

Orbit Newsletter Digital Publication

Q4 2021

The Evolution of the Bently Nevada Business over the Last 20 years

Today, I want to recognize the longevity of the Bently Nevada family and the milestone of being in our current building for the last 20 years (as of this month).

When [Don Bently](#) came to Minden, Nevada from Berkeley, California in the mid-1960s with his growing business, the entire operation fit into a single empty building at the Minden-Tahoe airport in the Carson Valley. As the business grew, it spread out into several buildings around the local area, many of which held different processes from the machine shop, to printing services, to consoles, and the PCBA line, just to mention a few. Many of the operations took place in the main building downtown. Once known as the historic brick creamery building, it is now the home of a [distillery](#) owned by Don's son, Christopher.

In 2000, our new larger building was completed and all of the other occupied locations in the valley [began their decent and employees started](#) moving into their new homes throughout the facility. It took over a year or more to get all employees and machines with their respected functions into the one main building we still occupy today. At the time, the building hosted more than 1000 employees just located here in the valley. It was and still is our main hub for operations of the manufacturing of products Bently Nevada is well known for today.



Today, on the first floor, the machine shop holds a large portion of the northeast side of the building along with probes and proxes on the northwest side. In the center of the facility, on the first floor, is the main hub of the PCBA line and our stockroom. On the southeast side of the facility is the shipping and logistics department along with consoles in the center and the prototype center on the southwest side. Throughout these areas include many of the office staff that support these functions, including the facilities department, planner/buyers, and manufacturing engineers. The building floor space is approximately 286,000 square feet. This equates to about 3 American-style football fields per floor.

While there have been several [Kaizen lean line events](#) that have taken place over the 20 years in the facility and processes changing to accommodate volume and new age processes, the Bently products and the passion behind the employee still remains the same; dedicated with the best of quality.

On the second floor of the facility most of the floor space consists of offices held by leadership, sales, customer services, safety, quality, marketing, communications, software, hardware, finance, purchasing, and IT, to name a few.

I took some time recently to talk with a few of our key leaders on the manufacturing floor to give us some insight in the areas they have occupied for the past 20 years and the evolution of our business through their eyes.

I would consider Rei Wahl to be one of the experts and core staff in the Bently Nevada Business and a mentor to many. He has been with Bently for 44 years. Not much has changed since he last gave his perspective on the proto center, but some significant updates have occurred since 2013.

Baker Hughes Printed Circuit Board Assembly (PCBA) prototyping

In April 2013, it was stated "ELECTRONICS IS A CORE PART of our portfolio for the Bently Nevada* product line, as well as for every GE Measurement & Control business. Operational Excellence in electronics is a critical priority for our continued growth, and we are excited about the recent significant investment in this area. We are installing another state-of-the-art PCBA assembly line in our Minden, Nevada facility, building on in-house infrastructure and process expertise. This will allow for a dedicated line that builds high quality, rapid turn-around prototypes for the development of new products."



November 2021 Update

"In the eight years since we successfully opened the PCBA Prototyping Center, we have been in the critical path of many new product developments, building hundreds and hundreds of PCBA prototypes for Baker Hughes product development teams, including Bently Nevada's recently released Orbit 60 product line. The focus has been on fast cycle time and design-for-manufacturability. The Proto Center leverages the deep PCBA manufacturing expertise at the Minden Bently Nevada facility to ensure that robustness and reliability are designed in upfront, working closely with the design engineering teams. It's a true collaboration to ensure the best product for our customers."



Reidar Wahl

PCBA Prototyping Center Leader

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Evolution of Bently Nevada, perspective from Deb Epps

Deb Epps has been with the business now for 38 years and has had many opportunities within the Bently Nevada business, working in multiple departments since she was a young adult and also working at many of the different building locations. When asked about her thoughts on the evolution of this business, she reflected on her time here and was able to share her perspective.

"I started as an assembler on the floor and did that for approximately eight months. Just from this experience the process was very manual and had very little automation. Process technology continually changed and grew and got better. The focus on ergonomics was just as prevalent then as it is today. I worked a couple of years with the manufacturing engineering team building fixtures that the engineers designed. (Fun note: we built these fixtures within the wall of Bently Nevada, with very little outsourcing. The Machine shop remains the same today with those built fixtures from those past engineer designs).



~1985: First SMT placement machine

I moved on to a supervisor role of PCBA area where I was for over 15 years. This is where I think we saw the changes in technology the most. Circuit boards were mostly through hole technology when I started. Surface mount technology was just being talked about, our very first board was the 3300 front panel which consisted of 14 components. As the technology department started to design multi-layer boards and increase production, Surface Mount Technology component machines were starting to be purchased. The very first automated SMT pick and place machine was like a tabletop robot. Then, we had a hi-speed chip shooter. I watched through hole processes go from 300,000 insertions a year to none and SMT placements go from ~21,800 parts per year to over a million per year.

I was fortunate enough to be a part of the team that designed the new building for manufacturing. PCBA machines and parts began to move into this building in spring of 1999. The footprint at that time was a quarter of what the footprint of PCBA is today. Wave and coating were isolated in their own room to accommodate those safety processes. Now that we use different materials and products that have since been developed over the last 20 years, it has enabled these processes to not be isolated and they have become part of a streamlined flow, taking down those walls during one of the many lean projects. The SMT lines during our growth were put together on the floor like a patchwork quilt as the volume continued to grow. Once the process equipment was identified for future growth, a three year plan was put in place. PCBA today has three lines; one dedicated to proximeters and two dedicated to all other products.





Current PCBA line

There have been many other departments that have had significant changes as well; transducers, fabrication, and the final assembly areas have all changed through the years with many improvements. I am fortunate to be a part of and witness this growth.

Today, I manage the facilities and machine maintenance team. I have worked with these teams most of my career at Bently Nevada. These two teams are instrumental in the changes that have transpired over the years. From taking down walls, electrical moves, equipment receipt, placement, and maintenance. This team has also taught me the most over the years about the importance of flexibility and embracing change.” (Read more in the past edition from 2013 [here](#) on the facility itself).



Pictured (back to front): Darren Bradburry, Deb Epps, Derrol McClintock, Lance Hartzell, Brandon Bell, Sean Hansen, Lucinda Platino, Ricardo Fregoso, Mark Ortiz, Anthony Tribon, Jacob Smith, Jeremy Litka, Derek Ainscough

Not pictured: Maricela Segura, Tom Martz, Eze Varela, Troy Modispacher, TJ Touchin



Deb Epps

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The evolution of the Bently Nevada business over the last 20 years through my eyes in packaging.

Adrian Cobb has been with the business now for 31 years. He has been in shipping almost his entire career with Bently Nevada and has watched the significant growth of our business, coming and going from the many docks he has worked on at each building occupied in the valley. Adrian outlines his perspective of shipping, receiving, and logistics below.

"Most people think about the product first and the packaging second, but not me! The packaging is as important as the product, it is designed to protect the product, under a barrage of challenges.

When I started here in 1990, we had a roll of bubble wrap hanging from the ceiling and a half a dozen general use carton options, with a chemical solution that mixed 2 parts (A+B together) to form fit foam padding around any product, and a ton of packing peanuts!

We have since moved away from chemical packaging and Styrofoam packaging as it would create static, and if anyone does not know, static and electronic components do not mix. Styrofoam also is not a recyclable product. Over the past few decades, we have gone from Styrofoam to pre-recycled foam packaging, recyclable clamshell packaging, and corrugated solutions. Corrugated carton packaging is more eco-friendly, can be designed to protect and cradle products in transit, and result in a reduced carbon footprint. We designed our newest product, the Orbit60, with a unique packaging style that not only utilizes pre-recycled foam and corrugated cartons, but also reduces the safety in production and at the customer site, by reducing the need to lift the unit out of the carton.

The larger challenges that we face today are a direct result from the Covid-19 pandemic. This virus took over our day-to-day lives and robbed us of brick-and-mortar shopping that was so familiar to us. The unprecedented use of E-commerce by businesses and consumers alike, where shopping experiences have increased to 'on-line', and has resulted in this being the primary form of shopping for some households, which has put a larger burden on e-commerce. The result is longer lead times for packaging materials, especially on the corrugated manufacturing plants, not to mention the shipping & transportation community.



Bently Nevada has built partnerships with various vendors to minimize the impact to shipping products to our customers. We raised our stock levels, and receive packaging supplies more frequently, we have also combined similar packaging to reduce our SKU's. We challenge our vendors to assist us in a more sustainable packaging; this refers to the sourcing, development, and use of packaging solutions that have minimal environmental impact. Simply put, sustainable packaging should be earth-friendly and not contribute to the further depletion of natural resources.

While eco-friendly options are currently less cost effective, spending on eco-friendly products is on the rise. Current trends include waste reduction (recycle/reuse), efficient use of packaging space (less void fill), lower carbon footprint, and recycling. Corrugated material has always been and continues to be strong and recyclable, but it still has room for improvement. Bently Nevada is constantly looking for a better sustainable, recyclable product to reduce our global footprint."



Adrian Cobb

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I could continue to share with you the [evolution of Bently Nevada \(pg. 24\)](#) and more about every part of the Minden Facility and all of the different departments the building holds, however, today I wanted to highlight some key critical updates and growth we continue to see in our Minden Facility on the manufacturing floor. As we continue to see growth in our economy, we've also noticed a significant change over the last twenty years in the Bently business as the world has significantly produced more to serve our customers in their growth and development. The Bently Nevada business may host their headquarter location in Minden Nevada, but we have several hubs around the globe that produce products and employee staff in every country in the world. Minden is home to many, but Bently has won the heart of the economy with our customers who continue to support us over the last 60 years.



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