Succeeding in the Modern Supply Chain

LUNCH AND LEARN

Thursday, April 3, 2025 | 12pm ET

Thank you for attending!

Dr. Matthieu Lauras

Our Related Professional Education Course

scl.gatech.edu/msco

Supply Chain and Logistics Institute

AGENDA

New Supply Chain challenges

Potential areas for improvement

Course objective, content and method

Q&A

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Supply Chain Management in a Disruptive Era

What would be the consequences if…

… a transportation strike occurs in France?

… Chinese Supplier plant burns?

… the EU regulations on fine particles become more drastic?

… supplier moves production of key modules from USA to Korea?

… corrupted, counterfeit products are discovered by clients or authorities?

How to react if…

… a supplier loses half of his capacity load?

… oil prices rise to $200/ barrel?

… a huge earthquake shuts down all South California supplier facilities for a month?

… a supplier goes bankrupt?

… demand is 30%, 50%, 80% higher or lower than expected?

… a pandemic hits the world?

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What are the Current Supply Chain Challenges?

Supply Chain activities have more and more to cope with **unexpected disruptive** events that may have strong impact on its global performance

The Supply Chain performance is more and more **multi-dimensional**

Companies' capability to master Supply Chain Management in a urbulent world is critical to ensure its **sustainable competitiveness**

In order to prepare for, react to, and recover from disruptive events, Supply Chain must exploit the transformative capabilities of emerging **Digital Supply Chains**

The New Normal…

We are in a Volatile, Uncertain, Complex and Ambiguous world

Current Supply Chain Processes are

Deterministic
Procedure driven
Asynchronous
Firefighting management oriented

Current Supply Chain Networks are

Rigid
Closed
Minimally connected
Resource oriented

As they should be

Stochastic
Data driven
Live, real-time
Disruption management oriented

As they should be

Flexible
Open
Interconnected
Service oriented

4 Key Areas to Help Change Supply Chain Practices

Demand-Driven Decision Making

Data-Driven Decision Making

“We have to think and act beyond legacy Supply Chain dogmas and practices”

Risk-Driven Decision Making

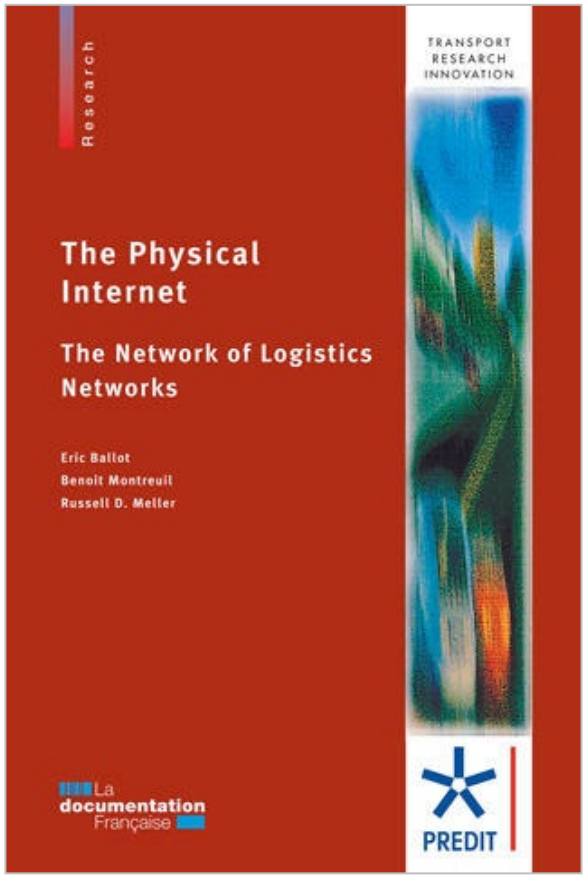
Performance-Driven Decision Making

And a Fifth One, which is a Game Changer…

Hyperconnected Supply Chain

"Hyperconnected global logistics system
enabling seamless open asset sharing and flow consolidation
through standardized encapsulation, modularization, protocols and interfaces
to improve the capability, efficiency, sustainability, and resilience of serving humanity's demand for physical objects"

Prof. Benoit Montreuil



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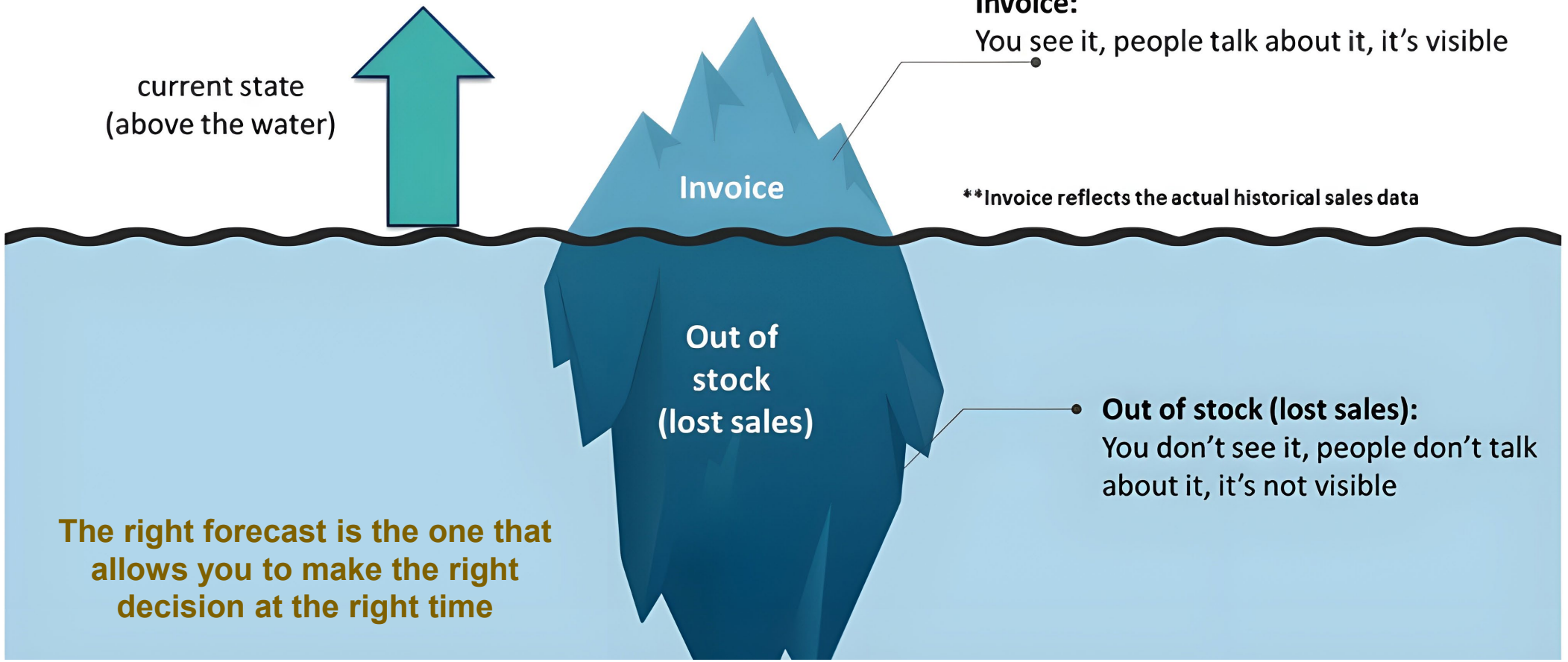
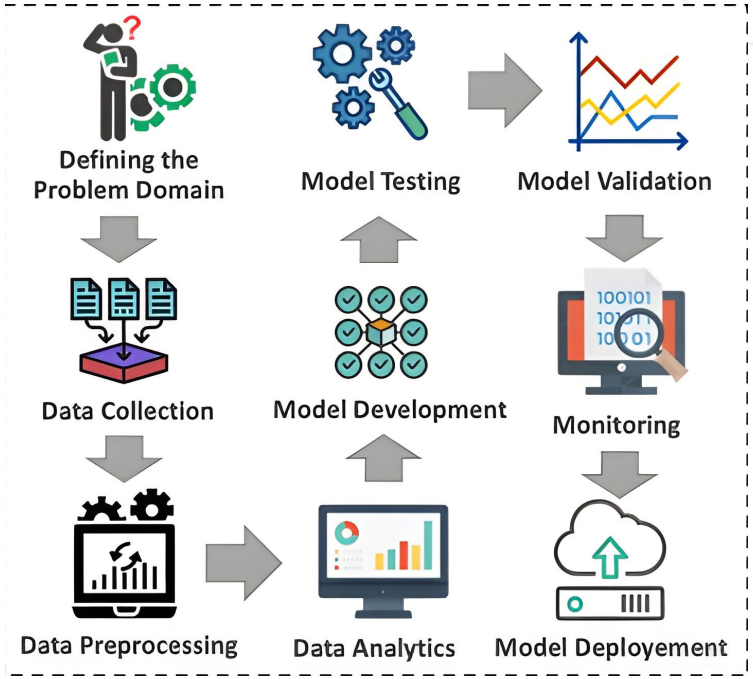
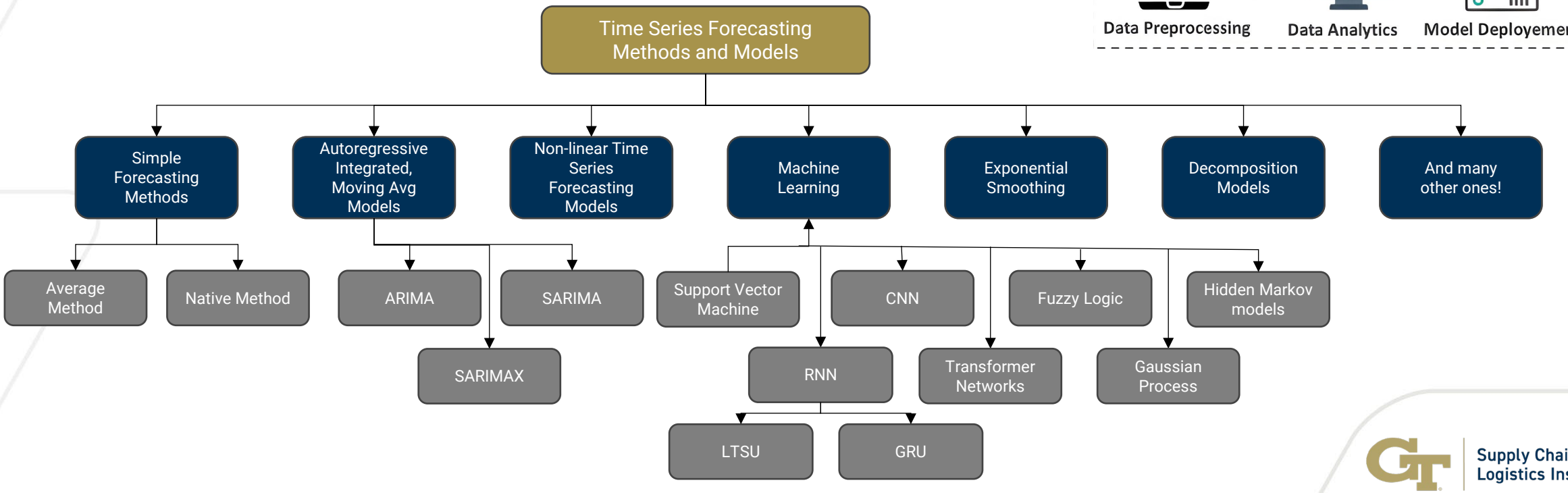
The Difference Between Sales Forecast & Demand Forecast



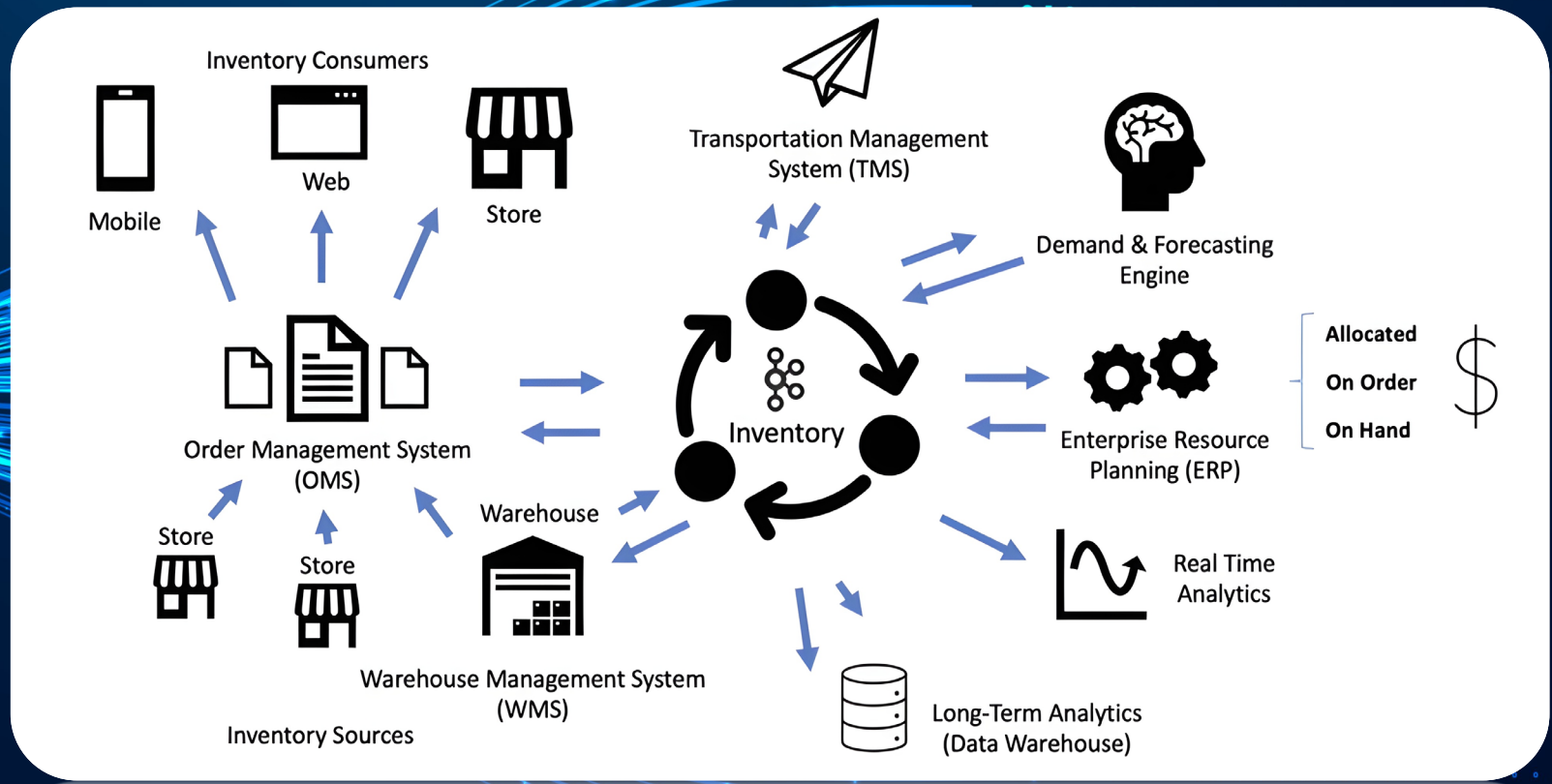
Benefit from New Calculation Opportunities for Demand Estimation





Data-Driven Decision Making

Data is Everywhere in the Supply Chain!



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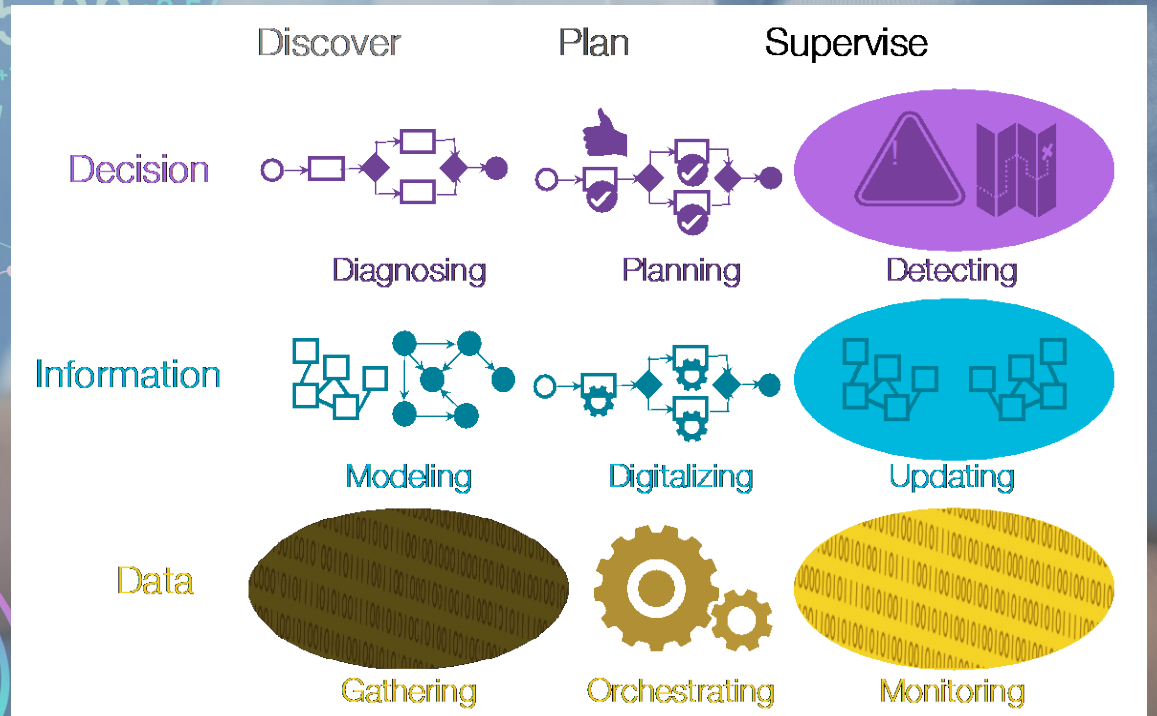
Data-Driven Decision Making

Data use by the Supply Chain to Perform Better

Descriptive	Diagnostic	Predictive	Prescriptive
?	?	?	?
Which events happened?	*Why did these events happen?*	*What can happen?*	*What should we do?*
Sales jumped by +20%	*National Holidays Pushed the Sales*	*Sales will increase by +10% next week*	*Replenish the store tomorrow*



from (Benaben, 2019)

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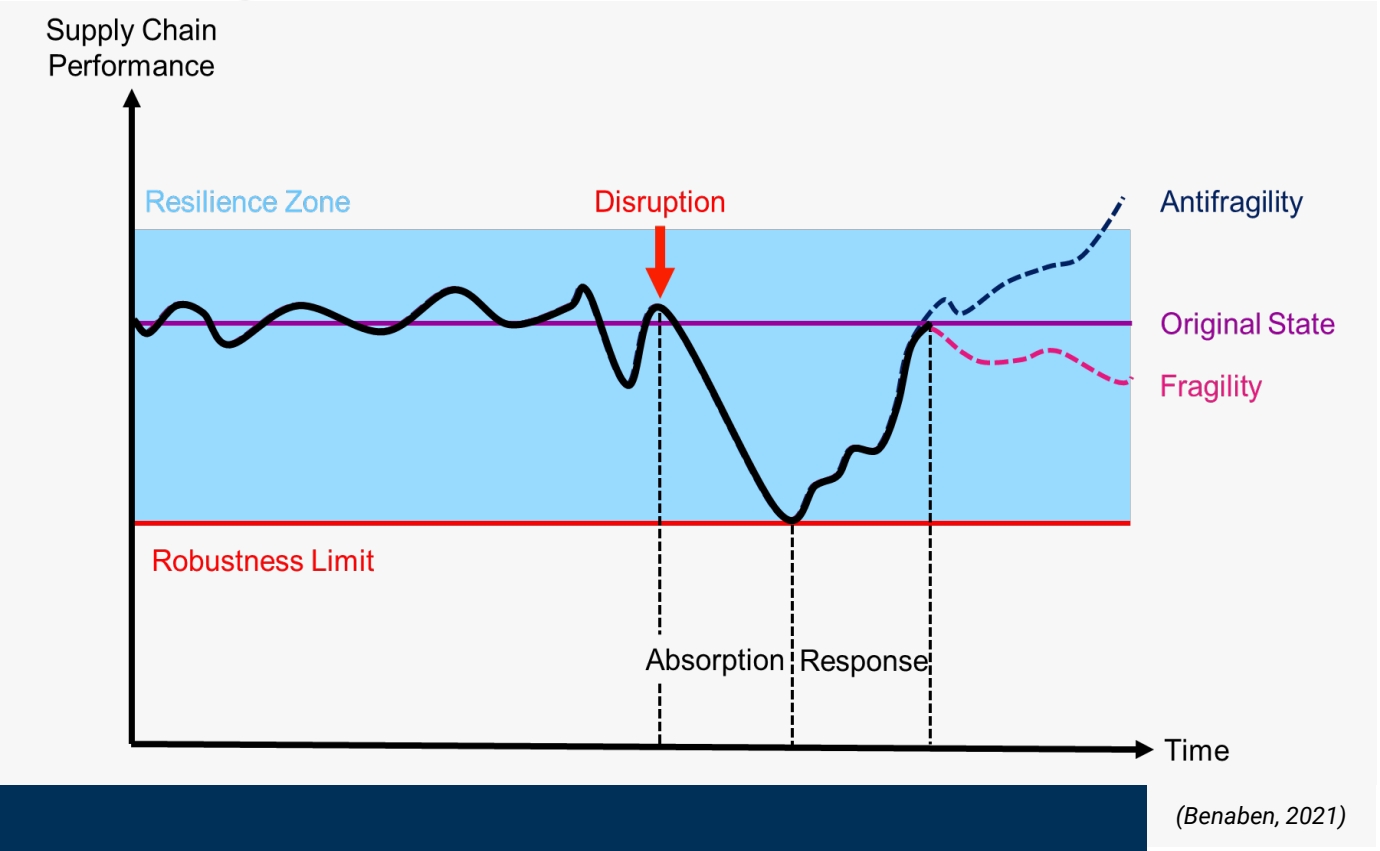
Risk-Driven Decision Making

How to Cope with Uncertainty?



(Benaben, 2021)

There is a need for more and better Supply Chain Risk Management (SCRM) processes and tools

Becoming **RESILIENT = Robustness + Recovery** capabilities

Robustness: Able to avoid strong impacts on the system in case of disruption
Recovery: Able to allow getting back to an acceptable situation after a disruption

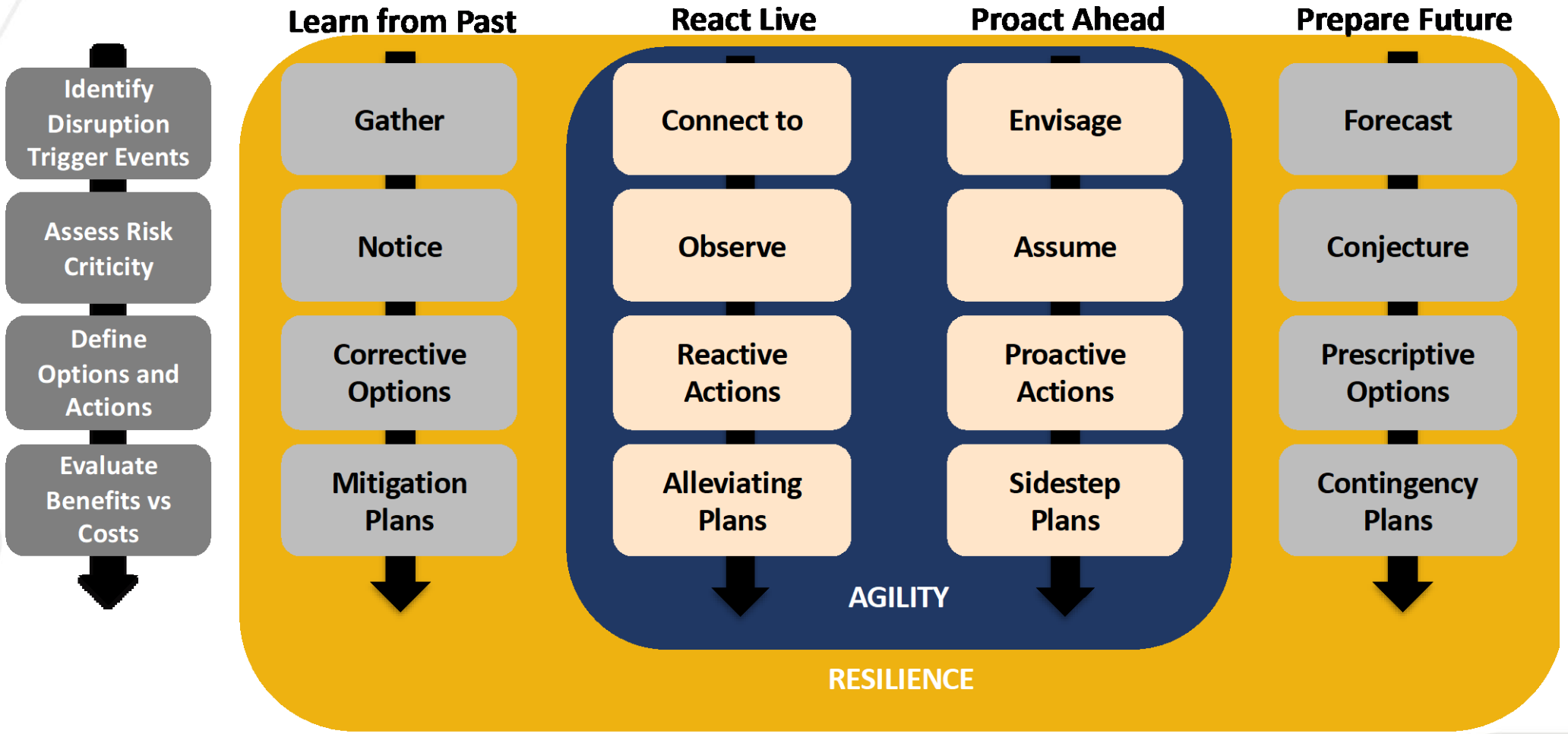
Becoming **AGILE = Detection + Adaptation** capabilities

Detection: Able to notice something wrong in the system vs. expected situation
Adaptation: Able to modify the ongoing processes to solve the unexpected situation

These must be executed **QUICKLY**, **EFFICIENTLY** and **EFFECTIVELY**.

Risk-Driven Decision Making

The Supply Chain Risk Processes that Everyone Needs



Original framework developed jointly by M. Lauras and B. Montreuil

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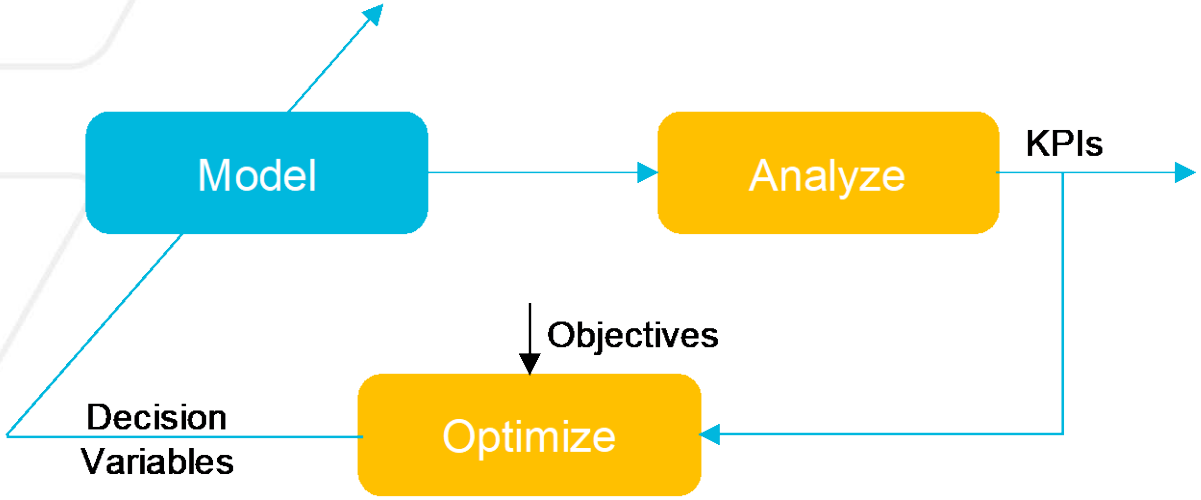
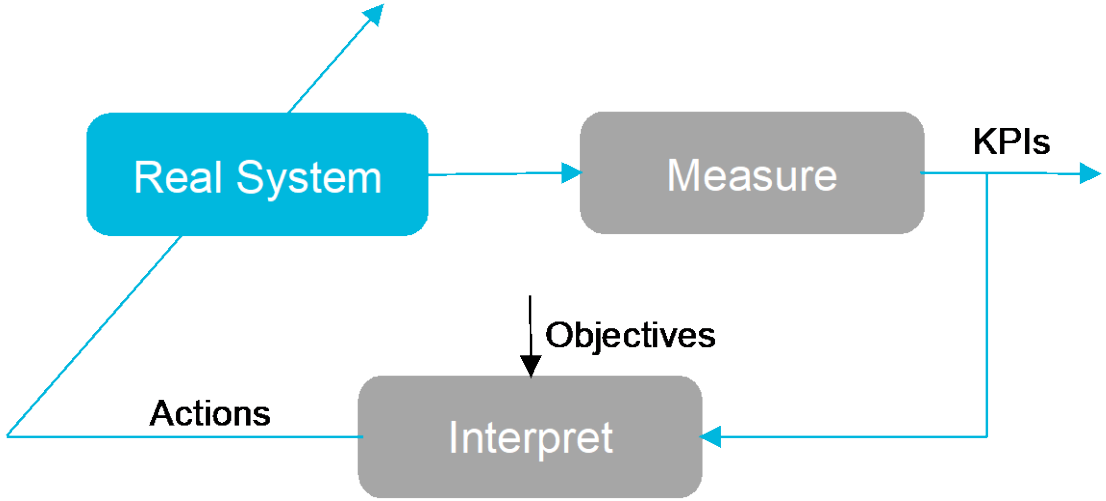
Making the Triple Bottom Line a Reality

Performance-Driven Decision Making

Which is better? Looking Behind or Ahead?



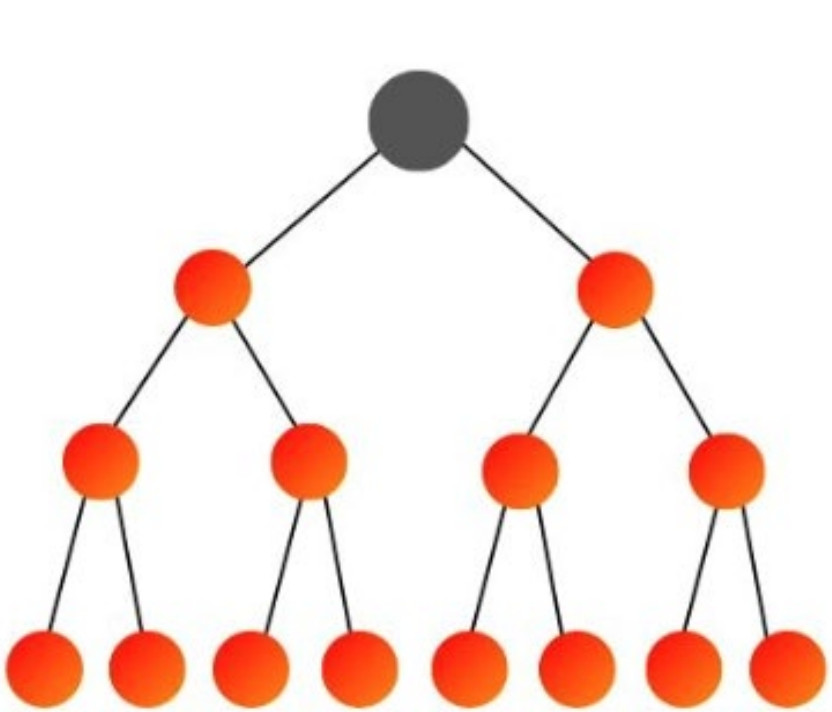
A priori performance assessment



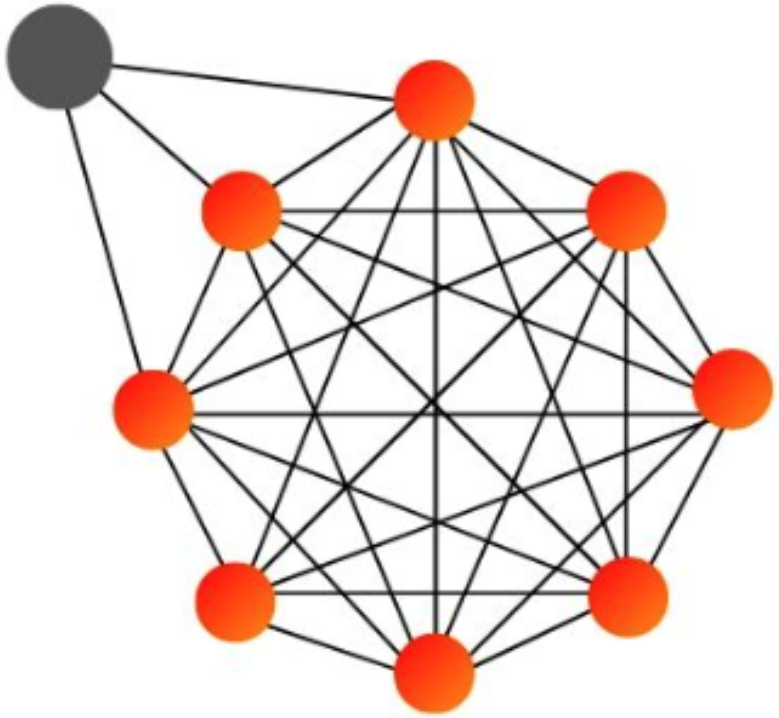
A posteriori performance assessment

Hyperconnected Supply Chain

Moving from Hierarchical Networks to Multi-Mesh Networks



Partial-Mesh Network



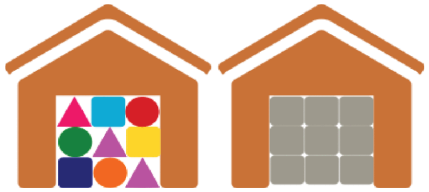
Full Mesh Network

Hyperconnected Supply Chain

Allowing Open Hubs and Open-Hub Networks

One-to-one flows versus flow consolidation with open-hubs

Dedicated distribution centres versus an open-hub network

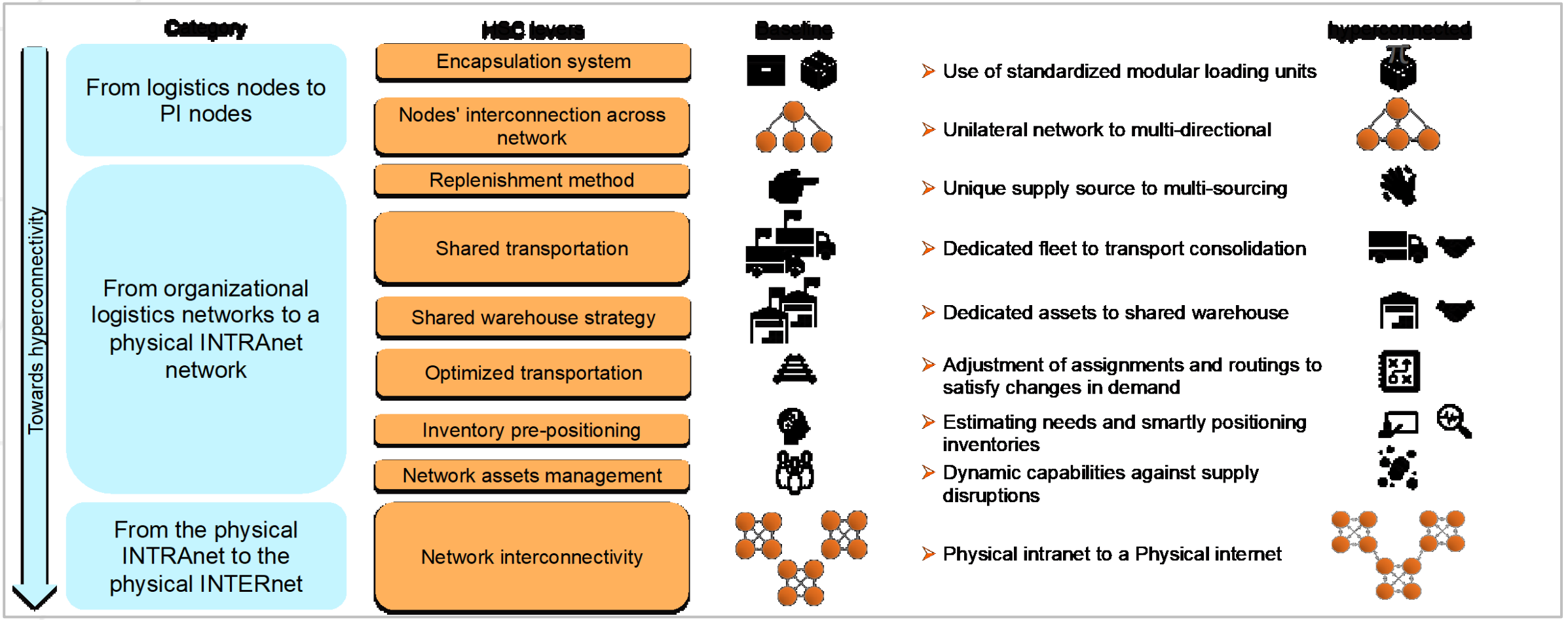


Optimisation of storage capacity by mutualizing stock from different organisations versus optimum storage optimisation using unmarked PI-containers

(Grest et al., 2019)

Hyperconnected Supply Chain

Main Levers Available to Move into the Hyperconnectivity Era



(Grest et al., 2022)

Mimicking the Current Practices or Inventing New Ones?

The logistics maturity ladder:

1. **Atomistic**: fragmented network and managed through solo operations.
2. **Integrated**: network as an end-to-end channel, in which plants are dedicated.
3. **Collaborative**: network as a whole in which partners are able to share data/activities in peer-to-peer relationships.
4. **Hyperconnected**: network is based on open-hubs and cooperative platforms for both data and material flows.

Should we go through the whole path of logistics maturity ladder or jump directly to the good step?

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Course Highlights

The course aims to explore the **new challenges facing supply chain** engineering and management

Instability, digitalization, network interconnectivity, ecological and social issues are now realities, requiring today's **engineers and managers to think differently** about approaches, methods and tools for managing supply chains

The course will identify these issues and propose **some lines of thought and associated solutions**

These elements will be apprehended using a unique and innovative serious **virtual reality game**, which will help to establish each of the concepts seen in the course

Course Agenda

Day 1

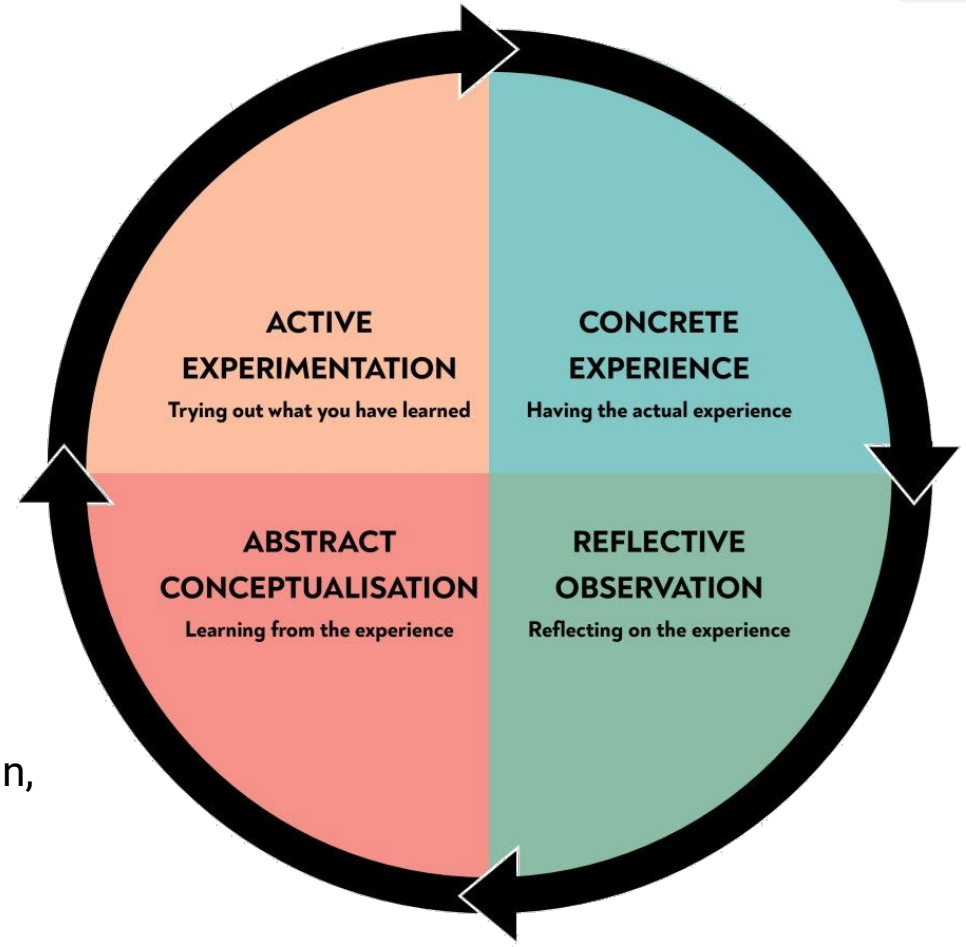
Morning - General introduction, getting to grips with the VR simulation environment, first simulation, debriefing and discussion
Afternoon - Introduction to Data-Driven and Demand-Driven Supply Chain, Preparation for second simulation

Day 2

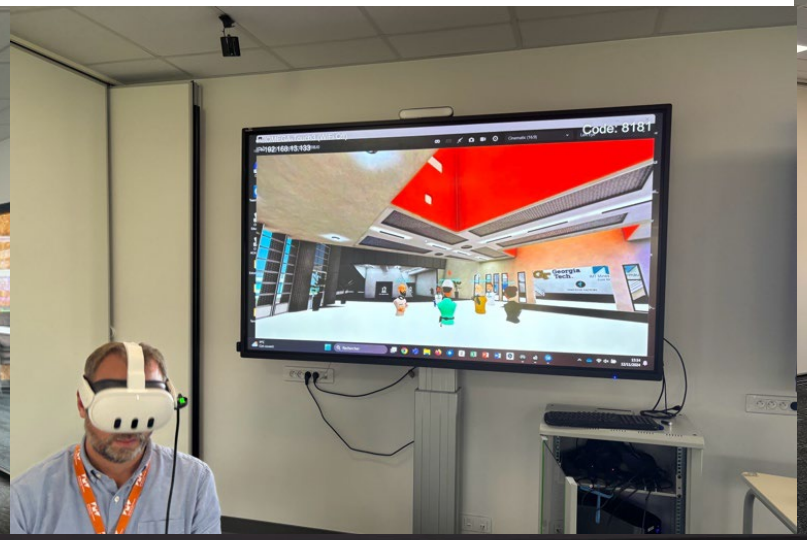
Morning - End of preparation, second simulation, debriefing and discussion
Afternoon - Introduction to Risk-Driven and Performance-Driven Supply Chain, Preparation for third simulation

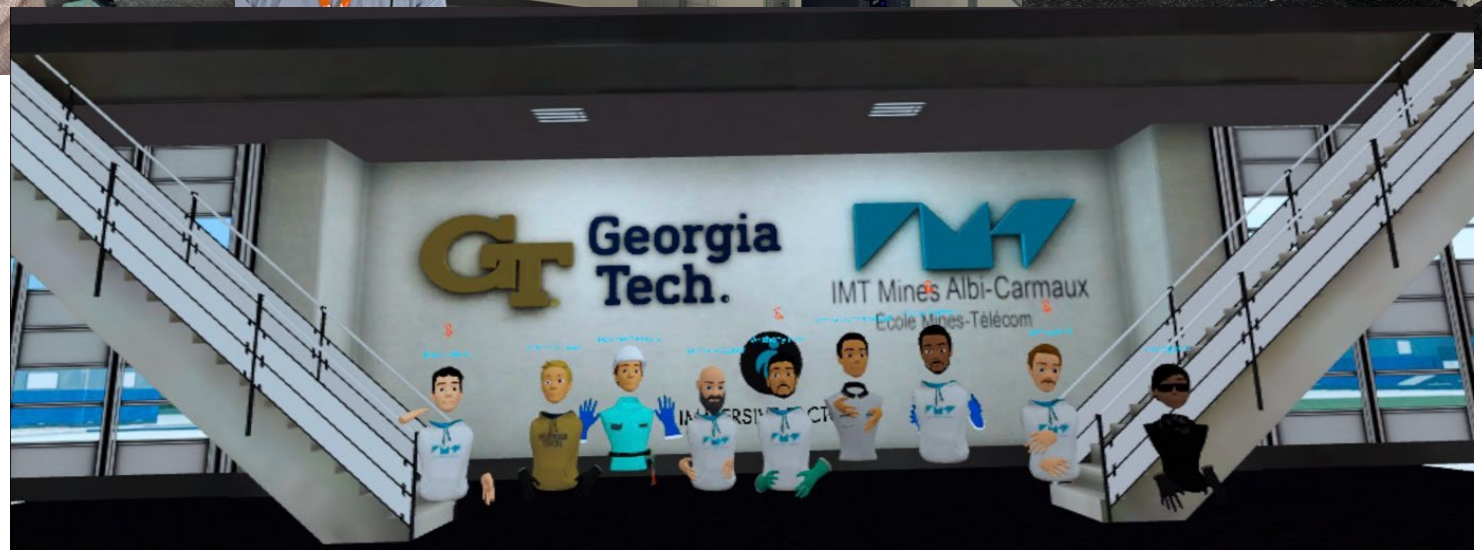
Day 3

Morning - End of preparation, third simulation, debriefing and discussion
Afternoon - Introduction to Hyperconnected Supply Chain, Exercise in designing a hyperconnected solution based on the use case (no simulation)



What it looks like...





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Upcoming NextGen Courses

Modern Supply Chain Overview

April 21, 2025 – April 23, 2025 | Georgia Tech Global Learning Center

Generative AI Application for Supply Chain Professionals

October 6, 2025 - October 8, 2025 | Virtual (Instructor-led) / Georgia Tech Savannah Campus

Immersive Performance Management for Decision-Making

Fall 2025 | Georgia Tech Global Learning Center

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Upcoming SCL Lunch and Learn Opportunities

Investing In Frontline Leadership

w/ Bryan Weaver and Chris Gaffney

Thursday, May 1st | 12-1pm ET | Zoom Registration Link

scl.gatech.edu/may25-lnl

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