

Title:

Why SMEs in manufacturing are not getting the best results with ERP

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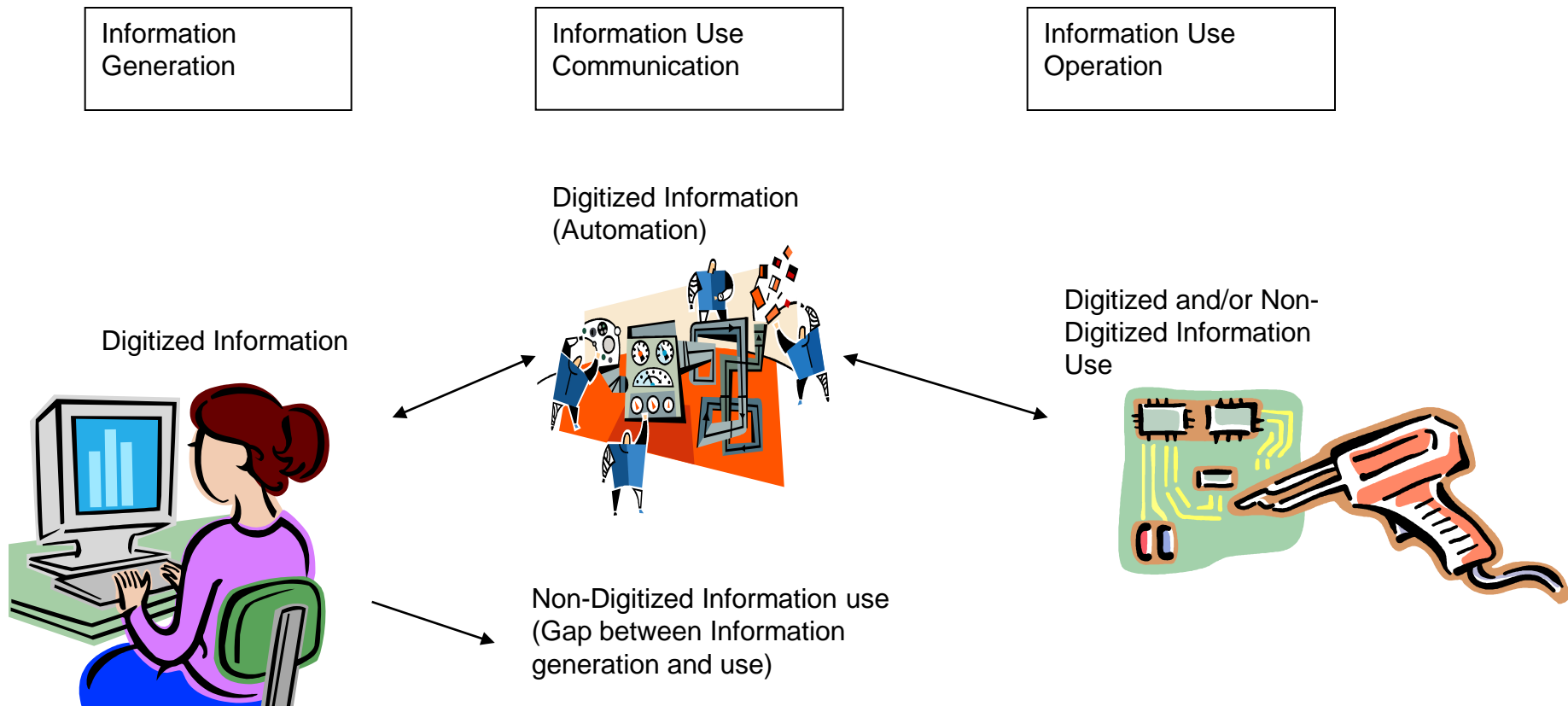
Agenda

- Introduction
- Information use on factory floor
- Objective of study
- The study
- Results
- Conclusion
- Questions

Introduction

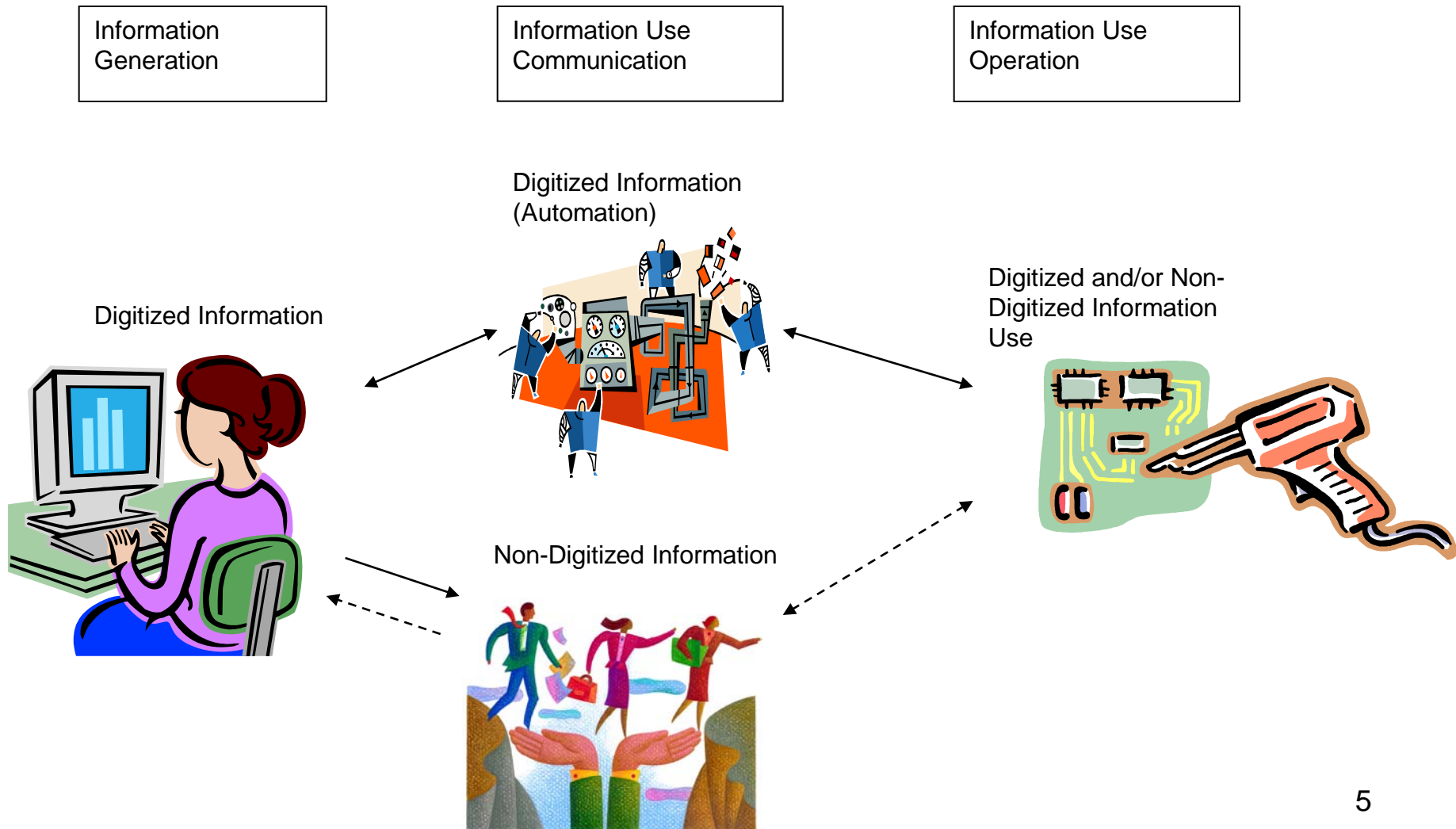
- Shortage of technical skills (Hill 1997)
- Financial resources
 - Piecemeal application of ERP (Ferman 1999)
- Application in business
 - ERP helped SMEs to improve competitive capabilities (Chalmers 1999; Smith 1999)
- Application in manufacturing
 - anticipated goals of achievement and improvement not reached (Sun et al. 2005)

Information use on **factory floor** – The Gap

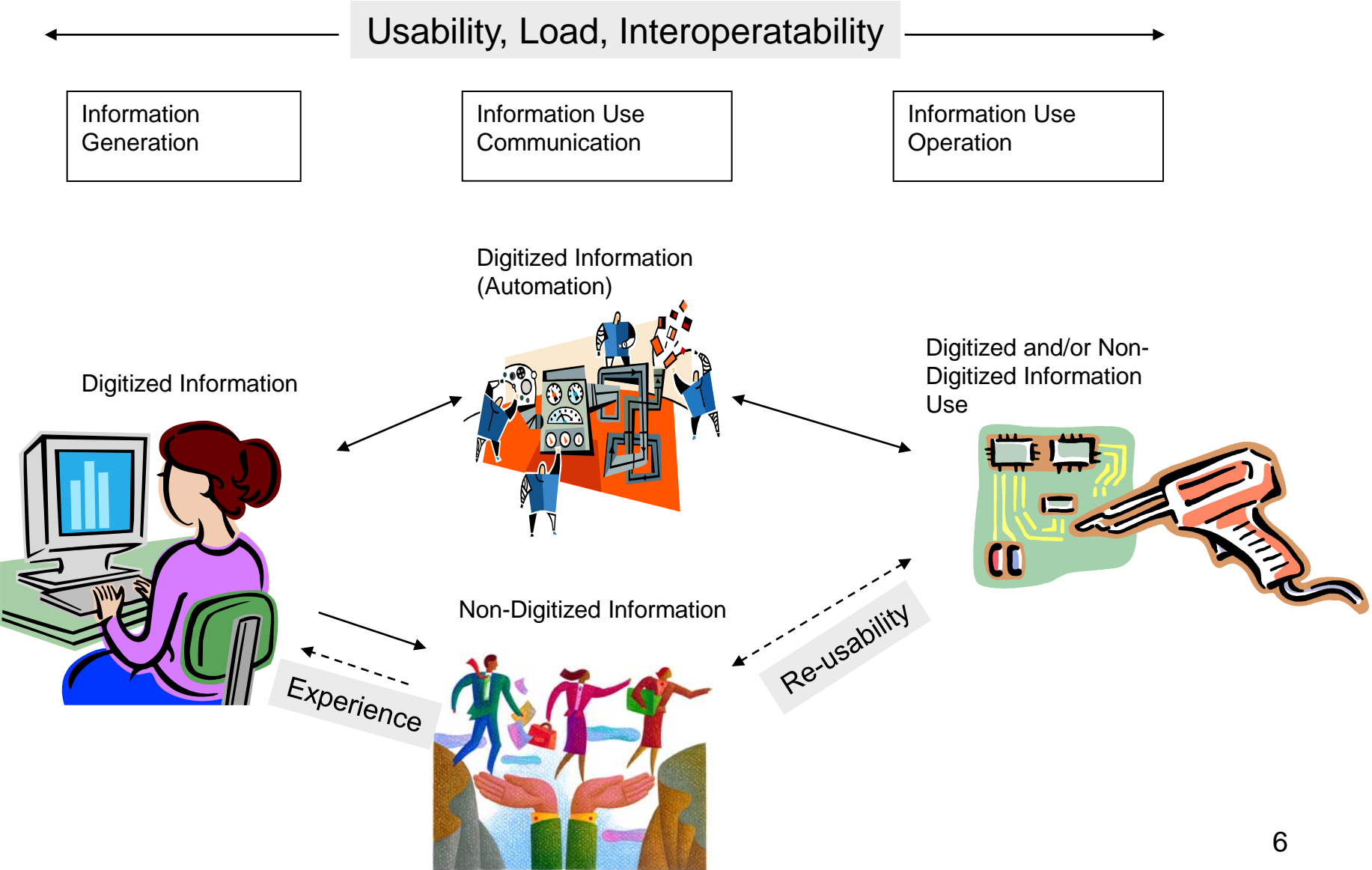


Factory floor: fundamental to all industries, a wealth creation centre

Information use on factory floor – The Bridge



The objective of the study is to identify the factors in information use that impact the outcome on factory floor.



The study

- Ethnographic study involving 4 cases
- Data collection methods:
 - interview, observation, documentation
- Data analysis: case comparative method
 - thematic analysis
 - Pattern matching and explanation building
- Validity and reliability issues
 - constructs and concepts corroborate the standard vocabulary
 - theories are reconstructions of reality rather than a deduction based on causality
 - correctness of the data is confirmed by the interviewee
 - Subjectivity in data gathering is minimized through triangulation

Table 4.0 Generic data summary

Case ID	SME Type	Affiliation	Age (yrs)	Employee	Turnover 2007/8 € million	Product	Production process	Manufacturing organization	Level of computer integration on shop floor
A	Medium	Child	18	240	less 50	Refrigerated and curtainsider trailers	Trailer assembly Trailer body building	Assembly line	Level 0
B	Micro	nil	3.5	9	3	Crafters stamp	Hot press	Job shop/ batch	Level 0
C	Small	Affiliate	9	18	2	Hard-line stepping products	Wet press Casting Texturing	Job shop/ batch	Level 2
D	Small	nil	2	12	0.35	Medical devices	Injection moulding Device assembly	Job shop/ batch/project	Level 1

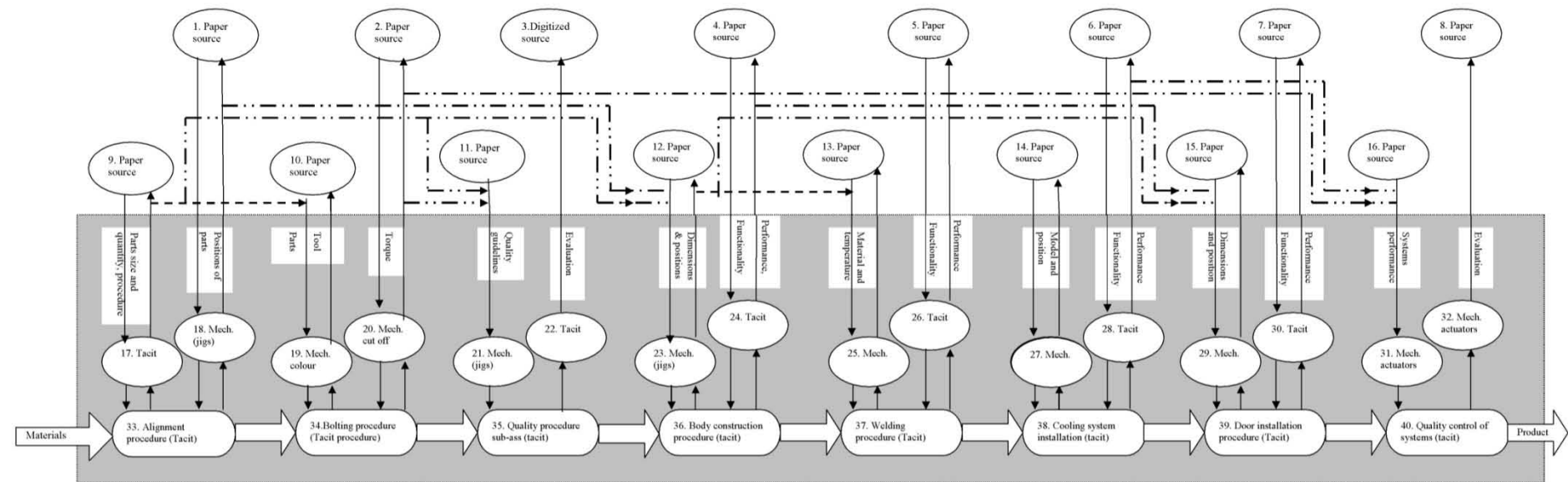








Fig 1 Case A information use interoperability

Legend

-  Node
-  Process
-  Material flow
-  Information use value flow (Information use Architecture)
-  Information use interoperability on the shop floor via job card
-  Information use interoperability on the shop floor via external link

Key:

0: nodes associate explicitly via job card and computer network linked by dotted lines on Fig 4.4 (total 12 associations)

x: nodes associate explicitly through reusability (total 8 associations)

e: nodes associate tacitly through operator (total 100 associations) (see glossary for the calculation)

Feedback store node

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2	e															
3	e	e														
4	e	e	e													
5	e	e	e	e												
6	e	e	e	e	e											
7	e	e	e	e	e	e										
8	e	e	e	e	e	e	e									
9	x	e	e	e	e	e	e	e								
10	0	x	e	e	e	e	e	e	0							
11	e	0	x	e	e	e	e	e	0	e						
12	0	e	e	x	e	e	e	e	0	e	e					
13	e	e	e	0	x	e	e	e	e	e	e	0				
14	e	e	e	e	e	x	e	e	e	e	e	e	e			
15	e	e	e	0	e	e	x	e	e	e	e	0	e	e		
16	e	0	e	e	e	0	e	x	e	e	e	e	e	e	e	

Information source node

Interoperatability matrix: case A

Table 9: Proportion of nodes associated through interoperability

Case \ Proportion of association	Explicit via job card or product route card (a)	Explicit via stand-alone computer on factory floor (b)	Explicit through reusability ©	Tacit through operator (d)	Implicit via computer network outside factory floor (e)
A	10%		7%	83%	
B			11%	89%	
C		18%	14%		68%
D	2%	9%	9%	80%	

Why SMEs are not getting the best results with ERP: Summary of the factors

- Piecemeal adoption of ERP
- Gap in communication between ERP and factory floor
- SMEs bridge the gap by applying experience, mechanical and paper information use formats
- Majority of feedback is outside the system
- Operation is not optimized
- Profitability is compromised

Limitations of study

- Purposeful sampling
- Limited generalisability of result

Further research

- Recording of experience

Questions