

Scarcity of elements in products like smartphones needs addressing, say scientists

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Many of today's technological innovations from the iPhone to electric motors for hybrid cars require the use of materials—elements—that are scarce or difficult to obtain. As demand for these devices grows, the problem of dwindling critical element supplies must be addressed. That's the conclusion of a white paper written by eminent scientists. The product of the 5th Chemical Sciences and Society Summit (CS3), the white paper recommends focusing research on finding alternative materials and new approaches to technology development in order to prevent these elements from disappearing.

The white paper, ["The Efficient Use of Elements."](#) is a topic of discussion at this year's the 248th National Meeting & Exposition of the American Chemical Society (ACS), the world's largest scientific society. The meeting features nearly 12,000 reports on new advances in science and other topics. It is being held here through Thursday.

Technology advances made in the past few decades are resulting in unprecedented levels of comfort and convenience, improved medical diagnostics and treatment, more efficient transportation and rapid access to quantities of information that, a generation ago, were unimaginable. Much of this new technology, however, is heavily dependent on the excavation and use of scarce elements. For example, smartphones contain a mix of these rare materials such as indium, platinum and copper. And the manufacturing of pharmaceuticals uses elements such as palladium and rhodium.

The scarcity of these elements makes it difficult to manufacture innovative devices responsibly. One of the agreements reached in the white paper is the need for the development of materials that can be used to substitute for these rare elements. Research on alternatives, the white paper states, must be a priority area. If a solution isn't found, technology advances may be limited, creating social, political and economic challenges across the world.

The [white paper](#) discusses several approaches to resolving problems of material scarcity, and suggests that a multi-faceted, global strategy will be necessary to avoid serious disruptions. A key part of any strategy will be recovery and recycling, because elements are a strictly limited resource. It is also essential that these critical resources be used with consideration of the entire use cycle, from mining and manufacturing to recovery and reuse.

Provided by American Chemical Society

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