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Ascend Webinars

TRANSCRIPT: Supplier Trust & Managing Disruption – ASQE March 2023 Ascend Webinar

0:01
Hi everyone, and welcome to the first of the Ascend Webinars for the 2023 series.

0:07
Today's topic is on supply chain optimization with a specific focus on supplier trust and managing disruption presented by Russ Snyder.

0:17
In today's webinar, we'll learn more about ASQE’s Insights on Excellence data that identifies the latest trends in quality, and that includes key takeaways around the need to improve supply chains.

0:28
Russ Snyder will then share his perspective as today's subject matter expert, providing you with deeper insights on how and why building supplier trust is essential to managing disruption.

0:39
And we'll cover a few key points in our wrap-up and then open the floor for a few minutes of questions with Russ if time allows.

0:45
As a reminder, this webinar will be recorded for your reference within our member resources portal and events portal that we host for all of our ASQE Organizational Members.

0:55
So I ask all of you to stay on mute, please, as we want to make sure that the sound is able for everyone to hear clearly as there's a lot of information that will be shared around today's webinar topic.

1:08
So on behalf of ASQExcellence or ASQE as we're known, I'd like to welcome you all in this official kick-off to our 2023 Ascend Webinar series.

1:17
My name is Erin Bauer and I'm the product development manager for the ASQE Product Development Research Team.

1:23
My team and I lead these member-exclusive events that use our research to help empower our Organizational Membership companies that we serve as part of our association's initiatives to provide thought leadership and advance the field of quality.

1:38
So if you're new to understanding more about ASQE, I'm just going to take a moment to describe a little bit more about who we are and what we do.

1:45
So many of you are familiar with ASQ as over the last 76 years it has served the wide range of quality professionals around the world.

1:53
And ASQE was formed as a trade association to have the mission to put forward of setting the standard for quality driven offerings and insight worldwide.

2:04
So this mission specifically empowers the organizations that we've served that are members of our trade association to achieve excellence.

2:11
And you'll see a little bit more about how we do that today in the webinar.

2:17
So one of the leading benefits that ASQE offers as a trade association to our organizational members is the Insights on Excellence benchmarking tool.

2:26
And this tool gives our org members exclusive access to performance scoring across multiple categories of org excellence best practices.

2:33
So this includes operations, voice of customer, strategy and leadership.

2:39
The benchmarking tool is an online survey with a variety of questions and an easy to navigate digital environment that uses your asq.org login.

2:48
The tool also collects a global data set that we use to publish our annual Insights on excellence research upon, and you'll learn more about this in the next slide.

2:56
So in our 2023 benchmarking efforts, this season is actually now officially open to the end of May.

3:02
And if you want to learn more about engaging with this type of benchmarking tool and the research that comes out of it, you can contact our team at orgmembership@asq.org or send us a note in the chat today and we'll follow up with you.

3:16
And this is just a sneak preview of what the tool actually looks like.

3:19
This is a dashboard that shows the performance scoring once a participant takes the online survey.

3:25
It's only about 30-35 minutes or so to complete the survey, but in the actual dashboard, it gives you the ability to compare your scores for your organization against other industries or roles that you might be comparing yourself against.

3:37
So it's a robust tool that also gives outputs of other reports in addition to the research that we publish.

3:44
So if you haven't yet had an experience yet with taking the tool or, or engaging with the research, I definitely recommend you check it out.

3:53
So now let's get into the data that we have actually published to date through our Insights on excellence research.

3:59
So from our IoE operations category that's specifically featured in our 2022 IoE Executive Brief, we see that supply chain challenges remain within the top five ongoing quality issues for the last three years and truly the life that we've all been living.

4:15
This should not be a surprise to anybody right now based on all the disruption and barriers that came through within the pandemic and the years now that have followed that since gathering our first global data set in 2020.

4:28
Delays from suppliers continue to be the number one challenge for the data and quality issues from suppliers followed closely at #2.

4:37
So it's for these two reasons specifically why we at ASQE decided to start our 2023 Ascend Webinar series with this topic of supply chain optimization, because not only for the relevancy for all of us, but also the challenge that it's going to pose for organizations to understand in improving their performance going forward.

4:56
However, it's really important to note that not all quality issues have affected industries in the same way.

5:02
So this chart is also from our 2022 IoE Executive Brief, but you're going to see that significant shifts occurred looking across the industries.

5:10
And when we collected challenges in 2021 and compared them to the data that we collected in 2022, you see that some industries had dramatic improvements or some actually got a little bit worse.

5:22
And this chart speaks to quality issues overall.

5:24
So it's not just for supply chain challenges, but since supply chains are such a vital, important piece of organizational performance and most likely the industries that you represent in your own companies, it's important to understand that priorities shift based on how quickly the industry and the organization can adjust, but also how quickly they learn from that disruption and how do they move forward.

5:47
So this slide is going to represent all of the high-level key takeaways that our SME is going to talk to you today about, but it's a takeaway that we have from our own research.

5:58
And Russ is going to get a little bit more into that.

6:00
But I'm really pleased as our research came together in fall, we realized that the big core takeaway from a supply chain aspect is really treating suppliers as an extension of your organization to vet them, but also to build trust with them.

6:15
So we know that supplier vetting is critical, but barriers that are either not overcome yet or that keep occurring are going to have an impact on the workforce's ability to truly deliver performance and then also impact the supplier's ability to deliver on their end too.

6:32
Some industries have a limited pool of niche suppliers, or they might have had to replace established partners to amplify, which amplified that disruption or maybe caused some new pain points.

6:42
But All in all, these factors bring us to exploring this key takeaway that a higher level of supplier commitment may be required.

6:48
And there's a couple different ways that we can do that.

6:51
That might be by cultivating more respectful reciprocal relationships, having upfront investments made to create long-term stability, but also looking at investing in training or certification or other types of upskilling that can help your employees optimize this the QMS, but also within their roles to empower them to be able to better react to disruption and create more balance.

7:14
So with that, I'm very excited to feature an expert today that can speak to you about how his experience in these areas can be used to assist you in your own journey to optimize your supply chain, but also ultimately improve your organization's performance.

7:30
So now I'm very pleased to introduce you all to today's subject matter expert and presenter, Russ Snyder.

7:36
After 22 years, Russ Snyder has retired as the Senior Director at Intel Corporation, managing supply chain operations for outsourced manufacturing of Wi-Fi modules and graphics cards from silicon wafers to the finished product.

7:49
Intel Corporation is also an ASQE organizational member and if there are any on the call today.

7:55
Hello and thank you for being a part of this.

7:58
Russ is also a registered professional engineer.

8:00
He has his MBA and is also a Lean Six Sigma Greenbelt.

8:04
He's also a very frequent presenter at ASQ conferences, including just recently Lean Six Sigma conference in Phoenix.

8:11
And his topics range from risk-taking to supply chain resilience.

8:15
And he also won the 2020 Lean Excellence Award from the USC Marshall School of Business.

8:21
And prior to Intel, Russ worked for 14 years as an engineer and engineering manager in the engineering construction industry and focused on process automation for a variety of manufacturers, including food and beverage, pulp and paper, tobacco, plastics and aerospace.

8:35
So with that, welcome, Russ.

8:42
Thank you, Erin, for that introduction and I'll go ahead and take it from here.

8:54
So, and just to add on a little bit, I just recently retired January 15th.

9:00
You may all be aware that Intel is going through some difficult times.

9:06
And so anyway, I took an early retirement package and now I'm upping my level of volunteerism in ASQ.

9:15
So let's talk a little bit about supplier trust and managing disruption.

9:19
And one, one of the things that I told Erin was that I had a front row seat to the pandemic and the disruption that was coming our way.

9:29
We had two factories in the Shanghai area that basically were lines down as soon as the the crisis hit in in Wuhan.

9:39
So I'll walk through a little bit of the the three years that unraveled after that and some of the things we've learned and some of the things that I think can be done better in supply chain.

9:50
But let's talk about how supplier trust factors in and some of the issues that may be around that.

9:55
So let's talk about your real supplier relationship withstanding the pandemic stress test, reshaping your supply base post pandemic and preparing for the next event.

10:08

So all of you may be aware at any level that we had scarcity everywhere from toilet paper to laptops to vaccines to to automobiles.

10:21
So we've had so many different, different problems.

10:26
And I'm a little worried about the post-apocalyptic world, frankly.

10:29
You know, we had a three-year learning experience where I feel like emotion displaced reason and, and I think as I walk through some of the issues, you'll, I think you'll see the supply chain is not this, this calculated machine that, that runs on math and blockchain.

10:49
It is pretty emotional and pretty much based on human, human tendencies.

10:57
We saw hoarding occurring at all levels.

11:00
Alliance has developed for the best financial and opportunistic outcome.

11:04
And this is really one of the things that happened with customers and suppliers is that everybody was optimizing for their own best interest.

11:13
And I think, you know, that's the the scary part about, about what happened during the pandemic.

11:21
If we look at how we select suppliers or how we score suppliers on an ongoing basis, we have a scorecard, and it usually covers these topics, cost, quality, management, relationship, technology, capacity, environment, social governance and financial health.

11:36
And everyone has a derivative of this as they look to vet suppliers.

11:42
And All in all, this supplier looks pretty good.

11:45
You know, I've got a couple of yellows or partial yellows, but All in all, this is probably a pretty good supplier.

11:52
But there's things that the scorecard doesn't tell us and these are some of the things that we learned during the pandemic is, you know, we don't know the other customer obligations of our supply base.

12:06
For example, do other customers have penalty clauses in their contract for nondelivery or not meeting contractual upsides or returns?

12:17
You don't know your relative value to the supplier in comparison to other customer relationships.

12:23
And it's all it may be almost impossible to find out this information because your supplier is not really going to tell you, you know, you're not that that you're not a valuable customer until he's ready to exit you.

12:37
So you can start with how much your book of business is as a percent of the supplier's business.

12:42
And if you're a pretty small percent, especially of a large supplier, there's risk and probably out of factory into your scorecarding.

12:52
The other factor is, has your business been increasing or decreasing over the years?

12:57
And that's also a big thing to suppliers.

12:59
If you're becoming less relevant to them, then how much they are willing to support you during a crisis is also at risk.

13:07
So after the pandemic, 3 big questions to ask yourself about your supply base.

13:13
Did your supplier provide capacity over other customers?

13:18
And we had you know, we had suppliers who did suppliers who basically prioritized our business above some of their other customers business.

13:30
And we knew it.

13:31
And we were so grateful because the PC industry saw a a huge surge in in volumes immediately in 2020.

13:41
And then the 21 and 22, did your supplier notify you of oversold capacity before he rejected your purchase orders?

13:50
We actually had suppliers who rejected our purchase orders and said we're on basically a 60% allocation from what we actually wanted to order.

14:02
Two of these suppliers were sole source suppliers and we had to do unbelievable things to qualify another source and still not quite meet our full capacity requirements.

14:16
Did your supplier notify you of process changes due to disruption constraints or capacity constraints?

14:22
We did have instances where and have had instances over the years where a supplier gets into a capacity constraint and he begins to change his process to shorten the time it takes to get product out the door.

14:40
You know, I can recall 3 examples where we specifically had to negotiate quality or performance deltas on components based on based on suppliers getting into a capacity constraint.

14:55
Or in the pandemic, we even had an example where a, a supplier couldn't get an ingredient in the same package size and the supplier got a different size package, but didn't change his recipe to meter out the right amount.

15:12
And we had a we had a quality issue because of of his process change.

15:18
So the real question is post pandemic, is it time to re about your supply, reevaluate your suppliers?

15:25
Because frankly your suppliers have re-evaluated you during the pandemic.

15:30
And there's a couple of ways you know that, OK, they could have exited you, They could have said, hey, we're we're going to we're not going to support this business anymore.

15:40
Or they could have said we're going to cap your volume or they could have raised your prices substantially.

15:51
So from the pandemic, we had three basic categories of suppliers, supplier who was a partner and we, we had really, I'm going to say in my small business at Intel, which was Wi-Fi cards, we had four or five truly supportive partnering suppliers who dropped everything to support our volumes, increased demand, they invested in capacity, They didn't raise our prices or they'd modestly raise our prices.

16:24
Then I'll just call the the next category is a supplier who was supportive.

16:28
They'll they may still have capped or allocated volume with prior communication and enough lead time to arrange for alternate supply.

16:36
So they were considerate that even though they had capacity constraints they would let us go work our supply base.

16:45
They may have raised prices and they may have required non-cancellable, nonreturnable terms or provided an exit date for their support.

16:54
Now, I'd still consider some of these suppliers supportive even though these things look fairly negative.

17:00
But if you look at the supplier who truly devalued your business is a supplier who rejected or capped your volume at the time of the purchase order, there's no prior communication.

17:11
You know you're expecting to order a quantity of parts.

17:14
And, and, and we had roughly after the after the China COVID issue hit, we had roughly 50% upsides on our volumes.

17:26
One of that reason is that Q1 was a little slow because we were we had some inventory overhang and so we had a pretty sizeable upside when we came back up in production in April that year.

17:41
Supplier opportunistically raised prices and some of them raised prices 50% a 100%.

17:48
Some wanted excessive adders for immediate capacity addition because we needed extra capacity and in China workers were scarce because of 14-day quarantine periods and lack of ability to travel around the country.

18:10
You know the supplier did not communicate or demanded long term agreements.

18:15
We really, we really found some suppliers who actually exited our business during the pandemic.

18:25
All right, so an introspective look at supplier relationships and, and I'm gonna point the finger back at, at us, at us as, as customers and some of the things that we've done over the years in certain situations.

18:38
And it's certainly not true 100%, but suppliers get the blame or consequences for our mistakes.

18:46
And I list a few things there and it could be a number of things, but inaccurate demand forecast is a big one.

18:52
Suppliers really want to protect themselves from especially excess inventory when we want to cancel purchase orders, quality or yield issues that can be attributed to our specification or design.

19:04
And often times here, here, what I see happening and it's not a conscious effort to blame the supplier, but the design is what it is.

19:15
It's done by a different team than the manufacturing team.

19:17
And then the manufacturing team has to deal with yield issues and the manufacturing team looks for a component to blame, not necessarily the design.

19:25
And because of that, I guess you call it an ecosystem of responsibility, the suppliers can get incorrectly blamed when it's really something wrong with our product or incomplete qualification or characterization.

19:42
It will lead to the same thing that you may have yield issues that were unanticipated.

19:45
And then the manufacturing guys just want to just want to yield and they want to just, you know, get a supplier to fix their problems.

19:53
Supplier information is used to negotiate price.

19:55
Now we do get a lot of information from our suppliers.

19:59
We get cost breakdowns depending on the product, yield data, test data, capability data.

20:07
But if you turn around and use that data against them for price negotiations or other things, you know, that's, that's a trust breaker.

20:17
Our volumes or spins are not significant to the supplier.

20:21
Now one, one thing that we as a large company, we typically want to go with the biggest and best suppliers.

20:28
Sometimes those aren't the ones who are interested in a small business like the Wi-Fi business and you know, Wi-fi's like 1% of Intel revenue.

20:38
And so, so you see that there's a different scale potentially in some of these smaller businesses that suppliers who support the larger corporation may not really be interested, but they'll take the business anyway.

20:51
Or a business trajectories have diverged.

20:55
Negotiated prices do not allow for favorable margin compared to the other customers.

21:02
A good example of this is one, one of our key suppliers and we make RF radio frequency products and some key filters come from a a very large supplier to Intel.

21:16
But what happened was as the 5G phone business began to roll out, they use a lot of the same components.

21:23
And this particular supplier notified us that their capacity was sold out and they would not be able to meet our demand for 2020 before the pandemic even hit.

21:35
They did notify us, they did work with us.

21:37
We did raise prices.

21:39
They said that the margins were not acceptable.

21:42
And we we were able to come to an agreement that actually gave us the upside capability that we wanted.

21:48
And they worked with us and we had a good relationship there.

21:52
But we had negotiated prices so low that they really didn't want to support it at that level.

21:59
Lastly, you wish to customize everything for you.

22:02
I don't know how many of you realize how much customization goes into a product that demands a supplier to change his methodologies based on you.

22:13
That's also a cost adder.

22:15
It's a it's a pain for the supplier.

22:18
It's also one of those trust Breakers.

22:20
And when I say the takeaway is it's not the executive meetings that build trust, but it's the way we treat suppliers in between.

22:28
And I think we all really don't realize on an individual basis that each of us in touch a supplier we're we're we're working to build or destroy that trust.

22:40
Let's talk about a case study here on the two different suppliers in in one of industries and we'll just generically call them supplier A and supplier B.

22:50
Supplier A was a new supplier for one product line.

22:53
It's a Wi-Fi product.

22:55
Supplier B was a long-time supplier for multiple products, Big company, very capable on complex products and the supplier A was capable on low tech products.

23:07
And some of the aspects of our design were low tech capacity, relatively small but growing large industry provider On supplier B, the technology was low tech.

23:19
Supplier B was highly complex tech transparency.

23:25
Our Supplier A was very open with quality issues.

23:29
If he had a problem, he would notify us ahead of time before he'd ship us something and we would work with him on how to rectify that.

23:36
We even accepted some financial responsibility for some of the shared issues based on our design and based on his capability.

23:47
Supplier B basically solved problems by themselves.

23:50
Not a lot of transparency.

23:52
Quality of both suppliers was relatively high.

23:56
You know, a few issues here and there and and some of the other things you can just read.

24:01
I won't go through every single list, but I think the support levels, lead times at upsides.

24:07
Supplier A was supported us no matter what, 100% upsides at lead time.

24:13
I mean just whatever we wanted.

24:15
The other supplier was quite limited.

24:17
Quick turn is another thing we like to do in engineering and supplier A was always supportive of quick turns, you know, two-week turnarounds, et cetera.

24:25
And supplier A was the lowest cost.

24:27
So 2 suppliers there.

24:31
Now what's the story of the takeaway of the give and take responsibility?

24:36
Supplier A, starting with small volume space, mini spec and cosmetic issues that we worked through.

24:41
And a lot of it was reevaluate our own design and our own specifications to to evaluate the necessity and relax or our lower tech, lower cost supplier could meet our needs.

24:55
Worked with the supplier on a number of quality issues and shared some of the financial responsibility with them.

25:02
Supplier B, their pricing became uncompetitive, uncompetitive and lost the generation of designs.

25:08
And you know, this is where our supplier A came in and was successful and then supplier B decided they wanted to design when it gave us competitive pricing, had a number of quality issues that they saw their flexibility was low and they could not do quick turn.

25:24
And we really didn't know that the margins didn't meet corporate objectives.

25:27
So a lot of gaps in knowledge there and they really weren't very interested.

25:33
You know, as it proved in the pandemic when capacity is a premium and support levels may, as I said earlier, supplier alliances aligned to highest profitability and opportunistic gains during the pandemic.

25:53
Supplier A met everything we asked for.

25:56
They even filled in Supplier B decided to cap our volumes and raise our prices by 50% and give us a date when they would exit.

26:04
But Supplier A basically met all of our needs, almost doubled their output to us and we didn't miss any shipments because of this particular component on our board.

26:19
So you see that some of the trust issues were a lack of communication and transparency between US and Supplier B, their mark, their expectations weren't being met.

26:29
On the other hand, Supplier A, we had a very much a win win relationship with expectations.

26:37
So now that we've talked a little bit about trust, let's let's move into managing disruption better.

26:44
I think all of us could use a little improvement there.

26:48
What I'll start out with is demand and looking at some different industries, supply demand during the pandemic.

26:55
If you look at, if you look at the, the overall cell phone worldwide market on the left, you see that it continued to grow during 2020 and 2021.

27:06
And the the light blue or the light teal is 5G phones and 5G phones actually shipped a billion units from zero at 2019 through the three years of the pandemic.

27:22
To me that's not scarcity, that is basically achieving, achieving everything you want and really not facing the shortages for the that other industries have seen.

27:36
Similarly, PC industry, while we felt very constrained the entire industry, not just Intel, but a number of the, the, the folks in the, in the supply chain, our customers and our supply base dealt with many, many constraints.

27:53
However, if you look at the overall units shipped for PC sales, it also went up 15.8% and from 19 to 20 and 15.3% to 2020 to 2021.

28:06
That's another additional 174 million units over over the norm for that period of time, which is quite substantial upside, which I really don't see scarcity there.

28:21
I'll show you a little bit more detail about inventory levels later that'll kind of give you some insights.

28:26
But but these industries who are very familiar with the semiconductor industry were able to increase shipments.

28:34
And if you talk about 5G phones, 5G phones, and I went and looked at some tear downs on 5G phones, they have anywhere from 25% to 40% more semiconductor content than 4G phones.

28:48
So not only did they grow volume in 5G, they were taking an inordinate amount of additional semiconductor capacity during the time when it was most constrained.

29:01
Now, if anybody's in the phone business, I'm not blaming the phones for everything, but I just want to call that out now.

29:09
This slide is a poll slide.

29:11
And this is, you see, there's no units on any of these things.

29:16
Which industry do you think this is from an audience that has never been able to ship as many units in a year as they shipped in 2019?

29:27
And that's a, as a poll question.

29:29
But I, I would say that this is an example of scarcity and an industry that couldn't quite get back to meeting the, the, the extremely high demand during the period of the pandemic.

30:23
OK, looks like everybody's chiming in there.

30:27
It's great to see everybody's interested and looks like that.

30:34
Let's see, automotive is winning with 60% of the vote.

30:40
OK.

30:41
Looks like the polling has stopped.

30:44
It is correct.

30:44
It is the automotive industry which never achieved the worldwide volumes that they had delivered.

30:55
Let's see how do I get back here, OK.

31:07
The auto industry never got back to volumes in 2019 and we're still seeing shortages and even Ford Motor Company in their quarterly report still blaming supply chain.

31:21
So a number of missteps.

31:22
But I think you know, auto industry manages their supply chain a certain way and most of their components are not semiconductors or, or electronics more and more content today, but most of their history and components are mechanical engine, drivetrain, et cetera.

31:43
And and that's a different way of managing it.

31:45
It's a different industry and lead times are different.

31:48
And some, some semiconductors lead times can be from 12 to 24 weeks routinely.

31:54
We carry various levels of inventory of any electronics product in raw materials because demand is so, so uncertain.

32:04
So, so the automotive industry is a different industry and they, they, they approach supply chain differently.

32:10
And I think they're changing that.

32:11
Actually, at, at Intel, we hired a person from the automotive supply chain and she confirmed these things that I'm saying on the left, cancellation of orders when demand dropped during the early stages of COVID-19.

32:27
When you cancel semiconductor orders and then the rest of the industry picks up speed, you're going to get at the back of the line when you reorder.

32:36
So and then semiconductor capacity filled up for other industries, namely 5G and PCs.

32:44
But 5G, when you're giving away free phones in the US from every phone supplier you've got to you, you're going to expect that you're going to be selling a lot of 5G phones, giving away anything for free.

32:57
Is it in itself a disruption to the supply chain and the semiconductor industry?

33:04
And finally, the old other industries filled up, but the older technology nodes were highly constrained.

33:09
And you still hear that it's not necessarily the newest, highest tech chips, it's some of the older ones that deliver analog or voltage regulation.

33:20
All right, So what I want to also share is let's talk a little bit about emotional supply chains, and specifically I'm going to talk about the PC industry.

33:32
On the on the right, you see a Gartner report that talks about PC market collapses after the COVID boom - 16.2% from 22 to 21 to 22.

33:45
And then if you look on the left, this is a government generated, the government generated data from the US Census Bureau about the PCPC inventories and it's called total PC inventories.

33:57
So if you look at PCs in the channel, the, the, the blue line is 2019 and let's call that the norm, let's call that the baseline.

34:08
If you look at the red line, that's 2020 and 2020, you clearly see that inventories in the PC channel were below what they were in 2019.

34:18
And that's an indicator of, of scarcity.

34:20
We're not quite able to meet all the demand.

34:25
And then if you look at 2021, the green line is where we start to get inventories in the PC channel that are above 2019 levels.

34:38
The crossover point is March of 2021 where you think that OK, supply is exceeding demand yet yet ordering by all of the different actors.

34:55
There's a number of PC manufacturers and then there's a number of PC retailers, all of which are ordering because nobody wants to miss out.

35:05
Nobody wants to miss out on demand.

35:07
So everyone's over ordering towards the second half of 2021 and nobody's really realizing that inventories are growing because nobody wants to miss out on their market share.

35:19
And then if you look at the purple inventory line, it gets even bigger in 2022, quite a lot bigger.

35:27
And you see at the end of the year, it was 17% for 2020 and 21%, sorry, 2021 and 21% above the new 2022.

35:37
And you know, 2022 is when all the financial mayhem happened with all the PC space.

35:44
But you know, nobody was reading the tea leaves and nobody wanted to be the one get 2 got left out.

35:51
So why I said, say supply chains are emotional is that this is all driven by irrational desires to win in the market.

36:02
Let's move on.

36:03
One of the things that that has been taught in Business School is the bullwhip effect in supply chain.

36:11
And that's exactly what we saw.

36:14
If you look at the bullwhip effect, it's, it's the fact that a single step change in order quantity, maybe it's 2X.

36:23
In our, our case it was, you know, 15% for the PC industry.

36:29
Then then the various actors within the supply chain from retail to wholesale.

36:38
There's really not wholesalers in the PC space, but there are retail final assembly PC manufacturers which are The Dells and the HPS.

36:48
And then you have the the manufacturers who make a lot of the components that are like an Intel, like an AMD, like an NVIDIA among other companies.

36:58
And what you see with the chart is what I thought was a great explanation is immediate in it initially the stock dips to below 0 or a a very thin margin.

37:11
But then everybody over orders.

37:13
And as as each piece of the supply chain over orders, you end up with extraordinary inventories back at the manufacturing level because everybody pads their orders.

37:26
It happened in the pandemic in the PC space just like this.

37:32
All right, so now let's talk about what do we do and reshaping our supply base and we'll talk a little bit about network risk management, supply network risk management.

37:45
So change some behaviors, you know, stop downloading the consequences of your mistakes.

37:49
And sometimes, you know, because there's different silos who act on suppliers, it's hard to do, It's hard to change some of these things that go on that, you know, you want to want to make sure the supplier shares your pain.

38:04
But inaccurate demand forecast is one of the big ones.

38:06
And, and if you look at how everything was over ordered during the pandemic, the people who are going to pay the price for the, the, the, the guys at the very beginning of the supply chain, they're the ones that are going to have to hold inventory for the manufacturers and the final retailers because there's just no orders.

38:21
The orders evaporated quality or yield issues that can be attributed to your spec or design.

38:26
I just say own your mistakes, incomplete qual or characterization.

38:30
Share characterization data with suppliers and build that trust.

38:36
Don't use supplier data.

38:37
I guess though, realize your risk when volumes or spends are not significant to the supplier and take action.

38:45
You know, I think this is an easy if you understand that you're a very low percentage of the business to a supplier, then if if that supplier ever gets constrained, you're going to be the one left out.

38:54
Stop customizing everything for you.

38:58
We change the way we design products to call what A to a methodology called delayed differentiation.

39:06
It's also called postponement strategies.

39:08
That allows our skews to be fungible and we can reuse components within multiple products.

39:15
Some of you may do that.

39:16
It's rare that I find that engineering teams have any knowledge whatsoever of supply chain unless somebody is actively working in even labeling for your own part number.

39:28
Everything causes the the the supplier to do something special for you.

39:33
Pandemic learning evaluate suppliers who didn't support your volumes, who forced you into long term agreements, who raised your prices extraordinarily.

39:45
I think there's a lot of things there you can do to go back and reevaluate some of your suppliers, manage risk at the network level.

39:54
And one of the things that I got to do, one of the opportunities I had before I left the last year was to standardize how we evaluate supply network risk, implement some postponement strategies as a corporate policy across many of our different board and system businesses.

40:12
And and, and prior to that, there was no standard on how we manage suppliers, how we design our products or how we manage network risk.

40:22
So I'll just talk about trends for outsourcing in the entire semiconductor space, electronic space, you know, outsourcing, purchasing and inventory management of components is very common.

40:32
Outsourced manufacturing is very common.

40:35
Outsource forecast risk.

40:38
We want our suppliers to own our forecast risk by contractual upside and generous return policies.

40:45
And we also outsource business continuity risk.

40:49
And it's unconscious.

40:50
We just, we, we expect our suppliers to have a business continuity plan.

40:56
But if you have say 2 manufacturers who can do the same thing, do you as a company also have a business continuity plan of your own if one of the one of, if one of those suppliers or both of them have a problem?

41:10
And as we expect each, each supplier on our supply network to have a plan, often times it doesn't allow, it doesn't, it doesn't solve the problem.

41:21
And I'll give the scorecard for this model as a failure.

41:26
If a supplier couldn't meet his business continuity obligation, it became your problem.

41:31
And if you didn't have a plan then and especially when you have a sole source supply network, you don't have a plan.

41:40
So suppliers, you know, did not meet their forecast risk mitigation contract requirements and they did not live up to their business continuity plans.

41:48
Now granted, the pandemic was an extraordinary event and few could see it and plan capacity for it.

41:58
Own your own risk management.

42:02
Is is is is what I preached at Intel post the pandemic.

42:08
And what that means is manage each critical node on your network.

42:11
Now let's note if two manufacturing sites can make the same products, that's a node.

42:16
If two warehouses can manage the same products in their warehouses, that's a node.

42:21
A single light on building material with 123 sources, that's a a node.

42:28
All of which needs to be managed.

42:32
All right.

42:33
So what I'll talk a little bit about here is I'd, with my team developed a model to basically forecast revenue risk based on an outage based on a, a, an issue.

42:44
And what I find as the most common disruption isn't just during the pandemic, but it's a, it's an UPS unplanned upside.

42:54
And the supplier has a capacity constraint.

42:57
And if you look at this, this allows us to model revenue risk for the situation and this is a 50% upside and the supplier is allocating us only 80% of what we're asking for.

43:09
And you see that we have a roughly a billion dollars of revenue risk for a $10 product.

43:15
It gives you some insight to make decisions as you evaluate some of the critical supply chain nodes.

43:24
Similarly, you want to also evaluate inventory risk if your demand goes away.

43:29
The model also allows you to man this is a a 33% reduction and in demand and it gives you roughly a $57 million excess inventory for this component.

43:42
That's a $1.00 component.

43:44
All right, So I'm going to go ahead and try to finish up here, make management decisions with all the data that includes Mike.

43:51
Macro economic cycle, industry cycle inventory throughout the supply chain and similar industry inventories such as 5G and PC is very similar.

44:02
Even automotive who uses such a high percentage of electronics now can also be considered in similar inventories.

44:10
Micro customer behavior, upsides, cancellations and forecast changes.

44:14
I think you have to be cognizant when customers are giving you signals and you're not listening.

44:19
Your inventory levels and information you get through discussions with your suppliers all valuable to making decisions on pairing back inventories, pairing back ordering, et cetera.

44:31
And then the life cycle of your product.

44:33
Many products go up in volume and down in volume, especially in the PC and technology space.

44:38
They have a three or four year life.

44:40
Be cognizant of which space you are in and, and frankly, we adhere to this pretty religiously until the pandemic when we we, we kind of went emotional and bought too many parts on certain products.

44:51
Anyway, the last take away is the trusted supplier values your business experiences a reciprocal trust with

you, knows you won't penalize him for your mistakes, and will scale up and down with you with your demand.

45:07
Managing your own supply network risk is the responsible way to manage disruption.

45:11
Don't pass it all down to.

45:13
Your supply base should be built into business continuity planning and allows you to anticipate changes with inventory and capacity strategies.

45:26
And 11 last thing is I am going to speak at WCQI and this is just an overview and this is the topic was dimming right to sole source suppliers deals with multi sourcing, is multi sourcing valid given, given the the the goodness of sole source is that we have low variation in our product and our quality anyway.

45:51
And Erin, I'll turn it back over to you for Q&A.

45:57
Excellent.

45:58
Thank you, Russ.

46:01
And I also appreciate that you're you're looking at that topic of Deming because you know, we we have quality gurus for a reason.

46:10
But obviously with all the disruption and the things that you eloquently walked through, sometimes we have to re evaluate what we know as being foundational methodology.

46:21
So extreme, extreme time sometimes call for extreme measures.

46:25
And it's a good time to have a gut check and just double check where you are in your own workflow and operations.

46:32
So this is the time.

46:33
If you have any questions, you can go ahead and feel free to put them in the chat.

46:38
I do have a question to start with you, Russ.

46:40
But first, I want to say just again, thank you so much for your expertise and all of this extremely valuable information.

46:48
And if you have not registered yet for AS QS World Conference on Quality and Improvement, we really encourage you to take advantage of the early bird pricing that is active from now until March 21st.

47:00
It will be held in Philadelphia, PA this year.

47:03
Russ will be there, as he mentioned.

47:05
And so there's a lot of great content that's going to be featured there.

47:07
And I know Russ, you're very passionate about this topic and I think that it's a great relevant topic also for the times we're living in right now.

47:14
So I'm hoping that everyone can advantage and be sure to attend the conference.

47:20
Our team is also placing a link in the chat for you all so registration is open.

47:23
So be sure to click on that and see if you can attend this year.

47:28
All right, So Russ, I'm going to go ahead and start with a question for you while we get some others, maybe some time to think about something they want to ask.

47:35
So when, when you touched on thinking about supply chain management from a cost of quality mindset, is there any specific area of risk you think will be most important for organizations leadership to really understand about supply chains through the end of this year?

47:48
In particular, just based on the tea leaves that you're reading and, and kind of what your, what your guts telling you.

47:56
Well, this particular year, I think what we're seeing is a lot of excess inventory from excess ordering during the pandemic and dealing with that, not only with your supply base, but you know, a lot of a lot of different parts even in the, in the technology space become perishable after a certain shelf life.

48:16
And I think that what you'll see is a lot of your manufacturing partners are going to want to come back to the quality teams and ask to extend the shelf life of components.

48:29
On the on the other hand, you're not going to be ordering a lot from your suppliers.

48:34
You know, I think is the other risk is from a quality point of view.

48:39
But I think, you know, I think that's for this year and that'll, that'll, that'll subside.

48:44
But I think re evaluating how you treat suppliers and how you build trust with suppliers is going to be valuable as you move forward and even choosing the right suppliers.

48:56
Great.

48:56
OK, now I that's, that's valuable as well.

48:59
And when you when you think about outsourcing too, you had mentioned about business continuity plans.

49:04
And I'm just curious for those of the on the call or on those on the webinar that might not be familiar with that beyond a balanced scorecard, is there a known example or a framework of continuity plans that worked for you that you could recommend?

49:17
Well, I'll explain a little bit about the board and system businesses at Intel and the board and system business, which is Wi-Fi and Ethernet and some optical businesses and some others.

49:34
But it's a small part of Intel and basically there's not the same focus on standardized practices across those, those small businesses at Intel it like there is on our on our own factory network and it's primarily outsourced.

49:50
And I would say that we had different ways of doing it.

49:53
I, I was not allowed to bring our business continuity plans from Intel when I left.

50:00
But I think, I think that there are some key elements.

50:04
Number one is map your supply network.

50:09
If the first first basis for doing a business continuity analysis, know what your supply network is, including each line item on your bomb, on your bill of material and who your suppliers are.

50:22
Secondly, when you do that, you can actually look at risk at each node on that network.

50:28
And the way I have chosen to do it with my last business was look at revenue risk based on a disruption to one of the one of the suppliers on each node of your network.

50:39
That sounds like a lot of work.

50:42
The model that we came up with is a very quick calculation.

50:45
It's just a spreadsheet model and it'll give you an idea of what risk you're taking either with a sole source supplier on your network or if a supplier has an issue.

50:56
And as I said, the most common disruption I've ever seen in this in the technology space is unplanned upsides from my side and supplier who gets into a capacity problem.

51:07
So if you look at the most probable risks and look at the revenue risk, you're probably going to want to take some action on some of those nodes on your network.

51:15
That is the the elevator pitch on business continuity.

51:22
I don't have a model specifically that I can, I can send people to.

51:26
No, that's understandable.

51:27
I think it just helps to hear you talk a little bit more about it in its practical terms of what it means.

51:31
And it, it probably will mean different things for everybody, right, But based on the uniqueness of their business or the, the relationship of their suppliers.

51:37
But I think that helps put some context around it.

51:40
So thank you.

51:41
It looks like Janine Porter did have a question in the chat, which is great.

51:45
So Janine says that she's saying black market parts were of concern during the pandemic and gaining trust and dealing with the suppliers going to unauthorized suppliers was challenging.

51:56
So she's curious of your experience.

51:58
Did you have, did you ever run into that situation with Intel or did you have any other past experiences where you might have encountered that?

52:07
Yes, my particular business during the pandemic did not have an issue with having to buy parts from the Gray market or the a third party broker who had components.

52:23
Yes, in fact we did have at at at our overall corporation.

52:28
We did have a couple instances where we got some bad parts from a broker who wasn't the authorized or original manufacturer.

52:39
And what we found was that we had to tighten our criteria for accepting some of those parts because frankly, what we've seen out there in the industry is for certain components, parts from the Gray market, we're getting a 10X the price from a normal part.

53:01
OK.

53:02
And then you, you certainly want those to be quality components.

53:05
You don't want those to be bad components.

53:07
And even even if you get, like I say, we didn't have an issue during the pandemic, but I did have an issue early on in my career in Wi-Fi where we couldn't get parts from a particular component.

53:20
And we ended up buying some from the grey market that were basically test rejects of the same component from the supplier and they didn't work.

53:29
They were very low yielding and we've had those issues and our our quality organization put in some different quality checks for brokered parts during the pandemic.

53:42
Excellent.

53:43
All right.

53:43
Well, thank you.

53:44
This is really insightful.

53:45
And Janine, thank you for the great question.

53:47
We appreciate it.

53:48
I wanna be mindful of everybody's time for those of you who are live with us today, there is a question if the if the copy of this presentation will be available and the answer is yes.

53:57
And you actually already have access to it in your registration e-mail and invite emails.

54:03
You have a link to our events portal, which is an online repository of all the different types of materials and events that we're going to be doing this year.

54:11
So the team has put the link in the chat, which is great.

54:15
So thank you for that.

54:17
So it's, it's this is excellent because these are definitely the types of things that we are hoping to engage everybody with.

54:23
And for any questions that we might not have been able to get to today, we do encourage you to look at those resources documents that we've included in the portal.

54:30
But also if you want to chat us or if you want to e-mail us at org.membership@asq.org, we can also connect with Rus 2 offline and hopefully get your answer for you.

54:40
All right, so let's keep removing here towards the end the really exciting part we have to share, which is new this year.

54:47
So for those of you who haven't been a part of ASQE events for us in the past, this new Ascend webinar series has a partner event that comes with it, which is called Engage in Ascend.

54:57
And you heard some amazing insights from Russ today, coupled with the research that we're publishing.

55:03
And so you are all invited who are all of you or that are on the webinar today to come back and join us again next week from 1:00 to 2:00 Central Standard Time in a Zoom platform environment.

55:15
We're going to send you an e-mail with the survey, also a link to register for this event.

55:19
But we really want you to come back and join a conversation.

55:22
So the engage and ascend events are meant for us to get together with quality professionals to network, talk and also knowledge share.

55:31
So we're going to be having two breakout sessions within the engage and ascend session that will also focus on the key takeaways that Russ talked about today.

55:39
So truly it's around building that trust with suppliers, but also thinking about it from a leadership mindset of what are the things that we need to think about from an organizational performance and where we might need to adjust.

55:50
And so we thank Russ for his time today, also for him coming back next week to join us in that discussion.

55:55
So again, there is a link in the chat today, but you also will be receiving an e-mail follow up after this event to go ahead and register.

56:04
You're also gonna be receiving recertification unit credits for attending today.

56:08
So we're definitely trying to make this the most value of your time.

56:12
And we hope that you learned a lot based on all the content that Rush shared.

56:16
So thank you again to Ross.

56:19
And so once again, if you're new to ASQE, welcome.

56:22
We're, it's lovely to have you.

56:23
And if you've been with us for a while, thank you so much for coming back.

56:26
We're so glad that we had quite a full room today, which is excellent.

56:30
And you'll be seeing more of these come on your calendar soon.

56:33
You'll be hearing more from us.

56:35
And if you have, like I said, any questions that did not get answered today, please reach out to us.

56:40
We are here to serve you.

56:41
And again, that's org membership at asq.org.

56:44
So with that, thank you so much again to Russ Snyder.

56:47
It was such a pleasure and hopefully we will see you all next week.

56:51
And if you can take our survey, we'll be sure to make sure we're engaging with continuous improvement processes of our own to make this wonderful for everyone to attend.

57:00
So take care everybody, and have a great rest of your week.