

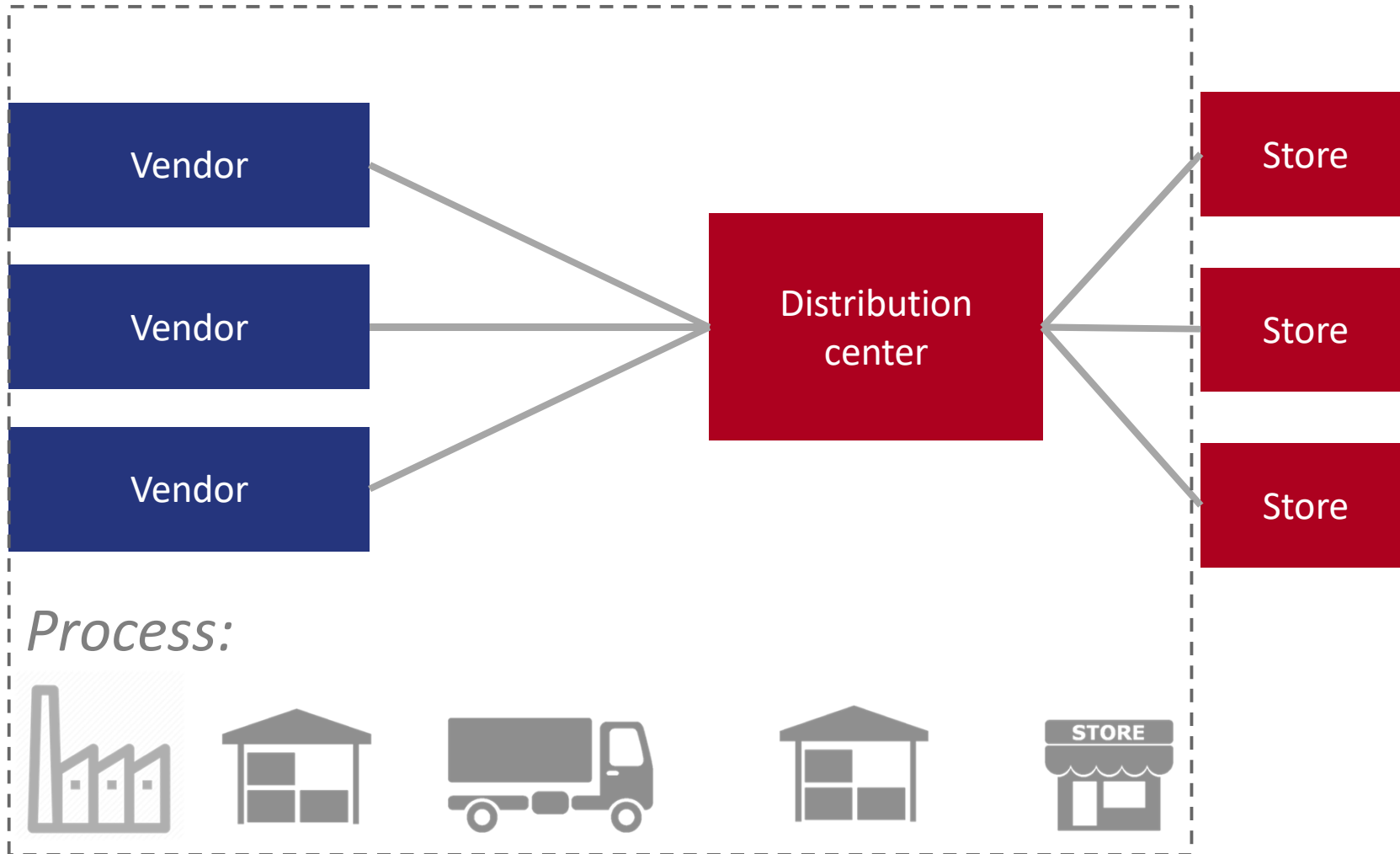


# The impact of vendor-managed inventory on retail logistics

Ir. Roel Post – University of Groningen

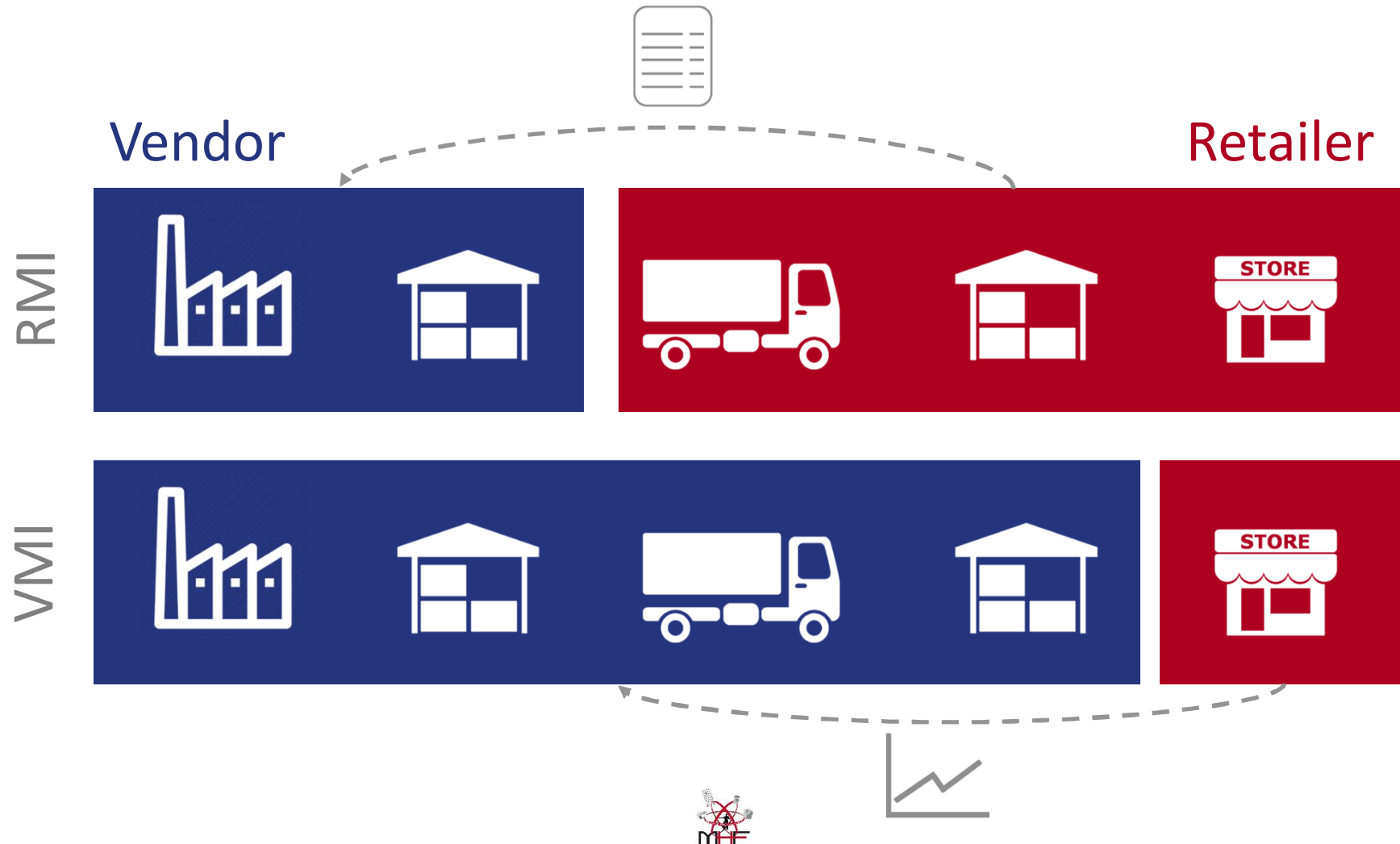


# Retail supply chains





# The replenishment process





For which vendor context can VMI improve supply chain performance?





# Conflicting results of VMI

## Mixed results in practice

### Successes

Walmart

Procter and gamble

Electrolux

+ multiple unspecified cases studied

### Failures

Sparta stores

K-mart (partial)

## Impact of context factors

### Stable demand

Clarke and Hammond, 1997

Niranjan et al., 2012

Yang et al., 2003

### Unstable demand

Disney and Towill, 2003

Smáros et al., 2003





# Research outline

## *Methodology*

Literature study

Case study

## *Results*

3 components of VMI

Empirical verification and specification

## *Framework*

Process opportunities condition

Organizational opportunities condition





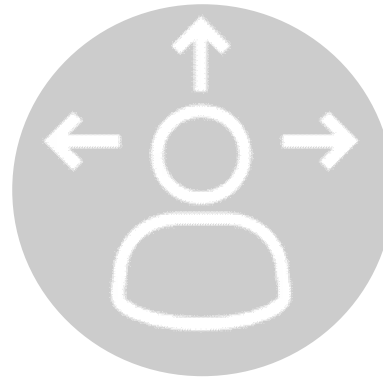
# The components of VMI



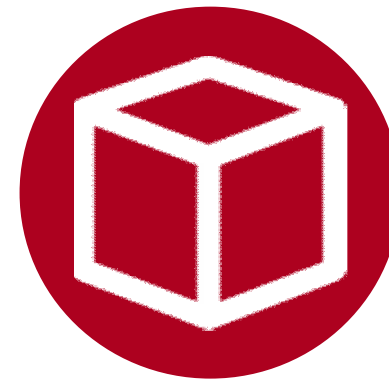
## The 3 components of VMI



Information  
sharing



Decision  
transfer



Inventory  
relocation







## Information sharing



Information sharing improves Supply Chain performance through uncertainty reduction only if the vendor:



Has better access  
to information



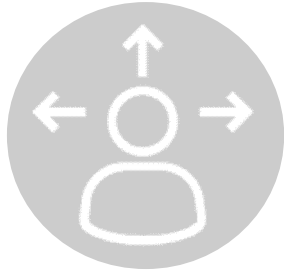
Can store and  
combine more  
information



Can improve  
forecasting quality  
and fit



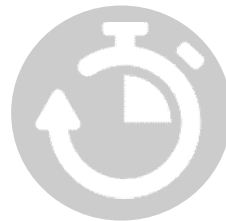
## Decision transfer



Transferring all replenishment decisions to the vendor improves SC performance **only if the vendor:**



Can remove  
constraints



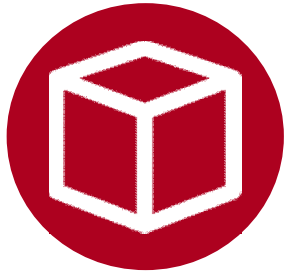
Increase the  
updating frequency



Improve the  
quality of  
inventory rules



## Inventory relocation



Enabling the vendor to move inventory to the retailer's facility improves operational performance, only if the vendor:



Is able to move inventory down the supply chain



Prevents errors down the supply chain



Can operate remote inventory



# VMI framework

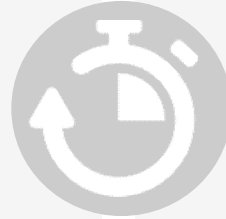


# VMI framework

Information sharing



Decision transfer



Stock relocation



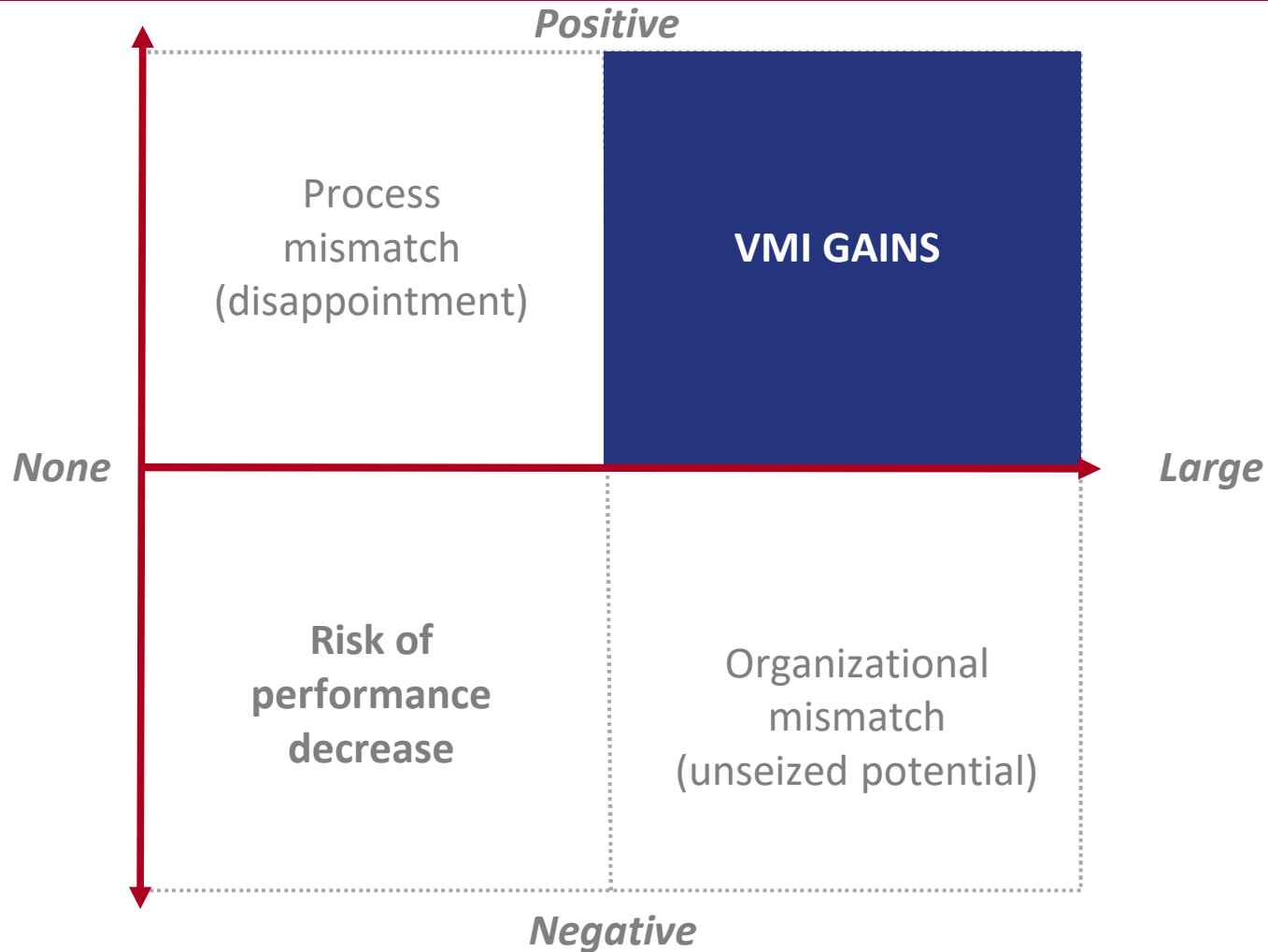
**Process opportunity**

**Organization opportunity**



# VMI framework

**Process opportunities**  
Do the advantages of VMI apply on the replenishment process?



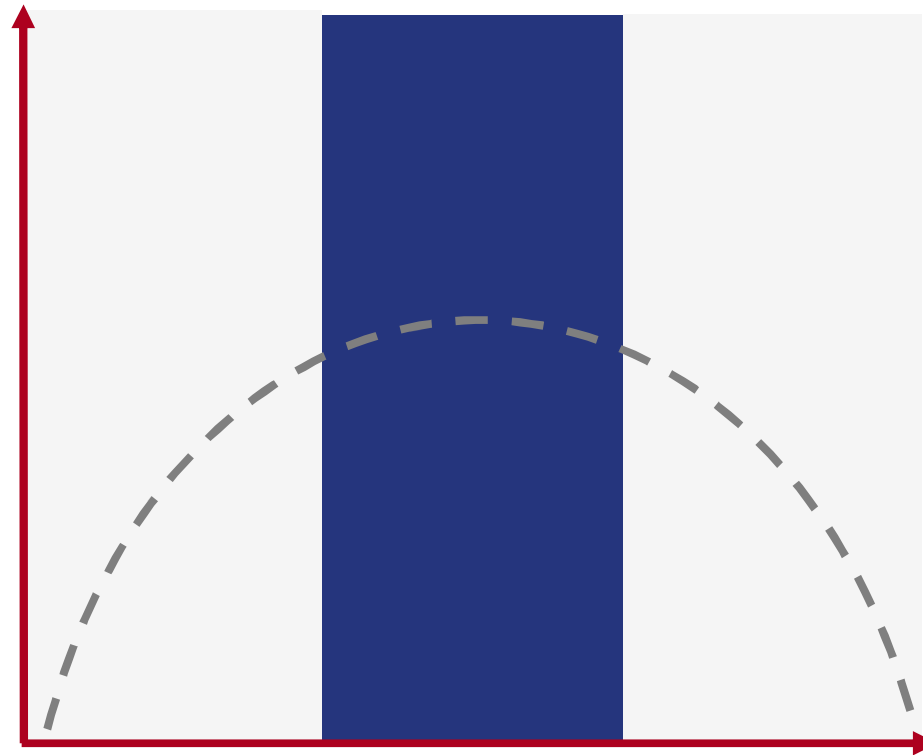
**Organizational opportunities**

Can the vendor organization realize opportunities that the buyer could not?



# Process opportunity

Process Opportunities



*Trivial situations/  
Dedicated chains*

*Uncertainty reduced/  
Constraints removed*

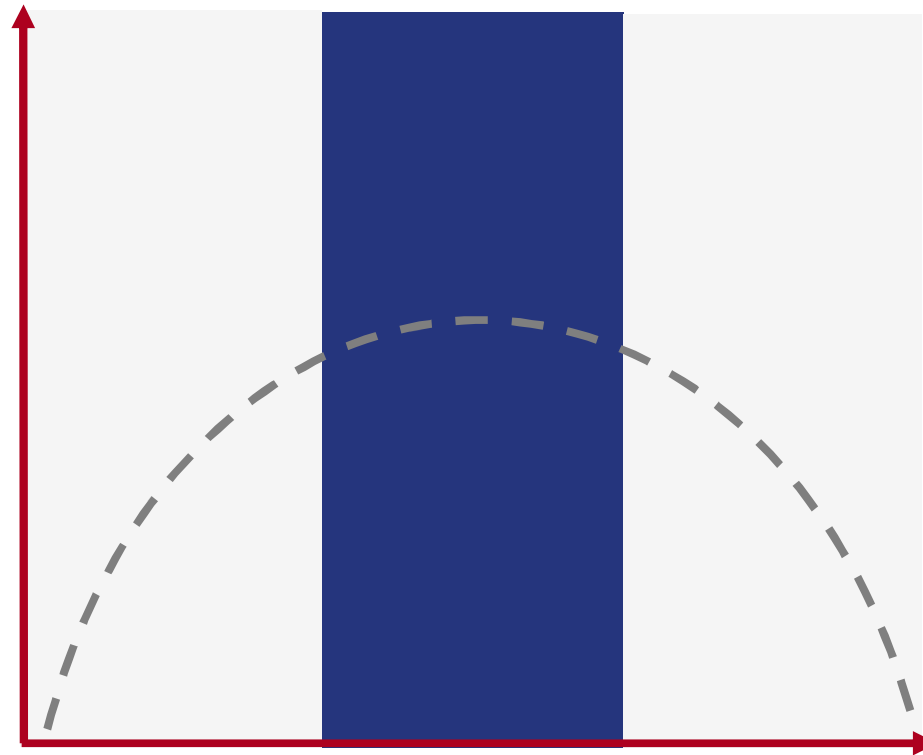
*Complexity too high to operate*

Process and demand uncertainty



# Organization opportunity

Organization  
Opportunity



*Vendor lacks  
expertise/  
Retailer more  
suited*

*Vendor can  
improve  
monitoring  
and methods*

*Already  
optimized*

Vendor organization size  
and relation importance



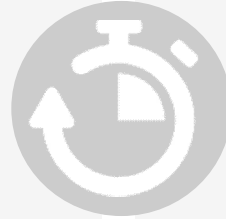


# Applying the framework

Information sharing



Decision transfer



Stock relocation



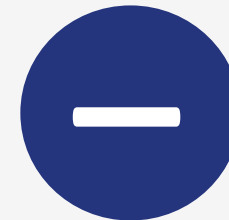
**Process opportunity**

**Organization opportunity**



# Applying the framework

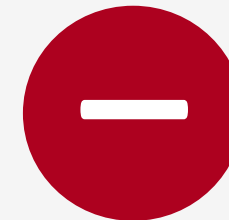
Information sharing



Decision transfer



Stock relocation



**Process opportunity**

**Organization opportunity**



# Applying the framework

**Process opportunities**  
Do the advantages of VMI apply on the replenishment process?

*None*



*Large*



*Negative*

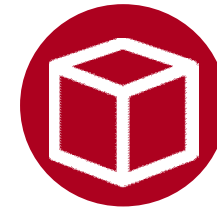
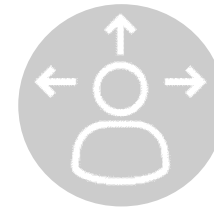
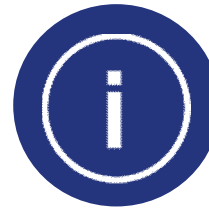
**Organizational opportunities**

Can the vendor organization realize opportunities that the buyer could not?



## Conclusion

We can only understand impact of VMI if we examine the separate components



(Trust in) stable flows in the supply chain are crucial for VMI success



# Thank you for your attention

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rijksuniversiteit  
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 en bedrijfskunde

