

Supplier Segmentation as PLM Facilitates Earlier and Broader Supplier Integration in New Product Development

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General PLM Question for this Project

- What are the best ways to identify supplier segmentation and data access as PLM drives the best design-to-cost methods specific to supply chain factors?

PLM Facilitates Earlier and Broader Supplier Integration in New Product Development

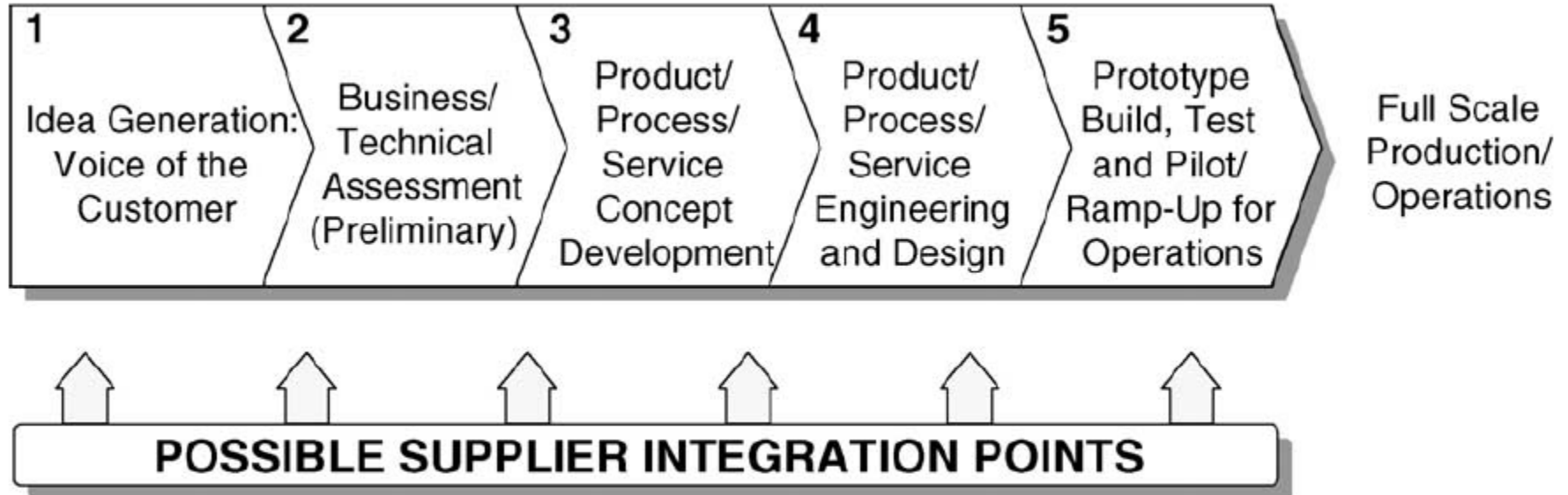


Fig. 2. New product development process.

Source: Petersen, Handfield and Ragatz, 2005, JOM

Ideally, PLM Benefits from Broad Access to Product Information

- But, not all suppliers can be treated equally in terms of access to information.
 - Supplier Tiers
 - Willingness to share proprietary information may differ
- Not all customers can be treated equally in terms of access to information.
 - Military access, Export licenses etc.

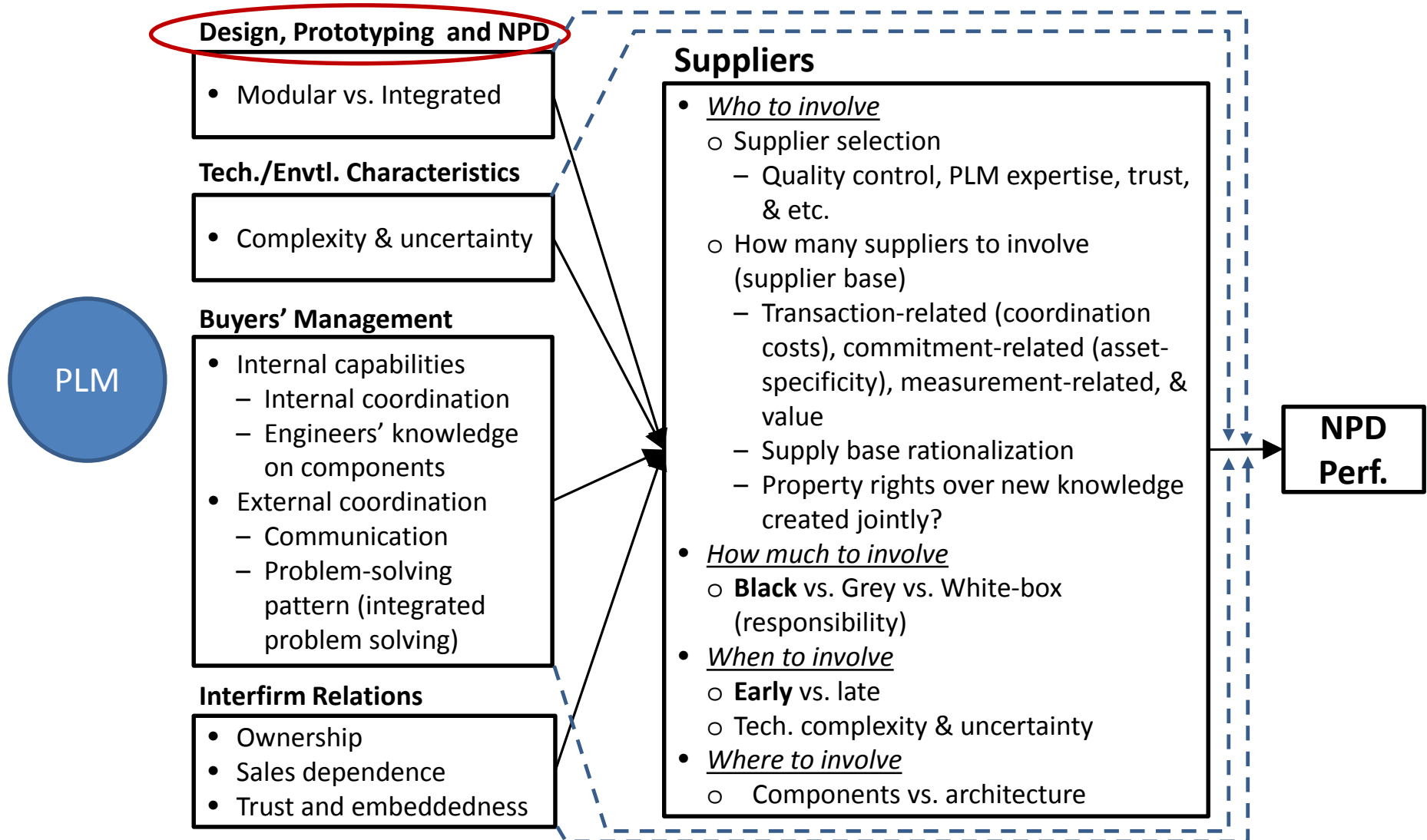
Previous work on Supplier Segmentation

Dyer et al (1998) distinguishes between types of suppliers by the following four conceptual criteria:

- 1) General Characteristics
- 2) Relation-specific assets
- 3) Information sharing/assistance
- 4) Trust/Contracts

He finds differences in these items among Japanese auto suppliers that are strongly associated with either “arms length” or “partnership” suppliers.

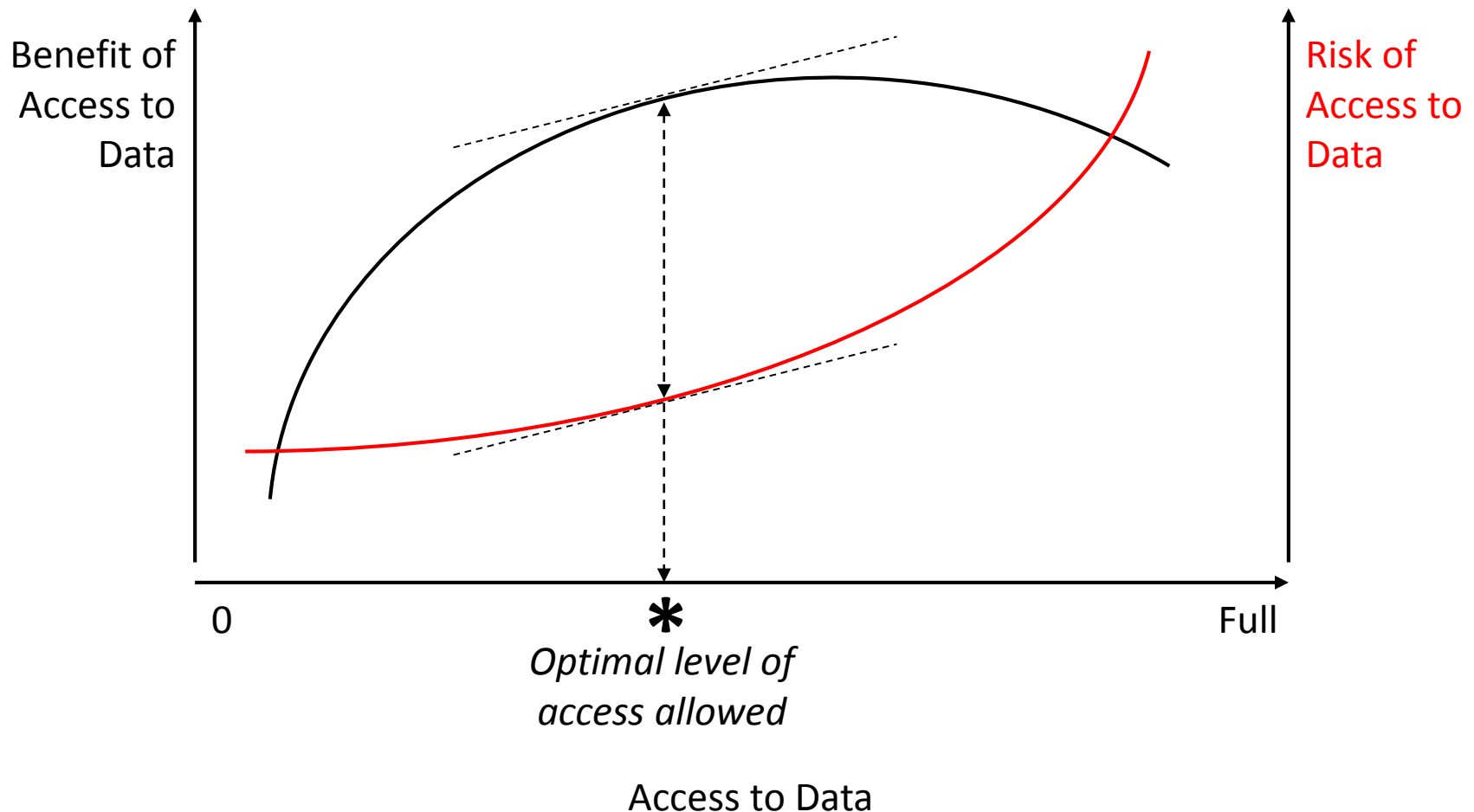
Overview of PLM and Supplier Integration Issues in NPD



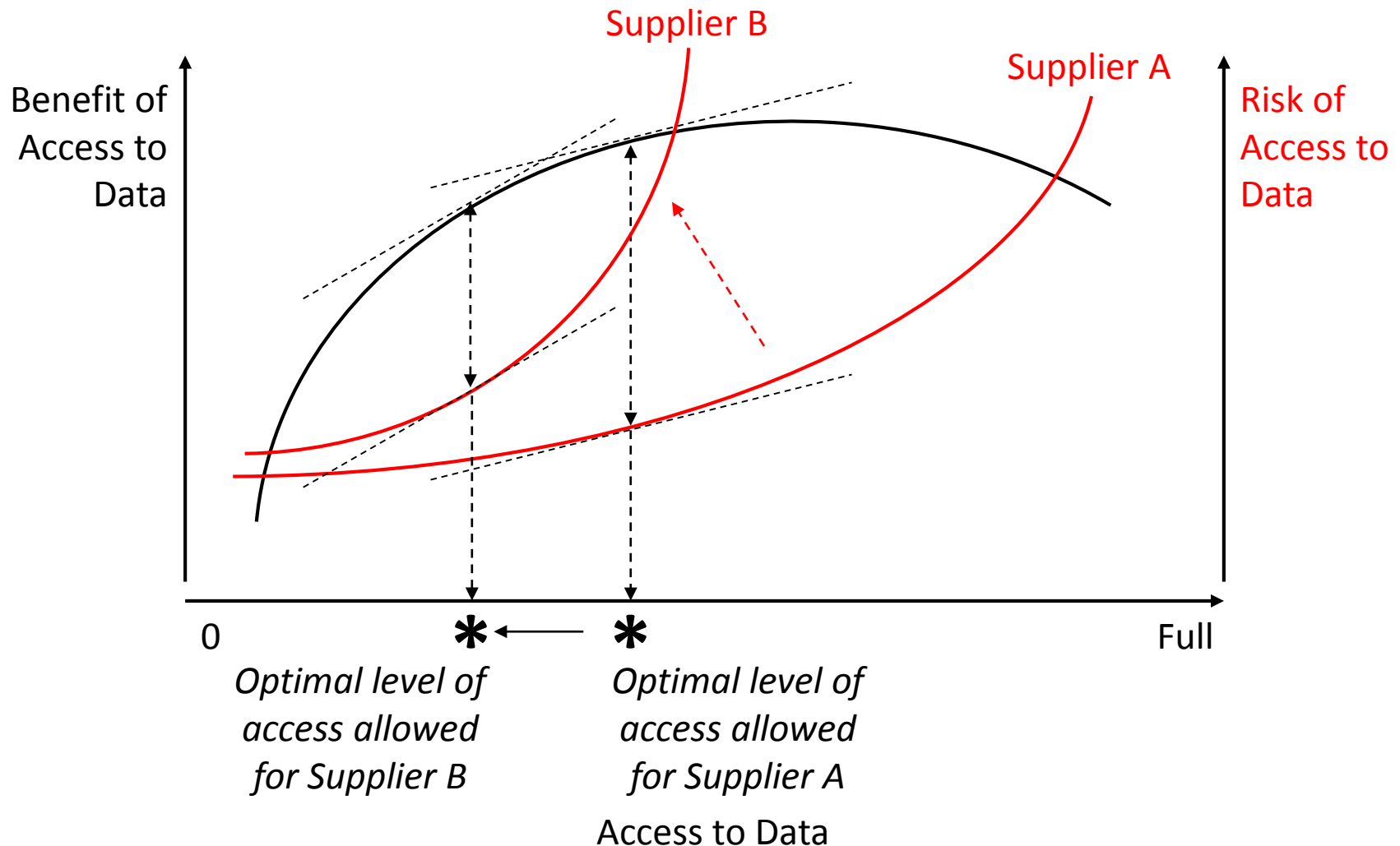
Decision about Access to Information For Early Involvement of Suppliers

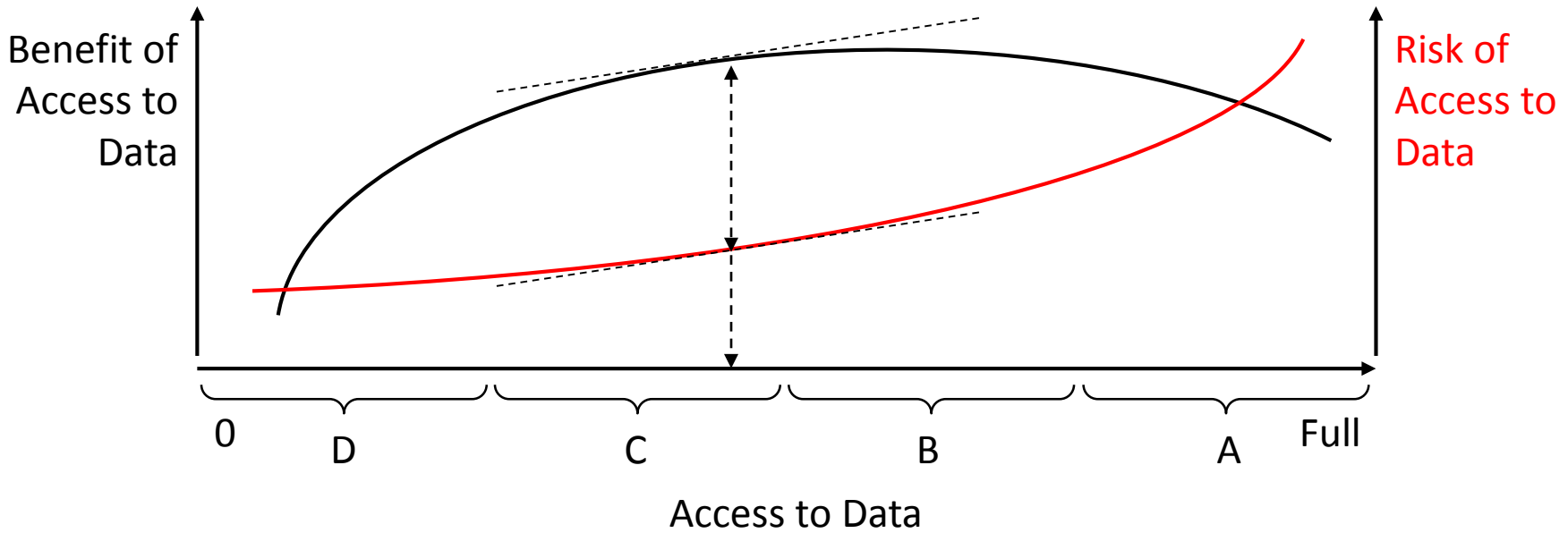
- Access is the outcome of a decision about risks and benefits of sharing information for particular suppliers (and customers).
- Currently, creator of knowledge is responsible for a complex problem. Can it be simplified?
- $\text{Risk} = f(\text{attributes of third parties, expected transactions})$.
- $\text{Benefits} = f(\text{attributes of third parties, expected transactions})$.

Which suppliers (and customers) get access to which information and to what extent?

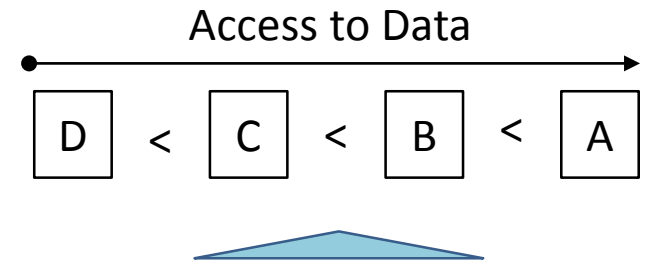


Which suppliers (and customers) get access to which information and to what extent?





Benefit of Access to Data	H	<ul style="list-style-type: none"> • A • Most Access 	<ul style="list-style-type: none"> • B • More Access than C
	L	<ul style="list-style-type: none"> • C • Less Access than B 	<ul style="list-style-type: none"> • D • Least Access
		L	H
		Risk of Access to Data	



- Suppliers in B quadrant require more complete contracts than those in C

The risk attributes of a supplier are higher (from buyer's perspective) if...

- Absorptive capacity of supplier is high.
- Supplier has a competitive relationship with this buyer.
- There is a close relationship between this supplier and a rival of this buyer.
- The supplier has not been sensitive to IP concerns in general or with this buyer.
- History of previous interaction has revealed opportunism by supplier.
- There are specialized asset investments by buyer that need protection.

The benefit attributes of a supplier (from buyer's perspective) are higher if...

- The supplier makes a component that is critically important or a large part of the cost for the buyer.
- The supplier has distinct and difficult to substitute technical capabilities.
- The supplier is willing to share confidential information.
- The supplier is willing to share cost data and jointly seek cost reductions.
- The supplier is willing to share quality data and jointly seek quality improvements.

Approach 1

- It may be possible for the party concerned about information access to use these questions about Benefits and Risks to evaluate suppliers or customers with a score for their relative Benefits and Risks. Using that score, prospects could be categorized as A-D. Prospects in B (high risk and high benefit) could be evaluated and ranked further primarily on their risk attributes.

Approach 2:

What is the link between attributes and contract details?

- Assuming contract writers have identified the optimal access for a supplier or customer in terms in the contract.
- It may be possible to identify aspects of key words and phrases in purchasing orders and sales orders that can help a PLM system identify and segment suppliers and customers into different data access authority categories.
- Could also be used to focus more on B range (where there is high risk and high benefit).

Examples

- Ryall and Sampson (2009) discuss three categories of contract terms for new product development in technology oriented industries.
 - Contract Detail (stipulating minimum benefits)
 - Development specs included, minimum time frame for completion, minimum number of employees contributed, specific persons stipulated, specific technologies contributed, IP rights defined.
 - Monitoring (stipulating risks)
 - Reviews of development work required, review of outcome only required, discretionary reviews available, timing of reviews specified, content of reviews specified, physical audits of development work permitted, reviews required of both (all) firms.
 - Penalty
 - Financial penalties for underperformance
 - Right to terminate for underperformance

Conclusion

- So we have two approaches to consider.
- 1) Focus on surveys about suppliers (or customers) to the PLM firm concerned with information access. These questions would ask for weights on benefits and risk attributes.
- 2) Focus on the phrases used in purchase orders and sales orders. Evaluate them as items conferring minimum benefits and risk attributes by the number and complexity of these in the contract.

Outcome

- From either approach 1 or approach 2, suppliers or customers could be given differential access at the portal to levels of information in the PLM system.
- Any rating scheme would need to be checked for validity with the current degree of access that is granted on a more review intensive and customized basis.

Questions?

Thanks for feedback.