

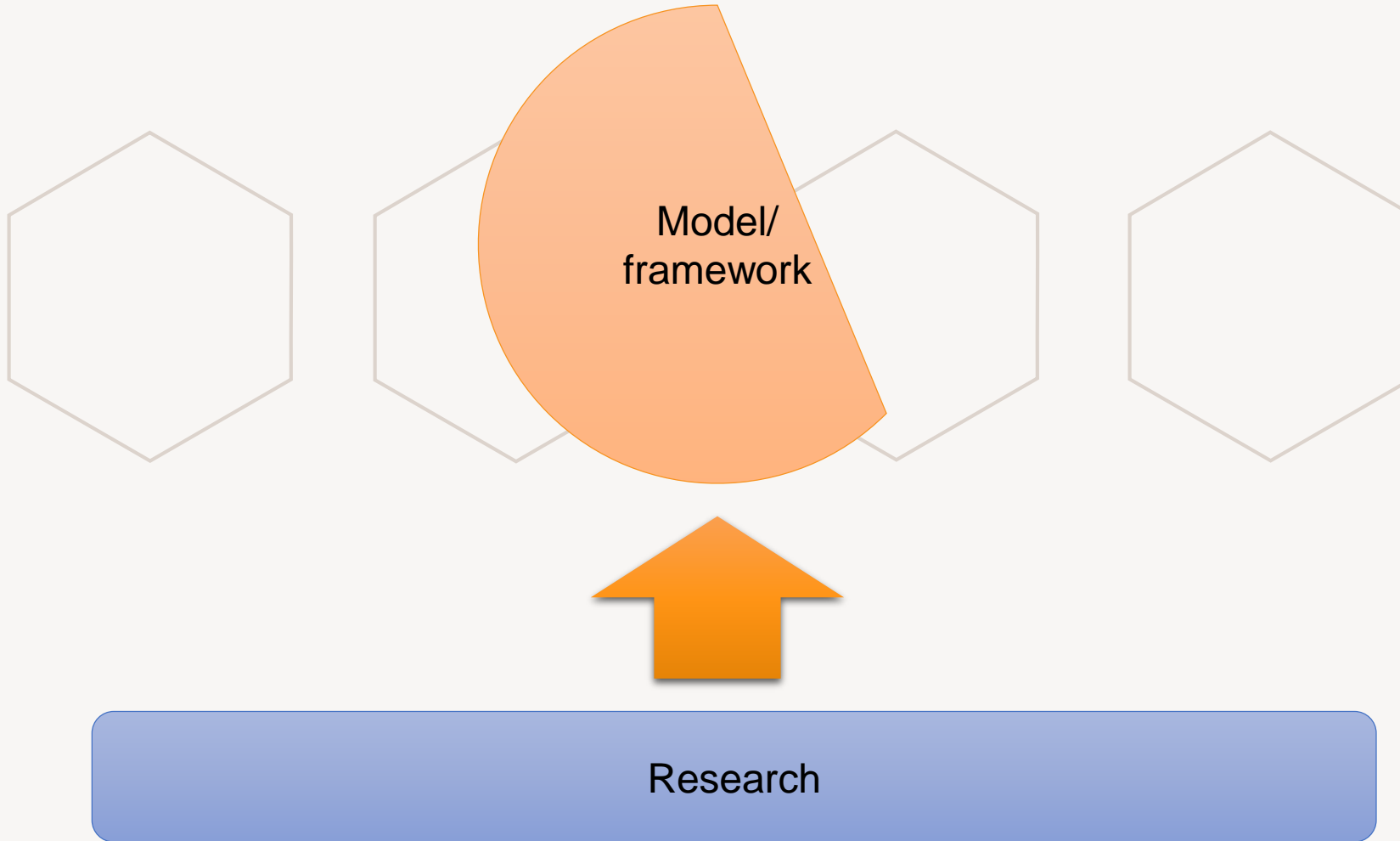
Delphi Method for Gathering Experts' Opinion

Lukman Hadi Dwi
Purnomo

lukman@bpk.go.id



Model Development



Model Validation



Theoretical Results/Analysis

Analisa
berdasarkan teori



Expert Intuition

Intuisi/Pendapat
Pakar



Real System Measurements

Pengukuran pada
Sistem
Sesungguhnya



EXPERT INTUITION

- Experts have a broader and deeper knowledge base than novice (Okoli et al., 2016)
- Experts' intuition is developed through education and extensive, rigour and deliberate practice with appropriate standard (Effken, 2001; Ericsson et al., 2007)

What is Delphi Method?

- Delphi is defined as a scientific method to **manage the communication process** of a **structured group** for **obtaining opinion or insight** on a particular problem
- Delphi is a **method**, and not to be confused with data collection techniques. Delphi may be **implemented using a preferred data collection technique**, such as a questionnaire or interview



Delphi Method vs Regular Questionnaire

Aspect	Delphi Method	Regular Questionnaire
Purpose	Consensus building, expert opinion forecasting	Data collection from a broad population
Process	Iterative rounds with feedback	One-time data collection
Participants	Experts in the field	General population or specific demographic
Anonymity	Ensured, reducing bias	Possible but varies
Feedback	Iterative, with summary and revision	None
Time	Time-consuming	Quick
Cost	Potentially expensive	Cost-effective
Depth of Insight	High, due to expert feedback and revision	Moderate to low

Characteristics of Delphi Method



Use of experts

- Quality and accuracy of responses to Delphi is reflected by expert quality of participants
- Recruited experts should be at the top of their field, having a complete perspective surrounding their expertise, able to see the connection between present and possible future development and open to a new idea



Panel

- To include the best knowledge or experience in their field of expertise
- Number of experts in a panel was not a great concern



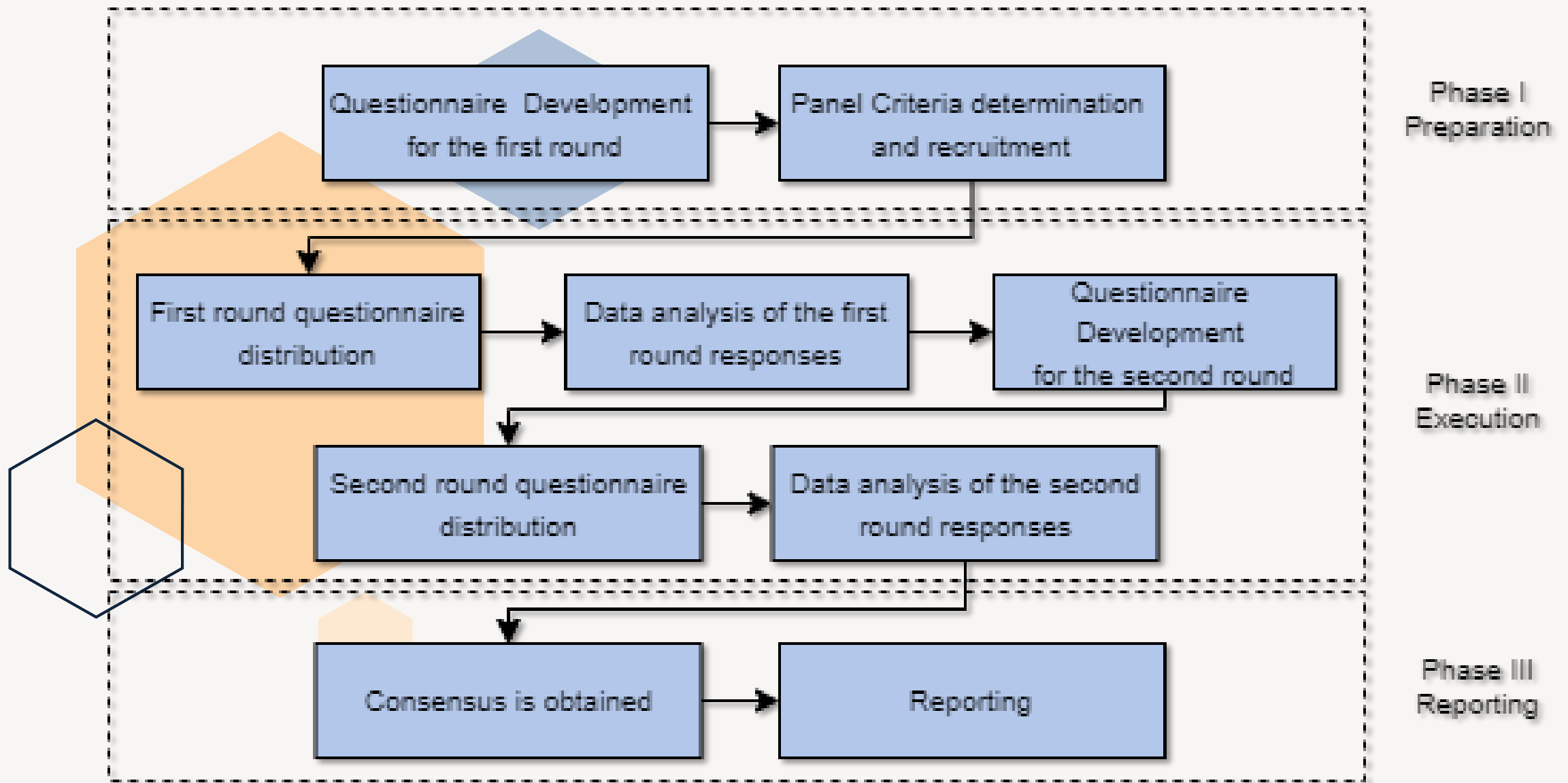
Anonymity

- An expert is anonymous to other panellists (to avoid domination and potential conflict)
- Not to the researcher (to understand the level of expertise and maintain communication in rounds)



Rounds and feedback iteration

- Series of rounds (two rounds are minimum)
- Summary will be fed back to the panel member for further comment in the next round



Preparation



Preparing a Delphi Questionnaire

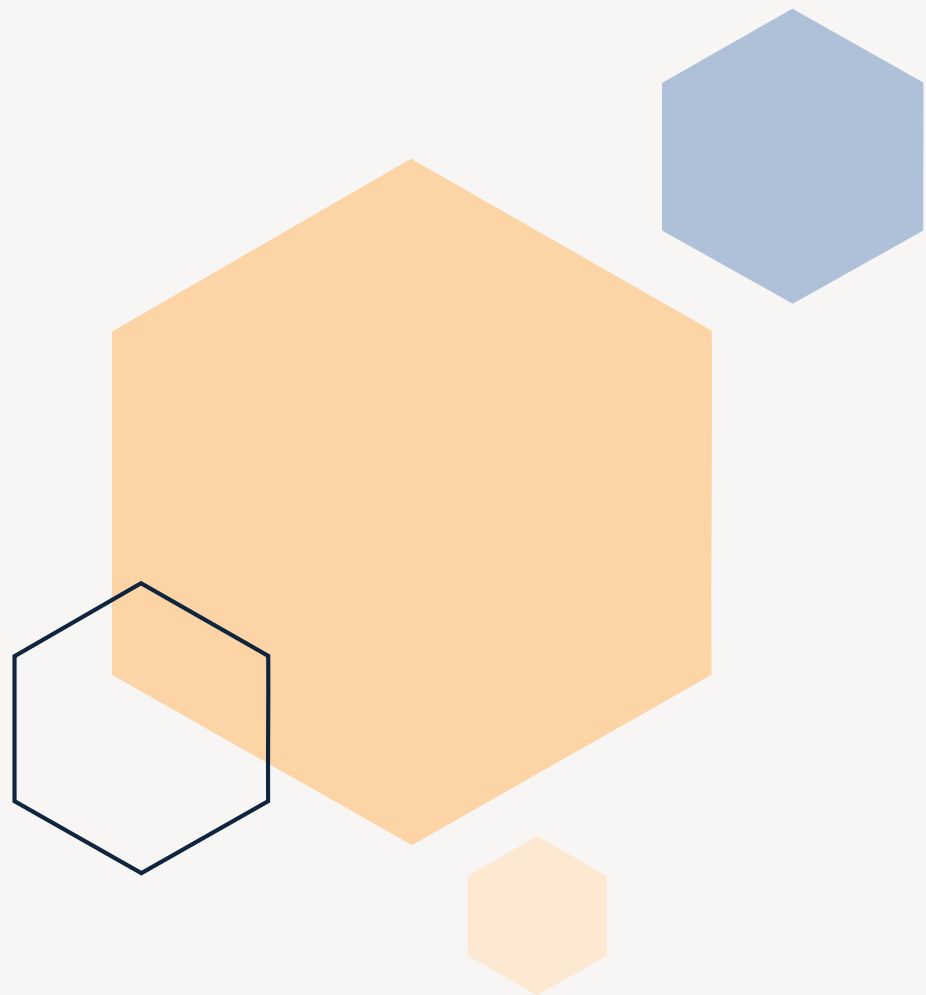
- Based on initial model to design a two-section questionnaire
- In the first section, participants were presented with the list of component categories, and invited to rate each category in regard to importance and disruption expectancy
- A Likert scale was used, ranging between 1 to 5, where 5 means the component category has the highest criticality and importance to Zero Trust operation, and no disruption is expected
- In the second section participants were presented with mapping of Zero Trust component categories and the asset group classification from ISO27005 standard.
- They were invited to express their opinion on which asset groups where the focus of risk assessment activities should be placed on

Preparation



Expert panel composition and criteria

- Delphi technique **tends** to recruit a **small number** of participants
- **Central concern** in terms of panel membership is the **nature of the expertise** and its recruitment
- Brockhoff (1975) argued that there is **no general relation** between panel **size** and its **findings**
- Martino (1985) asserted that an additional equally expert group is **unlikely** to produce significantly **different result**, therefore a **large** panel of experts does **not necessarily** means a **better** result (Sinead Keeney 2011)



Contoh

Preparation

Preparing a Delphi Questionnaire

Principles	Component Categories	Value Factor
Verification and Access Control (VAC)	User and Device Management (UDM)	5
	Data Access Policy (DAP)	5
	PDP/PEP	5
Secure Access (SA)	PKI and Encryption Service (PES)	4
	Agent-Portal Access (APA)	4
Traffic Inspection and Logging (TIL)	Logging and Monitoring (LM)	3
	Threat Intelligence (TI)	3
Other	Other	1-2

Preparation



Recruitment Criteria

- Be a **subject matter expert** with practical experience in ISO27005 or other ISRM frameworks; or practical **experience** in Information Security implementation
- Holding a **certification** in security or risk management is preferred
- Having at least **five years** of industry experience in the IT field
- **Willing to participate** in a multi-round (two rounds) Delphi study

Preparation




Recruitment Criteria

The panel should be as **heterogeneous** as possible (Powell, 2003).

- Experts from **various industries** as well as a **combination of** professional security or risk practitioners and academics

The professional expertise was reflected by possession of **certifications in risk and/or security-related fields**, including ISO27001, CRSIC, CISSP, CISM, SCF, CEH and CSX, and academic qualification was shown by a **PhD degree in the related field**.

Conducting the Delphi Survey



Round One Questionnaire distribution

- Preparing a Resource Nomination **List** (RNL)
- **Nominating** experts onto the list
- **Contact** the nominated experts.

Nomnation

- Researcher's **network referral**
- LinkedIn platform (Premium)
 - The search involved several parameters including **research field** (e.g. cyber security, risk, risk management, zero trust) and the **expected qualifications** such as certification and education

Reporting

Principles	Component Categories	Average Rank
Verification and Access Control (VAC)	User and Device Management (UDM)	4.43
	Data Access Policy (DAP)	4.29
	PDP/PEP	4.71
Secure Access (SA)	PKI and Encryption Service (PES)	3.71
	Agent-Portal Access (APA)	3.67
Traffic Inspection and Logging (TIL)	Logging and Monitoring (LM)	4.00
	Threat Intelligence (TI)	4.00

Open Comments



Expert 2

... APA isn't all that important in Zero Trust because I think Zero Trust needs to be a little more fluid and flexible than using something fairly rigid like an agent portal. Plus proxy engines don't tend to have all that much inspection capability that would be needed for Zero Trust.



Expert 5

Threat Intelligence (TI) is a “tool to continually improve it and understand the environment, as an input to the process and targets for monitoring”.



Expert 2

I actually think encryption can get in the way of Zero Trust because it makes the data more difficult to inspect in transit. With Zero Trust it's essential to inspect traffic to ensure it's not malicious and it is a valid request. Encryption gets in the way of this.

Summary

The Delphi Method is best suited for scenarios requiring **deep expertise** and **consensus-building** among **experts**, while **regular questionnaires** are more appropriate for **broad** data collection from **larger** and more **diverse populations**.





Thank you

Lukman Hadi Dwi Purnomo

lukman@bpk.go.id

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