

**Craven, M.**, The MATCH project: collaboration between academia and industry, Focus magazine, Association of British Healthcare Industries, July 2004, pp. 15-16. Invited article. <http://www.abhi.org.uk/>

## **The MATCH project – collaboration between academia and industry**

*The university sector offers innovative research initiatives which industry should be tapping. **Michael Craven**, Senior Research Fellow at the University of Nottingham, reports on a unique collaboration between academia and industry that is helping companies assess the value of medical technology.*

The Multidisciplinary Assessment of Technology Centre for Healthcare (MATCH) is a unique university collaboration that is working with the medical device industry to improve value assessment for product development by an integrated research-led programme. By assessing the value of a device from an economic and user perspective, industry can select the most appropriate medical devices to bring to market. This approach promises considerable benefit for industry, healthcare providers and patients.

Value assessment for medical devices is a complex task and developing products or investing in this sector can be a daunting process. ‘Picking a winner’ has to be measured in terms of the time and funds required to navigate the regulated pathways from concept to mature product, versus a return that may be difficult to predict compared to pharmaceutical products. All medical devices must obviously function reliably and safely while being suitable for volume manufacture at the appropriate scale, and conform to a variety of standards in design, production and quality management. Furthermore, concepts of home healthcare and the ‘expert patient’ suggest the need for a more user-centred perspective.

So can university research help relieve some of the uncertainty in value assessment? Lack of synergy between academia and industry is a traditional bugbear. The Lambert Review of Business-University Collaboration reported in December 2003 that while there has been a change of culture in universities in the last decade, and many are taking a much more active role in the regional and national economy, there is still a lack of demand from business for the innovative ideas that are being developed in the university sector (HM Treasury). In healthcare, the problem of collaboration is extended further to public or private healthcare bodies, although these are also recognising the need for the development of new relationships for R&D, typified in the UK by the ongoing development of the NHS Regional Innovation Hubs, and highlighted by the Partners in Care report (Universities UK). The Healthcare Industries Task Force (HITF) will be reporting in October on progress in this area, with specific effort being directed to R&D infrastructure through the R&D and Industrial Base working groups.

Enter the Multidisciplinary Assessment of Technology Centre for Healthcare in November 2003. MATCH is a collaboration of five universities - Birmingham, Brunel, Kings College London, Nottingham and Ulster - created via Engineering and Physical Sciences Research Council (EPSRC) funding for an initial period of five years under its Innovative Manufacturing Programme. In addition to the academic involvement, MATCH includes the active participation and financial input of a cohort of subscribing industrial partners, the Department of Trade and Industry (who are providing subsidies for SME involvement), Invest Northern Ireland and the National Patient Safety Agency

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(NPSA). MATCH also has a close relationship with the Medical Devices Faraday Partnership and the Universities of Nottingham and Birmingham are involved with Midlands Medici.

MATCH is perhaps unique among the EPSRC Innovative Manufacturing Research Centres (IMRC) in that it is not about university research spin-out or technology transfer in the traditional sense – rather it is about transfer of know-how in methodologies and tools to help existing industries develop their own R&D and product development processes. MATCH is also truly multi-disciplinary in its make-up with representation from clinicians, engineers, economists and social scientists. The proposers of MATCH, coordinated by Prof. Terry Young at Brunel University, recognised three main areas where industry could benefit from state-of-the-art research from a university partnership.

**First**, from new assessment tools that can predict the true value of a medical device innovation both in terms of health economic modelling and clinical effectiveness. This is not a trivial task, since the global market has a diverse range of customers with different cost models and regulatory environments. One example of this is the question of how to assess reimbursement options at an early stage of product development, which is an especially difficult issue within the silo organisation of the NHS. Investigators within MATCH have extensive experience with health technology assessment and clinical trials methods, and are involved with a range of organisations such as NICE and NPSA.

**Second**, manufacturing process improvement that is aware of the ongoing developments in device regulation such as EU directives, the move to sector-specific ISO quality standards, and the need to produce products suitable for the global market. MATCH investigators have a wealth of experience in product design, manufacturing and process validation, and understand the difficulties of non-harmonised regulations.

And **third**, from an approach to user-needs assessment that makes use of the wealth of research into human factors in engineering, informatics, ergonomics, sociology and nursing. MATCH researchers are currently conducting a detailed review of the literature bases as applied to medical devices, bringing in prior experience of user-centred methodologies from a wide range of research fields.

MATCH has taken this research agenda and devised a programme of multidisciplinary collaboration between the five universities involved, together with the building of specific capabilities for industrial liaison and dissemination of know-how. This has included setting up a tiered approach to involving industry partners, who are able to join under differing schemes appropriate to their required level of involvement and needs. The two subscription levels are Research Partner where the company will work with MATCH researchers on a specific problem (see example 1) and Network Partner where the company will benefit from aggregated results and guidance.

All MATCH partners will have access to workshops and best practice guides. In order to see where to apply research-led solutions in its three areas of expertise, to profile problem areas and help identify potential clusters, MATCH researchers are conducting interviews

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with each partner (see example 2). Product or component supply areas among the existing partners include orthopaedics, woundcare and textiles, diagnostic instruments and assays, and cardiology. As the partnership grows, coverage of other product areas is expected, thus enabling MATCH to help companies make best use of academic research across the breadth of the medical device sector.

**Example 1: helping a research partner**

MATCH has been working with a medium-sized contract medical device manufacturer to apply state-of-the-art process validation techniques to their manufacturing line, as part of an application for FDA accreditation. This is expected to result in the first accreditation of its kind outside of North America. Techniques include: CAPA (Corrective and Preventive Action), CAR (Corrective Action Reporting), and Quality Statistics and Improvements.

**Example 2: helping network partners**

MATCH interviews have revealed a varied approach to user needs capture among the partners. Results from a parallel structured survey of user needs methods across the entire product lifecycle and mapped to device taxonomy will help companies apply the latest research findings to improving their current practice.

For more information about MATCH and how to join, please contact David Lawes, MATCH Programme Manager at Brunel University on Tel: +44 (0)1895 274000 (ext 3745) email: [David.Lawes@brunel.ac.uk](mailto:David.Lawes@brunel.ac.uk) or visit the MATCH Programme website: [www.match.ac.uk](http://www.match.ac.uk)

**The author**

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**References**

H M Treasury: *Lambert Review* [www.hm-treasury.gov.uk/consultations\\_and\\_legislation/lambert/consult\\_lambert\\_index.cfm](http://www.hm-treasury.gov.uk/consultations_and_legislation/lambert/consult_lambert_index.cfm)

Universities UK: *Partners in Care* [www.universitiesuk.ac.uk/partnersincare](http://www.universitiesuk.ac.uk/partnersincare)

**Sources of additional information**

EPSRC Innovative Manufacturing Programme [www.epsrc.ac.uk](http://www.epsrc.ac.uk)

Medical Devices Faraday Partnership [www.medical-devices-faraday.com](http://www.medical-devices-faraday.com)

Midlands Medici [www.midlandsmedici.org](http://www.midlandsmedici.org)