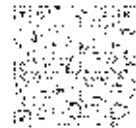


因應人口結構變遷下之科技發展 規劃：論科技前瞻與決策支援系統

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摘要

在知識經濟與全球化的衝擊下，唯有掌握科技創新趨勢並形成前瞻性發展策略，才能維持國際競爭優勢。目前，全球許多國家陸續推動科技前瞻計畫，除藉以掌握未來發展趨勢潮流，並建立決策者與參與者間之網絡關係，以創造共同願景外，亦可協助政府訂定優先發展順序與引導資源配置，以改善科技政策制定及策略規劃品質。綜觀臺灣國內各產業之經營模式、科技發展思維及決策運作機制，皆面臨轉型，如何透過科技前瞻計畫達成產官學研界對重要議題發展目標之共識，並建構科技政策支援體系，是國內決策單位之重要課題。

有鑑於政策目標設定之科技前瞻已被各國視為科技政策循環前端之重要活動，但反觀臺灣，多年來雖有若干科技前瞻計畫之進行，卻欠缺從社經議題思考科技需求所形成的策略規劃及跨領域前瞻活動。基於國內對於前瞻規劃之需求，本文先介紹科技前瞻之定義、內涵與運作程序、國際前瞻經驗；其次，再以「因應人口結構變遷下之科技發展規劃」為例，運用前瞻活動分析未來科技趨勢與我國科技發展策略；本文主要針對因應人口結構變遷下之36個科技發展項目辦理大規模專家意見德菲調查活動之結果，以「全球市場規模開發潛力」、「臺灣社會經濟需求強度」、

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「目前臺灣技術發展優勢」、「未來臺灣技術發展潛力」、「全球2025年實現可能性」等面向來分析這些科技發展項目在臺灣推動之重要性與可行性；最後，針對科技部改制為科技部後如何強化科技發展決策支援系統，提出具體建議。

關鍵詞：決策支援系統、科技前瞻、高齡化、策略規劃、德菲法

Technology Foresight and Decision Supporting System for S&T Planning on Demographic Change

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Abstract

Confronting the challenges of globalization and knowledge-based economy, Taiwan government, the National Science Council (NSC), attempts to revitalize national innovation system and to reinforce S&T policy supporting system, so commissioned a pilot project to National Taiwan University (NTU), and then subcontracted to Taiwan Institute of Economic Research (TIER). This is a three-year project from 2009 to 2012, including foresight activities such as demand survey, trend analysis, horizon scanning, scenario, visioning, essays (competition), workshops, roadmapping, and two-round Delphi. This paper is aimed to introduce the framework of the project and to analyze the major output of the project based on the expert opinion by large scale Delphi survey.

The project set up a task force from 2009 to build up the database including social needs, technological trends, critical issues, and S&T policies nationwide and worldwide. Under the support of NSC, NTU set up the Steering Committee of 7 members to decide the purpose, structure, and target year of the project. In order to link the foresight and S&T policy, the project set up the Strategy Formation Committee of 12 members, to figure out the research topics to meet the demand of ageing society in Taiwan in 2025. Then the Planning Committee proposed the final 36 research topics and the key questions as the main part of Delphi questionnaire. In 2012 TIER built up an online survey system

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to execute two rounds of Delphi survey, and approximately 1,100 scientists and experts participated. Based on the survey, the papers analyzed 36 research topics in terms of global market size, domestic societal needs, local technology strength, future development potential, and the feasibility in 2025.

Keywords: decision supporting system, technology foresight, ageing, strategic planning, Delphi