

# Customer-oriented development of graphene materials for commercial applications

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Graphene, and graphene-based material, have been considered wonder materials. Thanks to their incredible properties they could theoretically be utilized in a multitude of applications, ranging from composites to electronics. Still, many years went by since the first graphene synthesis in 2004, and yet, these materials are not integral part of our lives, they are not included in almost any product that surrounds us. The commercial use of graphene materials is still limited to few applications in niche products. Are we in the bottom part of the hype cycle, the so called "Trough of Disillusionment"? If this is the case, how can we get out of this rut?

Our perspective is that the graphene industry is currently facing a chicken-egg situation. Graphene materials are too expensive; even their amazing properties are not good enough to offset the extra costs. This leads to a low market demand for graphene materials. A low market demand makes it difficult to exploit economy of scale to drive down the cost of the material to an acceptable level.

How can we overcome this impasse? Our strategy is to put deep technical expertise at the service of customer-oriented development of new products. All while making sure to access the capital to scale-up the business.

To develop technical expertise, we put effort on upstream R&D aimed to reach technical breakthroughs and to develop transformative innovations, which create graphene materials that could serve as a base for new products.<sup>1</sup> To make sure our R&D efforts are focused on generating value for the customers, we listen closely to their needs and we create custom made graphene materials that are designed to suit their processes and to improve their products.<sup>2</sup>

Industrial collaborations between graphene manufacturers and the companies that make use of it, are crucial to open the way to the commercial application of graphene materials and to their industrialization. In this way the end users, meaning all of us, will get the full advantages of the use of "the wonder material" in our lives.

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## References

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- [1] Ahmad Umar, *Ceramics International*, (2022) ([doi.org/10.1016/j.ceramint.2022.05.371](https://doi.org/10.1016/j.ceramint.2022.05.371))
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