What's Hot in Optics & Photonics — a Regional View

The January issue of the OIDA newsletter offered some perspectives on what are the hot topics in optics and photonics today. There are many such initiatives in our field, too many to list in this newsletter, but they can be sorted into government initiatives versus commercial ones.

China is now a major exporter, and aims to strengthen its trade network through its Belt and Road Project. This is an infrastructure investment of the equivalent of hundreds of billions of U.S. dollars, and potentially much more. China also aims to become stronger as a manufacturer in critical industries, even becoming self-sufficient, through its Made in China 2025 program. At the research level, it is devoting significant resources to key topics, including quantum computing and quantum communication. These top-down efforts are common among Asian governments, and demonstrate what central industrial policy can do when executed well.

Europe is also associated with industrial policy, both at the national and trans-national (European Union) level. The German government is a strong supporter of the German auto industry, and has identified Industry 4.0 as a critical development in auto and other manufacturing. The European Commission is launching the next flagship programme around quantum technologies, in line with initiatives in China, the U.K., Canada, and other countries. While not an initiative in the usual sense, the uncertainty around the U.K. exit from the European Union looms over companies and researchers that are closely involved with cross-border trade and R&D.

In North America what stands out today are several hot topics in the commercial sector: data centers for search and social networking, artificial intelligence, autonomous vehicles, face recognition in mobile phones, Internet of Things, and so forth. This is the "Apple Economy,"—so-called because it is driven by companies like Apple, Amazon, Facebook, Google, and Microsoft, as well as other giants like Alibaba, in information technology and consumer products. Their efforts combine to form a giant commercial stimulus that sends business trickling down to the optics and photonics industry.
The Apple Economy is not restricted to North America, and Asian companies have been closely aligned with commercial product manufacturing for decades. Likewise, the U.S. has industry policy, but it is directed most prominently at the military sector. We highlight here these examples to illustrate the contrast between certain industrial policy efforts in Europe and Asia versus the commercial investment that is so prominent today, particularly in North America.

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