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A swarm intelligence design based on a workshop of meta-synthetic engineering

Key words: Meta-synthetic engineering; Swarm intelligence; Design resources delivery

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Motivation

- Swarm intelligence emerges when large-scale autonomous participants jointly cope with challenging tasks, in open environment and in the way of competitive cooperation.
- A meta-synthetic workshop is to combine expert groups, statistical data, and information with computer technology to form a highly intelligent man-machine integrated system.
- A swarm intelligence design pattern based on the technology of meta-synthetic workshop is proposed, to implement the exchange and sharing of intelligent information and resources in the design.

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Method

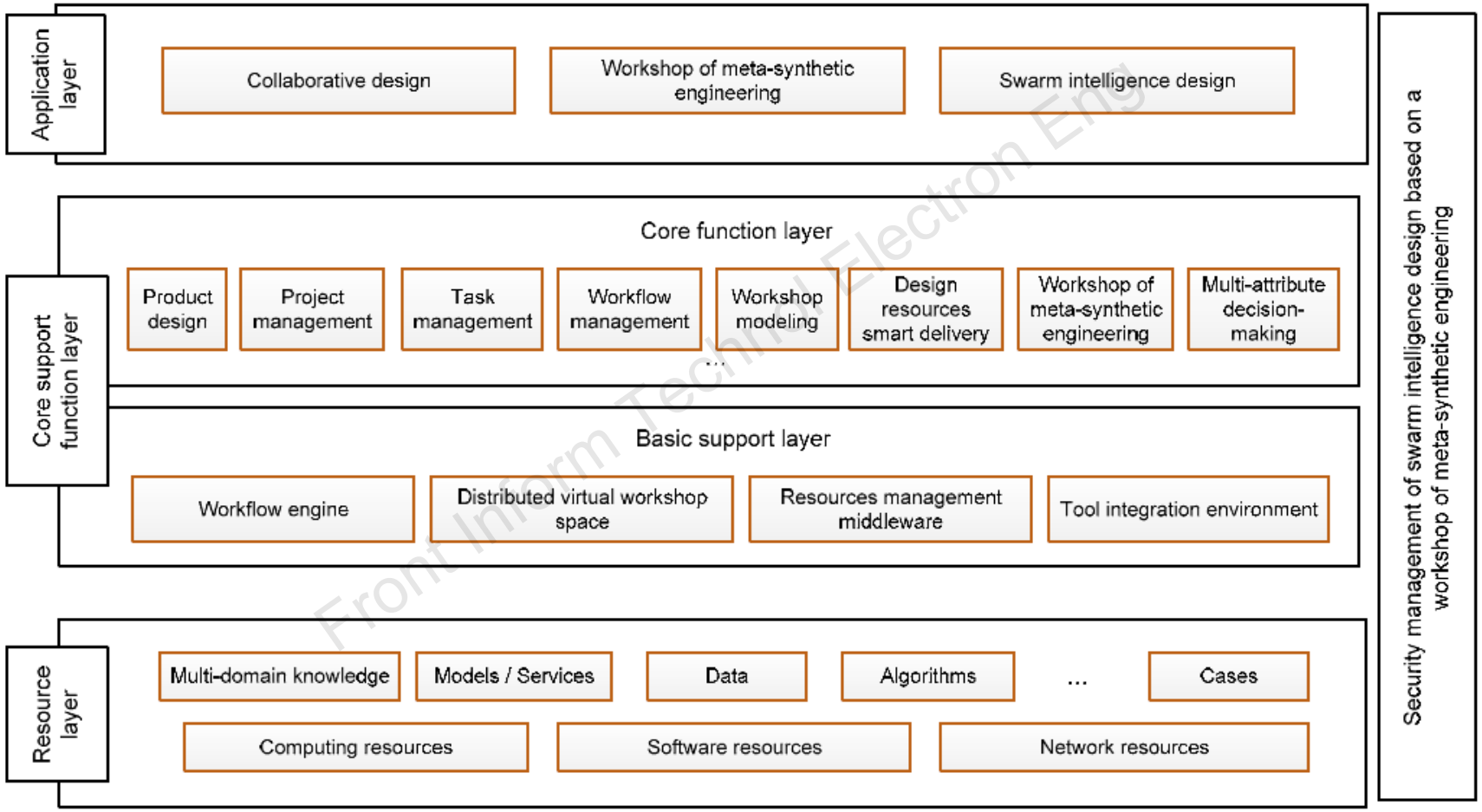


Fig. 1 Architecture of swarm intelligence design based on a workshop of meta-synthetic engineering

Method

- Decision-making process of swarm intelligence design based on meta-synthetic workshop

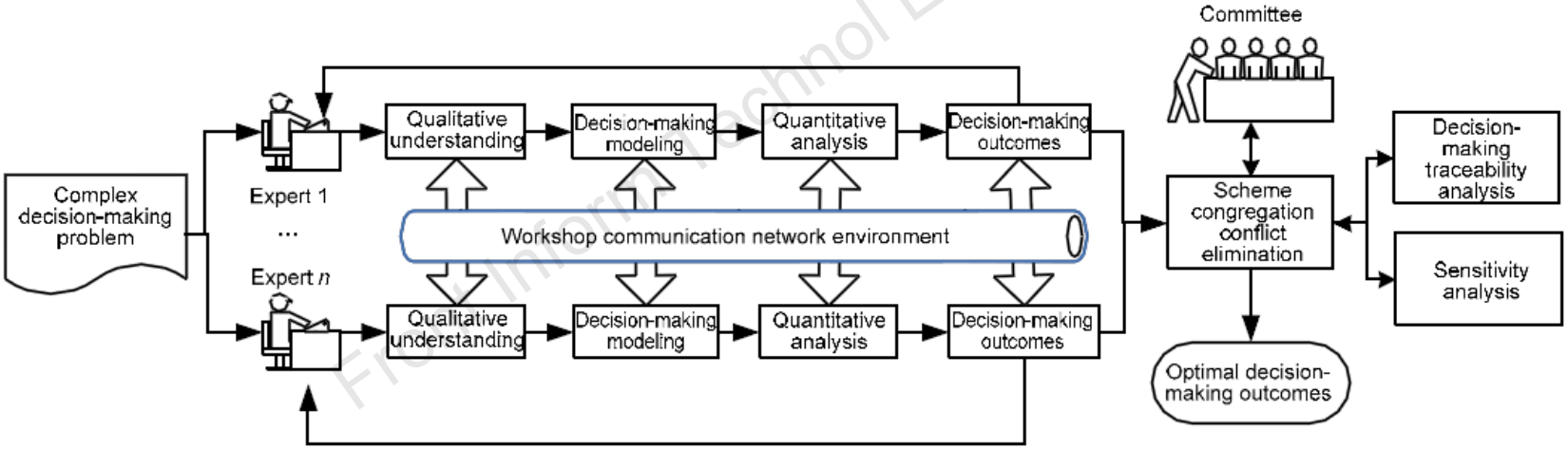


Fig. 2 Decision-making process of swarm intelligence design based on a workshop of meta-synthetic engineering

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Conclusions

- This paper presents a swarm intelligence design based on workshop of meta-synthetic engineering with the architecture, the meta-synthetic workshop process and the design resouce delivery.
- It transforms the current isolated design pattern of individual user-centric into interactive, collaborative and social design pattern with group users as the center.
- Through the extensive application of design resource management and knowledge engineering, it achieves rapid conceptual design and verification, opening the way for innovative design.
- The use of network technology connects users, experts, and IPT team together to form a highly-integrated intelligence group, breaking the limits between design organizations and providing the possibility for the formation of the open-share, cross-border integration, and multitude-innovation new environment.

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