



COLLEGE of ENGINEERING AND PHYSICAL SCIENCES

SCHOOL OF COMPUTER SCIENCE

PhD Qualifying Examination

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*Digitizing agriculture: Examining how the introduction of
IoT in farming is governed*

Chair: Dr. Joe Sawada

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Abstract:

The increasing global population and the growing demand for high-quality products have called for the modernization of agriculture. Internet of Things (IoT) technology is a highly influential technology that is predicted to offer many solutions. IoT refers to the utilization of cameras, sensors, and other digital devices to transform activities into data. In the context of smart farming, these changes are quickly redesigning conventional agriculture practices. The expansion of IoT introduces opportunities and obstacles while altering farm life. Scholars suggest that society is at a critical point in time and that engaging with multiple perspectives will help agricultural members with this sociotechnical change. In response to these calls, this proposal examines how the adoption and diffusion of IoT are being governed.

This proposal broadly will contribute to a better understanding of governance of the introduction of IoT. Governance is defined as “the mechanisms whereby societal actors and state actors interact and coordinate to regulate issues of societal concern”. There are four specific objectives of this proposal. The first objective is to contribute to the understanding of how farmers view IoT. By examining how farmers view and practice farming enabled IoT we can identify how their views impact the use of this technology. The second objective is to examine the implementation of IoT, and the controversies related to that implementation.

By identifying the roles of different actors in resolving controversies, this study contributes to a better understanding of effective change. The third objective is to analyze how IoT diffusion in agriculture is legitimized. To understand how IoT in agriculture is legitimized, this proposal aims to conduct a case study of farmers and their partners while implementing a farm management software system (FMS) that utilizes IoT. This case study seeks to identify the key actors, their motivations, and understand the opportunity for IoT and how the technology is being implemented. The fourth objective is to document the lessons and recommendations from this proposal. We suggest that we can see the practicalities exposed in transitioning discourses by focusing on how matters of concern are framed. As farming viewpoints are necessary for a successful transition, these recommendations will provide value to policymakers, IoT technology designers, and farm associations.