

Innovation in materials & processes - how to change a good idea into a good product

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ABSTRACT

Great ideas and potential innovations are suffering with respect to market introduction on large barriers: innovation hesitation of the society, risk and fear and other. Insofar the quantitative promise/expectation of benefit determines the driving force from the innovation itself. The higher the expected benefit of a “better solution” against given solutions, the better the chances for a market introduction. In case of “new solutions”, usually there is no market which can slow down or end the innovation for years or even decades.

The environment likewise the given market determines the barriers at its levels. The more modern and developed the society is, the higher are such barriers which is represented by regulations and standards but also by availability “close to satisfaction”. e.g. cleantech for transportation suffers on the very cost effective/high quality (even including very clean) availability of fossil based transportation/automotive technology and infrastructure. About 135 years ago, the first commercial combustion engine did operate a few hours in lifespan, today a fuelcell is required to operate thousands of hours under extreme safety requirements/regulations particularly with respect to hydrogen. Realistically, if somebody today would like to register gasoline or aspirin for the first time for commercial application - for sure he would run into huge barriers as well - however, society is used to those materials and processes.

Back to fossil transportation, even the political driven and not very scientific nor realistic horror scenario around CO₂/Carbon Footprint/IPCC could and cannot help. And there is nothing wrong with carbon but fossils since a hundred years are too good and too short just for burning them away. There is something wrong with the mentioned political activities since we do not need an expensive green religion as/if we have already green technology.

If it comes to “good ideas”, SMEs by nature are the better innovators even they are missing capital and infrastructure background for the needed market approach compared to huge organizations and large industry. For any good idea we still need to think - and still only the single human being can think where conglomerates and groups can only vote. Insofar the general policy of our modern world in terms of innovation support focussing mostly on SMEs is to be very much appreciated. However, innovation cannot be ordered. Only potential benefits as well as given barriers can be worked on.

After such philosophical attempt, the present presentation will focus on examples at Zoz Group, a small SME originally and still today focussing on the manufacturing of equipment for High Kinetic Processing (HKP) with the core product Simoloyer[®] - the nanostructure making device.



At first nobody wanted such equipment since nobody needed nanostructures. Thus Zoz started utilizing it's own product and in result today became additionally a global player particularly in green/clean tech applications answering the question "how to make more with less" to the benefit of mankind and environment.

The "Zoz-example" in brief will include super light-weight (Zentallium[®]), better magnetic material (Zoz-NdFeB), better and cleaner concrete (FuturZement, FuturBeton) better energy storage material, both, electro-chemical (ZoLiBat[®]) and solid state hydrogen storage (Hydrolium[®], H2Tank2Go[®], P2G2F[®], P2H[®]), better anti-cossovive material (Zoz-zincflake-paint), better target material for both, optical and magnetic data storage, Nanostructured Ferritic Alloys (next gen. ODS) at better irradiation damage resistance for high temperatur (GE and Zoz) and even generating high quality rubber from the roots of dandelion plants in tonnage range (Fraunhofer-IME, Continental and Zoz).