Chapter 3.10
A National ICT-in-Education Initiative:
Macedonia Connects

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ABSTRACT

This chapter presents a unique national initiative: Macedonia Connects, a multi-partner, scaled ICT-for-education project wherein every school across Macedonia was equipped with both computers and wireless Internet connections and through which the Internet was made available to citizens across the entire country. A number of best practices may be identified, including the pre-deployment training of teachers in IT adoption, the equality of provision to promote positive inter-ethnic relations, and the long-term focus on the part of all stakeholders in terms of outcomes. The goals of this project target both educational and socio-economic development. There are many aspects of this case that may be applicable to future ICT-for-development endeavors, and some of Macedonia's neighboring states have already indicated interest in following this model.

INTRODUCTION

Growth in the number of projects that bring information and communications technology (ICT) to the developing world has been remarkable in recent years, reflecting the high and ever-increasing expectations placed on ICT in terms of quality of life improvement, empowerment, and economic development for the technology users. Despite the soundness of theory and the promise that today's new technologies hold, it is vital to recognize that they are not diffused and absorbed automatically. Capacity-building, through education, is absolutely necessary to build the human capital required to take advantage of advancing technologies (Lee, 2001).

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Thus schools have been a target of numerous ICT-related development projects, with the rationale that education is a powerful tool that contributes seminally to economic growth through the development of a skilled workforce and increased productivity. It is equally vital to social development, as it empowers people to improve their health, environment, and governance.

Still, it is just as important to recognize that the introduction of ICT-related projects has the propensity either to intensify inequality and social exclusion, or to promote equality and social inclusion, and this applies in particular when ICT is introduced into educational contexts. Technology is always and everywhere introduced into a society that is far from neutral; the individual characteristics of each society greatly affect fundamental issues such as whether and how technology will be adopted and used, and who will benefit from it. If social inclusion is to be promoted by ICTs, there must be a specific provision or plan for this in technology-related development projects.

Most ICT-related interventions in developing countries take the form of pilot projects, at least at the outset. From a financial point of view, this is sound reasoning: the proof-of-concept demonstrated by an effective, successful pilot project is often what convinces stakeholders to invest in larger projects. Even so, while this strategy seems rational, problems may assert themselves through the perceived privileging of any given region, city, or school over another in terms of pilot location, particularly in societies divided by ethnic, religious, or any other differences.

One technique that would avoid locational objections entirely would be to undertake an inclusive, macro-level, state-wide technology deployment. However, risk is extremely high with this strategy: projects deemed unsuccessful mean a squandering of scarce development resources on a nationwide level, and bring about unfulfilled aspirations for the participants. This chapter gives an overview and discussion of potential lessons to learn from just such a national-level case: a national ICT-in-education initiative—*Macedonia Connects*. The fact that so few projects have been undertaken at this level means that an in-depth analysis of such endeavors offers the potential to contribute a great deal to the literature and body of knowledge on the subject.

In September, 2005, Macedonia announced that it had become world's first "all-wireless nation." This was seen as quite an achievement for a country that just four years earlier was faced with the very real possibility of ethnic civil war. This ambitious project, *Macedonia Connects* was centered on education, and was the result of a public-private partnership initiative. Through a single technology deployment, *Macedonia Connects* provided the entire country with a broadband wireless network by connecting all 460 of the nation's schools (as well as 70 other sites, including dormitories, hospitals, and NGOs) to the Internet and using these sites as hubs for commercial and residential Internet connectivity nationwide.

One of the long term goals for the *Macedonia Connects* project is to train a new generation of ICT-literate students with skills that will ultimately create a workforce that can participate in the knowledge economy, allowing Macedonia to become a regional technology hub. Additionally, there are hopes that the uniform deployment across all schools will lead to increased levels of peace and understanding among the ethnic groups within the state; not just through school-led projects that promote inter-ethnic communication and cooperation, but in the longer term as well. Abundant potential exists for economic growth and technology adoption to be realized in the shorter term too, because the same initial deployment that connected all of the schools simultaneously provided high-speed Internet connectivity to the entire country at affordable subscription rates.

This project is unparalleled for a number of reasons. To our knowledge, this is the first nationwide ICT-in-education deployment that simultaneously provided Internet connectivity to the entire nation. The government views this project