

# **A strategic approach, analysis, and measurement of the digital readiness of hospitals, staff, local communities, and citizens**

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# Strategy, Tactics & Operations

PRIMARY FACTORS	SECONDARY FACTORS	WHO - EU - Slovenia & Croatia	NATIONAL HEALTH STRATEGY
Strategy	Leadership	WHO - Global strategy on health	The Future of the Health
Structure	Talents	E - Zdravstvo: Croatia	Promotion
Culture	Innovation	Digital transformation: Germany	Prevention
Execution	Merger & Acquisition	EU4Health programme 2021 - 2027	Protection
4	2	Practice, Framework & Imitation	Prediction
			Precision
			Participation & Personalisation

# Digital Readiness in the National Health Service

**1. Electronic Health Record (EHR) adoption:** The adoption of EHRs is a crucial indicator of digital readiness in the NHS. EHRs enable healthcare providers to store and share patient data electronically, improving the speed and accuracy of clinical decision-making.

**2. Digital maturity assessments:** The NHS uses a digital maturity assessment framework to assess the digital readiness of healthcare organisations. This framework measures the maturity of an organisation across a range of digital capabilities, such as clinical systems, information governance, and digital inclusion.

**3. Telehealth and telemedicine capabilities:** Telehealth and telemedicine allow patients to access healthcare remotely, reducing the need for in-person visits and improving access to care. Adopting telehealth and telemedicine technologies is a crucial indicator of digital readiness in the NHS.

**4. Patient engagement and digital communication:** Digital communication tools, such as patient portals and mobile apps, can improve patient engagement and enable patients to access healthcare information and services more efficiently. The adoption of these tools is an indicator of a healthcare organisation's digital readiness.

**5. Interoperability:** Interoperability refers to the ability of different healthcare systems and technologies to communicate. Adopting interoperability standards indicates digital readiness in the NHS, enabling healthcare providers to share data and coordinate care more effectively.

**6. Cyber security and data privacy:** As healthcare organisations increasingly rely on digital technologies, ensuring the security and privacy of patient data is crucial. The adoption of cybersecurity measures and data privacy policies is an indicator of digital readiness in the NHS.

# Quality standards and digital readiness

- 1. NHS Digital Maturity Analysis:** The framework assesses the digital capabilities of NHS organisations, including hospitals. It consists of a set of criteria and indicators that are used to evaluate an organisation's digital readiness and maturity.
- 2. DigitalHealth Technology Standard:** This standard was developed by NHS Digital to guide the development and implementation of digital health technologies. It outlines best practices for designing, developing, testing, and deploying digital health technologies.
- 3. ISO/IEC27001** is an international standard that outlines best practices for information-security management systems (ISMS). It provides a framework for hospitals and other healthcare organisations to manage and protect sensitive patient data.
- 4. The HIMSS Analytics Electronic Medical Record Adoption Model (EMRAM):** This model is used to assess the level of adoption and maturity of EHR systems in hospitals. It consists of eight stages, with Stage 7 representing the highest level of digital maturity.
- 5. The European Commission's eHealth Benchmarking Framework:** This framework assesses the adoption and use of eHealth technologies in European countries. It includes indicators related to the adoption of EHRs, telemedicine, patient access to health records, and other areas

# The leading digital indicators for hospitals

- 1. Electronic Health Record (EHR) adoption:** The adoption of EHRs is a crucial indicator of digital readiness in hospitals. EHRs enable healthcare providers to store and share patient data electronically, improving the speed and accuracy of clinical decision-making.
- 2. Telehealth and telemedicine capabilities:** Telehealth and telemedicine allow hospitals to provide healthcare services remotely, reducing the need for in-person visits and improving access to care. Adopting telehealth and telemedicine technologies is a crucial indicator of hospital digital readiness.
- 3. Clinical decision support systems (CDSS):** CDSS provide clinicians with real-time clinical decision-making support using patient data and clinical knowledge. Hospitals can adopt CDSS to improve the quality of care and reduce medical errors.
- 4. Patient engagement and digital communication:** Digital communication tools, such as patient portals and mobile apps, can improve patient engagement and enable patients to access healthcare information and services more efficiently by adopting these indicators of a hospital's digital readiness.
- 5. Interoperability:** Interoperability refers to the ability of different healthcare systems and technologies to communicate. Adopting interoperability standards indicates digital readiness in hospitals, enabling healthcare providers to share data and coordinate care more effectively.
- 6. Cyber security and data privacy:** As hospitals increasingly rely on digital technologies, ensuring the security and privacy of patient data are crucial. The adoption of cyber security measures and data privacy policies is an indicator of digital readiness in hospitals.

# Digital readiness for patients' inclusions

1. **Patient access to electronic health records:** This indicator measures how patients can access their health information electronically through a patient portal or other digital means.
2. **Digital health literacy:** This indicator measures patients' knowledge and skills in digital health technologies, such as mobile apps, telemedicine, and wearables.
3. **Patient engagement in digital health:** This indicator measures patients' willingness and ability to use digital health technologies, such as mobile apps, to track their health data or participate in telemedicine consultations.
4. **Digital health access and equity:** This indicator measures the extent to which patients have access to digital health technologies, including issues related to affordability, availability, and accessibility.
5. **Patient-reported outcomes:** This indicator measures patients' ability to report and track their health using digital tools, such as patient-reported outcome measures (PROMs) or symptom-tracking apps.



# Digital readiness and community integration

1. **Digital readiness and community integration** are closely linked, as digital health technologies have the potential to improve access to healthcare services and support community-based care models. Here are a few indicators for digital readiness and community integration:
2. **Telemedicine adoption:** Telemedicine enables patients to access healthcare services remotely, which can be especially important for patients who live in rural or underserved areas. Telemedicine adoption can be measured by the number of healthcare organisations offering telemedicine services and patients using telemedicine to access care.
3. **Mobile health (mHealth) adoption:** mHealth technologies, such as mobile apps and wearables, can enable patients to monitor their health and communicate with healthcare providers remotely. mHealth adoption can be measured by the number of patients using mobile health technologies and the availability of mobile health technologies in the community.
4. **Digital health literacy in the community:** Digital health literacy is essential for patients to use digital health technologies effectively. Measuring digital health literacy in the community can help identify areas where education and training are needed to support digital health adoption.
5. **Patient engagement in community-based care:** Digital health technologies can support community-based care models by enabling patients to access care outside traditional healthcare settings. Measuring patient engagement in community-based care can help identify opportunities to integrate digital health technologies into existing care models.
6. **Health information exchange (HIE) adoption:** HIE enables healthcare providers to share patient information electronically, which can support coordinated care and community-based care models. HIE adoption can be measured by the number of healthcare organisations participating in HIE and the volume of patient information being exchanged.



# Digital readiness within the hospital departments

- 1. Electronic health record (EHR) adoption:** The adoption of EHRs can help hospital departments streamline clinical workflows, improve patient safety, and enhance care coordination. EHR adoption can be measured by the percentage of hospital departments implementing EHRs and the extent to which EHRs are being used to support clinical workflows.
- 2. Telemedicine and remote monitoring capabilities:** Hospital departments may use telemedicine and remote monitoring technologies to enable virtual consultations and monitor patient health outside the hospital setting. These capabilities can be measured by the extent to which hospital departments use telemedicine and remote monitoring technologies and the number of patients benefiting from these services.
- 3. Clinical decision support (CDS) adoption:** CDS systems can help hospital departments improve clinical decision-making by providing clinicians with relevant information and guidance based on patient data. CDS adoption can be measured by the percentage of hospital departments implementing CDS systems and the extent to which these systems are used in clinical practice.
- 4. Digital training and education:** Hospital departments may provide digital training and education programs to support clinicians' adoption and use of digital health technologies. Digital training and education programs can be measured by the availability of training and education resources within hospital departments and how clinicians use these programs.
- 5. Interoperability and data exchange:** Hospital departments may exchange patient data with other hospital departments or external healthcare organisations. Interoperability and data exchange can be measured by the extent to which hospital departments can exchange patient data electronically and the number of external healthcare organisations with which they are exchanging data.



# Development and implementation of content for readiness in the hospital

- 1. Develop educational materials:** Create educational materials, such as videos, infographics, and guides, to help staff understand the benefits of digital health technologies and how to use them effectively. These materials can help to educate patients about digital health tools and how to access them.
- 2. Provide training and support:** Offer training sessions and ongoing support to staff to ensure they have the knowledge and skills to use digital health technologies effectively. This process can include technical training on specific tools and best practices for using these tools in clinical practice.
- 3. Highlight success stories:** Share success stories and case studies from other hospitals successfully implementing digital health technologies. This approach can help motivate staff and demonstrate the potential benefits of these tools.
- 4. Foster collaboration:** Encourage collaboration between different departments and stakeholders, such as IT, clinical staff, and patients, to ensure that digital health initiatives are aligned with the needs and priorities of the hospital and its patients.
- 5. Involve patients in the process:** Engage patients in developing and implementing digital health initiatives to ensure that these tools are patient-centred and meet the needs of the hospital's diverse patient population.
- 6. Provide resources for ongoing learning:** Make online training materials, FAQs, and troubleshooting guides easily accessible to staff to support continuous learning and adoption of digital health technologies.
- 7. Evaluate and improve:** Continuously evaluate the effectiveness of digital health initiatives and make improvements based on feedback from staff and patients. The constant analysis and evaluation process will help ensure that these tools have the desired impact and are used effectively to support high-quality patient care.

# The most critical indicators for general hospital digitalisation:

1. Electronic Health Records (EHR) adoption rate
2. Telemedicine utilization rate
3. Interoperability between EHR systems and other digital health technologies
4. Use of Clinical Decision Support (CDS) systems
5. Availability of real-time data analytics
6. The patient portal adoption rate
7. Use of mobile health (mHealth) apps for patient engagement and monitoring
8. Implementation of remote patient monitoring technologies
9. Use of electronic prescribing (e-prescribing) systems
10. The utilisation of robotic process automation (RPA) to streamline administrative processes
11. Use of artificial intelligence (AI) and Machine Learning (ML) to support clinical decision-making
12. Adoption of secure messaging platforms for communication between clinicians and patients
13. Use of 3D printing for surgical planning and medical device production
14. The utilisation of wearable health technologies for patient monitoring
15. Integration of social determinants of health (SDOH) data into patient care plans
16. Use of video conferencing technologies for virtual consultations
17. Implementation of Radio Frequency Identification (RFID) tracking systems for asset management and patient tracking
18. Use of gamification and behavioural psychology principles to encourage patient engagement
19. Adoption of blockchain technology for secure sharing of patient data between healthcare organisations
20. Digital therapeutics (DTx) are used to support patient self-management of chronic conditions.

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