5-2023

Supply Chain Management Internship Thesis - Hilti & Amazon.com, Inc.

Reagan White
University of Arkansas, Fayetteville

Supply Chain Management Internship Thesis – Hilti & Amazon.com, Inc.

By

Reagan Sierra White

Advisor: Dr. Stephanie Thomas

An Honors Thesis in partial fulfillment of the requirements for the degree Bachelor of Science in Business Administration in Supply Chain Management and International Economics.

Sam M. Walton College of Business
University of Arkansas
Fayetteville, Arkansas

May 13, 2023

Table of Contents

Introduction and Company Backgrounds

Introduction

While the construction and e-commerce industries are strikingly different, supply chain management has become key to the success of firms in both industries. Throughout my time as a logistics intern at Hilti's North American corporate headquarters, I developed an understanding of evolving supply chains and learned that cross-functional collaboration is key to the effectiveness of supply chain processes. Having the opportunity to intern at an Amazon fulfillment center as an area manager, I gained behind-the-scenes insight into a well-developed supply chain focused on efficiency, continuous improvement, and reducing lead times. These two experiences provided me with insight into how supply chain challenges and solutions can vary across organizations depending on the company's size, industry, and culture.

Hilti's Background and Company Overview

In 1941, Hilti was founded by Martin and Eugen Hilti with the opening of the first workshop in Schaan, Lichtenstein. While the company sought to establish its roots within the manufacturing and construction industry, the economic effects of WWll caused a sharp decline in sales, and founder, Martin Hilti turned to innovative solutions to save the company from bankruptcy. From this innovation emerged ground-breaking technology which helped launch Hilti's first direct fastening and drilling products. With the success of these products came continued innovation and global expansion during the 1960s, as Hilti opened locations in over 30 countries. During the 1980s, the Martin Hilti Family Trust was established, to ensure the long-term continuity of the company and the deep-rooted values that shape the Hilti culture. Still today, 100% of the company shares are held in the Martin Family Trust. Since its beginning, Hilti has continued to innovate, introduce new products, expand into other global markets, and prioritize its customers. As Hilti has grown and evolved, factors such as its company culture, corporate strategies, and focus on the future have undeniably played prominent roles in Hilti's success. Today, Hilti's success is guided by its "Champion 2020" corporate strategy which focuses on sustainable value creation through leadership and differentiation. With over 32,000 employees and locations in over 120 countries, Hilti is committed to providing high-quality products to its consumers through its research, innovation, and sustainability efforts.

Hilti's Company Culture

At the center of Hilti's company culture is its mission statement, "we passionately create enthusiastic customers and build a better future." Additionally, Hilti is shaped by its core values of integrity, courage, teamwork, and commitment. These foundational elements foster a culture that is people-oriented, customer-centric, results-driven, and inclusive. Within the workplace, Hilti is committed to its culture by providing employees with the opportunity to join several employee resource groups including a women's group, Latinx group, and LGBTQIA+ group, among others. Outside of the workplace, Hilti's Engaged Beyond Business Program encourages employees to volunteer within their local communities. Oftentimes, teams will pick a charity or non-profit organization to volunteer at together, thus reinforcing the core value of teamwork. Furthermore, Hilti strives to "build a better future," by addressing sustainability in three areas: the environment, people, and society. The combination of Hilti's mission, core values, and commitment to others through sustainability and social impact efforts cultivates a culture that is truly one of a kind. In fact, it's not uncommon to meet many Hilti employees whose grandparents and parents have worked for the company due to the unique company culture. In

my experience, Hilti employees are very passionate about their jobs, Hilti's products, and the overall success of the organization.

Amazon.com, Inc.'s Background and Company Overview

In 1994, Amazon, now one of the world's largest e-commerce companies was founded by Jeff Bezos in Bellevue, WA. Originally, an online marketplace for books, the company promised consumers the ability to deliver books to readers anywhere. The early success of Amazon can be attributed to Bezos' slogan "Get Big Fast," which hinted at the growing power and impact of the Internet on business operations. By utilizing this resource, Amazon grew significantly with over one million customer accounts by 1997 whose revenues totaled roughly $148 million. Following this growth, Amazon expanded into other global markets and broadened its product portfolio beyond books to include music, toys, consumer electronics, and much more. To fund its growth, Amazon.com became a public company in 1997 and raised $54 million on the NASDAQ market. Since its beginning, Amazon.com has continued to place an emphasis on technology and integrate it throughout its supply chain and various business operations. As a result, Amazon.com has become a leader in customer service, introducing next-day shipping, Amazon Prime, suggested products based on purchasing history, customer reviews, and more. Even today, with the implementation of robotics and artificial intelligence in Amazon fulfillment centers, technology continues to play a large role in the efficiency, speed, and agility of their supply chain and overall success.

Amazon.com, Inc.'s Company Culture

At Amazon, every day is day one. This "Day 1" culture originates from Jeff Bezos' 1997 letter to shareholders, which stated, "This is Day 1 for the Internet, and, if we execute well, for Amazon.com." Since its origin, this mentality has cultivated a culture at Amazon that is driven by four principles: customer obsession, innovation, operational excellence, and long-term thinking. These principles are integrated into Amazon's mission of "striving to be Earth's most customer-centric company, Earth's best employer, and Earth's safest place to work." While this mission is integral to Amazon's vision for the past, present, and future, Amazon associates are the ones practicing these principles each day. Further illustrating Amazon's culture are the 16 leadership principles which Amazon associates are trained in and encouraged to follow each day. Several of these include customer obsession, ownership, learn and be curious, insist on the highest standards, think big, have backbone, and deliver results. These tenets of Amazon's culture guide everyday business decisions and the future direction of the company. Beyond customer obsession, Amazon's culture encourages safety, sustainability, and inclusion efforts. Amazon has 13 affinity groups that provide associates with the opportunity to join communities within their respective workplaces. Several of these affinity groups include Amazon Women in Engineering, Families at Amazon, Glamazon, Warriors at Amazon, and more. Regarding safety, Amazon places a high emphasis on the safety of its fulfillment centers and warehouses by regularly conducting safety checks and creating the Working Well program focused on providing associates with mental health resources. Regarding its impact on the planet, Amazon is cognizant of its carbon footprint and in 2019, committed to achieving net-zero carbon emissions by 2040. Since its beginning as an online bookstore, Amazon has drastically evolved and is now a leader in the e-commerce industry.

Personal Learning Objectives

This paper summarizes my learning objectives for my internships. These objectives were to:

- Expand my knowledge of materials management and S&OP processes (Hilti)
- Improve my technological capabilities using SAP, Salesforce, and Power BI (Hilti)
- Develop an understanding of fulfillment processes and warehousing (Amazon)
- Identify inefficiencies and process improvement opportunities (Amazon)

Demand Planning and S&OP Processes: Throughout my internship with Hilti, I gained experience with materials management and demand planning. Within this role, I learned how to forecast based on sales trends and place orders within systems such as SAP. Additionally, I developed a deep understanding of the different challenges and key performance indicators of the sales and logistics teams. Having the opportunity to sit in on several S&OP meetings helped me recognize the value of aligning demand and supply forecasts to meet the needs of the customer and ensure the profitability of the organization.

Technological Capabilities: Within materials management at Hilti, technology plays a large role in the forecasting, launching, ordering, and delivering of products. The organization primarily uses SAP for forecasting and ordering purposes. Throughout my internship, I learned how to use this software, update information within the system, and gather insights regarding delayed shipments, critical supply items, and demand volatility. More specifically, I focused on backorder management within SAP by updating expected lead times and order volumes. Beyond logistics, I gained firsthand experience with the sales side of the business and the opportunity pipeline within Salesforce. By using this platform, I strengthened my skillsets in data analytics, trend recognition, and data quality management. Acquiring experience with Salesforce improved my understanding of the connection between the demand and supply sides of the business. Additionally, Power BI is a tool that many departments at Hilti use to build data visualizations for S&OP and other important meetings. Because of this, I practiced building my own dashboards from Excel spreadsheets and became proficient in using this tool to show data.

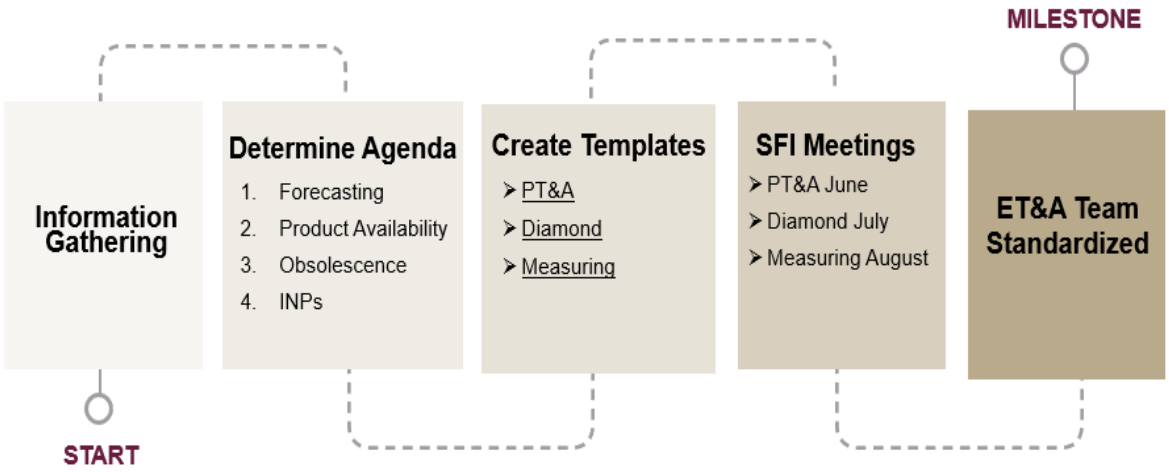
Understand Fulfillment Processes and Warehousing: During my internship with Amazon, I acquired behind-the-scenes knowledge about fulfilling e-commerce orders. Throughout my ten weeks, I spent time with various departments within the fulfillment center. Each week was a different rotation filled with training, hands-on experience, and the opportunity to network with different leaders. My rotations included time in inbound, stow, pick, count, inventory control, pack, and outbound. Having the opportunity to spend time in each of these areas showed me how a product enters, moves, and exits the warehouse. This provided me with a holistic understanding of fulfillment and the importance of warehousing within supply chains.

Identifying Inefficiencies and Process Improvement Opportunities: While at Amazon, I was challenged with identifying inefficiencies and process improvement opportunities within an area of the warehouse. By applying my problem-solving, analytical, and supply chain skills, I identified a packaging inefficiency with cost, waste, and performance ramifications for the outbound department. To counter this, I established an alternative packaging method that lowered costs, reduced waste, and improved performance for various key data metrics.

Project/Assignments/Responsibilities Details

As a Logistics Intern within the materials management department at Hilti's North American corporate headquarters, my two projects focused on introducing and redesigning best practices for demand planning processes. My primary project involved improving and standardizing the S&OP processes and demand-supply integration meetings across all business units. Based on my observations, the demand-supply integration meetings were inconsistent across business units, lacking focus, and often unsuccessful in accomplishing their intended purpose: to review prior sales and forecasting trends, while identifying any forward forecast misalignments. Therefore, the main objective of this project was to reduce the frequency of misalignments between sales forecasts and logistics forecasts. Through a five-step process and collaboration with materials managers, sales managers, senior logistics managers, data experts, and technology experts, I was able to standardize the S&OP meetings across some business units while presenting upper management with the next steps to complete standardization across the remaining business units. This process included: 1) information gathering from various stakeholders about pre-existing S&OP processes, 2) determining key agenda items and data points for the new S&OP process, 3) creating meeting templates using PowerBI and PowerPoint, 4) testing and gathering feedback on the new agenda and templates in monthly sales forecasting integration meetings, and 5) making any changes necessary to complete standardization of all business units within the electric tools and accessories half of the business.

The five-step process of my S&OP project at my Hilti internship



Throughout this project I collected feedback from various stakeholders within the business, to ensure that my solution was well-rounded. While this feedback was sometimes contradictory, I learned how to discern which suggestions were most beneficial for the overall objective of the project. Towards the end of the summer, I presented my implemented solution and next steps to upper management at Hilti's North American headquarters. Following the conclusion of my internship, my coworkers have informed me that my new S&OP process is still being used to prepare for and run the monthly demand-supply integration meetings. Furthermore, the new process has also been implemented across the remaining business units to complete the standardization of the S&OP across all of materials management.

Feedback on my new S&OP process from various stakeholders

"This was one of the most productive SFIs that I've sat in on in the last few years."
David Walker
BU Manager PT&A

"This presentation is a significant improvement, and the meeting is going much better than before."
Aimee Henderson
PT&A Materials Manager

"Using the new structure, it was the first time that our SFI took the entire allotted time, and it was filled with meaningful and value-added discussions that we were not able to induce with how we used to do our SFIs in the past."
Javi Matias
Diamond Materials Manager

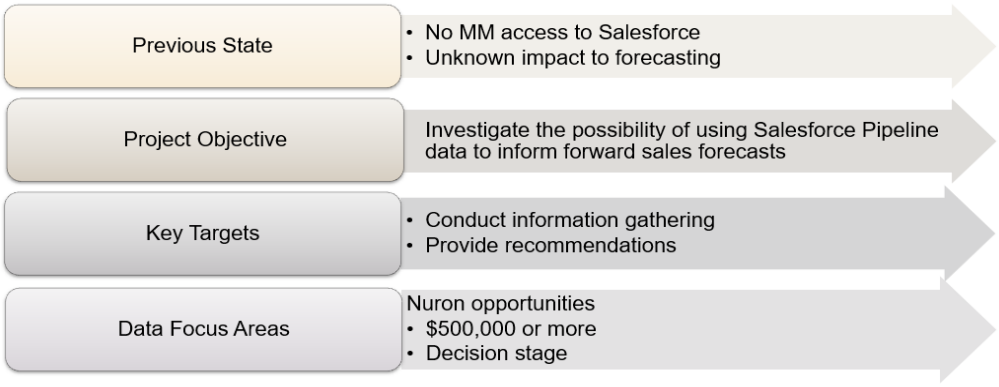
"I like it. This is a lot more granular than the way that we used to do it and it gives me a better sense of what's going on."
Reid Smith
Senior Product Manager

"Before this our SFI meetings would lack direction and only last 25-30 minutes. Now, our SFI meetings last the full hour and are much more productive."
Jennifer Bardgett
Diamond Materials Manager

"Very happy with the new SFI template Reagan created. The template will provide great visuals and key talking points to keep our meeting productive."
Adam Felix
Measuring Materials Manager

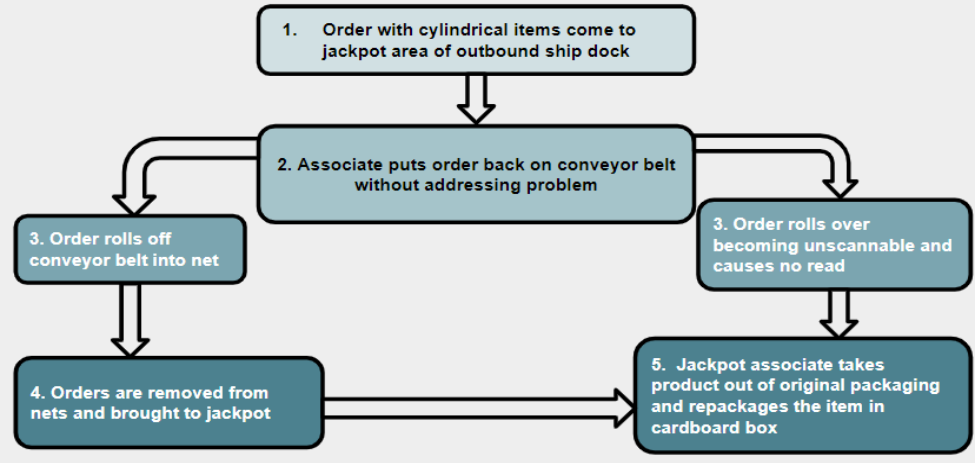
Given that Hilti is a sales-driven organization, the objective of my other project was to investigate the possibility of using Salesforce pipeline data to inform forward sales forecasts. Prior to taking on this project, data within Salesforce was only accessible to the sales department, meaning the logistics side of the business had limited or zero visibility. This lack of information and visibility was causing supply bottlenecks and skewing demand forecasts. However, this business problem could not simply be solved by providing logistics managers with access to the database, because of data quality issues and a lack of company-wide understanding of Salesforce data. Since Hilti had only been using this platform for two years, the sales data was largely inconsistent, infrequently updated, and oftentimes "front-loaded" so that account managers could reach their yearly numbers. My experience with Salesforce was rather limited prior to my internship, so I met with various account managers, IT experts, data visualization experts, and senior logistics managers to understand how to read the data and what impact it could have on demand forecasting. To summarize, I tackled this project in a three-step process. First, I gathered information from sales managers about the sales pipeline and data recording process. Then, I exported relevant data from Salesforce to Excel, which I then sorted and created visualizations from to determine key findings and establish trends. This step was the most difficult, due to the immense volume of data. Because of this, I had to determine which data was most important and understand how to derive conclusions and meaning from that data. Given the variance in the substantiality of the data within the sales pipeline, most of my conclusions were contingent on assuming that the data was mostly accurate and updated. Lastly, I presented my short-term and long-term recommendations to upper management about the present and future utility of Salesforce data for forecasting purposes.

An overview of my Salesforce project at my Hilti Internship



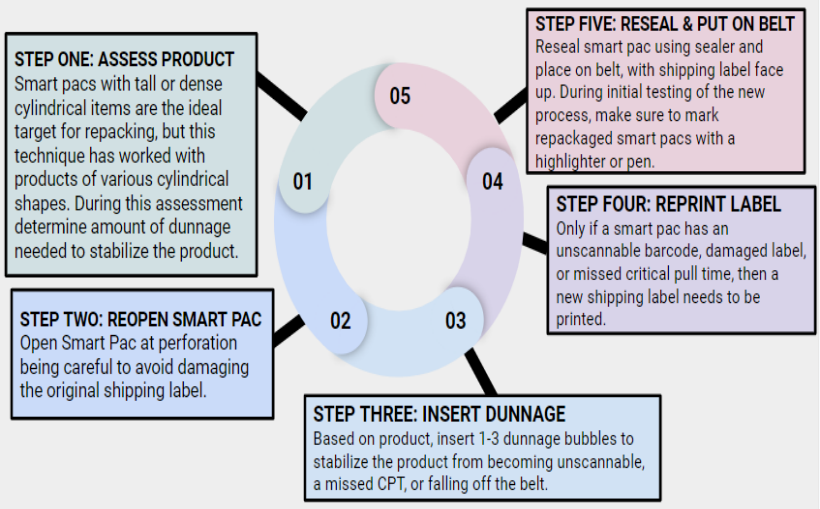
As a Sophomore Area Manager Intern at the Amazon fulfillment center in Oklahoma City, OK, I was tasked with identifying a process improvement within the warehouse and presenting my solution to upper management at the end of my internship. With this, I had total liberty over the size and scope of the project. Throughout my time in various departments, I noticed that the jackpot area of the outbound ship dock was full of opportunities for process improvements. Essentially, this is where packages that cannot be scanned due to barcode errors are allocated. After reaching the jackpot area, orders are taken off the conveyor belt, repackaged, and placed back on the conveyor belt. Through observation, I noticed that the bulk of packages that jackpot was receiving were cylindrical single-order items. These orders could not be scanned because they would often roll over on the conveyor belt, hiding the bar codes. The volume of orders that cannot be scanned affects several key performance metrics, including critical pull misses, no reads, and late shipments. While Amazon had a repacking process in place to counter this, it generated packaging waste and higher costs and was often used as a last-resort solution.

The previous repackaging process at the Amazon fulfillment center



Recognizing this, I decided to redesign this repackaging process to be more cost-efficient and sustainable. To do this, I studied the previous process above and modified it to create my new repackaging process below. Instead of repackaging the item in a cardboard box, I saved the original packaging and added dunnage to cushion the cylindrical product to prevent the orders from flipping over, so that the scanners could read the barcodes and those orders could make it out the door on time. My new repackaging method reduced cardboard waste and repackaging costs (which I will discuss in the analysis section).

New Repackaging Process



Analysis/Implications for the Company

S&OP Process Project - Hilti

Business Problem

During my Hilti internship, the S&OP Process Project focused on addressing forecast accuracy. Forecasting helps supply chain managers plan how much product they need, where they need it, and when they need it. The more accurate the forecasts, the less waste, lower inventory costs, and better service levels to customers. Most organizations have a supply and operations planning process in place, but this can look different depending on the size of the company, industry, and maturity of its supply chain. At Hilti, the S&OP process has a bottom-up approach, beginning at the business unit level and ending at the global market level. The S&OP process consists of monthly meetings between the product managers and materials managers. While the objective of these meetings is to reach a consensus between the sales and logistics teams regarding the forward forecast, this was often unsuccessful. As a result, the aim of my project was to redesign the S&OP meetings so that they would be a value-added business activity and improve forecast accuracy. For a more detailed view of my redesigned S&OP meeting layout and timeline see the Addendum.

Potential Value

The value potential of increased forecast accuracy is substantial. However, because the success of S&OP meetings isn't the only factor that impacts this metric, the effects of this project were difficult to quantify. Prior to redesigning the S&OP process, the previous S&OP process negatively impacted the organization by:

I. Creating misalignment between the sales and logistics departments regarding forecasting.
II. Increasing the magnitude and frequency of forecast inaccuracy at all levels in the organization.
III. Causing certain products to be in critical supply condition due to forecasting errors.
IV. Reducing the organization's ability to reduce the number of obsolescent products and identify the necessary steps to do so.

To counter the negative impacts of the pre-existing process, my S&OP process focused on gathering data from both the sales and logistics teams regarding four key agenda items: forecasting, product availability, obsolescence, and upcoming product launches. Forecasting and product availability were the two agenda items with the highest priority, but presenting data and insight into obsolescence levels and product launches helped to establish better cross-functional communication and collaboration. Gathering feedback from various stakeholders was a key part of the success of my project because each stakeholder was seeking different statistics and I had to sort through which metrics were truly most important to all parties. This was not easy, given that the amount of data available is overwhelming. Beyond data sorting, several other challenges that I faced with this project were establishing buy-in from stakeholders to adopt the new process, weighing feedback, and ensuring the new process provided both ease of repeatability and a more detailed deep dive into certain key performance indicators.

Salesforce Impact Investigation Project - Hilti

Business Problem

Throughout my Hilti internship, the Salesforce Investigation Project focused on determining the impact of sales pipeline data on forecast accuracy. Since Hilti is a sales-driven organization, understanding that data within the sales pipeline is critical to the performance of other functions within the business. However, this information is not accessible to the other functions that need it. While the sales team has the ability to input and access information within Salesforce, the logistics teams have limited or zero access, which was creating a series of issues, because Salesforce contains information about leads and major upcoming projects, which can significantly impact forecasts for products. For example, if a large project that needs jackhammers and drills is set to hit the order pipeline in June, but this information is not communicated or available to the material manager responsible for forecasting that product, it's highly likely that the forecast will be significantly off. These forecasting errors can generate shortages resulting in lost sales and reduced customer service.

Given that Hilti uses Salesforce as the platform for its sales pipeline and SAP for demand planning and ordering purposes, technological constraints are a major cause of this problem. Since the information in Salesforce is not reflected within SAP, the forecasts within SAP are inaccurate, due to missing critical information. However, every lead or project does not need to be communicated to the materials managers. Only those that are large enough in volume to significantly impact forecasts for that product should be communicated. To be considered "forecast altering," I established that leads or projects must meet two criteria. First, they must have a value of $500,000 or more. Second, they must be within the final stage of the sales pipeline, which is the "decision" phase. Doing this made it easier to sort through the data and make recommendations to upper management about the impact of Salesforce data on forecasting.

Potential Value

The value potential of increased visibility with Salesforce data surrounding large leads and projects is vital for forecasting purposes. Having zero or limited visibility generated:

I. Significantly inaccurate forward forecasts, due to miscommunication and lack of visibility into demand spikes for certain products.
II. Major data quality issues within Salesforce, such as front-loaded data, old data, and inconsistent information regarding the dollar value and timelines of leads.

Going into this project I hoped that I could present upper management with a clear recommendation on how to utilize Salesforce data for forecasting purposes. However, throughout the discovery process and data deep-dives, I realized that the data quality issues are currently too severe for materials managers to use the information within the system to inform or change their forecasts. Considering this, I presented short-term and long-term recommendations to upper management. During the short-term Salesforce data cannot be used for forecasting purposes until data best practices are established, so that the data is consistent, accurate, and updated regularly. After this, my long-term recommendation would be for item-level information to be tied to large sales orders and projects so that it's clear which product forecasts will be heavily impacted. From there, I suggested generating a monthly report regarding all sales leads and projects that meet the high-impact criteria mentioned above. This report would be provided to materials managers and discussed during the monthly S&OP meetings to inform forecasts.

Repackaging Process Improvement Project - Amazon

Business Problem

During my Amazon internship, the process improvement that I went after was reducing the amount of missed critical pull times, which were largely caused by single-item orders with a packaging issue. Many of these single-item orders contained cylindrical items in smart pac bubble packaging, however, due to the shape and weight of those items, the packages would often roll over on or off the conveyor belt. This caused the shipping labels to be unscannable which prevented the orders from being allocated to the correct dock door in the shipping dock. Instead, those orders were allocated to the jackpot area of the outbound ship dock where associates would either put the items back on the conveyor belt or repackage them in cardboard boxes to ensure that they didn't miss their critical pull time again. While repackaging the items in cardboard boxes was a valid solution, it was often used as a last resort after the package had missed its critical pull time 2-3 times. Not only did this negatively impact Amazon's metrics, but this repackaging method was also costly and generated large amounts of waste. Because of this, I created a new packaging method where the associates inserted 2-3 dunnage bubbles inside of the original packaging to cushion the product and keep the package from turning over. Rather than use this method as a last resort, I had associates repackage orders with cylindrical items the first time they came to the jackpot to reduce the number of missed critical pull times and no reads.

Potential Value

The value potential of the new repackaging process is substantial from a cost, waste, and performance measurement standpoint. In 2021, on average 3,000 single-item orders were repackaged daily due to missing their critical pull times. The old repackaging method cost:

I. $0.50 more per order, if there was no need for an upgraded shipping label.
II. $1.23 more per order, if the order missed its first critical pull time and needed a fast-track shipping label added.
III. $6.09 more per order, if the order missed its second critical pull time, and needed a 2x fast-track shipping label added.
IV. Increased amounts of plastic and cardboard waste.

To implement the new repackaging process, I began with several trial runs (see Addendum for more information) to ensure that the repackaging method was successful. I did this by personally repackaging 50-200 items each trial and marking all orders that I repackaged. The purpose of the marking was to be able to easily identify any repackaged orders that returned to jackpot, so they could be counted as "unsuccessful." Across all my trials, the average success rate was 95%. The main reasons for unsuccessful repackaged orders were product shape, weight distribution, and poor repackaging. While the new repackaging method does present several benefits there are some disadvantages worth noting. With the new repackaging method, the jackpot area always needs to be fully staffed, associates need to be retrained for the new repackaging method, and more dunnage will need to be purchased by the procurement department. However, the staffing and retraining drawbacks were addressed during my internship, because I taught the jackpot associates the new repackaging method, so these drawbacks are only worth noting if there are management or staffing changes.

Conclusion and Personal Evaluation

Through both of my internship experiences, I have developed a better understanding of supply chain management, specifically within the areas of warehousing and demand planning. All three of my projects mentioned above presented me with the opportunity to apply what I have learned in the classroom and gain real-world project management experience.

After completing the S&OP Process project at Hilti, I feel like I have developed a better understanding of forecasting, demand and supply integration, and business management best practices. Furthermore, this project helped me recognize the importance of establishing buy-in from all stakeholders within the S&OP process. Even though the interests of different parties sometimes conflict, I was able to discern what metrics, topics, and issues were most important to all involved. While this wasn't easy at times, it grew my communication and interpersonal skills. Upon finishing the Salesforce Impact Investigation project at Hilti, I have a better grasp of the cross-functional connection between the sales and logistical sides of the business. Since Salesforce contains vast amounts of data regarding sales leads and opportunities, I had to determine which data was most important and related to the objective of the project: assessing the connection between sales records and product forecasts. This required deep analysis of sales data, which grew my analytical, reasoning, and critical thinking skills. With both of my projects at Hilti, I was challenged to learn how to use new programs including SAP, Salesforce, and PowerBI. Seeing the role of technology and data within supply chain management first-hand has made me realize that I must continue to develop my analytical and technological skills to become a better supply chain manager. Additionally, gaining real-world insight into the ever-changing dynamic of the world of supply chain management taught me that while great supply chain managers are not always prepared for the unexpected, they often have steps in place to mitigate the effects of component shortages, transportation delays, and labor strikes.

Throughout my Amazon internship, I gained experience within the warehousing and fulfillment functions of supply chain management. Specifically, I became familiar with inbound, stow, pick, inventory count, pack, and outbound processes within the warehouse. The value of this hands-on experience is priceless, and I believe that every supply chain manager should have experience working on the warehouse floor. My process improvement project grew my project management and problem-solving skills. Additionally, conducting cost analyses helped me assess the cost savings of my project to determine whether the new repackaging process is a value-added process improvement in terms of financial and service performance.

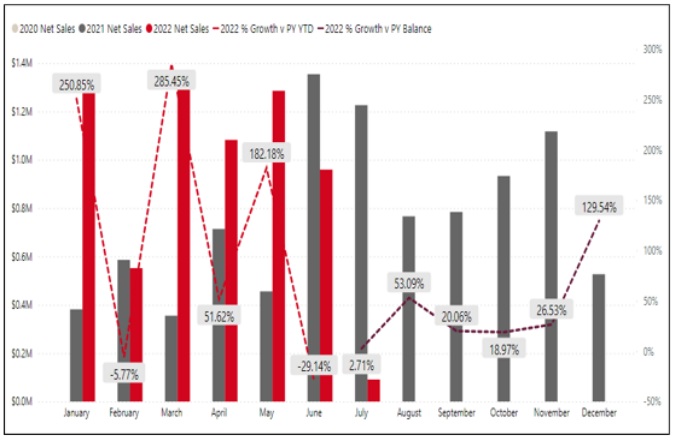
Reflecting on the similarities and differences between my two internships, I have several takeaways. First, no supply chain is perfect, and there is always room for improvement. While market leaders like Amazon have a reputation for supply chain excellence, they still have their fair share of challenges and inefficiencies. Second, the maturity of the firm's supply chain will shape its opportunities for supply chain improvement. At Hilti, its supply chain is relatively young, since it's just beginning to integrate best practices like S&OP and warehouse management. Because of this, process improvement at Hilti looks very different than it does at Amazon. Lastly, no matter the organization you work for, problem-solving, analytical skills, and decision-making are transferable necessary skills within the field of supply chain management.

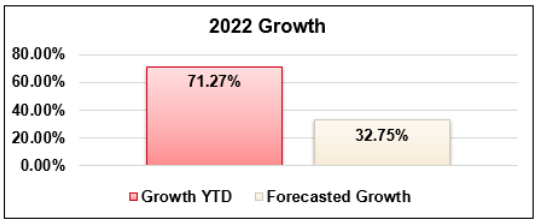
Addendum

S&OP Process Project – Hilti

The images below are examples from my template used to prepare for and run the new S&OP process at the business unit level. The data was pulled from SAP and imported into PowerBI to create data visualizations that material managers can use to present to product managers about key data relevant to forecasting. These meetings focused on four key agenda items: forecasting, product availability, obsolescence, and upcoming product launches.

TEMPLATE EXAMPLES – FORECASTING





Top Five Revenue Items

Material	Material Description	2022 Net Sales	2022 Net Sales Balance	2022 % Growth v PY YTD
2120304	Wall saw DST 20-CA 3x480V PR	$2,658,483	$2,171,099	136.29%
2052108	Wall saw DST 10-CA 3x480V PR HNA	$522,954	$424,317	4.82%
2120309	Wall saw DST 20-CA 3x480V EC	$516,711	$690,187	64.32%
2094616	Wire saw DSW 3018-E 3x480V PR	$488,575		4490.75%
2192530	Wire saw DSW 1510-CA 3x480V	$418,482	$401,739	522.83%
2022 Net Sales: $6,677,996				
Top Five Items % of 2022 Net Sales: 63%				

Points of Discussion:

1. DST-20s are on production stop – August through October we are at risk of a stockout
2. Item # 2094616 (Wire saw DSW 3018-E 3x480V PR) is an X5 item. No forecast loaded

The image above shows an example of a slide from the new S&OP meetings, detailing forecast information, specifically highlighting projected growth and top revenue items.

TEMPLATE EXAMPLES - PRODUCT AVAILABILITY

PGR	Item #	Item Description	Recovery Date
U19/U20	2309585	Diamond wire DS-W10.5-300' VB SPX-H C&S	Aug 2022
	2309584	Diamond wire DS-W10.5-100' VB SPX-H C&S	Aug 2022
	2331215	Dia blade 7"x5/8"-7/8"-DM (6) SP univ	Sept 2022
	2151930	Tuck point blade 4.5" SPX SW (6) univ	Sept 2022
U13	2203665	Diamond coring tool DD 150-U 120V	Dec 2022
	2203666	Diamond coring tool DD 150-U 120V DPC	Dec 2022
	2277040	Diamond coring tool DD 250-CA 120V BL	Dec 2022
	408998	Vacuum pump DD VP-U 120V	Nov 2022

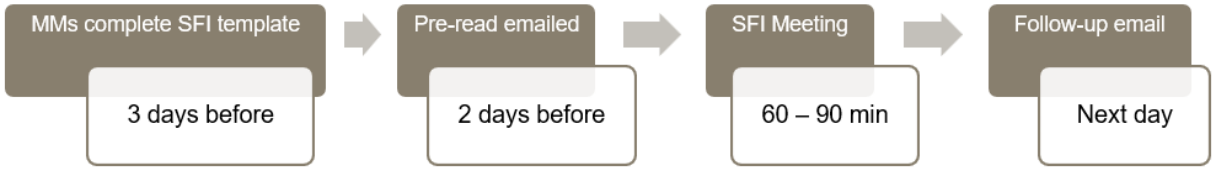
This information is pulled from the Product Availability Report

The image above shows an example of a slide from the new S&OP meetings, detailing product availability, highlighting which products are in critical supply status and when their expected recovery dates are.

TEMPLATE EXAMPLES - OBSOLESCENCE

PGR	Item #	Description	Obso Value	MM Note	Action	Implementation Date	Review Point
U19/U20	2270824	Diamond cup DG-CW 150/6" SP (2) univ	88,798.14		Ed to create a new combo including this item	July 2022	August 2022
	2059946	Wire saw DS WS15 3x480V PR	27,468.30	All stock is on vans	David Perkins working to sell off this 1 piece	July 2022	September 2022
	3711356	Van Stock DSH 600-X 2136539	18,048.10	All stock is on vans	Reach out to Kelly Coakley to see if this can be written off if not solved by the EOY	July 2022	November 2022
	2262095	Dust bag VC 40-X/150-10 X (10) plastic	15,075.18		Review Forecast	July 2022	September 2022
	2278640	Filter VC 20/40/150-X dry	12,944.82		Review Forecast	July 2022	September 2022
U13	421846	Adapter DD 300-DD 500	11,323.43				
	2076503	Core bit C+ 16/300 SPX-T	10,115.20				
	2062983	Adapter DD-HD30-DD150-AD	3,952.20				
	3685060	Reconditioned2 DD-ST 30 2051335	2,331.63				
	3685711	Reconditioned2 DD AF-CA 220-480V 2095123	2,103.66				

The image above shows an example of a slide from the new S&OP meetings highlighting obsolescent products, the amount of obsolescence, and any actions that are currently in place to reduce the obsolescence levels.



The image above shows the timeline for the new S&OP meetings and process.

NEXT STEPS	
End of July	Process Excellence team takes over project
August	ET&A team continues using new SFI templates
September	Develop & implement SFI templates for F&P team
End of Q3	MM will have fully standardized SFI meetings

The image above shows the detailed next steps provided to upper management during my final presentation at the end of my internship. Since I only implemented the S&OP process with the electrical tools and accessories business units, I established a plan to continue implementation across the firestop and protection business units.

Salesforce Impact Investigation – Hilti

The images below provide a more detailed view of my Salesforce project which required me to sort through and analyze vast amounts of data. Throughout this analysis, I identified various data quality issues. These data quality issues were the main drivers behind my recommendation that in its current state, Salesforce data cannot be used for forecasting purposes. Until data quality best practices are established and implemented, the data is too unreliable to use to shape forecasts.

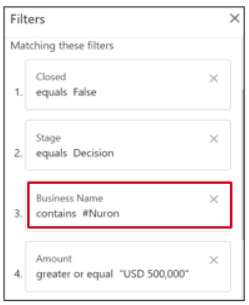
SALESFORCE DATA

Personal Dashboard View

Acc...	F...	Business Name	Amount	Due Date	Sta...	Age (days)	Rec...	Own...	Opportu...	Outlook	Trade ...
FRANA ...	✓	#NURON - Frana Co	USD 500,000.00	6/8/2022	Decision	173	Sales O...	Kevin D...	Tool-Park Ma...		11030
-FIRST E...	✓	#NURON First Energy Co...	USD 2,000,000.00	7/1/2022	Decision	170	Sales O...	Richard ...	Fleet Renewal		39000
-WELLS ...	✓	Solutions - FLEET STAND...	USD 550,000.00	7/29/2022	Decision	496	Sales O...	Tony Lip...	Tool-Park Ma...		11210
-PACIFIC...	✓	Pacific Structures - ISI Fle...	USD 500,000.00	7/29/2022	Decision	355	Sales O...	Samuel ...	Tool-Park Ma...		11020

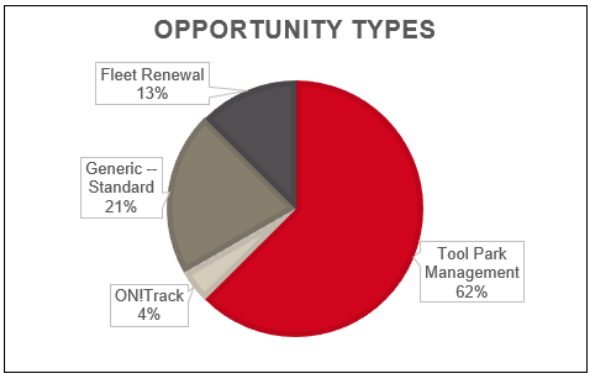
Data Quality Issues:
- Old information
- Front-loaded data
- Lack of item level information

Problem: Not all Nuron opportunities are tagged with #Nuron



The image above shows the Salesforce dashboard for opportunities of $500,000 value or more that are within the decision stage of the sales pipeline. Due to the data not being updated frequently and exaggerated to meet sales quotas, there were major data quality issues with the information in the database.

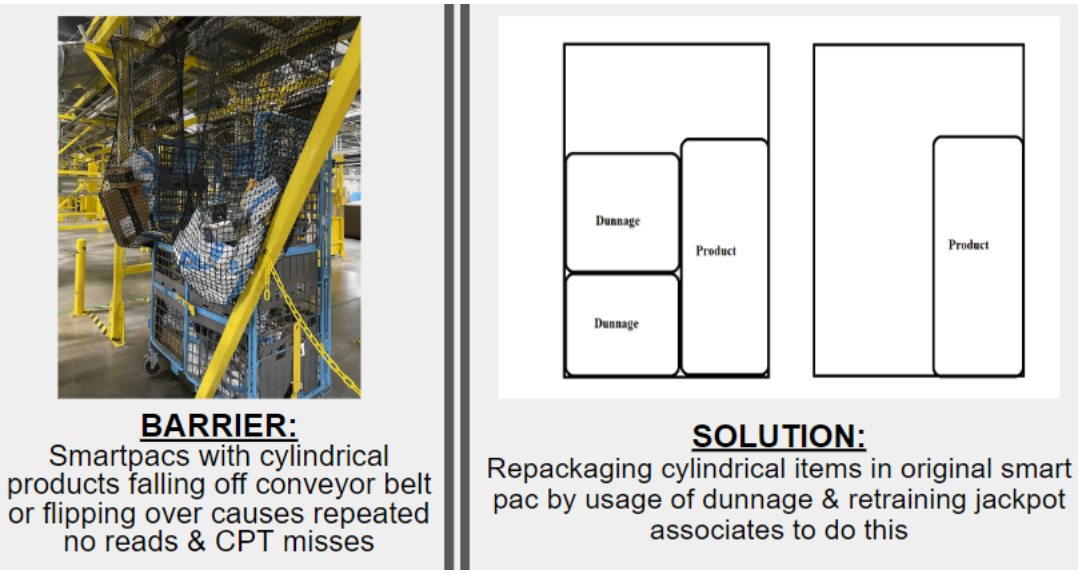
Total Count	25
Average $ amount	$1,028,888
Average age	262



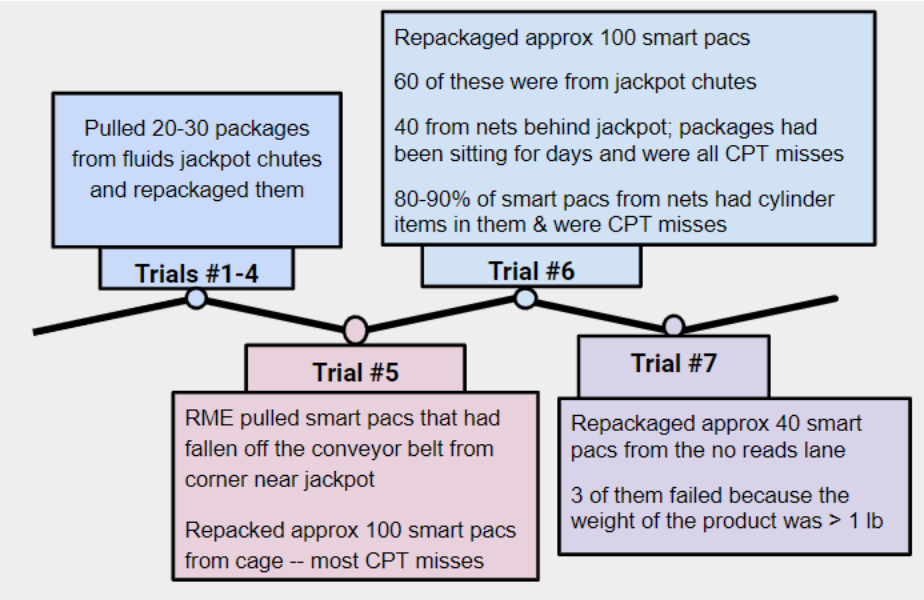
The image above is pulled from some of the data analyses that I completed. Following this analysis, I learned that the bulk of sales opportunities that meet the two criteria call for products used for tool park management purposes. This helped to identify which products are frequently tied to these large projects, meaning their forecasts could be significantly impacted.

Repackaging Process Improvement Project – Amazon

The images below provide an overview of my project which focused on implementing a new repackaging process. Conducting testing through trial runs was a large part of the process in determining how effective the new repackaging method was at reducing costs and inefficiencies.



The image above identifies the business problem on the left and provides a detailed view of the new repackaging solution on the right.



The image above details the testing process of my new repackaging method. These trials were conducted by me alongside the associates within the jackpot area of the warehouse.

Trial Runs in Fluids Jackpot

Trial Date	07/09	07/11	07/12	07/14	07/15	07/16	07/19
# of repacks	30	11	30	30	155	100	40
# of returns to jackpot	1	2	0	1	5	2	3
Reason for Returns	Product Shape	Weight Distribution	No returns	Unallocated Sort	Weight Distribution, Product Height	Poor Repack & Weight Distribution	Weight Distribution
Success Rate	97%	81%	100%	97%	96.7%	98%	92.5%

The image above shows the data gathered from the seven trials. The number of repacks represents the number of orders repackaged by me using the new method. The number of returns represents the number of repackaged orders that failed using the new method. The reasons for returns indicate the main drivers of the repackaged orders that failed. The success rate equals the number of returns divided by the number of repacks. Across the trials, the average success rate was 95%.

Hilti Internship Reflection Posts – Week One

What am I specifically working on?

Right now, I am primarily focused on beginning my two internship projects. The first one is to investigate the possibility of using salesforce pipeline data on large solution orders to inform forward sales forecasts. My other project is to standardize the business unit S&OP presentation for all materials management.

What have I learned this week?

The Hilti culture is very people-oriented and is supported by the four core values of Hilti which include: integrity, courage, teamwork, and commitment. Hilti's purpose statement states, "We passionately create enthusiastic customers and build a better future." Hilti implements a different corporate strategy every seven years and is currently using the Champion 2020 strategy, which began in 2016. The main pillars of this strategy include sustainable value creation, refocus on leadership, strengthening differentiation, strong global growth, focus on engagement, and increasing entrepreneurial spirit and drive. Throughout my first week, I have been introduced to materials management and have been learning about the forecasting process. I have also been introduced to new terminology including, big hits which are larger orders that initially shock the system because of their size in revenue. The system doesn't necessarily flag these orders based on the quantity ordered, but rather by the percentage of revenue against the typical order revenue. Another new term that I am becoming familiar with is backorders which are orders that are behind schedule or have not been filled yet due to supply risks. Within materials management, several tools are used to communicate forecasting issues or supply risks. One of these is the Product Availability Report (PAR) which color codes specific using red, yellow, and green. Red indicates critical, which means to continue selling the product, but expect delays and review substitute options when available. Yellow signifies constrained, which means continue to sell but expect delays. Lastly green indicates healthy, meaning to continue selling as normal.

What has surprised me?

The construction industry is facing its own set of supply chain and economic challenges, specifically regarding the chips that are key components for Hilti's products. Most of these chips are primarily sourced from Shanghai, which is currently under production constraints due to the ongoing COVID lockdowns. Furthermore, the rising prices of parts in response to inflation are making products more expensive to the consumer because the supplier charges more, and Hilti ultimately passes on these costs to the customer. These price increases will begin to have effects because some consumers will be priced out of the market.

What skills am I developing?

Data is very important to success at Hilti. Within logistics, more specifically materials management, knowing how to use data programs like SAP and PowerBI are important to everyday tasks. Throughout my first week at Hilti, I have been introduced to these tools and am growing in my capability to read, track, understand, and use data. As my internship continues, I will learn how to use data to forecast future demand, monitor inventory levels, and place orders.

Hilti Internship Reflection Posts – Week Two

What am I specifically working on?

I'm primarily focusing on standardizing the business unit sales forecasting integration meeting and creating the presentation outline for the June 28th meeting. To understand what needs to be included in the meeting agenda, I have been asking for feedback from materials managers within the various power tools and accessories business units. I've also started the groundwork for my other project which focuses on gathering data that the Sales team enters about large solution orders into Salesforce to determine whether this information would be beneficial to materials managers and have an impact on their forecast accuracy.

What skills am I developing?

So far, I'm growing more comfortable with reading and interpreting data from tables, graphs, and dashboards, especially without having much context, which has helped grow my data analytics skills. Additionally, my communication and collaboration skills have improved now that I am beginning to feel more comfortable reaching out to my manager and coworkers for feedback on my projects or help with my daily tasks after a week into my internship.

What skills am I lacking?

While my skills in reading and interpreting data are improving, I'm still lacking in the skills necessary to take that provided data and create key takeaways and visualizations. Additionally, I'm unfamiliar with many of the software programs that are used daily in my role, which has been an obstacle to my learning because I'm not able to dive into the information as much yet since I am still trying to grasp a basic understanding of programs like SAP.

What new connections have I made?

This week I grew in my connections with my coworkers within materials management by meeting with each one briefly about my project. I also had the opportunity to shadow my mentor as well as my manager. Throughout the Hilti internship program, there are intern committees that interns can join. I signed up for the Volunteering & Social Impact committee. So far, I have had the opportunity to meet several interns from locations throughout the US and Canada. For the duration of the program, I will be working alongside roughly 20 other interns on this committee to help plan and execute the 2022 Intern Volunteer Day as well as allocate refurbished tools to non-profit organizations that align with Hilti's mission.

What are some observations about a leader that you work with?

Earlier this week I had the opportunity to hear from Martina McIsaac, region head of Hilti North America during the Learning Speaker Series. Martina studied economics in school, has worked in various countries around the world, and has served in various Hilti roles as a Division Manager in Toronto and President of Hilti Canada. Now she is a female leader in the construction industry. When asked what drew her to Hilti, Martina mentioned Hilti's culture and company values stood out to her, because they were rooted in the heritage of the Hilti family. My favorite quote from Martina during this session was, "Take risks. Nobody bats one thousand. Take more risks, stick your neck out some, and take your seat at the table."

Hilti Internship Reflection Posts – Week Three

What have I learned this week?

The four main priorities of Hilti's Engaged Beyond Business (EBB) program are education, housing, community development, and equity. To encourage community involvement, Hilti provides employees with 16 hours of PTO for volunteer work, awards the Legacy Cup annually, puts on Hilti Cares month, offers an Apprentice Program, and has several affinity groups. Hilti has a refurbished tool program, which takes used tools and donates them to non-profit organizations around the world. To date, Hilti has donated roughly $2.3 million worth of tools to volunteer organizations and infrastructure/housing initiatives around the world.

What has surprised me?

The Dallas DC visit was one of my favorite parts of this week, but it was full of surprises as well. Having worked in an Amazon warehouse, my only experience within warehousing has been for a company that highly values technology and relies on it heavily within its operations. While visiting the Hilti DC, not only was the size of the warehouse significantly smaller, but the technology presence was also drastically smaller. Most of the receiving, picking, and packing is done manually, however, there are some systems in place to help warehouse workers track inventory.

What have I contributed?

I completed my S&OP presentation draft this Friday and sent it to the material managers within my department. Early next week, I will be meeting with several of them for feedback to make final changes before the outline is sent out to the material managers to complete prior to the June sales forecasting integration meeting. Depending on how this meeting goes will influence the changes I make before the July meeting and my final internship presentation.

What skills am I lacking?

My biggest challenge is still lacking experience or familiarity with SAP, PowerBI, JDA, and APO. I still haven't been able to get access to these programs, so my only method of learning has been watching others work on them until IT can grant me access to the programs that material managers use. Because of the presence of technology and data, I plan on making it a priority and goal to begin taking tutorials and courses in several of these programs, throughout this summer and the fall semester.

What are some observations about a leader that you work with?

This week, the logistics interns and I had lunch with Patrick the Senior Vice President of Logistics at Hilti North America. Having been at Hilti for 15 years now, Patrick has seen how Hilti has changed over the year and understands where the company is headed in the future. One of the biggest observations that I made about Patrick during lunch and strategy training was that great leaders have a thorough understanding of not only their company's current strategy, but the context within past strategies, challenges, and future opportunities.

Hilti Internship Reflection Posts – Week Four

What am I specifically working on/doing?

This week I met with the senior manager of my department to learn more about the S&OP process at the regional level to help understand what is critical to the S&OP process at a business unit level. Additionally, I asked him for feedback on the content that I had already put together. Based on his feedback, the main topics that need to be covered within the S&OP meetings are demand (sales growth), supply (critical items), inventory, open orders, obsolescent products, and INPs (new product launches).

What has surprised me?

Hilti logistics has a Red Readers Program like the WISE Leadership Workshops where a book is chosen, read, and discussed as a group. I joined the kickoff meeting this week and will be participating in the Red Readers Program while at Hilti. The book that we will be reading is Measure What Matters by John Doerr which talks about OKRs. Within Hilti's supply chain strategy, OKRs (objectives & key results) are critical, and I'm excited to read and discuss this book alongside some of my coworkers. Hilti also has a women's affinity group, which I have joined as well. While I will only be able to attend one of their monthly meetings while interning with Hilti, I plan on scheduling meetings with the chairs and members of this group to meet more women within Hilti and learn from their experiences.

What skills am I developing?

I have developed better networking skills by scheduling meetings with leaders outside my department, maximizing the most of being located at the Plano headquarters location. I plan on continuing to schedule meetings with more people throughout my summer.

What new connections have I made?

Throughout this week, I scheduled meetings with Hilti leaders in different functions of the business and had some key takeaways from each meeting. First, I meet with Leslie Mitchell who works within Logistics Services. During this meeting, I learned that this is the first year of OTIF and the current performance percentage sits at 78%. This is a shockingly low number when compared to other Hilti metrics and Leslie believes that there will be strong pressure from Hilti executives to have OTIF average around 90%. According to Leslie, "*Anytime you have a metric you have to understand how to influence it*." I also met with Rob Ketchum who works within Transportation. According to Rod, contracts with carriers are extremely important, because low rates may look good on the surface, but there are a lot of hidden fees, especially from large carriers like UPS. Currently, the transportation team is rolling out a new transportation management system in Canada that will consider all parameters and help Hilti pick the best carrier. Having had a previous carrier in warehousing, Rob believes that a background in warehousing serves as a great foundation for other roles with different business functions.

Hilti Internship Reflection Posts – Week Five

What am I specifically working on/doing and what have I contributed?

This week I met with several material managers for final feedback on my initial presentation outline for the business unit S&OP, to ensure that the pre-read could be sent out to all material managers and product managers on Friday. I was able to make final changes to the meeting presentation and send it to the material manager that has been overseeing my project so that she could send it out to all those that will be at the actual meeting this upcoming Tuesday. Until Tuesday, I will not know whether my outline made a difference or not, so that will be the moment of truth for one of my internship projects and my first tangible point of feedback about what does and doesn't work. I'm happy that I was able to deliver my first deliverable on time and am happy with what I submitted, as I think it is the best first draft that I could have come up with, having not sat in on a previous S&OP meeting to understand how they are usually run and where the current pitfalls are. For my other project, I met with Jacob Horan the Senior Manager for Hilti North America Materials Management, and asked for direction and the goals of my Salesforce project. Based on feedback from Jacob, the main objectives of my Salesforce project are to: discover how we can investigate information for Nuron products, look at the average timeline for the different stages for opportunities, understand the opportunity winning ratio, and determine what information within Salesforce would be most beneficial for materials managers when forecasting. This upcoming week, I will be focusing on looking into Salesforce at a deeper level, trying to understand what the data means, and developing a plan to discover what data is meaningful to include within my final presentation.

What has surprised me?

The amount of data that is within Salesforce is both amazing and overwhelming. I understand why this is my project because there is a lot that needs to be explored within Salesforce that could potentially significantly impact material managers and other stakeholders within different logistics functions.

What new connections have I made?

This week I met with Mitchell Loerch who is a Logistics Specialist/Analyst. During my meeting with him, I learned more about the PowerBI dashboards that the Materials Management team uses and asked some questions about data that would be useful for my project concerning the BU SFI presentation. After meeting with him, I learned that both the growth YTD and growth sales balance visuals can be built within the PowerBI dashboard, but it would take a lot of time/work to do this, so based on feedback from the material managers in the test presentation on June 28th, we can determine if these visuals add value or not. Essentially the June 28th meeting will be a test run of the new data visuals that I have created and will be good for gathering feedback regarding the effectiveness. Based on the feedback from the test presentation, I will determine what adds value and is worth making standardized based on a time efficiency assessment.

Hilti Internship Reflection Posts – Week Six

What am I specifically working on/doing and what have I contributed?

This week, the power tools and accessories materials managers held their monthly salesforce integration meeting with product managers to review June sales and align forecasts. This meeting was run with the new template that I have been working on and was the initial "test-run" for one of my projects. Throughout the meeting and after the meeting, I received feedback. During the meeting I learned that the materials managers and product managers are aligned on their forecast for 2022 total sales growth, however, materials managers were forecasting high for July and that was because of an expected sales event that is no longer happening. Additional comments regarding growth expectations included that: June is the end of the quarter push for account managers and throughout October/November/December there will be a strategic initiative for account managers to win a trip to Europe which could drive tool sales, but product managers think it's already included in the plan. In the past, SFI meetings have been up to 2.5 hours long, but recently have been cut down to 1 hour normally, with much information not being covered. The meeting this week ran about 75 minutes, so moving forward 1.5 hours should be fine. For my Salesforce Investigation project, I have been exporting data from Salesforce into Excel to analyze general trends regarding the past, current, and future sales opportunities that are in the decision phase with an 80% or higher probability of being won. While I have been looking at overall data, I have been primarily focused on Nuron products, because there is already a PowerBI dashboard to analyze the information within Salesforce. I have been sorting sales opportunities based on the expected month due, the dollar amount, and the trade codes that are associated with them. My hope is that based on the "core" tools that are associated with each code, there can be some direct correlation between sales and logistics regarding which product forecasts should be looked at more closely based on sales insight.

What has surprised me?

I was surprised with how well the PT&A SFI went using the PowerPoint presentation that I have been working on as part of my project. Many of the stakeholders had a lot of positive feedback, as well as some points for improvement opportunities for my finalized product.

What are some observations about a leader that you work with?

This week I scheduled a mid-internship meeting with my manager to get some feedback about my progress and performance so far. Initially, I was nervous to schedule this, because I had no idea how I was doing from his perspective. I was relieved when he had a lot of positive feedback but also mentioned some areas of improvement. His biggest piece of advice for an area of improvement was to work on speaking more professionally when presenting/raising points at meetings (he mentioned that this was something that he is still working on and one that takes time to improve throughout your career and becomes more natural as you're more comfortable with your role).

Hilti Internship Reflection Posts – Week Seven

What have I learned this week?

When project business materials managers investigate salesforce data for forecasting purposes, they primarily focus on opportunities within the decision phases with a 60% of higher probability. However, there are significant data quality issues from the account manager side, such as the due date being inaccurate and the "frontloading" of information. Additionally, project business materials managers look at PFT (project forecast templates) submitted by the account managers, when trying to plan for inventory. Additionally, on Friday I spent the afternoon shadowing at the Hilti store in Carrolton, where I got to participate in product demos! I also sat in several presentations meant for the account managers to get a better understanding of their roles and was absolutely blown away by the amount of information that they must know to be good at their jobs. Account managers truly know Hilti's products inside and out, as well as the proper applications associated with each. While much of this information went over my head, due to my lack of experience in construction, I enjoyed getting to see the sales side of things and physically test out the products myself.

What has surprised me?

Honestly, this week I have been surprised by how much information is within Salesforce that is not really being used by any other departments beyond the account managers/sales team. This is because Hilti has only been using Salesforce for 1-2 years, but I think there is room for assessing whether the data that account managers are inputting is of good quality and changing what is entered so that it can be used by materials managers.

What are some observations about a leader that you work with?

This week I met with Doreen DiSalvo, the Chair of the Women's Affinity Group at Hilti North America to hear more about her experience at Hilti and the Women's Affinity Group. She noted that women make up 10% of the construction industry within Hilti North America as a whole. However, she believes this number is higher in the corporate locations averaging 20-30%. Doreen expressed that in her time at Hilti, she has seen this change and the company culture has improved significantly since she started. When talking about the Women's Affinity Group, she discussed how the material is broken up into two areas: lifecycle stages and personal development. Within lifecycle stages, the Women's Affinity Group will select a time frame in a women's career to focus material around. For example, starting your first job, going through your first promotion, balancing becoming a mom and work, etc. Personal development topics include setting goals, networking, LinkedIn, etc. I really enjoyed talking with Doreen, because she was very transparent, honest, and willing to be vulnerable in sharing about some of the obstacles that she has faced as a woman in this industry. Even though I have talked to other female leaders within the company, they have not been as willing to talk about these experiences, so it was nice to hear that Doreen has experienced some of what I have felt throughout my internship this summer. The Women's Affinity Group is hosting a networking event that I am planning on going to towards the end of July, but that will be the only event happening during my time at Hilti unfortunately.

Hilti Internship Reflection Posts – Weeks Eight & Nine

What am I specifically working on?

This week I got more clarity on the overall purpose of my Salesforce project, which is to bounce the already-existing forecast against the numbers currently in SAP. I also met with an account manager to get an even-deeper understanding of the information within Salesforce and the associated data quality issues. In preparation for my final presentation, I created an Excel spreadsheet to illustrate the trends surrounding current large nuron opportunities within Salesforce. Additionally, this week, I began building out my final presentation slides including a detailed view of both of my projects and additional internship learnings/highlights. During week nine, I finalized my presentation and practiced it with fellow interns and my mentor. I ended up giving my final presentation on Wednesday to the Director of Materials Management and the Senior Manager for ET&A, since both will be gone during my final presentation day. The presentation lasted an hour, because of the number of questions that were asked throughout my presentation, but I was happy to get the first real run-through done and am now preparing for my final presentation, which is next Thursday.

What have I learned this week?

This week I had the opportunity to tour the Irving site and learn about the product testing processes for anchoring, pipes, and firestop. I was truly blown away by the extent that Hilti tests its products to guarantee safety and durability to its customers. For anchors, load-bearing tests are done initially. Afterward, seismic tests are done to assess the ability of the product to withstand natural disasters, such as earthquakes. According to employees at the Irving site, one Hilti anchor can hold 5,000 pounds (the equivalent weight of a pickup truck). For pipes, Hilti conducts vibration tests for 100 hours with 35 repetitions per second. Lastly, firestop is tested with burn tests which last for four hours with temperatures exceeding 1700 degrees Fahrenheit. This is done to assess whether the firestop prevents the fire from spreading to the other side of the wall. All emissions from the burn tests are burned via special ventilation, so that the operations are 100% carbon neutral. After learning about the testing processes, I was shown around the customer experience center where I was able to learn about specific tools and use them myself! Several of the tools that I tried out included Hilti breakers, drills, saws, and fasteners. Additionally, several competitor products were available to try, so that I could compare my experience with Hilti products to those of our competitors. This was an awesome hands-on learning experience!

What skills am I developing?

Communication, public speaking, and presentation skills have been a key part of these past two weeks. I have been asked to present my findings to multiple different groups/stakeholders within the company and figuring out how to cater my presentation to best fit their needs has been a skill that I have grown in throughout these past two weeks and will continue to develop during my last week as I prepare for my final presentation.

Hilti Internship Reflection Post – Week Ten

What am I specifically working on?

This week, I focused on wrapping up my work on this project as well as handing it over to another team to focus on after I leave. I was able to distribute the PowerPoint templates, recordings, and example slides that I had made for this project to my coworkers within materials management and the process excellence team. I presented my deliverables, progress, and findings to the process excellence team because they will be taking over this project, once my internship ends so that it comes to full fruition for all of materials management. Additionally, this week, I focused on concluding my research and data analysis on my Salesforce project and worked on determining the best way to communicate my findings to my final presentation audience. On Thursday, I gave my final presentation to managers, directors, and executives within the logistics department. I was the first to present which was a bit intimidating, but I presented my two projects and my overall internship experience. After my presentation, I was asked four project-based questions, with most of them focusing on the next steps of the Salesforce project.

What has surprised me?

In preparation for my final presentation this week, I did a lot of reflecting on the projects that I was given this summer and I realized that Hilti's supply chain is still relatively new and improving. Both of my projects, as well as many of the other logistics interns' projects, focused on the concept of standardizing supply chain practices. Currently, many of the functions within Hilti's supply chain have largely manual processes with a lack of standardization across the business. Since Hilti is continuing to grow in both size and revenue, this becomes a challenge for the company, which is why standardization across the supply chain is a key focus area.

What skills am I developing?

This week I strengthened my presentation and public speaking skills. Giving my presentation to several groups helped me to overcome my anxieties with public speaking and allowed me to present what I had worked on and learned throughout this summer!

What are some observations about a leader that you work with?

This week I was able to give my final presentation to leaders and stakeholders across various functions within logistics. I was impressed by their depth of understanding across functions and their curiosity to learn more about my projects. Many of the questions that I was asked after my internship focused on the details of my projects as well as the continuation of my progress on my projects.

Amazon Internship Reflection Posts – 5 Insights from Week One

Every day is day one! The "day one" mentality is a critical tenet of the Amazon workplace culture. An environment that is driven by consumer obsession, productivity, efficiency, problem-solving, and quality assurance are factors that contribute to the success of Amazon. During this past week, I had the opportunity to experience this culture firsthand as I completed Amazon Associate Process Training. Each day I was presented with new material and processes to become familiar with. Every day at Amazon is truly a learning opportunity and a chance to improve your specific skillset within fulfillment.

Amazon Associates are amazing. Throughout this week, I completed training in each of the specific paths that Amazon Associates work in. The purpose of this entire week of training is to provide me with insight into all the processes within Amazon Fulfillment such as stow, pick, and several others. More importantly, this training equips me with the experience, knowledge, and understanding, so that I can successfully support associates as I step into my management role as an Area Manager Intern. Each role is uniquely different and faces its own set of barriers, both physically and mentally. Despite the differences in roles, their value to the fulfillment process is no different, as each process significantly influences the others and impacts the product. I spent one day in each role, and I have great respect for Amazon Associates, having witnessed the critical role they play in successfully filling orders and prioritizing the consumer. The importance of each role served as a reminder of the importance within each level of supply chains. While I am interning within a fulfillment center and would fall within the make and deliver phases of a supply chain, I have come to realize that other phases such as plan, source, and return are also important and impact my role at Amazon. The importance of each component within a supply chain directly correlates to the observation of the significance of each role within logistics at the OKC1 site.

The integration of technology can improve efficiencies if done correctly, thoroughly, and with the right equipment. Within my first hour inside the fulfillment center, I was amazed by the large presence of technology on the site. The Amazon robots alone were incredible to watch. However, other technology such as scanners, monitors, projectors, cameras, etc. paired with the large pools of data provided by Amazon Web Services made each role significantly easier. Each product has a known location on the site because of the tracking system and thoroughness of the stow and count processes leading up to the picking process. While technology is important within the warehouse and continues to evolve, I quickly learned that until technology makes significant leaps, each of the roles that I was introduced to cannot be done by Amazon robots. The processes are too detailed, and associates are trained to catch problems with products such as unscannable barcodes, damaged items, broken sets, etc. which could present complications for robots. The relationship between Amazon Associates and technology in the warehouse is one that is efficient and effective. However, no system is 100% perfect. There is always room for improvement and technology, as we know, is always changing. Human error, defective products, and incorrect data can lead to products being miscounted or mislabeled. These issues are not necessarily unresolvable, but they are areas for improvement and growth.

Amazon Internship Reflection Post #2 – The 5 W's of Supply Chain Management

Supply chain management influences the world that we live in. Supply chain management has many definitions, but I describe supply chain management using the 5 W's.

WHO: Supply chains involve several parties such as suppliers, manufacturers, producers, vendors, carriers, distributors, consumers, simply to name a few. Each of these groups plays a role in the different steps of supply chain management. At Amazon, the primary focus is on the consumer, hence the "consumer-obsessed" culture. Every strategic supply chain decision is consumer-centric and focused on ensuring that the expectations of the consumer are met to the highest standard, whether that be next-day shipping or requesting to receive multiple orders in one package. At the end of the day, Amazon's supply chain management is driven by the consumer.

WHAT: By definition, a supply chain is the process of making and selling commercial goods, including every stage from the supplier and the manufacturer of the goods to their distribution and sale to the consumer. Based on the Supply Chain Operations Reference Model, there are five steps in supply chain management, which include: plan, source, make, deliver, and return. Each step is critical to the effectiveness of a supply chain and influences the other steps. During my internship, I have witnessed the extensive forecasting and planning that Amazon does at multiple points throughout each day to ensure that their forecasts are accurate.

WHEN: Supply chains have existed forever but have drastically changed since the emergence of ground-breaking technology in the 1980s. Following the technological evolution, logistics became an important focus for many businesses and a significant area for investment. At the OKC1 site, Amazon robotics has automated key functions within operations at the fulfillment center. This technology has increased the utilization of data and information, which are also important factors for supply chains. Without data, there would be no planning or communication across supply chains. The databases that Amazon uses daily help to identify potential supply chain disruptions, inventory targets, and much more.

WHERE: Supply chains are present everywhere, not just within the realm of business. There are supply chains within healthcare, education, food, tourism, non-profit, clothing, transportation, and other industries! Throughout my time at Amazon, I have seen an incredibly vast selection of products in demand by consumers. The supply chain of Amazon is responsible for the distribution of these goods to its consumers, but the end consumer is responsible for the distribution of these goods to society.

WHY: Supply chain management is driven by a series of tradeoffs. Lowering costs, increasing revenue, and maintaining inventory levels are several examples. As companies compete for market share, supply chain management tradeoffs become increasingly vital. Looking towards the future, I believe that supply chain management will play a greater role. In addition to large influence, supply chain management challenges individuals within the field to engage in active problem-solving and analytical decision-making, which are attributes that I aspire to grow in. With the promise of a bright future, I know that supply chain management is the right field for me, and I am excited to gain more experience as I continue my Amazon internship this summer.

Amazon Internship Reflection Post #3 – Amazon Prime Day

This year, I was fortunate enough to partake in the first Prime Day at the OKC1 site and witness the organized chaos that led to success at the fulfillment center. Throughout my time on the outbound ship dock, I learned many new skills and saw supply chain management terms that I had learned about in my classes come to life. One of my favorite experiences from last week was learning one of the ways to properly load packages into a trailer because there is a strategy to everything at Amazon. During the process, many associates resort to the "real wall" and "fake wall" methods. Each associate has their own specific methods, but this tactic was a common one. With this method, trailers are to be loaded by building a real wall approximately 3 feet away from the back of the trailer. A real wall means that packages are stacked neatly on top of each other, with the heavy items closest to the bottom, if possible. It is important to reinforce your wall by making sure that the edges of packages do not line up perfectly, to ensure some overlap. While real walls are important and it is critical that they are built well, the fake walls are equally significant. Fake walls are built in the pockets of space between real walls. Lighter packages are thrown into these pockets to reinforce the real walls. For example, when the first real wall is built 3 feet away from the back of the trailer, that is done intentionally so that that space behind can be filled with lighter packages that can easily be tossed over the real wall. Learning this loading method came as a shock to me since I had always imagined that every package was stacked neatly to maximize trailer space. After learning about this technique used to load Amazon shipments, I was curious about how Amazon ensures that shipments do not exceed the weight or volume limit of trailers. Throughout my transportation classes, I have become familiar with the concept of cube out vs. weigh out, so I asked how these metrics impact Amazon transportation. Not to my surprise, technology plays a significant role in transportation at Amazon as well. Since packages are tracked throughout the warehouse and assigned a weight upon receiving a shipping label, the trailers will have a set weight determined by the combination of all the packages within that specific shipment. Rarely is a trailer loaded past the weight limit or even close to the volume limit. Due to the presence of technology and databases in the warehouse, Amazon can load trailers efficiently and effectively to ensure trailers do not exceed their weight or volume limits. However, due to the order volume and the number of trailers that OKC1 must load each day, it is nearly impossible to 100% guarantee that each trailer leaves on time. To aid with this, the outbound ship dock has TV monitors located at different dock doors showing all the current and upcoming scheduled departure times for various trailers. This data is made easier to understand using a color-coded system consisting of green, yellow, and red. A trailer that is highlighted green is on pace to depart at or before its scheduled time. A trailer that is highlighted yellow is at risk of departing late, signifying for the associates to focus on loading that trailer and locating any missing/late packages that have not made it to the ship dock yet. Finally, a trailer that is highlighted in red is already behind departure time and needs to leave as soon as possible. Trailers that are highlighted in red receive the highest priority due to the urgency of departing within the leniency timeframe. Learning about this system for tracking different trailer departure times was interesting to see, because of my introduction to supply chain metrics such as on time in full (OTIF) that I have also learned about in my transportation classes. Understanding the pressure of OTIF from a behind-the-scenes perspective was eye-opening and an incredible learning experience during Amazon Prime Day.

Amazon Internship Reflection Post #4 – Amazon's Leadership Principles

At Amazon, there are leadership principles that Amazon employees are expected to exemplify each day. Each principle plays an important role in Amazon's mission statement to "offer our customers the lowest possible prices, the best available selection, and the utmost convenience." During my time at OKC1, I have had the opportunity to see how these leadership principles shape Amazon Operations. My three favorite leadership principles include: invent and simplify, learn and be curious, and insist on the highest standards.

Invent and Simplify: As an Amazon intern, I have had the chance to work in various departments of the warehouse and observe the steps in the distribution supply chain for Amazon. With these experiences, I have seen the challenges that different areas of the warehouse face. Fortunately, supply chain management focuses on targeting inefficiencies and creating solutions to deliver optimal results. Over the past month, I have been able to apply my supply chain knowledge by identifying a problem that the outbound ship dock faces and conducting test trials for an alternative repackaging method. The objectives of my method include reductions in waste, lower packaging costs, and positive impacts on data metrics. As Amazon strives to become a more sustainable company, my process improvement project ties in aspects of lean manufacturing to help bring Amazon closer to achieving this goal.

Learn and Be Curious: The motto "every day is day one" is very true, in the sense that each day is a learning opportunity. Throughout my experience, I have enjoyed diving deeper into the databases that Amazon uses to track costs, late shipments, and other metrics. Throughout my transportation class last spring, I became certified in Mercury Gate which is a transportation database that optimizes workflow, especially for the trucking industry. Early exposure to programs like these has aided me in becoming familiar with the various systems within Amazon Web Services. Additionally, my exposure to procurement in my introduction to supply chain classes piqued my interest in procurement for Amazon warehouses. This past week I had the chance to shadow the head of procurement at OKC1 and learn about the daily tasks, forecasts, average on-hand inventory for various items, and business relationships with international suppliers.

Insist on the Highest Standards: My overall favorite leadership principle is insisting on the highest standards. With the "customer-obsessed" mentality, Amazon strives to ensure that every package reaches the end consumer at the right place at the right time. OKC1 and other sites do this by tracking packages throughout the warehouse and establishing critical pull times for the trailers. Critical pull times are the designated time that trailers need to be fully loaded. There is a slight buffer of eight minutes to load additional carts, gaylords, etc. if necessary. Ideally, trailers are fully loaded without needing this buffer. However, some packages do not make it to their trailers by their critical pull time, for various reasons, such as falling off the conveyor belt, technical difficulties, the influx of volume, etc. When packages don't make their critical pull times, they are labeled as CPT misses and get upgraded shipping to ensure that the package reaches the customer by the earliest time possible. Changing the shipping from trucking to next-day delivery via air illustrates the agility and responsiveness of Amazon's supply chain.

References

Corporation, Hilti. “Our History.” *Www.hilti.group*, www.hilti.group/content/hilti/CP/XX/en/company/corporate-information/company-profile/our-history.html.

Hall, Mark. “Amazon.com.” *Encyclopedia Britannica*, 4 Nov. 2022, www.britannica.com/topic/Amazoncom.