THE INNOVATION FACTORY

GILLES GAREL

Conservatoire National des Arts et Métiers, Paris, France

ELMAR MOCK

Creaholic, Biel/Bienne, Switzerland

foreword by YVES PIGNEUR



CRC Press is an imprint of the Taylor & Francis Group, an **informa** business AN AUERBACH BOOK

Contents

Dedication	\
Contents	vi
Foreword	xii
Preface	xvi
Acknowledgments	xix
About the Authors	xx
Chapter 1: Nobody Goes Truffle Hunting on the Highway	1
1.1 The Innovator Stops You from Going Around in Circles	2
1.2 What Is at Stake for Companies with Contemporary Innovation?	3
 From the Notion of Innovation to Actually Making It Happen 	
1.4 The Entrepreneur and the Scholar	8
1.5 Innovation Was, Is, and Will Be	9
Chapter 2: The Hidden Side of the Concept of the Swatch	11
2.1 The Great Watch Crisis of the Late 1970s, or When Managers Are No Longer Entrepreneurs	13

	2.1.1	The Watch Barons Enshared by the Models of the Past	13
	2.1.2 2.1.3	Precision Is No Longer a Measure of Quality The Hayek Report, or the Rapid	15
		Concentration within the Sector	16
2.2		ation versus the Crisis: The Empire Strikes	47
		with the Swatch	17
	2.2.1	5	17
		The Unlikely Encounter	19
2.3		watch Project Did Not Simply Appear Out of	
	the Bl		21
	2.3.1	When the Watch Is the Best Way of	
	222	Diversifying Watchmaking	23
	2.3.2	Carte Blanche for a Black Case, or Perfect Peace for Two Dissidents	25
			25
2.4		novative Design of the Swatch	28
	2.4.1	From the Knowledge of the Plastics Process	
	242	to the Expanding of the Initial Concept	31
	2.4.2	A Plastic-Welded Watch (Knowledge) That	25
	2.4.3	Is Consequently Inexpensive (Concept) A Plastic-Welded Watch (Knowledge) That	35
	2.4.3	Is Consequently Resilient and Waterproof	
		(Concept)	35
	2.4.4	A Plastic-Welded Watch (Knowledge) That	33
		Is Consequently Unrepairable (Concept)	36
	2.4.5	From the Knowledge of the Product to the	•
		Growth of the Initial Concept	37
	2.4.6	A Redefined Framework: A Simpler and	
		More Reliable Watch	37
	2.4.7	The Advent of Marketing Knowledge or the	
		Fashion Dimension	42
	2.4.8	From the Knowledge of Design to an	
		Expanded Concept and a Discreetly	
		Efficient Product	15

		2.4.9	5	4
		2.4.10	The Swatch Standardized the Production and Diversified the Product	4
		2.4.11		4
			Mass Production	5
		2.4.12	An Original Product with an Original	
			Process and Vice Versa	5
	2.5	Conclu	ısion	53
		2.5.1	The Fundamental Management Lessons to	
			be Learned from Breakthrough Innovation	53
		2.5.2	Take the Time to Acquire the Knowledge	5
		2.5.3	The Protection of a Mentor Leader	56
		2.5.4	Draw, Prototype, Represent	56
		2.5.5	The Reuse of Familiar or Unfamiliar	
		25/	Knowledge	56
		2.5.6	Putting Up with Deviant Tendencies;	
		257	Preparing for the Breakthrough	57
		2.5.7	Do Not Make Hasty Negative Judgments	
			or Straightaway Think That Something Is	Г
		2.5.8	Impossible The Commercial Lourghing of the County	58
		2.5.9	The Commercial Launching of the Swatch Time to Leave and to Move on to Something	59
		2.3.7	New	60
		2.5.10	The Paternity of the Swatch	61
			The Father and the Mothers	62
			The Putative Godfather	63
			The Subtle Link between Creativity and	
			Knowledge	66
Cha	ntor '), C V.	A Truly Practical Theory of	
			novation	67
	3.1	Recond	ciling Concept with Knowledge	68
	3.2	A First	Approach of the Notion of Design	69
	3.3	The Th	eoretical Roots of the Design: Design	
		versus	Decision	71

x The Innovation Factory

	3.3.1	The Rule and the Object	71
	3.3.2	In Order to Design, Get Out of the	
		Rapport "Problem/Solution"	72
3.4	The Basic Notions of C-K Theory		
	3.4.1	The Notion of Expansion	73
	3.4.2	The Notion of Partition	75
	3.4.3	The Notion of Knowledge (referred to	
		hereafter as K)	77
	3.4.4	The Notion of Concept (referred to	
		hereafter as C)	78
	3.4.5	The Concept of Wetness	80
3.5	The Re	easoning Behind the C-K Theory	81
	3.5.1	Disjunction and Conjunction	81
	3.5.2	The Operators of the Breakthrough Design	
		or the Design Square	83
3.6	C-K in	Action: Some Examples of C-K Cases	83
	3.6.1	Designing a Flying Boat	83
	3.6.2	How to Design an Innovative Camping Chair	87
	3.6.3	Moving Around with One's Suitcase	91
	3.6.4	Re-asking Forgotten Questions: From	
		Welding Wood to Welding Bone	93
	3.6.5	Consuming Ten Times Less Water When	
		You Wash Your Hands or Designing a Tap	
		That Is No Longer a Tap	97
	3.6.6	Wash Better and Rinse Better	97
	3.6.7	Revolution Instead of Renovation	98
	3.6.8	Design the Sensorial	99
	3.6.9	The C-K Reasoning behind Smixin	101
	3.6.10	C-K in Practice: The KCP® Method	101
3.7	Conclusion: The Origins of the Concept		
	3.7.1	The Concept Defined by an Oxymoron	105
	3.7.2	Distorting Oneself without Distorting	
		Oneself	105
	3.7.3	The Metaphor of the Pearl	107

	4: The Molecular Metaphor of Innovation: uid, Crystal	111
4.1	The Innovator Blues	
4.1		111
4.2	The Origins and the Status of the Molecular	111
4.3	Metaphor The Malagular Matanhar of the Mautal States of	114
4.3	The Molecular Metaphor of the Mental States of Innovation	445
4.4	The Mental State of Gas	115
4.4		116
4.5	The Mental State of Countries	118
4.6	The Mental State of Crystal	119
4./	From a Dialogue of the Deaf to a Dialogue of the	404
	Mental States	121
Chapter	5: The Metaphor of the Matriarch	125
5.1	How to Organize Breakthrough Innovation:	
	Creaholic, an Innovation Smith	125
5.2	Professional Inventors	12 <i>ŧ</i>
5.3	Unique Organizational Principles	127
5.4	The Internal Organization of Creaholic	130
5.5	The Matriarch as a Metaphor of the Management	
	of Ambidexterity	132
5.6	Multidisciplinary and Multifertilization	137
Epiloaue	e: Watches to be Watched: Connected Watches,	
	novation War Raging on Your Wrist	141
Fror	n a Coordinated World to a Connected World	143
The	Economic War on Your Wrist	144
The	Wrist: An Innovative Spot	145
Wat	chmaking Seized by a Revolution	147
Conclusi	on: Innovation at Work	149
References		155
Index		