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Development of post-evaluation model for future and emerging technology item reflecting environmental changes



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ABSTRACT

This study suggests a post-evaluation model for future and emerging technologies identified by previous foresight activities to determine whether their potential has been maintained, extended, or minimized due to rapid technological and social changes in the research and development environment occurring after the technology item was selected. Moreover, the proposed model is based on specialist insight, and can measure whether the selected technology is still promising and socially and technically feasible at the current time domestically and worldwide based on a technology growth curve. The results of the case study suggest which technology items have been implemented or unimplemented due to particular accelerators or obstacles, which items are still promising, and the technology level of the items. The proposed model focuses on the technology items themselves, whereas previous evaluation activities have focused only on the process and impacts of foresight projects. Moreover, this post-evaluation model can be applied to various emerging technology items that are continuously selected and reported around the world, allowing for the monitoring of changes in the brightness and realization status of previously selected items. Thus, the model can provide feedback for the future selection process to improve the reliability of emerging technology selections and suggest the information for decision-making with related to a particular emerging technology item.

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1. Introduction

Government divisions, public research centers, private professional institutions, and individual companies around the world are increasingly focused on identifying future and emerging technologies or conducting technology foresight projects (see Table 1). Once the preliminary rounds of investigation are completed, activities can be focused on making strategic progress with regard to implementation. Indeed, practical pursuits, such as the establishment of roadmaps for national or corporate implementation, budget allocation, and portfolio setting, have increased in order to build on research efforts related to future and emerging technologies.

In addition, emerging technology presentations held by governments or professional forecasting institutions are considered key in leading the research and development direction of private companies and public institutions. Companies and institutions that want to enter new markets and expand their research and development will select certain emerging

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