Contents

Foreword xi
Foreword xv
Preface xix
Acknowledgments xxi
Authors xxiii

1 Definition of Complexity and Its Impact on Organizations 1
B. E. WHITE

Definition of Complexity 4
Complex System Behaviors 9
Surprising Emergence 9
Evolves on Its Own as a Whole 9
Acts Robustly 10
Thrives on Diversity 10
Many Factors at Play 11
Stimulates Different Perspectives 11
Ever Changing 11
Informs the Observer 11
Performs Openly 11
Internal and External Relationships Are Key 12
Self-Organized 12
Sensitive to Small Effects 12
Exhibits Tight and Loose Couplings 12
Complex Systems Engineering Principles 13
Bring Humility .........................................................13
Follow Holism ..........................................................13
Achieve Balance .......................................................14
Utilize Trans-Disciplines ..............................................14
Embrace POET (Political, Operational, Economic, and Technical) Aspects ..............................................14
Nurture Discussions ..................................................15
Pursue Opportunities ..................................................15
Formulate Heuristics ..................................................16
Foster Trust ...............................................................16
Create an Interactive Environment ................................17
Stimulate Self-Organization ...........................................18
Seek Simple Elements ..................................................19
Enforce Layered Architecture ........................................19
Human Behavior ........................................................20
Impact on Organizations .................................................21
Overarching Fragility Concern .......................................25
Recognize That Complex Systems Can Do Better than We Can ...........................................................26

2 The Nature of Being Human ......................................29
B. G. MCCARTER
Mind and the Brain: An Overview ................................30
Basics of the Brain .....................................................33
Mind, Body, and Environment Interaction ....................37
The Mind and Emergence .............................................38
Innate Dispositions for Survival .....................................41
Beyond the Non-Conscious ...........................................43
Emotions .................................................................45
Reason and Decision Making .........................................48
Synopsis .................................................................55

3 How to Build Trust ..................................................57
B. E. WHITE AND B. G. MCCARTER
Perspectives on Trust ..................................................61
World Politics, Religions, and Fear ..................................62
4 Collective Group Dynamics: A New View of High-Performance Teams ............... 95

B. E. WHITE

Introduction ........................................ 95
Characteristics of Traditional Teams .......... 97
  Enneagram® .................................. 100
  Cynefin Framework ............................ 101
  Examples and Level of Commitment ........ 101
  Behaviors ................................... 103
Distributed Team Models ......................... 108
  Serious Games/Virtual Worlds for Training 111
  Difficulties in Distributed Environments 115
  X-Teams ................................... 119
  Exploration of Dissenting Individual Mindsets 121
  Program/Project Management ............... 125
  Information Sharing ........................ 127
  Guilds ....................................... 131
  Organizational Learning ...................... 134
Implications for Leadership in Chaordic Organizations .... 138
Summary ........................................ 142
Takeaways ....................................... 144
# 5 Application of Theory

**B. G. McCARTER**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complex Adaptive Systems: A Reprise of Previous Chapters</td>
<td>147</td>
</tr>
<tr>
<td>Conflict</td>
<td>154</td>
</tr>
<tr>
<td>Process Enneagram&lt;sup&gt;®&lt;/sup&gt;</td>
<td>156</td>
</tr>
<tr>
<td>Change</td>
<td>161</td>
</tr>
<tr>
<td>How to Facilitate Change in Organizations</td>
<td>162</td>
</tr>
<tr>
<td>Counseling Skills and Techniques</td>
<td>168</td>
</tr>
<tr>
<td>Specific Techniques</td>
<td>170</td>
</tr>
<tr>
<td>Core Values</td>
<td>171</td>
</tr>
<tr>
<td>Ground Rules</td>
<td>171</td>
</tr>
<tr>
<td>Evaluating Group Processes</td>
<td>173</td>
</tr>
<tr>
<td>Social Systems</td>
<td>175</td>
</tr>
<tr>
<td>The Individual</td>
<td>178</td>
</tr>
<tr>
<td>Changing Our Behaviors</td>
<td>179</td>
</tr>
<tr>
<td>Views of Reality</td>
<td>180</td>
</tr>
<tr>
<td>Human Systems:—What Makes Them Complex</td>
<td>186</td>
</tr>
<tr>
<td>Today’s Problems Come from Yesterday’s Solutions</td>
<td>186</td>
</tr>
<tr>
<td>The Harder You Push, the Harder the System Pushes Back</td>
<td>187</td>
</tr>
<tr>
<td>Behavior Grows Better before It Gets Worse</td>
<td>187</td>
</tr>
<tr>
<td>The Easy Way Out Usually Leads Back In</td>
<td>187</td>
</tr>
<tr>
<td>Faster Is Slower</td>
<td>188</td>
</tr>
<tr>
<td>Cause and Effect Are Not Closely Related in Time and Space</td>
<td>188</td>
</tr>
<tr>
<td>Small Changes Can Produce Big Results, but the Areas of Highest Leverage Are Often Least Obvious</td>
<td>188</td>
</tr>
<tr>
<td>Dividing an Elephant in Half Does Not Produce Two Elephants</td>
<td>189</td>
</tr>
<tr>
<td>There Is No Blame</td>
<td>189</td>
</tr>
<tr>
<td>Summary</td>
<td>189</td>
</tr>
</tbody>
</table>
6 Wicked Problems and MUVEs: Understanding Human Interactions through Multiuser Virtual Environments ........................................ 193
B. G. MCCARTER
Dynamics of Living Human Systems at Work .................. 194
Psychology of Virtual Worlds ..................................... 195
Next Level of Interaction and Learning ....................... 198
Narrative Structures and the Underlying Psychological Dynamics .................................................. 201

Appendix A .................................................................. 203
Mini-Lexicon of Selected Terms ................................. 203

Appendix B .................................................................. 213
INCOSE Working Group Sidebar on Complex Systems ............................................................. 213

Appendix C .................................................................. 223
Quotations from The 48 Laws of Power ...................... 223

Appendix D .................................................................. 231
Research for Virtual Worlds' Promotion of Oxytocin .... 231

Appendix E .................................................................. 233
On the Information Explosion .................................... 233

Appendix F .................................................................. 237
On the Deeper Impact of Virtual Worlds .................... 237

Appendix G .................................................................. 245
Web Collaboration, Workspace, Blog Platforms .......... 245

References .................................................................. 259
Bibliography ............................................................... 275
Index ......................................................................... 277