

NATIONAL SCIENCE FOUNDATION  
**Proposal Abstract**

**Proposal:**1936656

**PI Name:**Borner , Katy

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**Proposal Title:** Convergence Accelerator Phase I (RAISE): Analytics-Driven Accessible Pathways To Impacts-Validated Education (ADAPTIVE)  
**Institution:** Indiana University  
**Abstract Date:** 08/01/19

The NSF Convergence Accelerator supports team-based, multidisciplinary efforts that address challenges of national importance and show potential for deliverables in the near future.

The broader impact/potential benefit of this Convergence Accelerator Phase I project is the development of powerful, data-driven tools to support the tens of millions of US workers whose jobs are being transformed by Artificial Intelligence (AI) and automation. Our nation's economic competitiveness and social fabric depend on how well we prepare individuals for this transformation via career-relevant skills development. Yet, with ever-changing job skill requirements and the proliferation of online training options, lifelong learners are facing a growing information gap. To address this, in Phase I, we will develop and pilot test meaningful data visualizations and analytics about the relevance and efficacy of available learning opportunities and credentials to help learners make informed, labor market aligned reskilling choices. In Phase II, the project will develop a career recommender "GPS" platform. Incorporating learning analytics and outcomes data from thousands of course and credential offerings and real-time labor market data, the platform will provide equitable access to decision support to US workers across a lifetime of learning and skill development. The team is comprised of data and learning scientists, economists, education researchers, and course designers. Partners include The Boeing Company, Burning Glass Technologies, and O\*Net.

This Convergence Accelerator Phase I project advances understanding of "learning in the flow of work" and develops new data-rich tools to help learners and education providers navigate the rapidly changing labor market. It will demonstrate how labor market and course syllabi data, learning analytics, and insights on transferability of learned skills can be combined and visualized in novel ways to support a learner's decision-making about, sustained engagement in, and application to their job of professional skills acquired through education and job-related training. Instructors and course developers can also apply these data-driven insights to support faster revision cycles and better alignment of courses with ever-changing labor market skill demands. Three convergent lines of research and development are proposed: (1) Development of a Design-Based Research paradigm coupled with innovative Learning Analytics (DBR+LA) to study, evaluate, and improve courses; (2) Application of DBR+LA to assess the effectiveness and suggest improvements for courses that teach critical skills. (3) Data mining, modeling, and visualization of millions of job postings and course syllabi to identify gaps in current skill supply and demand and early identification of emerging high demand skills resulting in a "reskilling recommender system" to guide lifelong learning choices.

This award reflects NSF's statutory mission and has been deemed worthy of support through evaluation using the Foundation's intellectual merit and broader impacts review

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