Innovations in PPPs

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Global Lead on PPPs and Greenfield Hospitals

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Who we are

€14.5bn revenue\(^1\)  
+$3.2bn revenue\(^1\)

>70 countries with direct presence

\~66,000 highly skilled employees

22,000+ technical IPRs, thereof 14,000 granted patents

>90% of leading hospitals collaborate with us\(^2\)

Market leader in majority of businesses

>60 AI-supported product offerings

>35% of revenues based on innovations introduced in last three years\(^3\)

>70% of critical clinical decisions are influenced by the type of technology we provide\(^4\)

>600,000 installed base

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1 Revenue FY 2020 Siemens Healthineers/Varian Medical Systems  |  2 Based on hospital rankings in the U.S., China, and Germany  |  3 Targeted on a regular basis, 2020 = ~40%  |  4 AdvaMedDX, "A Policy Primer on Diagnostics"

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Siemens Healthineers – A market leader with a broad portfolio

In-vivo and in-vitro diagnostics, advanced therapies, digital solutions and enterprise services

Imaging ————————————  Diagnostics ————————————  Advanced Therapies ————————

AI-powered post-processing  Research  Service & Education  Value Partnerships and PPPs

Digital Health & AI | Customer Services | Enterprise Services

The products/features (mentioned herein) are not commercially available in all countries. Their future availability cannot be guaranteed.
Role of Innovations in PPPs
Today’s healthcare providers face unique and unprecedented challenges

- Patient populations are evolving
- The importance of patient experience is growing
- Qualified clinical staff are in short supply
- The cost of providing care is rising overall
- Impact of Digitalization & Transformation

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The importance of medical technology for healthcare has significantly increased and requires holistic management

- Nearly every patient pathway is touched by medical technology. They have become the central nervous system of healthcare.
- Capital technology purchases are large investments. To achieve the best return clear insights into capacity & demand are essential.

Medical technology has become the ‘central nervous system’ of healthcare

Source and more information: Improving medical technology management through Value Partnerships, SHS 2019
UN Sustainable Development Agenda 2030 sees PPPs as an instrument to closing infrastructure and services gap by 2030
Target 17.17:
Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnership

Indicator 17.17.1
Amount in United States dollars committed to public-private partnerships for infrastructure
Formula for Successful PPPs

Value for Money + Value for People + Innovations
What are Current Innovations?
Transformational changes will increase value

We believe medicine will become more precise
Diseases will be precisely diagnosed.
Therapy will be tailored to every individual.

We believe value will shape care delivery
Organized around the patient’s medical condition.
Reduced costs with no sacrifice in outcomes.

We believe patients will become consumers
Engaged in managing their health.
They will be well informed and exercise choice.

We believe healthcare will be digital
Digital technologies will change the very nature of wellness and healthcare.
Current Innovations (Data, Products, Services, Concepts)

- Smart use of available data
- Wide use of AI, VR, blockchain

- Telehealth
- Digital Twin of human body

- Innovative medical equipment and care
  - Precision medicine
  - Technology banding
  - Technology obsolescence management

- Digital Twin of the building (e.g. (BIM))
- Hospital without walls
- Smart Hospitals
- Climate Resilient Hospitals

- Healing Environment
We believe the future of healthcare will bring fundamental changes

We believe that four strategies are essential

Expanding precision medicine

Transforming care delivery

Improving patient experience

Digitalizing healthcare
Digitalizing healthcare

Integrate accurate data from fragmented sources. Create a holistic understanding of patients and enterprise visibility with digital twins.

Leverage analytics, benchmark insights and use digital companions to simplify workflows and to enable decision support.

Connect caregivers and patients for better coordination and knowledge sharing. Strengthen integrated care across the health system.

Continuously optimize, expand and advance digital adoption, enterprise performance and patient outcomes.

**Manage data as a strategic asset**

**Empower data-driven decisions**

**Connect care teams and patients**

**Build a learning health system**

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**teamplay digital health platform**

Cross-institutional interoperability, and access to transformative applications

**Al-Pathway Companion**

Clinical decision support system

**eHealth Virtual Visit** expands access to health care by enabling healthcare providers to reach their patients virtually

**PEPconnect**

Personalized online education experience designed for healthcare professionals

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*The products/features and/or service offerings (here mentioned) are not commercially available in all countries and/or for all modalities. Future availability cannot be guaranteed.*

*This function is supported by Al-Pathway Companion Analytics. This function is supported by Al-Pathway Companion Prostate Cancer. Prerequisite: “All data is available as required per guideline.” Feature dependent on quality of input data. Al-Pathway Companion Prostate Cancer VAS101/VA108 supports prostate cancer adenocarcinoma cases only. Al-Pathway Companion Prostate Cancer VAS101/VA108 supports NCCN and EAU guidelines only. Al-Pathway Companion Prostate Cancer is CE-compliant in accordance with Directive 93/42/EEC. Al-Pathway Companion applications are not commercially available in all countries. Their future availability cannot be guaranteed.*

*eHealth Solutions consist of several products of ITH icoreserve technology for healthcare GmbH - A Siemens Healthineers Company, Innsbruck, Austria. Products of eHealth Solutions are not intended for diagnostic purposes. These product offerings are not commercially available in all countries. Please contact your local Siemens Healthineers organization for further information.*

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Digitalizing Healthcare – Example offerings

### Steps

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<th>Value Area</th>
<th>Manage data as strategic asset</th>
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### Precision Medicine

- Intelligent medical devices
- High quality data, with common syngo user interface
- Syngo, share with VNA
- Archiving of data across modalities from multiple departments
- Syngo.via OpenApps
- Integration of 3rd party applications
- eHealth Solutions
- Medical data platform

### Care Delivery

- Digital Transformation Consulting service
- Business Strategy Consulting service (with ECG)
- Syngo. via
- Multimodality reading/results
- Smart Remote Services
- Secure data connection for remote services
- Medicalis Referral Mgmt.
- Referral mgmt. solution
- Syngo.plaza PACS
- Enterprise imaging IT system
- eHealth Patient Portal
- Access to health data
- PEPConnect
- Central learning platform

### Patient Experience

- Teamplay myCare companion
- Remote patient management
- SHUI
- Harmonized, user-friendly design system
- Digital Transformation Consultancy service
- Pathway Excell.
- Patient journey consultancy service

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2. Siemens Healthineers is neither the provider nor reseller nor legal manufacturer of external partner applications. Any claims made for these products are under the sole responsibility of the legal manufacturer. Additionally, the partner applications may not be commercially available in all countries.

3. eHealth Solutions consists of several products of (Health) Technology for healthcare GmbH.

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Three Key Phases for Integrating Innovations
Three Key Phases for Integrating Innovations

- Project Design Phase
- Procurement Phase
- Project Implementation Phase
01 | Integration of Innovation during Project Design Stage
Project Design
SitePlanner: Real-time, interactive and virtual experience

2D view
Compare and discuss various design options

3D view
Experience the impact of changes to existing layouts

First-person view
Visit and adjust your new department before it is even build

Find information on the SitePlanner here
Project Design
Digital Workflow Simulations

Today

• Facility layout
e.g., CAD floor plan

• Pathways
e.g., patient tracks and workflows

• Activity parameters
e.g., processing times, staff requirements

• Patient classification
e.g., patient mix, patient characteristics

• Operational data
e.g., RIS/LIS/HIS/EHR etc.

Input

Digital Twin

• Simulate
future operations and layouts

• Predict
and compare scenarios

• Stress-test
your current operations

Outcome

Future

Improved

• Patient experience

• Staff satisfaction

• Clinical efficiency

Find more information here
Remote scanning assistance

**syngo Virtual Cockpit** enables you to provide comprehensive scanning assistance to imaging personnel – regardless of their physical location.

### Core features:

- Real-time knowledge sharing across teams and sites
- Live video, audio, and chat functions
- One experienced technologist can collaborate with up to three scanning workplaces simultaneously
- For MR, MR-PET and CT scanners from Siemens Healthineers

**Two setups in the spotlight:**

1) Embedded technologists share knowledge
2) Experts at central site support entire network

**syngo Virtual Cockpit** is not yet commercially available in all countries. Its future availability cannot be guaranteed. Prerequisite: Expert-i-enabled modality from Siemens Healthineers.
02 | Integration of Innovation during Project Procurement Stage
From Procurement to Value Based Procurement

**Price-based procurement**
- Product or service specification
- Purchase price
- Focus on cost savings

**Output-based procurement**
- Device output and cost effectiveness
- Total Cost of Ownership (TCO)
- Focus on technical performance against TCO

**Value-based procurement**
- Health outcomes, treatment results and patient satisfaction
- Total Costs of Care (TCC)
- Focus on getting the maximum patient results against TCC

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Benefits of Value Based Procurement

- Holistic process that focusses on getting the most value out of each procurement
- Helps to build engagement and buy-in from all stakeholders who will work with or be impacted by the procurement and allows them to have a real impact in the process
- The approach gives a great opportunity to focus on value beyond purely technical specifications and output metrics
- Ensures the right equipment is selected to the tailored needs of the department / hospital
- Clear, defined process ensuring compliance to required procurement conditions
- SHS has a stringent supplier quality management system. This ensures performance from all suppliers is monitored closely and tracked, ultimately helping to reduce your hospital's risk. The administrative burden of supplier management is transferred to allow your hospital to focus on its core tasks.
03 | Integration of Innovation during Project Implementation Stage
Optimizing your operations management with and end-to-end solution from a trusted Value Partner

- Facility planning and construction
  - Master design and layout planning
  - 3D-visualization and workflow simulation
  - Green field building construction
  - Integration in existing hospital

- Budgeting and financing
  - Demand and capacity analysis
  - Long-term business plan
  - Customer orientated financing solution

- Project management
  - Certified project manager
  - Excellent Siemens Healthineers project management know-how
  - Proactive risk management (time, budget, scope)

- Technology Management
  - Multi-vendor technology provision
  - Technology management
  - Procurement and replacement
  - Maintenance and upgrades
  - Digital platforms

- Clinical operations management
  - Integrated staffing solutions
  - Tailored education programs
  - Teleradiology
  - Quality management
  - KPI-monitoring
  - Warehouse and supply chain management
Technology Management can help your healthcare enterprise be more successful

Technology management goes beyond hardware and software maintenance and considers the overall technology lifecycle.

It affects:

• Purchasing decisions
• Digital technology management
• Performance and utilization
• Unlocking staff potential with training and education

A robust medical technology management program is a critical component of a successful healthcare enterprise

Value Partnerships enable both parties to work toward common goals – including performance sharing if appropriate

Effective partnerships can transform care delivery by increasing efficiency, reducing costs, and improving patient care
**RealTime Location Services** use sensor-based tracking technology to identify places and locate objects, patients\(^1\) and staff\(^1\) in healthcare facilities.

In this service, all objects are equipped with sensor-based tags that use wireless transmission to continuously provide their location data to receivers installed throughout the institution.

The data are postprocessed into actionable insights, and visualized through virtual interfaces.

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\(^1\) This service is under development and not commercially available. Its future availability cannot be ensured.
Siemens Healthineers looks back at many years of experience in PPPs globally in all phases of the projects

Pre-contractual phase:
• Support with project financing
• Facility design and workflow consulting
• Equipment lifecycle management

Operational phase of a PPP:
• Value-based procurement
• Right-sized technology refreshment

Improving running operations:
• KPI-driven maintenance
• Asset performance management
• Uptime services
Smart Hospitals
Improving CO₂ footprint and security of supply – Distributed Energy Systems and MICROGRID approach for Hospitals

DES: Industrial sites integrating production, logistics and multi-purpose building with renewable generation and storage

Enhancing energy efficiency, power quality and resilience further through a Microgrid solution

- Transmission Grid
- Renewable Generation
- CoGen
- Storage (elect./heat)
- Microgrid management
- Prognosis
- Prime Energy
- Reliable supply of processes

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Background

The Royal Edinburgh Hospital is a psychiatric hospital in Morningside Place, Edinburgh, Scotland. It is managed by NHS Lothian. A modern hospital on the same site was procured under the Scottish government’s non-profit distributing model in January 2015. The first phase of the new hospital was built by Morrison Construction at a cost of £45 million and completed in January 2017.

Project Scope

Design, supply, installation, testing and commissioning of Emergency Power Management System (EPMS) incl. Medium Voltage protection relays:
- Remote Control units: SICAM AK3/ SICAM A8000
- Measuring/ Quality devices: SICAM P50/ SICAM Q100
- SICAM SCC + RuggedCom: SCADA System
- SIPROTEC: Protection Devices

Customer Benefits

- Fast reaction time to prevent blackouts
  Cost reduction
  ~130k€ per power outage incident
- Fulfilment of governmental requirements
  for critical infrastructure
- Increase reliability of Energy supply due high level redundancy
- “One face to the customer” via Siemens SI RSS
Our PPP Experience in Digital Health & IT
### Siemens Healthineers – UHNM PACS MES

**Type of project:** PPP  
**Size and scope:** PACS MES. PACS hardware and software provision comprising approximately 80 workstations and associated servers across three separate sites. Outsourced to third party (Sectra) as part of multi-vendor MES service  
**Delivery mode:** Supply of services, operations and maintenance (O&M)  
**Value of the contract:** confidential  
**Contract awarded:** 19/07/2007  
**End of contract:** 31/01/2023  
**Payment method:** Unitary payment  
**Duration:** 15 years; +10 yrs following Market Test1: +10 yrs following Market Test2  
**Contracting authorities:** UHNM NHS Trust  
**Bid-winning consortium:** Siemens Healthineers

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<td>Private partner (Sectra)</td>
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<td>Demand</td>
<td>Public Service (UHNM NHS Trust)</td>
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Siemens Healthineers – Royal Blackburn Hospital PPP Project

Type of project: PPP
Size and scope: Radiology and PACS and approx. 450 beds hospital
Delivery mode: Off site supply of equipment and operational management
Contract awarded: 2004
End of contract: 2042
Value of the contract: confidential
Payment method: Annual Fee paid in monthly instalments
Duration: 35 years
Contracting authorities: East Lancashire Health Authority
Bid-winning consortium: Siemens Healthineers

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<td>Demand</td>
<td>Public</td>
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Risk Allocation Table

Photo Siemens Healthineers: Royal Blackburn PPP Project

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Siemens AG – PPP Hercules IT Project

Type of project: PPP
Size and scope: standardization and modernization of Bundeswehr non-military information and communications technology (ICT) and introduce SASPF (Standard-Anwendungs-Software-Produkt-Familien). All Bundeswehr sites were equipped with new ICT by 2012 and have since been operated by BWI. 140,000 computer workstations, 7,000 servers, 300,000 fixed-network telephones and 15,000 cell phones were set up for this purpose at 1,500 locations in Germany.

Delivery mode: Services and supply of IT Infrastructure
Estimated value of the contract: 7.8 bln EUR
Contract awarded: 2006
End of contract: 2016
Payment method: Annual fee paid in monthly instalments
Duration: 10 years

Contracting authority: German Bundeswehr

Bid-winning consortium: the BWI service group (Siemens AG and IBM)
Prizes: As part of the “Efficient State” administrative congress, the Bundeswehr and the BWI service group were awarded the Public Private Partnership (PPP) 2011 innovation prize in the “Information Technology” category for the joint HERKULES project. The prize is awarded annually by the Federal Association of Public Private Partnerships and the Spiegel authorities.
On November 20, 2012, BWI Informationstechnik GmbH received the Service Desk Award for the construction and operation of the Bundeswehr’s User Help Desk (UHD) as the best UHD at the 16th IIR Technology Service Desk Forum in Mainz.

Hercules – largest IT PPP project
Thank you for your enthusiasm!

Siemens Healthineers

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