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NANOTECHNOLOGY: SMART INVESTMENT OR INFLATED BUBBLE?

Nanotechnology has come to fore as a technology that has the potential to create the next multi-trillion dollar market. As any another technology in the past, this technology is also faced with various challenges as well as opportunities to create jobs and enable the growth of markets. But the question that we need to ask ourselves is whether this technology is being nurtured responsibly or this greatest opportunity of our times to create new markets is being squandered?

I have been associated with the field of nanotechnology for about 5 years now, both as a researcher and an intellectual property technology analyst. When I first started off learning about it the opportunities seemed unlimited. Nanotechnology was touted and is still considered in many quarters as an answer to all the technological challenges faced by the tech industry in the pursuit of advancement of technology. The 21st Century Nanotechnology Research and Development Act passed by the Congress of the United States of America was definitely a critical step in right direction which has, from that point on, spurred on investments in the form of public grants and private investment to the tune of tens of billions of dollars across the world. This has led to a dramatic increase in research and development effort across the world, in particular, the United States, Europe and Japan. This effort can be linked to an explosive growth in the number of journal publications spanning various aspects of nanotechnology. However, over a period of time, through my experiences as a researcher, I realized that nanotechnology might not be the answer to all the technological challenges, as touted, after all. But, I was really captivated and impressed with the potential this technology brings to the table of innovation and problem solving. I had come quite a distance in adjusting my outlook on this exciting technology from being a silver bullet for all the technology problems to one of a key enabler in achieving the right solutions for the technological challenges as well as the advancement of technology.

At this point, I was reminded of the telecommunications industry around 1997-2000 time frame. Almost every major carrier had major stakes in the fiber optic technology, especially in the DWDM technology. Huge investments were made based on inflated forecasts of demand and the expectations were sky high. However, one key aspect that was taken for granted: technological break throughs that were critical for maintaining profitable performance to cost ratio. Technological progress at a rapid pace was taken for granted. When the costs were not going down and the demand started to fade, it resulted in the collapse of the telecommunications industry. But, what was sad was to see the near demise of a technology with tremendous potential: DWDM. Looking at the investment trends in nanotechnology, just before the discovery of the recent economic down turn, it seemed as if significant amounts of money was being invested in areas where either technological breakthroughs would take a very long time and it would be very difficult to predict the bang for buck ratio for the end products based on these break throughs or the performance

improvements enabled by these technologies might just be an over kill for end applications. Hence, the investment to benefit ratio might not be so attractive. I am increasingly inclined towards an approach where strategic technologies are identified based on their ability to create products that can be very useful and responsible investments be made in those technologies. I would like to stress on the word "responsible" as I feel that it is very important to nurture the technology in the right way because this nurturing will pretty much decide the fate of the technology and its ability to succeed in the market place and enable the growth of an industry.

I think the same concept of responsible nurturing should be applied to nanotechnology, else we will be responsible for greatest lost opportunity of our times to create jobs and new markets.