

1 making (Robertson et al., 1996). Concerning the *replication* of innovations, studies exam-
2 ining the dynamics of fashion-setting have emphasized the importance of trend-setters,
3 consultancies and funding bodies in encouraging imitation (Abrahamson, 1996; Grint
4 and Case, 2000; Jones and Thwaites, 2000; Newell et al., 2001). Other approaches
5 emphasizing replication in the diffusion process have examined institutional isomor-
6 phism and the convergence of organizational practices (Guler et al., 2002; Strang and
7 Meyer, 1993). Finally, in attempting to understand the *variation* of innovations in both
8 their interpretation and implementation, recent work has emphasized the phenomena of
9 'interpretative viability' (Benders and Van Veen, 2001), 'pragmatic ambiguity' (Giroux,
10 2006) and 'translation' (Czarniawska-Joerges and Sevon, 1996) in suggesting that 'certain
11 labels or concepts have a greater likelihood of survival and dissemination . . . because
12 they "lend themselves to various interpretations" ' (Giroux, 2006, p. 1231).

13 This paper argues that, when combined, replication, variation and selection can create
14 a dynamic algorithm by which some innovation variants spread more rapidly than
15 others. In doing so, the paper draws upon the concept of 'memes', developed by Dawkins
16 (1976). Memes are self-replicating cultural ideas: 'not the "simple ideas" of Locke and
17 Hume (the idea of red, or the idea of round or hot or cold) but. . . complex ideas that
18 form themselves into distinct memorable units' (Dennett, 1991, p. 344). The paper
19 suggests that successful management innovations are cultural memes that 'infect' orga-
20 nizations, residing in documents and memories (both biological and digital), being
21 transmitted through consultants, training seminars and networks, and by mutating both
22 the innovation itself and its environment to improve the likelihood of its reproduction. By
23 bringing together diverse observations on the selection, variation and replication of
24 innovations under the 'memetic' umbrella, the theory is intended to complement existing
25 studies and incorporate their strengths into a explanatory perspective.

26 This argument ascribes no intentionality to memes (they are not conscious) but
27 suggests instead that they form algorithms which can, by interacting with their environ-
28 ment (including humans), spread to other organizations. Nor is memetics reductionist: in
29 the same way that it is possible to talk about genes whilst accepting the impact of the
30 environment on human development or the existence of 'higher level' artefacts such as
31 feet, dogs or houses, memetic theory is theoretically congruent with the existence of
32 deliberative action, social construction and social structures. Memetics aims to provide
33 an alternative vision of innovation diffusion by highlighting the ways in which the
34 'internal' instructions of innovations contribute to their own replication by interacting
35 with social phenomena.

36 This memetic approach to innovation diffusion aligns itself with the recent reposition-
37 ing of the analytical spotlight away from the agent and back towards the innovation and
38 its rhetorical context. Recently, theorists have moved away from early anthropocentric
39 models of diffusion, which emphasize the primacy of human action in generating diffu-
40 sion (Holloway, 1977; King and Kugler, 2000), and towards approaches which highlight
41 the rhetorical and interpretative environment of the innovation (Cornelissen, 2006;
42 Giroux, 2006; Green, 2004; Taylor et al., 1996; Weick, 1989). At an empirical level, this
43 paper develops this perspective by illustrating how the innovation contributes to its own
44 replication by *interacting with and altering* its political and cultural context. Rather than
45 seeing an innovation statically, in terms of its attributes or properties (which are usually

1 treated as adjectives), this paper suggests that innovations can act as dynamic and
2 proactive agents (more akin to verbs), changing both themselves and their environments
3 to maximize their chances of reproduction.

4 Such a proposition is not just a simple shift of perspective. By seeking to understand
5 the *proactivity* of the innovation, this paper seeks to ascribe action not just to 'externalities'
6 such as humans, networks or cultures but also to the innovation itself: its structuring,
7 ordering and even production of organizations, users, artefacts and routines. The paper
8 suggests that management innovations are spread, not just because people and organi-
9 zations *adopt* them, but also because the programmes *adapt* people and organizations.
10 Like a computer or biological virus, management innovations not only contain instruc-
11 tions for their own implementation but frequently directions for their reproduction. In
12 arguing this point, the paper builds upon earlier work that examined the attributes of
13 innovations (Kearns, 1989; Rogers, 1983) by suggesting that these properties are much
14 more dynamic and proactive than had previously been thought.

15 By drawing on the idea of evolutionary algorithms, the application of memetics also
16 fits within the wider literature on organizational ecology (Aldrich, 1999). This paper,
17 however, develops this literature in two ways. First, by focusing on management inno-
18 vations rather than organizations, the argument provides a different level of analysis to
19 most ecological applications (Baum and Singh, 1994; Durand, 2006). This in turn allows
20 an examination of different forms of variation, replication and selection than those upon
21 which analysts usually focus. Secondly, as explained in the next section, the paper utilizes
22 a critical realist ontology to help avoid the charges of determinism and reductionism that
23 are often associated with the organizational ecological literature.

24 The paper first introduces the concept of the memetics and suggests ways in which the
25 theory is applicable to the diffusion of management innovations. Second, drawing upon
26 stories from two case-studies of business process re-engineering (BPR) implementation,
27 the paper examines the ways in which this innovation can be argued to be memetic. The
28 paper examines the implications of the argument for innovations generally and makes
29 some specific observations about the characteristics of BPR as a meme; it suggests that
30 the high failure rates associated with BPR may actually enhance its ability to replicate by
31 'infecting' other organizations and that its 'cut and burn' philosophy can serve to
32 eliminate competing innovations. Finally, the paper suggests some limitations of the
33 theory and suggests avenues for future exploration.

34 35 **MEMETICS: ORIGINS OF THE THESIS**

36 In his book, *The Selfish Gene*, Dawkins (1976) outlines the methods by which genes evolve
37 by drawing upon an algorithm comprising variation (slightly differing genes in a given
38 population), selection (the survival of genes more suited to any specific environment) and
39 retention (the preservation of genes through hereditary replication). After completing this
40 survey, Dawkins speculates that similar evolutionary processes may also exist in cultures.
41 In seeking to explain why some (effective) cultural ideas perish and why some (damaging)
42 ideas spread like powerful viruses, Dawkins argues that many cultural innovations
43 contain information to enable them to replicate themselves in a similar way to genes. In
44

1 doing so, Dawkins coined a new term: the 'meme'. Instead of biological data, memes
2 contain cultural information that is transmitted through imitation and codification (the
3 manifestation or inscription of the meme).

4 It is important to stress that, as an algorithmic processes, the concept of the meme can
5 operate at both a material and rhetorical level. Thus, whilst cultural artefacts, such as
6 designs, plans and products can be seen to evolve, the social discourse which frames and
7 interprets such phenomena can also be influenced by the processes of variation, repli-
8 cation and selection. Thus, 'published texts also acquire a life of their own, sometimes far
9 removed from the intention of their authors' (Giroux, 2006, p. 1232). A similar concern
10 leads Green to suggest that 'in future studies researchers could examine the rhetorical
11 viral and mimetic properties of managerial discourse' (2004, p. 663). Whilst these
12 material and rhetorical dynamics are clearly symbiotic, for the purposes of clarity it is
13 often simpler, as we shall see, to distinguish between them.

14 The algorithmic processes of the meme, Dawkins argues, are contained in three key
15 constituents:

- 16 • Replicators: self-contained fragments of instructions that are replicated or imitated.
17 'There will always be errors in copying so the population will contain variety'
18 (Dawkins, 2004, p. 467).^[1]
- 19 • Active replicators: these are instructions aimed at improving the chances of memetic
20 reproduction; analogies include a cold virus which may cause sneezing or a com-
21 puter virus which installs itself in all executable files on a PC.
- 22 • Vehicles: these are the 'carriers' of the replicators, the things that interact with the
23 environment. In terms of evolutionary biology, they tend to be organisms (Plotkin,
24 1995), but with memes could be books, CDs, discourse, art or human memory:
25 anywhere that information can be stored.
26

27
28 The ability of a meme to reproduce is, to a large extent, dependent upon how its
29 replicators interact with their externalities (e.g. people, other memes, organizations,
30 societies). A simple email saying 'copy me to your friends' would suffer short shift
31 amongst the wired community and as such has a weak 'active replicator'. However,
32 one promising a regular income interacts better with human needs to turn a simple
33 email into a chain letter or a pyramid-scheme. More powerful still is an email that
34 automatically sends itself to a user's contacts list regardless of their intervention
35 (Blackmore, 1999).

36 An additional distinction is usually made between the instructions in the gene or
37 meme, called the 'genotype' (for example, DNA, architectural plans, computer code) and
38 its physical manifestation, called the 'phenotype' (for example, an organism, a physical
39 house or a computer program). It is usually the genotype that drives the behaviour of the
40 phenotype. As a result, behaviour influenced by genes can often actually damage the
41 vehicle they inhabit. Dennett give us an example:

42
43 We see an ant laboriously climbing up a stalk of grass. Why is it doing that? . . . That
44 is the wrong question to ask. No good at all accrues to the ant . . . The ant's brain has
45 been invaded by . . . tiny parasitic worms that need to get themselves into the

1 intestines of a sheep or cow in order to reproduce. . . . [these] drive ants up grass stalks
2 to improve their chances of being ingested. (Dennett, 2003, p. 175)^[2]

3
4 Similarly, it should not be assumed that a successful meme is necessarily good for its
5 vehicle (or genotype):

6
7 It is a mistake to assume that the natural selection of a cultural trait is always [due to]
8 some perceived (or even misperceived) benefit *to the host* . . . some memes surely
9 enhance our fitness, making us more likely to have lots of descendents (e.g. methods of
10 hygiene) . . . some memes are surely deleterious to our genetic fitness . . . (the tech-
11 niques of birth control are an obvious example). (Dennett, 2003, p. 117)

12
13 The core argument proposed by this paper is that many management innovations can
14 be represented as memes. Not only have many commentators observed that innovations
15 that frequently damage organizations spread successfully (Abrahamson and Rosenkopf, [1
16 1983; DiMaggio and Powell, 1983; Knights and Willmott, 2000; Valentine and Knights,
17 1996) but several have noticed the ability of management innovations to ‘evolve, in the
18 sense that they arise what came before’ (Blackmore, 1999, p. 27). This emergence from
19 previous states is often implicit in those analyses which classify the latest fad as ‘old wine
20 in new bottles’, by writers who trace the origins of various fads to historical cycles (Barley
21 and Kunda, 1992) and by those who notice the differing implementations or ‘transla-
22 tions’ of innovations (Czarniawska-Joerges and Sevon, 1996). From the memetic per-
23 spective, if the environmental conditions are right, a management meme can successfully
24 ‘infect’ vehicles such as organizations, technology and humans even if it is it deleterious
25 to such vehicles. It should not be surprising, therefore, if the host is damaged by the
26 resident meme, providing that the deleterious effect is beneficial to memetic replication.

27 It is important here to understand the differences between Dawkins’s meme and
28 Rogers’ attributes (Rogers, 1983). Whilst the meme could simply be listed as another
29 attribute of an innovation, this categorization would ignore its generative and dynamic
30 properties. If genes, for example, were simply classed as another attribute of human
31 beings, alongside skin, feet and lungs, the categorization would miss out on the ways in
32 which genes help determine the human form. To the purist, it is more correct to view the
33 vehicle as an attribute (or the phenotype) of the meme rather than vice-versa, as
34 attributes are the product of the genotype and will vary according to the evolutionary
35 state of the entity. This highlights a wider debate which concerns the identification of the
36 meme and the necessity of demonstrating that the classification of the meme is not
37 merely whimsical but forms part of a wider ontological effort within social sciences.

38 The discussion of memetics in this paper is framed within a (critical) realist ontology
39 (Bhaskar, 1989, 1997) which has recently made inroads into management studies (Contu
40 and Willmott, 2005; Reed, 2005). Critical Realism commits to the notion of a layered
41 ontology and the existence of causal mechanisms which underpin surface events, holding
42 that something is real if ‘it has an effect or makes a difference’ (Ackroyd and Fleetwood,
43 2004, p. 29). A critical realist ontology permits the identification of structures, processes
44 and mechanisms that exist at different levels independently of our identification of them
45 (Delanty, 1997). This distinction between different levels of reality enables a critical

1 realist ontology to distinguish between the 'internal structures' of memes (the replicators)
2 and the 'external' discourse and rhetoric which frame them. In other words, rhetoric
3 does not necessarily equate to reality. This in turn enables a distinction to be made
4 between the successful diffusion of rhetoric (e.g. 'compassionate conservatism' or 'the
5 third way') and the actual practices which are often less spectacular. The consequence of
6 this ontological commitment is not that discourse and rhetoric are unimportant but
7 rather that different innovations will respond in different ways in similar cultural or
8 rhetorical contexts.

9 Whilst the critical realist *ontology* is at odds with constructivist approaches which focus
10 on discourse and rhetoric, 'critical realists can comfortably engage with critical discourse
11 analysts in advocating the need to take semiosis. . . seriously' (Mutch, 2006, p. 754).
12 Indeed, in seeking to displace the actor in anthropocentric accounts of change, memetics
13 shares a common theme with many post-structuralist perspectives, including Actor
14 Network and neo-Foucauldian theories (Fox, 2000; Galliers et al., 2000; Latour, 2005).
15 The distinction between rhetoric and reality allows critical realism to engage with both
16 constructivists, who point to the 'evolution' of knowledge (Campbell, 1974), theory-
17 building (Weick, 1989) and metaphor (Cornelissen, 2005; 2006), and realists who [2]
18 propose that innovations themselves evolve (Basalla, 1988; Fujimoto, 1999; Yong and
19 Wilkinson, 2002; Ziman, 2000). It should, therefore, be possible to identify memetic
20 dynamics in both the discourse of management innovations (how they are talked about)
21 and the actual practice (what is implemented).

22 Given this ontology, how is one able to identify a meme? At what level should this unit
23 of information be classified? To some extent any identification will be dependent upon
24 the environment in which the meme operates. Weeks and Galunic (2003) argue that:

25
26 neither culture nor knowledge divides itself neatly into independent units for our
27 convenience. The meaning and effect of any element of culture depends less on its
28 essence than on the context of the rest of the culture around it. We cannot look at
29 memes in isolation . . . memes only make sense when we look at their patterns of
30 combination. (Weeks and Galunic, 2003, p. 1317)

31
32 The answer to the challenge of identification may be found in biology – the organism
33 that is replicated can exist on several different levels at once. For example, parasites,
34 viruses or bacteria can live within a human and may contain other organisms that have
35 little to do with the host. The BPR 'meme', therefore, may contain, or be part of, other
36 memes that help sustain or replicate it, such as TQM or HRM (Benders and Verlaar,
37 2003). However, the 'evolution' of this meme may mean that different instructions are
38 discarded and new ones adopted through the process of replication, variation and
39 selection. As Blackmore (1999) argues, certain memes tend to exist together (for example,
40 within specific religions or science) and produce large 'memeplexes' that serve to sustain
41 the memes they contain (in a similar way to genomes housing 'complete' bodies of genes).
42 Thus, whilst some observers may argue that BPR is a memeplex rather than a meme, we
43 might expect similar evolutionary processes to be evident in its operations. It should not,
44 therefore, be expected that the identification of any particular meme will be permanent
45 or provide an uncontested categorization.^[3]

1 This focus on memes inevitably opens itself to the charge of reductionism: that higher
2 level phenomena (e.g. societies) are determined through the workings of smaller com-
3 ponents. However, unlike atomists or materialists, memeticists (certainly those using a
4 critical realist ontology) do not claim that society (or indeed anything else) is made up
5 solely of one unit of reality, only that memes such as inventions, viruses and songs exist
6 amongst and interact with other phenomena. From the Critical Realist perspective,
7 human agency, social networks or translation are not the epiphenomenal consequences
8 of memes, but simply other real entities that operate at different levels, interacting with
9 and shaping the interpretation of memes. This account ascribes action, causality and pro-
10 cess, not just at the level of society and the individual, but also at the level of the meme:

11
12 the meme's-eye view respects the importance of human agency while also reflecting
13 the importance of unconscious processes and unintended consequences. (Weeks and
14 Galunic, 2003, p. 1344)

15
16 In the next section, the paper explains the methodology used to examine BPR from
17 the perspective of memetics. It draws upon two case-studies to argue that observations of
18 variation, selection or replication made by other analysts can be combined to illustrate
19 the evolutionary tendencies of some innovations.

20 21 **METHODS AND ANALYSIS**

22 **Why BPR?**

23
24 Focusing on the message of obliterating traditional, functional organizational divisions,
25 BPR was proclaimed by gurus as the salvation of the post-industrial age. Within two
26 years of the publication of *Re-engineering the Corporation* (Hammer and Champy, 1993), 75
27 per cent of companies in some sectors reported its implementation (Grint and Wilcocks,
28 1995; McCabe et al., 1997). Jones and Thwaites (2000) point out that, if the measure of
29 citations is anything to go by, the interest in BPR peaked in February 1994 despite
30 evidence of the high failure rates associated with the programme (Coulson-Thomas,
31 1994; Edwards and Peppard, 1994; Heusinkveld and Benders, 2001; Jones, 1994;
32 Knights and Willmott, 2000).

33
34 There are two reasons why BPR may be useful in exploring the applicability of
35 memetics. First, from an evolutionary perspective, BPR has undergone significant
36 changes in the 15 years since its inception. The original 'hard' emphasis of its proponents
37 was, in a short space of time, changed to a more people-orientated 'soft' version and later
38 variations included BPI (Improvement), BPM (Management), the Six Sigma methodol-
39 ogy and the Sarbanes-Oxley approach. This variation is regarded by some writers to be
40 key in enabling the rapid diffusion of an innovation (Benders and Van Veen, 2001;
41 Scarbrough and Swan, 2001) and, from a memetic perspective, is essential in providing
42 the variety required in any population so that effective variants can be selected and
43 others discarded.

44
45 A second reason why the 'internalities' of BPR are worth examining is that despite its
high failure rates, several premature obituaries and common labelling as a fad, BPR has

1 undergone something of a renaissance in recent years. The recent Sarbanes–Oxley
2 legislation aimed at preventing recurrences of cases such as Enron, Arthur Andersen and
3 WorldCom, has spawned a whole new process industry focused on financial account-
4 ability. Even before this, a resurgence of media and telecoms industries found process-
5 based structures more amenable to content-management systems. The utility of using
6 BPR to investigate the operation of memes is, therefore, that it has many of the char-
7 acteristics associated with ‘memetic activity’: if one were to look for strong evidence of a
8 memetic nature in management innovations, one would be likely to find it with BPR,
9 which, despite the failure rates and critiques, still manages to flourish almost 15 years
10 after the concept was first introduced.

11 12 **Methodology**

13
14 In his comprehensive review of diffusion literature, Sturdy (2004) argues that:

15
16 studies tend to rely on using a narrow range of methods such as citation indices, texts
17 and presentations and/or post hoc accounts from interviews. These fail to provide
18 sufficient insight into the ongoing processes through which ideas, practices and other
19 actors are produced, adopted, negotiated, translated, abandoned and/or rejected. In
20 other words, they often do not address the very questions they set out to answer.
21 (Sturdy, 2004, p. 171)

22
23 Partly in response to this challenge, this paper seeks to illustrate the processes of
24 innovation diffusion through a rich ethnography that focuses on understanding work-
25 place social and political relations through a combination of participant observation,
26 action research and interviewing (e.g. Burawoy, 1979; Cavendish, 1982; Delbridge,
27 1998; Graham, 1995). In these studies the author worked alongside those he was
28 studying and learned about the workplace through direct experience. However, the focus
29 of the studies was not, at the outset, to provide material specifically to support memetics
30 but to provide ethnographic data on how BPR was experienced and implemented, how
31 it was translated into practice, codified and reacted to by workers, managers and
32 consultants. Compared to a statistical or comparative study, this methodology is aimed
33 at illustrating the hard-to-measure processes by which innovations spread throughout
34 and between organizations by exploring the formal and informal practices of actors on
35 the receiving end of management innovations.

36 At TruckCo, the BPR exercise was undertaken in 1997 and data was collected between
37 1996 and 1999. Interviews were held with about 15 people in each company and were
38 followed by periods of two weeks working on the shopfloor and shadowing key personnel.
39 During this period, notes were made on a pocket recorder and paper. Further visits and
40 interviews were conducted, so that some changes could be studied in ‘real time’. In total,
41 interview notes amounted to 900 sides of material; about one-third of the taped material
42 was transcribed, and this generated a further 200 pages. At TeleKom, between 2002 and
43 2004, a vast amount of ethnographic material in the form of work diaries, emails, minutes
44 and proposals was collected. This amounted to over 6000 relevant documents and emails
45 over the course of three years. In addition, 12 interviews were conducted with members of

1 the process analysis team (permanent staff and contracted consultants) and a diary was
2 kept. In both companies the richest material came from the day-to-day records of emails,
3 meetings summaries, projects proposals and other records.

4 Whilst the analysis of the material sought to understand how and why BPR was
5 implemented in these organizations, it was not the intention to 'prove' that the pro-
6 gramme *was* a meme. Instead, it aimed to bring together existing observations concern-
7 ing the replication, variation and selection of innovations to show how these can work
8 together in providing a dynamic evolutionary algorithm. The analysis draws upon both
9 the implementation of BPR (i.e. as a change programme) and the operation of business
10 processes (i.e. as a new way of running the companies). The cases presented below
11 attempt to show the whole picture of the introduction and implementation of BPR in the
12 cases, whilst the subsequent analysis draws out key themes that illustrate the represen-
13 tation of the programme as a meme.

14 THE CASES

15 TeleKom

16
17
18
19 In March 2000, the UK government sold five licences to broadcast data on the '3G
20 spectrum', earning itself over £20bn in the process. In response, a Chinese holding
21 company set up TeleKom which purchased a licence for £4.4bn and began building
22 Europe's first 3G mobile network. The parent company, a cash-rich business owned by
23 a Hong Kong entrepreneur, had a strategic aim of buying 3G licences around the world
24 and replicating the UK business in each region. Such an undertaking was no small task.
25 As a licence is only a grant of rights, a new infrastructure of radio-masts, networks and
26 systems to distribute digital content needed to be built, alongside other operational
27 processes such as billing, customer care, marketing and sales.

28 At the point I joined, TeleKom employed only 12 people based in a small office in the
29 Thames Valley. By the time I left in 2003, the organization had grown to employ over
30 2000 people, developed the first 3G mobile service in Europe and built a completely new
31 radio infrastructure across Britain. The challenge for the early organization was to build
32 a stable business and IT infrastructure as fast as possible and then replicate this in other
33 countries where TeleKom was also bidding for licences. To this end, a meeting was
34 called with the senior members of TeleKom to provide a strategy for developing the
35 organizational structure. However, it was immediately evident that few of the attendees
36 had any idea how to tackle this task. One of the consultants present, Alan, introduced the
37 idea of using a process-based architecture to build the organization. The idea was one of
38 many suggested and discussed and the participants were eventually won round – partly
39 by Alan's illustration of the concept through drawing large pictures on a white board of
40 how processes worked. The different shapes and colours used engaged the audience in a
41 way that other approaches that were presented did not and BPR was adopted by the
42 meeting as their preferred strategy (whilst the programme was actually concerned with
43 'engineering' rather than re-engineering, the techniques were virtually identical and the
44 team consistently called the project BPR). Talking about the decision-making process
45 later, one of the directors told me that whilst there were a number of other factors taken
46 into consideration, 'those processes stuck in my mind more than the other options'.

1 It should be noted that Alan's ideas did not emerge from a vacuum. Alan himself
2 learned the tools and techniques of BPR whilst on a previous job with Panthra, a client
3 he had just left. Although this project had proved unsuccessful, he had been provided
4 with a 'CD and a "how to" manual by the company . . . both were ambiguous enough to
5 be used [at TeleKom]'. Interestingly, the idea of applying BPR to TeleKom came to
6 Alan after an automated email was sent though to him by a e-newsgroup that he had
7 subscribed to in the previous year, which suggested the utility of using process method-
8 ologies in media companies. Some months later Alan produced an amended version of
9 the manual for use by the TeleKom Development Team, which was modified again by
10 the team itself, and was later used on other projects by consultants who left TeleKom.
11 Having reviewed all of these documents it was clear that they shared a similar message,
12 structure and methodologies although the content often differed considerably. In 2005,
13 Alan posted a case-study of TeleKom on the e-newsgroup for others to learn from.

14 One interesting feature of BPR at TeleKom was the extent to which the methodology
15 altered over the three year period. Whilst the general process approach advocated by
16 Alan was maintained, the procedures used to define and create processes altered, often
17 in a seemingly random manner, without decision-makers getting involved. One reason
18 for this was that six different consultancies were bought in to deal with the burgeoning
19 workload and it was difficult to maintain consistency across all the different teams.
20 Another reason was simply the variations that people made in translating the method-
21 ology into practice and the differing interpretations each person made of the (often
22 ambiguous) guidelines provided by the company. However, as one business analyst
23 pointed out, this variation was no bad thing:

24
25 By having the variety you take the responsibility for making it work away from [the
26 consultants] . . . it's harder work to start-up but more likely to be successful in the long
27 term. [Business analyst at TeleKom]
28

29 The process methodology that was developed (the 'TeleKom Development Process' –
30 TDP) was based upon several different ideas, concepts and models and stored in various
31 documents, systems and websites. The TDP acted as a control on the variants of processes,
32 ensuring that many of the deviations from the instructions were corrected. However, the
33 TDP was not overly strict in its controls. Jill, the TDP leader, explained to me:

34
35 Often you'll get mistakes, either intentional or otherwise . . . I suppose they're not
36 mistakes . . . that will improve the process . . . for example a new form of labelling, or
37 an unusual approach to modelling software which we will leave in there. If they're
38 good enough, they'll get written into the guidelines.
39

40 An interesting example of this occurred on a project I was leading, where a complex
41 piece of software needed to be modelled. Against company policy, a new consultant
42 assumed this could be done using the TDP but, in any case, applied it incorrectly. The
43 resulting 'mistake', however, seemed to work and I passed it onto the TDP team for
44 review, who accepted the work (as no-one could come up with an alternative) but refused
45 to incorporate the change into their methodology. The resultant processes, however,

1 were 'borrowed' by an employee who left for another organization and used them to
2 design a similar project there. Indeed, I later used the 'mistake' as an example of best
3 practice in teaching an MSc.

4 One of the difficulties the TDP team faced was keeping their methodology stable. As
5 one IT manager commented:

6
7 I've worked with lots of different methodologies: they all have their strengths and
8 weaknesses . . . all these internal contradictions and inconsistencies are usually seen as
9 problems but often I think it is these that keep the thing alive.

10
11 To some extent, this observation was correct. The inconsistencies often provided
12 individuals with the flexibility required to approach problems from different angles. One
13 process manager later commented that:

14
15 It's useful because if you can't solve a problem one way, you can do it differently and
16 still not get told off for doing the wrong thing . . . of course you don't publicize the fact
17 to your manager.

18
19 The process design was first used in the IT department to design IT applications (e.g.
20 multimedia products). When completed, these processes were hung on the walls around
21 the company because the Director of Business Analysis felt they provided a visual
22 representation of the work his teams had done. Interestingly, an acquaintance who
23 worked for another telecoms competitor, later informed me that these diagrams could be
24 seen from the street. As two major competitors had their headquarters in the same area
25 he did not believe it to be coincidence they later implemented process designs for their
26 own operations.

27 The unusual application of a process methodology to software development proved to
28 be a disaster 18 months later when it was found that the business processes were of no use
29 to the coders that eventually built the systems. Whilst this had always been suspected, the
30 process system was very much an 'everything or nothing' method and the company was
31 constantly being told by consultants, employees and best-practice literature that things
32 would have to get worse before they got better. Unfortunately, only the former happened
33 and processes for IT were phased out towards the end of 2002. This did not, however,
34 stop several newsletters and press releases being issued that decreed the exercise a
35 'successful project'.

36 Towards launch, the TDP team automated several business processes on a system that
37 tracked process activities. This system incorporated a function which could initiate a
38 process review by sending out automatic emails to the process owner requesting main-
39 tenance or improvement. The email not only informed the person to review the process
40 but also linked to relevant documentation (on the company's servers) and help docu-
41 mentation (held on publicly available servers). The architecture, therefore, acted as an
42 initiator of action without the instruction from a human agent. Indeed, the only part of
43 the process instructions that were *not* subject to this kind of review were the sets of
44 instructions that managed these initiations. The system was capable of initiating change
45 regarding all aspects of the system other the instructions to change.

1 These processes and the system used to support them also formed the basis of an effort
2 to replicate the UK business overseas. The parent company of TeleKom had subse-
3 quently purchased licences in several other countries and attempted to save money by
4 cutting and pasting the UK processes into other locations. The effort was only partially
5 successful. Due to the differences in culture and law, as well as the usual power struggles
6 between the centre and periphery, many of the companies felt the processes were
7 unsuitable and so completely redesigned them.

8 By the end of 2002, the process teams (which had cost up to £10m by this stage) had
9 come under scrutiny from the Director of Finance who was not convinced about the
10 benefits of the process methodology. However, due to its 'everything or nothing'
11 approach it was virtually impossible to stop the project once its implementation had
12 begun as this would have left the organization with half-finished operations. The follow-
13 ing recounts an (abbreviated) transcription of an exchange between the IT Director
14 (ITD) who wanted to cut parts out of the project and the Director of Business Analysis
15 (DBA) who was responsible for the process architecture:

16
17 ITD: So, if this [the process project] was cut, which areas would you take out first?
18

19 DBA: I'm not sure that . . . that's like saying 'let's do without sales . . . or IT . . . or
20 marketing'. The thing is that there's nothing there to take its place, we either do
21 processes or we don't, I think. It's not like you can have a process for sales and then
22 make up warranty work as you want.
23

24 ITD: I'm not saying that . . . we're two years in and God knows what it's cost but I'm
25 saying that if it doesn't end soon questions will be asked. Well, they are being
26 asked . . .
27

28 DBA: Sure, but without it we have no company . . . no-one's going to scrap ten million
29 quid's worth of work like that [clicks fingers] are they?
30

31 ITD: I'm not saying they are but I am saying this is bigger than most people thought
32 it would be.
33

34 The decision was, however, forced upon the DBA who, in early 2003, had to make
35 several consultants and permanents redundant, including himself. Many of these
36 employees, having already designed their own process methodology, set up a company
37 called Process2Go, selling BPR services to other organizations. Others went to work on
38 process projects in other telecom organizations or joined consultancies specializing in
39 process work. What was interesting about this phenomenon was that the process work at
40 TeleKom was a failure, with the product of £10 m and two years' work being margin-
41 alized and virtually ignored by 2004. However, this fact was rendered invisible by the
42 translation of this failure, through consultants' CVs and the new company's marketing
43 literature, into 'valuable experience'.

44 The BPR programme was also spread through suppliers, vendors and industry asso-
45 ciations. As part of the selection process of vendors, for example, audits were undertaken

1 to assess the companies' stability. These included a financial audit, a technology audit, a
2 people audit and finally a process audit. Before the audits took place, vendors were
3 informed that the process audit would include 'a detailed examination of your business
4 processes both automated and manual'. Often, when the audit team arrived, we would
5 be shown processes that had clearly been pieced together the previous week. Indeed,
6 after a major contract was tendered out in 2002, one of the consultants working in a
7 process team told me that his consultancy had been asked to do a 'rush job' on one of the
8 vendor's operational processes in time for the TeleKom team to review. This pressure on
9 vendors was completely accidental – the wording of the audit information was unintentionally
10 leading – as a member of the audit team, I knew it was virtually irrelevant
11 whether that company used processes or not.

12 Another way in which BPR spread was through the creation of institutions that
13 supported and replicated the programme. Multimedia companies which were prevalent
14 during the late 1990s frequently needed guidance on how to organize automated processes
15 to manage content. At the beginning of 2001, TeleKom, together with two other
16 large multimedia companies started an informal group on issues that they were facing.
17 An offshoot of this looked at producing a process methodology that would be best suited
18 to this kind of company and contributed to the creation of the TDP. By 2003, this had
19 turned into a more formal organization, 'Meze', which collected and published papers,
20 organized speakers and advised consultancies on best practice. This in turn had considerable
21 influence in dissemination of BPR and, despite the failure at TeleKom, encouraged
22 others to follow a similar route.

23 **TruckCo**

24 TruckCo, a medium-sized manufacturing company in England, was established in 1971
25 to produce road tankers under the charismatic leadership of its MD, Rob. Responding
26 to increasing competition in the 1990s and decreasing profit margins, Rob appointed
27 several new directors, culminating in the recruitment in 1995 of Colin as the new MD.
28 Colin professionalized, and in some ways bureaucratized, TruckCo and, in 1997,
29 re-engineered the production, procurement and after-sales processes and introduced IT
30 systems to the design department.
31

32 Colin decided to introduce BPR after he noticed a marked improvement in one of his
33 suppliers, BallCo, who had implemented a similar system:
34

35
36 A few people had told me about the changes that [the supplier] was making and I
37 thought I'd have a look. When I went round, they had all these process diagrams so
38 that people could see what they were doing.
39

40 Colin also checked up on some stories of BPR implementation on the internet,
41 commenting: 'it was difficult to find any bad stories, though in retrospect I realize this
42 may not have been entirely reliable'. He also checked with his local Business Link where
43 he contacted an organization that had also implemented BPR.

44 From the start, Colin wanted to involve the workforce as much as possible in the
45 re-engineering effort. He provided all the senior managers with a key book on the topic

1 and bought in consultants from BallCo to train employees who then identified, created
2 and edited the processes for their own use. In many cases, because they were unsure
3 which process would prove more effective, the employees created two or three processes
4 where one would normally have been designed.

5 When the consultants were asked where they got their ideas from, one Programme
6 Manager replied:

7
8 We were encouraged to do it by a director who had seen it work in another com-
9 pany . . . We got most of our stuff from [Hammer and Champy's] original book and
10 we all had to read it . . . It wasn't a recipe, more some guiding principles.

11
12 Neither did it surprise him to find that the methods TruckCo used were different from
13 those of his own organization:

14
15 I've seen other places that have read the same stuff but have pulled different things out
16 of it. I don't think BPR is actually a thing.

17
18 Another consultant suggested the variation was due to BPR mixing with other meth-
19 odologies and producing hybrid designs:

20
21 . . . if you stick BPR into a company that uses SSADM [a software design methodol-
22 ogy], you're going to get something new whether you like it or not. It might work or
23 it might be a complete disaster, but at least you get to learn something for next
24 time . . . if you look at BPR over the last ten years, it's now nothing like what it was
25 meant to be . . . this is part of the reason why.

26
27 TruckCo relied upon a number of suppliers for components for its vehicles and
28 exerted considerable power in these relationships. Whilst TruckCo fostered more
29 co-operative relationships with suppliers than many competitors, the re-engineering
30 exercise placed unintentional pressure on companies to follow suit. The procurement
31 process, for example, relied upon several 'organizational interfaces' where TruckCo's
32 processes placed an input into a supplier (for example, an order) and required a response
33 (confirmation, parts, invoices). During the design phase of the programme meetings were
34 held with suppliers to ensure they could respond to the inputs they would receive. During
35 one of these meetings, where new processes were being projected up onto a screen, the
36 following exchange took place between the TruckCo Operations Director (OD) and the
37 Sales Manager (SM) of a supplier:

38
39 OD: This is where we interface to you . . . here. You get the email instead of us picking
40 up the phone . . . you give us confirmation here [pointing]. Your processes can be
41 automated to do this automatically.

42
43 SM: . . . er . . . no problem there but . . .

44
45 OD: So if we don't get a response then we know there's something wrong. You'll
46 probably need to measure how often that happens because we will be.

1 SM: Okay, I can see that.

2
3 OD: These things are handy because you can actually see what's happening . . .

4
5 SM: Sure, so our processes on our side will . . . will just fit into yours giving you the
6 confirmation, the parts and eventually the tick [invoice].

7
8 OD: It's like it becomes one big company instead of lots of fragments glued together.

9
10 Interestingly, the supplier, who did not use organizational processes, began talking
11 about 'our processes' but when I later spoke to the Director involved, he expressed no
12 interest in whether or not the supplier also used business processes:

13
14 It doesn't matter one way or another to me. None of these [meetings] are intended to
15 make them adopt business processes. Why would they?

16
17 There were some similarities between TruckCo's experience of BPR and that of
18 TeleKom. BPR was presented to the director as an 'everything or nothing' programme.
19 As Colin said:

20
21 [BallCo] made it clear that this could not be a slow, half-hearted attempt at change,
22 and that . . . to get the rewards we would need to be very ambitious.

23
24 As the programme progressed Colin also found that the methodology of BPR made it
25 more likely that the programme would spread throughout the organization:

26
27 It's really difficult to have a process, such as 'warranty work', that might cross into HR,
28 Operations, Finance and Sales and to keep any of those departments separate from the
29 effects of BPR . . . contrary to what I first wanted we've now re-engineered pretty
30 much the entire company.

31
32 Another similarity is that TruckCo found that they could make their own amendments
33 to the BPR programme that they implemented. The finance director told me:

34
35 when I saw these processes and what they looked like, I thought 'I can use these for
36 costing'. It was simply a matter of attaching a cost for each step of the process
37 and . . . you could cost them.

38
39 The HR director also found this:

40
41 You can use them for role management as well. Each step of the process needs to be
42 done by someone or something and if you give each bit a name you suddenly find
43 yourself with a role definition . . . I'm not sure if it's worth the work though!.

44
45 Unsurprisingly, these innovations were incorporated into BallCo's own methodology
46 and used on their next client. According to one of the consultants:

1 when you use this for different clients, you pick up different ideas and make things
2 better – more effective – so that next time you've got more chance of winning the
3 contract.

4
5 A final similarity between TeleKom and TruckCo is the fact that in both companies
6 the press releases associated with the programme were sent out long before the success
7 was known. TruckCo issued a press release to several industry magazines suggesting that
8 the programme was 'a model for others to follow'. When asked about the hastiness of this
9 release, Colin said that 'it's important to strike while the iron's hot . . . if people believe
10 it's a success it makes success more likely'.

11 The implementation of BPR was, however, not as quick or as successful as Colin
12 would have liked. The re-engineering effectively removed many of the reforms that Rob
13 had bought in to prop up his ailing company and many of the workers resented this.
14 These included quality circles, a suggestion scheme and a job-rotation scheme. When
15 Colin implemented BPR, many of these procedures were scrapped as the re-engineered
16 processes effectively replaced what was there before. This was partly due to BPR's
17 totalizing approach to redesign, but also because many of the processes implemented by
18 BallCo had been 'cut and pasted' from other clients, thereby leaving the organization
19 lacking much of its own operational architecture.

20 Colin also felt that BPR effectively limited the options for the organization because
21 once business processes were adopted they were virtually impossible to get rid of:

22
23 I've found that [BPR] has left us in a state where it's impossible to go back to where
24 we were before . . . when things are organized along a process, it's all that people can
25 see . . . [especially so] when they're automated. You just have to fix the broken
26 processes because you can't afford the investment to do it all again.

27
28 This, however, did not stop TruckCo contributing to the spread of BPR. The project
29 is now categorized as one of the 'successful cases' on the BallCo website and the
30 optimistic press releases made their way into several trade magazines. Unsurprisingly,
31 despite the huge investment and the unspectacular returns, Colin frequently referred to
32 the saying that 'things will get worse before they got better' and, to some extent, they did.
33 However, in one of my last meetings with Colin he was still unsure whether the effort had
34 been worthwhile.

35 **DISCUSSION**

36 The argument that BPR can be portrayed as an evolutionary meme rests on two
37 empirical propositions. The first is that the variation, selection and replication of BPR
38 are qualitatively demonstrated in the cases. The second is that these phenomena work
39 together to produce a dynamic algorithm that adapts and is adapted by its environment.
40 To this end, the discussion will first expand on the instances by which BPR was selected,
41 replicated and adapted in TeleKom and TruckCo. Many of these observations confirm
42 those made by others in recent analyses of diffusion. However, in the final section, it will
43 be argued that these three processes can work together to produce a sustainable
44
45

1 algorithm which aids the diffusions of BPR. It should be stressed that the findings
2 proposed here are, as with all case-studies, generalizable to theory not to the population
3 of management innovations as a whole (Yin, 1994).

4 5 **Variation**

6
7 In TeleKom and TruckCo, BPR varied in both its method and manifestation. The
8 variations were both temporal and geographic and occurred within and between orga-
9 nizations. In both cases the BPR that was imitated was different from that which was
10 implemented, which changed considerably over time and mutated again when it was
11 passed on to other organizations. Some of these changes occurred unintentionally
12 through variations in replication or the misinterpretation of ambiguous instructions,
13 whilst others were through intentional intervention or the mixing with other memes
14 (such as financial reporting or job design) or by the intervention of consultants and
15 managers. Whilst this latter form of intentional activity is different from that which forms
16 genetic mutations, it is essential to the rapid development of memes in social settings.
17 Some have argued that the 'internal variety' of management innovations is a phenom-
18 enon that existing theories find difficult to explain (Mueller and Carter, 2005, p. 240).
19 However, memetics suggests that variation of a management programme, as both a
20 product of intelligent intervention and random mutation, is essential in producing the
21 phylogeny of a successful innovation.

22 An examination of the cases provides three reasons why BPR may be more prone to
23 this form of mutation. First, as both Colin and Alan recognized, the guru texts on BPR
24 do not actually instruct users how to 'do' BPR. Instead, they communicate the principles
25 and the high-level strategy that might be needed to guide the implementation. As few
26 texts prescribe a re-engineering method, this provided the teams with a degree of
27 interpretative flexibility in creating their own methodologies. As other writers have
28 noticed, 'its ambiguity means that (potential) users can eclectically select those elements
29 that appeal to them' (Benders and Van Veen, 2001, p. 37). Second, as Colin found, the
30 implementation of the programme often meant that different processes had to be written,
31 often resulting in the more successful being used, and the less successful dying out. This
32 form of variation is specific to BPR and can be traced back to part of the original
33 instructions in *Re-engineering the Corporation* that: 'processes have multiple versions . . . we
34 need multiple versions of the *same* process . . . processes with multiple . . . paths usually
35 begin with a "triage" step to determine which version works best in a given situation'
36 (Hammer and Champy, 1993, p. 55).

37 Third, BPR, unlike some innovations, is applicable to any department, and therefore
38 encounters new memes which it can 'cross-fertilize' with. In TruckCo, the implementa-
39 tion of BPR in the Finance and HR departments led to innovations that were passed on
40 (through BallCo) to other companies, whereas the experiment in TeleKom with using
41 BPR for IT systems failed. The unpredictability of this 'cross-fertilization' of manage-
42 ment programmes rarely appeared to be the result of rational planning on behalf of
43 decision-makers and more an outcome of the unpredictable ways in which memes either
44 complement or contradict each other when put into practice. This places a different
45 emphasis to those who emphasize the strategic manner in which actors intervene in

1 changing innovations (Benders and Verlaar, 2003; Benders et al., 1998). The 'accidental'
2 forms of variation described here are, of course, not antithetical to such intentionality
3 and can co-exist with other methods by which innovations get modified.

4 The importance of variation in management innovations is not a new discovery. Many
5 writers have argued that it is a key feature of successful management innovations that
6 they leave much room for the interpretation of their implementation (Benders and Van
7 Veen, 2001). However, this variation is often presented as a negative aspect of BPR
8 (Knights and McCabe, 1998; McCabe, 1996): 'contradictions can be found between
9 different accounts of BPR, and even within one account or book (e.g. Hammer and
10 Champy, 1993); and certainly between different re-engineered organizations' (Knights
11 and Willmott, 2000, p. 22). However, meme-theory places variation within a wider
12 algorithmic pattern of survival – innovations that lacked the requisite variation simply
13 failed before they reached the radar of organizational analysts. Without variation, an
14 environmental change might destroy all copies of the same meme. By varying in their
15 form, memes increase the likelihood of their own survival in differing contexts.

17 Selection

18 BPR contains several features (replicators) that cause it to be attractive to decision-
19 makers. In both TeleKom and TruckCo the highly visual processes central to the BPR
20 meme caught the attention and acted as a mnemonic. Additionally, the radical 're-
21 engineer or die' message of the BPR proved highly attractive in both cases where minor
22 tinkering would not solve the organizational problems: TeleKom was faced with creating
23 Europe's largest start-up in less than two years and TruckCo had tried virtually every
24 other change programme but still found their market share slipping away.

25 Whilst there is a place for rational decision-making in the spreading of BPR in these
26 cases, what appeared equally important was the exposure of the companies to what
27 might be termed 'infectious' agents, such as trade associations, consultancies and insti-
28 tutions such as 'Meze'. As a manufacturer of complex machines, TruckCo was also
29 exposed to dozens of suppliers, who themselves were connected to many other suppliers
30 and buyers. As well as being connected to a similar number of suppliers, TeleKom also
31 bought in hundreds of consultants who had previously been exposed to many different
32 innovations. In both TeleKom and TruckCo we saw how associations such as suppliers,
33 Business Link and trade associations acted as agents to encourage the spread of the BPR
34 meme. The emphasis upon networks is not new in the literature, but the focus here is
35 more on how networks are created and recreated through memetic activity. If we look at
36 the relationships between the Business Link or Meze and the cases, these networks
37 existed to store and transmit cultural information, thereby acting as agents to further
38 spread the infection.

39 In both cases, it appeared that BPR aided their survival through its elimination of rival
40 innovations that compete for organizational resources. In TruckCo, for example, BPR
41 acted to destroy existing memes (such as quality circles and suggestion schemes) through
42 its 'cut and burn' message. This is a feature actively encouraged by Hammer and
43 Champy's original philosophy: 'instead of embedding outdated processes in silicon and
44 software, we should obliterate them and start over' (Hammer, 1990, p. 104). This
45

1 observation is not necessarily inconsistent with Abrahamson and Fairchild's (1999)
2 finding that new fashions are usually variants of previous management programmes: in
3 both cases, BPR both contained elements from earlier implementations and yet worked
4 to eliminate concurrent rivals. The observation that BPR is sometimes supported by
5 other innovations such as TQM or HRM (Valentine and Knights, 1996) is not neces-
6 sarily inconsistent with the evolutionary metaphor. Organisms will co-operate with or
7 attack competing variants depending on the which strategy is most likely to ensure their
8 own survival.

9 In the cases above, BPR developed what Von Hippel (1994) calls 'stickiness' – a
10 feature that makes the meme difficult to remove once it is established. This works in four
11 ways. Firstly, similar to a parasite, BPR ensures that its removal would result in severe
12 damage to the organization. Both companies recognized that stopping BPR early could
13 cause irreversible damage to the organizational structure. From the memetic perspective
14 this is a powerful way of ensuring the project isn't easily stopped before it has had the
15 chance to spread to other organizations. Secondly, by hijacking other programmes and
16 departments, BPR gains control of areas that it may not have been intended for. Other
17 writers have noticed a similar phenomenon without necessarily finding purpose in it. In
18 Scarbrough and Swan's study of Knowledge Management, they note that 'KM is being
19 reconstructed by the HR community as the creation of intellectual capital . . . the fact
20 that KM is a popular term provides a convenient trigger with which to resurface and
21 revitalise change processes' (Scarbrough and Swan, 2001, p. 10). Similarly, Fineman
22 notices that, 'what is unarticulated in current theorizing is the extent to which managers/
23 corporations themselves can capture a management idea to (a) reduce its threat, and (b)
24 to re-present it in a form that attempts to neutralize the role of key protagonists of the
25 idea' (Fineman, 2001, p. 28).

26 Thirdly, in both cases, the organizational restructuring made it more likely that some
27 form of BPR would be utilized in the future as many business processes were automated
28 through ERP systems or simply because new vested interests were created (e.g. process
29 managers) that would lobby for the preservation of process structures. Many of the
30 process managers created in the case-studies became a powerful lobbying force for the
31 maintenance and extension of process architectures. Finally, as with many other man-
32 agement memes, many of the directors believed firmly that their current difficulties
33 with BPR were part of a 'birthing process' which had to be painful in order for it to
34 succeed. This message of 'no pain no gain' or 'things get worse before they get better'
35 encouraged the continuity of the BPR programme when less optimistic people would
36 have cancelled it.

37 38 **Replication**

39 The cases, to some extent, displayed all the usual methods of innovation diffusion:
40 consultants, suppliers, trade associations and personal networks. However, what is dif-
41 ferent about seeing the meme as the unit of analysis is that BPR is viewed as central to
42 the production and reproduction of these methods. At both companies, BPR resulted in
43 the removal of dozens of consultants and employees who had been involved in the BPR
44 project. Several of these used their experience to convince other companies to adopt
45

1 BPR. In my personal experience, I was, some years later, faced with designing the
2 operational procedures for a new organization. I immediately fell back upon what I knew
3 best: BPR. In doing so, I aroused the interest of two directors in the company, who then
4 went out and bought Hammer and Champy's original book. This is not to say that
5 memes operate without human intervention, indeed, they rely upon people as instinctual
6 imitators to replicate the meme.

7 Another way in which BPR encourages its own replication is through the structure of
8 the BPR projects. That BPR implementation is generally a short project, of around three
9 to five months, means that consultancies require many more of these projects to remain
10 profitable. More importantly it means that the consultants (and permanents) who imple-
11 mented the project were made redundant or moved when the projects were finished:
12 'BPR implementation' was added to the CV and employment sought elsewhere. Addi-
13 tionally, many other (intentional and unintentional) outputs of the BPR project, such as
14 press releases, the Meze institution, Process2Go, the TDP and websites, also acted as
15 'spores' infecting other agents with a readily available tool-kit and a seductive presenta-
16 tion of the projects (see Zbaracki, 1998 for a similar observation).

17 Finally, the similarity of many business functions meant that whole processes (e.g.
18 invoice management) were copied from other companies with slight modifications to
19 ensure the interfaces were tailored to TeleKom or TruckCo. This phenomenon, noted
20 to varying degrees in both cases, was a simple way of both saving consultants' time and
21 ensuring that the processes used did not miss anything obvious. The most common
22 application of this 'borrowing' is found in generic functions such as call-centres, IT
23 support and payroll. Whilst this process cannot happen without the intervention of
24 human actors, the copying ensures a high level of fidelity in the memetic process. The
25 replication of parts of the BPR 'vehicle' is encouraged not only by BPR's message of
26 obliteration but also by the ease with which entire processes can be pasted from similar
27 organizations.

28 29 **BPR: A Memetic Algorithm?**

30
31 By drawing together the ways in which BPR is subject to variation, selection and
32 replication, this paper points towards an algorithm by which the meme evolved, chang-
33 ing both itself and its environment to enhance its ability to diffuse. Variation occurred
34 through copying 'errors', mixing with other memes and intentional change; selection
35 through a promise of radical salvation, by destroying competing memes or by developing
36 'stickiness'; reproduction through imitation, mnemonics, the creation of institutions and
37 the rapid dispersal of 'infectious' agents. Together, these produced a dynamic algorithm
38 by which BPR mutated in both its genotypic instructions and its rhetorical vehicle and
39 spread successfully from BallCo to TruckCo to its suppliers, from Panthra to TeleKom
40 to Process2Go, and then possibly further through websites, press-releases, consultants
41 and the Meze institution. At each step, BPR took a different form which was partly
42 determined by the intentionality of actors but also the instructions and structures of the
43 innovation itself.

44 Seen as an organism, BPR was similar to a virus, mutating as it moved between
45 organizations, being stored in digital systems, physical literature and human memory

1 and establishing architectures to support its own existence. Whilst human action and
2 choice was an essential part of this dynamic, it is evident that the innovation itself also
3 played an important part in initiating, constraining and structuring this action. The
4 actors involved in the projects drew on (and responded to) BPR's rhetoric of obliteration
5 and hope, its methodology of interfaces and cross-departmental structures and its pro-
6 duction of visual processes, redundancies, new institutions and press-releases. When
7 viewed from an informational or evolutionary perspective, there is no reason to prioritize
8 the human input into the algorithm above that of the innovation itself. Thus, as Actor
9 Network Theory has suggested, action should not be seen as the sole preserve of humans.
10 In the cases above, action was prompted through system interfaces, automated emails
11 and e-newsgroups as well as several other institutional prompts.

12 The proposition that an evolutionary algorithm is at work in TeleKom or TruckCo
13 does not necessarily mean that BPR will continue to evolve. As with all evolutionary
14 processes, the fidelity of replication needs to be sustainable so that each copy is capable
15 of reproducing itself. However, seeds die on barren ground, the fertility of the environ-
16 ment can never be taken for granted.

18 CONCLUSIONS

19
20 In taking a memetic approach to management innovations, this paper attempts to bring
21 together several complimentary observations regarding diffusion under one explanatory
22 umbrella. In doing so, memetics asks 'who benefits?'. Is it consultants, organizations or
23 employees that gain from the spread of BPR? Memetics suggests that this may be the
24 wrong question to ask: 'replication is not necessarily for the good of anything; replicators
25 flourish that are good at . . . replicating – for whatever reason' (Dennett, 1995, p. 362).
26 Whilst many theorists express surprise that innovations with high failure rates like BPR
27 diffuse successfully, memetics shows that, like biological and computing viruses, damage
28 to the host need not prevent the diffusion process and can actually encourage the spread
29 of the meme. The dismissal of experienced personnel and consultants after infecting
30 them with the BPR meme is akin to the sneeze of the cold-laden person or the automated
31 email from the Doom virus.

32
33 This perspective inverts some traditional approaches and suggests that the prime-
34 movers in innovation diffusion are not just humans but also memes themselves. Thus,
35 consultants, decision-makers, organizations, guru texts, process documents and net-
36 works form an ontological eco-system with which memes interact and compete for
37 organizational resources. This approach does not undermine the importance of what
38 is 'outside' the innovation but does suggest that the 'inside' of BPR needs to be
39 understood as much as its political and social environment. Contrary to the approach
40 of writers who emphasize the role of discourse, metaphor and language in constructing
41 innovations (Cornelissen, 2006; Green, 2004; Taylor et al., 1996), memetics suggests
42 that BPR. This is not to suggest that memetics is an alternative theory to that of
43 fashions, networks, attributes or translations – memes rely upon these to produce the
44 variation, selection and replication that motor their development.

1 There is much more work to be done on both the theory of memetics generally and its
2 application to innovation diffusion. The question of the meme's ontological status
3 requires a more detailed explication which this paper has only touched upon. Moreover,
4 if memetics is to be understood as more than a simple biological metaphor and have
5 some claim to theoretical utility, more theorization is necessary regarding its method-
6 ological and epistemological implications. As in biology, the phenotype is more easily
7 identifiable than the genotype, raising questions of identification, causality and bound-
8 aries. Equally importantly, the dynamics of the meme's interaction and embeddedness
9 with society requires more explanation. BPR itself is an evolved product, not just, as
10 many have pointed out, from Taylorism and Fordism (Blair et al., 1998; Grint, 1994),
11 but also from more powerful social and historical forces. Hammer and Champy them-
12 selves point out that BPR emerged from (or at least with) traditional American charac-
13 teristics such as 'individualism, self-reliance, a willingness to accept risk and a propensity
14 for change' (Hammer and Champy, 1993, p. 1). Although this algorithm, in nature,
15 software design and game theory, often produces evolutionary tendencies, the cases here
16 are far too limited to illustrate any form of sustained phylogeny and can only show that
17 changes to both the genotype and phenotype can occur in two or three generations.
18 However, one possible avenue for future exploration would be to examine how far the
19 changes in BPR (from soft, to hard to Sarbanes Oxley and Six Sigma) can be traced
20 through memetic 'evolution'. The more adventurous might even track the decline of a
21 management fad within this framework – do old fads actually die out or do they evolve
22 into something that better suits the environment?

23 This paper cannot cover all the arguments for and against a theory of memetics and
24 more work is needed to examine its potential for innovation diffusion and organiza-
25 tional analysis more generally. With regard to BPR, the paper argued that memetics
26 provides a useful explanatory theory for understanding diffusion in two key respects:
27 understanding the role of the meme itself in encouraging its own replication, and
28 explaining how BPR can diffuse successfully without necessarily being useful for the
29 organization. A central implication of this is that theorists should not necessarily label
30 an innovation a 'failure' simply because it damages organizational profitability. From
31 an ecological perspective, its replication is more important than its utility to the
32 host.

34 NOTES

35
36 [1] It should be noted that while some analysts term these variations in replication, 'errors', from an
37 evolutionary perspective they are simply variations that are essential in adapting the meme to its
38 environment.

39 [2] This quote also illustrates the linguistic difficulties of not ascribing intentionality to algorithmic processes.
40 The lancet fluke does not actually do anything '*in order* to reproduce' because it cannot think. It just
41 happens that its evolutionary history favoured variants which drove ants to climb grass, thus maximizing
42 the chances of its reproduction. Linguistically, it is often impossible to describe unintentional actions
43 which favour the survival of an entity in ways which avoid seeming to ascribe action. When this paper
44 describes memes as doing things '*in order to*', it should be recalled that this is a necessary linguistic
45 short-cut, not a suggestion that algorithms actually think.

- [3] Of course, the identification of any unit of analysis has always proved problematic for philosophers, scientists and social scientists. The 'gene', for example, was not mentioned by Darwin at all, and provided a malleable and variable classification until the discovery of DNA provided some stability. Even now though, the categorization is criticized by biologists who argue that a more useful unit of analysis may be exons, operons, chromosomes or any number of other new and evolving definitions.

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