

**materialstoday**

Published by  
Elsevier Ltd.  
The Boulevard, Langford Lane,  
Kidlington, OX5 1GB, UK

#### Editorial

**Publisher** Amanda Weaver  
**Editor** Cordelia Sealy  
**Assistant Editor** Jonathan Wood  
**Editorial Assistant** Eleanor Orchard  
**Production/Design Coordinator** Lin Lucas  
Tel: +44 (0)1865 843 140  
Fax: +44 (0)1865 843 933  
E-mail: materialstoday@elsevier.com

#### Advertising

**Advertisements Manager** Kevin Partridge  
Tel: +44 (0)1865 843 177  
Fax: +44 (0)1865 843 933  
E-mail: k.partridge@elsevier.com  
**Advertisement Sales, Europe** David Kay  
Tel: +44 (0)1273 423 512  
Fax: +44 (0)1273 422 707  
E-mail: dkay@fastnet.co.uk

#### Free circulation enquiries

Materials Today, Tower House,  
Sovereign Park, Market Harborough  
LE16 9EF, UK  
Tel: +44 (0)1858 439 601  
Fax: +44 (0)1858 434 958  
E-mail: controlled1@subscription.co.uk

#### Subscription orders & payments

Price: €153 / US\$171  
Europe/ROW Tel: +31 20 485 3757  
Fax: +31 20 485 3432  
USA Tel: +1 212 633 3730  
Fax: +1 212 633 3680

© Elsevier Ltd. 2004

Materials Today is owned and published by Elsevier Ltd. All material published in Materials Today is copyright Elsevier Ltd.

This journal and the individual contributions contained in it are protected under copyright by Elsevier Ltd. and the following terms and conditions apply to their use:

Photocopying: Single photocopies of single articles may be made for personal use as allowed by national copyright laws. Permission of the Publisher and payment of a fee is required for all other photocopying, including multiple or systematic copying, copying for advertising or promotional purposes, resale, and all forms of document delivery. Special rates are available for educational institutions that wish to make photocopies for non-profit educational classroom use.

Permissions may be sought directly from Elsevier Global Rights Department, P.O. Box 800, Oxford OX5 1DX, UK; phone: (+44) 1865 843830, fax: (+44) 1865 853333, e-mail: permissions@elsevier.com. You may also contact Global Rights directly through Elsevier's homepage (<http://www.elsevier.com>), by selecting 'Obtaining Permissions'.

In the USA, users may clear permissions and make payments through the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923, USA; phone: (+1) (978) 7508400, fax: (+1) (978) 7504744, and in the UK through the Copyright Licensing Agency Rapid Clearance Service (CLARCS), 90 Tottenham Court Road, London W1P 0LP, UK; phone: +44 (0)20 7631 5555; fax: +44 (0)20 7631 5500. Other countries may have a local reprographic rights agency for payments.

Derivative Works: Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. Permission of the Publisher is required for resale or distribution outside the institution. Permission of the Publisher is required for all other derivative works, including compilations and translations.

Electronic Storage or Usage: Permission of the Publisher is required to store or use electronically any material contained in this journal, including any article or part of an article. Except as outlined above, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior written permission of the Publisher.

Address permissions requests to: Elsevier Global Rights Department, at the mail, fax and e-mail addresses noted above. Notice: No responsibility is assumed by the Publisher for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products, instructions or ideas contained in the material herein. Because of rapid advances in the medical sciences, in particular, independent verification of diagnoses and drug dosages should be made.

Although all advertising material is expected to conform to ethical (medical) standards, inclusion in this publication does not constitute a guarantee or endorsement of the quality or value of such product or of the claims made of it by its manufacturer.

Printed by Headley Brothers Ltd, Kent, UK

ISSN 1369-7021

Journal number: 03069



# Culture clash

UK universities are failing to capitalize on the creation of spin-outs, according to research by Mike Wright of Nottingham University Business School. In recent years, universities have spun out increasing numbers of companies, but too few succeed. "Universities are tending to focus on creating businesses rather than creating wealth," says Wright. "The proportion of spin-out companies that succeed is tiny."

Wright questioned 12 university spin-outs and 98 institutions on their spin-out record. His research indicates five main impediments to successful spin-outs. The first, not surprisingly, is a lack of finance, particularly seed funding from universities. This could prove a tricky problem to tackle as universities typically view spin-outs as a way to bring in cash, rather than the converse. It may take a change in attitudes to persuade those in charge of the purse strings that you have to spend cash to make cash. The second hindering factor is the lack of time that researchers have to devote to spin-outs. A simple strategy would be to grant entrepreneurial academics a sabbatical from teaching and/or research. The availability of suitable space in science parks is also crucial to the success of spin-outs, providing market credibility as well as much needed resources and infrastructure. Coming surprisingly low down on the list is the lack of incentives and rewards. But this issue is now more pertinent in the UK, where tax law changed in 2003 to limit incentives to executives of new companies. Wright believes the most important factor in a spin-out's success is the personal commitment of those involved. Universities must reward entrepreneurial academics, with significant equity stakes in the spin-out for example, if they truly want to reap the benefits. Universities also need to have clear procedures if they don't want to become an impediment themselves.

Wright identifies a culture clash in universities. "Our research clearly indicates that successful spin-out activity is not about the quantity of ventures initiated, but the commitment shown by universities to achieving successful technology transfer outcomes," he says. "At present there is a mismatch between the aims espoused and universities' abilities to deliver."

There are examples of good practice in the UK, however. One innovative scheme has been employed by the University of Oxford's Department of Chemistry to raise capital for a new \$110 million state-of-the-art building. In addition to government and benefactor contributions, the department received \$36 million from the bank IP2IPO Ltd. (formerly Beeson Gregory) toward building costs in return for half of the university's equity in spin-offs from the department for 15 years. The partnership seems to have benefited both sides: the department now has a spanking new building and six new companies have been formed since the deal began.

The UK provides examples of both good and not so good practice in technology transfer in the university sector. It is a picture that may be familiar elsewhere. If done well, the technology generated by universities can be revolutionary, as Don Braben highlights on page 64 of this issue, but the opportunities can be easily missed if we get it wrong.

Cordelia Sealy  
Editor, Materials Today

#### Editorial Advisory Panel

Gabriel Aeppli, University College London, UK  
Caroline Baillie, Queens University, Canada  
Zhenan Bao, Stanford University, USA  
Robert Cahn FRS, University of Cambridge, UK  
Martin Castell, University of Oxford, UK  
Larry Dalton, University of Washington, USA  
Peter Goodhew, University of Liverpool, UK  
Hermann Grimmeiss, Lunds Universitet, Sweden  
Alan Heeger, University of California, Santa Barbara, USA

George Jeronimidis, University of Reading, UK  
Mark Johnson, Naval Research Laboratory, USA  
Richard A. L. Jones, University of Sheffield, UK  
Stephen Pearton, University of Florida, USA  
Frans Spaepen, Harvard University, USA  
Richard Spontak, North Carolina State University, USA  
Marshall Stoneham FRS, University College London, UK  
George Whitesides, Harvard University, USA  
Jackie Yi-Ru Ying, Institute of Bioengineering and Nanotechnology, Singapore