

# 1 **Intervention Research as Management Research in Practice:** 2 **Learning from a Case in the Fashion Design Industry**

## 3 **Abstract**

4 Research in the field of management and organizational sciences has yielded a deeper  
5 understanding of many emerging business issues. However, the relevance of the contributions has  
6 been increasingly criticised, in both the academic and public spheres. This paper proposes the  
7 Intervention Research approach – originally developed by the research group at *Ecole des Mines de*  
8 *Paris* – as a design-science approach able to address both the relevance gap issue and the growing  
9 complexity of management practice. It is argued that increasing our understanding of management  
10 requires research that is more insightful, influential, and immediately applicable. This in turn  
11 requires closer collaboration between management and researchers during the inquiry process,  
12 which is not always easy to achieve. An illustrative case study of an intervention research project  
13 focusing on creativity, conducted in Italy in collaboration with a fashion company, demonstrates  
14 how intervention research can be rigorous and relevant to practitioners, and how it can advance  
15 theoretical knowledge in management science.

16

## 17 **Keywords**

18 Intervention Research; Design Science; Collaborative Management Research; Collective Creativity

19

20

21

22

23  
24

## 1. Introduction

25 Management research is being increasingly challenged for its limited impact on business and  
26 government (Fincham and Clark, 2009; Hodgkinson and Starkey, 2011). This criticism creates an  
27 opportunity to introduce novel perspectives on management research that more satisfactorily  
28 address the relevance dimension. Specifically, several authors have proposed moving beyond the  
29 traditional treatment of management research as an ‘explanatory science’ oriented to description,  
30 explanation and prediction of phenomena, and embracing instead a ‘design science’ perspective.  
31 This perspective seeks to assimilate the scientific quest for truth (‘is this proposition true?’) into a  
32 practical concern for relevance (‘will it work better?’) (Jelinek et al., 2008). Design science calls for  
33 the production of knowledge and artefacts that simultaneously advance our body of knowledge and  
34 improve performances (Van Aken, 2005).

35 The opportunity to adopt a ‘design science’ perspective has sparked considerable debate in  
36 the research community. However, actual approaches that engage in ‘design science’ are still  
37 infrequent, and have yet to gain high visibility and legitimacy in the research community (Symon et  
38 al., 2008). Intervention Research (IR) provides a salient example. IR seeks to design changes within  
39 organizations by enumerating the dynamics by which such changes are contextualized and  
40 formalized (Hatchuel, 2001). IR has by now reached theoretical maturity<sup>1</sup> (David and Hatchuel,  
41 2008) but only a limited number of published empirical research can be found in the literature. The  
42 reasons for this lack of exposure are twofold: First, existing contributions do not fully communicate  
43 the potential of IR in terms of advancing theoretical knowledge, practical relevance, and scientific  
44 rigor. Second, there is a lack of illustrative knowledge about the workings of IR since there is little  
45 English-based literature that maps out and clarifies the essence of its inquiry process.

---

<sup>1</sup> Two distinct IR approaches have been developed in two French Institutions, namely Ecole des Mines de Paris and ISEOR and Institut d’Administration des Entreprises, University Jean Moulin Lyon. The focus of this work is on the approach developed at Ecole des Mines de Paris.

46           The aim of this paper is to advance the dissemination of IR by addressing these two issues.  
47 In the first two sections of the paper we will identify six theoretical and practical challenges in  
48 management research that point towards the added value of a ‘Design Science’ perspective, and  
49 describe how these are theoretically fulfilled by IR. The final two sections present a case study that  
50 illustrates the implementation of IR inquiry process and how it concretely produced rigorous and  
51 relevant to research and practitioners.

52

## 53 **2. Research challenges in Management Research**

54 Emerging approaches to Management Research are likely to be legitimized by their capacity to  
55 support the production of knowledge which (a) advances the theoretical field; (b) is scientifically  
56 rigorous; and (c) is usable by practitioners (Cassell and Lee, 2011). In particular, new research  
57 approaches are likely to emerge if they help researchers address *challenges* that still inhibit their  
58 production of rigorous and relevant research.

59           What are these challenges? This question is open to multiple answers. Challenges depend  
60 on the “knowledge-constituting assumptions” (Johnson et al., 2006) that researchers adopt to  
61 substantiate the notions of “rigor” and “relevance”. ‘Design science’, in this regard, moves from a  
62 non-positivist stance by which: (a) society does not manifest regularities, but rather continuous  
63 processes of change; and (b) reality is the result of social construction and cannot be neutrally  
64 accessed by external observers. Adopting this standpoint, researchers face the following major  
65 challenges.

### 66 **2.1. Theoretical Advancement of Management Science**

67 Theoretical advances depend on the ability to accommodate the inherent complexity – structural  
68 and dynamic – of both management and organizations. Three features are required.

69           *Focus on change and development.* Researchers are increasingly embracing a view which  
70 incorporates change into the core of their investigations in order to supersede the emphasis on a  
71 stable reality that characterizes positivism (Tsoukas and Chia, 2002). Escalating uncertainty and

72 competition force organizations constantly to change in an effort to retain a sustainable advantage  
73 (Buchanan et al., 2005). Change is thus the key subject of research, because it is precisely the  
74 capability that organizations seek to cultivate and institutionalize (Van de Ven and Poole, 1995). Its  
75 investigation requires the emergence of approaches which can take systematic account of the  
76 dynamism of organizational actors and managerial decisions.

77         *Support for multi-level analysis.* There is growing recognition that organizations are  
78 affected by factors located at multiple levels of analysis and cannot be fully disentangled. Pfeffer  
79 (1997) recognized that attention should be paid to “(a) the effects of social organizations on the  
80 behaviour and attitudes of individuals within them; (b) the effects of individuals' characteristics and  
81 actions on organizations, with particular emphasis on the powerful individual influences that may  
82 exist within organizational systems; [...] (c) the mutual effects of environments--including resource,  
83 task, political, and cultural environments--upon organizations and vice versa” (p. 4). This  
84 complexity opens various venues for improvement, such as improving the micro-foundations of  
85 macro-macro relationships (Abell et al. 2008), building reliable meso-level constructs (Mathieu and  
86 Taylor, 2007), or introducing multi-level models able to control for ‘unobserved heterogeneity’  
87 (Klein et al. 1994). The dominant approaches recognize these needs, but struggle to meet them  
88 (Payne et al., 2011). Emerging approaches suitable for investigating individuals, teams, firms, and  
89 environments within a single theoretical framework would thus be of primary interest.

90         *Facilitate polyphonic investigation.* The recognition of organizational complexity and  
91 dynamism entails a shift to a non-deterministic stance “whereas any human being is an agent  
92 capable of making choices based upon his or her inter-subjectively derived interpretation of the  
93 situation. Hence, social scientists, in order to explain human action, have to begin by understanding  
94 the ways in which people, through social interaction, actively constitute and reconstitute the  
95 culturally derived meanings which they deploy to interpret their experiences and organize social  
96 action” (Morgan 1980, p. 608). An understanding of reality as a social construct entails a demand

97 for approaches able to tackle the polyphonic nature of management and organizational behaviours,  
98 so as to build a rational account of existing social interactions (Hoskisson et al., 2002).

## 99 **2.2. Rigor of Management Research**

100 Another crucial challenge is legitimizing the *rigor* of methodological commitments (Johnson et al.,  
101 2006), thereby ensuring that the knowledge yielded by emerging approaches is scientific. There are  
102 two main challenges in this regard.

103 *Providing evaluation criteria.* Proponents of new approaches are required to exhibit a ‘new  
104 sensitivity’ (Willmott, 1998), i.e. clarity in communicating the epistemological assumptions and the  
105 methodological implications of their research. There is no single best set of criteria on which all  
106 approaches should ultimately converge: different epistemological ‘models of engagement’ entail  
107 different evaluation criteria. Each set of evaluation criteria is legitimate if it is internally consistent  
108 with the epistemological assumptions, research goals, and methodological commitments of that  
109 particular mode of engagement (Johnson et al., 2006). Hence, assessing the rigor of an emerging  
110 approach is not a matter of proving its consistency with pre-established criteria, but rather clarifying  
111 its epistemological and methodological foundations and then defining “evaluation criteria” that are  
112 consistent with them.

113 *Improving access to data.* A basic pre-condition for rigor is the quality of the data  
114 supporting the theoretical framework. Collaboration with practitioners has been suggested as a  
115 crucial requirement for obtaining better data sets (Rynes, 2009). This may be a problem, given  
116 practitioners' lack of interest in academic research. This research-practice distance may severely  
117 limit the extent to which researchers are allowed to observe phenomena within organizations and  
118 interact with their members.

## 119 **2.3. Practical Relevance of Management Research**

120 Producing relevant knowledge is the greatest challenge faced by researchers. The divergence  
121 between researchers and practitioners has been widely studied, and evidence shows that few  
122 practitioners read scientific management journals (McKenzie et al. 2002) or explicitly use academic

123 theories (Daft and Lewin, 1990). Some reasons for this lie on the practitioners' side, such as a lack  
124 of formal education or little exposure to research findings (Rynes, 2009), but the most prominent  
125 ones are imputable to the so-called 'relevance gap' of management research. This 'relevance gap'  
126 has been extensively debated in top-tier journals over the past ten years (Fincham and Clark, 2009).

127         The debate has featured contrasting opinions about the potential trade-offs between  
128 managerial relevance and scientific rigor. Certain authors have claimed that this trade-off is  
129 unbridgeable (Kieser and Leiner, 2009), while others that reconciling relevance and rigor is not only  
130 possible and necessary but is already occurring (Hodgkinson and Rousseau, 2009). A major trend in  
131 management research is bridging this gap through active involvement of practitioners in the  
132 research process, and relying on multiple inquiry methods (Cassell and Johnson, 2006).

133 Collaborative Management Research (CMR) is the umbrella term that embraces various research  
134 approaches (e.g. action research, clinical inquiry, intervention research), each of which interprets  
135 'participation' and 'inquiry' in its own way and has its own distinct epistemological and  
136 methodological foundation (Shani et al., 2008; Shani et al., 2012).

137         Henceforth, we will focus on a single CMR approach, Intervention Research, which seems  
138 able to meet the challenges set out above. We first provide a brief theoretical overview of the  
139 approach; this is followed by a review of the literature discussing the limited uptake of IR in the  
140 community, and its ability to address the challenges facing the management field.

141

### 142 **3. Intervention Research**

143 IR is an emergent collaborative process of inquiry that studies models of collective action within  
144 organizations. The works of Armand Hatchuel and Albert David provide an in-depth description of  
145 the epistemological assumptions and methodological commitments of IR (David and Hatchuel,  
146 2001, 2008; Hatchuel, 1986, 2001, 2005, 2009; Hatchuel and David, 2008). We will outline such  
147 core concepts, then discuss IR limited diffusion, and finally manifest possible benefits from its  
148 wider adoption.

### 149 **3.1. IR epistemological assumptions**

150 IR is marked by a departure from traditional theories of truth. Adopting the premises of  
151 Design Science, Hatchuel (2005) moves away from the traditional correspondence theory of truth  
152 and closer to Pierce' notion of workability, whereby "the only acceptable criteria [for truth]  
153 becomes that of the success of the experiment, a success which always relates to the initial aim of  
154 the subject" (p. 40). Pragmatism, however, "is not a theory of action but a theory of truth, defined as  
155 belief systems which can be revised through action. Action is reduced to the signs that cause beliefs  
156 to evolve" (ibidem). Pragmatism – along with postmodernism, dialogic relativism, and  
157 constructivism – is criticized for being grounded on a *metaphysics* of action, that reduces action "to  
158 a single principle or subject (individual or collective) without understanding how this principle or  
159 subject works" (ibidem). This is considered a crucial limitation because "management needs an  
160 epistemology that does not put action forward as a solution [to a problem of truth] but as the central,  
161 enigmatic question – the real subject of research and the grounds for its critique" (p. 41).

162 Accordingly, in IR "the central epistemological issue is not 'truth' but 'action'. This does  
163 not mean that academic management should turn to a pragmatic or practical epistemology where  
164 action is seen simply as the 'hands-on' solution ... 'Action', be it a phenomena to observe or the  
165 observing process itself, is the central theoretical enigma and not a ready-made and obvious  
166 universal" (p. 37).

### 167 **3.2. IR research purpose**

168 The epistemology of action is incorporated into IR, which seeks to identify, evaluate and formalize  
169 *models of collective action* (Hatchuel and David, 2008). Researchers study the theoretical  
170 assumptions that move specific actions (innovation, decision-making, democratization) and  
171 formalize this knowledge into models of collective action. Hatchuel et al. (2006) provides an  
172 example. The capability of two firms to continuously improve their products is here examined,  
173 leading to the identification of a common model of collective action - the design of product and  
174 knowledge lineages – that could be adopted by any other organization. The authors then elaborated

175 that researchers can best meet their theoretical goal - identify models of collective actions - when  
176 they *intervene* in the organizations. Intervention is not a research outcome nor the provision of  
177 hands-on solutions. It is, instead, the process in which researchers can experience collective action  
178 “from the inside” and thus have more direct access to it.

179           The focus on the theoretical assumptions of action and their formalization into models  
180 mark the crucial differences between IR and its closest companion, Action Research (AR). IR  
181 stands in explicit continuity with AR, applying two of its features: (a) fostering changes in  
182 organizations while generating scientific knowledge; (b) practitioners’ active participation into  
183 research. Building on these premise, IR sought to overcome the recurrent criticism that “it would be  
184 unusual for AR to deliver fundamental new theories” (Eden and Huxham, 1996) because AR “[does  
185 not] aim at contributing to management models valid outside the investigated context, which would  
186 be required to build a research program” (Hatchuel and David, 2008, p. 147). AR modifies the  
187 *contextual* theories-in-use of researched organizations. It represents itself one model of collective  
188 action, useful to innovate organizational practice, not a research program devoted to their  
189 investigation. IR, instead, “defines its purpose as the potential revision of established theories-in-  
190 use and improving CTUs is therefore interesting *only if* it leads to such a revision” (p. 148). Stated  
191 otherwise, AR could be a possible object of investigation for IR. AR and IR, in fact, move on two  
192 different theoretical levels. AR seeks to introduce *contextual* changes through a collaborative  
193 research protocol. Scientific knowledge is both produced and applied within the context of  
194 application. IR use the case(s) under investigation as a “pretext” to access the established theories-  
195 in-use that characterize the organizational field – and organizations as a consequence. Scientific  
196 knowledge is here produced in a specific context of application, but transferred to the level of a  
197 general theory of action. The “transferability” of IR is *not* the generalization of findings, but rather  
198 the possibility to use its products – i.e. models of collective action – outside the boundaries of the  
199 original research context.

### 200 **3.3. IR methodological commitments**



201 IR incorporates any method that enables the contextualization of action and its formalization into  
202 models, tools, and procedures. No method is privileged because “rigor needs the combination and  
203 integration of a variety of research methods tailored to the model of action under study” (Hatchuel,  
204 2009, p. 1459). Two minimum requirements regard the use of polyphony and practitioners’  
205 participation in research. Polyphony is inevitable for ‘good’ IR. The investigated phenomenon is by  
206 definition collective and researchers can understand it only by addressing the multiplicity of actors  
207 and interests involved in it. IR is thus regulated by a principle of isonomy, whereby the effort of  
208 understanding must be applied equally to all the actors involved. This principle occurs in a context  
209 of active participation of practitioners in the research process, whereby the *research team* must  
210 include those practitioners that represent the multiple views and interests of those called to interpret,  
211 adopt and innovate the collective action.

212 Polyphony and isonomy establish an “increased rationality” within the research team as IR  
213 must “[introduce] dialogue between the actors [and address] the compatibility of relations and new  
214 knowledge [between actors]” (David, 2002). Models of collective action are thus the result of a  
215 collective action in which all parties have to reach an agreement.

### 216 **3.4. Diffusion of IR in the literature**

217 Only few applications of IR have been published in the English language.<sup>2</sup> Several reasons can be  
218 advanced to explain this shortcoming: (i) IR is time-consuming for researchers and long-committing  
219 for practitioners; aspects which restrict the possibility to apply the approach on a large scale; (ii) the  
220 ‘knowledge gatekeepers’ of mainstream journals are reluctant to accept IR-related work for  
221 publication; and (iii) researchers hesitate to use the approach because there is no body of knowledge  
222 that recognize and build upon the works of predecessors, and IR community of practice is limited to  
223 few academic groups.

---

<sup>2</sup> The full list of references in English is: Borjesson and Elmquist (2011); Daniell et al. (2010); Magnani and Struffi (2009); Kling (2006); Rochet et al. (2009); Segrestin (2005, 2009); Stassart et al. (2011); Steyaert and Jiggins (2007); Steyaert et al. (2007).

224 We argue that the primary concern is gaining visibility and convincing potential adopters –  
225 rather than gatekeepers – of its validity. Two issues are overlooked: (a) why should I, researcher,  
226 adopt IR over other approaches? (b) How could I put IR into practice? Regarding the first point,  
227 Hatchuel and David’s contributions already provide a sound understanding of the key concepts and  
228 epistemological shifts provided by IR. However, the theoretical debate on IR need a more  
229 researcher-based analysis of how concepts such as ‘model of collective action’, ‘isonomy’ and  
230 ‘collaborative protocol’ are valuable in addressing research challenges. Regarding the second point,  
231 Hatchuel and David (2008) provide a general description of IR research protocol. Published  
232 empirical works, however, do not clarify how Hatchuel and David’s (2008) guidelines can be  
233 operationalized. On the contrary, there is methodological confusion in demarcating IR from other  
234 forms of collaborative research and in explaining the nature of IR contracts with partners.

235 Henceforth, we seek to address these gaps. First, we show IR contribution in addressing  
236 the challenges described in Section 2. Second, we provide an illustrative case of IR application  
237 intended to shed light on its research steps. Finally, we provide an account of models of collective  
238 action and their theoretical and practical relevance.

### 239 **3.5. IR responses to the six challenges in the management field**

240 A careful examination of IR suggests that its epistemological assumptions and methodological  
241 commitments have the potential to address the six challenges confronting the management field.

242 *Focus on change and development.* The introduction of IR has been occasioned by the  
243 inability of traditional approaches to provide an “understanding of how to develop innovation  
244 capabilities in organizations” (Hatchuel et al., 2008, p. 294). Organizations have very few principles  
245 to guide the identification of innovative processes (Hatchuel et al., 2008). IR works to fill this  
246 breach by grounding its investigation in collective action. By means of this epistemological shift, IR  
247 implements a design logic whereby “the aims of IR are precisely to study the theoretical  
248 assumptions of existing management models, to detect and validate innovative ones in pioneering  
249 organizations, or to design new ones whenever possible” (Hatchuel and David, 2008, p. 151).

250           *Support for multi-level analysis.* IR goes beyond the focus on ‘action’ by exploring  
251 ‘collective action’. The concept of collective action entails a multi-level analysis of phenomena,  
252 because the behaviours of individuals, teams, and organizations need to be investigated through  
253 their mutual interactions. In fact, IR is grounded in the assumption that “the firm is not a collective  
254 that can be isolated naturally, and the permanent revising of its boundaries (physical, legal, human,  
255 commercial, etc) is a condition of its existence” (Hatchuel, 2001, p. S35).

256           *Facilitate polyphonic investigations.* The emphasis on polyphony with IR is twofold. On  
257 one hand, looking for collective action entails investigating how multiple actors operate at different  
258 levels in the organization – i.e. top and middle management, workforce - and requires the collection  
259 of information from multiple sources to understand the contribution of each actor. Polyphony thus  
260 becomes a methodological requisite for reliable results, because collecting data from a single source  
261 would introduce an obvious bias and gap in the analysis. On the other hand, polyphony is part of IR  
262 axiology. The principle of isonomy grants equal rights to all organizational members to discuss  
263 issues with researchers. IR treats the actors as equals in the research process, meaning that it is not  
264 biased toward specific interests. The expected outcome of IR is the creation of benefits shared  
265 within the organization: “the value of the entire project lies ... in the capacity to create fruitful,  
266 continuous cooperation while fully respecting the different identities of the partners” (Hatchuel and  
267 David, 2008, p. 154). At the same time, IR seeks to maintain the independence of research and the  
268 primacy of researchers over local pressures from both management and workforce. Isonomy in IR is  
269 not “democracy, nor even full participation in the knowledge produced. It is only the equal right to  
270 discuss the order of a collective process even if there is no equal right to rule it” (p. 153).

271           *Provide clear evaluation criteria for rigor.* An important point is the definition of criteria  
272 by which an external evaluator can appraise the rigor of IR research. As anticipated, the evaluation  
273 criteria need to be consistent with the epistemological assumptions and methodological  
274 commitments of modes of engagement (Johnson et al., 2006). In the case of IR, they are: (a) a  
275 *realist* ontological stance on reality, which is considered to have an independent existence prior to

276 human cognition; (b) an *inter-subjectivist* stance on human behaviour, whereby individuals are seen  
277 as active enablers of change; (c) a *subjectivist* epistemology of truth, since the active involvement of  
278 practitioners in the research team rules out the possibility that researchers may merely passively  
279 record the facts of the phenomenon. Consequently, IR differs markedly from positivist research in  
280 its notion of ‘epistemology of truth’. IR entails the inapplicability of the positivist criteria of  
281 internal, external and construct validity. Instead, the evaluation criteria for IR can be patterned on  
282 those described by Johnson et al. (2006) for Critical Theory. It is worth noticing that IR is not  
283 grounded on Critical Theory: “we must refuse the idea of relativism per se advocated by critical  
284 movements and post-modernist trends, which leads ironically ... to a blind reliance on metaphysics  
285 of action, that is, false universals of action (Hatchuel, 2005, p. 37). Neither does IR conceive its  
286 intervention in the Critical terms of *emancipation* from socio-historical dominations. These  
287 differences are strong enough to keep IR significantly distant from Critical Theory in terms of  
288 research objectives, perspectives and instruments. At the same time, IR and Critical Theory share  
289 aspects of their research that suggest a comparable use of evaluation criteria. On one hand, they  
290 both employ a subjectivist epistemology that opposes positivist neutrality and dismisses  
291 generalisability as an inapplicable criterion in favour of ‘*accommodation*’ – i.e. the use of  
292 knowledge in diverse, comparable contexts where similarities and differences can be assessed.  
293 Second, they both put change at the core of their research aims. They give two significantly  
294 different meanings to change, but their research can be similarly appraised in terms of ‘*catalytic*  
295 *validity*’, i.e. the extent to which the research elicits a new understanding of reality in the people  
296 involved (Kincheloe and McLaren, 1994). Third, it is crucial in both approaches that the knowledge  
297 produced is credible to those who have participated in its development (Kincheloe and McLaren,  
298 1994). This credibility is expressed in terms of ‘*authenticity*’, i.e. the extent to which research  
299 findings represent agreement on what is considered to be true.

300 *Facilitate access to data.* The long-term collaboration established by the IR contract and  
301 the relevance of its ‘design’ artefacts for organizations generate a closer commitment of

302 organizations to the research endeavour. Practitioners' interest in the research results may reduce  
303 the distances between researchers and the phenomena observed. Researchers are, in fact, allowed to  
304 conduct more extensive and deeper *observations* of behaviours and contexts which accrue to the  
305 scientific validity of findings. Moreover, the participation of practitioners and the principle of  
306 isonomy granted to any organizational member are two opportunities for the collection of more  
307 genuine *accounts* of behaviours and contexts. The inclusion of practitioners in the research team is  
308 consistent with an anti-positivist stance which rejects the possibility of truly external observations.  
309 At the same time, IR researchers communicate the nature of their contractual agreement, so as to  
310 enable peer reviewers' evaluation of its rigor and appropriateness.

311 *Provide relevant knowledge to practitioners.* IR does not provide practitioners with 'hands-  
312 on solutions' to specific problems. The theoretical output of the intervention process – the  
313 understanding or development of 'models of collective action' – is indeed the relevant output for  
314 practitioners. This approach resonates with Lewin's (1951) observation that "there is nothing so  
315 practical as good theory"(p. 169). At the core of this intuition is the assumption that research must  
316 foster managerial awareness of the models, tools, and procedures which can improve the capacity to  
317 enact actual changes. Table 1 below summarizes the theoretical discussion, detailing how IR  
318 addresses the identified challenges.

319 *Insert Table 1*

#### 320 **4. Illustrative case**

321 In this section we illustrate IR inquiry process and the formulation of 'models of action'. The case  
322 involved one of the top-five producers of silk for big-name fashion customers, located in Northern  
323 Italy. The research begun in January 2009 and is still in progress. Table 2 provides an overview of  
324 the case.

325 *Insert Table 2*

#### 326 **4.1. Topic under study**

327 The study aimed at investigating the design of creative processes within organizations. Unlike  
328 typical AR designs, the research did not intend to address a contextual problem – e.g. improve the  
329 creative processes of an organization – but to understand, formalize and innovate the established  
330 theories-in-use for creativity. The “intervention” involved the production of (theoretical) models of  
331 creative action that could ground new processes, tools and capabilities.

332 The research originated from a gap in the literature of ‘team creativity’, i.e. its study in ‘isolation’  
333 from organizational processes and individual behaviours despite the fact that multi-level influences  
334 (individual characteristics, intra-team and extra-team interactions, work environments etc.)  
335 simultaneously determine the nature and outcomes of team creativity (Kylene and Shani, 2002). This  
336 suggested the opportunity to adopt a *collective creativity* perspective which studied team processes  
337 as they emerge from individuals and from organizational processes. Collective creativity refers to  
338 the creative ideas developed within the work context as outcomes of exchanges in a collective  
339 space, when individual interactions trigger ideas through dialogue and debate (Chen, 2006).

340 Creativity at the collective level has received relatively little attention (Kurtzberg and  
341 Amabile, 2001), and key gaps in our knowledge include a need for (1) integration between the  
342 different levels of analysis; (2) reconciling the objectives and interests of different actors, both  
343 internal and external, and (3) coherent and holistic models of action that support practitioners  
344 adapting to organizational dynamism. These gaps suggested the use of IR, under the umbrella of the  
345 CMR orientation, in order to generate an understanding of models of collective creativity in  
346 organizations.

#### 347 **4.2. Company selection and engagement**

348 Case selection was purposive. The researchers searched an organization that (a) could manifest the  
349 established theories-in-use in its creative processes and (b) strived for improvement. The nature and  
350 ongoing challenges of creativity in the fashion and design industry made the choice of industry

351 relatively simple. We approached a company that was among the top-five designers of premium silk  
352 products for high-end fashion labels. The company targeted a market niche in which creativity is  
353 fundamental since clients include some of the biggest players in the fashion industry. Initial  
354 meetings with the top management indicated that creativity was an area of major concern, and the  
355 firm was willing to have a long-term commitment to research. The research proposal thus met the  
356 excitement of a CEO which saw the possibility to attain potential breakthroughs, build new  
357 organizational capabilities.

### 358 **4.3. Methodological Overview**

359 IR does not impose any methods, but requires involving any relevant actor that is knowledgeable  
360 about or involved in creativity, maintaining isonomy, whereby all actors are granted equal access to  
361 research, and being consistent with the epistemology of IR. The study progressed accordingly. First,  
362 we identified a research team involving three distinct actors in the organization – i.e. product  
363 manager, human resource manager, designer. The combined expertise of these actors covered the  
364 entire creative process and represented the specific interests that needed to be accommodated. The  
365 need for a continuous involvement in the research process limited the number of employees that  
366 could be allocated in the team. Other employees were involved differently. CEO, product manager,  
367 salesperson, designer, brand manager, colour expert and print technician were interviewed and  
368 sought for feedbacks during the study. Their inclusion covered the multiple voices that informed the  
369 research of the local interests, opinions and constraints that were present in creative processes.

370           The research team established roundtables – both metaphorically and literally – as the ideal  
371 condition in which everyone in the research team could freely contribute to the investigation. This  
372 was sufficient to create isonomy, because it prevented “hidden profile” behaviours (Thomas-Hunt et  
373 al., 2003) and established “psychological safety” (Edmondson, 1999) within the team. Data were  
374 collected with multiple techniques. In general terms, the research combined different qualitative  
375 (interviews, observations) and quantitative techniques (an exploratory survey) which were all  
376 instrumental to a common purpose, i.e. understand the social interactions, contextual conditions and

377 individual involvement that characterize creativity processes. These data were processed by the  
378 research team during the roundtable meetings in order to develop models of collective actions.

#### 379 **4.4. Inquiry process**

380 The research has evolved in an ongoing set of collaborative investigations. The inquiry process is  
381 described using three macro-phases proposed by Avenier and Nourry (1999). The following  
382 paragraphs provide a summary of two sequential studies. The first study aimed at exploring the  
383 definition of creativity and its key elements in order to develop a model of action that could help the  
384 company improve its financial performance. The second study aimed at identifying a model of  
385 action for designing and managing the organizational variables to sustain creativity.

#### 386 **First study**

387 *Collaborative research process design.* The research team – consisting of three academics  
388 and three practitioners – defined a timeline that was announced to the organization. The research  
389 team explored different alternative research methods and chose in-depth semi-structured interviews.  
390 The team crafted the interview questions drawn from various sources in the scientific literature and  
391 developed the interview protocol. The team identified the organizational members (described in the  
392 previous paragraph) to be interviewed, and decided that its academic members would conduct the  
393 interviews. The team held regular meetings to discuss the findings, upcoming steps in the research  
394 process and to consolidate results into a shared solution.

395 *Understanding the phenomenon under inquiry.* Interviews were conducted with the members of the  
396 top management team, and key product managers, designers, colour experts and salesmen (all the  
397 different roles existing in the unit). The interviewees were selected by the research team on the  
398 basis of their knowledge and role in the three most representative projects – each representing  
399 specific client groups. The interviewees were first contacted by a corporate member of the team;  
400 they were then sent an e-mail describing the objectives of the research project, the methodology,  
401 and the structure of the interview. All the interviews were conducted face-to-face, lasting 45-90



402 minutes. Each interview was conducted by two researchers randomly assigned to conduct the  
403 interview. A total of twenty-one interviews were conducted and all were taped and transcribed. Data  
404 were analyzed on a set of default variables: meaning of creativity, key influential factors,  
405 characteristics of the process, needed competencies, and achieved outcomes. Each transcribed  
406 interview was read, coded and analyzed by two different researchers, through a series of team  
407 meetings, re-readings and re-codings where the properties of emergent macro-variables were  
408 reconfigured and focused. A comprehensive analytical report was prepared. In addition to data  
409 triangulation (collecting data from a variety of sources), an investigator triangulation was  
410 implemented (more than one researcher analyzing data). At the completion of the analysis, in order  
411 to assure interpretation validity, external readers with knowledge and experience in the topic also  
412 reviewed the data. The data were organized on the basis of the macro-variables, preserving the  
413 anonymity of the interviewees. The document, including both paradigmatic raw responses and the  
414 content analysis, was shared with the research team for collective validation, sense-making and  
415 meaning creation.

416 *Implementation process.* The research team arrived at a shared interpretation of data.  
417 Definitions and key issues arising from the data were discussed. The research team also shared the  
418 data document and its interpretation with top management. Top management was invited to  
419 participate in data interpretation with the research team. Thereafter, organizational members were  
420 invited to take part in the process. The result was a session in which 31 people, representing all the  
421 different points of view at each level, attended a three-hour workshop devoted to sense-making and  
422 devising actions to address some of the issues identified in regard to collective creativity. In this  
423 way, a wide variety of stakeholders participated in making decisions on collective creativity to  
424 achieve improvements and effective results. The last part of the meeting was devoted to present  
425 suggested action items to top management, which in turn made a public commitment for both action  
426 implementation and actions for further study.

427            *Outcomes of the effort.* The resulting model confirmed that creativity occurs at a collective  
428 level within the organization. The notions of team/group creativity had to be extended: “collective”  
429 refers to a group of a limited number of people, working at various levels of reciprocal dependence,  
430 with a common final purpose. The emerging model of action flows into the concept of “collective  
431 creativity”, discussed by few scholars in past research (Hargadon and Bechky, 2006). Collective  
432 creativity can be defined as *a purposeful set of processes, activities and mechanisms established by*  
433 *individuals within an organization, which are a part of a larger social and professional network,*  
434 *through which a novel idea, product, service, or procedure is generated.* The study advanced the  
435 theoretical understanding of this phenomenon through a set of propositions regarding the concept of  
436 collective creativity and a dynamic design-based framework for collective creativity development.  
437 It is multi-level, including contextual factors, organizational factors, collective creativity factors  
438 (such as which includes people, skills and knowledge; processes and routines; structures), and  
439 collective creativity output. The model of action had implications for both academia and practice.  
440 The scientific knowledge generated included a master's thesis and papers presented at academic  
441 conferences. The company also used the insights to guide and implement changes in the  
442 organization. For example, the original functional organization of the Design unit, with a distinction  
443 among designers, technicians, colour experts, etcetera, was altered by instituting the role of vice-  
444 president of product/collection development and creating four divisions in which members with  
445 different roles could synergistically develop creative solutions for each product cluster.

#### 446 **Second study**

447            *Collaborative research process design.* Given the results of the first study, the CEO  
448 agreed to continue the collaboration. It was agreed that the follow-up study would use the same  
449 processes and mechanisms. The team met and refined the scope of the new study: identify the key  
450 organizational variables affecting the development of collective creativity, and examine how these  
451 can be enhanced through specific organizational learning mechanisms (Mitki et al, 2008). The  
452 research team discussed possible methodologies and decided to develop and administer a

453 comprehensive survey with the aim of detecting evidence of association between organizational  
454 variables for collective creativity, and organizational learning mechanisms (Forza, 2002). In  
455 particular, a closed-question format was chosen to obtain a quantitative tool able to capture the  
456 above-mentioned associations. A survey instrument was built using both items from the literature  
457 (Garvin et al., 2008) and items created on the basis of the results from the first study. Most of the  
458 survey questions used a Likert scale (6-point). The survey instrument was validated by a  
459 combination of a careful review during few successive research team meetings and by a pre-test  
460 with a few organizational members. As a result some items were reworded and some were deleted  
461 from the survey.

462 *Understanding the phenomenon under inquiry.* The questionnaire was sent by email with a covering  
463 note from the CEO to each member of the “Product Design and Development” Unit. Two academic  
464 members of the research team were at employees’ disposal for one full day, to address questions  
465 and doubts and to collect the questionnaires. 79 out of 99 people completed the survey at this stage.  
466 After an email reminder a total of 80 people completed the survey, corresponding to a response rate  
467 of 80.81%. The collected data were statistically processed by the academic members of the research  
468 team. Different constructs were considered following previous research and confirmed by factor  
469 analysis. Means, standard deviations and correlations among variables were calculated. Linear  
470 regressions were used to analyze the data, in order to possibly support different hypothesized cause-  
471 effect relationships. The academic members produced a document that included the main results of  
472 the statistical analysis, assuring anonymity and readability by practitioners.

473 *Implementation process.* The document was shared with the research team for meaning-  
474 creation about the relationships emerging among the variables. A specific report on the study results  
475 was made available to everyone within the organization. Shared data interpretation continued in  
476 meetings among the research team, the CEO, and his management team. Possible managerial  
477 actions and next research steps were explored.

478            *Outcomes of the effort.* The resulting model of action indicates that collective creativity, as  
479 defined above, is enabled and accelerated to the extent that the organization builds a tapestry of  
480 learning mechanisms (Shani and Docherty, 2003). This tapestry includes elements of each of the  
481 three kinds of learning mechanism – structural, procedural, and cognitive – makes it possible to  
482 accommodate and stimulate the requisites for collective creativity. The study attempted to support a  
483 set of stated hypotheses, highlighting the specific kinds of learning mechanisms that can enhance  
484 collective creativity and the relative outcomes. This model of action has implications for both  
485 knowledge production (doctoral and master's thesis, academic papers) and managerial insights  
486 (among others, a protocol for more accurate definition of roles was implemented, and an  
487 investigation into alternative designed and implementations of post-project review practices and  
488 their impact on collective creativity was launched).

489

## 490 **5. Discussion**

491 The case captures the implementation of IR, under the umbrella of CMR orientation, in a dynamic  
492 company within a competitive industry. Several issues could be addressed in the discussion. Owing  
493 to space limitations, though, this section will focus on the IR inquiry process and its implications  
494 for theoretical advancement, rigor, and relevance.

### 495 **5.1. Illustration of IR inquiry process.**

496 Past research does not offer detailed descriptions of the IR protocol that could enlighten researchers  
497 on how actually to design and lead the IR process. To fill this gap, this manuscript describes one  
498 example of IR-based that captured how IR process works and how it leads to models of collective  
499 action. The research was described by highlighting key activities in the three macro-phases:  
500 collaborative research process design, inquiry process and, implementation. Those activities are  
501 summarized in Table 3.

502

*Insert Table 3*

### 503 **5.2. IR and challenges of Management Research**

504 The challenges set out in Section 2 were all captured in the case (see Table 4), briefly reviewed and  
505 discussed below.

506 *Insert Table 4*

507 *Improving the study of organizational change and development.* IR places the problem of change at  
508 the centre of a theoretical inquiry and seeks to support practitioners and researchers in designing the  
509 change. IR does so by combining the concern for contextualized knowledge typical of Action  
510 Research with an effort to formalize results into models of collective action. Stated otherwise, IR  
511 does not focus on solving specific creative problems or educating specific groups. IR used, instead,  
512 the experience of a pioneering organization to develop models of collective creativity. Specifically,  
513 IR characterizes how a pioneering organization conceives and organizes its processes (contextual  
514 theories-in-use), identifies the underlying theoretical assumptions (established theories-in-use) and,  
515 finally, proceeds to their improvement and formalization into models, tools and procedures that  
516 could be used beyond the context in which they were generated. The resulting model, thus,  
517 contributes to general, not contextual, theory-building.

518 *Developing methods and theories for multi-level analysis.* A multi-level orientation is  
519 intrinsic to IR notion of ‘collective’ action. This translated in a focus on collective creativity that  
520 “had to” embrace altogether individual, team, and organizational levels. In particular, the first study  
521 built on the multi-level concept of collective creativity. IR was both theoretically inclined to this  
522 perspective (*collective* action), and methodologically supportive. The long-term arrangements with  
523 the organization, and the participation of practitioners in the research were important prerequisites  
524 for an in-depth observation and understanding of an otherwise “distant” phenomenon.

525 *Supporting polyphonic analysis of organizational phenomena.* Polyphony is intrinsically  
526 embedded in IR. In fact, (a) IR purpose to identify models of collective action put upfront the need  
527 to show the social interactions occurring for creativity; (b) the guiding principle of isonomy demand  
528 a direct involvement of multiple perspectives within the research team, and their convergence to a  
529 shared model of action; (c) the principle of expanded rationality, finally, demands the development

530 of connections between the parties in order to achieve the ‘best solution’ possible about creativity.  
531 Polyphony is thus a methodological requirement and an expected result of models of action. In our  
532 case, this was achieved by delivering a model of collective creativity that connected top and middle  
533 management, designers, and blue collar workers. The parties were involved with a specific logic.  
534 They were first involved *separately* in order to appraise the multiple voices in the organization and  
535 recognize the existing tensions, and then joined the research team in order to design a model of  
536 collective action that could support not “any development” but one from which all parties could to  
537 some extent benefit. The connections were in part achieved by design – through regular roundtables  
538 - and in part as a result of in-progress decisions.

539           With respect to rigor, we identified two specific challenges. The first was devising  
540 evaluation criteria that enable external assessment of an approach’s rigor. More specifically, for the  
541 IR approach, three criteria were proposed with which to evaluate the rigor of studies. The first of  
542 them is ‘*accommodation*’. Considering the illustrative case, models of action were identified in  
543 order to enabled the company to reframe its managerial practices concretely, and to explore a wide  
544 set of possible managerial actions. This suggests that the models of action produced do not map out  
545 a rigid course of action, but rather generate guidelines that companies can adapt to specific  
546 situations, and which can thus be considered new organizational capabilities. The second criterion  
547 for assessing rigor is ‘*catalytic validity*’, which denotes the extent to which the research imbues the  
548 people involved in it with novel ways of understanding reality and of using that knowledge for  
549 positive change. At least three factors confirm that the case fulfilled the catalytic validity criterion:  
550 The response of organizational members at different levels (in terms of availability and openness in  
551 the interviews, response rate to the survey, attendance at the various meetings); the planned set of  
552 managerial actions arising from the findings, which the organization's managers actually  
553 implemented or committed to implementing in the long-medium term, and; the fact that the research  
554 project is still ongoing, demonstrating that the company regarded the collaboration as beneficial and  
555 so decided to continue working within the IR approach. Lastly, the third criterion by which

556 Intervention Research rigor should be assessed is its *'authenticity'*. The case fulfilled this criterion:  
557 the involvement of different organizational levels and units reflected an effort to incorporate the  
558 diverse representations of the phenomenon, and the many occasions devised to foster production of  
559 shared meaning confirm the commitment to ensuring that the knowledge produced was credible to  
560 all who took part in its development. The second challenge relating to rigor is to develop methods  
561 and approaches that systematically make access to organizational information more effective. In the  
562 case, there was a carefully designed collaborative protocol which included practitioners in the  
563 research teams. These joint teams explored different alternatives for the design and methods of the  
564 research, drafted the specific interview/survey questions and protocol, identified the organizational  
565 members to be interviewed, created commitment to the survey, and made sense of and created  
566 meaning from the results. The activities of the research teams were backed up by contractual  
567 agreements explicitly stating the research objectives, signed by the senior researcher and the CEO  
568 of the company for each study.

569           The final challenge is the ability to produce relevant knowledge for practitioners, which is  
570 the sixth challenge identified previously. It may appear evident from the discussion of earlier points  
571 that theoretical advances and practical relevance are tightly linked, because the latter is achieved  
572 through the former. The case fulfilled this challenge, since the resultant models of collective action  
573 supported the design and implementation of managerial models, tools, and procedures that  
574 facilitated organizational change. IR is intended to produce “hands-on” solutions – which may be  
575 valuable for a while but then leave organizations in need for further consultancy – but it instead  
576 acts at the level of capabilities, supporting organizations in the understanding and deployment of  
577 established theories-in-use. In fact, the company's top management implemented a number of  
578 decisions (restructuring of the organization, reviews of practices, redefinition of roles) based on the  
579 results of the studies, and also planned a further set of managerial actions to be implemented in the  
580 future.

581           The discussion proposed above allows advancement of the idea that IR, viewed as one of the  
582 approaches included in the broader design science, seems to meet the challenges identified. At the  
583 same time, the case also highlights some limitations of this approach that require further  
584 investigation. First, IR requires significant resources both from academia and companies. From the  
585 academic point of view, the collaborative nature of the inquiry process requires experienced  
586 researchers, with comprehensive understanding of a wide variety of scientific methods and the  
587 ability to manage complex political dynamics. From the company point of view, the process can be  
588 only based on credible and reliable research teams with members able to focus effectively on  
589 management issues that are crucial for the company. In addition, the diverse knowledge base  
590 possessed by the research team implies that significant effort and resources will be needed to  
591 generate consensus among the members. In the case analyzed, the research teams consisted of  
592 skilled and experienced individuals that met on a regular basis for two years. This entailed a  
593 significant resource investment by both the company and the university.

594           The second limitation concerns the complexity of the organizational context in which IR  
595 takes place. Indeed, according to the key features of IR, managerial maturity and willingness to be  
596 involved in a complex collaborative process that not always be planned in advance, tends to raise  
597 both anxiety and uncertainty. This requires risk-taking management orientation directed more to the  
598 revision of the established theories-in-use in the organization than to authority and control. In the  
599 case, personal orientation of both the CEO and some members of the managerial team, coupled with  
600 a strong cultural tradition of a centenarian company, made the inquiry into critical issues possible,  
601 the result of which could not be predicted in advance.

602

## 603 **5. Conclusions**

604 This manuscript's contribution had its starting point on a diffused criticism of the (non-) relevance  
605 of management research and the opportunity to propel an approach that is consistent with a Design



606 Science perspective. The focus of this study was on IR, and approach whose “intervention” seeks to  
607 individuate and improve the theoretical assumptions used by organizations ground their collective  
608 actions – innovation, decision-making, coordination. The manuscripts addressed in particular one  
609 problem, the seeming lack of diffusion of IR within the scholarly community. Two sub problems  
610 were singled out – the non-clarity of how this approach advances research (and helps researchers)  
611 and the limited understanding of the IR process.

612           The paper addresses both concerns, in order to stimulate the debate on, and hopefully the  
613 diffusion of, IR. First, the study demonstrated how IR can address multiple challenges in  
614 management research. IR can be appreciated as a double-edged sword in researchers’ hands, as it  
615 can improve the understanding of how collective action works (and is interpreted) in an  
616 organizational setting and, at the same time, incorporates this knowledge into models, tools for  
617 organizations’ consumption. Second, the manuscript reported a research experience to convey key  
618 decisions involved in the inquiry process of IR. The complexity of designing and managing IR  
619 might provide some insight into its limited diffusion. Yet, as this study illustrated, the simultaneous  
620 benefits generated for both theoretical development and managerial practice points towards the  
621 opportunity and the need to pursue further the potential embedded in this collaborative research  
622 orientation.

623

## 624 **References**

625 Abell, P., T. Felin and N. Foss (2008). ‘Building Micro-foundations for the Routines, Capabilities, and  
626 Performance Links’, *Managerial and Decision Economics*, 29, pp. 489-502.

627 Amabile, T.M. (1983). *The social psychology of creativity*. New York: Springer-Verlag New York  
628 Incorporated.

629 Avenier, M.-J., L. Nourry (1999). ‘Sciences of the Artificial and Knowledge Production: The Crucial Role  
630 of Intervention Research in Management Sciences’, *Design Issues*, 15, pp. 55-70.

631 Borjesson, S. and M. Elmquist (2011), ‘Developing Innovation Capabilities: a Longitudinal Study of a  
632 Project at Volvo Cars’, *Creativity and Innovation Management*, 20, pp. 171-184.

- 633 Buchanan, D., L. Fitzgerald, D. Ketley, R. Gollop, J.L. Jones, S.S. Lamont, A. Neath and E. Whitby (2005).  
634 'No Going Back: a review of the literature of sustaining organizational change', *International Journal of*  
635 *Management Reviews*, 7, pp. 189-205.
- 636 Buono, A. and H. Savall (2007). *Socio-Economic Intervention in Organizations: The intervener-researcher*  
637 *and the SEAM approach to organizational analysis*. Charlotte, North Carolina, USA: Information Age  
638 Publishing, Inc.
- 639 Burrell, G. and G. Morgan (1979). *Sociological paradigms and organizational analysis*. Portsmouth, NH:  
640 Heinemann.
- 641 Cassell, C. and B. Lee (2011). *Challenges and Controversies in Management Research*. London, UK: Taylor  
642 & Francis.
- 643 Cassell, C. and P. Johnson (2006). 'Action research: Explaining the diversity', *Human Relations*, 59, pp.  
644 783-814.
- 645 Chen M. (2006). *Understanding the Benefits and Detriments of Conflict on Team Creativity Process*.  
646 *Creativity and Innovation Management Journal*, Vol. 15, No. 1, pp. 105-116
- 647 Collier, J. (1945). 'United States Indian administration as a laboratory of ethnic relations', *Social Research*,  
648 12, pp. 275–286.
- 649 Cook, T.D. and D.T. Campbell (1979). *Quasi-experimentation: Design and Analysis for Field Settings*.  
650 Chicago: Rand McNally.
- 651 Daft, R. and A. Lewin (1990). 'Can Organization Studies Begin To Break Out of The Normal Science  
652 Straitjacket? An Editorial Essay', *Organization Science*, 1, pp. 1-9.
- 653 Daniell, K.A., I. White, N. Ferrand, I.S. Ribarova et al. (2011). 'Co-engineering Participatory Water  
654 Management Processes: Theory and Insights from Australian and Bulgarian Interventions', *Ecology and*  
655 *Society*, pp. 11.
- 656 David, A. and A. Hatchuel (2008). 'From actionable knowledge to universal theory in management  
657 research'. In A.B. Shani, S.A. Mohrman, W.A. Pasmore, B. Stymne, N. Adler (eds), *Handbook of*  
658 *Collaborative Management Research*, Los Angeles: Sage, pp. 33-47.
- 659 David, A., A. Hatchuel and R. Laufer, R. (eds) (2001). *Les nouvelles fondations des sciences de gestion [The*  
660 *new foundations of management science]*. Paris: Vuibert Fnege.
- 661 Deetz, S. (1996). 'Describing Differences in Approaches to Organization Science: Rethinking Burrell and  
662 Morgan and Their Legacy', *Organization Science*, 7, pp. 191-207.
- 663 Denyer, D., D. Tranfield, and J. E. van Aken (2008). 'Developing design propositions through research  
664 synthesis'. *Organization Studies* 29, pp. 249–269.
- 665 Donaldson, L. (1985). *In defense of organization theory: a reply to the critics*. Cambridge University Press.
- 666 Edmondson, A.C. (1999). 'Psychological safety and learning behaviour in work teams'. *Administrative*  
667 *Science Quarterly* 44, pp. 350–83.
- 668 Felin, T. and N.J. Foss (2005). 'Strategic organization: A field in search of micro-foundations', *Strategic*  
669 *Organization*, 3, pp. 441–455.
- 670 Feyerabend, P. (1979). *Against method*. London: New Left Books.

- 671 Fincham, R. and T. Clark (2009). 'Introduction: can we bridge the rigour-relevance gap?', *Journal of*  
672 *Management Studies*, 46, pp. 510-515.
- 673 Ford, J.D., L.W. Ford and A. D'Amelio (2008). 'Resistance to Change: the rest of the story', *Academy of*  
674 *Management Review*, 33, pp. 362-377.
- 675 Forza, C. (2002). Survey research in operations management: a process-based perspective. *International*  
676 *Journal of Operations & Production Management*, Vol. 22, No. 2, 2002, pp. 152-194.
- 677 Freud, S. (1908). *Creative writers and day-dreaming*. Standard Edition 9, pp. 143-154
- 678 Garvin, D.A., Edmondson, A.C. and Gino, F. (2008) Is yours a learning organization?. *Harvard Business*  
679 *Review*, 86, 3, 109-16.
- 680 Grey, C. (2001). 'Re-imagining Relevance: a response to Starkey and Madan', *British Journal of*  
681 *Management*, 12, S27-S32.
- 682 Guilford, J. P. (1950). 'Creativity', *American Psychologist*, 5, pp. 444-454.
- 683 Hargadon, A.B. and B.A. Bechky (2006). 'When Collections of Creatives Become Creative Collectives: A  
684 Field Study of Problem Solving at Work', *Organization Science*, 17, pp. 484-500.
- 685 Hatchuel, A. (2001). 'The Two Pillars of New Management Research', *British Journal of Management*, 12,  
686 pp. 33-39.
- 687 Hatchuel, A. (2005). Towards an epistemology of collective action: management research as a responsive  
688 and actionable discipline, *European Management Review*, 2, pp. 36-47
- 689 Hatchuel, A. and A. David (2008). 'Collaborating for Management Research, From Action Research to  
690 Intervention Research in Management'. In A.B. Shani, S.A. Mohrman, W.A. Pasmore, B. Stymne and N.  
691 Adler, *Handbook of Collaborative Management Research*, pp. 143-162. SAGE.
- 692 Hatchuel, A. and B. Weil (2009). 'C-K design theory: An advanced formulation', *Research in Engineering*  
693 *Design*, 19, pp. 181-192.
- 694 Hatchuel, A. and H. Molet (1986). 'Rational modelling in understanding and aiding human decision  
695 making', *European journal of operations research*, 24, pp. 178-186.
- 696 Hatchuel, A., P. LeMasson and B. Weil (2002). 'From knowledge management to design-oriented  
697 organisations', *International Social Science Journal*, 171, pp. 25-37.
- 698 Hatchuel, A., P. Lemasson and B. Weil (2008). 'Building Innovation Capabilities: the development of  
699 design-oriented organizations'. In J. Hage and M. Meeus (eds), *Innovation, Science, and Institutional*  
700 *Change*, Oxford: Oxford Press, pp. 294-312.
- 701 Hodgkinson, G.P. and K. Starkey (2011). 'Not Simply Returning to the Same Answer Over and Over Again:  
702 Reframing Relevance', *British Journal of Management*, 22, pp. 355-369.
- 703 Hoskisson, R.E., M.A. Hitt, R.A. Johnson and W. Grossman (2002). 'Conflicting voices: the effects of  
704 institutional ownership heterogeneity and internal governance of corporate innovation strategies', *Academy*  
705 *of Management Journal*, 45, pp. 697-716.
- 706 Jelinek, M., G.L. Romme and R.J. Boland (2008). 'Introduction to the Special Issue Organization Studies as  
707 a Science for Design: Creating Collaborative Artifacts and Research', *Organization Studies* 29, pp. 317-329.
- 708 Johnson, P., A. Buehring, C. Cassell and G. Symon (2006). 'Evaluating qualitative management research:  
709 Towards a contingent criteriology', *International Journal of Management Reviews*, 8, pp. 131-156

- 710 Johnson, P., A. Buehring, C. Cassell and G. Symon (2007). 'Defining qualitative management research: an  
711 empirical investigation', *Qualitative Research in Organizations and Management: An International Journal*,  
712 2, pp. 23-42.
- 713 Kieser, A. and L. Leiner (2009). 'Why the rigour-relevance gap in management research is unbridgeable',  
714 *Journal of Management Studies*, 46, pp. 516-533.
- 715 Kincheloe, J.L. and P.L. McLaren (1994). 'Rethinking critical theory and qualitative research'. In N. Denzin  
716 and Y. Lincoln (eds), *Handbook of Qualitative Research*. London: Sage.
- 717 Klein, K. J., F. Dansereau and R.J. Hall (1994). 'Levels issues in theory development, data collection, and  
718 analysis', *Academy of Management Review*, 19, pp. 195-229.
- 719 Klein, K.J and S.W.J. Kozlowski (2000). 'From Micro to Meso: Critical Steps in Conceptualizing and  
720 Conducting Multilevel Research', *Organizational Research Methods*, 3, pp. 211-236.
- 721 Kling, R. (2006). 'In Search of Efficiency – concurrent concept elaboration and improvement',  
722 *Technovation*, 26, pp. 753-760.
- 723 Kuhn, T. (1962). *The Structure of Scientific Revolutions*, Chicago: Chicago University Press
- 724 Kurtzberg, T. R. and T.M. Amabile (2001). 'From Guilford to creative synergy: Opening the black box of  
725 team-level creativity', *Creativity Research Journal*, 13, pp. 285-294.
- 726 Kylen S.F. & Shani A.B. (Rami) (2002). *Triggering Creativity in Teams: An Exploratory Investigation*,  
727 *Creativity and Innovation Management Journal*, Vol. 11, No. 1, pp. 17-30
- 728 Lewin, K. (1946). 'Action research and minority problems', *Journal of Social Issues*, 2, pp. 34-46.
- 729 Lewin, K. (1951). 'Problems of research in social psychology'. In D. Cartwright (ed), *Field Theory in Social*  
730 *Science*. London: Social Science Paperbacks.
- 731 Lewis, M.W. and A.J. Grimes (1999). 'Metatriangulation: building theory from multiple paradigms', *The*  
732 *Academy of Management Review*, 24, pp. 672-690.
- 733 Lyotard, J.-F. (1984). *The Postmodern Condition: A Report on Knowledge*. Manchester: Manchester  
734 University Press.
- 735 Magnani, N. and L. Struffi (2009). 'Translation sociology and social capital in rural development initiatives.  
736 A case study from the Italian Alps', *Journal of Rural Studies*, 25, pp. 231-238.
- 737 Mathieu, J.E. and S.R. Taylor (2006). 'A framework for testing meso-mediational relationships in  
738 *Organizational Behavior*', *Journal of Organizational Behavior*, 28, pp. 141–172.
- 739 McKenzie, C.J., S. Wright, D.F. Ball and P.J. Baron (2002). 'Commentary: The publications of marketing  
740 faculty – who are we really talking to?', *European Journal of Marketing*, 36, pp. 1196-1208.
- 741 Merton, R.K. (1968). *Social Theory and Social Structure*. Free Press.
- 742 Mitki, Y., A.B. Shani and T. Stjernberg (2008). 'Leadership, development and learning mechanisms. System  
743 transformation as a balancing act', *Leadership & Organization Development Journal*, 29, pp. 68-84.
- 744 Mone, M.A. and W. McKinley (1993). 'The uniqueness value and its consequences for organization studies',  
745 *Journal of Management Inquiry*, 2, pp. 284-296.
- 746 Morgan G. (1990). 'Paradigm diversity in organizational research'. In J. Hassard and D. Pym (eds), *The*  
747 *theory and philosophy of organizations: critical issues and new perspectives*. London: Routledge.

- 748 Newell, A. and H.A. Simon (1972). *Human problem solving*. Englewood Cliffs, NJ: Prentice Hall.
- 749 O'Dell, C. and C.J. Grayson (1998). 'If only we knew what we know: Identification and transfer of internal  
750 best practices', *California Management Reviews*, 40, pp. 154-174.
- 751 Pasmore, W., B. Stymne, A.B. Shani, S.A. Mohrman and N. Adler (2008). 'The Promise of Collaborative  
752 Management Research'. In A.B. Shani, S.A. Mohrman, W.A. Pasmore, B. Stymne and N. Adler (eds),  
753 *Handbook of Collaborative Management Research*, pp. 7-31. Thousand Oaks, CA: SAGE.
- 754 Payne, T.G., C.B. Moore, S.E. Griffis and C.W. Autry (2011). 'Multilevel Challenges and Opportunities in  
755 Social Capital Research', *Journal of Management*, 37, pp. 491-520.
- 756 Pettigrew, A.M., R.W. Woodman and K.S. Cameron (2001). 'Studying organizational change and  
757 development: Challenges for future research', *Academy of Management Journal*, 44, pp. 607-713.
- 758 Pfeffer, J. (1993). 'Barriers to the advancement of organization science: paradigm development as a  
759 dependent variable', *Academy of Management Review*, 18, pp. 599-620.
- 760 Pfeffer, J. (1997). *New Directions for Organization Theory: Problems and Prospects*. Oxford: Oxford  
761 University Press.
- 762 Repenning, N.P. (2002). 'A Simulation-Based Approach to Understanding the Dynamics of Innovation  
763 Implementation', *Organization Science*, 13, pp. 109-127
- 764 Rhodes, C. (2001). *Writing Organization, (Re)presentation and Control in Narratives at Work*. Amsterdam:  
765 John Benjamins
- 766 Rochet, C., J. Habib and E. Soldo (2009). 'The use of an information system as a legitimate subversive  
767 agent', *Information Polity*, 14, pp. 155-171.
- 768 Rynes, S.L., D.B. McNatt and R.D. Bretz (1999). 'Academic Research Inside Organizations: inputs,  
769 processes, and outcomes', *Personnel Psychology*, 52, pp. 869-898.
- 770 Savall, H. and V. Zarbet (2011). *The Qualimetric Approach: Observing the Complex Object*. Charlotte, NC:  
771 Information Age Publishing, Inc.
- 772 Schein, E.H. (1995). 'Process consultation, action research and clinical inquiry: are they the same?', *Journal  
773 of Managerial Psychology*, 10, pp. 14-19.
- 774 Segrestin, B. (2005). 'Partnering to explore: The Renault-Nissan Alliance as a forerunner of new cooperative  
775 patterns', *Research Policy*, 34, pp. 657-672.
- 776 Shani, A.B., A. David and C. Wilson (2004). 'Collaborative research: Alternative roadmaps'. In N. Adler,  
777 A.B. Shani and A. Styhre (eds), *Collaborative research in organizations*, pp. 83-100. Thousand Oaks, CA:  
778 Sage.
- 779 Shani, A.B., and P. Docherty (2003). *Learning by design: Building sustainable organizations*. Oxford:  
780 Blackwell Publishing.
- 781 Shani, A.B., D. Chandler, J.-F. Coget and J.B. Lau (2009). *Behavior in Organizations. An experiential  
782 approach*, Ninth edition. McGraw-Hill Irwin.
- 783 Shani, A.B., S.A. Mohrman, W.A. Pasmore, B. Stymnse and N. Adler (2008). *Handbook of Collaborative  
784 Management Research*. Thousand Oaks, CA: Sage.
- 785 Shani, A.B., D. Coghlan and S. Cirella (2012). 'Action research and collaborative management research:  
786 More than meets the eye?', *International Journal of Action Research*, 8, pp. 45-67.

- 787 Srivastava, P. (1987). 'Rigor and Practical Usefulness of Research in Strategic Management', *Strategic*  
788 *Management Journal*, 8, pp. 77-92.
- 789 Stassart, P.M, V. Mathieu and F. Melard (2011). 'Reflexive audiovisual methodology: The emergence of  
790 "minority practices" among pluriactive stock farmers', *Journal of Rural Studies*, 27, pp. 403-413.
- 791 Stevaert, P. and J. Jiggins (2007). 'Governance of complex environmental situations through social learning:  
792 a synthesis of SLIM's lessons for research, policy and practice', *Environmental Science and Policy*, 10, pp.  
793 575-586.
- 794 Steyaert, P., M. Barzman, J. Billaud, H. Brives, B. Hubert, G. Ollivier and B. Roche (2007), 'The role of  
795 knowledge and research in facilitating social learning among stakeholders in natural resources management  
796 in the French Atlantic coastal wetlands', *Environmental Science and Policy*, 10, pp. 537-550.
- 797 Symon, G., A. Buehring, P. Johnson and C. Cassell (2008). 'Positioning Qualitative Research as Resistance  
798 to the Institutionalization of the Academic Labour Process', *Organization Studies*, 29, pp. 1315-1336.
- 799 Thomas, K.W. and W.G. Tymon (1982). 'Necessary Properties of Relevant Research: lessons from recent  
800 criticisms of the organizational sciences', *Academy of Management Review*, 7, pp. 345-352.
- 801 Thomas-Hunt, M. C., T.Y. Ogden and M.A. Neale (2003). 'Who's really sharing? Effects of social and  
802 expert status on knowledge exchange within groups', *Management Science* 49, pp. 464-477.
- 803 Tsoukas, H. and R. Chia (2002). 'On Organizational Becoming: rethinking organizational change',  
804 *Organization Science*, 13, pp. 567-582.
- 805 Van Aken, J.E. (2005). 'Management Research as a Design Science: Articulating the Research Products of  
806 Mode 2 Knowledge Production in Management', *British Journal of Management* 16, pp. 19-36.
- 807 Van de Ven, A.H. and P.E. Johnson (2006). 'Knowledge for theory and practice', *Academy of Management*  
808 *Review*, 31, pp. 802-821.
- 809 Van Maanen, J. (1995). 'Style as theory', *Organization Science*, 7, pp. 641-652.
- 810 Weick, K.E. (2001). 'Gapping the Relevance Bridge: fashions meet fundamentals in Management Research',  
811 *British Journal of Management*, 12, pp. 71-75.
- 812 Wertheimer, M. (1959). *Productive thinking*. New York: Harper.
- 813 Willmott, H. (1998). 'Re-cognizing the other: reflections of a new sensibility in social and organization  
814 studies'. In R. Chia (ed), *In the Realm of Organization: Essays for Robert Cooper*. London: Routledge.  
815

816 *Table 1. IR approach answers to the challenges identified in the management field*  
 817

	<b>The challenges identified in the Management field</b>	<b>Responses by Intervention Research</b>
Theory Advancement	Place change and development at the center of inquiry.	Focus on an epistemology of action to identify, critique and invent models of collective action
	Support multi-level analysis of organizational phenomena.	Focus on 'collective action', comprising the influence of individuals, teams and the organization.
	Support polyphonic and non-relativistic investigation of phenomena.	Isonomic involvement of practitioners in the investigation.
Rigor	Develop evaluation criteria for external assessment	<ul style="list-style-type: none"> <li>- Accommodation</li> <li>- Catalytic validity</li> <li>- Authenticity through isonomic collaboration</li> </ul>
	Facilitate access to organizational phenomena	<ul style="list-style-type: none"> <li>- Contractual agreements that clearly state the research purposes of the collaboration</li> <li>- Investigation team composed of both researchers and practitioners during the intervention process</li> </ul>
Relevance	Produce knowledge relevant to practitioners	Design and implementation of management models, tools and procedures that facilitate managerial change.

818

Table 2. Brief summary of the case

	Steps in the collaborative research process	Illustrative case					
		First collaborative research study			Second collaborative research study		
		Period	Actors	Activities	Period	Actors	Activities
<b>Collaborative Research Process Design</b>	Developing the initial activities	(1-3/09)	Researchers, and CEO	- Initial dialogue with the CEO - Exploration of common areas of interests	(4/2010)	Research team, and CEO	- Meeting with CEO and research team
	Establishing the research mechanisms	(4-5/09)	Researchers, CEO, and 3 company members	- Formation of the research team - Mutual education about the company and the research approach - Definition of the timeline of the process	(5/2010)	Research team	- Meeting with research team - Definition of the timeline of the process
	Developing the research design	(6/09)	Research team	- Exploration of alternative research methods - Development of the data collection tools - Definition of the data collection timeline	(6-7/2010)	Research team	- Exploration of alternative research methods - Development of the questionnaire (2 meetings with research team) - Definition of the data collection timeline
<b>Understanding the Phenomenon Under Inquiry</b>	Data Collection	(7-11/09)	Researchers	- Interviews (21 interviews)	(7/2010)	Researchers	- Presence at the company (1 day)  - Recall by email  (80 respondents)



	Data interpretation	(12/09 – 2/10)	Research team, and top management	<ul style="list-style-type: none"> <li>- Analysis of the data</li> <li>- Interpretation by the research team</li> <li>- Interpretation with CEO and top management</li> </ul>	(10/2010)	Research team	<ul style="list-style-type: none"> <li>- Analysis of the data</li> <li>- Interpretation by the research team</li> </ul>
<b>Implementation Process</b>	Creating an organizational shared meaning	(3-4/10)	Research team, organizational members, and top management	<ul style="list-style-type: none"> <li>- Workshop to create shared meanings and suggestions for managerial action</li> <li>- Commitment to actions by CEO and top management</li> </ul>	(11/2010)	Research team, and CEO	<ul style="list-style-type: none"> <li>- Meeting with research team, to identify possible ideas for managerial action</li> <li>- Meeting with CEO to share the collaborative research outcomes</li> <li>- Commitment to actions by CEO</li> </ul>
	Continuous Learning	(from 4/10)	Research team, and CEO	- Design of a new collaborative research study (meeting with research team and CEO)	(from 12/2010)	Research team, and CEO	- Design of a new collaborative research study (meeting with research team and CEO)

Table 3. Specific activities included in the IR protocol

Research macro-phases (adapted from Avenier and Nourry, 1999)	Specific activities
Collaborative research process design	<p>Mutual education and learning with top management about the issues to be tackled by the collaborative effort</p> <p>Definition of the mechanisms, scope, resources, and timeline of the research</p> <p>Possible further mutual learning about the issues and the possible scientific research methods to be used</p> <p>Design and management of ongoing communication about the study with organizational members</p>
Inquiry process	<p>Exploring alternative data collection methods and processes and finalizing them</p> <p>Training the research team/s in data collection</p> <p>Systematic data collection</p> <p>Initial data analysis by the research team</p> <p>Developing the process for creating shared meanings and data interpretations</p>
Implementation	<p>Identifying and formulating possible managerial implications and actions, and possible further research actions, based on the shared data meaning/interpretation</p> <p>Presenting the possible actions for change to top management, top management decision about ensuing actions and steps</p> <p>Actual implementation of the actions</p>

Table 4. Synopsis of the illustrative IR case

	<b>The challenges identified in the Management field</b>	<b>Illustrative IR Case</b>
Theory Advancement	Place change and development at the center of inquiry.	Production of two new models of collective action (i.e. creativity as a collective phenomenon enabled and accelerated by a tapestry of structural, procedural and cognitive learning mechanisms) that inspired a planned change process within the organization
	Support multi-level analysis of organizational phenomena.	Theoretical framework focusing on creativity at the individual, team and organizational level  Model of action produced by the first study based on the multi-level concept of collective creativity
	Support polyphonic and non-relativistic investigation of phenomena.	Involvement of different levels and different units of the organization  Design of occasions intended to foster production of shared meaning
Rigor	Develop evaluation criteria for external assessment	Accommodation: the models of action produced in the case do not impose a course of action, but generate guidelines that can be adapted by other companies  Catalytic validity: high response from organizational members at different levels; planned set of managerial actions based on findings; the fact that an IR research project is still ongoing  Authenticity through isonomic collaboration: see OPP2
	Facilitate access to organizational phenomena	Collaborative protocol whereby practitioners are included in the research team Contractual agreement that made explicit the objectives of the research, signed by the senior researcher and the CEO
Relevance	Provide knowledge relevant to practitioners	The models of collective action identified supported the design and implementation of management models (e.g. restructuring of the organization, reviews of practices, redefinition of roles)