Service Innovation Diagnostics: Guidelines for Developing and Validating a Measure of Service Innovation Capability Maturity

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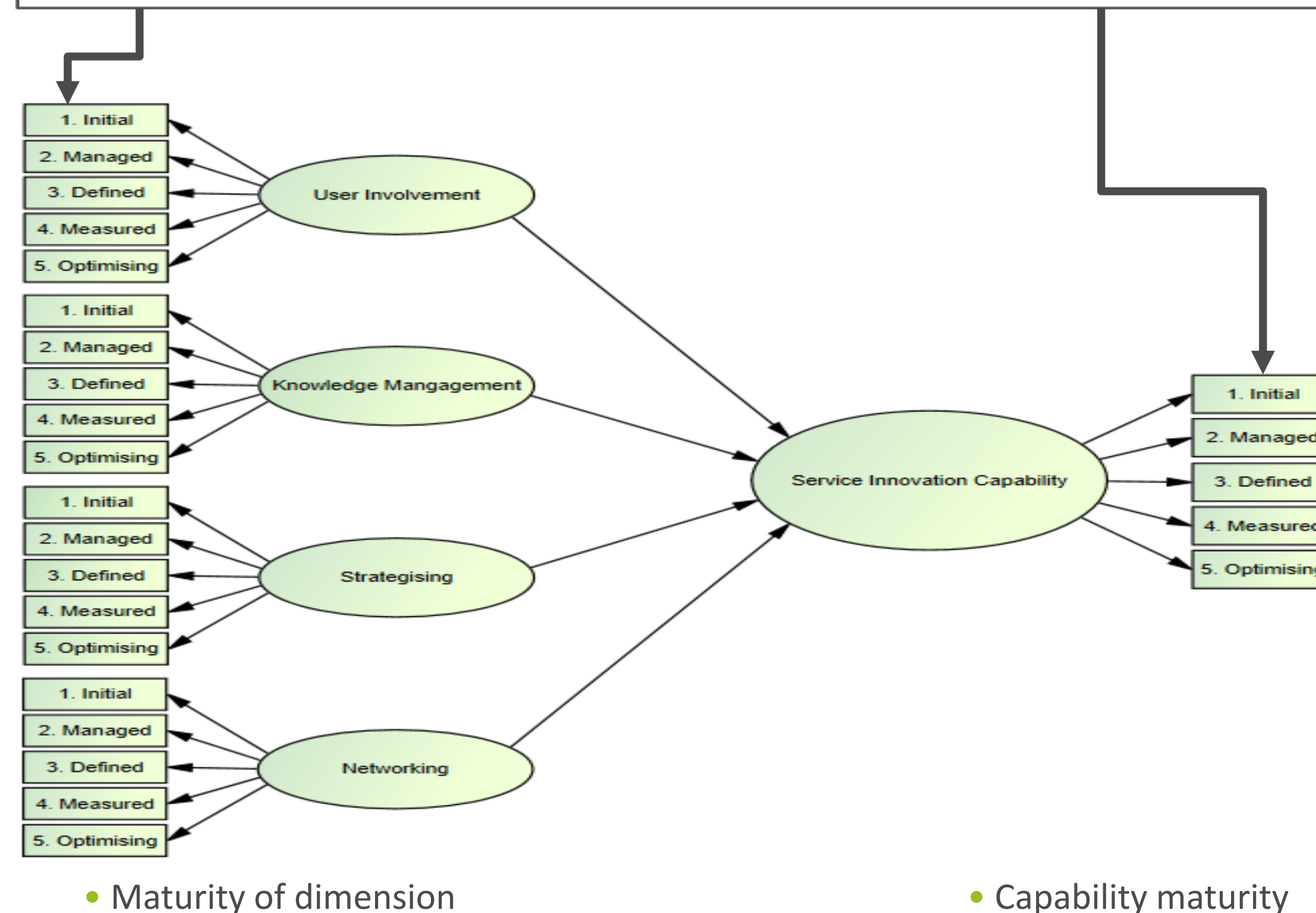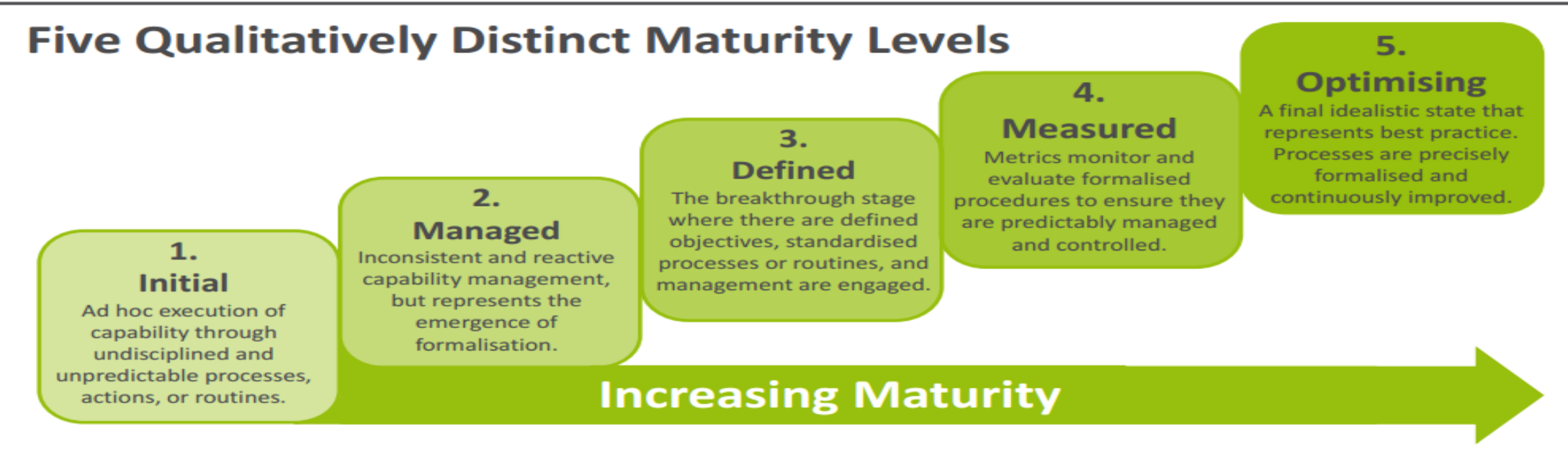
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1. Context and research gap

• Success does not depend on singular, discrete service innovations, but the ability to achieve them repeatedly and continuously, labelled service innovation capability (Lillis *et al.*, 2015)

• Organisations are unable to diagnose their service innovation capability performance (Hogan *et al.*, 2011)

• Lack of measures that observe guidelines in their development and that neglect the assessment of maturity, or sophistication with which this capability is executed (Kohler *et al.*, 2013)

Objective
To develop a measure of service innovation capability maturity

2. Methodology

• Best practice procedure for the development of measures (Churchill, 1979; MacKenzie et al., 2011)

Phase 1	Conceptualisation	Conceptualise Service Innovation Capability
		Conceptualise Service Innovation Capability Maturity
Phase 2	Development of Measurement items	Generate Items to Represent the Construct
		Assess the Content Validity of the Items
Phase 3	Measurement model Specification	Formally Specify the Measurement Model
Phase 4	Index Evaluation and Refinement	Collect Data to Conduct Pre-test
		Index Purification and Refinement
Phase 5	Validation	Gather Data from New Sample and Re-examine Index Properties
		Assess Index Validity
		Cross-Validate the Index
Phase 6	Norm Development	Develop Norms for the Index

3. Conceptualising service innovation capability

• '*a hierarchical, multidimensional construct formed by user involvement, networking, strategising, and knowledge management, embedded in an organisation's routines or processes with the potential to repeatedly deploy and reconfigure resources in the continuous creation or improvement of services*'

4. Conceptualising service innovation capability maturity

Five Qualitatively Distinct Maturity Levels

1. **Initial** — Ad hoc execution of capability through undisciplined and unpredictable processes, actions, or routines.
2. **Managed** — Inconsistent and reactive capability management, but represents the emergence of formalisation.
3. **Defined** — The breakthrough stage where there are defined objectives, standardised processes or routines, and management are engaged.
4. **Measured** — Metrics monitor and evaluate formalised procedures to ensure they are predictably managed and controlled.
5. **Optimising** — A final idealistic state that represents best practice. Processes are precisely formalised and continuously improved.

Increasing Maturity

• Maturity of dimension   • Capability maturity

5. Developing measurement items

• Content valid items developed and endorsed for each dimension at each level of maturity

| | | DIMENSIONS | | |
		User Involvement	Knowledge Management	Strategising	Networking
MATURITY LEVELS	**5. Optimising**	Users play an intrinsic, collaborative, and permanent role in all phases of our new service development processes. They are treated as knowledgeable innovation partners and our relationship does not dissolve once a project is completed, but instead extends to multiple projects. Because of their value, we make an effort to continuously increase and enhance their input and cooperation at all stages of new service development.	There is a culture in our organisation in which widespread, automatic sharing of knowledge and open communication occurs. We consider ourselves to be a learning organisation and use our experiences to continually improve how we manage knowledge for service development.	In our organisation, standardised processes that integrate the contribution of employees at all levels are in place for deciding which services to develop or improve. We make changes or adjustments to these processes when we believe we can enhance their effectiveness. The resulting strategies aim to create new markets by doing what competitors cannot and are widely communicated for the purpose of supporting operational decisions.	We have established processes in place for building and managing relationships with our stakeholders. We learn from our successes and we continuously improve these processes. All of our stakeholders are involved with service development activities and collaborations allow us access to their skills and knowledge. We actively identify new parties with whom we can create beneficial relationships and maintain and maximise those with highly skilled parties such as research groups and consultants.
	4. Measured	Users have a direct, personal, and active role at each stage of our service development processes. While this role is extensive, it is not fully collaborative. We monitor and track their involvement throughout, from early development, through to the verification and testing of new services or service improvements.	In our organisation, there are standard processes in place for capturing and sharing knowledge between employees. Knowledge sharing and learning is not organisation wide, but is presently limited to the departmental or group level. Metrics are in place to ascertain the performance of these processes and to provide feedback.	During strategy development, we strive to identify future success factors, frequently engage with employees, and monitor the activities undertaken to confirm that our internal standards and methods are adhered to. The aim of developing or improving services is to outperform similar competitors.	When possible, all stakeholders interested in, or impacted by, our service development activities are integrated into the process. However, this is not achievable on every occasion. Despite not actively searching for compatible organisations, we periodically initiate alliances or collaborations related to service development and use performance metrics to monitor and control how cooperation occurs.
	3. Defined	In our organisation, users are loosely involved in the early phases of developing new services. Our service development processes happen in the same way each time and users, as 'experts', are able to share their specific needs, wishes, and requirements. Surveys or similar techniques are our preferred mechanism to gather users' opinions or insights.	Our organisation has the basic framework and tools in place to support the systematic gathering, documentation, and communication of knowledge. Employee roles in these activities have been specified, but knowledge sharing chiefly occurs between individuals within groups.	We have formal and comprehensive strategic planning processes in place that occasionally involve staff. Generally, we use forecasting tools which allow us to keep pace with competitors or address niche markets.	In our organisation, all of our own employees are involved in service development and there are defined practices in place that govern our interactions and partnerships with other organisations. Usually, only significant external stakeholders are permitted to have an input into service development processes. Some knowledge is shared across the boundaries of our organisation and informal discussions, relationships, and associations with stakeholders are encouraged.
	2. Managed	We study and observe users, adopting various situation specific approaches, with the aim of defining the requirements for new or improved services. Usually, there is no direct contact with users. We tend to use internal channels like sales reports, feedback, and customer complaints to improve our understanding of service users' specifications.	We have some basic processes in place for capturing or utilising knowledge, but they are not always adhered to by staff. Staff are generally guided by their individual experiences, observations, and intuition, which are difficult to share with others.	Strategic planning for services only occurs in our organisation as a reaction to a specific urgent problem. It is conducted inconsistently, with erratic employee input, and a focus primarily on budgeting and costs.	We sporadically involve only members of our organisation who are impacted by service changes, but we are beginning to understand the value of involving external parties too.
	1. Initial	In our organisation, user participation in the development of services is infrequent and ad hoc. In fact, unless a user approaches us, we assume we can develop the services that they want.	We do not formally manage communication or knowledge in our organisation and any activities that occur in these areas do so in an unconscious and unsystematic way.	Our strategies for service development or improvement are developed in an ad hoc way and neither involve staff nor explicitly specify our objectives.	Creating or maintaining relationships with external parties for the purpose of enhancing our services is not represented in our businesses' processes. If collaboration does occur, it is entirely dependent on the skills or initiative of individuals. As an organisation, we ignore the potential impact changes to our services may have on supply chain actors and have a conservative attitude towards opening our boundaries for the purposes of knowledge sharing or cooperation.

6. Specifying the measurement model

The formative measurement model has (Bollen and Davis, 2009):
• 2 directed paths from the construct to reflective variables
• A single path from the construct constrained to 1
• Free covariance between dimensions

7. Next steps

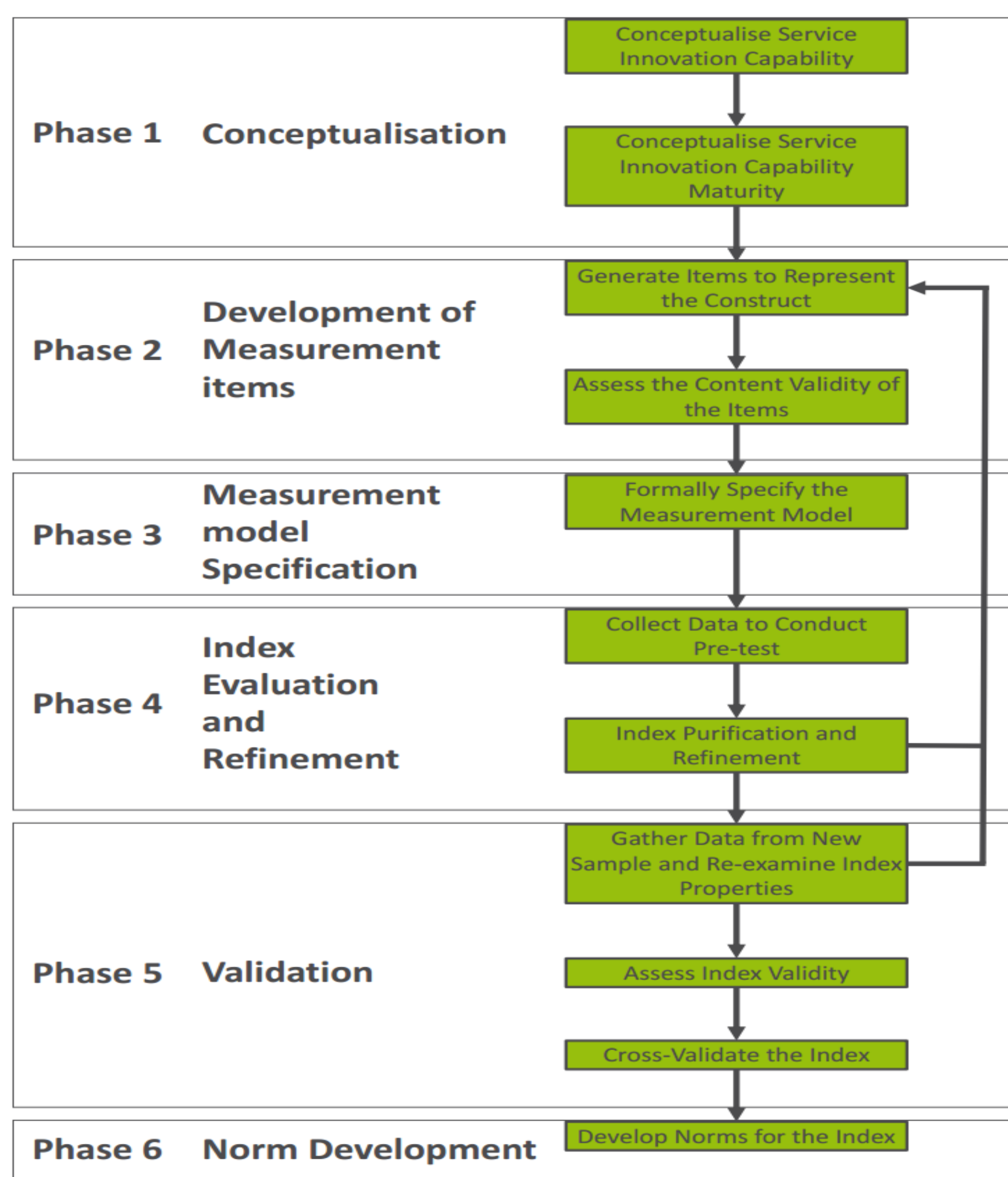Pretest with 8 SMEs to evaluate questions and survey structure

Pilot study with a sample of 150 'Business services' organisations to confirm goodness-of-fit and validity

Main study with a sample of ICT organisations (n=300), cross-validated with pilot results to confirm the generalisability of the measure

Norms developed to guide interpretation
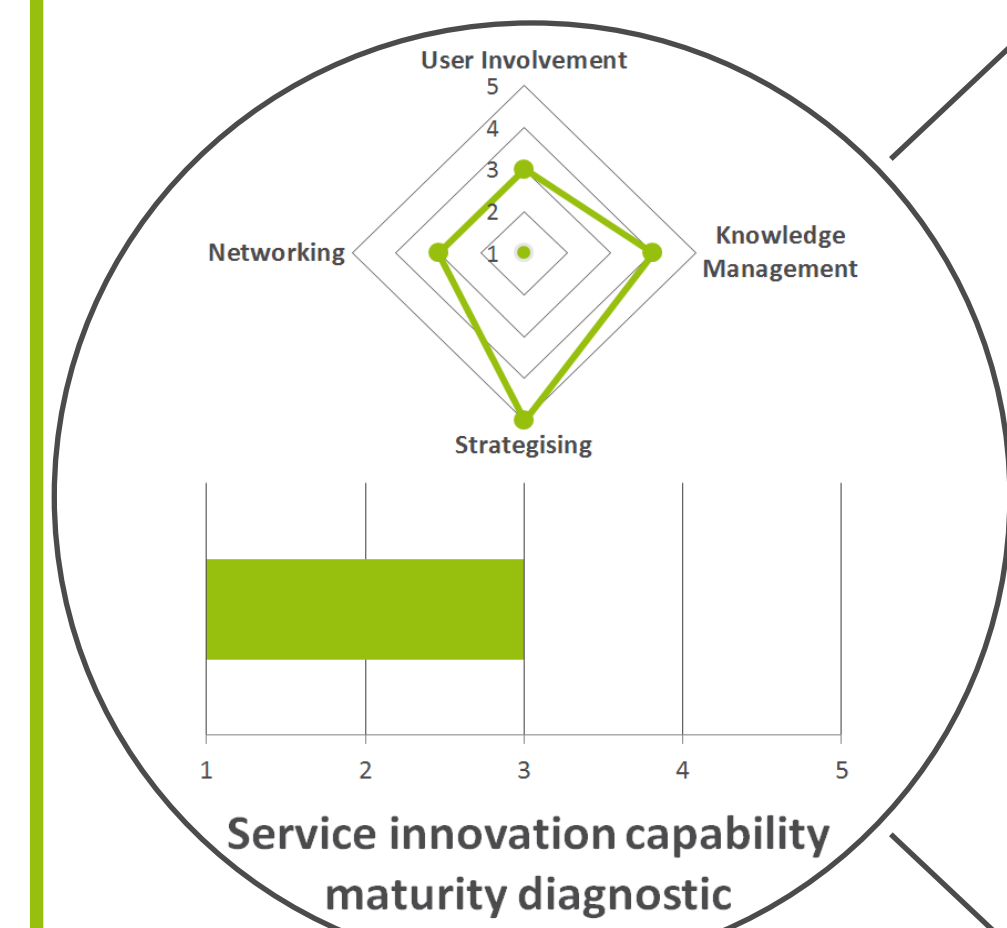
8. Contribution

Theoretical
• Advances service innovation capability theory by examining its underlying dimensions
• First to apply maturity modelling to service innovation capability and among the first in a services context
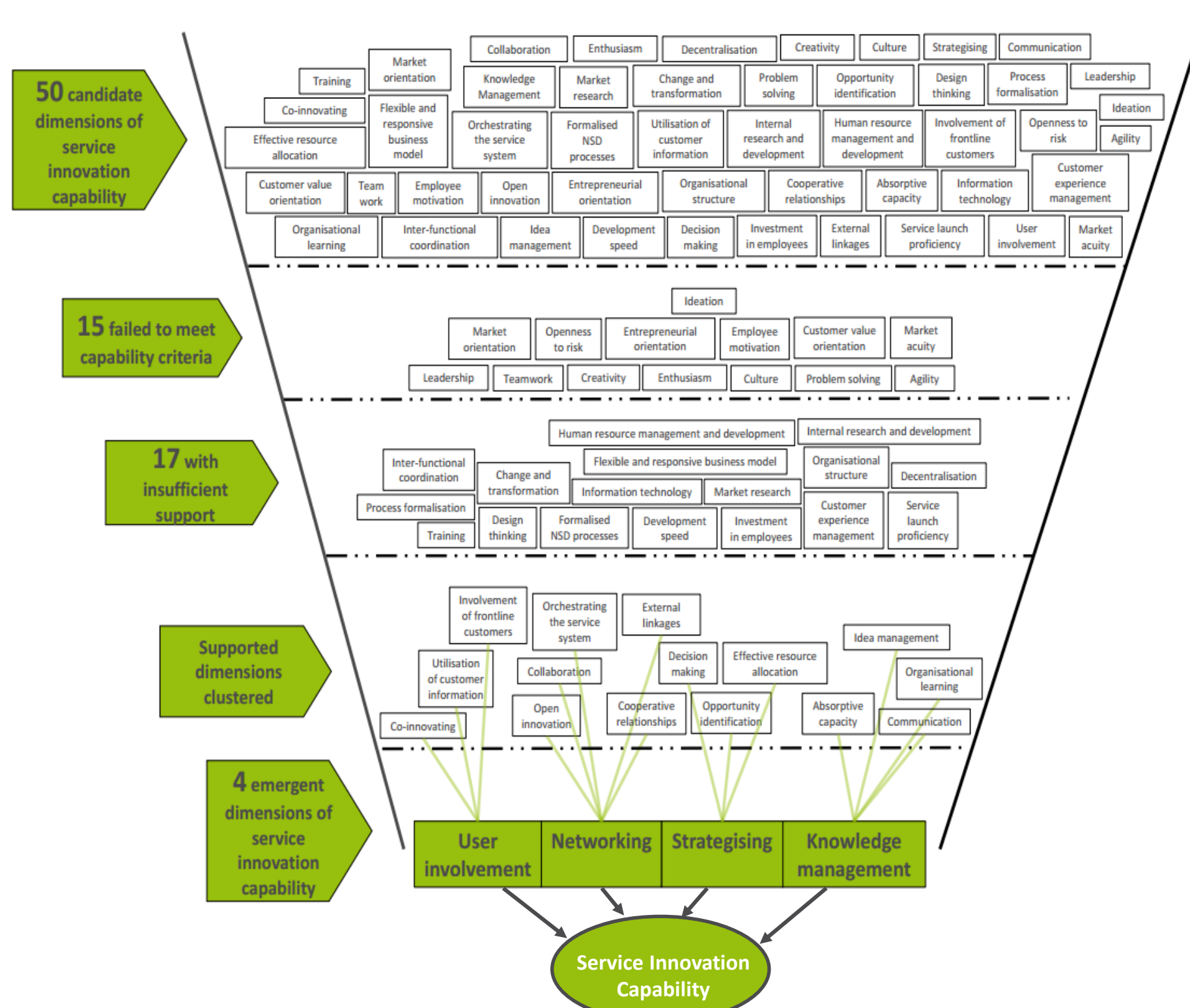
Methodological
• Novel quantitative methodology
• First study to develop an index for service innovation capability maturity

Practical
• Enables organisations to rapidly generate a picture of their service innovation capability performance, identifying strengths and weaknesses
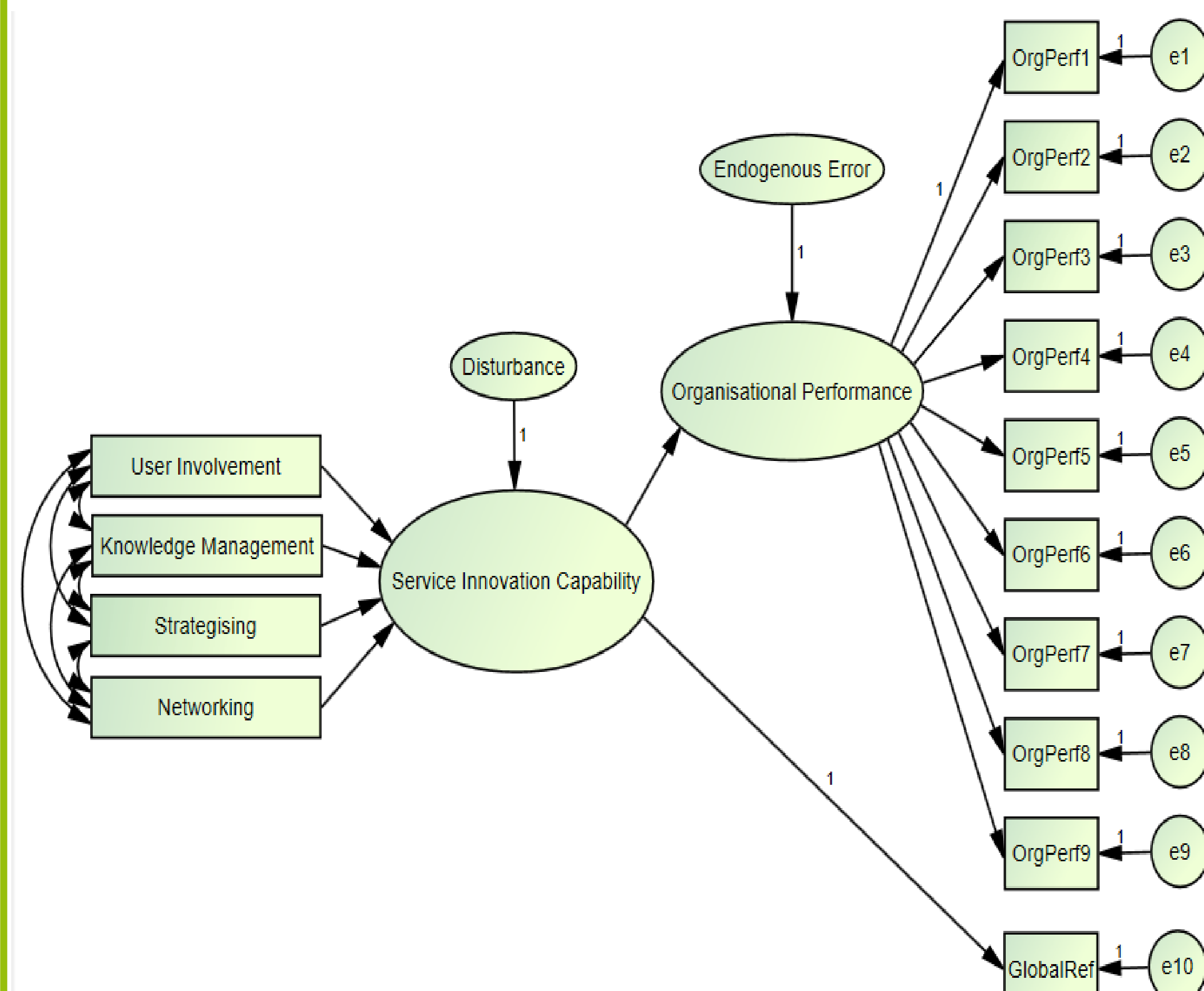• Facilitates comparison with other organisations

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