15. September 2015 Rede von Dr. Siegfried Balleis, bei einer Tagung der Siemens AG in London im Chrystal zum Thema „Smart City“

Ladies and gentlemen,

first of all I would like to introduce myself:
my name is Siegfried Balleis and I was the lord mayor of the city of Erlangen from 1996 till 2014. Erlangen is a city in Northern Bavaria, Germany with more than 100,000 in Erlangen inhabitants and is the largest site of the Siemens company worldwide. Siemens has 25.000 employees in Erlangen and in the European Metropolitan Region of Nuremberg 40.000 employees,
What are the challenges for our cities in the coming decades.
First of all, there is a trend towards urbanization, this means, that in the year 2020 50% of the world population will be living in cities with more than 100.000 inhabitants.
Secondly we have to deal with the problem of climate change due to the emission of carbon-gases like CO2 and CH4.
What are our adequate reactions on theses challenges
There is the need for efficient use of energy and resources
- efficient transport and distribution of electricity
- smart grids
- energy storage
- efficient and intelligent transport systems.

As I only have 15 minutes for my talk I would like to focus on two major issues
1. Power-to-liquid as future process of energy-storage
2. Decentralized neigbourhood development in future city-planning

1. power-to-liquid
As you have to produce electricity just when you need it, it is crucial to always have a larger amount of renewable energies, so that you can store electricity. The most common form of storage is by batteries, e.g lead-batteries or lithium-Ionen batteries. But there is also the possibility of chemical storage of electricity. This could be a solution for millions of energy-dealing households.
This storage-process works in the following way
Water is slit up by the electricity of the photovoltaic-panel on the roof of your house into hydrogen and oxygene,
The hydrogen will bee added to LOHC via a catalyst (liquid organic hydrogen carrier)
You can store this liquid substance in your cellar for hours, days or weeks and produce electricity exactly, when it is needed. You can use this electricity in your home, or you can sell it at peak prices to your local or regional power works.
A very interesting project storing electricity in a decentralized swarm constellation has just been started in the European Metropolitan region of Nuremberg. The decentralized lithium-Ionen-batteries in about fifty homes are connected with a central unit which is steering the process of charging and using the batteries as electricity needed for consumption or net stabilization.
Although we are only at the beginning of building a circular economy, this is an efficient way of energy-storage

2. decentralized neigbourhood-development
As cities are growing worldwide faster than ever, our city infrastructure becomes more and more complicated and vulnerable. The question is, is there an alternative to this growing complexity. The answer is yes, if we say good bye to the Charta of Athens, in which architects proposed a strict separation of the important functions of a city. In the thirties of the last century they developed the model of functional separation. This led to the fact, that in many cities, we have in one area only residential, in another only business and in the third only recreation and leisure.

The better strategy would be to mix these functions on a local level. This can reduce for example travel-times from the residential areas to the business areas in the. morning and the reverse process in the evening. The strategy should be, to bring residential , business and recreation together as close as possible.
A wonderful example of the city of the future is just under construction in Aspern, Vienna, Austria.
It connects decentralized energy production with smart grid solutions, intelligent building technologies and will create a real sustainable city.

Since I have been talking about energy efficiency I should also mention, that we have to concentrate also on the more ambitious strategy of resource efficiency.
Only six weeks ago McKinsey and the Ellen MacArthur-Foundation published a report with the title "Growth within", a circular economy vision for a competitive Europe. This report shows, that we have a huge productivity potential in our transportation system and in our building systems.
Let give you an example of energy wasting in car driving. Less than 20% of the energy of one litere petrol actually reach the wheels of your car. And if you consider, that your car weighs about 12 times the weight of the driver, you need more than 90% of the energy only to move steel or plastic.

As you see, we have a huge potential of resource and energy savings in our cities in the future decades. So what is necessary for this creative process? It's the triple Helix concept of Etzkowitz, who is a lecturerer at Stanford University. E, proposes a permanent networking and innovation Process of the three sectors academia, business and politics/government. I' m convinced, that the cities and regions optimizing this innovation process and which compete for the best solutions in energy and ressource efficiency will be the proof to be leading ones in the world.