

Artificial Intelligence in Healthcare - opportunities and challenges

5th December 2018.

AI FORUM HUNGARY
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Agenda

I. Healthcare challenges

II. Five trends that will define
New Health

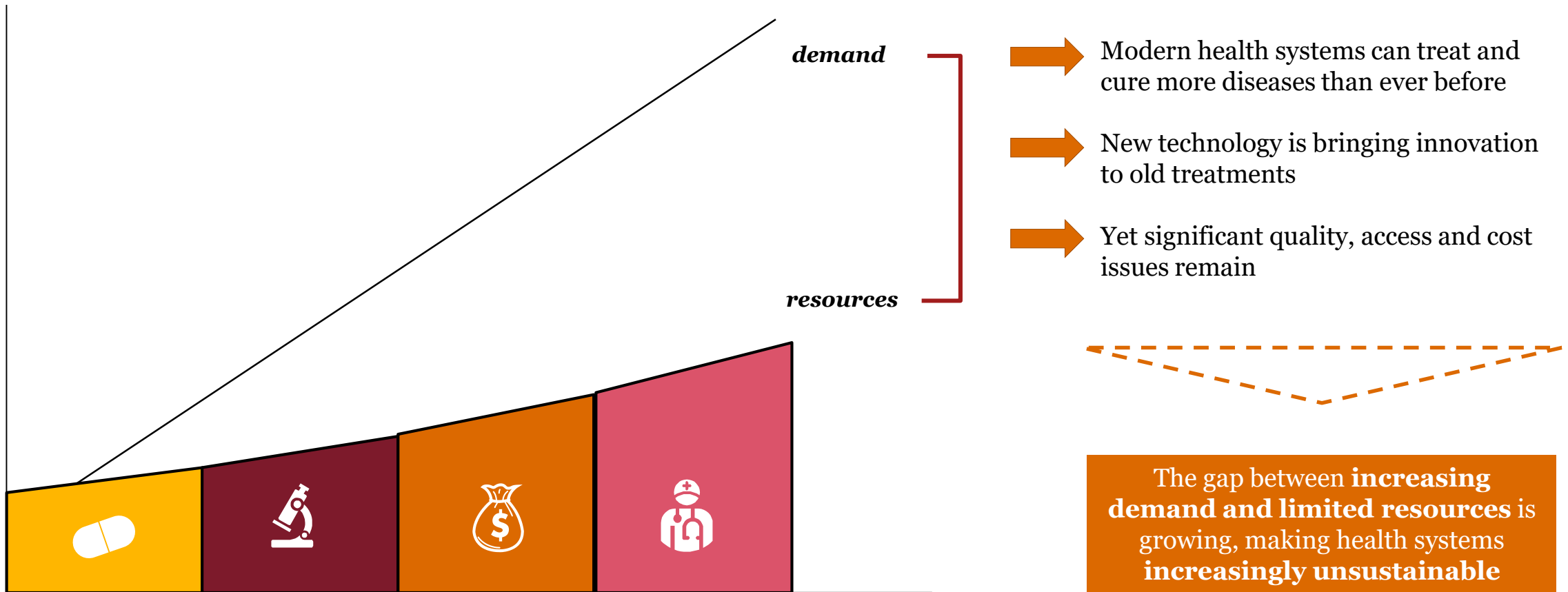
III. Areas, where AI and
robotics are transforming
healthcare

IV. The public is getting ready

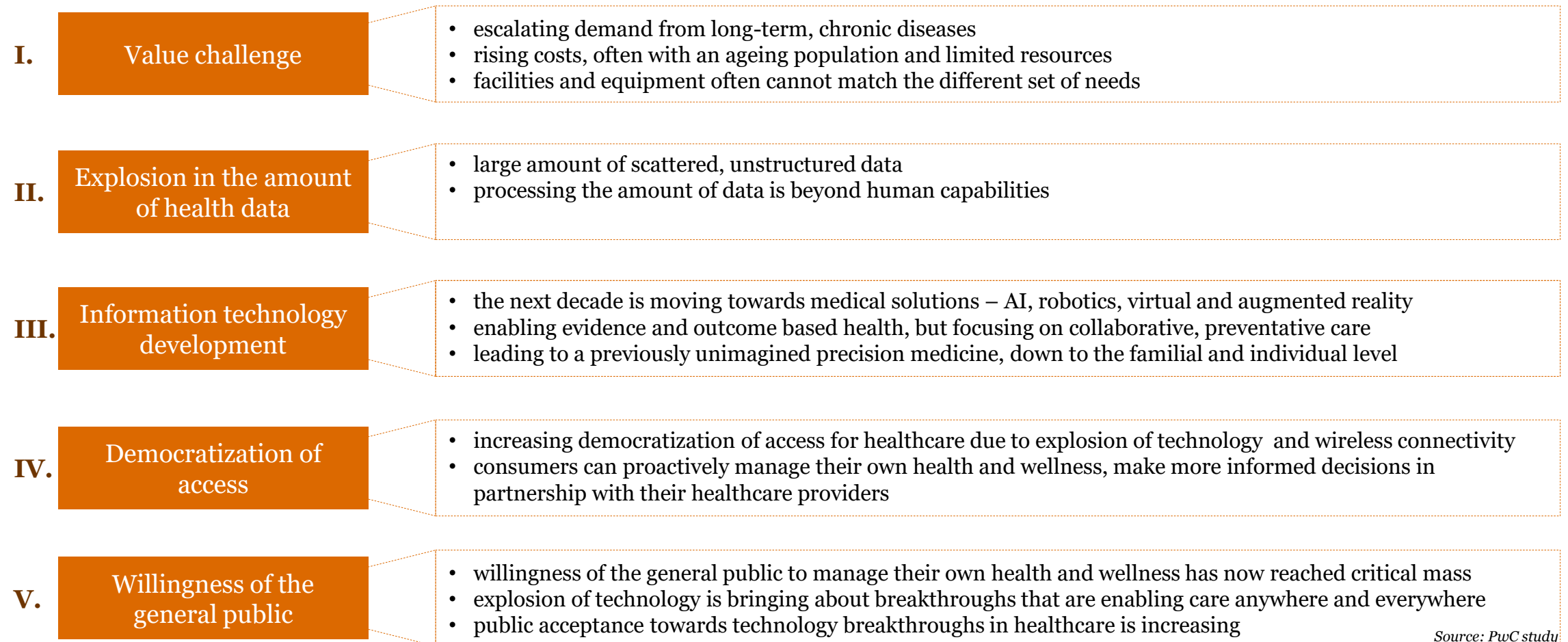
V. Opportunities and
Challenges

VI. Action points for
stakeholders

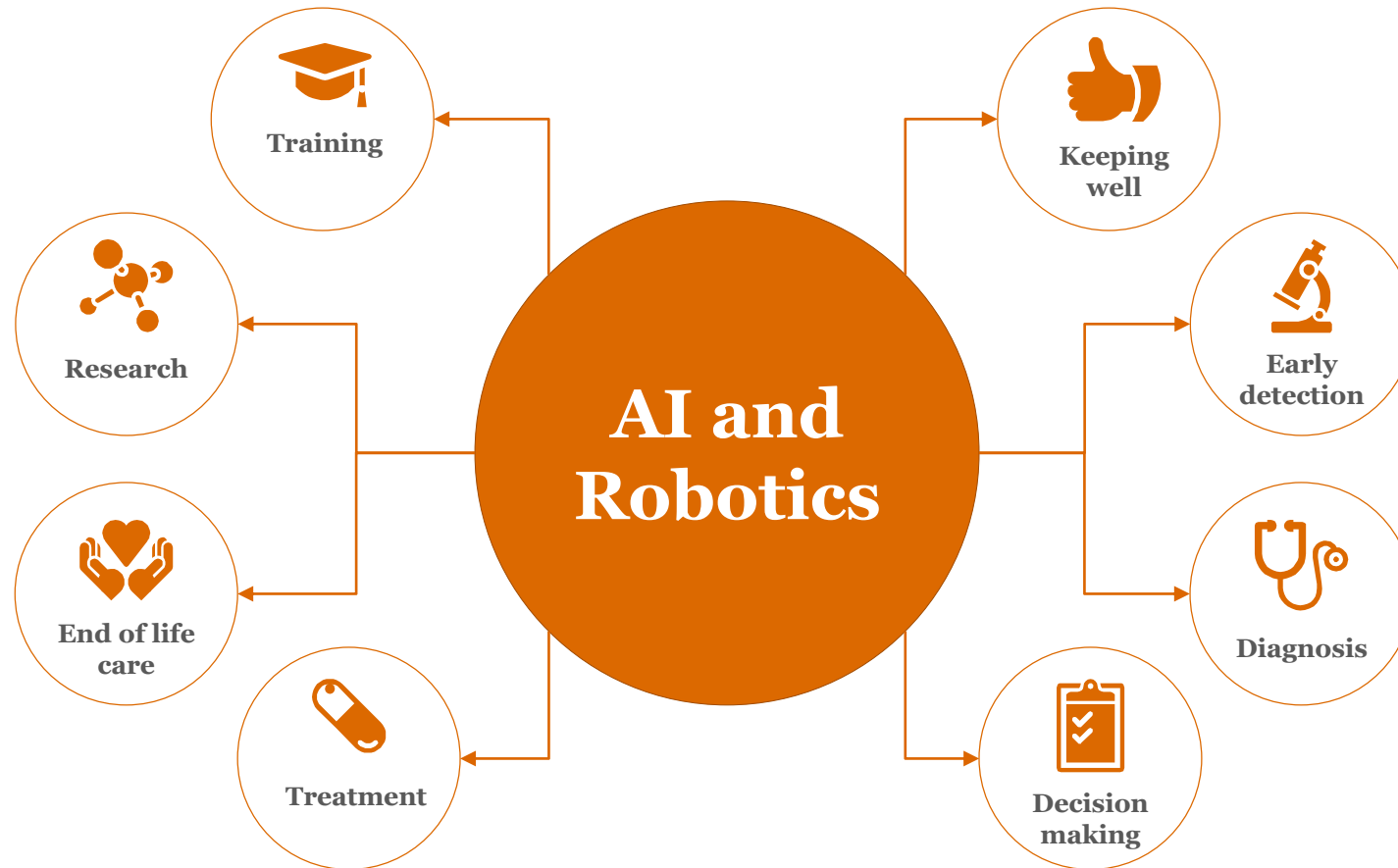
Healthcare challenges



Five distinct trends are converging to determine how artificial intelligence (AI) and robotics will define New Health



No longer science fiction, AI is transforming healthcare



No longer science fiction, AI is transforming healthcare



Training

Naturalistic simulations
Challenging questions and decisions
Personalized training and learning plan
Spatiotemporal flexibility



Research

Reduced research costs
Reduced time to market for new drugs



End of life care

Independence for longer
Reduced need for hospitalization and care home
,Social' interactions



Treatment

Coordination of care plans
Management of patient compliance
Surgical robots – autonomous and assistance
Robots in rehabilitation and long term conditions



Keeping well

Applications to encourage healthier behavior and management of a healthy lifestyle
Continuous monitoring data for HCPs



Early detection

More accuracy and earlier detection
Review and translation of scan results
Reduced need for diagnostic intervention
Oversight of early stages of diseases



Diagnosis

Unlock vast amounts of health data to power diagnosis
Google's DeepMind Health: algorithms that mimic the human brain

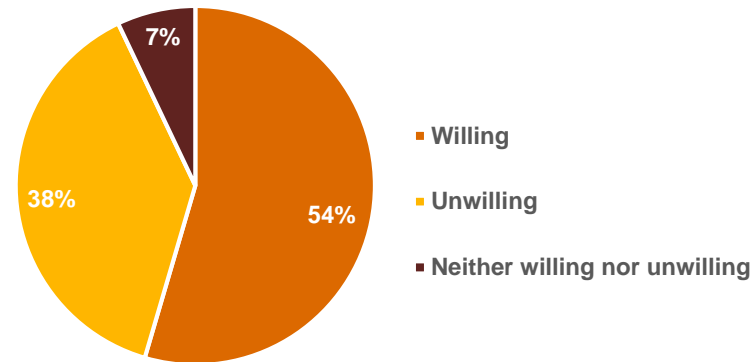


Decision making

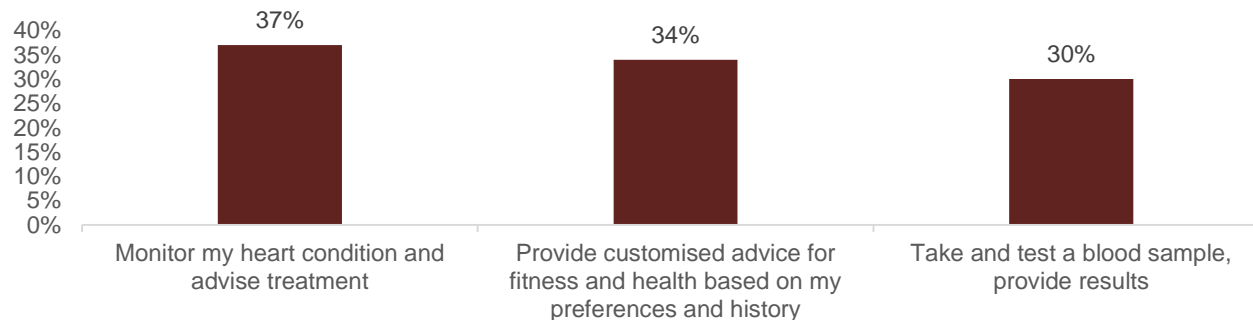
Alignment of big health data with appropriate and timely decisions
Predictive analytics to support clinical actions
Pattern recognition to identify patients at risk

The public is getting ready

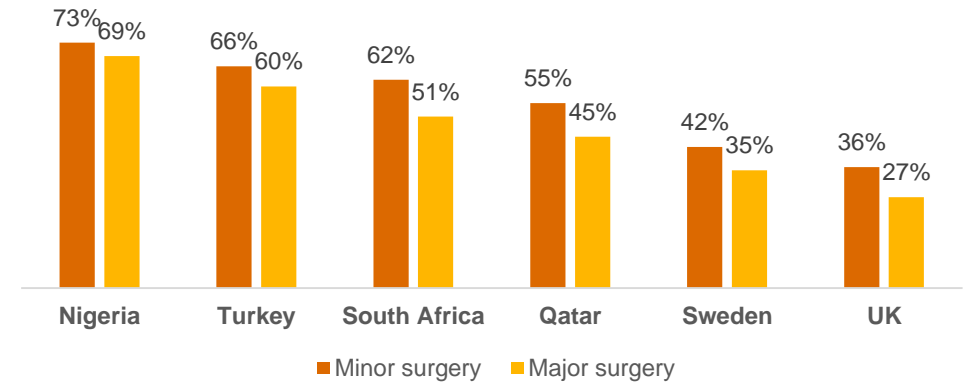
Percentage of respondents willing/unwilling to engage with AI and robotics for their healthcare needs (total sample)



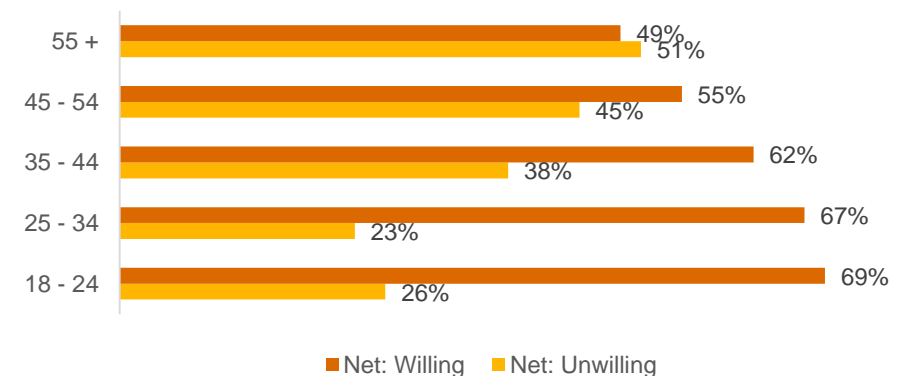
Top three procedures respondents were most willing to receive from an AI/robot, when asked to rank three



Willingness to undergo a minor or major surgery performed by a robot (% of respondents)

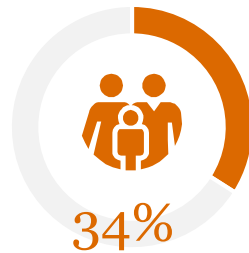


Percentage of respondents willing/unwilling to engage with AI and robotics for their healthcare needs (by age)

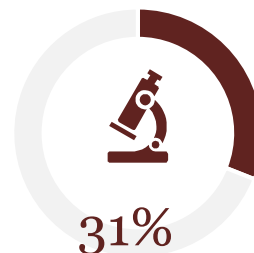


Perceived disadvantages and advantages of using advanced computers or robots with AI in healthcare

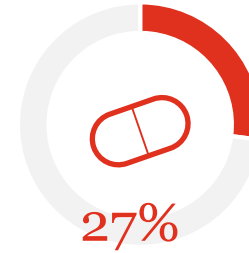
Perceived advantages



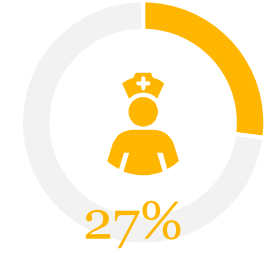
Healthcare would be easier and quicker for more people to access



Faster and more accurate diagnosis

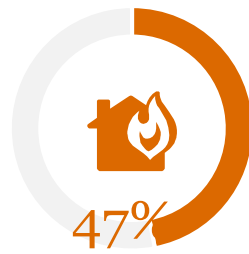


Will make better treatment recommendations

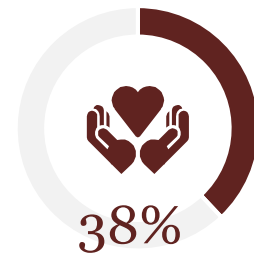


Like having your own healthcare specialist available any time and on any device

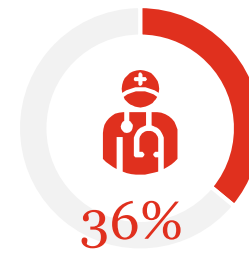
Perceived disadvantages



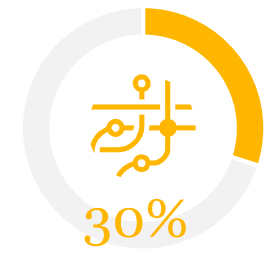
If something unexpected happens don't trust robots to make decisions on what to do



People need the "human touch" when it comes to their healthcare



Only a human healthcare professional can make the right decisions (e.g. look beyond the data)



We don't understand this kind of technology enough to know if can be benefit or be dangerous in healthcare

Opportunities and Challenges

OPPORTUNITIES

- Implementing real disruption when AI and robotics become broadly accessible
- Potential leap for emerging economies with developing healthcare systems without entrenched systems and younger highly tech-savvy demographics
- The public is getting ready and willing to adopt new technologies
- New technologies enable healthcare to make the shift from reactive acute care towards proactive continuous delivery



CHALLENGES

- Disinvestment from entrenched healthcare systems
- Fundamental switch in ingrained practices and behaviors
- Ensuring the best of the newly established systems are implemented
- Making AI and robotics the foundation of a healthcare system may be doomed if new technologies don't fulfill their promise, therefore constant evaluation and assessment of the new systems is necessary
- Healthcare needs to respond to changing customer expectations and leverage the opportunities new technologies offer by harnessing data and turning it into applied knowledge while decreasing costs and ensuring greater access

Good health for everyone – action points for stakeholders

Governments

- Create quality standards and a regulatory framework which are applicable to and obligatory for the entire healthcare sector
- Create appropriate incentives for adopting new approaches
- Ensure that new technologies in healthcare are accessible and don't become the provenance of the well off



Healthcare professionals

- Understand how AI and robotics have the potential to work for you
- Be open to change, define a unique role for the human in the changing setting and prepare for it



Patients and the general public

- Become more accustomed to artificial intelligence and robots
- Discover the benefits



Private sector developing AI and robotics solutions

- Utilize the opportunity to disrupt the healthcare sector by solving the issues of demand and resource that every health system faces



Decision-makers at healthcare institutions

- Develop an evidence base
- Measure the success and the effectiveness of the new technology
- Implement in phases



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