Business Needs and Functional Requirements

Dr Andrew Palmer

Preston Solutions Ltd

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1. Analysis of user and system requirements, including features, functions and characteristics of the integration.

2. State of the art assessment in the technologies to be used in Logistar

3. To assess the horizontal and vertical collaboration opportunities within the stakeholder companies using simulation tools

4. To monitor the applicable regulations and policies in transport and logistics.

User needs and functional requirements

FMCG	**Chemicals**	**LSP**	**Other**
Nestle	Huntsman	Ahlers	Zailog
Pladis	Celanese	Codognotto	Chep
Kelloggs	Vynova	NFT	Toyota
Mars	Du Pont	Turners of Soham	
Kimberly Clark	Corbion	CLdN Cargo	
Asda	BP Chemicals		
Procter & Gamble			
Tesco			

22 companies interviewed

LOGISTAR

- DC's & factories

- Vehicles – articulated and tankers

- Products in cases, bags, drums - pallets, bulk

- Use of own vehicles & LSP's

- Stand trailers

- Use of rail

- Seasonality - can be dependent on external factors

- Co-loading of vehicles

- Backloading and vehicle fill

Transport usage

	FMCG	Chemicals	LSP	Other
Owned vehicles	Nestle Pladis Asda Tesco		Codognotto Turners of Soham CLdN Cargo NFT	
Contracted carriers - dedicated fleet	Nestle Pladis Asda Tesco		Codognotto	
Contracted carriers - non dedicated fleet, single company & shared user	Nestle Pladis Asda Tesco Kelloggs Mars Kimberly Clark Procter & Gamble	Huntsman Celanese Vynova Du Pont Corbion BP Chemicals	Codognotto Ahlers Turners of Soham	Chep Toyota
Ad hoc carriers	Nestle			Chep

Systems for managing transport

- Many different planning systems used
- Orders received by EDI, email, phone, fax
- Some VMI orders
- ERP system - typically SAP
- Orders checked
- Customer and supplier/factory orders
- Some orders are collected by customer
- Typically no VRP (LSP's often used)
- Some delivery execution systems
- Separate weight and load compliance systems

- Load building mostly manual

- Orders communicated to LSP's

- Based on next day orders

- Majority of loads are FTL

- Majority of FMCG orders are FTL

- Delivery (drop) times known

- Aim is to always optimise own fleet

- Routes fixed for DC pick efficiencies

KPI’s measured

- OTIF
- (Genuinely) empty running
- Vehicle capacity utilisation
- Haulier - arrival to time, load to time, failure to arrive, POD confirmation
- Driver productivity
- Turnaround time at customers
- Waiting time
- Litres per 100km
- Cost per case/pallet/tonne
- Vehicle asset utilisation
- Kilometres per litre

LOGISTAR requirements - General

- LOGISTAR will compliment (run in parallel with) existing TMS systems
- Comparison of separate company operations compared with collaboration – to identify savings made, intelligent reporting
- Routing should ensure loads are single company where possible & backhaul preferred over co-loading/consolidation
- Overarching principle is that the total of all loads should be cost minimised
- Stakeholders must establish a cross charging mechanism of collaborative partners
- Depending on contract pricing, LTL orders should be combined into FTL for offer to hauliers
- Knowledge of stand trailer locations to help deal with imbalances between locations

LOGISTAR requirements - Predictions

- Historic data in LOGISTAR system to aid predictions

- At a predefined time (say 14:00 for FMCG) all current orders will be sent to LOGISTAR

- Route matrix of road times and distances between all these order locations (& potential RFT locations), by time of day & day of week taking into account risks, events, weather/road conditions

- Real time route updates to planning re-optimisation module when required

- Rail waiting & travel times for synchromodal operation

- Dashboard display of predicted risks/events to aid manual planners

LOGISTAR requirements – Transport planning

- Routes to be produced, using the time and distance matrices supplied by the prediction module, taking into account any intermodal options available

- Separate and combined company routes for cost comparison

- Optimise vehicle fill & backloading taking into account timing & offset distances to collect/deliver backhaul

- Vehicle routes should not have to start and end at the same location.

- Co-loading should be considered taking into account cost and timing

- Ability to have multiple collections and deliveries in the same route

- Sequencing of multi drop routes should consider backhaul opportunities

- Parameters should be flexible to reflect manual load planners

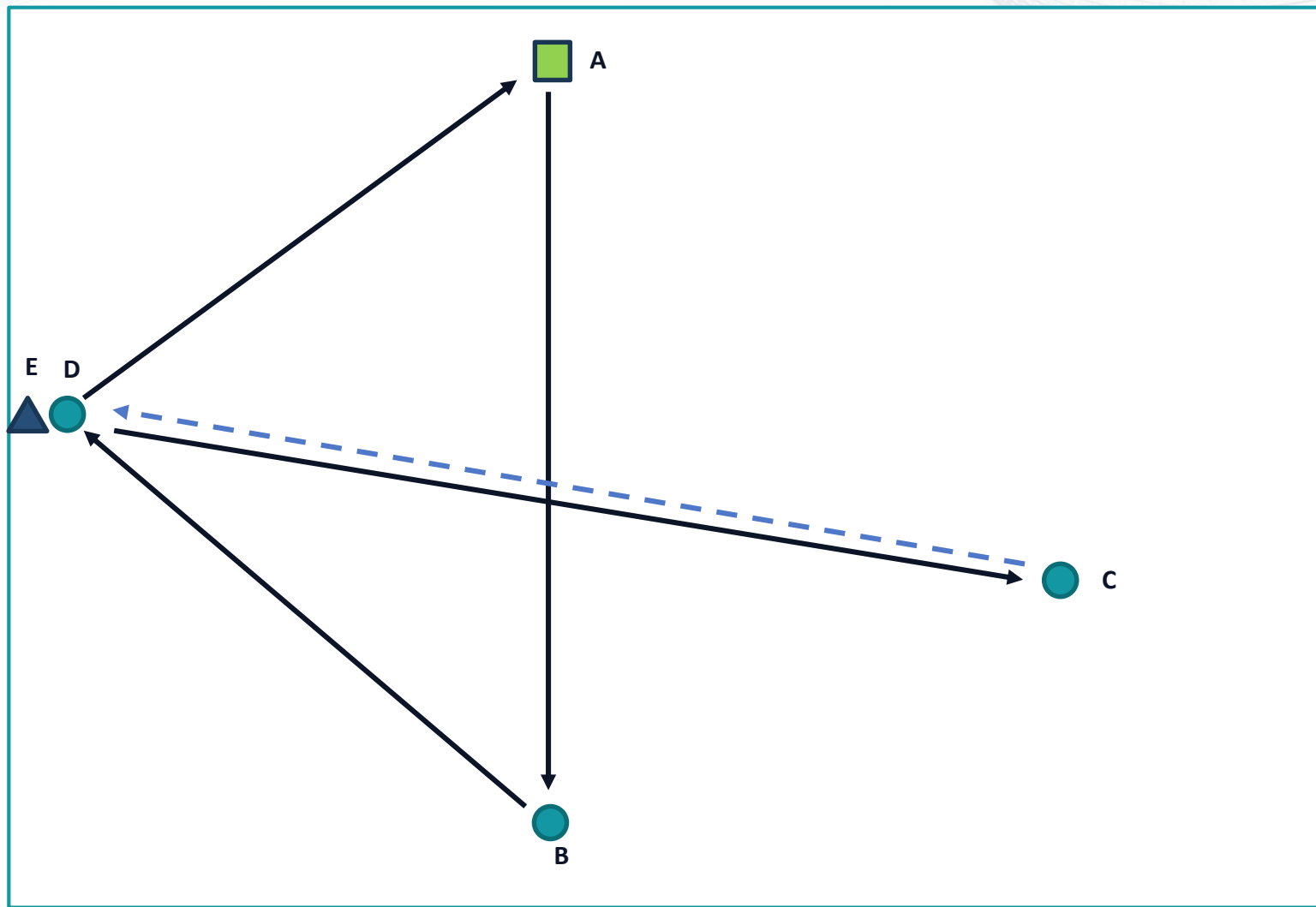- Collaborative routes reported back to each company planning dashboard for acceptance/rejection

LOGISTAR

The PI principle

This could be an example of LTL multi drop or FTL multiple collection and delivery route

Questions:
- Stand trailers
- Communication of collaboration
- Timing

NESTLE
NEWCASTLE

PLADIS
ASHBY
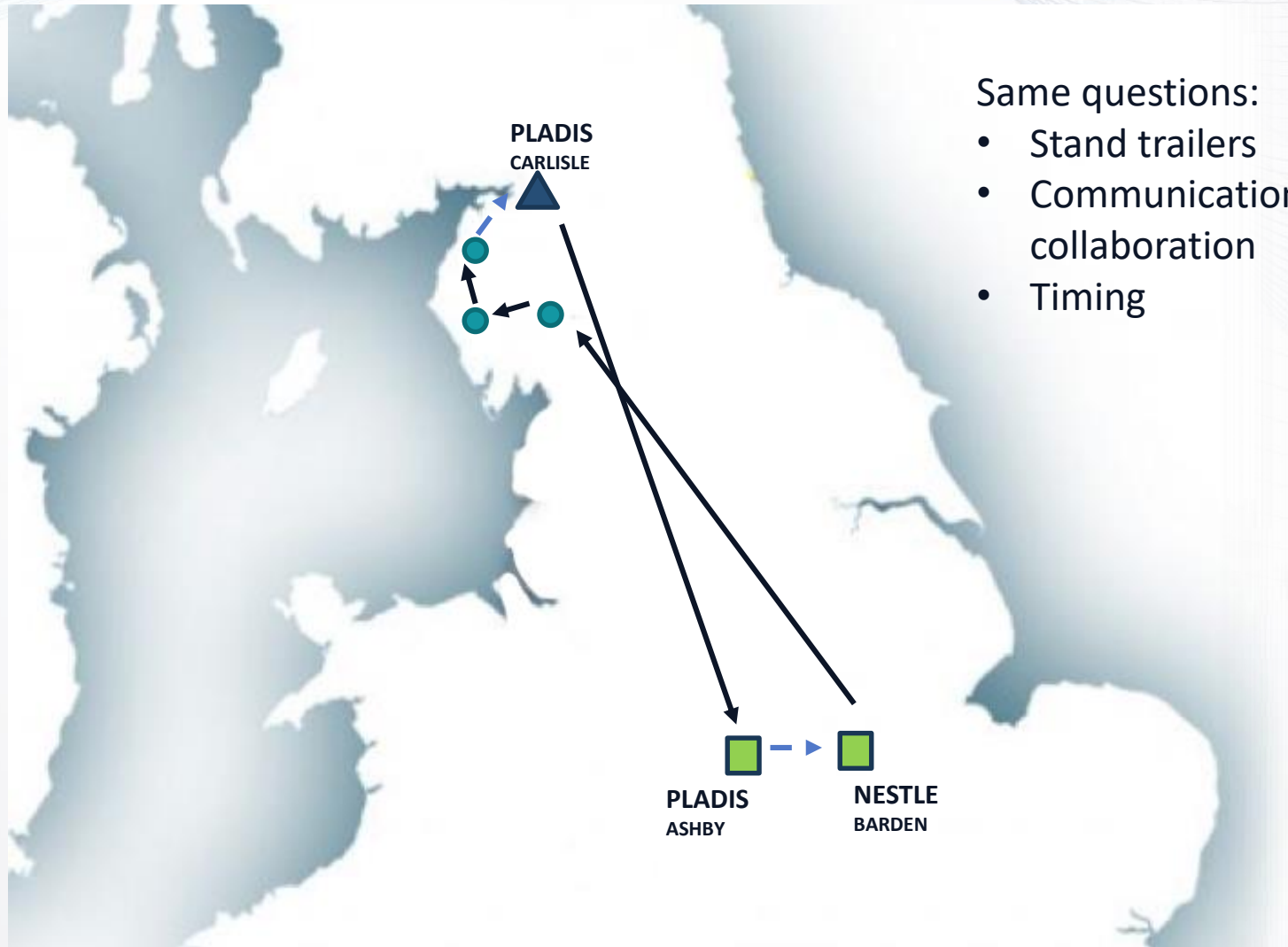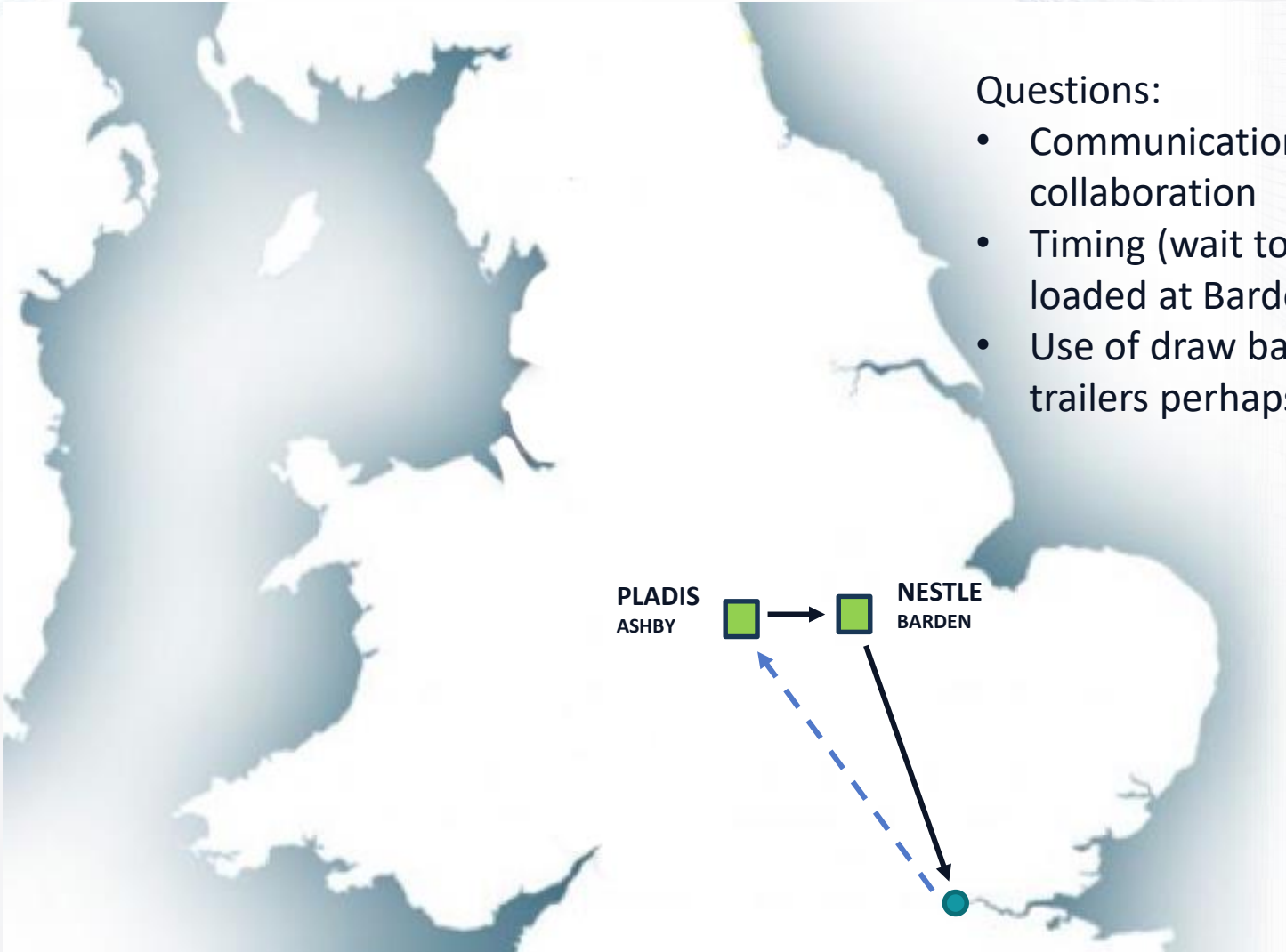
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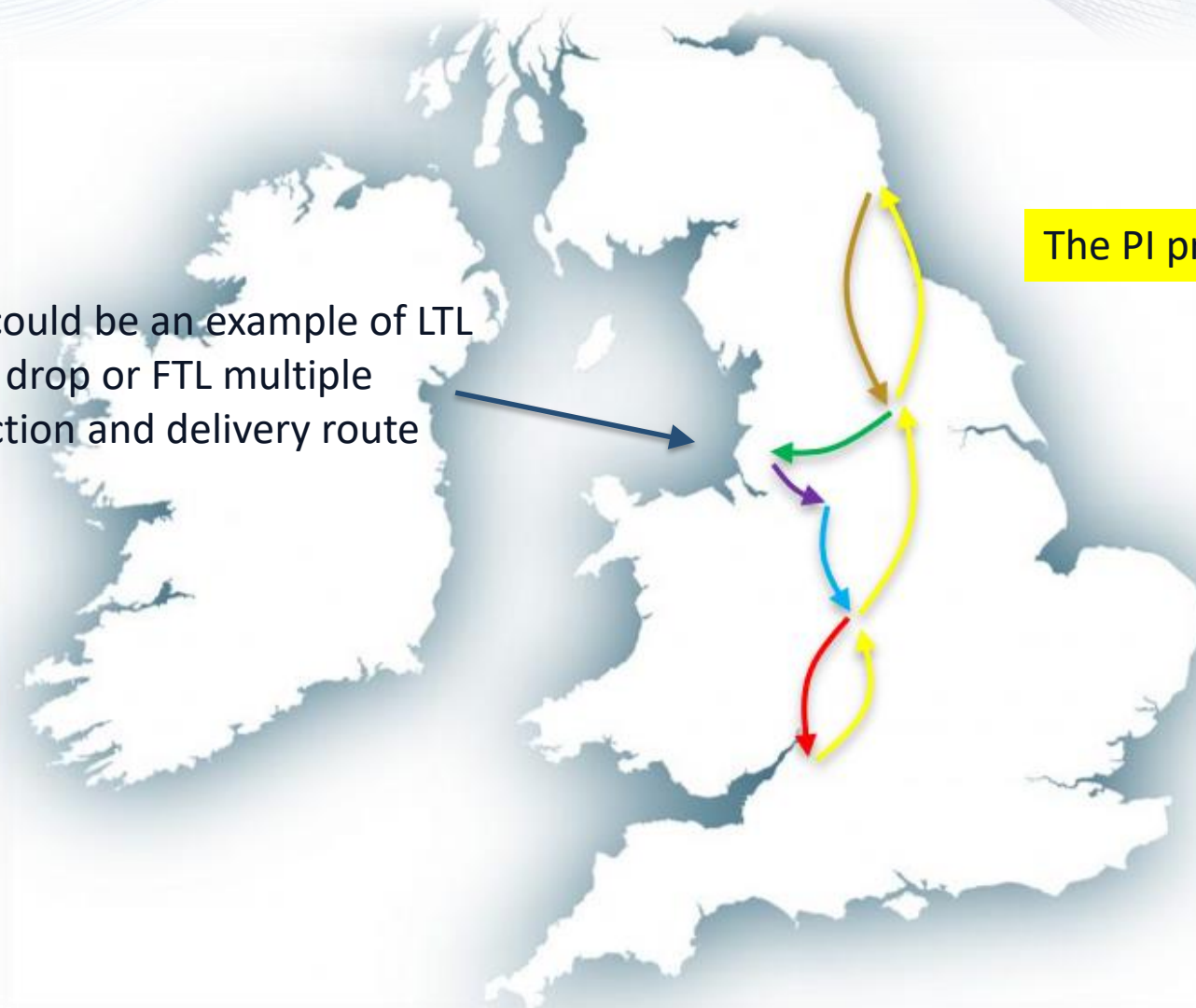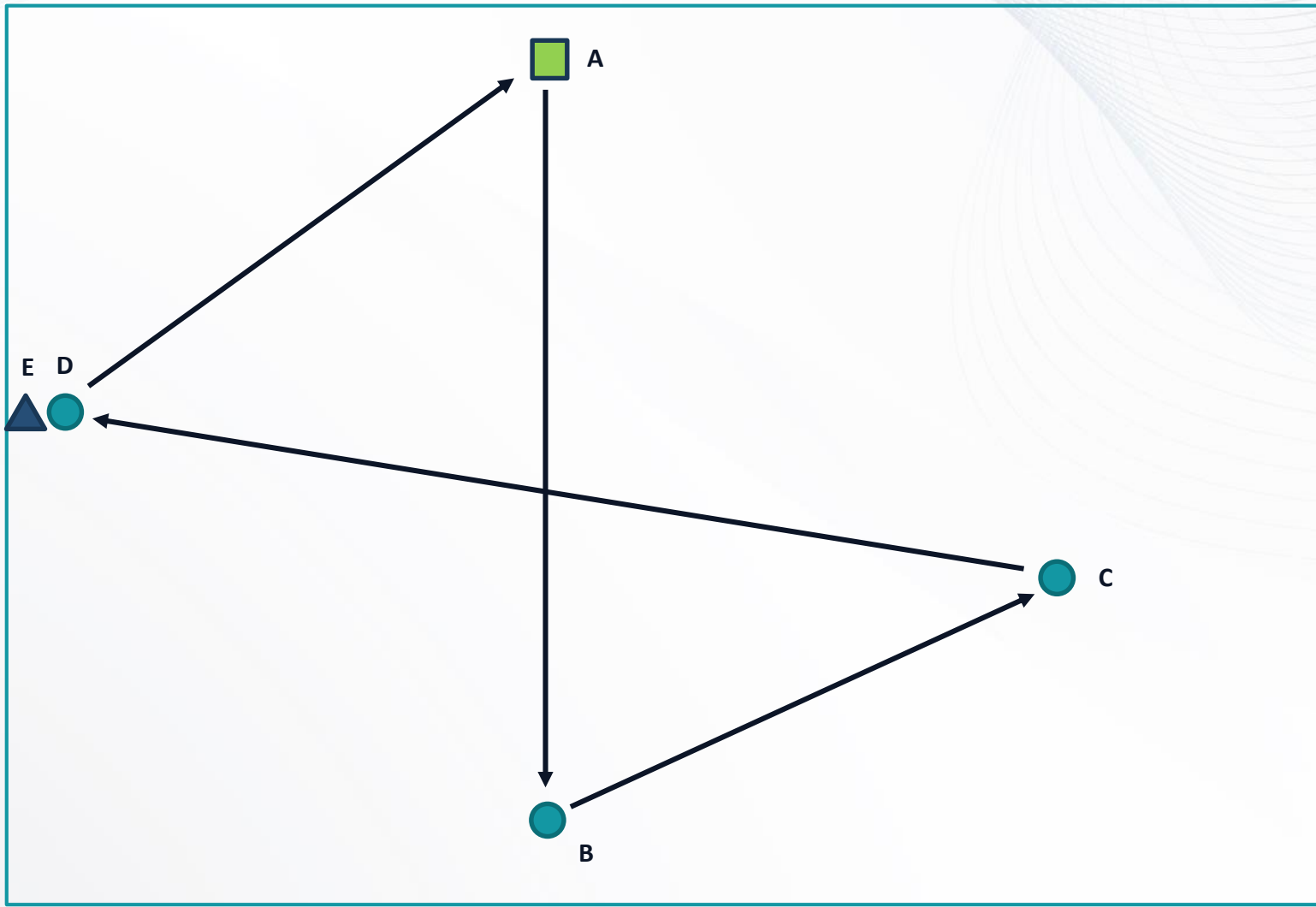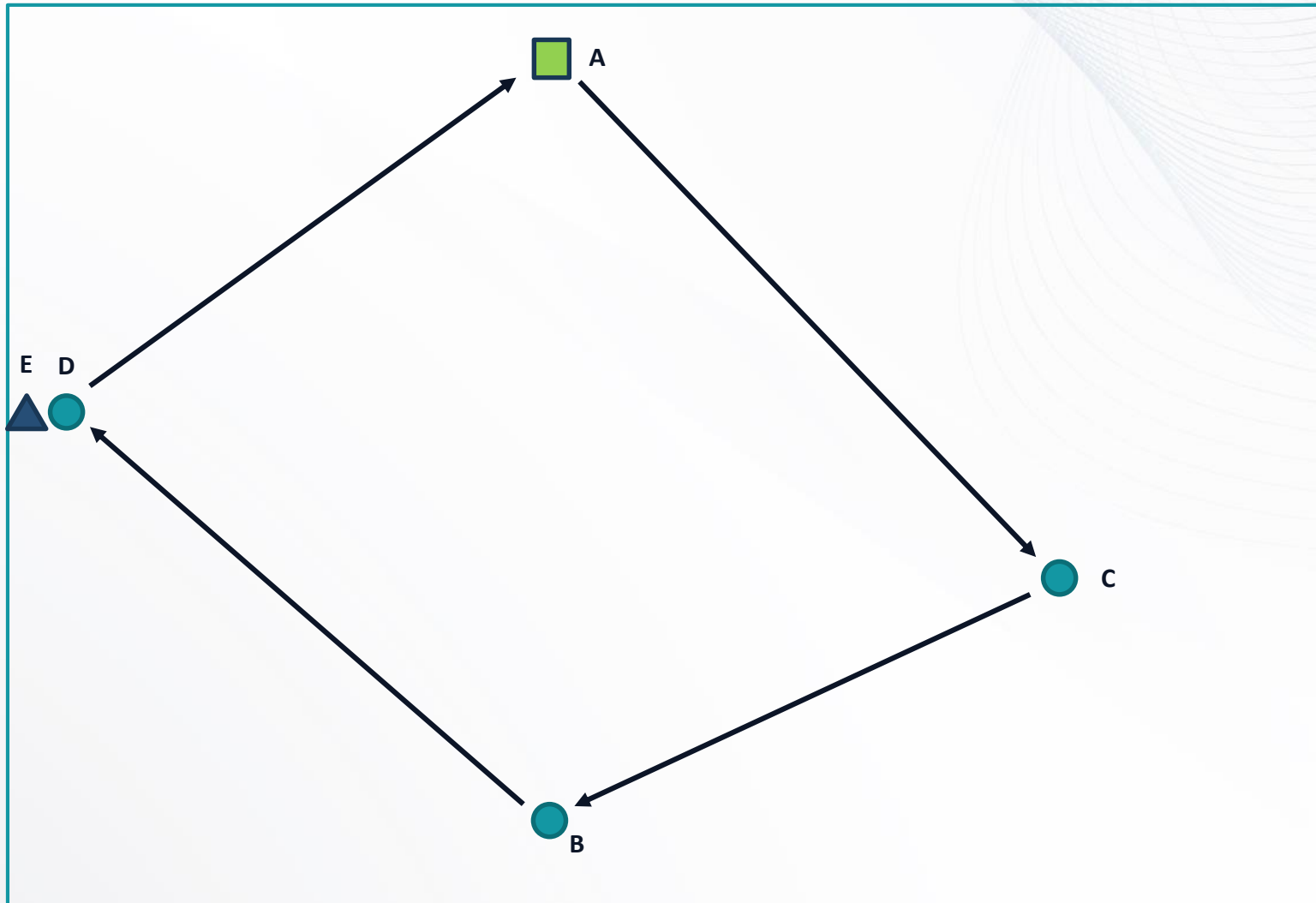
Transport planning – backhauling example
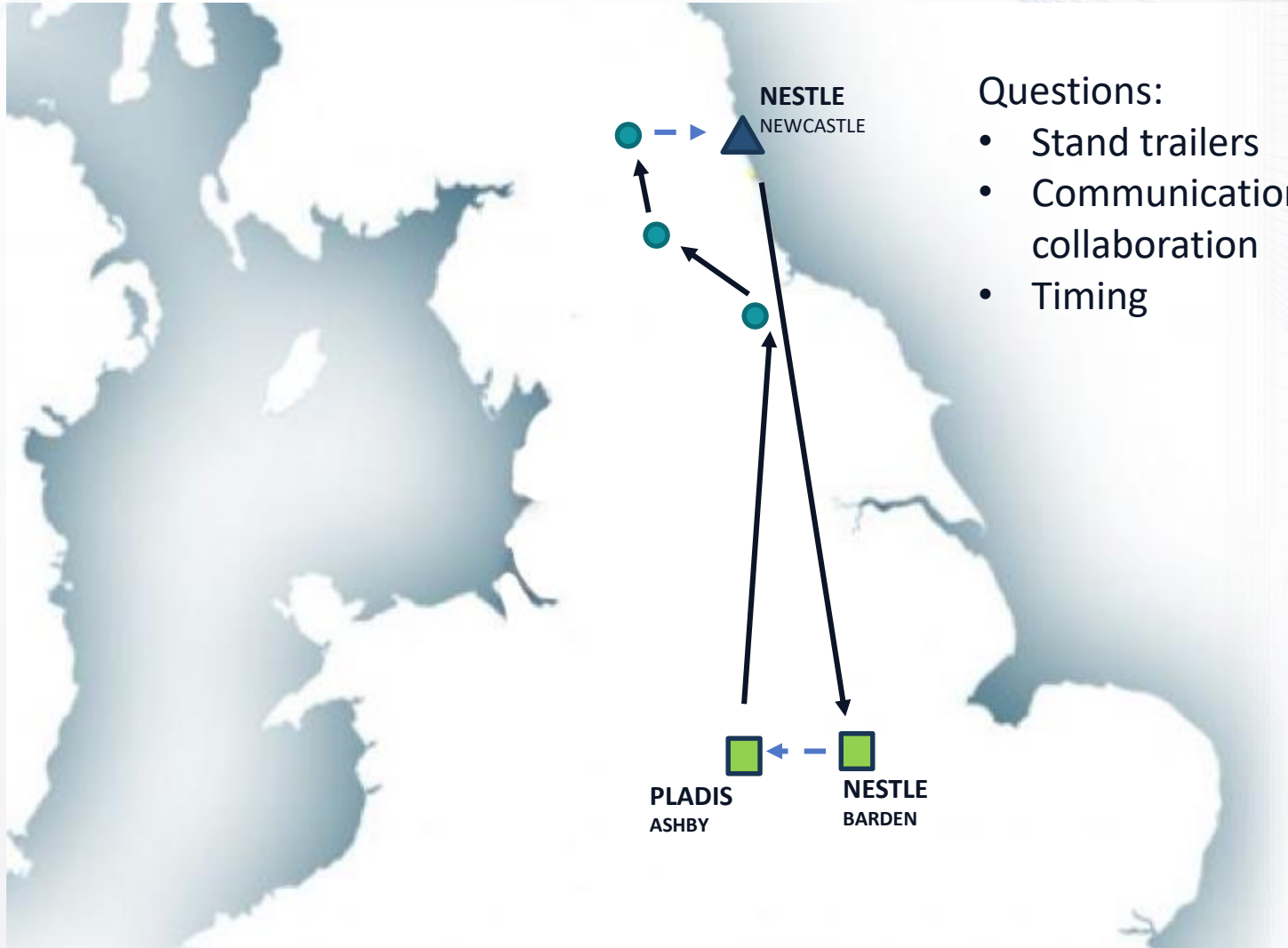
Same questions:
- Stand trailers
- Communication of collaboration
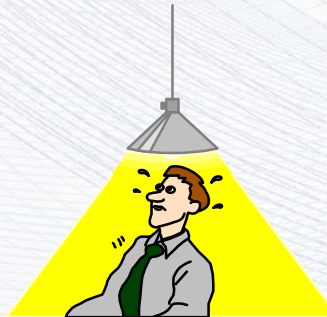- Timing

Transport planning – co-loading example

Questions:
- Communication of collaboration
- Timing (wait to be loaded at Barden)
- Use of draw bar trailers perhaps?

PLADIS
ASHBY

NESTLE
BARDEN

LOGISTAR requirements – Planning re-optimisation

- Event detection from IoT devices

- Updated route times received from prediction module

- Possible rescheduling of trucks/routes if:

  ➢ Delay – need to consider
    o Knock on impact for subsequent delivery/collection/next route
    o Delayed delivery in a collaborative load

  ➢ Breakdown
    o Offload all deliveries to another vehicle/nearby carrier
    o Knock on effect of subsequent delivery/ collection/next route
    o Cost effective option to be considered

  ➢ Inter modal options to be considered (synchromodality)

- Dashboard display of info. – re-scheduling needs to be triggered by company planners

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Thank You
Questions?

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