

National Cancer Institute (NCI)
Center for Biomedical Informatics and Information Technology (CBIIT)
Cancer Biomedical Informatics Grid[®] (caBIG[®])
Open Development Initiative (ODI)
Request for Information (RFI)

Notice Number: HHS-NIH-NCI-RFI-2011-65

Key Dates:

Release Date: June 21, 2011

Response Date: July 22, 2011

Issued by:

National Cancer Institute (NCI)

I. Instructions

The National Cancer Institute (NCI) Center for Biomedical Informatics and Information Technology (CBIIT) is requesting information from open development community experts about models of open development applicable to the biomedical research community. This is a Request for Information only. Do not submit a proposal or quote. Interested parties are invited to review the information below and to make comments or suggestions. Nothing in this document should be considered binding or in any way obligate NCI CBIIT to perform. Although NCI CBIIT has identified questions of particular relevance, we welcome comments on any part of this document.

II. Background and Goals

More than ever, cancer research is a collaborative science involving the coordinated efforts of clinicians, researchers, informaticians, and the patients themselves. The ability of these constituencies to meaningfully exchange information in a timely manner is critical to these endeavors and the challenge this presents is all too often a barrier to success. The types of data involved in translational research studies can be remarkably diverse – molecular, imaging, clinical, pathology – and all need to be managed, analyzed and correlated to support the discovery of new findings that will ultimately improve patient outcomes. Not only are the data diverse, but they are also dynamic – new platforms for molecular analysis are emerging and researchers need to be able to apply state of the art technology to the research question at hand. The rapid evolution of research drives a constant need for the development and improvement of information systems to help make sense of this data.

Meeting the challenge of creating robust and useful tools to support these rapidly evolving needs requires an open and collaborative approach to software development. The ability to modify software to support new data types, to analyze data using state of the art algorithms, and to integrate data in novel ways to support correlative studies are all required. The tools need to be able to evolve as rapidly as the science they support and they should be readily shared so that the broader community has access to innovative tools, thus benefiting the entire cancer research enterprise.

caBIG®: An Open Biomedical Informatics Network

In response to these critical needs, the NCI's caBIG® program (<http://cabig.nci.nih.gov>) was launched in 2003 with the goal of building a biomedical informatics network to allow cancer researchers to collaborate more effectively, particularly with regard to the meaningful exchange of information. The key principles of the program are: open source, open access, open development and federation. Of these four principles, the first three pertain to the informatics tools developed through the program whereby the code is freely available to anyone to view, alter, and redistribute without restriction, and the development processes themselves are performed in a completely transparent and participatory manner. Since its inception, over 70 tools have been developed and enhanced through the caBIG® program (<http://tinyurl.com/2e2sjnx>) and perhaps more importantly, a community of scientist, clinicians and informaticians across the biomedical research enterprise has formed with the common goal of working together to improve cancer research through a collaborative information network.

Access to the source code of caBIG® tools has allowed many adopting organizations to customize tools of interest to better support the specific requirements of their environment. At this time, however, there is not a consistent mechanism for accessing the current development version of the code or, especially, for contributing custom code back to the main distribution of the tool. Therefore, customizations that may be freely offered and broadly useful are not readily available to other groups. Moreover, it is difficult for organizations that have a locally customized version of the code to upgrade to the latest version and therefore stay in synchronization with the regular releases. Providing a means to easily connect these community contributors to the codebase and a means for them to participate in the governance of supported code releases will provide a more transparent and consistent means to keep all of these in alignment when possible and appropriate.

Building a caBIG® Open Development Initiative

The caBIG® program has approached an inflection point due to a number of factors, including:

- The expansion of the scope of caBIG® beyond support for cancer research, to research in other disease areas, and connections with healthcare and regulatory agencies
- Numerous examples of extra-governmental groups (including private organizations and groups outside the United States) wanting to contribute to the program
- The intense community interest in sharing in the development and direction of the tools and infrastructure on which they are becoming increasingly dependent

These factors present a unique and tremendous opportunity to evolve the next generation of caBIG® to a robust, community driven, open development ecosystem. Ideally, this ecosystem will involve a broader community of information technology professionals from diverse fields in building the tools and infrastructure to drive the future of cancer research. Successful open development ecosystems exist both within and beyond the biomedical domain and governance and infrastructure supporting these initiatives is diverse. A thorough understanding of these approaches and related issues will be important for informing the strategy for creating a caBIG® open development initiative.

III. Information Requested

NCI CBIIT is interested in learning about the types of collaborative development models employed in open development communities and would like to learn about, and receive input from, organizations - for-profit and not-for-profit - that have experience building, coordinating and managing such models. The goal of this RFI is to identify the range of issues and needs related to business and technical governance as well as the necessary components of a technical infrastructure needed to support an open development initiative.

Organizations with significant experience in creating and/or managing open development communities should submit a response of no more than 5 pages in length, single spaced, 12 point font minimum that addresses the topics described above (see questions below for additional guidance). The Government will not review any other data or attachments that are in excess of 5 pages. In response to the RFI, interested parties shall submit the following information no later than July 22, 2011, 4 PM Eastern Daylight Time to Juli Klemm (juli.klemm@nih.gov) and John Speakman (john.speakman@nih.gov). Any inquiries or questions can be directed to Juli Klemm.

Please provide the following information in response to the RFI.

Organizational Information

Name of Organization:

Type of Organization: (For-profit company, Non-profit entity, College or University, Government agency)

Organization Point of Contact: (Name, Address, Phone, E-Mail)

Experience: Describe the direct experience your organization has with building, organizing, participating in, and/or managing open development initiatives. Please be specific about the role or your organization in the initiative(s) and its current status.

General Information

We welcome all feedback from experienced entities regarding considerations for creating an open development initiative for caBIG®. The following questions are of particular interest to NCI CBIIT. Responses do not need to be structured around these questions but they are provided as guidance for specific issues of interest. Of highest value will be addressing these issues in the context of first-hand experience with building, coordinating, and/or managing an open development community.

1. Which open source ecosystems are most successful and how could they inform the structure and governance of a caBIG® Open Development Initiative?
2. What are best practices for guiding institutions in the transition from software users to open development participants?
3. What types of governance structures should be considered and what are the most important aspects?
4. What types of business models are likely to result in a fiscally self-sufficient initiative?
5. What organizational structures and processes enable effective open source product management?
6. What kind of input should NCI, standards organizations, the community, and other interested parties have in the technical direction or the evolution of caBIG® technology?
7. What are the most important elements of communication that will promote community awareness and participation?
8. What features of a common code repository make it most useful to an open source ecosystem?
9. What methods of generating, sharing, and maintaining documentation provide the most value to the open source community?
10. What actions should be taken to foster innovation and growth of the ecosystem?
11. What types of tests should be considered in order to adequately assure the function and quality of code accepted into the codebase? How should the responsibility for testing and certification be managed?

IV. Disclaimer and Important Notes:

This notice does not obligate the Government to award a contract or otherwise pay for the information provided in response. The Government reserves the right to use information provided by respondents for any purpose deemed necessary and legally appropriate. Any organization responding to this notice should ensure that its response is complete and sufficiently detailed to allow the Government to determine the organization's qualifications to perform the work. Respondents are advised that the Government is under no obligation to acknowledge receipt of the information received or provide feedback to respondents with respect to any information submitted. After a review of the responses received, a pre-solicitation synopsis and solicitation may be published in Federal Business Opportunities. However, response to this notice will not be considered adequate responses to a solicitation.

V. Confidentiality.

No proprietary, classified, confidential, or sensitive information should be included in your response. The Government reserves the right to use any non-proprietary technical information in any resultant solicitation(s).