



Macroeconomic Perspectives



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Global Trends In Innovation



GE's second Global Innovation Barometer confirms that innovation is seen as central to economic growth and job creation. In a way this should be no surprise: Today, more than ever before, we are keenly aware that physical inputs are limited - commodity prices have risen sharply in recent years and remain high, notwithstanding weak growth in the US and Europe. Innovation, which allows us to use resources more sparingly and efficiently, to harness new sources of energy, and essentially to produce more with less, will therefore be the main engine of growth.

Marco Annunziata, Chief Global Economist, GE

Economic growth is not just about producing more. It is ultimately about improving living standards. Here is where innovation really comes into its own. Medicine, including medical equipment technology, is perhaps the most obvious example. Improvements in communication bring information and education within reach for a vast share of the world's young population, improving its economic prospects and broadening its horizons. Clean energy can keep the world healthier for longer. This is a theme we highlighted a year ago in our inaugural Global Innovation Barometer: "...priorities have shifted from innovations that simply make money to innovations that also create good in people's lives."

Innovation and prosperity go hand in hand: high marks in innovation rankings are strongly correlated with high levels of per capita incomes, and the correlation is especially strong for countries which are not richly endowed with natural resources. For the US, recent academic research suggests that technological innovation, together with the corresponding accumulation of intangible capital, accounted for more than half of the increase in output per hour over the last few decades. (See [here](#) for example)

But most importantly, some 90% of survey respondents see innovation as the main lever to make the economy more competitive and to create jobs—one of the top priorities today in the US and other large advanced economies. In the public debate one often hears the concern that technological innovation might end up reducing employment; the innovators participating in the survey instead clearly see innovation as the best way to create new jobs.

This year's survey confirms that in today's globalized and digital world, collaboration is essential to innovation. A vast majority of US manufacturing companies investing in R&D are involved in some form of collaborative R&D with academia or other companies or institutions. Creativity, the ability of individuals to think outside the box, and technological excellence are the key ingredients. All this, in turn, makes it possible for SMEs and individuals to be positioned as strongly as large companies to successfully innovate.

This year's Innovation Barometer however shows that the current difficult and uncertain economic environment poses challenges and risks to innovation. A vast majority of companies report greater difficulties in accessing both private and government funding for innovation. Some

70% of companies reporting a deterioration in government policy or funding are cutting R&D spending.

What is probably most troubling is that companies are consequently reporting a reduced appetite for risk taking, which leads them to focus more on incremental innovation rather than betting resources on more ambitious, disruptive innovation.

Reflecting the difficult and uncertain economic outlook, we see a higher level of concern regarding protectionism, which could greatly hamper the collaborative environment necessary for innovation. This is particularly obvious in the largest exporting countries (except China), where a high share of companies report concern that trade regulations are hindering innovation. Similarly, a number of countries, including those which are seen as at the forefront of innovation, are now reporting a lesser degree of confidence that the current IP protection framework can allow innovation to flourish. The US is a particularly stark case in point.

As a key engine of growth, innovation is the most powerful lever that emerging markets can use to accelerate their increase in living standards to levels comparable to advanced economies. Innovation is also the most powerful lever that advanced countries can use to maintain their leading positions as global competition becomes more intense. High debt levels mean that large advanced economies such as the US, Europe and Japan are expected to increase their R&D spending by much less than emerging markets such as China, India and Brazil. China has already become the second largest R&D investor in the world in 2011, with an estimated share of about 13% of global R&D spending.

With the US and European recoveries very fragile and at risk of a relapse into recession, the rapid rise in R&D investment and innovation in emerging markets can be seen as a threat, giving rise to protectionist pressures and temptations. Increased competition is always a challenge, and it does undermine established dominant positions.

There are some encouraging exceptions to this more pessimistic sentiment: Germany stands out, likely because the export prowess of its industrial system has served it well over the past decade, and has so far allowed it to weather relatively well the financial and economic stress engulfing the Eurozone. Moreover, the small and medium enterprises that form the backbone of Germany's technological sector have long been comfortable with the incremental innovation approach.

Some smaller and more nimble countries also appear more able to manage the challenge: Israel, Sweden and UAE report greater optimism, and the highest levels of satisfaction with the innovation environment.

The degree of optimism recorded in the Middle East is particularly remarkable and encouraging: innovation could play an essential role in creating the job opportunities and the improvements in overall living conditions that the local populations rightly aspire to in the wake of the Arab Spring.

On balance, however, it is clear that innovation is at a very challenging juncture, and both public and private actors should strive to ensure that the current difficult economic environment does not cause a significant setback to innovation and R&D investment. To this purpose, governments should focus on ensuring a robust institutional framework that protects intellectual property; adopting an efficient tax system that provides incentives to R&D and does not stifle labor and investment; and providing good infrastructure, especially in communications. European governments, as they undertake the arduous but unavoidable task of putting public finances on a sound and sustainable footing, should be especially careful at safeguarding education and R&D investment.

Private companies should also do their part by fostering an environment that encourages cooperation, by cross-fertilizing different disciplines, and by promoting original thinking and risk taking. These are the conditions that help foster breakthroughs in design, in marketing, in organization.

Large companies like GE can play an especially helpful role at this juncture. Having, in many cases stronger financial shoulders, these companies are best placed to maintain and even increase their levels of investment in R&D—as GE is doing. Moreover, large global companies can be a counterweight to protectionist trends. Open markets give companies access to the best talent globally, with a diversified geographical distribution that is much more effective at taking the pulse of the needs of different customer bases, providing further inspiration and stimulus to innovation. Global companies are in a strong position to secure access to local partners along the product chain, and to gain an understanding of local regulations so as to effectively embrace emerging markets' demand for "localized" innovation.

For more information, contact
Marco Annunziata marco.annunziata@ge.com
JP Soltesz johnpaul.soltesz@ge.com