IPIC 2021 | 8th International Physical Internet Conference

Physical Internet Inspired Atomic Modeling for Supply Chain Risk Management

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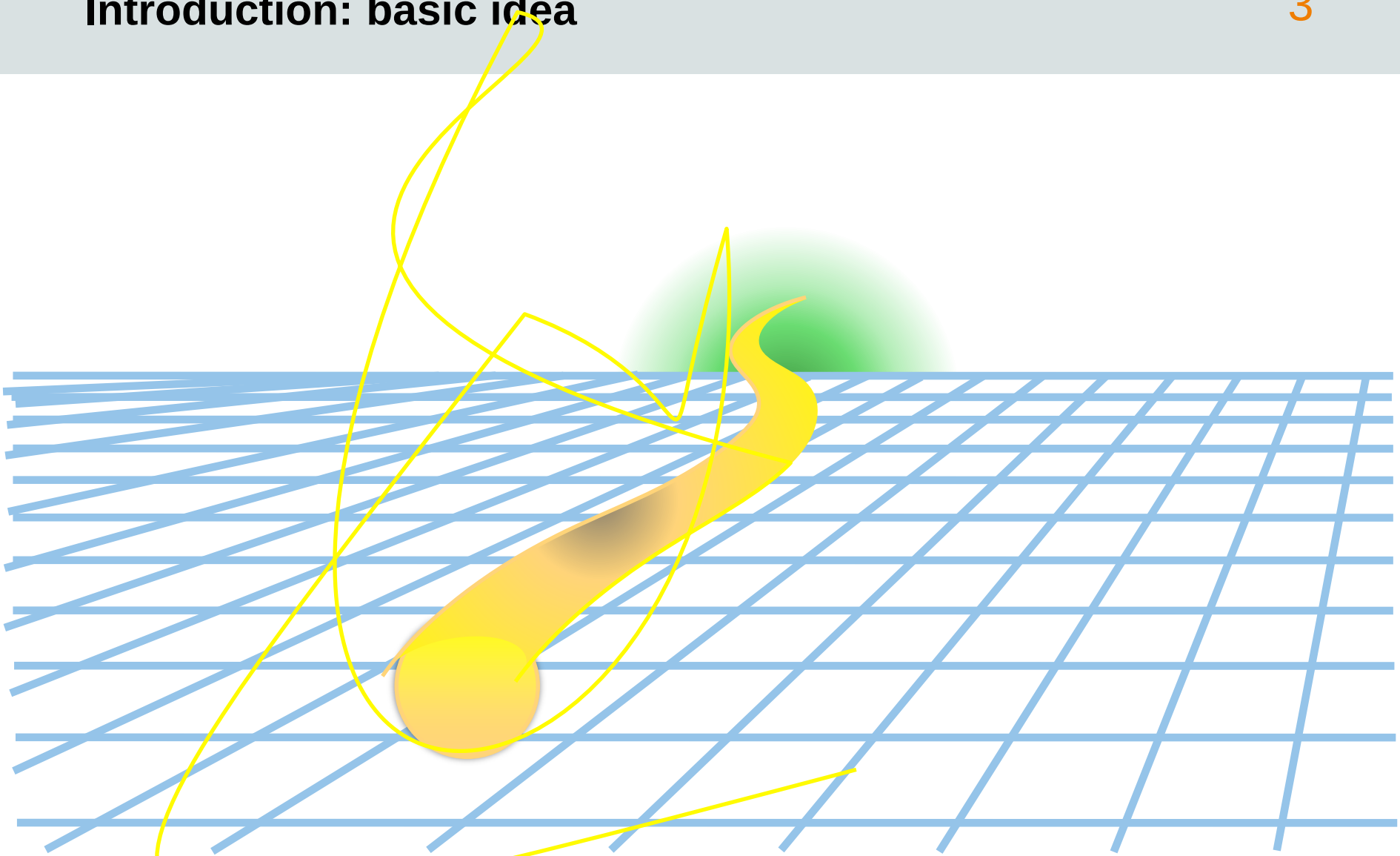
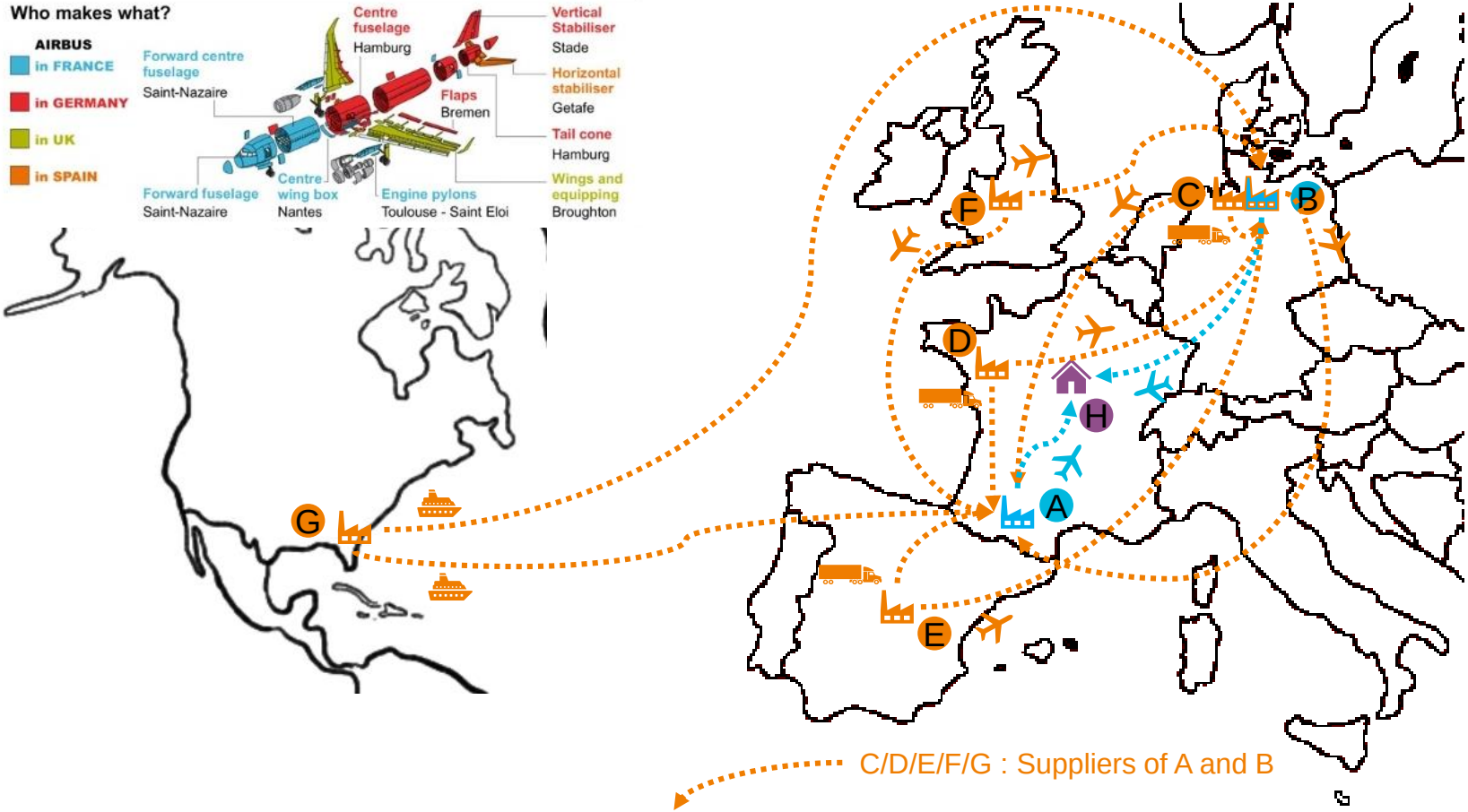
SUMMARY

1. Introduction
2. Air-POD model: use-case
3. POD (Physics of Decision) Approach
4. Atomic vision
5. Perspectives

Introduction: basic idea



Air-POD: studied supply chain



C/D/E/F/G : Suppliers of A and B

H : Customer of A and B ◄····· A et B : Assembly sites

B : A's supplier

Aircraft decomposition from: https://avia.superforum.fr/t1583p925-a319-a320-a321-neo-partie-2
Map of Europe: https://www.pinterest.fr/pin/497295983852497660/
Map of America: https://www.waouo.com/carte-du-monde-vierge/

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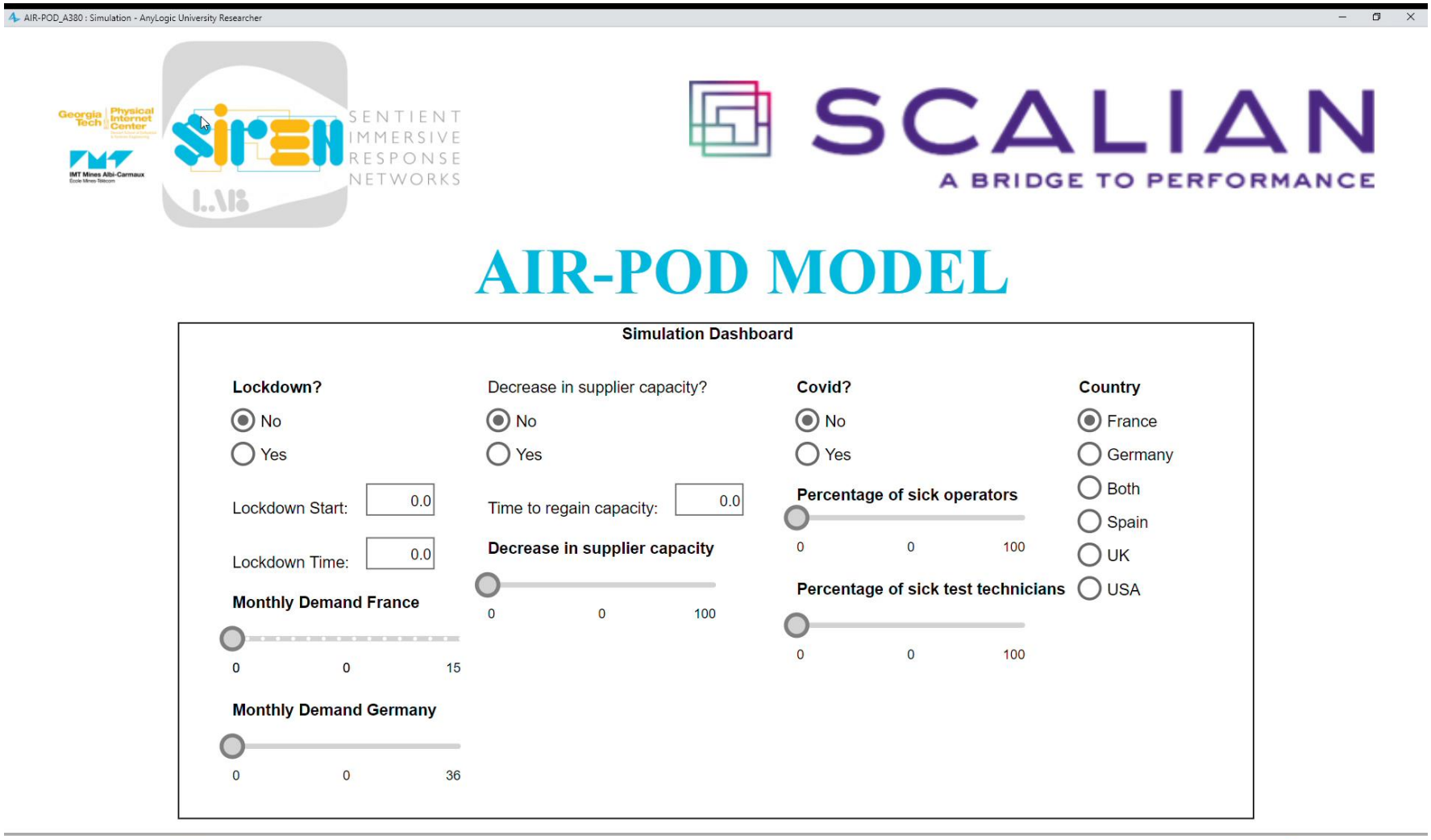
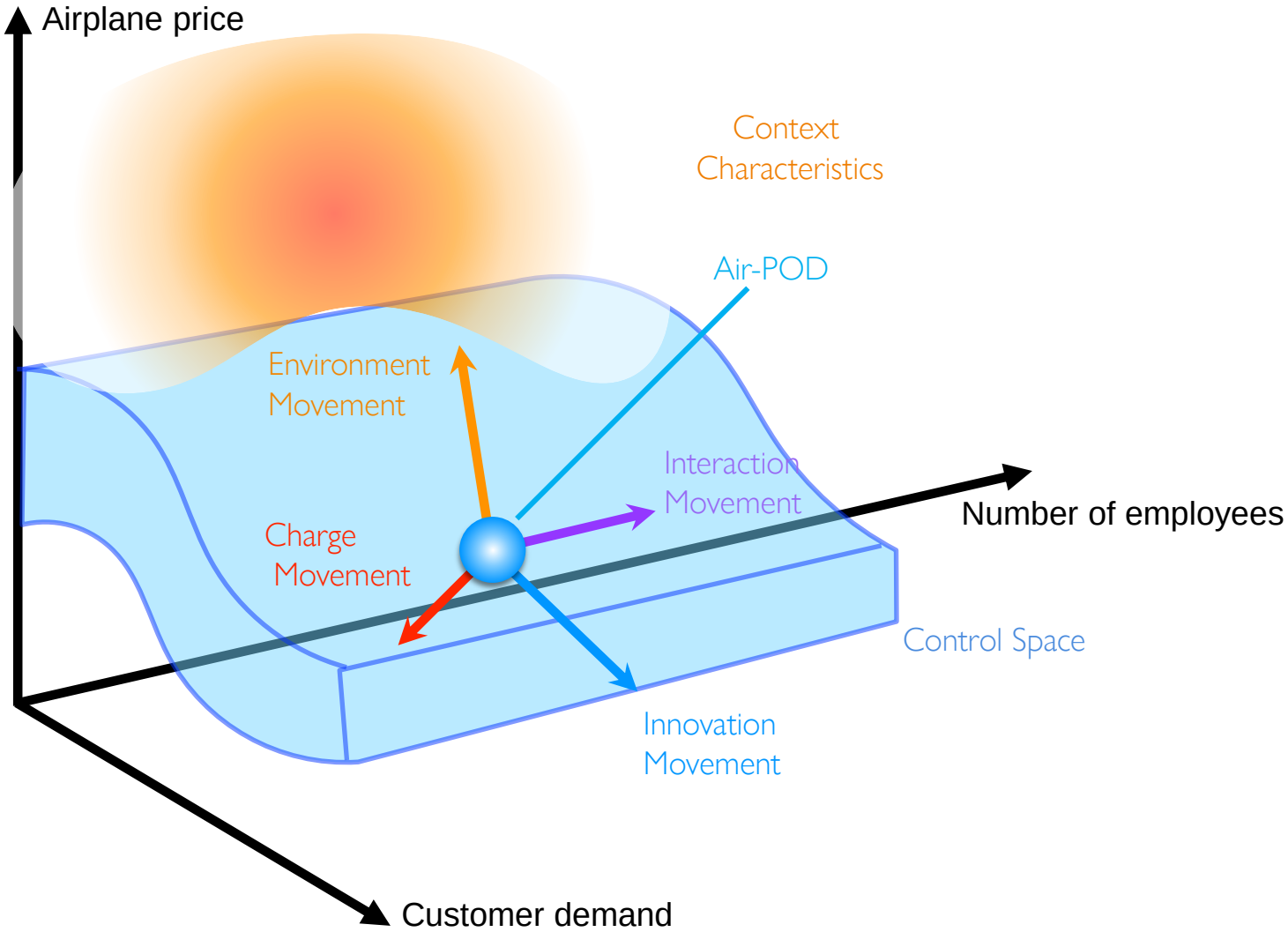
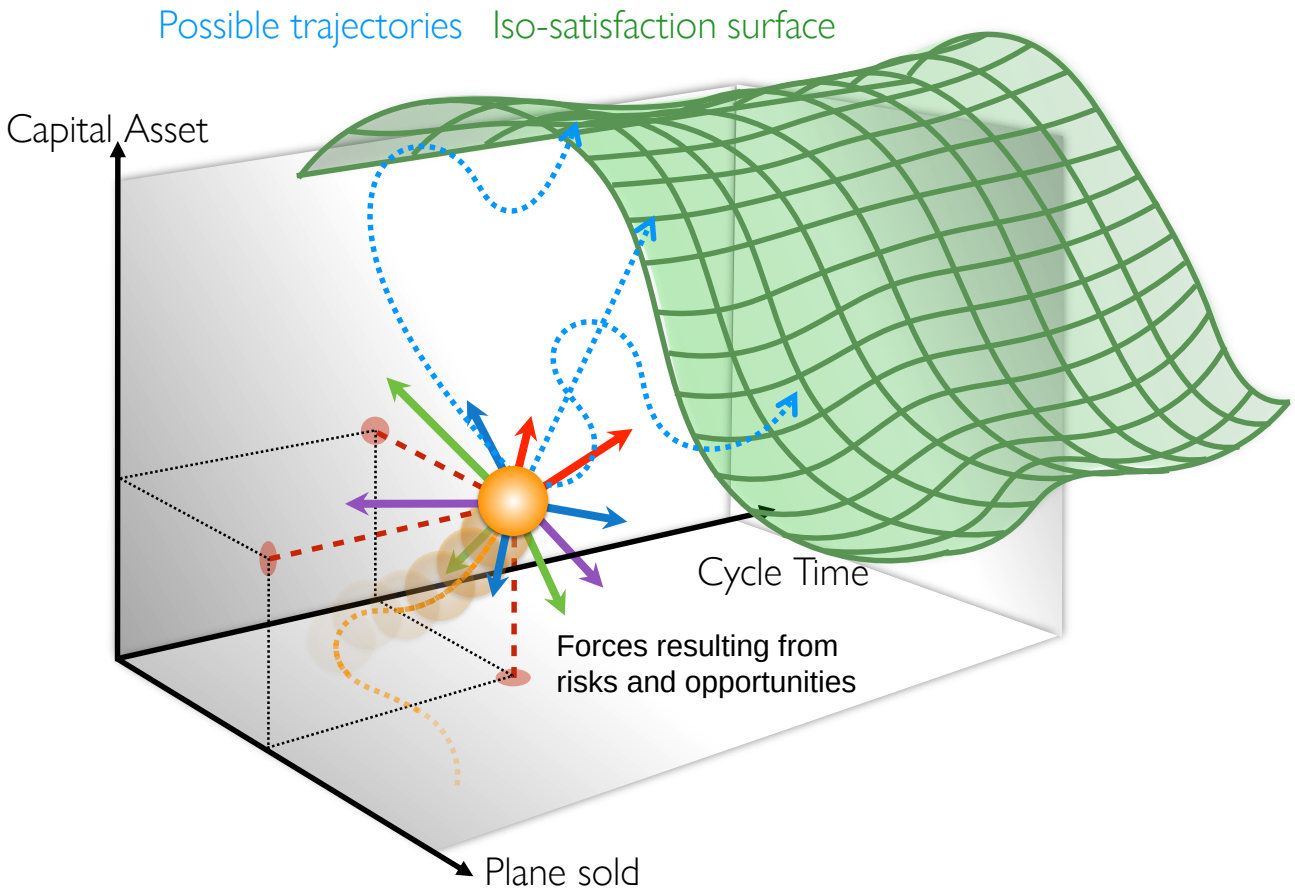
Air-POD : presentation of the model



POD: description space



POD: performance space



Creating an atomic model based on SCOR

Complex and costly model not reusable

Difficult to evaluate the micro-impacts of disturbances

Determine the modules of a supply chain

SCOR is a recognized Model

Defined standard processes in a hierarchical way

Level of decomposition required

1 **Major Process**

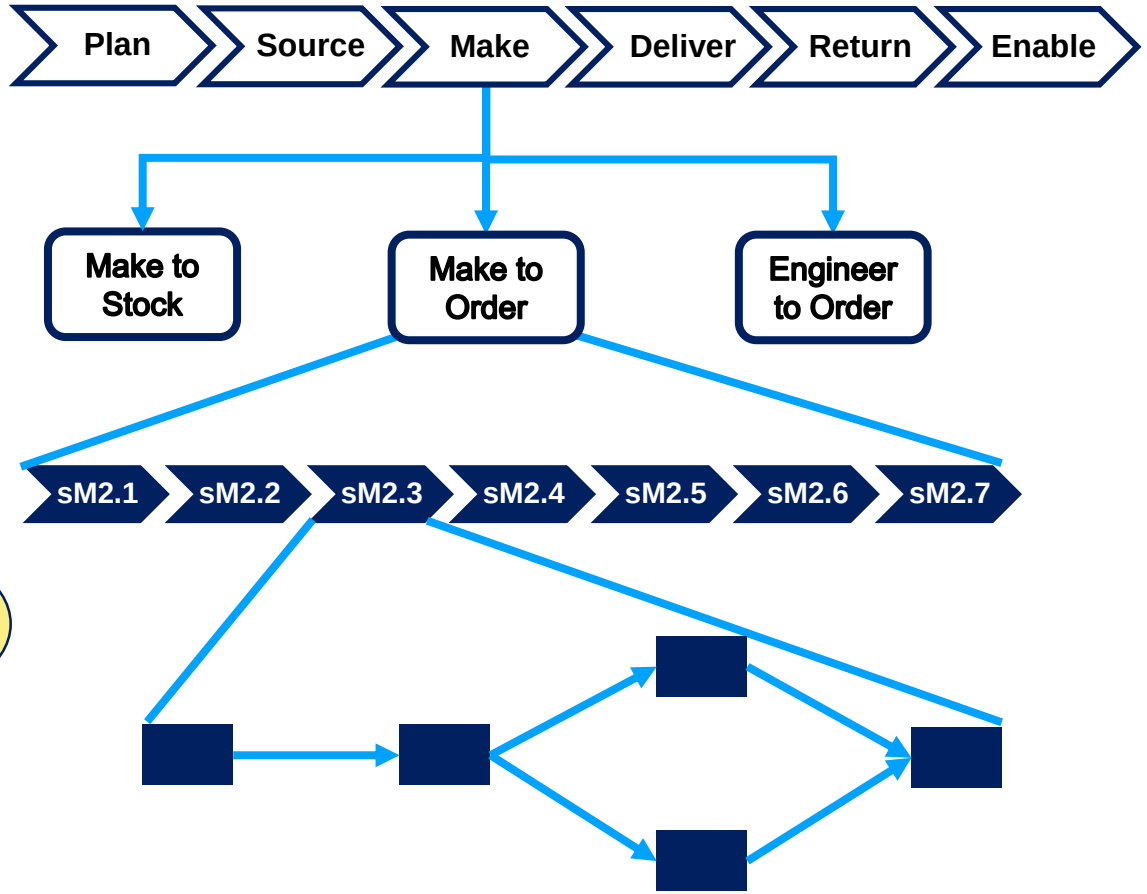
2 **Process Categories**

Atoms

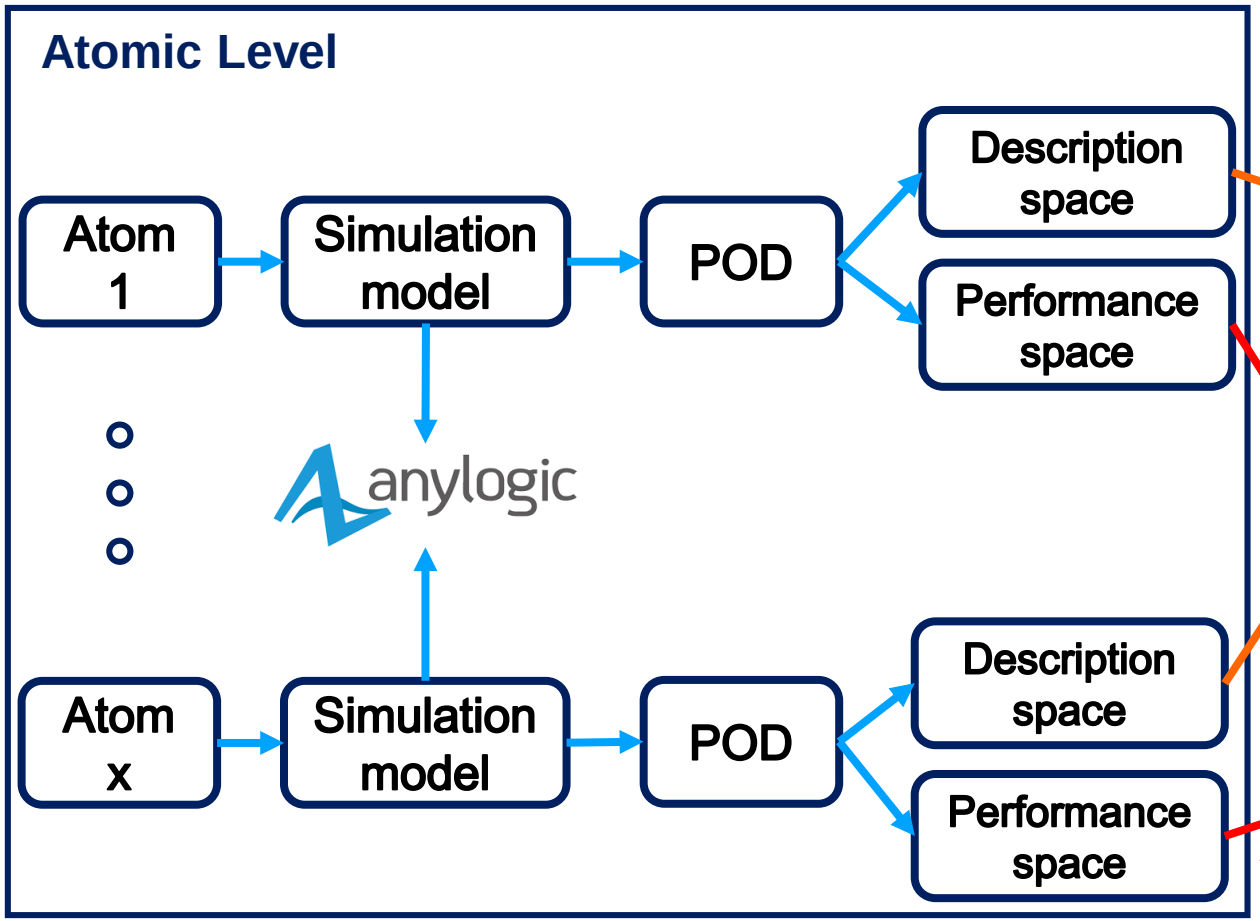
3 **Process Elements**

Atom Process

4 **Decompose Process Elements**

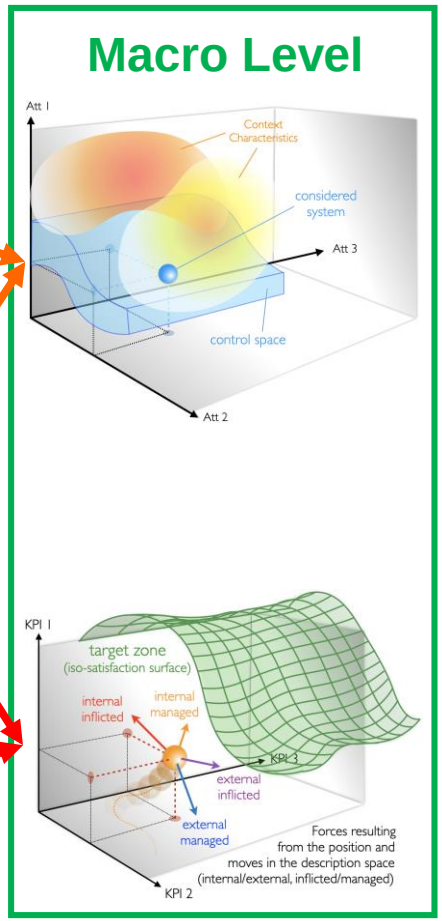


Atomic model: general idea

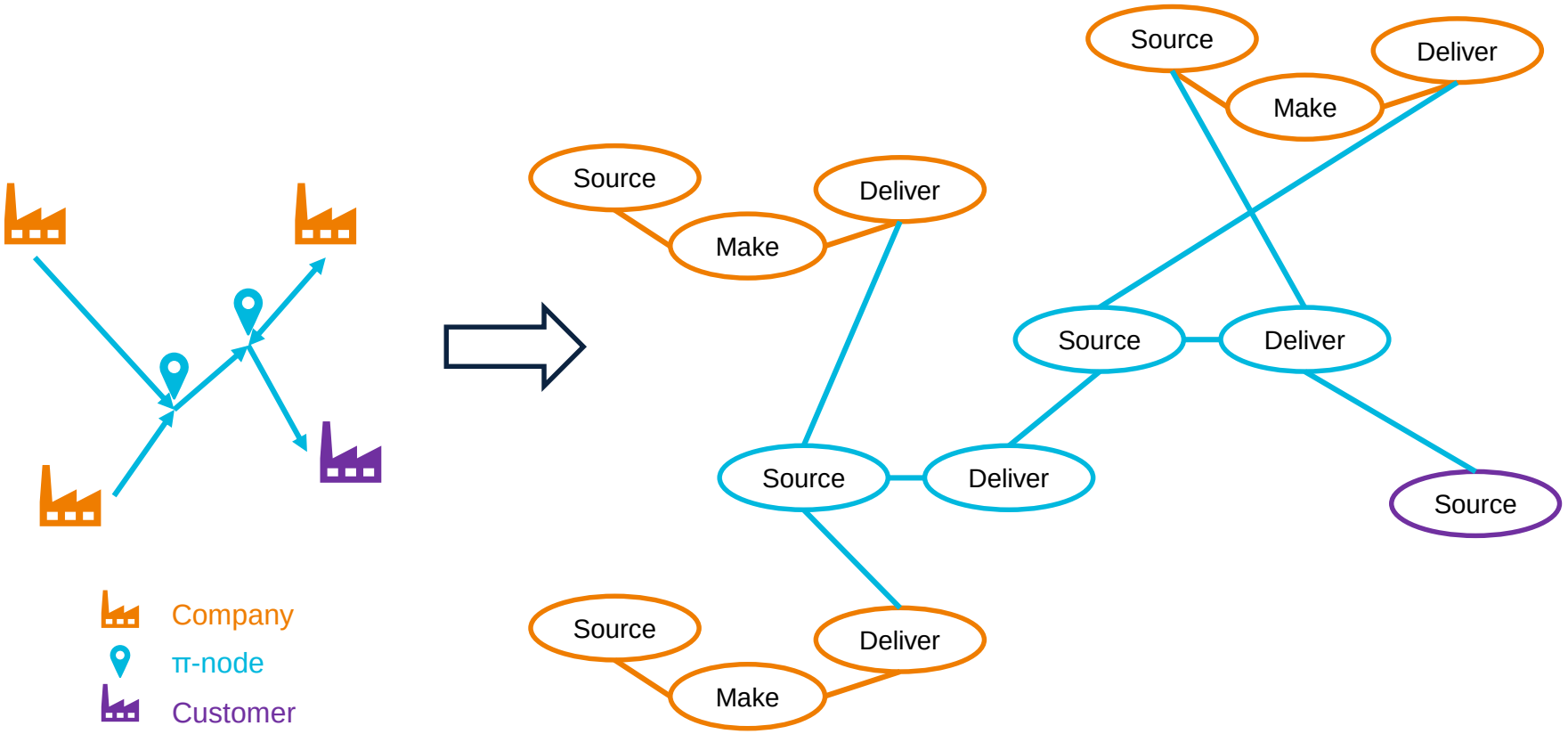


Subsets

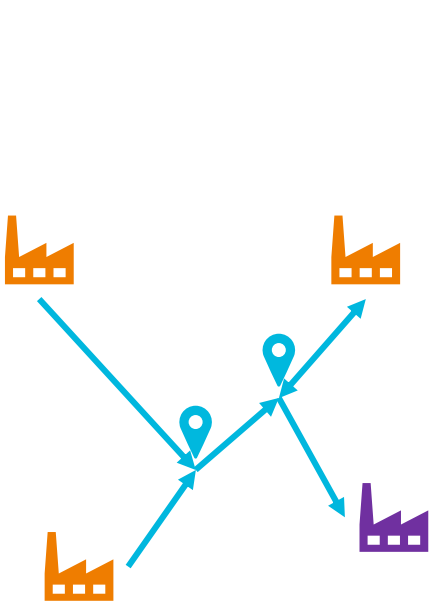
Aggregation functions



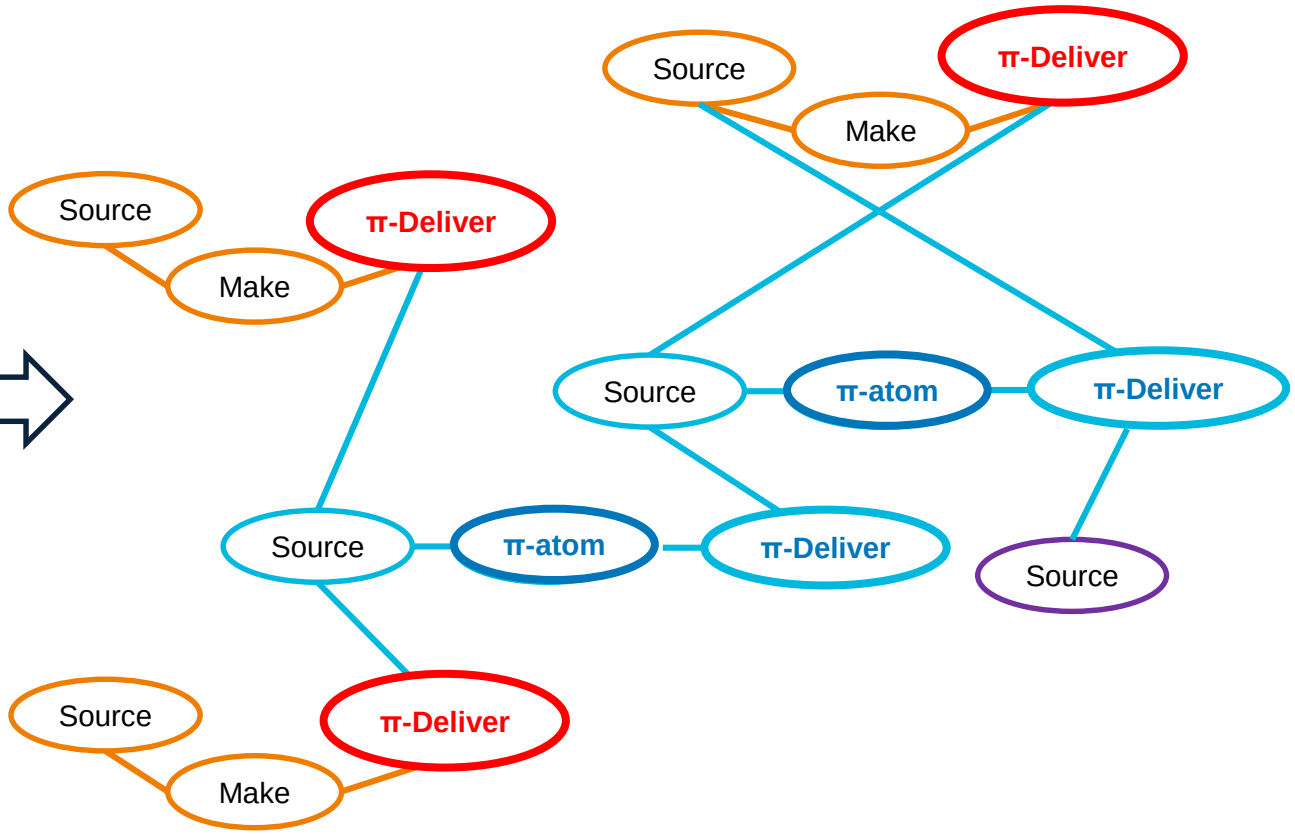
Perspectives: a π-inspired model



Perspectives: Towards π-atoms



Company
π-node
Customer



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Thank you for your attention

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