

**THE ITACA PROJECT
aims at lowering carbon
output of urban transport
through the use of
sustainable innovative
technologies and optimal
management models**

ITACA News

no 4 – Sept/Oct 2011

Next issue: Oct 2011

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The ITACA Handbook 'Realizing Sustainable Mobility' was published in September on the POWER website (www.powerprogramme.eu). It is downloadable from this website.

Jason Meggs, one of the main authors of the ITACA Handbook, was invited to give an impression of the results of the ITACA project at the Final Event of the POWER Programme in Brussels on September 21^e 2011.

In this newsletter you we publish his speech. Meggs works at the University of Bologna, DICAM.

"Not every day does one address an auditorium full of people directly employed to usher in a new low-carbon economy. Speaking in Brussels at the final event of the POWER Programme – *empowering the low-carbon economy* – on behalf of the ITACA project (examining sustainable transportation and land use), it was my honour and duty to deliver the most meaningful findings of that collective effort of: seven partners, in four countries, across Europe.

How to best reach the crowd? They seemed sleepy. My microphone seemed too far away. Think outside the box. This is important. To solve both problems, I planned a multiple-cartwheel charge across the stage to grab the cordless microphone from our host, like a circus gymnast seizing a baton. This would emphasize the starring role of active transport coupled with land use strategies in the ITACA solutions toolkit. Through human power, gaining access by proximity – and even giving it voice.

Of course our facilitator, Alexandra Bolland of AURORA, expertly pre-empted my stunt, showcasing pedestrian transport by walking over and handing me the cordless microphone with a smile, instead. At least the idea of a tumbling acrobat – *and yes I was "dead serious"* – woke some of the faces which had seemed slumped at the brink of sleep from hard work and travel.

"Coffee doesn't always work," I observed, relishing the momentary rosiness and alertness from the crowd. "Neither does petroleum: two black liquids that aim to make the world GO." (I'm told coffee is actually the second most heavily traded commodity, after petroleum.) In both cases we need a healthier solution, to usher in a petroleum free, carbon-free transport system. And we can't just go to sleep on either.

Sobering news lay ahead. "The ITACA project surveyed new technologies, and although many have promise, there is no magic technology on the horizon which can allow us to continue the path we are on, toward more and more automobile dependency. We must fundamentally change our direction." At least my fancy microphone was working!



Jason Meggs at the POWER Final Event in Brussels, Sept 21th 2011

While the goal of ITACA was to gather hard data on the efficacy of each of many measures in reducing carbon, in a variety of contexts, in fact it's actually quite difficult in many cases for municipalities to conduct their own scientific assessments, leaving



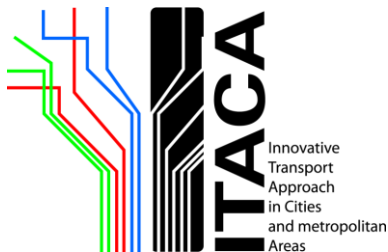
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our pursuits as always an art, as well as a science, guided by principles as much as by metrics. Even where numbers do exist, each solution must be tailored to its individual locale; in that sense there are no best practices, only best intentions steering best outcomes.

True that hybrids have market potential now; that batteries may improve; that hydrogen has theoretical potential; and true as well, that biofuels can fulfill certain essential niches, notably the amazing success in Stockholm, with local production of biogas from organic waste. But each has serious limits and costs, and none are instantaneous.

Hydrogen faces massive barriers to entry, needs a major new infrastructure investment akin to 100 years evolving the present systems, suffers from severe energy inefficiencies, and presently most hydrogen is in fact, made from petroleum. Hydrogen and battery-electrics, both, demand major new sources of renewable energy, already needed and in short supply to provide for existing electricity use, and both rely on fleet replacement, which is certainly not the speediest and least carbon measure for sustainable transport.

Biogas is but a drop in the bucket, possibly powering a city's buses, but not much more, and other biofuels risk competition with food production, along with concomitant agricultural depletion.

Even if enough of these problems are solved for us to bet all on a new propulsion system, and even we succeed and truly significant efficiencies and reductions in carbon emissions result, still the life-cycle costs of the new systems must be accounted for, and if we are continuing to rely on large private vehicles, their myriad burdens (which can hardly be considered sustainable) continue, particularly if settlements relying on them continue to grow across the countryside. Parking facilities alone are a major urban expenditure, not just of fiscal resources but of carbon emissions. Roads as well. Then there are the social costs and other "intangibles" and externalities such as health

impacts of sedentary lifestyles. So even if a miracle energy source emerged which is essentially free ("too cheap to meter," as nuclear power was promised to be at its advent), the system itself poses an enormous burden to account for.

We Can Change Overnight

Not to lose hope at all, there is plenty that can be done, and many benefits to be achieved. The biggest possible short-term gains are without a doubt, through behaviour change. Many, many trips are unnecessary, or inefficient, and could be substituted, joined, or otherwise reduced. Just as with renewable energy, conservation is the lowest hanging fruit, the first place to look, before attempting to engineer a new power source.

In cities, one heartening avenue is a group of varied measures to reduce urban traffic. These measures that restrict or encourage less driving in centers have seen successful reduction of volumes from 20-30% and more, whether through incentives, disincentives, or simply by creating pedestrian zones or other restrictions.

Even in suburban areas there is hope, where combinations of measures can be effective. In the Huelva Province, Spain, reductions of 12-18% in energy expenditures are projected to result from a series of planning measures there.

Planning Superheroes Planning for Super Places

Planning emerged as the next key and essential measure. Whatever the solutions, they need local champions, strong ones, and dedicated for the long-term, backed by the political will *not only to survive, but to flourish*. The three speakers before me, involved in ITACA's sister project, TraCit, each discussed the role of planning in the challenges their cities faced.

Two discussed a connection in Estonia between Viimsi, a commuter suburb 10+km outside Tallinn – just a bit too far to bicycle by current standards, and as we so often see, attachment to the private automobile is the norm. Indeed in ITACA we addressed a similar problem regarding the island of Lidingö, across from Stockholm in Sweden, where



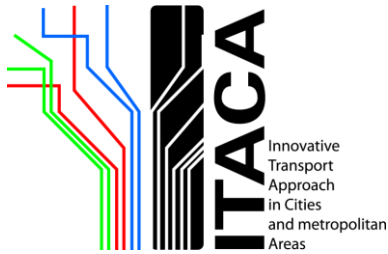
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their Environmental Plan is coordinating with a new Comprehensive Plan for the Stockholm Region.

In both cases, land use measures coupled with strong public transport service shines as the best we can do in the long-term. The advent of lightweight electric vehicles, however, promises a new major solution available quickly. Small electric vehicles can conceivably provide the best of both worlds (car and bicycle), closing the distances that seem a bit out of cycling range through increased range, while allowing an all-weather, speedy-enough vehicle which has propulsion, but uses a bare minimum of energy and resources, compared to a standard private car, to do so. Not to mention, given a viable place to ride, commuting from both Viimsi and Lidingö would be beautiful with stretches along the water.



Small Electrics have Great Potential

Truly heartening is this new and emerging generation of small electrics. Not reinventing car technology, but rather something in between car and bicycle, whether an electric bicycle, or a

lightweight enclosed vehicle, based on bicycle technology but with weather protection, a comfortable seat, and even a place for carrying groceries and kids.

However, just as with the bicycle, the generations-old conundrum of *where to ride* remains. A safe, secure, comfortable, convenient path between residences and all destinations is desperately needed for these promising but sometimes slower and certainly more vulnerable vehicles, in the vast majority of urban areas. ITACA predicts a mutual benefit here: the need for lightweight electric vehicles can and will result in more safe places to ride bicycle as well, giving a sustainability boost to all forms of personal urban transport. Just as with bicycles, safe parking is needed at home and in commercial zones, but now as well, a place to park.

In the meantime, we need to resolve the panoply of regulatory barriers to safe and universal introduction of small electrics. Currently too many standards exist, and many good solutions are prohibited in many places, while safety standards have not been adequately developed.

None of this is to undermine the potential of the bicycle for short trips. The bicycle is our most energy-efficient and lowest-carbon form of land travel (and powered by a delicious form of renewable energy known as food). It is often faster than driving and public transport both in urban situations. The emergence of bike share systems is a tremendous innovation, which magically puts bikes in peoples' hands. (Indeed, a whole new generation of shared vehicles of all types is emerging, with great promise to reduce individual reliance on a private car.) However, the use of bicycles, and of sharing systems generally, requires supportive land use.

Land Use Is Key and Can Change Quickly

Often overlooked in discussions of low carbon transport is the potential to save energy by changing the city's form. Rethinking what people need and how they can accomplish it, we can reduce the need for, and certainly the distance of many trips, by bringing destinations closer together. Densifying existing settlements into



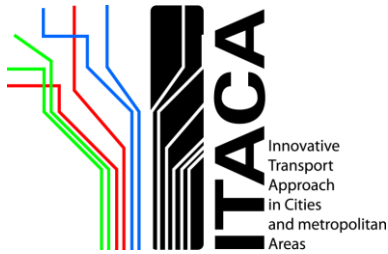
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centres over time allows not only for many needs to be met locally, without a car, but for high quality public transport between those centres, further reducing the need for private autos.

In the example of the APEA Cantina in Italy, simply by moving the cafeteria to a central location on a large worksite campus allowed a reduction of driving home for lunch for 23% of the total workforce.

The theoretical ideal of a car-free city, remains a key benchmark for evaluating any measure to improve the urban form as it is by all accounts, *the best we can do*. Such an idealized city would rely solely on walking and bicycling, and in some cases light electric vehicles, coupled with renewably powered, direct-electric drive for all mass transport (both for people and goods movement).

A car-free city promises many health and sustainability benefits, more efficient, equitable, and accessible transport, in short a higher quality of life, along with a stronger economy through proximity and conservation.

Land Use *can change quickly*, given supportive conditions and incentives to do so. If we think about it, we raced from pedestrian cities with horse and buggy to massive sprawling car-cities in just a handful of generations. We can set our sights on a happier and more lasting new vision. In all these measures, the role of government at best is to *allow a renaissance of new solutions to occur*. Zoning changes allowing local shops in suburbs, or allowing residential infill, or reducing parking provisions in centres; along with funding mechanisms such as transfer of development rights which restore natural spaces, or development fees or requirements which provide new transport infrastructure; are examples of ways the development framework can steer our course toward more sustainable land use.

Sustainable Economics, Robust Economies

The POWER programme aims for low-carbon economies, but not so much has been said about the economic means to get there, nor the economic implications. Perhaps a seventh category

in the POWER list of themes, that of *Sustainable Economics*, needs adding.

In any event, the positive expectations are solid: reducing the unnecessary use of oil is a very strong measure for strengthening any local economy. There is little utility in travelling longer for its own sake (who wishes for a longer commute?), and to do so just to consume resources may bump up GDP, but it weakens the fundamentals. If we look around the world, the strongest economies given their means are the ones which are minimizing their use of oil, saving that large and volatile expense; and the most competitive cities are those which are dense and compact, allowing the physical efficiencies and the interpersonal intensity of proximity, with many great minds and skills at hand.

Investment-wise, the long-term transition to sustainability means investments *now* that don't always please the standard investment models, given high upfront costs and prevailing notions of Net Present Value, even if these investments are sure to pay for themselves over time, even if they pay off extraordinarily well when we include those beguiling externalities and intangibles, let alone our very survival.

Somehow these ideas came out in an unscripted dialogue, and even if I was unable to get a single person to admit they've ever been confused by the array of sustainable transport options on the table, evidently due to a lack of propulsion in the raise-the-arm muscle, it was clear that our work was heard and appreciated. Most of all, lest we be overtaken by doom and gloom, I hope to have imparted the sense that remaking our transport system, for all its challenges, can be fun and rewarding.

Conclusions

The conclusion of my speech was supposed to give a heartfelt appeal to *question mobility*, but out of time and out of breath, the baton was passed (without a cartwheel) to our expert facilitator Alex, who addressed that final thought. Travel is rarely the goal for its own sake. If we can provide



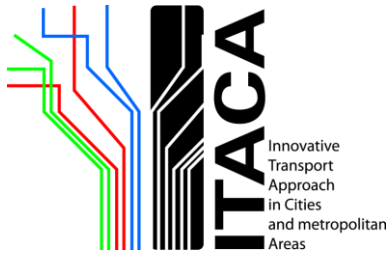
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solutions to transform travel, and to avoid unnecessary travel, aren't we doing everyone a service and accomplishing all our goals at once?

Speaking of conclusions, and *in conclusion*: Above all we encourage everyone to *please take a look at our conclusions sections*. ITACA was divided into two parts, Technology and Demand Management, and each has its own conclusion. There is a final conclusion which considers both together, and goes beyond. There is also an excellent Executive Summary by Prof. Joerg Schweizer, co-author of the ITACA Handbook, which is quite detailed in its findings and recommendations. All these conclusions were given special attention in hopes of providing truly useful findings with a minimum of confusion and time investment for you, the POWER Programme and its recipients, the public, the decision makers of our future."

Jason Meggs

The ITACA partners and their email-address

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The ITACA Handbook 'Realizing Sustainable Mobility', Brochures and Newsletters can be downloaded at <http://www.powerprogramme.eu>



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