A more rational – and digital – way for meaningful plastic waste prevention

The discussion around plastics as a burden to the environment through littering, marine litter, micro plastics, etc. has been accompanying us for a couple of years now and has taken several roads. Time to take a small pause and think. Much of the beginning of this discussion has been very emotional, spurred by disturbing pictures and news. Undoubtedly it is this emotionality that brought the discourse into a wider public and catered for persisting and rightful attention. However, we have also learned a lot about plastics use and the plastics cycle. And we need to maintain a view that regards plastics as what it is – a very useful and much needed material for many applications, in some cases offering the most sustainable solution to persisting needs e.g. in packaging and even a contributor to waste prevention for example in food waste. On the other hand, the CoVid-19 crisis has brought with it a surge of new plastic waste especially from households caused by demand for packaged goods and deliveries in the lock-down phases.

So, how can we go on now about plastics? Clearly, we need to start with the goals first, and these amount to three instances: What is the most resource efficient solution for an application? Does it support climate and nature protection or is it a liability? Does it protect from harm or is a potential threat such as through leaching?

We thus need clear, reliable criteria and procedures for when to use which materials best, including plastics. For this we have to start with an application's purpose. So: What do we need it for, and even more importantly: Do we really, really need it? This means is a packaging meant for protection, making a product live longer or safer to use, or is it a design gadget, that merely makes the thing look nice at point of sale? Then: What alternatives in terms of use and material exist? What are the trade-offs (What is more problematic: Packaging or lifetime reduction of food due to lack of packaging)? What is the best solution then: Can a material/product be used many times over? Is it recyclable? Which business model will ensure that this happens?

After all, these are complex and demanding decisions which should be seen as such. How can we then decide and make rational use of plastics and hence make plastic waste prevention more feasible?

In our perspective, digital solutions can be of big help here. Artificial intelligence can support design, material choices, and process management. Digital product passports can elucidate content, use and abuse, maintenance and other lifetime incidences. This way it helps to better understand use patterns, value and other attributes both of individual products and product categories. Dedicated data spaces can then store this data and make it accessible for research, learning and evaluation (data and IPR protection required).

Current EU and national policies are on the way to supporting this. The EU Commission's Circular Economy Action Plan and the New Industrial Strategy are distinct in these goals, and the future will need much more elaboration on this. For sure, the next five years will see tremendous change in how we use plastics and products and as a material. Let's do it in a rational, thus sustainable way.

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