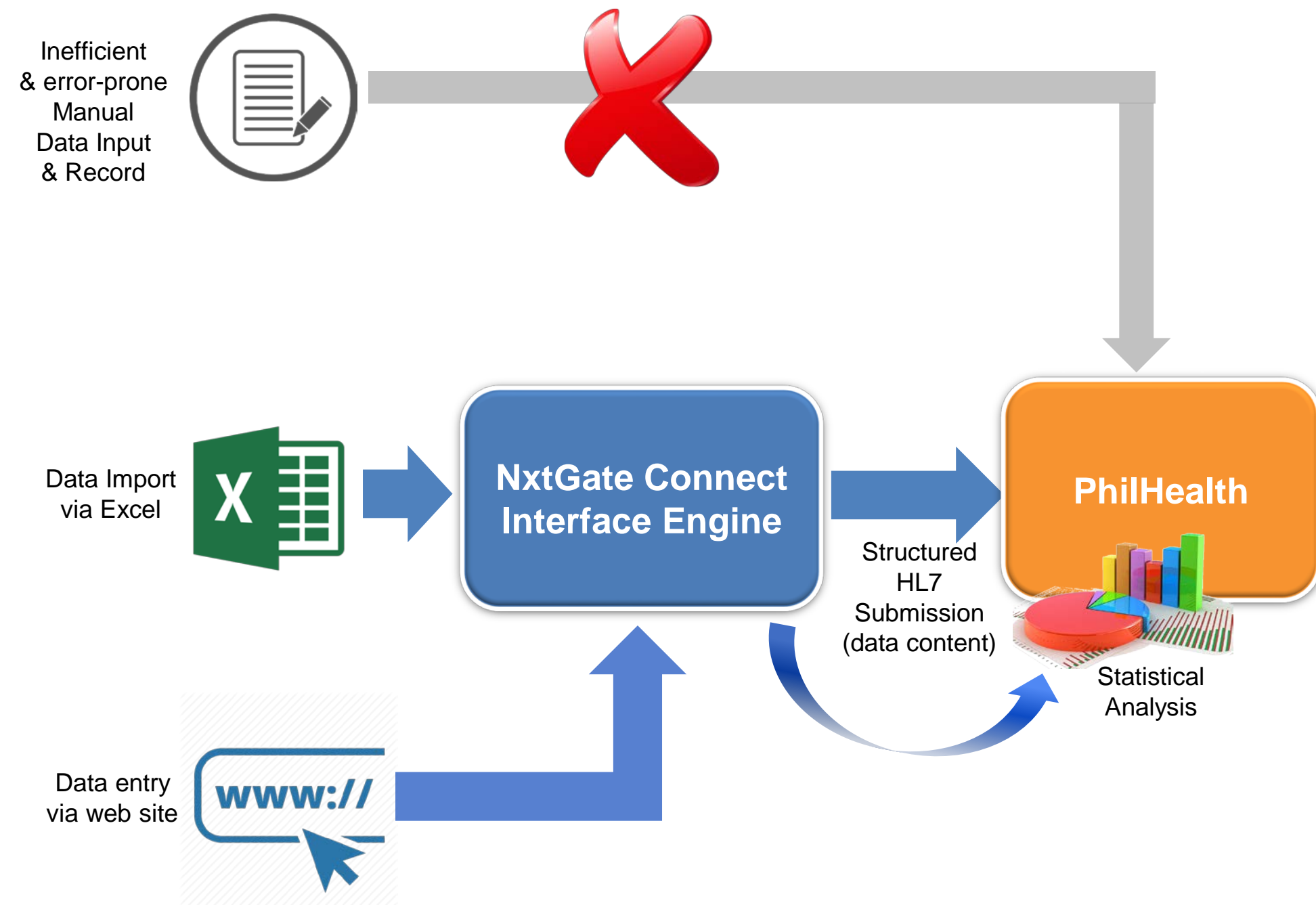
Guided data collection via Excel file import or data entry in customized web link

### Structured HL7 Data Content Submission

Automated forms/ claims submission in structured data format  
Statistical analysis based on structured data

### Statistical analysis based on structured data

via standardization of content submission



# Living Interoperability – Use Case Example 3

## Alerts Management for Patient Monitoring (vital signs)

### Alert Triggering

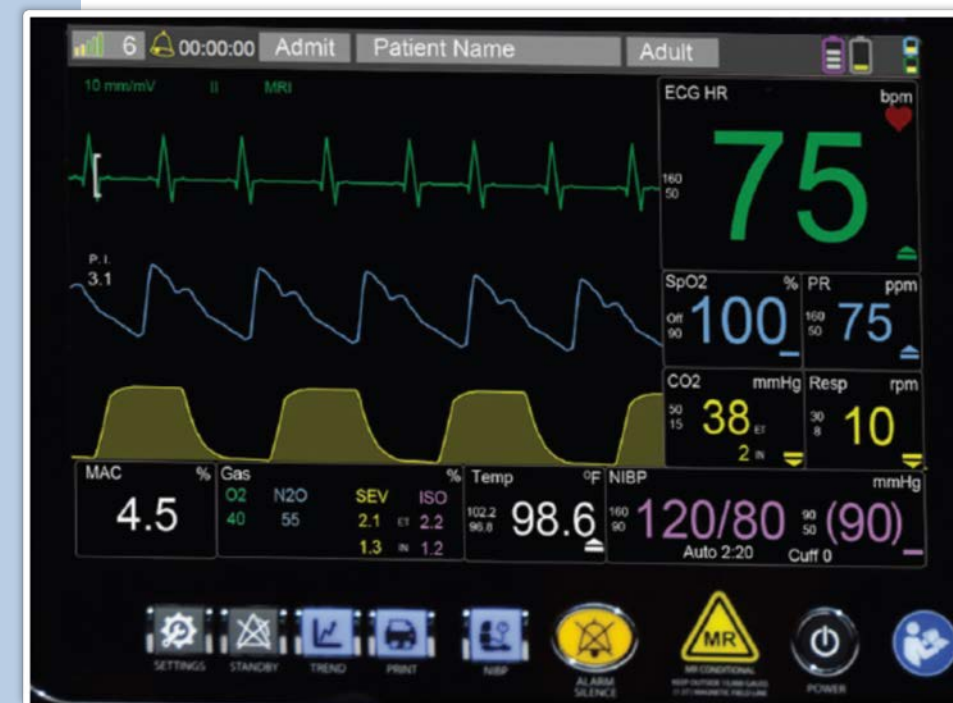
Based on preset threshold for various vital signs

### Improved care management

Alerts displayed on-screen with alarm, or SMS or WhatsApp messages sent to care stakeholder

### Data Repository

Keeping record of all vital signs of patients for any purposes



HL7  
message  
(vital signs)



Alert triggered at Nurse Station  
when preset threshold exceeded

NxtGate Connect  
Interface Engine



Alert triggered as notifications  
when preset threshold exceeded

# Values of *Connected Interoperability*



## Clinical Benefits

---

- ✓ Eliminates data entry error with DICOM Modality Worklist
- ✓ Ensures data integrity between systems (HIS/RIS, modalities and PACS)
- ✓ More time spent caring for patients



## Operational Benefits

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- ✓ Boost productivity with digital workflow (DICOM Modality Worklist)
- ✓ Dashboard presenting real-time operation status of the department
- ✓ Improved quality of patient handling

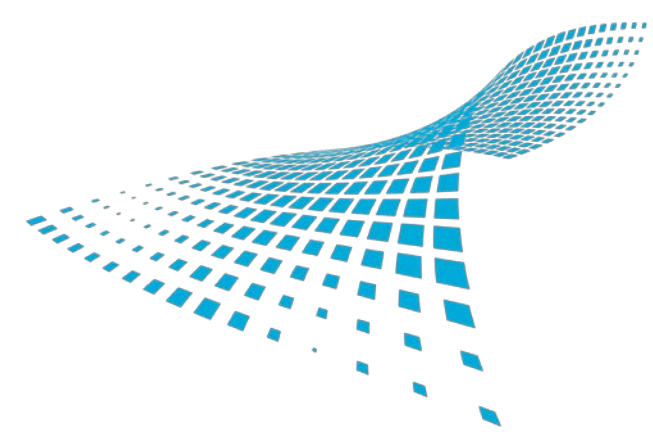


## Financial Benefits

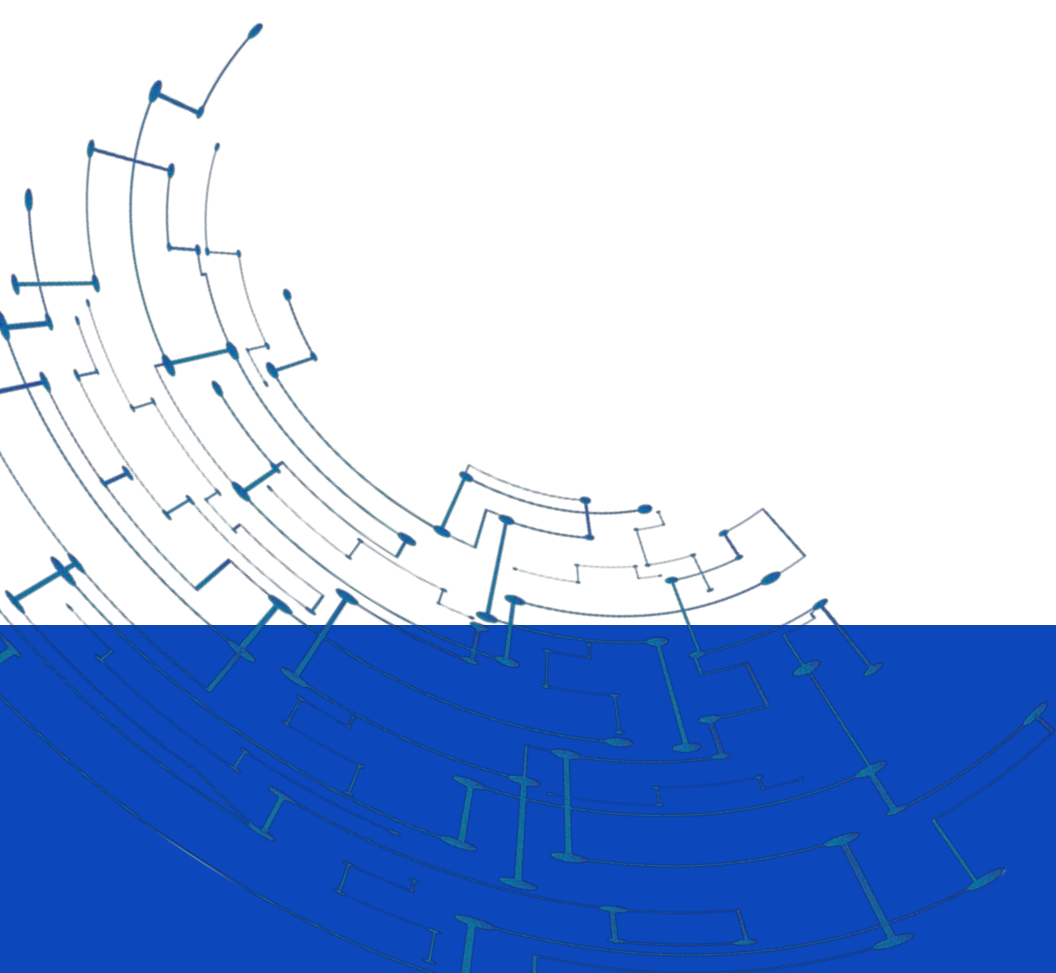
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- ✓ Improved efficiency and effectiveness, hence cost savings by eliminating manual processes
- ✓ Improved productivity creating opportunity to handle more examinations
- ✓ Maximize equipment investment. Ensure all modalities are better utilized

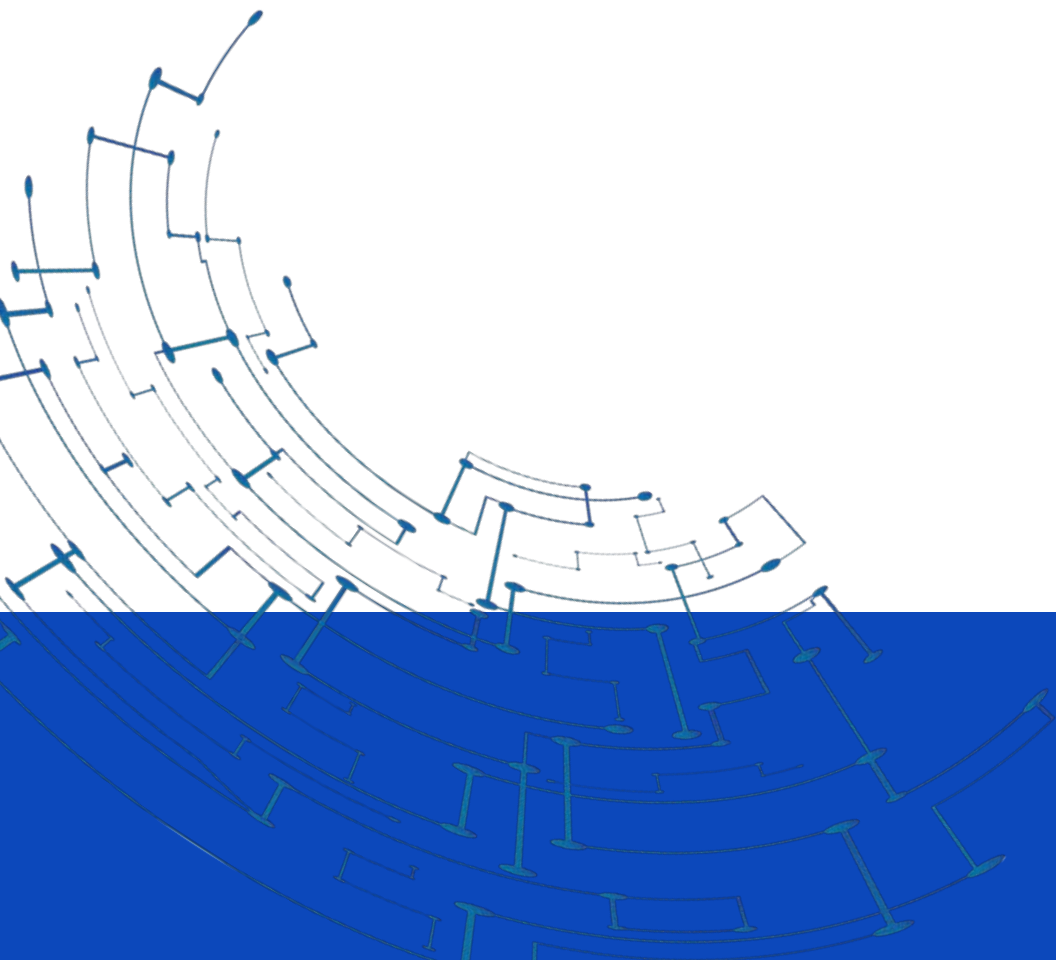




**Thank You**

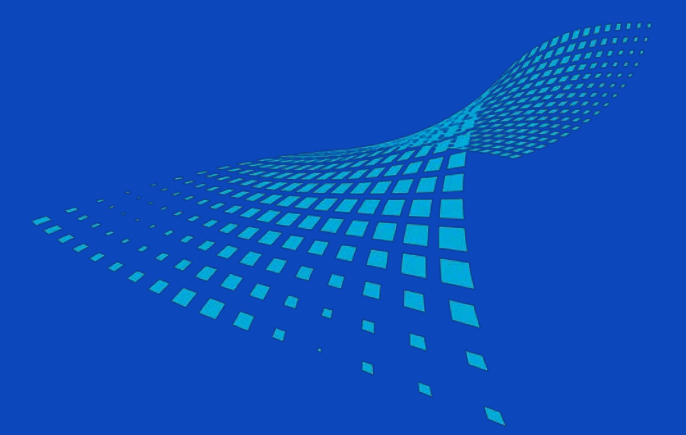


# Backup Slides



# Before we begin

## Questions around digitalization and system interfacing



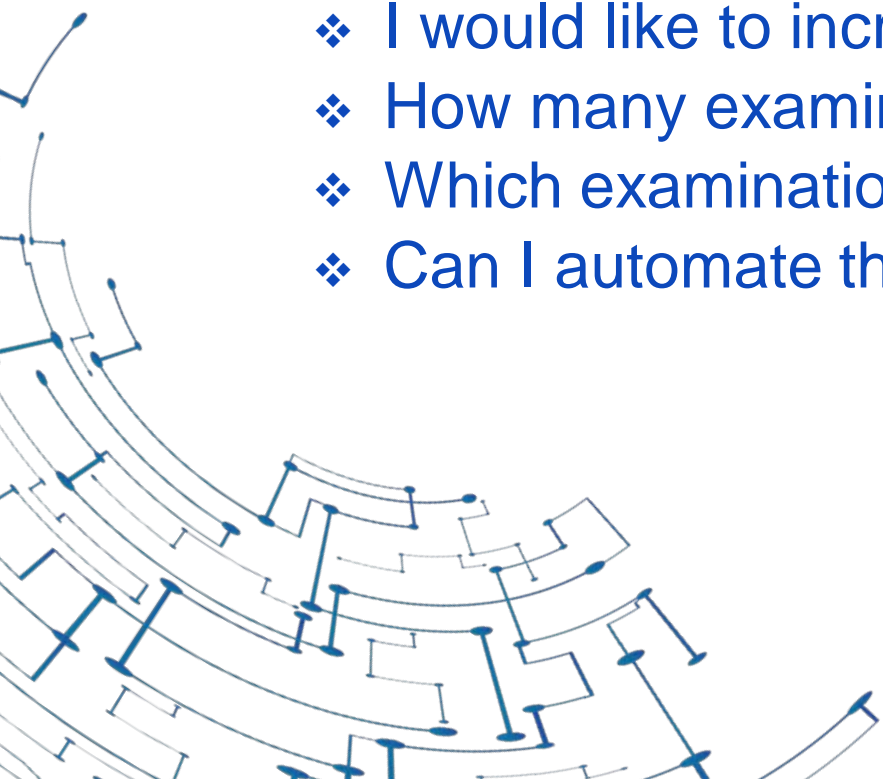
### □ Points to ponder:

#### Digitalization

- ❖ Where can I start with digital workflow in my department?
- ❖ What data automation can I achieve?

#### Operational

- ❖ Do I know at any point in time, how is your department performing?
- ❖ Do I know if patients are waiting longer at certain examination rooms?
- ❖ I would like to increase patient throughput in my department?
- ❖ How many examinations are scheduled and how many of them are completed?
- ❖ Which examination room is experiencing issues handling patient load?
- ❖ Can I automate the process of forms / claims submission and eliminate manual errors?





# Before we begin

## Questions around digitalization and system interfacing

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The screenshot shows the APACMed website with a header navigation bar. The main article title is "Digitizing Healthcare: Understanding the Key Trends, Benefits and Challenges of Digital Health" dated July 1, 2022. The article content includes an introduction, a list of benefits of digitizing healthcare (improved accuracy, quality, access, reduced cost, increased efficiency), a section on healthcare digitization around the world (electronic health records, telemedicine, wearable devices), and a list of challenges in digitizing healthcare (regulations, reimbursement, interoperability, digital literacy, data security, willingness to adopt). A green checkmark icon is placed next to the benefits list, and a yellow diamond-shaped "Challenge" sign is placed next to the challenges list. The "Interoperability" item in the challenges list is highlighted with a red rectangular box.

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Digitizing Healthcare: Understanding the Key Trends, Benefits and Challenges of Digital Health  
July 1, 2022

Digitizing Healthcare: Understanding the Key Trends, Benefits and Challenges of Digital Health

Digital health solutions have radically changed the way patients interact with healthcare professionals and receive treatment. They've also reshaped the way patients consume and share medical information and data.

By digitizing healthcare, medical providers can enjoy more streamlined processes and a wider range of options with regard to the prevention, diagnosis and management of diseases. Patients can also make better and more informed decisions about their health and treatment options.

This global shift in the healthcare industry has brought about a wide range of innovative technologies including telemedicine, electronic health records (EHRs), robotic nurse assistants, 3D-printed prosthetics and tissues and portable connected medical devices.

- Benefits of Digitizing Healthcare
  - Improves accuracy of diagnosis
  - Improves quality of healthcare
  - Improves access to healthcare
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  - Regulations and legislations
  - Reimbursement
  - Interoperability
  - Digital literacy
  - Data security and privacy
  - Willingness to adopt technology

ALL PUBLIC RESOURCES

ALL MEMBERS RESOURCES

Challenge

Source: <https://apacmed.org/digitizing-healthcare/>