

Integrating ICT with SCM: A Pakistan Retail Superstore Industry Perspective

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The Problem

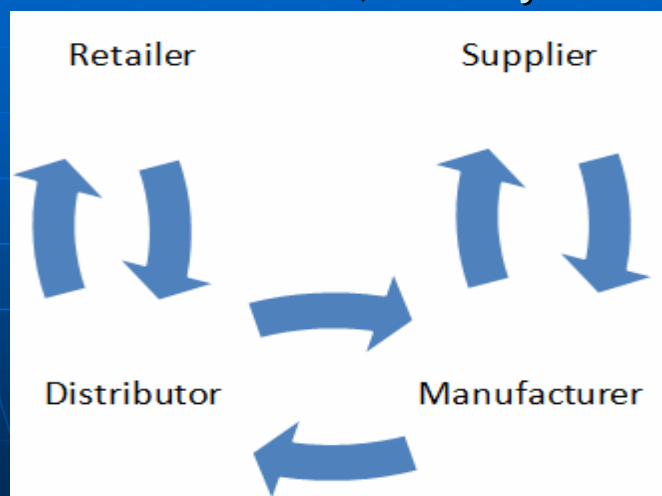
- Recognition of importance of ICT with SCM is widespread but acceptance depends upon expectations
- How best to use ICT with SCM to meet customer demands
- As the super retail business picks up protection for price, quality, and availability becomes harder to maintain (Bullwhip) losing customer confidence:
 - Woolworth, Kmart, Dollarama

About this work

- Define the phenomenon of implementing ICT in super store in terms of empirical relationship between specific decision-making parameters: cost and productivity (availability)
- Alignment between expectations & efforts to implement ICT with SCM ($\lambda=1.18$)
- A pragmatic model proposal – 3rd

SCM

Flow of Material, Money & Info

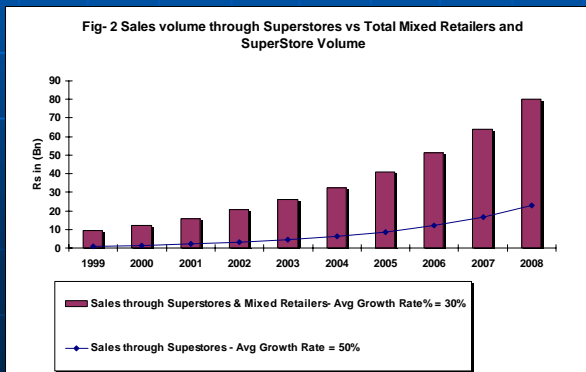
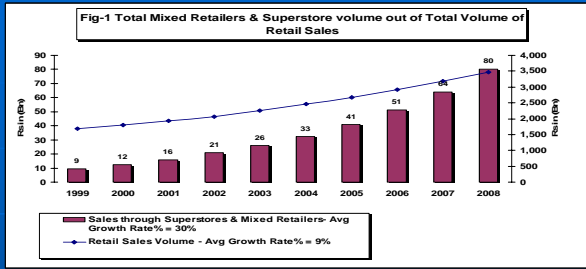


Contemporary Supply Chains

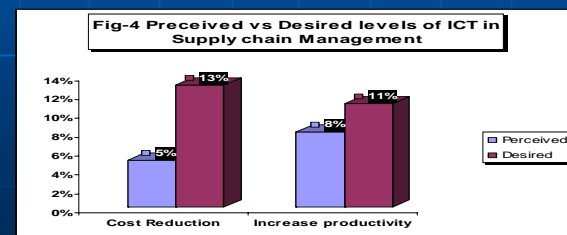
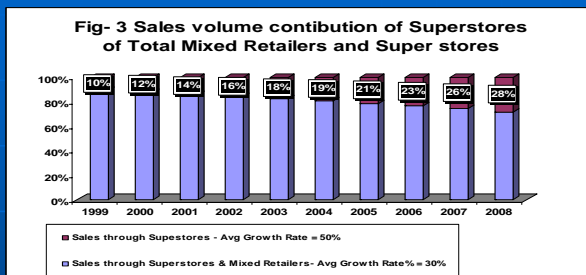
- Suppliers
 - Logistics, Resources
- Operations
 - Procurement, Manufacturing, Marketing
- Customers
 - Distribution & Transportation
- Constraints
 - Information, Competency, Capital, HR

ICT as Managed Service

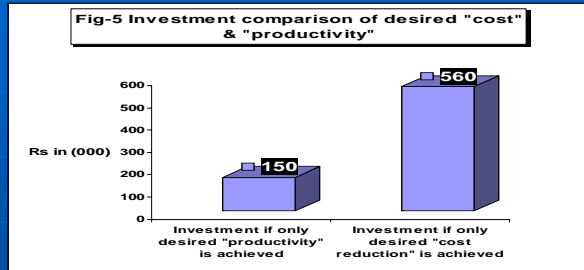
- Not just IT
- Real time, secure, transaction tracking control
- Across many globally dispersed stake holders
- Infrastructural, procedural and administrative innovation
 - Substitute, Scale, Structure



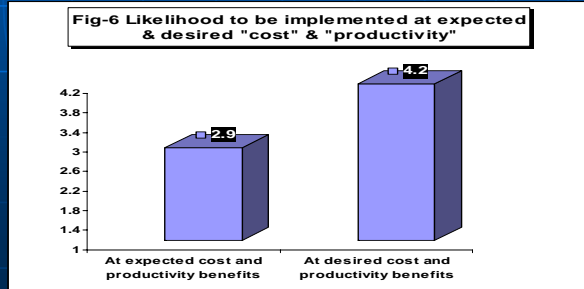
Source for all data:
Ministry of commerce
Pakistan, Financial
Reports from Several
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Survey results



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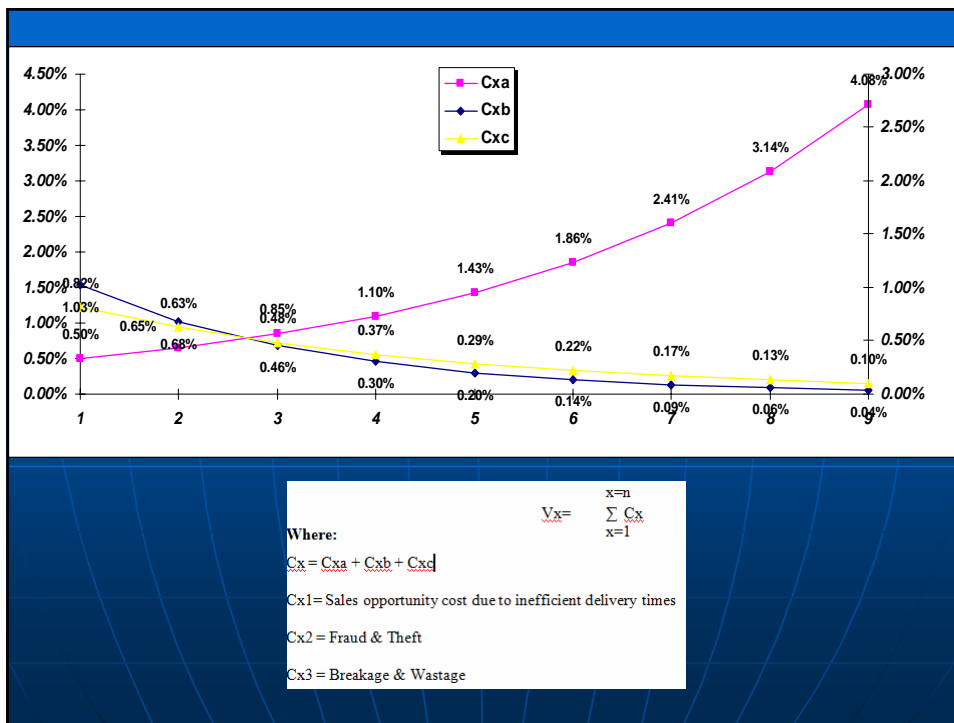
Analysis

- From the survey cost reduction factor: $a(\max) = 13\%$, and productivity factor: $b(\max) = 11\%$
- Define the phenomenon of implementing ICT in super store by:

$$I_{ICT} = \int_{x=1}^{x=n-1} C(a) \cdot \int_{y=1}^{y=n-1} P(b)$$

Cost / x	Description	Value
<u>C_{xa}</u>	Opportunity cost due to delivery times, placed on the primary access	-
	Base value of the cost is taken as the approximate %of Sales as stated by the respondents	0.50%
	Increase from the base point is taken on the growth as stated in statistics report from Ministry of commerce, government of Pakistan	30%
<u>C_{xb}</u>	Cost due to Fraud & theft at the store and warehouse, placed on the secondary access	-
	Base value of the cost is taken as the approximate %of Sales as stated by the respondents	0.04%
	Increase from the base point is taken on the growth as stated by the respondents as an increase in such cases with the increase in volume in comparison with <u>C_{xc}</u>	50%
<u>C_{xc}</u>	Cost due to wastages and breakages, placed on the secondary access	-
	Base value of the cost is taken as the approximate %of Sales as stated by the respondents	0.10%
	Increase from the base point is taken on the growth as stated in statistics report from Ministry of commerce, government of Pakistan	30%

Table -1 - DISTINCT COST AND VALUE RELATIONSHIP

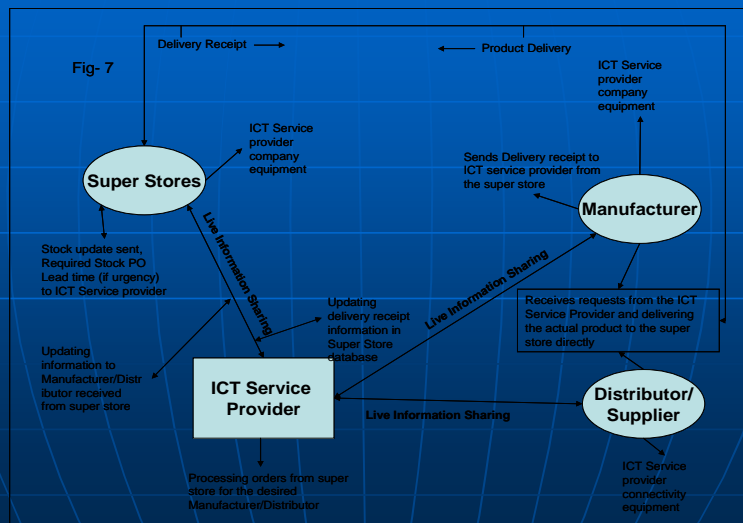


Probable Effect of New Technology

Effectiveness =
$$P_{NT} \left(\int_{n=0}^{n=U} f(E)_n + \int_{n=0}^{n=U} f(P)_n \right)$$

P_{NT} = Probability of New Technology
 E = Efficiency
 P = Productivity
 U = Upper Limit
 n = impact change

Proposed Model



The Solution

- Little or no upfront investment required by either stakeholder in the chain (retailer, manufacturer, distributor)
- Direct reduction of the transaction, coordination and multi-tier commission costs
- Accuracy of data, maintaining the exact data to enable the stakeholders to monitor various areas of the consumption
- Eliminating the hidden losses such as theft, breakage
- Efficient handling of uncertainties such as seasonal fluctuations etc.
- Management focus at a more strategic level, such as expansion and entering new markets

Thank you

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