



REDEFINING THE METRICS TO CREATE LIVABLE CITIES

How to shift from reactive to proactive transport and land-use planning

In the following Q&A, Teemu Jama, architect-urban planner, WSP in Finland, and Risto Jounila, lead transport consultant, WSP in Finland, discuss how to advance urban plans to create vibrant places for people to live and work.

Teemu Jama is dedicated to seeking sense and sensibility in data analysis used in urban development. Over the past 20 years, he has worked on the public- and private-sector sides of projects in Europe; in addition, he has an academic background as an urban researcher at Aalto University in Finland.

Risto Jounila is passionate about improving investment in transport infrastructure to promote vibrant neighbourhoods. His expertise in planning for multidimensional towns and cities has been cultivated over 30 years as a transport planner and engineer. He has worked in Finland, New Zealand, Australia, Germany, Sweden, Russia, the Baltic countries, Azerbaijan and the United Kingdom.



Figure 1 - Light rail transit (LRT) is planned to enable diverse urban redevelopment without car dependency in Turku, Finland.

Can you address the traditional role of density in the design of urban environments and how you envision future development?

Teemu Jama: Since rapid urbanization began in the early years of the 20th century, the volume of real estate development has been the key interest of planners. A variety of zoning rules used by local planners over time has come to reflect a particular zeitgeist. While most rules become passé, density has managed to endure. It has been a simple way to track the performance of plans. Density has also been linked to social interaction, creative economies and environmental sustainability in many urban studies.

I argue that today in the 21st century the urban world has seized the benefits of agglomeration characteristic of cities, while the new mobile economy is disrupting many industries; therefore, it is time to question the need for physical proximity. Density no longer offers the pervasive relevance it once did in urban development. As more people move to cities, urban environments do become more dense, but enabling local growth and fostering livability requires broadening the metrics standardly applied.

Risto Jounila: Traditionally, transport planning starts with numbers based on gross floor area [GFA], which gives us the density in a defined area. This density forms the basis for the number of residents and jobs in a given area. These numbers from various GFAs, created by urban planners, are fed into a transport model,

which guides the design of the transport network in urban environments.

The transport model calculates projections of transport demand for different transport modes according to the region-specific urban transport modelling data practice. The urban transport modelling guidelines are based on current existing urban forms in that geographical area. This process has led to car-dependent urban environments, notably in western countries.

The traditional purpose of transport planners is to apply the projected traffic flows coming from the transport model. In other words, transport planners do not aim to manage transport demand. Teemu and I have noted that there is a need to think differently and take a more comprehensive approach, challenging the current transport paradigm which is based mainly on density.

How can a more comprehensive approach shape livable cities?

Teemu Jama: We need to unlearn density-based planning and start by focusing on other features of urban environments. Density, the building volume within a predefined area, has been the main metric in urban planning for a long time, so it is not easy to let it go. Urban modelling paradigms, from BIM [building information modelling] to CIM [city information modelling], also rely heavily on volume calculations. In addition, AI [artificial intelligence] technology in most smart city solutions does the same. Therefore, the criteria used in models to drive urban plans should be reconsidered and carefully selected. For example, relative to AI, the internet of things and automated vehicles have very different requirements compared to humans.

It is time to identify new factors that are vital to support the needs of citizens, the health of the

environment and our planet. One option is to replace the concept of density with the concept of diversity in planning projects—diversity as it applies to land use, the people who live and work in urban areas, and the environment, so biodiversity. This change will lead to a very different type of paradigm.

Urban planners and traffic engineers need to rethink together how to arrive at sustainable solutions. Joint examination enables proper consideration of the elements that shape sustainable solutions. Implementing these solutions requires a transformation of processes, from the funding criteria of infrastructure projects to the calculations of ROI [return on investment] for real estate investments.

Risto Jounila: Creating diverse places in cities also requires a step change within the planning process itself. As I mentioned earlier, transport planners currently focus on accommodating the transport demand that is generated from a transport model. They have not historically applied the diversity of urban form to guide these transport patterns to be more sustainable.

Transport planners do not normally try to minimize transport demand, as in the number or length of trips that people will take. If there is a diverse area, destinations and origins will be closer together. People can combine trips instead of doing multiple trips to take care of their needs. Also in diverse areas, trips are likely to be shorter than in areas where urban form is homogeneous. Transport demand can be minimized within cities and supported accordingly when the right kind of diversity informs urban form. In turn, this reduction in travel will also support decarbonization efforts in transportation.

To effect change, the planning process should be led by common goals for all professionals involved. Moving away from current practice, which is deeply rooted in achieving density,

requires breaking down the silos that professionals across the transport sector and in land-use are used to working within so that, as Teemu said, professionals can rethink together.



Figure 2 – a street in Helsinki supporting active mobility and public transport

What are the key challenges to establishing diversity as the driving factor in urban planning?

Teemu Jama: The major challenge is changing the paradigm. Urban designers already have the knowledge and tools to do impact assessments for relevant issues—calculate people flow and determine wellbeing impacts. To change the actual planning paradigm, we need to reshape the cooperating process and use our skills to evolve beyond density metrics. The resulting design might not maximize the gross floor area, but the spatial structure might be optimal for diversity development. Soft goals should be made as “hard,” or relevant, as the numerical-based estimations that have backed density; numerical-based estimations could be developed based on diversity criteria.

Most urban plans are already full of diversity illustrations. Architects, especially urban designers, typically compose creative and compelling visions including amenities and urban parks with lively venues and active people; in addition to these renders, we need to verify the design impacts, and to do that we

need to think broadly, not just rely on density metrics to inform plans.

Risto Jounila: Perhaps the most challenging issue in terms of making a paradigm shift is to transform current thinking from car-centric, reactive planning practice to proactive transport and land-use planning. If we continue planning the traditional way, reactive and focused on projected transport demand, current trends show that we will not reduce car dependence—we will likely increase it.

Another key change is for transport planners and agencies to focus on supply-led planning. The transport network should be planned with sustainability in the forefront—giving people the opportunity to use sustainable transport modes rather than single-occupancy vehicles. Having said that, we should not deny the use of cars. We can allow a sustainable number of cars to enter the city.

Paradigms are often in the “working DNA” of transport planners and engineers. The journey to acceptance of new paradigms is challenging. Changing this DNA requires an open-minded approach or new requirements associated with project objectives. The open-mindedness has to be reached by working in a multidisciplinary team. Working only with one’s peer group does not widen perspectives.

Have you succeeded in changing paradigms in your projects?

Teemu Jama: Yes, we have, though there are institutional hurdles to overcome before we can regularly practice transdisciplinary cooperation with colleagues. Traffic engineers, land-use planners, retail consultants and even urban designers, not to mention implementation phase engineers, are all set apart in their own organizational units in the public sector as well as in the private sector. Even if those silos can

be overcome, it will often be necessary to determine the funding department for the transdisciplinary project. So, the budget silos also need to be left behind in order to go on with the project.

We have done a few truly transdisciplinary projects for the major cities in Finland and some in Sweden as well. In these projects, we developed simple analytics that combine neighborhood-level morphology with regional-level transport connectivity in order to estimate the diversity potential, which we call urban capacity. The urban capacity stems from urban amenities, such as shops, cafes, bars, hair salons and other personal service establishments—all of which are typical for sustainable neighborhoods and form the base for urbanism as we know it. The estimate models we use are always customized, based on the temporal data from areas within similar settings. This process requires iterative hands-on cooperation between urban designers, transport planners and retail consultants.

Risto Jounila: When working as part of various multidisciplinary teams in Europe, Australia and New Zealand, I noticed that transport models or traffic capacity calculations were no longer viewed by colleagues as the ultimate truth; instead, they guided what could happen, as fellow transport professionals prioritized sustainable transportation solutions rather than maximizing car capacity. This shift can be seen in almost all projects I have been involved in over the past couple of years. The next step in the paradigm upgrade is to aim for reducing transport demand, especially via reducing car dependency and increasing use of public transportation.

It is crucial that all professionals involved in planning cities challenge the traditional way of working to enhance our abilities and perspectives. It is also worth emphasizing that collaboration with diverse professionals enables

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this open-minded approach, which invigorates our work and elevates project outcomes.

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