

in the final analysis

“Life can only be understood backwards; but it must be lived forwards.”

— Søren Kierkegaard

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While many readers of *JOM* and members of TMS hold a doctor of philosophy degree, we spend surprisingly little time talking about philosophy on these pages. Imagine that. Confucius, Plato, Voltaire, Kierkegaard, Nietzsche, Sartre, de Beauvoir, . . . are largely absent from the *JOM* universe. I doubt that Kierkegaard, as the father of existentialism, would be moved by his inclusion here, but I'm quite pleased to include him by virtue of his direct, concise, and acutely insightful perspective on life as quoted above.

Within the United States, we are at one of those unique junctures where we are looking both backward and forward. This reflection point comes as one era ends and a new one begins via the transition from President Barack Obama to President Donald Trump. What will President Trump accomplish during his years in office? We can only conjecture until time affords us the perspective of a look backward. Easier to consider is what President Obama accomplished now that his term of office has concluded. President Obama's team made it easy to consider their perspective on the last eight years by placing in my inbox a White House-issued blog posting and fact sheet on the President's most significant actions to promote American entrepreneurship.

Like many lists of accomplishments, there's something for everyone: tax incentives, funding initiatives, bureaucracy reductions, technology commercialization streamlining, etc. Some of it is hand-wavy; some is quite specific. Which ones have a clear materials component? I'd suggest that they are resident most especially in the following extracts from the fact sheet:

- “Acted to retain more of the scientists and engineers educated in the United States. . . . [Department of Homeland Security] published a final rule on STEM Optional Practical Training allowing international students with qualifying STEM degrees from U.S. universities to extend the time they participate in practical training.”
- “Grew innovation ecosystems for nanotechnology and advanced materials. The National Nanotechnology Initiative has invested over \$150 million per year in user facilities at Federal laboratories and universities. . . . cumulatively funded more than \$700 million of nanotechnology-related research by small businesses; and catalyzed the creation of a Nano and Emerging Technology Student Network and annual conference with a specific goal of promoting entrepreneurship. The Materials Genome Initiative (MGI), launched in 2011 to reduce the time and cost required to discover, manufacture, and deploy advanced materials, has opened up an array of new data and infrastructure resources to entrepreneurs, including an expanding set of open-access databases to mine the properties of hundreds of thousands of materials.”
- “Supported manufacturing entrepreneurship through a national network of R&D hubs. Manufacturing USA brings together industry, academia, and government to co-invest in the development of world-leading manufacturing technologies and capabilities. In the 4 years since its establishment, Manufacturing USA has grown to a network of nine institutes and over 1,300 members—of which more than one-third are small- and medium-sized enterprises.”
- “Fostered grassroots innovation through the maker movement. . . . Federal agencies, companies, non-profits, cities, and schools collectively committed to creating over 2,500 maker-oriented spaces in the United States.”

All of the above considered, years from now when I think back on the Obama Administration, I will recall first and foremost the MGI, which not only put materials in the national spotlight, but also triggered a whole host of supporting and complementary initiatives by TMS and the larger science and engineering community. What comes next for minerals, metals, and materials? Hopefully that will be a lengthy discussion in a future fact sheet by the new administration.



James J. Robinson
Executive Director

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