

Appendix 1. Self-knowledge score calculation

The respondents are asked to rate themselves based on their knowledge of the framework's key terms. Figure 9 presents the rating to showcase the participants' level of interaction and experience with the key terms. The participants are asked to rate their knowledge, and their answer is translated into a number. The number ratings are summed for each question to provide a holistic percentage rating of each area. The ratings for the next set of questions are as follows:

- “No Knowledge” = 0. The participant has no previous knowledge of the term/matter.
- “Aware” = 1. The participant is aware that the term exists but did not apply in their workspace.
- “Experienced” = 2. The participant is aware of and applies the concept in their workspace.
- “Expert” = 3. The participant applies the concept regularly in their workspace.

Figure 8 shows that the participants' self-rating of their knowledge of the key terms is the highest for ACM and FT. A middle range is presented for systems thinking, adaptive leadership and VUCA. The lowest rank shows that the least exposure is for mental models. The three zones presented on the graph range present:

- 0%–33%. “No Knowledge – Aware” is identified by awareness.
- 33%–67%. “Aware - Experienced” is identified by experience.
- 67%–100%. “Experienced – Expert” is identified by expertise.

Appendix 2

Table A1. Framework links name and description

Link name	Link description
MM are part of and drives ST	Mental models form part of, drive and influence systems thinking
ST creates an adaptive environment	Systems thinking provides an adaptive environment for the followers, which supports their adaptivity to the VUCA environment
Urgency needs action then orientation	For urgent chaotic challenges, situation awareness should lead to urgent action first, and then orientation and decision-making, followed by adjusted action in a cycle until resolution
ST supports FT	Systems thinking supports the understanding and application of future thinking
MM support ACM	Mental models support the effective application of adaptive change management
ACM aids organisational survival	Adaptive change management enables organisations to survive and thrive in the VUCA environment by obtaining a competitive advantage through adaptivity to conquer opportunities and avoid threats of complexity and chaos
MM is influenced by the context	Mental models are influenced by the context of the organisation and the VUCA business environment
MM supports awareness of culture	Mental models influence the perspective/culture to sense opportunities and avoid threats
AL qualities support ST	Adaptive leadership qualities complement and support the application of systems thinking
ACM aids adaptive solutions	Adaptive change management enhances the adoption of adaptive solutions in organisations
ST supports situation awareness	Systems thinking supports the understanding of situation awareness
Complexity needs orientation then action	For complex challenges, situation awareness should lead to orientation and decision-making, followed by taking action and then orientation and decision-making until resolution
Adopting MM to apply ST/ACM/FT leads to survival	The organisation's adoption of mental models to effectively apply systems thinking, ACM and future thinking would lead to surviving and thriving within a VUCA environment

Source: Authors' own work

Appendix 3

Table A2. Qualitative analysis contribution

Theme	Code	Supportive/new	Comment
ACM	Adaptive application	ACM Supportive	Critical to apply ACM to effectively adopt changes and enable survival in the VUCA environment
	Inclusion of the followers	Supportive	The followers are guided into adopting the principles of adaptive leadership and systems thinking
	Transition period is critical	Supportive	The transition of change is critical for the effective application of ACM
Adaptive leadership	Leadership styles must adapt to the context	New element and two links (1)	The leader to adopt the appropriate leadership style based on the context changes of the environment and the organisation
	Quality management of adaptive leadership is vital for effective application through feedback loops	New link (2)	Quality management link added between key principles and reaching the goal of achieving organisational success
	Environmental awareness to aid leaders in steering the organisation	New link (3)	The context provides environmental awareness to the leader
	Resources are linked to correct decision-making in adaptive leadership	New link (4)	Organisational resources are assigned to the adaptive change process. Lack of resources can cause defective changes
DOODA	Adaptive challenges need orientation and then taking action	Supportive	The adaptive change process follows the DOODA structure. The participants provided supportive statements to further strengthen the approach of DOODA in the context of adaptive leadership
	Chaotic challenges need an element of orientation before acting	Supportive	
	Feedback loops ensure the correct adaptive solution is applied	Supportive	
	Leader instincts are critical for fast correct action	Supportive	
	Organisations to act fast and lead or slow down and follow	Supportive	
Mental models	Balance between dynamic and firm mental models	Supportive	Organisations have core and dynamic mental models. Adaptivity must go through a thorough consideration when impacting core mental models
	Mental models to drive the adoption of adaptive leadership elements to enable successful adaptive transitions	Supportive	Mental models are key to the adoption of the adaptive leadership framework

	Internal and external factors affect mental models and vice versa, leaders understand the impact points to steer the organisation	Supportive	Leaders need to investigate the internal and external connections and their impact on the mental model to protect and nurture the core business values during the adaptive journey
	Mental models to adapt by integrating the elements of ST, FT and ACM of adaptive leadership	New link (5)	Organisational mental models to be steered into adopting the core principles of FT, ST and ACM to enable adaptive leadership
Systems thinking	Adaptive solutions require integration between adaptive leadership elements	Supportive	The interconnectedness of the elements is the driving force for successful implementation of adaptivity
	Identify the organisation as a system of which ST tools can applied	Supportive	The organisation is proven to be a system through the elements, purpose and interconnections
	Leadership qualities are needed for effective application of adaptive leadership	Supportive	These qualities aid the leader in conducting themselves to steer the organisation
	Systems thinking is critical to future thinking	Supportive	Future thinking needs a holistic thinking approach about the various elements and different possibilities through the different links

Source: Authors' own work