

Partnership For Innovation: Broadening Innovation Capacity

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Partnerships For Innovation: Building Innovation Capacity (PFI:BIC)

- Academe-industry partnerships
 - Interdisciplinary academic research team
 - At least one industry partner
- Build technological and human innovation capacity.

NSF Engineering Directorate, Industrial Innovation and Partnerships
NSF CISE Directorate, Computer and Network Systems



What Innovation Capacity Is Being Built?

- **Technological Innovation Capacity**
 - Advancement and adaptation for integration and perhaps new thoughts about extending the technology to other application areas.
- **Human Innovation Capacity**
 - Growth and development of academic faculty and research scientists and industrial partners through interdisciplinary and cross-organizational collaboration.
 - Preparation of next generation entrepreneurs: mentoring plan for each undergraduate or graduate student (as well as for postdoctoral researchers) so that exposure to and participation in this kind of collaboration is explicitly emphasized.



FY14 and FY15 Focus: Smart Service Systems

- **Service systems**
 - socio-technical configurations of people, technologies, and information
 - designed to deliver services that create and deliver value
- **Smart service system**
 - capable of learning, adaptation, and decision making
 - Improved response to a future situation.



PFI: BIC program

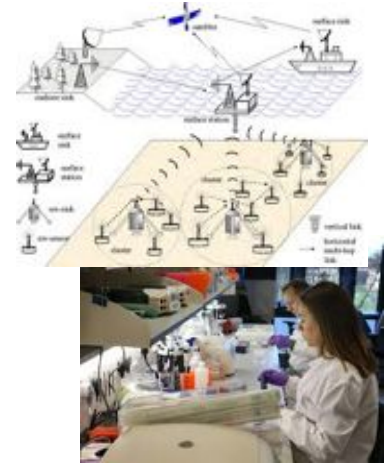
Existing
Research and
Technologies



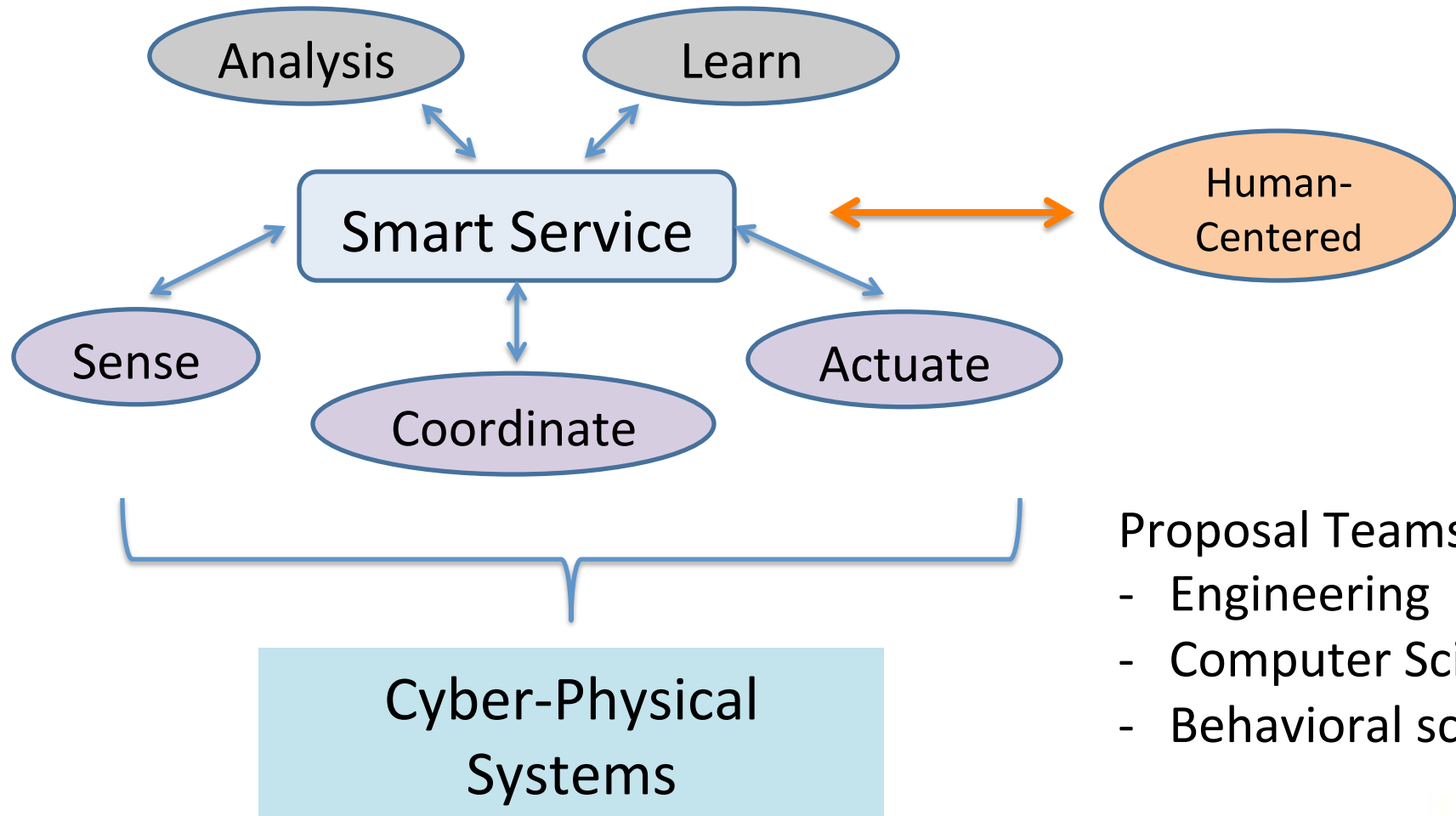
Commercialized
services

PFI: BIC Goals:

- Integration of technologies to create innovative services
- Research needed to realize market value



Smart Service Systems



Proposal Teams:

- Engineering
- Computer Science
- Behavioral science



Successful Integration into a Smart Service System Requires a Range of Disciplines in Addition to those Related to the Technology

(1) Systems Engineering or Engineering Design

- To provide knowledge of service system design and system integration issues.

(2) Computer Science/Information Technology

- To provide knowledge of considerations involving data transfer, communication and/or data processing needed for successful integration of the technology into a “smart” service system.

(3) Human Factors/Behavioral Science/Cognitive Engineering

- To provide knowledge of the potential effects of human factors as they interact with the technology proposed. These findings will have an impact on ensuring that the design of the “smart” service system is human-centered.

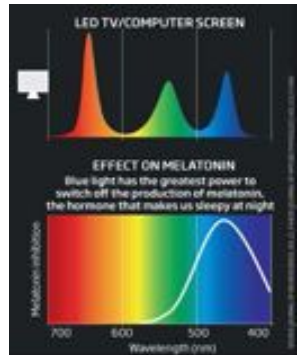


A Wireless Networked Biophilic Lighting System for the Delivery of Lighting for Enhancing Secondary School Student Performance

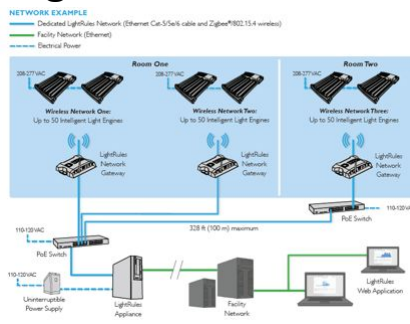
Brown University
Digital Lumens, Inc.



Intelligent Light Fixture



Studies showing impact of light



Prescription Lighting
- enhance student performance

Proposed tasks:

- Develop and deploy a prototype system
- Quantify the effects of biophilic lighting on human behavior
- Collect relevant data for further investigation

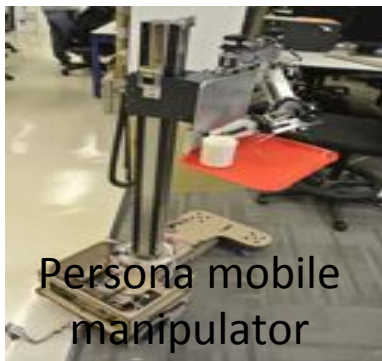


Affordable and Mobile Assistive Robots for Elderly Care

University of Pennsylvania
Savioke, Inc.

Software

- ROS
- Mobility software
- Manipulator software



Service robots

- limited set of manipulation tasks on elders' behalf.

Proposed tasks:

- Will service robots lead to smarter monitoring of elder adult health?
- Proactive services
- Integration activities
- New arm development
- Evaluate and assess how elders interact with robots.



Solicitation: NSF 14-610

Key Facts

- Letter of Intent (LOI) required: **December 3, 2014**
- Full proposal submission deadline: **January 28, 2015**
- Awards: up to \$1,000,000/3-year duration
 - Estimated: 10 awards
 - Anticipated funding: \$10,000,000
- Submission restrictions:
 - One (1) submission opportunity/year
 - Two (2) proposals per institution, each proposal, respectively, pursuant to its own LOI .
 - Principal Investigator (PI) who proposes
 - Cannot be concurrently a PI on an active award from the NSF PFI:BIC program
 - PI cannot submit both to the PFI:BIC and to the PFI:AIR program for funding with FY 2015 fund



Cognizant Program Officers

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Projects funded in FY 2014

Affordable and Mobile Assistive
Robots for **Elderly Care**

Making Full Use of the High-
Resolution Image Capability of
Smartphones to Collect Data
through Ophthalmic Devices for
Smart **Mobile- and Tele-Health**

Nutriphone: A Nanoparticle-based
Optical Contrast Assay **to**
Monitor Vitamin and Micro-
nutrient Levels Using
Smartphones

Enhanced Situational Awareness Using Unmanned
Autonomous Systems for **Disaster Remediation**

Self-Learning Algorithms for
Advancement of **Smart Stormwater**
Green Infrastructure Systems

A Wireless Networked Biophilic
Lighting System for the Delivery of
Lighting for Enhancing Secondary
School Student Performance

Fraud Detection via Visual Analytics: An
Infrastructure to Support **Complex Financial**
Patterns (CFP)-based Real-Time Services Delivery

