Introduction

New practices have led to new models and a theory, which can recognize cities as a combination of three comprehensive systems, which are called a Walking City Fabric, a Transit City Fabric and a Car City Fabric.

New models have been needed to replace the conventional traffic and land use models because they don’t recognize and address these main fabrics.

Every city has combinations of these three city types and only by recognizing them is it possible to repair and regenerate them effectively.

Finland has been a country, where the need of new thinking has been very obvious, because even if the growth of the Car City Fabric has been fast, also the Walking- and Transit City Fabrics have maintained their importance.

The City of Kuopio has been using this type of a new model, known as a "Kuopio Model", as a basis of analysis, planning and implementation for 20 years.

In addition to good results of implementation and practices, the model has led to theoretical findings which have been applied on a national level. Several surveys and models have been analyzing the state of the fabrics of Finnish Cities.

The latest findings concerning a new theory are based on Urban Fabrics Project (UF), funded by Tekes – the Finnish Funding Agency for Technology and Innovation. The national part of the project has included testing and improvements of the Kuopio Model in the analysis of four case study cities. Most of the findings on an international level are based on cooperation with Professor Peter Newman during my visit at Curtin University Sustainability Policy Institute (CUSP) since September 2012.

This presentation is a short description of the new theory, as well as models, practices and findings behind it. It also gives some of the main findings concerning the deficiencies of the conventional models and theories and why they are unhelpful and damaging leading to many of the problems we face today.

The UF project, as well as the Theory of Urban Fabrics, is heading to be a comprehensive theory. The theory is addressing the whole field of urban development, including an analysis of the history and present, theoretical conclusions including paradigms, theories, models, plans and governance on all levels and the future challenges.

Walking City, Transit City and Car City have been stages of urban development, which led to different city types.

These city types and their qualities were clearly recognized in the analysis of global cities by Newman/Kennworthy in 1999.

The same city types and also the fabrics have been recognized in the analysis of Finnish cities.

Areas and dimensions of the fabrics can be recognized from the maps and reports of any city, but there are no reports or datasets which would directly address the state of the fabrics of different cities in different countries.
Models are an important part of the theory and in this case models came first. The first models of Kuopio were based on new thinking and new projects, which did not fit the conventional models and practices. The new models were needed also to get the new projects implemented. Use of new models has led to good results.

City Center, which was dominated by cars and elements of the Car City Fabric have been recognized as an area of the Walking City Fabric. City Center has an extensive pedestrian center. Old alleys with a total length of 10 km have been turned to pedestrian streets. Parking requirements have been revised etc.

Also the Transit City Fabric has been recognized and a Structure Plan has been guiding renovation and supplementary construction of the fabric. Special elements like a bus bridge extending the Transit City Fabric have been implemented.

The biggest new project has been a new type of a landscape street opening new growth potentials for Walking- and Transit City Fabrics and cutting the costs of the Car City Fabric.

Successful use of the new models has shown that conventional models have a wrong basis. Cities like Kuopio, which consist of three comprehensive fabrics, cannot be properly addressed with models which operate with land use and traffic as the main comprehensive systems, covering the whole city without recognizing the fabrics. The basis of these models, the Modern City paradigm, which separated out the land use function and the transport function, has been a bad mistake and it has led to serious negative consequences.

Several models have been combined into a comprehensive Model of Urban Fabrics.

The model consists of Areas of the Fabrics, taking into account, that Car City Fabric is covering also the areas of the other fabrics. Also the elements of the Transit City Fabric can be found on the areas of the other fabrics. This model includes the areas of the Walking City Fabric, the areas of the Inner and Outer Transit City Fabrics as well as areas of the Car City Fabric up to 20 km from the center.

The New Theory of Urban Fabrics opens new ways to address the challenges and it can act as a new frame for new applications of most present models and theories.

Science Status

In 1933 CIAM’s “The Athens Charter” defined the basics of Functionalist town planning. Definitions led to evolvement of two comprehensive administrative systems with land use models and traffic models dominating the field of urban planning. In reality these models created Car City Fabric only. These systems don’t recognize the other urban fabrics and it has become obvious, that they cannot be integrated without new attitudes and a new theoretical basis.

Science Challenges and Pathways
Issues like energy, traffic congestion, climate change and healthy city demand an integrated solution and require a new theory that enables integration.

Selected References


