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Digital health transformation: leading through collaboration

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How the Microsoft Cloud for Healthcare and KPMG enable the acceleration of digital health transformation

Building the foundations for new healthcare ecosystems

Healthcare has evolved to an overwhelming information processing industry in a very short timeframe. Currently, healthcare is estimated to account for 30% of the world's data volume.

It now comprises billions of transactions every day — handoffs from one provider to another, e.g., transitioning from treatment to payment, insurance submission, reporting and documenting.

Information systems have been introduced in every aspect of healthcare. Patients now also have access to a large number of applications: to monitor their own health, to help manage specific conditions, or to handle health data from different health providers. Patients have gained the tools to take a central place in what we call 'the ecosystem of healthcare'.

All around the world, we see the big shift in healthcare: from capturing data toward sharing data, and now using that data to improve quality. There is a growing need for better data sharing and better collaboration between providers across the continuum of care. Care should be delivered in the right setting at the right time, both digitally and physically, based on the right information.

A digital backbone can recreate health delivery models and support collaboration with all health providers. Digital health pilots for only a small part of the care continuum or for only one condition will not be sufficient to start a regional transformation. An integrated approach is needed, supported by a digital backbone.

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Look to the cloud

The cloud is a critical part of this journey as it provides a solid foundation for collaboration. It offers better flexibility and scalability in upsizing IT requirements for all connected healthcare organizations.

It is critical to achieving interoperability amongst providers serving the same patients, as well as integrating data from wearables and healthcare apps. This will allow healthcare organizations to take a customer-centric approach to delivering the innovative, secure experiences that patients demand. Large cloud vendors have more robust cyber-security capabilities than hospitals could build themselves.

Cloud technology can enable cheaper use of growing computing capacity and accelerate innovation.

Many healthcare organizations are trying to handle their 'technological debt': representing the gap between their need for innovation and the actual investments necessary to execute. Cloud technology makes it possible to eliminate this debt and then 'keep up' with new developments.

While other industries have taken full advantage of cloud technology, healthcare still has lots to gain. In the movement toward new healthcare delivery models, based on collaborations between multiple healthcare organizations, the cloud can enable optimal integrated care and cure delivery networks. This is a crucial step in the digital transformation journey of healthcare worldwide.

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Four key benefits of cloud-based healthcare

In October 2020, Microsoft Cloud for Healthcare was launched.

This industry-specific cloud provides trusted and integrated functionalities that help healthcare organizations and health ecosystems to create personalized patient experiences and gives health teams connected and secure collaboration tools.

It can provide four core benefits to healthcare providers and their partners — which ultimately deliver improved patient outcomes.

1
Enhanced patient engagement

Enable data to flow securely through every point of care to improve patient experiences and health outcomes.

2
Empowered health team collaboration

Accelerate a team's ability to coordinate care in a secure environment while simplifying complex workflows.

3
Improved health data insights

Connect clinical and operational data across systems to predict risk and mobilize for ongoing quality improvement.

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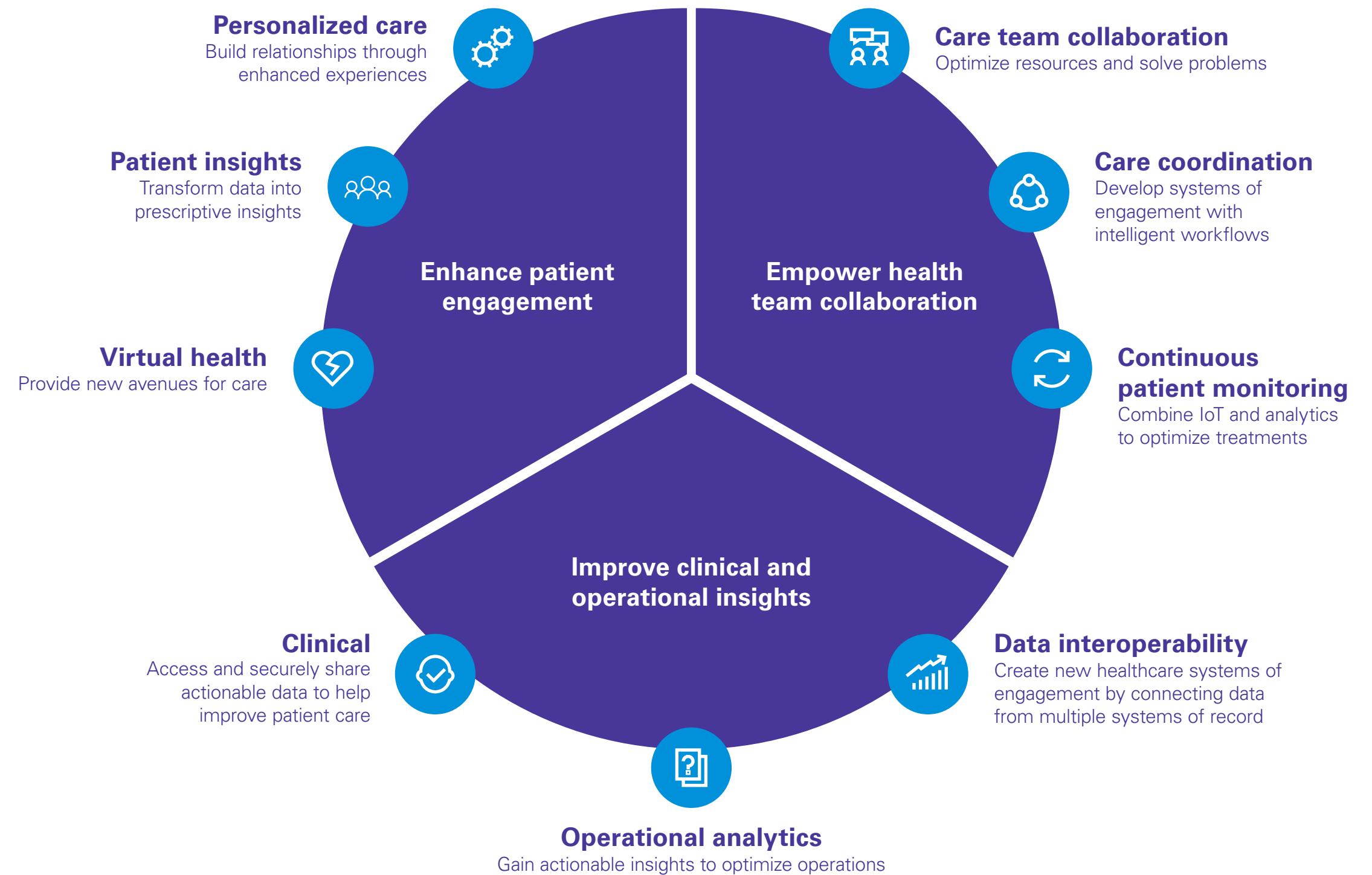### Protected health information

Protect sensitive health data to support privacy and security while managing evolving compliance requirements.

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Microsoft Cloud for Healthcare and KPMG Healthcare

Personalized care
Build relationships through enhanced experiences

Patient insights
Transform data into prescriptive insights

Virtual health
Provide new avenues for care

Enhance patient engagement

Empower health team collaboration

Care team collaboration
Optimize resources and solve problems

Care coordination
Develop systems of engagement with intelligent workflows

Continuous patient monitoring
Combine IoT and analytics to optimize treatments

Improve clinical and operational insights

Clinical
Access and securely share actionable data to help improve patient care

Operational analytics
Gain actionable insights to optimize operations

Data interoperability
Create new healthcare systems of engagement by connecting data from multiple systems of record

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1. Patient engagement: placing the consumer at the heart of the ecosystem

COVID-19 has emphasized the need for accelerated adoption of digital health initiatives, such as remote patient monitoring and care coordination across settings.

Nearly everywhere, 'digital first' concepts — every contact will be digital first — have been embraced.

Changes in healthcare are long overdue. The post-COVID-19 world demands a more agile, inter-professional workforce that will deliver team-based care, with empowered front-line staff leveraging technology to allow them to focus on higher-value work. And it will need to sustain virtual care and digital advancements that healthcare consumers have now come to expect to ensure continuous access to health services in a safe and convenient way.

Better and more efficient collaboration also saves money in the battle to keep access to care and cure services open and affordable.

The path forward is to create well-governed, connected health ecosystems that can harness data, provide insights to improve health outcomes, reduce the cost of care, and enable healthier lives. It is a comprehensive offering of connected industry-leading clouds — built to enable your organization's digital transformation by design.

Patient engagement in practice: Digital Oncology Nurse

KPMG in Israel developed a Digital Oncology Nurse to support both patients and health professionals. This modular solution enables medical institutes to introduce new, innovative digital communication channels for patients, such as smart chatbots with learning algorithms. The solution increases productivity by scheduling appointments automatically or by using a self-service portal for patients. Also, it allows patients to search medical information in an authorized and dedicated site. All data collected in the patient's digital journey (oncology pathway) is structured and can be used for daily operations and/or research.

Machine learning with Neuro-linguistic programming (NLP) technology is used to analyze patient meeting summaries and to create predictive models to identify at-risk clients. It also automatically creates alerts to the relevant medical professionals.

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2. Health team collaboration: creating new delivery networks

Information from multiple systems can be consolidated into a single 360-degree view on the patients' medical histories and care planning.

Healthcare professionals from various organizations can collaboratively create a truly integrated care delivery network based on Cloud for Healthcare.

However, with these new advanced and connected forms of collaboration and data sharing, there is a need for trusted next-generation capabilities — for example, regarding security and data analytics. Also, continuous compliance with laws and regulations — such as GDPR, the EU Data Governance Act, EU MDR and local health sector requirements — needs to be established by design and by default while being able to cope with constant change.

KPMG helps to provide more integrated health solutions that extend the Microsoft Cloud for Healthcare core capabilities across the continuum of care and cure.

This is a collaborative exercise: together with our clients, Microsoft and KPMG firms work with clients to identify new opportunities for innovation. We develop healthcare-specific solutions with integrated architecture, governance, controls, privacy, security and compliance to increase your performance with a fast path to healthcare value. KPMG helps define the strategy and redesign of the delivery networks, creating the right governance and setting for collaboration.

Healthcare professionals from various organizations can collaboratively create a truly integrated care delivery network.

Health team collaboration in practice: alternative ecosystem care provision

Finland's largest healthcare provider is Helsinki and Uusimaa Hospital District (HUS), a joint authority formed by 24 Finnish municipalities and comprising of multiple hospitals across southern Finland. It has created an end-to-end test, track and trace system that is helping to combat the spread of COVID-19. Using a variety of services from Microsoft Cloud for Healthcare, the system takes Finnish citizens from a health bot for self-assessment through the booking of tests, the dissemination of results, and the contacting of those who may have also been infected. The data that is collected and used to power system is compliant with Finnish security and privacy legislation and is informing research efforts to understand how the virus is contracted and spread.

HUS is also a great example of the digital-first concept with Microsoft cloud technology. Together with different care providers, a virtual hospital was built (Health Villages) with various components, such as portals, digital care pathways and various e-health tools. It acts as a well-balanced combination of traditional medical care and digital healthcare for multiple diseases, all accessible through a Health Village for each disease. The digital health services improve patient access to quality care, reduce costs, and enable healthcare providers to treat more patients in less time. KPMG Finland created the business case for the health transformation and calculated the return on investment for the Health Villages.

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3. Health data insights: improve healthcare through patient data

Increased adoption of cloud computing offers healthcare organizations the potential for cost savings while easily adapting to accommodate 'digital first' innovations.

Cost savings are a crucial factor, considering the financial pressure that most healthcare organizations are facing. Cloud for Healthcare IT requires lower initial investment and provides financial flexibility by paying based on consumption. Besides cost savings, the cloud enables innovation using insights from data to optimize the patient's care journey and enhance patient engagement. The cloud also facilitates hybrid work and collaboration, both within the organization and the healthcare ecosystem, which helps to improve clinical and operational insights.

Therefore, Microsoft Cloud for Healthcare needs to interact with multiple information systems. A continuous 360-degree view must be generated for all connected healthcare professionals. Microsoft Cloud for Healthcare helps enrich, normalize, and unify protected health information datasets compliant with FHIR standards to help create a record of the patient for improved clinical outcomes and diagnostics.

The cloud enables innovation using insights from data to optimize the patient's care journey.

Health data insights in practice: Emergency Department Command Center

For a large hospital, KPMG Australia developed an Emergency Department (ED) Command Center, which is now in its pilot phase. The KPMG ED Command Center solution is a feature-rich, cloud-native, decision augmentation tool, which is engineered to scale and increase in sophistication as the needs of the client change.

Significant pain points and inefficiencies were observed and solved with the Command Center prototype identifying several views that are required to meet needs for ED access, flow and management. It provides a concrete overview of clinical status, workload, current patients and waiting times.

The Microsoft Azure data platform provided the perfect technology for the development of the ED Command Center. While initially focused on supporting operational decision making, the underlying information model and analytics can also enable more advanced features, such as a regional view and advanced care coordination across sites.

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4. Protecting health information: the absolute need for trust

At KPMG and Microsoft, we 'run on trust', in terms of advisory, platforms and technology.

The Microsoft Trusted Cloud was built on the foundational principles of security, privacy, compliance and transparency. We work with organizations, empowering them to achieve their visions on a trusted platform.

Given the sensitive data used in healthcare, it is crucial to achieve full security and compliance. The Microsoft Cloud for Healthcare environment is designed to meet the right security standards and provides a good basis for the establishment (and governance) of compliant data handling.

The trusted platform features:

- Focus on platform security, secure access and sharing, awareness and insights, information governance, and compliance.

- Secure transfer mechanisms to ensure that data is encrypted in transit as well as at rest.

In short, Microsoft Cloud for Healthcare is a cloud-native Azure environment for meeting the security needs of providers, payers, life sciences and medical device companies, while enabling high-impact analytics in a scalable and efficient manner. Together with an efficient and effective implementation of workable governance and standards, this ensures that service operations are secure, compliant, trustworthy, and transparent.

We need to ensure that service operations are secure, compliant, trustworthy, and transparent.

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Protecting health information in practice: secure cloud transformation in healthcare

KPMG in the Netherlands supported a Dutch hospital with its multi-year healthcare strategy. Digital health is an important element in this strategy as it can enable future healthcare delivery models and give optimal support to healthcare professionals, patients and the collaboration with regional teams.

1

Enable multi-year strategy and digital strategy

2

Reduce and stabilize costs

3

Overcome technology legacy and increase quality

A digital transformation roadmap (including governance, architecture, cloud, capabilities, sourcing, data-platform and EMR renewal), drafted by KPMG, gave more insight in the conditions and the steps to effectively execute the (digital health) strategy.

Cloud technology plays an important role in this roadmap. The majority of the application landscape is now migrated to the Microsoft Azure Cloud or is cloud native. Also, a new EMR and a data integration platform were selected and will be deployed in Azure. KPMG is the quality assurance organization for the execution of the roadmap, the implementation of the EMR and the program 'data-driven hospital'.

For the cloud migration, KPMG validated and then deepened the business case. The outcome of a cloud-readiness assessment for all applications of the hospital supported the development of the migration plan. High value applications were the first to be migrated.

KPMG then supported the contracting process with regard to continuity, stability and options for exit. The migration has been completed and now the hospital will be the first in the Netherlands to implement a fully integrated Electronic Medical Record (EMR) in the Microsoft Azure Cloud.

Migrating to a better patient experience

A migration to the cloud is not just about keeping up with the competition or implementing the latest technologies.

It is about the focus on the best care and cure services for the patient by leveraging the value of the total knowledge available within the healthcare ecosystem as a whole. Microsoft Cloud for Healthcare offers an extensive set of integrated tools to support healthcare ecosystems in their digital journeys toward this objective.

The first steps are to make data more fluid and to make transcending care coordination second nature for every healthcare professional. We should move towards a healthcare ecosystem where patients can more rapidly and seamlessly navigate their care — informed by tools and data insights. This would be a healthcare ecosystem in which the patient can take ownership of their health, empowered by the tools for self-management and connectivity to treatment. Ultimately, it is a healthcare ecosystem based on the principles of digital first for all connected healthcare professionals and patients.

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Why Microsoft and KPMG?

Our Healthcare Cloud offering is GDPR compliant for all components and services.

We have expertise in cloud implementation: from mapping your data controls, to data migration and security monitoring in the cloud. There are a number of factors that we believe make the combination of Microsoft and KPMG truly 'better together'.

A robust and tested data analytics environment.

KPMG's domain-driven use case library based on global examples and a broad network of knowledge and experience of digital health strategy and transformation, connected health, regional governance and integrated care systems.

Reference architecture, governance and controls for major Azure components (e.g., identity and access management).

A healthcare-specific integrated (technical, organizational and legal and regulatory) cloud readiness compliance check performed by KPMG.

A well-defined roles and responsibilities matrix for clients, Microsoft and KPMG.

Security and application integration of the full environment including your use of third-party tools (e.g., analytical and visualization software).

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Contact us for our Cloud for Healthcare powered by Microsoft Azure and KPMG's connected care advisory and trusted security and analytics.

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