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**Fifth Edition**

# **MANAGING INNOVATION**

**Integrating Technological, Market and Organizational Change**

**JOE TIDD AND JOHN BESSANT**

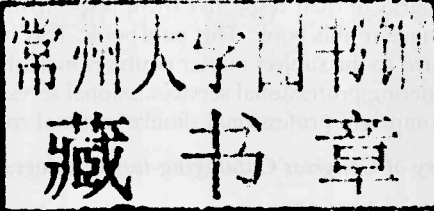
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# Managing Innovation

## Integrating Technological, Market and Organizational Change

**Fifth Edition**

**Joe Tidd and John Bessant**



**WILEY**

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*Library of Congress Cataloging-in-Publication Data*

Tidd, Joseph, 1960-

Managing innovation : integrating technological, market and organizational change / Joe Tidd and John Bessant. — Fifth edition.

pages cm

Includes index.

ISBN 978-1-118-36063-7 (pbk.)

1. Technological innovations—Management. 2. Industrial management. 3. Technological innovations.

4. Organizational change. I. Bessant, J. R. II. Title.

HD45.T534 2013

658.5'14—dc23

2013008381

ISBN 978-1-118-71694-6 (iebk)

ISBN 978-1-118-53859-3 (ebk)

A catalogue record for this book is available from the British Library

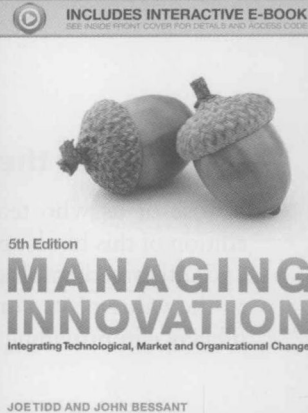
Set in 10/12 Sabon by Thomson Digital, India

Printed and bound in Italy by Printer Trento Srl.



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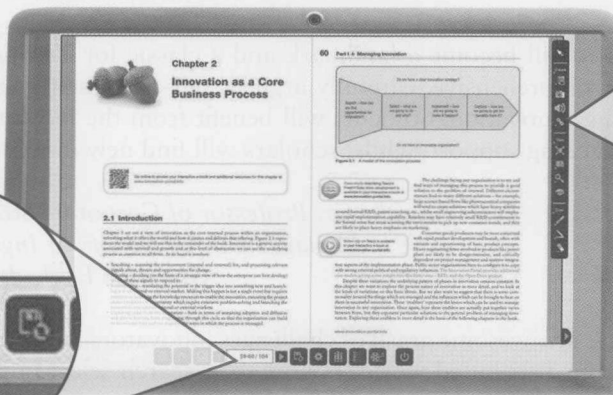
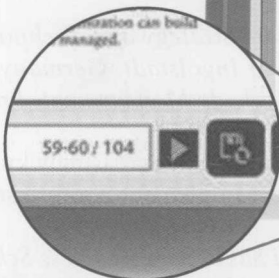
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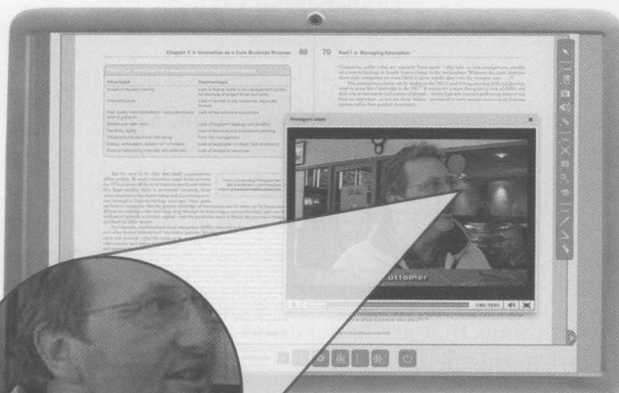
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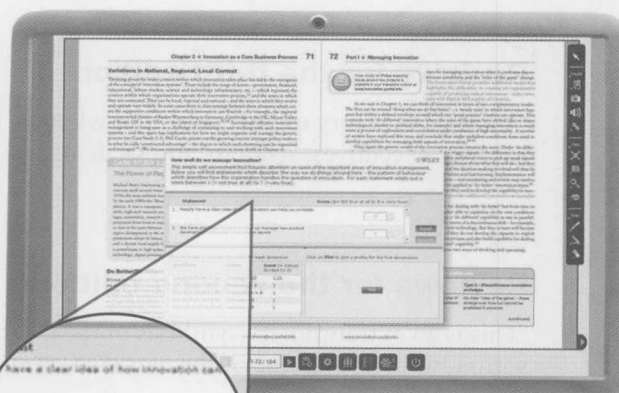
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## Reviews for the fourth edition

‘Those of us who teach in the field of Innovation Management were delighted when the first edition of this book appeared 11 years ago. The field had long been in need of such a comprehensive and integrated empirically-based work. The fact that this is now the 4th edition is clear testimony to the value of its contribution. We are deeply indebted to the authors for their dedication and diligence in providing us with this updated and expanded volume.’

*Thomas J. Allen, Howard W. Johnson Professor of Management,  
MIT Sloan School of Management, USA*

‘This is the best book on Innovation Management I have found so far. I have been using it for years teaching my engineering students at TU Delft. This book covers important insights from modern evolutionary research; it also provides useful practical knowledge for innovation management.’

*Alfred Kleinknecht, Professor of Economics of Innovation at  
TU Delft, Netherlands and Visiting Professor,  
Université de la Sorbonne, Paris, France*

‘I am convinced that it will become a landmark and a classic for Technology and Innovation Management. It is a comprehensive, carefully argued, self-contained presentation of the state-of-the-art of managing innovation. Students will benefit from the lucid exposition of key concepts and excellent teaching support, whilst scholars will find new insights suggestive of further research.’

*Peter Augsdorfer, Professor of Corporate Strategy and Technology  
Management, University of Ingolstadt, Germany and  
Grenoble Ecole de Management, France*

‘Tidd and Bessant have an awesome grasp of challenges innovators face in an increasingly knowledge-based and globally distributed world. Follow their search-select-implement-capture stages to understand how to meet these challenges.’

*Professor Mari Sako, Saïd Business School,  
University of Oxford, UK*

## Reviews for the third edition

‘A limpid and very useful account of what we know about the management of innovation. Must read for executives, scholars and students.’

*Yves Doz, Timken Chaired Professor of Global  
Technology and Innovation, INSEAD*

## Reviews for the second edition

‘This is an extraordinary synthesis of the most important things that are understood about innovation, written by some of the world’s foremost scholars in this field.’

*Clayton M. Christensen, Professor of Business  
Administration, Harvard Business School*

‘The capacity to innovate is a key source of competitive advantage; but the management of innovation is risky. The authors provide a clear, systematic and integrated framework which will guide students and practising managers alike through a complex field. Updated to address key contemporary themes in knowledge management, networks and new technology, and with an exemplary combination of research and practitioner material, this is probably the most comprehensive guide to innovation management currently available.’

*Rob Goffee, Professor of Organizational Behaviour,  
London Business School*

‘In a highly readable yet challenging text, Tidd, Bessant and Pavitt are true to their subtitle, since they do indeed achieve a rare analytical integration of technological, market and organizational change. Alive to the vital importance of context, they nonetheless reveal generic aspects to the process of innovation. Read this book and you will understand more, and with a little luck, an encounter with a rich example will resonate with experience, hopes and fears and provide a useful guide to action.’

*Sandra Dawson, KPMG Professor of Management Studies and Director,  
Judge Institute of Management, University of Cambridge*

‘This is an excellent book. Not only is it practical and easy to read, it is also full of useful cases and examples, as well as a comprehensive reference to the current literature. I will be recommending it to my entrepreneurship students.’

*Professor Sue Birley, Director, The Entrepreneurship Centre,  
Imperial College, University of London, UK*

‘The first edition of this book was essential reading for anyone trying to get to grips with innovation in theory and practice. This new edition, by embracing the challenges faced in the “new economy”, is an ideal companion for the serious innovator. Starting from the view that anyone can develop competencies in innovation this comprehensive text provides managers with essential support as they develop their capability. The second edition contains many case illustrations illuminating both theory and practice in successful innovation and is a “must” for aspiring MBAs.’

*David Birchall, Professor and Director of the Centre for Business in the  
Digital Economy(CBDE), Henley Management College, UK*

‘The authors of this book have managed to capture the essence of leading-edge thinking in the management of technological innovation and presented the multidimensional nature of the subject in an integrated manner that will be useful for the practitioner and essential reading for students and researchers in the field. This is the book we have been waiting for!’

*Professor Carl W. I. Pistorius, Dean, Management of Technology Programme,  
University of Pretoria, South Africa*

'Innovation has become widely recognized as a key to competitive success. Leaders of businesses of all sizes and from all industries now put sustained innovation among their top priorities and concerns – but, for many, innovation seems mysterious, unpredictable, apparently unmanageable. Yet it can be managed. This book provides a highly readable account of the best current thinking about building and sustaining innovation. It draws particular attention to important emerging issues, such as the use of networks of suppliers, customers and others outside the firm itself to stimulate innovation, and the role of knowledge and knowledge management to support and sustain it. As the authors say, there is no “one best way” to manage innovation: different situations call for different solutions. But if you want to drive innovation in your own organization, this book will help you to understand the issues that matter and the steps you can take.'

*Richard J. Granger, Vice President, Technology & Innovation  
Management Practice, Arthur D. Little Inc.*

'Innovation has always been a challenge, but never more so nowadays in these turbulent times. This second edition of Managing Innovation helps address the practicalities of the challenge and places them firmly in today's new environment, where technology is changing faster and faster. Integrating the multiple aspects of innovation – and not just treating it as a technical issue – is a real benefit this book brings.'

*C. John Brady, Director, McKinsey & Company Inc.*

'The characteristics of doing business today – rapid change, extreme volatility and high uncertainty – mean that traditional ways of managing technology need to be radically reappraised for any company that sees technical leadership as a critical business differentiator. Through their research work and worldwide network, Joe Tidd, John Bessant and Keith Pavitt have brought together the latest thinking on innovation management, extensively illustrated with real world examples, and with pointers to how successful implementations may emerge in the future. This book is well worth reading for all who want to achieve leadership in technology management.'

*David Hughes, Executive Vice President,  
Technology Management, Marconi plc.*

'Innovation is the cornerstone of what makes businesses successful: offering something uniquely better to the consumer. Innovation, while key, is probably the most difficult (maybe even impossible) element of corporate activity to manage or plan. This book does an excellent job of setting out the specification of ways we can think about how to create innovative organizations, without prescribing a “recipe for success”.'

*Dr Neil MacGilp, Director, Corporate R&D, Procter & Gamble*

# About the Authors

Joe Tidd is a physicist with subsequent degrees in technology policy and business administration. He is Professor of technology and innovation management at SPRU (Science & Technology Policy Research), University of Sussex, UK and visiting Professor at University College London, Cass Business School, Copenhagen Business School, and Rotterdam School of Management. He was previously Head of the Management of Innovation Specialisation and Director of the Executive MBA Programme at Imperial College, and Deputy Director and Director of Studies at SPRU ([www.sussex.ac.uk/spru/jtidd](http://www.sussex.ac.uk/spru/jtidd)).

He has worked as policy adviser to the CBI (Confederation of British Industry), and as a researcher for the *International Motor Vehicle Program* at the Massachusetts Institute of Technology (MIT), which identified lean production. He has worked on research and consultancy projects for consultants Arthur D. Little, CAP Gemini and McKinsey, and technology-based firms, including American Express Technology, Applied Materials, ASML, BOC Edwards, BT, Marconi, National Power, NKT, Nortel Networks, Petrobras and Pfizer, and international agencies such as UNESCO. He is the winner of the Price Waterhouse Urwick Medal for contribution to management teaching and research, and the Epton Prize from the R&D Society. He is a director of MBA Authors Ltd, an academic services and licensing company. He is also Managing Editor of the *International Journal of Innovation Management* ([www.worldscinet.com/ijim/ijim.shtml](http://www.worldscinet.com/ijim/ijim.shtml)), the official journal of the International Society of Professional Innovation Management (ISPIM) – [www.ispim.org/index.php](http://www.ispim.org/index.php). He has written eight books and more than 60 papers on the management of technology and innovation: [scholar.google.com/citations?user=he2j1ugAAAJ&hl=en](http://scholar.google.com/citations?user=he2j1ugAAAJ&hl=en).

John Bessant, who was originally a chemical engineer, has been active in the field of research and consultancy in technology and innovation management for over 25 years. He currently holds the Chair in Innovation and Entrepreneurship at the University of Exeter and has visiting appointments at the universities of Luxembourg, Erlangen-Nuremberg, Queensland University of Technology and the National University of Ireland. In 2003 he was elected a Fellow of the British Academy of Management and served as a Panel Member in the 2001 and 2008 Research Assessment Exercises in the UK. He holds Fellowships from the Advanced Institute for Management Research in the UK and the Schoeller Foundation in Germany and has acted as advisor to various national governments and international bodies including the United Nations, The World Bank and the OECD.

He is the author of 15 books and many articles on the topic and has lectured and consulted widely around the world. Clients have included Toyota, Novo-Nordisk, Lego, Morgan Stanley, Coloplast, Corus, Danfoss, GSK, Grundfos, Hewlett-Packard and Kumba Resources.



# Acknowledgements

We would like to thank all those colleagues and students at SPRU, CENTRIM, Exeter and elsewhere, who have provided feedback on our work. We are also grateful for the more formal input provided by various anonymous reviewers whose comments and suggestions helped develop this new edition, and the experience and expertise shared by the participants in the professional faculty workshops held in London, Manchester, Rotterdam and Barcelona.

Thanks are also due to Emma Taylor, Dave Francis, Stefan Kohn, Philip Cullimore, Fabian Schlage, Helle-Vibeke Carstensen, Francisco Pinhero, Melissa Clark-Reynolds, Armin Rau, Catherina van Delden, Simon Tucker, Girish Prabhu, Richard Philpott, David Simoes-Brown, Alastair Ross, Suzana Moreira, Michael Bartl, Roy Sandbach, Lynne Maher, Helen King, Patrick McLaughlin, David Overton, Michelle Lowe, Gerard Harkin, Dorothea Seebode, John Thesmer, Tim Craft, Bettina von Stamm and Kathrin Moeslein for their help in creating case studies and podcast/video material for the text and website. Particular thanks are due to Anna Triflova for her help in background research and assembling many of the web-based cases.

As always we're really grateful for the help and support of the extended team at John Wiley & Sons, Ltd, who have practised what we preach with their seamless cross-functional working, especially Steve Hardman, Deb Egleton, Mark Styles, Sarah Booth, Peter Hudson, Juliet Booker, Joel Balbin and Lynette Woodward.

# Preface to the Fifth Edition

Innovative firms grow twice as fast, both in employment and sales, as firms that fail to innovate.<sup>1</sup> We know that those organizations that are consistently successful at managing innovation out-perform their peers in terms of growth, financial performance, and employment, and that the broader social benefits of innovation are even greater.<sup>2</sup> However, managing innovation is not easy or automatic. It requires skills and knowledge which are significantly different to the standard management toolkit and experience, because most management training and advice is aimed to maintain stability, hence the most sought after degree is an MBA – Master of Business *Administration*. As a result, most organizations either simply do not formally manage the innovation process, or manage it in an ad hoc way. Studies confirm that only around 12% of organizations successfully manage innovation, and only half of these organizations do so consistently across time.<sup>3</sup>

Since the first edition of *Managing Innovation* was published in 1997 we have argued that successful innovation management is much more than managing a single aspect, such as creativity, research and development or product development.<sup>4</sup> Our companion texts deal with such issues more fully,<sup>5</sup> but here we continue to promote an integrated approach, which deals with the interactions between changes in markets, technology and organization. In this fifth edition, we have tried to continue our tradition of differentiating our work from that of others by developing its unique characteristics:

- Strong evidence-based approach to the understanding and practice of managing innovation, drawing upon thousands of research projects, and ‘Research Notes’ on the very latest research findings. In June 2012 *Managing Innovation* had more than 1100 citations in the Thomson Web of Knowledge, and over 3700 in Google Scholar;
- Practical, experience-tested processes, models and tools, including new to this edition ‘Views from the Front Line’, first-person accounts from practicing managers on the challenges they face managing innovation;
- Real illustrations and case examples of innovation in action, in manufacturing and services, private and public sectors, including in-text exhibits, and from the Innovation Portal ([www.innovation-portal.info](http://www.innovation-portal.info)), full-case studies, video and audio pod casts;

<sup>1</sup> Mason, G., Bishop, K. and Robinson, C. (2009) *Business Growth and Innovation*. NESTA, London

<sup>2</sup> Tidd, J. (2012) *From Knowledge Management to Strategic Competence*, 3rd edn. Imperial College Press.

<sup>3</sup> Jaruzelski, B., Loehr, J. and Holman, R. (2011) ‘The Global Innovation 1000: Why Culture Is Key’, *Strategy + Business*, issue 65. Booz and Company.

<sup>4</sup> Eagar, R., van Oene, F., Boulton, C., Roos, D. and Dekeyser, C. (2011) ‘The Future of Innovation Management: The Next 10 Years’, *Prism*, issue 2011/1. Arthur D. Little.

<sup>5</sup> Bessant, J. and J. Tidd (2011) *Innovation and Entrepreneurship*, 2nd edn. John Wiley & Sons, Ltd; Isaksen, S. and J. Tidd (2006) *Meeting the Innovation Challenge: Leadership for Transformation and Growth*. John Wiley & Son, Ltd; Bessant, J. (2003) *High Involvement Innovation*. John Wiley & Sons, Ltd.

- Supported by extensive, growing web resources, at [www.innovation-portal.info](http://www.innovation-portal.info), featuring a comprehensive range of innovation tools, interactive exercises and tests to help apply the learning.

Our understanding of innovation continues to grow, by systematic research, experimentation and the ultimate test of management practice and experience. Innovation management has grown to become a mainstream field of academic research and management practice: in 2012, at EURAM (European Academy of Management) the innovation track was the largest with almost 200 research papers; and the ISPIM (International Society of Professional Innovation Management) attracted 500 member delegates. As a result it is a challenge for all of us interested in innovation to keep abreast of this fast-developing and multi-disciplinary field. In the general field of business research, the 200 or so active research centres worldwide produce some 5000 papers each year, many relevant to managing innovation.<sup>6</sup> In the more specialist fields of technology and innovation management, the 120 research centres worldwide publish several hundreds of papers each year.<sup>7</sup> One goal of this book is to help make sense and navigate through this mass of material. Another is to encourage action. As we declared in the first edition, and still believe strongly, this book is designed to encourage and support practice, and organization-specific experimentation and learning, and not to substitute for it.

We would like to acknowledge the extensive feedback, support and contributions from users of the previous editions, our own colleagues and students, the team at John Wiley & Sons, and the growing community of innovation scholars and professionals who have contributed directly to this fifth edition, in particular the generous participants in the workshops we ran in London, Manchester, Rotterdam and Barcelona.

Joe Tidd and John Bessant  
May 2013

<sup>6</sup> Mangematin, V. and Baden Fuller, C. (2008) 'Global contests in the production of business knowledge', *Long Range Planning*, 41(1), 117–139.

<sup>7</sup> Fagerberg, J., Fosaas, M. and Sapprasert, K. (2012) 'Innovation: Exploring the Knowledge-base', *Research Policy*, 41, 1132–1153.

# How to Use This Book

## Features in the Book

### Chapter 3 • Building the Innovative Organization 111

We should not confuse leadership and commitment with always being the active change agent. In many cases innovation happens in spite of the senior management within an organization, and success emerges as a result of guerrilla tactics rather than a frontal assault on the problem. Much has been made of the dramatic turnaround in IBM's fortunes under the leadership of Lou Gerstner who took the ailing giant firm from a crisis position to one of leadership in the IT services field and an acknowledged pioneer of e-business. But closer analysis reveals that the entry into e-business was the result of a bottom-up team initiative led by a programmer called Dave Grossman. It was his frustration with the lack of response from his line managers that eventually led to the establishment of a broad coalition of people within the company who were able to bring the idea into practice and establish IBM as a major e-business leader. The message for senior management is as much about leading through creating space and support within the organization as it is about direct involvement.

#### RESEARCH NOTE 3.1

##### Innovation Leadership and Climate

Organizations have traditionally conceived of leadership as an heroic attribute, appointing a few 'real' leaders to high-level senior positions in order to get them through difficult times. However, many observers and researchers are becoming critical about this approach and are beginning to think about the need to recognize and utilize a wider range of leadership practices. Leadership needs to be conceived of as something that happens across functions and levels. New concepts and frameworks are needed in order to embrace this more inclusive approach to leadership.

For example, there is a great deal of writing about the fundamental difference between leadership and management. This literature abounds and has generally promoted the argument that leaders have vision and think creatively ('doing different'), while managers are merely doers and just focus on doing things better. This distinction has led to a general devaluation of management. Emerging work on styles of creativity and management suggests that it is useful to keep preference distinct from capacity. Creativity is present both when doing things differently and doing things better. This means that leadership and management may be two constructs on a continuum, rather than two opposing characteristics.

Our particular emphasis is on resolving the unnecessary and unproductive distinction that is made between leadership and management. When it comes to innovation and transformation, organizations need both sets of skills. We develop a model of innovation leadership that builds on past work, but adds some recent perspectives from the fields of change and innovation management, and personality and social psychology. This multidimensional view of leadership raises the issue of context as an important factor, beyond concerns for task and people. This approach suggests the need for a third factor in assessing leadership behaviour, in addition to the traditional concerns for task and people. Therefore we integrate three dimensions of leadership: concern for task, concern for people, and concern for change.

One of the most important roles that leaders play within organizational settings is to create the climate for innovation. We identify the critical dimensions of the climate for innovation, and suggest how leaders might nurture these in a context for innovation.

Source: Jackson, S. and J. Tidd (2008) *Meeting the Innovation Challenge: Leadership for Transformation and Growth*, John Wiley & Sons, Ltd, Chichester.

[www.innovation-portal.info](http://www.innovation-portal.info)

## Real-life case studies contextualize the topics covered

### Chapter 3 • Building the Innovative Organization 141

in various different kinds of organizations and in different national cultures are described by a number of authors including Cook and Rickards.<sup>21</sup>

Of particular relevance in this area is the design of effective reward systems. Many organizations have reward systems which reflect the performance of repeated tasks rather than encourage the development of new ideas. Progress is associated with 'doing things by the book' rather than challenging and changing things. By contrast, innovative organizations look for ways to reward creative behaviour, and to encourage its emergence. Examples of reward systems include the establishment of a 'visual ladder' which enables technologically innovative staff to progress within the organization without needing to move across to management posts.<sup>28</sup>

#### VIEWS FROM THE FRONT LINE 3.1

##### Creating Innovation Energy

Innovation – it's the corporate world's latest plaything. But it's more than a buzzword. It's commercially critical, it helps organizations to grow during boom times and can help companies to stay alive in tough times. In the twenty-first century it's not an overstatement to say that in most commercial sectors, to stand still is to die. That's why almost every organization accepts the business imperative to innovate.

So why do some succeed while others fail? What organizational characteristics set the winners apart from the losers? Is innovation a matter of luck or skill?

At PWC that [P] we've spent 16 years working on thousands of innovation projects with some of the largest and most successful organizations across the globe. We've rolled our sleeves up and worked late into the night on incremental innovation projects and market changing initiatives. We're not companies that are brilliant at innovation and others that, no matter how hard they try, just can't make it work. We've had a unique and privileged perspective on innovation having worked across so many sectors and in so many countries.

The good news is that there is a clear pattern that determines if your organization has the DNA to spawn innovation, the bad news is that there is no business concept that describes this pattern, this 'magic key'. In fact it's worse than that – traditional business concepts, as basic as strategy, thinking things through carefully – can often do more harm than good. Innovation is as much about trying things out, deliberating, not being too careful. Our collective brains don't have the computing power to use conventional strategic approaches to get to the answer.

So what is this 'pattern' behind successful innovation? We call it *Innovation Energy*. In a nutshell it's the confluence of three forces: an individual's attitude; a group's behavioural dynamics; and the support an organization provides. There is a sweet spot that some organizations either stumble upon or deliberately work out, this sweet spot is best understood as more of a social or human science than a business concept. At its heart innovation is all about people.

'It's all about people'. That's a great sound bite and we've all heard it a million times before. We all know that it's people, not processes that make things happen. But while most companies are pretty good at constructing processes they are often shockingly bad at getting the most out of the human energy. How often have you heard leaders say, 'Our greatest asset is our people'? Yet those same leaders co-opt their 'greatest assets' in grey office blocks, suppress them with corporate stuffiness and bury them

(continued)

[www.innovation-portal.info](http://www.innovation-portal.info)

## Research Notes summarize the very latest evidence and reviews of contemporary topics

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The climate has a dynamic, electric and inspiring quality. People find joy and meaningfulness in their work, and therefore they invest much energy. In the opposite situation, people are not engaged and feelings of alienation and indifference are present. The common sentiment and attitude is apathy and lack of interest in work and interaction is both dull and lifeless.

If challenge and involvement are too low, you may see that people are apathetic about their work, are not generally interested in professional development, or are frustrated about the future of the organization. One of the ways to improve the situation might be to get people involved in interpreting the vision, mission, purpose and goals of the organization for themselves and their work teams.

On the other hand, if the challenge and involvement are too high you may observe that people are showing signs of 'burn out', they are unable to meet project goals and objectives, or they spend 'too many' long hours at work. One of the reasons for this is that the work goals are too much of a stretch. A way to improve the situation is to examine and clarify strategic priorities.

Leaders who focus on work challenge and expertise rather than formal authority result in climates that are more likely to be assessed by members as being innovative and high performance. Studies suggest that output controls such as specific goals, recognition and rewards have a positive association with innovation. A balance must be maintained between creating a climate in which subordinates feel supported and empowered, with the need to provide goals and influence the direction and agenda. Leaders who provide feedback that is high on developmental potential, for example, provide useful information for subordinates to improve, learn and develop, and results in higher levels of creativity.

Intellectual stimulation is one of the most underdeveloped components of leadership, and includes behaviours that increase others' awareness of and interest in problems, and develops their propensity and ability to tackle problems in new ways. Intellectual stimulation by leaders can have a profound effect on organizational performance under conditions of perceived uncertainty, and is also associated with commitment to an organization.

#### CASE STUDY 3.9

##### Increasing Challenge and Involvement in an Electrical Engineering Division

The organization was a division of a large, global electrical power and product supply company headquartered in France. The division was located in the South East of the USA and had 92 employees. Its focus was to help clients automate their processes particularly within the automotive, pharmaceutical, microelectronics and food and beverage industries. For example, this division would make the robots that put cars together in the automotive industry or provide public filtration systems.

When this division was merged with the parent company, it was losing about \$8 million a year.

A new general manager was brought in to turn the division around and make it profitable quickly.

An assessment of the organization's climate identified that it was strongest on the debate dimension but was very close to the engaged norms when it came to challenge and involvement, playfulness and humour, and conflict. The quantitative and qualitative assessment results were consistent with their own impressions that the division could be characterized as conflict driven, uncommitted to producing results, and people were generally disengaged. The leadership decided, after some

(continued)

[www.innovation-portal.info](http://www.innovation-portal.info)

## Views from the Front Line provide commentary from practising managers of innovation

## Web Resources

### Innovation Portal

The Innovation Portal at [www.innovation-portal.info](http://www.innovation-portal.info) houses all the online resources for the book. This fully searchable resource contains a wealth of material including a complete compendium of videos, cases, activities and a fully searchable innovation toolkit, and is an essential resource for anyone wishing to deepen their understanding of innovation concepts. Links to this material can be found in the relevant book chapters as shown below:

If there is too much freedom you may observe people going off in their own independent directions. They have an unbalanced concern weighted toward themselves rather than the work group or organization. People may do things that demonstrate little or no concern for important policies/procedures, performing tasks differently and independently redefining how they are done each time. The Innovation Portal gives a case study on radical innovation culture at Cerulean together with an audio interview with the CEO, Patrick McLaughlin.

### Interactive E-Book

An interactive e-book is included with every copy of the book (via the access code inside the front cover and through the Innovation Portal at [www.innovation-portal.info](http://www.innovation-portal.info)). The e-book has embedded media including cases, videos, audio, activities, tools and quizzes that are found in the text right where they are needed, helping readers to absorb key concept, test their understanding and bring the book to life. The reader can also personalize their e-book by making notes and voice annotations, creating links to the text or to websites and by highlighting key sections.

Look for these icons in the text to show where media has been embedded:

Video Clip showing Veeder-Root and high-involvement innovation in action is available in your interactive e-book at [www.innovation-portal.info](http://www.innovation-portal.info)



Audio Clip of Ken Robinson discussing some of the common attributes and approaches to creativity is available in your interactive e-book at [www.innovation-portal.info](http://www.innovation-portal.info)



Activity to complete a self-assessment questionnaire is available in your interactive e-book at [www.innovation-portal.info](http://www.innovation-portal.info)



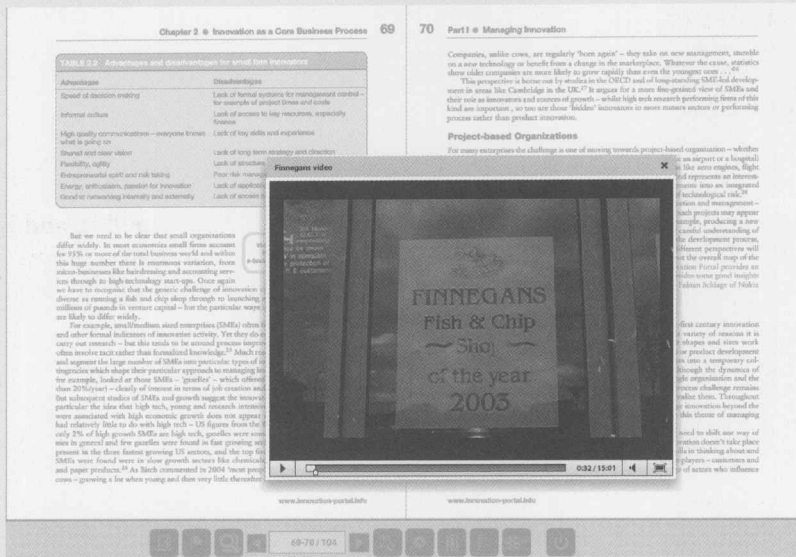
Case Study describing Tesco's Fresh & Easy store development is available in your interactive e-book at [www.innovation-portal.info](http://www.innovation-portal.info)



Tool using the technique of brainstorming is available in your interactive e-book at [www.innovation-portal.info](http://www.innovation-portal.info)







## Additional Resources for Instructors

The authors have compiled an extensive range of resources to help lecturers teach their innovation courses including a teaching guide and course outline that provides a template for courses, seminars and assessments built around specific themes, together with linked media such as lecture slides, seminar exercises, cases, tools and assessments. There is also a comprehensive test bank and shorter quizzes to help test student understanding. All this material can also be accessed via the **Innovation Portal** at [www.innovation-portal.info](http://www.innovation-portal.info).

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