

Guest Editorial

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This topical Issue presents examples of Intelligent Transportation systems that promise to make our travel safer, easier and more satisfactory. Information and Communication Technologies (ICTs) are revolutionizing the transportation sector around the world. The ability to collect massive amount of data, analyze it almost instantaneously, and communicate critical information in real time has changed the way we make system and individual travel decisions; and offer promises to address 21st century persistent transportation challenges in unprecedented ways.

Smart technologies can allow communication among vehicles, systems and infrastructure to avoid collisions, more effectively manage traffic flow and improve traffic safety. It promises to reduce accidents and save lives. In-vehicle communication devices can warn of crashes, and help avoid them. Additionally, Intelligent Transportation Systems (ITS) promises better decision making and more effective and efficient management. Important system decisions often have to be made instantaneously. Access to objectively analyzed data can inform decision making and enable more robust and informed decisions that affect quality and efficiency for transportation system users.

ICTs are also playing a key role in informing environmental policies by improving, monitoring, evaluation and adaptation strategies. ICTs are overhauling disaster management and emergency response by coordinating extremely complex operations among numerous actors, and providing real time

information that informs decision making. Intelligent Transportation systems utilize ICTs to access “Big Data” and provide information that can make our travel safer, faster and environmentally more sensible. However, widespread diffusion of technological innovations that utilize ICTs remains a challenge. Still in the early development stages, some technologies are not accessible to users and systems in less resourced environments.

While widespread access to Intelligent Transportation Systems may not be possible at this point in time, because of their high cost, access to data-driven travel information systems has become mainstreamed globally, thanks to mobile technologies. Global availability of mobile networks have made possible the availability of critical travel information in real time. Judging from the trajectory of mobile technology diffusion, one can predict that diffusion of Intelligent Transportation systems will be a reality in the not-so-distant future.

The papers included in this topical Issue feature the next generation of ICT innovations. Radivojevic and Milbredt study the effectiveness of a Decision Support System Tool called DEVOTED DSS. The tool is designed to assist airline operation controllers in making decisions about out-bound flights to prevent high-fare connecting passengers from incurring more delays by missing their out-bound flights. The tool is designed to be simple, user-friendly. It helps to avoid the less objective approach used currently by operators which includes assigning a monetary value on each minute of delay. It weighs not only the monetary benefits but also the reputational and reliability factors that are critical to the airline industry.

The tool enables effective management decisions, and allows user-centered policies to be made to increase travelers’ satisfaction and quality of the traveling experience. Informed evidence-based decision making helps to more effectively manage possible disruptions for the traveling public.

This article is part of Topical Collection on the Role of Information and Communication Technologies (ICTs) in Facilitating Global Research, Development, and Technology Transfer Cooperation

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Orozco, Cespedes, Michoud and Llano examine a collision notification application that allows communication between cars and enables decision making to avoid collision, thus improving safety and reducing accidents. They have shown that the collision warning application using a cross layer design and a distributed geo cast routing mechanism have performed well and have proposed testing the design with other safety-oriented application in the future. Other applications they propose to develop in the future include applications oriented to influence and improve traffic flow and safety.

In both cases, the authors demonstrate how Intelligent Transportation Systems are changing the way we interact with our transport infrastructure, and how the system is responding to our needs. They demonstrate that the possibilities are endless when it comes to ITS innovations.

Yet, to leverage the full potential of these innovations and mainstream them globally there is a need to change the way the technologies are produced. A more collaborative approach to producing these technologies will make their production and testing less burdensome from a cost perspective, and their diffusion more effective.

International collaborations in ITS research has increased significantly, and there are successful collaborations that already exist. However, collaborations across borders often face serious challenges that need to be resolved to pave the way for successful collaborations. Barriers of culture, governance, power differentials, legal and regulatory regimes, differences in policies, protocols and practices must be addressed before collaborative arrangements are established. Top down policy interventions in facilitating international collaborations are critical not only to address those macro-level barriers, but to provide access to resources and networks that enables bottom up collaborations.

There is no doubt, however, that we are entering into a new and exciting era of innovations that promises to resolve many of the persistent challenges of the last century.

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