2011 HP Catalyst Initiative

HP is expanding its global network of education consortia that are developing more effective approaches to science, technology, engineering and math (STEM) education. The goal is to transform STEM learning and teaching, and to inspire students to use their technical and creative ingenuity to address urgent social challenges in their communities. What's needed is fresh thinking about STEM education that incorporates important new disciplines in an interdisciplinary way, emphasizes creative and global collaboration skills, and puts student empowerment at its core. At HP, we call this STEM+ education, and it's the focus of the HP Catalyst Initiative.

By bringing together organizations that now work independently to create a global network of consortia building a cohesive, student-centered approach to STEM+ education, HP is creating a catalyst for innovation that improves student performance. In 2010 the HP Catalyst Initiative created five international consortia consisting of 35 education institutions.

In 2011 HP seeks to grow the initiative by adding new members to the existing consortia and to establish an additional consortium, for a total of 20 new member organizations.

Request for Proposals - Consortia Members

The challenge

Around the world there is increasing demand for teams of experts with the knowledge and skills to solve the world's greatest challenges in education, health and environment. In addition, the bar has been raised when it comes to the level of STEM literacy and proficiency required of all students, if they are to fully participate as citizens in this high-tech world we live in.

Geographic boundaries, lack of access to technology, and a shortage of teachers qualified in STEM subjects make it challenging to develop today's students into tomorrow's scientists and engineers. STEM students need to acquire additional

skills necessary to complete project- based cross-disciplinary tasks that encourage innovation and cross-cultural collaboration. They must be prepared to apply their knowledge and creativity to solving real-world problems.

We need to think beyond the traditional definition of STEM education, and think about STEM+, where the "plus" represents:

- Existing and emerging disciplines that were not originally included in the acronym, such as computer science, and new interdisciplinary blends whose importance is now becoming recognized.
- Skills and attributes that students must develop to be effective and innovative. These skills have been referred to by many as "21st century skills". In truth, these skills have always been vital and include creativity, collaboration, and cross-cultural expertise for functioning in a "flat" world.

By taking a thorough look at the previous methods of STEM learning and teaching, we can determine how emerging technologies can be effectively used to create relevant, authentic, project-based learning experiences for students. Technology can even help to transform the education system itself, creating new "learning and research ecosystems" that link existing education institutions in collaborative ventures to jointly address key challenges in STEM education.

The opportunity

What can STEM+ education look like if we design it as a system, with student empowerment at the center? HP believes we can improve student outcomes by being a catalyst for innovations in STEM+ education. We have brought together a global network of experts—the best minds from the best of the world's educational institutions—to tear down the obstacles that prevent students from learning STEM skills; it is called the HP Catalyst Initiative.

The HP Catalyst Initiative was launched in 2010, funding 35 education institutions to collaboratively explore specific area of innovation in STEM+ education. In 2011 HP seeks to grow the existing consortia and to establish an additional consortium. The areas of focus are:

- **"The Multi-Versity"** - investigates and demonstrates new and best practices in online education for STEM+ students and the professional development of instructional faculty. The long-term goal is to provide students with a broader selection of learning opportunities by creating a network of online courses and projects.

- **"Pedagogy 3.0"** - create new models of teacher preparation that will better equip teachers to facilitate powerful 21st century learning experiences for students. Projects will engage new teachers during their pre-service and induction years, plus in-service master teachers, teacher education faculty, and engineering/science content experts and faculty. The long-term goal is to prepare and retain more STEM+ teachers, enhance the STEM+ expertise of master teachers and faculty, and improve student success in pursuing STEM+ degrees.

- **"Global Collaboratories"** - enable students to participate in collaborative problem-solving to address urgent social challenges using the power of collaborative grid computing.

- **"The New Learner"** –engage formal and informal education institutions as they explore how to build a network of learning opportunities for students. The goal is to create new models of student-driven STEM+ learning that are engaging, lead to higher school completion rates, and promote "learning how to learn".

- **"Measuring Learning"** – explore innovative approaches to measuring STEM+ competencies that are often not assessed in school, with the help of technology.

- **"STEM-preneur"** – exploring what is possible when STEM learning is combined with entrepreneurship, helping technical students to think and act as entrepreneurs, and helping entrepreneurial minded students to see how STEM disciplines are relevant for addressing society's biggest challenges.

Each of the existing consortium and the new consortium will:

- In total, add up to 20 new "member organizations" (selected from a competitive pool of applications from eligible countries)
  - Up to 4 new funded members for existing consortia (see http://bit.ly/hpcatalyst2010 for a list of existing members)
  - Up to 7 funded members for the new "STEM-preneur" consortium
- Represent a mix of secondary and tertiary (college / university) education institutions;
- Be intentionally international by including member institutions from more than one eligible country (see "Eligibility and Preference" section below);
- Actively engage instructional practitioners, administrative leaders, and education researchers;
- Engage with the other consortia to form a global community of practice.

The "Multi-Versity" consortium

Lead Organization: Sloan Consortium, United States (John Bourne, Executive Director)
www.sloanconsortium.org

Executive Advisors: The Hewlett Foundation, Innosight Institute, the New Media Consortium and HP

The Multi-Versity Consortium is investigating and demonstrating new and best practices in online education for STEM students and the professional development of instructional faculty. The long-term goal is to provide students with new learning opportunities from a variety of institutions that can be applied toward certification and degrees.

Now more than ever, students are exploring online course content, whether to supplement their on-campus work or in place of it. While online learning automatically provides people with more flexibility by removing logistical and time constraints, many challenges still remain, and the Multi-Versity Consortium is looking at some of the most important of them. For example, how can online courses breed deeper connections and collaboration? How can an online environment reproduce the authenticity of an onsite experience?

The leader of this collaborative, the Sloan Consortium, has long believed that developing richer online learning experiences begins at the instructor level. Many of their programs include intensive faculty training to arm them with the 21st century tools that facilitate more workplace-relevant learning for STEM+ students. Sloan-C connects teachers across multiple universities to foster repositories of best practices and plans to bring those successful approaches to the current project as well.

In 2011 HP seeks to add up to 4 additional education institutions to this consortium, expanding the international consortium of institutions that are creating, organizing and sharing best practices in online learning and teaching.

Example guiding questions:

- What models of online learning lead to powerful learning experiences? Which models align best with which learning objectives? What are the critical factors for consideration when designing an online learning experience?

- What novel models of institutional cooperation can be created that provide incentives for more institutions to share for-credit learning opportunities with students across international boundaries?

- What are the most effective models of faculty development for establishing and growing expertise in facilitating online learning experiences?

- How can online education scale to achieve a global reach? What are the ways of aligning disciplinary activities across the world to achieve reduced costs with higher quality?

The "Pedagogy 3.0" consortium

Lead Organization: FutureLab, United Kingdom (Sue Cranmer, Senior Researcher)
www.futurelab.org.uk

Executive Advisors: International Society for Technology in Education (ISTE) and HP

New STEM technology is being developed at an unprecedented pace, and the role of teachers must evolve to effectively implement it in the classroom. The Pedagogy 3.0 Consortium is devoted to equipping pre-service teachers with the technology and experiences they need to create deep, collaborative learning experiences for their future students. The focus of the consortium will be the creation of new models of teacher preparation that will better equip teachers to facilitate 21st century learning experiences for students.

A variety of projects are engaging new teachers during their pre-service and induction years, and connect them to master teachers, teacher education faculty, and engineering/science content experts and faculty. The goal of the projects is for pre-service teachers to acquire rich, interdisciplinary skills, receiving training in a variety of fields and disciplines — not just the subjects they plan to teach. They will be challenged to work together across multiple institutions, build more effective online course material for STEM+ subjects, bridge education gaps between various cultures, and openly share research and discussion results.

The consortium's long-term goal is to prepare and retain more STEM+ teachers, enhance the STEM+ expertise of master teachers and faculty, and improve student success in pursuing STEM+ degrees.

In 2011 HP seeks to add up to 4 additional education institutions to this consortium, expanding the network or educators who are examining the changing role of "the instructor", how those changes affect the preparation of new STEM+ secondary teachers, and how it transforms relevant faculty and master teachers who are preparing new teachers..

Example guiding questions:

- How can pedagogy experts and content experts best collaborate in preparing new teachers to teach in STEM+ related disciplines?

- What can be done to accelerate new teachers' success in using technology in powerful ways during their early years of teaching?

The "Global Collaboratory" consortium

Lead Organization: CSIR Meraka Institute, South Africa (Dr. Bruce Becker, Coordinator, South African National Grid)
www.meraka.org.za

Executive Advisors: United Nations Educational, Scientific, and Cultural Organization (UNESCO) and HP

The Global Collaboratory enables students to participate in collaborative problem-solving to address urgent social challenges using the power of grid computing. This theme builds on the HP/UNESCO Brain Gain Initiative, and the consortium of institutions exploring this theme will be led by the CSIR Meraka Institute in South Africa.

The essential idea behind the Global Collaboratory is this: Although individual educators and students may be doing great things at their schools, it is all too rare to see those ideas adopted and replicated elsewhere. Imagine, however, if those great things were explored, shared, and tested in institutions across the world. If the learning from all those experiences could be distilled, those ideas might begin to spread in unanticipated ways, creating a true global impact.

The Global Collaboratory is designed to do just that, with projects and initiatives that explore how this kind of collaboration can impact student knowledge and comprehension, instructor approaches, and much more.

In 2011 HP seeks to add up to 4 education institutions to this consortium, growing the shared computing capacity and engaging students in collaborative problem-solving learning experiences that address significant social challenges.

Example guiding questions:

- How do the best practices in online learning apply to student-centered collaborative projects?

- How can we match student interests and growing expertise with other students at other institutions to facilitate collaborative projects?

- What services and resources are necessary to provide the relevant education for fast-changing scientific and technological research?

- How can the network be fully exploited to bridge the digital divide, making all participating students, in Africa and beyond, native members of the global research community?

The "New Learner" consortium

Lead Organization: Agastya International Foundation, India (Ajith Basu, Chief Program Executive)
www.agastya.org

Executive Advisors: The Exploratorium, the Consortium for School Networking (CoSN), and HP

Schools have longed focused on teaching students the "what" and the "how," but the New Learner Consortium (NLC) is aimed at helping students understand the "why" behind real world processes. The participants in the NLC strongly believe that inquiry-based learning brings more passion, more curiosity, and more motivation to classrooms. In essence, the goal of the NLC is to help students learn how to learn.

This consortium targets formal and informal education institutions serving primary and secondary students in under-served communities, as well organizations that prepare and support teachers. Members of the "New Learner" consortium aim to collaboratively explore models for creating student-centered personal learning networks that allow students to tap into a full range of formal, non-formal, and informal learning resources and people, in the pursuit of their own learning goals.

In 2011 HP seeks to add up to 4 organizations to this consortium, as they continue to explore the creating of innovative learning "ecosystems" that support student-empowered inquiry, promote student engagement in social innovation, and lead to a habit of learning that will last a lifetime.

Example guiding questions:

- What opportunities exist to connect formal, non-formal, and informal learning into a seamless network that promotes academic success and lifelong learning?

- What "scaffolding" can be provided to students to support them as they navigate across the boundaries of formal, non-formal, and informal learning?

- How can technology best support "New Learners" (students), as well as the objectives of the consortium member organizations?

The "Measuring Learning" consortium

Lead Organization: Carnegie Mellon University (Candace Thille, Director of the Open Learning Initiative, oli.web.cmu.edu/openlearning and Ananda Gunawardena, Computer Science Department, www.cs.cmu.edu)

Executive Advisors: The Consortium for School Networking (CoSN), The Hewlett Foundation, the Organization for Economic Cooperation and Development (OECD) Centre for Educational Research and Innovation, the International Society for Technology in Education (ISTE), and HP

How do you recognize and define educational success? Led by Carnegie Mellon University, the Measuring Learning Consortium is exploring innovative ways to use technology, teaching methods, and learning experiences to assess STEM competencies — skills that have become invaluable in every profession and every country, worldwide.

Many of the projects are looking at the kinds of tools that will enable students and teachers to communicate in real-time to each other through text, pictures, diagrams, and video. The essential idea behind the consortium's work is that digital interaction will enable students and teachers alike to better gauge learning outcomes in real time, so that key concepts are reinforced and understood, and foundational ideas are clearly mastered. The notion of real-time authentic assessments that allow for and extract learning from both successful and failed experiments is closely linked to the workplace and have widespread, authentic applications

In 2011 HP seeks to add up to 4 education institutions to this consortium, expanding the network of instructors, education researchers, and students themselves who are exploring innovative approaches to formative and summative assessment in STEM+ education.

Example Guiding Questions:

- What are the key design considerations for creating effective embedded assessment environments?
- How can technology enable novel approaches to formative assessment that provide immediate feedback to both instructor and learner?
- What are some of the promising new practices in measuring learning outcomes related to higher order competencies and the broad range of so-called "21st century expertise" (synthesis & problem-solving, collaboration &

communication in complex multicultural teams, information & search literacies, computational thinking…)?

- How can technology improve "data driven decision making" and ultimately lead to raising the attainment levels of STEM+ learners?

The "STEM-preneur" consortium

Lead Organization: (to be announced)

Executive Advisors: (to be announced)

The new STEM-preneur consortium will explore what is possible when STEM learning is combined with entrepreneurship, helping technical students to think and act as entrepreneurs, and helping entrepreneurial minded students to see how STEM disciplines are relevant for addressing society's biggest challenges.

This consortium will explore education innovations for secondary and tertiary level students that combine:

- Powerful STEM learning and teaching, plus
- Innovative Entrepreneurial thinking, and
- Passion for Social Innovation

In 2011 HP seeks to create a consortium of up to 7 education institutions that will collaboratively explore innovations related to the STEM-preneur theme.

Example Research Questions:

- What are the best strategies for helping students experience the connection between STEM disciplines and the skills of a social entrepreneur?
- To what extent does this combined approach improve STEM learning outcomes?

Description of the grant award

This Catalyst Grant award provides each consortium (the lead organization and the member organizations) with technology, cash, and professional services. The new member organizations will each receive:

$130K – HP technology (list price) from a special catalogue of featured products that include:
- HP Tablet PCs
- HP Mini Notebooks
- HP Mobile Workstations
- HP Proliant Servers
- HP Virtual Room Collaboration Web Service: www.rooms.hp.com
- HP Laserjet Multi-function B&W printers
- HP Officejet Multi-function color inkjet

Refer to the 2011 HP Catalyst Initiative "grant equipment catalogue" (spreadsheet) to create a specific technology budget that will accompany your proposal.

$20K – unrestricted cash award. Funds to be distributed by the International Society for Technology in Education, on behalf of HP. Funds will be distributed in two installments, $15K at the beginning of the project (~ July 2011) and $5K upon submission of the first project update report (~ September 2012) *Note: The cash portion of this grant comes to the institution as an unrestricted cash award. HP will not allow the cash award to be used to finance indirect costs.*

This funding can be used for items such as:
- faculty time, offsetting the normal course load, or can be shared with other faculty and/or interns supporting the project
- the purchase of additional project materials, other technology, or software
- the costs of a public campus celebration event or reception at the beginning and/or conclusion of the first year of the project
- miscellaneous travel expenses related to attending conferences to disseminate best practices that emerge from the project
- the production of a short project documentary video

$5K value – training and coaching provided by various education organizations and NGOs who are collaborating with HP

$3K value – Through a grant by HP to ISTE.org, each Member Org in the consortium may send one representative to the 2012 HP Catalyst Worldwide Summit to be held in early 2012 (additional slots are available for self-funded representatives)

Professional Community of Practice - In addition to equipment, cash, and professional services, participants become part of the global HP Catalyst Network a community whose benefits include:

- Access to an exclusive online community of former and current HP grant recipients through an online social media platform
- Potential opportunities for visibility, such as speaking, guest blogging, participation in webinars where recipients showcase their solutions, and possible invitations to showcase best practices at education conferences and tradeshows

Eligibility & preference

Member organizations will be selected through a competitive, open, global call for proposals.

To be considered for selection as a 2011 Catalyst Initiative member organization, the applicant institutions must:

- Be an accredited public or private (not-for-profit) education institution or consortium that serves at least 2,000 tertiary or secondary education students (schools, colleges, universities, as well as non-profit or non-governmental educational organizations);
- Be located in an eligible country. For 2011, eligible countries are Australia, Brazil, Canada, China, France, Germany, India, Mexico, Nigeria, Russia, South Africa, United Arab Emirates, the United Kingdom, and the United States;
- Be validated as compliant with US laws and regulations;
- Be an organization that abides by HP's non-discrimination policies and practices (http://www.hp.com/hpinfo/abouthp/diversity/nondisc.html). Institutions are not eligible if their primary mission is religious, sectarian, discriminatory, political, or if the organization discriminates on the basis of race, creed, religion, gender, national origin, sexual orientation, age, disability, or veteran status;
- Have experience addressing the theme of the relevant consortium;
- Accept in advance the HP "Terms and Conditions" associated with HP grants for the recipients' country;
- Complete the proposal called for by this Request for Proposal (RFP); and
- Meet the minimum infrastructure requirements to support the use of the technology awarded as part of this grant, including:
    - Adequate infrastructure (electricity, buildings, Internet access, etc.)
    - Existing or planned high-speed wireless computing environment
    - IT resources that will be committed to support the use of the granted equipment

Preference will be given to institutions that:

- Serve a significant percentage of low-income or marginalized students who are currently under-represented in STEM professions.
- Are actively engaged in other networks or partnerships that are related to one or more HP Catalyst Initiative themes.
- Are engaged in currently funded projects which could be enhanced by their participation in an HP Catalyst Initiative consortium.
- Are located in geographies that complement the membership of the consortia.

Grant recipient commitment (two years)

Innovation takes time, so receiving a grant of this size is a significant commitment for everyone involved. While the technology and the professional development are provided in year one, the grant period is defined as two years, during which the project will be implemented, monitored and measured.

This grant of equipment, cash, and professional support is awarded to the education institutions that are selected to be members of each consortium. The HP equipment becomes property of the member organization, to be used by the Project Leader and team for implementation of the proposed project.

Each organization accepted as a consortium member commits to:

- Assign one person to serve in the role as "Project Leader" representing the project team. This person will be the primary point of contact for the consortium, HP, and its collaborating partners, and will be responsible for communicating important grant-related information to the project team at the member institution, to the other members of the relevant consortium, and to HP. Most importantly, the Project Leader will be responsible for working with the Director of the consortium's lead organization to ensure that the consortium has clear objectives and plans for meeting its goals;

- Provide the proper IT infrastructure and support to ensure program success;

- Actively communicate project status (see "Reporting Progress and Impact" below);

- Secure "model releases" (written permission) from people appearing in videos and photos that are produced about the project;

- Participate in the HP Catalyst Worldwide Summit in early 2012, which includes an informal presentation poster session;

- Abide by the HP Terms and Conditions that are accepted during the application process. Please refer to the terms and conditions of gift for your specific country; links are provided at www.hp.com/go/hpcatalyst.

- Comply with all HP requests or requirements communicated to the member organization during the commitment period.

Reporting Progress and Impact

The overall goal of the HP Catalyst Initiative is to demonstrate what the future of STEM+ learning can look like, providing a foundation for systemic educational practice and informing education policies. The overall initiative will seek to address Guiding Questions such as:

- What are the critical characteristics of a technology-supported assessment that can promote high quality, effective STEM+ learning experiences?
- What role does global collaboration play in furthering the mission of STEM+ education institutions and the success of students? This includes institutional collaboration, instructional collaboration, and student collaboration
- What role does and will technology play in enabling 21st century STEM+ learning? Given that technology alone is rarely the only success factor, what are the other critical factors that must be combined in order to positively change the "education equation"?
- What are the contextual and institutional factors that can enable the implementation of technology-supported assessments of STEM+ learning?

The reporting will be a collaborative effort shared by all the organizations participating in the HP Catalyst Initiative – member organizations, lead ("hub") institutions, our Executive Advisors, and HP. Progress and impact will be communicated through a variety of means:

Each member organization will:
- Create a public webpage that describes their project site and its role within the consortium, including a brief video that explains the context and impact of the project; and publish the video on a publicly available website (e.g., YouTube, Vimeo, TeacherTube, etc.)
- Provide HP and the consortium's lead organization with project reports annually and project updates quarterly for two years. The first report will be due in September 2012. Data requested by will include:
    - The number of students impacted
    - The context of the project (grade levels of students; formal/informal setting; which STEM+ disciplines were involved…)
    - The extent to which the project has impacted student learning and teaching, with a description of the evidence collected (quantitative and qualitative direct measures, with data that contrasts these results with control/comparison groups)
    - Findings related to the consortium's specific research questions
    - Comments and data describing your team's collaboration with other Catalyst members
    - Unexpected outcomes and other comments
    - Qualitative feedback from project participants including faculty,

administrators, and students impacted by the work of the project
- Contribute to the consortium's overall report and HP Catalyst Initiative summary report(s).

Each consortium will:
- Create a public webpage that describes the work of the consortium with links to individual members' web pages
- Provide HP and HP Catalyst Initiative Executive Advisors with project reports annually and project updates quarterly for two years
- Contribute to overall HP Catalyst Initiative reports.

The HP Catalyst Initiative network will collaborate in creating:
- A public web-community that describes the work of the HP Catalyst network with links to consortia web pages
- Publications that will be available as printed documents, download-able documents, and dynamic, interactive content/discussions within an online professional community

Key Dates and Milestones

MARCH-APRIL 2011:
- o   Develop proposals
- o   Any questions about the program may be submitted via the HP Catalyst Network community: http://istelearning.org/hp-catalyst/contact-us/

MAY 2011:
- o   12th – Applications due (5pm Pacific Time)
- o   Applications reviewed
- o   31st – Recipients Announced (all applicants will be contacted via email; recipients will be posted online at www.hp.com/go/hpcatalyst

JUNE – SEPTEMBER 2011:
- o   Formal consortium meetings
- o   Equipment ordered
- o   First cash disbursement to new member organisations via ISTE.org

FEBRUARY 2012:
- o   (tentative date) 2012 HP Innovation in Education Worldwide Summit

SEPTEMBER 2012:
- o   Existing 5 consortia: Year two project update report due from the

consortium overall and from each member organization. Reports include public web pages, data collected to date, and videos.

- o New STEM-preneur Consortium: Year one project update report due from the consortium overall and from each member organization. Reports include public web pages, data collected to date, and videos
- o cash disbursement via ISTE.org

SEPTEMBER 2013:

- o Year two project update report due from the new consortium overall and from each member organization. Reports include public webpages, data collected to date, and videos.

How to apply

STEP 1) Go to www.hp.com/go/hpcatalyst where you will find:
- the HP Terms and Conditions of Grant (specific to the applicant's country)
- a spreadsheet "catalog" that describes the HP equipment that is available through this grant program

STEP 2) Identify your project team and collaboratively develop answers to the Member Proposal Questions below. Proposals must provide answers, in English, in an electronic document (MS Word or Adobe Acrobat PDF) that will be uploaded into a web-based system.

STEP 3) Create an equipment budget spreadsheet, using the HP Catalyst grant equipment "catalog" (spreadsheet); indicate the quantities of each product you will need to fulfill the goals of your proposal.

STEP 4) The HP Terms and Conditions of Grant must be signed by the appropriate authority representing your institution. The terms and conditions vary by eligible country and may not be modified.

STEP 5) Login to the online application website (available ~3 weeks prior to the deadline)

http://bit.ly/hpcatalyst-application

- copy and paste answers to the questions colored in orange from your proposal into the online application system to facilitate reviews
- upload your full proposal file (MS Word document or PDF)
- upload your grant equipment budget, using the HP Catalyst grant equipment "catalog" spreadsheet
- upload your signed HP Terms and Conditions

The deadline for completing your proposal submission:
12May 2011, 5pm Pacific Time

HP Catalyst Initiative – Member Proposal Questions

Proposal overview

1. **HP reference** – If an HP employee invited your organization to submit a proposal, please indicate that employee's name and email address

2. **Catalyst initiative** - Indicate which consortium your institution would like to join; if your institution would like to apply to be in more than one consortium, you must submit a separate application for each consortium you are applying to.

3. **Project name** - A brief title for your project. If this proposal is linked to another proposal from a different organization, please use the same project name on all "joined" proposals

4. **Project executive summary** (200 words maximum) - Provide a high-level overview of your project in an executive summary.

5. **Number of students impacted** – In the initial two years of your proposed project, approximately how many students will be participating in the proposed project?

6. **Number of marginalized students impacted** – In the initial two years of your proposed project, approximately how many of the participating students are considered low-income, under-represented, and/or marginalized?

7. **Description of Students Impacted** - Please provide any additional information that will help us characterize the students who will be impacted by your project

Innovation details

Each project, is about innovation; each project explores how technology can enable new approaches to STEM+ learning. In this section, please describe research questions and innovations your institution will be exploring, in collaboration with the other members of the consortium.

8. What "big ideas" or "research questions" will your team explore? Include in your description the specific STEM+ education challenges your team would like to overcome, and the innovations you plan to develop and/or pilot.

9. How will the technology provided through this grant be used to support these innovations and fundamentally improve the learning experiences of students? What other technology will be incorporated in the innovation work, if applicable? Your response to this question should complement the "Equipment Budget Spreadsheet" that you are also uploading.

10. How are you going to measure the results of this project? (500 word maximum) Describe the outcomes you intend to monitor that support the academic learning and teaching challenges mentioned earlier. Helpful resources on measurement and evaluation are available at http://www.iste.org/research/planning.

11. Provide a timeline for project completion with periodic milestones and celebration dates identified. (200 words maximum) The project timeline should commence when the technology is delivered and continue for 24 months. HP requests that each project team report results annually for two years, though we hope to stay in touch for years to come.

Project team

Each institution in a consortium is a "project site" with an identified project team involving students, instructors, and education leaders. The team should include educators who are responsible for the design, implementation, and measurement of the outcomes of the student learning experiences. The team must also include an IT director responsible for supporting the technology needs of the project team. While a team may be more extensive, we only need the contact information for the participating faculty and administrators who will be funded by this grant.

12. Describe why your institution and your project team are uniquely qualified to contribute to this consortium. Include any existing STEM+ related projects that are already underway, participation in STEM+ professional communities, consortia, and/or global networks that would enhance your project team's participation in this consortium.

13. **Team leader** - Please select one person to be the primary contact for communications from HP. This person will be actively leading the project, should it be funded; this can be a faculty member or administrator, and must have direct email access to all participants. For this individual, please provide the following contact details: Full Name, title, address, phone, fax, e-mail.

14. **Lead administrator** – For higher education (tertiary) institutions, this is the Dean/Rector responsible for the degree program; for secondary institutions, this would be an administrator for the school system; for NGO's or non-profits, this would be an Executive Director or equivalent. Please provide the following contact details for the Lead Administrator: Full Name, title, address, phone, fax, e-mail.

15. **Lead IT administrator** - For the participating IT director responsible for supporting the technology needs of the program's students and faculty, please provide the following contact details: Full Name, title, address, phone, fax, e-mail.

16. **Other project participants** - Describe the additional team members (not already listed above) who will be active participants in the proposed project. Include each person's name, title, email address, and the role they will play on the project team.

Administrative support and approval

17. **Approving administrator** – Please provide contact information for the "executive" or

administrator from your institution who is authorized to approve the acceptance of an HP Catalyst Initiative grant, should your proposal be selected (this can be the same as the "Lead Administrator") - Name, title, address, phone, fax, e-mail.

18. **Statement of support from key administrator(s)**. Initial and ongoing project success depends on the active support and involvement of district leaders. Please indicate what type of support (financial or otherwise), leadership and involvement will be provided by the administrator(s). Indicate what campus funding, services, or matching resources will be committed to this project, should it be selected; also indicate what support will be provided to ensure the long-term success of the project, beyond the two year grant period.

19. **Assurance of eligibility** – Does your institution meet the eligibility requirements stated in this RFP?

20. **Assurance of commitment** – Is your institution prepared to fulfill the grant recipient commitments described in this RFP?

21. **Approval of HP terms and conditions** - Do you, as an authorized administrator, approve the HP terms and conditions? Please download a copy of the HP terms and conditions of gift appropriate for the country in which your institution is located or headquartered. Sign, scan and upload a copy of this document along with a copy of the proposal.

22. **Approval of HP Privacy Policy** - Please confirm that you understand HP's privacy policies (http://welcome.hp.com/country/us/en/privacy/masterpolicy.html), and agree that the information your institution has provided may be used by HP to send you information related to this grant application and other HP Social Innovation related programs.

23. **Special Offers** (Yes/No) – Would you like to receive information from HP and our Partners about free or discounted products, services, or events for educators? If you check "yes", we will only share the email of the primary contact indicated in your proposal.

Institution information

24. **Institution legal name** – Official school district name, mailing address, phone, fax

25. **Institution mission statement** - Describe the mission of the institution

26. **Students served** - Please enter the total number of students served by your institution

27. **Student Ethnicity** (US Only) - Indicate the percentage of students at your school by ethnicity (percentages must total 100%). Categories are African American, Asian/Pacific Islander, Caucasian/White, Hispanic, Native American, Other.

28. **Institution tax ID number** - Tax number appropriate for your country. (For example, in the U.S. this is a 9-digit number formatted XX-XXXXXXX)

29. **Tax exempt?** ☐ Yes   ☐ No   If tax exempt, HP may request additional documentation

30. **Shipping instructions** - Shipping contact's name, phone, fax, e-mail, and shipping address for equipment delivery. (A physical address, capable of receiving multiple pallets of equipment, is required; no P.O. boxes please! All equipment will be delivered to one drop-point; redistribution of equipment is the responsibility of the recipient institution)