

CORA

End-to-end Supply Chain Orchestration

White Paper



Abstract

This white paper will look at the challenges posed by the need to synchronize your supply chain, and is divided into three parts. It begins with a hypothetical use case, identifying some of the specific problems that managing your supply chain throws up. It then looks at the many solutions that technology is increasingly providing us with to help us address those challenges. Before concluding by exploring the specific elements needed if the software you use to coordinate your internal processes is to help you bridge that gap, between what you are currently doing and what you need to be doing.

A woman wearing a blue hard hat and a green safety vest is shown in profile, looking at a tablet device. She is standing on a construction site, with a blurred background of industrial structures and a warm, golden sunset sky. The scene is captured in a cinematic style with soft lighting.

1. Defense is the best form of attack

Building a new manufacturing plant

Operational savings of 6.8% annually in supply chain costs, coupled with a 7.7% revenue increase.”¹

Even before the events of the last few years, there was a growing feeling of impending doom around the global supply chain. A sense that frictionless globalization was not the new normal, but merely the calm before a soon-to-arrive storm. After all, supply chains can be disrupted by anything from extreme weather conditions to industrial disputes. Or, indeed, from a global pandemic and the return to war on mainland Europe.

Broadly speaking, the supply chain moves through four stages. You; plan, source, make and deliver. And the decisions you take at each of the different stages will depend on what the best way is to maximize your margins and increase revenues.

What's the right balance between predicted demand and available

supply of materials? Between costs and the level of service you'd like to provide? Between your current and planned portfolio options? All of which is perfectly manageable in theory, but becomes much more challenging once you get down to the nitty gritty of putting all of that into practice.

Take the building of a new manufacturing plant in the pharmaceutical sector. There's the principal contractor, the owner, that the parent company engages to oversee the project. And then there are all the various subcontractors that the owner then teams up with. So there's a large engineering and or construction firm, which teams up with, and ends up depending on, a huge number and a wide variety of manufacturing entities.

Manufacturing resources

Manufacturing resources can be divided into three elements; materials, physical assets and labor. There are all the materials and parts you need to bring to your location; the machines and equipment you need to put them all together; and the people you need there to make everything happen. And when it comes to constructing a new manufacturing plant from the ground up, there are a plethora of parts, materials and machines required.

You've to plan for and organize electricity and water, both for the construction and the subsequent operating of the building. Then there are the various storage areas and units, the light fittings, and any sprinklers and ceiling diffusers that might be needed, and all their parts and materials. And all the paraphernalia around the chemical and scientific processes that the plant is going to facilitate, together with an internal communication network to manage all the data that that produces. Not to mention all the

structural steel and miscellaneous iron needed for the building and its parts.

All of which needs to be perfectly coordinated. If, say, the steel frame needed to mount your building around hasn't arrived because of an industrial dispute in Michigan, then all the activity that had been planned for that week will have to be postponed. And all the people and machinery that were booked off for that week will have to be paid, without doing any of the work they were contracted for. Which will delay the whole project, increase its costs and could easily result in penalties. All of which will significantly reduce your margins.

The reason so many firms fail to realise their potential, and often end up getting into financial difficulty, is because they place far too much store on the physical activity that goes on around the project. In other words, on that one, particular week. When they should be putting just as much energy and care into all the weeks and months that went on before.

It's a bit like being in charge of a soccer team and putting all your time and effort into goalscoring. Yes, that's how you measure success. But goals are the end product of a process that began considerably earlier. You begin with the keeper and your defense. Before putting in place a midfield who will give structure to your team as a whole and inject that vital shot of creativity. All of which

will combine to feed your strikers with the opportunities they need to score those all-important goals.

There's no point turning up on site to proudly watch your new manufacturing plant being constructed if you haven't made sure that all the materials and machinery needed to build it are there for the people you've contracted to make it for you.



2. Connecting the dots

5G, 4IR, and the Internet of Things

“Smart logistics connects the physical shipment and information flow between suppliers, manufacturers, distributors and customers interactively”¹

Before we start looking at how technology is transforming the way the supply chain operates, we need to begin by unpicking some of the jargon. The Internet of Things (IoT) are what the 4th Industrial Revolution (4IR) produces. Basically, they are things that are smart in the same way that your phone is now. And 5G is the network of tentacles that will make all that possible.

So the IoT is to 5G what the web is to the Internet. Terms that are used interchangeably but have slightly different meanings. The web is made up of the pages we look at, while the Internet provides the structures that connect them. Similarly, the IoT are the bits and pieces, the stuff, and 5G is how they're all being connected.

We are none of us sure what all this is going to look like in our daily lives. But in the world of business, the many benefits are already being seen. And nowhere more clearly than in the way the supply chain operates. In a word, more and more of the individual elements that make up the supply chain are being rendered smart. With smart factories feeding into smart distribution networks. So;

“Smart logistics connects the physical shipment and information flow between suppliers, manufacturers, distributors and customers interactively and in near-real time, building on supply chain transparency and integrated planning.”¹

1. <https://www.pwc.com/gx/en/industrial-manufacturing/digital-supply-chain/supply-chain-2025.pdf>

The control tower

What that means in terms of how manufacturing operates is a fundamental re-imagining as to how businesses need to be structured. With the result that the 21st century supply chain moves not in one, but in two directions.

There is the traditional, circular flow of parts and products, that move physically from manufacturer to supplier, distributor, customer, and back. But increasingly, there is also the flow of data from a central ‘control tower’ that sits in the middle of all of that (see diagram on next page).

What does all that look like in the real world? Take that steel frame needed for the building of that new manufacturing plant. Now, once its parts have been loaded on to the lorries needed to transport it out of Michigan, the moment those parts leave the premises, a notification is activated through the geolocation chips on the parts themselves. And a message is delivered, by the steel, to all the other parts and pieces that are needed to get it constructed, once it arrives at its destination.

Once those screws, widgets and all the corrugated iron and wood

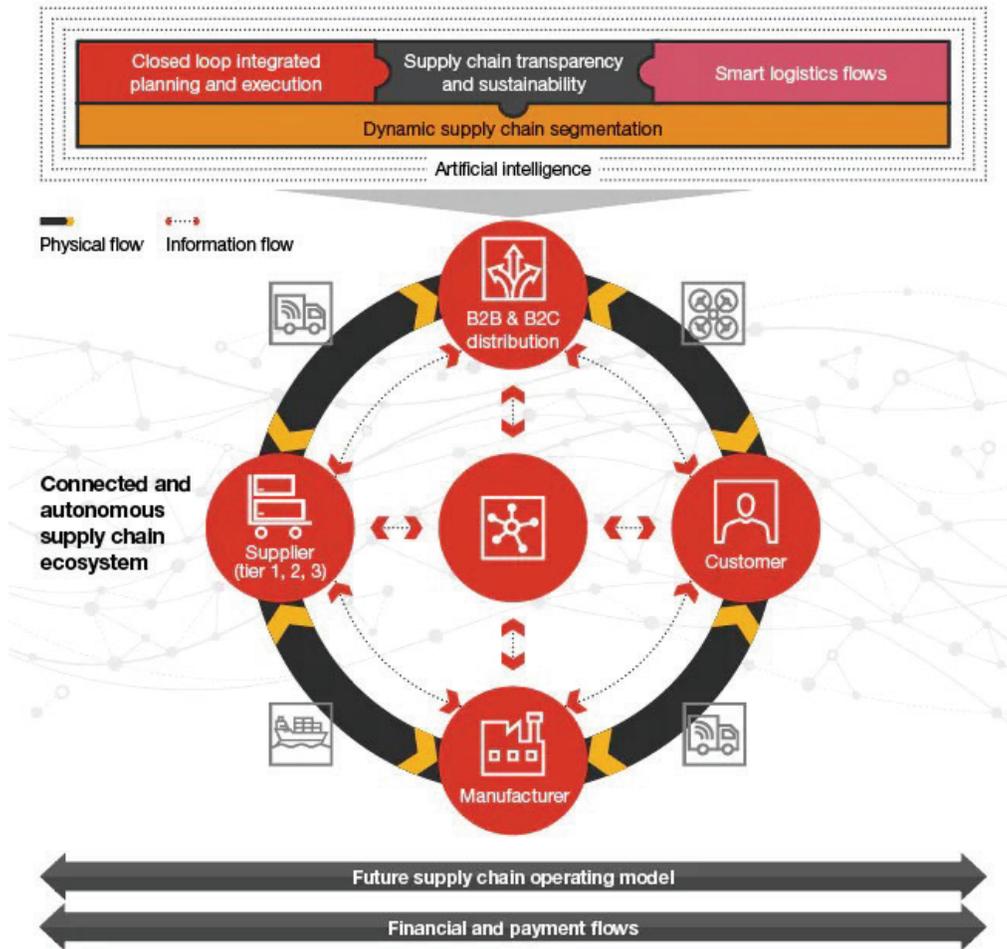
required have been notified, by the actual steel, they themselves then deliver their own message, triggering actions from the machinery and materials that they depend on. The delivery trucks, cranes, fork lifts and any further materials. Which then trigger yet more instructions.

At the same time, all the human managers and operators are receiving and monitoring all the messaging that’s going back and forth, from all the parts and machinery, and are all being kept permanently up to date. So they can monitor what’s been triggered, and where it is in the sequence, to make sure that everything is proceeding in the order that it is supposed to be.

Is all of that happening today, as we speak? Not yet. But some of it is, and much more will be happening very soon. Thanks to the continuous improvements that are being made by artificial intelligence (AI) processes, through the likes of machine learning and natural language processing. So increasingly, supply chains are;

“not just automated but autonomous — able to act with limited human intervention — and ultimately self-orchestrating.” ¹

Overview of a connected and autonomous supply chain ecosystem



1. <https://www.pwc.com/gx/en/industrial-manufacturing/digital-supply-chain/supply-chain-2025.pdf>

This is not a caveat

Apart from “it’s finally happening, the machines are coming to get us...”, your instinctive response to all of which might be, but surely all that opens the whole process up to all sorts of accidents and errors? What if there’s a technical glitch, and the steel frame orders 400 fork lift trucks to be there on site, instead of the 4 needed?

But the fact of the matter is, people today make hundreds of errors just like that, all the time. Because it was drizzling as they took down their notes, or they were distracted as they transcribed their data on to their laptop. Literally all the evidence shows that machines make far fewer of those sorts of mistakes than we humans do. And as all those mechanisms and systems evolve and improve, ever better ways of monitoring and preventing all that will get incorporated into the technology.



3. Taking up the baton

Bridging the gap with your software

Not just automated but autonomous — able to act with limited human intervention — and ultimately self-orchestrating.”¹

The challenge for businesses today is bridging the gap between where they are right now and where they need to be by the end of today. The way to achieve that is by taking charge of all the data that the supply chain depends on to function. And the mechanism that makes that possible is the software you use to centralize and coordinate all your data.

What your software does is to let you take charge of all the data going in and out of the ‘control tower’. Effectively, it means you become the ‘control tower’.

Up until recently, all planning was based on what had happened in the past, and was conducted individually, in silos within the company. But the visibility and centralized control that the increasingly sophisticated software packages make possible, means you can factor in market dynamics and any number of forward-looking elements into your forecasts and planning.

Specifically, your software makes everything that’s going on throughout your supply chain visible, through the likes of Gantt charts and graphs. This provides you with a constant stream of status updates that keeps you up to speed, in real time. Which gives you the ability to conduct Critical Path Analysis, so you can better plan and execute the order of events in terms of their importance. All of which will hugely improve your Strategic Capacity Management.

This means a company can look up one of its projects anywhere in, say, its North American field operation, to see exactly how that project is progressing. And because all the relevant documents and data are instantaneously accessible, it can evaluate its financial health and assess risk mitigation measures on an ongoing basis. Which means it can precisely chart the project’s progress and manage the resources needed to ensure its speedy and successful conclusion.

1. <https://www.pwc.com/gx/en/industrial-manufacturing/digital-supply-chain/supply-chain-2025.pdf>

Coordinating all your resources

So your ability to effectively coordinate those three key resources, of materials, physical assets and labor, will be massively improved. Ensuring that each of their different elements are perfectly matched, and making delays, penalties and lost time a thing of the past.

Because the ability to orchestrate all your data, and in real time, will significantly and quantifiably improve your capacity for risk management. That in turn will decrease your costs, improve employee productivity and significantly increase revenues. Which is very much the conclusion PwC comes to in their paper, **[Connected and Autonomous Supply Chain Ecosystems 2025](#)**.

They look at and survey over 1,600 companies, dividing them into Digital Novices, Followers, Innovators and Champions, with the latter accounting for 9% of the total number of companies looked at. And what they find is that the benefits reaped by Digital Champions, those companies who are most readily embracing technology today, are;

“Operational savings of 6.8% annually in supply chain costs, coupled with a 7.7% revenue increase.” ¹

How you achieve that is by taking charge of the ‘control tower’ that governs all your data. And what you do that with is your software.

1. <https://www.pwc.com/gx/en/industrial-manufacturing/digital-supply-chain/supply-chain-2025.pdf>



About Cora Systems

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Special Notes

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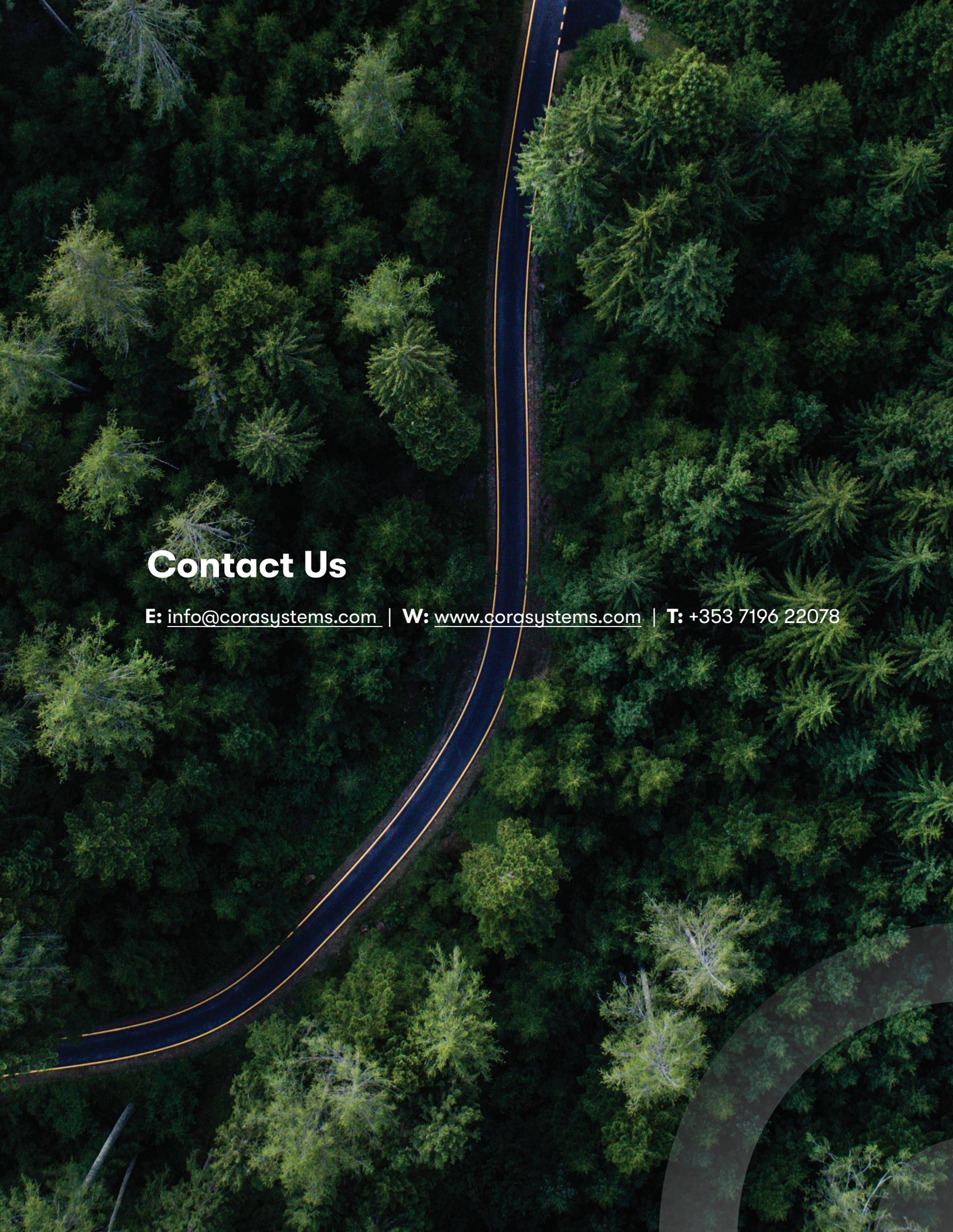
Cora Systems

Mercantile Plaza,
Bridge Lane,
Carrick-on-Shannon,
Co Leitrim,
Rep. of Ireland

Tel: +353 71 96 22078

Email: info@corasystems.com

Title: End-to-end Supply Chain
Orchestration

An aerial photograph of a winding asphalt road with yellow double lines, curving through a dense forest of tall evergreen trees. The road starts at the top center and curves downwards and to the left, then back towards the center. The forest is lush and green, with some trees showing signs of being dead or dormant. The overall scene is serene and natural.

Contact Us

E: info@corasystems.com | **W:** www.corasystems.com | **T:** +353 7196 22078