Award Description: The Strategy of Things is conducting an economic impact study regarding the internet of things, to identify potential areas for future IoT-related federal research investments that would enhance U.S. competitiveness and national and economic security, and holds promise to improve both productivity and service levels in the economy. To achieve these benefits a robust, secure infrastructure is required. This study aims to estimate the impact that marginal public sector investment in the R&D in various sectors of IoT infrastructure would make.

Purpose: SoT aims to identify and qualitatively assess gaps in the technology infrastructure (i.e., hardware, software, networking components, applications, systems, standards, etc.) needed to support the IoT, in terms of industry investment criteria and research mechanisms used; produce a quantitative empirical ranking of the technology infrastructure gaps, based on novel data and modeling, reflecting the economic benefit of eliminating the identified technology infrastructure gaps; estimate the economic benefits that would accrue from future federal research investments focused on eliminating the top three ranked gaps.

Activities to be performed: Their work consists of four broad phases including industry selection, data collection and structure (desk reviews, interviews, surveys, etc.), data analysis, and presenting findings in a report. Here a range of industries is selected and both quantitative and qualitative data are collected. An IoT taxonomy and a method to integrate data is proposed to produce a ranking and weighting in each IoT technical category. These weightings are then used to produce an estimate of the impact of a nominal investment in the technology. Finally broad themes and issues are presented based on the prior analysis.

Expected Outcomes: An economic model is developed to determine the economic impact of a nominal $10M investment in the highly ranked IoT technologies / infrastructure appropriate for federal investment. An indicative figure could be available from the following proposed calculation: An investment of $10 million in public research for a IoT technology is allocated across industries based on the normalized calculated weightings for that subcategory. These weightings take into account: the importance of the technology, the value of IoT in that industry, the role of the public sector. This hypothetical R&D investment in the technology subcategory would lead to a revenue return based on the historical ratio of R&D spending to revenue for that industry.

Intended Beneficiaries: Advanced IoT technologies and systems are essential to national security, economic prosperity, human safety and well-being, with applications aimed at addressing challenges in healthcare, transportation, and smart cities. However, like many early-stage technologies that federal labs focus on, it can take 10 or more years to move an IoT related technology from incubation to market maturation. This prospective study aims to identify gaps in the IoT infrastructure that may be appropriately addressed by government research investment.

Subrecipient Activities: N/A.