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A Tech Friendly World for All

There are many different words and phrases that are often used to describe today's modern world and the societies that exist therein. There is one word however that is quite unilateral and can be used to capture the essence of nearly every aspect of modern life. That word is change. The rate at which change happens is exponentially higher than it has ever been. The last 20 years in particular have been quite accelerated. What was considered to be ground breaking and innovative yesterday could easily be dismissed as naïve and archaic tomorrow.

This sentiment is especially true in the tech industry. Take for example the way consumers listen to music. In 2001 Apple released the iPod allowing consumers to ditch the folders of CD's they collected through the 80s and 90s for a device that held hundreds of songs and was capable of fitting in one's pocket. Fast-forward 17 years and nobody has iPods; we have phones with streaming apps so we no longer waste precious memory space with music files. Businesses and consumers alike are in constant cycle of upgrading technology improves and becomes more advanced all the while becoming more affordable to the general public. There is one niche area however where this trend does not seem to hold as true. That area is the market for adaptive technologies.

In 2016, the Disabilities Annual Statistics Report showed that an estimated 12.6% of the U.S. population have documented disabilities. That means there are more than 35 million individuals in this country have an extraordinary condition that may either inhibit or prevent them from leading a normal day to day life. Many of these conditions require individuals to have special equipment or technologies in order to perform daily tasks or functions that the average

person takes for granted. For example, an individual that suffers from a disability that affects his/her speech may require a special keyboard that vocalizes typing in order to communicate with others. Or a quadriplegic than has no use of limbs from the neck down may need a special mouth controlled electric wheelchair in order to have the ability to move around independently. The list of needs for adaptive technologies goes on and on and range from modified key boards to elaborate devices that can restore limited vision and hearing.

As someone who works in the special needs field, I have often wondered why we don't see a lot of new and updated adaptive equipment being sold on the market to those that need it most; however, recently I've realized this issue can be broken down into three main problems: quality, availability, and the largest reason; cost. Each of these problems have become so closely linked together that they often compound upon each other to the point where it is possible that if you could find a solution for one of the you could potentially fix the other two very easily.

The first of these that I would like to discuss would be the issue of cost. The average cost of a new ordinary manual wheel chair ranges anywhere from \$500-\$2,000 depending on the needs of the individual. And if the needs of said individual are such that would require them to need a wheel chair with an electric motor then that price quickly jumps between \$30,000-\$45,000 (the same price as a 2018 Camaro SS). Special keyless keyboard used for basic computer operation can reach up to \$400 while hearing aids can range anywhere from \$750-\$4,000 per aid depending on quality. So what is the reason for these high costs? Well simply there are many factors so I'll only point out a few of the larger ones. For starters most of these devices have a small consumer base to which they can appeal to (not everyone needs hearing aids/electric wheelchairs). Simple economics dictates that this will slightly drive up cost. But perhaps the biggest and ugliest reason for these price increases is government subsidies.

Medicare and Medicaid will often cover much of the cost for adaptive equipment in some cases sometimes to the tune of tens of thousands of dollars. This leads many of these companies to drastically over-inflating the prices their goods to soak up as much of this free cash as possible; unfortunately, this often occurs at the expense of individuals who have lesser insurance or who may have to pay out of pocket leaving them with either a heavy financial burden; or all too often high and dry. This high financial cost often leads to our second major problem which is the availability of these adaptive or disability friendly technologies.

One possible explanation why disability friendly products aren't as readily available could be that when many tech companies are in the R&D phase of production of new products they sometimes fail to see potential applications opportunities to make their products more adaptive friendly. After all the disabled community makes up less than 12% of the U.S. population so it's easy to see how this can easily happen. Another reason why availability is an issue because again persons with disabilities are just a small part of the general populous, meaning there is less incentive for competitors to enter this regulated market and cater to these consumers. This this lack of competition and goods that could act as potential substitutes leads us into the "quality of goods" problem that this market

Throughout the tech market we see that the overall quality of goods being bought on the market rapidly improving from year to year. For instance in 2006 Intel boasted the release of their new duo core processor that would drastically increase computing speed 12 years later and there are processors on the market that make the duo core look like a children's toy. This is not the case with the adaptive market. While I am sure there are some innovations and improvements being made; the fact remains that a vast majority of products being bought and sold on the market are used second hand parts that can at times be 5-10 years old. This is because of the

previously discussed unnecessarily high cost and lack of new goods available. What has occurred as a result is that A.T. (Assistive Technology) labs across the nation have become filled with half put together and/or broken down pieces of outdated equipment that have been torn to pieces and used for parts in an effort to keep necessary tools, devices, and hardware running in a cost efficient manner for individuals who desperately need them to function in life.

There are millions around the world wish nothing more than to lead normal lives and do the things that they've always wanted to do but to no fault of their own couldn't because for one reason or another their bodies wouldn't let them. Admittedly I don't have very many answers to these problems right now, and I may never find them. But it is my hopes that somehow; someday find a way to bring these issues to the knowledge of people who are more qualified and experience in the required fields to find an adequate solution. So I continue to dream of a world that is tech friendly toward everyone, because everyone deserves a chance.

