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Dept Computer Science leads interdisciplinary consortium to investigate how improved data-analysis can transform healthcare

Can healthcare be transformed by the digital economy? That is the key question to be investigated in a new project called DIADEM (Data Information and Analysis for clinical DEcision Making). The project, lasting one year starting 1 April 2008, is worth £196,425 and has been funded as part of the Government's research initiative on the digital economy. The project is led by Professor Norman Fenton, supported by Dr William March and Professor Martin Neil (all of the Risk Assessment and Decision Analysis Research Group) and is based around an interdisciplinary cluster involving over a dozen world-renowned centres of excellence including:

- Department of Mathematics and the Center of Advanced Computing and Emerging Technologies (ACET), University of Reading (led by Professor Peter Grindrod CBE, CMath, FIMA)
- Institute of Particle Science and Engineering, Leeds University (led by Professor Professor Xue Wang)
- Statistics Research Group, in the School of Mathematical Science, Queen Mary (Professor Steven Gilmour, Dr Laurence Pettit)
- Trauma Care Unit, Royal London Hospital (Alastair W Wilson FRCS FFAEM OBE);
- Centre for Haematology, Institute of Cell and Molecular Science Barts and The London School of Medicine and Dentistry (Dr Samir Agrawal)
- Oral Growth and Development, Institute of Dentistry, Barts and The London School of Medicine and Dentistry (Dr Paul Anderson)
- Forensic Psychiatry Research Unit, Barts and The London School of Medicine and Dentistry (Dr Min Yang)
- Dept of Biosurgery and Surgical Technology, Imperial College (George Hanna, Reader in Surgery/Consultant Upper GI)
- Centre for Health Management, Tanaka Business School, Imperial College London (Dr Tim Heymann)
- Centre for Reviews and Dissemination, University of York (Dr Bob Phillips).
- Agena Ltd (Ed Tranham, Syed Rahman)
- ESiOR Ltd Finland (Mr. Erkki Soini)
- Department of Computer Science, Surrey University (Prof Paul Krause)

The consortium's vision of healthcare in the digital economy is that it will be based on intelligent modelling and real-time analysis of medical data, assessable directly in the doctor's surgery, or even online, to drive individual diagnosis and treatment decisions. In the 12 months that the project runs the objective is to produce a roadmap for achieving this vision, while also bringing together all relevant stakeholders that will be needed. Current techniques used in the health sector, which are typically based on classical statistics, cannot adequately contribute to causal reasoning and learning, pattern recognition and feature extraction. Nor can they adequately address the issue of integrating data to arrive at intelligent decision-making. Before new techniques are developed, existing ones need to be understood, applied and refined in the light of experience. Thus, the focus of the project's work is on exploiting techniques for data analysis and understanding, using techniques not currently applied in the medical discipline (notably causal reasoning) and analysis of novel data.