Contents

Forewo	ord by Robert S. Langer —— XIII			
Forewo	ord by Jarka Glassey —— XV			
Prefac	e — XVII			
Acknow	wledgments —— XXIII			
1	I am short of time! —— 1			
2	Where to start engineering? —— 3			
2.1	Overall aim of this book —— 3			
2.2	Boundary conditions or book's aim —— 4			
2.3	Conceptualizing terms —— 6			
2.3.1	Engineer, E ₃ — 6			
2.3.2	Entrepreneur, $E_2 - 8$			
2.3.3	Knowledge, K —— 9			
2.3.4	Persuasiveness, P —— 10			
2.3.5	Empathy, E —— 13			
2.4	Mixing the ingredients: K+P+E —— 16			
2.5	KPE against epidemics —— 20			
2.6	Applicability of ideas —— 24			
2.7	A decision making tool —— 25			
2.7.1	Origins of IF —— 31			
2.8	Relation between A and IF —— 32			
2.9	Changing K:P:E importance —— 33			
2.10	KPE's model case —— 35			
3	Give me facts — 37			
3.1	Innovation guide —— 37			
3.2	Inspiration template to innovate —— 42			
3.3	Size matters —— 45			
3.4	First-hand case analyses —— 47			
3.4.1	From PhD student to entrepreneur —— 47			
3.4.2	Starting another company —— 57			
4	Where did I read this? —— 62			
4.1	Overall learning objectives of this book —— 62			
4.2	A new engineer —— 64			
4.3	Drivers for paradigm change — 67			

4.4	Method to teach KPE —— 69
4.4.1	Learning from challenges —— 69
4.4.2	Teaching knowledge —— 71
4.4.3	Teaching persuasiveness —— 73
4.4.4	Teaching empathy —— 76
4.5	The need for teaching empathy and persuasiveness — 77
4.6	How others teach entrepreneurship, $E_2 - 79$
4.7	Four recent books — 80
4.7.1	Book 1. Tropical Empathy —— 80
4.7.2	Book 2. Entrepreneurial physicists —— 81
4.7.3	Book 3. Hunch Engineers — 82
4.7.4	Book 4. Chemistry Entrepreneurs — 83
4.8	Solving changing problems —— 83
5	Got it! Now what? —— 87
5.1	Take-home message —— 88
5.2	KPE ³ tips — 88
5.3	Less academic take on persuasion and empathy —— 90
5.3.1	Persuasiveness vs propaganda — 90
5.3.2	Empathy vs apathy — 92
5.4	Some advice and biases — 94
5.4.1	Off- and online pointers — 96
5.5	Communication etiquette — 97
5.5.1	Writing tips — 98
5.6	Models and dialogues with yourself —— 99
5.7	To lead or to follow? —— 104
5.7.1	About leaders and followers — 104
5.8	Watch out! — 106
5.9	About dog-eat-dog —— 110
5.10	About teams — 111
5.11	Success or failure, what is the question? —— 113
5.11.1	The value of time —— 114
	IFFF letemiessing amounthin entrangenessial engineers 440
6	IEEE: Interviewing empathic entrepreneurial engineers —— 118
6.1	Empathy-driven need to write —— 119
6.1.1	Distilling ideas — 119
6.2	KPE seen by other innovators — 121
6.2.1	Artificial intelligence and chemistry —— 121
6.2.2	A is not always for Apple —— 125
6.2.3	Swab sensor — 127
6.2.4	Chemistry is in the air — 129
6.2.5	The challenges are there, but can we see them? —— 132

6.2.6	Flying droplets —— 133		
7	Epilogue: Last considerations —— 136		
Α	Answer to case study questions —— 139		
A.1	Knowledge answer —— 139		
A.2	Persuasiveness answer —— 141		
A.3	Empathy answer —— 143		
A.3.1	Answer 1 —— 144		
A.3.2	Answer 2 —— 145		
A.4	<i>IF</i> cleaning answer —— 146		
A.5	Examples used in lectures to teach IF —— 146		
A.6	Oscillatory baffle reactor —— 147		
A.7	Organometallic reaction in fine chemical and pharmaceutical		
	industry —— 148		
A.8	Answers to the rhetoric question from Section 2.3.2 —— 150		
Bibliography —— 151			
Index –	— 159		

To my children because they will see the future and to my family who helped me get where I am

"Ciencia y libertad son llaves maestras que han abierto las puertas por donde entran los hombres a torrentes, enamorados del mundo venidero."

Science and freedom are the master keys that have opened the doors through which men pour in, falling in love with the upcoming world.

José Martí, "Respeto a Nuestra América," La América, New York, 1883