

THE AGILITY OF BUSINESS PROCESS IMPROVEMENT

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Brief Introduction

Agility, a modern management concept, is the ability to thrive and prosper in a continuous changing and competitive environment. Currently, agile theories are still very much general and mainly covering manufacturing. Business processes that are focusing on the administrative and supporting processes, are said to be the heart of any enterprise and the major cost factor in most companies. Therefore, improving business processes is becoming a major competitive weapon in the 21st century. In an attempt to link agility and business processes within a real business environment, this research was designed to identify the factors that affect the development of agility in the business process improvement (BPI) in a UK luxury car manufacturing context.

The results suggest that the existing agile theories need to be further strengthened in the areas of communication, motivation, the scope of empowerment, people's training and development (T&D) and the flattening of management structure which are the major factors limiting the development of agility in this unique business environment. These findings have made a major contribution to the study of agility by identifying the barriers of agility within the business processes in a UK luxury car-manufacturing context. Based on that, the unique agile BPI framework was further modified to demonstrate the inter-relationships between agility and BPI for further academic studies or industrial practices.

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Declaration

The authors would like to declare that part of this research results has been used for a conference presentation in the 9th International Conference of Quality Management and Organisational Development held in Liverpool during 8th -12th August, 2006 and a paper entitled with "The Agility of Business Process Improvement in a UK Luxury Car Manufacturing Company" on its proceeding (Liu & Sharp, 2006), and the 2nd International Conference of Operations and Supply Chain Management (SCM) held in Taipei during 29th July to 2nd August, 2008, and a paper entitled with "Business Process Improvement in a UK Luxury Car Manufacturer (KCM)" published on its proceeding (Liu & Sharp, 2008).

Glossary of Terms and Abbreviations

AEKO	Change Request
AM	Agile Manufacturing
BPI	Business Process Improvement
BPO	Business Process Orientation
BPR	Business Process Reengineering
BSC	Balanced Scorecard
CEO	Chief Executive Officer
CI	Continuous Improvement
COP	Carry Over Parts
CP4	Check Point 4 (Completion of engine build)
CRM	Customer Relations Management
CV	Commercial Vehicle
DDKM	Digital Data Control Model
DKM	Data Control Model
DMU	Digital Mock Up
DTI	Department of Trade and Industry
ESP	Engineering Service Provider
FDI	Foreign Direct Investment
HLS	Higher Luxury Sector
HoD	Head of Department
HVAC	Heating, Venting and Air Conditioning
IS	Information System
ISO	International Standard Organisation
IT	Information Technology
JIT	Just-In-Time
KM	Knowledge Management
KPI	Key Performance Indicator
LCM	Luxury Car Manufacturer
LM	Lean Manufacturing
LP	Lean Production
MMI	Man Machine Interface
MoB/MB	Member of Board
MP	Mass Production
NVH	Noise, Vibration and Harshness
O&M	Organisation & Methods

OICA	Organisation Internationale des Constructeurs d'Automobiles (The International Organisation of Motor Vehicle Manufacturers)
PDR	Performance Development Review
PDB	Product Specification Book
PEP	Product Emergence Project
PSK	Product Strategy Committee
QCD	Quality, Cost & Delivery
RFID	Radio Frequency Identification
S-Team	Simultaneous Team
SCM	Supply Chain Management
SE	Senior Engineer
SME	Small to Medium Size Enterprise
SMMT	The Society of Motor Manufacturers and Traders Ltd.
SoFa	Summer Test Drive
SoP	Start of Production
SSI	Sales Satisfaction Index
SSM	Soft Systems Methodology
T&D	Training and Development
TPM	Total Preventative Maintenance
TPS	Toyota Production System
TQM	Total Quality Management
ULS	Upper Luxury Sector
USM	U.S. Motors
VoWa	Front end buck
WiFa	Winter Test Drive
WTO	World Trade Organisation

Contents

Acknowledgement	i
Declaration	iii
Glossary of Terms and Abbreviations.....	v
Chapter 1 An Introduction	1
1.1 Chapter introduction	1
1.2 Research Background	1
1.2.1 Dynamic market and various ‘panaceas’	1
1.2.2 Contrasting Phenomenon in the Motor Industry.....	5
1.2.3 Motor Industry and AM.....	7
1.3 Research rationale and necessity	8
1.4 Research aim and objectives	8
1.5 Research questions, methodology and administration	9
1.6 The proposed contributions and limitations.....	11
1.7 The structure of the book	11
1.8 Chapter summary.....	12
Chapter 2 The Evolution of AM and BPI	13
2.1 Chapter Introduction	13
2.2 The Evolution of Management Strategy and Technique	13
2.2.1 Agricultural Era.....	15
2.2.2 Industrial Era	15
2.2.3 Quality Era	16
2.2.4 Knowledge Era	18
2.2.5 A Summary	19
2.3 Agile Manufacturing (AM)	20
2.3.1 The Concept of AM.....	20
2.3.2 The Implementation of AM in Practice	26
2.3.3 The Four Major Principles of AM.....	27
2.3.4 Eight Constructs of AM	29
2.3.5 A Summary on AM	36
2.4 BPI	38
2.4.1 The Concepts.....	39

2.4.2	BPI Approaches	40
2.4.3	BPI Methodologies	43
2.4.4	A Summary on BPI.....	44
2.5	The Linkages Between AM and BPI.....	45
2.6	A General Understanding of The Auto Industry	47
2.6.1	The Development of The World Auto Industry	47
2.6.2	The Manufacturing Practices in The Auto Industry	58
2.6.3	The UK Luxury Car Manufacturing Industry: Facts and Features.....	62
2.7	Chapter Summary	69
Chapter 3 The Theoretical Agile BPI Framework.....		71
3.1	Chapter Introduction	71
3.2	The Theoretical Agile BPI Framework.....	71
3.3	Chapter Summary	77
Chapter 4 The Research Methodology		79
4.1	Chapter Introduction	79
4.2	The Research Philosophy, Strategy and Methods	79
4.2.1	Research Philosophy	79
4.2.2	Research Strategy	80
4.2.3	Data Collection Methods.....	84
4.2.4	Research Analytical Strategy and Techniques.....	86
4.3	The Case Study Design and Administration	88
4.3.1	The Design.....	88
4.3.2	The Preparation	89
4.3.3	The Data Collection.....	96
4.3.4	The Data Maintaining and Manipulation	98
4.4	Chapter Summary	99
Chapter 5 The Case Study and the Results.....		101
5.1	Chapter Introduction	101
5.2	An Overview of the Case Study Company	101
5.2.1	A Brief History	101
5.2.2	The Vision, Mission and Key Goals	103
5.2.3	The Main Products and Markets	104
5.2.4	The Management Structure.....	107
5.2.5	The BPI Project.....	109
5.3	The Results and Analysis	110
5.3.1	The Agile Constructs.....	111
5.3.2	The BPI Performance and Its Enablers and Barriers	125
5.3.3	Some Outstanding Issues	132
5.4	A Summary of the Results.....	133

Chapter 6 The Discussion	139
6.1 Chapter Introduction	139
6.2 Discussions of the Results	139
6.2.1 The Agile Constructs.....	139
6.2.2 The BPI Practice and Barriers.....	147
6.2.3 Some other Outstanding Issues	150
6.3 The Barriers of Agility of BPI.....	151
6.4 Theoretical Implications and a Modified Agile BPI Framework.....	152
6.4.1 Theoretical Implications	152
6.4.2 A Modified Agile BPI Theoretical Framework	157
6.5 Managerial Implications.....	158
6.6 The Originality and Contributions.....	159
6.7 A Critique on This Research.....	160
6.8 Recommendations for Further Study	161
6.9 Chapter Summary	161
Chapter 7 Conclusion.....	163
7.1 A Review of this Research.....	163
7.2 Achievement of Aims and Objectives.....	163
7.3 The Contributions, Limitations and Recommendations	165
7.3.1 The Originality and Contributions.....	165
7.3.2 The Limitations and Recommendations for Further Study	166
7.4 An Overall Conclusion	167
References	169
Appendices.....	179
Appendix A Covering Letter to the UK Car-manufacturers.....	179
Appendix B Research Proposal	181
Appendix C Confidentiality/Non Disclosure Agreement.....	184
Appendix D Attended training courses for case study research	188
Appendix E Case Study Protocol	189
Appendix F A Consent Form.....	192
Appendix G Interview Plan	193
Appendix H Interview Questions.....	196
Appendix I A sample of contact summary	201
Appendix J Organisational structure & terms.....	204
Appendix K Managerial recommendations.....	208

List of Tables

Table 1.1	World exports of merchandise and commercial services, 2000-04	2
Table 1.2	Historical events and concepts in operations management	3
Table 2.1	Historical events in operations management	14
Table 2.2	Evolutions of manufacturing strategies and techniques.....	19
Table 2.3	Enabling factors for agility in the UK aerospace SMEs.....	23
Table 2.4	A summary of literature on AM.....	24
Table 2.5	Eight constructs of AM.....	37
Table 2.6	BPI approaches	41
Table 2.7	BPI Methodologies.....	43
Table 2.8	BPI focus, objectives, approaches, enablers and methodology	44
Table 2.9	Different features of AM and BPI	45
Table 2.10	Building agility into BPI methodology.....	46
Table 2.11	World motor vehicle production by country 2003-2004 (in units).....	48
Table 2.12	Passenger vehicles by region 2003-2004 (in units)	50
Table 2.13	World ranking 2004: world motor vehicle production by manufacturer.....	53
Table 2.14	Main initiatives taken by some major car manufacturers in the world	61
Table 2.15	UK Car Production in 2003	63
Table 2.16	Top UK car manufacturers (Vehicles: 000s)	64
Table 2.17	UK car production 1995-2005 (Vehicles: 000s).....	64
Table 2.18	Top five bestsellers for 2005 in luxury car segment	65
Table 2.19	Some major UK luxury car manufacturers	67
Table 2.20	Features of the UK luxury car manufacturers and AM.....	68
Table 3.1	BPI phases and agility constructs.....	73
Table 3.2	Agile constructs for each BPI phases	76
Table 4.1	Features of the two main paradigms	80
Table 4.2	Characteristics of three main traditions in qualitative research.....	81
Table 4.3	Relevant situations for different research strategies.....	82
Table 4.4	Case study tactics for major design tests.....	84
Table 4.5	Six sources of evidence: strengths and weaknesses.....	85
Table 4.6	The proposed case study questions.....	88

Table 4.7	The selected processes	92
Table 4.8	The Interview questions	95
Table 4.9	The collected documents for this research	97
Table 4.10	The case study database	98
Table 5.1	Development stages	102
Table 5.2	The Essence of the company	102
Table 5.3	Company's key goals-2005	103
Table 5.4	Customers portfolio	107
Table 5.5	The interviewees' diversified perspectives on core competence	111
Table 5.6	Features against Competitors	112
Table 5.7	Lower-end new models: Strengths vs competitors	112
Table 5.8	Marketing and public relations activities held by the company	113
Table 5.9	Different views on customers' changing requirements of hi-tech features	115
Table 5.10	Different views on empowerment	119
Table 5.11	The attendance of the steering committee members	127
Table 5.12	Process measures of some processes in ABC	129
Table 5.13	General findings on agility in the case study company	134
Table 5.14	The BPI performance and its enablers and barriers in the company	135
Table 5.15	Some good working practices in the company	136
Table 5.16	Some outstanding issues in the company	137
Table 6.1	Results of BPI practice	147
Table 6.2	BPI enablers and barriers in ABC	149
Table 6.3	Barriers of agility of BPI in a UK luxury car-manufacturing context	151
Table 6.4	Comparison of the results on agility with theories and the theoretical implications	152
Table 6.5	Comparison of the results on BPI and other issues with theories and the theoretical implications	155
Table 6.6	The unique BPI enablers and barriers	160
	Interviewees' details	194
	A: A Sample of Contact Summary	201
	B: Document Summary Form	203

List of Figures

Figure 1.1	Volume growth of world merchandises trade and output by sector in 2004.....	2
Figure 1.2	Implementation of best practice initiatives in automotive companies	6
Figure 1.3	A flow chart of the research.....	10
Figure 2.1	The Agile Enterprise.....	21
Figure 2.2	A conceptual framework for AM.....	23
Figure 2.3	Four foundations and eight constructs of AM.....	37
Figure 3.1	A theoretical agile BPI framework	72
Figure 4.1	Selection of Interviewees	93
Figure 4.2	Interviewees' Structure	93
Figure 4.3	Interviewees' Positions.....	93
Figure 4.4	Maintaining a Chain of Evidence	98
Figure 5.1	Vision, mission and company key goals' interaction.....	103
Figure 5.2	HLS.....	104
Figure 5.3	ULS	105
Figure 5.4	Product portfolio.....	105
Figure 5.5	Product range and positioning	106
Figure 5.6	Current organisational structure	108
Figure 5.7	Brand-PSK composition.....	108
Figure 5.8	Project management organisation – status in March 2004	109
Figure 5.9	The BPI structure within company ABC	110
Figure 5.10	Matrix organisation	117
Figure 5.11	New organisational structure	117
Figure 6.1	A modified agile BPI framework.....	158
Figure J.1	Budget Responsibility.....	205
Figure J.2	Simultaneous working models.....	206
Figure K.1	An agile working model	208

An Introduction

1.1

Chapter introduction

In this chapter, the research background and necessity will be discussed, and the research rational will be defined. Research aims and objectives will then be clarified, followed by the research questions and a brief introduction of the research philosophy and methodology. The contributions and limitations of this research will also be raised in a general sense. Finally, an outline is provided on how it is organised and what is to be discussed and presented in each chapter.

1.2

Research Background

1.2.1

Dynamic market and various 'panaceas'

With the development of information and communication technology such as internet and mobile phones, the promotion of World Trade Organisation (WTO), the improvement of ocean and air mass transport, and local governments' encouragement of foreign trade and Foreign Direct Investment (FDI), business is becoming more and more globalised and the competition becomes worldwide (Yip, 1999; Johnson & Scholes, 2002; Kotler & Armstrong, 2004). According to WTO (2005), the volume of merchandise trade export, as shown in Figure 1.1 and Table 1.1, has been accelerating, and in 2004, it rose by 9%, the highest since 2000, and it is largely because of the dynamic performance of trade in manufacture which expanded by 10%, or twice as fast as in 2003. From Table 1.1, it can be seen that the annual world export of manufacture during 2000-2004 was 9%, and in 2004, the expansion had gone up to 20% of the previous value. Despite the weak dollar and the roaring prices of crude oil and other raw materials, WTO (2005) still estimated that the volume of world merchandise trade would rise by 6.5 per cent in 2005 (Note: the 2005 annual report hasn't been published yet to the date of submission of this thesis), and world trade growth should accelerate again to around 7.0 per cent in 2006 after the adjustment of price and exchange rate changes, provided the world economy recovers moderately in 2006.

Together with the globalisation is the customers' ever-changing and more and more

2 The Agility of Business Process Improvement

diversified and individualised requirements (Kotler & Armstrong, 2004).

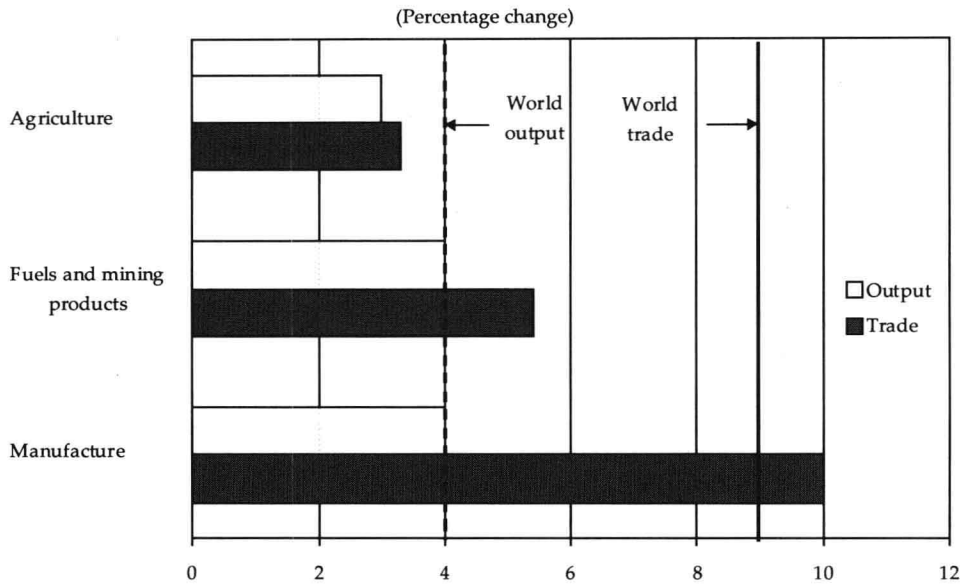


Figure 1.1 Volume growth of world merchandises trade and output by sector in 2004
(Source: WTO, 2005)

Table 1.1 World exports of merchandise and commercial services, 2000-04

	Value(billion dollars)	Annual percentage change			
	2004	2000-04	2002	2003	2004
Merchandise	8907	9	5	17	21
Agricultural products	783	9	6	16	15
Fuels and mining products	1281	10	0	23	32
Manufacture	6570	9	5	16	20
Commercial services	2125	9	7	14	18
Transportation	500	10	4	14	23
Travel	625	7	4	10	18
Other commercial services	1000	11	10	16	16

(Source: WTO, 2005)

To cope with these changes and build up competitive advantage in this globalised market, researchers and practitioners are trying all their means to help increase their

productivities and market shares by driving down the cost, improving the quality, shortening the lead time to the market of their new products and maximising their products' varieties (Waller, 1999; Russell & Taylor, 2002; Slack & Lewis, 2002). As a result, many strategies and techniques have been developed throughout time to help companies tackle their individual problems and improve their competitiveness.

As shown in Table 1.2, from the earlier industrialisation age to the 2000s, events, concepts, theories and technologies such as the streamline Mass Production (MP) with standardisation (Komacek, 1990), the Lean Production (LP) (Womack, 1990; 2003) which incorporates JIT (Ohno, 1988; Hutchins, 1999), Kanban (Ohno, 1988), Kaizen (Imai, 1986) and TQM (Oakland, 1993), have helped greatly to drive down the cost, improve the quality, and therefore, achieve the competitive advantage. But in this modern globalised and ever-changing business environment, this is not enough (Kidd, 1994), and new theories and techniques or methods have been, and are still being, proposed to improve the response to change and satisfy the customers' individual requirements. Among them, the relatively modern ones are AM (Nagel, Dove, Goldman & Preiss, 1991; Kidd, 1994), BPI (Harrington, 1991; Harrington, Esseling & Nimwegen, 1997; McCormack & Johnson, 2001; McCormack & Rauseo, 2005), the BSC management system (Kaplan & Norton, 1992; 1996; 2001), Six Sigma philosophy (Eckes, 2003) and the RFID technology (RFID Journal, 2004).

Table 1.2 Historical events and concepts in operations management

Era	Events/concepts	Dates	Main Contributors
Industrial revolution	Steam engine	1769	James Watt
	Division of labour	1776	Adam Smith
	Interchangeable parts	1790	Eli Whitney
Scientific management	Principles of scientific management	1911	Frederick W. Taylor
	Time and motion study	1911	Frank & Lillian Gilbreth
	Activity scheduling chart	1912	Henry Gantt
	Moving assembly line	1913	Henry Ford
Human relations	Hawthorne studies	1930	Elton Mayo
	Motivation theories	1940s	Abraham Maslow
		1950s	Frederick Herzberg
		1960s	Douglas McGregor
Operations research	Linear programming	1947	George Dantzig
	Digital computer	1951	Remington Rand
	Simulation, waiting line theory, decision theory, PERT/CPM	1950s	Operations Research Group
	MRP, EDI, EFT, CIM	1960s, 1970s	Joseph Orlicky, IBM and others
Quality revolution	Just-In-Time (JIT) & Kanban	1970s	Taiichi Ohno (Toyota)
	Total Quality Management (TQM)	1980s	W. Edwards Deming; Joseph Juran
		1986	