

WHITE PAPER

Integration

How to Succeed in a Complex World



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Building a digitized supply chain using integrated communications tools can make you more competitive.

If you want an efficient supply chain, you need to take control of those connections and the communication among them.

Supply chain and logistics management has always been complex. Many moving parts – from procurement to production and demand planning, transportation, warehousing and final delivery to the end customer – make the number of connections almost endless. If you want an efficient supply chain, you need to take control of those connections and the communication among them.

The Covid-19 pandemic has underlined **the critical importance of visibility**, connectivity and communication in supply chain operations. Companies that have **good visibility** into what's happening throughout their supply chain – whether on the far side of the globe or around the corner – are the ones that have been able to adapt and keep up with rapidly changing circumstances.

These successful operators are **gaining that insight by digitizing**. Recent research confirms that **companies using digital tools to manage their operations are far more likely to have successfully navigated the rough supply chain waters** created by disruption¹. By contrast, those relying

on outdated methods increasingly find themselves left behind and unable to compete.

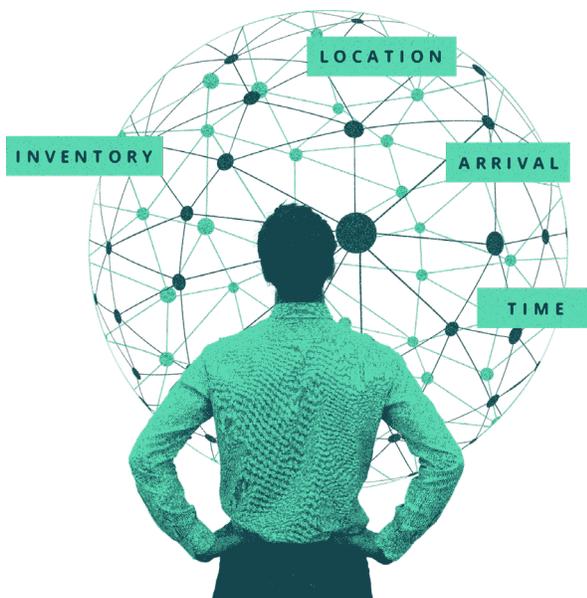
“Scheduling, coordinating, and communicating among multiple, geographically dispersed pick-up and drop-off sites requires a robust information systems infrastructure that demands ongoing maintenance,”² says professor Michael Houghton from the Wilfrid Laurier University Lazaridis School of Business & Economics.

This paper looks at some **legacy methods and tools that are no longer ideal** for use in current complex supply chain operations. Then we look at what it means to deploy integrated digital tools. We illustrate the benefits and look at how companies use integrated scheduling tools to extract the maximum efficiency from their existing assets. Finally, we emphasize the need for organizations to adopt the right digital tools for the current environment.

How Things Have Changed

Operations have evolved a long way since the concept of supply chain logistics began. Originally, the term logistics was used to apply to the movement and management of military troops and assets as they became larger and more complex³.

While the date the concept came into being is a matter of debate, one thing is certain: it was long before the digital era – think back to the Roman Empire⁴, which was founded and expanded on the success of its military. The first logisticians relied on paper maps for transportation planning, ledger books for record-keeping and dispatch riders for communications.





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*- Michael Haughton,
Professor at the Wilfrid Laurier
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Business & Economics.*

Planning would be a long, laborious process and the leaders out in the field would have to be prepared for long lapses in communication to and from headquarters. They'd have to be able to change plans on the fly, without confirmation from HQ, and hope they made the right choice. Flying blind is a very apt descriptor for this type of logistics operation.

Mechanization and Automation

The 20th century was when mechanized and automated systems emerged to manage logistics operations. Transportation improved with the growth of rail, and shipping was revolutionized in the 1950s with the development of the shipping container. Trade expanded as a result, and companies began to need more sophisticated means to keep track of what they bought and where and when it was due to arrive.

These needs spawned the beginning of a tech revolution that continues today. But up until the 1960s and '70s, record-keeping remained paper-based. Then the dawn of the golden age of computing began to transform the ways logistics were managed. Spreadsheets were an early tool that came with computerization, and they have endured to this day. Fax machines, a child of 1980s progress, greatly facilitated logistics operations at this time as well.

As the level of information companies needed to manage grew, so did the appetite for massive, one-size-fits-all software solutions. The concept of removing silos between departments was all the rage. The notion was that a single system across the whole company would streamline operations by facilitating inter-departmental communications. If sales and engineering – for example – could share data, the theory went, then some of the friction and time lost thanks to poor internal communication lines could be eliminated.

Coming into their prime from the early 2000s through about 2010, these enterprise systems offered a single platform that would manage IT needs across multiple departments. They encompassed everything from procurement, supply chain and logistics to sales, operations and product design. They were standalone systems that required considerable customization for each company's unique needs. They also represented a significant capital expenditure for big users, while offering much less utility for smaller companies.

Now the IT world has changed again. With the advent of [cloud computing](#) in the first decade of the 21st century, the need for these cumbersome, enterprise systems began to wane. When developers realized that they could create small, light and nimble apps that would reside in the cloud and be available on-demand, it was no longer self-evident that a single system could do every job needed.

Plus, the additional complexity of supply chain operations meant the enterprise systems were becoming even bulkier. The [growth of e-commerce](#), the [Internet of Things](#) and [faster fulfillment requirements](#) opened the door to a new kind system – [best-of-breed software as a service](#) (SaaS).

IN-TE-GRA-TION

*The art of enabling
different applications to
communicate with
each other seamlessly.*

IT Explosion

It was in the 1990s, however, that information technology really exploded. With a combination of spreadsheets and map-based applications, companies could more quickly and accurately plan and track logistics processes. The Internet, which was officially 'born' in 1983⁵, quickly

took on an important role in managing communications, as it allowed computers on different networks to share information.

“

Companies are trending towards using some best-of-breed products rather than going for these one-stop shops like they used to. In the early 2000s, these vast solutions were costly to implement and really drained a lot of resources. So companies are trending more towards these smaller developers that offer products more tailored to the exact requirement they're looking for.”

But that in turn definitely increases the need for tighter integration between systems. So rather than having a single big platform that sort of responds to your requirements, it's already integrated together. Companies are really looking towards these smaller products that answer their requirements, and that's really increasing the need for integration between these smaller platforms.”

- Marc Tomkinson

Vice President Product Development
at C3 Solutions.



If your purchasing, warehouse management and scheduling apps can't talk to each other then you are only halfway down the digitization road, and halfway isn't competitive.

Integration: The Way Forward

The world of logistics management has come a long way in a few years, and if you're not using the latest techniques to drive the best performance from your operation, you run the risk of falling behind, losing business and becoming cost-inefficient.

For the purposes of this paper, we are going to focus on one pain point that many companies share – the interface between the [warehouse or fulfillment centre and transportation](#) links. For most such operations, it's the loading docks that create the bottlenecks, errors and frustration that lead to delays, and ultimately unhappy customers.

There are many moving parts that constrain in a loading and unloading operation – inbound and outbound trucking, orders inbound and those outbound waiting to be filled, the number of docks, the number of hours in a day, the type of load and equipment needed to move it, the labour required to move it, and more, like weather and equipment breakdowns. If keeping these all organized is part of your responsibility, you know what a challenge it can be.

You especially know this if you are managing with spreadsheets, phone calls, and emails. It's a massive juggling act that can go south with even one little glitch – like a driver who's late with a load. Suddenly, everything cascades and [you're dealing with chaos](#). First, there's downtime and staff are twiddling their thumbs. Then, trucks are arriving and there's nowhere to park, and now you don't have the personnel inside the DC to unload the trailer and put the goods away. Truckers are getting testy, and your customers start calling about their orders because they're not going out on time.

A Better Way

Fortunately, it doesn't have to be this way. Solutions exist that can solve your scheduling problems, while seamlessly communicating with the rest of your company's systems.

It's no longer enough to simply have a single, bloated system [only partly meeting your needs](#), nor will it work to deploy a set of disparate systems running your operations. If your purchasing, warehouse management and scheduling apps can't talk to each other then you are only halfway down the digitization road, and halfway isn't competitive.

That's why you need to ensure that your apps can communicate with each other and with your suppliers and customers.

Integration among them is critical to effective operations.



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Integration is really not even an option; it has to be done,” Braun says. “If we are going to give our customers the biggest benefit, so they can take advantage of our best-of-breed capabilities, you have to get that flow of information to have a seamless transfer between systems.”

*- Greg Braun,
Chief Revenue Officer at C3
Solutions.*

The Benefits

We sat down with Tomkinson and colleague Greg Braun, C3 Solutions’s Chief Revenue Officer to discuss the advantages to using apps that can integrate, such as [C3 Reservations](#) - C3’s dock scheduling solution.

“Integration is really not even an option; it has to be done,” Braun says. “If we are going to give our customers the biggest benefit, so they can take advantage of our best-of-breed capabilities, you have to get that flow of information to have a seamless transfer between systems.”

Braun and Tomkinson explain the benefits of having a scheduling system that talks nicely to the other apps it interacts with:

1. It Saves Time for the Carrier and People Using the Portal.

“When a carrier puts in a purchase order, if we’re integrated properly, we know what the buyer’s expected date on that is,” Braun says. “With that information, it means we can limit the windows for delivery, and eliminate all the back and forth over scheduling.”

Tomkinson adds that eliminating the need for multiple data entries saves time across the board.

2. It Reduces Risk.

With the tendency for employees to hop from job to job these days, it also helps to prevent the loss of critical knowledge and skills. “You sometimes lose a lot of knowledge that can leave when these keepers and the other key users can leave your company,” Tomkinson notes.

“Building these modules that integrate your systems can reduce the risk of losing people that will leave with the knowledge of how to actually make the two systems work together. So building integration modules can certainly alleviate that risk or business system.”

3. It Helps to Enhance Data Accuracy and Carrier Compliance.

“If you’re not integrated, you’re relying on carriers to give you data,” Braun says, which leads to accuracy and compliance issues.

4. It Improves Your Ability to Forecast.

“Being able to centralize your data allows you to do a lot more [forecasting](#) because you can gather information from a WMS as much as your TMS, as much as our own dock scheduling system, and integrate all that data together,” Tomkinson says. “You’ll be able to get much deeper insights into that information than if we’re just looking at each piece of information independently. So getting that broader picture of your entire supply chain processes and systems gives you that ability.”

5. It Increases the Granularity of Data Available About Shipments.

“Normally a purchase order, that’s got, let’s say 10 lines on it, wouldn’t include much detail, just the number of cases. But with integration, it’s possible to have access to all the information that the carrier actually has, including the number of SKUs, and other details. So if there’s a discrepancy, it’s possible to go back and find out in detail what is supposed to be included for every line of the PO,” Braun says.

6. It Allows The Identification of Priority Products.

“A real strategic benefit is being able to recognize priority products,” Braun adds. When a shipper is short on a product or has a promotion on it, in the past they would have had to manually update their POs to identify those SKUs.

But with an integrated system, all they have to do is share the hot SKUs for the week, and the system will automatically flag it because it has rules built in to highlight them. Then that PO will go to the top of the list, or receive special treatment because

that's what the shipper has requested.

"The shipper or the carrier doesn't even know this and they don't need to know this, but we'll be able to build this intelligence into it so that just by virtue of the fact that they gave me that PO number, I was able to establish through integration this is actually priority product," Braun notes. "Rather than that product being delayed because we were already more or less fully booked, we've created a special capacity. And there's no worry that it will be short-stocked.

So to me, that's one of the key benefits of having that level of integration. With us getting that visibility, we're able to make all these special exceptions and really leverage the business rules."

Getting There

Integrating is not complicated. It does take a bit of work to understand your requirements, but that's true of any IT project.

"You don't have to have extreme IT or technical capabilities to be able to integrate systems together; you do have to have some skills," Tomkinson says. "It's not just 'plug and play', press two buttons and you're all set."

Before you start you need to know your requirements and the state of your data. Define your use cases, and be sure you have staff dedicated to ensuring a smooth startup.

Tomkinson points out that it's quite common, especially with smaller companies, for there to be "garbage" in the data. "You can build the best integration module in the world. But if you're sending garbage to it, you're not going to get the result that you're expecting," he says. To avoid that it's necessary to make sure your data is clean and up to date.

It's also critical that the IT department is looped in. They need to be able to allow the traffic and ensure that security requirements are respected, especially if you're going to

be integrating legacy systems that sit behind your corporate firewalls, Tomkinson advises.

Finally, be prepared to test and test some more. There will always be edge cases and scenarios that you're not necessarily prepared for, so you will need to rethink them. "Don't assume that the platform is going to respond to your requirements out of the box on day one," Tomkinson says. "You'll need to have staff assigned to validate that the integration works as you're expecting."

And while you can expect your integration to work smoothly once it's tested, don't forget that like any piece of critical equipment, it may need to be maintained. "As technology changes, your requirements may evolve over the years. So you want to keep that open channel and make sure it still responds to your requirements as the business evolves," Tomkinson notes. "You want to make sure you don't get caught later down the road with an integration module that just no longer responds to the requirements of your evolved business."

If all this sounds like a lot, don't worry. **C3's integration and business specialists** are there to do as much of the work as you need them to. As Tomkinson points out, "a lot of our customers just don't have the in-house staff to develop integration modules."

And because it is not off the shelf, he adds that C3 offers its own services to simplify and streamline projects. "We find it's just a better approach. It ensures that we meet our deadlines because we have staff on hand that know our platform, know the industry, and understand the concept."

Once the integrations are put into operation, Tomkinson says customers are delighted. "A lot of the feedback we get, especially if we do the work, is the simplicity of the process. They can rely on the expertise of staff that has years of experience building these types of integration modules."

Success Stories

Once users have a chance to experience the benefits that an integrated scheduling system brings, it tends to generate ideas for new integrations. Tomkinson and Braun shared a few examples.

Originally C3 would only integrate purchase orders in its platform. But that scope has been expanding. “Now customers are even starting to ask us to integrate their scheduling data to be able to do better forecasting, scenario evaluations,” Tomkinson says.

“So their hunger for more integration points and pieces of data that they want to integrate is growing. And our approach to integration has always been, if the human can do it at the UI, there should be a system.”

Major Retailer

A major Canadian retailer adopted C3’s Reservations to manage the dock doors at its many big box stores across the country. These stores typically have three or four doors at the back of each store, moving product in regularly. As Braun says, “you’ll always see a truck back there”. Every one of those trucks is scheduled in using C3’s system. “But what’s interesting is they didn’t start out using integration,” he says. “They adopted it after they realized the improved results they could achieve.”

Hub and Spoke

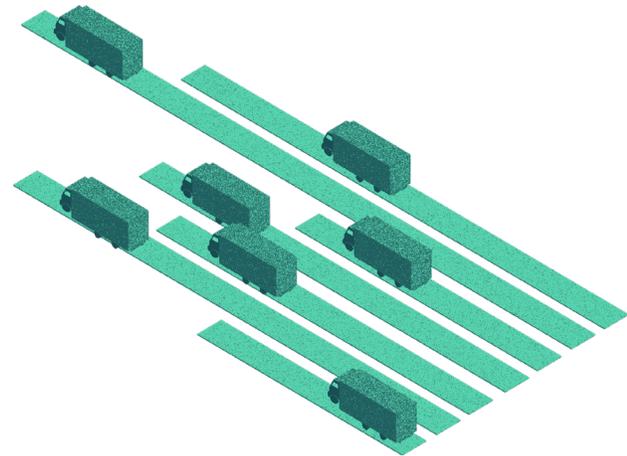
In this example, the C3 system acts as the communication hub linking the user’s security system, their WMS, and loads that are being completed. Tomkinson takes up the story: “We understand when vehicles cross the gate in and out. We understand when loads are started and released, and C3 serves as the proxy between all of these platforms. None of the platforms can speak together. We sit in the center – they talk to us, we talk back to others. **We serve as a bridge** if you want, between multiple systems that were independent before.”

Tomkinson adds that this was one of the more complex integrations C3 has done, and after about 18 months it’s been “an awesome success story”.

Adapting to Now

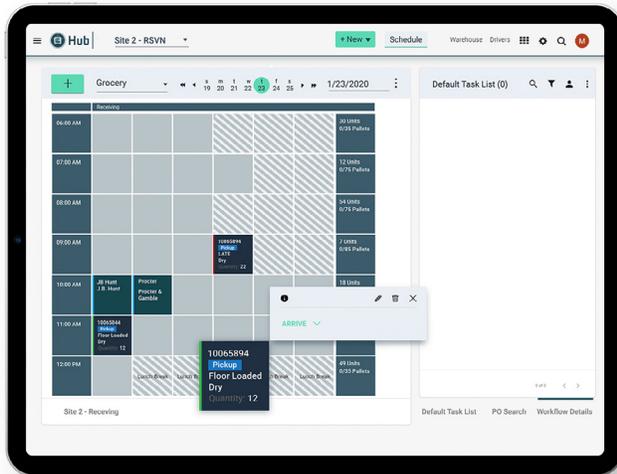
The **pace of change in 2021 is unprecedented**. In fact, it’s suggested that more digital transformation has taken place in the past 12 months than in the last 10 years⁶. This means two things for businesses competing in the logistics sector.

First, the opportunities for a digital makeover of your business have never been better. From 5G, to artificial intelligence, to cloud-based as-a-service apps and robotics, plus many more, the range of options and their sophistication is increasing exponentially. Tech buyers have a wealth of choices when it comes to selecting an upgrade path.



On the other hand – and here’s the second implication – the increasing capabilities of new data-driven tech mean that your competition is also getting better. In fact, they can be going leaps and bounds past you if you do not act promptly to adopt the tech you need to stay ahead.

This is not to suggest you should hop on every trend; the consequences of a bad



Reservations

choice can be catastrophic, with lost productivity and wasted investment of time and money. Plus you'll fall even further behind, since once you realize your choice didn't work, you'll be starting over, specifying new needs.

We don't mean to alarm anybody. You've read this far because you know that **you need to upgrade, you need to compete and you need to act now.**

That's where C3 can help. As we've outlined here, (and in our other whitepapers and blogs on the topic) integrating your scheduling system offers many benefits. You're not just scheduling, with integration you are managing, you are leveraging all the data available to create new information and opportunities. Integration offers next-level communications capabilities and with that you gain unprecedented visibility and control over your time-critical operations.

If that sounds like something you would like to do in your business, please get in touch. [Click here](#) to book your customized demo with a C3 expert today!

Integration: How to Succeed
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With All of the Recent Industry Disruptions, Do You Feel in Control of Your Supply Chain?



WHITE PAPER

Dealing with Disruption: 5 Ways the Supply Chain is Being Redefined

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Recap

The benefits of using apps that can integrate, such as C3's Dock Scheduling Software, C3 Reservations:

- ★ It Saves Time for the Carrier and People Using the Portal. Offer curbside pickup.
- ★ It Reduces Risk.
- ★ It Helps to Enhance Data Accuracy and Carrier Compliance.
- ★ It Improves Your Ability to Forecast.
- ★ It Increases the Granularity of Data Available About Shipments.

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