Limited Submission Funding Opportunity

NSF Partnerships for Innovation: Building Innovation Capacity (PFI: BIC)


FOA#: NSF 14-610

The PFI:BIC program supports academe-industry partnerships, which are led by an interdisciplinary academic research team with at least one industry partner to build technological, human, and service system innovation capacity. These partnerships focus on the integration of technologies into a specified human-centered smart service system with the potential to achieve transformational change in an existing service system or to spur an entirely new service system.

Service systems are socio-technical configurations of people, technologies, organizations, and information designed to deliver services that create and deliver value. A "smart" service system is a system capable of learning, dynamic adaptation, and decision making based upon data received, transmitted, and/or processed to improve its response to a future situation. The system does so through self-detection, self-diagnosing, self-correcting, self-monitoring, self-organizing, self-replicating, or self-controlled functions. These capabilities are the result of the incorporation of technologies for sensing, actuation, coordination, communication, control, etc.

Smart cities, on-demand transportation, precision agriculture, smart healthcare, and smart infrastructure are all examples of service systems with the potential to improve quality of life. Solutions to improve government services, including self-service and customized service technologies, are also likely to improve efficiency and quality. Examples of other service systems where smart technologies could make a difference include disaster mitigation and humanitarian services, communication services, utilities, consulting and professional services, and hospitality services, to name a few.

In addition, with more frequent and ubiquitous use of networks linking information, people, processes, and products, a number of sectors, including manufacturing, are increasingly interested in services. The incorporation of services to increase product value and accessibility, leads to the development of service solutions by manufacturing firms. For example, in factories new technologies can drastically impact the supply-chain system. In fact, additive manufacturing technologies will enable forms of manufacturing mass customization that we cannot imagine today, drastically shifting logistic models to satisfy “on demand” processes that could be considered service systems. Smart technology will undoubtedly be needed to adapt supply chains to this new manufacturing paradigm shift where again, the human element will be central.

Because service systems are socio-technical systems requiring understanding of people, organizations, and information, the team and the project must contain expertise and activity that reflect these requirements. Thus, in addition to the discipline related to the technology, the disciplines to be included in this project are 1) systems engineering or engineering design, 2)
computer science/information technology, and 3) human factors/behavioral science/cognitive engineering.

Awards may be up to $1,000,000, with an award duration of three (3) years.

**LIMIT ON NUMBER OF PROPOSALS PER ORGANIZATION**
Academic institutions are limited to participation on two (2) proposals as a lead institution preferably involving distinct application areas.

**KEY DATES**
- Internal Letter of Intent due: October 21, 2014 (by midnight)
- Sponsor Letter of Intent due (Required): December 3, 2014 (by 5 pm)
- Sponsor Full Proposal due: January 28, 2015

**SUBMITTING A MANDATORY LETTER OF INTENT**
Faculty members interested in applying are required to submit a letter of intent (LOI). An LOI is required but not binding.
1. Click [here](#) to access the LOI form.
2. Name the LOI as follows: “LastName-FirstInitial-LOI-NSF-PFI-BIC-2014”, replacing “LastName” with your last name and “First Initial” with your first initial.
3. Click on the Vault ticket: [https://vault2.northwestern.edu/xythoswfs/webui/_xy-e5700530_1-t_fkoSumn8](https://vault2.northwestern.edu/xythoswfs/webui/_xy-e5700530_1-t_fkoSumn8)
4. Click the Upload button.
5. Click the Browse button and navigate to your file on your hard drive or network.
6. Click the OK button.

Note: You will get a tiny confirmation message upon upload. If you do not see it, you may contact Karen Cielo k-cielo@northwestern.edu for a confirmation.

**COLLABORATION OPPORTUNITIES**
The Office of Research Development offers assistance in identifying and facilitating collaborations, putting together interdisciplinary teams, programmatic and administrative development of large, cross-school proposals, and leveraging institutional resources for outreach and education. Contact Fruma Yehiely (yehiely@northwestern.edu), Director of ORD, for more information.

**CONTACT AND ADDITIONAL INFORMATION**
Fruma Yehiely, Director of ORD, 847-491-1074, yehiely@northwestern.edu
Limited Submissions web site: [http://www.research.northwestern.edu/ord/funding/limited-submissions/](http://www.research.northwestern.edu/ord/funding/limited-submissions/)