

DEFAUS19

Artificial Intelligence Data Management Assistant

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ABSTRACT AND OUTCOMES

An Artificial Intelligence (AI) cognitive assistant will improve data management within the ADF. In recent history, the size of data is rising exponentially and is therefore becoming impossible for the human brain to correlate data from numerous sources and turn it into information that Defence can use to make key decisions. Defence is spending large amounts of resources writing a variety of documents that have been done before, often by different people across other organisations and focus on problem ideating.

Objective was endorsed as the mandatory enterprise document and records management system in 2009. However, the amount of data within Objective at present is not being optimised to allow for more effective and efficient decision making based on wisdom gained through data analysis. Current data analysis involves drafting of various document types based on workplace interpretation and is often skewed to influencing a subjective opinion to sway the decision outcome. Operating business in this way proves to be costly, inefficient and sub-optimal.

Emphasis on an accurate file structure and utilisation of document templates is 'old fashioned' and all allocated resources should be shifted towards utilising an AI Cognitive Assistant.

The modern world is well into 'the fourth industrial revolution' which surrounds Cyber Physical Systems. Most Commercial Companies (Google, Amazon etc) have well and truly embraced this into their business as usual and have reaped the rewards. Defence will need to adapt as soon as possible. The penultimate ramification to the ADF is the 'loss' of Lethality against foreign threats. Risk could be realised in the Personnel, Mission and Capability space.



PROPOSAL

An AI Cognitive Assistant has the potential to thrust the ADF into the fourth industrial revolution and remain lethal to opposing forces. Human interaction (through a chat bot style front end) combines machine intelligence with human intelligence, thus creating a smarter, more accurate and more confident machine learning algorithm.

Statistical inference algorithms allow for automatic learning to produce models that are robust to unfamiliar input. Utilising such an algorithm therefore negates the need for file structures, document ID's etc. This type of statistical model makes probabilistic decisions which results in outputs that are most likely to be what the user is looking for. This type of algorithm is seen with the Google search engine. Since large amounts of data are subjective in nature, building sentiment analysis into the AI cognitive assistant will allow extraction of data consequently returning the polarity about specific objects. This has proven useful within the marketing industry to determine public opinion.

IBM Watson is an example of a current product that can deliver AI Cognitive Assistant abilities to Defence. These assistants normally have names; in this case 'Chief'. 'Chief' can be managed by the application manager and implemented as a 'plug in' to Objective. This solution has no implications on security and/or classification requirements set out by policy due to keeping a human in the loop. As a matter of fact 'Chief' would be able to classify our documents far better than a human. Therefore, this would offer a safer and more secure solution.