

# Impact of the Great Recession on Innovation R&D Spending

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Global NP Solutions, LLC

Reference Paper

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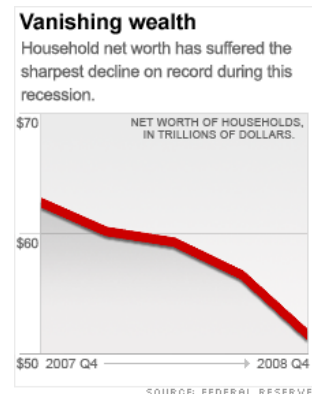
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## ECONOMIC CRISIS

Between November 2007 and March 2009, the Federal Reserve reported that 86% of industries had cut back on production – the *most widespread reduction in all of the 42 years* that the Fed has tracked <sup>(1)</sup> this particular metric. In terms of length, the Great Recession is the longest post-Depression economic decline with the U.S. Bureau of Labor Statistics reporting unemployment at over 10% in October 2009 <sup>(2)</sup>. Household income has fallen \$11 Trillion (see figure at right) <sup>(1)</sup>.

Though the blogosphere and pundits debate whether the recent downturn should be deemed a full-blown “depression” or not, individuals and companies readily acknowledge the financial pain. The Wall Street Journal reported that U.S. companies saw a 7.7% decrease in revenue between 2007 and 2008. Intel Corp. posted a 90% drop in 2008 fourth quarter net income, while 3M Co. laid off nearly 5,000 workers and cut capital expenditures by 30% in the 15 month period ending March 2009 <sup>(3)</sup>.



No matter what you call it, the United States and countries around the world have experienced a very serious economic crisis beginning in 2007. The crisis amplified in 2008 and companies are still struggling to find a nugget of good news in the financial sector.

## GOOD NEWS FOR INNOVATION

What is intuitive to Innovation Professionals is finally backed up by research and corporate investment. Research from the University of Rhode Island has shown that during a recession, companies that spend more on R&D perform better than those that withhold innovation expenditures <sup>(4)</sup>. Most firms expect a decrease in sales during a recession, but those companies that *invest in innovation at greater than 5% of sales still experience reasonable growth* during such periods of economic decline. Companies investing at lower levels may be supporting the current business but leaving future growth to chance, with high probability of sales declines during the recessionary period <sup>(4)</sup>.

The **good news for innovation** is that companies paid attention to this research. Learning from past downturns, *many companies have continued R&D spending despite losses in revenue*. In the dismal last quarter of 2008, the Wall Street Journal reported big U.S. companies nudged down innovation spending by only 0.7% while seeing their revenues drop nearly 8% <sup>(3)</sup>. Booz & Company's *Global Innovation 1000* survey of the biggest R&D spenders showed an innovation investment growth rate of 5.7% in 2008, even though net incomes plummeted by 34% <sup>(5)</sup>. More than 9 in 10 executives participating in the survey said that **innovation was critical to growth** for the upturn. Only 21% of these companies reduced the size of the R&D portfolio in 2008, while **80% of firms were pursuing an upgraded product mix** focusing on growth potential and *more products* for both new and existing markets.

In another study, Finnish companies in 2009 indicated that **Marketing of Innovative Products and Services** was of both *High Importance* today and of *Increasing Importance* <sup>(6)</sup> during the next two years. These companies are moving from an “organization focus” to a “customer focus”, delivering more value for

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the consumer's money. Because real customers have real problems, even during a recession, companies that identify innovative solutions will have the most opportunity for growth businesses. Companies surveyed in Finland indicated that consideration of the *customers' market needs was the most important issue* for business success through 2011<sup>(6)</sup>. This proven profit-driven strategy works! Innovative products from the iPod® to fuel-efficient aircraft engines emerged during previous economic downturns<sup>(3)</sup>.



This customer focus was further emphasized by our informal poll of Chemical industry workers in December 2009<sup>1</sup>. One respondent indicated "*Our customers want to stand out among the competition in whatever ways they can. Many have cut staff and need things to run smoothly with fewer people.*"

### WHERE DO THE R&D DOLLARS GO?

Generally, during this Great Recession, most firms are spending less on **applied research**, but companies in the highest growth industries (Health Care, Software, Computing) are investing greater than 5% of sales in R&D. Traditional industries, like Telecom and Chemicals & Energy, are spending far less on innovation during the downturn – just 1.4% and 0.7% of sales, respectively<sup>(5)</sup>. Such findings are consistent with the University of Rhode Island study, which suggests that companies in lower-opportunity industries tend to cut back R&D spending more severely any time profitability is lower than the previous period. For example, data analyzed from the 1982 recession showed a strong relationship between company profitability and R&D intensity (percentage innovation investment relative to sales) in only **high-opportunity industries**<sup>(4)</sup>.

Booz & Company found that as a result of the economic downturn, nearly 40% of firms surveyed have sped up their innovation efforts to *make the innovation process itself more efficient* while simultaneously deferring risk. Corning, for example, saw its 2008 fourth quarter revenue drop by 31%, but is continued to focus on improving products with a 2009 R&D budget over \$600 Million<sup>(3)</sup>. Our informal poll also found Chemical Industry workers in agreement, with one respondent stating, "*New projects have been reduced to those **critical few** needed to support ongoing operations.*"

### IS THE END IN SIGHT?

A survey in the third quarter of 2009 by the National Association for Business Economics (NABE) showed that 80% of respondents believed the recession had ended<sup>(7)</sup>. According to the Business Forecasting Center at the University of the Pacific in Stockton, the State of California's recession ended in the fourth quarter of 2009<sup>(8)</sup>.

Thus, Industrial R&D spending in the U.S. is expected to increase by nearly 3% in 2010, with research labs supporting innovation in three strategic technologies<sup>(9)</sup>: Stem Cells, Personalized Medicine, and Nanotechnology. In the shorter term, Energy, Climate Change, and Health Care continue to be top drivers in the U.S. with R&D investment from stimulus funds, released in response to the global economic crisis.

★ Surely, the impact of the Great Recession on individuals and companies will be felt for years to come. But the bright side of this painful time is the vast **opportunity to realize profit** from new products introduced by those **companies who invested in innovation** during this downturn.

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<sup>1</sup> An informal poll of Chemical Industry workers and managers in Innovation and R&D was conducted in December 2009. The survey did not return enough responses for statistical significance.

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### About the Author



Teresa is President of Global NP Solutions, LLC, a strategic innovation provider. She is an accomplished visionary and results-oriented professional with extensive industry experience from creative research to effective portfolio management through stream-lined new product development processes.

Prior to founding Global NP Solutions, Dr. Jurgens-Kowal acquired over 12 years of experience in leadership and management positions with ExxonMobil Chemical Company and a total of 16 years as a practicing Chemical Engineer. Her corporate career encompassed various functions, including New Product Development, Portfolio Management, Licensing, Marketing, Logistics and Supply Chain, Manufacturing, Project Management and Research Technology.

Teresa has extensive experience leading successful teams, managing the product development life cycle, and defining the portfolio strategy. Her deep expertise in intellectual property management, product and process licensing, portfolio planning, customer service and various business processes make her an ideal teacher and trusted advisor who knows both the theory and practices of New Product Development.

Dr. Jurgens-Kowal earned a B.S. degree in Chemical Engineering from the University of Idaho in Moscow, Idaho and a Ph.D. in Chemical Engineering from the University of Washington in Seattle, Washington. She is a licensed Professional Engineer in the State of Louisiana since 1998. Teresa is a certified New Product Development Professional (NPDP) by the Product Development Management Association (PDMA) and Global NP Solutions, LLC, is a Registered Education Provider (REP) with PDMA.

Teresa holds chemical process and catalyst patents, and is published in the Journal of the American Chemical Society and Journal of Physical Chemistry.

Currently, Dr. Jurgens-Kowal is working on founding a Gulf Coast Chapter of the PDMA organization. She has an office in Houston, Texas.



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