# PERSPECTIVES IN INTEGRATED SUPPLY CHAIN PERFORMANCES MANAGEMENT

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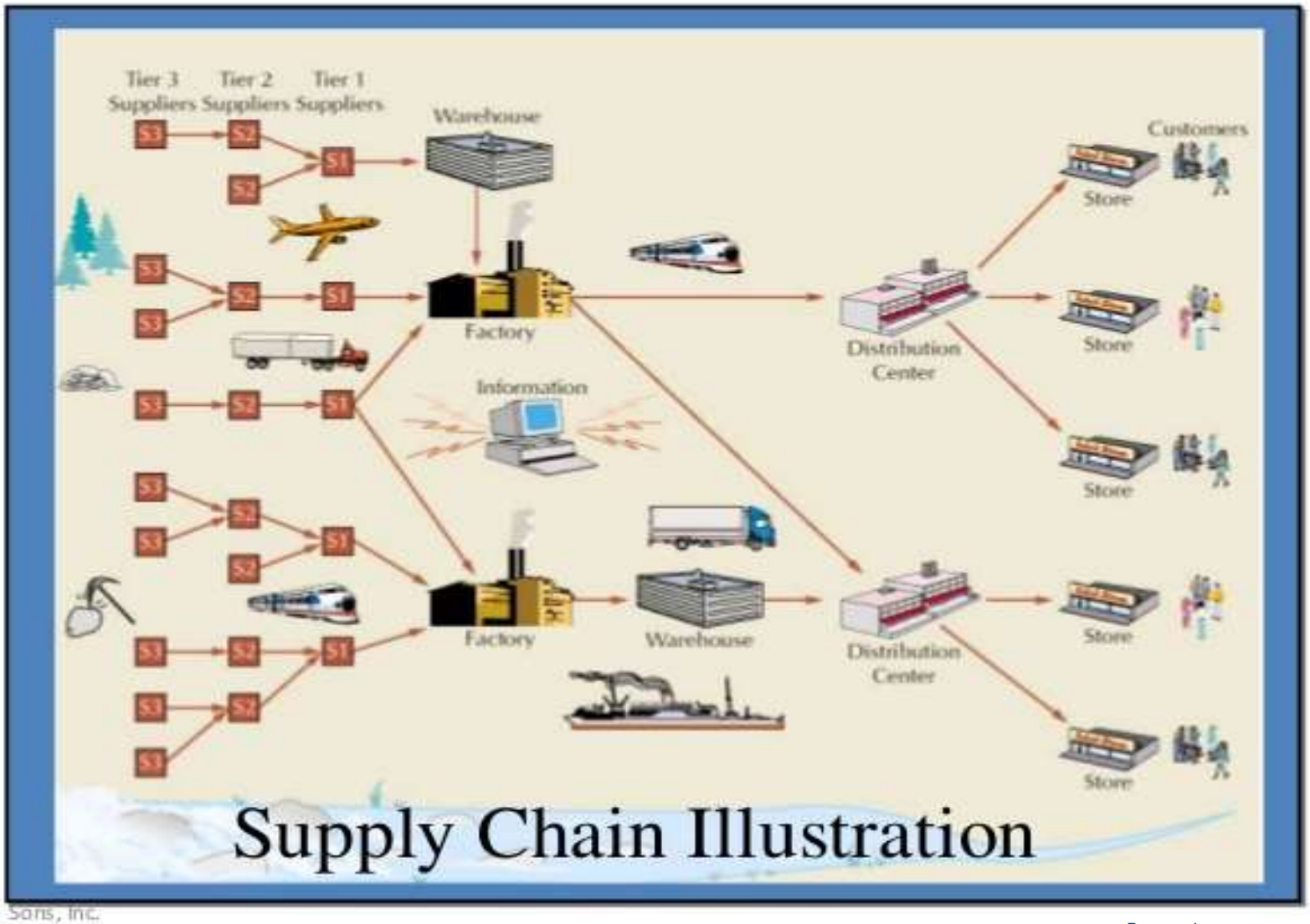
# 1. INTRODUCTION

## *Supply Chain Management*

# 1. INTRODUCTION

## *Supply Chain Concept*

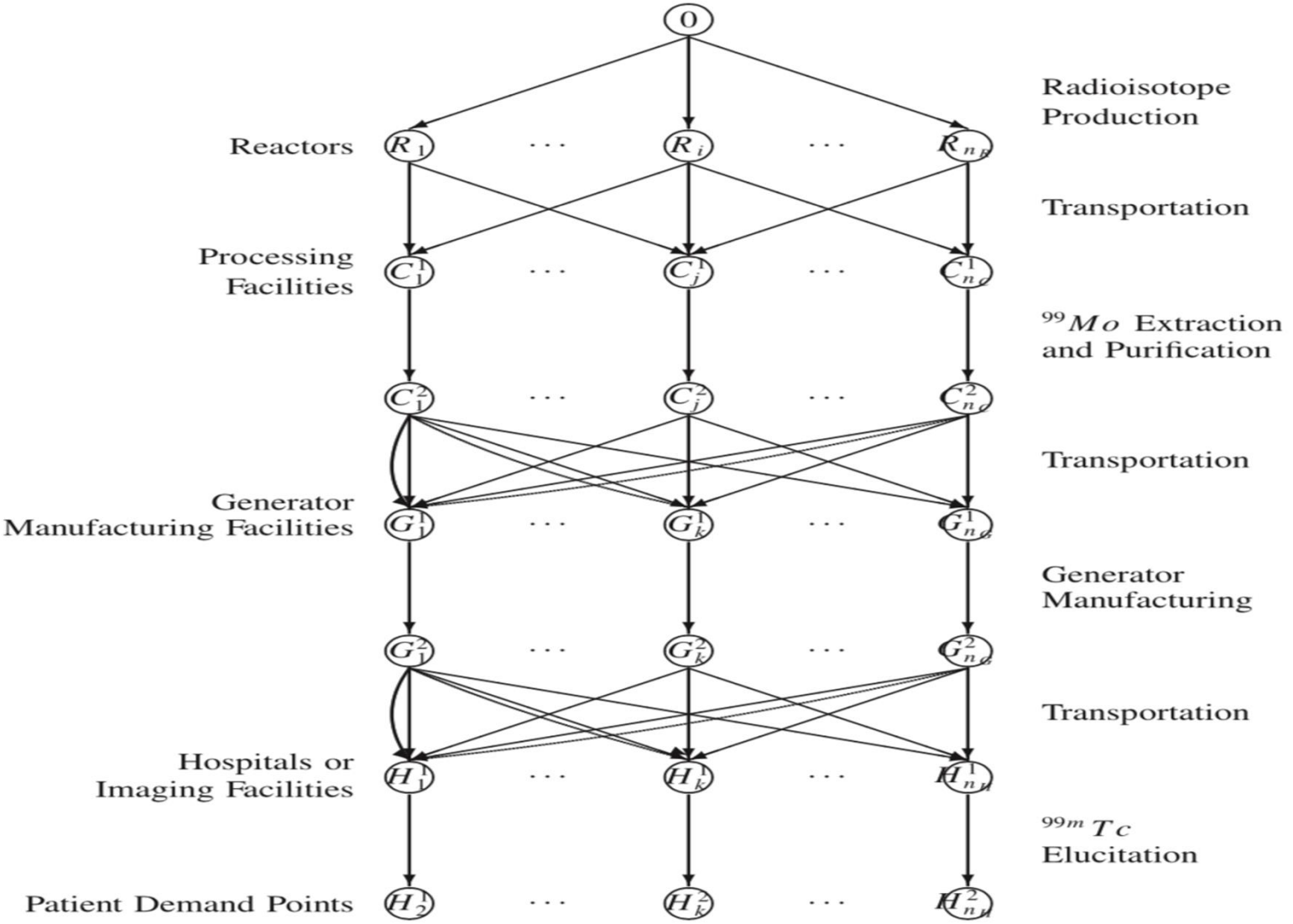



*source: Pearson Inc*

# 1. INTRODUCTION

## *Medical Radioisotopes Supply Chain Network Typology*

***Source: Nagurney & Nagurney***



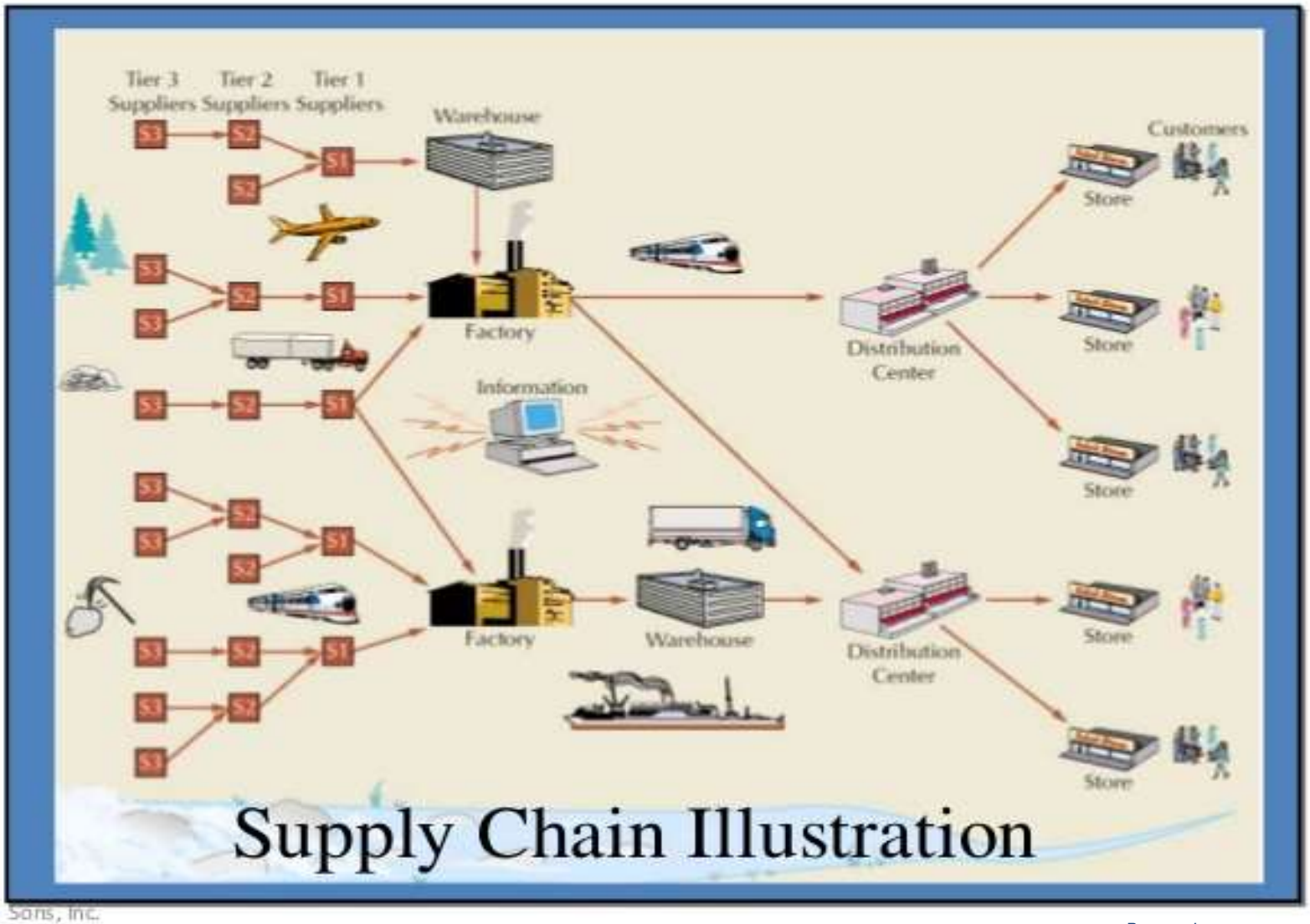
# 1. INTRODUCTION

## *Some particularities & constraining characteristics of MR Supply Chains*

- Hazardous product nature
- Responsibilities of different actors in the supply chain
- Time-sensitivity (short half-life)
- Specific packages required
- Highly regulated sector with regards safety & security
- Handful of nuclear research reactors
- Difficult to change the structure of the supply networks
- Difficult to introduce additional transhipment nodes
- Difficult to change the type of vehicles due to security…

# 1. INTRODUCTION

## *Supply chain Management*




*source: Pearson Inc*

# Why Focus on Supply Chain Management?

## SCM is Paramount in Times of Economic Uncertainty!

## It's where the money is!

- In 2011, US business logistics costs were $1.28 trillion (8.5% of US nominal Gross Domestic Product ) [3]
- Supply-chain generally accounts for between 60% and 90% of all company costs[1]
- A 2% improvement in process efficiency for supply-chain processes has much more leveraged an impact compared to a 2% improvement in efficiency for… IT… HR… Finance[1]… Sales…

| Fortune-10 Company Supply-Chain Cost as % of Total Costs [2] | |
|---|---|
| GM | 94% |
| Ford | 93% |
| Conoco | 90% |
| Wal-Mart | 90% |
| Chevron | 88% |
| IBM | 77% |
| Exxon | 75% |
| GE | 63% |
| Citi[1] | 0% |
| AIG[1] | 0% |

1 Exclusive of Financial Services companies
2 Source: Hoovers 2006 Financial Data, Supply-Chain Council 2006 SCM Benchmark data on SCM cost for discrete & process industries
3 CSCMP 19th Annual State of the Logistics Industry

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1. INTRODUCTION
*Supply Chain Management*

2. INTEGRATION *[definition, what? ...]*
*The backbone of Supply Chain Management*

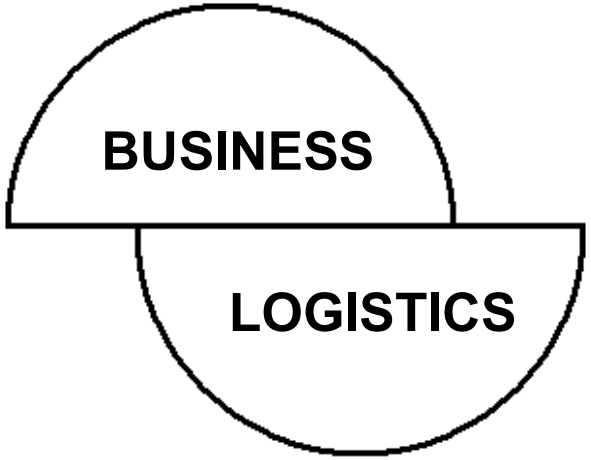
3. INTEGRATION *[can we measure it?]*
*How performant is the integration?*

4. INTEGRATION *[critical ffwd challenges we need to consider]*
*Some critical trends and challenges*

5. INTEGRATION *[towards a new generation of SCPM Models]*
*Towards a new generation of performance based SCM Models*

# 2. INTEGRATION : THE BACKBONE OF SCM

## Supply Chain integration: The breakthrough to be targeted

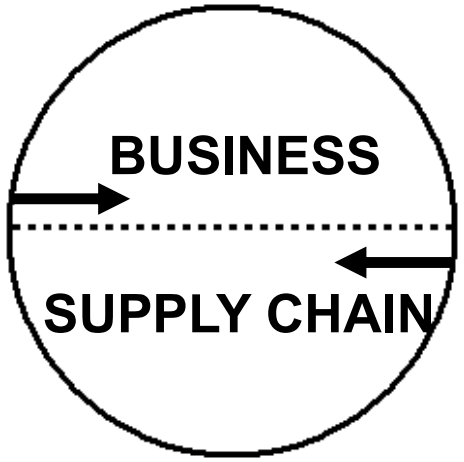



**To go from …**

**A fragmented Logistics**

**A « Push » Logistics (from operations towards markets)**

**A monolithic Logistics**




**to …**

**An integrated Supply Chain process**

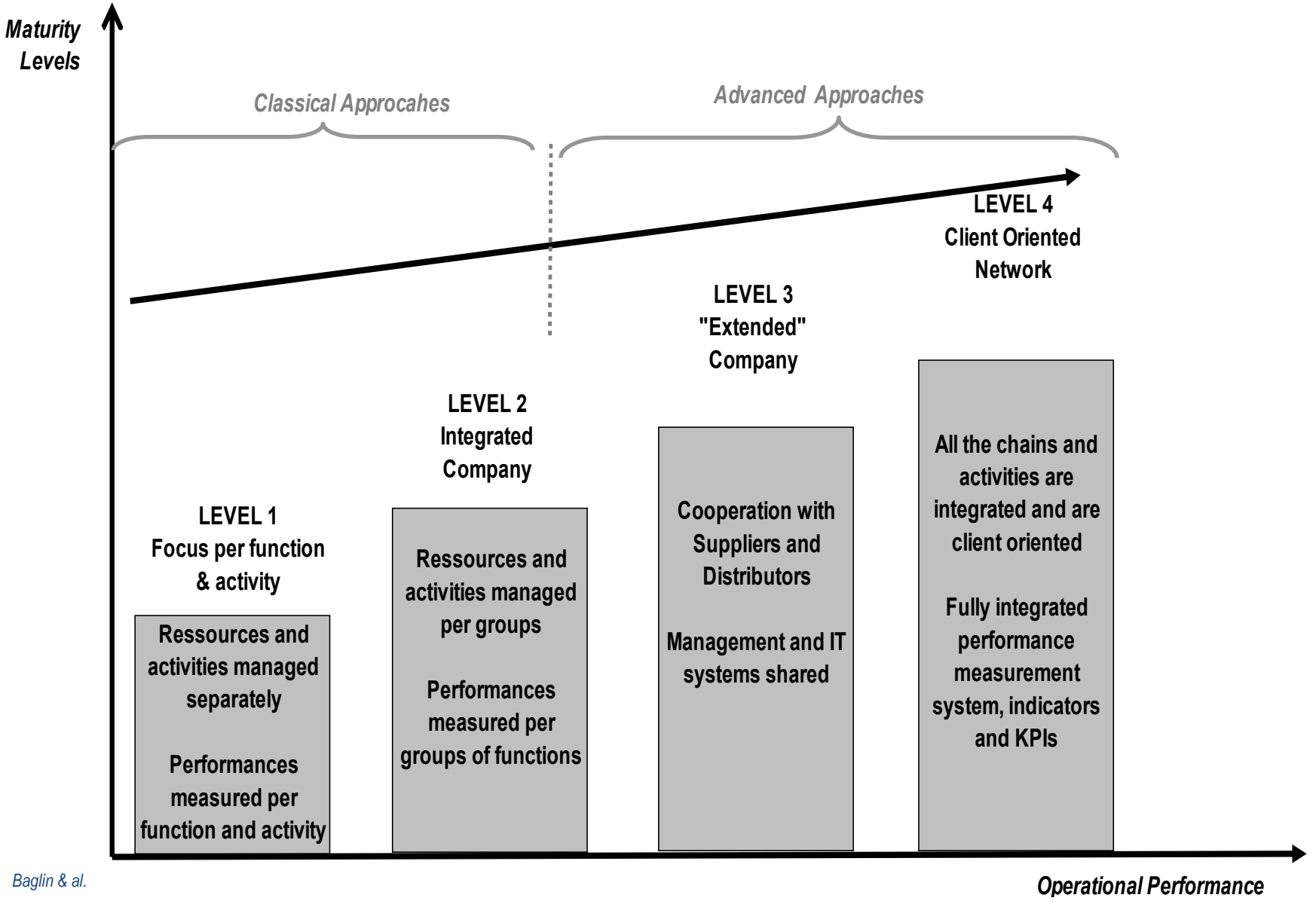
**A « Pull » Logistics (from markets towards operations)**

**A differentiated Logistics based on a permanent trade-off process « service value vs cost »**

*Adapted form M. Fender*

# 2. INTEGRATION : THE BACKBONE OF SCM

## An efficient measure of integration: the *Maturity Levels*



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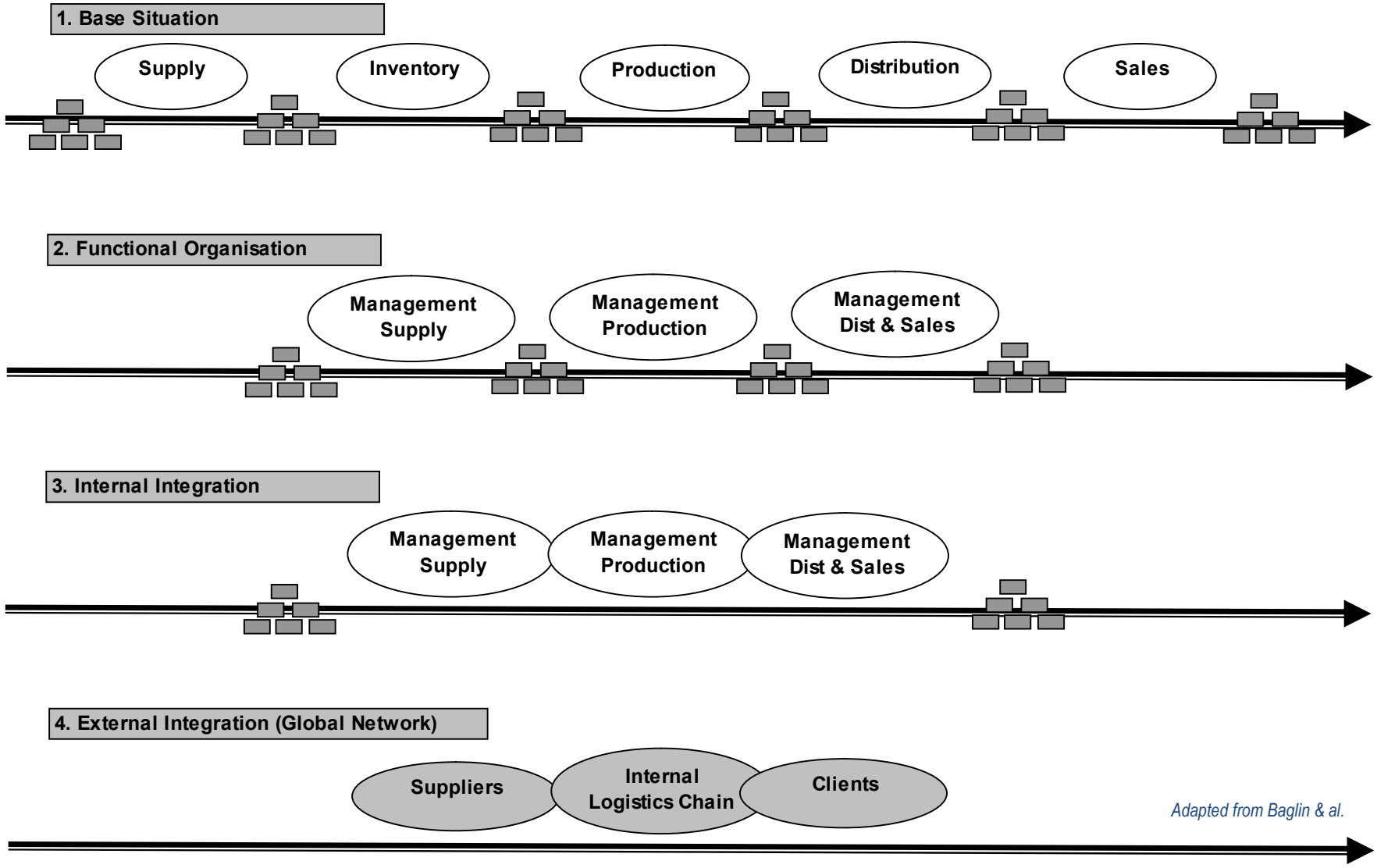


*Adapted from Baglin & al.*

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## 3. INTEGRATION : HOW PERFORMANT IS IT?

# Performance Measurement: concepts & issues

## Measuring How Performant is the Supply Chain Integration ?

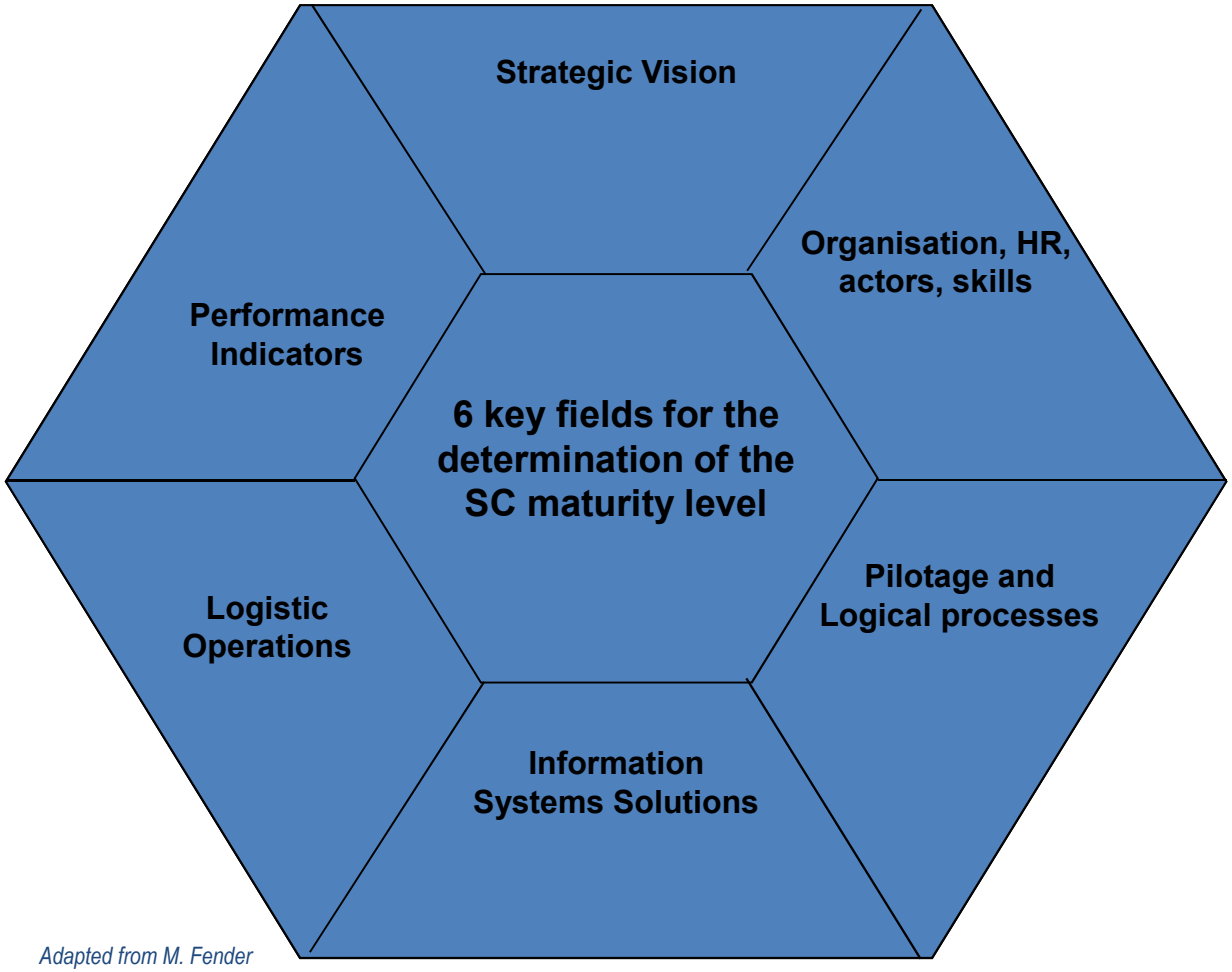
**OBJECTIVE**

- **Assess the performances of the supply chain**
- **Determine the levels of maturity**
- **Highlight the potential for progress**
- **Determine the decisions/plans to be put into place in order to reach a higher integrated level**

# 3. INTEGRATION : HOW PERFORMANT IS IT?

## Performance Measurement: concepts & issues

### Framework for measuring performance of Supply Chain Integration

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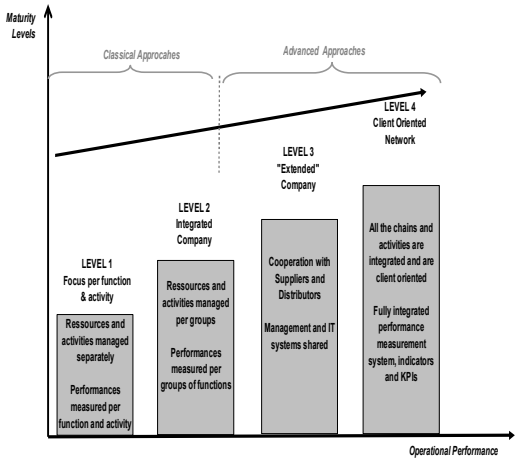

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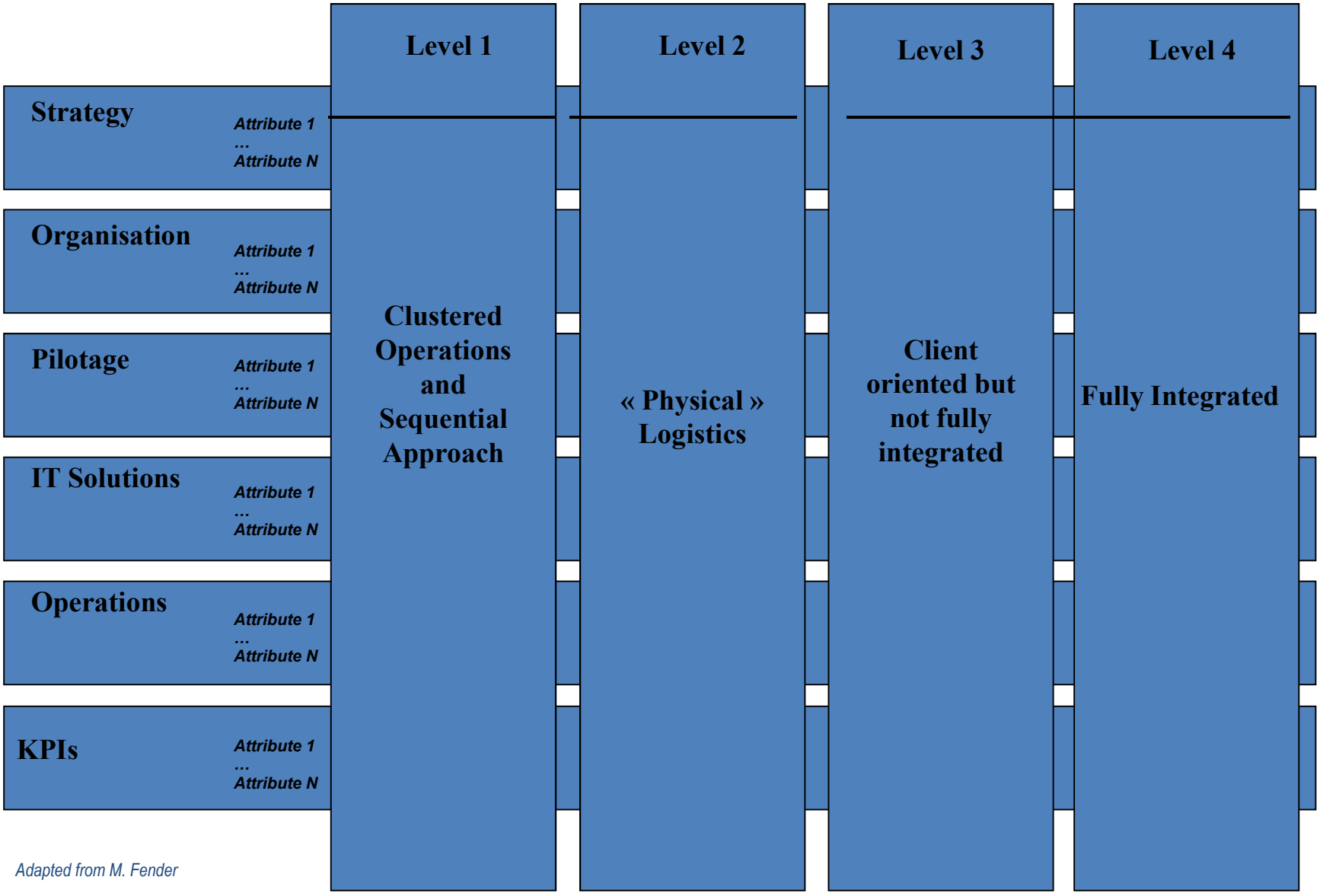
## Framework for measuring performance of supply chain integration

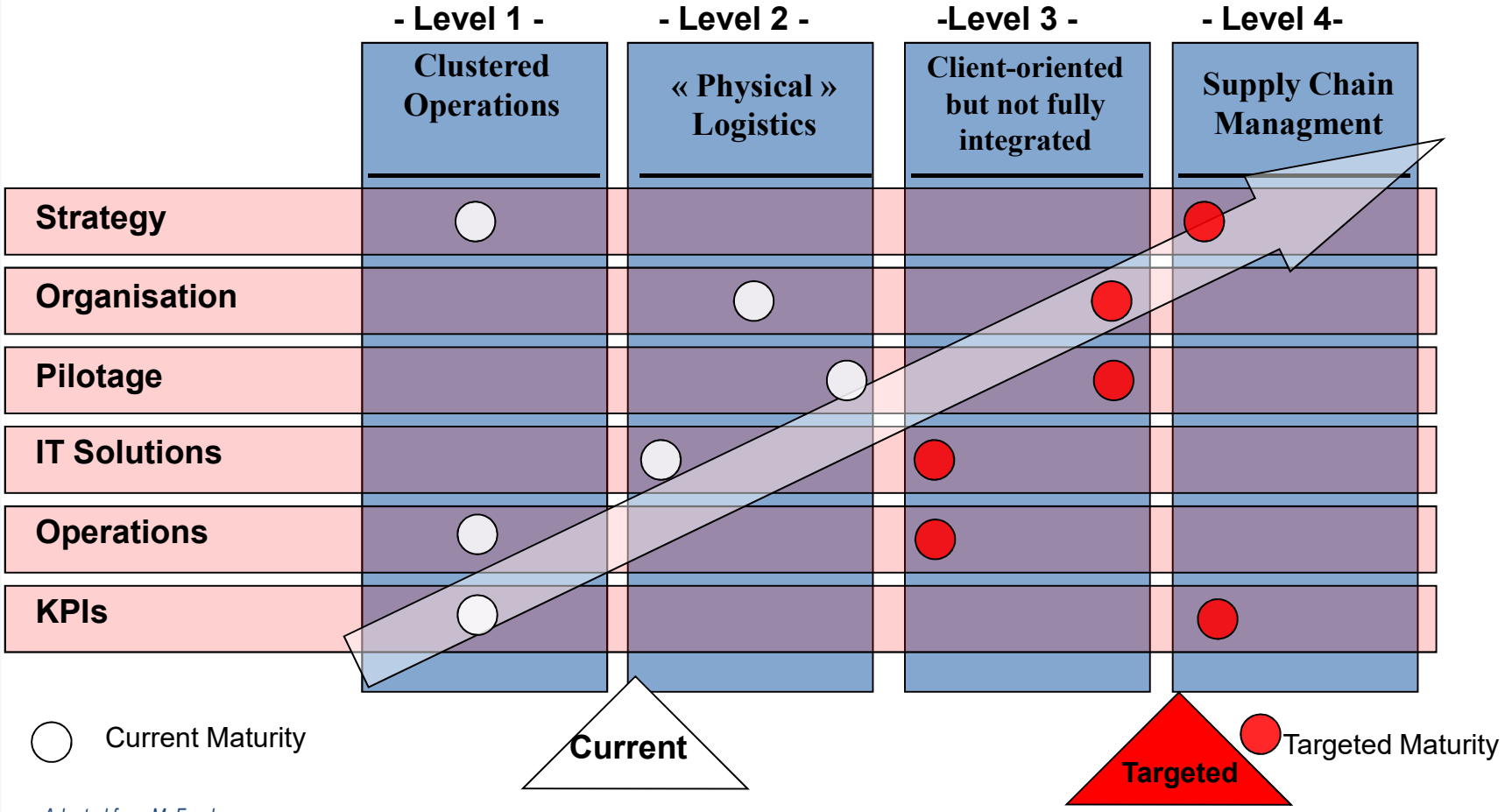



*Adapted from M. Fender*

# 3. INTEGRATION : HOW PERFORMANT IS IT?

## Measuring performance of supply chain integration: example

**<u>Diagnostic:</u> This supply chain is mostly « operations » oriented. There is no external integration, no preventive management of unexpected events (f.e. supplier failure) no integration between internal functions. The performance parameters are all centered around product delivery, product cost, product quality and not the competitive advantage. [*Fender M.*]**

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# 4. SOME CRITICAL TRENDS AND CHALLENGES

## EXAMPLES

- Globalisation of supply chains and their increasing complexity
- Global poltical context and potential disruptions
- Shortening of products life cycles
- Tightening of regulations
- Empowered consumer
- Digital boom
- Huge amounts of data and increasing power calculation
- Economical uncertainty / nervosity
- Rising environmental concerns
- Ever increasing distribution costs
- Competition

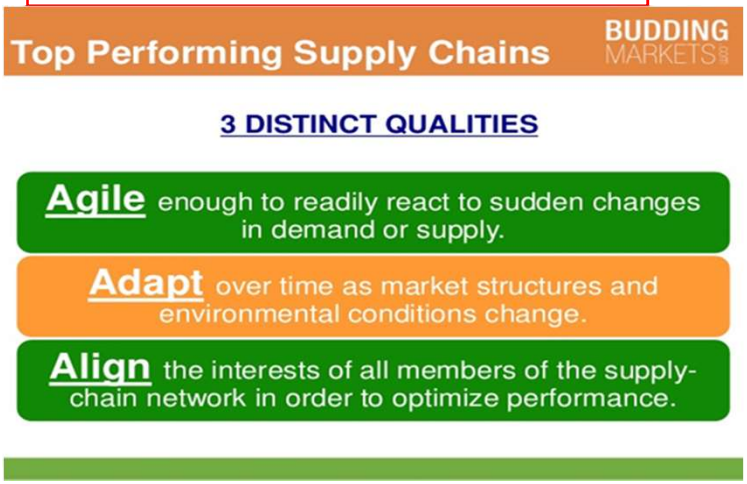
# 4. SOME CRITICAL TRENDS AND CHALLENGES

## IMPLICATIONS:

***MULTIPLE SUPPLY CHAIN MANAGEMENT STRATEGIES ARE DEVELOPPED/ENVISAGED***

The GREEN strategy which targets negative impacts on the natural environment

The LEAN SIX SIGMA strategy which targets waste reduction and complexity reduction across the supply chain.




The CUSTOMER-ORIENTED strategy which targets delivering on-demand to the Right Client,
*The Right Product*
*In the Right Quantity*
*At the Right Place*
*At the Right Time*
*At the Right Conditions*
*At the Right Price*

The GLOBAL strategy
The PROFITABLE strategy
The SOCIALLY RESPONSIBLE strategy
The ...

# 4. SOME CRITICAL TRENDS AND CHALLENGES

***MULTIPLE SUPPLY CHAIN MANAGEMENT STRATEGIES ARE CONSIDERED***

**WHICH SCM STRATEGY IS RIGHT? Simultaneous strategies or…?**

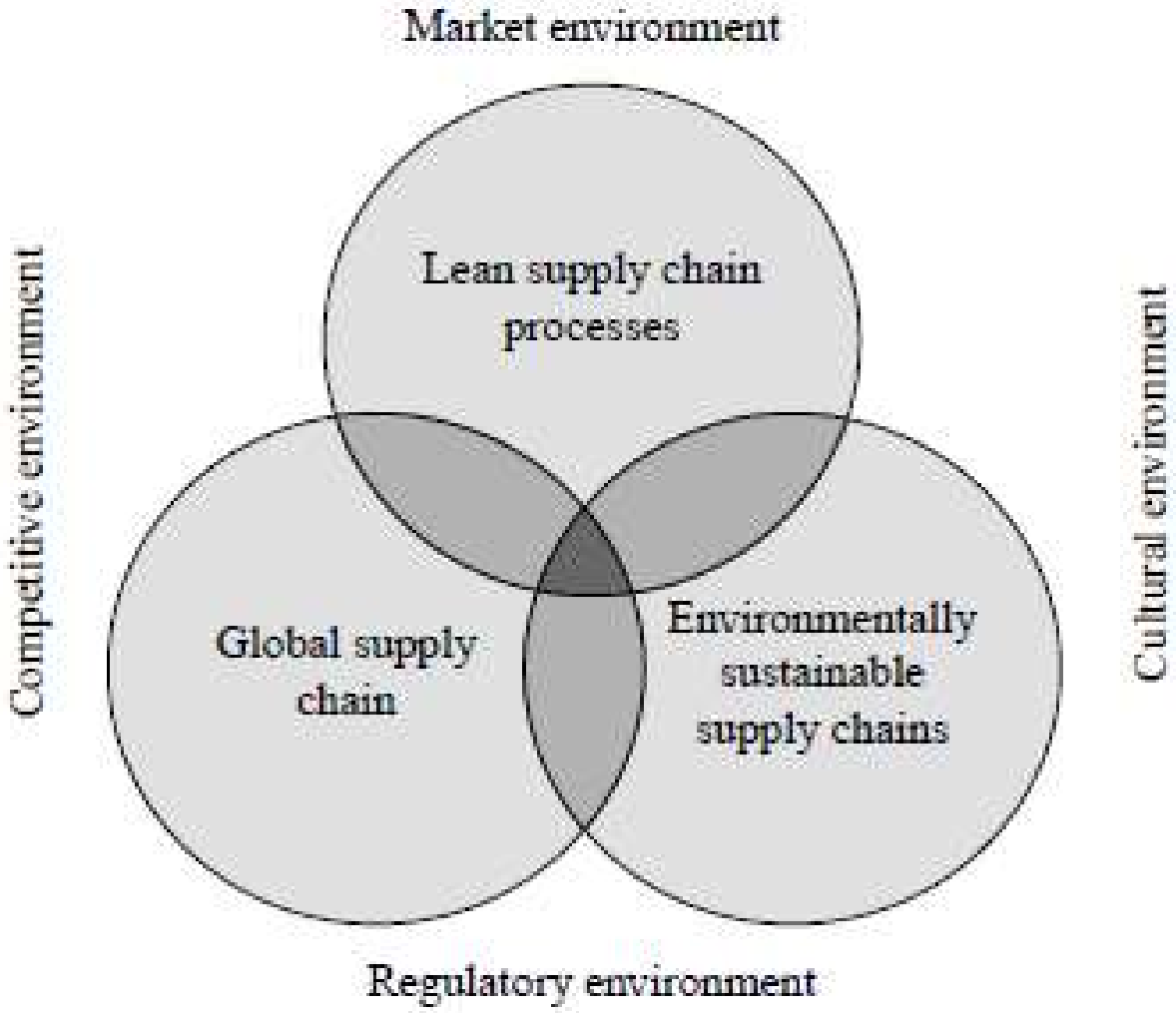



**Figure 1.**
Green, lean, and global supply chains: research domain

*Mollenkopf, Stolze, Tate, Ueltschy, (2010), "Green, lean, and global supply chains", IJPDLM, Vol. 40 Iss: 1 pp. 14 - 41*

# 4. SOME CRITICAL TRENDS AND CHALLENGES

**WHICH SCM STRATEGY IS RIGHT? Simultaneous strategies or…?**

## CRITICAL QUESTIONS

- How to combine green strategies with an agile response ?
- How to consider lean strategies when supply chain is subject to disruptions and cannot be resilient enough to recover competitiveness?
- How compatible are green and lean strategies?
- How organizations may face obstacles to develop agility and resilience?
- How resilient strategy is important so that the supply chain get to be green?
- (…)

*Adapted from: V. Machado, S. Duarte*
*"Tradeoffs among paradigms in supply chain management, IEOR 2010*

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## 5. TOWARDS A NEW GENERATION OF SCPM MODELS

**A SUPPLY CHAIN IS A SYSTEM AND MUST BE VIEWED AS SUCH**

**Leading supply chains** focus on two important dimensions:

First, **holistically define** the scope for resolving issues

*(supply chains as interactive systems, not addition of silos).*

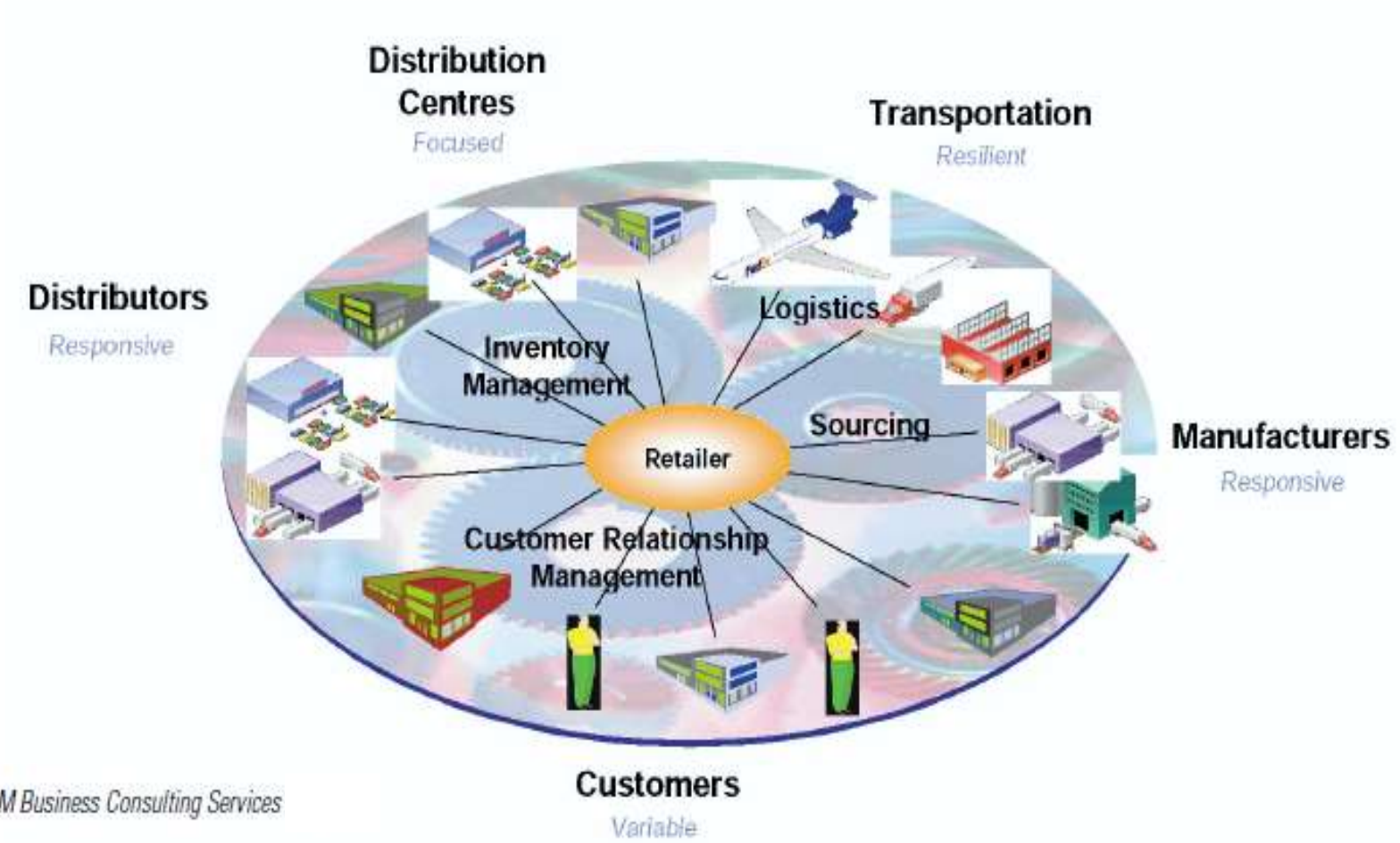
Second, have a **proactive** bias toward how issues are resolved

*(focus on preventing fires, not on fighting them).*

*Source: Hau Lee & J. Amaral*

# 5. TOWARDS A NEW GENERATION OF SCPM MODELS

**REVISIT SUPPLY CHAIN STAKEHOLDERS BEHAVIOUR**




Source: IBM Business Consulting Services

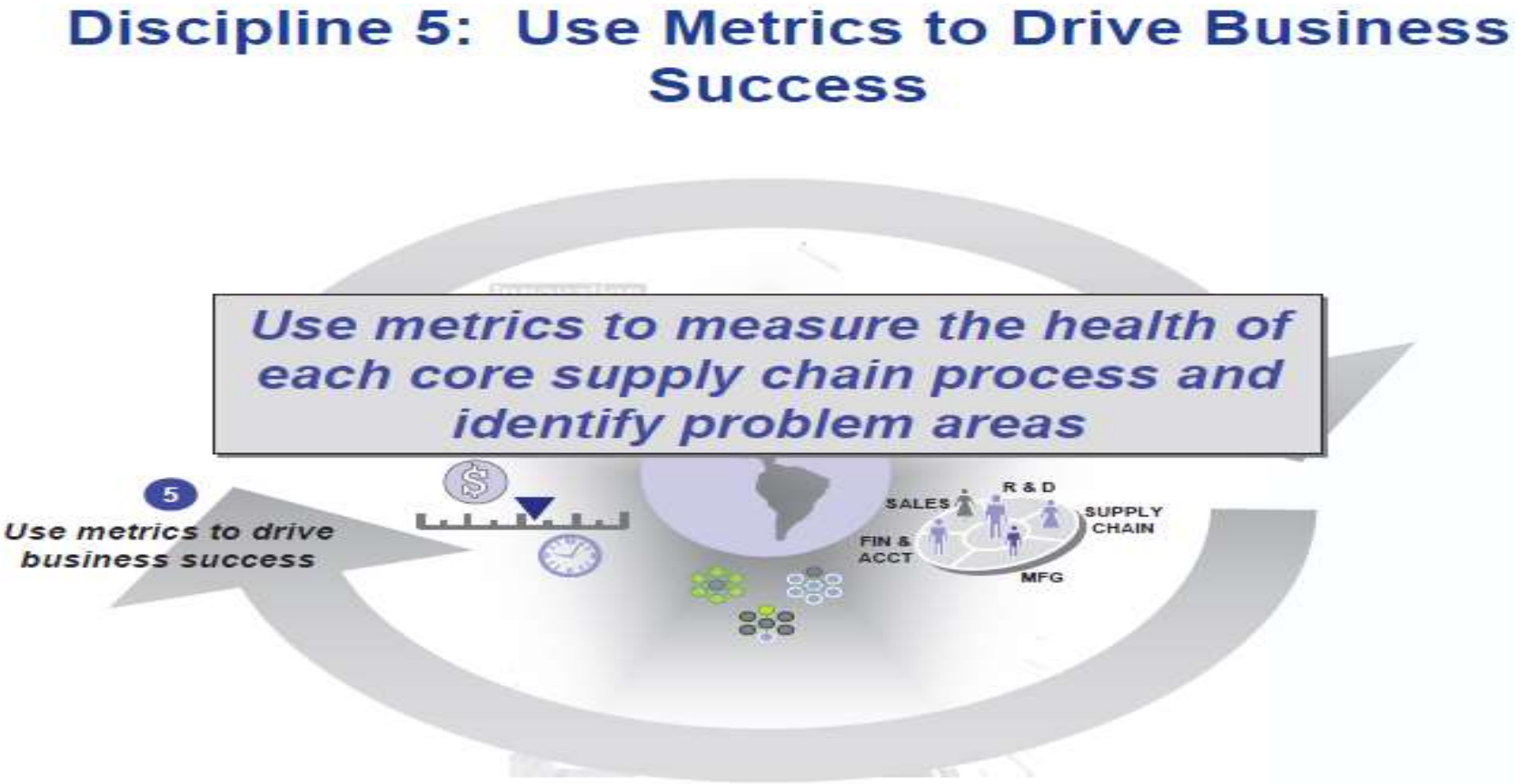
# 5. TOWARDS A NEW GENERATION OF SCPM MODELS

## FOCUS ON STRATEGIC SUPPLY CHAIN MANAGEMENT PRINCIPLES


source: PRTM

# 5. TOWARDS A NEW GENERATION OF SCPM MODELS

**SYSTEMATIC USE OF GOOD METRICS TO DRIVE BUSINESS**




*source: PRTM*

## 5. TOWARDS A NEW GENERATION OF SCPM MODELS

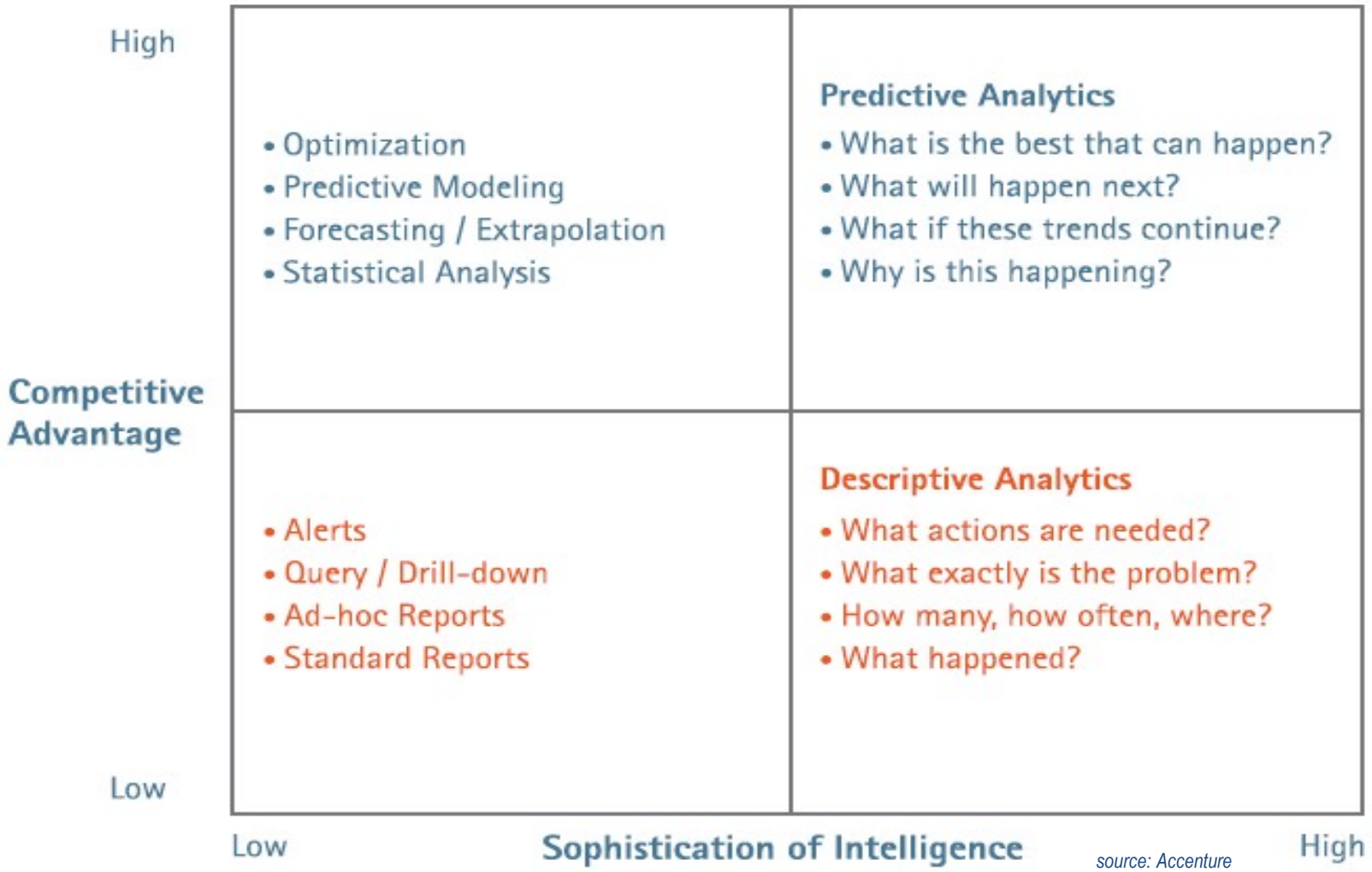
**NEW SUPPLY CHAIN PERFORMANCE MANAGEMENT SYSTEMS**

1. A new driver-based metrics framework that seriously considers the right cross-functional accountabilities
2. Stable data with few unexplainable swings
3. Capable of drill-down analysis to search for root causes and of simulation to anticipate future
4. Easily accessible to and accepted by relevant parties
5. Supported by a disciplined and documented governance process

**Source: Terra Tech, University of Tenessee and Ernst & Young, 2013**

# 5. TOWARDS A NEW GENERATION OF SCPM MODELS

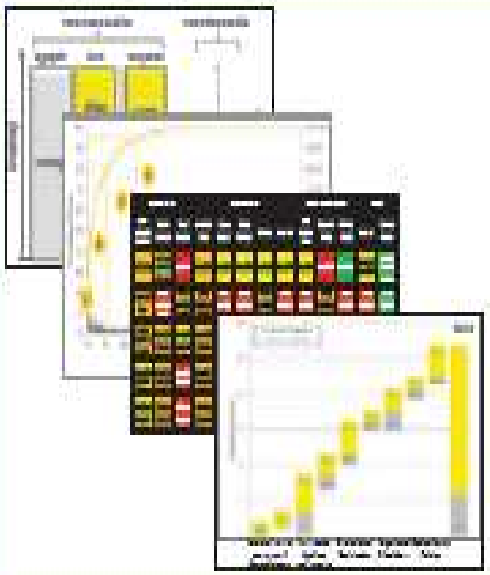
***NEED TO CONSIDER THE INCREASING POWER & SCOPE OF ANALYTICS***



# 5. TOWARDS A NEW GENERATION OF SCPM MODELS

**MODELS THAT CAN HELP TO SIMULATE, ANTICIPATE, MONITOR**

**Merging practice assessment and data analytics**



**Defining strategy, initiatives portfolio and road map**

**Establishing program governance, execution and monitoring**

*source: Ernst & Young*

# 5. TOWARDS A NEW GENERATION OF SCPM MODELS

***About an on-going research funded by AVN at Qalinca-Labs***

- Demonstrate that tools and approaches developed for *Integrated Supply Chain Performance Management* can be beneficial for Medical Radioisotopes Supply Chains.

- Provide to (medical radioisotopes business) decision makers a *suitable tool for improving the performance of the medical radioisotopes supply chains*.

## 5. TOWARDS A NEW GENERATION OF SCPM MODELS

***About an on-going research funded by AVN at Qalinca-Labs***

**STEP 1:**

Mathematical modelling, process mapping of the radioisotopes flows from upstream (distributors) to downstream (hospitals, patients) including intermediate stakeholders, specificities of the packages, transportation systems, vehicles, regulatory constraints and challenges lying ahead.

**STEP 2**

Design a radiomedical isotopes Integrated Supply Chain Performance Management Model sufficiently flexible, evolutive and capable of assessing continuously supply chains performances from multiple dimensions.

# TAKE AWAYS

**SUPPLY CHAIN IS A SYSTEM AND MUST BE VIEWED AS SUCH**
***(not a set of silos but an interactive system)***

**BETTER UNDERSTANDING OF SC STAKEHOLDERS BEHAVIOUR**
***(additional research needed)***

**COLLABORATION AND HARMONISATION OF RULES**
***(stakeholders collaboration; transport regulations in & out)***

→ **BETTER SUPPLY CHAIN MANAGEMENT DECISION MAKING TOOLS**

# THANK YOU FOR YOUR ATTENTION !