Digital Nations

Despite the incredible technological advances of the past decade, the digital revolution has yet to touch the lives of most people in most parts of the world. Even where new technologies are available, they have had only minimal impact on the great social needs of our times: improving education, reducing poverty, enhancing health care, supporting community development.

The **Digital Nations** research consortium at the **MIT Media Laboratory** focuses explicitly on these major social challenges. Digital Nations researchers are collaborating with people around the world, aiming to catalyze social changes that are dramatic but also humanistic, sustainable, and resonant with local needs.

The Digital Nations consortium does not aim to impose solutions but rather to empower people in all walks of life to invent their own solutions. The consortium is developing a new generation of technologies and applications that enable people to design, create, and learn in new ways, helping them become more active participants in their societies.

The consortium focuses especially on populations with the greatest needs—children and the elderly, underserved communities and developing nations. The consortium is testing out ideas and technologies in pilot projects around the world, helping individuals and communities develop innovative strategies in domains ranging from commerce to agriculture to health care—and, more broadly, transform the ways they learn and develop.

The consortium's ultimate goal is a world full of creative people who are constantly exploring, experimenting, and inventing new opportunities for themselves and their societies.

Research Themes

The research agenda for Digital Nations is developed in collaboration with consortium members. Here are a few of the themes that guide the agenda:

- **Transforming Learning and Education.** Today's approaches to learning and education are woefully outmoded. Digital technologies provide an historic opportunity to transform how and what people learn—in schools, in workplaces, and in their everyday lives. We are developing new technologies and new strategies to support a "constructionist" approach to learning, helping people take charge of their own learning throughout the day and throughout their lives.

- **e-Commerce.** We are examining how new technologies can empower local communities to create new, sustainable economic organizations. For example, we are developing technologies that allow rural workers to better participate in regional marketplaces, new e-commerce strategies that enable remote communities to reach global markets, and new forms of economic collaboration.

- **Multicultural Computing.** Most technologies today were designed for a very narrow set of users. With global connectedness comes a need for pluralism. We are working on multilingual approaches to computing, enabling people to communicate across linguistic boundaries. We are also developing multimodal approaches, extending computers to understand and produce speech (not just text and graphics). These new technologies will open up computing to a broader range of ages, cultural traditions, and literacy levels.

- **Learning Communities.** We are developing tools and practices that enable people of all ages to take more active roles in the development of their communities—and to develop new ideas about learning and communities in the process. As community members work together on projects, the community as a whole can develop new knowledge beyond what any individual could on their own.

- **Ubiquitous Access.** Our aim is to develop low-cost technologies so that computing and communications become accessible to everyone on the planet. New wireless technologies will enable communities to leapfrog to the digital world, avoiding the high expense of traditional telecommunications infrastructures.

- **Rethinking Health Care.** Just as new technologies enable people to take more control of their own learning, so too with health care. We are developing low-cost tools to help people monitor and plan for their own health, rather than relying solely on treatment from medical experts.

Action Projects

As part of the Digital Nations initiative, the Media Laboratory is organizing and coordinating a set of Action Projects that make use of Media Lab ideas and technologies in real-world settings. The Media Lab helps Digital Nations members create similar projects in their own communities and countries. The Action Projects include:

- **Community Publishing** provides community members (senior citizens, children, adolescents, teachers) with new ease-to-use digital tools so that they can act as reporters, photographers, illustrators, editors, and designers of online publications about their local communities. These projects tap into the wisdom and strength of community members, supporting new forms of grass-roots communication and new models for media coverage.

- **Computer Clubhouses.** The Media Lab helped establish a network of after-school centers, called Computer Clubhouses, where youth from underserved communities learn to design, create, and invent with new technologies. In 1997, the Computer Clubhouse project won the prestigious Peter Drucker Award for Nonprofit Innovation. Intel has provided funds to open 100 new Computer Clubhouses in the US and around the world.

- **Education for Peace (E4P)** aims to reverse trends of violence and conflict in Colombia through massive application of high-tech inventions combined with the adoption of new ideas about learning. E4P initiatives engage people living in areas of conflict in "doing peace" by breaking radically from prevailing assumptions about who can learn, what they can learn, and how they can learn. The E4P project is being developed in collaboration with the 2B1 Foundation.

- **Health Nets.** The Media Laboratory has developed a strong program in the creation of health technology, enabling people to take more control of their own health care, especially in preventing illness before it occurs. The Digital Nations consortium provides members with technical designs and expertise, health-systems design expertise, and aid in the creation of state-of-the-art health systems.

- **Learning Hubs.** The Media Lab has established a worldwide network of organizations committed to deep change in learning and education. These Learning Hub sites serve as working models of "out-of-the-box" learning, based on ideas developed by Media Lab Professor Seymour Papert over the past 30 years. At each site, Media Lab researchers work closely with local "learning activists" who develop, research, and help others appropriate successful models of learning.

- **The Learning Independence Network** facilitates a "true transfer of technology" by enabling people and organizations in the developing world to design and create their own technological tools and solutions to community challenges, fostering a greater sense of independence and self-sufficiency. An initial Learning Independence Network has been established in Costa Rica.

- **Lincos.** The Media Lab has joined with the Foundation for Sustainable Development (founded by former Costa Rican President Jose Maria Figueres) to create economically-sustainable community technology centers, known as Little Intelligent Communities (or Lincos), that provide health care, learning technology, government services, banking, soil and environmental testing, and entertainment on one site. In 2000, Lincos was awarded the Alcatel III Award for Technology Innovation.

- **PIE Network.** The Media Lab is collaborating with museums around the world in an effort to integrate science, art, and engineering in new types of playful learning experiences. As part of the PIE (Playful Invention and Exploration) Network, museums are developing new hands-on activities and programs based on technologies and educational research from the Media Lab, enabling museum visitors to play, invent, and explore with new digital technologies.

Organization

The MIT Media Lab is uniquely positioned to undertake the Digital Nations initiative. Since opening its doors in 1985, the Media Lab has established itself as an international leader in the design and study of innovative digital technologies, helping to create now-familiar areas such as digital video and multimedia. In recent years, the Lab has focused increasingly on the integration of bits and atoms: merging electronic information with the everyday physical world. The Laboratory has been a pioneer in the collaboration between academia and industry, and provides a unique environment to explore basic research and applications, without regard to traditional divisions among disciplines.

The Media Lab has a long tradition of developing technologies for learning and community development. Media Lab researchers have developed educational technologies used by millions of people (especially children) around the world, and have implemented pilot projects in diverse geographical, economic, and cultural settings. In Thailand and Costa Rica, for example, Media Lab researchers have worked with remote villages, helping people learn to use new technologies to address local needs and support community development.

Membership Benefits

All Digital Nations members receive the following benefits:

- **Collaboration on Research Projects.** Members interact closely with Media Lab researchers, gaining valuable insights into emerging technologies and a head start in planning for early implementation. Through these interactions, members also ensure that their special needs and concerns (e.g., needs of rural communities in the developing world) are factored into the design and planning of Media Lab projects. Existing sponsors have found that close interaction with Media Lab researchers generates a flow of ideas and creative options that have an impact far beyond the immediate research projects, helping to stimulate and inform their own efforts to develop solutions.

- **Consultation Visits to the Media Laboratory.** Members have rights to visit all research labs at the Media Laboratory, see demonstrations of research projects, meet with researchers, and discuss the implications and applications of Media Lab research. Such visits are a good way to educate senior policy makers and senior researchers about new technologies and new methodologies.

- **Sharing of Best Practices on Action Projects.** Existing Media Lab Action Projects (such as Lincos, Computer Clubhouse Network, and Silver Stringers) have been recognized as "best practice" organizations within their fields. The Media Lab helps Digital Nations members understand the technologies and practices of these Action Projects so that they can create similar projects within their own countries.

- **In-Country Visits and Videoconferences.** Digital Nations researchers visit member countries to gain a better understanding of local projects and issues, provide advice on local projects, and raise awareness of Digital Nations ideas and projects within the member countries. Representatives of the sponsoring members can also set up videoconferences with Digital Nations researchers to discuss ongoing projects or policy issues.

- **Industrial Relationships.** The Media Lab helps Digital Nations members identify and cultivate appropriate industrial partners for technology-based projects within their countries. The Media Lab is very well suited to this task: more than 100 major companies from around the world are members of Media Lab consortia, and many of them have expressed a strong interest in collaborating with Digital Nations members.

- **Media Laboratory Fellows.** Non-corporate members of Digital Nations may have an existing Media Lab graduate student designated as a Fellow, named after the sponsoring member. This graduate student Fellow will receive full-scholarship tuition and stipend, will work on research projects of special interest to the sponsoring member, and will serve as a point of contact for personal interactions between the Media Lab and the member.

Membership Levels

There are two levels of membership in Digital Nations:

- **Basic members** receive all of the benefits described in the preceding section. Corporate members will receive intellectual property (IP) rights to Media Lab research. In lieu of these IP rights, other members (such as governments) may have a Media Lab graduate student designated as a Fellow.

Cost for corporate members:	$200,000 per year for three years
Cost for other members:	$200,000 per year for three years, with one Fellow $150,000 per year for three years without a Fellow

- **Strategic research partners** gain all rights of basic members, plus: the right to send a full-time visitor-in-residence to the Media Lab; full membership in all Media Lab consortia and special interest groups; participation on the Digital Nations Executive Committee; increased opportunities to collaborate with Media Lab researchers on pilot projects and field studies. Cost: $750,000 per year for three years.

The Media Lab actively encourages corporations, foundations, institutions, and individual patrons to support the membership of developing nations in the Digital Nations consortium.

Organizations may sponsor individual Media Lab graduate-student Fellows working on Digital Nations projects for $75,000 per year.

Board of Advisors

Jose Maria Figueres, former President of Costa Rica
Nicholas Negroponte, MIT Media Laboratory

Principal Investigators

Alex (Sandy) Pentland
Mitchel Resnick

Project Leaders

Rodrigo Arboleda, Eleonora Badilla-Saxe, Walter Bender, Justine Cassell, David Cavallo, Glorianna Davenport, Neil Gershenfeld, Joe Jacobson, Bakhtiar Mikhak, Seymour Papert, Deb Roy, Ted Selker, Barry Vercoe

For more information, please contact:
Eleonora Badilla
eleonora@media.mit.edu