

CHAPTER 9

Delphi Technique

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9.1 INTRODUCTION

In the 1950s, at the Rand Corporation, Dalkey and Helmer (1963) created the Delphi technique. Dalkey (1969) also presented the results of an experiment that evaluated the effectiveness of Delphi procedures. These procedures involve using anonymous responses, iterative processes, controlled feedback, and statistical group response to gather and refine group judgments when exact knowledge is unavailable.

The Delphi method can be described as a technique for organizing group communication in a way that enables the group as a whole to effectively address a complex problem (Linstone & Turoff, 1975).

This method of accomplishing convergence of estimation for real information retrieved from professionals is widely used today. Firstly, this technique is one of the most commonly used tools in Information Technology Research for categorized topics (Okoli & Pawlowski, 2004). Secondly, this method uses the eyes of professionals in creating and building new theories or for the validation of ideas on inventions of the future. Lastly, the key use of this method is to gain the best and the most consistent of consensus from the professionals about certain problems. Due to its dependability and usability, Delphi has been used in many different sectors.

This chapter starts with the introduction and continues with the types of Delphi and Delphi criteria in Sections 9.2 and 9.3 respectively. Next, the Delphi process is described in Section 9.4 of this chapter and continues with Delphi data analysis in Section 9.5. This is followed by Experts' Response's Reliability and Consistency in Section 9.6. Then, the drawbacks of the Delphi technique is described in Section 9.7. Finally, the conclusion of this chapter is given in Section 9.8.

9.2 TYPES OF DELPHI

Over the past few years, several variants of the Delphi technique have been developed to enhance its forecasting capabilities. These include Realtime Delphi, where expert opinions are continuously updated in real-time (Aengenheyster et al., 2017), Delphi Markets which combines the Delphi method with prediction markets and big data research (Servan, 2012), Policy Delphi which aims to identify the range of opinions (Turoff, 1970), Argumentative Delphi which focuses on qualitative justifications for expert judgments (Keeney et al., 2011), and Group Delphi which involves experts participating in a joint workshop to provide contextual justifications for differing opinions (Ives et al., 2018).

Overall, the Delphi technique is a flexible and adaptable method that can be customized to meet the specific needs of different research projects or policy development processes.

9.3 DELPHI CRITERIA

There are various criteria that have to be followed before undertaking Delphi such as the expert selection, duration of the Delphi rounds, and the number of rounds. These criteria are explained in the following sections.

9.3.1 Expert Selection

The most crucial step in the complete process is selecting the experts for the Delphi technique because the calibre of the outcomes is strongly related to their selection (Hsu & Sandford, 2007). The choice of Delphi experts is typically based on the disciplinary areas of expertise required by the particular matter because the Delphi approach concentrates on gathering expert opinions over a particular period. The expert panel for this technique is chosen based on expert criteria. Experts are finalized once they fulfil all the criteria. The selected experts need to give their full dedication to the study as they have to get involved minimum of two rounds. Selected experts need to have high similarities in terms of their expertise and experience.

Based on past research, the number of panel experts ranged from four to 171 “experts” (Skulmoski et al., 2007). According to Adler and Ziglio (1996), in order to participate in the Delphi panel, an expert must meet the following four criteria:

- (1) Possess a comprehensive comprehension and familiarity of the research subject,
- (2) Are committed to actively engaging in the process,
- (3) Have availability to participate in the Delphi research method,
- (4) Are skilled at effective communication.

9.3.2 Duration of Delphi Study

The overall duration of the Delphi study needs to be recorded such as when the Delphi round started and ended for each round. This is very essential for audit trail purposes.