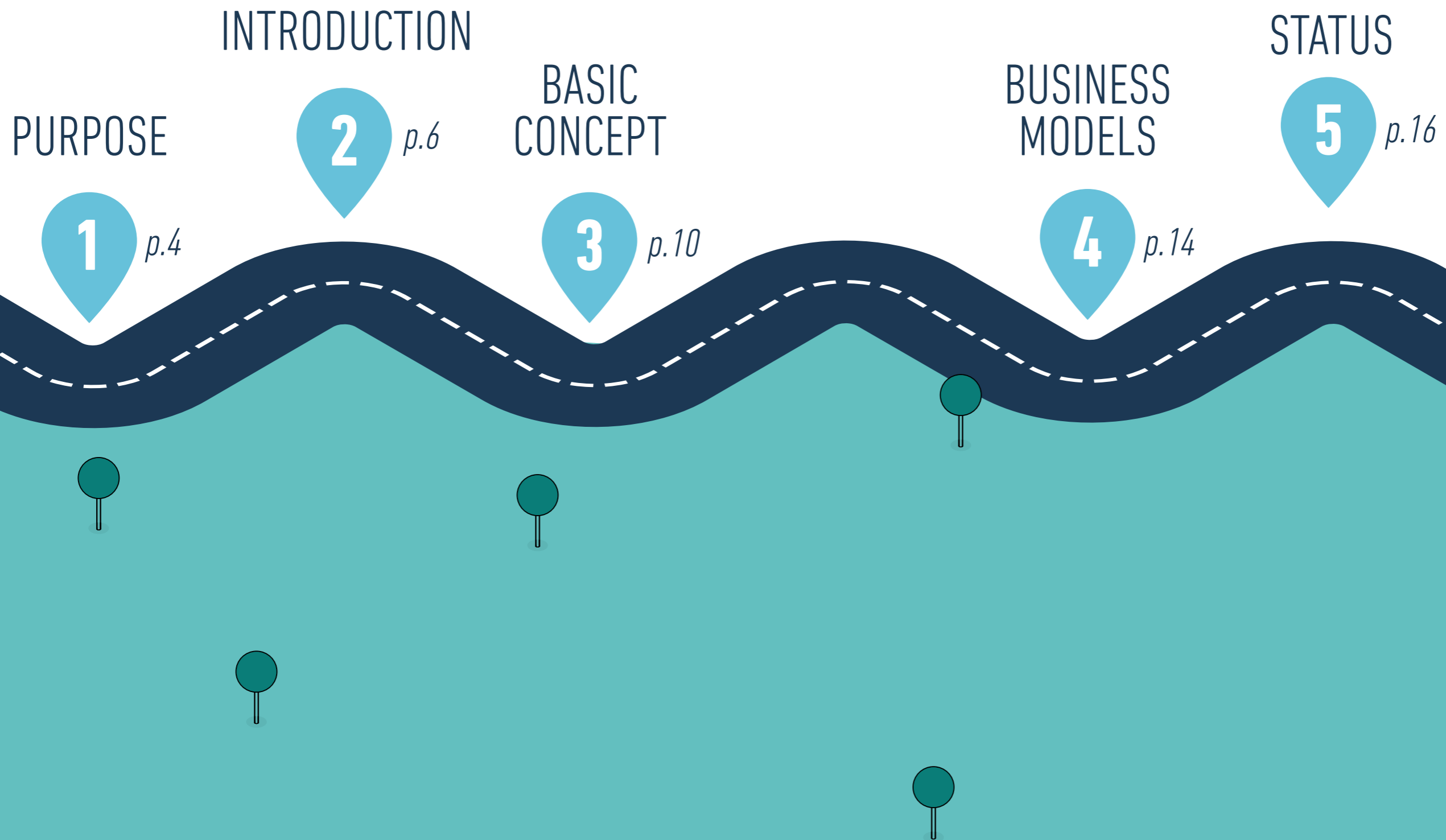# SIMPLE LINKS

INTEGRAL CONTROL OF YOUR COMPANY'S LOGISTICS THROUGH SIMPLE LINKS
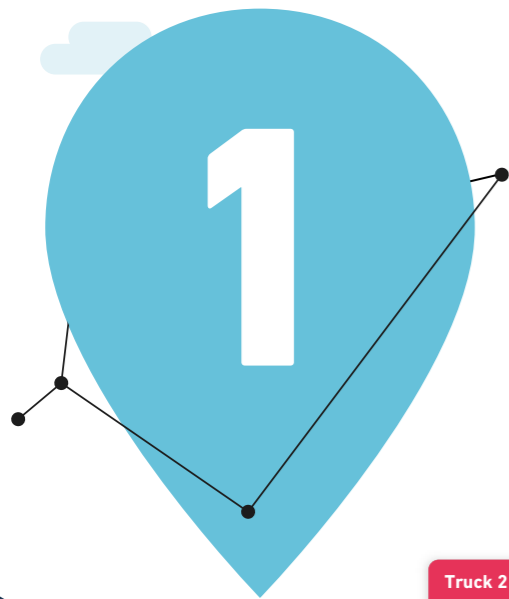

The Consumer Goods FORUM

END-TO-END VALUE CHAIN
LEARNING
SERIES
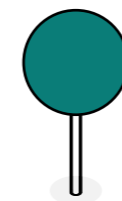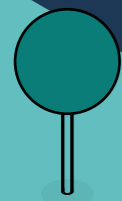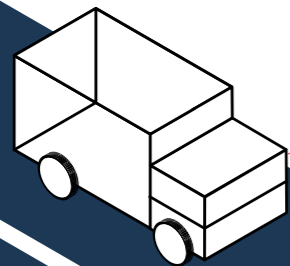INTERNET OF THINGS

- IOT

INDEX

PURPOSE

THE PURPOSE OF THIS PAPER IS TO PROVIDE **A BRIEF OVERVIEW OF THE REASONS** FOR, AND THE CONCEPTS BEHIND, SIMPLE LINKS

It is written for the benefit of consumer goods and retail firms who have already shown interest in the concept, as well as any new firms who are interested in seeing our ideas for the first time. Our intention is to provide sufficient description that we might gauge interest and subsequently build momentum accordingly, to drive creation of a viable solution for item-level real-time self monitoring for our audience companies.

Truck 2

Empty

Planned	12:00
Destination	WH 07 DOOR 1

2

INTRODUCTION

PLANT 1

Door	1
Door	2
Palette	3011
	3012

Door 1

Open
Loading

Truck 2

Empty
Loading

| Planned | 12:00 |
| Destination | WH 07 |
| | DOOR 1 |

ONE OF **THE MOST SIGNIFICANT CHALLENGES** IN CONSUMER GOODS AND RETAIL TODAY CONCERNS ITEM-LEVEL MONITORING OF GOODS

– whether high or low value, fast or slow moving, perishable or long lived. Major industry initiatives around "farm to fork" or "factory to consumer" require dramatic improvement in the business of moving goods, which in turn requires improved visibility as deep as you can go. Oftentimes that means "item-level". Today the impact of delays, theft, fraud, and poor product shipping and inventory visibility is extraordinary - the results are high cost, massive waste and an inability to truly manage the supply chain to the satisfaction of all of its participants. Monitoring of goods can solve these problems while creating opportunities to differentiate on freshness, quality, price, product availability, transparency and brand. While item-level tracking and monitoring is already available today, the costs per item are too high for a huge portion of the consumer goods inventory: the challenge lies in reducing tracking and monitoring costs to the point where it makes sense to track anything.
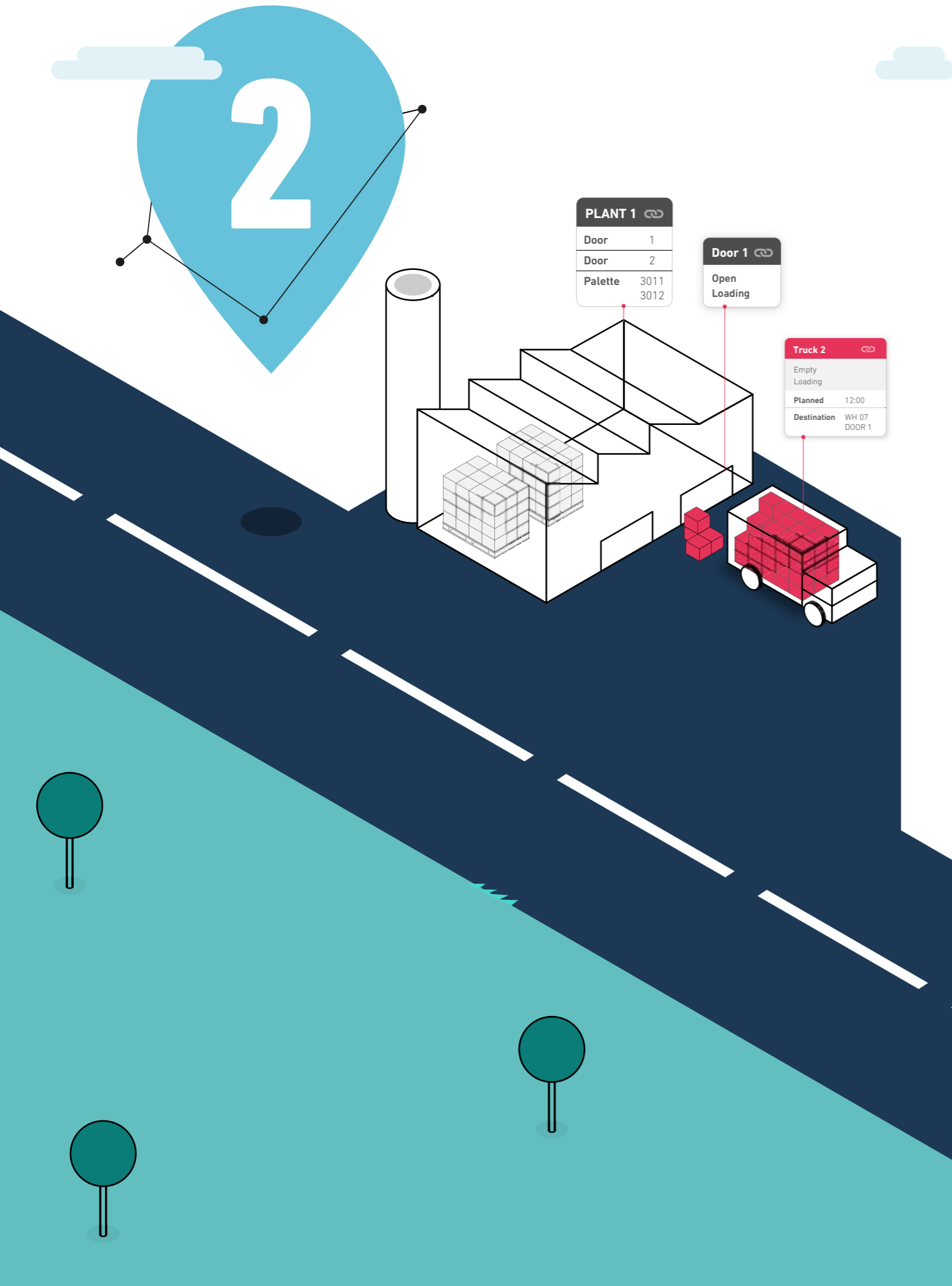
TO SOLVE THIS CHALLENGE, WE HAVE FOCUSED ON SIMPLICITY.
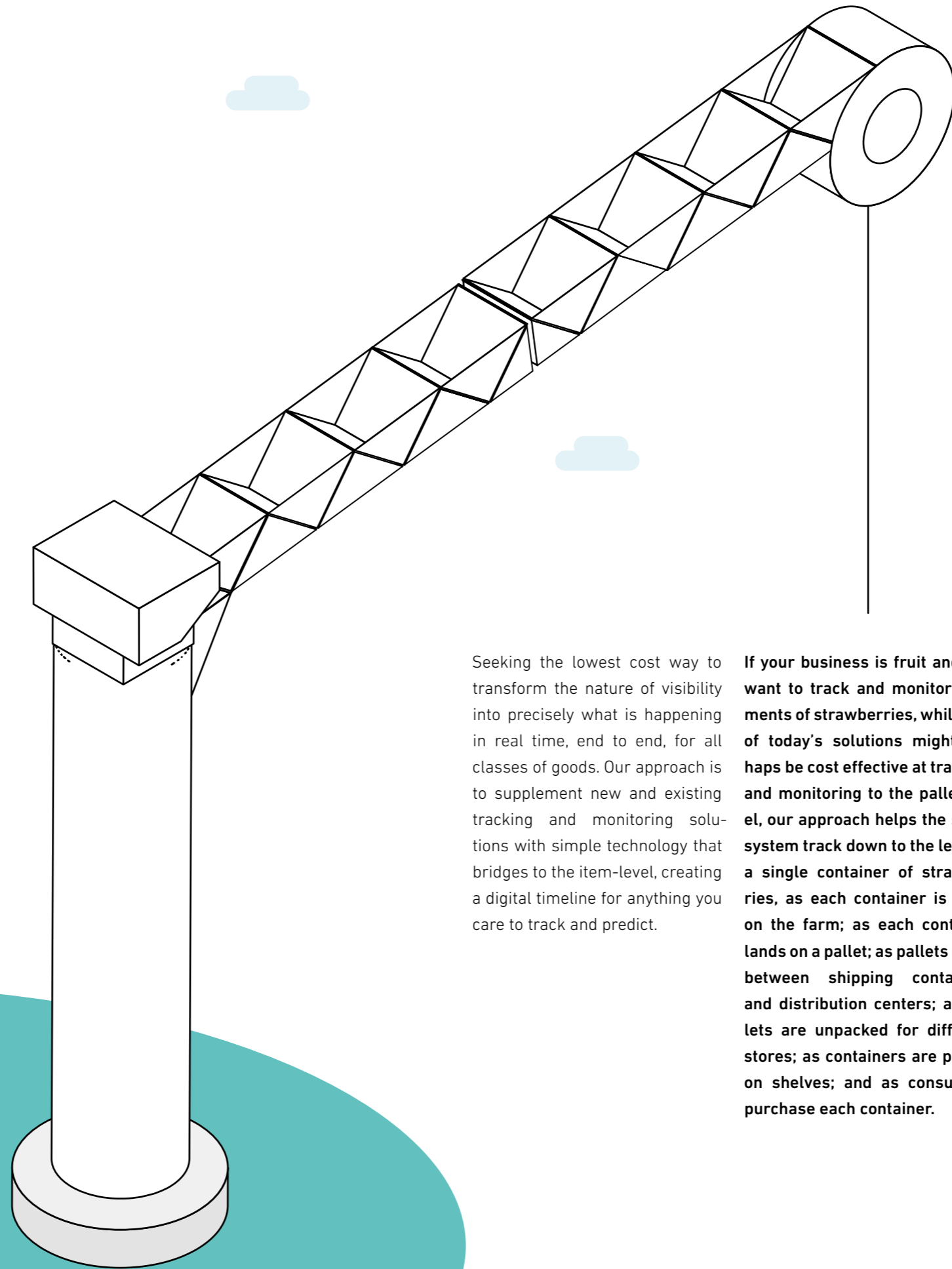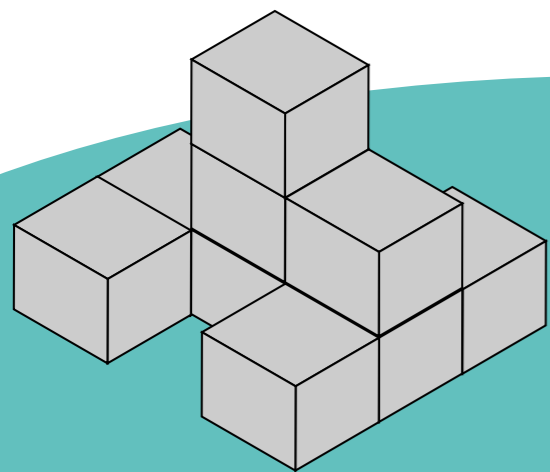
Seeking the lowest cost way to transform the nature of visibility into precisely what is happening in real time, end to end, for all classes of goods. Our approach is to supplement new and existing tracking and monitoring solutions with simple technology that bridges to the item-level, creating a digital timeline for anything you care to track and predict.

If your business is fruit and you want to track and monitor shipments of strawberries, while one of today's solutions might perhaps be cost effective at tracking and monitoring to the pallet level, our approach helps the same system track down to the level of a single container of strawberries, as each container is filled on the farm; as each container lands on a pallet; as pallets move between shipping containers and distribution centers; as pallets are unpacked for different stores; as containers are placed on shelves; and as consumers purchase each container.

Retailers will know the shelf-life of food in transit; consumers will know the origin and history of the food they are buying; entire supply chains will become more efficient, improving freshness and quality for perishables, while reducing waste, carbon footprint and cost; and entire supply chains will become closed-loops ripe for dramatic improvement in which farmers and producers can see where their products go, what happens in transit, how consumers rate their products, and what to do to improve.

3
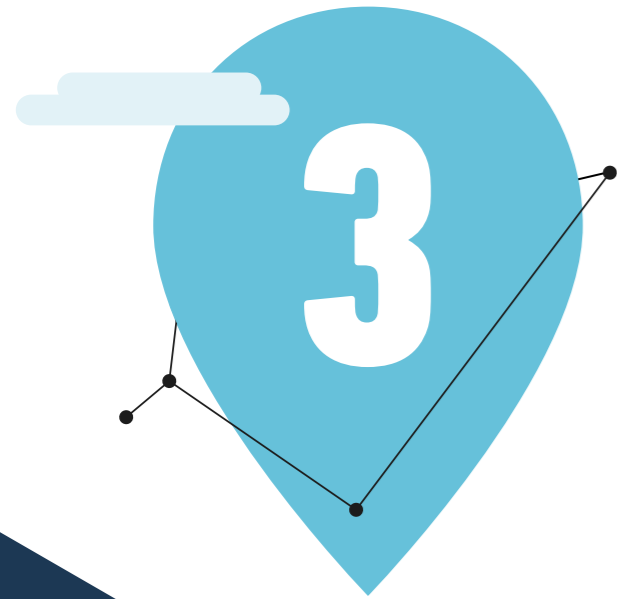
BASIC CONCEPT

THE BASIC CONCEPT OF SIMPLE LINKS **IS TO** CREATE, MANAGE AND ANALYZE DIGITAL LINKS

Truck 2

Full

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Destination	WH 07 DOOR 1
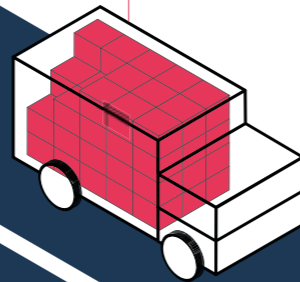
between items and their containers as a dynamic hierarchy, then to infer item-level tracking and monitoring information for any item based on searching the hierarchy for the best available track, monitor and prediction data at a given time.

THE CONCEPT IS BUILT FROM A FEW SIMPLE STEPS:

1. Mark every item with a unique identity using lowest cost technology. We propose using QR codes for item identification to create an extremely low cost, highly efficient mechanism for tagging and subsequently enquiring about an item.
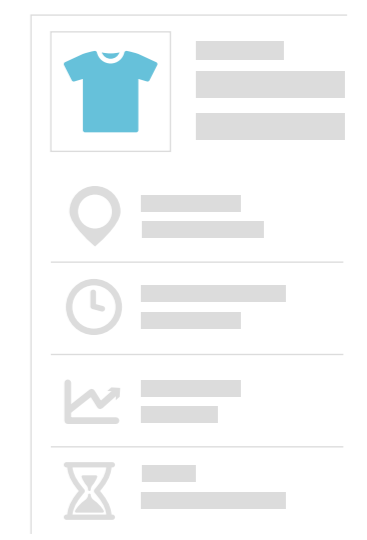
2. Capture and store information about the relationships between items and their containers. Those containers might be boxes, pallets, shipping containers, trucks, warehouses, distribution centers, ships, docks - maintaining a history of those relationships and forming a dynamic containment hierarchy.
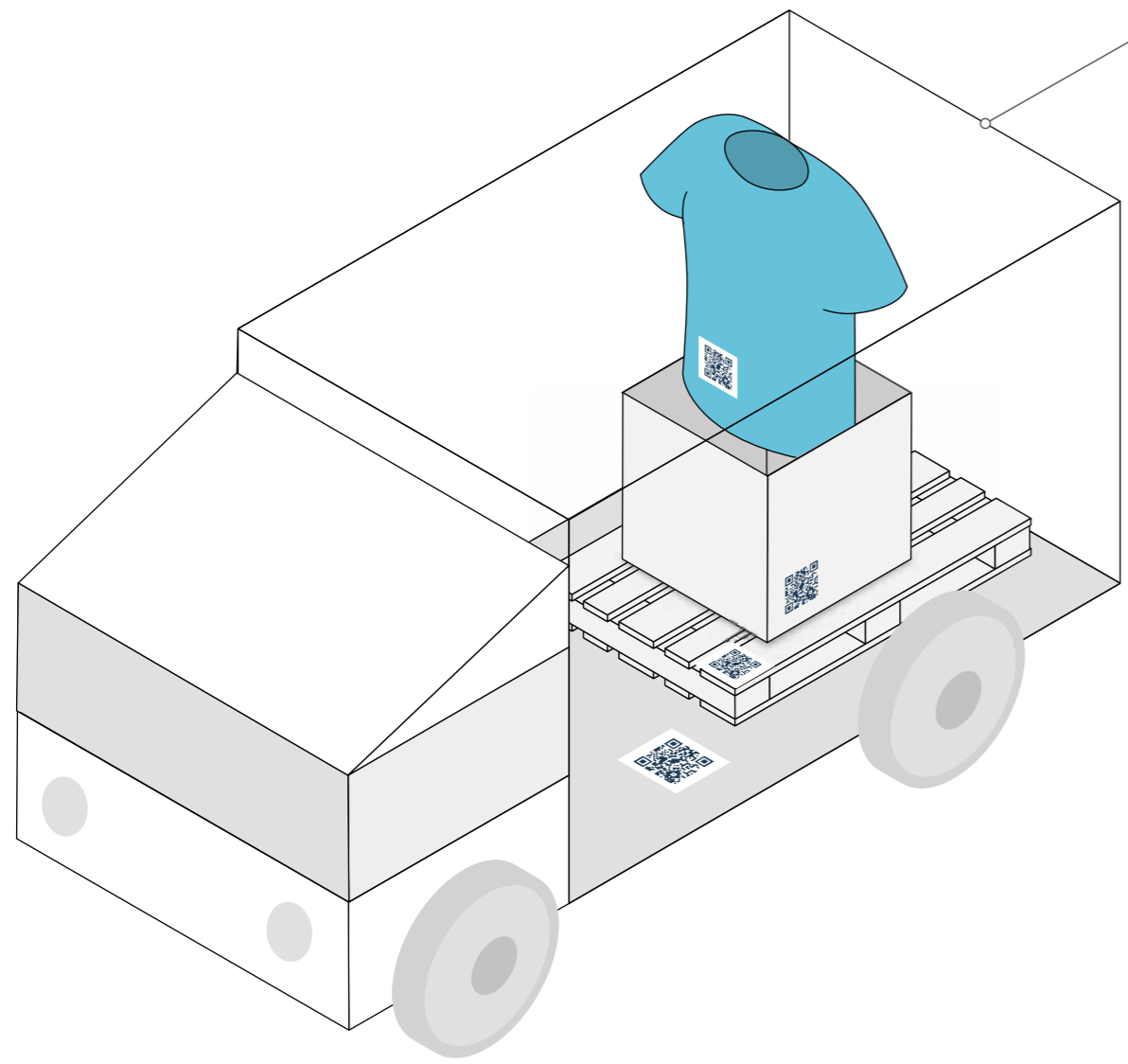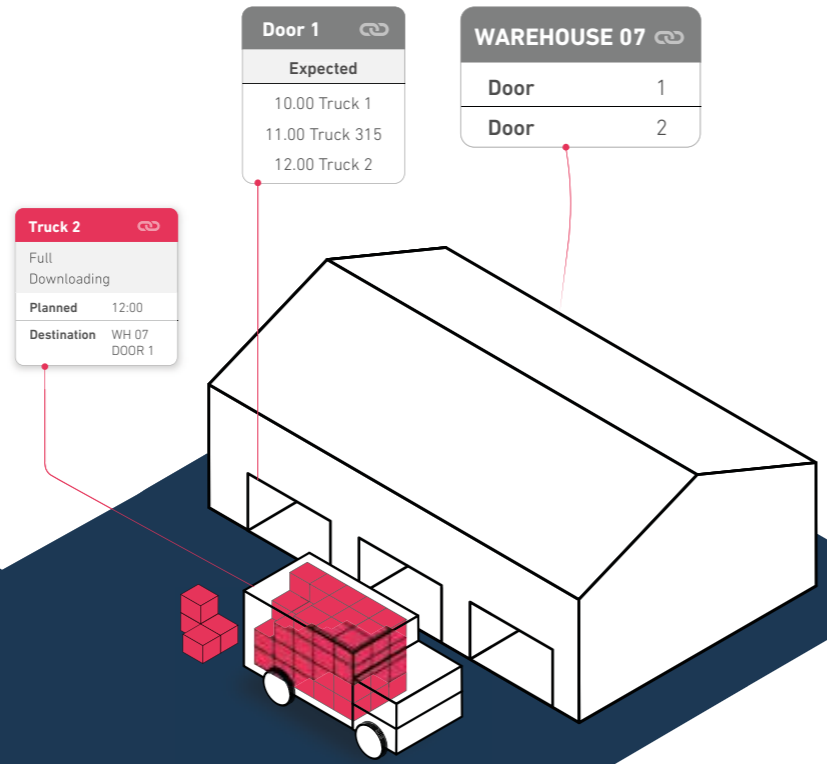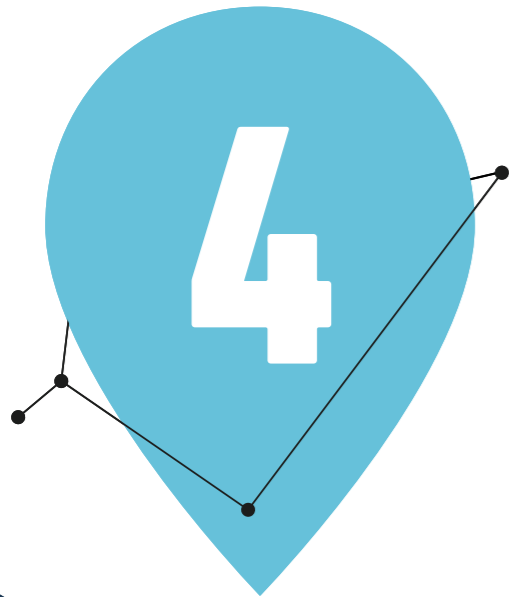
3. Use the relationship information of any item to infer the complete digital history from tracking and monitoring information related to each item's container history. This requires that at some level of the containment hierarchy there exists tracking and monitoring data. This might be at the pallet level – with basic monitoring sensors on pallets, or at the shipping container level with further monitoring and location tracking, or at some higher levels in the containment hierarchy. What matters is a focus on cost, capturing telemetry and environmental information at the hierarchic level which makes the most economic sense.

4. Read the QR code on any item or item container in-flight (boxes, pallets, shipping containers, trucks, warehouses, ships and docks, etc.) to discover information about the item or containers, navigating up and down the containment hierarchy.

5. Provide analytics across the entire system to perform discovery and to make predictions about any item. Predictions about an item's future state might include location, ETA, process handling time, ripeness and shelf-life, etc. Similarly, analytics on items may be used to make forensic assessments in cases of theft, fraud or even food related disease outbreaks.

Door 1

Expected
10.00 Truck 1
11.00 Truck 315
12.00 Truck 2

WAREHOUSE 07

Door	1
Door	2

Truck 2

Full
Downloading

Planned	12:00
Destination	WH 07 DOOR 1

BUSINESS MODELS

WE SEE SIMPLE LINKS AS AN IMPORTANT OPPORTUNITY

FOR A NUMBER OF SIGNIFICANT BUSINESS MODELS BUILT AROUND A "PLATFORM" CONCEPT FOR ITEM-LEVEL TRACKING AND MONITORING
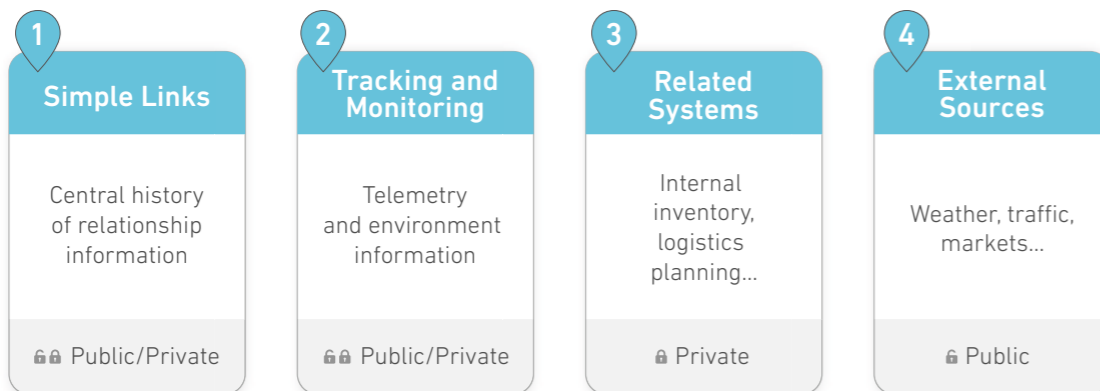
Such a platform might be a multi-tenant or single-tenant service provided by a third party for consumer goods and retail firms. It might also be a service owned and operated by a single consumer goods firm to serve the needs of its supply chain. The "platform" concept appears important since we see this as an opportunity for service providers to "add" plugins, or applications, providing high value information services built on core platform data and analytics services. We believe that the multi-tenant third-party service model will have the most significance since it will provide a foundation for some level of standardization and economies of scale supported by rapidly accelerating value through the participation of third-party applications.

Suppliers

CPG Firms

Distributors

Retailers

Consumers
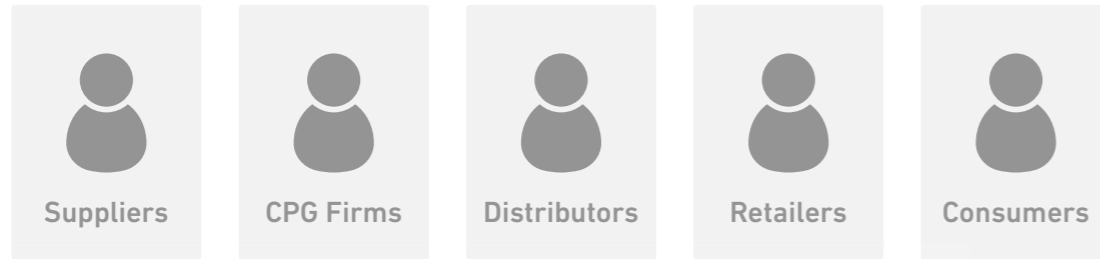
Simple Links Platform	
Applications	Added value solutions ecosystem
Integration	Connection and integration with systems and data
Services	Shared and privated services used by applications
Analytics	Analytics services across Simple Links and other data sources
Data Storage	High performance storage in support of real time analytics

Solution Providers

1 Simple Links

Central history of relationship information

🔓🔒 Public/Private

2 Tracking and Monitoring

Telemetry and environment information

🔓🔒 Public/Private

3 Related Systems

Internal inventory, logistics planning...

🔒 Private

4 External Sources

Weather, traffic, markets...

🔓 Public
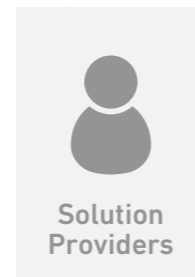
In this model Simple Links is seen as one of many external sources of data for the broader tracking and monitoring platform. Likewise, multiple tracking and monitoring data sources serve the platform, alongside other related external sources. While the Simple Links data and any tracking and monitoring data sources might all be managed by the platform, it is important to respect the fact that the right of tenants to data privacy is essential given that tenants will want to control who has visibility into any portion of their data or derivatives of that data. The data is a critical competitive differentiator.

Simple Links Platform
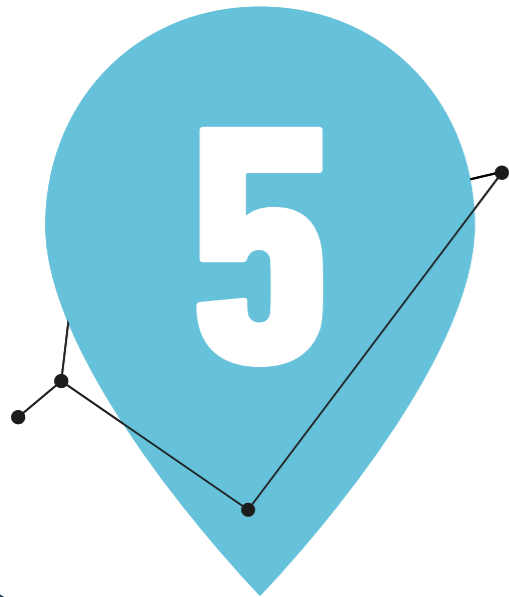
STATUS

IN JUNE 2017, WE PRESENTED AND DEMONSTRATED SIMPLE LINKS AT THE CONSUMER GOODS FORUM'S GLOBAL SUMMIT IN BERLIN

We demonstrated the concept in the form of a board game built using prototype software for capturing, managing, and presenting inferred item-level tracking and monitoring information based entirely on the relationships between items and their containers. We showed, in principle, a cost effective way to track and monitor at the item-level with applicability across the retail and consumer goods supply chains. The reaction was extraordinary because what we presented resonated as a solution to some of the big challenges in retail and consumer packaged goods today. Those challenges are driven by an accelerated attention on cost and value in an already marginalized business stressed by extreme competitive pressures.

Our intention is to continue the work on Simple Links, seeking partners who can help develop the "platform" concept, and seeking CGF member companies who are interested in participating in the creation of solutions in this space. While our member companies compete daily they also share daily. Our intention is to find the shared common ground in the space of item-level tracking and monitoring that will benefit all participants while still driving competition through differentiation built on top of such a platform.

Done well, the result will be extraordinarily beneficial for every participant of our industry supply chains, from "farm to fork", from "factory to consumer", supporting both ecological and economical value end-to-end.

Existing ID systems

can be connected by embedding the original ID in the link or – should the ID already be coded on an item/resource - by assigning links to each code. For example, if a barcode gets scanned, it looks up its corresponding link in a table to connect to the resource.

About The Consumer Goods Forum

The Consumer Goods Forum ("CGF") is a global, parity-based industry network that is driven by its members to encourage the global adoption of practices and standards that serves the consumer goods industry worldwide. It brings together the CEOs and senior management of some 400 retailers, manufacturers, service providers, and other stakeholders across 70 countries, and it reflects the diversity of the industry in geography, size, product category and format. Its member companies have combined sales of EUR 3.5 trillion and directly employ nearly 10 million people, with a further 90 million related jobs estimated along the value chain. It is governed by its Board of Directors, which comprises more than 50 manufacturer and retailer CEOs.

For more information, please visit: www.theconsumergoodsforum.com.

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