



# White Paper

How to achieve supply chain visibility and the benefits it brings to your business.

*“The supply chain is really tricky stuff” – Elon Musk.*

The supply chain has never before carried such strategic importance. With supply chains getting bigger and more complex, the need for speed ever-growing, even the most advanced organisations are all too aware of the challenges that future supply chains pose.

The supply chain doesn't just affect operational costs. As the link between you and your customer it has a dramatic impact on experience and relationships.

The supply chain's importance to a company's executive is only further substantiated by the need to reduce carbon emissions and by increasing complexity in cross-border trade.

The performance of the supply chain can have a significant impact. The Logistics Bureau cited that businesses with optimal supply chains have supply chain costs that are 15% lower, less than 50% of the inventory holdings, and cash-to-cash cycles at least three times faster than those not focused on supply chain optimisation.

As well as optimisation and reduction of costs, strategies for supply chain operators today are focused on flexibility and speed.

According to a 2019 report by Supplychain247, 30% of supply chain leaders highlight the need to respond to customer mandates for faster, more accurate and unique fulfillment as a top business priority moving forward.

Greater flexibility helps not only to satisfy customers but also, to meet challenges when they occur. These could be expected or unexpected, but a lack of flexibility reduces the ability to adapt and therefore, reduces overall robustness.

Goods today travel between multiple stakeholders via many modes of transport. With the growing number of stakeholders and processes involved challenges faced by supply chain operators are growing.

This complexity can cause significant inefficiencies across a business' supply chain. When errors occur large the number of stakeholders involved makes them harder to resolve.

SPScommerce estimates that it costs on average £100 per purchase order to manage inventory errors, track down missing paperwork, pay incorrect (or worse – fraudulent) invoices, receive inventory manually, compensate delivery delays, and more.

With the costs caused by poor transparency and the distinct lack of transparency across the supply chain also well known, it seems many are striving to improve visibility, but the means of doing so remains out of reach.

Statista reported that 21% of supply chain professionals say that achieving visibility of goods moving between stakeholders is their biggest organisational challenge.

If greater visibility was achieved, overall supply chain performance would improve. Transparency leads to improved communication, reduced paperwork, less time spent tracking down missing paperwork, etc. With a more transparent supply chain, system data accuracy would also improve helping to reduce inventory holding and improve sales.

Gaining end-to-end supply chain visibility remains a massive priority for many businesses today.

**IoT technologies have long been tipped as a solution to supply chain visibility challenges.**

The Internet of Things has long been seen as a game-changer. The ability to connect things and remotely monitor processes and spaces can offer a solution to many business challenges. The supply chain has not escaped the on-looking stare of the IoT and many of the challenges highlighted above are firmly in the sights of technology providers.

### *Challenges & opportunities:*

*When goods move from a supplier to a customer via a 3PL there is often a consolidation process. This means at least three warehouses and two transportation legs. Communication is poor, hours are wasted on administration exercises, chasing paperwork and battling disputes.*

*Businesses often rely on partners to handle their logistics. This means they are leaving the face-to-face relationship with their customer, including communication of critical events, to a dispassionate third party.*

*Connecting all stakeholders and their systems improves unilateral communication, reducing disputes, and saving time. It also enables businesses to control the communication of key events which in turn offers the opportunity to take greater ownership of the customer relationship. A secure customer messaging system also provides branded experiences and maximises free advertising opportunities.*

A connected supply chain would indeed have a significant positive impact, addressing the challenges that a lack of transparency and an increase in complexity have created. Supply chains are defined as much by the flow of data as by the flow of goods. The effective use of sensors and data will give rise to a supply chain of integrated partners, delivering value at maximum efficiency, communicating easily with a happy customer.

There are examples where IoT has improved efficiency and operational accuracy within the supply chain. However, these examples are often limited to individual stakeholders or individual sites.

The greatest challenge in achieving cross-stakeholder supply chain visibility is quite simply the fact that each stakeholder is a separate entity operating independently. It is comparatively simple to digitise a factory: the entire operation is under one roof and controlled by one organisation. A supply chain has numerous stakeholders operating in different jurisdictions, across multiple enterprise platforms and often in several languages. Creating effective connections between them is a very significant challenge.

These challenges have not prevented IoT technology providers striving to provide a solution to the challenge.

As early as 2000, Woolworths trialed RFID technology in the retail supply chain for the first time. The aim, to increase the accuracy of the audit trail and system data as goods move between sites.

At the time, the innovative project gained many plaudits, awards, and recognition, but it never really took off.

RFID technology requires infrastructure, meaning that it was only feasible to implement within the Woolworths network. Logistics partners and third party warehouses remained invisible actors within the system leading to unavoidable gaps in supply chain visibility. With the project being restricted to internal deployment the benefits were less clear and the business case for full adoption didn't stack up.

Later in the 2000s companies started experimenting with technologies such as mobile GPS tracking.

With the requirement for expensive fixed infrastructure removed this method could work outside of each stakeholder's internal network.

However, mobile devices are expensive and relatively costly to maintain. This meant that whilst they could offer truly remote monitoring they would have to be retrieved after use which, again, constrained operational feasibility significantly.

Even if the operational challenges could be overcome the costs of a homogenised, hardware-based system were, and still are, too high.

There is no doubt that IoT sensors are getting cheaper, more durable and more effective. But we are still some way off having sensors that can deliver truly remote monitoring at a price point that works and that can be embedded into the supply chain fabric without additional operational burden.

Is there an efficient way to connect all stakeholders in a supply chain and create a truly connected network?

Even without IoT, there is a huge amount of data already available within supply chains today

It is all too easy to fill a data gap with yet another discrete sensor. It is far harder to take a step back and consider the alternatives, often because they are far less visible. Across the myriad of systems in use in supply chains today there are numerous data sources. Many of these offer a path forward without need for further hardware.

When transparency between stakeholders is poor each stakeholder monopolises their own systems to facilitate the smooth running of their own operation. Retailers, manufacturers, suppliers and customers use advanced systems (ERP, WMS, OMS, etc.) to manage resources and inventory within their businesses.

The 3PL's tasked with moving goods between stakeholders also use advanced systems to optimise their networks: telematics, TMS, and PoD to name but three.

In fact more than 85% of HGVs are fitted with a telematics system today.

Each stakeholder has a clear understanding of what is happening within their respective business. Within each warehouse or factory the movement of stock, WIP and finished goods are monitored carefully. The vehicles moving between warehouse and customer are tracked using telematics systems. The IoT is already there!

If it's as simple as connecting the dots, why can't we realise true supply chain visibility?

Stakeholders are often separate entities operating independently. They will likely work with many other partners and be involved in many other supply chains. Fully integrating systems discreetly between so many individual partners is simply not viable.

Furthermore, the systems in place today operate in silos, using different protocols, especially between IoT devices. To achieve visibility of goods moving between stakeholders, not only do the systems need to talk to each other, but they need to be synchronised.

Even a business which owns the supply chain from start to finish will have synchronisation challenges across the various systems involved. For cross-stakeholder synchronisation it's virtually impossible to fully integrate.



## Entropy has found a way

At Entopy, we have studied this challenge in great detail. We have spent a lot of time in this space, looking at all types of solution, both hardware and software. We understand the stakeholder dynamic, the systems in use already, and why invasive integration between stakeholders is not viable.

To achieve cross-stakeholder visibility and unlock the benefits thereof it is clear that the silos need to be broken down. Supply chain systems must be connected and harmonised in a way that allows them to work together.



Think of an orchestra. The musicians are not working directly with one another. Instead they are following the lead of a conductor. A central point that is directing the musicians. To achieve cross-stakeholder visibility a conductor is needed. A central function capable of managing communication between stakeholders and their respective systems.

The Entopy platform does just this. Operating alongside existing enterprise software, it connects all stakeholders, physical sites, and transportation modes. The platform leverages organisational data sources, on-premises hardware and GPS-enabled goods vehicles to drive clear supply chain visibility for all stakeholders.

Standing centrally “at the conductor’s box” the platform synchronises various data inputs applying analytics to enable end-to-end visibility and automation as goods move between stakeholders.

Each system communicates directly and only to the Entopy platform. This removes the need for numerous discrete connections and maintains data integrity.

The platform can handle inputs from multiple sources and has a series of databases supported by analytics to harmonise the data collected. As an AWS-hosted platform it is scalable, secure and robust.

Within the platform, ‘virtual inventory environments’ are created using data from IoT devices (such as those fitted to HGV’s as part of the telematics system) to generate real-world coordinates for said environments.

This method allows seamless synchronisation of completely different datasets such as IoT sensors and inventory data; in other words both the warehouse manager and the customer know exactly where every box is all of the time.

The platform connects every stakeholder, their respective systems and the transportation moving goods between them.

Key events can be communicated centrally, directly to stakeholders systems or to key stakeholders. Rather than a conductor perhaps it would be better to think of the Entopy platform as a mixing desk.

This creates a number of opportunities. When goods move from a supplier to a customer via a 3PL all stakeholders have full visibility as the goods move from warehouse, to consolidation hub and to the customer. Using geofences and GPS on the HGV the platform can automate goods arrival and update the respective systems directly. If pallets are consolidated this can be communicated to the platform which will distribute the communication to all stakeholders.

With Entopy’s platform, all communication is owned by the stakeholders involved, allowing branding and customisation. Many businesses let their couriers handle delivery communications with their customers. With so many couriers involved this leads to disjointed communication, missed branding opportunities and a loss of control over customer relationship in that most important last mile. With customer experience and brand so important few businesses can really afford to allow this, but to date few alternatives have been available.

Entropy enables the business to own the delivery communication, providing a fully branded experience. Furthermore this offers unique advertising opportunities. Owning this part of the customer journey is very powerful, building brand, improving loyalty and accessing free advertising space.

The Entopy platform breaks down silos across the supply chain, connecting all systems and stakeholders and harmonising them centrally.

Improved visibility, automation of processes and improved customer and brand experience are just some of the opportunities available.

To ensure there is no burden on already scarce IT resources within each stakeholder our experts handle the platform set up in full. This is typically achieved within a matter of weeks. The platform uses a simple usage-based pricing model meaning costs are fully aligned to the value created.

Security and scalability are of course key. The Entopy platform is hosted on AWS, ensuring rapid scalability and system robustness.

The platform uses the most advanced security technologies, ensuring data can only be accessed by those with the correct permissions. Entopy acts as a trusted agent between stakeholders, sharing the data agreed and preventing cross-contamination.

Businesses using the platform today range from SMB's to large, multinational enterprises across many industries.

Those that have already achieved end-to-end supply chain visibility claim a 20% increase in operational efficiency and a positive reduction in inventory held. Administration costs are reduced, stakeholder communication is improved and the accuracy of data across all systems has increased.

Furthermore customer experience can be driven to new levels through effective communication and unique business opportunities gained through new advertising opportunities. One customer reports an uplift in NPS to >70% in just a few weeks since their deployment of Entopy's platform.

The Entopy platform offers a way to achieve cross-stakeholder visibility and to improve and control communications. It enables this at a viable price point and it can be deployed rapidly.

As supply chains get more complex, with more stakeholders and more connected devices the ability to centrally harmonise systems will be critical in enabling success.

For more information on the Entopy platform, visit [www.entopy.com](http://www.entopy.com) or contact us through [info@entopy.com](mailto:info@entopy.com).



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