

Graphene- A market perspective

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Abstract

Graphene is a hot topic. It promises to offer the best possible material properties in almost all applications. Its extraordinary performance has led many to call it the 'superlative' or 'wonder' material.

There are many indicators that suggest graphene is reaching the peak of its hype cycle. There has been the launch of the first-generation of products, the completion of first round of funding and a mushrooming of start-up formations. The IP patenting activity has also been rapidly rising. In the background, there has been an intense press full of praise. IDTechEx will argue that there are indications that graphene is moving past its peak of hype cycle, but slowly.

IDTechEx will argue that the graphene market is poised to grow to become a fragmented market and the fault lines of fragmentations will be the multiplicity of graphene types, manufacturing techniques and target markets. There are many companies claiming that they produce graphene, but none is producing the same material. There are also many manufacturing techniques, but each produces a different graphene quality and has a different cost structure and volume production capacity. Each market will also have different performance requirements and cost tolerance levels. IDTechEx will bring order to this fragmented and complex picture by linking target markets with graphene types and manufacturing techniques.

Today, the main market driver has been the R&D sector. In this talk, we present a perspective on future markets beyond R&D. We assess the value proposition of each type of graphene for use in/as transparent electrodes, smart packaging, RFIDs, transistors, energy storage, etc. For each market, we will outline the market needs and drivers, and the principle go-to-market strategies. Here, we will highlight challenges, including those set by the incumbent technologies where appropriate. In all our analysis, we will emphasize the interplay between potential target markets and the manufacturing technique. We will finally give our 5-year forecast for graphene markets by application.

Figures

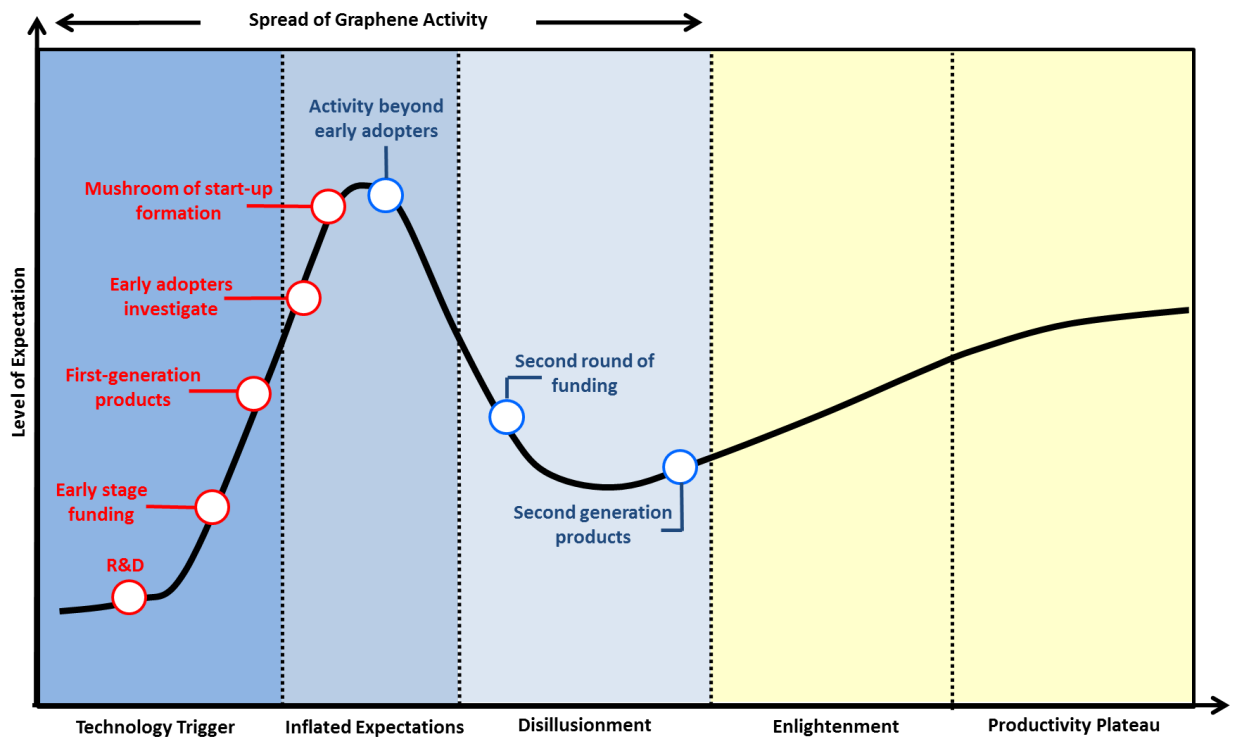


Figure 1: The hype cycle of graphene. Graphene is hyped but it is moving past the peak of inflated expectations.

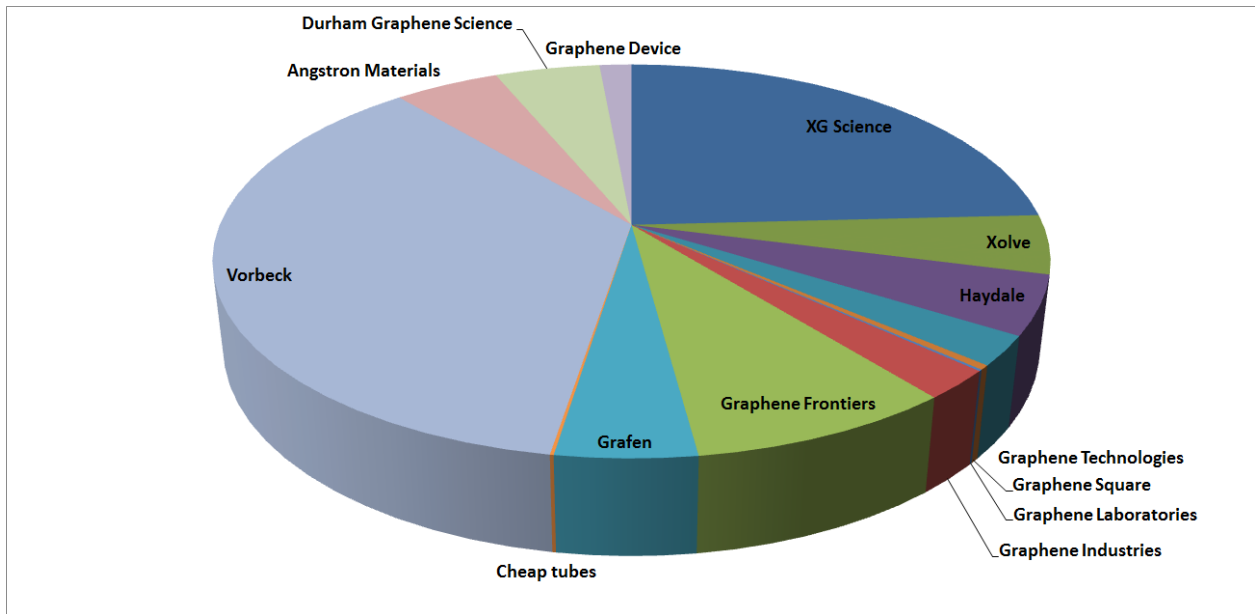


Figure 2: Investment in graphene companies

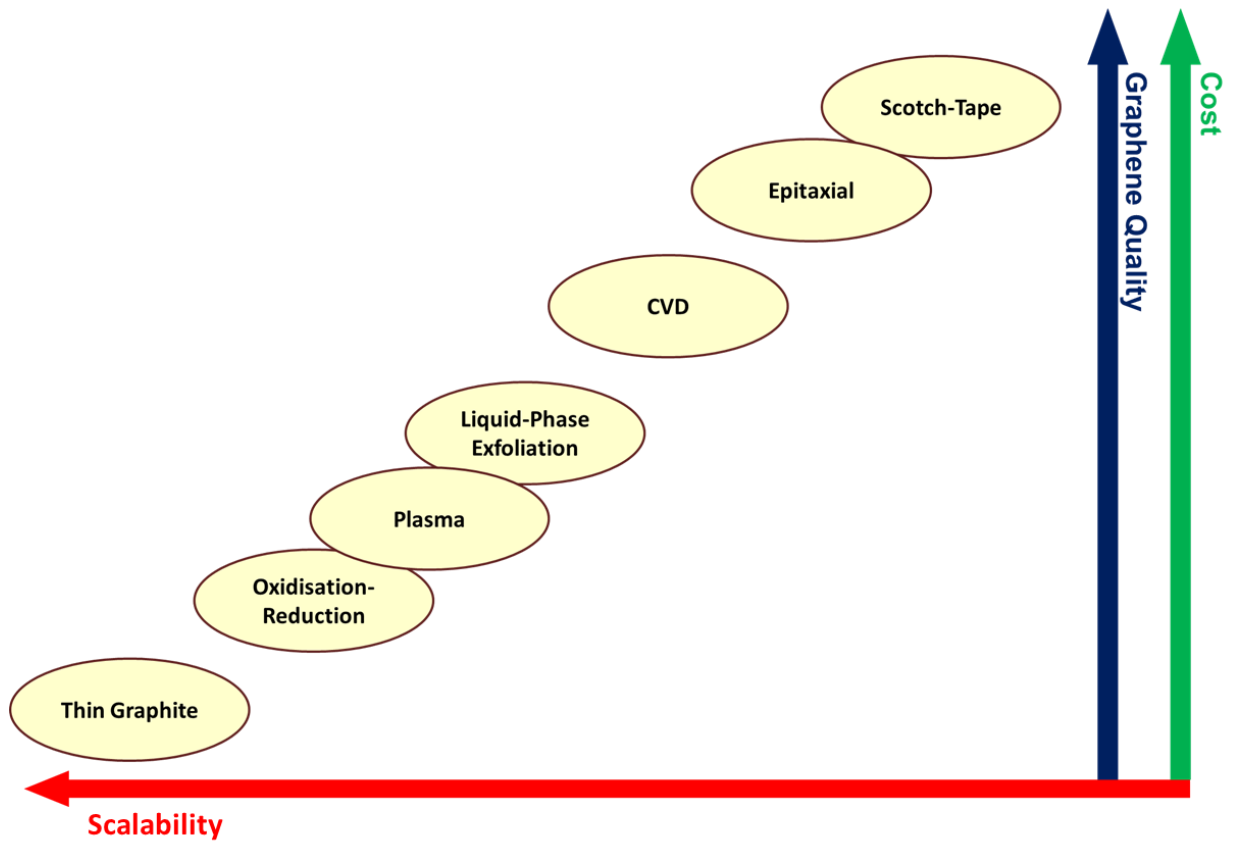


Figure 3: ordering different graphene manufacturing techniques as a function of graphene quality, cost and scalability.

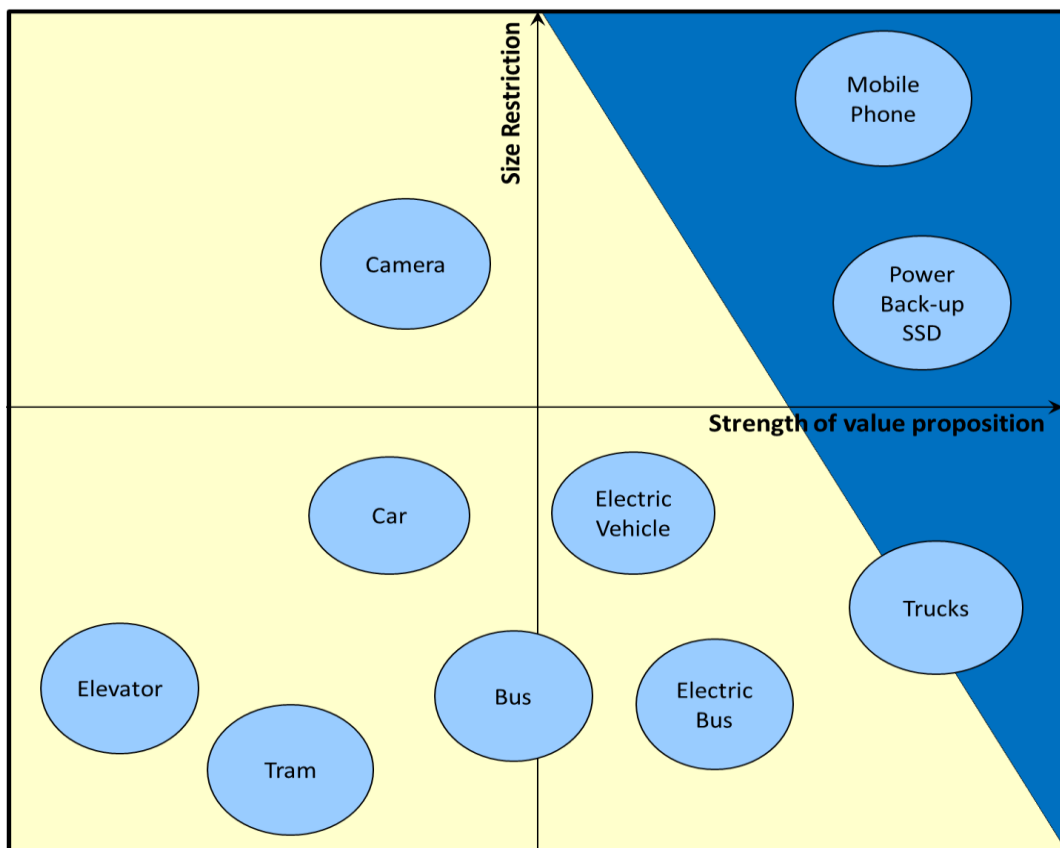


Figure 4: A chart ordering various supercapacitor applications on the basis of two parameters: 1) the strength of the value proposition of super capacitors and 2) the size restriction. Graphene will deliver the most value in blue triangle.

