Appendix B

Seventeen Technologies Under Consideration

Our analysis looked at a range of automation and AI technologies, which are listed here in order of increased sophistication and complexity.

Programmed Intelligence

These technologies are known as predefined.

- **Process automation:** software code that is programmed to complete predefined, logical, and rule-based processing tasks
- **Fixed robotics:** stationary robots that handle and manipulate objects in a predefined way
- **Mobile robotics:** robots programmed to move between points in a controlled environment

Narrow AI

These technologies are considered to be reactive.

- **Predictive analysis:** tools that reactively use machine learning to conduct narrow analysis and make predictions
- **Recognition vision:** tools that reactively use machine learning and sensors to recognize and classify data meaningfully
- **Voice response:** tools that use machine learning to reactively interpret queries and offer a predefined response
- **Suggestion provision:** tools that reactively use machine learning to prioritize data for the purpose of identifying relevant recommendations

Broad AI

These technologies are considered to be proactive.

- **Sensory perception:** systems that use machine learning and sensors to detect and extract meaning from external stimuli
- **Decision generation:** systems that use machine learning to evaluate input data in order to determine the best course of action
- **Conversation exchange:** systems that use machine learning and sensors to interpret and engage in conversation
- **Dexterous robotics:** robots with flexible functions capable of adapting dynamically using sensors and machine learning

Reinforced AI

These technologies are self-improving.

- **Navigation robotics:** robots using real learning and sensors to navigate autonomously in unstructured environments
- **Collaborative robotics:** robots using real learning and sensors to help generate shared meaning
- **Solution discovery:** agents using real learning and sensors to digest and solve unstructured, complex problems
- **Generative design:** agents using real learning and sensors to interpret creative data and generate concepts
- **Creative origination:** agents using real learning and sensors to invent new and original concepts beyond known data
- **Assistive robotics:** robots using real learning and sensors to physically interact with humans in an emotive manner