Executive Summary

This report investigates the role of AI in healthcare, focusing primarily on the current and future states of the diagnostics field. First, an overview of the history of AI, the major achievements in the field, and its emerging role in healthcare are explained. With the advent of Deep Learning in the early 2000s, a new age was entered where AI could be applied to clinical practice, such as diagnostics. Secondly, a market analysis is performed in order to gauge the current market state and projections for the next decade. Findings include a large market growth projection, which will be seen globally. This growth is driven by advancements in the AI and electronics industries, and by the push for faster diagnostic practices. Thirdly, challenges and limitations of AI that hinder its usability in healthcare are identified. These include algorithmic bias, patience resistance, and clinical utility. AI will have a big positive impact on patient care, but will require healthcare practitioners, computer scientists and patients to collaborate and adapt in various ways. Fourthly, barriers to innovation for AI in healthcare are discussed. These barriers are adamant due to the involvement of regulatory bodies such as the FDA in medical device design, limited funding, and the natural resistance to change by medical professionals. Finally, the impact on the workforce and healthcare system is investigated, showing that the impact of AI is minimal at the present time, and is not projected to replace most patient-interaction based jobs, but rather those solely focused on data. AI is projected to have large cost savings in certain diagnostic fields, particularly imaging and screening.

This report concludes with a set of recommendations, which are intended for the healthcare sector as a whole, in order to ensure a smooth integration of AI in medicine. These include new legislation for regulatory bodies, ethics committees, educational programs for healthcare workers and patients, and incentive programs to encourage research of AI systems and their potential in the medical field.