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Title : NETWORK FLOW PROGRAMMING (NFP) MODEL FOR SYARIAH-COMPLIANT TRANSFER OF ISLAMIC INHERITANCES

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The absence of *Syariah* Court (SC) from the new IIT system has promoted the development of a *Syariah*-compliant Islamic inheritance transfer (IIT) system for inheritance at Small Estates Distribution Units (SEDUs) using Theory of Inventive Problem Solving (TRIZ). This system is capable of differentiating claim activity path followed by Islamic estates from non-Islamic estates. Ignorance of Islamic inheritance laws and claim procedures among Muslims has attributed to claim delays. Order and precedence relations in the modified TRIZ IIT system became the basis to establish a flow guideline network model for more effective IIT management (i.e. time and cost saving) at SEDUs or SCs. No quantitative approach using the shortest path algorithm has ever been applied to solve the delays in claim activities. Adapting Floyd's algorithm into the formulation of the IIT Network Flow Programming (IIT-NFP) model has presented the viability of a quantitative approach through the model at minimizing delays in the claim processes. IIT-NFP model's ability to clearly exhibit precedence relations between activities in a claim process can be used to explain the unique flow of claim activities for both Islamic and non-Islamic estates as well as to help Muslims better manage claim activities. This model has become the foundation for computing the shortest path and minimum total completion time for IIT. Non-normality of data distribution has endorsed the use of $Median \pm bMAD$ adapted from Leys et al (2013) to flag out extreme outliers and moderate outliers with b as magnitude of MAD. Computational experiments using PHP programming has found thresholds (b=2 and 3) and (b= 1 and 2) can best achieve total completion time less than the minimum benchmark of 300 days set by Bakar (2006) at Ipoh and Kuala Kangsar respectively. Shortest paths for all stages were the same in both areas. Identified delayed paths may imply time management issues at SEDUs and Valuation and Property Services Department. Optimization model has rarely been applied to solve Islamic muamalat problems, thus it is recommended for the IIT-NFP model to be applied to *zakat* and *wakaf* management besides expanding its use to Islamic and non-Islamic estates under stricter conditions such as testate accounts, jointly-acquired accounts, and also non-Islamic estates which abide by the Federal Laws.