
How Atos enables clients to deliver digitally-enabled precision healthcare

With non-contact patient monitoring



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Introduction

Governments and corporations are moving fast to develop novel solutions to address the pandemic situation, such as introducing contact tracing apps by governments¹ and initiating new collaborations between corporations². Meanwhile, healthcare providers are compelled to innovate their consultation practice through telehealth and other virtual care solutions and services. This case study discusses how Atos enables clients to deliver digitally-enabled precision healthcare with **non-contact patient triage and monitoring**³. It seeks to augment the Future Ready capabilities of Atos in the fight against a pandemic⁴ with digitally-enabled personal health metrics, to enable healthcare providers to deliver predictive, preventive, personalized and participatory healthcare remotely.

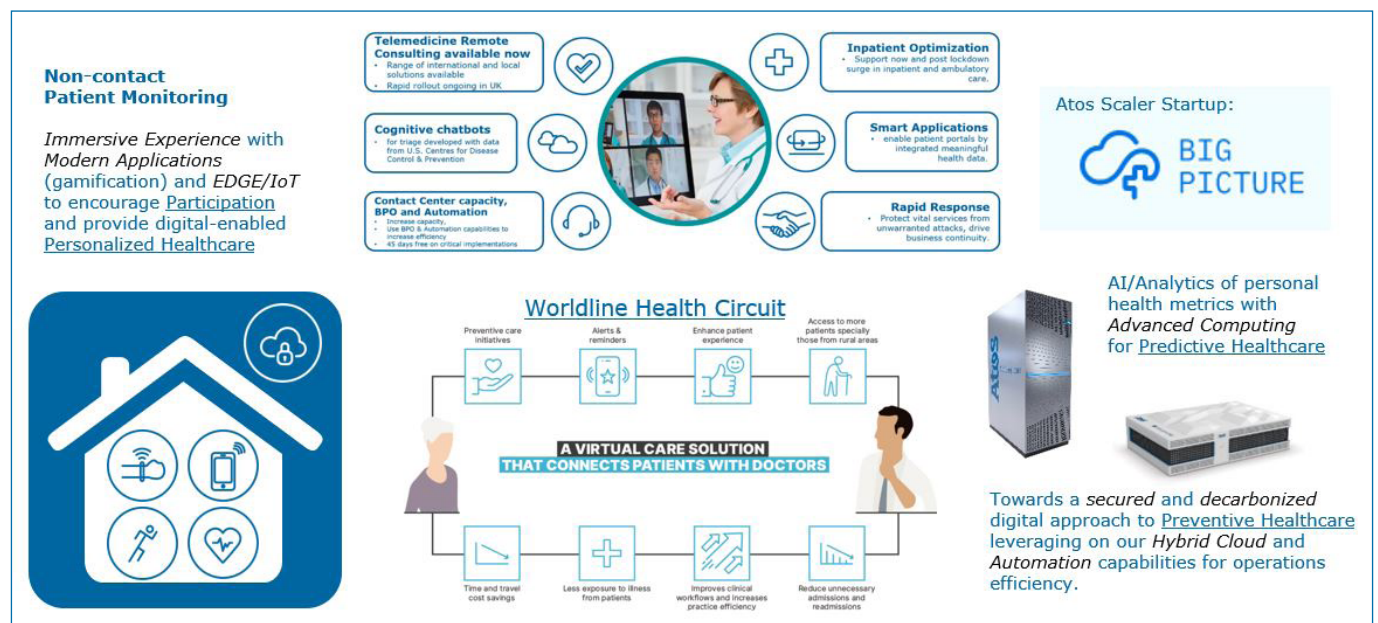


Figure 1: Digitally-enabled precision healthcare with non-contact patient monitoring

Preventive, personalized, participatory, predictive remote healthcare

Atos' core capabilities in telehealth⁵ include telemedicine remote triage, screening & consulting, integrated cognitive chatbots, smart applications, rapid response and advanced analytics are complemented by the virtual care solution of strategic partner Worldline⁶. The remote patient screening and triage aims to move the triage process from the healthcare facility to the patient's home using Conversational Artificial Intelligence (AI), Natural Language Understanding (NLU) and Machine

Learning (ML) capabilities. While non-contact patient monitoring to track valuable biomarkers is primarily based on personal health metrics from wearables, smart voice-activated assistants, or special-purpose health trackers⁷ and IoT devices and sensors which are integrated into the core healthcare information systems. Video-based, non-contact monitoring technology for mental stress (depression, anger, restlessness) diagnosis or patients with chronic illness, sound analysis technology

for remote monitoring of influenza-like illness based on cough sounds, sensor-based non-contact technology that can track heart rate, respiration rate, blood sugar and blood pressure are among the potential monitoring tools. Mobile-based platforms incorporating advanced technologies such as AI/ML for analytics, extend telehealth services with non-contact monitoring. Existing solutions for commercial smart coolers⁸ can be tailored for home cabinets to track medicine consumption

¹<https://www.bag.admin.ch/bag/en/home/das-bag/aktuell/news/news-23-07-2020.html>

²<https://blog.google/inside-google/company-announcements/apple-google-exposure-notification-api-launches/>

³<https://www.healthcareitnews.com/news/europe/covid-19-has-accelerated-adoption-non-contact-patient-monitoring-technology-says-frost>

⁴<https://atos.net/en/future-ready/transforming-healthcare-for-covid-19>

⁵<https://www.atos-syntel.net/sites/default/files/insights-pdf/telehealth-solution-brochure.pdf>

⁶<https://worldline.com/en/home/blog/2020/march/nextcare-project-focused-on-integrated-services-for-chronic-patients.html>

⁷Such as breathing monitors, <https://cordis.europa.eu/article/id/417988-the-sound-of-covid-19-new-app-to-identify-symptoms-through-voices-and-coughs>

⁸<https://atos.net/en/customer-stories/coca-cola>

and medical analytics technology of Big Picture Medical⁹, a newly onboarded startup through the Atos Scaler¹⁰ program, shall be explored.

Immersive experience environments shall address the specific needs of the patients. This is an important aspect in healthcare, particularly for patients with limited mobility who require specific environments in their daily activities around the home. Modern applications technologies are explored to encourage participation in recovery and rehabilitation activities or to foster healthy practices,

for example through gamification. Online cooperative and competitive games may stimulate social and mental activity to improve general wellness, thereby offering valuable insights into the engagement level of patients.

Edge computing, poised for growth¹¹, is also inevitable in the future of telemedicine. With continuous streams of data requiring analysis coming from multiple health tracker devices per person, stationary sensors, and video sources. The large volumes of data generated and requiring analysis will require intelligent

Edge devices to process the data efficiently. The electronic health record data, both structured and unstructured across multiple platforms and currently difficult to integrate, shall be made available and analyzed using High Performance Computers (HPC), currently used in AI-based analytics¹², to predict healthcare outcomes and offer personalized insights and preventive healthcare measures across the continuum of care.

Operations efficiency

Innovative solutions require a secure, robust and agile platform. Atos' digital transformation in healthcare includes proven track record in platform automation for operational efficiency¹³. This includes cybersecurity measures which are essential for processing personal electronic health data. In its ambition to be the leader in decarbonized digital¹⁴, in addition to providing decarbonized solutions, Atos seeks to extend the digital decarbonization assessment to the healthcare provider's entire IT landscape.

Conclusion

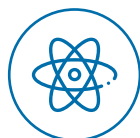
Atos' healthcare portfolio offers healthcare providers end-to-end telehealth and virtual care capabilities with non-contact patient screening and monitoring from high performance computing to secure and decarbonized patient-centric solutions and operational efficiency for the healthcare provider. These solutions promote reduced readmission rate and ensure safe, high quality, effective care options for our "new normal".



About the authors

This case study was developed by members of the Atos Scientific Community, Expert Community and other experts in the Healthcare & Life Sciences industry: Carrie Chow (Editor in Chief), Mary Sirois, Dr. Heather Haugen, Dr. Neeta Bhatia, Andrew Hutton, Dr. Urvashi Pathak and Sebastian Gerbholz.

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The Atos Expert Community is our driving force for technical collaboration, ideation, innovative research and development. Our experts help to steer our business strategy; building our technology roadmap by anticipating the products and services that will be needed by the market.

⁹ <https://landing.bigpicturemedical.com/>

¹⁰ <https://atos.net/en/atos-scaler>

¹¹ <https://telecoms.com/opinion/what-is-the-future-of-edge-computing/>

¹² https://atos.net/en/2020/press-release_2020_08_04/atos-partners-with-university-of-oxford-on-largest-ai-supercomputer-in-the-uk

¹³ <https://atos.net/en-gb/united-kingdom/industries-uk/health-uk>

¹⁴ https://atos.net/en/2020/press-release_2020_07_27/atos-to-acquire-ecoact-leader-in-decarbonization-strategy-consulting

About Atos

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