

27 years of research on organizational paradox and coping strategies: A review

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Résumé :

Although paradox is an increasingly popular phenomenon in organization and management research, we know very little about how this research has evolved over time. This review is the first systematic analysis of the literature on paradox and related phenomena on contradictory tensions (i.e. duality, dilemma, dialectic and ambidexterity) analysing 373 articles published in 75 peer-reviewed academic journals from 1986-2013. Specifically, this article aims at complementing previous reviews by addressing four major objectives: a) to analyse the evolution of the number of conceptual and empirical papers over the period 1986-2013; b) to identify the major key concepts used to explore paradoxes and to rank them according to their impact on the field; c) to explore which key sub-disciplines of organization and management ('research areas') have been central to the field of paradox and how they have evolved over time; d) to trace which responses to paradoxes or "coping strategies" have been proposed since Poole and Van de Ven's (1989) influential article. Using Kuhn's (1970) stages of paradigm shift, findings are then synthesized by categorizing the literature into three phases: the incubation phase, the exploration phase and the diversification phase of paradox research. Our analysis allows for a more fine-grained understanding of how paradox and related phenomena and their coping strategies have been studied in organisation and management research and enables avenues for further research to be identified.

Key words: Paradox, coping strategies, review

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INTRODUCTION

About three decades ago, paradox has become a major concern in the scholarly debate on organizations. The ancient, philosophical concept of paradox has been introduced into organizational research to analyse and explain organizational behaviour in situations of increased turbulence, change, and competition (e.g. Cameron, 1986; Quinn & Cameron, 1988; Eisenhardt, 2000). The notion of paradox can be defined as “contradictory yet interrelated elements—elements that seem logical in isolation but absurd and irrational when appearing simultaneously” (Lewis, 2000, p.760). Paradox is relevant for managers to make sense of tensions ‘embedded’ in organizations or created by constant efforts to reconcile two or more contradictory, interrelated and co-existing oppositions (e.g. Smith & Lewis, 2011; Jarzabkowski et al., 2013). In these situations, no simple ‘either/or decisions’ can be formulated (Evans, 1999), instead organizations and individuals have to advance ‘both/and solutions’ which require coping with potential paradoxical tensions (Lewis, 2000; Lewis & Smith, 2014; Smith & Lewis, 2011).

Although prior research has made important contributions to understanding paradox in organizations, there are still important gaps which remain. First, while the number of organizational paradox related articles grows at an average rate of 10 percent per year between 1998 and 2008 (Smith and Lewis, 2011) especially by means of several special issues (e.g., *Journal of Organizational Behavior*, volume 28, issue 5; *Journal of Organizational Change Management*, volume 19, issue 4; *Journal of Applied Behavioral Science*, volume 50, issue 2; *Organization Studies*, forthcoming), no attempt has yet been made to provide a systematic analysis showing how the field has evolved over time (number of publications, key journal, type of study).

Second, prior research on paradox has used a variety of conceptualisations to describe and analyse paradox and related phenomena such as organizational ambidexterity (O’Reilly & Tushman, 2008; Raish & Birkinshaw, 2008, Raisch et al., 2009), duality (Farjoun, 2010; Graetz & Smith, 2008), dialectics (Clegg et al., 2002) and dilemma (Coff, 1997; Denning,

2005). Although Smith and Lewis (2011) have provided an important and well-cited contribution to define and differentiate some of these concepts, a review on how the use of these terms has evolved over time in organisation and management research is missing.

Third, as paradox is an increasingly prevalent phenomenon in organizations (Lewis, 2000; Smith & Lewis, 2011; Jarzabkowski et al., 2013), researchers applied a paradox lens to varied organizational phenomena such as identity (Fiol, 2002), innovation (Andriopoulos & Lewis, 2009), change process (Lüscher & Lewis, 2008), governance (Sundaramurthy & Lewis, 2003) and leadership (Smith & Tushman, 2005). While this field has expanded rapidly in different disciplines, no systematic analysis has so far put forward which research areas have been the most important and/or the most influential over the last three decades.

Fourth, in spite of the variety of concepts related to paradox, it seems that the coping strategies suggested in the corresponding literature are quite similar. For example, the four general coping strategies (opposition, spatial separation, temporal separation and synthesis) suggested by Poole & Van de Ven (1989) have been used in the literature on duality (Stoltzfus et al., 2011; Gotsi et al., 2010), ambidexterity (Birkinshaw & Gibson, 2004), dilemmas (Schreyögg & Sydow, 2010), and dialectics (Tracy, 2004). Also, paradox literature has progressed from Poole and Van de Ven's (1989) coping strategies to a process-based perspective which indicate how paradoxes and coping with them evolves over time and is embedded in organization structure (Jarzabkowski et al., 2013). However, to date there is no review on paradox research which provides an all-around picture of coping strategies for paradox and related phenomena.

The purpose of this literature review is to answer these gaps by providing an analysis of the evolution of the paradox research during the past 27 years since the seminal article by Cameron on organizational effectiveness paradox in 1986 up to 2013. Specifically, this study aims to complement previous reviews by addressing four major objectives: a) to analyse the evolution of the number of conceptual and empirical papers over the period 1986-2013; b) to identify the major key concepts used to explore paradoxes and to rank them according to their impact on the field; c) to explore which key sub-disciplines of organization and management ('research areas') have been central to the field of paradox and how they have evolved over time; d) to trace which responses to paradoxes or "coping strategies" have been proposed since Poole and Van de Ven's (1989) influential article. Such an analysis provides a more

complete view of the development of the field and allows categorizing the literature in three phases: the incubation phase, the expansion phase and the diversification phase.

This review is structured into four main parts after this introduction. First, we describe the method of our systematic data collection and analysis. Next, we present and discuss the results of this analysis with regards to each of the four study's objectives. Using Kuhn's (1970) stages of paradigm shift, findings are then synthesized by categorizing the literature in three phases: the incubation phase, the exploration phase and the diversification phase of paradox research. Our analysis allows for a more fine-grained understanding of how paradox and related phenomena and their coping strategies have been studied in organization and management research and enables avenues for further research to be identified.

METHOD OF REVIEW

In this review, we followed a multi-stage review strategy (Pittaway et al. 2004) and the quality criteria suggested by Tranfield et al. (2003) summarized by Denyer and Neely (2004, p. 133): the development of clear and precise aims and objectives; a comprehensive search of all potentially relevant articles; the use of explicit, reproducible criteria in the selection of articles; an appraisal of the quality of the research and the strength of the findings; a synthesis of individual studies using an explicit analytic framework; and a balanced, impartial and comprehensible presentation of the results.

As literature on paradoxes and tensions is diverse and extensive, the comprehensive search and selection of relevant articles comprised four-step. First, four criteria were developed to decide which publications to integrate in our analysis. 1) *Time period*: Our research examines articles published since the seminal article by Cameron in 1986 until 2013. 2) *Publication outlet*: The study covers academic articles published in the section "Business, Management and Accounting" in the database Scopus. Other publication outlets, such as books, book chapters, conference papers and monographs were excluded from the analysis. 3) *Linguistic expression*: The third criterion is that the article appeared in a double-blind peer-reviewed, English language journal. 4) *Focal theme*: We searched for articles combining in their title, abstract or keywords the notion of "organization" (organ*) with at least one paradox search terms: "paradox", "dilemma", "duality", "dialectic" and "ambidexterity". This initial search led to 1828 articles (searched on 07/15/2014).

Second, to develop authoritative statements on the state of the literature, we applied three criteria for inclusion or exclusion. 1) The article was coded “1” if the focus of the paper was on organization and/or management and if paradox and/or related phenomena were a central concern of the article; 2) The article was coded “0” if the concept of paradox or related phenomena was used in a non-organizational application (such as education, research, law, historical events or politics) or if it was a teaching case; 3) The article was coded “0” if the abstract or PDF of the article showed that paradox or related phenomena were only of marginal importance in the article (e.g. the term was mentioned but not further exploited). Concretely, the authors coded the articles independently but sat in the same room so that cases of doubt could be discussed without delay. After applying our selection criteria, we had a set of 912 articles to analyse.

Thirdly, to ensure the quality of this review we limited our sample to articles published in peer-reviewed academic journals with a Scimago Journal Rank of at least 1.00. This limited the sample to 373 articles.

Finally, the information contained in each article was extracted and content-analysed. For this purpose, a coding protocol was developed which included three major parts. 1) *Authorship profile and manuscript characteristics*: reference, abstract, number of author(s), year of publication, period of publication, journal, SJR, number of citation(s), and type of study (conceptual or empirical). 2) *Key concept and thematic areas*: key concept (paradox, dilemma, duality, polarity, dialectic or ambidexterity), and areas of research (strategic management, operations management, technology management, human resource management, organizational learning, organization theory, accounting and finance, marketing, organizational behavior), 3) *Coping strategies* : the presence or absence of coping strategies in the paper and the type of coping strategies (splitting, specializing, suppressing, opposing and synthesizing).

In order to identify articles mentioning coping strategies, we created a list of search terms¹ synonymous to the notion of “working through paradox” (Lüscher & Lewis, 2008, pp. 222).

¹ (1) Verbs: working with (through), addressing, resolving, combining, embracing, mediating, simultaneously achieving, managing contradictions, achieving balance, dealing with, coexisting, aligning, reconciling, solving the struggle between, enabling multiple interests, negotiating tensions, facing, synthesizing opposites, mastering the paradox, reconciling, overcoming; (2) Nouns: coping strategies, emerging strategies, resolutions, solutions, tactics, compromises (trade-offs), framework, mediator.

Building on this list of search terms, we identified a set of 128 articles providing information on how to deal with paradoxes in an organizational context.

While the entire sample (373 articles) was used to indicate in a quantified way how the research field has evolved in terms of number of publications, key concepts and research areas, the sub-sample covering the coping strategies (128 articles) was analyzed in more depth so as to be able to present a synthesis of individual studies.

Using Kuhn's (1970) stages of paradigm shift, findings are finally synthesized by categorizing the literature in three phases: the incubation phase, the exploration phase and the diversification phase of paradox research.

EVOLUTION OF THE FIELD

In order to analyse the general evolution of this field, paradox and related concepts describing contradictory tensions, i.e. duality, dilemma, dialectic and ambidexterity, are reviewed to understand how these concepts can inform the practical management of paradoxes in organizations. It is assumed in this paper that the literature on paradoxes and related concepts forms one school of thought and contributes to developing the foundation of a 'paradox theory' or rather a 'theory of co-existence' (Ehnert, 2009; Smith & Lewis, 2011). Our review starts providing information about the general evolution of the field before analysing how each of the five concepts – paradox, duality, dilemma, dialectic and ambidexterity – have contributed to the evolution of the field. We then explore which key sub-discipline of management and organization ('research areas') have been central to the field of paradox and how they have evolved over time. To conclude this first main part, we propose a synthesis of prior studies dealing explicitly with strategies to cope with paradoxical tensions.

The journals in which the papers selected for our analysis were published are listed in Table 1, along with the ABS 2010 journal rankings. It is noteworthy that most of the journals are rated as 3* or 4*, indicating the academic significance of the subject.

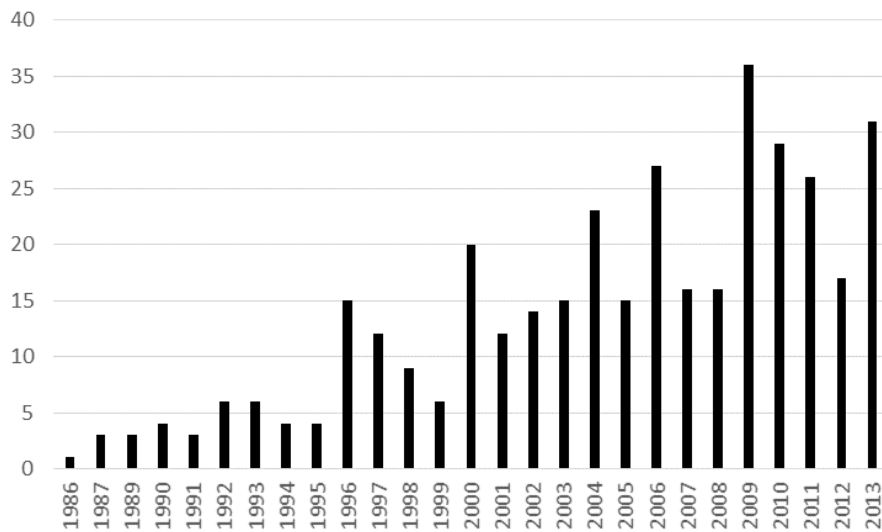
Table 1: Journal sources of referenced papers

Quantity	Journal
35	<i>Organization Science</i> (4*)
31	<i>Human Relations</i> (4*)
25	<i>Academy of Management Review</i> (4*)
24	<i>Organization Studies</i> (4*)
21	<i>Academy of management Journal</i> (4*)
18	<i>Journal of Management Studies</i> (4*)
18	<i>Strategic management Journal</i> (4*)
14	<i>Long Range Planning</i> (3*)
9	<i>Organization</i> (3*)
9	<i>California Management Review</i> (3*)
7	<i>Asia Pacific Journal Of Management</i> (2*)
6	<i>British Journal of management</i> (4*)
6	<i>Journal of Management</i> (4*)
6	<i>Journal of Organizational Behavior</i> (4*)
6	<i>Journal of Product Innovation Management</i> (4*)
6	<i>Management Learning</i> (3*)
6	<i>Organizational Behavior and Human Decision Processes</i> (4*)
5	<i>Administrative Science Quaterly</i> (4*)
5	<i>Journal of Operations Management</i> (4*)
5	<i>Strategic Organization</i> (2*)
4	<i>Academy of Management Perspectives</i> (3*)
4	<i>Accounting, Organizations and Society</i> (4*)
4	<i>Business Ethics Quaterly</i> (3*)
4	<i>Industrial Marketing Management</i> (3*)
4	<i>International Journal of Operations and Production Management</i> (3*)
4	<i>Leadership Quaterly</i> (4*)
4	<i>Management Science</i> (4*)
3	<i>Information and Management</i> (3*)
3	<i>Information and Organization</i> (3*)
3	<i>Journal of Business Research</i> (3*)
47	<i>Others</i>
373	TOTAL

EVOLUTION OF THE NUMBER OF CONCEPTUAL AND EMPIRICAL PAPERS

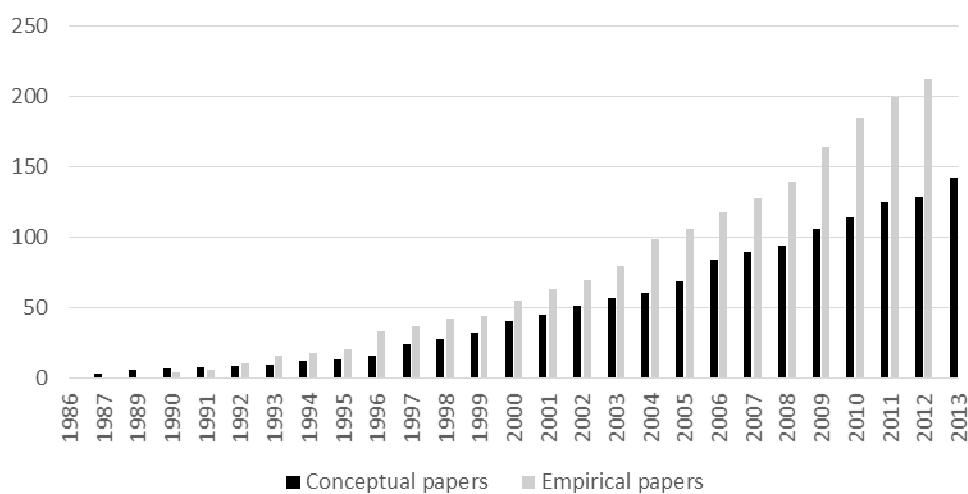
As illustrated in Figure 1, paradox research published in organization and management journals experienced a growth at an average rate of 32% over time (1986-2013). The allocation of these articles by time period is as follows: 11 articles for the period 1986-1990, 23 articles for the period 1991-1995, 62 articles for the period 1996-2000, 79 articles for the period 2001-2005, 126 articles for the period 2006-2010 and 74 articles for the last period (2011-2013) which includes only three years of research. Notably, more than two thirds of the manuscripts (67 %) were published in the last decade.

Figure 1: Evolution of the number of papers per year from 1986 to 2013



The vast majority (62%) of all articles is based on empirical studies and as Figure 2 indicates this empirical prevalence remained relatively stable over time. From 35% in the period 1986-1990, the proportion of empirical studies has never been below 55% from 1991 to 2013. This repartition is relatively similar for the five concepts with the highest score for duality (68%) and the lowest for dialectic (52%). This is a strong indication that the concepts explored in this review are highly relevant not only from a theoretical but also from an empirical and practical point of view.

Figure 2: Evolution of the number of conceptual and empirical papers from 1986 to 2013



EVOLUTION OF KEY CONCEPTS

Although there are subtle differences between paradox and related concepts – duality, dilemma, dialectic and ambidexterity –, several similar elements can be identified which justify studying them together. As each of these five concepts has long been linked to a large variety of meanings and definitions, we will start by recalling their respective definitions (Table 2) before analysing their impact on the field.

Table 2: Commonalities and differences of paradox, duality, dilemma, dialectic and ambidexterity

Key terms and concepts	Assumption on the nature of the concept	Assumption on consequences of this relationship	Choice situation
Paradox	Co-existence of <i>two or more</i> opposing forces ('poles') which operate simultaneously	Tensions between two or more poles	No immediate choice needs to be made – paradox could be easily ignored ('blind spot') and action delayed
Duality	Assumes the existence of only <i>two</i> opposing 'poles'; 'real' or 'socially constructed' phenomena	Tensions between two poles	No immediate choice needs to be made – duality could be easily ignored ('blind spot') and action delayed
Dilemma	Simultaneous existence of two 'horns' of a dilemma; 'real' or 'socially constructed' phenomenon (rhetorical dilemma)	Tensions between the 'horns' in a difficult choice situation	Choice must be made, action cannot be avoided i.e. not ignored (any more); no third alternative (<i>tertium non datur</i>)
Dialectic	Simultaneous existence of two opposing poles: thesis and antithesis	Tensions between thesis and antithesis	Contradictions between poles is temporally resolved through integration (synthesis)
Ambidexterity	Co-existence of two opposing forces ('poles') which operate simultaneously	Tensions between exploitation and exploration	Opposition between both poles (exploration and exploitation) needs to be resolved to survive in the long term

[Source: compiled by the authors, extended from Ehnert, 2009: 136.]

First, in the Greek etymological sense of the word, "*para*" meaning "*contrary*" and "*doxa*" "*accepted opinion*", paradoxes involve the juxtaposition of two incompatible and conflicting theses (Putnam, 1986; Statler, Heracleous, & Jacobs, 2011; Stohl & Cheney, 2001). Recently, Smith and Lewis (2011, p. 386) defined paradoxes as "contradictory yet interrelated elements that exist simultaneously and persist over time." In addition, to illustrate the idea that "paradoxes denote elements that are oppositional to one another yet are also synergistic and interrelated within a larger system," Smith and Lewis (2011, p. 386) use the Taoist symbol of yin and yang.

A duality is used to describe an opposition or contrast between two concepts. In this sense, Evans and Doz (1991) suggested defining dualities as "complementary oppositions." As a case in point, stability and change could be considered as a duality due to the fact that they are interdependent, and both contradictory and complementary (Farjoun, 2010). According to

Ehnert (2009), paradoxes and dualities differ in the sense that paradox is a broader notion, allowing for more than one contradictory pair creating tensions. However, even if paradoxes can be expanded to trialectic or pluralistic tensions, Smith and Lewis (2011) argue that paradoxes generally refer to dualities.

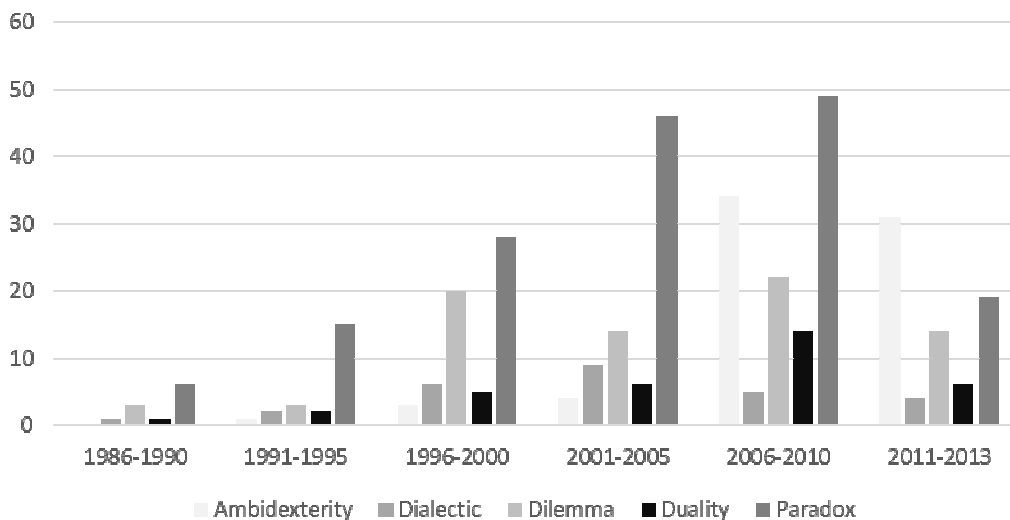
In contrast, a dilemma denotes a tension such that each competing alternative poses clear advantages and disadvantages (McGrath, 1982). According to Ehnert (2009), dilemmas are characterized by a situation where a choice actually has to be made and, secondly, the choice has to be made between two or more equally desirable or undesirable alternatives. In this line of thinking, the difference between paradoxes and dilemmas is that in a paradox, contradictions operate simultaneously (Cameron, 1986) and no choice needs be made. However, Smith and Lewis (2011, pp. 387) prevent that “dilemma may prove paradoxical when a longer time horizon shows how any choice between two poles is temporary”.

A dialectic denotes an ongoing process of resolving tensions through integration. In this case, two opposing poles (thesis and antithesis) are resolved through their integration into a combined element (synthesis). As synthesis aims to reconcile opposing poles emphasizing their similarities rather than stressing their valued differences, integration is temporary and the need for disparate qualities persists such that synthesis gradually favors one pole over the other (Smith & Lewis, 2011). In this regard, Clegg (2002, pp. 29) proposed that paradoxes and dialectics become synonymous when “a thesis does not exist despite its antithesis, but because of it. Each pole of the dialectic needs the other to sustain its presence”.

Finally, adopting a paradox lens, ambidexterity research stresses that overall organizational success depends on exploring and exploiting simultaneously (Gibson & Birkinshaw, 2004; O'Reilly & Tushman, 2008; Raisch & Birkinshaw, 2008). Introduced by March (1991), it is clear that the increasing use of the word ambidexterity within the literature has resulted in manifold uses of the terminology (Raisch & Birkinshaw, 2008). Based on a synthesis of the literature, Turner and colleagues (2013, pp. 320) suggest to define ambidexterity as “the ability to both use and refine existing knowledge (exploitation) while also creating new knowledge to overcome knowledge deficiencies or absences identified within the execution of the work (exploration).” This ability to consider exploitation and exploration as two contradictory yet interrelated elements that exist simultaneously and persist over time therefore corresponds to a paradoxical approach.

From a historical perspective, these five concepts contributed differently to the development of the “paradox theory” (see Figure 3).

Figure 3: Evolution of key concepts from 1986 to 2013



Given the proportion of articles dealing with paradox (55% for the period 1986-1990, 65% for the period 1991-1995, 45% for the period 1996-2000, 58% for the period 2001-2005 and 40% for the period 2006-2010), paradox is undoubtedly the concept that dominated the field over the last three decades. While up to the 2000s, the concept was surrounded by a conceptual vagueness, the theoretical clarification of the early 2010s allowed specifying what *does not* refer to a paradox (Smith and Lewis, 2011). As a result, the proportion of paradox related articles fell to 25% for the period 2011-2013.

Inspired by the literature on paradoxical phenomena in organization theory (e.g. Poole & Van de Ven, 1989), a number of publications have focused on the idea of two poles or forces opposing each other and have reduced the concept of paradox to that of dualities. This reduction has to be taken with caution as the concept of paradox is perceived as providing the greater potential for illustrating complexity and several dualities operate simultaneously. Whereas the term paradox has been influential in organization and management literature, the concept of duality has been applied, in particular, to study dualities in strategic management; which explains why duality papers represent only 9% of the sample whereas the proportion of paradox related papers rises to 45%.

As different types and meanings of dilemmas are differentiated in the literature: 1) innovation dilemma (Meeus & Oerlemans, 2000), 2) ethical dilemma (Kolk & Tulder, 2004), 3) knowledge dilemma (van de Hooff & Huysman, 2009), and social dilemma (Wilkesmann et al., 2009), it is not surprising that this concept has been the second most used up to 2005. The decline observed since 2006 can be explained by the rise of publications on ambidexterity.

With regard to the latter, ambidexterity has been introduced into the literature in 2008, when Raisch & Birkinshaw (2008, pp. 396) asserted that “organizational ambidexterity is taking shape as a research paradigm in organization theory”. Ambidexterity has been used in multiple research areas including operations management (Raisch & Birkinshaw, 2008; Simsek et al., 2009; Raisch et al., 2009), organizational learning (Filippini et al., 2012; He & Wong, 2004) and strategic management (Bodwell & Chermack, 2010; Kwee et al., 2011). Despite such attention to the concept, “further research into the nature of its mechanisms is important if the wider benefits are to be obtained by organizations” (Turner et al., 2013, pp. 320).

Table 3: Evolution of the number of conceptual and empirical papers per period and per concept

	Ambidexterity	Dialectic	Dilemma	Duality	Paradox	Total
Conceptual paper	25 (34%)	13 (48%)	27 (35%)	11 (32%)	67 (41%)	143 (38%)
1986-1990		1	1		5	7
1991-1995	1	1			4	6
1996-2000	1	2	7	4	14	28
2001-2005	1	5	5		17	28
2006-2010	12	2	6	7	18	45
2011-2013	10	2	8		9	29
Empirical paper	48 (66%)	14 (52%)	49 (65%)	23 (68%)	96 (59%)	230 (62%)
1986-1990			2	1	1	4
1991-1995		1	3	2	11	17
1996-2000	2	4	13	1	14	34
2001-2005	3	4	9	6	29	51
2006-2010	22	3	16	7	31	79
2011-2013	21	2	6	6	10	45
Total	73	27	76	34	163	373

Finally, the notion of dialectic is losing ground over time in terms of number of publications using this concept. A peak of interest has been observed for the period 2001-2005 but today authors seem to give priority to the concepts of paradox, dilemma and ambidexterity.

In terms of type of papers, the repartition between empirical and conceptual is relatively similar for the five concepts (Table 3) with the highest score for duality (68%) and the lowest for dialectic (52%).

EVOLUTION OF KEY RESEARCH AREAS

Beyond the diversity of concepts, the paradox theory also features a variety in terms of research areas (table 4).

Table 4: Evolution of key research areas per period from 1986 to 2013

	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	2011-2013	Total
<i>Accounting & Finance</i>	1 (9%)	2 (9%)	2 (3,5%)	1 (1%)	2 (1,5%)	1 (1,5%)	9 (2,5%)
<i>HRM</i>	0 (0%)	0 (0%)	5 (8%)	6 (7,5%)	12 (9,5%)	4 (5,5%)	27 (7,5%)
<i>Leadership</i>	0 (0%)	2 (9%)	1 (1,5%)	4 (5%)	2 (1,5%)	4 (5,5%)	13 (3,5%)
<i>Marketing</i>	0 (0%)	0 (0%)	1 (1,5%)	2 (2,5%)	1 (0,08%)	2 (2,5%)	6 (1,5%)
<i>Operations management</i>	1 (9%)	2 (9%)	5 (8%)	10 (12,5%)	22 (17,5%)	18 (24%)	58 (15,5%)
<i>Organization theory</i>	2 (18%)	0 (0%)	5 (8%)	3 (4%)	5 (4%)	6 (8%)	21 (5,5%)
<i>Organizational Behavior</i>	3 (27%)	6 (26%)	16 (26%)	13 (16,5%)	24 (19%)	11 (15%)	73 (19,5%)
<i>Organizational learning</i>	0 (0%)	1 (4%)	7 (11%)	7 (9%)	13 (10,5%)	5 (7%)	33 (9%)
<i>Strategic Management</i>	4 (36%)	6 (26%)	14 (22,5%)	27 (34%)	34 (27%)	19 (25,5%)	104 (28%)
<i>Technology Management</i>	0 (0%)	4 (17%)	6 (10%)	6 (7,5%)	9 (7%)	4 (5,5%)	29 (8%)
Total	11	23	62	79	126	74	373

The early years (1986-1990) were characterized by the emergence of pioneering articles in the areas of organization theory (Poole & Van de Ven, 1989), strategic management (Cameron, 1986), and organizational behavior (Smith & Berg, 1987). The following years have confirmed interest in strategic management and organizational behavior as the latter represented the two most important areas of research paying attention to paradoxes and related phenomena from 1991 to 2010. Tensions such as competition vs collaboration (Outkin, 2003), control vs autonomy (Sundaramurthy & Lewis, 2003) or agency vs embeddedness (Seo & Creed, 2002) have been analyzed within the strategic management area, whereas papers published in organizational behavior have focused particularly on the change vs. stability duality (Vince & Broussine, 1996; Clegg et al., 2002; Beech et al., 2004;

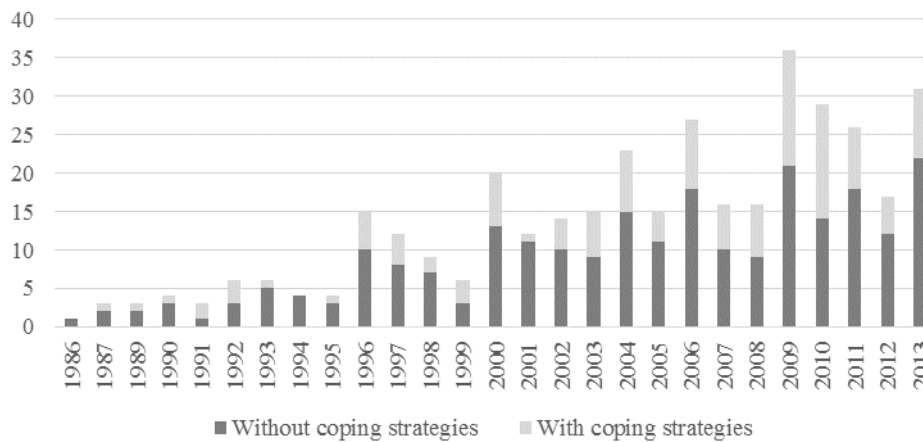
Graetz & Smith, 2008; Lüscher & Lewis, 2008). From the mid-1990s, we have observed a slow expansion of paradox research in further areas such as HRM (Amason, 1996; Coff, 1997), operations management (Adler et al., 1999; Gibson & Birkinshaw, 2004) and technology management (Edmunds, 2000; Robey et al., 2002). Finally, the period from 2006 to 2013 saw an increase in the number of articles published in operations management (Jansen et al., 2006; Raisch & Birkinshaw, 2008; Raisch et al., 2009), which is now the second research area after the strategic management area in terms of number of publications.

STRATEGIES FOR MANAGING PARADOXES

The message of the “paradox theory” is that paradoxical tensions cannot be avoided in everyday organizing and managing. There is no agreement if tensions are ‘negative’ or ‘positive’. For example, Cameron (1986) writes about ‘creative tensions’, whereas Evans and colleagues (2002) mention ‘destructive tensions’ (p. 80). But, are tensions destructive or is it the way of dealing (coping) with tensions before they become destructive? Whether paradoxes foster change or lead to inertia depends on how they are ‘managed’ (Czarniawska, 1997). Tracy (2004) suggests that “it is not paradox, per se, that is productive or unproductive, good or bad, liberating or paralyzing, but rather, that employees can react to contradictions in various ways, and that their framing techniques of workplace tensions can have various personal and organizational effects” (p. 120). As a product of the relationship between opposing poles, tensions emerge, cannot be avoided in organizations, are helpful to detect oppositions and they are not per se ‘negative’. This depends on the success of the coping processes actors’ exhibit intuitively or consciously. As suggested by Ehnert (2009), we transfer a key definition of coping from Lazarus and Launier (1978) into paradox research. Coping is defined here as the “combination of efforts to reconcile, use constructively, or accept paradoxical phenomena and to manage (i.e. master tolerate, reduce, minimize), or overcome the paradoxical tensions which strain or exceed a person’s resources” (p. 311).

For our review, we look at the percentage of articles mentioning coping strategies explicitly (Figure 3). Our findings suggest that only one third of the articles deals with responses to paradoxical tensions. However, it should be noted that the percentage of papers increased over time, i.e. it was 28% for the period 1986-2005 and then increased to 31% for the period 1996-2005 and to 37% for the period 2006-2013 (see Figure 4).

Figure 4: Evolution of the number of papers mentioning coping strategies



This tendency to focus more on responses to work through paradoxes is especially present in organizational behaviour and operations management (see Table 5) where authors have been seeking to identify strategies which allow reconciling change and stability or exploitation and exploration respectively.

Table 5: Evolution of key research areas per period from 1986 to 2013 within articles mentioning coping strategies

	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	2011-2013	Total
<i>Accounting & Finance</i>	0	1	0	0	1	0	2
<i>HRM</i>	0	0	2	1	3	1	7
<i>Leadership</i>	0	1	0	1	1	0	3
<i>Marketing</i>	0	0	1	1	0	0	2
<i>Operations management</i>	1	1	4	7	15	9	37
<i>Organization theory</i>	1	0	1	0	2	2	6
<i>Organizational Behavior</i>	1	3	5	5	9	4	27
<i>Organizational learning</i>	0	1	5	2	7	2	17
<i>Strategic Management</i>	0	0	2	6	8	4	20
<i>Technology Management</i>	0	0	1	0	6	0	7

Theoretically speaking, Poole and Van de Ven (1989) were the first to propose a systematic basis for categorizing coping strategies through four “*modes of paradox resolution*” (p. 565): (1) *Opposition*: accept the paradox and use it constructively; (2) *Spatial separation*: positioning the poles of a paradox at different levels of analysis; (3) *Temporal separation*: the poles of a paradox are considered one after the other; (4) *Synthesis*: introduction of new terms for reconciling a paradox.

A variety of alternative categorizations of responses to paradox have since been reported (Lewis, 2000; Lüscher & Lewis, 2008; Smith & Lewis, 2011, Jarzabkowski et al., 2013). Based on prior contributions to the field, we observed some consensus in the field with four defensive and three active responses (see Table 6).

Defensive responses provide short-term relief. They may enable actors to overcome paradoxical tensions temporarily but do not provide a new way to work with or understand a paradox (Jarzabkowski et al., 2013). These responses include temporal (Romanelli & Tushman, 1994; Poole & Van de Ven, 1989; Gibson & Birkinshaw, 2004; Gotsi et al., 2010) and spatial splitting (Poole & Van de Ven, 1989; O'Reilly & Tushman, 2008; Andriopoulos & Lewis, 2009), ignorance (Poole & van de Ven, 1989; Gibbs, 2009; Jarzabkowski et al., 2013) and denial (Gibbs, 2009). Splitting may be temporal, by separating different poles temporarily in the same location, or spatial, by situating the different poles in different organizational units or hierarchical levels (Poole & Van de Ven, 1989). The ignorance response is the most conflictual response because it involves considering one pole of the paradox as more important at the expense of the other (Jarzabkowski et al., 2013). This can be observed when an organization or system is dedicated to one pole of the paradox only (Gupta et al., 2006). Less conflictual than the latter, the denial response involves rejecting both poles by avoiding contact with the paradox or blocking unpleasant experiences from memory (Vince & Broussine, 1996). By suppressing the relatedness of contradictions and maintaining the false order, defensive strategies (spatial splitting, temporal splitting, ignorance and denial) may temporarily reduce anxiety, but will result in the reinforcement of vicious cycles that perpetuate and intensify tension (Lewis, 2000).

Table 6: Literature review of defensive and active coping strategies in all articles

Mode of paradox resolution	Definition	Type of response	Examples
<i>Denial</i> (Vince & Broussine, 1996; Gibbs, 2009)	A response to tension that involves refusing to accept an unpleasant reality	Defensive	Blocking unpleasant experiences from memory (Vince & Broussine, 1996) Resorting to actions that have provided some security previously (Vince & Broussine, 1996)
<i>Ignorance</i> (Poole & Van de Ven, 1989; Vince & Broussine, 1996; Gibbs, 2009; Jarzabkowski et al., 2013)	A response to tension that involves ignoring one pole of the paradox	Defensive	Excessively manifesting the feeling opposite to the threatening one (Vince & Broussine, 1996)
<i>Spatial splitting</i> (Poole & Van de Ven, 1989; Gibson & Birkinshaw, 2004; O'Reilly & Tushman, 2008; Andriopoulos & Lewis, 2009)	A response to tension that involves separating contradictory elements spatially	Defensive	The competing can coexist within the firm when it creates organizationally differentiated subunits (Hardy, 1996)
<i>Temporal splitting</i> (Poole & Van de Ven, 1989; Romanelli & Tushman, 1994; Gibson & Birkinshaw, 2004; Jarzabkowski et al., 2013)	A response to tension that involves separating contradictory elements temporally	Defensive	Relying on a punctuated equilibrium by sequentially allocating attention to divergent goals (Romanelli & Tushman, 1985)
<i>Opposition</i> (Poole & Van de Ven, 1989; Lewis, 2000; Lüscher & Lewis, 2008; Jarzabkowski et al., 2013)	A response to tension that involves parties discussing the contradictory elements of a paradox to construct a more accommodating understanding or practice	Active	Collective reflection is an attempt to address one's own defenses. Such confrontation may occur most effectively away from the emotion-laden context and with an outsider, someone who is not caught up in the emotions but is capable of empathizing with involved actors. (Vince & Broussine, 1996 in Lüscher & Lewis, 2008) Modelling occurs within a group. Yet rather than overtly discussing concerns about that group with the group, confrontation in this setting entailed modelling. Taking the risk of revealing themselves, actors model their hopes for group interactions (Vince & Broussine, 1996 in Lüscher & Lewis, 2008).
<i>Adjusting</i> (Jarzabkowski et al., 2013)	A response to tension that recognizes that both poles of the paradox are important and interdependent and thus both need to be answered	Active	Working out how to adjust their working practices to each other in order to support both sides of the paradox (Jarzabkowski et al., 2013)
<i>Transcending</i> (Poole & Van de Ven, 1989; Lewis, 2000;; Smith & Tushman, 2005; Gibbs, 2009; Graetz & Smith, 2008; Smith et al., 2010; Smith & Lewis, 2011)	A response to tension that involves finding some new perspective which eliminates the opposition between both poles	Active	Cognitive variety refers to the diversity of mental templates for problem solving that exist in an organization (Graetz & Smith, 2008)

Active responses or ‘strategic responses’ (Lewis & Smith, 2014) seek to embrace, cope with and thrive through tensions. Paradox literature suggests three active responses, namely, confronting, adjusting and transcending. *Confronting* involves parties discussing the contradictory elements of a paradox to socially construct a more accommodating understanding or practice (Lewis, 2000; Lüscher & Lewis, 2008). Coming from the literature on coordinating decision-making (e.g. Lindblom, 1965), the *adjusting* response recognizes that both poles of the paradox are important and interdependent, and that both need to be answered (Jarzabkowski et al., 2013). Finally, through *transcendence*, organizational actors reframe the tension, which is characterized by a perceptual transformation of the elements, so that the two contrasts are no longer regarded as opposites (Smith & Tushman, 2005; Lewis, 2000; Gibbs, 2009; Smith & Lewis, 2011). The advantage of this solution is that complexity is embraced in its wholeness, and potential synergies or overarching solutions can be found (Smith et al., 2010). By acknowledging paradox as a natural condition of work, active responses (confronting, adjusting and transcending) lead to positive, virtuous reinforcing effects between the opposing poles.

As the variety of coping strategies reported in previous studies (e.g. Poole & Van de Ven, 1989; Vince & Broussine, 1996; Jarzabkowski et al., 2013) may be clustered into four defensive and three active responses, it is noteworthy to highlight that this is “a repertoire of responses that have varying effects according to the context in which they are used” (Jarzabkowski et al., 2013) and the people by which they are enacted. Indeed, depending on the context in which a specific person has to cope with a particular paradox, a combination of responses is likely over time (Lüscher & Lewis, 2008). Even if defensive responses might seem attractive in the short-term, Lewis (2000) argue that actors who encountered paradoxical tensions need to embrace opposing forces simultaneously in order to be sustainable on the long run. “Collectively and boldly, exemplars suggest an emerging view that moves organizational research beyond “either/or” debates toward “both/and” expectations” (Lewis & Smith, 2014, p. 2)

CATEGORIZING THE LITERATURE: A THREE STAGES APPROACH

Over time, the theory of paradox underwent considerable changes which can be synthesized through three phases: the incubation phase, the expansion phase and the diversification phase (table 7).

Table 7: The 3 phases of paradox literature

	<i>Incubation phase</i>	<i>Expansion phase</i>	<i>Diversification phase</i>
Period	1986-1995	1996-2005	2006-2013
Number of articles	34	141	198
Top Journals	AMR (6 articles) LRP (5 articles) OS (4 articles)	OS (15 articles) HR (14 articles) AMR (12 articles)	OS (16 articles) HR (15 articles) JoMS (10 articles)
Key concept(s)	Paradox (61%)	Paradox (52%) Dilemma (24%)	Paradox (34%) Ambidexterity (33 %)
Key research areas	Strategic Management Organizational Behavior	Strategic Management Organizational Behavior	Strategic Management Operations Management
% of empirical papers	61%	60%	61%
% of papers mentioning coping strategies	29%	31%	37%

From pioneering conceptual papers in organizational behavior (Smith & Berg, 1987; Poole & Van de Ven, 1989) and strategic management (Cameron, 1986), the *incubation phase* (1986-1995) was characterized by first empirical exploration in technology management (Orlikowski, 1992), accounting (MacIntosh & Scapens, 1990) and strategic management (von Hippel, 1987; Finkelstein & Daveni, 1994). This first phase was strongly oriented towards paradox since nearly two thirds of the articles published apply this concept. During the *expansion phase* (1996-2005) the number of articles was quadrupled with a strong focus on strategic management (Sundaramurthy and Lewis, 2003; Outkin, 2003) and organizational behavior (Vince & Broussine, 1996; Clegg et al., 2002; Beech et al., 2004) and a slow expansion to further research areas such as organizational behavior (Chia, 1999; Leana & Barry, 2000; Fiol, 2002). Whereas paradox-related articles continue to represent the largest share of published papers (52%), the concept of duality gained in importance (24%) thanks to the change-stability duality (Vince & Broussine, 1996; Clegg et al., 2002; Beech et al., 2004). Since the mid-2000s, we can speak about a *diversification phase* (2006-2013) as a paradox approach is applied to further research areas or sub-disciplines such as human resource management (Francis & Keegan, 2006; Schmitt & Raisch, 2013), leadership (Jansen et al., 2008), and operations management (Cao et al. 2009; Jansen et al., 2006, 2009; Lubatkin et al., 2006). In particular, research in operation management has reinforced the application of the concept of ambidexterity which is applied in a similar number of articles (33%) as the concept of paradox (34%).

Over the three phases, the only element that remained stable is the proportion of empirical articles (61%) but this has not reduced the interest in coping strategies as the proportion of articles mentioning ways to cope with paradoxical tensions increased from 29% in the

incubation phase to 37% in the diversification phase. Despite this growing interest in coping strategies, Poole and Van de Ven's article (1989) appears to paradoxically remain the reference article. In other words, it seems that their four strategies (spatial splitting, temporal splitting, opposition and synthesis) are still used as basis in latest research (Tracy, 2004; Gibbs, 2009; Jarzabkowski et al., 2013). The contributions of studies from the mid-2000s lie more in the way paradoxes coexist (Smith and Lewis, 2011) and how coping strategies coevolve over time (Jarzabkowski et al., 2013).

CONCLUSIONS AND AVENUES FOR FUTURE RESEARCH

Our review has shown that paradox research has experienced a phenomenal advancement since the seminal article by Cameron in 1986. Over time, research into paradoxical tensions in organizations has become increasingly more sophisticated and diverse, which has helped to move this literature from an early phase of incubation (1986-1995) with pioneering conceptual papers (Smith & Berg, 1987; Poole & Van de Ven, 1989) towards an expansion phase (1996-2005) and a diversification phase in the mid-2000s. Although these developments have significantly increased the conceptual clarity and demonstrated the diversity of application areas, there is still some way to go before paradox research reaches the level of maturity attained by other fields. In this line, recent publications (Smith & Lewis, 2011; Jay, 2013; Lewis & Smith, 2014) tend to say that the diversification phase gradually gives way to an integration phase. After having demonstrated the diversity of application areas, paradox scholars are now looking for “overarching principles that transcend specific topics or domains of study” (Pierce & Aguinis, 2013, pp. 316). Within this forthcoming integration phase, our in-depth analysis of the paradox-related literature has identified three key issues for future research.

First, future research could be focused on the holistic and dynamic view of the organizational tensions. In paradox research, most scholars have studied how organizational paradoxes – classified as learning (e.g., stability vs change), organizing (e.g., collaboration vs control), performing (e.g., financial vs social goals), and belonging tensions (e.g., the individual vs the collective) - operate at the level of the individual (Markus & Kitawama, 1991), dyad (Argyris, 1988), group (Smith & Berg, 1987), project (Van Marrewijk et al., 2008), and organization (Cameron & Quinn, 1988). However, little research has examined paradox management *across* levels. A rare example is Andriopoulos and Lewis's (2009) comparative case study, which identifies nested innovation tensions across individual, groups and organizational levels

(Schad et al., forthcoming). Further insight could be gained by studying how paradoxical tensions are cascading across levels (Smith & Lewis, 2011; Jarzabkowski et al., 2013). As addressing a tension at one level may spur new challenges at another (Smith & Lewis, 2011), multi-level studies would not only enrich the knowledge relating to organizational tensions but would also provide inputs on how to manage these cascading paradoxes.

The second direction for future avenues therefore concerns coping strategies. Contributions of future research could be twofold. First, in line with Jarzabkowski et al. (2013) who highlighted the cumulative nature of defensive and active responses to paradox over time and show how managers may move between these responses, future research could analyze how the level at which paradox emerges shapes the process through which paradoxes coevolve. Longitudinal studies would allow examining how organizational tensions and their related coping strategies coexist and coevolve depending on the level where they first emerged. Beyond focusing on coping strategies' interrelatedness over time, a second line of inquiry is to consider responses to tensions as context related. As a case in point, the results of Cao et al. research (2009, p. 781) indicate that “managers in resource-constrained contexts may benefit from a focus on managing trade-offs between exploration and exploitation demands, but for firms that have access to sufficient resources, the simultaneous pursuit of exploration and exploitation is both possible and desirable”. In this regard, there is a need for a more systematic approach to examining the effects of context on the management of organizational paradoxes. Future comparative studies should focus on a simultaneous examination of both external (economic, socio-cultural, legal, etc.) and internal (resources, process, values, etc.) factors and examine how these affect responses to tensions.

Finally, although scholars have well distinguished paradox from other types of tensions such as dilemmas, dualities or dialectics (Lewis, 2000; Smith & Lewis, 2011), there is still room for investigating the boundaries of the emerging “theory of paradox”. In line with Lewis and Smith (2014) who argue that we are moving to a “meta-theory of paradox”, a more strategic emphasis should be placed on identifying commonalities across paradox studies.

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