How can a culture of innovation be integrated into a company when there are always naturally occurring forces in business acting against it? For the past 15½ years I have led the engineering team that develops autonomous commercial floor cleaning machines. Through three owners, half a dozen CEOs and a variety of business philosophies, I've learned that there are several critical success factors needed to make innovation part of the culture. A champion to drive innovation and implementing tangible events that underscore the value of innovation are at the core. Surprisingly, from my experience the best champions aren't necessarily the top executives, but from the creative people on the front line.

Six months ago, Intellibot Robotics was acquired by Sealed Air Corporation and placed into its Diversey Care division. My new employer recognizes the value of innovation and strongly supports keeping the innovative Intellibot culture alive. This message is repeated often, from my immediate director all the way to the President and CEO. Today's products, known as TASKI Intellibot floor cleaning robots, are in use all over the world, cleaning schools, malls, hospitals and other facilities each night, running unattended and leaving the floors clean for the next day's activities. These machines are part of the new frontier where machines fitted with sensors, embedded computers, software, and electromechanical devices are changing the landscape of the labor force by completing jobs fewer humans choose to pursue.

To make a product like this requires innovation at many levels: from the details of creatively utilizing sensors to the ingenious collaboration needed to even dream up a product like this in the first place. There are few similar products for comparison which limits opportunities to see how others are solving similar problems. Much of the technology has been invented because it simply doesn't exist off the shelf. The software development alone has taken over two decades to mature. And yet, the machine is quite simple. Years ago at a conference, a bright and successful colleague asked, "So your machine uses sensors to detect the environment, employs algorithms to compute what action to take next and then commands the various motors to make motion happen?"

I said, "Yes, that's it."

"Hm. That's pretty simple."

"Yes, it is." And yet a decade after that conversation we are just now starting to see the first semblance of competition. If the formula is so simple, where is all the competition? It's not the formula that makes the product. It's the creativity that breaths life into the formula, also known as innovation.

Innovation Reality
But then there is reality. Innovation doesn't fit cleanly on a Gantt chart.   It can't be scheduled.   It interferes with structured business processes.   It's costly, requiring time and resources which tug against the goal of reducing cost to improve profits.   It can be conveniently identified as a distraction, or worse, failure.   Yet, despite these characterizations, innovation is absolutely essential to drive company growth.

When struggling to decide how to solve a problem, I ask myself one question: "If this was my company, what would I do?" By reframing the problem like this, a great amount of freedom is released.   This freedom is the starting point of cultivating innovation. Relief from the tyranny of the urgent is essential. After 25 years in several companies, I am convinced there is no company where innovation can happily exist on its own.   If I allowed myself, I could completely fill my days for the rest of my career just responding to urgent requests, and in the end accomplishing nothing.   As my lead engineer was fond of saying, "God created the world in six days because He didn't have to worry about the installed base (or customer or product line or business policies, etc.)." Innovation requires being free from those things, even if just temporarily.

Always Innovate
The reality of business is that there isn't room for innovation.   We recognized early on that relief from the daily grind is necessary for creativity, but that no matter how hard we worked, we would never get the break to work on the really important things.   So I asked myself, "if this were my company, how would I get the relief we need to stay sharp and create new things?" The solution was that we created Improvement Day (ID for short). This was a day to be free of the crisis of the moment and advance the technology we were passionate about.   We would pick a topic that we wanted to improve and prepare for it. Fridays became IDs. There were seasons in which there

were several ID Fridays in a row and other times where we missed months of them, but just to know that we could create these days as needed was freeing.

IDs "scratched the itch" of wanting to make the product better, to remove that irritating aspect that made us cringe whenever someone brought it up, or to try out a new technology to see how it performed. This freedom is most gratifying to an engineer. The engineers probably know the product better than anyone else and therefore probably know more about making it better than anyone else, at least at the detailed level. Looking back, the best product features were created by the engineers on IDs.

Thanks to Sealed Air management, we not only don't have to hide our IDs, but we have been strongly encouraged to continue these. Up to 20% of our time each week can be devoted to pursing new ideas. Engineers are to explore on their own, or partner with another to create or learn something new. This is really encouraging and confirms that the culture of innovation that was started years ago is to officially continue. The key takeaway of IDs is that by temporarily removing the creative staff from the pressure cooker of deadlines, tremendous value is created and the business benefits from this.

Protect Spontaneous Communication
I see a key responsibility of my role is as a steward to protect the engineering team to allow us to create, despite the tension between the structured business policies and the free-flowing creative sessions. The innovation leader must choose to ensure that creativity can reign so that innovation can occur as frequently as possible. This requires some soft skills to facilitate freedom to create, while also driving the team to meet important business goals. Even if innovation has to be done under the radar, the business still benefits and the culture of innovation takes root.

The team of individuals need to not only work well together, but are comfortable operating in a startup company mode. This may require "wearing lots of hats," doing more than just one job, but the results are significant contributions to and ownership of the end product. With this less structured atmosphere people aren't boxed into just one aspect of the product development so innovation is broader. The start-up company mode is more of a mindset than it is a function of company size. Beware that a small company can get mired in a big business mentality that doesn't embrace the startup

model, while even large companies can still enjoy the benefits of the startup model if they incubate and shield creative teams adequately.

Another way to foster innovation is to periodically have an engineer present his or her work. In one of my past companies, we had monthly Programmer's Lunches. Pizza was brought in and one engineer would describe a new programming technique or technology.   There were demonstrations and discussions, but nothing was tied to a deadline or a product. Engineers learned new technologies and innovation grew.

Now, with a team of remotely distributed engineers across the country, Programmer Lunches aren't a forum that we've used much, but thanks to technology, we have developed other ways of achieving this type of intellectual sharing. From the beginning my team have embraced using Apple Mac computers, which fit well in a start-up style team.   We've taken advantage of the technologies that are now commonplace with nearly all operating systems and devices today, which include text chat, audio and video conferencing and screen sharing. All of these have greatly bridged the gap of distance. A surprise benefit of text chat is that now we each have years of technical discussions recorded on our computers that can be easily searched and referenced. In some ways, this is even better than a face-to-face meeting or a phone call because they are recorded.

However, even this falls short in accomplishing one of the most beneficial tools for innovation: the "water cooler chat". These spontaneous discussions often bring forth great ideas, but they rarely occur for remote workers. Fortunately, there are companies that are making telepresence even more seamless.   Thanks to support from my company, we now own a DoubleRobotics telepresence robot making those water cooler chats happen even for remote staff. I use this to see progress of the next robot in the lab, or to tour the production facility.   The key to all of these activities to foster innovation is creating an environment of trust where spontaneous communication can occur.

Celebrate Success

When innovation yields success, share it! A minor, but important part of innovation is announcing a success. That success may be a product improvement, or more often than not, clarity as to why something didn't work. It is also a great avenue for learning. We have a hotel lobby bell in the robot test track called the Engineering Success Bell. When an engineer solves a problem, he or she rings the bell. It is a gratifying moment.   Obviously, the ring draws attention from others and impromptu conversations ensue, where the problem is described and the solution discussed.   This sharing of knowledge spurs more innovation and helps in refining the solutions.

Cultivate Your Own Innovation

When a company cultivates innovation, great things happen.   Products are better because the development teams are better. The teams want to work harder and stay with the company longer.   There is an increased sense of ownership and passion. Cultivating a culture of innovation is what keeps a company thriving and enjoying the success it strives for.

Know that innovation has a cost, but is worth it. The business will eventually see the benefit. It should always be happening — make it happen. A protected environment is required — protect the innovators. Then wrap it all up by celebrating the success. This formula works. I've seen it succeed for years.