**Module 1, Unit 1 – Collaborative learning discussion 1**

**Initial post: Artificial Intelligence in healthcare – promises for wide-ranging benefits**

Artificial intelligence (AI) has seen rapid adoption across a number of sectors, particularly since the early 2010s. This has been fuelled by dramatic improvements in three main domains required to develop and deploy efficient AI solutions, namely 1) data availability, 2) computing power, and 3) algorithm performance (Kneusel, 2023).

One such example is healthcare. Many prominent tech companies have made considerable investments towards expanding into this sector, namely IBM with Watson Health (IBM, ND), and Google with its AI Health program (Google, ND). Investing in AI is particularly important for companies aiming to operate in the healthcare space given its complexity, scale, and the speed at which medical science is permanently evolving (IBM Education, 2023). In this context, it is likely that companies that harness the potential of AI solutions will in time outperform and outcompete those who do not.

The potential economic benefits are many, and shared between industry and government. Health is a major priority for governments worldwide. As an example, within the (Organisation for Economic Co-operation and Development) OECD, health expenditure accounts on average for 9.2% of GDP, and 16.6% in the US (OECD, 2023). Governments are increasingly looking for technological solutions to tackle challenges such as declining productivity, increasing demand due to an ageing population, and poor user experience and staff retention (UK Government, 2021). Indeed, specific schemes aimed at harnessing AI in healthcare have been put forward by governments including the UK and the US (US Department of Health and Human Services, 2022; UK Government, 2024), with the global AI healthcare market projected to increase from an estimated $16.3 billion in 2021 to $187 billion in 2030 (Stewart, 2023).

Nonetheless, employing AI in healthcare involves considerable challenges. These include ensuring development and application according to strict ethical and regulatory standards, protecting data privacy and cybersecurity, creating and maintaining public trust, integrating with existing infrastructure (particularly legacy software and hardware), and deploying enough computing power to handle the volume, complexity, and speed of the data involved (Leslie, 2019; Muller, Mayrhofer, Van Veen and Holzinger, 2021; Food and Drug Agency, 2023).

In summary, harnessing AI in healthcare offers great promise for added value for both industry and society in general, but its adoption will require overcoming a number of important hurdles.

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