

An Approach for Enterprise Interoperability Measurement

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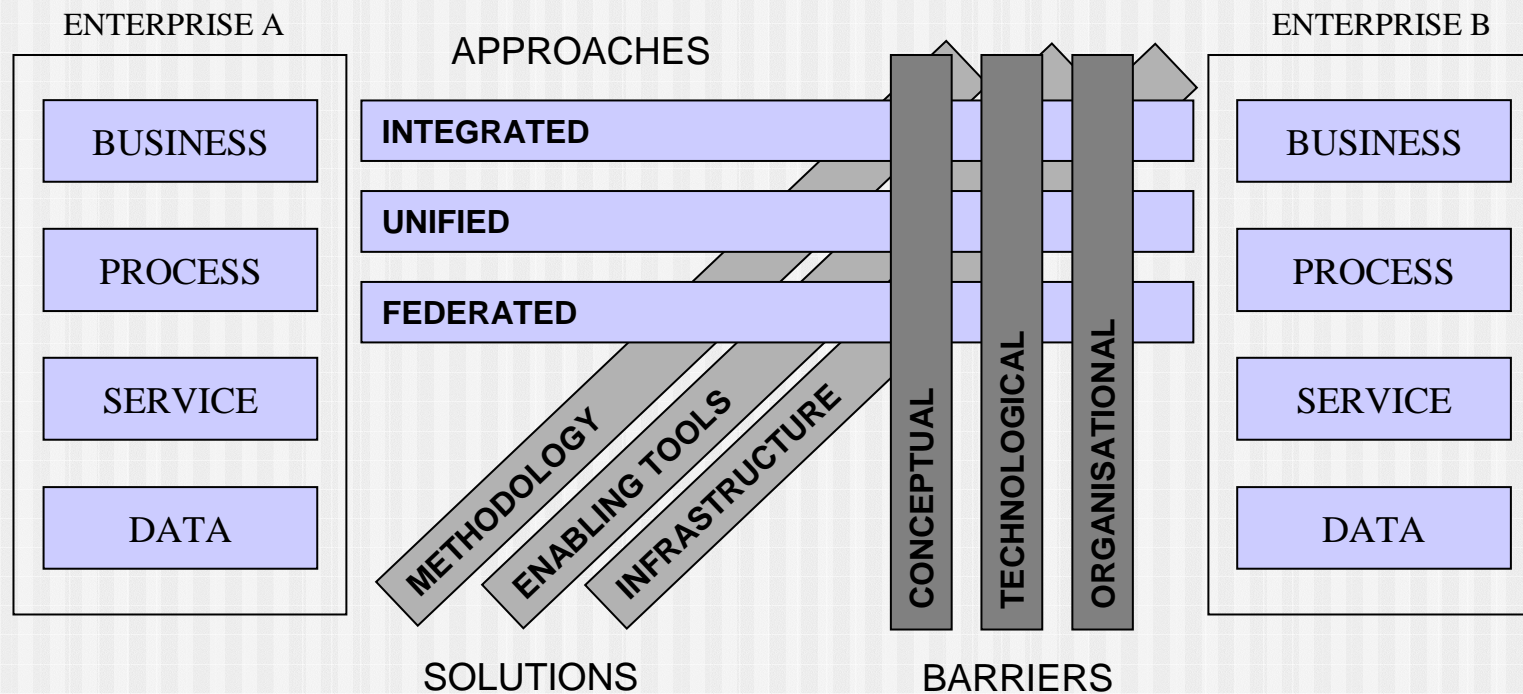
Enterprise interoperability

Hypothesis of the research⁶

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Enterprise interoperability

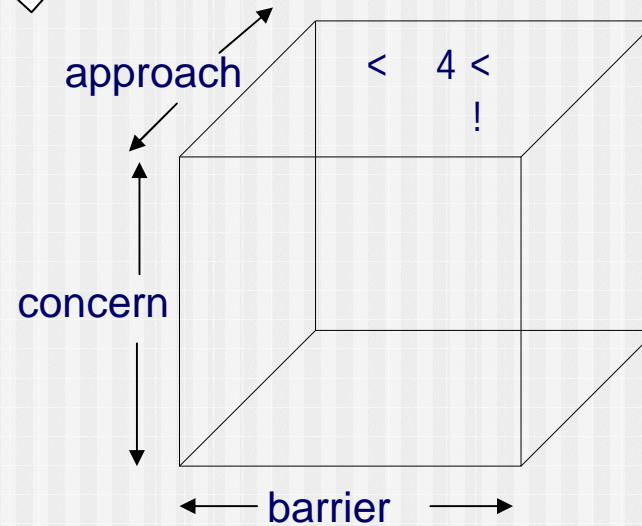
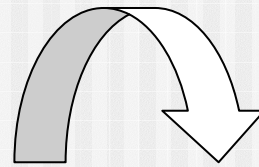
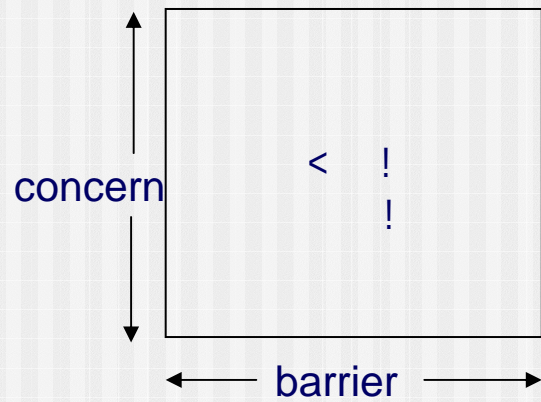
Basic concepts and issues



Enterprise interoperability framework

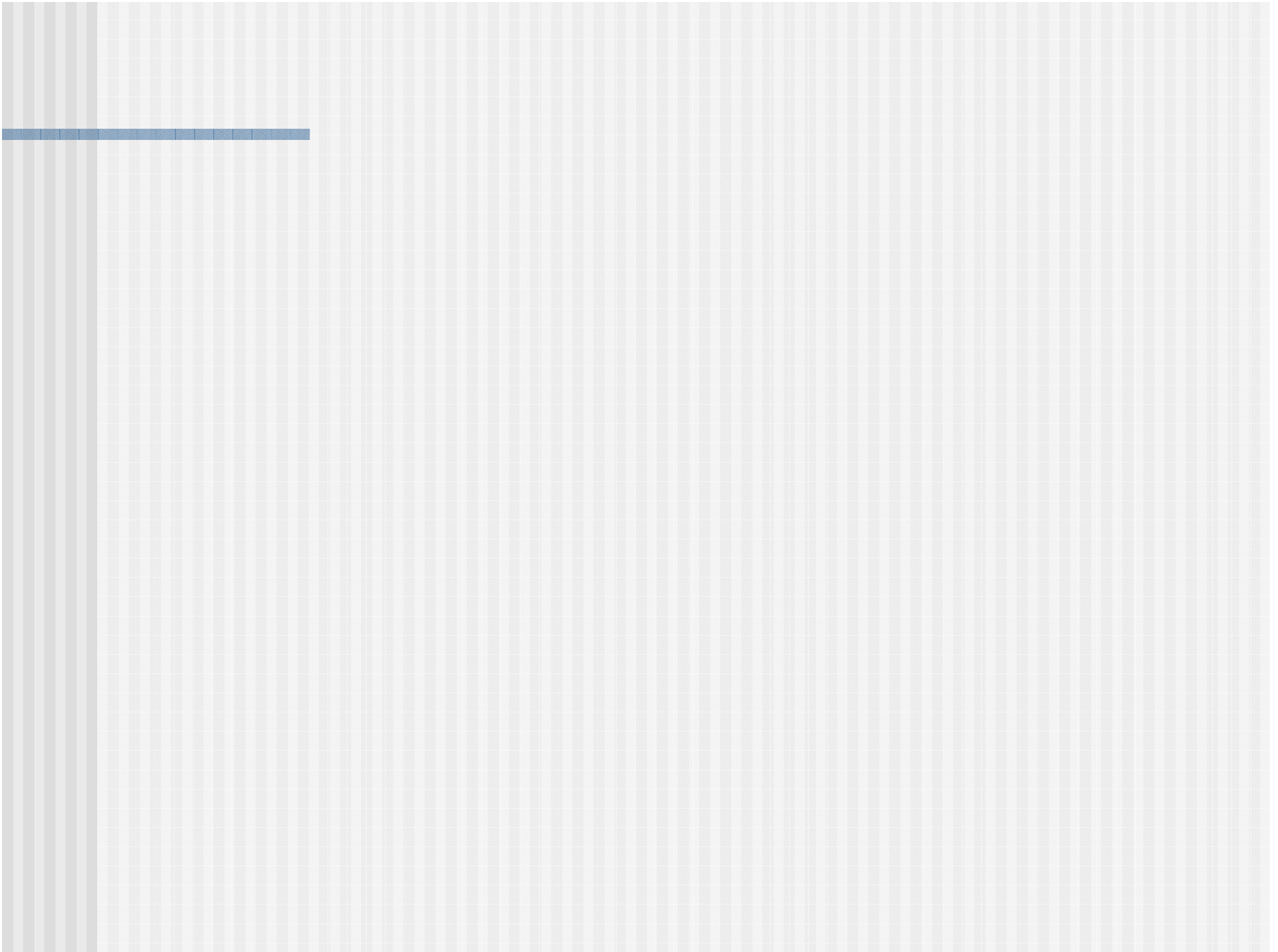
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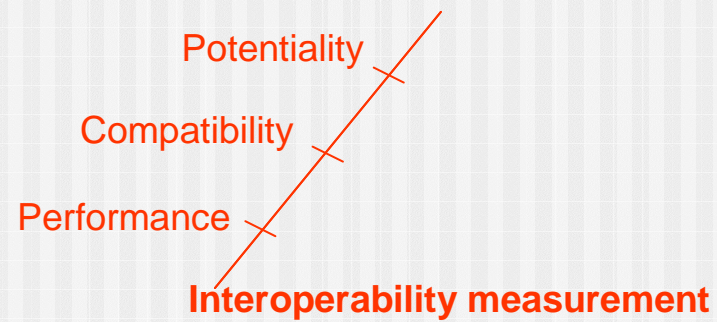
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Interoperability Measurement

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Interoperability Measurement

Maturity model

Barrier Concern	CONCEPTUAL	TECHNOLOGICAL	ORGANISATIONAL
BUSINESS	Isolates	Isolated	Exploitable
PROCESS	Connectable	Isolated	Exploitable
SERVICE	Connectable	Initial	Exploitable
DATA	Interoperable	Connectable	Initial

+++ Critical
 ++ Considerable
 + Weak
 - None

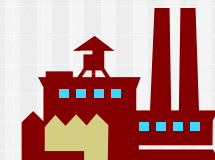
Company A top concerns	CONCEPTUAL	TECHNOLOGICAL	ORGANISATIONAL	Company B top concerns
BUSINESS	+++	++	-	BUSINESS
PROCESS	-	++	+++	PROCESS
SERVICE	+++	++	-	SERVICE
DATA	+	+++	+	DATA

Interoperability compatibility measurement

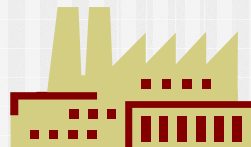
Interoperability potential measurement

Compatibility matrix

Company B



Company A



Levels	Performance attributes	TIME	QUALITY	COST
BUSINESS				
PROCESS				
SERVICE		-	+++	+
DATA		+	++	-

Performance metric

Interoperability performance measurement

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 C3

Performance measure

- Time of interoperation

$$t_{ineff} = \Delta t_{req} + \Delta t_{treat} + \Delta t_{ret} + t_{use}$$

9 ***tineff***, the time of interoperation

9 Δt_{req} , # A &

9 Δt_{treat} , # & &

A

9 Δt_{ret} , # &

9 Δt_{use} , # &

- Quality of interoperation

$$q_{in} = \Delta q_{ex} + |\Delta q_{ut}| + \Delta q_{conf}$$

9 ***qin***, the quality of interoperation

9 Δq_{ex} # A ("# -

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9 Δq_{conf} # A (" &

- Cost of interoperation

$$C_{in} = C_{ex} + C_{ut}$$

9 ***Cin***, the cost of interoperation

9 C_{ex} # " "# - 3 3 # "

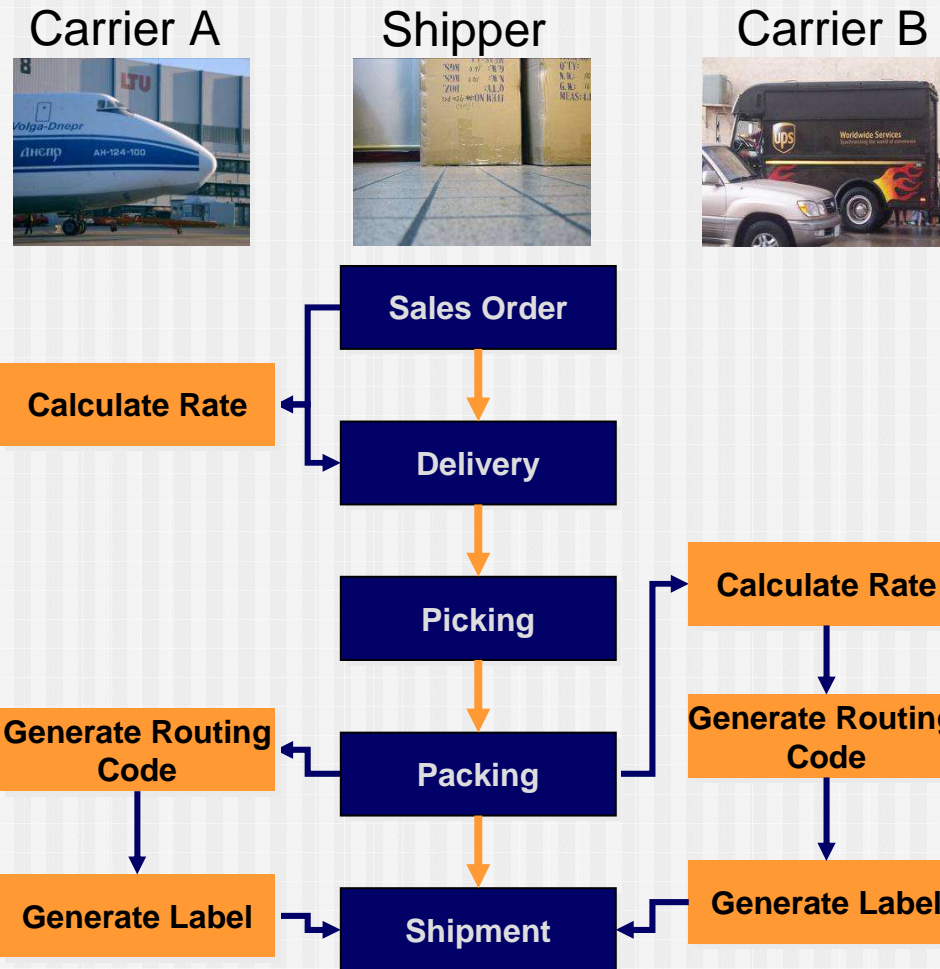
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9 C_{ut} # " & 5 # &

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Example of compatibility measure

ATHENA A8 Scenario



Compatibility measure
Questionnaire to collect data
Detect interoperability barriers

Who is responsible?
How is the process configured?
Which applications?
What's the data structure?

(ATHENA A8)

Measuring barriers between partners

Shipper

	Conceptual	Technological	Organizational
Business	POP*	MPCE	
Process	BPMN		
Services	PIM4SOA		
Data	EXPRESS		

Carrier A

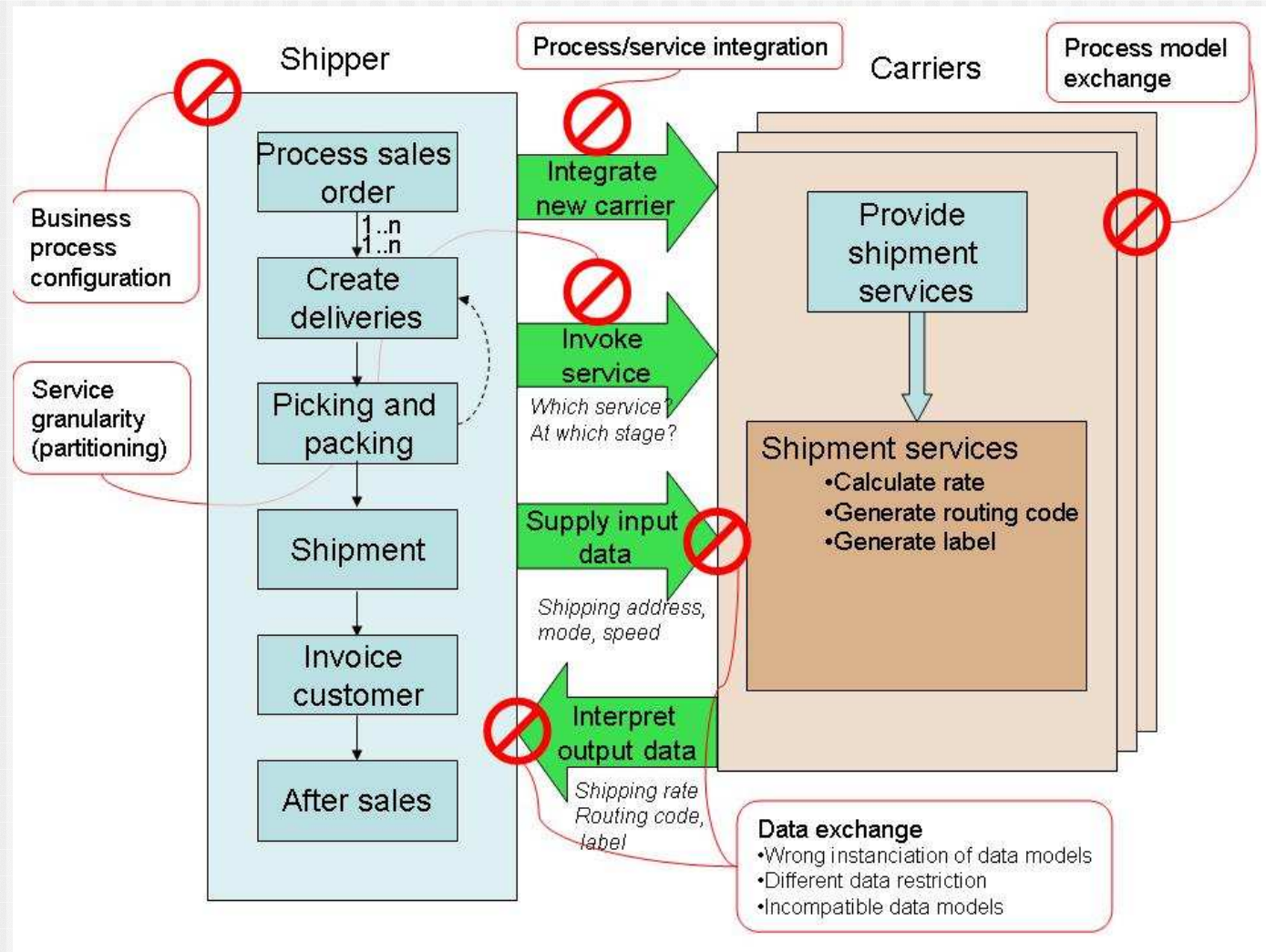
	Conceptual	Technological	Organizational
Business		Proprietary	
Process			
Services	REST		
Data	Custom XML Schema		

+++ Critical
 ++ Considerable
 + Weak
 - None

barriers levels \	CONCEPTUAL	TECHNOLOGICAL	ORGANISATIONAL
BUSINESS	-	+++	-
PROCESS	++	-	-
SERVICE	++	-	-
DATA	++	-	-

(ATHENA A8)

Scenario mapped with interoperability barriers



(ATHENA A8)

Template presentation

barriers levels	CONCEPTUAL	TECHNOLOGICAL	ORGANISATIONAL
BUSINESS	-	+++	-
PROCESS	++	-	-
SERVICE	++	-	-
DATA		-	-



Template: Data exchange problem

Template elements	Description
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Conclusion

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