NEW MOBILITY SOLUTIONS FOR URBAN TRANSPORTATION

By Susan Zielinski and David Berdich

In the summer of 2007, the Tate Modern’s Glob- of-Cities exhibit in London publicly marked an urban threshold recently crossed: for the first time in history, one out of every two people on the planet live in cities and move around in cities. This already proves challenging for those whose job it is to make sure the urban half can move around safely, sustainably, equitably, and affordably.

But some time leading up to 2050 when that figure grows to 7 billion people living in cities, population and when at least 35 world cities have a population of more than 10 million, things be-gin to get really interesting.

The implications and opportunities of this transformation for cities, transportation, and business were the impetus behind the University of Michigan’s SMART/CARSS1 teaming up with Ford Motor Company in 2005 to focus on inte-grated, multimodal transportation in cities, oth-erwise known as New Mobility. Since that time, SMART and Ford have catalyzed pilot “hub net-work” projects in Chennai and Bangalore in In-dia, as well as in Cape Town, South Africa, and are currently developing projects in a number of U.S. cities. Working with the University of Michi-gan, Ford started by transforming its own busi-ness model, moving from selling cars and trucks to selling cars, trucks, and urban mobility (Ford Urban Mobility Networks). As Bill Ford, executive chairman of Ford Motor Company, put it:

Don’t assume we’re always going to be in the car business. We’re going to be in the transportation business, and it’s going to look very different 20, 30, or 40 years from now. The notion is you don’t have to have ownership of a vehicle. What you want to get from point A to point B: You may have a car, a bicycle, a moped, and we at Ford and others are going to help you do that.

Sue Cachkie, senior vice president of Ford Sus-tainability, Environment and Safety Engineering, put it this way:

How are we going to move these peo-ple? I see that as one of the things I’ll be working closely with Bill on, because that’s one of the issues that will factor in how Ford Motor can be positioned for the next 100 years or so.

But beyond its own transformation, Ford is playing a leading role in accelerating the devel-opment of an entire global New Mobility in-dustry that embraces and connects a much wider range of sectors beyond manufacturing, including IT and geomatics, energy and utilities, logistics, real estate and design, finance and venture cap-ital, and retail, tourism, and new entrepreneurial services.

Where Need and Opportunity Meet

It might seem odd at first that one of the world’s leading automakers would want to engage in an effort aimed at curbing the use of single-occupancy vehicles, and then share a major emerging market with other, seemingly disparate sectors and busi-nesses. But on closer examination, learning and developing a new urban market to complement vehicle manufacturing begins to make sense, es-pecially now, not only in terms of future business opportunity but also in terms of survival.

Ford’s interest in urban mobility challenges is consistent with its legacy—the company that transformed personal mobility in the twentieth century wants to influence how it will be made available in the twenty-first century. Ford is a solid citizen in the communities where it oper-ates: it provides employment and local economic development work, customer-focused approaches to infrastructure in manufacturing, logistics planning, IT, and global infra-structure challenges make it uniquely qualified to play a leadership role in the development of urban transportation solutions.

More broadly, the fast-growing need and there-fore, the market for innovative, integrated urban mo-bility and accessibility solutions are no longer in question. A recent study by the National Academy of Engineering (NAE) looked at the “grand chal-lenges” of engineering for the twenty-first century and placed urban infrastructure, in particular transportation, high on the agenda.

Engineers of the 21st century face the formidable challenge of modernizing the fundamental structures that support civilization. The problem is par-ticularly acute in urban areas, where growing populations stress society’s support systems, and natural disasters, accidents, and terrorist attacks threaten infra-structure safety and security... Furthermore, solutions to these prob-lems must be designed for sustainabil-ity, giving proper attention to environ-mental and energy-use considerations (though cities take up just a small per-cent age of the Earth’s surface, they dis-proportionately exhaust resources and generate pollution), along with concern for the aesthetic elements that contrib-ute to the quality of life (NAE 2008).

But it is becoming more universally clear of late that the most commonly pursued solutions don’t fully address urban transportation’s increasingly complex human, physical, and political context. For example, alternative fuels alone, while focused on environmental concerns, do not address the land-use, health, infrastructure supply, or safety implications of strictly single-occupancy auto-based approaches. Pricing alone as a disincentive to car use without providing affordable and prac-tical options only adds to the economic burdens of the working poor and elderly on fixed incomes.

In this context, NAE emphasizes integrated “sys-tems-based” solutions:

Streets and highways will remain crit-ical transportation conduits, so their maintenance and improvement will remain an important challenge. But the greater challenge will be engineer-ing integrated transportation systems, in which the individual vehicle travel, mass transit, bicycling, and walking all as easy and efficient as possible. An in-creasingly important question is the need to provide better access to trans-portation for the elderly and disabled (NAE 2008).

In response to these more complex and multi-faceted needs, there is no shortage of innovation. In fact, a groundswell of innovation is arising worldwide to go beyond conventional solutions to address the gap with new services, products, transport modes, technologies, and designs.

Connectivity is Key

Despite the proliferation of possible solutions, these innovations are too rarely linked in a way that can provide a convenient, practical door-to-door trip for the user. The next generation of ur-ban transportation is about connecting the dots, bridging these diverse innovations together in ways that actually work better for users than the single-occupancy vehicle, whether they live in a context of rapid economic growth or instability and decline. What will these new systems look and feel like? Much like our personalized telecommu-nications portfolios have evolved to connect iPod, laptop, desktop, search function, GIS, cell phone, and more, the next generation of urban transpor-tation is about seamlessly linking different modes of transportation, services, IT technologies, and designs and infrastructures to provide integrated “open source” urban transportation portfolios.

Imagine a day when, steps from your door or even inside your home or office, you could enter a vital network of New Mobility Hubs, places near you that connect a whole range of transport ameni-ties including buses, trains, streetscars, clean-
MegaChallenges
Confronting Urban Modernity (continued from page 15)

Charted in figure 1 highlight the extraordinary dynamic complexity (i.e., separation of cause and effect in time and space) at work in the forces of global urbanization. These detailed analyses go beyond the scope of this brief article, the “patterns that connect” suggest some foundational insights about the probable future of developing nation cities. First, while every megaforce in the system is both causal and consequential, some of the forces appear to be more potent in driving urbanization. Second, some two-thirds of the relationships and derivative causal loops portrayed in this system move in the same causal direction, implying a very powerful, self-reinforcing, accelerating, and policy-resistant vicious cycle of dysfunctional and unsustainable urbanization. The only substantive balancing or regulating causal loops bringing stability to the system are either weak or quite delayed in effect, such as long-term increases in environmental stress-related mortality or morbidity, reducing aging and population size, and therefore, urbanization.

Our cursory trend and systems analysis, in the absence of profoundly pro-poor/ female/youth/livelihood/ renewable energy/compactness/eco-efficiency/self-sufficiency/adaptive-capacity policies and interventions, portends cities of “darkness rather than light” as once imagined by urban futurists. Under this scenario, cities in the urban world over the next five decades will grow older, younger, poorer, and more divided, and the resources available to city dwellers will grow more scarce and costly. The physical structure of cities will simultaneously grow more sprawled and crowded, and the living conditions in cities will become much hotter, drier, contagious, insecure, and conflictive. With substantial delays, as illustrated in figure 1, the forces of devastating climate change and explosively unstable slum growth could combine to radically reduce livability in coastal urban regions, leading to pressures for a massive migratory shift toward more climate-resilient, water-plentiful, socially secure, and economically prosperous inland and higher ground . . . such as Ann Arbor! Whether the world permits or attempts to block this rational and powerful search for human security will surely induce a wave of unanticipated consequences. Moving forward, our only hope as citizens and scholars is to abide by the wisdom suggested by Antonio Gramsci, the Italian philosopher and revolutionary: “The challenge of modernity is to live without illusions and without becoming disillusioned.”

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To see a complete reference list for this article, please visit the website of The Journal of the International Institute at http://quad.lib.umich.edu/jji/.

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New Mobility Solutions (continued from page 7)

New Mobility can substantially support and shape urban revitalization and significantly improve quality of life and environment in cities around the world. At the same time, it can open up a wealth of business and employment opportunities—locally and globally. But this evolution is not without obstacles. Increased motorization and the high social and environmental costs associated with it represent problems in developing countries, along with seemingly unstoppable urban sprawl in the West, are challenges that need to be tackled on psychological and cultural as well as infrastructural and economic levels. Progress toward a positive, integrated, and sustainable future for urban transportation will require more than moving people and goods. It will also involve the complex task of moving hearts and minds. In partnership with SMART’s growing global learning community, its leaders are committed to bringing their unique multiparadigm systems and solution-based expertise to the challenge of moving people, moving minds, and moving cities of the future.