

USAIRE STUDENT AWARD 2008

Executive Summary

No century has been marked by as much change as the one that ended in 1999. The century ahead, however, will obviously face a slow-down process if mankind continues burning current natural resources as in the past. Hence the huge challenges some industries will have to address in the next decades. This essay does not pretend to predict the future in any way but only to offer a personal account of the context in which the aeronautics and defense industries will have to compete.

There has been and there will always be oil on Earth. But its price will someday make it unaffordable for most of us to use and we will have to replace today's cars, aircrafts and everything else relying on fuel by new technology. I believe in electricity as being the main form of energy used in the future. Research on how to produce and store it more efficiently still has a long way to go but nuclear energy and hydrogen fuel cell technologies, both safe and clean, are very promising. Uranium is cheap and also a much more secure resource than oil from a geopolitical point of view. Its use will decrease dramatically the price of electricity and increase its worldwide availability over the next few years.

Cars will doubtlessly one day become electric, and planes more energy efficient than today. High-speed trains (which someday may reach the maximum theoretical speed of about 600 km/h) are very likely to replace flights on short- and medium-haul passenger trips. Trains can be powered by electricity (planes cannot) and do not need to carry their fuel with them when traveling. Therefore many new high-speed rail tracks need to be build, some of them in tunnels under the sea, requiring huge investments, which appear to be the only viable way to maintain transportation cheap and available to everybody. The aeronautical industry has to prepare for this transformation, for example by using its technology for building high-speed trains. Aircrafts will, of course, never disappear completely, but I believe they are doomed to become an exclusive form of travel for an elite, and for the army.

In 2030, the global situation will also have changed a lot in the area of defense. The last dictatorships – which are mostly relics of World War II or decolonization - will vanish someday and the main terrorist groups will be dismantled (terrorism will always exist but without centralized organization it is less harmful). As a consequence, conflicts will occur less frequently and the function of big armies will be to deter rather than to go into combat. Robots are likely to replace a vast majority of soldiers because they only need to be turned off when not in use whereas a soldier needs continuous training. This type of army is also interesting from a political point of view as citizens do not have to worry about robots being destroyed in combat. Politicians will not feel pressure at home if a war takes a bad turn. Thanks to unprecedented deterrence by military superpowers, the world will be heading towards a state of global peace.

It is hard to guess if this peace will last forever. Even if the past centuries suggest it will not - at the turn of the twentieth century, nobody imagined the scale of atrocities ahead - there is hope. It would be history's greatest achievement.

As for transportation and energy, I'm personally convinced about what I outlined in this essay. However, I believe that what makes predicting the future interesting is the opportunity it gives many years later to see how wrong the prediction was (which doesn't mean it can't be right). In any case I'll be very curious to check by myself in 2030.

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