To:	Distribution List

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Subject:	NSF: Partnerships for Innovation: Building Innovation Capacity (PFI:BIC), NSF 14-610

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National Science Foundation invites requests for funding in the area of smart service systems under the Partnerships for Innovation: Building Innovation Capacity (PFI:BIC) solicitation. The hallmark of PFI:BIC is an academe-industry partnership crafted to collaborate on research to advance and adapt key technology for integration into a specified *human*-centered smart service system. Smart service systems of interest are those that could yield positive social as well as economic outcomes resulting from entering the commercialization process. 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. The system may exhibit a sequence of features such as detection, classification, and localization that lead to an outcome occurring within a reasonable time.

Human interaction with technologies and with physical and virtual realities can produce and deliver service(s) never before imagined. A signature characteristic of service systems in the NSF context is first and foremost, a smart service system that is human-centered. A human-centered service system involves users, recipients, beneficiaries, providers, and/or decision makers utilizing the information and capability provided by the service. Second, interactions between humans and physical/virtual realities necessarily happen and are integral to the "service." Sometimes, these interactions happen in different sequences and combinations, in parallel or series, among physical and virtual worlds before interacting with the human reality. Sometimes, interactions occur with the human world from the start, but interactions always occur. These interfaces with humans can take many forms: e.g., co-creation, interaction, response, needs assessment, surveillance, etc. Third, the interactions need to add value to humans; for an activity to become a service, a human or group of humans need to ultimately benefit from the interactions either directly or indirectly.

The program is seeking proposals with a focus on the integration of a technology (or technologies) into a specified *human*-centered "smart" service system. These technologies are inspired by existing breakthrough research discoveries and should have the potential to achieve transformational change in an existing service system or to spur entirely new systems. The technologies themselves may or may not be considered "smart", but the creative way in which they are designed, configured, and integrated into a service system makes the system exhibit smart behavior. Effective integration into a *human*-centered system may require additional research activities and additional discoveries that will become important part(s) of the system. Research in cyber-physical systems, for instance, has enabled creation of systems that collect large amounts of data, analyze it in conjunction with historical data, and control/actuate the physical components in real-time. In addition, such systems can guarantee properties such as security, privacy, timeliness and safety. This research can be effectively leveraged in the creation of smart services.

WEBINARS: Webinars will be held to answer questions about the solicitation. Register on the PFI:BIC website where details will be posted (http://www.nsf.gov/eng/iip/pfi/bic.jsp). Potential proposers and their partners are encouraged to attend.

NSF will make awards subject to the availability of funds and quality of proposals. Awards may be up to $1,000,000, with an award duration of three (3) years. In other words, the total budget request to NSF for the lead institution and all others participating in the project cannot exceed $1,000,000. Ten awards of $1,000,000 each are anticipated. As appropriate, awardees have the option to allocate funds for the participation of industrial partners (i.e., small businesses) and other primary partners in the project research activities in the form of subawards.

Please note additional eligibility information for BIC proposals:

- The PI cannot concurrently be a PI on more than one active PFI: BIC award.
- A PI who is named in a proposal in response to this program solicitation **may not be named in a proposal for funding consideration in the same fiscal year** to the Partnerships for Innovation: Accelerating Innovation Research (PFI: AIR) program.
- A minimum of one (1) U.S.-based industrial partner organization must participate on the BIC proposal.
- The industrial partner must have commercial revenues including sales, services, and licensing. Grants may contribute to its revenues but may not constitute the entirety of its revenues.
- Only industrial partners that qualify as a small business per the Small Business Innovation Research (SBIR) program definition can receive subawards.
- 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.

More details can be found at: http://www.nsf.gov/pubs/2014/nsf14610/nsf14610.htm. The NSF deadline for the **required** letter of intent is December 3, 2014 with full proposals to the agency due January 28, 2015.

This is a limited competition. Each institution is limited to two (2) Building Innovation Capacity (BIC) proposals (preferably involving distinct application areas). Please submit your 3-page preproposal (plus budget and CV; all documents in a SINGLE PDF file, 11 point font) by NOON on Friday, November 7, 2014 to limited@unm.edu with the subject line indicating: NSF-BIC- your name. No late submissions will be considered. (The pre-proposal should address the major points that will be included in the proposal narrative, including: 1) important aspects of the project, such as information about the three required disciplinary components: engineering, computer science, and social, behavioral and/or cognitive science and other scientific components, as applicable. 2) Describe the technology-based **smart service system** that is the focus of the project and how the technology will contribute to the creation or transformation of it. 3) Provide for each **industrial partner**: Name, Founding Date, Number of Employees, Location (City & State), and Project Roles. Reasonable abbreviations can be used. 4) For the **human factors tasks** to be carried out which are essential to the operation of the Smart Service System: List a few major research activities which illustrate inclusion of human-centered considerations.)

The narrative should be accompanied by a **draft budget overview** and an **abbreviated PI CV.** The scoring will be weighted as follows: proposal narrative (70%), draft budget overview (15%), and abbreviated PI CV (15%).

Should you have any questions please feel free to contact Susan De Los Santos (sdelossa@unm.edu or 277-0272) or Monica Fishel (mlfishel@unm.edu or 277-8114).