From Theory To Practice: Technology Transfer in Social Sciences and Humanities

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PREFACE

Knowledge is one of the most important forces in the development and progress of a society. However, merely producing theoretical knowledge does not ensure that this knowledge translates into societal benefit. The practical use of knowledge is a fundamental element that transforms society, improves people's lives, and enriches cultural interaction. This process is closely related to the concept of "technology transfer." While technology transfer is typically discussed in the context of engineering and natural sciences, it is important to recognize that a similar knowledge transfer process exists in the fields of social sciences and humanities as well.

This book, *From Theory To Practice: Technology Transfer In Social Sciences and Humanities*, discusses how the theoretical knowledge produced in these fields can be transformed into practical solutions and integrated into social life. Social sciences and humanities offer valuable insights into human behavior, culture, society, and ethics, providing in-depth analysis of the challenges faced in daily life. However, when this knowledge remains confined to an academic level, its potential impact is limited.

The book aims to highlight the potential of social sciences and humanities knowledge to generate concrete and applicable solutions to the complex problems faced by societies. By bridging theory and practice, it presents strategies and models to increase the social impact of research conducted in these fields. The book also examines how social sciences and humanities can drive social change through innovative approaches and interdisciplinary collaborations.

For research in social sciences and humanities to transition from academia to societal benefit, the application of theoretical knowledge into practice, collaborations, and innovative processes are crucial. This book encourages researchers, policymakers, educators, and practitioners to move their knowledge into broader social contexts and utilize this knowledge for social development.

We hope that this book will serve as a guide to bringing the transformative power of social sciences and humanities to a wider audience. Offering a practical perspective on increasing the social impact of research in these fields, it aims to be a source of inspiration for professionals, researchers, and policymakers in the relevant academic disciplines.

Dr. İsmail ÇETİN

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TECHNOLOGY TRANSFER SYSTEMS IN THE WORLD

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ABSTRACT

With the effects of globalization and recent digitalization, the proliferation and diversification of technological innovations have become increasingly important in facilitating mobility among businesses, institutions, universities, countries, and geographical regions. As the share of science and technology within economic growth increases, there arises a need for the development of national strategies, technology transfer organizations, and mechanisms to monitor and enhance technological performance. Rather than considering technology transfer solely as individual actions undertaken by institutions and organizations, it can be argued that focusing on the importance of technology transfer systems and aiming for comprehensive improvement will lead countries to gain advantages in technological competition. This study aims to examine the concept of technology transfer systems and conduct an analysis of the status of technology transfer systems in major countries around the world and in Türkiye. A descriptive literature review was conducted to shed light on future studies. Although scattered data on technology transfer in various countries can be found in numerous sources and reports, it is evident that new frameworks are needed to compare these data. In this compilation study, which aims to explain the current situation of technology transfer systems, academic studies that examine the technology transfer systems of 15 countries, including Türkiye, across the USA, Europe and Asia, directly at the main title level or indirectly such as comparison, were used. In these studies, the characteristics attributed to the systems and successes of different countries are summarized and presented in a table. The findings indicate that leading countries in technology transfer possess "strong collaboration between academia and industry, robust intellectual property laws, and a culture that fosters entrepreneurship and innovation." Türkiye is a promising country in the field of technology transfer; however, it is important to address potential challenges and issues in the development of the technology transfer system.

Keywords: Technology Transfer Systems, World, Türkiye, Entrepreneurship, Innovation

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1. INTRODUCTION

Although numerous technological innovations have entered human life from the past to the present, the process of how these innovations are transferred from the laboratories of inventors to businesses, from businesses to society, and from one country or region to another has been a relatively less explored and background topic. In this context, various aspects of the subject, such as innovation and entrepreneurship, emerge as different research areas. However, "technology transfer systems," which constitute the backbone of the entire process from the idea stage of technological innovations to their commercialization and dissemination, are a less focused area. Today, the transforming competitive conditions influenced by digitization and digital transformation are motivating institutions and organizations, including both the private and public sectors, to reconsider technology transfer. Digitization and digital transformation are taking technological innovations and technology transfer to a new level. Technological innovation can be linked with the innovation ecosystem and technological transfer with the entrepreneurship ecosystem. When looking at the whole picture, a country's technological advancement is related to the uniqueness and successful operation of its technology transfer systems. While there are successful role model countries in the development of technology transfer systems, other countries attempting to directly replicate these models have faced various challenges. This study aims to provide a conceptual explanation of technology transfer and technology transfer systems, along with an analysis of the status of technology transfer systems in different countries around the world and in Türkiye.

2. TECHNOLOGY TRANSFER AND TECHNOLOGY TRANSFER SYSTEMS

Technology transfer can be defined as a process involving various mechanisms through which technical needs are matched interactively with new devices, methods, and data, facilitating the movement of a technical innovation from a research and development (R&D) environment to other settings, ultimately encouraging the widespread adoption and utilization of technology [1]. Within this process, it is observed that technical knowledge or devices are transferred within a company or among companies, countries, and geographic regions across R&D, production, sales, and services. The concept of technology transfer is also used to describe less formal processes where new technologies move backward in the system, such as from manufacturing to manufacturing, or horizontally from one R&D laboratory to another [2]. The literature on technology transfer emphasizes that it is a multidimensional process, often involving movement of ideas, information, or