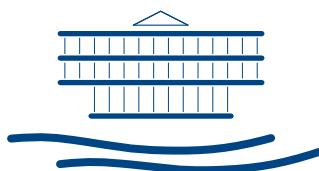




Century Literacy Summit

White Paper

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Bertelsmann Foundation



AOL Time Warner
FOUNDATION

WHITE PAPER: 21ST CENTURY LITERACY IN A CONVERGENT MEDIA WORLD

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EXECUTIVE SUMMARY

The explosive growth of technology in every aspect of society offers us a unique opportunity to engage our citizens in economic and civic life. Digital technologies have given us new and better ways to teach and learn. They have made us more efficient at work. And they are enabling us to participate more directly in the governance of our lives.

In return, they demand that we continually acquire and develop new knowledge and skills. Information and communication technologies are raising the bar on the competencies needed to succeed in the 21st century, and they are compelling us to revisit many of our assumptions and beliefs.

The focus of this White Paper is to help identify new standards of 21st Century Literacy. The Bertelsmann Foundation and the AOL Time Warner Foundation have joined with experts from education, business and government to demonstrate notable examples of 21st Century Literacy initiatives, and to recommend to various institutions how they can support individuals in taking full advantage of the tools and resources of the Digital Age.

Defining 21st Century Literacy

In this new century, information and knowledge matter more than ever, and the ability to use them effectively rests on a set of abilities that extend beyond the traditional base of reading, writing, math and science. Teachers, students, and employees – all of us – must now incorporate the following components to enhance our knowledge and critical thinking skills:

Technology Literacy: The ability to use new media such as the Internet to effectively access and communicate information.

Information Literacy: The ability to gather, organize, filter and evaluate information, and to form valid opinions based on the results.

Media Creativity: The growing capacity of individuals everywhere to produce and distribute content to audiences of all sizes.

Social Competence and Responsibility: The competence to consider the social consequences of an online publication and the responsibility vis-à-vis children.

This new concept of literacy is presenting formidable challenges in three key areas of our lives:

Education: Despite an awareness that schools and teachers must change to help students develop the necessary skills, most educational efforts fall short of achieving this goal.

Workplace Skills: Many businesses, too, lack full understanding of the need to train their employees and the implications of failing to do so.

Civic Engagement: Though governments around the world have begun delivering their services electronically, public administrations and legislative bodies must still find ways to make such services easier and more compelling to use. The public sector and nonprofit organizations must also help individuals use the tools of the Internet to engage in public policy and community activity.

While all the aforementioned institutions must engage and teach people to use the new tools of the 21st century successfully, it is ultimately the responsibility of each individual to enhance his or her knowledge and skill.



Education

Thanks in large part to digital technologies such as the Internet, we now have the means to create new learning environments in which:

- students can access information without the conventional limits of time or location;
- content is expandable both vertically and horizontally and can be customized based on students' interests, needs and capabilities; and
- instead of passively receiving information, students can redirect and redesign their learning experience by manipulating information and creating their own multimedia applications.

At the same time, we have to make certain that to take full advantage of what the new technologies have to offer:

- everyone has ready and equal access to the tools and resources that will allow them to build these competencies effectively;
- individuals appreciate the significance of learning throughout their lifetime, so they will be able to gain new knowledge and upgrade their skills as the world around them changes; and
- people develop an understanding and tolerance for the myriad differences in culture and values they will encounter as they share ideas and information across borders.


Finally, to achieve these and future goals, we recommend that schools and educational administrations set the following priorities for:

Teaching and learning

- **Acquire basics first:** We must build 21st Century Literacy skills on a solid foundation of traditional learning competencies, including reading, writing, math and science, so that students are “literate” in the broadest and deepest sense of the word.
- **Build on reading and writing – and then expand media literacy:** Students should learn to work across all forms of media with the same sense of ease and convenience.
- **Learn how to learn in the information society:** True learning requires being able to use new technologies, not simply to enhance the ability to memorize and repeat facts, but to gather, organize and evaluate information to solve problems and innovate practical ideas in real-world settings.
- **Use strategic learning:** The emergence of new technologies makes it possible to establish environments in which learning is increasingly self-directed and paced to individual needs. However, we must make certain that students have the discipline and willingness to take greater control of their own learning.
- **Open schools and classrooms:** We should also encourage students to use their new tools to share ideas both within the classroom and beyond it, and to engage in collaborative learning experiences.
- **Learn and think critically:** It is imperative that students are able to use new technologies responsibly and thoughtfully, as well as creatively. Thus we must ensure that students understand the broad implications of their actions and that they have the means to protect their safety, security and privacy.
- **Monitor progress:** The Internet and new media are driving factors in reforming our educational systems. We should monitor how the use of the Internet in classrooms makes learning easier.

Schools and education policy


- In addition to guaranteeing equitable access to new technology such as the Internet, we must find the means to adequately fund new infrastructure.

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- We also need to develop adequate pedagogical concepts, as well as effective learning software. Technology should never be used for its own sake, but should make learning more productive and more efficient.
 - If students are to learn new literacy skills effectively, teachers must first be trained to integrate new technologies, learning applications and new information sources into the core curriculum.

Workplace Skills

As new and veteran members of the work force attempt to keep up with an ever-evolving economy, they face two overlapping challenges. The first is to acquire the skills necessary to enter an increasingly digital job market, and the second is to continually improve those skills, and learn new ones, so they can enhance their opportunities throughout their working lifetime. This concept of “life-long learning” – with the help of the Internet and new media – is at the center of our thinking on how workplace skills and 21st Century Literacy interact.

Several studies suggest that workers around the world may not be keeping pace, and even during a recession, tens of thousands of high-tech jobs continue to go unfilled. Heightening the challenge is the belief among many observers that schools are failing to sustain the pipeline of employees who are adequately prepared to exploit new knowledge and skills. And circumstances do not appear to be much better in the workplace, where efforts to provide 21st Century Literacy skills are spread out across a patchwork of different approaches.



There is growing consensus that all workers should be able to:

- master appropriate tools to gather information;
- understand the context of that information;
- actively shape and distribute information in ways that make it understandable and useful; and
- exchange ideas, opinions, questions and experiences.

Moreover, existing research recognizes the importance of:

- creating databases that are always accessible to and changeable by employees;
- providing access to flexible Internet applications, such as electronic networks, diverse platforms, exchange forums and online “yellow pages”;

- using applications like “off-the-shelf” software; and
- integrating solutions that include the elements above.

While the growing need for skilled employees cuts across all sectors of the economy, surveys show that workplace training generally falls into two major categories:

- Large corporations provide the bulk of employer-managed and employer-delivered technology training through programs that include onsite classes, online courses and CD-ROM materials. Many of these programs focus on developing and enhancing specific skill sets.
- Most small and midsize enterprises rely on third-party organizations for such support, or establish partnerships with educational institutions, organized labor or state and local government agencies. Though most programs target employees, some are directed at people who are between jobs, helping them develop the skills to get back into the workforce.

As both employers and employees become aware of the importance of lifelong learning, corporations are beginning to provide workers with the means to customize and direct their own learning experiences. Several companies have adopted the “virtual university” model, which lets employees structure their training according to their needs.

Other large companies are developing Intranets that enable employees to access learning materials, share information and work in teams around common issues. In some cases, firms are encouraging employees to create their own home-pages, which they can use to identify and present themselves and to publish special knowledge that may be of value to associates.

Corporations are also forming alliances with public and virtual universities to bring in outside expertise. These public-private partnerships allow workers to share information across industries as well as across countries focusing on new practices, online teamwork and e-learning. National governments, too, should take a more active role in supporting technology initiatives by making learning opportunities available to the general population.

Several steps can and should be taken to improve employment opportunities for individuals and expand the innovative capabilities of companies. Therefore we offer the following recommendations:

- Everybody must recognize that we are becoming more responsible for ensuring the development of our knowledge and skills; and that while training is an important element of on-the-job advancement, it is also vital to the continued success throughout our working lifetime.

- Though a great deal of skills development takes place on the job, schools must make a greater effort to prepare students for the workplace of the future, in part by providing teachers with the knowledge, skills and tools to promote 21st Century Literacy.
- Companies must understand that investments in worker education are essential to their long-term ability to innovate and compete in a global economy. Moreover, such education should include the development of a broad spectrum of skills for finding, using and communicating information in all its forms.
- Policy makers must periodically review regulations regarding training programs to ensure they reflect the current needs of the market, and provide for a highly trained workforce comfortable with a wide variety of information technologies.

Civic Engagement

In our ever-changing global society, individuals, organizations and even entire nations must be highly adaptable to take advantage of the opportunities – and avoid the obstacles – that lie ahead. And we will have to constantly redefine many of the principles and practices that govern our lives.

One place to start is with our notion of what it means to be a citizen. Traditional definitions that limit people to physical boundaries no longer seem relevant at a time when ideas, capital and cultural values flow freely across borders. Instead, more and more individuals see themselves as members of communities in which they share common interests, concerns and objectives; and in which they can be connected electronically, rather than geographically.

Governments, too, are becoming more virtual, able to deliver information and services regardless of time and space. But the ability to successfully serve the public online requires more than just the emergence of new technologies. It also calls for a fundamental change in the relationship between the state and its constituents because the ultimate benefit of digital democracy is that it not only promotes more responsive government, it also arouses a more involved electorate.

Government use of the Internet to deliver information and services has expanded dramatically over the past five years, growing in some cases as much as 10,000%. In many parts of the U.S., people are using the Internet to file and pay taxes, renew driver's licenses, apply for college, order vital records and access hundreds of other government sources. These, and similar e-government services have appeal in other countries as well.

But governments must understand that e-government initiatives have an impact on every aspect of their organizations. Aside from offering information and a vari-

ety of services, they must be able, and willing, to reorganize their entire administrative systems to provide true transparency.

Even more challenging is the task of using new technologies to allow citizens to take part in the decision-making processes. “Participation” and “transparency” are essential if citizen-centric government is to work. And how well governments grasp the integration of these elements will largely determine how much value e-government brings to citizens worldwide.

Yet the responsibility does not rest solely with government. In many areas of public policy, power is shifting from institutions to individuals. Citizens are using the Internet to advocate and petition for change. They are using the same tools and techniques to communicate among themselves – citizen-to-citizen – to raise money, rally support and take action on a number of critical local and global issues.

Efforts like these are engendering a “new citizenship”, which demands an appropriate set of literacy skills to participate productively in the process of e-Democracy. But unlike the workplace, where the need for new skills is driven by market pressures, and the lack of such skills is apparent in peoples standard of living, there are few obvious incentives for people to use the new technologies to “get involved”. As a result, there is still much that both governments and individuals have to learn about digital democracy:

- Governments must involve diverse communities in the development of online services by setting up mechanisms that generate user feedback.

To enable individuals to use the tools of e-government, and to involve them in the process of e-democracy, governments should make the tools and resources easy, convenient and reliable to use.

- Involving government employees in developing new services for the public is essential.
- Incentives for technology users, such as shortened processing times for tax filings, invitations to public hearings for e-petitioners and other monetary and non-monetary benefits, can help promote public use of digital media technologies.
- But the most effective way to engage people in both e-government and e-democracy is to provide them with information, services and opportunities that are truly of value to them. Just as important, individuals must have clear indications of how their communications are being considered and processed within government.

Further recommendations include:

- Democracy, even in electronic form, is not something that can simply be delivered to the doorstep. It takes commitment from all parties involved and requires the willingness to test new ideas and challenge old assumptions.
- E-government programs must not simply provide electronic delivery of services. They must also ensure that diverse ideas and opinions are fully integrated into public decision-making processes.
- Public sector Web offerings must operate in a client-oriented manner, continually recognizing and evaluating people's preferences, and providing appropriate solutions.
- Sufficient resources must be provided to train the public in 21st Century Literacy skills and ensure equitable access to the necessary tools.
- The broad range of e-democracy tools available today should be bundled and made available to those organizations that have not been among the first generation of non-government organizations (NGOs) to use the Internet. The establishment of an e-democracy competence center can coordinate these efforts efficiently.
- There needs to be a clear commitment to strengthening non-government interest and action groups, and a recognition of the value they provide in 21st century society. It is also important to determine which public sector tasks can be given to the private sector, whether they are commercial enterprises or non-commercial entities dealing with relevant social issues.

CHAPTER I: INTRODUCTION

About the Project

We live in a constantly changing world. One in which technology plays an increasingly important role. Today, a broad range of digital technologies is making it possible to create and share information in ways that weren't imaginable just a short time ago. These powerful new tools are transforming how we learn, how we work and how we participate as citizens in a growing global community.

The digital tools of the 21st Century provide us with a unique opportunity to improve the quality of our lives at every level. But they also require new standards of literacy that forever change how we gather, analyze and communicate information. For the first time in a long time, we must ask ourselves what it means to be literate, what it takes to achieve this and how technology will play an essential role.

To provide the answers to these questions, the **Bertelsmann Foundation** and the **AOL Time Warner Foundation** have initiated a transatlantic dialogue among leading decision makers from politics, business and academia. Both foundations recognize the extraordinary opportunities digital technologies such as the Internet and multimedia present to enhance society. To this end, we are jointly focused on efforts to ensure that people everywhere acquire the skills and experience necessary to successfully meet the challenges of the Digital Age.

Our goal has been to identify and present examples of global initiatives that are addressing the need to develop 21st Century Literacy skills. We have conducted extensive research of concepts that foster such skills through new forms of education and training. These examples are also recommendations, and demonstrate that 21st Century Literacy requires a serious and ongoing commitment to truly benefit those who take up the challenge.

External research for best practice examples was conducted by renowned consultants and research institutes both in Germany and the U.S. We wish to express our deepest gratitude to the members of the Advisory Committee, who helped to develop the research design and draft this White Paper. Their input and feedback was of the greatest value to the project. Of course, they are not responsible for any omissions or errors in this White Paper (complete list of AC members and authors involved can be found at the end of the text.)

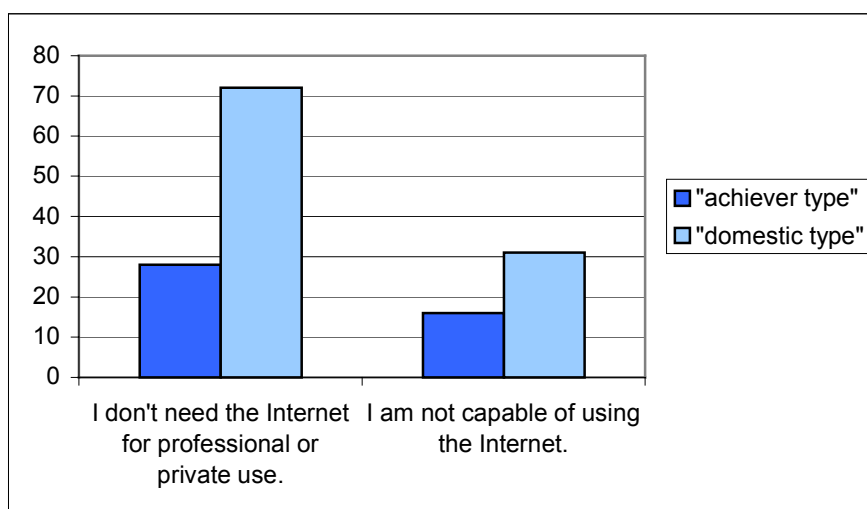
What is “21st Century Literacy”?

In the Digital Age, the distinctions among media that deal in text, sounds and images are beginning to blur. In fact, as all media increasingly define themselves in terms of the ones and zeroes of digital technology, the impact of convergence is becoming inescapable. More and more, traditional media such as television, movies, music and books are converting to formats that can be reshaped and easily exchanged across new platforms like the Internet. As they do, they are opening doors to learning that were never available before.

Clearly, 21st Century Literacy requires more than just the ability to read, write and do math and science. Though reading still requires the skill of print literacy, for example, much of the information we encounter now takes other forms, such as graph materials or moving images, or appears in new formats in databases or on websites. Yet simply being able to use a computer is not sufficient either. Literacy in this new century starts with these skills. But it also encompasses a broader spectrum of technology and critical thinking skills, as well as the willingness to view the process of learning in new and different ways.

There is still a considerable degree of reservation, however, and even anxiety, among certain parts of the population. A primary reason for this is that many people still don't feel comfortable using the Internet. A recent survey in Germany¹ of non-users reveals that more than 30% of those who describe themselves as conservative with traditional moral beliefs (“domestic type”) say they lack the ability to use the Internet. And 16% of urban, career-oriented and highly educated individuals (“achiever type”) still aren't ready to use the Internet because they lack the necessary skills. What we need then is a broad initiative to foster 21st Century Literacy.

Graph: Reasons for not using the Internet at home – examples for two life-style types (%)



Source: ARD/ZDF-Online-Studie 2001; n = 253

¹ ARD/ZDF-Online-Studie 2001, in: Media Perspektiven 1/2002, p. 22 ff.

A combination of technological, professional and societal developments is driving four key components of 21st Century Literacy:

Technology literacy: The ability to use new media such as the Internet to access information from a variety of sources and to communicate with other users in various surroundings (home, school, the workplace).


Information literacy: The ability to gather information, put it in an appropriate context, evaluate it and form opinions about its relevance and quality.

Media creativity: While the production of media content was, at one time, almost exclusively restricted to professional content providers, the Internet now enables just about anyone to produce and distribute content to both small and mass audiences around the world. This ability will become ever more crucial for individuals and communities in the 21st Century as a means to learn, do business and engage in civic activities.

Social competence and responsibility: With the growth of the Internet has come a shift in power from institutions to individuals. As consumers, constituents, students, teachers and parents, we have more control over our lives and more influence in our communities than ever before. But with that power comes the responsibility to use the new media in ways that further the best interests of those communities in which we live. In fact, using the Internet is not risk free, and there is always the possibility of not only encountering material with which one strongly disagrees but which is also deemed to be harmful or judged illegal. 21st Century Literacy includes the competence to consider the social consequences of an on-line publication and the responsibility vis-à-vis minors.

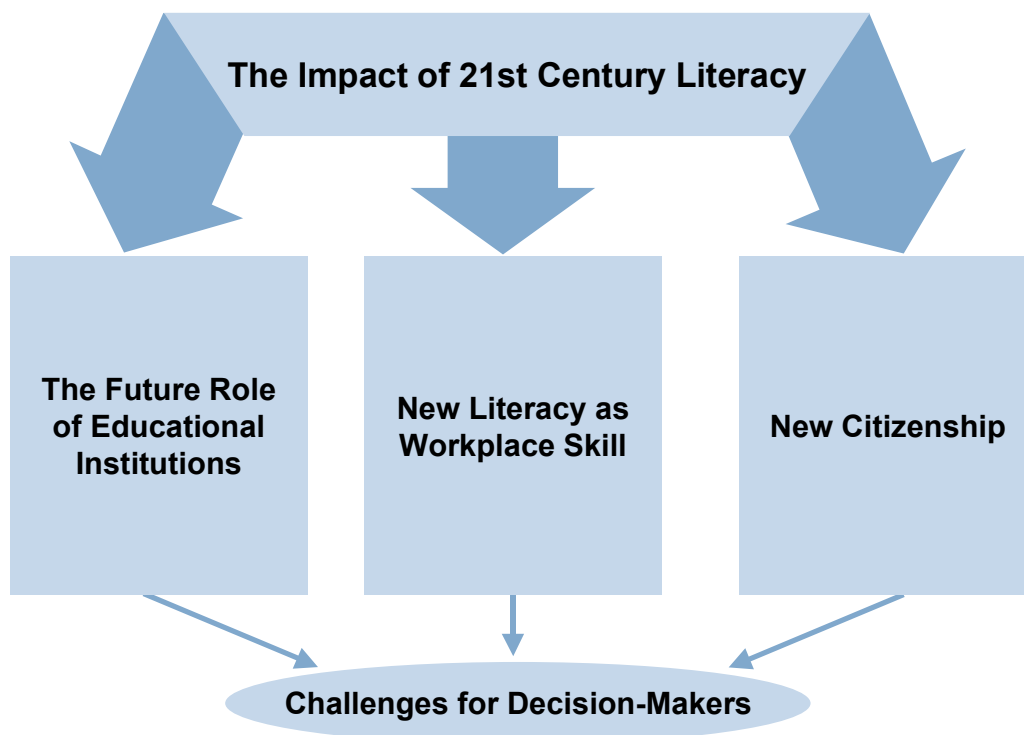
The responsible use of new media requires that users have the appropriate tools and knowledge to be able to select and filter information. It further requires an understanding of the legal consequences of online publication and a respect for and understanding of the rights of intellectual property creators and owners. Individuals also need to be responsible for taking action against illegal Internet content by using Internet hotlines.

This innovative concept of literacy challenges all stakeholders – schools, corporations and the public sector – to incorporate new systems and applications throughout their institutions with the following considerations:

 **Education:** Even though there is an awareness that schools and teachers must change if they are to equip students with the necessary skills, most of the current conceptual and financial effort is focused on equipment and software, neglecting the development of appropriate ways to convey skills.

Workplace skills: Without often expressing it, enterprises today expect a considerable level of technical proficiency from their employees. There is, however, little awareness or action with respect to the contextual aspects of 21st Century Literacy. Therefore, enterprises face considerable challenges in appropriately training their employees.

Civic Engagement: While the public sector all over the world heavily engaged in fostering the delivery of government services electronically, it is essential to ensure that this effort is consistent with the public's abilities and needs. If the Internet is to fulfill the promise of improving democracy, public administrations, as well as legislative systems, must ensure that citizen-centric e-government does not mean only putting up a website but also making access easy and convenient, and helping citizens acquire the necessary skills to use services effectively. Just as important, e-democracy initiatives must provide for and encourage new forms of communication, advocacy and problem solving throughout the population, so that every individual can be involved in determining public policy.



Ultimately, however, 21st Century Literacy concerns the individual. To be sure, educators, enterprises and the public sector must work collectively to bring the benefits of 21st Century Literacy to society as a whole. But it is the individual who provides the crucial element. Whether as a student, an employee or a public citizen, every individual must realize what she or he can gain by improving knowledge and skills, and must be willing to fully take part in all efforts to foster 21st Century Literacy.

Thus we need new initiatives, approaches and methods in nine areas (in the three *areas of education, workplace skills and civic engagement*, undertaken by *individuals, organizations – schools, companies and public administration – and the state*), illustrated by matrix below.

21st Century Literacy Actors and Stakeholders

	Education	Workplace	Civic Engagement
Public Sector	Educational Ministry, School Supervisory Body	Labor Ministry, Trade Ministry	Government, Parliament, Coordination Office/ Clearinghouse
Organization	Kindergarten, School, University	Companies, Unions	Non-governmental Organizations, Citizen Action Groups
Individual	Student, Teacher, Headmaster, Professor, Parents, Administrator	Employee, Human Resource Officer, IT Expert, Management	Every Citizen

The recommendations in this White Paper target 21st Century Literacy on individual, organizational and societal levels – from individuals to schools to entire educational systems. In other words, what should individuals, organizations and political decision makers do in order to acquire and foster 21st Century Literacy? By highlighting some promising and future-oriented models, and by analyzing the conditions under which these models can develop, we hope to give some useful input into one of the most important debates at the beginning of the 21st century.

CHAPTER II: EDUCATION

The future of education is being shaped by:

- the transition from an industrial society to an information society;
- the dynamics of globalization, mobility and pluralism;
- a higher degree of individual flexibility in combination with the need for tolerance and responsibility;
- the promotion of higher-quality and equal educational opportunities.

Ensure access for everyone

It used to be that land, labor and capital were the primary factors that determined prosperity and the potential for social and economic development. Today, however, information and knowledge are becoming the principal currencies of this new century. Consequently, citizens of the Information Age continually require new and different skills to improve the quality of their lives. They need a solid knowledge base and a constant flow of information to make routine decisions. At the same time, they must develop new competencies to compete in an increasingly competitive marketplace and participate in expanding global communities. Most important, they must have ready and equal access to the tools and resources that will enable them to build such competencies.

If as individuals and societies, we hope to keep pace with ongoing changes in technology, the economy and our social and political structures, we must have educational systems that provide everyone with the means to learn, according to their needs and capabilities, in ways that are more flexible and more on-demand than in the past.

Make lifelong learning the new standard

In this new century – which is being defined by accelerating advances in technology, expanding globalization and growing diversity – we must update our knowledge and skills regularly to fully participate in a rapidly changing society. In this context, we can no longer afford to view education as a series of separate experiences – elementary school, higher education, on-the-job training. Instead, we must engage in education as a seamless, lifelong process that begins in childhood and never really ends. Moreover, we have to recognize that opportunities for learning extend beyond the classroom – to the home, the workplace and a host of nontraditional educational institutions. And we must realize that it is largely becoming the responsibility of individuals to set their own goals and chart the course of their own education.

Information and communication technologies (ICT) can help facilitate this transition in education. The World Wide Web provides access to information from anywhere, at any time, and allows us to choose programs from among a large variety

of educational institutions. Competition among these institutions, and the increasing flexibility afforded to those who take advantage of their services, already enables people to design their own, individualized learning modules. In the near future, the number and quality of such educational programs will increase. To make the most of these growing options, individuals will have to take a more active role in, and be more responsible for the process of learning throughout their lifetime.

Cultural literacy and education

The Internet is challenging many of our most cherished notions about how individuals, organizations and even entire nations, function in global society. Indeed, as technology advances, more and more learning in the future will be based on collaboration and firsthand experiences across conventional boundaries of time and space. To succeed, learners must become aware and tolerant of the multiple cultures they will encounter online. Language skills, for example, will take on new importance in the information society, as will an understanding of national histories and customs.

Recommendations for teaching and learning

Internet technology has the power to transform education from a passive, one-way process to an exciting interactive learning experience that can connect students and teachers all over the world. It provides an open forum for sharing ideas and resources anywhere, at any time. In short, technology is a tool that makes 21st Century Literacy both possible and necessary.

If we are going to ensure that people of all ages are able to achieve new literacy skills, we must make certain we provide the means to:

Gain command of the basic skills

The foundation of all education and lifelong learning is a solid command of basic skills. Traditionally these have been reading, writing, math and science. They have always been considered necessary to enable people to develop intellectual capabilities, such as logical, creative and analytical thinking. So it is vital that every individual have a good command of these fundamental skills by the time he or she completes elementary school.

Use information and communication technologies

21st Century Literacy builds on the basic skills. However, it also introduces its own set of skills that are critical to success in the Information Age, including:

- the ability to use computer hardware and software;
- the ability to use the Internet (e.g.-knowledge of how to navigate, find information, use search engines, e-mail and workspaces);

- “visual literacy” – the ability to use both text and images to convey messages and information.

The information society relies on a broad range of media technologies. Now those technologies are beginning to converge into a single stream that can be delivered into homes, schools and offices. Traditional media such as television, music, movies and publishing will continue to play an important role, one they will share with computers and the Internet. Therefore, individuals must feel as comfortable with a PC or a mobile device as they would turn on the TV or flipping through the pages of a magazine.

A good example of the concept of cross-media-competence is the project “learning results” initiated by the **Maine department of education**. With this project, statewide standards for 21st Century Literacy were developed requiring every student in the state to use oral, written, visual, artistic and technological modes of expression; read, listen to and interpret messages from multiple sources; and find and use information from libraries, electronic data bases and other resources.

Promote learning strategies and methods

The special qualities inherent in new media will not emerge unless they are supported by new approaches in education. At the same time, new media are important tools to help implement new teaching methods. These days, it is more important for children to acquire new learning and creative problem-solving skills than to simply memorize facts. Learning competency includes the ability to identify problems, find solutions and present results. Focusing on assignments and problems through project-oriented work motivates children to learn and enhances their ability to apply the knowledge they already have. Teaching and practicing good study habits should also be part of learning how to learn.

In the course of an educational partnership between **Athens Academy and the Bertelsmann Foundation**, students were strongly encouraged to learn using all forms of media. An evaluation of the project showed the close interweaving between new media, learning behavior and performance. Media and technology enhanced the learning process and increased the magnitude of conceptual understanding. Furthermore, the students’ ability to apply their knowledge was enhanced by the use of new media, which also had a positive impact on the depth of subject knowledge.

Encourage independent, individualized learning

As children’s personalities develop, it is imperative that they are able successfully chart their own educational course. This task requires a desire to succeed. **Elementary school students should be encouraged to be self-directed, and they should learn systematic work habits and self-discipline.** The interactive aspects of today’s multimedia make it possible for children to follow their own path to learning, to determine their own learning methods and pace, and to organize their own learning process better than ever before.

Teach students to cooperate and communicate

Given the complexity of the problems and challenges we face today, it is essen-

tial that we cooperate with each other at all levels and across national borders. This means we must all have the desire and aptitude to be team players and good communicators. We need the social skills necessary to communicate in person, as well as in situations where we do not share the same time or space with others. The Internet is all about the latter form of communication. It makes it possible for schools that are geographically scattered to exchange information and maintain partnerships. Workspaces give schoolchildren an opportunity to become acquainted with new forms of collaboration, such as the kind of project-related teamwork that will play an important role in their future professional lives.

Make learning practical and problem-oriented

The mercurial nature of our global society makes keeping up with myriad changes a priority for education. We must build “learning communities” that extend the learning environment beyond the walls of the classroom. One way is through interaction between academia and the working world. Another is to make learning more dynamic. Using the Internet, we can bring the outside world to the classroom and make authentic, relevant problems the starting point of exploratory and productive learning. This will let students apply what they learn in class to practical situations.

The **New Tech High School** in Napa, California, has shown how a school can build its curriculum around a model of “project-based learning.” Students present technology-based projects that incorporate websites or PowerPoint presentations combining digital photography and original text. In order to graduate, all students must complete courses in New Media; demonstrate technical competencies across a range of software applications, and build, maintain and present a web-based digital portfolio that demonstrates their proficiency.

Develop competency in dealing with information

The rapid dissemination of information across the Internet facilitates access to a new digital universe of knowledge. Dealing with this abundance of information is a skill that must first be learned. We must teach children to effectively navigate the online landscape to find relevant information, and to organize, evaluate, distill and use this information productively. To get their bearings, children must know both their current position and their destination, they must recognize signs and landmarks, and they have to be able to chart a course. Children should be taught at an early age to search for specific information by comparing and analyzing different resources and narrowing them down.

Learning to deal with information is one of the essential strategies required in 21st century literacy, and it occupies an important role in many curriculums developed in the U.S. Two examples are particularly noteworthy: the initiative “**informationpower**” was developed and is being distributed through the American Association of School Libraries and **Big6**, a project in the state of Washington. In this context, skills for dealing with information are searching for and evaluating information, creating information, communicating and collaborating effectively, and honoring social and ethical considerations in the use of information and communications tools.

Increase students' sense of responsibility in dealing with new media

Today, the Internet works because it removes physical barriers, so that information can be shared, communities can be established and transactions can be carried out regardless of geographic boundaries. Our legal systems, on the other hand, are built and practiced within these boundaries, and the differences among them can be daunting. If we do not want government regulations to determine what we can access on the Internet, we must all learn to take responsibility for what we do online. Thus we must exercise common ethical values, accountability and consideration for others. We must also see to it that these qualities are applied when shaping the future of the information society-both technologically and culturally.

It is up to our schools to teach students to use media responsibly, thoughtfully, critically and productively. If we expect our children to use new media discerningly, they must learn to read various symbolic languages, such as the pictorial language of the media. They must also learn to decipher the aesthetics of the media, to evaluate and classify media messages, and to deal with the important impact media have on politics, culture and society.

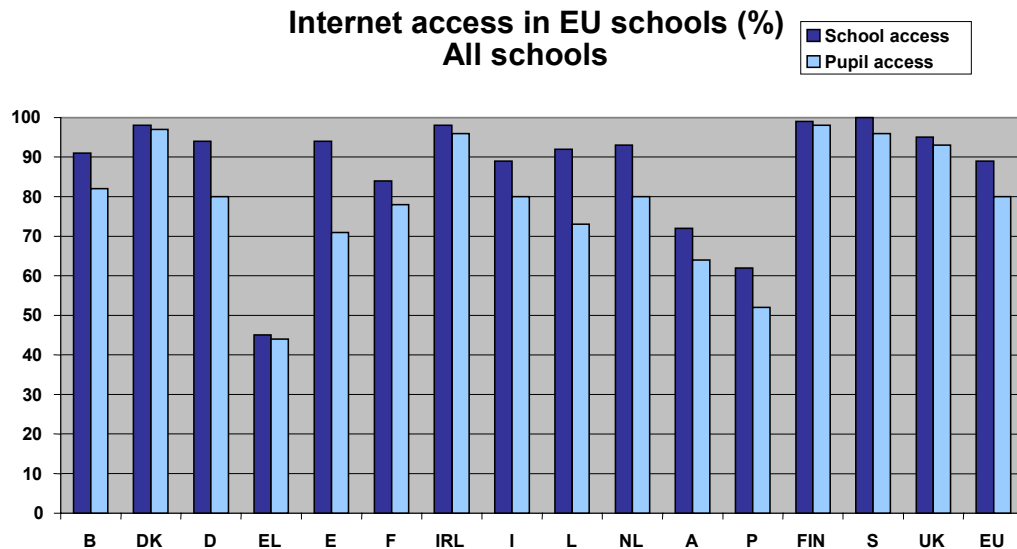
While digital technologies make it easier to download, duplicate and distribute all kinds of information, young people must learn to respect the rights of content creators. Schools should teach the fundamentals of principles of copyright and fair use to enable students to recognize when they are unfairly infringing on the work of others. The Groton School District in Connecticut is one of the few that educate students about copyright starting in kindergarten.

In addition, students and their parents must be given the resources to ensure their privacy, safety and security. With tools that enable them to customize their children's online experiences – based on a child's education and maturity – parents can make the appropriate adjustments as both their children and the Internet grow.

Recommendations for schools and education policy

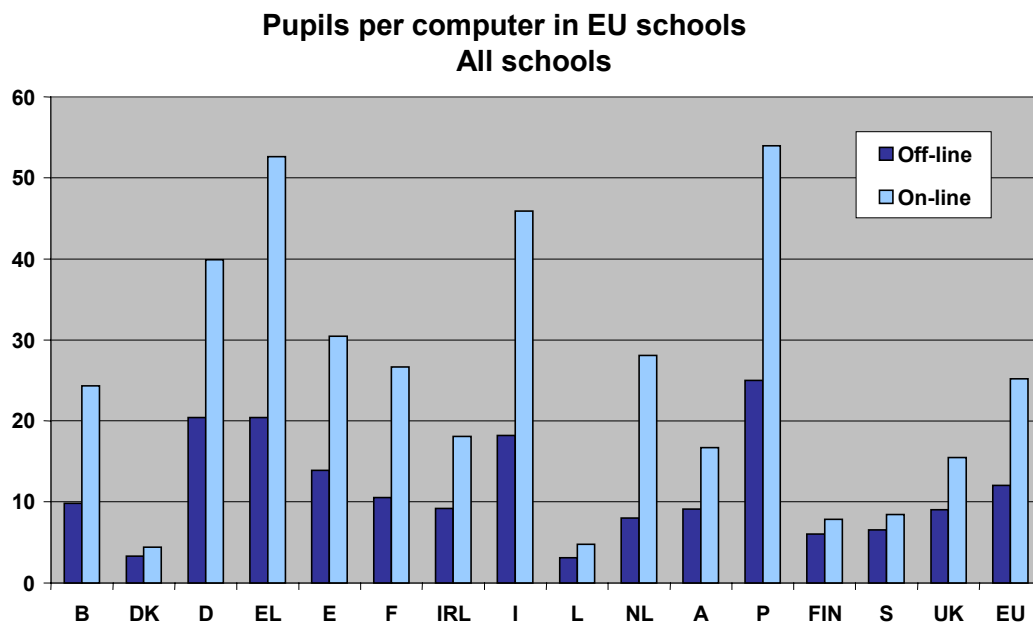
Provide sustained availability of media – and facilitate necessary funding

In Europe the number of schools connected to the Internet has increased significantly (see table below).



Source: Commission of the European Communities: Benchmarking – European youth into the digital age. Brussels 2001.

But a problem still remains with hardware. In the EU there is on average, one computer with Internet capabilities for every 25 elementary school students. There are huge differences, however, among individual member states, ranging from four to 50 students per computer (see table below).



Source: Commission of the European Communities: Benchmarking – European youth into the digital age. Brussels 2001.

In the U.S., there are an average of seven students per computer, and more than half of all classrooms already have Internet connections. This discrepancy among nations and schools indicates that the tools of 21st Century Literacy are still not regularly available everywhere.

If we want to take full advantage of new educational options and avoid social segregation, we must ensure that all children have equal access to the Internet from their schools in the near future. Laptops and PCs should be distributed faster than is currently the case, so they are available to all children within five years. By then, every classroom should be connected to the Internet.

Furthermore, we must build consensus between governments and the private sector for the purpose of providing new public infrastructures that are readily available to the entire population, and to guarantee the delivery of vital information and communication services. With balanced funding, to which all participants – even parents – contribute, all children can have equal access to the Internet.

In a unique nationwide project conducted in partnership with the **Bertelsmann Foundation** and **Toshiba**, seventh grade school children at the **Evangelisch Stiftisches Gymnasium** in Gütersloh, Germany were provided with laptop computers. A novel financing model was developed for the laptop project. Toshiba subsidized the price of the computers, while the Bertelsmann Foundation agreed to finance the infrastructure and Microsoft offered special conditions for licensing software. Parents agreed to pay a low monthly rate for four years, which covers the software and insurance for the laptop.

The project “**patchwork**” shows how the challenges of the digital divide can be met in a poor community. **Computers for Youth**, an independent nonprofit organization in New York City, launched a comprehensive approach to computer access that provides low-income children in the Bronx with home computers along with training for the children and their families.

Train teachers

Teachers with solid technology competency are key to successful integration of new media in our schools. But a study by the Bertelsmann Foundation found that fully media-competent teachers are still rare. Only 15.5% of teachers in Germany use the Internet for classroom instruction. In the U.S., the percentage is 53% (see table below).

Percentage of teachers who report using computers or the Internet for instruction and the percent assigning various uses to students to a moderate or large extent: 1999

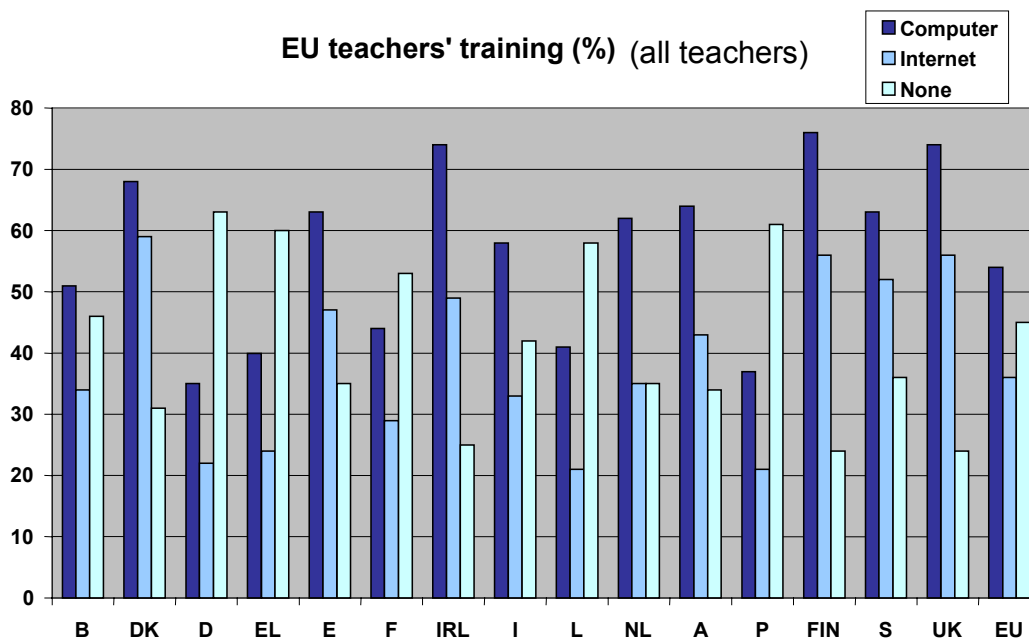
Teacher uses for classroom instruction	Teacher assigns to a moderate or large extent								
	Computer applications	Practice drills	Re-search using the Internet	Solve problems and analyze data	Re-search using CD-ROM	Produce multi-media reports/projects	Graphical presentations of materials	Demonstrations/simulations	Correspondence with others
53	41	31	30	27	27	24	19	17	7

Source: U.S. Department of Education, National Center for Education Statistics, *Teacher Use of Computers and the Internet in Public Schools, Stats in Brief, April 2000 (Table 2)*.

Though vision and leadership are indispensable for turning technology into a useful educational tool, teachers need support to successfully bring technology into the classroom. Unfortunately, too few are adequately equipped to prepare teachers to use technology effectively. The result is that many teachers under use the technology that may be available to them.

According to a U.S. Department of Education report published in April 2000, less than a third of all teachers in 1999 reported assigning students projects that required critical thinking skills, such as the ability to “solve problems and analyze data” (27%) or conduct research using the Internet (30%). On the other hand, 41% of teachers reported assignments focused on learning specific computer applications.

As a new generation of teachers takes over, technology competency must become a mandatory part of teacher training. This is especially important in Europe, where, on average, only 45% of teachers are qualified to teach with the Internet. There are, however, major discrepancies between the European countries (see table below).



Source: Commission of the European Communities: *Benchmarking – European youth into the digital age*. Brussels 2001.

In keeping with the principle of lifelong learning, continuing education for teachers must become an integral part of the teaching profession. Extra attention should be given to training teachers using new media in the development and evaluation of software and media content.

In the U.S., for example, the National Education Technology Standards Project (NETS) has developed standards for teacher training, classroom teachers, students and administrators that have been adopted by many states. NETS is funded by the U.S. Department of Education, the International Society for Technology in Education (ISTE) and a consortium of organizations representing major

professional education groups, government agencies, foundations and corporations.

If education is a decisive factor in our society's future, the teaching profession must be valued more highly, and teachers must be offered training to prepare them for the future.

Use media integration for school development

In the future it will be as challenging and costly for schools to integrate new technologies, as it will be for midsize companies.

Effective technology integration will depend on the

organizational and management capabilities of each individual school. To successfully integrate technology, schools will need to be able to do the following:

- Technology integration will have to be centered on overriding educational and subject-related criteria.
- 21st Century Literacy must be established in all subjects and grades.
- Schools must have systematic IT planning and effective project management.
- Individual schools will need to evaluate and document their own development as a means of improving quality and accountability.
- Schools must cooperate with parents and external partners.

It should be noted that schools will also need more time, staff and money to successfully accomplish these tasks. The U.S. Department of Education's Preparing Tomorrow's Teachers to Use Technology (PT3) program supports teachers who still feel uncomfortable using technology in their teaching. Since 1999, PT3 has awarded more than 400 grants to

Other good examples of nationwide teacher training programs include the following:

In Sweden, a large-scale initiative includes: in-service training for 70,000 teachers in teams, a free computer for participating teachers, state grants to improve the school's accessibility to the Internet, e-mail addresses for all teachers and pupils, support for developing the Swedish / European Schoolnet, measures for pupils with special needs, and awards for excellent pedagogical contributions

The Teacher Training Agency (TTA), part of a large-scale IT-competence schema for teachers in U.K., has trained more than 200,000 teachers to date. All of the 300,000 teachers in the U.K. are going to take part in teacher training programs on the use of multimedia in schools by 2004. The government is currently setting up a program providing each headmaster in England with a multimedia portable computer with access to the Internet and software.

Intel Teach to the Future is a worldwide effort to help teachers integrate technology into their classrooms to enhance student learning. Available throughout the United States and in 24 countries, Intel Teach to the Future will have trained more than 500,000 teachers worldwide by the end of 2002. In Germany this program has been adopted by public teacher training institutes and has been one of the most successful IT teacher qualification schemes. More than 60,000 teachers have been trained in this program so far.

The Blue Valley School District, Overland Park, Kansas has integrated the use of technology throughout the curriculum rather than provide separate courses or training. Instead, all programs and all faculty are expected to integrate technical, information, and active literacy components starting with the youngest grades. The district-wide standards are a good example of effective technology integration throughout the curriculum, effecting the educational experience of all students.

education consortia that are working to transform teacher preparation programs. PT3 grantees are developing models, tools, support and incentives to help faculty make the change to technology-infused teaching, both within schools of education and throughout the campus.

Organize regional media development planning

On their own, individual schools cannot make all the educational, technical, financial and managerial decisions that effective and cost-efficient implementation of new technologies requires. Equipping schools with the latest technology, establishing servicing agreements, developing financing models, training teachers, developing curriculum and educational institutions and providing for quality assurance must be included in a planning process that includes all key players, including schools, school administrations, parents and supporting companies at a regional level. Regional alliances are the only way to make better use of resources to encourage cooperation and reduce costs.

Union City is a model example of the integrated use of rich technology resources with comprehensive school reform. The district incorporated changes in the curriculum with the deployment of more than 2,000 computers to link schools, libraries, and teacher and student homes. The program includes substantial efforts to provide technical training to both teachers and students, including a for-credit summer course and technical training seminars that used local technology expertise.

Another example of forging new partnerships is the project "Intel Computer Clubhouse" created by a professor at MIT in collaboration with the Museum of Science in Boston, Massachusetts. The Clubhouse provides a structured setting, outside of school and the resources, materials, and tools for young people to develop media projects. Intel is looking to establish 100 of these clubhouses in the U.S. and abroad.

Provide continuous quality assessment and performance transparency

States, regions and schools must continually reassess their strategies and goals, as well as their methods of implementing technology integration. Additional resources must also be set aside for evaluating programs and results. Moreover, universities should be persuaded to conduct practical, long-term research on classroom instruction and school development that will provide information about the effects of new technologies in education.

The guiding principle in school development through new technologies must be to constantly promote quality in education and vocational training. This will require a new level of quality consciousness and new ways of assuring quality. For educational institutions, this means setting teaching and learning goals, evaluating structures and results, comparing performance and increasing transparency for parents, students and the community.

The following are several examples of how these goals are being accomplished:

The project "EnGauge", developed by North Central Regional Educational Laboratory (NCREL) and the Metiri Group (an independent consulting group special-

izing in technology in education,) is a good example of how new forms of evaluation can be established alongside curriculum development. The framework identifies system-wide factors considered critical to the effective use of technology for student learning, and indicators that can be used to measure each. Factors include shared vision, effective learning and teaching practices, educator proficiency, Digital-Age equity, robust access and effective systems and leadership.

The Middle States Association of Colleges and Schools is going one step further. They developed standards that all degree-granting institutions must meet if they are to be accredited. Consequently, these colleges and universities must design their curriculums so that students acquire and demonstrate college-level proficiency in general education as well as essential skills, including technological competency and information literacy.

In Europe, examples of standards of quality assurance for 21st Century Literacy include the following:

- The Qualifications and Curriculum Authority (QCA) in Britain is a guardian of standards in education and training. The QCA works with other government agencies to maintain and develop the school curriculum and associated assessments, and to accredit and monitor qualifications in schools, colleges and at work.
- In Denmark a consortium consisting of the Danish Ministry of Education, the Danish Pedagogical University, Center for Technology-based Education (now Learning Lab Denmark) and the Danish Broadcasting Corporation developed a Pedagogical ICT Driving License – a course concept providing tutors with basic personal and pedagogical ICT skills.
- France has developed the IT and Internet proficiency certificate (B2i) which is designed to validate the standard reached by pupils in their use of multimedia tools and the Internet. The B2i certificate exists on two levels: level 1, which mainly involves primary education; and level 2, which concerns middle school pupils and pupils in second (fifth form).

Recommendations for Further Research

Promote empirical research on media integration in classrooms and schools

There must be a significant increase – at the state and national levels – in efforts and allocations for research on successful teaching and learning methods using new technologies. Empirical data are needed that will reveal how new media help students to better reach their education goals, under which conditions, in what time frame and at which schools.

Develop new methods of evaluating performance

If 21st Century Literacy and basic skills are two of the top goals for education, then this must be reflected in the evaluation of student performance. This will entail the development of new evaluation standards and criteria as well as instruments and methods.

Establish new alliances in software development

The development of software that effectively enhances the use of technology in education is still in its very early stages. And to ensure that new educational software can be effective, schools and companies must work together closely to develop and test educational technologies.

Use benchmarking, best-practice documentation and networks as strategies for innovation

States, regions and schools should work together with universities to develop benchmarking criteria and to document and disseminate best practices for media integration. The Internet is an essential tool for this collaboration. The goal must be to create educational servers with information and communication forums for students, teachers, school administrators and parents, thereby creating networks among lead innovators that will accelerate the innovation process.

CHAPTER III: WORKPLACE SKILLS

Since the early 1960s, the financial foundation of Western nations has been shifting from an industrial economy to an information-based economy. During that time, both the number and percentage of manual laborers in the work force have declined steadily, while jobs requiring the ability to handle, process or produce information have flourished. Forty years ago, management scholar Peter Drucker coined the terms “knowledge work” and “knowledge worker” to help define the transition, and they have stuck ever since.

Of all the world’s developed nations, the U.S. has the smallest share of factory workers in its labor force – just 15%. In Germany the proportion is higher – about 25% – but it too is shrinking. “The only fast-growing group in the work force – in America and in every other developed country,” notes Drucker, ‘knowledge workers’ – people whose jobs require formal and advanced schooling.”² They currently fill one in every three jobs, and are apt to account for as much as 40% of the total work force of developed countries within 20 years.

At the same time, we are witnessing an increasing reliance on digital technologies in businesses and other organizations. The developments have been dramatic. According to *Nothing but Net: American Workers and the Information Economy*, a recent study prepared by scholars at Rutgers University and the University of Connecticut:

“Computer use is now routine among American workers and a large part of their daily work life. The majority (68%) of workers uses a computer every day and has access to a computer at home. On average, the American worker spends 35% of his/her workday (three hours) on the computer and 23% of his/her workday on the Internet.”

Projections from the U.S. Department of Labor Statistics show that between 1996 and 2006 the nation’s high-tech and related employment will grow more than twice as fast as employment in the economy as a whole. By 2006, high-tech employment is expected to account for 15.8% of total national employment.³

Yet there is also considerable evidence that many American workers are ill prepared to meet the needs of the 21st Century economy. Despite the current recession, the nation is still producing thousands of service and information technology (IT) jobs that go unfilled. Research last year by the Information Technology Association of America found that as many as 400,000 IT jobs remained vacant at the end of 2001.⁴ A recent study by the research and advisory firm Gartner, Inc.,

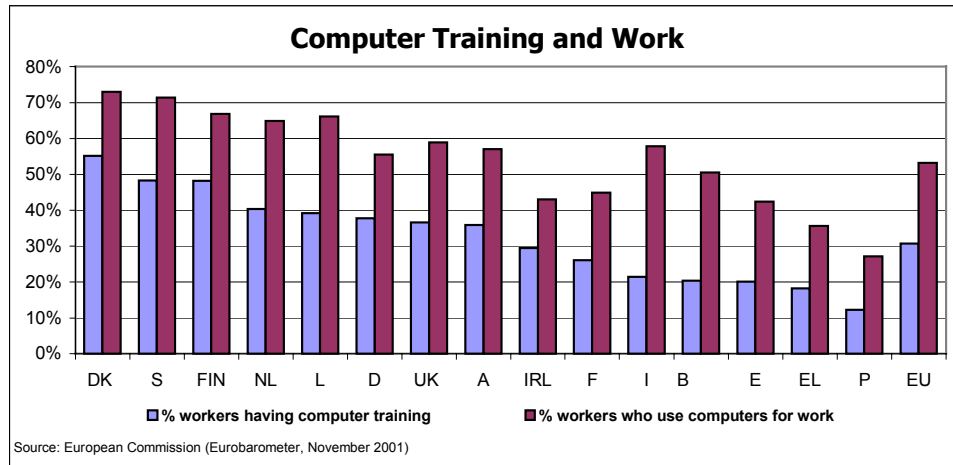
² The Next Society; The Economist; November 3, 2001; p. 8

³ High-Tech Employment: A Broader View by Daniel Hecker; Monthly Labor Review, June 1999

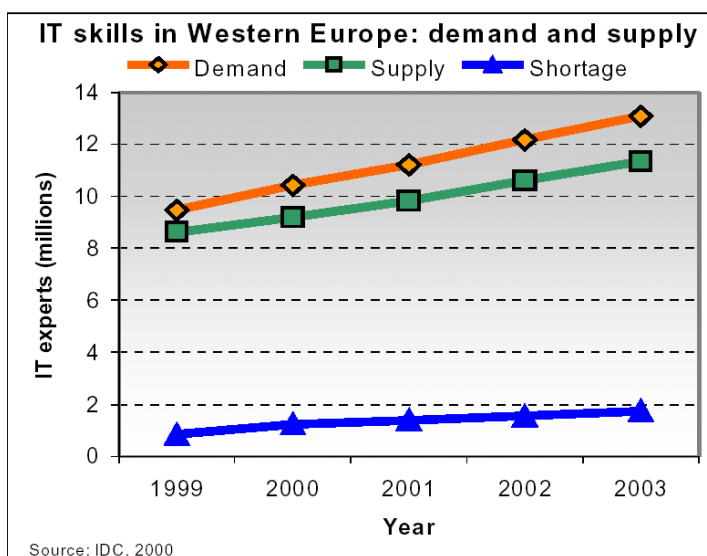
⁴ When Can You Start? Building Better Information Technology Skills and Careers; April 2001

concluded that 87% of state governments and 80% of local governments in the U.S. are suffering a “critical shortage” of IT staff.⁵

At the same time, the *eEurope Benchmarking Report 2002* shows that more than half EU workers use computers in their jobs, and that this has grown by about a fifth since 2001. Three out of four white-collar workers are computer users. However, only a third of the EU work force has ever had computer training. There are marked differences between the Member States in the portion of their labor force that has received computer training. Moreover, in every Member State, the proportion is far lower than the proportion using computers in its work.⁶



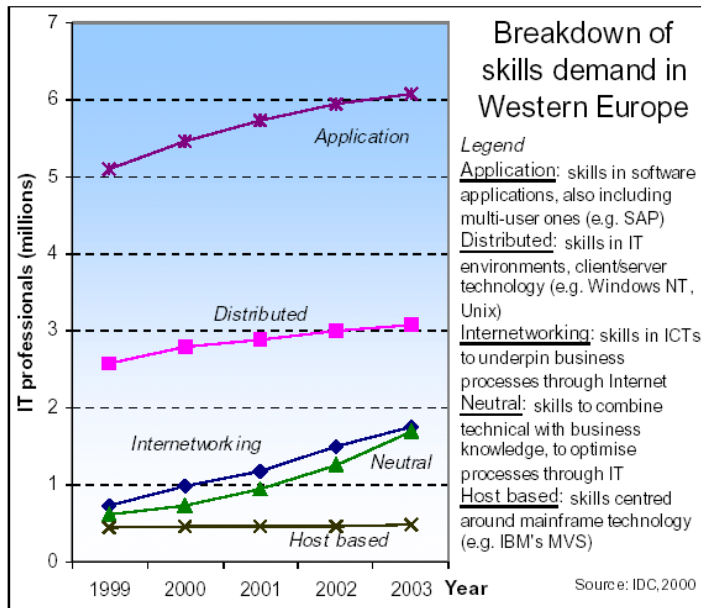
According to a study by the Commission of the European Communities, the overall demand for IT skills in Europe is expected to grow from 10 million to 13 million. But supply is not meeting demand, with up to 1.7 million jobs going unfilled. The increased demand for experts is highest among those with IT skills that have general applicability across the economy – like knowledge of software applications, networking and business process management.⁷



⁵ Public-Sector IT Staffing Survey: Shortages Persist for State and Local Governments; January 29, 2002

⁶ Commission of the European Communities: *eEurope Benchmarking Report eEurope 2002*, February 5, 2002; p. 11.

⁷ Commission of the European Communities: *Benchmarking Report following-up the “Strategies for jobs in the Information Society [with the support of the High Level Group “Employment and Social Dimension of the Information Society” (ESDIS)]*; p. 10 and 11.



Adding to the overall problem is the perception that schools are not teaching the necessary skill sets. According to a recent U.S. survey commissioned by Bayer Corp. and in cooperation with the National Science Foundation, new employees in America's work force and their managers say that today's workers need special skills to manage continuing change in the workplace. Both groups also believe that students in schools today may not be adequately prepared for tomorrow's job opportunities, and they will face increasing competition from countries where citizens have stronger science and math literacy skills.⁸

These and other data suggest that efforts to promote 21st Century Literacy will probably expand over the course of this decade. Public and private sector leaders, for their part, agree that the development of new workplace skills is a national priority. Nonetheless, the outcome is anything but certain. Work-force education is still delivered unevenly. It often remains the responsibility of individuals who are interested in their own career advancement, and generally focuses on people between jobs. Initiatives to ensure the availability of appropriate training the digital technologies remain a patchwork at best, despite the fact that such training is widely believed to be significantly beneficial to the welfare of individual workers, their employers and the economy as a whole.

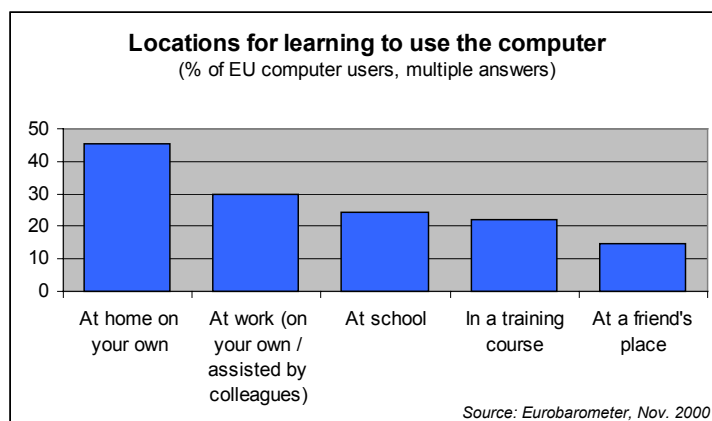
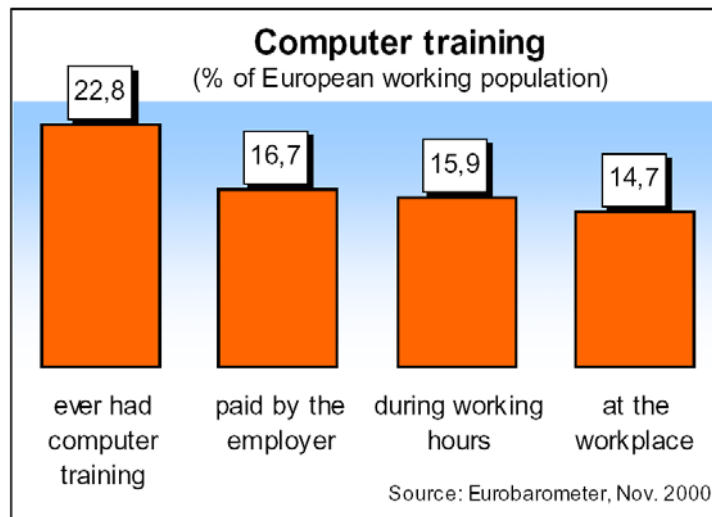
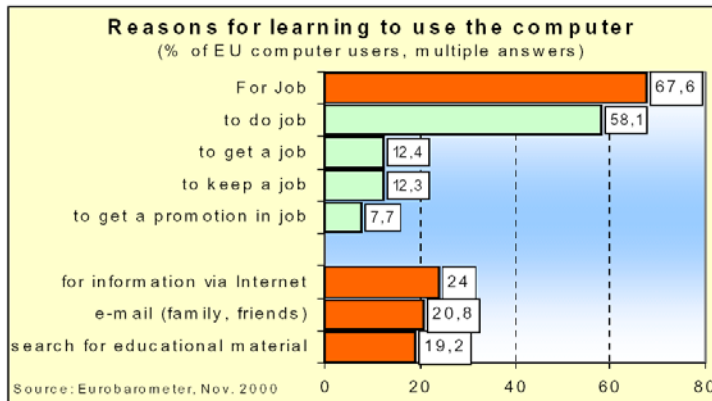
The current state of workplace technology training

Among the most important reasons to learn basic IT skills are to do, get, keep or improve a job.

While 81% of all companies in the U.S. provide some type of formal training for their employees, IT training tends to be prominent in two areas. Not surprisingly, companies in the technology sector readily provide IT training to their employees. And firms that have made significant investments in information technologies are more likely than others to train workers to use these new tools.

⁸ The Bayer Facts of Science Education VII; April 23, 2001

According to the *Benchmarking Report Following Up the “Strategies for Jobs in the Information Society”* of the European Commission, only 22% of European workers have ever had computer training for their job; and only 16% of the workforce has had training paid for by an employer. In sharp contrast to the high level of usage of computers for work, most workers have to learn how to use a computer on their own (see tables below).⁹



There is, however, little evidence to date to imply that even these efforts rise to the level imagined in the definition of 21st Century Literacy. What’s more, it appears that the bulk of this training is geared to achieving competency in specific

⁹ Commission of the European Communities: *Benchmarking Report following-up the “Strategies for jobs in the Information Society”* [with the support of the High Level Group “Employment and Social Dimension of the Information Society” (ESDIS)]; p. 3, 7 and 8.

software applications or the maintenance and administration of new hardware. At the start of 2002, for example, corporations such as IBM, UPS and the Onstar Communications division of General Motors were specifically looking for workers with technology skills to support internal infrastructures and new communications software products.¹⁰

This pattern also underscores the point that large employers more often provide technology training. National surveys of workers and managers consistently show that large organizations provide formal training more frequently than do smaller ones.

That is not to say that employees in small and medium-size enterprises (SMEs) have little or no access to training. But it is more likely to be provided by intermediaries or third-party organizations. Sometimes SMEs create regional or industry-wide training consortiums that may work in partnership with educational institutions, state or local governments or organized labor. Independent for-profit and nonprofit training organizations, as well as community colleges, play significant roles in the delivery of this training.

States and some larger cities have sponsored training programs for the unemployed to enhance their ability to get jobs that require basic technical competencies. In the U.S. the federal Small Business Administration's "Small Business Development Centers" deliver training and technical assistance in all aspects of small business management. And the Workforce Investment Act created a comprehensive national investment system to help unemployed and underemployed workers access the information-technology tools they need to develop and manage their careers.

It seems apparent then, from these several examples, that efforts to provide 21st Century Literacy skills are still largely limited to improving basic, and often specific, technical proficiencies in everyday business life. These include the use of computers, the Internet, operating systems and certain software applications. It also seems evident that companies expect employees to have such general technical skills before they start working for their firms. At many companies, complex capabilities are not especially high on their agendas even if they require employees to use a wide range of technical equipment.

Consequently, while empirical evidence suggests that the ability to use new technologies effectively

will become increasingly important as larger segments of the population become knowledge workers, there is still more research to be done to demonstrate con-

"The new digital technologies are major drivers of change in our economies and societies. Radical changes put enormous strains on all constituents. Paradoxically, the same technologies causing the transformation, help us to find new responses to cope with accelerating change – e-learning being a major innovative approach. Yet, only with full consideration of the human factors involved in pedagogy will e-learning get to its full potential – the blend of traditional wisdom and new technologies will help us to make real progress."

Dr. Richard Straub, IBM

¹⁰ *Hiring at America's top 10 employers*; CBS MarketWatch.com; January 2, 2002

vincingly the value of 21st Century Literacy skills – to both employers and employees.

Goal: getting employees actively engaged with new technology

Still, there is a growing number of companies that have a special interest in encouraging employees to become more actively engaged with new technologies. They recognize the advantages of having personnel who can work “smarter” by using media technologies to access information and content, share tacit knowledge and experience within groups, and actively search for and select, organize, evaluate and communicate information in a variety of formats within and outside their organizations.

In the course of our international best-practice research, we have identified knowledge management projects that do fit the criteria of what we believe the term 21st Century Literacy implies, and they share several common standards, including employees’ abilities to:

- master appropriate tools to gather information that is valuable to their companies and themselves;
- understand the context of the information and discern its veracity, accuracy and usefulness;
- actively shape and distribute information in ways that make it understandable and useful to others; and
- exchange ideas, opinions, questions and experiences within working groups, larger organizations and virtual communities.

Some of the practices companies have adopted to realize these goals include:

- Creation of databases, at best, accessible to and changeable by employees, “anytime, anywhere”.
- Access to flexible Internet applications, including electronic networks, diverse platforms, exchange forums and online “yellow pages”.
- Use of applications such as “off-the-shelf” software bought from outside providers.
- Integrated solutions incorporating elements from each of the above.

Though few companies think it is necessary to give employees explicit explanations or introductory seminars on the importance of 21st Century Literacy, addressing this issue, within both traditional and new learning environments, is another essential means of engaging employees. Such considerations have been the basis for selecting projects we have defined as being “good” or “best-practice” examples, and which can be found in Appendix 3.

Diverse approaches to workplace training

Workplace training generally falls into two basic categories: 1) employer-managed and employer-delivered programs, which are usually offered by larger companies; and 2) programs that provide training outside the workplace, with the support of a single employer, a group of employers or a government agency.

Employer-managed/employer-delivered training

At telecommunications company BellSouth, all management, professional and administrative employees are expected to maintain and regularly upgrade their 21st Century Literacy skills. This is vital, because their jobs increasingly rely on their ability to use a variety of digital tools. Employees can choose from among three training options – classes, online courses, and CD-ROM materials – and are fully responsible for staying current.

Highsmith, Inc., a medium-sized catalog marketer to schools and libraries, based in Wisconsin, takes a very different approach. Employees have access to a generous package of training and education opportunities in many areas, and some basic technical training is available. Highsmith once considered creating a company-sponsored information literacy program, but chose not to. But the firm employs a very active corporate library staff that takes the initiative in serving employees' information needs. This model makes 21st Century Literacy skills available to all employees, on demand, at a very high level, without having to train all employees in those skills.

Third-party service providers

Many IT training programs in the U.S. are not supplied by employers, but by third-party service providers – both for-profit and nonprofit. The financial and human resources required to design, develop and administer training programs are generally beyond the reach of small or medium-size businesses. One alternative is for companies in a region or a particular industrial sector to share the costs through a consortium or jointly funded model. Another approach, which is used by the state of California's Employment Training Panel, involves taking a small portion of the state's unemployment fund to support training opportunities for employees of even the smallest companies.

BAVC, a San Francisco nonprofit media arts organization, employs yet a third model. The types of training BAVC provides to members of the media arts community have much wider implications in an era of converging media technologies. So, with support from the City of San Francisco, the organization initiated JobLink, a workforce readiness program that offers low income and unemployed individuals the digital skills needed to compete for jobs that require fluency in media technologies. BAVC's record of placement has been excellent, and has been recognized nationally by the U.S. Department of Housing and Urban Development, among others. Other organizations, such as CitySkills in Boston and OpNet, also in San Francisco, provide similar services.

This model, which focuses on people who are between jobs rather than on those who are employed, is an important part of the training landscape. But in this case, it is the individual who is responsible for obtaining training.

Corporate virtual universities

A critical factor in the development of 21st Century Literacy skills within many companies is the need to encourage and enable employees to pursue lifelong

learning. Here too the emphasis is on self-directed learning and responsibility on the part of individuals to further their own education. Fundamental to success is the ability to provide options that can be adapted to individual learning styles, including anytime-anywhere access, learning communities, training centers and corporate universities.

One option that has been adopted by many companies worldwide is the IBM model. **IBM**, a company long committed to education and training, has established a virtual corporate university – the IBM Global Campus¹¹ – that is an international training center based on a network learning platform.

Through the IBM virtual university, employees can plan and structure their training according to their needs, interests and the speed at which they want to learn. Courses can be taken either on the job or from home, or anywhere else without regard to location or time. Under these circumstances, work and learning are closely integrated. Furthermore, the program offers a variety of communication channels, including computer conferencing, chat and e-mail. There are online tutorials and exams, and employees are required to actively participate in virtual communities, where they can discuss what they are working on and find help with questions and problems that arise.

Apart from its financial benefit – the program saves millions of dollars a year that were previously invested in outside training – the virtual university also plays a major role in the re-qualification of employees. Most important, it helps IBM stay competitive in a global economy, where companies can no longer afford to rely on traditional learning environments. Learning content can be continuously updated and presented in flexible formats, offering cost-effective training for new and existing employees, and promoting teamwork among international groups of learners.

Another company committed to the educational needs of its employees is **Alcatel**. The company has set up an international Web-based virtual university to enable workers to update their knowledge and participate in a convenient and continuous re-qualification process.¹² Alcatel University offers a variety of courses that are supplemented by communication and exchange facilities to assist in creating virtual communities of practice and establishing social settings. But the company also recognizes the continuing value of traditional learning methods, and the importance of in-class work in “real” face-to-face social settings.

Employee involvement and active participation

Programs such as virtual universities enable companies to network large numbers of employees who can communicate, share ideas, work in teams and, ultimately, learn from one

“There is danger in considering media literacy to be an end in itself. It is not. If you lack the literacy skills of the 20th century, you won't be able to acquire those of the 21st.”
Larry Irving, Irving Information Group

¹¹ IBM, international company and scope, IT-branch

¹² Alcatel Virtual University: Alcatel NetCampus, BE, international scope, branch: telecommunications

another across both time and space. Their tools may vary – including knowledge banks, database facilities, e-mail, chat, online forums, video-conferencing and electronic blackboards – but they all require that employees play active and collaborative roles in shaping the experience, and organizing it in ways that are highly creative and personalized.

Particularly noteworthy is **BP Amoco's** "Connect" Virtual Team Network, with its international scope. In addition to a PC network, BP has built an Intranet that contains an expanding number of personal homepages. In fact, every employee at BP has the opportunity and the authority to create such a page. General managers of all business units use their homepages to post current projects and performance agendas. Employees are able to identify and present themselves with the help of photos, journals, curriculum vitae and descriptions of their interests and areas of expertise. They can also publish special knowledge that may be of value to associates. And all homepages can be linked to other sites.

Older employees are especially supported and encouraged to participate, and BP offers tutoring and desktop coaching. This way, the company hopes to engage both younger and older staff in an ongoing exchange of ideas that help close gaps between generations and benefit everyone.

In developing training programs for 21st Century Literacy skills, "the sooner, the better" is an effective precept, and techniques such as self-directed learning and self-evaluation can be introduced early in the process. Employees quickly become accustomed to planning, implementing and evaluating their own methods of learning.

An outstanding example of this is the **Allianz Lern-Forum** or ALF. This Learning Forum of the Allianz insurance company is a flexible, educational environment based on the principle of self-regulated learning. Employees can use the company's Intranet to quickly access all learning materials and media, including a knowledge database and communication and planning facilities. One popular component called the "learning planner" enables trainees to structure and organize their learning experience. Apprentices and teachers can also discuss the content online with colleagues at other locations. Plus trainees from various locations within the company can work together on a common topic in virtual working groups and put their questions to experts.

The project ALF has won the German "Silbernen Ausbildungsoskar 2000" – Silver Training Oscar – awarded by the "Wirtschaftsjunioren Deutschlands", "Junioren des Handwerks", the Federal Ministry for Education, Inter Insurance Group and the "impulse"-journal.

The value of collaboration

While there are several clear benefits to individualized learning, they should not come at the expense of various forms of interaction, above all, collaboration. Indeed, collaboration is increasingly becoming the price of doing business in today's economy. The ability to develop dynamic and versatile working relationships gives an individual, and an organization, a distinct competitive advantage.

The continuous flow of information among employees, and the innovative ways knowledge and ideas are shared, are two of the cornerstones of 21st Century Literacy. Moreover, collaboration is vital to enriching the company's database and to establishing communities in virtual social environments.

All best practices cited in this paper provide opportunities for enhanced communication. But there is one, in particular, that stands out. The **Skandia** project, "KenNet",¹³ is a complex Intranet that enables employees to communicate and

¹³ Skandia, Sweden, national scope, branch: insurance

exchange information on a broad range of topics. The program offers every employee a personal “Agenda”, with which he or she is able to circulate and share knowledge, gain access to, and refurbish data and receive help from external experts.

In this learning environment, new ideas from employees are sent to special “appraisers”, who evaluate the information, decide whether it is worth publishing and identify who within the entire organization might be interested in it. Often there is a direct dialogue between an appraiser and an employee, in which the employee’s suggestions are further examined and, if necessary, extended or revised – sometimes in cooperation with experts from outside the company. Special emphasis is put on teamwork, so that everyone involved works together toward the best results. Elements are then published in the knowledge database and are accessible to everybody throughout the company.

KenNet also provides an open forum where all employees can discuss issues and display their own “knowledge recipes”, which allow users to read, review and comment on books and other publications.

Cooperating with experts for best results

As noted above, the ability to cooperate with outside experts is a valuable asset for many companies trying to build 21st Century Literacy skills. Not only do experts provide additional perspectives on critical issues, their advice, support and evaluation of joint projects can lead to optimized models.

The close cooperation between **Siemens** Qualification and Training (SQT) and the Department of Empirical Education and Pedagogical Psychology at **Ludwigs-Maximilians-Universität**, in Munich, has engendered a unique program called “Knowledge Master”. Here, scientific expertise in learning psychology and education has been integrated with SQT’s technical knowledge and an in-depth assessment of the needs and tasks of Siemens employees.

“Knowledge Master” is a multifaceted program specifically designed to

On a larger scale, the **Universitat oberta de Catalunya** (UOC) in Spain, a virtual university that is the focal point of cooperation among a broad spectrum of experts and business organizations. It is also one of a growing number of public institutions that uses the Internet as its principal instructional medium.

An important characteristic of the UOC is its effort to publish research results and disseminate accumulated expertise via a system of “knowledge moderators”. These 21st century “infomediaries” are in continuous contact with experts from within and outside the university, as well as with representatives and students from other institutions. At the same time, the UOC is supported by a series of close cooperative ventures with public and private institutions that use its network to exchange information and knowledge. Leading Spanish companies (such as La Caixa – Spain’s largest saving bank, Repsol – the main Spanish oil company or Telefonica) also serve as partners.

address the needs of employees involved in knowledge management. It consists of several different Web-based learning modules and virtual working groups, as well as in-class workshops and seminars. Included too is a transfer phase in which employees can directly apply their newly acquired knowledge and skills on

the job. This serves as an added incentive to persuade participants of the program's value.

Public-private partnerships – opportunities for innovative models

Public-private partnerships, such as those described above, are also making effective use of innovative programs like **Autotrain**, an online network that focuses on the exploration of new training methodologies for use by the European automotive industry. Autotrain's communication and learning platform addresses the needs of small and medium-size automotive suppliers from various countries.

In an industry not traditionally involved with such issues, Autotrain has attempted to raise awareness of the need for self-directed and lifelong learning, and 21st Century Literacy skills. Using its virtual exchange and communication platforms—along with a number of online courses and a best-practice database – employees can share information and experiences by asking questions, making suggestions and discussing course materials.

It is worth noting in this context that several European partners, including automotive and supplier companies, and academic and research organizations, support the project's work. Autotrain is also linked with several similar European partner projects.

A very different form of public-private partnership is **MeetingMoreMinds**,¹⁴ a network of organizations working together on the development of 21st Century Literacy skills for its employees. Its virtual platform promotes personal networking both inside and outside companies, and offers technical opportunities for international learning communities focusing on new practices, information exchange, online teamwork and e-learning. Accessible to both multinational corporations and small start-ups, the network enables participants to establish a “know-how” infrastructure based on specific areas of interest, need and tasks.

Government Support for Lifelong Learners in Companies

In developed nations, small and midsize enterprises are powerful drivers of their nation's economies. Nowhere is this more evident than in Britain, where the government has taken greater responsibility for promoting programs and initiatives for 21st Century Lit-

One result is the creation of the **University for Industry** (UFI), founded in 1998. The UFI, in turn, has developed the learning service “Learndirect”, which is the largest publicly funded online learning and information platform in the United Kingdom.

The most striking element of Learndirect is the fact that it is targeted to all citizens. By making learning opportunities available to everyone – not just employees of specific companies, nor to those parts of the population who are already aware of the value of lifelong learning – the University for Industry is taking a very crucial first step towards making new technology skills universally accessible, and an integral part of people's everyday lives.

As a best-practice example for 21st Century Literacy, the University for Industry represents the most successful example yet of a government initiative that is integrating and promoting public-private partnerships to set a standard to be adhered to throughout Europe and the rest of the world.

¹⁴ MeetingMoreMinds, NL, international scope, branch: employee development

eracy skills within the private sector, and is fostering public-private partnerships to support this effort.

Recommendations

Further research is needed to quantify the benefits of 21st Century Literacy skills in the workplace – for employees, their employers, nations (if possible) and the global economy. Without a clearer understanding of the precise contributions these skills can make to each of these forces, efforts to promote more investment in training will be hard to support.

It also bears noting that while IT training has successfully improved the skill levels of people who have faced chronic unemployment and come from disadvantaged communities, structured programs to provide that training (as opposed to those that require self-directed learning) face considerable challenges. Developing programs is a resource-intensive activity that requires substantial investments in equipment before the first student is trained. It also demands significant time commitments from employees who are already burdened with other responsibilities. And those seeking training will be faced with a patchwork of possibilities, with little objective guidance to help them choose successful programs. Finally, government support for job-related training often comes through programs designed for other industries, which do not always fit the realities of training for IT-related skills.

That said, recommendations to improve the situation include:

Recommendations for Individuals

Individuals must take responsibility for lifelong learning

People need to recognize that under current circumstances they are responsible for ensuring their own training. What's more, outside of a nation's largest companies, that training will probably require time beyond the workplace. The pace of technical change further dictates that education is likely to be an ongoing process rather than a one-time or occasional event. Plus, individuals should consider that while training can be an element of on-the-job advancement, it is also available between jobs to enable the job-seeker to move "up the ladder". Despite the many difficulties, the benefits for individuals are clear: people with appropriate skills are more highly rewarded in the labor market.

Learning and work should be integrated

Working and learning should be considered two sides of the same coin. Today, a great deal of learning takes place on the job. But schools must also make a greater effort to prepare students for the workplace of the future, in part by pro-

viding teachers with the knowledge, skills and tools to promote 21st Century Literacy.

Recommendation for companies

Employers should recognize the broad value of 21st Century Literacy skills

Research conducted at M.I.T. suggests that installation of new information technologies without investment in worker training (as well as other elements) is a poor investment and may even hurt a firm's productivity. Thus the first recommendation for companies is to consider that investments in worker education are essential if firms are to realize the full benefit of all their investments.

When companies do offer training, they normally provide lessons to ensure basic skills with software applications. However, training should go beyond simply learning a specific application. Instead, it should include a broader development of skills for finding, using and communicating information in all its forms.

Successful learning is an ongoing experience

Whether training happens within companies or through third parties, providers should consider what some are calling a ladder of training – a recognized way that learners can master a set of skills and be encouraged to pursue more advanced knowledge following the successful completion of a course. In some cases the ladder is based on increasingly complicated technical training, while in others it allows training credit to be recognized at other institutions, such as community colleges. In either case, training providers should create mechanisms that allow learners to progress toward more advanced materials rather than allow training to become driven only by software upgrades or by other events that result in desultory lessons with no larger goal.

Recommendations for policy makers

Restructure government-funded training

A significant challenge to efforts to train workers in 21st Century Literacy skills is the structure of traditional government-sponsored job training, which limits the participants in the government programs and the providers of the services. Complaints include the fact that government job descriptions are traditionally too narrow, and that government-imposed limitations on program costs are inconsistent with the real costs of training with more advanced information technologies. Policy makers should review government regulations regarding training programs to ensure they reflect the realities of providing this training today, and that they are consistent with the need for a highly trained work force comfortable with a wide variety of information technologies.

Recommendations for further research

Research is needed that can begin to outline a more structured approach to training over the working life of an individual. For example, one piece of useful research would be to understand the range of training possibilities and how they could be incorporated within a system that would be available to workers throughout different stages of their career.

Research would also help determine how best to measure the results of various training approaches so that training providers could improve their own practices, and more widely replicate their experiences. Since training is now fragmented across a bewildering number of providers, efforts to improve what we know about effective training would help both providers and employees.

CHAPTER IV: NEW CITIZENSHIP AND THE IMPORTANCE OF CIVIC ENGAGEMENT

What does it mean to be a citizen in the 21st century? Traditional definitions of citizenship have usually restricted it within geographic boundaries. But in the Information Age, such limitations are becoming untenable. A study by the Harvard Information Infrastructure Project forecasts that people will increasingly identify themselves as belonging to constituencies that are united electronically, rather than geographically.¹⁵

This is not surprising – and it brings about challenges for governments and individuals alike. Today, the Internet offers us a greater diversity of perspectives than any other medium. For example, one site from Australia, thepaperboy.com, links to news sources from more than 150 different countries around the world, providing a global spectrum of opinions from Afghanistan to Zimbabwe. Moreover, because websites created in other countries are as easy to access as those that are local, foreign online destinations often help meet a broad range of needs of diverse populations within nations.

Of course, any new definition of citizenship must be accompanied by a new set of responsibilities. Chief among them is a willingness on the part of individuals to become more engaged in the well-being of their communities. Just as important, governments at every level must provide open and easy access to the vast resources available to their constituents so they can communicate with their elected officials, as well as with one another.

“E-government is more than just government on-line; it’s about strengthening the relationship between government and citizens.”

Debbie Cook, Privy Council, Canadian Government

Achieving these goals will require the adoption of two broad, but interrelated, doctrines that are already developing but far from established: e-government and e-democracy.

E-Government: Still Some Way to Go

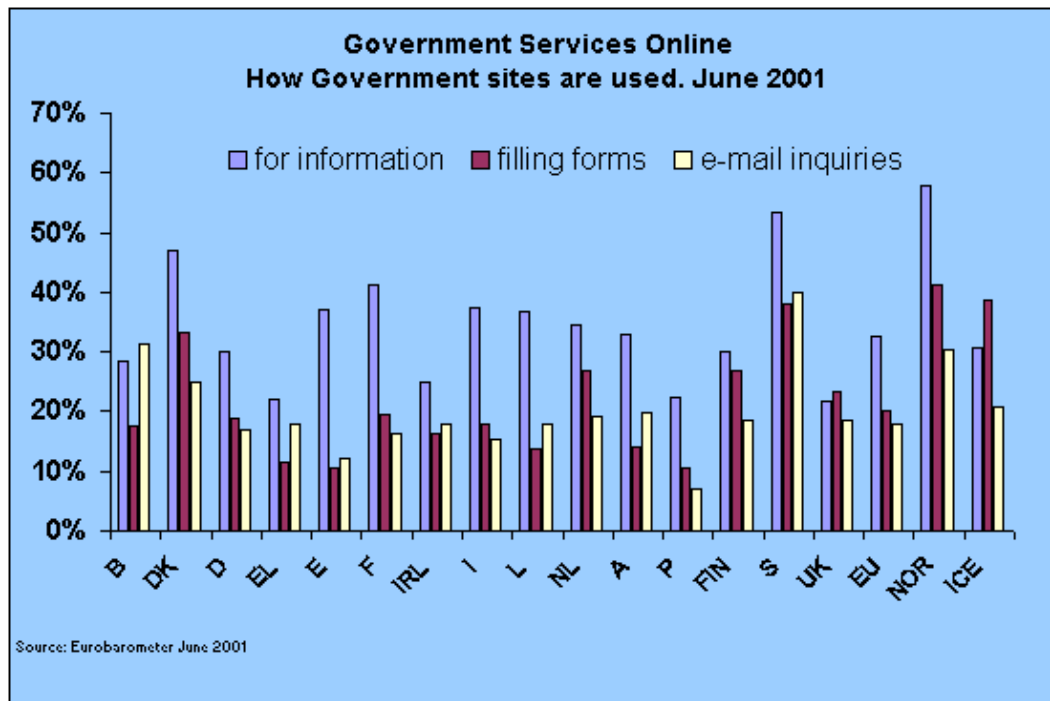
Government use of the Internet to deliver information and services has grown dramatically during the past five years. In 1996 the number of e-government initiatives could be counted on the fingers of one hand. Since then, thousands of initiatives have been launched worldwide, and new ones are being developed every day. Within the next five years, an estimated 14,000 e-government initiatives will probably be deployed in the U.S. alone.¹⁶

¹⁵ *Governance in a Globalizing World*, edited by Joseph S. Nye, Jr. and John D. Donahue; 2000

¹⁶ *Putting Citizens Online, Not In Line*; McKinsey & Co., 2001

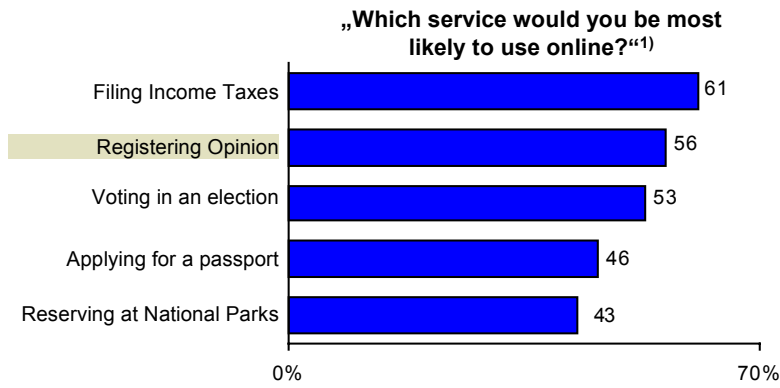
Already, over 90% of U.S. federal and state government publications are available online, and more than half of all government databases are accessible via the Net.¹⁷

In many states across the nation, residents are using the Internet to file and pay business taxes, apply for unemployment insurance, renew driver's licenses and auto registrations, and order vital records and state permits. (see table below). They can also apply for college, manage state retirement accounts and access hundreds of other government sources. These and similar services have appeal in other countries as well. In the world's most wired nations, this is a fast process and online administration promises to become an everyday phenomenon: Sweden, one of the European leaders in Internet penetration, shows a spectacular 60% of users who have visited or used a public Web offering.

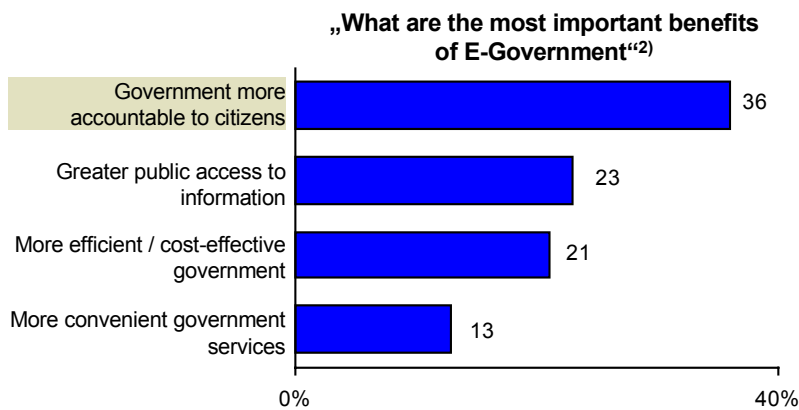


But the benefits of e-government go well beyond simply letting people “go online” rather than requiring them to “wait in line”. E-government initiatives can help generate economic growth because governments committed to putting services online must build adequate public infrastructures and promote Internet penetration among their populations. E-government can also establish new relationships based on trust between people and their governments. Now more than ever, the public expects more from government than just online tax filing. People want the process of government to be transparent, so that they are fully aware of the actions of their elected officials. And they want to participate in the process to make certain all sides of an issue are heard.

¹⁷ *Taubman Center for Public Policy*; Brown University; 2001



Source: Privy Council, Government of Canada (through Ipsos-Reid), 2001



Source: The Council for Excellence in Government, USA 2000 (through Hart-Teeter)

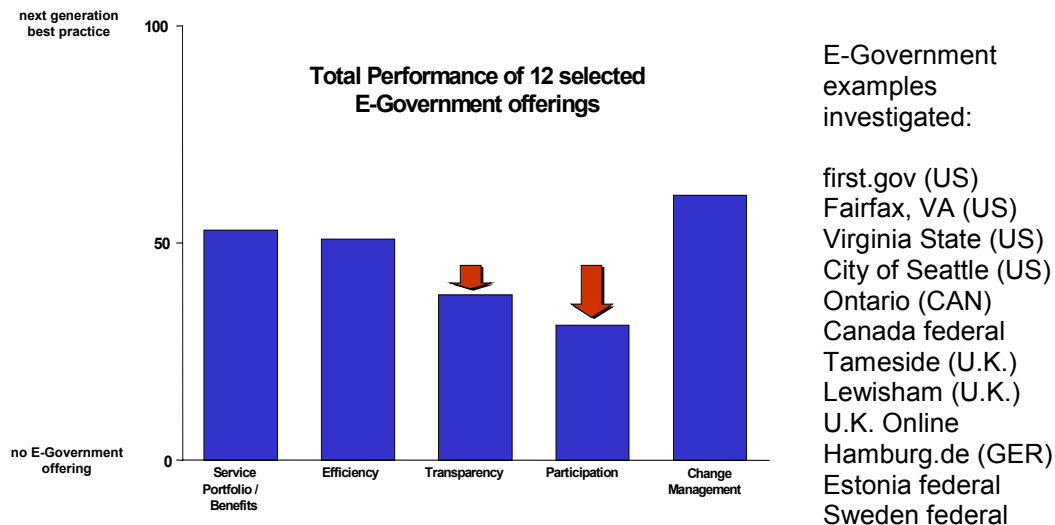
To succeed, the government cannot simply put up a website. Instead, there need to be essential changes in public-sector structures and practices. Apart from offering information and a variety of services, those in charge must rethink administrative systems so as to be able to provide true transparency about their processes. Even more complex is the task of using new technologies to allow citizens to influence decision-making processes. “Participation” and “transparency” are the key requirements for truly citizen-centric government work. Yet even the most advanced e-government examples still treat those “e-democratic” topics as the little step-brothers of electronic service delivery.

“We are only scratching the surface of E-Democracy yet.”
Dan Chinock, Ex. Office of the President, USA

International research by the Bertelsmann Foundation and Booz Allen & Hamilton¹⁸ shows that although there have been considerable achievements in e-government initiatives with respect to electronic delivery of services and efficiency gains, efforts to promote greater transparency and participation still lag behind. A handful of successes can be observed: the Scottish Parliament’s innovative use of e-consultation and e-petitioning (www.scottish.parliament.U.K.); attempts by some U.S. agencies to solicit comments on policies, such as the 9-

¹⁸ For details of the research see Bertelsmann Foundation: Balanced E-Government - between electronic administration and citizen-centered democracy, Gütersloh, Germany, 2002; E-Democracy around the World, prepared by Phil Noble and Andy Brack for the Bertelsmann Foundation, forthcoming 2002.

11 Victims Fund Estonia, the small and ambitious candidate for entry to the EU, manages to strike a balance between a digital citizens service and political participation with very limited resources (www.riik.ee/en). In general, however, most administrative institutions are more focused on using the Internet to deliver services than to engage citizens. The following chart gives an overview of the research results: e-government offerings were investigated according to five different criteria. On a scale from 0 (no e-government efforts) to 100 (next generation best practice), even the best examples show considerable potential for improvement. While the average performance with respect to basic e-government aims (e.g. efficiency gains) is quite good, participation rates are still quite low.



Source: Bertelsmann Foundation, *Balanced E-Government*, 2002

E-Democracy: The Path to New Citizenship

The roles and tasks in civil society are shifting. Through online advocacy groups, citizens experience much better opportunities to get involved. This is not just restricted to government-to-citizen communication (G2C), but is also valid in the purely private citizen-to-citizen (C2C) environment that is from many people's point of view much more immediately relevant for their lives. Globalization opponents use the networking capabilities of the Internet to organize and directly challenge the decision-making processes of politics and global industry.

On the other hand, the enormous success of online fundraising after Sept.

On a national scale, the US-based "People for the American Way" (www.pfaw.org) initiative can serve as one example of many private organizations offering an opportunity for online citizen activism, toolkits for developers of their own activism programs included (other prominent rather large-scale examples include the Minnesota e-democracy project www.e-democracy.org or the "Working for Change" initiative, www.workingforchange.com). It is, however, not just the big actors that benefit. The convenient coordination of individual efforts is no question of large resources, as shown, for example, by Web initiatives such as "eActivist" (www.eactivist.org), run by an individual with a strong dedication to facilitate citizen involvement. 100.000 hits a month for this small-size example shows the potential of the new medium.

Initiatives such as www.benefits.com and Network for Good (www.networkforgood.org) can take advantage of a unique combination of public and private resources not otherwise available.

11th shows that “New Citizenship” does not automatically mean action directed at decision-makers. The Internet proved that it could assume the kinds of functions that were customarily reserved to a large variety of institutions, including governments (coordinating rescue efforts in time of crisis), philanthropic groups (collecting aid) and even religious organizations (providing comfort).

“If the government does not provide expected services online, other sources will emerge to deliver what people need. In the long run, citizens ties to government could be undermined.”

Chris Hodgson, Management Board of Cabinet, Ontario

E-democracy proves that whenever people feel affected by any given development, the Web can provide a means to help deal with it. This means is larger, more effective and more efficient than what has traditionally been available offline.

The Internet-based networking of nongovernmental organizations (NGOs) over national borders on matters such as environmental protection, defense of human rights, migration and similar issues of global concern is certainly a success story for civic engagement in the 21st century. International NGOs such as Greenpeace and Amnesty International benefit from an acceleration of their processes and a greater efficiency in the bundling of efforts and

“It’s not about technology, it’s about changing the model, the relationships.”

Bette Dillahay, Deputy Secretary of Technology, Virginia

people. For civic action groups of any kind, the Internet represents a new opportunity to communicate with their members and supporters faster and more cost-effectively. Conventional instruments such as polls, mailing lists and campaigns have extended leverage when carried on across the Internet instead of just through traditional media.

Developing new citizenship skills

For people to become truly engaged in the governance of their lives, they must first have the knowledge, tools and appropriate literacy skills to participate effectively in the process. Meeting that need will require ongoing partnerships among communities, elected officials, public and nonprofit organizations, schools, business leaders and technology providers. Beyond that, individuals want access to content and services that address the issues they care about most and that provide workable solutions. Finally, the future of digital democracy rests on the capacity to create networks that support grass-roots advocacy and dialogue and strengthen public trust.

Collaborating with both the public and private sectors, “Young Americans & the Digital Future” (<http://www.childrepartnership.org/youngamericans>) seeks to connect effective community technology programs and their leaders with policymakers and other decision-makers to ensure that the resulting policies are grounded in community needs. The campaign has two phases: First, it will work to disseminate data and information tools that help policymakers, and business and civic leaders to gather the facts and develop priorities. Second, it will serve as a technical resource for policy development, helping to build coalitions and constituencies at the state level to advocate for appropriate policies.

The skills needed to get involved in public policy and community affairs are no different than those required to succeed in the workplace. The ability to use new media technologies to access, organize, evaluate and share information – and to make effective decisions as a result – touches on every aspect of people’s lives. What is different, however, is the fact that in the workplace these skills are frequently driven by competitive market demands. What’s more, the lack of such skills can have a direct and immediate impact on a person’s welfare.

On the other hand, in even the most democratic societies, there are few external pressures or incentives to take part in helping to shape public policy. And the consequences of not doing so are usually less obvious. Nonetheless, the long-term benefits of civic engagement can be even more valuable to individuals and their communities than what is accomplished on the job.

The spectacular growth of the online medium belies the fact that there are still hundreds of millions of people who lack the means to access and productively use the Internet. The problem is especially critical among children. A generation ago, we believed it was enough to teach young people how government worked, and to encourage them to participate. That is no longer the case. If we truly wish to foster digital democracy, we must make the necessary knowledge, skills and tools available as well.

An important first step in this effort is projects like “Young Americans & the Digital Future”, a multiyear program spearheaded by the Children’s Partnership that promotes state and local policies to increase young Americans’ access to the Internet and other new media technologies. The Children’s Partnership is a national non-profit, nonpartisan organization dedicated to informing and engaging leaders and the public in

ways that help meet the needs of America’s 70 million children – particularly those from low-income and underserved communities.

Research by The Children’s Partnership (TCP) found that, though many underserved communities are gaining access to the Internet, many are still not benefiting fully because of barriers they face related to content. The TCP focused on four barriers to affect millions of Americans:

Lack of Local Information – While this barrier potentially affects a great many Americans, it disproportionately affects Internet users living on limited incomes, especially the nearly 21 million Americans over age 18 whose annual income is less than \$14, 150 for a family of three (the level used by the federal government to define poverty).

Literacy Barriers – The vast majority of information on the Net is written for an audience that reads at an average or advanced literacy level. Yet 44 million American adults, roughly 22 percent, do not have the reading and writing skills necessary for functioning in everyday life.

Language Barriers – Today, an estimated 87 percent of documents on the Internet are in English. Yet, at least 32 million Americans speak a language other than English as their primary language.

Lack of Cultural Diversity – Despite the tremendous surge in ethnic portals, there is a lack of Internet content generated by ethnic communities themselves or organized around their unique cultural interests and practices. For many of the 26 million Americans who are foreign born, the lack of cultural diversity in available content serves as a real barrier.

Public-sector recommendations:

Government has not been nearly as quick in grasping the value of the Internet as the private sector, and is only now experiencing many of the growing pains business encountered several years ago. As a result, there is still much to learn about implementing effective e-government and e-democracy policies.

Involve users in the development of online services

The Canadian federal government has made user input a key element in redesigning its website, relying on continuous feedback from citizens through online questionnaires, e-mail questionnaires and more than 50 focus groups. Task forces are using the information to make the destination a dynamic and integral part of Canada's e-government strategy. The Swedish government, too, is turning to members of its user population for assistance. It has dedicated an entire department (Statskontoret) to the continuous development of its e-government strategy, setting up regular mechanisms of evaluating user preferences and finding new applications for more user-centric services and applications.

Make the online experience as user-friendly as possible

The relaunched U.K. Online citizen portal demonstrates an exemplary dedication to the public's needs and preferences. The portal features "life events" such as "Looking for a Job" and "Moving Home" so users can find exactly the information and services they came for. In order to address user preferences, these kinds of approaches must push agency boundaries and encourage collaboration across agencies. The ultimate objective must be to deliver services through the lens of a consumer rather than through approaches that are wedded to historical government roles.

Again, the Canadian government has set a good example by establishing a common standard for the "look and feel" of all websites related to federal agencies. Getting acquainted with one website structure enables visitors to access all other government sites using the same methods. This idea of convenient access (minimizing the necessary knowledge and skills) is further enhanced in the state of Virginia's "My Virginia" site, which was the first U.S. government portal to allow full personalization. Users can customize the content on the site so that relevant information is always readily available when they log on.

"Governments must invest adequate time, resources and commitment ... poorly designed and inadequate measures for information, consultation and active participation in policy making can undermine government-citizen relations."

OECD, 2001

The city of Seattle has designed an even more advanced way of facilitating access to its services by providing a virtual tour through its pages, and by coordinating the Web design of the more than 50,000 relevant Web pages through a small and central task force to achieve and maintain common design and navigation. Services and information are bundled cross-agency to create an integrated

environment in which important user data are distributed internally to all agencies involved in a certain transaction or process.

Take advantage of all resources

Cityofseattle.net also enables users to access its services by providing subsidized PCs, public kiosks, a database of other public access points within the city limits and information about the most affordable Internet service providers.

In Virginia, state authorities provide government information and services through mobile phones, voice recognition systems and television channels.

And the U.S. federal government portal FirstGov provides a central telephone hotline covering all government-related issues for callers who cannot find what they are looking for in its large FAQ section or the federal search engine.

Support external promotion and marketing of e-government initiatives

Since most Internet users spend the bulk of their time (about 70%) offline, it is vital to reach out to them there as well as online. Seattle measures the media-technology literacy levels of its residents on a regular basis – along with such metrics as “community building”, “civic participation” and “human relationships to technology” – and uses the information to customize training and support programs for different groups of users. Examples of projects include senior literacy programs, computer labs for disabled people, immigrant assistance programs and computer training for disadvantaged youth. These initiatives are then heavily promoted offline, such as in television ads on a dedicated Seattle city channel.

Involve government employees in developing new citizen-oriented services

In Fairfax County, Virginia, government employees are able to bring their own ideas to the training design process. In 1995 an extensive multi channel training program was established to improve the technology skills of employees and get them accustomed to integrating a variety of information and communication tools.

In Ontario, Canada, an e-government program managed to work its way around strict salary regulations for civil servants and established a bonus program for e-government management staff that set incentives for particular user-centric and user-friendly performance.

Provide incentives for citizens to make the best use of digital media technologies

Incentives for technology users, such as shortened processing times for tax filings, invitations to public hearings for e-petitioners or monetary and non-monetary benefits, are still largely underused. Although early starters such as the Singapore government have established these kinds of incentives, North Ameri-

can and European governments are hesitant to use these instruments to motivate people to try new Web offerings.

The rules of engagement

Government website designers are learning a lesson many of their private-sector counterparts learned several years ago: if you build it in ways that meet and often exceed user needs and expectations, they *will* come. The challenge is to develop content and services that will truly attract them.

If citizens are to be convinced that their efforts to engage in public policies are to have merit, they must have a clear indication of how their communications are being considered and processed within government. Although this may be one of the most important aspects of civic engagement, it is still one of the least developed.

There are, however, some progressive examples of what can be accomplished by public institutions. The newly established Scottish Parliament has cooperated with the International Teledemocracy Centre to develop well-defined tools for e-petitioning and e-consultation of new legislation. There is also a wide range of private initiatives, such as the non-partisan Petitionsite.com, that allow citizens to join forces in speaking out on critical issues.

In 2001, America Online launched an online entitlement search tool for older Americans: BenefitsCheckup.org. AOL worked closely with the National Council on the Aging and other organizations to help develop the website that provides one-stop access to information about federal and state benefits for seniors.

Nearly a thousand different state and federal programs are covered by the service, including financial assistance, health care, nutrition and prescription drug programs, home energy and efficiency benefits, and legal and transportation services. The service has been widely accepted by online users.

Recommendations

Recommendations for Individuals

Civic engagement requires individual effort

Even though the skills necessary to actively participate in public decision-making and policy formulation are basically the same as those needed in the workplace or private life, individuals must realize that democracy is not something that can simply be delivered to the doorstep. True involvement takes a willingness to test new ideas and challenge old assumptions; to both speak out and listen; to explore a broad range of options, such as activism or philanthropy; and to find the best way to influence change.

Recommendations for the Public Sector

Digital democracy is a two-way process

The focus of e-government programs must not be merely on electronic service delivery. The value of e-democracy components such as e-consultation, e-petitioning and e-advocacy also need to be recognized. The ways in which citizen opinions are integrated into the public decision-making processes have to be clearly formulated and communicated. A successful digital democracy strategy relies on the accountability of an administration or legislation to this promise.

Government websites must address user needs

Public-sector Web offerings must continually recognize and evaluate citizen preferences and provide appropriate solutions. These solutions must be as convenient as possible for users to handle. Easy-to-use applications and software with user-friendly interfaces require minimum technology skills. Cross-agency portals reduce the necessity to constantly search for relevant departments or agencies. And one-stop e-government should be the overall aim.

Necessary resources must be provided

Public access points, training and education programs for constituents as well as employees must be an integral part of the e-government master plan right from the start. Sufficient resources need to be dedicated to this or governments risk neglecting the democratic potential of the new technologies.

Recommendations for the nonprofit sector

Not-for-profit organizations can play a significant role in promoting greater civic engagement among populations, but only if they too are equipped with the technology and skills to use the online medium effectively. The great number of e-democracy tools already available today call for better transparency of instruments that suit the purposes of NGOs and citizen action groups. But more of the existing tools should be bundled and made available to those organizations that have not been among the first generation of NGOs to use the Internet. The establishment of an e-democracy competence center can help coordinate these efforts efficiently.

Recommendations for decision-makers

Use the full resources of government

Using e-government and e-democracy as a leverage to enhance the relationship between individuals and the state is a major effort. It requires strong commitment from across government to provide backing and resources for the necessary changes within the public sector. Central coordination agencies such as the Brit-

ish e-envoy's office (www.e-envoy.gov.U.K.) are crucial to providing strategic guidelines, serving as repositories of knowledge and gathering and communicating new information and ideas.

Involve nongovernmental organizations (NGOs)

Political leadership has the chance to foster the development of "New Citizenship" in a way public administration cannot. There should be a clear commitment to the strengthening of nongovernmental interest and action groups, and a statement about the value these groups have in 21st century society. Moreover, it is important to determine which public sector tasks can be given to the private sector, whether they are commercial enterprises or noncommercial entities dealing with relevant social issues.

Recommendations for further research

The question remains open as to what kinds of access and training programs work best in appealing to as many people as possible. Further evaluation of the public's preferences is necessary.

The role of NGOs and public-private initiatives in establishing new forms of digital democracy also requires additional investigation. Being very close to user preferences, these institutions are often better positioned to address public needs than governments. If tasks shift from the public to the private sector, there needs to be a thorough examination of how the transition can best serve the public interest.

CHAPTER V: CONCLUSION

The extraordinary changes being driven by technology will not end any time soon. The ability to use the Internet to exchange information and share complex ideas has allowed scientists and engineers to greatly enhance the process of research and development; and continuous improvements in a range of other digital technologies have enabled businesses to cut development cycle times for products and services across all kinds of industries. Add to this the rapidly falling prices and nonstop expansion of computing power and bandwidth, and the accelerating rate of change is certain to continue.

Given these circumstances, the need for individuals and institutions to develop 21st Century Literacy skills is imperative. But citizens of a global society will ultimately have to be able to do more than gather, organize, evaluate and communicate information. They must also be able to grasp the implications of their actions.

Key Recommendations

Education

“The goal of education,” said American scholar Robert Maynard Hutchins, “is to prepare people to educate themselves throughout their lives.” A generation ago, that was a formidable challenge. But today we have the tools that enable students to direct the course of their lifelong learning. The challenge now, is to use those tools effectively.

The place to start is with fundamental skills – reading, writing, math and science. They still form the foundation on which future knowledge and skills are built. Making certain all students are proficient in each of these must be a priority in every sector of society.

From there, the opportunities to learn are richly diverse, and students should, ultimately, be able to work across all forms of media as easily and confidently as opening a book. Of course, the full potential of new media technologies will not be apparent if they are simply used as a more efficient way to memorize and repeat facts. Instead, students should be encouraged to apply them to stretch their imaginations and find creative ways to solve both simple and complex problems.

But not just on their own. As useful as the Internet is in enabling independent, personalized learning, it is also a powerful tool for collaboration, making it possible for students, teachers and schools that are separated by physical barriers to

easily establish connections and share information. Plus, being online gives schoolchildren the chance to encounter people with different cultures and values.

How they respond to these opportunities will be determined by how they are taught to use new technologies responsibly and thoughtfully, as well as creatively. Students understand the broad implications of their actions, and have the means to protect their safety, security and privacy, which make better citizens in a global community.

Workplace Skills

The economic well-being of every nation rests, in large part, on the skills and abilities of its work force. No country or individual company can expect to successfully compete in a global market without workers who are able to embrace new ideas and effectively create and exploit innovations. National prosperity depends on sustaining the employment pipeline with well-educated men and women.

But at a time when most employees will probably change careers several times over the course of their working lifetime, individuals must take greater responsibility for continually acquiring and developing new skills. They must also recognize that learning cannot happen only on the job or in the workplace. Instead, they have to take advantage of learning opportunities whenever and wherever they encounter them.

It is clear from these circumstances, that the future of workplace training will demand the balancing of diverse interests and resources. Larger businesses, for example, have begun to develop programs around new digital technologies that let employees customize and direct their own learning experiences. Using a broad range of online tools, including e-mail, chat, computer conferencing, electronic white boards and corporate-wide Intranets, companies are enabling workers to collaborate internally with managers and associates, as well as with outside experts.

The same capabilities, however, must also be made available to small and mid-size enterprises that make up the economic backbone of most developed nations. Ready access to third-party providers, government agencies and industry consortiums will help ensure that smaller companies are able to compete for the best employees by providing equitable opportunities to learn and advance in their careers.

But training in the workplace, no matter how extensive, is still limited if it focuses primarily on narrow, short-term knowledge and skills. True innovation is only possible when people know how to use digital technologies to gather, analyze, organize and share information in ways that reflect an understanding of a broader economic and social context. While businesses can provide some insight on these matters, schools are much more effective environments in which to teach

these critical thinking skills. Although learning new skills does not end when people enter the work force, it should not begin then, either.

Civic Engagement

E-Government opens up new arenas where people can engage. Modern democracies need people who gather information from first-hand sources, who act and interact, who care about “public affairs”. By using the Internet, a broader notion of active democracy may become reality.

An e-government strategy that wants to embrace citizens and their wishes needs to stress issues of participation and transparency apart from merely offering information and electronic service. A successful digital democracy strategy relies on the accountability of an administration or legislature to this promise.

To pick up as many people as possible on their way into the Digital Society, public-sector Web offerings must continually recognize and evaluate individual preferences, and provide convenient and appropriate solutions. This not only includes the design of user-oriented interfaces (e.g., structured according to life events), but also requires discarding agency boundaries and fostering cross-agency provision of the full range of information and services relevant to citizens. One-stop solutions are to be achieved.

While the new media will play an important role in creating New Citizenship, it is the public sector’s task to ensure that all social groups can benefit from enhanced service quality and more immediate forms of participation in public decision-making. Multi channel provision, public access points, training and education programs for constituents as well as employees must be an integral part of the e-government master plan right from the start. Sufficient resources need to be dedicated to this or governments risk neglecting the democratic potential of the new technologies.

The effort to integrate electronic service delivery and e-democracy elements when integrating new technology into the public decision-making system requires strong commitment from across government. The necessary resources have to be provided, and there needs to be a clear vision and strategy, preferably coordinated by a central organization. Bundling knowledge, gathering and communicating new information and ideas, and advising institutions in their venture of becoming true partners for citizens, this kind of coordinator can bring about considerable gains in efficiency and effectiveness of e-government processes.

The people themselves, acting as individuals or organized within nonprofit special-interest groups, are the key actors of the digital democracy. Governments and public-sector institutions should support this development toward grass-root action. This can be achieved by offering information and support for NGOs willing to try the possibilities of the Internet for their purposes. Civic engagement will benefit, and so will the democratic system.

CREDITS

This paper was prepared by the project team of both partnering foundations, supported by external experts:

Andrew Blau	Independent consultant, New York, U.S.A
Kathy Bushkin	President, AOL Time Warner Foundation, New York, U.S.A
Dr. Harald Gapski	Director Project Development, European Center for Media Competence, Marl, Germany
Dr. Claudia Gemmeke	Head of Communication, Strategy, Events; European Institute of the Media, Düsseldorf, Germany
Prof. Dr. Jo Groebel	Director General, European Institute of the Media, Düsseldorf and Paris, Germany/France
Howard Gross	Vice President, Robinson Lerer & Montgomery, New York, U.S.A
Dr. Ingrid Hamm	Head, Media Division, Bertelsmann Foundation, Gütersloh, Germany
Dr. Thomas Hart	Director Media Policy, Media Division, Bertelsmann Foundation, Gütersloh, Germany
Dr. Marcel Machill, MPA (Harvard)	Director and Head, Media Policy Department, Media Division, Bertelsmann Foundation, Gütersloh, Germany
Michele Sacconaghi, MPP (Harvard)	Executive Director, AOL Time Warner Foundation, New York, U.S.A
Dr. Detlev Schnoor	Director Media and Education, Media Division, Bertelsmann Foundation, Gütersloh, Germany
Richard Socarides	Vice President, AOL Time Warner Foundation, New York, U.S.A.
Carsten Welp	Program Manager Media Policy, Media Division, Bertelsmann Foundation, Gütersloh, Germany

We further wish to express our deepest gratitude to the members of the **Advisory Committee**, who helped develop the research design for this White Paper:

Marcela Gürlichová	Deputy Minister, Ministry of Transport and Communications of the Czech Republic, Praha, Czech Republic
Andrzej Kostarczyk	Consultant, Bertelsmann Media, Warsaw, Poland
Erika Mann	Member of the European Parliament, Director of the European Internet Foundation, Brussels, Belgium
Lord David Puttnam	President of the General Teaching Council, Member of the Education Standards Task Force and the National Teaching Awards, Vice President of the British Academy of Film and Television Arts, London, Britain
Gerd Schulte-Hillen	Vice Chairman Executive Committee of the Board, Bertelsmann Foundation, Gütersloh, Germany
Robert Verrue	Director General DG Information Society, European Commission, Brussels, Belgium

Gütersloh, New York, Berlin

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Appendix

Documentation of Best Practice Examples

This annex provides examples taken from our international research in the fields of education, workplace skills and public policy / New Citizenship.

These examples are by no means “winners” in a competition – they serve as good examples for approaches to the New Literacy Challenge. Due to the restricted space provided in the Communiqué, we picked a small number of examples that can be called exemplary in a specific fashion. Numerous other examples of educational institutions, corporate enterprises or public policy-related efforts were found that also showed innovative and exemplary concepts.



Appendix I: Education



Best Practice Example

Education Workplace Public Policy

Name of the project / initiative / measure: Citizenship Skills in the Information Society
Country: Finland
Scope (regional / national / international): national
Institutions involved: Ministry of Education
Contact information: Name: Marita Savo La, Director of Adult Education and Training Address: Meritullinkatu 10, P.O.Box 29 3, FIN -00171 Helsinki, Finland or 1OC to BER 2000 : Meritullinkatu 10, Helsinki P.O. B ox 29, Fin N -00023 Government, Finland Phone: +35 (0) 89 - 13 4171 e-mail: marita.savola@minedu.fi URL: http://www.minedu.fi
Short description of the project / initiative / measure: The project defines the citizenship skills needed in the information society. These citizenship skills are. 1 Technical skills, 2 Communication skills, 3 Skills in acquiring and using information, 4 Consumer skills, and 5 Influence on information society policy. The project determines and prioritizes the target groups; it encourages and motivates people to learn; it determines the broadly based, cooperative learning program with all its pilot projects; it creates a cooperation network and basic conditions for the implementation of the program; it calls upon local authorities and civic organizations to join the program; it stimulates continuing professional education in the field of education, guidance, counseling and promotes a change in work; it highlights the information society services and tools needed by all; in an information society, citizenship skills must meet the needs of a networking, constantly changing and internationalizing way of life. Attention will be focused on the needs of groups outside the education system and staff development and training: Middle-aged and older population, Adult population not actively employed, and Special- needs groups. The action program is composed of the following projects: 1) A learning and motivation campaign for the population as a whole; 2) A know-how project implemented by a large cooperation network, and its pilot projects; 3) A project coordinated by local authorities and geared to local needs; 4) Input by civic organizations and civic activity; 5) Teaching, library and advisory personnel's know-how; and 6) Access to the net and net services to all citizens. (Duration: 2000-2004)
Budget: n/a
Further information: Ministry of Education, Finland: Information Strategy for Education and Research 2000-2004, Implementation Plan < http://www.minedu.fi/julkaisut/pdf/tietostrategia/toimeenpanosuunnitelmaENG.pdf >



Best Practice Example

Education Workplace Public Policy

Name of the project / initiative / measure: European Computer Driving Licence
Country: European countries
Scope (regional / national / international): international
Institutions involved: European Computer Driving Licence Foundation, Countries and Institutions worldwide
Contact information: Name: The ECDL Foundation Address: 107, The Windmill, Sir John Rogersons Quay, Dublin 2, Ireland Phone: +35 (0) 31 - 679 2847 e-mail: info@ecd.com URL: http://www.ecdl.com
Short description of the project / initiative / measure: <p>The ECDL Foundation works to promote a pan-European certificate of industry-standard computing skills. The ECDL is open to everyone: from large multinational organizations and government bodies to the individual computer user. The European Computer Driving Licence Foundation was established by the Council of European Professional Informatics Societies (CEPIS), to support and co-ordinate the work of the ECDL organization in each country. The ECDL has already been adopted by most EU and Scandinavian countries, Hungary, Poland, Estonia, and the Czech Republic. The Foundation is also gearing-up to introduce the Lithuania, Slovakia, Bulgaria, Latvia, Spain, Romania, Slovenia and Malta. The Foundation's goal is to making this license readily acceptable throughout Europe and to ease the mobility and employability of all its holders. The license declares that its holder's PC-operating competence reaches the benchmark required by leading multinationals and educational institutes. The ECDL serves as a springboard into a potential career and as an effective yardstick by which to gauge computing skill. To further the acceptance of the license as the Europe-wide industry standard, the Foundation monitors it closely and promotes it dynamically. This hones the license's integrity and makes it known to industry, governments and the European Commission. (Duration: since 1997)</p>
Budget: n/a
Further information: --



Best Practice Example

Education Workplace Public Policy

Name of the project / initiative / measure: NETD@YS NRW
Country: Germany, Land NRW (North Rhine-Westphalia)
Scope (regional / national / international): regional
Institutions involved: ecmc - European Centre for Media Competence
Contact information: Name: Project Office NETD@YS NRW Address: c/o ecmc, Bergstr. 8; 45770 Marl, Germany Phone: +49 (0) 2365 - 94 04 94 e-mail: info@netdays.nrw.de URL: http://www.netdays.nrw.de
Short description of the project / initiative / measure: The NETD@YS NRW are a project week on the subject of "Learning with the New Media", which - as part of the Netd@ys Europe scheme - is already being staged in Germany's federal state North Rhine-Westphalia (NRW) for the fifth time in 2001. During these activity days in which, every autumn, the European Commission urges people to participate, companies, clubs, and other organizations join forces with the schools to evolve and execute media-related projects. The projects differ widely, ranging from the joint design of a home page on the Internet, teaching projects, and public events to email projects and video conferences - there are many ways of integrating the new media into school life in a meaningful fashion. An Internet competition is held immediately after the project week. The most outstanding school projects receive an award from NRW's premier Clement who is the NETD@YS patron. The main prizes and special prizes are donated by Hewlett Packard, Microsoft, Siemens, radio NRW, LfR, and North Rhine-Westphalia's Savings Bank Associations, all of whom also gave their support to the execution of the NETD@YS NRW. All in all, almost 700 schools and their app. 1600 partners have participated over the past five years. Many of those organized their activities in so-called local NETD@YS committees. In 2001, four committees coordinated the projects of 55 schools and their partners. Partners from both the public and the private sector supported the NETD@YS NRW with financial aid, material and services worth app. 500.000 DM. (Duration: since 1997)
Budget: Funded by the NRW state chancellery, LfR and other sponsors
Further information: Referred as Best Practice Model by the European Commission



Best Practice Example

Education
 Workplace
 Public Policy

Name of the project / initiative / measure: SeniorWeb Netherlands (senior ambassador project)
Country: Netherlands
Scope (regional / national / international): national
Institutions involved: SeniorWeb NL
Contact information: Name: Grabenhorst Kai (coordinator of honorary assistants) Address: Christiaan Krammlaan 8, 3571 AX Utrecht, Netherlands Phone: +31 (0) 30 - 2769 945 e-mail: info@seniorweb.nl URL: http://www.seniorweb.nl
Short description of the project / initiative / measure: In this "Grassroot project" senior citizens teach learners of the same age group about IT-skills (snowball-strategy). Highly decentralized and networked project with a variety of involved educational partner organizations: During the last 3 years more than 45.000 seniors took part in this program at 300 different locations. (Duration: since 1997)
Budget: n/a
Further information: --



Best Practice Example

Education Workplace Public Policy

<p>Name of the project / initiative / measure: Klaipeda: Public library of the Klaipeda municipality: Information Skills Learning Center</p>
<p>Country: Lithuania, Klaipeda</p>
<p>Scope (regional / national / international): local</p>
<p>Institutions involved: Public Library of the Klaipeda Municipality</p>
<p>Contact information: Name: Public Library of the Klaipeda Municipality Address: Turgaus st. 8, 5800, Klaipeda, Lithuania Phone: +370 (0) 631 - 4725 e-mail: metod@biblioteka.lt URL: http://www.biblioteka.lt</p>
<p>Short description of the project / initiative / measure:</p> <p>The public library of Klaipeda, Lithuania's third largest city, has realized the immense importance of information technologies and the importance of media literacy. Within a library modernization virtual and special information and education centers have been created for all visitors/users. In 1998 the library provided a room with Internet access, in 1999 a media center for children was established. For handicapped children as well educational offers have been developed. The enormous increase in numbers of young readers shows how strong access to the Internet is interlinked with the acquisition of new target groups. The library gets advisory help from teachers, the youth welfare department, and organizations for disabled people. (Duration: since 1999)</p>
<p>Budget: n/a</p>
<p>Further information: Nominated for the Stockholm Challenge Award 2001</p>



Best Practice Example

Education Workplace Public Policy

<p>Name of the project / initiative / measure: EnGauge</p>
<p>Country: USA</p>
<p>Scope (regional / national / international): School or school system</p>
<p>Institutions involved: Developed by North Central Regional Educational Laboratory (NCREL) and the Metiri Group (an independent consulting group specializing in technology in education).</p>
<p>Contact information: Name: Cheryl Lemke, CEO, Metiri Group Address: 1801 Avenue of the Stars, Suite 426, Los Angeles, California 90067 Phone: +1 (0) 310 - 286 7944 e-mail: engaugewww@contact.ncrel.org URL: http://www.ncrel.org/engauge/</p>
<p>Short description of the project / initiative / measure:</p> <p>A comprehensive framework for schools to plan and integrate educational technology and academic content using 21st-century skills and tools. EnGauge identifies twenty-one separate 21st century skills, including multiple literacies, communications skills, and personal and social responsibility, and maps out what is required to develop these skills and how to measure them. The framework also identifies system-wide factors considered critical to the effective uses of technology for student learning, and indicators that can be used to measure each. Factors include shared vision; effective learning & teaching practices; educator proficiency; digital-age equity; robust access; and effective systems and leadership.</p>
<p>Budget: n/a</p>
<p>Further information:</p> <p>A 'next generation' approach – not just using technology well to support the curriculum, but integrating technology into the organization and culture of the institution and asking "What does it mean to be educated in a knowledge-based, digital age?" First comprehensive, district-wide use of the enGauge framework for planning and development launching in Lawrence Township, Indiana, starting January 2002, with \$5.6 million grant from the Lilly Endowment</p>



Best Practice Example

Education Workplace Public Policy

Name of the project / initiative / measure: Big6
Country: USA
Scope (regional / national / international): national
Institutions involved: Big6.org, plus thousands of schools across the USA
Contact information: Name: Mike Eisenberg, Dean, Information School, University of Washington Address: Suite 370 Mary Gates Hall, Box 352840, Seattle Washington 98195-2840 Phone: +1 (0) 206 - 54317 94 e-mail: mbe@u.washington.edu URL: http://www.big6.org
Short description of the project / initiative / measure: <p>First developed in 1988, Big6 provides a systematic process based on six broad skill areas necessary for successful information problem-solving: task definition; search strategies; location and access; use of information; synthesis; evaluation. This approach builds a set of skills and an organized strategy for effectively meeting information needs while developing critical thinking skills. Big6.org provides a complete library and information skill curriculum that can be used throughout a student's development.</p>
Budget: n/a
Further information: <p>Perhaps the most widely-known and -used approach to teaching information and technology skills. Used in thousands of K-12 schools and higher education institutions, as well as in corporate and adult training programs. An estimated 84,000 teachers have been trained in the Big6 program.</p>



Best Practice Example

Education Workplace Public Policy

<p>Name of the project / initiative / measure: Information Power</p>
<p>Country: USA</p>
<p>Scope (regional / national / international): national</p>
<p>Institutions involved: Thousands of schools across the USA</p>
<p>Contact information: Name: American Association of School Librarians Address: 50 East Huron Street, Chicago, Illinois Phone: +1 (0) 312 - 280 43 86 e-mail: AASL@ala.org URL: http://www.ala.org/aasl/ip_toc.html</p>
<p>Short description of the project / initiative / measure:</p> <p>Developed and distributed through the American Association of School Libraries and initially published in 1988, Information Power describes nine standards that cover searching for and evaluating information, creating information and communicating and collaborating effectively, and honoring social and ethical considerations in the use of information and communications tools. It is supported by an extensive set of materials for planning, curriculum development, teaching, and assessment.</p>
<p>Budget: n/a</p>
<p>Further information: A widely used, well-regarded program. Built around the key role of the school Library Media Specialist and an energetic library media program, which not all schools have.</p>



Best Practice Example

Education Workplace Public Policy

Name of the project / initiative / measure: UWired
Country: USA
Scope (regional / national / international): local - State University
Institutions involved: University of Washington
Contact information: Name: Ms Lisbeth Wilson, Co-Administrator UWired, Director of University Libraries Address: University of Washington, Box 352900, Seattle, Washington 98195-2900 Phone: +1 (0) 206 - 543 1763 e-mail: betsyw@u.washington.edu URL: http://www.washington.edu/uwired
Short description of the project / initiative / measure: <p>UWired information and technology seminars are integrated into required courses of study called FIGs (Freshman Interest Groups) and are designed to give students baseline skills. The program promotes student fluency with information technology through workshops offered on a drop-in basis or arranged with an instructor and tailored to the needs of a particular course. It is a collaborative effort among Undergraduate Education, Computing & Communications, University Libraries, and University Extension.</p>
Budget: n/a
Further information: <p>One of the best known and most widely cited models for promoting 21st century literacy to all incoming freshman at a major state university. Supported through the budget of the university and through outside support from the top reaches of Seattle's technology/software community.</p>



Best Practice Example

Education Workplace Public Policy

<p>Name of the project / initiative / measure: Multimedia Literacy Program</p>
<p>Country: USA</p>
<p>Scope (regional / national / international): local - University</p>
<p>Institutions involved: University of Southern California, Annenberg Center for Communication</p>
<p>Contact information: Name: Elizabeth Daley, Executive Director Address: Annenberg Center for Communication, University Of Southern California, 3502 Watt Way, Los Angeles, California 90089-02841 URL: http://www.mmliteracy.org</p>
<p>Short description of the project / initiative / measure:</p> <p>Launched in 1998, the Multimedia Literacy Program works with professors and between 250 and 300 students per semester from a range of disciplines to expand the tools and competencies to seek information and express ideas using visual, audio, interactive, and combined media. The program is currently working with faculty and students in a range of disciplines, exploring the applications of multimedia literacy in Museum Studies, Slavic, Religion, English, History, Philosophy, and Cinema-Television. It also recently began work with the USC Medical School (Surgery Residents) and with students in the hard sciences (Quantum Physics). The program is also working with local high schools to develop curricula and projects appropriate to 9-12 grade. All participants go through an intensive summer institute. The courses, as well as the faculty and their departments are "incubated" for several semesters with teaching assistant support and the program resources and methodologies. The focus is not on the technical, but rather on the conceptual implications of integrating each form of media appropriately into each academic discipline.</p>
<p>Budget: n/a</p>
<p>Further information: --</p>



Appendix II: Workplace Skills



Best Practice Example

Education
 Workplace
 Public Policy

Name of the project / initiative / measure: BellSouth
Country: USA/Worldwide
Scope (regional / national / international): international
Institutions involved: BellSouth
Contact information: Name: BellSouth Corporation Address: 1155 Peachtree St. NE, Atlanta, Georgia 30309-3610 URL: http://www.bellsouth.com
Short description of the project / initiative / measure: <p>For the 80,000 to 100,000 employees of BellSouth worldwide, especially those on the management side, the ability to work effectively online is essential to doing and keeping one's job. Nearly everything employees are expected to do is either online or has essential a wide range of online aspects. The company's Intranet is the main source of all internal company news and information, while the only way to get reimbursed for business expenses is to prepare an electronic form, which is reviewed and processed electronically before the reimbursement is deposited electronically into the employee's bank account. As a result, all management, administrative, and professional employees are expected to maintain and upgrade 21st century literacy skills. Training is provided in three forms: classes, self-directed CD-ROM based materials, and online courses. Hardware and software upgrades are performed as a matter of course, and employees are expected to upgrade their skills accordingly. The main responsibility for improving one's skills rests with the employee, and the incentive for doing so is the ability to function within the company.</p>
Budget: n/a
Further information: --



Best Practice Example

Education Workplace Public Policy

<p>Name of the project / initiative / measure: Highsmith, Inc./ Life, the Universe, and Everything</p>
<p>Country: USA</p>
<p>Scope (regional / national / international): international</p>
<p>Institutions involved: Highsmith, Inc.</p>
<p>Contact information: Name: Duncan Highsmith, CEO Adress: W5527 Highway 106, PO Box 800, Fort Atkinson, Wisconsin 53538-0800 Phone: 1 (0) 920 - 563 9571 URL: http://www.highsmith.com</p>
<p>Short description of the project / initiative / measure:</p> <p>Highsmith, a privately held supplier of school and library equipment, provides an extensive catalogue of courses available to all 300 employees, including courses in technical competence with computer-based information and communications tools and some information literacy. According to Highsmith CEO Duncan Highsmith, they considered offering Big6 based training to all employees, but for reasons unrelated to Big6, decided to focus on other staffing issues instead. However, the company also maintains a corporate library with an annual budget of \$185,000 and a staff of three. The librarians respond to research requests, but also actively seek out information of potential interest to the CEO (An ongoing project called "Life, the Universe, and Everything") and others throughout the company, tracking 68 or more subjects and providing ongoing guidance to employees on information retrieval and evaluation tools. The result is that while not everyone in the company is expected to have 21st century literacy skills, everyone in the company has ready access to 21st century literacy skills for all projects that may relate to the company's current efforts or future directions.</p>
<p>Budget: \$185,000</p>
<p>Further information: In January 1999, Highsmith was featured on the cover of <i>Inc.</i> magazine ("The magazine of growing companies") as "The Smartest Little Company in America: How Highsmith Inc. knows everything worth knowing about its business and the world." (⇒ see also Education example "Big 6")</p>



Best Practice Example

Education
 Workplace
 Public Policy

Name of the project / initiative / measure: Employment Training Panel
Country: USA
Scope (regional / national / international): statewide
Institutions involved: State of California, local training organizations throughout the state
Contact information: Name: Peter McNamee, Executive Director, Employment Training Panel Address: 1100 J. Street, 4th Floor, Sacramento, California 95814 Phone: +1 (0) 916 - 327 52 62
Short description of the project / initiative / measure: <p>The Employment Training Panel (ETP) was created by the state of California to allow small and medium-sized companies to upgrade the skills of their employees. One percent of the money the state collects for unemployment insurance is set aside for skills training through ETP, which contracts with training providers divided by industry sector. Only companies that fall into that sector qualify for the training available for that sector, so digital media skills are provided but are only available at a sophisticated level to companies that can demonstrate they are in the digital media or IT sector. Within a sector, however, there is wide access to courses and skill development through the local providers. The program, which is limited to full-time permanent employees, allows companies with as few as one employee to provide a setting for that employee to upgrade his or her skills.</p>
Budget: n/a
Further information: --



Best Practice Example

Education
 Workplace
 Public Policy

Name of the project / initiative / measure: JobLink
Country: USA
Scope (regional / national / international): municipal region (San Francisco Bay area)
Institutions involved: BAVC, State of California, City of San Francisco, local human service agencies, local companies in the digital media and IT sectors
Contact information: Name: Kris Palmer Address: 2727 Mariposa Street, 2nd Floor, San Francisco, California 94110 Phone: +1 (0) 415 - 861 3282 e-mail: bavc@bavc.org URL: http://www.bavc.org
Short description of the project / initiative / measure: <p> BAVC is a media production facility that for many years has served the production and post-production needs of San Francisco's media arts community. In recent years, the convergence of digital video with the Internet and other computer-based media technologies suggested to the leadership of BAVC that the equipment access and training they provided to area media artists could be valuable to a much wider population. With initial support from the city of San Francisco, they launched JobLink, a workforce readiness program for low income people in the Bay Area. Through JobLink, unemployed people are selected and trained in a variety of skills relating to the effective use of digital media and computer-based tools for information creation, production, and communication. The goal has been to create a pipeline of newly trained people for entry-level positions in the Bay area's digital industries. The program has been very successful in moving people from welfare or unemployment, through the training and into well-paid positions in companies throughout the Bay area. </p>
Budget: n/a
Further information: Named a "Best Practice" site for worker training by the U.S. Department of Housing and Urban Development.



Best Practice Example

Education
 Workplace
 Public Policy

Name of the project / initiative / measure: LEARNDIRECT
Country: England, Wales and Northern Ireland
Scope (regional / national / international): multi-national
Institutions involved: University for Industry
Contact information: Name: Ann Limb (contact person), Chief Executive Address: Dearing House, Young Street 1, S1 4 UP, Sheffield, Great Britain Phone: +44 (0) 114 291 5000 URL: http://www.learndirect.co.uk
Short description of the project / initiative / measure: The university for industry, Ufi Limited, was created in 1998 as the government's flagship for lifelong learning. It is a unique partnership between government and the private and public sectors. Within a year of becoming fully operational in October 2000, it had created with its partners learndirect - the largest publicly-funded online learning service in the UK. Through its learndirect network, Ufi Limited is a significant catalyst for change in the lifelong learning market. It can transform the experience of learning and change the way of life for adult learners in the post-16 sector as the Open University has in higher education. Ufi Limited's mission is: to work with partners to boost people's employability, and organizations' productivity and competitiveness. Learndirect provides access to innovative and high quality courses, over 80 percent of them on-line. Learndirect's aim is to enable people to fit learning into their lives, learning wherever they have access to the Internet - at home, at work, or in one of over 1000 learndirect centers. It promises to its learners a lot of innovative advantages, among which enabling them to monitor their progress and record their achievements as they go, not just at the end of a complete program, offering easy access to the specialist support they need, putting them in touch with other people studying the same topics are just a few examples.
Budget: £ 135 million in 2001/2002
Further information: --



Best Practice Example

Education Workplace Public Policy

<p>Name of the project / initiative / measure: AUTOTRAIN (“Internet Based Training Programme for the European Automotive Community”)</p>
<p>Country: several European countries</p>
<p>Scope (regional / national / international): international</p>
<p>Institutions involved: Different academic and research organizations, the European Automotive Initiative Group and the School of Computer Science.</p>
<p>Contact information: Name: Dr. Cedric Ashley, Reserach Support and Business Development Address: Birmingham University, Edybaston, B152TT, Birmingham, Great Britain Phone: +44 (0) 121- 4147 623 e-mail: cashley@bham.ac.uk URL: http://www.autotrain.org</p>
<p>Short description of the project / initiative / measure: The vision for the project is to pave the way towards vocational education and training for small and medium-sized automotive supplier enterprises along the supply chain. Its aim is to reach across major European regions and target about 50,000 actual users within SMEs. The project is based on the “WebCT server”, which offers e-learning facilities, databases, etc. But the first phase of the project was dedicated to evaluating whether/ to what extent the Internet is useful as a medium for online learning. Furthermore, different styles of teaching were investigated in order to establish the best way of teaching. Thus, the whole project’s approach goes beyond a technical approach and tries to integrate the opportunities offered by IT and reflections on learning psychology. The project is heading towards the realization of innovative facilities such as fully interactive forums, virtual classrooms, online tutoring, multimedia capabilities, etc. The main focus is on individualized e-learning. One important innovative factor is the careful evaluation of the Internet as a proper medium to transmit learning units. Furthermore, Autotrain does not only offer graphics and text, but also information exchange opportunities, speech and video facilities.</p>
<p>Budget: n/a</p>
<p>Further information: --</p>



Best Practice Example

Education
 Workplace
 Public Policy

Name of the project / initiative / measure: BP AMOCO ("VIRTUAL TEAM NETWORK")
Country: United Kingdom (international corporation)
Scope (regional / national / international): international
Institutions involved: BP Amoco
Contact information: Name: David Barrow, Team Leader Sharing Knowledge Address: 200 WestLake Blvd, Houston, Texas 77079, USA Phone: +1 (0) 281 - 366 4935 e-mail: barrowdc@BP.com
Short description of the project / initiative / measure: BP Amoco's approach to knowledge management and the implementation of new literacy is based on technical devices (a large Intranet consisting of a growing number of personal homepages and PCs offering videoconferencing, fax, email, groupware, electronic blackboards, etc.), but goes far beyond a simple technical approach. BP Amoco puts special emphasis on the active participation of employees in the process of experience exchange and information flow independent of geographical location: the key issue is to train employees and to gather their tacit knowledge in a way that obtains the highest advantage for the company. To have employees create their personal websites in order to present themselves and inform others of their interests/skills is a unique approach no other company has so far adopted. BP Amoco has gathered valid experience in the field of (virtual) communities of practice for a long time and is therefore a "think tank" and model for the implementation of such approaches. By establishing the network, the company offers employees the opportunity to use new media creatively and in a way that fosters the relationships (communication flow and teamwork) between them. Special innovative potential with regard to new literacy is apparent in the multi-faceted technical possibility that require complex technical as well as contextual skills; apart from that, the network requires as well as fosters teamwork and active literacy.
Budget: Recent budget not available. In 1995, when the project started, 12 million dollars were invested.
Further information: --



Best Practice Example

Education
 Workplace
 Public Policy

Name of the project / initiative / measure: IBM GLOBAL CAMPUS
Country: USA (international corporation)
Scope (regional / national / international): international
Institutions involved: IBM
Contact information: Name: Jürgen Lurz, Head of IBM Learning Services Address: IBM Deutschland GmbH, Bildungszentrum Stuttgart, Lautenschlager Str. 20, 70173 Stuttgart, Germany Phone: +49 (0) 711 - 222 58-206
Short description of the project / initiative / measure: IBM Global Campus is an international training center based on a net-based learning platform. It delivers distributed learning to all IBM employees and offers more than 1.400 courses that relate to topics relevant for IBM. In 2000, about 40 per cent of all internal training units were carried out in this virtual environment. IBM employees can access the virtual university via an Intranet page and chose the courses they wish to pursue. The project offers a wide variety of communication facilities like online conferencing, chat, and email. There are online tutorials as well as online exams. With the help of modern IT, the lack of personal interaction is tried to be replaced by "virtual communities" of often international character. Employees are required to actively participate in these, discuss what they are working on or to be approachable when questions and problems arise. Via IBM Virtual University, employees can plan and structure their learning according to their own needs and interests as well as personal learning speed. Courses can be followed from within the company and from outside/at home, allowing for complete independence with regard to location and time. Work and learning are therefore closely linked to each other. Through the virtual university, IBM has one of the most innovative systems of keeping the employees informed on a virtual level.
Budget: n/a
Further information: The highly frequented management training unit "Basic Blue has received the "Initiativpreis für Aus- und Weiterbildung" of the German Chamber of Industry and Commerce, DIHT (= Deutsche Industrie- und Handelskammertag).



Best Practice Example

Education
 Workplace
 Public Policy

Name of the project / initiative / measure: SIEMENS "KNOWLEDGE MASTER TM" ("Praxisbegleitendes Qualifizierungsprogramm für den Wissensmanager")
Country: Germany/international
Scope (regional / national / international): international
Institutions involved: Siemens Qualifications and Training and Ludwig Maximilian University, Munich
Contact information: Name: Dr. Ludwig Wiesenbauer, Produktmanager für Knowledgemanagement Address: Siemens AG Knowledge Management, Rohrdamm 85, 13629 Berlin, Germany Phone: +49 (0) 30 - 386 41 956 e-mail: ludwig.wiesenbauer@sqt.siemens.de
Short description of the project / initiative / measure: The project's special character lies in the complex offer made to employees in order to qualify their knowledge management skills. The learning modules integrate different learning approaches, fostering technical, contextual, active and social skills as well as the direct application of the learned content (which certainly serves as a special incentive, since employees can be convinced of the direct use of the program). This complex and "polished" approach speaks the language of scientific expertise in the field of learning psychology and is certainly the outcome of the close co-operation between company and university experts from this area. Participants work together in virtual teams and have the possibility to contact experts, enter databases, etc. Apart from that, the program offers face-to-face workshops parallel to the net-based courses. The project closes with a "transfer phase" in which participants are asked to use the knowledge and techniques they have obtained in the "real world".
Budget: n/a
Further information: --



Best Practice Example

Education
 Workplace
 Public Policy

Name of the project / initiative / measure: SKANDIA KenNet
Country: Sweden
Scope (regional / national / international): international
Institutions involved: Skandia
Contact information: Name: Anna Dansk, Operating Manager, Skandie Future Center AB Address: Box 153, 18522 Vaxholm, Sweden Phone: +46 (0) 8541 - 338841 e-mail: anna.dansk@skandia.de
Short description of the project / initiative / measure: The key issues are to build the corporate memoir and to share organizational value. The employee him-/herself increases his working competence by taking part in the discussion forums. There are no face-to-face teaching methods, the employees work on their own and are self-organized. Their published adds to the database are commented on and corrected by an expert. They use innovative learning methods in so far as every employee has a virtual "agenda" to write down his/her learning needs, new ideas, improvements made and information about customers, competitors etc. There also is an open forum parallel to the agenda where the employees can discuss either challenges or suggestions with each other. The idea is that the dialogue in the forum should generate new improvements, learning needs, etc., which later on should be put in the users agendas. Another innovative part of the program is that the employees are provided with so called "knowledge recipes" which enable the user to read, review and comment on books and articles they have read. The project is creative and stimulating. The employee is not only able to gain knowledge, he/she can also teach colleagues and play an active part in enriching the company's database. The increasing personal progress can be seen in the individual agenda.
Budget: n/a
Further information: --



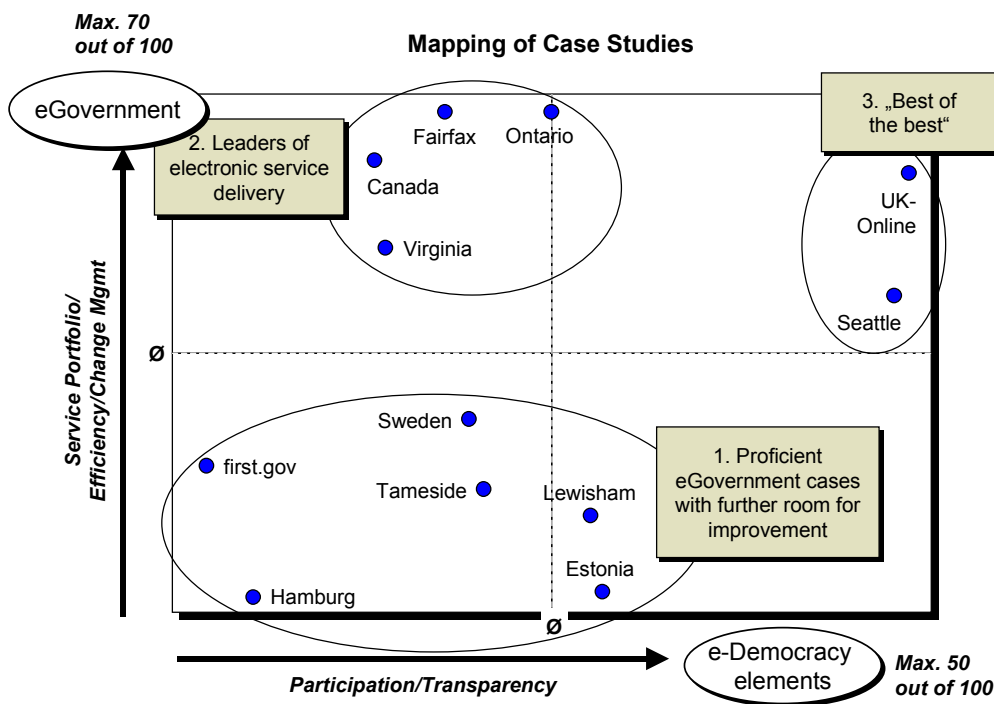
Appendix III: Public Policy / New Citizenship



An international investigation of leading e-Government examples was conducted by the Bertelsmann Foundation in cooperation with Booz, Allen, Hamilton.

The examples were evaluated according to a five-dimensional balanced scorecard. The criteria used not only contained “traditional” dimensions of e-Government (*Service Portfolio, efficiency gains, change management performance*), but also paid special attention to those aspects that are of special relevance to the creation of “New Citizenship” (*transparency, participation*).

As the chart below indicates, there is considerable achievement with respect to traditional e-Government offerings, while “e-democratic” aspects lag considerably behind even in the most advanced examples.



Source: Bertelsmann Foundation, *Balanced E-Government*, 2002



Best Practice Example

Education Workplace Public Policy

Name of the project / initiative / measure: Canadian Government e-Government Program (http://canada.gc.ca)
Country: Canada
Scope (regional / national / international): national
Institutions involved: Federal Government of Canada
Contact information: Michelle D'Auray, Chief Information Officer Treasury Board Secretariat 140 O'Connor Street, 10th Floor, East Tower; Ottawa, Ontario K1A 0R5, Canada Tel: (613) 957-7070 e-mail: cio-dpi@tbs-sct.gc.ca URL: www.canada.gc.ca
Short description of the project / initiative / measure: <p>The Canadian Government is taking a multifaceted approach to implementing its e-government program, whereby online services and content will be determined to a great degree by the users. The Chief Information Office (CIO) of the Canadian Government is in charge of coordinating the e-government activities of all ministries and authorities. Initially, the main goal of the program was to increase Internet penetration so that networked users would then have access to government services. Great efforts were also made to connect libraries and schools to the Net in order to bridge the digital divide and provide equal access.</p> <p>Currently, more work is being done to integrate various services (one-stop shopping) and to speed up implementation in general.</p> <p>After being completely redesigned, the home page, www.canada.gc.ca, now has three central information and service gateways for various user groups: one for Canadians, one for Canadian business and a third for non-Canadians. This way information and services are organized around users' needs instead of around government agencies. The redesign was greatly influenced by public opinion: user satisfaction is constantly being measured through questionnaires on the website, online surveys and e-mail as well as through approx. 50 focus group tests.</p> <p>A number of ministries and authorities allow partial civic and corporate involvement and are collecting data from their first pilot programs. These programs will then be used to test interactive tools and methods and will be conducted in conjunction with offline procedures. All the services related to this will be bundled together in a new "consultation portal."</p>
Budget: n/a (part of the general budget)



Best Practice Example

Education
 Workplace
 Public Policy

Name of the project / initiative / measure: Fairfax County E-Government Program (www.co.fairfax.va.us)
Country: US (Virginia)
Scope (regional / national / international): regional (Fairfax County)
Institutions involved: Fairfax County
Contact information: Mr. David J. Molchany, Chief Information Officer County of Fairfax Suite 527 12000 Government Center Pkwy, FAIRFAX, VA 22035, USA e-mail: dmolch@co.fairfax.va.us URL: http://www.co.fairfax.va.us/
Short description of the project / initiative / measure: <p>Fairfax County, which borders Washington DC, bases its e-government on a tightly integrated and automated administration. A new Citizen Relationship Management system has been introduced to help deal with the growing flood of information in administrative and legislative areas. Systematic qualification and continuing education of staff will increase efficiency and promote user-friendly service.</p> <p>The home page, www.co.fairfax.va.us, was set up in June 1996 and now coordinates information and services from over 50 departments and offices on approx. 20,000 HTML pages and PDF documents. A content management system is being developed that will make it considerably easier for various governmental agencies to organize and maintain their web pages. Special emphasis was placed on giving the site a uniform look and feel, an improved search engine and a navigation scheme that greatly enhances overall user-friendliness. Suggestions gleaned from user surveys were also incorporated into the design.</p> <p>Fairfax County employees played a significant role in these innovations and were the source of many ideas for new projects. An IT training program had already been created in 1995 to familiarize them with new technologies, and a variety of training modules is available to them on the Internet and on digital TV. These opportunities to get involved and further their education have made employees much more open to e-government and all the changes it entails.</p>
Budget: n/a (part of the general budget)



Best Practice Example

Education Workplace Public Policy

Name of the project / initiative / measure: Ontario e-Government Program (http://www.gov.on.ca)
Country: Canada
Scope (regional / national / international): regional (Ontario, CA)
Institutions involved: The Ministry of Consumer and Business Services (MCBS) Management Board Secretariat (MBS), Corporate Chief Information Officer .
Contact information: Greg Georgeff, Corporate Chief Information Officer 5th Floor Ferguson, Block77 Wellesley St. West Toronto, ON M7A 1N3 CANADA Tel: (416) 327-9696 e-mail: Greg.georgeff@mbs.gov.on.ca URL: www.cio.gov.on.ca
Short description of the project / initiative / measure: <p>Ontario's goal is to become the world leader in e-government and to establish a fully customer-oriented administration by the end of 2003. The position of Chief Information Officer (CIO) was instituted very early on to head the already fairly advanced implementation process. The CIO is supported by the "e-government group", a Government department especially established for that purpose.</p> <p>Ontario is particularly exemplary in terms of its internal qualification and training programs. Ministry and government agency staff members spent a great deal of time involved in the process of redesigning of systems and applications, and they are thoroughly informed. Comprehensive training programs provide them with new IT knowledge and skills. At the same time, an executive salary bonus system motivates managers to achieve their goals.</p> <p>The home page is organized according to subject and age group and provides links to websites of over 100 ministries and government agencies. It also includes an especially user-friendly list of all transaction-based online services that are currently available to individuals and businesses. This list and an "online service selector" provide users with a quick overview of all available services.</p> <p>Over 60% of the services can now be accessed via a variety of electronic channels such as telephone, call centers or the Internet (multi-channel approach). Millions of standard transactions (such as renewing one's driver's license or tabs, ordering personalized license plates, or changing the address for a health card) are being concluded and paid for by credit card at public-access kiosks.</p> <p>Ontario is the leader in combining information and user-friendly access to the most diverse public and private services (one-stop shopping). A perfect example of this is the Ontario Business Connects website where people can register new businesses or apply for necessary business licenses from a variety of ministries and government agencies.</p>



Best Practice Example

Education
 Workplace
 Public Policy

Name of the project / initiative / measure: City of Seattle e-Government Program (www.cityofseattle.net)
Country: US
Scope (regional / national / international): regional (City of Seattle)
Institutions involved: City of Seattle, US
Contact information: Marty Chakoian, Chief Technology Officer and Director of the Department of Information Technology Department of Information Technology Suite 2700, Key Tower 700 Fifth Avenue Seattle, Washington 98104-5065, USA Tel: (206) 684-0600 e-mail: gary.davis@ci.seattle.wa.us URL: www.cityofseattle.net
Short description of the project / initiative / measure: <p>With its website already up and running in 1995, Seattle is a pioneer in the realm of e-government. Since 1995, it has continued to expand its online presence and won many awards. Its goal is to create a 24-hour city hall accessible to all citizens. The city of Seattle website provides users with comprehensive and clearly structured information and services. The e-government program places great importance on transparency and citizen participation. By innovatively linking the two media, TV and the Internet, Seattle has achieved a comparatively broad spectrum of e-democracy services and content.</p> <p>The Seattle case study exemplifies that classical e-administration and e-democracy websites can indeed be developed and expanded in parallel if the necessary governmental leadership is there. The city's extensive publicity of its website and efforts to involve users insure that the information and services provided on the site are widely used. At the same time, by incorporating citizen feedback, Seattle has been able to create a website that is more organized and user-friendly than any of its kind.</p>
Budget: n/a (part of the general budget)



Best Practice Example

Education
 Workplace
 Public Policy

Name of the project / initiative / measure: Swedish Government e-Government Program / Sverige Direkt http://www.sverigedirekt.gov.se
Country: Sweden
Scope (regional / national / international): national
Institutions involved: Statskontoret Ministry of Justice, Minister for Democratic Issues and Consumer Policy
Contact information: Britta Lejon, Minister for Democratic Issues and Consumer Policy Ministry of Justice Rosenbad 4, 103 33 Stockholm, Sweden Tel: +46 8 405 10 00 e-mail: registrator@justice.ministry.se URLs: http://justitie.regeringen.se/inenglish/index.htm ; http://www.sverigedirekt.gov.se ; http://www.sweden.gov.se ; http://www.riksdagen.se ; http://www.statskontoret.se/english/index.htm
Short description of the project / initiative / measure: <p>Sweden is an international leader in the use of information technology, and an extraordinarily high percentage of citizens have access to the Internet and cell phones. This provides an ideal environment for e-government. The country also has one of the most innovative approaches to putting government and administration online. Within the Ministry of Justice, one minister (the Ministry for Democratic Issues and Consumer Policy) is specifically assigned to the area of e-government. Policymakers hope to make Sweden the first country in the world to create an "information society for all."</p> <p>The Swedish Agency for Public Management (<i>Statskontoret</i>) was specially designed to oversee government departments and agencies and to create guidelines that pertain to all of these. At the end of 1999, the staff of this administrative body was in charge of developing criteria for the so-called 24/7 agency (i.e. a government agency that is open 24 hours a day, 7 days a week). The plans and proposals they developed go beyond implementing the Internet; they also address general issues related to using modern technology and to satisfying user needs and demands. But the most remarkable and positive aspect was that Sweden chose a multi-channeled approach from the very beginning.</p> <p>Another measure that has been implemented to promote the idea of the 24/7 agency is the <i>Guldänken</i> or "golden link," a competition among Swedish government agencies that was started in 1999. The purpose of this competition is to acknowledge those government agencies that are most innovative in using the Internet to interact with customers.</p>
Budget: n/a (part of the general budget)



Best Practice Example

Education
 Workplace
 Public Policy

Name of the project / initiative / measure: UK e-Government Program (www.ukonline.gov.uk)
Country: UK
Scope (regional / national / international): national
Institutions involved: UK Government; Office of the e-envoy e-Government group Central IT Unit (CITU) (www.citu.gov.uk)
Contact information: Name: Andrew Pinder, e-Envoy Address: E-Envoy's Office Cabinet Office 70 Whitehall LONDON SW1A 2AS, UK Phone: +44-20-7270 12 00 e-mail: e-envoy@open.gov.uk URL: www.e-envoy.gov.uk
Short description of the project / initiative / measure: The UK is a true forerunner in establishing citizen-oriented e-Government programs: With the Office of the e-Envoy as a central coordinating agency, the e-Government group leads the work on the government's commitment that by 2005, one hundred per cent of dealings with the government should be available electronically. A key part of the UK Online strategy is the ukonline.gov.uk citizen portal (launched in February 2000), providing a single point of entry to a wide range of government information and services. Users of the UK Online portal can customize the home page to create direct links to the services they frequently use. The system can also remind people about changes in services or important dates, such as the need to renew TV licenses or car tax. Content is organized around the needs of the citizen, to make dealing with government as easy and seamless as possible. Building on recommendations in the Modernizing Government White Paper, information is focused around 'Life Episodes', which enable the user to access all the information they need about a particular event without having to understand the workings of government or departmental delivery structures. The 'CitizenSpace' section of the portal includes a section to make it easy for people to find out about government's plans, and contribute to the formulation of new policies on which the public are being invited to have their say. There is also easy to find information about elected representatives and registering to vote. The UK government has published a formal Channels Policy (with respect to the use of Websites, call centers, and Digital Television), aimed at reaching a maximum number of citizens through a variety of channels. User participation in the development of services is being considered essential: One of the key mechanisms is the Peoples Panel. It consists of 5,000 members of the public randomly selected from across the UK, and is designed to be a representative cross-section of the population (by gender, age, background, region, etc).
Budget: n/a (part of the general budget)



Best Practice Example

Education
 Workplace
 Public Policy

Name of the project / initiative / measure: Virginia State e-Government Program (http://www.vipnet.org/)
Country: US
Scope (regional / national / international): regional (State of Virginia)
Institutions involved:
Contact information: Donald W. Upson, Chairman, Secretary of Technology, Commonwealth of Virginia 9th Street Office Building, 5th floor, Richmond, VA 23219 Tel: (804) 786-9579 e-mail: sotech@gov.state.va.us URL: http://www.technology.state.va.us/home.htm
Short description of the project / initiative / measure: At the end of 2000, Virginia began the next evolutionary phase of its e-government program with "the digital dominion." This pilot program takes a broad approach and addresses as a whole the trilateral relationship of citizen, state and business. The Electronic Government Implementation Division is responsible, for example, for standardizing, promoting and coordinating the common use of resources for all government agencies, providing necessary budget consultation, and promoting project management know-how. "My Virginia" was America's first state website that could be completely personalized. It allows users to determine which information is displayed and to configure a newsletter according to subject. On a separate page, all current online services are organized according to individual and business user groups. Extensive market research was conducted to determine the content of the site. The main portal has also recently begun to offer wireless services. Users can access real-time information about the government – for example, election results and other current events – via their cell phones. Important political activities are broadcast simultaneously on TV and the Internet. The website also provides an extensive online archive containing legislation, calendars and agendas. Virginia has made it a goal to provide every citizen with access to the Internet and to the services offered on the Internet. Public libraries play an important role here. A kiosk initiative has also been launched, and this initiative is expected to expand public access even more. In keeping with the idea that the digital divide cannot be overcome just by increasing access, various coalitions were formed with the private sector to find ways to overcome other gaps, such as the cultural divide, as well.
Budget: n/a (part of the general budget)



Best Practice Example

Education
 Workplace
 Public Policy

Name of the project / initiative / measure: eActivist.org
Country: US
Scope (regional / national / international): national (US)
Institutions involved: Tides Center (http://www.tides.org/center/index.cfm)
Contact information: Name: Heather Mansfield Address: eActivist.org 3648 23rd Street San Francisco, CA 94110 Phone: e-mail: heather@eactivist.org URL: www.eactivist.org
Short description of the project / initiative / measure: <p>eActivist.org works to encourage electronic activism and civic participation by providing a collection of simple, easy-to-use progressive electronic actions and tools for the eActivist. The site, which has the motto, "eAction in 3 clicks or less," essentially is a one-woman show. Mansfield started the site in July 2000 and since then has built a small following for offering a stripped-down, action-oriented, no frills site that seeks to provide quick opportunities for busy people to make a difference.</p> <p>While the site has made only one partnership with another organization, it offers progressive advocacy groups with a chance to become partners and post actions. Other sites can pay eActivist on a biannual or individual basis to post action links on eActivist.org. The twice-a-year fee is \$75 and is voluntary. If a group wants to post an individual action, they're encouraged to pay a \$10 fee. Mansfield estimates 250 to 500 unique users go to the site daily, the traffic double monthly (non-progressive organizations and corporate entities are not allowed to participate).</p> <p>Heather Mansfield use the tools of the Internet to craft an efficient, effective, action-oriented site. She's essentially done it on her own, although there was some design help initially. Her experiences over the last year build the case for an online democracy portal to provide the tools and information that governments, activists and others can use to provide information, communication, services and participation to promote democracy online throughout the world.</p>
Budget: ca. US-\$ 1800 per year



Best Practice Example

Education
 Workplace
 Public Policy

Name of the project / initiative / measure: People for the American Way, PFAW.org
Country: US
Scope (regional / national / international): national (US)
Institutions involved:
Contact information: Name: Josh Hilgart (Webmaster) Address: People for the American Way 2000 M Street, NW, Suite 400 Washington, DC 20036 Phone: +1-202-467-4999 or 800-326-7329 e-mail: webmaster@pfaw.org URL: www.pfaw.org
Short description of the project / initiative / measure: <p>PFAW, founded just over 20 years ago, started using the Web about five years ago as a new tool to reach a new audience of activists. Over the last five years, it launched its own Web site and, with advice of various Internet and communications strategists, offered 15 mini-sites to push specific messages. Six of those sites remain up and running.</p> <p>At PFAW, the Internet really proved itself earlier this year with an 18-day targeted online campaign that focused on opposing the nomination of a controversial candidate for U.S. attorney general. The site that resulted succeeded in generating more than 270,000 online signatures on petitions opposing the candidate. Prior to this campaign, PFAW had about 50,000 unique e-mail names and about 300,000 members/contributors across the U.S. The campaign enabled the organization to boost its e-mail list to about 260,000 individuals – a five-fold increase.</p> <p>PFAW uses the Internet as a primary tool to energize supporters, move people to action and provide in-depth reports and information to try to influence public policy. It has set up the behind-the-scenes infrastructure over the last few years to be able to generate a quick mini-site and to publicize it through viral marketing. PFAW provides a roadmap for how to integrate the Web into offline activity. By using the Web in an intelligent manner, an organization can keep members informed, provide action opportunities, deliver timely reports and influence public opinion.</p>
Budget: estimated \$80,000.00 a year



Appendix IV:

**Model Projects supported by
Bertelsmann Foundation and
AOL Time Warner Foundation**



Best Practice Example

Education Workplace Public Policy

<p>Name of the project / initiative / measure: bibweb - the Internet Training for Public Libraries / bibweb - the Learningspace for Public Libraries</p>
<p>Country: Germany</p>
<p>Scope (regional / national / international): National</p>
<p>Institutions involved:</p> <ul style="list-style-type: none"> • Bertelsmann Foundation • ekz.bibliotheksservice Ltd. (largest service provider for libraries in Germany)
<p>Contact information: Name: Christian Hasiewicz Address: Bertelsmann Foundation Carl-Bertelsmann-Str. 256, D-33311 Gütersloh Phone: ++ 49 / 52 41 / 81 81 366 e-mail: christian.hasiewicz@bertelsmann.de URL: www.bibweb.de</p>
<p>Short description of the project / initiative / measure:</p> <p>1. "bibweb - the Internet Training for Public Libraries" An online learning course via the Internet helps library staff to acquire competencies in handling the new medium of the Internet. The objective is to increase the number of public libraries with Internet service offerings for citizens.</p> <p>2. "bibweb - the Learningspace for Public Libraries" After the success of the "Internet Training" (more than 2.500 librarians enrolled in the course), the Bertelsmann Foundation and its project partner initiated a follow-up project, using the same method (web based training) and offering a broader scope regarding the contents - soon, librarians will be able to attend online courses covering topics like "customer orientation" or "services for young customers". The aim is to establish a virtual center for the further education of public library staff in Germany.</p>
<p>Budget: Internet Training: 400 T€ Learningspace: 600 T€</p>
<p>Further information: URL of the project: www.bibweb.de The "Learningspace" will be launched in the second quarter of 2002.</p>



Best Practice Example

Education Workplace Public Policy

Name of the project / initiative / measure: Media Workshop New York
Country: US
Scope (regional / national / international): regional (New York City)
Institutions involved: <ul style="list-style-type: none"> • Four partnerschools (public schools) in New York City • Contract schools from all 5 boroughs
Contact information: Name: Felicitas von Peter Address: Bertelsmann Foundation Carl-Bertelsmann-Str. 256 D-33311 Gütersloh Germany Phone: ++49 (0) 5241 81-81154 e-mail: felicitas.von.peter@bertelsmann.de URL: http://www.mediaworkshop.org
Short description of the project / initiative / measure: Since 1994 the “Media Workshop New York” has been offering public school teachers in NYC professional development in integrating technology into the curriculum. All teachers – regardless of grade or subject – receive practical advice in how to integrate new media into their classroom. The training courses are tailored to meet the goals and needs of the individual schools and aim at guiding teachers and students in using new media in a competent and responsible way. In particular, the workshops: <ul style="list-style-type: none"> • design curricula for media education, • guide teachers and students in the usage of media in the classroom • transform the results into instruction toolkits. <p>Since 1997, the Media Workshop has dedicated special attention to four partner schools selected for a three year phase within the framework of the “Bertelsmann Partnership for Education”.</p>
Budget: 700.000 US\$ p.a.
Further information: http://www.bertelsmann-stiftung.de/project.cfm?lan=en&nid=71&aid=2624 (in English) http://www.bertelsmann-stiftung.de/project.cfm?lan=de&nid=33&aid=899 (in German)



Best Practice Example

Education Workplace Public Policy

Name of the project / initiative / measure: Laptop Project ESG
Country: Germany
Scope (regional / national / international): regional (Gütersloh)
Institutions involved: Evangelisch Stiftisches Gymnasium (Gütersloh grammar school) Toshiba Microsoft
Contact information: Name: Dr. Detlev Schnoor Address: Bertelsmann Foundation Carl-Bertelsmann-Str. 256 D-33311 Gütersloh Germany Phone: ++49 (0) 5241 81-81250 e-mail: detlev.schnoor@bertelsmann.de
Short description of the project / initiative / measure: <p>In a unique nationwide project conducted in partnership with the Bertelsmann Foundation and Toshiba, seventh grade school children at the Evangelisch Stiftisches Gymnasium in Gütersloh were provided with laptop computers. A unique financing model was developed for the laptop project. Toshiba subsidized the price of the computers, while the Bertelsmann Foundation agreed to finance the infrastructure and Microsoft to offer special conditions for licensing software. Parents agreed to pay a monthly rate of DM 65 for four years, which also covers the software and insurance for the laptop. After four years, the computer becomes their property. A special "solidarity fund" was set up for low-income families. Currently, 340 students are using a computer for learning with multimedia at school and at home.</p> <p>An educational concept for using computers in all courses was developed, the quality of laptop instruction and learning success are being evaluated regularly.</p> <p>The laptop project is part of a comprehensive media concept covering the areas of reading encouragement, information and communication-literacy, analysis of film and TV, and multimedia and the Internet.</p>
Budget: US-\$ 550.000
Further information: http://www.ev-stift-gymn.guetersloh.de (in German)



Best Practice Example

Education Workplace Public Policy

Name of the project / initiative / measure: Internet for Beginners
Country: Germany
Scope (regional / national / international): national (Germany)
Institutions involved: Bertelsmann Foundation German "Volkshochschulen" (Adult Training Association) "Stern" (weekly news magazine)
Contact information: Name: Dr. Detlev Schnoor Address: Bertelsmann Foundation Carl-Bertelsmann-Str. 256 D-33311 Gütersloh Germany Phone: ++49 (0) 5241 81-81250 e-mail: detlev.schnoor@bertelsmann.de URL: www.internet-fuer-einsteiger.org (in German)
Short description of the project / initiative / measure: <p>Only 5% of Germans over 50-years old take advantage of online services. The reasons for this low use are not only restrictions in the technical access to the Internet, but also the fact that many older people are poorly informed about the advantages of using new information and communication technologies and, unlike younger people, have fewer opportunities and see less need to become familiar with Internet technology and usage.</p> <p>The objective of "Internet for Beginners" is to develop and introduce a nationwide range of Internet courses for beginners in adult education centers, create materials for participants and teachers, establish an online platform, and initiate an information campaign targeted at groups as yet unfamiliar with the Internet.</p> <p>The initiative, with additional support from the internet provider COMUNDO was officially launched at a press conference on August 24, 2000. The launch was accompanied by a five-part series published in Stern magazine. The feature story was accompanied by the educational CD-ROM "Internet for Beginners" in an edition of 1.4 million copies. Almost 600 adult education centers are currently participating in the nationwide initiative. In the second phase of the project, the target group was extended and materials were developed specifically targeted at senior citizens.</p>
Budget: \$ 250.000
Further information: http://www.bertelsmann-stiftung.de/project.cfm?lan=en&nid=71&aid=2627



Best Practice Example

Education Workplace Public Policy

Name of the project / initiative / measure: "Internet-ABC"
Country: Germany
Scope (regional / national / international): national
Institutions involved: Bertelsmann Foundation State Broadcasting Authority of North-Rhine Westphalia (LfR) Heinz Nixdorf Foundation
Contact information: Name: Dr. Marcel Machill MPA Address: Bertelsmann Foundation Carl-Bertelsmann-Str. 256 D-33311 Gütersloh Germany Phone: +49 5241 81-81350 e-mail: projektleitung@internet-abc.de URL: www.internet-abc.de
Short description of the project / initiative / measure: The "Internet-ABC" wants to foster media competence on a broad range - to achieve more "user empowerment". As a family portal the "Internet-ABC" provides internet awareness, safety and orientation for children, parents and teachers. The portal comprises two main elements with complementary contents: an offer for parents and teachers characterized by a high amount of information, and an offer targeted at children - featuring easy access and a media-educational emphasis. Kids encounter a "cool" and attractive offer that treats the subject of Internet competence in an entertaining manner. For example, they can acquire a "Surfers' License". A list of recommended children's websites that have been classified as safe shall enable children to surf in an instructive manner. The Adults' features are intended to provide parents with answers to the questions most frequently asked in connection with ensuring responsibility. In particular, it will provide help to parents with little or no previous knowledge or experience of the Internet, thus easing their way on to the Net. The website allows parents to take an Internet surfers' course and test their Internet competence by means of a crossword puzzle. Recommendations about the use of a suitable filter software will be given; a guide will provide advice on how to report illegal contents to a hotline. The Internet-ABC website also supports teachers by providing them with information on the inclusion of the Internet in subject-specific teaching. The "Internet-ABC" went online on December 6 th in Cologne.
Budget: 750.000 €
Further information: http://www.bertelsmann-stiftung.de/project.cfm?lan=de&nid=33&aid=910 (in German) http://www.bertelsmann-stiftung.de/project.cfm?lan=en&nid=71&aid=2424 (in English)



Best Practice Example

Education Workplace Public Policy

Name of the project / initiative / measure: Interactive Education Institute (IEI)
Country: USA
Scope (regional / national / international): National
Institutions involved: The AOL Time Warner Foundation The Philanthropic Initiative (TPI) Learning Options Center for Children and Technology
Contact information: Name: B. Keith Fulton Address: 22000 AOL Way, Dulles, VA 20166 Phone: 703-265-3307 e-mail: bkfulton@aol.com URL: http://www.aoltimewarnerfoundation.org/equip/iei.html
Short description of the project / initiative / measure: The AOL Time Warner Foundation seeks to identify and support interactive learning models that can be replicated beyond the schools and communities that receive direct funding. Through its Interactive Education Initiative (IEI) grant program, it provided classroom teachers, school programs, and community-based organizations (CBOs) with seed money to integrate technology into their learning environments in innovative ways, targeting schools and organizations serving socio-economically disadvantaged populations in diverse communities. IEI's goals were: <ul style="list-style-type: none"> • To maximize the benefits of interactive technology in K-12 learning environments • To develop models and/or identify best practices that can be replicated by other schools and communities • To produce an expanding network of educators and others dedicated to promoting effective educational use of interactive technology. <p>From 1998-2001, IEI awarded three rounds of seed grants ranging from \$1,500 to \$7,500 to 134 teams of educators, administrators, parents and community leaders from K-12 schools and community organizations throughout the U.S. Grant recipients also received in-kind support and free AOL Accounts, and participated in an online network.</p>
Budget: Approximately \$500,000 a year for three years (1998-2001)
Further information:



Best Practice Example

Education Workplace Public Policy

Name of the project / initiative / measure: PowerUP –Bridging the Digital Divide
Country: USA
Scope (regional / national / international): National
Institutions involved: National Partners include: America's Promise - The Alliance for Youth; AmeriCorps*VISTA; ASPIRA Association, Inc.; The AOL Time Warner Foundation; Boys & Girls Clubs of America (BGCA); The Child Welfare League of America; Communities in Schools (CIS); CTCNet; The National Association of Police Athletic Leagues; The National Society of Black Engineers; National Urban League; NetDay; Save the Children; U.S. Department of Education (ED)/21st Century Community Learning Centers; USDA/4-H Clubs; Village Foundation; Volunteers of America; YMCA of the USA
Contact information: Name: B. Keith Fulton Address: 22000 AOL Way, Dulles, VA 20166 Phone: 703-265-3307 e-mail: bkfulton@aol.com URL: www.powerup.org
Short description of the project / initiative / measure: Launched in November 1999 with an initial grant of \$10 million from the Case Foundation, PowerUP is a national effort to bridge the digital divide by connecting kids with computers and by using the interactive medium to link children to mentor, educational and career opportunities. Since its launch, PowerUP has installed computer centers in schools, public housing complexes, youth serving facilities, and community centers throughout the United States and Puerto Rico. It now has 250 fully equipped and staffed sites nationwide in 43 states with plans for international expansion in the near future. Power UP is comprised of dozens of non-profit organizations, major corporations and state and federal government agencies that have joined together to ensure that America's underserved youth acquire the skills, experiences and resources they need to succeed in the digital age. It leverages the talents of trained, full-time staff from AmeriCorps*VISTA and other organizations who work with young people to help them gain digital literacy skills. PowerUP leverages its partnerships to build upon thousands of existing community centers, schools and other locations nationwide, making the most of resources that are already in place. PowerUP also helps provide technology, funding, trained personnel, in-kind support and other vital resources for each of the local centers. In support of PowerUP, the AOL Time Warner Foundation has provided more than 100,000 AOL accounts to PowerUP centers across the country. It has also have created PowerUP Online, the first-of-its-kind online guide that children in PowerUP centers use to receive a dynamic package of interactive tools for character building, education support, career guidance and health information.
Budget: Over \$10 million
Further information:



Best Practice Example

Education Workplace Public Policy

Name of the project / initiative / measure: Education Technology Leadership Institute (ETLI)
Country: USA
Scope (regional / national / international): Regional (Washington, DC USA)
Institutions involved: AOL Time Warner Foundation Trinity College The Kimsey Foundation The District of Columbia Public Schools
Contact information: Name: B. Keith Fulton Address: 22000 AOL Way, Dulles, VA 20166 Phone: 703-265-3307 e-mail: bkfulton@aol.com URL: http://www.aoltimewarnerfoundation.org/equip/education_tech.html
Short description of the project / initiative / measure: The ETLI seeks to improve teacher quality by strengthening their understanding of technology. The pilot program, with partners Trinity College and the District of Columbia Public Schools, aims to build a corps of technology-trained teachers and administrators to lead and implement the effective integration of computer-based education in D.C. Schools. The ETLI provides teachers with the tools, knowledge and hands-on experience to infuse 21st Century technology into the classroom. This major new initiative serves as a model partnership that brings together a corporate sponsor, a college of education and a public school system, and can be easily replicated. The program, which is supported by the AOL Time Warner Foundation and the Kimsey Foundation, includes two major components to serve current and future teachers and administrators in D.C. Public Schools: - Boot camp: A series of intensive two-week technology summer "boot camps" for teachers and administrators, providing them with the tools, knowledge and hands-on experience to infuse technology into the classroom. - Curriculum: New courses for teachers and administrators through Trinity College's existing Professional Development Workshop program, which will train teachers to integrate technology into their lesson plans.
Budget: \$700,000 for two years



Best Practice Example

Education Workplace Public Policy

Name of the project / initiative / measure: Digital Divide Network
Country: USA
Scope (regional / national / international): National / International
Institutions involved: AOL Time Warner Foundation, Albert A. List Foundation, Annie E. Casey Foundation, The Case Foundation, AT&T, Bill & Melinda Gates Foundation, Ford Foundation, Intel Corporation, W.K. Kellogg Foundation, Lucent Technologies, Inc., the Markle Foundation and Streamingmedia.com
Contact information: Name: B. Keith Fulton Address: 22000 AOL Way, Dulles, VA 20166 Phone: 703-265-3307 e-mail: bkfulton@aol.com URL: http://www.digitaldividenetwork.org/
Short description of the project / initiative / measure: Digital Divide Network is the first-ever clearinghouse for collaboration and planning among many of the nation's major industry, private, nonprofit and government organizations to share information and ideas on how to tackle the challenges posed by the digital divide. Launched originally by the AOL Time Warner Foundation, the Benton Foundation and the National Urban League, the Digital Divide Network today is a partnership among leaders from diverse sectors of the economy to highlight the best practices and provide valuable research and resources to those who need them. Content on this online network is reviewed by the Digital Divide Advisory Committee, made up of the leading nonprofit organizations and experts in the field, such as representatives of the Children's Partnership and the Morino Institute. Partners in the Digital Divide Network believe this unprecedented forum will serve as a catalyst for developing new strategies, while making current initiatives more productive, more cooperative and more outcome-oriented. The Network, managed by the Benton Foundation, also hopes to establish an appropriate set of metrics to accurately judge the effectiveness of other efforts. The Digital Divide Network is also expanding internationally. It's German counterpart is run under the name Digital Chances Network.
Budget: Approximately \$250,000 per year for the DDN
Further information: