

**FOSTERING DEEP TECHNOLOGY TO FACE GLOBAL CHALLENGES: A STUDY OF A
NORDIC COUNTRY INNOVATION POLICY**

ANA CAROLINA CALÇADO LOPES MARTINS

FACULDADE DE ECONOMIA, ADMINISTRAÇÃO E CONTABILIDADE DA UNIVERSIDADE DE SÃO PAULO - FEA

LUIZ GUILHERME RODRIGUES ANTUNES

UNIVERSIDADE DE SÃO PAULO (USP)

GUILHERME ARY PLONSKI

FACULDADE DE ECONOMIA, ADMINISTRAÇÃO E CONTABILIDADE DA UNIVERSIDADE DE SÃO PAULO - FEA

FOSTERING DEEP TECHNOLOGY TO FACE GLOBAL CHALLENGES: A STUDY OF A NORDIC COUNTRY INNOVATION POLICY

Introdução

Governments worldwide are concerned with tackling major global challenges societies face and increasingly recognize the importance of innovation to this endeavor. Innovation policy serves as a public intervention to promote the creation and spread of innovative solutions (Edler and Fagerberg, 2017). Deep technologies, disruptive early-stage solutions based on scientific or engineering advances, have the potential to address grand societal challenges, but specific approaches of innovation policies for their development and support could be necessary (De la Tour et al., 2021).

Problema de Pesquisa e Objetivo

The literature lacks research on the combination of innovation policy and deep tech. More research is needed to understand how to foster the impact of deep tech in addressing grand societal challenges and to develop theoretical lenses that capture its unique challenges. Additionally, there is a need for practical advice on implementing innovation policies to have a real impact on policymaking. Given the increasing global challenges, this paper aims to identify the elements of innovation policies that promote deep tech innovations addressing socio-environmental challenges.

Fundamentação Teórica

The evolutionary economic theory recognizes that innovation is a central driver of economic growth, influenced by policies that facilitate the generation and application of knowledge (Da Costa, 2016). Innovation policy should stimulate technological advancements and embrace new perspectives to promote social progress (Edler and Fagerberg, 2017). Due to deep tech unique characteristics, new approaches are required for fostering their development and application, aiming to promote responses to socio-environmental challenges (Romasanta et al., 2022).

Metodologia

This investigation adopted a qualitative descriptive exploratory approach. A case study of Denmark was conducted due to its reputation as a highly innovative country and its environmental performance. Policy strategies and instruments were analyzed as core components of policy mixes. Document analysis was used to examine official policy documents from the Danish Ministry of Higher Education and Science. Content analysis was performed to identify the use of different approaches in promoting deep tech innovation, particularly in addressing global social challenges.

Análise dos Resultados

The findings of this study permitted to propose a theoretical framework for innovation policy to foster deep techs addressing global challenges. The framework consists of three main building blocks: strategic goals, innovation policy dimensions, and moderating variables. The identified innovation policies prioritize societal and global challenges. Three essential policy dimensions are highlighted: education, funding, and collaboration. Additionally, sectorial strategies, knowledge-based policies, and management-based policies are important factors in innovation policy development.

Conclusão

The study concluded that innovation policies should be challenge-oriented, in order to address global challenges. The three essential policy dimensions for deep tech development were education, funding, and collaboration, while sectorial strategies, knowledge, and management were identified

as important variables. The research has limitations in terms of sample size and focus on proposed policies, suggesting opportunities for future research to explore broader data sources, assess policy effectiveness, and expand the study to multiple cases and developing countries like Brazil.

Referências Bibliográficas

Da Costa, A. B., 2016. Teoria econômica e política de inovação. *Revista de Economia Contemporânea (Journal of Contemporary Economics)*, 20(2), 281-307. De la Tour, A., M. Portincaso, N. Goedel, U. Chaudhry, C. Tallec, A. Gourévitch, 2021. Deep Tech: The great wave of innovation. BCG/Hello Tomorrow. Edler, J.; Fagerberg, J., 2017. *Innovation Policy: What, Why & How*. Oxford Review of Economic Policy. Romasanta, A., Ahmadova, G., Wareham, J., Priego, L. P., 2022. Deep tech: unveiling the foundations. Esade Working Paper 276.