

Emerging Digital Technologies Knowledge and Technological Convergence in BBC and NHK

A view from papers and patent data.

Name: *Ruiz-Navas Santiago ルイスナバス サンティアゴ, Miyazaki Kumiko 宮崎久美子.

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1 Objective

Emerging Digital Technologies (EDT), such as artificial intelligence, machine learning, and big data, drive innovation in several sectors (Chui M et al., 2021). However, the nature of knowledge and technological convergence behind these innovations is seldom studied. Therefore, this paper aims to identify the patterns of knowledge and technological convergence of emerging technologies in two public broadcasters, NHK and BBC, in the last decade.

2 Methods

The proposed method consists of semantic analysis of NHK and BBC's scientific publications to identify knowledge convergence and patents' International Patent Codes (IPC) analysis to identify technological convergence. Our data source for papers is the Web of Science scientific database, and for patents, the World International Patent Office database PATENTSCOPE.

Identifying knowledge convergence using semantic analysis of papers consists of five steps: 1) extracting papers. 2) Automatic extraction of keywords. 3) keyword co-occurrence network and cluster creation. 4) Identification of knowledge convergence. 5) Analysis.

Identifying technological convergence using patents IPC involves five steps: 1) patent extraction. 2) patent IPC identification. 3) IPC co-occurrence network and cluster creation. 4) Identification of technological convergence. 5) Analysis.

3 Results

We expect to obtain keyword co-occurrence networks for each year of the latest decade and identify the knowledge of EDT converging into BBC and NHK's knowledge base. These networks will allow us to analyze the knowledge BBC and NHK consider key to building technologies and services based on EDT.

We expect to obtain IPC co-occurrence networks for each year of the latest decade. We will analyze these patent IPC networks to identify the technological convergence of EDT in BBC and NHK patents in the last decade. Technological convergence will allow us to see what technologies and inventions BBC and NHK considered to be key for innovation based on EDT.

4 Conclusion

Identifying BBC and NHK's key knowledge and technologies to drive innovation based on EDT allows us to share their knowledge and technological focus with decision makers of organizations in or related to the broadcasting industry. For example, suppose NHK and BBC are shifting interest into AI to support their production process. In that case, production studios supplying them should start building capabilities in this direction to continue to be relevant.

References

Chui, M. et al. (2021) The state of AI in 2021. McKinsey&Company. <https://www.mckinsey.com/capabilities/quantumblack/our-insights/global-survey-the-state-of-ai-in-2021>.