

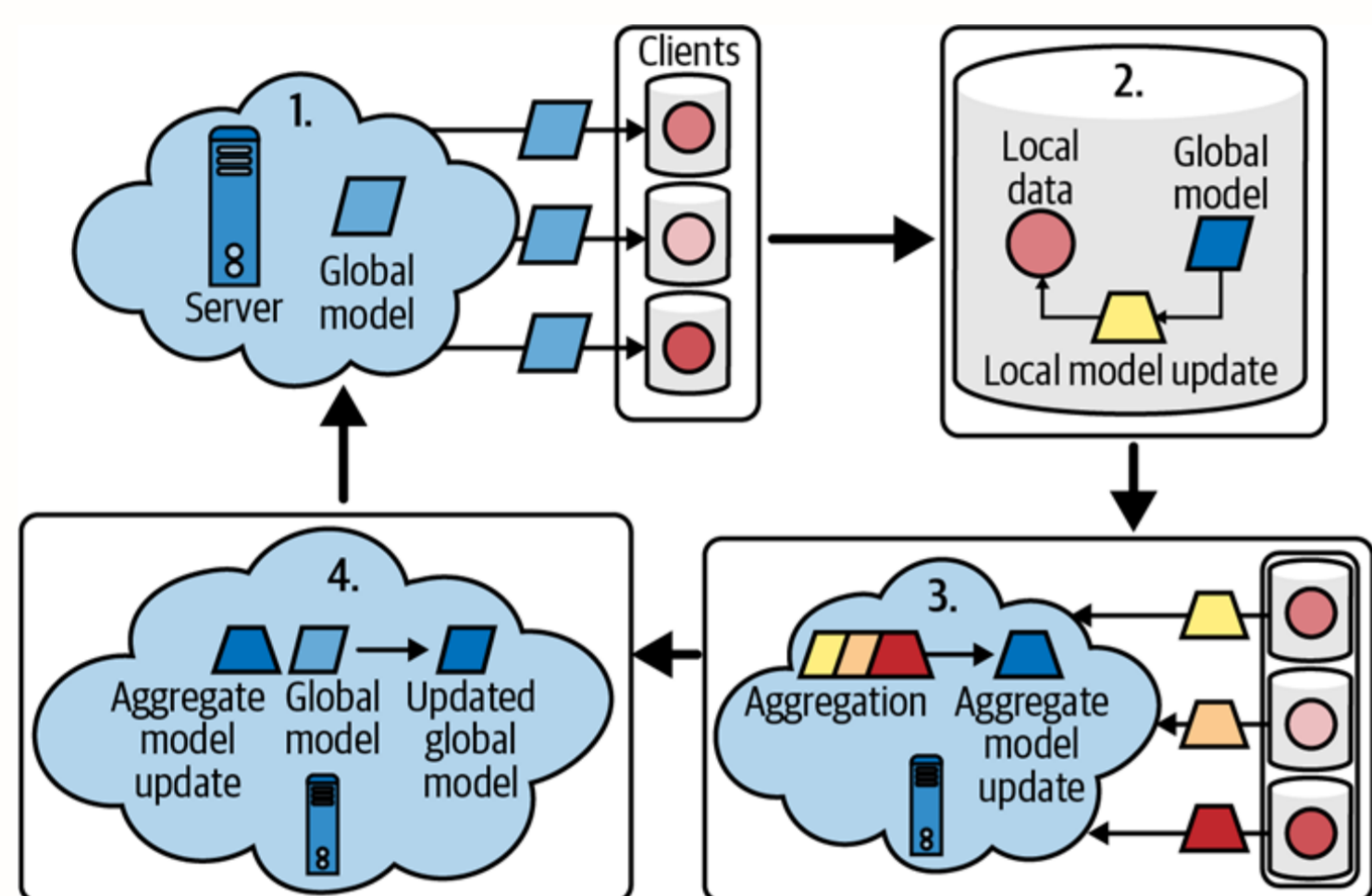
Temasek Defence Systems Institute

Federated Learning Approach for Machine Learning: Examining the Influence of Individual Differences on Perceived Utility and Ease of Implementation

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Background:

AI has many defence applications. One key aspect of operationalising AI is the training of the ML model. Federated learning is the training of machine learning models without collecting and storing data centrally. The insights from the decentralised data would be shared through model updates to the global model which will be disseminated back to all the clients.



Objective: Understand the influence of individual differences on perceived utility (PU) and ease of implementation (PEOI) of Federated Learning.

Method:

Anonymous online survey was used to collect data from employees in defence-related organisation that are mostly in AI work.

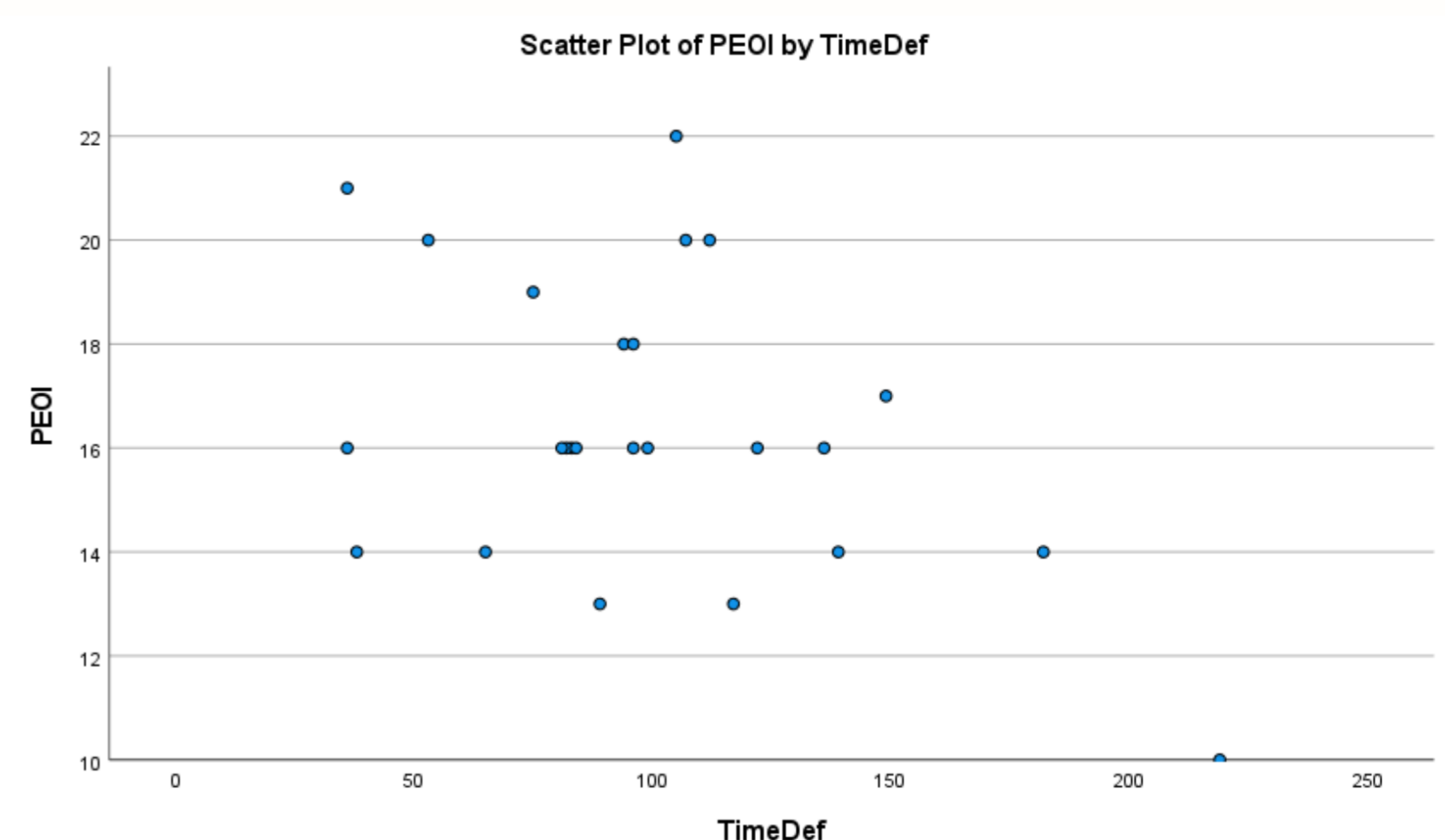
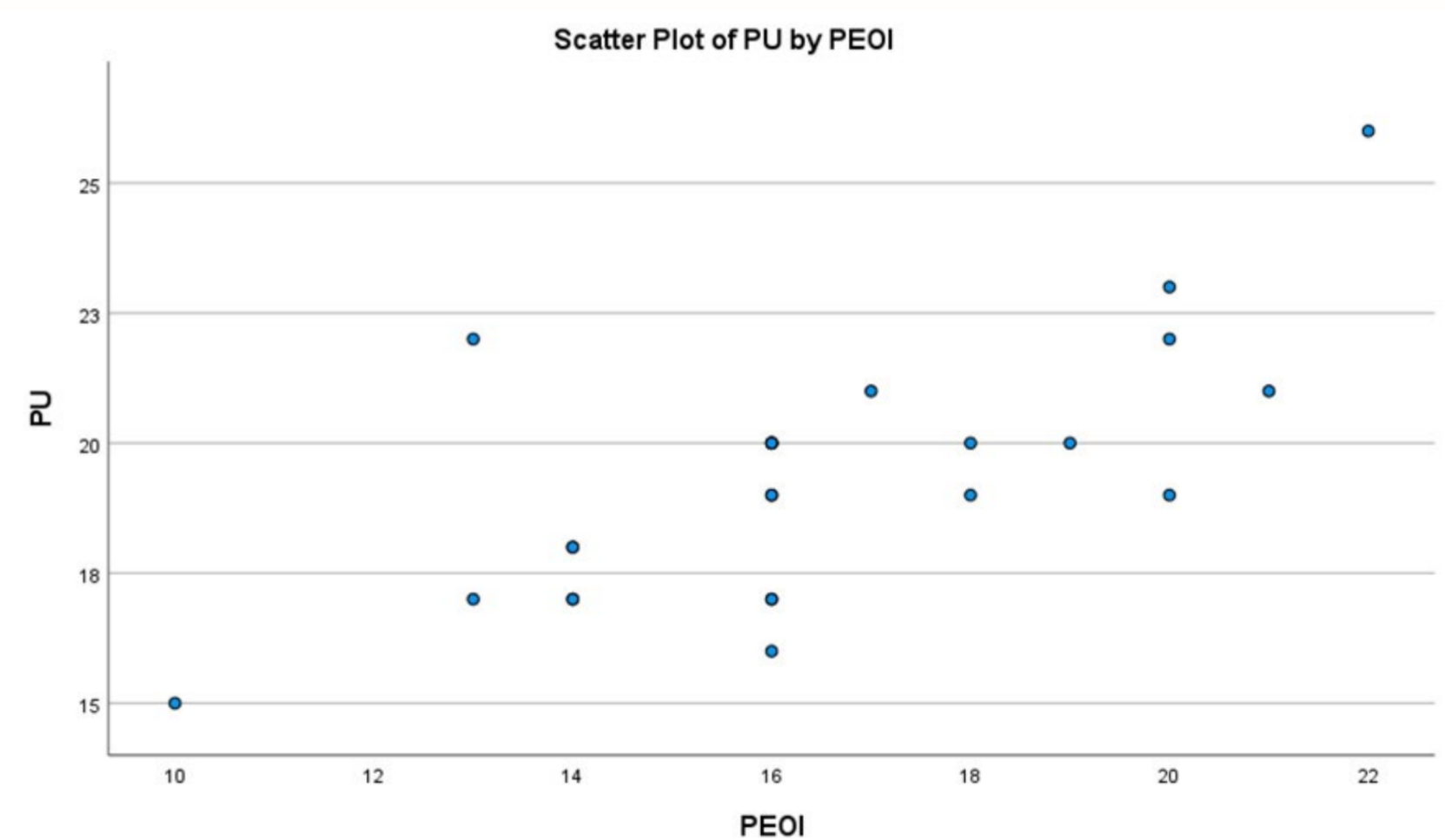
Key Results:

1. No correlation between:
 - a. AI Literacy and PU/PEOI
 - b. Job experience and PU
 - c. Time spent in appointment and PEOI
2. Correlation identified between time spent in defence-related organisations and PEOI.
3. Strong correlation between PEOI and PU, aligning with TAM study findings.

Discussion:

Employees with a longer tenure in defence may better understand needs and be more cautious about the ease of implementing new technologies

Reliable, novel AI Literacy developed.



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