



The Computerworld Honors Program

Honoring those who use Information Technology to benefit society

Final Copy of Case Study

Status:

Laureate

Year:

2013

Organization Name:

Ministry of Culture, Media and Information Society of Serbia

Organization URL:

<http://www.kultura.gov.rs/en/about-us>

Project Name:

Virtual Desktops in Serbian Primary Schools

Please select the category in which you are submitting your entry:

World Good

Please provide an overview of the nominated project. Describe the problem it was intended to solve, the technology or approach used, how it was innovative and any technical or other challenges that had to be overcome for successful implementation and adoption. (In 300 words or less.)

As devices, infrastructure and services become more affordable and accessible, information and communication technology in the developing world gains momentum. A privilege once reserved for industrialized economies, the mass adoption of tablets, computers and smartphones closes the gap between the haves and have nots, creating new economic opportunities. The transformative impact of technology provides the greatest potential to level the economic playing field for the developing world. Serbia is a country poised for change as its economy transitions into the digital age. Preparing students with computing skills prepares Serbian youth for jobs of the future. Realizing the advantages of computers in schools, the Ministry of Culture, Media and Information Society of Serbia decided to outfit the nation's 1,600 primary schools with computer labs. More computers in schools enable students to direct their learning, access the vast resource of educational apps and tools on the internet and school networks, and prepare students with 21st century skills. To make this vision a reality, the Serbian Ministry sought a multi-seat technology solution that maximized their budget and gave as many

students access to a computer as possible. The Ministry also knew that the solution had to be easy to manage and energy efficient so schools can easily maintain the labs in the future. Virtual desktops met Serbia's needs for an affordable, sustainable solution. Partnering with Dell Cloud Client Computing, the government of Serbia deployed 30,000 Dell Wyse E01 zero clients in its primary schools.

When was this project implemented or last updated? (Please specify month and year.) Has it incorporated new technologies and/or other innovations since its initial deployment? (In 300 words or less.)

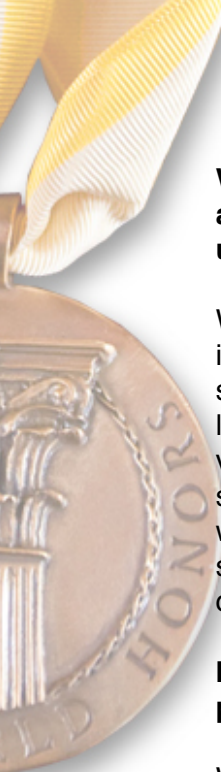
The Ministry of Culture, Media and Information Society of Serbia began to set up the virtual desktop computer labs in 2011 and completed the project at the beginning of 2012.

Is implementation of the project complete? If no, please describe the project's phases and which phase the project is now in. (In 300 words or less.)

The implementation of the virtual desktop computer labs is complete.

Please provide at least one example of how the technology project has benefited a specific individual or organization. Feel free to include personal quotes from individuals who have directly benefited from the work. (In 300 words or less.)

Disruptive technology affects education globally. In Serbia, bringing computers to primary schools modernizes education and empowers students with web-based resources so they can explore the world beyond the classroom. As Milica, a student at the France Presern School in Belgrade, explains, "We can get more information and faster than we can get it in a normal class or in a book which makes what we're learning more interesting." Another student, Petar, agrees that computers are expanding personalized learning opportunities and imparting 21st century skills, "I can create presentations, learn easier, see pictures, make things by myself." Virtual desktops are flexible and can be tailored for individual needs or used by many students, maximizing their impact and utility for schools. Dusan Zaric, a teacher of Technical Education & Computer Science at France Presern in Belgrade, says, "These [desktop virtualization] technologies enable us to work with students on joint projects or the teaching can be individualized so the students can gain more knowledge." A virtualized environment empowers teachers to monitor and control zero client users and track students' progress. "We can follow what every student is doing at any time from our work seat. Students can also do individual tests, and in the event that students don't follow the rules, for example, if they stray from the task at hand, I can block them to prevent the lesson from going in the wrong direction," explains Jelena Besedic, a teacher of Technical Education & Computer Science at France Presern. Virtual environments also simplify management of devices for the IT administrator, saving time, cost and staffing resources. "The benefit of using Dell Wyse zero clients is that it makes it easy for us to form computer networks. The administration of networks is easily done."



Would this project be considered an innovation, a best practice or other notable advancement that could be adopted by or tailored for other organizations and uses? If yes, please describe that here. (In 300 words or less.)

We live in the digital age, and critical technologies need to be available to all students, irrespective of socioeconomic status. Virtual desktop technology is an ideal solution for schools in the developing world. The low cost and ease of use of desktop virtualization lowers the barrier of access to technology and delivers more computers to students. The virtual desktop project in Serbia can be easily replicated by other schools that face similar challenges of minimal budget, lack of IT infrastructure, and a student body without any access to technology. A similar project is already in progress at a primary school in Lesotho, Africa, where the school and Dell Cloud Client Computing are to deploy virtual desktops in a classroom.

If there are any other details that the judges should know about this project, please note them here. (In 300 words or less.)

Watch a video testimonial about the computing made possible by virtual desktop labs in Serbian primary schools: <http://www.youtube.com/embed/oWX4M6cJqLE>