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How to Make an Engineering Culture

By [STEVE LOHR](#)

James Dyson, the British industrial designer, is best known for the innovative, high-performance appliances that bear the family name — cyclonic vacuum cleaners with powerful suction and fans that generate a breeze without blades.

But the silver-haired, 63-year-old billionaire has more than the Dyson products on his mind lately. Mr. Dyson is an adviser to Prime Minister David Cameron on how to accelerate Britain's development of new technology and build up its manufacturing and export prowess.

His recommendations for his homeland were published in a report earlier this year, "[Ingenious Britain](#)." And when he was in New York last week, he discussed the parallels between Britain and the United States, as two nations of similar cultures that have increasingly — and dangerously, in his view — let their manufacturing muscle atrophy.

Prominent business leaders in America have recently pointed to the same issue — that modern manufacturing, and the scientific and engineering skills that make it possible, are a crucial pillar of a healthy economy. The two most notable and outspoken on this subject have been [Andrew S. Grove, the former chairman of Intel](#), and [Jeffrey R. Immelt, chief executive of General Electric](#). Relying on services alone and neglecting manufacturing, they say, is short-sighted and pushes good jobs abroad.

Changing things, Mr. Dyson said in the interview, requires a tilt in culture and values. In Britain, an antimanufacturing bias, he says, has been a prevailing social sentiment longer than in the United States. As a student, he was steered toward the classics, Latin and Greek, and warned that if he did poorly in school, he would end up in a factory. (For a full profile of James Dyson, see [John Seabrook's excellent piece](#) in "The New Yorker.")

In Britain, he observed: "Getting rich by making things is sort of dirty. That view pervades our culture."

Yet deep-seated cultural views are difficult to change. How to begin?

"It starts with government, oddly," Mr. Dyson replied.

Part of the answer, he said, is the government "talking up and backing big engineering projects." He pointed to the wave of young students who went into science and engineering because of the post-Sputnik race to put a man on the moon. Very few, he added, were ever engaged in the space race, but it inspired many.

Consider France, he added. For decades, France has nurtured big engineering endeavors, like nuclear power and high-speed trains. The graduates of France's leading engineering schools are among the elite of French society.

In the United States, Mr. Dyson suggested, big initiatives might include long-range goals like percentage targets for nuclear and renewable-power generation, opening up large tracts of land for solar power, and building high-speed railways.

Mr. Dyson is impressed with the start that President Obama is making with new programs to advance so-called STEM education (science, technology, engineering and mathematics), and to recognize achievements by science and engineering students. Mr. Obama has said that just as the winning NCAA college basketball team gets invited to the White House, so should outstanding science students.

Two weeks ago, Mr. Obama held a White House “science fair” to honor national winners in a variety of STEM competitions. In December, he will appear on Discovery Channel’s “MythBusters,” a television program on which science is used to test whether urban legends are true. “What he’s starting to do is in the right direction,” Mr. Dyson said. “He has to go on and on about it.”

Words matter a lot. Years ago, the former British prime minister Tony Blair talked of his nation’s future depending on “the creative industries,” including advertising, marketing, media and entertainment. “A dreadful mistake,” in Sir James’s judgment.

Other phrases to avoid, he said, include the “old economy” and “heavy industry,” suggesting that manufacturing is a backwater.

Mr. Dyson pointed with exasperation to a poll showing that 32 percent of teenage girls in Britain want to be models, compared with 14 percent wanting to be scientists and 4 percent engineers. The 14 percent who want to be scientists, he said, is mainly attributable to the allure of female forensic investigators on the popular “CSI” television series, which is also popular in Britain.

“What you put out as a society as being important is important,” he said. “That’s what people will want to do.”