

Transformation in Supply Chain



ChainLink Research 2019
Ann Grackin

During face-to-face discussions with Supply Chain Executives and their counterparts in finance, IT, Sourcing and Product Design, they revealed what they are working on and *why*.

Transformation in Supply Chain

Table of Contents

Introduction—<i>Believe</i>	4
Supply Chain and Finance Partnership.....	4
Procurement Joins the Ranks of Supply Chain.....	4
PLM/NPI and Supply Chain Integrate.....	5
Mergers & Acquisitions Talks to Supply Chain.....	6
Marketing and Supply Chain.....	6
CSR—Social and Environmental Responsibility and Supply Risk Gain Acceptance.....	6
The Big Three—Trends Driving the Ecosystems of Today	7
TREND 1—Orchestrations and Collaboration	7
TREND 2—Trillion-Node Network	7
Going Digital Chain—the Data.....	8
Going Digital Chain—Cyber Security.....	9
Going Digital Chain—Don’t Just Integrate, Interoperate.....	9
TREND 3—the Human Factor: Work Force Transformation	10
Conclusion—Irresistible Force: Our Future	11

Introduction—*Believe*

Finally, Supply Chain is being recognized as the most important function in many businesses today. With recognition comes pressure—lots of pressure—with CEOs crediting or blaming their supply chains for their successes or failures. With recognition also comes investment and new alliances in the executive suite. Rapid growth, changing business models, M&As, new products/new markets and a *new generation of belief in transformative program investment* is driving a lot of advancement in Supply Chain IT.

I recently had a delightful and soulful discussion being interviewed by Scott Luton, founder and host of *Supply Chain Now Radio*. (You can listen to that [here](#).) We talked about the big trends driving Supply Chain today: There are strategically significant changes that are having a profound impact on the business model and success of the enterprise, due to its focus on supply chain.

So what are a few of these?

Supply Chain and Finance Partnership—

Senior and informed supply chain execs know that finance is the language of business.¹ That means they have to convert the many, sometimes obscure, KPIs of supply chain into their impact on *cash*.

Money talks, as they say. The very elite thinkers' pitch for more influence in the boardroom is that supply chain and supply chain analytics can provide real revenue growth and market share.

Today, savvy supply chain pros translate their functional drivers into corporate impacts such as the effect of cycle times on market share, inventory turns on sales numbers, forecast accuracy on COGS, or on-time and fill rates with customer loyalty and margin. (No additional backorder expediting, handling and shipping means happy customers, too.)

For some of us who have been chanting this for decades, it is great to hear not just the supply chain pros pointing to these impacts, but the CFO. Together, they drive a new dialogue in the corporation, educating all ranks on how to make better decisions.

Procurement Joins the Ranks of Supply Chain

A recent change which seems to be gaining steam is the merger of procurement into the supply chain team. Sourcing may or may not be part of that, since, often, engineering or product design/merchandising really wants to dominate the process of choosing the major suppliers. But when we talk about execution (purchasing), it makes sense to blend procurement into the overall supply chain group.



¹ This message was part of ChainLink's founding principles over a decade ago

If we look at the big picture, we know that teams need to work jointly to get the best possible outcomes. These capabilities are frequently provided seamlessly in today's supply-chain tech solutions, unifying these multi-functional tasks. And, today, we are beginning to solve what were *unreachable* optimization opportunities in the past. For example: network optimization challenges can focus on cross-task issues like trade-offs between economic order quantities and inbound dock availability, warehouse space, and other factors that impact inventory investments; or supplier performance and its impact on customer service levels. As we know, supplier reliability, availability, or shortages often becomes the hot topic in the S&OP meetings.

PLM/NPI and Supply Chain Integrate

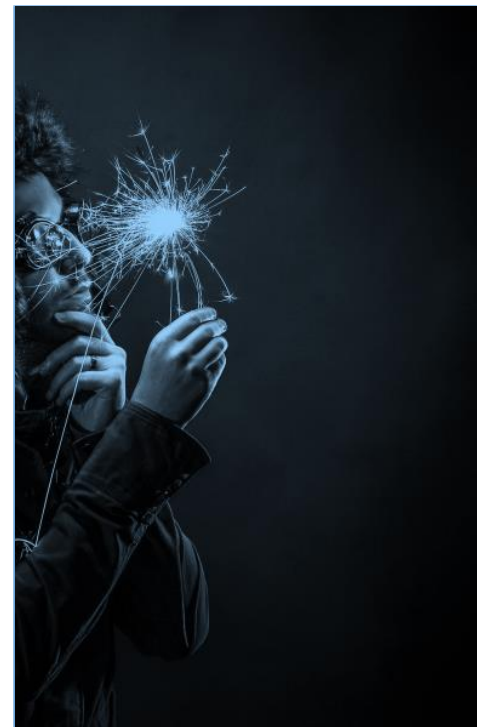
I recently heard some NPI examples that really hit home the need to tightly integrate PLM/NPI with supply chain. A US producer/brand company changed their look and logo and began producing and shipping with the new look. But somewhere along the way they never included using up the \$800,000 worth of existing packaging before the new launch. The supply chain team, naturally, had all this data in inventory systems, but no one thought to ask.

In another example, a firm with a new product release never checked to see that their channels had over \$3 million worth of sellable inventory! What was the plan to promote, discount, plan a smarter release date (or other useful ideas) to make sure it was not written off? They didn't have one.

We are all familiar with product launches, supplier risks, and poor demand assessment as companies design and bring new products to market: poor design for manufacturability or service; in design, not using interchangeable/reusable components in other products (which reduces inventory risk if certain products don't sell well);² and, of course, single sourcing and depending on risky/unreliable suppliers. We have all lived through these.

And then there is just getting the market demand all wrong. I was hired by a VP who told me I was to build a forecasting system as one of my major responsibilities. He had made demand planning one of his most important priorities, since the company had invested \$650 million in a new facility to add capacity for a market that never was!

Retail has plenty of that lack of NPI integration with their logistics partners. For example, retailers may source only from Asia without consulting with the logistics team on how to increase cycle time in the case of an uptick in demand or congestion in west coast ports. Of course, many retailers avoid congestion by pulling inventory in months ahead of the season,



² With one client in high tech, the engineers ruled for many years, designing all new components every time they developed a new model. Excess/obsolete inventory was huge. Once we got the appropriate parties from supply chain and engineering together in a workshop, we worked out a plan to evaluate and use common components wherever we could. They saved over \$100M in inventory annually due to this change.

incurring expensive warehouse space, lengthening product cycles, and paying premium transportation costs. Ouch! Yet, integration often reveals that there are plenty of viable suppliers in the Western Hemisphere.³

To avoid these pitfalls, we are seeing more supply-chain pros partnering cross-functionally with the product side and *having their say* in a lot of the NPI and PLM processes instead of being an afterthought.

Mergers & Acquisitions Talks to Supply Chain

Sometimes the *CEO will actually request that supply chain* do MEIO/logistics network optimization to determine if an asset is worth acquiring from the supply-chain vantage point or in determining consolidation or closing of plants.⁴ Gauging the valuation of an acquisition can be faulty if the value of partners, channels, and effective operations are not understood, what to say of poor assessment of inventory valuations.

The *old way* was to call in the supply chain optimizing team *after* the acquisition. The *new way* is to let them find some important attributes of the enterprise and opportunities for improvements that can be gained post-merger. As well, they can report on any programs in process that are or will be netting important results, to ensure those continue to be funded. (It frequently takes the new team a really loooooonngg time to figure out that some of the work going on in the acquired company is very important.)

Marketing and Supply Chain

This is an area that can really gain converts to the supply-chain way of thinking. One of the experiences we had is illustrative. As we arrived at the headquarters of global leader in their category in the EU for an engagement, the company was going through a BIG transformation. There were several change teams. The marketing team was determining which product and/or product lines to cancel. I asked what the criteria were. Of course demand, but also product profit. I asked to join that team. Our client, the CEO, said you can be on any initiative if it helps you accomplish the goals we have set out for your team. It took a bit to convince the marketing director, but I reminded him my team was there to optimize supply chain costs and see if we could turn some product with weak margins into a winner. And we did.

Over time I have had a lot of converts to this way of thinking. Here again, supply chain platform approaches and machine learning allow these kinds of analyses to be done.

CSR—Social and Environmental Responsibility and Supply Risk Gain Acceptance

Here is an issue close to many of our hearts. And though we have a long way to go, the younger generation of business leaders is thinking more globally, is more in tune to the concerns of consumers, and has empathy for overseas workers and the environment. Consumers, and, therefore, governments, are demanding greater transparency in the chain. Many consumers want to know that workers are treated fairly and that the sources of ingredients are pure.

³ The risk of relying on single supplier markets was always there, but, now, with uncertain trade relations across the world, companies are rethinking their strategies.

⁴ Read [Thinking Anew](#).

In a dynamic world, new contract manufacturers and suppliers pop up quickly. Knowing who they are and gauging their compliance to values, as well as assessing the business risk has been a challenge. Here, leveraging technology is beginning to pay off. As mentioned above, sourcing and procurement, supply chain, and the quality function more often partner around these concerns. Integration with the testing firms and those who are on the ground doing audits is part of supply chain platforms.

The Big Three—Trends Driving the Ecosystems of Today

Our conclusions from primary research/interviews with executives⁵ across several industries have allowed us to consolidate the trends and the challenges companies are facing and how they are addressing their opportunities. These trends, in many ways, are interrelated. Many times they are not exclusive to supply chain, but are also drivers in many other functions in the enterprise and the broader ecosystems in which they operate.

TREND 1—Orchestrations and Collaboration

We are experiencing a *hyperdynamism of partnering*. Due to the ability for *discovery and connectivity*, we can rapidly form relationships with other players. This dynamic coupling is enabled by the web. But to successfully share and trade in these relationships, we need to quickly establish credentials, trust, connectivity, and exchange goods, services, and cash. This might be a one-off exchange or the beginning of a beautiful friendship.

Systems have to secure support; then these hyper-speed dynamics can provide connection, integration, availability, viable contracts/agreements, visibility, traceability, and financial reliability.

And we still have and *should treasure our established partners*. We want to deepen those relationships. Often, we interoperate with these partners, creating a flow of tasks supported by workflows and other technology that allows for visibility and seamless execution. Our service partners, whether 3PL, distributors, or suppliers, can see some of our needs and may have broader market awareness than we do. They want to, and often can, bring more to the table, adding value to our operations. This is a huge opportunity to change the dynamics of the relationship between partners into one of *real collaboration and joint value*, rather than a commodity relationship or power play.⁶

TREND 2—Trillion-Node Network

The buzz is about digitalization of the supply chain. But, as is typical with buzzwords, the depth of what this means gets rapidly lost. Everyone's in the act, messaging digitization, from the EDI companies on up to more modern tech. But the driving force behind digitalization is a lot more than EDI.

⁵ In addition to formal research projects, our attendance at several important supply chain conferences allowed us to gather additional interviews.

⁶ Read the [Digital Supply Chains series](#).



Digitalization is not talking about only enterprises and their transactions, but people, things, *environments, and every person and thing connected—trillions of nodes!* Sellers want to know about buyers; manufacturers want to know about products; transporters want to know about routes; we want to track our miles, our calorie count, our budgets, and find new markets and locations in which to place our products, and so much more.

There is a profusion of applications sprouting, whether in software suites, mobile, or devices engineered for one specific task that leverage IoT/sensors, providing enriched end-to-end information, even [augmented reality](#). We now face the challenge of developing the systems and analytics to process all that data and make real sense out of it. How do we leverage that trillion-node network to create a *digital chain*?

Going Digital Chain—the Data

The data. It's really BIG, and often unstructured. We are only beginning to understand these new data sources and what they mean. Temporal data exists in every form within the physical chain—not just the environment, weather, and such. Every move in the warehouse, on the transport route, or the movement of customers in the store tells us a lot: *They all walked over and looked at the sale rack, but nobody bought. Hmm, looks like marketing got them there, but the pricing or product was wrong. Or they came to the store but could not find the product. It looks like we should have had end caps, or we did not have enough inventory for the promotion.* Most traditional systems don't collect this data. However, these are the golden nuggets for continuous improvement, for sales/market growth, and for traceability chains with integrity. Seeking definitive answers to these and so many other questions leverages the unstructured and temporal data, data external to the enterprise, or the data source that you never thought about before.⁷

Connecting the trillion-node network is meaningless unless you can understand the data. That will require a holistic stack—from devices with sensors to communications over every medium (GPS, wireless, internet), and fixed equipment. It will also require a myriad of systems that

⁷ Read [Multi-party and Network Solutions for Supply Chain](#)

sense the data, interpret it through machine learning, analyze it, and then execute on it through traditional execution software and by leveraging intelligent agents.

Going Digital Chain—Cyber Security

Few want to talk about this, but none of the digitalization is going to achieve much if your systems are hacked, or malware is embedded in the computer chips, or trade secrets or customer lists are stolen.⁸ And whatever you hear in the press today is only the tip of the iceberg. Security is not an afterthought.⁹ [Security is the challenge](#) of our times. If built in *during* system and process design, security can ensure a resilient business process. And with everything connected, IoT integration fears are high that rogue tech will disrupt processes and even endanger lives.¹⁰



Going Digital Chain—Don't Just Integrate, Interoperate

Sending and receiving data is *so 20th Century!* I hear many organizations thinking about more EDI/feeds. OK, do that. Improving the current lack of standards-based integration is good, but it is just the beginning. Perhaps there is a more progressive approach, leaping completely over the old model to leverage a sharable platform which reflects the kind of *joint processes we are actually operating!*

⁸ [The Challenge of the Decade—Cyber Security](#)

⁹ [Supply Chain Risk Management](#)

¹⁰ Go to: [A Framework for Securing the Industrial Internet of Things.](#)

Web services like REST and SOAP,¹¹ operational supply chain networks/shared platforms, and, yes, API, workflows, social/visual, and B2B/P2P¹² methods allow the *fusion of processes*, rather than disjointed, time-lagging transactional approaches.

As virtualization of business models is becoming more creative—and taking on more risk—we have become very dependent on one another for success. Hence, our technology and our human relationships have to be harmonious.

TREND 3—the Human Factor: Work Force Transformation

Organizational dynamics are driving workforce change. For some it is re-invigorating. But for others change is accompanied by [displacement](#) and frustration. Companies are often ill prepared to deal with the challenges that they—and their employees—are facing.

AI gets a lot of the press, of course. Society may not be ready for all that is technologically possible and governments are surely ill-prepared¹³ for the impact on municipalities of autonomous vehicles, drones, deeper surveillance and the blow-back from privacy and cyber breaches. Organizations, often stealthily, are implementing sensing and analytics, knowing that it makes some customers very uncomfortable.

Machine learning and developing intelligent agents is becoming an accepted idea within supply chain leadership,¹⁴ though clearly it is a journey. Automation and so-called autonomous won't easily be achieved and it won't happen without risks and a (sometimes painful) learning curve.¹⁵



OK, there is a generational shift. Baby boomers are retiring en masse and [millennials](#) are joining the ranks of leadership, *and*, at the same time, millions of new different types of jobs are being created. That's a lot of squeeze—and hours—for those who are working to keep up. Yet scant preparation is being made in many corporations with poor or no training and little time for those retiring to mentor the newcomers. Compounding this, over 50% of employees report their organization has no succession plans for when they retire. Year upon year, supply chain managers report that hiring and retaining employees is their most important issue. Clearly this is one of the issues driving the interest in AI. But even the AI experts say that machine learning needs people to learn from!

¹¹ Simple Object Access Protocol (SOAP) and Representational State Transfer (REST)

¹² Read [Business Transformed!](#)

¹³ [Will AI Bring Another Gilded Age?](#)

¹⁴ [The Rise And Fall of the Demand Planner](#)

¹⁵ [The Supply Chain Planning Department of the Future](#)

Conclusion—Irresistible Force: Our Future

We are hurtling towards the future whether we are prepared or not.

After all, what choice do we have? The question is, then, *how much control do we really have?* A lot of the political upheaval manifesting in a variety of cultures, in many ways, represents this resistance or sense of powerlessness in the face of modernity and technology. The challenge is how do we get good information and more opportunity to the larger body of people?

Great information has the potential to change societies for the better. Who we are influences how we work and even what products are made and what strategies our firm follows. Thus, corporations will change, too. We can *predict that the very structure of corporations will continue to evolve* as it has with each major technology shift.

Ecosystems of enterprises are beginning to adopt and operate more and more on intelligent multi-party networks, running shared processes, and creating a knowledge-rich resource for learning and operating our supply chains. These have to be trusted knowledge networks in order to thrive. Not only do they have to be secure, but they will have to produce pretty good answers in order for us to let go of the controls and let the system do some of the deciding.





321 Walnut Street, Suite 442
Newton, MA 02460-1927
617-762-4040

Email: info@CLResearch.com

Web: www.ChainLinkResearch.com