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## **Innovations in General Electric**

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For more than a century, General Electric has been one of the most successful companies in the world, admired for its products, culture, and series of strong chief executives. One of the key reasons for that success is GE's commitment to product innovation. In creating a timeline of milestones at GE, they show how the company's innovation strategies adapted to shifting market conditions and advances in technology. The company's story offers long-term lessons to other large global firms. The consistency of GE's commitment to product innovation was made possible by the steadiness of the company's leadership which points the fact that the company has had only 10 chief executives in its long history. Leader after leader shared a vision for growth that emphasized the quality, speed, and execution of GE's innovation efforts. Their involvement went beyond allocating funding; each CEO devoted a great deal of attention to the development of new products, services, and processes in a variety of ways. Since the company's inception more than a century ago, General Electric has had a focus on product innovation that has been a key component of its success. The firm's commitment to innovation, underwritten by large expenditures for research and development, has remained remarkably consistent over time. GE Appliances is an appliance company headquartered in Louisville, Kentucky. It is one of the largest appliance brands in the United States and manufacturers appliances under the brands of GE, Profile, Cafe, Monogram, and Hotpoint. I am truly inspired by the way GE appliances have made use of both forms of innovation, disruptive and sustaining to be a successful company since more than a century now.

### **Disruptive innovation by GE :**

FirstBuild is GE Appliance's global co-creation community—an online forum that brings the global brainpower together on one platform. This online collaboration platform started by GE brought engineers, designers, cooking and home enthusiasts around the world to pitch their ideas for home appliances and participate in the product development. FirstBuild engineers work in collaboration with the designers to speed the next generation of home appliance innovation and enable customization through small-batch production of the appliances that are suggested by the users all around the globe. GE, through FirstBuild, is understanding the customer needs and identifying the customer problems before building any new product and this is one of the factors that have made GE a success that it is today. FirstBuild encourages their potential users all around the globe for pitching their ideas and if they like it they will develop that product and sell it online at FirstBuild.com. In return, the person pitching the idea will be rewarded with prizes or royalties in the sales of that product. Now, this is something no other company has ever done before. The advantage of this is that GE is becoming more customer-focused and getting more and more insights about their customer's problems which helps them in creating new innovative products. Also, GE has partnered with the University of Louisville and has set up the FirstBuild factory at a warehouse on the university campus. This has encouraged the students and workers at the university to be a part of different projects going on at FirstBuild so that the students and workers at university can learn and collaborate in the innovation process. The most effective thing about FirstBuild is that they have avoided the mass production of appliances. This has reduced the risks related to cost and manufacturing of products. An additional benefit that FirstBuild provided is that it added 14,000 new jobs in manufacturing for the Louisville's population which helped their economy to a great extent. So, the innovation of FirstBuild has made a tremendous impact on GE's growth by building things that matter the most to people and moreover, involving people. Another innovative process that GE has adopted is the lean development strategy. Lean is a strategic development tool designed to improve efficiency and eliminate waste from manufacturing processes. At its core, the Lean process is about collaboration. It ensures that every skill needed to build a new product is in the room from the first day through product launch. As part of the process, GE's engineers, quality, production (hourly and salaried) and sourcing teams have abandoned the traditional tools of their trade, left their workspaces, and

co-located in one work area - under the guidance of specially trained instructors, called senseis — to execute the (3P) strategy: production, preparation and process. Using Lean, the Bottom-freezer refrigerators team discovered ways to save materials and labor cost and at the same time, they improved quality. Other products of GE such as the GeoSpring hybrid water heater also used the lean innovative strategy and it was awarded the best product of the year. The lean innovation strategy helped GE to save over \$8 million just from the GeoSpring water heater production. These were the two of the many remarkable strategies that involved disruptive innovation that helped GE to become a successful company.

### **Sustaining Innovation by GE:**

A core part of the GE culture and business strategy is ecomagination—a focus on sustainable solutions that benefit the planet, society and the economy. At GE Appliances, their sustainability efforts are centered on innovative product design, improved manufacturing processes in our U.S. factories and end-of-life recycling programs. GE has made improvements in its manufacturing sector. Their innovative product design focuses on building energy saving and eco-friendly appliances. For consumers, there is a potential to save hundreds of dollars on energy bills over the lifetime of certain products. For the environment, that means fewer greenhouse gas emissions. Some of the innovative appliances that GE offers are GeoSpring water heaters and magnetic refrigerators. GeoSpring water heaters use heat pump technology, which is more efficient than most of the traditional water heater and this feature makes it an energy-saving appliance. On average, GeoSpring can cut a homeowners' water heating expenses in half by saving about \$365 a year on their electric bills versus a standard electric water heater. This innovative product helped GE to succeed in an existing market. GE researchers are developing the next leap in home refrigeration technology, called the magnetic refrigerator. The innovation they did in the technology of this refrigerator was that the technology does not use refrigerants, and is 20 percent more efficient than what is used today. The system uses a water-based fluid rather than a chemical refrigerant, such as Freon, to transfer heat from inside the refrigerator and achieve the cooling process. Instead of a compressor, magnets are used to create a magnetic field that agitates particles in the fluid causing it to cool. The strength of the magnetic field determines how cold the fluid becomes, and in turn, how quickly it cools the refrigerator. This new innovation has proved

to be a boon in the refrigerator market and has made GE a stand-out competitor for this market.

Besides the products, GE is innovating methods to improve the sustainability of the environment by making changes within its own organization. In 2010 and 2011, GE underwent a major revamping effort and replaced 14,000 fluorescent bulbs and ballasts at seven of the buildings on campus with newer, more efficient T8 bulbs and electronic ballasts. In addition, the team added motion sensors to turn off lights automatically. This effort paid off as GE saved 4.3 million kilowatt hours of electricity and \$225,000 annually. Also, the headquarters of GE uses a combination of natural gas and methane gas harvested from local landfills to generate power and heat for the massive manufacturing complex thereby saving a large amount of energy.

Besides this GE's recycling programs have reduced old refrigerator and appliance waste in landfills. Close to 250,000 refrigerators and freezers have now made their way through the UNTHA Recycling Technology system, and more than one million appliances have been processed. GE's innovative approach saves approximately 47 pounds of material from a recycled refrigerator, an 85 percent reduction of waste, that would typically go into a landfill. This initiative has diverted 5.5 million pounds of material from U.S. landfills. When GE engineers and industrial designers worked on the latest dishwasher design, they took a thoughtful approach that included a plan for recyclability at the end of the product's life cycle. The team designed the latest line of GE plastic tub dishwashers so that 80 percent of the materials can be reclaimed for recycling. These innovations have helped GE to become such a renowned organization.

Lastly, GE is innovating yet another project called Home 2025. Using its expanded industrial design team and advanced development engineers, GE Appliances has envisioned the home of 2025. Extending beyond the typical product cycle horizon of three to five years, four teams of employees focused on distinct customer segments and what their homes would be like in the future. This Home 2025 will have multi-purpose appliances, water recycling and reuse methods, appliances for growing plants and organic vegetables inside the house and appliance for old age people so that they don't need to rely on someone for help.

GE is truly taking innovation to a whole new level and these small yet impactful innovations have made GE a worth \$17 billion company which it is today.