

# Don't Believe the Great Software Fallacy Planning and Execution are Not Two Different Things

By Joe Bellini, COO One Network Enterprises



*Do planning and execution need to be two separate applications based on business need, or is the separation really a limitation of today's legacy software architectures? In fact, isn't keeping them separate actually hurting business? Why reinforce silos? How much better would your business perform with a unified approach?*

Let's think about what is really happening in today's supply chain network ecosystems. Overall, the ecosystem is rewarded when an end consumer purchases a product or service. Let's call this "time zero" or the "moment of truth". Now let's travel backward in time from time zero through our supply network – to the hours prior to purchase - days, weeks, months, and even years.

Earlier in my career, my team developed massive 3 to 5-year simulations for large manufacturing, distribution, and retail companies. In order to properly structure the supply network required to deliver, for example, on the mix of vehicles and options needed to achieve a brand plan for an automotive company, we had to create hundreds of thousands of representative vehicle orders to roll up to the simulation so that we could actually generate the upstream parts demand through the network as well as the downstream profitability models and dealer allocations based on option take rates. With the simulation we were able to finalize capital planning as well as our supplier contract capacity and risk models. There was no separation of planning and execution. It was all about delivering a supply network capability that would capitalize on the market opportunity - selling specific vehicles to specific individuals in specific geo-demographic regions.

## SPROUTING APPLICATIONS: ONE (OR MORE) FOR EVERY TIME HORIZON

This world of optimizing business and running as a continuum across all time horizons, delivering to both customers and shareholders, only existed in the simulation. After that, unified thinking experienced a serious breakdown! Once we moved across time from a multi-year to an annual timescale, the software industry gave us separate applications like Integrated Business Planning (IBP) and Sales and Operations Planning (S&OP). And then as we moved closer to the "moment of truth" they told us we had to start using yet another set of applications called Sales and Operations Execution (S&OE) software, along with other order and execution level systems.

### What is Industry 4.0

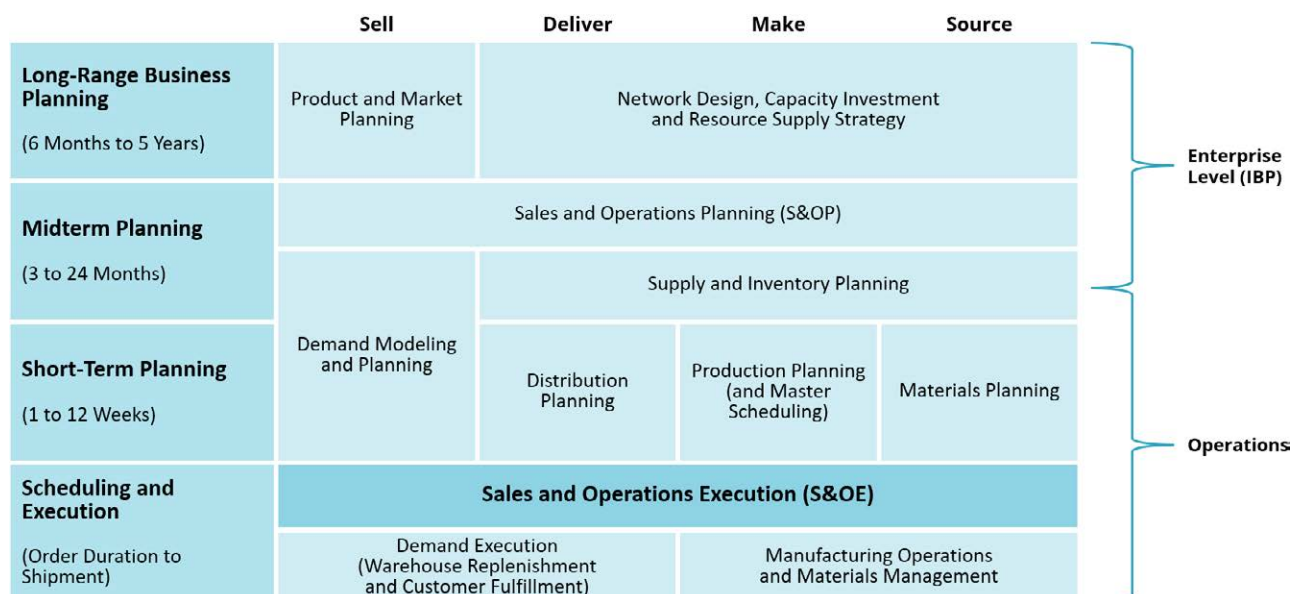
"Leading companies are looking to disruptive technologies for their next horizon of performance improvement. Many are starting to experiment with technologies such as machine-to-machine digital connectivity (the Industrial Internet of Things), artificial intelligence (AI), machine learning, advanced automation, robotics, and additive manufacturing. The impact of this shift is expected to be so transformative that it is commonly referred to as the fourth industrial revolution, or Industry 4.0." – McKinsey.

Next, we had to try and reconcile planning and execution systems on a continuous basis. We ended up creating an entire stream of "busy work" that added no real value, being a function of our own system dysfunction. To make matters worse, most times this reconciliation was done on dozens of separate spreadsheets.

Given today's world of supply network ecosystems, pulling planning and execution apart into two different systems makes absolutely no sense whatsoever. As stated by top consulting firms, like McKinsey in Industry 4.0, the full potential of a supply network is realized when a company can achieve a fully digital supply network ecosystem, both vertically and horizontally, moving toward "Lot Size 1."

"Lot Size 1" is the concept of a single item quantity for an order that may already be sold, the exact opposite of mass production. With Lot Size 1 thinking, dramatic reductions in finished goods and WIP inventory throughout the supply chain can be achieved, so huge amounts of locked-up capital become free to do more productive things. That's in direct contrast with the current "Lot Size Really Big" approach for manufacturers who are looking to keep unit cost down with large batches – at the expense of enormous inventory costs because products are stored in large quantities at multiple locations up and down the supply chain.

## The proliferation of data, systems, and workflow silos



### THE REALITY IS THERE'S ONLY ONE ORDER. OVER TIME IT CHANGES STATE

What is really happening is that your Lot Size 1 (which is eventually how the entire supply chain network ecosystem makes its money at the moment of truth) is really just changing state based on how far back you are in executing your workflow when compared to time zero at consumption. In my large manufacturing example:

- In the 3 to 5-year period we can view the order state as **simulated**
- 1 to 2 years the order state is **planned**
- 3 to 12 months it is **forecast**
- Depending on network lead times, months 1 and 2 are **firm orders**
- The final weeks, days, and hours are where the order is **executed, delivered, and consumed**

How and when a company decides to change order state is up to them and unique to their business. The important point is that **there shouldn't be multiple versions of the same order in multiple systems** when all that is happening is that the order is changing state. Believing that this is a normal state of affairs is the Great Software Fallacy. Rather, this complication is due to poor system design in the first place, perpetuates current technology and process silos, and severely limits the flexibility required to remain competitive in the future.

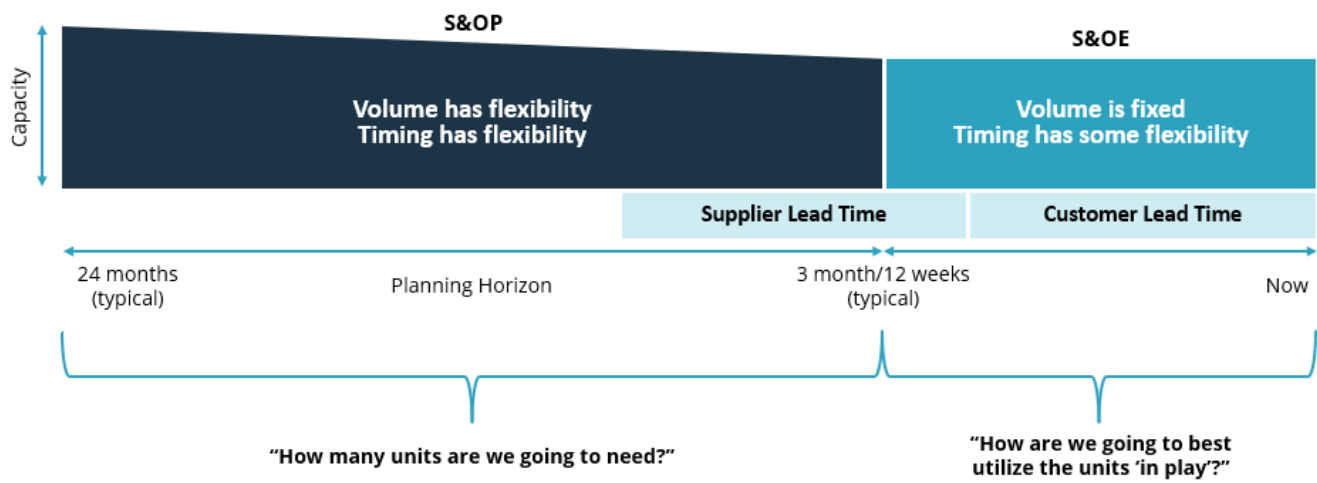
#### Impact of Supply Chain 4.0

"Eliminating today's digital waste and adopting new technologies is a major lever to increase the operational effectiveness of supply chains. The potential impact in the next two to three years is huge - up to 30% lower operational costs and a reduction of 75% in lost sales while decreasing inventories by up to 75% are expected, at the same time increasing the agility of the supply chains significantly." – McKinsey.

Think about how archaic certain designs are that we use today. Case in point is the three-way match. When we order and receive, we are forced to match the PO, to the receipt, to the invoice. These are three different transactions in three different systems to complete a simple procure to pay process. In reality this is all the same order/transaction with three different states.

Wouldn't it be better to just represent the transaction once and update the state while all parties had the right permissions and roles to interact with the transaction? Now extend this line of thought across your multi-party business network and you can begin to understand how much "busy work" our legacy platforms have created for us at the process level – because of system limitations. The good news is that it becomes unnecessary with today's network-based business operating systems.

## Industry 4.0 will see traditional models like this one “shift right” as time lags are eliminated and customer, supplier, and manufacturing lead times compress



### BENEFITS OF STATE THINKING AND A NETWORK APPROACH

A significant benefit of State Thinking is the shared data model across your business network. Through roles and permissions, your trading partners have visibility to real-time data without the data actually having to move in and out of a data warehouse. Thus, you enjoy a multi-party, many-to-many network architecture based on a highly secure and globally federated shared-data model. You eliminate all the inefficiency of hub and spoke, point-to-point trading connections, along with the master data model mess of multiple ERP instances.

Professionals whose job function is focused more on what is traditionally known as planning or execution need not worry. Today with supply chain network technology we can treat the problem as it really exists: How to maximize market share, capital investment, revenue, volume, margin, and customer service based on an expanded set of choices using real time information across the trading partners represented in your network. The result is a supply network ecosystem that benefits all parties while being driven by end-consumer demand.

Certain network service-based features and functions, like roll up/down attributes, are more helpful let's say a year up to a few months prior to consumption as compared to days, and even hours. The specific network services required will be determined by workflow “day in the life” and targeted outcomes, not some artificial software barrier between planning and execution.

Such network services are currently available across intelligent demand, supply, logistics, and fulfillment and drive value whether your workflow is to support process two years out from consumption or two hours.

### EXECUTION IS THE OPPORTUNITY TO CAPITALIZE ON MARKET OPPORTUNITIES

I recently attended an analyst conference where a speaker was positioning that execution existed only to deliver the plan given the plan was designed to deliver the desired result. This line of thinking leads to planned “over investment” in execution, in terms of inventory, capacity, and operating expense, because no one wants to be responsible for not being able to deliver to the plan. The limitation here was a software application capability, not the folks involved in the process.

A key tenet in Industry 4.0 is to bring forward disruptive business models that shake up the competition. Execution is an opportunity to continue to capitalize on market opportunities as they evolve, not just deliver on a plan that's bound to vary given all the factors involved in the planning process.

A demand driven value network based on a single version of truth, driven by end consumer consumption that is shared in real time across all relevant trading partners in the network, provides the ability to meet and beat any plan. It also simultaneously lowers inventory, capacity, and operating expenses.

Remember as you move upstream in the supply network certain trading partners are making guesses on your final mix and volume needs, given the lead times involved in both information transfer as well as physical distribution. And even when you finalize your volume and mix let's say 7 to 14 days prior to delivery, we know consumption will be different than predicted at the "moment of truth". Sharing real time data and predictive analytics with your network prior to any physical production, or when tier 2/ tier 1 are executing while other downstream tiers are still planning, is extremely valuable. It enables partners to incorporate these lastminute shifts into their plans and production, reducing disconnects and better aligning supply to actual demand.

## INCREMENTAL AND CONTINUOUS PLANNING IS POSSIBLE TODAY

You may be thinking that incremental and continuous planning across your supply network on a real time basis would be too much for your planners and schedulers to handle given all the potential opportunities for improvement - whether we are 12 months out or one hour from consumption. This is where artificial intelligence (AI) and intelligent agents come into play. They work in conjunction with planners, making decisions based on well-defined KPI guardrails, while more complex decisions are pushed to the planner workbench.

You may also encounter scare tactics by the traditional ERP vendors where they say that you can't treat execution similar to planning because frequent change would be too disruptive to the supply chain network.

This is really a limitation of their own software because their only option is to re-plan the entire network. What you really need is the ability to view your overall trading partner network as a series of subnetworks where you can fix problems locally, regardless of how far back in time they are identified, whether over a traditional planning timeframe or an execution timeframe. Subnets enable you to resolve issues efficiently without disrupting the rest of the network.

## EXPAND YOUR SET OF NETWORK CHOICES

In summary, don't let yourself be marginalized by the analysts and software vendors. What really matters is (1) having increased visibility to real market demand -- regardless of how far back from time zero your workflow operates; and (2) having an increased set of network choices to either capitalize on new opportunities or resolve planning and execution problems.

Letting someone tell you that you need separate applications for long range planning up to 5 years or mid-term planning up to 3 months or short term planning up to 12 weeks or scheduling and execution for order through shipment makes no sense. Transactions need only be represented once in an Industry 4.0 level supply chain network with trading partners collaborating across the network as the transaction moves forward in time and eventually reaches its final state as consumed... with 100% on-time and in-full performance at the lowest possible cost.



### About the Author

Joe Bellini is Chief Operating Officer at One Network Enterprises. Joe's experience extends across some of today's leading technology companies, including General Electric, HP/EDS, Brooks Automation, IRI, R1 and Oracle. Joe was granted patents in Supply Chain Planning and is the co-author of the business strategy book, "The Real-Time Enterprise." Joe holds degrees in Mechanical Engineering, Applied Mathematics and Statistics, is an alumnus of Harvard Business School, and is certified in Artificial Intelligence and Machine Learning from the MIT Sloan School.





## ABOUT ONE NETWORK

One Network is the intelligent business platform for autonomous supply chain management. Powered by NEO, One Network's machine learning and intelligent agent technology, this multi-party digital platform delivers rapid results at a fraction of the cost of legacy solutions. The platform includes modular, adaptable industry solutions for multi-party business that help companies lower costs, improve service levels and run more efficiently, with less waste. This SaaS and aPaaS platform enables leading global organizations to achieve dramatic supply chain network benefits and efficiencies across their ecosystem of business partners. One Network offers developer tools that allow organizations to design, build and run multi-party applications. Leading global organizations have joined One Network, helping to transform industries like Retail, Food Service, Consumer Goods, Automotive, Healthcare, Public Sector, Defense and Logistics. To date, more than 75,000 companies have joined One Network's Real Time Value Network™ (RTVN™). Headquartered in Dallas, One Network also has offices in Japan, Europe, and India. For more information, please visit [www.onenetwork.com](http://www.onenetwork.com).



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