

## **Driving factors for the future**

*Client:* COMBIGROEP CARROSSERIEËN

*Design & Engineering:* Rodrigues Santos A., Vrijling B., Mejia J.R. (Strategic design & team leader), Güiza Caicedo D., van Houten M., and Heru Prabowo S.

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Within the VIP process the use of factors is intended to assist the deconstruction of the present world context in order to map probable and predictable features/aspects on a projected future. Factors can be divided in four distinctive categories: Principles that determine stable patterns in the world; States which define relatively constant circumstances; Developments which reflect the changes over time, and Trends that determine people's behaviours as a consequence to these changes. The following list enumerates some of the most relevant and persistent factors that were identified within the PEST analysis (Political, Economic, Social and Technological) for the transportation domain. The selection was made based on the team's rating of the aspects from which transportation is dependent on. These selected items acted as driving factors in order to develop a scenario of the future context in the form of an updated map of Barist for the year 2025 in the next phase of the project.

### **Limited amount of resources**

The present growing demand of resources such as oil, natural gas, fresh water and arable land has put a lot of stress into the world's finite amount of natural resources, especially those which are non-renewable.

Technological research must have this issue as a focal point in order to guarantee a sustainable future both in terms of the environmental impact and the world's economy. In fact, many fields, such as the oil industry, have already realized the importance of this issue and are spending vast amounts of money in the development of new, clean, efficient and sustainable fuel technologies.

As for the designers responsibility there is the need to begin integrating and spreading these new technologies' potential.

### **Overpopulation & concentration of population**

Overpopulation can be defined as the amount of people living in a certain area exceeding the resources available within the specific area to sustain the society. It has become a major concern in recent times, as many believe that not only certain geographical areas around the world are reaching this level, but that in fact the world itself as a whole entity is facing this possibility due to the uncontrolled growth of the global population.

The concentration of population is also related to this problematic, but is seen more as a characteristic of modern societies that can have both beneficial and/or negative impact on a

certain environment. Beneficial, for example in terms of localizing (and thus minimizing) the needed infrastructure to support the society and negative, for example, in terms of over using the local resources to the point of reaching overpopulation.

### **Congestion of infrastructure**

The uncontrolled and extremely fast paced growth of the population in urban areas, both natural and by migration of people, can also be a big problem as the infrastructure growth rate might be slower than the population growth rate which results in a congestion of the infrastructure, poor planning to accommodate new comers and the subsequent decline of the living conditions standards of the area.

This can be reflected as an example in the heavy (often extreme) congestion seen in many road networks within major urban areas, especially those in developing nations which have not had the time and/or resources to update their infrastructure to cope with the population growth.

### **Waste problem**

The rise of mass production and consumption throughout the last century has also caused a growth in the amount of waste been discarded. This overload of waste, often unmanaged, must be addressed in a responsible manner by modern society, as it has become a problematic that has a negative effect on the sustainability in various levels such as the environmental impact of non bio-degradable waste.

An adequate treatment of waste is needed in order to guarantee that the waste levels are kept to a sustainable level. Proper waste management also offers the possibility of recuperating materials for re-cycling or re-use.

### **eCommerce**

The rise of the internet in the past two decades has lead to a new way of handling business and has opened new distribution channels that can reach people more easily. The possibilities of eCommerce and online shopping have revolutionized the way people acquire their products, and the logistics involved in this trade. Websites such as Amazon.com and eBay.com are just but a few examples of this new trend.

### **Smart automated systems**

Electronics and high-tech systems have penetrated society in such a way that it is currently unthinkable to separate them from each other. From robotization in industrial environments, to the usage in medicine, to the ever more advanced communication technologies, high-tech devices have become an integral part of everyday life as facilitators of human tasks.

The next step of course, is the development of smart systems which can not only be considered tools which act as an extension of humans, but that can act independent of human interaction.