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| **TSC Category** | Technology Management | | | | | |
| **TSC Title** | Artificial Intelligence Application in Product Development | | | | | |
| **TSC Description** | Apply algorithmic and statistical knowledge to integrate Artificial Intelligence into the design and development of a product as well as in maintenance processes | | | | | |
| **TSC Proficiency Description** | **Level 1** | **Level 2** | **Level 3** | **Level 4** | **Level 5** | **Level 6** |
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|  |  | Deploy Artificial Intelligence (AI) workflows for enhancing the efficiency of product development and maintenance processes | Evaluate the effectiveness and sustainability of Artificial Intelligence (AI) workflows for process improvements | Formulate new Artificial Intelligence (AI) workflows to streamline project execution, product development and maintenance processes in line with organisational strategy | Explore wider applications of Artificial Intelligence (AI) methods in the organisation by using expertise within the field to transform product development, project execution and maintenance workflows |
| **Knowledge** |  |  | * Background and basics of AI * Fundamental concepts and methods of statistics and programming for data science * Mathematics and computing theories * Machine learning techniques and applications * Principles of data management * Software development methodologies * Types of AI applications * AI implementation procedures * Interoperability of data * Data cleaning techniques * Principles of clean data sets | * Range of AI applications * Concepts pertaining to performance effectiveness and analysis * Methods of evaluating effectiveness of AI applications in products * Algorithm design and implementation * Methods of evaluating process improvements to product management * Applicability of AI in the Product Development track | * Organisation’s strategy and processes * Methods of developing detailed operating and troubleshooting procedures for AI applications * Methods to influence adoption of new AI applications in products * Impact of AI on product development processes and maintenance * Impact of AI in products based on its' results from product launches * AI design and implementation processes * Principles of change management | * Applications of emerging AI technologies in the Product Development track * Industry best practices and applications of new AI technologies adopted * Impact of AI to product development and maintenance operations * Benefits and trade-offs of AI * Financial costs of introducing AI to product development, maintenance processes and trade-offs * Cost benefits analysis methods * Methodology of return-on-investment (ROI) analysis * Methods of conducting research and development in AI * AI legislative requirements |
| **Abilities** |  |  | * Implement AI applications in collaboration with technology service providers * Deploy AI workflows according to plan * Identify and report any issues with the AI applications and data collected * Maintain data interoperability during the development of AI * Perform data cleaning techniques | * Analyse algorithms in the AI applications * Establish the correlation between design of algorithms and efficiency * Identify strengths and limitations of the AI applications * Evaluate various AI applications to compare strengths and limitations of the AI applications * Assess feasibility of AI applications to each product and its' maintenance processes * Assess improvements of AI in product | * Formulate AI workflows for products and maintenance processes * Determine potential areas where AI can be applied * Determine range of resources, skills requirements and implementation feasibility for AI applications * Develop technical frameworks for AI applications * Initiate adoption of AI applications in day-to-day operations * Refine parameters of AI applications to improve the usage of AI applications in products * Determine troubleshooting or debugging procedures for AI applications * Validate implementation of AI through change management process | * Identify macro trends and applicability of AI for the organisation’s adoption * Evaluate the benefits and trade-offs of implementing AI to products * Assess the cost and return on investment of implementing AI * Develop a business case analysis on the cost-benefits of implementing AI * Develop AI application strategies * Analyse alternative approaches to AI to improve performance in products and maintenance processes * Establish potential opportunities to initiate AI implementation in the organisation * Develop a business case for implementing AI to satisfy project and legislative requirements * Drive data interoperability in the organisation |
| **Range of Application** | N/A | | | | | |