**Project Summary**

As societies develop and adopt new technologies for doing work, they also fundamentally change the way they organize work. However, not enough is known about how today’s new technologies are transforming the design and structuring of complex organizations. Newly developed work systems now include dynamic capabilities for: 1) collecting data on what everyone is doing; 2) algorithmically combining human efforts or facilitating direct human integration; 3) analyzing patterns in the division and integration activities; and 4) recommending or intervening to create new ways of dividing and integrating work. These activities use new internet and algorithmic technologies and are specifically related to the division and integration of work. New work systems that include such activities can be understood as being engaged in *computational work design*. The aim of computational work design is to combine human and computer capabilities to solve complex problems that neither could solve alone.

New theories of organizational design are needed that can help answer questions about these emerging computational work designs. The current lack of grounded insight into the human work activities and work experience at the core of real-world computational work design is a serious impediment to improved design and operation. Moreover, until this fundamental understanding is developed, the policy and educational infrastructure needed to support workers and societies with these emerging technical capabilities are unlikely to keep pace with their increasing deployment.

The research goal of this proposal is to develop fundamental understanding about computational work designs deployed in real-world organizations, with the aim of supporting improvements to their design and operation, and to the relevant societal infrastructure. A natural approach for developing fundamental understanding is through longitudinal observational field research, akin to the field research that produced deep understanding about work in the bureaucratic organizations characteristic of the 20th century. Towards this end, drawing on my expertise and experience conducting observational field research, I will conduct or supervise longitudinal, observational studies of three organizations with advanced deployments of computational work design: *StitchFix*, *Gigster*, and *Deloitte Pixel*. The proposed research will pursue three main objectives: (i) Develop in-depth descriptive studies of three different deployments of computational work design with the scope, depth, and accuracy offered by longitudinal field observational research; (ii) Identify and use cross-cutting themes to develop new theory about computational work design and worker empowerment and to develop new research approaches needed to understand this phenomenon; and (iii) Create and disseminate curriculum to policymakers and management science students.

**Keywords:** organizational design, crowdsourcing, algorithms, computational work design

**Intellectual Merit:**

Currently, there are many gaps in our understanding of computational work systems and the impact they have on organizations and workers. The proposed work will make considerable progress towards closing these gaps. In particular, it will develop new fundamental understanding, based on extensive grounded observation, about computational work designs being deployed in several real-world organizations. These aggregated observations will then be used to produce new theory in the form of extensions and revisions to existing theories of organizational design, worker empowerment, and research methodology.

**Broader Impacts:**

Considerable research has shown that work is consequential for human and societal well-being. Recently, concerns have risen about the impact of machine-intelligent technologies on human and societal well-being, especially related to the nature and experience of work. The research agenda outlined in this proposal will provide societal benefit by developing and disseminating understanding and educational curriculum that can support responses to these concerns, such as effective and empowering work design and needed changes to policy and educational infrastructure.