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Jan Kraner

Innovation in High Reliability Ambidextrous Organizations

Analytical Solutions Toward Increasing
Innovative Activity



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It must be considered that there is nothing more difficult to carry out, nor more doubtful of success, nor more dangerous to handle, than to initiate a new order of things. For the reformer has enemies in all those who profit by the old order, and only lukewarm defenders in all those who would profit by the new order, this lukewarmness arising partly from fear of their adversaries, who have the laws in their favour; and partly from the incredulity of mankind, who do not truly believe in anything new until they have had actual experience of it.

Machiavelli (1532)

Author's Note

This dissertation was written by myself and with usage of my own words, except for quotations which are clearly indicated and acknowledged accordingly. The source of any graphic, figure, or illustration is as well quoted according to the original source.

Preface

The main objective of this research was to examine how and why key players support or hinder the implementation of a technological innovation and what influence the interaction between explorative and exploitative key players has in the context of high reliability organizations (HROs).

To cover these objectives, qualitative in-depth research in the form of a case study was conducted at two companies belonging to the aviation industry in order to investigate interrelated causal links and interactions that would have been too complex to be analyzed with a quantitative approach. To obtain reliable results, method triangulation was applied in the form of interviews, focus groups, and some direct observation and gathering of artifacts. Data triangulation was also used based on evidence from innovation-related internal documents, transcribed statements and discussions, and third-party articles.

The empirical results showed that there are certain key players and different forms of interactions that support or hinder the implementation of technological innovation. The supporting key players identified here are knowledge sharing exploitative players, innovation supporting informal leaders, and the so-called side changers, that is, key players who were once located on the exploitative or explorative side and later changed sides when taking over new functions. Key players with a strongly inhibitory impact are innovation opposing informal leaders, noncooperative exploitative players, and fanatic explorative players. With regard to formal and informal interactions, it was verified that informal interactions have a tremendous influence, both at the top and bottom of the hierarchy, on the successful implementation of an innovation.

The main conclusions and implications drawn from the research are that the election of the program leader for the implementation of an innovation as well as the election and involvement of other key players is crucial. Formal and, especially, informal channels should also be managed as closely as possible in such undertaking. Interaction processes between exploitative and explorative players should be iteratively intensified and managed closely, and trust should be considered a source of traction when implementing an innovation. Therefore, the successful implementation

of an innovation depends on several parameters within the broader organizational context but most notably on strong leadership, deliberate listening to and engagement with the exploitative players, the management of informal channels, and transparency in communication.

Zurich

Jan Kraner

Acknowledgements

Machiavelli's statement, written almost 500 years ago, sums up neatly what I also discovered in my research. He had found that innovations are not embraced by the people whose traditional order is disrupted by innovation. However, he also recognized that people start to believe in something once they have actual experience with it and that certain players influence the different orders with their power.

The dissertation in your hand follows the insights of Machiavelli. It is, above all, the product of hard work over the last 5 years. After having finished my master's degree as a father of two children, I had to promise my wife Simone when I seriously began considering a PhD to work on it whenever I could but never at home while the children were awake. I can announce that I wrote this PhD essentially on my 3-h commute to work, while others read newspapers. However, on about half the days I set my alarm clock to go off at about 04.00 a.m., in order to have some extra hours for working on the thesis. Next to that, the first 2 years were given over to lots of reading, which proved to be the single best lullaby when reading out aloud in front of our baby's crib. Another insight I gained was that the topic I chose was indeed my topic. As such, it might be boring for others, but it kept me fascinated for about 2 years before my PhD program started and it continues to do so now, as I tasted blood and am keen to discover more and apply my new knowledge right away.

Over the last years, most of our family vacations took place very close to my university, and, to be very honest, I could not have made it without getting significant freedom during my after-work hours from my wife Simone. So my deepest thank goes to her, for all her support and the sponsorship she gave me over the last years and especially over the last year when the actual writing happened. Second, I would like to thank my thesis director Nekane Aramburu who knew how to assist me with to-the-point feedback on my results and a very warm endorsement whenever it was needed during these intense years. Her competence and adamant sense of purpose were priceless for what I could learn from her. Third, special thanks go to Swiss and skyguide, the two companies that participated in my extensive case studies and gave me access to relevant data, and to Harmonie Sauer who acted as

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Also I want to thank very much Reinhild Ritler, my favorite artist for her monoprints that were produced for the dissertation, my sisters for their pragmatic hints and tips when lost in data or on the way to getting or analyzing them, my parents for supporting me with their backing over all those decades, the University of Applied Science of Zurich and Lucerne for their contributions in working time, and my kids for always showing me what is really important at the end of the day.

Zurich, March 2017

Jan Kraner

Contents

1	Introduction	1
1.1	Problem Statement	1
1.2	Research Questions and Objectives and Theoretical Propositions	2
1.2.1	Main Objectives for the Research and Research Questions	2
1.2.2	Theoretical Propositions for the Research	3
1.3	Methodological Approach of the Research	4
1.4	Main Contributions of the Research	4
1.5	Structure of the Dissertation	6
2	Literature Review and Theoretical Propositions	9
2.1	Innovation: An Overview	9
2.1.1	Forms, Types, and Magnitude of Innovation	10
2.1.2	Stages of Innovation	16
2.1.3	Level of Analysis	19
2.1.4	Determinants of Innovation	23
2.2	Organizational Ambidexterity: An Overview	25
2.2.1	Organizational Ambidexterity: Introduction to the Concept	25
2.2.2	Topics Relating to Organizational Ambidexterity	28
2.2.3	Types of Organizational Ambidexterity	33
2.2.4	Moderators and Outcomes of Ambidexterity	38
2.3	Theoretical Propositions	41
2.3.1	Theoretical Propositions Related to Boundary Activities and the Interplay Between Exploration and Exploitation Activities	41
2.3.2	Theoretical Propositions Related to the Different Key Players	46

3	Methods	55
3.1	The Research Strategy	55
3.2	Case Study Design	56
3.2.1	Design Approach	56
3.2.2	Units of Analysis	56
3.2.3	Quality of the Research Design	57
3.3	Conducting the Case Study	60
3.3.1	Skills of the Researcher	60
3.3.2	Preparation of the Case Study	60
3.3.3	The Case Study Protocol	61
3.3.4	Data Collection Tactics	64
3.3.5	Collecting the Evidence	65
3.3.6	Methods Applied for Data Gathering	67
3.3.7	The Interviews: Preparation and Conditions	69
3.4	Analyzing the Case Study Evidence	71
3.4.1	Analytical Strategy	71
3.4.2	Analytical Techniques	72
3.5	Outline of the Case Study Report	74
3.5.1	Case Study Report	74
3.5.2	Target Audience of the Case Study Report	74
4	Empirical Results	77
4.1	Findings of Case Study I	77
4.1.1	Findings from Interviews	77
4.1.2	Findings from Focus Groups	97
4.1.3	Findings from Other Sources	107
4.2	Findings from Case Study II	114
4.2.1	Findings from Interviews	114
4.2.2	Findings from Focus Groups	133
4.2.3	Findings from Other Sources	141
5	Discussion of the Results	151
5.1	Discussion of the Findings Linked to the Literature	151
5.1.1	Findings Linked to the Literature of Innovation	151
5.1.2	Findings Linked to the Literature on Organizational Ambidexterity	155
5.2	Discussion of the Findings Linked to the Propositions	159
5.2.1	Theoretical Propositions Family 1: Boundary Activities and the Interplay Between Exploration and Exploitation Activities	160
5.2.2	Theoretical Propositions Family 2: Different Key Players' Roles	164
5.3	Discussion of the Findings Linked to the Main Research Objectives	175

- 6 Conclusions and Implications 177**
 - 6.1 Conclusions 178
 - 6.2 Practical Implications 188
 - 6.3 Further Research Opportunities 190
 - 6.4 Shortcomings/Limitations 191

- Appendix 193**
 - Appendix A: Analytical Interview Manual 193
 - Appendix B: Practical Interview Manual 195
 - Appendix C: Anonymized Interview List 205
 - Appendix D: Focus Group Manual 205
 - D.1 Process of the Focus Group 205
 - D.2 Rules of Behavior in the Focus Group 206
 - D.3 Focus Group Question Guidance 206
 - Appendix E: Anonymized Focus Group List 208

- References 209**
 - Bibliographical References 209
 - References from the Web 221
 - References Consulted in the Case Study 221
 - Other Consulted References 222

List of Figures

Fig. 2.1	Dimensions of innovation. Source: Adapted by the author from Gopalakrishnan and Damanpour (1997)	10
Fig. 3.1	Units of analysis. Source: adapted from Crossan and Apaydin (2010, p. 1167)	57
Fig. 3.2	Assurance of qualitative research. Source: Author	59
Fig. 5.1	Theoretical proposition 1: Cause and effect pattern. Source: Author	161
Fig. 5.2	Theoretical proposition 2: Cause and effect pattern. Source: Author	164
Fig. 5.3	Theoretical proposition 3: Cause and effect pattern. Source: Author	167
Fig. 5.4	Theoretical proposition 4: Cause and effect pattern. Source: Author	170
Fig. 5.5	Theoretical proposition 5: Cause and effect pattern. Source: Author	173
Fig. 6.1	Overall cause-and-effect network. Source: Author	179
Fig. 6.2	The paradoxical circle of side changers. Source: Author	180
Fig. 6.3	Key players supporting or hindering an innovation. Source: Author	181
Fig. 6.4	Formal and informal organization. Source: Author	183
Fig. 6.5	Hierarchical level/Influence matrix. Source: Author	184
Fig. 6.6	Player supportivity curve. Source: Author	185
Fig. 6.7	Paradoxical associations between exploration/exploitation and radical/incremental innovation. Source: Adapted from Lavie et al. (2010)	186
Fig. 6.8	Trust-gap: top-down versus bottom-up view. Source: Author	187
Fig. 6.9	Causes and effects that can be influenced. Source: Author	189

List of Tables

Table 3.1	Unanticipated events	66
Table 3.2	Risks in the research and their implications	71
Table 4.1	Case study I/Theoretical proposition 1—Overview of the interview	78
Table 4.2	Case study I/Theoretical proposition 1—Categories from interview	78
Table 4.3	Case study I/Theoretical proposition 2—Overview of the interview	83
Table 4.4	Case study I/Theoretical proposition 2—Categories from interviews	84
Table 4.5	Case study I/Theoretical proposition 3—Overview of the interview	85
Table 4.6	Case study I/Theoretical proposition 3—Categories from interviews	86
Table 4.7	Case study I/Theoretical proposition 4—Overview of the interview	89
Table 4.8	Case study I/Theoretical proposition 4—Categories from interviews	89
Table 4.9	Case study I/Theoretical proposition 5—Overview of the interview	93
Table 4.10	Case study I/Theoretical proposition 5—Categories from interviews	93
Table 4.11	Case study I/Theoretical proposition 1—Overview of the focus group	97
Table 4.12	Case study I/Theoretical proposition 1—Categories from focus group	98
Table 4.13	Case study I/Theoretical proposition 2—Overview of the focus group	101
Table 4.14	Case study I/Theoretical proposition 2—Categories from focus group	101

Table 4.15	Case study I/Theoretical proposition 3—Overview of the focus group	102
Table 4.16	Case study I/Theoretical proposition 3—Categories from focus group	102
Table 4.17	Case study I/Theoretical proposition 4—Overview of the focus group	104
Table 4.18	Case study I/Theoretical proposition 4—Categories from focus group	105
Table 4.19	Case study I/Theoretical proposition 5—Overview of the focus group	106
Table 4.20	Case study I/Theoretical proposition 5—Categories from focus group	106
Table 4.21	Case study I—Overview of the findings from direct observation	108
Table 4.22	Case study I/Theoretical propositions 1 to 5—Categories from direct observation	108
Table 4.23	Case study I—Overview of the findings from archival data . . .	109
Table 4.24	Case study I/Theoretical propositions 1 to 5—Categories from archival data	109
Table 4.25	Case study I—Overview of the findings from documentation . . .	110
Table 4.26	Case study I/Theoretical propositions 1 to 5—Categories from documentation	110
Table 4.27	Number of findings in the different categories of case study I . . .	112
Table 4.28	Case study II/Theoretical proposition 1—Overview of the interview	115
Table 4.29	Case study II/Theoretical proposition 1—Categories from interviews	115
Table 4.30	Case study II/Theoretical proposition 2—Overview of the interviews	119
Table 4.31	Case study II/Theoretical proposition 2—Categories from interviews	119
Table 4.32	Case study II/Theoretical proposition 3—Overview of the interview	122
Table 4.33	Case study II/Theoretical proposition 3—Categories from interviews	122
Table 4.34	Case study II/Theoretical proposition 4—Overview of the interview	127
Table 4.35	Case study II/Theoretical proposition 4—Categories from interviews	127
Table 4.36	Case study II/Theoretical proposition 5—Overview of the interview	131
Table 4.37	Case study II/Theoretical proposition 5—Categories from interviews	131
Table 4.38	Case study II/Theoretical proposition 1—Overview of the focus group	134

Table 4.39	Case study II/Theoretical proposition 1—Categories from focus group	134
Table 4.40	Case study II/Theoretical proposition 2—Overview of the focus group	136
Table 4.41	Case study II/Theoretical proposition 2—Categories from focus group	136
Table 4.42	Case study II/Theoretical proposition 3—Overview of the focus group	137
Table 4.43	Case study II/Theoretical proposition 3—Categories from focus group	137
Table 4.44	Case study II/Theoretical proposition 4—Overview of the focus group	138
Table 4.45	Case study II/Theoretical proposition 4—Categories from focus group	138
Table 4.46	Case study II/Theoretical proposition 5—Overview of the focus group	140
Table 4.47	Case study II/Theoretical proposition 5—Categories from focus group	140
Table 4.48	Case study II—Overview of the findings from direct observation	142
Table 4.49	Case study II/Theoretical propositions 1 to 5—Categories from direct observation	142
Table 4.50	Case study II—Overview of the findings from archival data	143
Table 4.51	Case study II/Theoretical propositions 1 to 5—Categories from archival data	143
Table 4.52	Case study II—Overview of the findings from documentation	146
Table 4.53	Case study II/Propositions 1 to 5—Categories from documentation	146
Table 4.54	Case study II—Overview of the findings from artifacts	147
Table 4.55	Case study II/Theoretical propositions 1 to 5—Categories from archival data	147
Table 4.56	Number of findings in the different categories of case study II	148
Table 5.1	Overview of the categories relevant for theoretical proposition 1	160
Table 5.2	Overview of the categories relevant for theoretical proposition 2	162
Table 5.3	Overview of the categories relevant for theoretical proposition 3	165
Table 5.4	Overview of the categories relevant for theoretical proposition 4	168
Table 5.5	Overview of the categories relevant for theoretical proposition 5	171

List of Abbreviations

ACC	Area Control Centre
A.M.	Ante meridiem
ANSP	Air Navigation Service Provider
ATCO	Air Traffic Controller
ATM	Air Traffic Management
BFE	Buyer Furnished Equipment
CCO	Chief Commercial Officer
CFO	Chief Financial Officer
CEO	Chief Executive Officer
CHIPS	Swiss Implementation Program for SESAR-related activities
COO	Chief Operations Officer
DC	Douglas Commercial
Dr	Doctor
EASA	European Aviation Safety Agency
EB	Executive Board
EBCO	Executive Board Committee Operations
Fam	Family
FOCA	Federal Office of Civil Aviation
HRM	Human Resource Management
HRO	High Reliability Organization
ICAO	International Civil Aviation Organization
ID	Identification
IT	Information Technology
Ltd	Limited
NDA	Non-disclosure Agreement
OA	Organizational Ambidexterity
OEM	Original Equipment Manufacturer
OK	Oll korrekt
ORE	Operational Risk Evaluation
ORA	Operational Risk Assessment
OTM	Organizational Transformation Model

PhD	Doctor of Philosophy
PLC	Product Life Cycle
Prop	Proposition
R&D	Research and Development
SESAR	Single European Sky ATM Research Programme
SIM	Simulator
UMB+	Unit Management Board (plus)
VC	Virtual Center
VCM	Virtual Center Model
VP	Vice President
ZH	Zurich
ZHAW	Zürcher Hochschule für angewandte Wissenschaften
3D	Three Dimensional