



Assisted living: Economic and Business Models, and Social & Behavioural Studies

COMPETITION FOR FUNDING

JUNE 2010

The Technology Strategy Board, Economic and Social Research Council (ESRC) and the National Institute for Health Research (NIHR), as part of the Assisted Living Innovation Platform, have allocated up to £10m to invest in research projects into economic and business models, and social and behavioural studies.

Nearer market collaborative research projects will be funded at 50%. Basic research projects, with direct industry participation will be funded at 75%, and academic research with industry involvement at 'arm's length', according to normal research council rules. We expect to invest between £250k and £2m in each project, although no project will be rejected on grounds of size alone. Detailed information about these rules and other application criteria is provided in the Guidance for Applicants.

The competition will open on 21 June 2010 with details of how to apply published on our website **www.innovateuk.org**.

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Background

One of the aims of the Assisted Living Innovation Platform (ALIP) is support for the health and social care services and industry in meeting societal needs as the UK's demographic and lifestyles change, with many more people living longer with long-term health conditions. The ALIP is funded by the Technology Strategy Board, Department of Health, Engineering and Physical Sciences Research Council (EPSRC) and ESRC.

The ALIP has invested nearly £15m in technology-focused research and development, complementing funding for pilots and trials of existing technology by the Department of Health (DH) and the devolved administrations.

The evaluation of the Whole System Demonstrator programme (a 6,000 patient study of assisted living in three trials sites: Cornwall, Kent and Newham, funded by DH) is providing an unprecedented case-control study of outcomes for the clinical cost/benefit case for assisted living technologies, but additional work is needed on the economic and business models and social and behavioural aspects of these technologies and their use if they are to be implemented and used on a large scale.

There is a growing awareness of the need for novel ways to improve the well-being and autonomy of older people, and those with long-term conditions at home. New technologies can potentially play a role in enhancing older people's health and well-being by enabling them to be supported to live independently in their communities, age in their preferred place, experience social inclusion, continue to engage in meaningful relationships and support them to do what is important to them. At the same time, assisted living technologies are becoming (at least in principle) increasingly available, affordable, functional and usable. However, despite this, adoption by clinicians, health and social care professionals, informal carers and end users is far from extensive or sustained.

Previous road mapping and priority setting exercises undertaken by ALIP have defined the technology requirements for the future roll-out of new assisted living services. They also concluded that the development of a 'vibrant market' for assisted living products is a key step towards meeting the needs of the large (and increasing) numbers of potential users and statutory or private service providers. The roadmap states that it is essential to provide; 'modelling of the potential impact of new systems at different levels (individual and macro) in order to demonstrate their economic and social value'.

Two project themes

- **Economic and Business Models**
- **Social and Behavioural Studies**

The priorities in each of these areas were identified through two workshops, held in July and September 2009, on economic and business modelling, and social and behavioural studies respectively, and the output from these workshops has contributed extensively to the drafting of this specification. The Technology Strategy Board and research councils have worked closely together to ensure that this competition and a new competition under the research councils' Lifelong Health and Wellbeing Programme are complementary.

Strategic objectives

The strategic objectives for the two themes of the economic and business models, and social and behavioural studies research streams are to:

- bring together consortia of academics, industry, policy makers, health and social care professionals, third sector and service-users to carry out excellent research with high potential for impact in the areas of economic and business models, and social and behavioural studies of emerging assisted living technologies and services
- invest in high quality studies designed to produce outputs of the highest international standards which directly inform and influence business and public policy development and delivery to the long-term benefit of our ageing population.

To achieve these objectives projects will be expected to complement and work closely with existing ALIP technology-based projects and other directly relevant initiatives and research investments.



Scope

Applicants should develop proposals that address one or more of the key challenges identified below, or can take a cross-cutting approach, picking up different elements of the challenges within each theme.

Proposals may be either industry, academic or third-sector led, but researchers should work within consortia, seeking to bring together expertise from a range of backgrounds, such as academics working with primary care trusts, clinicians, charities, industry and end users. It is not expected that one institution or organisation would make a proposal that seeks to address all aspects of the research requirements. Where industry is not leading a proposal, evidence is required of the lead team working in partnership with industry and/or arrangements for steering and advice from industry as projects develop, and dissemination to industry as results are generated. Examples of how this can be addressed are described in the Guidance Notes for Applicants.

Project Topics

The key research challenges under the economic and business models, and social and behavioural studies themes are set out below. Applicants will note that although starting from different perspectives, there is considerable common ground between these two broad themes. Some applications may therefore quite legitimately seek to address selected aspects from both. Ethical issues should be considered within and across all the themes.

Economic and Business Models Topics

Understand current and future markets for assisted living technologies

There is a need to review, integrate and develop existing studies of the telecare/telehealth and assisted living markets to draw parallels with other comparable markets, and ensure that the scalability of technology and service solutions are

addressed. Applicants should ensure that methodologies and modelling approaches employed are sufficiently robust to enable current and future validation.

To ensure maximum impact from assisted living technologies and the impetus for change and growth, a wide range of markets should be considered, together with parallel developments such as 'smart housing' and 'smart metering'. Projects should seek to scope and define the relevant markets, including comprehensive mapping of stakeholders and interdependencies. There is a need to better understand market segmentation for the assisted living market and to identify the demand in different population groups and the variation between these groups in terms of readiness to use and purchase, and associated service requirements and financing approaches.

Of particular priority is an understanding of the potential private sector market such as the 'wellness' market, those with long-term conditions of all ages, active healthy ageing people, frail elderly people, informal carers and personal budget holders. Applicants are also encouraged to develop understanding of the market dynamic and evolution with respect to technologies, devices and services, and to try to identify any potential links with diagnostics, stratified/personalised medicine, and developments in drug regulation, administration and improvements to concordance (involving patients in decision-making so they are more likely to comply with medical advice).

Further research is needed to identify the types of marketing interventions that will effect a beneficial change in this area such as fostering the combined impact of technology innovation, service package and finance package availability, messaging and peer network acceptance, ease of use and acceptability in everyday settings.

Understand the apparent contrast between rapid technical developments and their uptake and use

It has been suggested that there is some contrast between the technical development of devices and services, and market uptake. Research should consider the role of technology and its current state of evolution against the perceived future demands, and explore the following key aspects of these questions:

Are new tools needed to evaluate the larger amounts of raw health and care data available to be collected and to populate modelling and evaluation initiatives?

Are tools also needed to capture the value of technology-enabled services against alternative interventions and between different technology-enabled services?

An important approach that has been identified is that of co-creation value analysis, and applicants are strongly encouraged to consider how co-creation concepts can be adapted to realise the highest value for customers, ensuring that the widest range of potential customers and users are included. Interesting themes to explore here might be user-led innovation, 'living labs', and ethnographic analysis to discover the behavioural impacts of specific types of devices or services. The latter could be

structured around longer term knowledge co-creation projects.



Understand how industry structure and business models can improve uptake and use

There is a need for a clear distinction between the data interpretation and modelling approaches that are designed to support the take-up of existing technology services and those to support the development and investment decisions relating to bringing new innovative technologies to market. The modelling approaches used for new innovative technologies need to be proportionate to the risk environment and the limited resources of the many small and medium-sized enterprises (SMEs) active in this market.

By addressing fundamental questions about economy of scale, research should investigate innovative approaches to:

- develop a **dynamic** model that works for the UK and global markets which can accommodate changes in the markets and players
- link the existing predictive population modelling (NHS Combined Model for the UK) with business modelling to develop a framework for cooperation and negotiation between industry collaborators (corporate and SME) and service commissioners
- show how the fragmented public sector markets, both national and local, can be addressed through innovative business models, and how the private market will evolve. Who will be the future players and when will the business model enable this market to flourish? Is there a role for co-finance with statutory providers? What is the most effective role for the third sector?

It is necessary to identify what a self-sustaining adaptable and 'best fit' system model might look like; what positive and aligned incentives need to be developed to nurture the system and what is a viable new state which will encourage market 'pull'? We need to ensure that the model demonstrates the impact of key stakeholders and defines success factors/interdependency.

Research should consider and model the essential elements that are required to bring about mass-market pull from private

purchase and how that might impact the ramp-up of statutory services.

Attention needs to be given to the implications for technology and service design that would result from a market shifting towards private purchase, together with the requirements and risk mitigation approaches that will support new players to develop services for the private purchase market. Linked with this is the need to address how resolving standards and interoperability issues may support new business models in the longer term.

Understand how public funders' structures and processes can improve uptake and use

There is a need to identify the potential impact of technology integration, standards and interoperability. For example, how will technology change skills and management processes within the NHS and the private market, and help realise public value in respect of cost-effectiveness, given the likely constraints on public finances going forward? It is necessary to determine how statutory and private provision will interact, and whether patient choice alongside the potential for innovations such as micropayments and 'pay-as-you-go' will change the market, and how technology development such as Web 2.0/3.0 services might build upon what is available currently.

Is it possible to suggest and develop a new model for the NHS considering the Combined Model, value co-creation, and financial flows within the NHS and local authority care? What will be the impact of stratification between private provision, social care and healthcare provision?

Understand how commercial, third sector and public providers of care can develop new combinations of technologies, services and sustainable finance to improve uptake and use

Research should reflect on the different requirements for commercial, third sector and public provision of services and ensure that all levels of providers are addressed. Existing ALIP technology projects should be used to benchmark and test new solutions where relevant.

The landscape for private purchase should be mapped and modelled, to identify possible new players such as social enterprises and those in the third sector; what are the barriers and drivers to accessing this market, where does the model predict the tipping point for their decision to enter the market to be, and can innovative modelling be used to define a boundary between private and statutory services?

Evaluation and application of innovative modelling approaches, combined with user engagement and communication processes will be required to enable the future development of key market opportunities.

Social and Behavioural Studies Topics



Understand the 'users' and their contexts

Research should consider the impact of different classes of users; individuals, families, informal carers, health and social care professionals, charities, NHS trusts and local authorities. There are huge variations in individual end users in terms of variation in socio-economic and cultural circumstances as well as health or care need. The needs of elderly people for example, are unlikely to be the same as those of younger people with long-term conditions or disabilities. This term in itself is a very broad one; there is a great deal of variation in long-term conditions, and all are prone to vary at different stages. Further, the needs of frail elderly people differ from those of dementia sufferers.

Just as there are many classes of 'users', so there are a large number of contexts within which assisted living technologies may be used; private homes, care homes, hospitals, public places, and public and private transport. The situation of informal

carers deserves special consideration; there is currently a lack of acknowledgement of their role and the extent that their unpaid caring work saves money for the statutory health and social care services. Without adequate support, carers' own health and well-being can suffer. Many informal carers are women, and large numbers fall out of employment due to their caring responsibilities. This has implications for their own economic situations in respect of lost earnings and pension rights, and on the economy more widely as the labour pool shrinks due to population ageing. There is a need to determine the potential for assisted living technologies to transform the economic possibilities for (and in respect of) carers.

There is also a need to take into account that, in respect of elderly people, there is likely to be a generational effect; elderly people of the future are likely to have a different attitude towards both technology and markets from today's elderly people.

Understand the scope of assisted living technologies

The potential future range of services, products and adaptations that will be available is huge. There is a need to avoid a focus only on remote monitoring systems (telecare and telehealth systems), since this may lead to the ruling out of other pertinent issues such as housing and mobility.

There is a need to examine the boundaries between assisted living technologies and broader, 'mainstream' ones; only a relatively small number of people are likely to need complex assisted living technologies. However, many more need 'inclusive' technologies and services, and we all need access to 'features' of technologies.

Understand the barriers to adoption of assisted living technologies at individual, family and community levels

There are many possible reasons why the demand for assisted living technologies is less than had been anticipated. We need to identify the key barriers and suggest how these barriers can be overcome. Areas to consider should include:

- lack of awareness of their potential and limited access to information

- lack of access to the technologies themselves except through official gatekeepers
- lack of a 'joined-up' service model
- cost, limited usefulness, unattractive products, negative impressions, stigma, and perceived impact on privacy and a potential need to acquire new and unfamiliar skills.

However, simple 'deficit' models on their own rarely provide sufficient explanation; issues of confidence, trust and user control are likely to need to be addressed.

At the level of end users, applicants should take full account of the impact of the change in emphasis from the current, often 'top down', paternalistic model to more 'bottom up', user choice drivers with the introduction of personalised budgets. There needs to be a priority on delivering in ways that maintain respect and dignity for service-users and their carers, and on developing assisted living technologies in line with good quality social relations of care.

Understand the barriers to adoption of assisted living technologies at an organisational level

At the level of organisations such as primary care trusts and local authorities, factors such as (but not limited to): a lack of evidence base for the effectiveness of assisted living technologies (which impacts upon commissioning), silo budgets and the lack of coordinated activity, lack of consultation with service-user groups, plus poor spread of best practice can act as barriers to adoption. Lack of evaluations in relation to functional need and preference, and benchmarked against alternative care models and assumed priorities also require further investigation.

At the level of industry, there is a need to understand how businesses can provide what people actually want as opposed to what they would formerly have been 'entitled to' or would simply have been provided with.

User-centred design

There has been a considerable body of research undertaken in user-centred design, and new research should be careful not to repeat what has gone

before, but it remains an important area for continuing research. A number of questions still exist around how services and devices can be designed so that they are aesthetically pleasing, and flexible enough to fulfil users' changing needs, offering consumer choice and the potential to increase users' independence and empowerment, and how to develop products and services that meet the requirements of acceptability, confidence, co-design and efficiency. Industry needs to consider the culture, and attitudes of healthcare professionals and institutions, alongside the needs and socio-cultural circumstances of families and carers.

It is necessary to engage stakeholders from all sectors, and map the motivators for different sectors, to enable us to link industry to user-centred innovation and development better.

Educating the carers and health professionals of the future

Each technology is embedded in a complex system comprising other technologies, physical surroundings, people, procedures and other artefacts that together make up a 'socio-technical system'. There is a requirement to investigate how the idea of care provision as a 'socio-technical system' could be incorporated into training courses for health and social care professionals. It is also necessary to consider the training needs of informal carers and low paid care assistants, and whether the skill sets of installers/maintenance / service providers of assisted living technologies fit the current and future needs of care services. There are also issues of access to education and training for service-users and informal carers, in terms of learning about and how to use assisted living technologies.



Cross-cutting issues

Consideration needs to be given to the multiplicity of terminology and lack of clearly agreed definitions pertaining to classes of service-users, processes, contexts and the technologies themselves that currently exist across sectors, with a view to developing consistency.

Methodological development is needed in terms of the research priorities and forms of output that would be of most value to industry, social care professionals, service users, informal carers and families, including, but not restricted to: toolkits for industry and professionals and for strategic health authority, primary care trust and local authority guidance, demonstrators, case studies, and use scenarios, consultations with, and surveys of, users, guidelines to industry on where to position their products, mapping of demand and identifying the different present and future users and stakeholders and their agendas, values and missions.

Methodologies are also needed in respect of: developing and using self-assessment tools, best practice for after care, providing feedback on helping business to understand the size and nature of current and future opportunities, developing standards, or 'kite marks' for installation services and ongoing support and response services, for the relation of potential private sector service standards to those that exist within the NHS, and monitoring and policing such standards.

Eligibility and evaluation criteria

Eligibility is described in the Guidance Notes for Applicants. Project proposals will be assessed independently, and ranked according to their ability to address the aims of the competition. The assessment criteria will include both research excellence, and relevance to, and involvement of industry in the research, as well as breadth of and innovation in dissemination of results to a wide range of stakeholders.

Funding

Indicative funding of £10m is available for this competition. We intend to invest between £250k and £2m in each project, although no project will be rejected on the grounds of size alone if strong justification of value for money is made. Larger projects will have to follow a different application process, which is described in the Guidance Notes for Applicants.

Collaborative research projects will be funded at 50%. Basic research projects, with direct industry participation will be funded at 75%, and academic research with industry involvement at arm's length according to normal research council rules. Charities and third sector organisations may be eligible for funding at either up to 100% or up to 50% depending on the type of project and the consortium.

Research projects aiming to generate intellectual property rights (IPR such as patents and licences) that can be commercially exploited by the partner(s), or in a collaboration that includes exploitation by an industrial partner, will be funded at up to 50%. Funding at up to 100% will be available if the organisation (not industry) is undertaking research either in its own right, or with another third sector organisation, academic partner, or healthcare institution that is not generating

commercially exploitable IPR. Such research must be widely publicly disseminated, include free dissemination to industry and any IPR generated cannot reside with a commercial undertaking. Further information is provided in the Guidance Notes for Applicants.

Collaboration building, outline proposals and full proposals

There will be a detailed briefing and networking event to be held on 10 June with the Healthtech and Medicines Knowledge Transfer Network. More information and details of how to register for the event are at <https://ktn.innovateuk.org/web/assisted-livinginnovation-platform-alip/events>. This event will not be compulsory but applicants are encouraged to register. Its aim is to develop new interdisciplinary working and new interactions between industry, academia, the third sector and health and care professionals.

A further event will be held to brief applicants on completion of the application forms. Outline expressions of interest, which will describe expertise and a short description of the proposed research topic, will be requested for the end of July. Successful outline projects will then be requested to submit full proposals by the middle of October.

Key dates

Competition launch	14 May 2010
Competition networking event	10 June 2010
Competition opens	21 June 2010
Optional briefing	30 June 2010
Optional expression of interest submission period	21 June to 21 July 2010
Compulsory expression of interest deadline (noon)	29 July 2010
Decisions on expressions of interest	3 September 2010
Stage 2 opens (for invited applications)	6 September 2010
Compulsory applicants briefing (London)	15 September 2010
Registration of intent to submit deadline (noon)	7 October 2010
Deadline for receipt of full applications (noon)	14 October 2010
Decision to applicants	19 November 2010



Further information

For more information about this competition and details of how to register and apply, please see **www.innovateuk.org** under Competitions. The Guidance Notes for Applicants and event registration details are also available.

Competitions helpline:
0300 321 4357

Email:
competitions@tsb.gov.uk

Publicity

The Technology Strategy Board frequently publicises the results of competitions and this includes engagement with the media. All applicants will be given a chance during the competition process to opt out of any publicity. Willing applicants will be asked to provide an agreed form of words for use in publicity material. E-mail pressoffice@tsb.gov.uk with any queries.

The Technology Strategy Board is a business-led executive non-departmental public body, established by the Government. Its role is to promote and support research into, and development and exploitation of, technology and innovation for the benefit of UK business, in order to increase economic growth and improve quality of life.

Collaborative research and development is part of the Government's Solutions for Business portfolio.

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