BZE Insights

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The Accidental Innovator

by C. John Stanchina

From my youth into early adulthood, I had no interest in making it as an innovator. By the time I turned thirty, my dream of becoming an airline pilot was well on its way to becoming a reality. Then, on January 9, 2000, the accident happened.

Fast forward to 2002. By that time, I had survived three surgeries, inpatient rehab and outpatient rehab. I returned to work, was living on my own and started dating. Through that course of events, I wound up with a dog – a dog that would change my life in ways I couldn't have imagined. That year I unwittingly started down the path toward becoming an innovator.

The thing about true innovation is, it is born out of necessity. And that's where you, my disabled friends, colleagues and readers, have a leg up on all of those able-bodied, innovator wannabes out there – nobody understands your needs better than you. And that is the first step in becoming an innovator – *identify an unmet need*. In my case, with Sam, the Jack Russell Terrier mix that came into my life, I needed to be able to walk him, hands-free, as both of my hands were busy controlling my manual wheelchair. This realization led me to step two of the innovative process – *conceptualize a solution*.

I didn't want to just lash Sam to my chair. JRTs are bright, energetic and inquisitive. Sam needed 360° of roaming freedom and I needed to be free from the tangled leash that would result if I simply tied him to my chair and hit the road. I figured, if I could mount a retractable leash to my chair, above my head, and it was free to rotate 360°, then the leash being under constant tension by its retractable nature, would create a bit of a "tenting" effect as Sam literally ran circles around me. That vision took me to step three in making my innovative idea a reality – *prototype it!*

As a virgin innovator, I needed to select materials that I could tinker with on my own, in my garage, without a big capital investment – materials like wood, aluminum and nylon. I also needed to work with aspects of my chair that were already engineered to provide a platform for my prototype. Ultimately, I settled on dropping a one-inch diameter aluminum mast into one of my chair's tubular, swing-away armrest receivers, at the top of which I affixed a rotating mechanism that also cradled the retractable leash. This brings us to step four in the innovative process – *test, adjust and retest*, or as I also like to say, *wash, rinse and repeat*.

Without getting into all of the minutia of my successes and failures during this stage of development, suffice it to say, this part of the process can be very, very iterative and take quite a bit of time. The time from the day Sam and I first headed out to a local lake to test what was to become the Hound-a-bout™ hands-free dog walking system to the day I had production quality product available for sale totaled nearly six years. Honestly however, when I started testing ways for me to walk Sam, hands-free, from my wheelchair, I had no aspirations of

commercializing the Hound-a-bout system. It was only after five years of use, during which time I accrued the immeasurable physical, emotional and social benefits of being able to get out and walk my dog from my chair, that I believed others who found themselves in a situation like mine could benefit from the commercial availability of a device like this.

During this protype-refine-reprototype phase of development I learned several key lessons. First, *keep it simple*. What Dean Kamen did in developing both the Segway and iBOT – using gyroscopes and microprocessors to replicate the phenomenon of human balance – was truly innovative, but so many of us don't have the access to the technical expertise and vast sums of capital to make innovation like that happen.

The sum total of all of my product innovations were tried or prototyped with a few hundred, rather than thousands or millions of dollars, and in most cases, by uniting off-the-shelf technologies available to any consumer. Furthermore, many manufacturers will provide other manufacturers (e.g., you, as a prototype developer) with a free sample or two of component parts you think you need to make your invention work, further reducing your product development costs. It's a great way to get your hands on fasteners, straps, adhesives, connectors and other hardware that you think may work for you, without having to commit to "production quantity" orders.

Here is an example of that philosophy at work. I recently wanted to test the impact a longer rotating mechanism would have on overall Hound-a-bout™ system performance for a next generation device. Rather than producing a drawing of that component and having it machined to my specifications, I first sought to realize the concept using nuts and eye bolts I purchased at a local hardware store for less than $5 (Figure 1). Once I was able to confirm my theory by field testing this less-than-elegant embodiment of my idea, I decided to spend the $134 on having a single nylon swivel arm professionally fabricated (Figure 3). And when it comes to producing professional drawings to help your fabricators make your vision a reality, you don't necessarily need a pricey CAD-CAM chunk of software. I made the drawing you see below (Figure 2) using Microsoft's Power Point.

Figure 1 – Your proof of concept needn't be elegant.

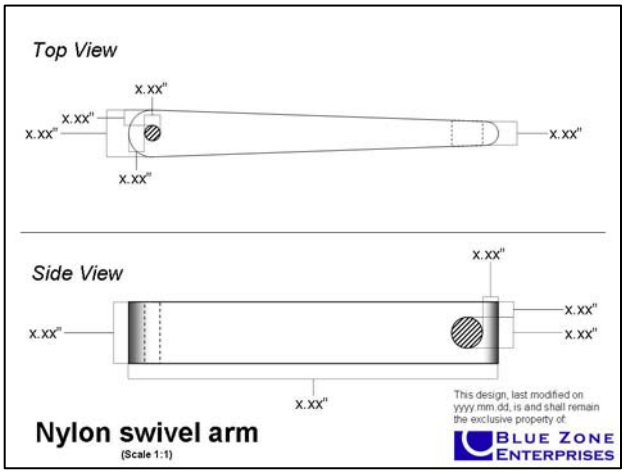

Figure 2 – Prototype drawings can be completed with programs as simple as Microsoft's Power Point.

Figure 3 – The tested and drawn concept becomes reality.

So how do you begin sourcing suppliers or service providers to help you with your prototyping efforts? ThomasNet.com is my favorite resource for industrial components, inputs and service providers like specialty fabricators. Searches are not only category specific, but there is also a geographic component to their search capability. There is no better way to reduce shipping costs and cycle time than using local suppliers and service

providers for both prototyping and manufacturing. Other sites like MSCDirect.com, McMaster.com and Fastenal.com are also great places to visit for hardware, specialty tools and finishing products.

Once you think you've realized a "ready for prime time" product from your test, adjust and retest efforts, it's time to think about *how you're going to manufacture it*. With a device like the Hound-a-bout hands-free dog walking system, I chose to have some components like the anodized aluminum mast fabricated and finished for me. Other components, like the retractable leash, are available from leading manufacturers, like Flexi. But when it comes to final assembly, by adhering to *the keep it simple* principle, I was able to accomplish that feat completely in-house. And the more control you are able to exercise over the quality of your final product, the better.

This takes us to a corollary to the *keep it simple* principle – namely, *start small and grow organically*. Unless you're independently wealthy, frugality is key. When trying to start a business, little else is more important than liquidity (cash is king), and better to rely on self-financing as you, the entrepreneur, are then beholden to no one. Nothing enslaves like debt. Starting small not only makes taking that first step that much less onerous, like when considering handling the final assembly of your invention yourself, but it will also help you manage the downside risk stemming from the missteps you will inevitably make as a first time innovator.

Similarly, the organic growth philosophy, whereby you let small successes fuel progressively larger successes, will help you avoid getting in over your head on the "over promise, under deliver" front. In other words, it is better to start out with a dozen local customers whose needs you can satisfy, than it is to go for that "big splash" product launch and wind up with a thousand interested customers, 90% of whom will be disappointed to learn that the product they so desperately want is backordered indefinitely.

This takes us to the next step in the innovative process – *getting your invention to market*. While approaching large online outlets, like SportAid.com and 1800Wheelchair.com, or your local home medical equipment resellers, is always a great place to start, in many instances, retailers with a reputation to maintain will typically want to see some measure of success before adding a product untested in the marketplace to their list of offerings. The great thing is, with the internet and some awareness among your target audience, bringing a product to market yourself has never been easier. Simply choose a domain name for your enterprise, register it and sign up for things like e-mail and website hosting with somebody like GoDaddy.com, build your site using one of the many web development packages out there (I had particularly good luck with Web Easy Professional 8 from avanquest.com), and then *let your target audience know about it*.

Promoting your invention can take many forms – from advertising in media and on websites that reach your target audience, to seeking out free public relations coverage by pitching your endeavors in press releases, to good old fashioned one-on-one selling. I always make it a point to have business cards, product literature and (when possible) samples of my products with me in the event I happen to bump into somebody I feel could benefit from what I have developed. Also, think about tapping relationships you established with the occupational therapists and physical therapists that helped you during your recovery. They literally have their hands on your target audience every day, and in many cases, are looking for assistive technology solutions to help people with the same needs you had.

Next, *be prepared to execute*. Sign up for a shipping account with UPS.com or FedEx.com, hit up an organization like Uline.com for shipping supplies, and make sure you have the little things like return, warranty and privacy policies all in place. While you may not be able to anticipate everything that might not go according to plan,

thinking about as many of the details as possible, in advance, will make any adjustment or course correction you have to make in the future all that much easier.

Finally, *don't forget about all of that legal stuff*. You'll need a federal tax ID, and probably a state tax ID, which you should receive when you register your business with your respective state's Secretary of State. Consider business insurance, and if you truly believe you've come up with that million dollar idea, seek the counsel of a good intellectual property attorney. Cover your assets, be prepared to work hard, and hopefully the next challenge you'll face will be finding a good tax attorney to help you shelter all that money you'll be making. Now, go forth, innovate and prosper!

C. John Stanchina is the Founder and Chief Executive of Blue Zone Enterprises, LLC – a company dedicated to the development of products and processes intended to help those paralyzed by injury or disease speed their return to healthy, independent living. C. John, himself, is a T-12 complete paraplegic, having sustained his spinal cord injury in January of 2000 in a downhill skiing accident. He currently lives in Plymouth, MN with his wife, Nicole and their Jack Russell Terriers, Louie and Rodney. He can be reached via e-mail at CJohn@BlueZoneEnterprises.com or through his company's website, www.BlueZoneEnterprises.com. To view a digital version of this article as it originally appeared in Life in Action, please visit::

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