

# **Management Innovation in the UK**

Michael J Mol & Julian Birkinshaw

DIUS Research Report 09 07

# Management Innovation in the UK

***Michael J Mol***

Senior Lecturer  
Department of Management - Business School, University of Reading  
&  
Visiting Researcher  
Management Innovation Lab, London Business School

***Julian Birkinshaw***

Senior Fellow  
Advanced Institute of Management Research  
&  
Professor  
Strategic and International Management Area, London Business School

**DIUS Research Report 09-07**

**© Michael J Mol and Julian Birkinshaw 2009**

**The views expressed in this report are the authors' and do not necessarily reflect those of the Department for Innovation, Universities and Skills.**

**May 2009**



**Table of contents**

Executive Summary.....2

Management innovation.....3

Explaining management innovation (CIS3).....6

Explaining management innovation (CIS4).....8

Comparing CIS3 and CIS4.....10

Management innovation and performance (CIS3).....13

Recommendations..... 15

References..... 18

Statistical appendix..... 20

## Executive summary

Management innovation is the invention and implementation of a new management practice, process or structure that represents a significant and novel departure from generally accepted or standard management practices, and intended to further organisational goals.

This report uses data from the UK Community Innovation Survey (CIS3 and CIS4) as well as data from the Annual Respondents Database (ARD) at the Office for National Statistics to answer four related questions. It then presents a set of recommendations.

The first question is what best explains management innovation in the CIS3. Management innovation is operationalised as the implementation of new or significantly changed organisational structures, management techniques and marketing concepts / strategies. A model is proposed and tested that draws on the notion of problemistic search, where the joint presence of problems and of solutions produces management innovation. Following this model management innovation is shown to come about when firms encounter problems of rapid growth or severe decline, or problems in producing technological innovation. The solutions that help to produce management innovation are knowledge sources, internal to the firm and through its market and professional networks, and operating in wider geographical markets. Firms can take examples and elements of solutions from these different contexts. Management innovation is also more likely to occur together with product and process innovation, when more employees have received university degrees and in larger firms.

The second question is what best explains management innovation in the CIS4. The results of this analysis largely coincide with that on the CIS3, with a few exceptions. Rapid growth or decline was not measured in the CIS4. And as it turns out, the presence of strategic alliances makes it more likely that management innovation is found, which was not the case for CIS3. This shows that overall management innovation can be explained in a similar manner across the two surveys.

To answer the third question, whether there is consistency across the two surveys, the CIS3 and CIS4 are linked in a panel. It is shown that being a management innovator in CIS3 makes it more likely the firm is also a management innovator during the time of measurement of CIS3. Furthermore, some of the predictor variables measured in CIS3 help to predict management innovation in CIS4, particularly having alliances with outside partners in place, operating in international markets, and employing people with university degrees.

The fourth question is whether management innovation is associated with higher future performance. By linking the CIS3 to the ARD, a measure of changes in productivity between 2003 and 2003 (after measurement of the CIS) becomes available. Management innovation is shown to improve future productivity growth positively, unlike product or process innovation. This further supports the notion that management innovation may be more important for the competitiveness of firms than current research, public policies and practice suggest.

In the concluding section the implications of this research for management, for the CIS itself and for policy are discussed. It is argued that the importance of management innovation for firms is underestimated at present, especially relative to other forms of innovation. Management innovation ought to become a more conscious and consistent activity inside firms, a more integral part of the CIS, and a topic that features more prominently on the policy agenda. Several practical routes are suggested for achieving these goals.

## Management innovation

We interpret this proposed theme as focusing on management innovation. Management innovation is 'the invention and implementation of a new management practice, process or structure that represents a significant and novel departure from generally accepted or standard management practices, and is intended to further organizational goals' (Birkinshaw, Hamel & Mol, 2005). It is often argued that management innovation has a major impact on the competitive advantage of firms (Hamel, 2006). Well-known management innovations like Toyota's Lean Production system, Six Sigma at General Electric, and Brand Management at Procter & Gamble, have provided firms with lasting performance gains. In this study we focus on a wider, and perhaps more mundane, set of management innovations among anonymous and generally much smaller firms. We also focus on the implementation process, and not so much on how the innovations first got created.

The academic literature suggests that management innovation can potentially be a very valuable form of innovation in terms of its effects on economic growth (Kimberley, 1981; Teece, 1980), and there are occasional studies, such as Chandler's (1962) account of the emergence of the M-Form structure and Low and Fullerton's (1994) analysis of the origins of brand management, that attest to its competitive and economic benefits for innovating firms. Management innovation has also been recognized as a useful approach to increasing the competitiveness and productivity of firms as they seek to differentiate themselves from their competitors (Gruber and Niles, 1972; Hamel, 2006).

Yet academics have commented that "most studies address only one category of innovation, i.e. technical innovations. All too often, studies neglect administrative innovations, which are equally essential to the growth and effective operation of an organization" (Damanpour and Evan, 1984: 392). And more recently it has been suggested that "it still appears as if there is little systematic knowledge available about the determinants of the diffusion of organizational innovations and, indeed, about their effects" (Alänge, Jacobson, & Jarnehammar, 1998: 3). Undoubtedly progress has been made in recent years through the investigation of the diffusion patterns of specific management innovations like Quality Circles (Abrahamson, 1996), ISO 9000 (Guler, Guillen, & MacPherson, 2002), and Total Quality Management (Zbaracki, 1998), often through the management fashion lens (Abrahamson, 1996; Abrahamson & Fairchild, 1999).

Although this literature is insightful, particularly regarding how specific management innovations diffuse across populations of firms, two important questions have thus far not been addressed satisfactorily. First, under what conditions do individual firms implement management innovation? As Anderson and Young (2001: 2) observe, "few systematic attempts have been made to understand how management innovations aimed at improving knowledge creation and management are adopted and implemented by organizations". This calls for an investigation of organization and industry level indicators that can help explain the occurrence of management innovation in organizations.

Second, what performance consequences do these innovations produce? While there has been some work looking at whether firms' statements about specific management techniques increase their performance (e.g. Staw & Epstein, 2000), it has not directly addressed the consequences of the implementation of management innovation. As recent empirical work demonstrates (Fiss & Zajac, 2005) there may well be gaps between rhetoric and reality when it comes to implementations of management innovation. If firms implement a management innovation, does that actually help them improve their performance? Or is management innovation undertaken for other reasons, perhaps in order to build legitimacy and status? In the course of this study we will seek to address both questions.

### *Policy relevance*

Due to the shortening of life cycles, rapid diffusion of new technologies across the globe, and ease of reverse engineering of products, the magnitude and sustainability of firm advantage based on technological and product innovation by UK firms is gradually decreasing. At the same time there is broad acknowledgement of the need for firms located in the UK to remain innovative, as part of the country's economic development, as evidenced by work commissioned by and done by the DTI in recent years.

Management innovation is a potentially important form of innovation that can be used by firms across manufacturing, services and other sectors. Management innovation is often not easy to copy as it goes to the heart of how firms operate. Even where firms do not invent new-to-the-world management innovations but instead adopt and implement existing ones, there is adaptation involved to fit these innovations to the particular firm. Management innovation, in other words, is hard to reverse engineer and can therefore be a sustainable source of competitive advantage.

At the same time we do not know with certainty that UK firms benefit from management innovation and if they do what form such benefits take. Supposing that some benefits are associated with management innovation, there is the additional question under what conditions firms implement management innovations. Are the same firms that are good at product and process innovation also good management innovators? Do we find more management innovation in internationally oriented or large firms? Is management innovation a response to organisational upheaval? And how are management innovations created, i.e. does the involvement of knowledge sources stimulate management innovation?

By tackling questions such as these empirically and relating the answers to academic thinking on the topic we believe we can provide research results that are relevant for UK firms and policy making efforts. If we can show firms the route to becoming more effective management innovators, this will benefit them and hence strengthen the UK economy as well. Because few other countries have seriously looked into the antecedents and benefits of management innovation, the UK would be in a position to lead in this area.

1. An analysis of the factors that explain the levels of management innovation in responding firms (for the CIS3 survey.)
2. An analysis of the factors that explain the levels of management innovation in responding firms (for the CIS4 survey.)
3. An analysis of the consistency of management innovation across the CIS3 and CIS4 surveys. This will involve an investigation into the factors that determine increases and decreases in management innovation.
4. An analysis of the performance impact of management innovation, using the CIS3 and ARD data.

### *Method of analysis and conceptual framework*

This study will use the CIS4 survey data. It will also use CIS3 survey data, which the researchers have already worked with previously, and the Annual Respondents Database, which was accessed at the Office for National Statistics. The statistical methods applied range from correlation analysis to ordinary least squares regression and ordered logit regression. Correlation analysis is applied primarily to link management innovation between CIS3 and CIS4. Ordinary least squares regression is used in the performance analysis. And ordered logit regression is used to analyse which factors best explain management innovation. We will present the tables in the main text, to allow for a quick reference.

It is useful to understand how we approached this study conceptually. We drew primarily upon the 'problemistic search' framework developed at Carnegie Mellon by March and colleagues. This framework sits in the literature on organisation theory and suggests that management innovation may come about in the joint presence of problems and solutions. In terms of the CIS (especially CIS3), problems can take two forms. One problem is when firms face barriers to technological innovation. Management innovation can be used to overcome these problems, for instance by creating new organisational structures that stimulate technological innovation (skunk works is a historical example). A second problem is when firms' turnover increases rapidly, due to merger and acquisition activity, decreases rapidly, in other words when much organisational change occurs. Management innovation may then be needed to facilitate growth or reversely cut cost levels. There are also two types of solutions in the CIS. One solution can come from firms operating in broader geographic markets, like international markets. These firms may be pick up ideas and analogies from these markets that they can apply to develop management innovations. A second solution is when firms use various knowledge sources, as these sources may provide ideas and inspiration for management innovations. The knowledge sources we include are internal to the firm, from the market, and from the profession (such as trade fairs). In our analysis, we investigate whether this combination of problems and solutions indeed exists when management innovation occurs.

## Explaining management innovation (CIS3)

In the first table we present the means and standard deviations of the key variables included in the analysis. These are based only on the firms which appear in our later regression analysis (means for the entire sample would look somewhat differently). Several interesting observations follow. First, on average the chance of any firm being engaged in any of the types of management innovation we have identified is less than 50%. There are, in other words, more firms that do not undertake a specific type of innovation than there are firms that do undertake it. Second, our focal management innovation variable appears to be positively associated with other variables, including other types of innovation and various knowledge sources.

**Table 1:** Means, standard deviations and correlations among variables in CIS3. Any correlations above .05 are significant at the 0.1% level. Any correlations above .04 are significant at the 1% level. Any correlations above .03 are significant at the 5% level. Number of firms is 3,635.

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Management innovation	1.31	1.26	1												
2 Firm size	8.14	1.77	.28	1											
3 Investment intensity	.26	9.52	.02	-.03	1										
4 Export intensity	.11	.22	.17	.25	-.01	1									
5 Degrees	14.74	23.52	.17	.06	.00	.18	1								
6 Product innovation	.28	.45	.33	.18	.03	.25	.18	1							
7 Process innovation	.24	.43	.27	.15	.03	.11	.06	.33	1						
8 Alliances	.14	.34	.21	.22	-.01	.22	.14	.34	.26	1					
9 Innovation inhibitors	5.94	3.88	.36	.12	.01	.12	.07	.26	.22	.18	1				
10 Organisational change	.12	.32	.11	.08	.05	.03	.08	.08	.04	.10	.07	1			
11 Market scope	2.54	.98	.24	.36	-.01	.52	.19	.24	.11	.19	.13	.05	1		
12 Internal sources	.95	.85	.47	.30	.02	.26	.17	.40	.35	.31	.46	.10	.27	1	
13 Market sources	2.26	1.86	.49	.23	.02	.22	.14	.41	.33	.31	.51	.08	.24	.72	1
14 Professional sources	1.87	1.69	.48	.24	.02	.19	.14	.37	.31	.26	.45	.08	.20	.63	.74

In the next table the results of the ordered logit analysis are presented. The table shows we are able to explain a fair amount of variance in management innovation (16%). It also shows that while most variables have a positive and statistically significant association with management innovation, some do not. Large firms on average are more likely to engage in management innovation, which is not surprising because they simply do more of many things. We also find that firms that do product and process innovation are more likely to do management innovation, which implies that these firms are more innovative firms, suggesting that for these firms innovation is part of their make-up or company DNA. And we find statistical support for all the variables that make up our problemistic search framework: the presence of problems, in the form of rapid growth or decline of the firm and of inhibitors to technological innovation, and the presence of solutions, in the form of various knowledge sources and of firms operating in markets with a broader geographical scope.

**Table 2:** Ordered logit results for predicting number of types of management innovation in use in CIS3. Number of firms is 3,635. \*\*\* significant at .001; \*\* significant at .01; \* significant at .05; † significant at .10. Industry dummies are not reported but are available upon request.

	<i>Coefficients</i>	<i>Standard errors</i>
Firm size	.17	.02(***)
Investment intensity	.06	.04
Export intensity	-.37	.19(*)
Degrees	.01	.00(***)
Product innovation	.38	.08(***)
Process innovation	.27	.08(***)
Alliances	-.13	.10
Innovation inhibitors	.07	.01(***)
Organisational change	.31	.10(**)
Market scope	.15	.04(***)
Internal sources	.31	.06(***)
Market sources	.18	.03(***)
Professional sources	.21	.03(***)
Wald chi2	1239.09(***)	
Log pseudolikelihood	.4005.66	
Pseudo R2	0.16	

Although the industry dummies are not included in the table above (there simply are too many), we did investigate to what extent they help explain management innovation. It turned out that the type of industry provides very little explanation for the levels of management innovation. Some of the literature on diffusion of management innovations suggests that management innovations like TQM spread through competitive mimicking or bandwagoning (Abrahamson & Rosenkopf, 1993). If this is indeed the case, industry should be a prominent explanation for the adoption of individual management innovations because some industries ought to be far more involved than others. Our contrary finding could imply that industry is not such a force in the adoption process as suggested (Abrahamson & Rosenkopf, 1993). More likely, it means that although industries have similar levels of management innovation, the set of management innovations in use varies from one industry to the next. Marketing innovations could be more popular in the consumer goods sector while human resource innovations perhaps fit particularly well in the services industry.

## Explaining management innovation (CIS4)

First we again present means, standard deviations of and correlations between key variables in table 3. Given the changes in the survey, we are forced to drop several variables. The organisational change variable is no longer available. Export intensity and investment intensity have also been dropped, though they will still be available through the ARD. Note that as with the CIS3, fewer than half of the firms are likely to undertake any specific form of management innovation. Also note that the variables that correlate most strongly with management innovation tend to be the same ones as in the CIS4.

**Table 3:** Means, standard deviations and correlations among variables in CIS4. Any correlations above .03 are significant at the 0.1% level. Any correlations above .02 are significant at the 1% level. Number of firms is 11,329.

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10
1 Management innovation	.65	.95	1									
2 Firm size	8.10	1.80	.24	1								
3 Degrees	14.85	40.66	.11	.03	1							
4 Product innovation	.32	.47	.34	.14	.09	1						
5 Process innovation	.22	.42	.32	.13	.07	.40	1					
6 Alliances	.16	.36	.27	.11	.07	.34	.28	1				
7 Innovation inhibitors	5.91	4.41	.30	.13	.05	.31	.22	.18	1			
8 Market scope	2.27	1.14	.21	.32	.12	.30	.20	.19	.21	1		
9 Internal sources	.68	.47	.33	.19	.08	.38	.29	.23	.53	.26	1	
10 Market sources	2.52	1.56	.35	.18	.08	.35	.28	.25	.61	.23	.76	1
11 Professional sources	2.23	1.69	.34	.21	.09	.29	.24	.24	.55	.25	.62	.75

Next we run a model that is as close as possible to the model presented for CIS3. This model is presented in table 4 below. The results seem to confirm our findings for the CIS3, with the exception of alliances, which are now also positively and significantly related to management innovation. The product innovation and process innovation measures seem to have the strongest effect on management innovation. Note that the number of observations in CIS4 is higher than in CIS3 anyway, but this is even truer for the set of variables we use here. Hence the number of observations in our table increases by more than 200% over the CIS3 analysis.

**Table 4:** Ordered logit results for predicting number of types of management innovation in use in CIS4. Number of firms is 11,329. \*\*\* significant at .001; \*\* significant at .01; \* significant at .05; † significant at .10. Industry dummies are not reported but are available upon request.

	<i>Coefficients</i>	<i>Standard errors</i>
Firm size	.18	.01(***)
Degrees	.00	.00(***)
Product innovation	.63	.05(***)
Process innovation	.69	.05(***)
Alliances	.48	.06(***)
Innovation inhibitors	.05	.01(***)
Market scope	.08	.02(***)
Internal sources	.41	.07(***)
Market sources	.13	.03(***)
Professional sources	.15	.02(***)
Wald chi2	2881.74(***)	
Log pseudolikelihood	-10266.72	
Pseudo R2	0.15	

The CIS4, however, presents us with opportunities for including additional variables. Below, in table 5, we present a further analysis of the CIS4 data, now including type of customer as well. As it turns out, the type of customer, businesses, public sector, or consumers, does not have an effect on management innovation levels. Including the type of customer does not alter any of the other effects. We conclude that management innovation levels are not dependent on the type of customer, just like they did not seem to depend very strongly on the type of service or good (industry) either.

**Table 5:** Ordered logit results for predicting number of types of management innovation in use in CIS4 (N = 11,328). \*\*\* significant at .001; \*\* significant at .01; \* significant at .05; † significant at .10. Industry dummies are not reported but are available upon request.

	<i>Coefficients</i>	<i>Standard errors</i>
Firm size	.18	.01(***)
Degrees	.00	.00(***)
Product innovation	.63	.05(***)
Process innovation	.69	.05(***)
Alliances	.48	.06(***)
Innovation inhibitors	.05	.01(***)
Market scope	.08	.02(***)
Internal sources	.42	.07(***)
Market sources	.13	.03(***)
Professional sources	.15	.02(***)
Business customers	-.01	.07
Consumer customers	-.05	.08
Wald chi2	2884.65(***)	
Log pseudolikelihood	-10264.97	
Pseudo R2	0.15	

## Consistency of management innovation (CIS3 and CIS4)

A first comparison one can draw is between the levels of management innovation in CIS3 and CIS4. In the table below, means and standard deviations are provided for each of the individual items, as well as the three and four items combined. As the table shows, this comparison is of limited use. The table seems to suggest that the score for all four items have more or less dropped by 50% from CS3 to CIS4. That is highly unlikely and appears to be a consequence of the rephrasing of the questions. Many respondents who previously answered that these innovations had a low or medium impact, have now reverted to saying there was no innovation. One can, however, make some indirect inferences from this table. The steepest drop occurs in the strategy item, while the smallest drop occurs in the organisational structures item.

**Table 6:** Means for individual management innovation items, for three items combined and for four items combined, with standard deviations between brackets. Number of firms is ... in CIS3 and 13,241 in CIS4.

	Strategy	Management	Organisation	Marketing	Sum of 3	Sum of 4
CIS 3	.42 (.49)	.35 (.48)	.39 (.49)	.45 (.50)	1.20 (1.25)	1.62 (1.65)
CIS 4	.19 (.39)	.17 (.38)	.21 (.41)	.22 (.42)	.61 (.93)	.80 (1.21)

For purposes of reference, it is useful to compare these numbers to figures from other EU countries. In the appendix a table is included with figures on management innovation from the UK and 16 other EU and EEA countries taken from the CIS3. These figures show that the UK consistently outscores the average, though is not always ranked at the very top of the league. They also show that for one item, organisational structures, the difference between the UK and other EU countries is smaller.

Then we produce a simple bivariate correlation between CIS3 management innovation and CIS4 management innovation (including three items as before). As expected the correlation is positive, its strength being .26. Also note that the firms that remain in this joint sample on score substantially higher on management innovation than the average firm in both CIS3 and CIS4. This is likely due to the fact that firms in the merged sample are on average larger, more likely to do other types of innovation etc. In other words, there is bound to be a selection bias in producing the merged file.

**Table 7:** Bivariate correlation between management innovation in CIS3 and CIS4. Number of firms is 797.

	Mean	Standard deviation	CIS3	CIS4
CIS3	1.566	1.239	1	
CIS4	.8595	1.024	.2596	1

Next we attempt to predict management innovation in CIS4 with the predictor variables from CIS3. In other words, we seek to establish whether independent variables from the 1998-2000 period (still) had a bearing on management innovation during 2002-2004. Unfortunately the number of firms in this analysis is reduced to only 432, which undermines the statistical significance of effects, but some findings emerge nonetheless. Only three variables are significant in this analysis, degree level education, alliances, and market scope. This is particularly interesting in the light of the non-significant finding for alliances within CIS3. One of the few non-significant variables in CIS3 is now one of the few significant variables.

**Table 8:** Ordered logit results for predicting number of types of management innovation in use in CIS4. Number of firms is 11,328. \*\*\* significant at .001; \*\* significant at .01; \* significant at .05; † significant at .10. Industry dummies are not reported but are available upon request.

	<i>Coefficients</i>	<i>Standard errors</i>	<i>Coefficients</i>	<i>Standard errors</i>
Firm size	.04	.09	.02	.09
Investment intensity	.04	.26	.03	.28
Export intensity	-.10	.50	.02	.52
Degrees	.01	.00(†)	.01	.00(†)
Product innovation	-.05	.25	-.14	.25
Process innovation	-.32	.25	-.24	.26
Alliances	.78	.26(**)	.78	.26(**)
Innovation inhibitors	.04	.04	.03	.04
Organisational change	.28	.35	.32	.36
Market scope	.43	.14(**)	.38	.14(**)
Internal sources	.21	.19	.20	.19
Market sources	-.02	.10	-.05	.10
Professional sources	.10	.10	.09	.09
Management innovation (CIS3)			.18	.10(†)
Wald chi2	6885.74(***)		5745.76(***)	
Log pseudolikelihood	-.463.97		-.456.88	
Pseudo R2	0.12		0.12	

Finally, we investigate what the precise relation is between management innovation and product and process innovation. Specifically, we are interested in whether management innovation serves as a better predictor for product / process innovation or whether the inverse is true. As expected, all the correlations in this matrix are positive. Perhaps also to be expected is that correlations between various types of innovation within the same survey version are stronger than correlations to the same type of innovation in the other survey. It is arguable whether that is an artefact of the method or reflects a real change in the firm over the four-year time period. If it is an artefact of the method, this implies that the single-respondent approach of CIS may produce substantial biases. If it reflects true change, there are various possible explanations. It could be that firms are not as consistent in pursuing management innovation as one might believe or hope for. If that is the case, it would support our belief that few firms are conscious and consistent management innovators and that management innovation in many ways remains an underutilised form of innovation. But alternatively firms that were management innovators in CIS3 had already done their bit of innovation and hence did not need to innovate as much during the time period of measurement of CIS4. That would imply that management innovation is more of an episodic event, which only needs to take place when firms face particular problems (like substantial organisational change as argued earlier). This issue warrants further research, as the current data do not allow us to establish which of these explanations makes most sense.

Management innovation from the CIS3 correlates with the other types of innovation in CIS4 on average with a strength of .173. Management innovation from the CIS4 correlates with the other types of innovation in CIS3 on average with a strength of .135. Although the difference is relatively small, this seems to imply on the surface at least that management innovation is better thought of as preceding product and process innovation than vice versa. This in turn suggests management innovation may be effective at helping firms overcome problems they face in their other innovation activities.

**Table 9:**Correlations between different innovation variables for CIS3 and CIS4 panel. Number of firms is 797.

	1	2	3	4	5	6
1 Product innovation CIS3	1					
2 Process innovation CIS3	.350	1				
3 Management innovation CIS3	.314	.179	1			
4 Product innovation CIS4	.274	.146	.187	1		
5 Process innovation CIS4	.201	.198	.159	.426	1	
6 Management innovation CIS4	.160	.109	.260	.370	.344	1

## Management innovation and performance (CIS3)

We now turn to the fourth issue, which is whether management innovation has any impact on the performance of firms. There are many possible measures of performance but since we put some restrictions on what is a good measure for our purposes, we end up with one in particular. First, we want any observed performance impact not to be the consequence of the instrument of measurement. There is a well-known problem in survey research around common method bias, which arises when responses to questions at least partly reflect the respondent. The common method bias inflates the strength of correlations between variables. The likelihood of this problem arising is stronger when perception measures are used. We believe this problem potentially exists in CIS3 with the management innovation items, because they measure the respondent's perception of the impact of these items. Second, one would ideally want to use a measure of performance that occurs after the innovation itself takes place for two reasons. Management innovations are generally believed to have a long-term impact rather than an immediate impact, and if performance is measured after the innovation this reduces the odds of finding reverse causality. Reverse causality implies that rather than management innovation explaining performance it is actually performance, or lack thereof, which explains management innovation. For these reasons we decided to look for a performance measure outside of the CIS and ended up using the Annual Respondents Database at the Office for National Statistics. Using the ARD we were able to track how management innovation between 1998 and 2000 influences changes in the productivity of a business between 2000 and 2003. Productivity changes are a better measure than productivity as such, because they more directly link one change, management innovation, to another type of change. Ideally, one would also want to look into the performance impact of management innovation in the CIS 4 survey, but appropriate performance data are not yet available.

The analysis reveals that management innovation has a positive and significant impact on this performance measure. This shows that management innovation has the potential to improve the performance of firms over the long run. Other variables that are negatively significant are firm size and the percentage of university graduates across the workforce. The firm size effect is likely a 'catching-up' effect, with small firms increasing their productivity more rapidly than large firms. The effect of degree level training is harder to explain. It may be that firms with many highly trained employees did not find enough demand for their products in the marketplace during this particular time period, which coincided with the dotcom bust.

**Table 10:** Ordinary least squares regression results for predicting 2000-2003 productivity growth. Number of firms is 1,048. \*\*\* significant at .001; \*\* significant at .01; \* significant at .05; † significant at .10. Industry dummies are not reported but are available upon request.

	Standardized Beta	t-value
Constant		4.01(***)
Management innovation	.12	3.55(***)
Export intensity	.03	.71
Capital intensity	-.04	-1.34
Degrees	-.08	-2.43(*)
Market scope	-.02	-.56
Product innovation	-.03	-.78
Process innovation	.02	.48
Organisational change	.04	1.24
Firm size	-.13	-3.89(***)
F-value	4.97(***)	
R <sup>2</sup>	.08	Adjusted R <sup>2</sup> .06

## Recommendations

Based on the above analysis of the CIS, and also drawing in findings from our other management innovation research, we now present policy recommendations, along with a few notes to management practice.

### *The importance of management innovation*

Our analysis shows that management innovation helps to improve firm performance, in the form of higher future productivity growth. As pointed out in the introduction there also seems to be a growing realisation among practitioners and in the applied management literature that management innovation matters. But its importance is yet to be translated into targeted public policies in the UK and elsewhere and into more deliberate efforts inside firms to achieve management innovation. This suggests that we are still in the agenda-setting stage where management innovation is concerned. Both public bodies, like the DTI, and firms need to be more outspoken about their commitment to management innovation as a driver of economic growth and firm competitiveness. Perhaps some of this attention will have to come at the expense of attention for other types of innovation, although we do not want to suggest in any way that other types of innovation are unimportant. What matters though is that the term innovation comes to be associated not just with technologies, processes, or products, but also with the work of management.

### *The CIS and management innovation*

Following from the above point, if the CIS is to be a survey of all innovative activity inside firms, it ought to pay more attention to management innovation. At present there is only one question on wider innovation, involving four items, which is hidden away at the very end of the survey. As argued above, this wider innovation question actually contains several types of innovation, both management innovation and strategic innovation. Product and process innovation, on the other hand, are investigated through a series of questions, including measurements of the efforts that go into them. There is of course an 'if', because the CIS is perhaps not intended to measure all innovative activity.

Supposing that management innovation will take on a more central role in the survey, what would be desirable questions? From our perspective they would be questions that focus on the amount of effort going into management innovation, measured in monetary terms or otherwise, and questions that focus on how companies organise their management innovation activity, including who inside and outside the organisation drives the management innovation process. A final point of interest would be the extent to which the innovation is developed inside the organisation versus adopted (and perhaps adapted) from elsewhere.

There are further methodological issues that follow from the analysis. Some of the limitations of survey research, and of empirical research more generally, reveal themselves through the wild fluctuations of management innovation levels across countries, the large drop in absolute levels of management innovation in the UK from CIS3 to CIS4, and the uncertainty of what respondents actually attribute to the management innovation questions in the survey. The drop in absolute levels is easiest to explain, since it seems to follow directly from the different manner in which the question was formulated in CIS4. If future surveys continue to follow the pattern from CIS4, this point can be verified empirically. The cross-national differences are interesting, though somewhat outside the scope of this report. They could perhaps be tackled by a comparison of how respondents interpret certain questions across the various countries. The last point, uncertainty about what meaning respondents give to questions is hard to solve and inherent to survey research.

### *Practical implications*

From a practitioner's point of view several of our findings carry directly relevant implications. The capacity of organizations for creating and implementing management innovations is a consequence of problems they face, solutions they obtain from various sources, and the qualities of in-house decision makers. And the implementation of management innovations appears to have a positive performance impact, while product and process innovation do not. Gruber and Niles (1972: 29) stated some time ago that "[t]he quality of management may be more important to success than performance in the R&D of new products and processes", and our analysis seems to bear this out. Our analysis suggests that while product and process innovation may be necessary conditions to retain competitiveness, successful management innovation has at least as great a role in shifting the frontiers of performance. Hence firms stand to benefit from increasing their capacity for creating and implementing management innovations.

Our findings also suggest that this capacity for management innovation can be increased by using relevant knowledge, specifically knowledge already available internally and knowledge dispersed through networks of professionals and through markets. A presence in wider and international markets adds further to this capacity. It can also be enhanced by well-trained employees, who bring in the analytical capacity needed for management innovation. These findings suggest that firms can consciously and systematically invest in management innovation. As recently argued by two practitioners (Feigenbaum & Feigenbaum, 2005: 96), "[w]e find evidence in a wide range of industry sectors that the systematization of management innovations will be a critical success factor for 21st century companies". The research suggests that such investments make most sense in large organizations, organizations going through rapid change, and organizations facing consistent barriers to innovation.

### *Management innovation on the ground*

One important trend in management innovation at the moment is the establishment of innovation laboratories. Royal Mail created such a lab and is now diffusing its model to other places, including several universities like the University of Reading's 'Innovation works'. Our colleague Albert David at the Ecole Normale Supérieure in France has established M-Lab, an "R&D in management" research laboratory. Colleagues in the Netherlands have established, in conjunction with the government, employers associations and labour unions, a 'Centre for Social Innovation'. This centre focuses on distributing information about this type of innovation through organising activities and publishing, although it also pays some attention to actual experiments around management innovation. And we ourselves are heavily involved in the London-based Management Innovation Lab ([www.managementinnovationlab.com](http://www.managementinnovationlab.com)), a joint venture between London Business School and the U.S.-based Woodside Institute. In our management innovation lab academics and firms work together on solving practical problems in innovative ways. The aim is to better understand how management innovation happens and what can be done to stimulate it. This should lead to the companies involved becoming more conscious and better management innovators and to the academics being able to publish about the experiments. Such efforts are intended primarily to create competitive advantage for the innovating firms but there are likely to be spillovers to the U.K. economy at large as well.

### *Policy options to consider*

The DTI has in the past paid some attention to the spread of best practices, and to furthering the role of consultants in working with companies around these practices. Other organisations have been involved in similar initiatives. There may be market failure when it comes to management innovation. The presence of market failure could be a reason for more active and direct governmental action. We did not have the right type of data available to assess this, nor are we particularly specialised in answering this type of question. But based on our research we can suggest the following directions and options:

- More focus on the creation of management innovation, rather than adopting what appears to be best practice and often comes from elsewhere. An example of the latter category might be lean manufacturing methods. The introduction of these methods may help firms in the UK to keep up with others, like the Japanese, but it perhaps does not provide them with a competitive edge. If UK firms are to operate at the state of the art, they should sometimes be actively involved in creating that state of the art. When it comes to innovation in services and goods we tell firms that coming up with something new is a worthwhile exercise. There is no reason why this would not be the case for management innovation.
- The spreading of information about management innovation. If firms are better informed of this type of innovation, and not just restrict their attention to product and process innovation, they will be in a better position to produce and exploit management innovation. Spreading information can of course take many forms, so further thought would have to go into the question how to implement this.
- Further and more detailed studies of the effects of management innovation on individual firms in the UK as well as on sector and overall productivity. This study of the CIS provided some useful insights but in many ways only scratches at the surface of this important issue.

## References

- Abrahamson, E. 1996. Management fashion. *Academy of Management Review*, 21: 254-285.
- Abrahamson, E., L. Rosenkopf. 1993. Institutional and competitive bandwagons: Using mathematical modeling as a tool to explore innovation diffusion. *Academy of Management Review*, 18: 487-517.
- Abrahamson, E., & Fairchild, G. 1999. Management fashion: Lifecycles, triggers, and collective learning processes. *Administrative Science Quarterly*, 44: 708-740.
- Alänge, S., Jacobsson, S., & Jarnehammar, A. 1998. Some aspects of an analytical framework for studying the diffusion of organizational innovations. *Technology Analysis & Strategic Management*, 10: 3-20.
- Anderson, S. W., & Young, S. M. 2001. *Implementing management innovations: Lessons learned from activity based costing in the U.S. automobile industry*. Boston: Kluwer Academic Publishers.
- Birkinshaw, J., Hamel, G., & Mol, M.J. 2005. Management innovation. Advanced Institute of Management working paper WP021 - [www.aimresearch.org/021wp.html](http://www.aimresearch.org/021wp.html).
- Chandler, A. D. 1962. *Strategy and structure: chapters in the history of the industrial enterprise*. Cambridge, MA: M.I.T. Press.
- Damanpour, F., & W. M. Evan. 1984. Organizational innovation and performance: The problem of 'organizational lag'. *Administrative Science Quarterly*, 29: 392-409.
- Feigenbaum, A. V., & D. S. Feigenbaum. 2005. What quality means today. *Sloan Management Review*, 46(2): 96.
- Fiss, P. C., & Zajac, E. J. 2004. The diffusion of ideas over contested terrain: The (non)adoption of a shareholder value orientation among German firms. *Administrative Science Quarterly*, 49: 501-534.
- Gruber, W. H., & Niles, J. S. 1972. Put innovation in the organization structure. *California Management Review*, 14(4): 29-35.
- Guler, I., Guillén, M. F., & MacPherson, J.M. 2002. Global competition, institutions, and the diffusion of organizational practices: The international spread of ISO 9000 quality certificates. *Administrative Science Quarterly*, 47: 207-232.
- Hamel, G. 2006. The why, what and how of management innovation. *Harvard Business Review*, 84(2), 72-84.
- Kimberly, J. R. 1981. Managerial innovation. In P. C. Nystrom and W. H. Starbuck (Eds.), *Handbook of Organizational Design*. Oxford University Press, New York, vol. 1: 184-104.
- Kimberly, J. R., & Evanisko, M. J. 1981. Organizational innovation: The influence of individual, organizational, and contextual factors on hospital adoption of technological and administrative innovations. *Academy of Management Journal*, 24: 689-713.
- Low, S., & Fullerton, R. A. 1994. Brands, brand management, and the brand manager system: A critical-historical evaluation. *Journal of Marketing Research*, 31, 173-190.

Staw, B. M., & Epstein, L. D. 2000. What bandwagons bring: Effects of popular management techniques on corporate performance, reputation, and CEO pay. *Administrative Science Quarterly*, 45: 523-556.

Teece, D. J. 1980. The diffusion of an administrative innovation. *Management Science*, 26: 464-470.

Zbaracki, M. J. 1998. The rhetoric and reality of Total Quality Management. *Administrative Science Quarterly*, 43: 602-638.

## Statistical appendix

**Table 1:** A cross-European comparison of management innovation levels. Adapted from “Innovation in Europe: Results for the EU, Iceland and Norway”. Luxembourg: Eurostat. 2004. Figures are reported separately for firms with and without (other) innovation activity.

<i>Country</i>	<b>Strategy</b>	<b>Management</b>	<b>Organisation</b>	<b>Marketing</b>	
<i>Belgium</i>	undertaking innovation	38	32	51	33
	undertaking no innovation	21	15	29	15
<i>Denmark</i>	undertaking innovation	31	11	31	28
	undertaking no innovation	13	5	12	10
<i>Germany</i>	undertaking innovation	59	54	71	55
	undertaking no innovation	29	28	42	28
<i>Greece</i>	undertaking innovation	34	29	47	40
	undertaking no innovation	14	10	20	21
<i>Spain</i>	undertaking innovation	34	42	52	37
	undertaking no innovation	11	16	22	14
<i>France</i>	undertaking innovation	35	34	15	n/a
	undertaking no innovation	13	8	3	n/a
<i>Ireland</i>	undertaking innovation	n/a	n/a	n/a	n/a
	undertaking no innovation	n/a	n/a	n/a	n/a
<i>Italy</i>	undertaking innovation	42	29	52	35
	undertaking no innovation	16	10	22	14
<i>Luxembourg</i>	undertaking innovation	63	72	69	41
	undertaking no innovation	32	46	46	23
<i>The Netherlands</i>	undertaking innovation	49	25	36	28
	undertaking no innovation	21	11	18	8
<i>Austria</i>	undertaking innovation	52	42	61	48
	undertaking no innovation	22	24	30	24
<i>Portugal</i>	undertaking innovation	42	48	54	35
	undertaking no innovation	18	14	19	15
<i>Finland</i>	undertaking innovation	40	40	44	30
	undertaking no innovation	15	15	22	14
<i>Sweden</i>	undertaking innovation	48	13	52	39
	undertaking no innovation	21	4	26	20
<i>United Kingdom</i>	undertaking innovation	62	52	53	66
	undertaking no innovation	25	20	21	31
<i>Iceland</i>	undertaking innovation	44	31	45	41
	undertaking no innovation	23	17	27	20
<i>Norway</i>	undertaking innovation	42	29	51	33
	undertaking no innovation	18	10	22	14
<i>Average score</i>	undertaking innovation	44.7	35.3	49.0	39.3
	undertaking no innovation	19.5	15.8	23.8	18.1

When interpreting these figures, several limitations have to be borne in mind. First, the CIS is translated into various languages and in different languages words may be interpreted differently. Even when a translation is linguistically correct, there is no telling how respondents interpret the wording. Note for instance from the figures how Sweden and Denmark score extremely low on advanced management techniques, both compared to other countries and compared to these countries' score on the other three items. Does that imply that there really is much less activity around advanced management techniques? Sweden in particular has always been known to be very active in this respect, which makes it

implausible that the country would score very low now. Perhaps, therefore, an advanced management technique is something more substantial to respondents in Sweden and Denmark than it is to respondents elsewhere (i.e. they have a higher threshold level). Second, since management innovation levels depend on firm size and other factors (as we saw before), cross-national differences will also emerge simply because of demographic differences in the various firm populations. The U.K. will have more large firms than Greece for instance and the average market scope of firms will also differ across countries.

Ref: DIUS Research Report 09-07

© Michael J Mol and Julian Birkinshaw 2009

[www.dius.gov.uk/research](http://www.dius.gov.uk/research)

Published by the Department for Innovation,  
Universities and Skills

Department for  
**Innovation,  
Universities &  
Skills**