Lessons Learned from Managing the Grand Challenges in Global Health Program

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Grand Challenges in Global Health

"The Grand Challenges program is very exciting. It has given us the opportunity to follow our dream. The opportunity to write a proposal as we would really like to, to describe what we really think needs to be done, to figure out how, and to develop a plan to achieve our goal.

We wish that all grant programs were like this."

- Foreign Research Scientist

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Program Funding and Partners

- **Initial $200 million grant from Bill & Melinda Gates Foundation to FNIH**
- **Application quality and selection process resulted in program expansion to $436 million - to date**
- **Each grant up to $20 million for 1-5 years**
- **7 full time FNIH staff (4.5 staff during proposal review phase)**

BILL & MELINDA GATES foundation

CIHR IRSC
Canadian Institutes of Health Research
Instituts de recherche en santé du Canada

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wellcome trust

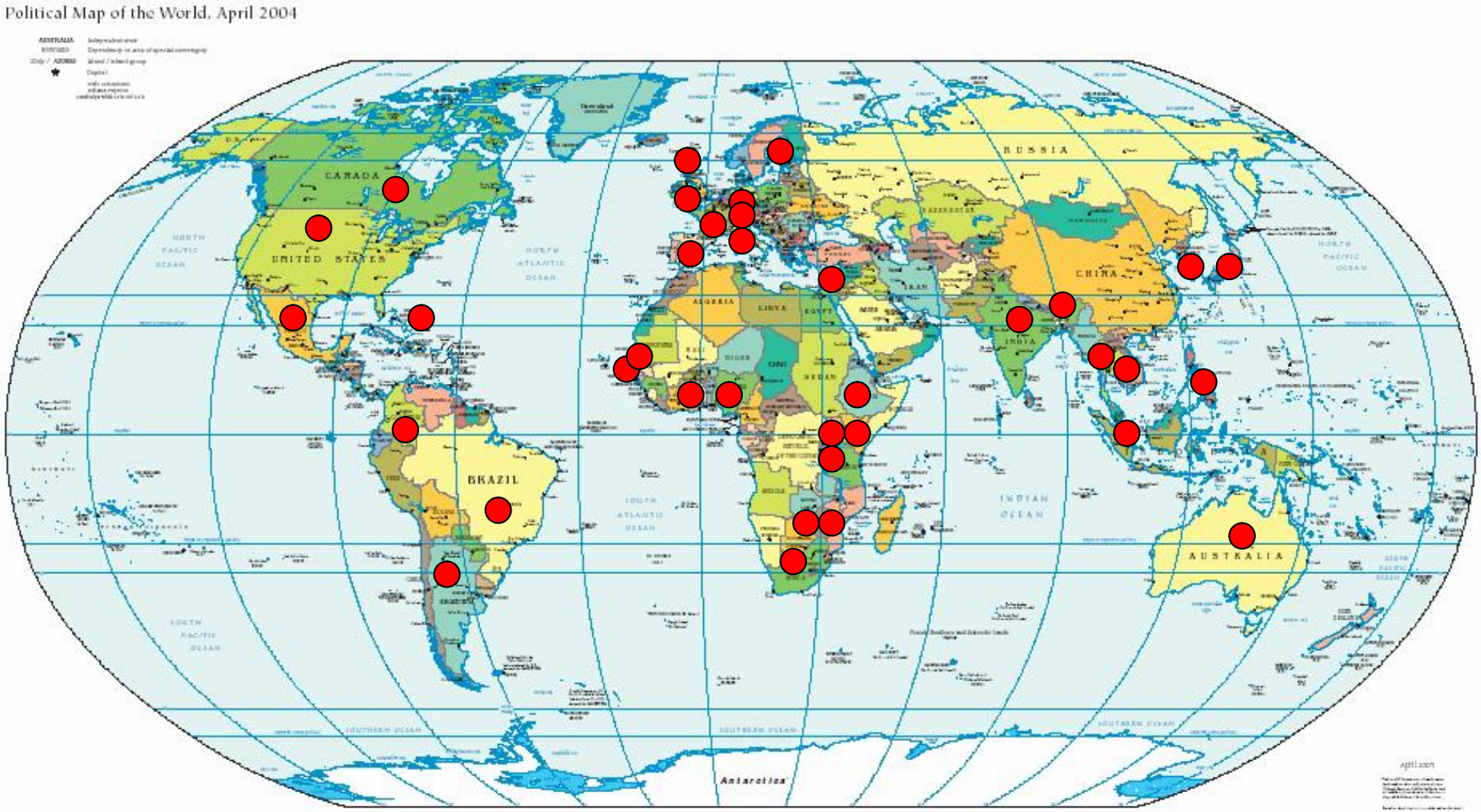
The Numbers

- **1,517 online applications received from scientists in 98 different countries**
- **Over 1,400 organizations**
  Over 8,000 investigators and collaborators
  Over 200 reviewers from 75 countries
  Over 17,000 proposal documents & spreadsheets
  Over 6,000 online reviews
  Over 1,500 face-to-face panel reviews
- **43 projects selected for funding**

Grand Challenge Grantee Countries

- Argentina
- Australia
- Bangladesh
- Brazil
- Canada
- Columbia
- Denmark
- Ethiopia
- Finland
- France
- Gambia
- Germany
- Ghana
- India
- Israel
- Italy
- Japan
- Kenya
- Malawi
- Mexico
- Netherlands
- Nigeria
- Philippines
- Puerto Rico
- Republic of Korea
- South Africa
- Senegal
- Singapore
- Spain
- Switzerland
- Tanzania
- Thailand
- Uganda
- United Kingdom
- United States
- Vietnam
- Zimbabwe

Scientists from Around the World are Collaborating on 43 Projects



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What is a “Grand Challenge”?

“A Grand Challenge is a call for a specific scientific or technological innovation that would remove a critical barrier to solving an important health problem in the developing world with a high likelihood of global impact and feasibility.”

GCGH Program Goals

- **To improve childhood vaccines**
- **To create new vaccines**
- **To control insects that transmit agents of disease**

- **To improve nutrition to promote health**
- **To cure latent and chronic infections**
- **To measure disease and health status accurately and economically in developing countries**

PUBLIC HEALTH:
Enhanced: Grand Challenges in Global Health
H. Varmus, R. Klausner, E. Zerhouni, T. Acharya, A. S. Daar, P. A. Singer

This week an international panel announces a list of 14 Grand Challenges in Global Health, and scientists throughout the world will be invited to submit grant proposals to pursue them with funds provided by the Bill & Melinda Gates Foundation.

GCGH Operational Goals

- **Identify and support the very best scientific research worldwide.**
- **Develop a proposal format with milestones and activities to enable results-based funding.**
- **Provide a very high level of applicant support *"No PI (Principal Investigator) Left Behind".***
- **Conduct rigorous in-depth peer reviews by experts in 14 scientific fields.**
- **Identify excellent applications that are outside of GCGH guidelines for alternative funding.**

GCGH Technology Strategy

- **Use commercially available products that support industry standard technologies.**
- **Take full advantages of the capabilities of the core applications.**
- **Link the core and external applications to meet our specialized needs as required.**
- **Use Web-based technology to enable efficient and effective global application submission and proposal review.**
- **Partner with commercial vendors to improve products for FNIH and other grantmakers.**

Major Project Phases

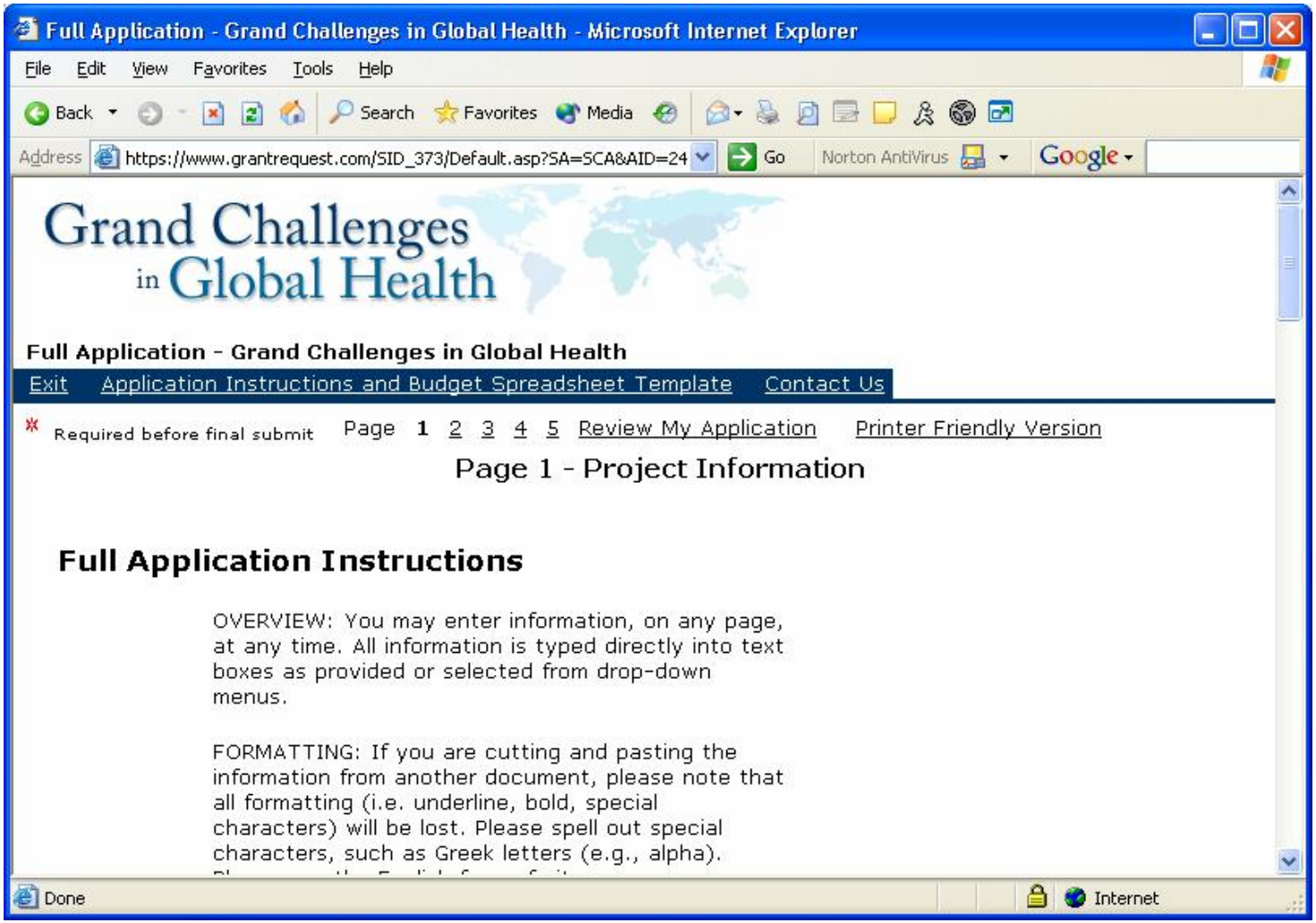
1. **Call for Grand Challenge ideas**
2. **Design and implement integrated online systems**
3. **Receive and review proposals via the Web**
4. **Narrow the field and select finalists using real-time peer reviews**
5. **Conduct due diligence and negotiate contracts**
6. **Manage milestone-based grants**
7. **Provide grantees with workgroup portal technology to promote project success**
8. **Disseminate information to the scientific research community and the lay public**

Project Timeline

- **Installed MicroEdge's GIFTS, IGAM and ReviewerCONNECT (Dec 03)**
- **Received 1,517 online proposals (Jan 04)**
- **Identified reviewers and conducted 4,500 1st stage online reviews (Feb-Mar 2004)**
- **Received and reviewed 405 full online proposals (Jun – Sep 2004)**
- **Selected and notified candidates (Oct 04–Jan 2005)**
- **Contract negotiations (Feb-Summer 2005)**
- **Announce finalists (July 2005)**

The Online Application: Lessons Learned

Use Web-based Application Forms



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GCGH Two-Stage Application Process

1. **GIFTS + IGAM to receive and process all 1,517 Letters of Intent (LOI)**
2. **ReviewerCONNECT (~4,500) LOI reviews**
3. **Exported ~415 selected proposals from GIFTS to Constella custom system for (~1,500) real-time interactive panel reviews.**
4. **Imported panel results back into GIFTS.**

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Developing an Effective Online Application

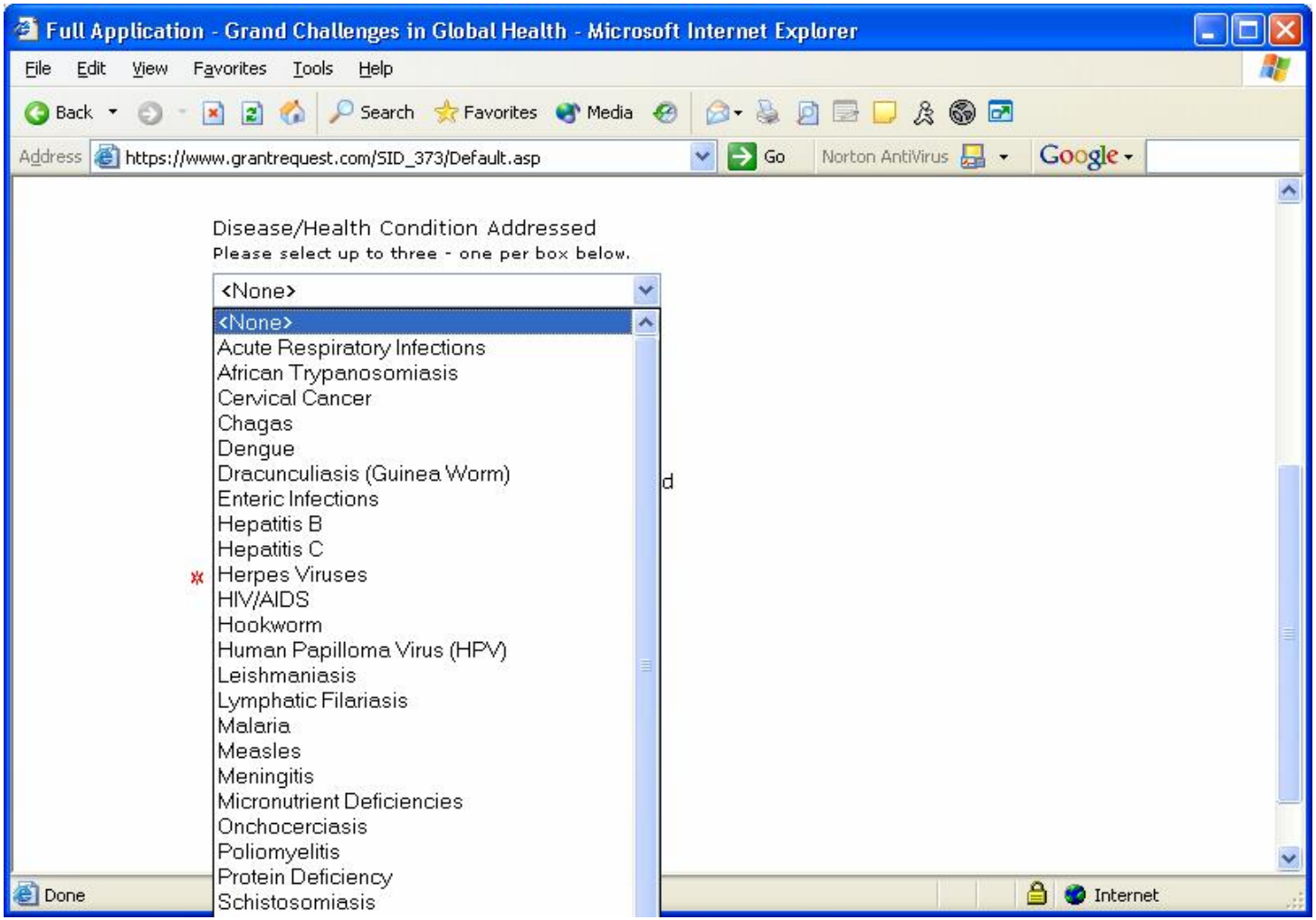
- **Make sure applicants can access and use the online form – make contingency plans.**
- **Use short and unambiguous words.**
- **Solicit only the info you need at each stage – it keeps changing.**
- **Standardize the application format.**
- **Recognize and plan for international differences.**

Provide Examples

Project Purpose
Please succinctly describe and summarize the purpose of the project including the following components, as applicable: the global health problem you are aiming to solve; the scientific / technical approach to be used to overcome the roadblock you are aiming at; the health condition/disease(s) it would address; and the populations most affected by the problem in the developing world. (Limit to 255 characters)

Example: To overcome the lack of an effective adjuvant by engineering a lipoprotein that will permit development of improved vaccines for the prevention of disease(s) or condition(s) XX, which affects Z% of the children in country YY (or the developing world).

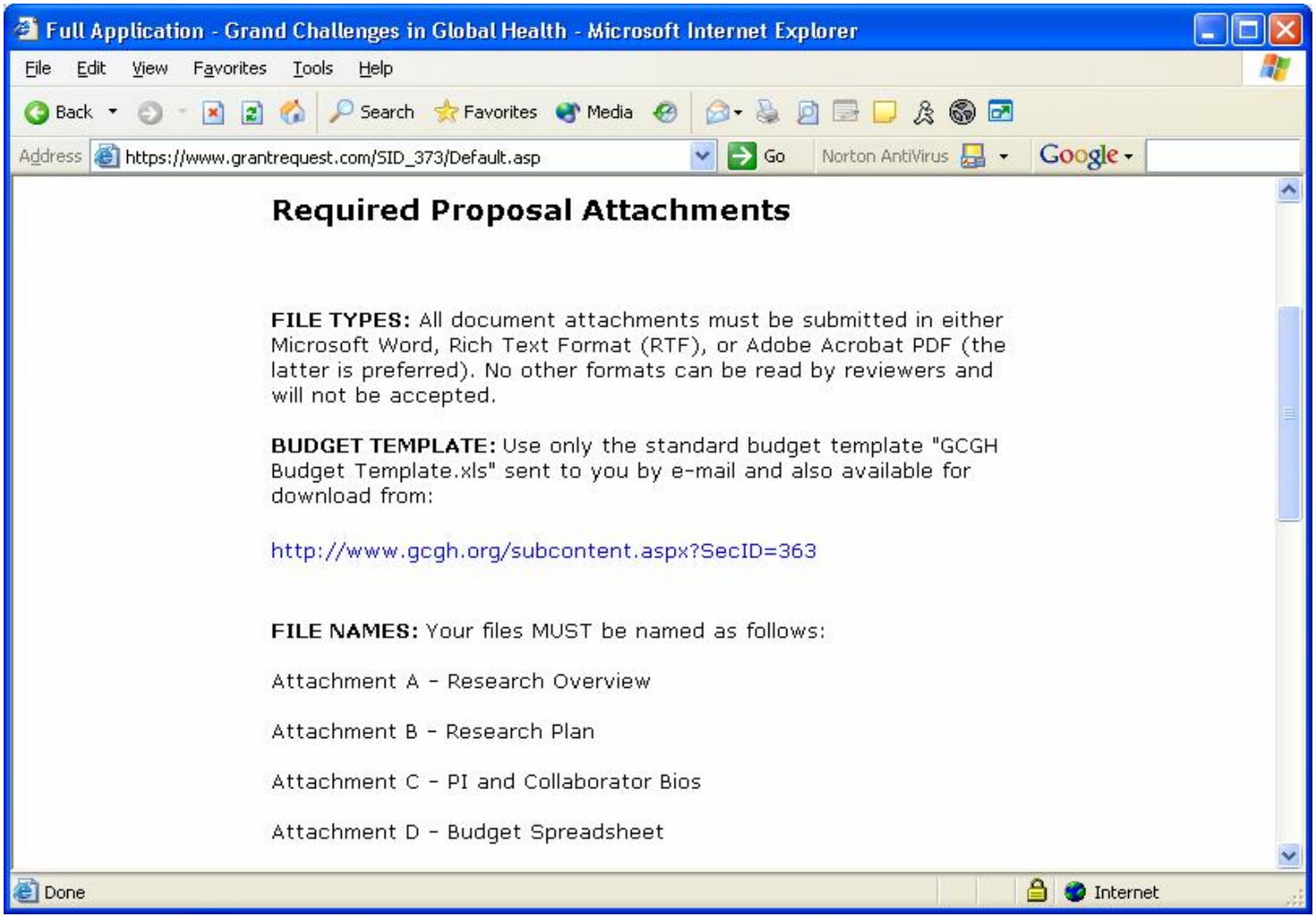
Standardize Classifications to Enable Searching and Reporting



Recognize Currency Differences

- **Computer programs have different ways of handling thousands separators**
- **U.S. currency format = 10,000,000 (GIFTS reads as ten million dollars)**
- **European currency format = 10.000.000 (GIFTS reads as ten dollars)**

Establish Standards via Attachment Templates



Provide Budget Templates

- **Provide templates in spreadsheet format for applicant downloading and use.**
- **Keep it simple – many applicants may not know how to use advanced Excel features.**
- **Advise applicants to identify a colleague to help with the spreadsheet if they don't know how to use it**
- **Make sure that all formulas are correct.**

Numbered Steps are Easier to Follow

TO ATTACH YOUR DOCUMENTS:

1) Go to the Upload section below

2) Select the name of the file from the drop down "Title" menu

3) Click on the [Browse ...] button, and locate your document in the pop-up window

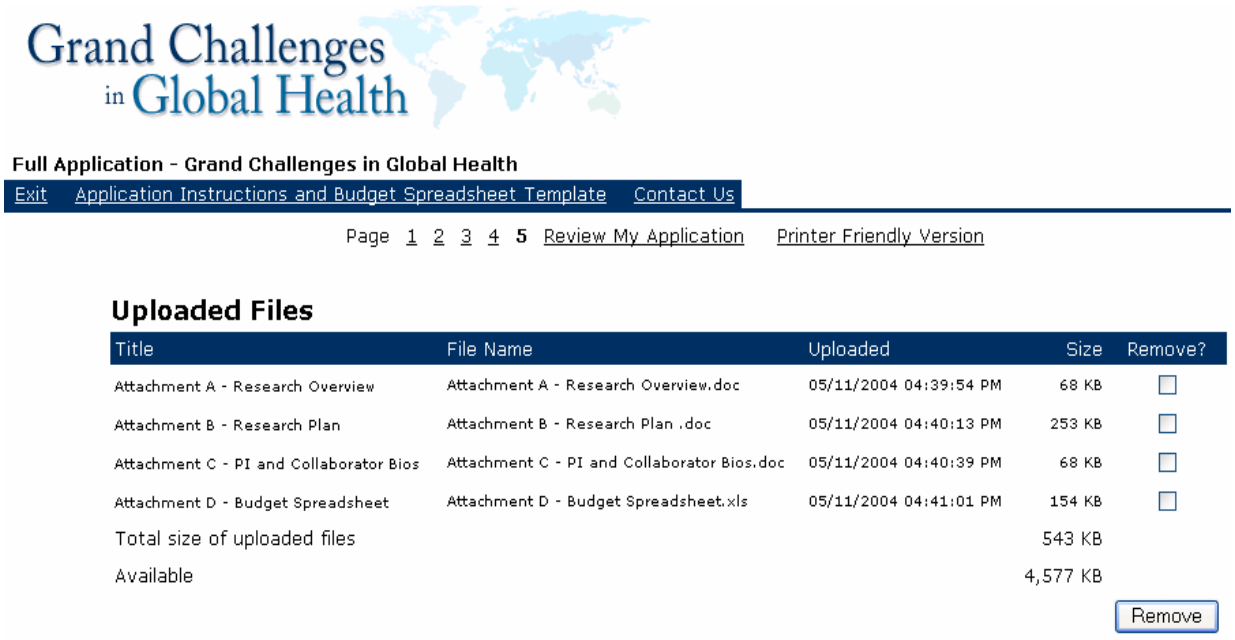
4) You must click on the [Upload] button to complete your attachment

5) Continue this process until all 4 documents have been attached

6) Check all file names at the top of the screen to verify that all required attachments were uploaded successfully

Require Formatting and Naming Conventions

- **Require applicants to provide a header on all pages of all attached documents.**
- **Specify which file formats are acceptable.**
- **Require that attachment names and file names are short and the same.**



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Provide a Downloadable Samples and Highlight Limitations

- **Provide a downloadable version of the application form and strongly advise applicants to complete it offline in advance.**
  - **Provide it in RTF format to enable use by all word processors. Clearly identify that this format will not be accepted and is provided for draft purposes only.**
- **Describe that GIFTS IGAM online application text entries cannot yet support bold, underline, superscripts, subscripts, scientific notation, graphics, colored text, bullets, etc.**

Conduct Comprehensive Testing

- **<u>Test, test and then test some more</u> – revise and keep testing.**
  - **Use different common browsers (Internet Explorer, Netscape, Firefox), PCs and Macs, and sample files authored from both platforms.**
  - **Be sure to test from computers that are offsite and off your network.**
  - **Make as many incorrect entries as possible.**
  - **Anticipate all possible exceptions and special cases.**
  - **Enlist the help of typical users for final testing.**

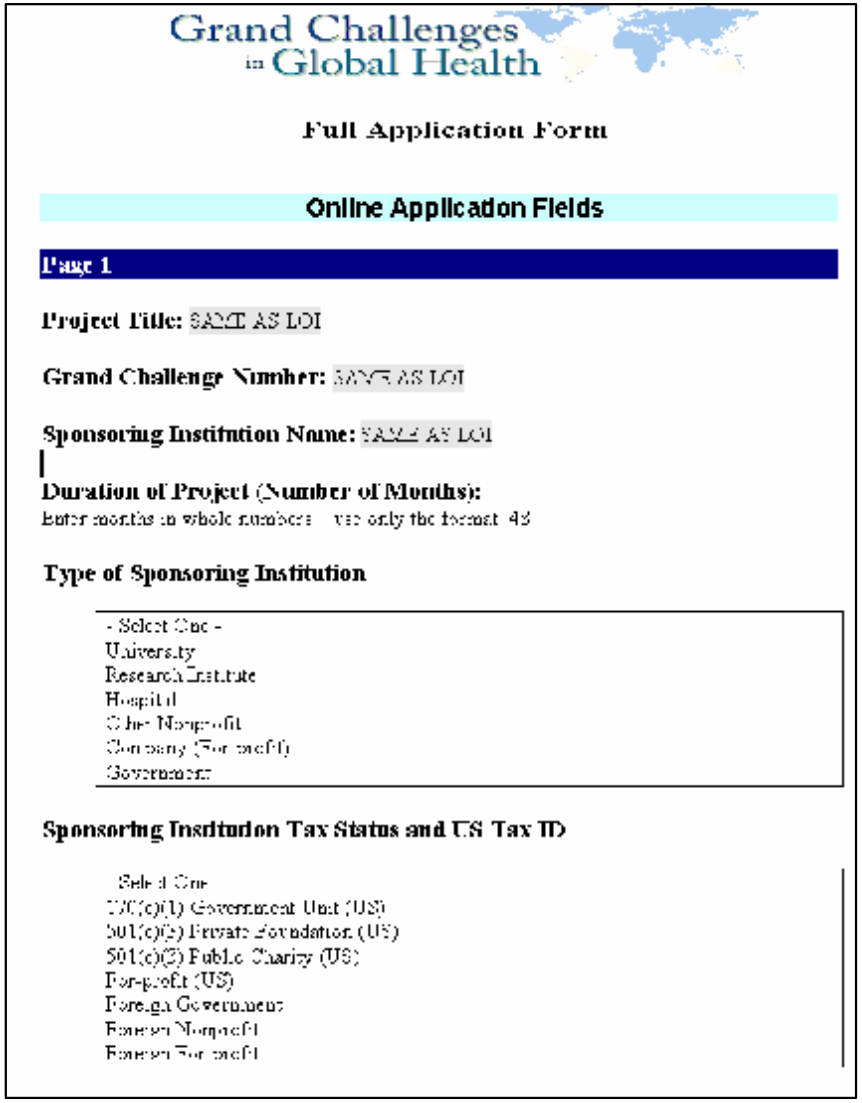
Communicate Effectively with Applicants

- **Send all communications to the primary and an alternate contact.**
- **Create e-mail messages that will get past spam blocking software.**
- **Anticipate international language currency and other differences.**
- **Disseminate information to applicants via an applicant-only Web site**

Create an Applicant-Only Web Site

- **Post and maintain the latest versions of the following files:**
  - **Sample Online Application Form**
  - **Step-by-step Instructions**
  - **FAQs**
  - **Samples of Selected Sections**
  - **Budget Template**

Sample Application Form



Grand Challenges in Global Health

Full Application Form

Online Application Fields

Page 1

Project Title: SAME AS LOI

Grand Challenge Number: SAME AS LOI

Sponsoring Institution Name: SAME AS LOI

Duration of Project (Number of Months):
Enter months in whole numbers - use only the format 48

Type of Sponsoring Institution

- Select One -
University
Research Institute
Hospital
Other Nonprofit
Company (For-profit)
Government

Sponsoring Institution Tax Status and US Tax ID

Select One
501(c)(1) Government Unit (US)
501(c)(2) Private Foundation (US)
501(c)(3) Public Charity (US)
For-profit (US)
Foreign Government
Foreign Nonprofit
Foreign For-profit

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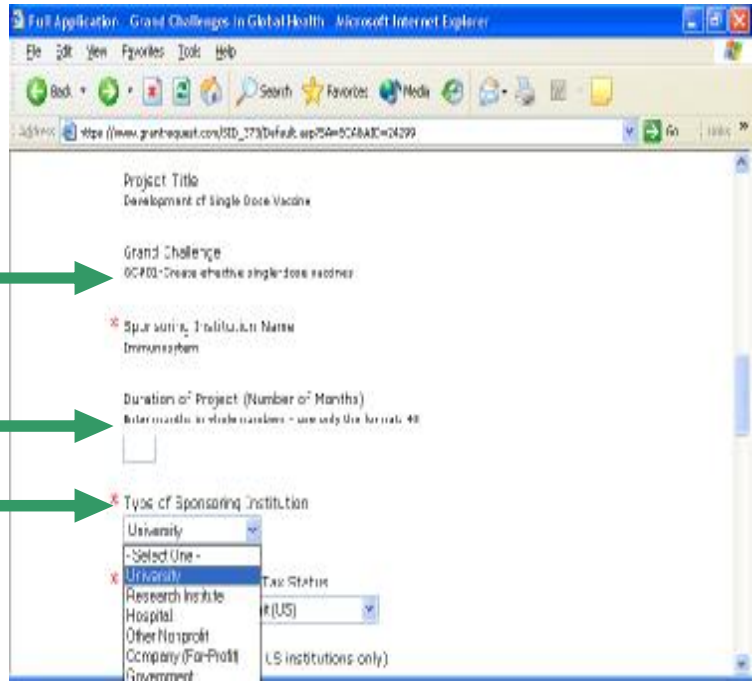
Step-by-step Instructions with Screen Shots and Graphics

Step 4: Reviewing and Entering Data

(Pages 1 to 4 of the application)

- Review each page of an application and prepare all of the information you need before starting your entries.
- When cutting and pasting information from another document, all formatting (i.e. underline, bold, special characters, etc.) will be lost.
- Some data on the application comes from the information submitted in your Letter of Intent (LOI) and cannot be changed.
- New information entered in text boxes must be in alpha/numeric characters only. Separate boxes are available in certain sections for you to indicate changes to the information submitted in your LOI.
- Some Information is also selected from drop down menus.
- ***IMPORTANT***: If you are submitting several applications, you must save and exit your browser before opening a second application. Otherwise, you may end up saving the information in the wrong application.



Frequently Asked Questions

Grand Challenges in Global Health

Frequently Asked Questions

As of May 28, 2004

How will I know if my final online submission was received?
You will see an onscreen message describing that your submission was received right after you click on the [Submit] button. You will also receive an e-mail acknowledgement with a copy of the information that was entered online. If you submit your application on June 7, 2004 (the final submission deadline) it may take several minutes for you to submit your application and all attachments.

NEW! **Can I include figures or other material as additional attachments?**
No, only the 4 required attachments will be visible to reviewers. All figures must be included within these 4 required attachments.

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Samples of Selected Sections

Example 1

Goal: To develop a sensitive, specific and quantitative immunochromatographic strip test for Disease X that can be used at the point-of-care in low-resource settings.

Objectives and Outcomes

Objective	Outcome Indicator	Baseline	Expected Outcome
1. Define assay and instrument product specifications in terms of assay sensitivity, specificity, speed of result and sample type.	Creation of product definition document that will be used to direct assay and instrument development decisions.	Existing diagnostic tests are not reaching the target population or the costs of the current tests are prohibitive for use in resource poor settings.	Evidence based performance specifications for assay and instrument development.
2. Development and optimization of the sample preparation step.	Simple and efficient one-step sample processing procedure.	Existing laboratory sample procedures are too complex for use at the point-of-care.	Simple and efficient one-step sample processing method that enables sample processing with 5 minutes, thereby meeting the defined product specifications.
3. Assay optimization.	Optimized assay that meets defined product specifications.	Existing immunochromatographic strip test platform. Existing antibody reagents with sufficient avidity and affinity for disease X target.	Specific detection of N µg of target protein. Data report on the analytical performance of the optimized assay.

Budget Template

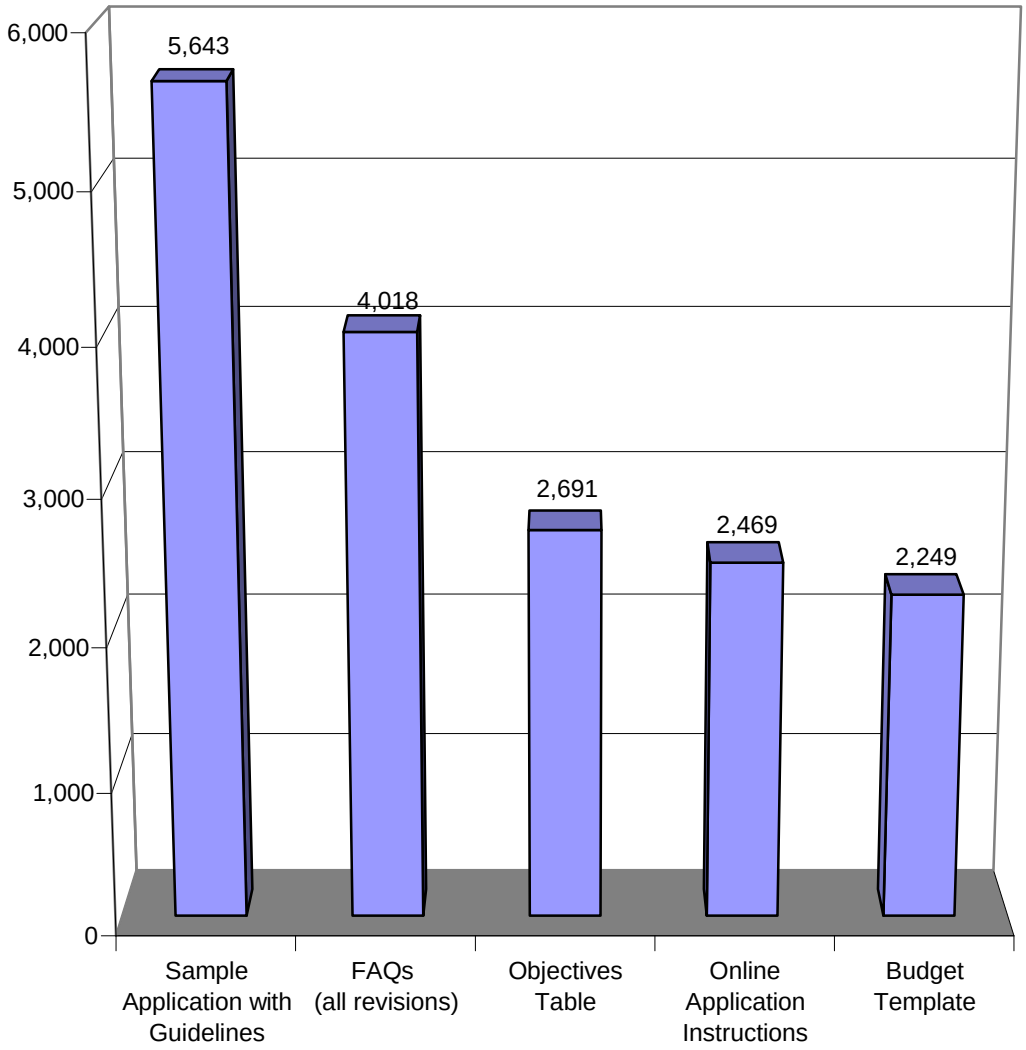
	A	B	C
1	**Sponsoring Organization Name:**		
2	**Project Title:**		
3	**Request ID:**		
4	**Major Activity 1:**	*Name*	
5			
6			
7	**Budget Line Items** (All amounts must be in US $)	**Year 1**	**Year 2**
8			
9	**Personnel**	**0.00**	**0.00**
10	*Position/FTE/Annual Base Salary*		
11			
12			
33			
34	**Fringe Benefits**	**0.00**	**0.00**
35	*Description/rate*		
36			
48			
49	**Travel**	**0.00**	**0.00**
50	*Description*		
51			
63			
64	**Equipment**	**0.00**	**0.00**
65	*Item/Qty*		

Maintain Comprehensive Up-to-Date FAQs On Your Web Site

- **Keep adding FAQs throughout the application process.**
- **Identify new FAQs with a distinguishing icon and/or date.**
- **Create separate questions by topic and provide a table of contents with hot links and bookmarks.**

Grand Challenges in Global Health

May 1 to June 6, 2004
17,070 Document Downloads



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Feedback from Our Worldwide Grant Applicants

Grand Challenges in Global Health

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Grand Challenges in Global Health

"It has been a struggle because it is so prescriptive. In the end that's good because it forces you to think through all the years and how you will accomplish everything. Clearly you've put a lot of effort into it.

I love that everything is electronic."

- Researcher from a Private Company

Grand Challenges in Global Health

“The written application guidelines are very useful. I've highlighted sections and have been using it as we've been preparing the applications.”

- Private University Research Assistant

Grand Challenges in Global Health

"For other grant application systems you follow their instructions and that's it.

You've been very helpful, available for questions, adding new FAQs, changing the budget template. That helps a lot."

- University Research Coordinator

Grand Challenges in Global Health

"We love the online GCGH grant application system and the Letter of Intent stage was easy to deal with.

We've found that almost all of our questions are addressed in the guidelines and the FAQs."

- University Researcher

Grand Challenges in Global Health

“The online system is clean and easy to follow and the files uploaded quickly.

It’s also great because we can save it and come back to complete the application.””

- State University Research Coordinator

Grand Challenges in Global Health

"The budget spreadsheet was complicated and the categories were too narrowly defined."

- Principal Investigator from a Private Company

Grand Challenges in Global Health

"You won the award for best customer service grant program. We have no complaints.

Our group was nervous about the process but you made it easy."

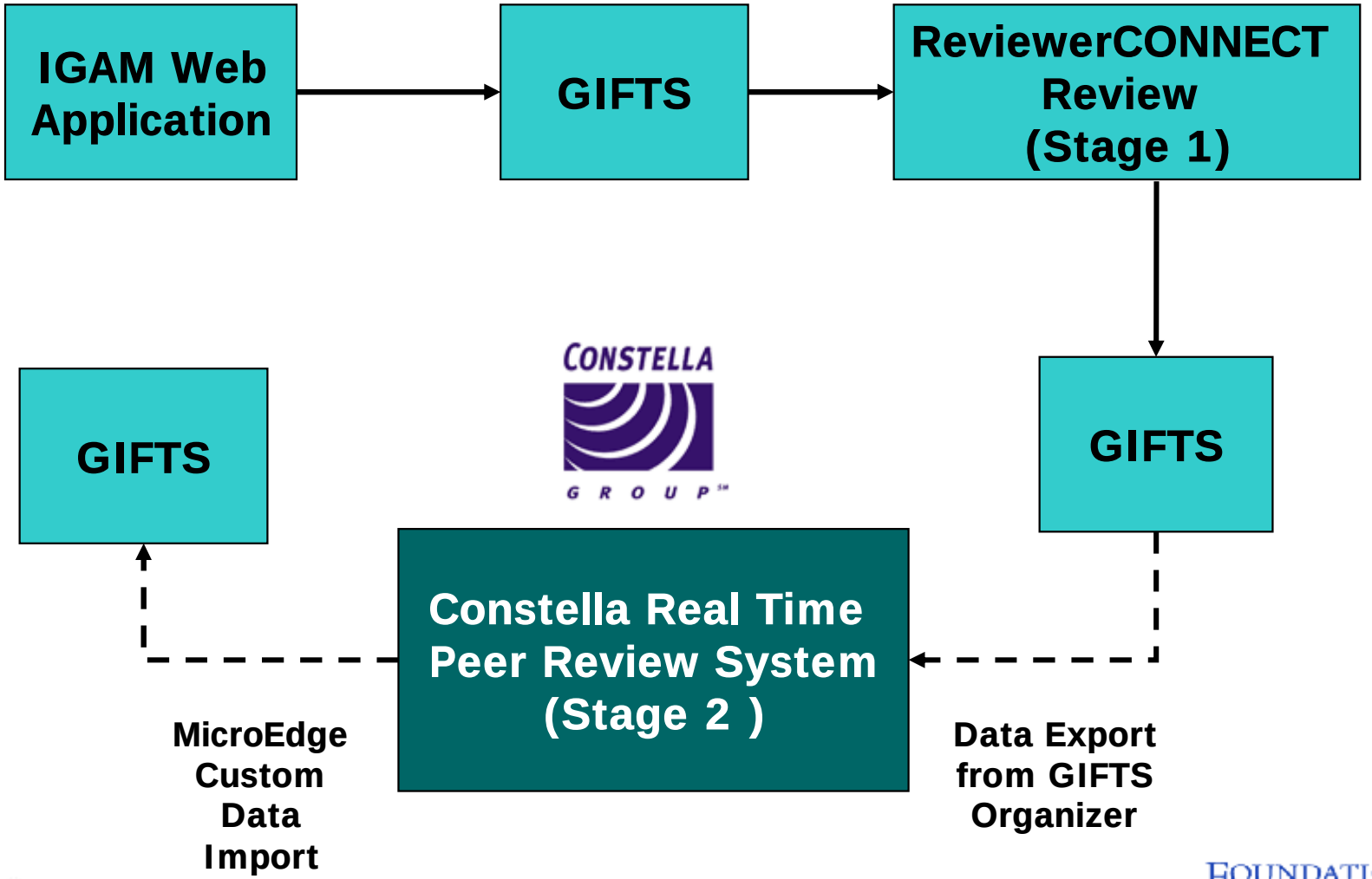
- Corporate Collaborator of a State University

Grand Challenges in Global Health

"Maybe you all could consult for the airlines as a moonlight job?"

- Private University Researcher

Linking GIFTS to Constella's Real Time Peer Review System



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Full Proposals Provided on CD-ROM to Reviewers Using Windows & Mac PCs

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Online Applications and Reviews: Lessons Learned

1. **Go beyond "brochureware". Keep online program guidelines up-to-date and describe what you do and don't support.**
2. **Make the online application form easy to find.**
3. **Implement Q&A or branching screens to pre-qualify grantseekers.**
4. **Have separate forms for special programs.**
5. **Provide detailed online guidelines, FAQs and multiple examples.**

More Lessons Learned

6. **Guide the grantseeker to print the application and prepare all required materials in advance.**
7. **Promote online submissions – but continue to provide traditional application routes to ensure equal opportunity for all grantseekers and as backups.**
8. **Consider a phased approach – begin by offering non-profits invitations to submit online applications.**

More Lessons Learned

9. **Design online applications that work with older versions of browser software.**
10. **Permit the application to be saved so that the grantseeker can return and complete the form in stages. This will also prevent data loss when the connection fails.**

More Lessons Learned

11. **Configure systems to accurately import data into your grants management system.**
12. **Scan all incoming attachments for viruses.**
13. **Ensure that you have all of the necessary expertise to implement the system and provide ongoing support.**
14. **Test, test and then test some more.**

Reviewing Applications Online

1. **Recruit enough highly qualified reviewers.**
2. **Provide reviewers an appropriate honorarium to encourage high quality reviews.**
3. **Develop a detailed reviewer handbook.**
4. **Encourage rigorous discussion and debate.**
5. **Focus on those with disparate scores.**
6. **Design the system to capture the information in the exact format that you need.**
7. **Distribute lengthy and complex proposals on CD-ROM with menus.**

Current Situation

1. **Growth to 7 FNIH GCGH initiative staff members**
2. **Model for other grantmaking endeavors for FNIH**
3. **43 grants managed by:**
   - **Bill & Melinda Gates Foundation**
   - **Foundation for the NIH**
   - **Wellcome Trust**
   - **Canadian Institutes of Health Research**
4. **Grantees include:**
   - **Universities**
   - **For-profits**
   - **International organizations**

Transitioning

1. **Notified all 405 candidates via batch e-mail using integrated database**
2. **Transition to negotiation phase:**
   - **Revised database setup to track fewer applicants but numerous detailed requirements**
     - **Revised coding system**
     - **Utilizing Requirements tab**
   - **Created necessary documents and forms**
   - **Engaged necessary external consultants (intellectual property and international)**

Due Diligence

1. **International Organizations**
   - **OFAC**
   - **Exchange rates**
   - **US dollar accounts**
   - **Foreign equivalency**
2. **For-profit organizations**
   - **Equipment**
   - **Grant agreements**
3. **Intellectual property rights**

A Complex Negotiation Process

1. GCGH initiative is a “start-up”
2. Milestone driven
3. Intellectual property (IP) – existing and potential
4. For-profits, equipment, IP issues
5. International
6. Research assurances, clinical trials, privacy, transportation, select agents, adverse reactions
7. Sub-grantees / Collaborating organizations
8. Working in parallel with BMGF to standardize:
   - Reporting requirements
   - Grant agreements
   - Due diligence
   - Communications
9. Memorandum of Understanding with WT and CIHR
10. Grantee institutions’ internal communication
11. Announcement of grantees

Managing Milestone-based Awards

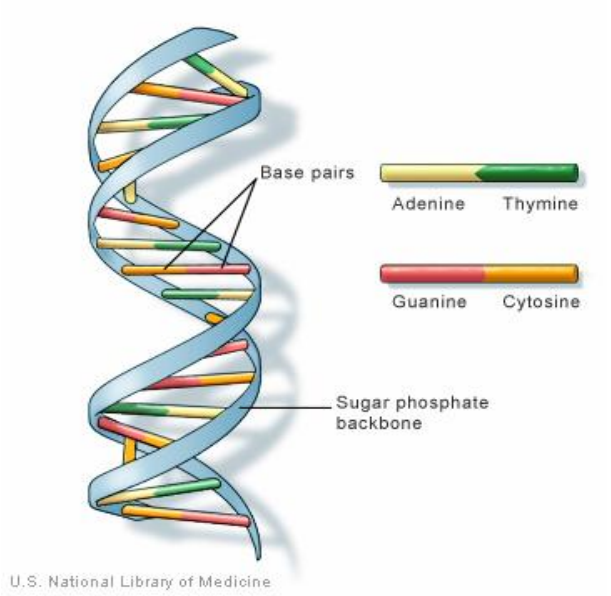
1. **Payments will occur annually contingent upon meeting set milestones.**
2. **Payments were staggered to accommodate programmatic review of progress reports.**
3. **Creating a termination policy for projects.**
4. **GIFTS Requirements/Activities tracking function will be used to monitor:**
   - **Milestones (scientific)**
   - **Site visits/meetings**
   - **Semi-annual progress reports**
   - **Annual financial reports**
   - **Correspondence**
   - **Site visit reports**
   - **Assurances/regulatory compliance**
   - **Communications (media and publications)**

Grand Challenges Next Steps

1. **Design, select and implement workgroup collaboration portal for use by grantee teams, program officers and invited researchers.**
2. **Redesign Grand Challenges Web site to share information with researchers and the public.**
3. **Convene Kick Off Meeting – Principal Investigators, collaborating researchers, and staff from BMGF, FNIH, WT and CIHR to:**
   - **Discuss all the projects and future activities**
   - **Identify ways to foster collaborations among scientific community.**

New FNIH Whole Genome Association Grant Program to Also Use Online Applications and Peer Reviews

- **To start in early 2006**
- **Based on the best practices and lessons learned from GCGH**
- **Will use GIFTS and IGAM with a two-way link to a real-time online peer review system**



Explore System Enhancements and Links to External Systems

1. **MicroEdge Portico GRM for grantee requirement tracking and reporting**
2. **MicroEdge Plus Pak including:**
   - **Requirements Scheduler**
   - **Ad hoc e-mail capability**
3. **Potential integration with Microsoft SharePoint Portal Server**
4. **Links to public Web site**

Conclusion

- **Grand Challenges in Global Health Program has offered us a unique opportunity to manage, track and report on highly complex, multidisciplinary research programs with a very small and flexible staff.**
- **The GCGH process has successfully utilized and adapted commercially available software and additional applications and services to process 1500+ requests and 400+ complex proposals.**

  The same technology is proving useful in managing our grants and new programs with numerous complex reporting requirements.