

Finding Patterns of Emergence in Science and Technology

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Abstract

Today, the identification and assessment of emerging technical capabilities is a time-consuming, domain-specific, and expert-intensive process. This demanding process is often carried out under severe time constraints on either too much or too little data, with limited reproducible auditing and bias controls, and with limited systematic validation against real world activities. Furthermore, the increasing globalization of science and technology raises the potential for high-impact technical capabilities to emerge in increasingly diverse technical, socio-economic, and geographic areas.

Analysts, subject-matter experts, and even research program managers benefit from a reliable, evidence-based capability that allows them to dramatically accelerate the horizon-scanning process and reduce the labor involved to identify specific emerging technical areas in context for in-depth review.

The Foresight and Understanding from Scientific Exposition (FUSE) Program is the Intelligence Advanced Research Projects Activity (IARPA) response to this need.

The FUSE Program seeks fundamental advances in our understanding of how the real-world processes of technical emergence leave discernible traces in the public scientific and patent literature, and how those traces can be used to prioritize forecasts. FUSE aims to develop and validate a suite of quantitative measures of technical emergence that generalize across disciplines and multiple languages.

The presentation will introduce the technical approach and explore the potential impact of technologies and insights that may emerge as a result of the FUSE Program. For more information, see <http://www.iarpa.gov/Programs/ia/FUSE/fuse.html>.