Department for Business, Innovation & Skills

University Enterprise Zones Pilot

Application Form

[redacted]

January 2014

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1. SUMMARY INFORMATION

Applicants should refer to the Guidance for Bidders before completing this form. It provides details of the criteria which will be used to assess the bids, and details which you are required to provide as part of the application.

This form is designed to allow you to expand text boxes as required, so there is no word limit per question. However, applications should not exceed 11 pages, including the cover page. Annexes are permitted, though they should only contain relevant additional supporting documents, and any key pieces of evidence should be summarised clearly.

The document must be in Arial Size 12 Font.

1.1 Applicant Details

University name	The University of Bradford
Address	Richmond Road, Bradford, BD7 1DP
Lead contact name	[redacted]
Direct telephone	[redacted]
E-mail	[redacted]

1.2 Brief Project Summary

Brief description of project	The *Digital Health Zone* will create global impact by establishing Leeds City Region (LCR) as the best place in the UK to innovate and grow businesses in communications-enabled healthcare. A partnership between the University of Bradford (UoB), BT, NHS, and City of Bradford Metropolitan District Council (CBMDC) will apply broad-based excellence in practice-based medicine, medical engineering and digital and communications technologies to support the full telehealth supply chain. The core partners are supported by private sector providers, the AHSN, and the LCR Medical Schools. The zone will be built around two bespoke facilities adjacent to the city centre: a Digital Exchange to support technology development and a Living Clinical Laboratory to pilot new products and processes in healthcare. These facilities will house 140 innovators from the digital and healthcare sectors as the core of a City Region cluster in this field, alongside 50 practitioners, carers, students and researchers delivering health services to the community. We will become a regional hub for digital apprenticeships, promoting higher-level skills and

	extending the scope of the healthcare professions. Rapid growth in the telehealth sector will be achieved by combining University research and teaching with the innovative capacity of our partners and the delivery capacity of NHS and other service providers. The partnership will drive parallel innovations in technology and skills to create new business opportunities. UoB's role as BIS UK China Focal Point for Health Innovation brings an international connectivity to complement that of BT and the NHS. The *Digital Health Zone* will link with similar worldwide clusters, stimulating international trade, inward investment. The Regional Econometric Model predicts GVA of £30M by 2018/19.
Total project cost	£12.1M
Amount of funding applied for	£3.8M
Amount of additional co-investment	£8.3M

2. PROJECT PROPOSAL

Provide an outline proposal for a pilot University Enterprise Zone. This should describe where the zone will be located, strategic context for its development, the concept for the zone (e.g. sector or technology specialism), the existing infrastructure and the partnership involved in developing it. It should describe any proposal to build incubator and grow on space as part of the University Enterprise Zone pilot and details of the offer to businesses. It should also set out arrangements to meet operating costs.

An ageing global population and public concerns about the quality and availability of healthcare places demands on health delivery systems worldwide. New models of healthcare delivery are needed to meet the increasing expectations of citizens requiring an overhaul, rather than an incremental change, in health systems. NHS England has identified 6 characteristics of a high quality, sustainable health system (Everyone Counts, 2013):

1. active citizens fully participating in their own health and health care
2. modern integrated care for people with multiple, complex conditions
3. wider range of primary care provided at scale to cater for all the needs of those with one or two long term conditions to manage
4. emergency care networks with fewer, better major emergency centres
5. specialised services concentrated into fewer, cutting edge research centres
6. a step change in productivity and quality of planned hospital care

Communications technology is an essential enabler to support: self care; remote monitoring for those needing personalised care; access to expert clinical advice remotely; and connection to clinical networks across geographies. This is a global challenge and presents a major opportunity for the UK to lead on communications-enabled healthcare which will enhance the quality of life for millions and open up new trading markets for companies offering innovative and cost-effective solutions.

The *Digital Health Zone* partnership offers scope, scale and transferability. [redacted]

[redacted] connections into practice via NHS, UoB's resonant academic profile, the CBMDC's commitment to local development and LCR's LEP will enable diverse partners to develop safe, effective, profitable and impactful innovations addressing the biggest challenges in current and future healthcare. Moreover, the partnership is will develop the necessary skills profile in the region's workforce, through mentoring and training of technology and healthcare professionals.

i. Location

The zone will be located adjacent to Bradford city centre in two bespoke facilities: a Digital Exchange (1,380m^2) to support technology development and a Health and Wellbeing Centre (HWC, 2,000m^2) operating as a living clinical laboratory to pilot innovations in healthcare. These facilities will house 140 individuals from digital and healthcare organisations as the core, innovating cluster working alongside 50 clinical practitioners and researchers. There will be significant capacity for training, working across the LCR in partnership with private and public sector providers. Significant grow-on facilities are available, with Bradford alone offering: Listerhills Science Park (50 units), Bradford Chamber Business Park (26 offices and 8 workshop units) and Baildon Business Park (specialising in advanced engineering and digital industries, 15,000 m^2). CBMDC will locate Business Advisers in the Digital Exchange to support tenants. UoB will align staff with the activity and support enterprise through allocation of internships and delivery of bespoke programmes from bite size to credit bearing awards.

Bradford is the UK's youngest major city (23% under 16 in 2012) with rates of business creation significantly higher than the Yorkshire & Humber average (2.5%). Its ethnic and economic diversity, and the juxtaposed urban and rural areas, are reflected in high levels of health inequality (Public Health England). UoB has worked with a range of partners to inform and policy and practice with the aim of remedying health inequalities. For example, work with Bradford Institute for Health Research on the *Born In Bradford* study has helped address large disparities in infant mortality across diverse ethnic backgrounds, results which have international relevance. This type of partnership working will inform the *Digital Health Zone* operational model.

ii. Wider Benefits

Economic: The Digital Exchange will be available for occupation from October 2014, the HWC from December 2016. Occupancy [redacted]. The Regional Econometric Model predicts the direct creation of 375 new jobs, 60 new businesses and GVA of £28M to 2018/19. The capital construction activity will create an additional 48 jobs and £2M GVA. The *Zone* will augment LCR's attraction, development and retention of skilled individuals for the digital, healthcare and other sectors. Training will be integral to the technology and service innovation undertaken in the *Zone*. Other sectors will benefit from the growth of this activity. We will become a regional hub for Digital Apprenticeships; the recent budget announcement of investment in the development of degree- and masters-level apprenticeships aligns with our plans. The NHS (LETB) has identified the need to support skillsets for remotely-delivered care, eg Advanced Practitioner training in digital nursing. We will initiate programmes with partner NHS Trusts, and scale out nationally.

Societal: The *Zone* will bring together actors in the technology and service segments of the telehealth market to develop new person-centred care pathways. For example, Airedale NHS Trust and BT currently serve 20,000 patients, improving access for vulnerable and restricted-mobility people and increasing the productivity of health professionals and tertiary care facilities by reducing unnecessary journeys and admissions. Innovations from the *Zone* will enable rapid adoption of new technology and approaches through scale-out of pilots. We aim for *Digital Health Zone* innovations to

reach one million UK patients within five years.

Cultural: [redacted]

iii. Company Targeting

[redacted]

iv. Market Failures

Demand for health services is growing faster than the public sector's ability to meet demand. The NHS assumes flat funding compared to past annual growth of >4%. Telehealth offers the potential to increase productivity while enhancing the quality of care. Connectivity between health service providers and developers of enabling technology is lacking [redacted] The *Zone* will foster inter-sectoral collaboration to build mutual awareness of market challenges and opportunities. The *Digital Health Zone* partnership demonstrates that a combination of university leadership, connectivity to the NHS, local authority commitment and government investment can unlock private sector resources to develop a major new business sector with the potential to have a global reach. The proposal fits with national, regional and local strategies and pursues objectives associated with business growth.

v. Operations (see Annex A for an overview of governance)

[redacted]

3. PROJECT OBJECTIVES AND DEMAND FOR SERVICES

3.1 Project Objectives

What are the objectives for the project and how do they fit will with wider Government objectives?

Lead a step-change in communications-enabled healthcare.

- *Digital Health Zone* innovations to reach > one million UK patients by March 2019
- Take a lead role in public discourse around communications-enabled healthcare

Fit: Department of Health *3millionlives* initiative; systemic NHS challenges.

Establish a world-leading cluster in communications-enabled healthcare in LCR.

- [redacted]
- 60 new businesses, 375 jobs created by March 2019
- £27.8M GVA by March 2019

Fit: industrial strategy: growth sectors (health, digital); eight great technologies.

Promote internationalisation of communications-enabled healthcare.

[redacted]

Fit: knowledge economy winning the "global race" for export trade, inward investment.

Integrate innovation and skills provision for regional competitiveness.

[redacted]

- Establish specific training for health professionals and students in communications-enabled care by March 2018 (in HWC)
- Commence 20 collaborative research projects between UoB and *Digital Health Zone* tenants by March 2017; 60 by March 2019

Fit: business needs in LEP priority sectors; HEFCE drive to underpin economic growth.

Develop a sustainable innovation cluster in LCR.

[redacted]

Fit: LCR SEP; CBMDC "Producer City" strategy – high-growth business and jobs.

3.2 Demand for services

What demand is there for the services being proposed and what evidence is there that there is a market failure that needs to be addressed?

The *Zone* will offer SMEs and healthcare providers facilities to develop products, services and skills pathways in digital and communications technology. The unifying theme will be communications-enabled healthcare (sometimes called telecare, telehealth and/or telemedicine). [redacted]

I. Market failures affecting the bidding site.

The Design Exchange has a current occupancy rate of 40% and has struggled to compete in the general managed workspace market. Repurposing as the Digital Exchange, with a healthcare focus, [redacted], and strong linkage to UoB, will allow market differentiation. The HWC is in UoB's investment plan, scheduled to commence in October 2016. This opportunity brings this forward by more than two years, at larger scale with greater impact. CBMDC offers to expedite any necessary legal requirements associated with change-of-use and planning consent (Annex B).

II. Evidence of potential demand; can reach objectives.

Market forecasts: The global telemedicine market is predicted to grow from $13.9bn in 2012 to $35.1bn by 2018. The home-based products and services segment will grow at twice the rate as the counterpart connecting professionals (respectively, 23.5% and 11.5% pa, BCC Research). [redacted]

[redacted] The technology and service segments of the telemedicine market are each expected to grow at 17% pa over this period. The integrating nature of the *Zone* will foster innovation across segments allowing partners to reach market faster.

NHS and medical links: The pioneering Airedale NHS Foundation Trust offers a telemedicine service in its Digital Healthcare Centre. It works in partnership with several LCR-based companies [redacted]. In partnership with Bradford District Care Trust, Bradford Teaching Hospitals NHS Foundation Trust and CBMDC, it recently embarked on a £6.6M project "Connecting Health and Social Care in Bradford and Airedale" supported by the NHS Safer Hospitals, Safer Wards Technology Fund, aimed at creating an Integrated Digital Care Record (IDCR). Each Trust in Bradford District will take an advisory role during the construction of the *Zone* with a view to commissioning services. The regional AHSN connects 22 Clinical Commissioning Groups (CCGs), 23 NHS Trusts, 8 Universities and a number of other relevant networks and will play an advisory role. Its connections with CCGs represent potential access to the NHS market for *Zone* tenants. Representatives of the two medical schools within LCR, University of Leeds and Hull-York Medical School, will also contribute. HYMS links into Humber and York and North Yorkshire LEPs. NHS England's National Director: Policy, Bill McCarthy, has championed telehealth and has been appointed as Deputy Vice-Chancellor (Operations) at UoB. Professor Shirley Congdon (PVC at UoB) contributes to regional health policy and delivery as a member of the LETB.

Private sector: [redacted]

International: UoB and BT will bring international perspectives to the DHZ. UoB is BIS China Focal Point for Health Innovation and runs 3-4 innovation workshops annually in China with up to £2M project funding allocated by partner municipalities. [redacted] The city of Shenzhen is to develop an e-health cluster, including BGI, the largest genomics organisation in the world, and Huawei, the largest telecommunications equipment manufacturer. [redacted] UKTI offers practical support for the international ambitions of the *Zone*.

iii. Industrial strategy, emerging technologies, local growth.

Industrial strategy: The Digital, Creative and Information Services sector represented 4.5% of UK GVA in 2011 and Health and Social Care 7.8%. Both sectors have grown as a proportion of the UK economy since 1997 (BIS: Industrial Strategy: UK Sector Analysis, 2012). Information Technology, Electronics & Communications is the largest category of inward investment activity to the UK (UKTI). In the 2011 "Strategy for UK Life Sciences", the Government determined that "innovation has to be at the heart of changes to the NHS, from patient pathways to new treatments and devices." UoB has experience in this area. For example, the Bradford Dementia Group recently secured a £2.4M NIHR Health Technology Assessment award to promote person-centred care working with Bupa, Bradford District Care Trust, and others. The Group works with CBDMC and the Joseph Rowntree Foundation to make the city dementia-friendly.

Strategy and technology: Six key drivers will encourage growth and create opportunities for innovation in this space. (See Annex C for relevant UoB academic strengths.)

[redacted]

Local growth: CBMDC's "Producer City" strategy enjoins local anchor institutions including UoB, CBMDC, West & North Yorkshire Chamber of Commerce and major companies to catalyse economic growth. Since January 2013 the City Centre Growth Zone has stimulated the creation of 337 jobs by assisting 81 companies with investment of £3.5M. CBMDC recently commissioned a report on Bradford's creative and digital industry sector (East West Locations/Breeze Strategy, 2014), which highlighted deficiencies in connectivity between organisations, higher-level skills and access to major industry players as obstacles to innovation and growth.

Summary

The *Digital Health Zone* integrates two of the fastest-growing sectors of the UK economy to tackle some of the most pressing strategic imperatives we face. LCR's health organisations and businesses have pioneered many aspects of communications-enabled healthcare. By bringing to bear the academic scope of UoB and the commercial scale of BT in the welcoming local strategic environment fostered by CBMDC, the *Zone* will connect and grow a critical mass of telehealth innovation around West Yorkshire, creating worldwide healthcare improvements to the benefit of the UK economy.

4. FINANCIAL INFORMATION

4.1 Co-investment

What is the indicative amount, nature and source of co-investment (this should be at least twice the amount of funding applied for)? You will be required to provide proof of the co-investment details.

[redacted]

4.2 State Aid Compliance

Does your proposed investment comply with State Aid rules?

Yes

5. STRATEGIC PARTNERSHIPS AND OBJECTIVES

5.1 Local Enterprise Partnership

Demonstrate how this proposal contributes to the Strategic Economic Plan being developed by the relevant LEP.

The Leeds City Region LEP lists both the Health and Bioscience Sector (H&B) and Creative and Digital Industries (CDI) as priority sectors within its Strategic Economic Plan (SEP). H&B employs 36,000 people in LCR, accounting for 3% of total employment. LCR is one of five Core City LEP areas with high concentrations of employment in H&B. Employment is 193,200 or 16% when all healthcare provision is included. Sub-sectors represented include orthopaedics, regenerative medicine, surgical instrumentation, wound management, biotechnology, pharmaceuticals and assistive technologies. LCR is home to a cluster of nationally-important H&B assets, including NHS England, Department of Health, the largest teaching hospital and the largest cancer care centre in Europe. LCR is to house one of two NHS commissioning hubs. BT Global Services manages the NHS Spine from its Leeds office. LCR's HEIs offer comprehensive, high-level expertise across medicine, health and biosciences.

CDI, including ICT and telecommunications, employs ca. 63,900 people in 7,855 companies, 5% of total employment in LCR. 44% of employees are in highly skilled occupations and the exporting potential is high (LCR ESIF Strategy). The LEP notes that investment is needed in innovation and in higher level skills development, in accord with Government's national findings.

The curtilage of the *Digital Health Zone* falls within the Bradford Growth Zone, a strategic investment area identified in the SEP.

This proposal will contribute to the LCR LEP plan by:

- Theming innovation around two of the identified priority sectors.
- Building a specialist incubator for talented young software designers.
- Providing new opportunities for technology and healthcare training.
- Establishing an innovation cluster of international profile, with substantial export and inward investment potential
- Enabling major health and care benefits, regionally and beyond.
- [redacted]

5.2 Wider strategic plans

Demonstrate how this proposal fits with the wider strategic plans of the relevant university or universities.

The University of Bradford is a technology university, specialising in research and teaching in vocational, professional and applied fields of scholarship and working with partners to foster far-reaching impact. UoB's strengths in healthcare and digital sectors are broad in scope (Annex C).

UoB committed in January to investing [redacted] in a new Health and Well-being Centre, including mobile MRI and CT scanners, in which pharmacy, eye clinic, GP surgery, pathology lab and physiotherapy facilities would enable teaching and research into new clinical pathways, in partnership with and service to the local community. The *Digital Health Zone* would allow us to integrate these activities with healthcare service innovation by partners occupying an additional 600 m^2 business accommodation. Moreover, the BIS grant would enable us to bring forward the plans by 27 months and improve impact of services to a broader community. The Digital Exchange creates great

additionality for UoB, opening opportunities for teaching, research and student enterprise around computing and medical engineering in particular.

UoB opened the £6M *re:centre* in October 2013 as the front door for business with a focus on sustainability and the circular economy. Eight incubator units are now let to seven SMEs and one UoB project team. [redacted]

UoB's mission statement is "Making Knowledge Work" and our core values are quality, diversity, internationalism and sustainability. The *Digital Health Zone* is completely consonant with who we are and what we do.

6. INDICATIVE PLAN AND MILESTONES

5.1 Provide an indicative plan that shows the timetable for the establishment of the zone and the delivery of the facilities.

Key milestones [See Annex D for a more detailed schedule]
Formal partnership agreement – Jul 2014
Design / Digital Exchange upgrade commences – Aug 2014
HWC project commences – Aug 2014
Director in post – Sep 2014
Secure ERDF revenue grant for Apr 2015 onwards – Jan 2015
[redacted]
Benefits checkpoint / BIS annual report – Jun 2015
Benefits checkpoint – Dec 2015
Benefits checkpoint / BIS annual report – Jun 2016
Benefits checkpoint – Dec 2016
HWC complete – Dec 2016
[redacted]

Success criteria
The first of planned twice-yearly benefits checkpoints falls in June 2015. Progress against the profile of benefits detailed in Annex E will be evaluated.

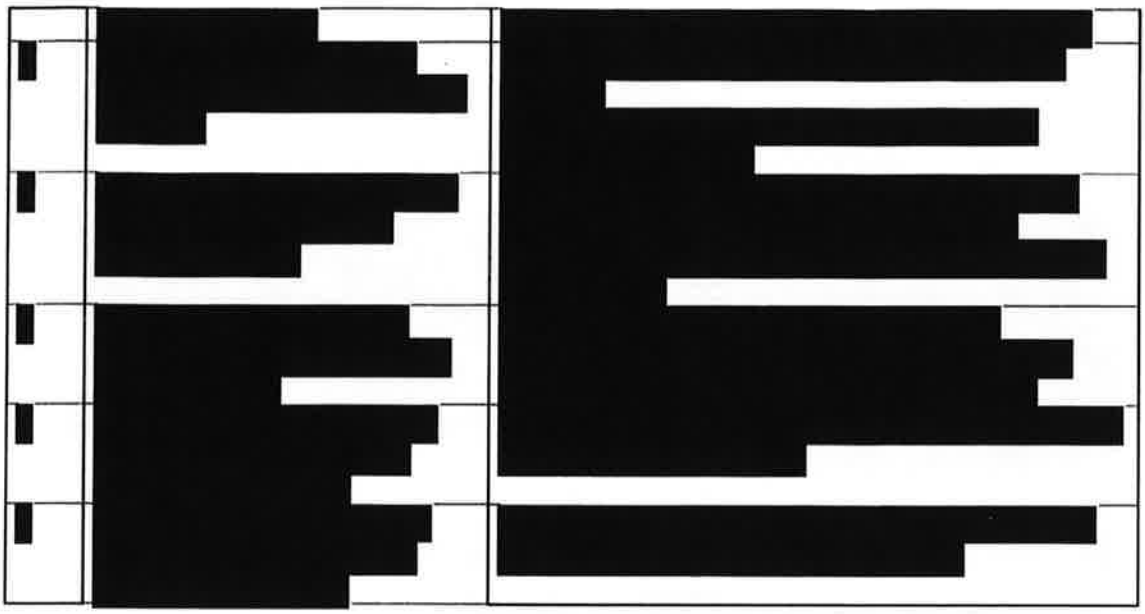
6.2 Predicted spend profile
Outline the predicted spend profile during development, demonstrating that the award will be spend across the three year period

Yr 1: expenditure: £2.7M – award: £667k
Yr 2: expenditure: £5.8M – award: £2.9M
Yr 3: expenditure: £3.5M – award: £233k [More detail in Annex F]

7. RISKS AND CONTINGENCIES

Outline the risks (management, financial, commercial), strategies for their mitigation, and contingency planning. Please add additional lines to the table as required.

No.	Risk	Mitigation
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]



8. DATA PROTECTION ACT

BIS is subject to the Freedom of Information Act 2000, which gives a public right of access to information held by a public authority, which may result information arising from this work, or the outputs from the work undertaken being subject to disclosure if a valid request is made. We will comply with such requests in accordance with the legislation and our own policies.

Institutions can if they wish provide potentially sensitive information (such as information relating to commercial interests) in a separate annex attached to the application form. This will highlight to us that there are concerns about disclosure.

Where we consider it to be appropriate and practicable we will seek views of applicants before disclosing this information in response to a Freedom of Information request. The applicant acknowledges that the information provided in the annex is of indicative value only, and that BIS may nevertheless be obliged to disclose this information. Our assumption will be that all information in the main application documents can be disclosed on request.

9. DECLARATION

I declare that the information in the application form and accompanying documentation is correct to the best of my knowledge and belief

Signed.....

Name..

Position

Date.....31 March 2014

Now email this application to uez@bis.gsi.gov.uk . The deadline for this application to be received by BIS is 5pm on 31 March 2014.

The Digital Health Zone

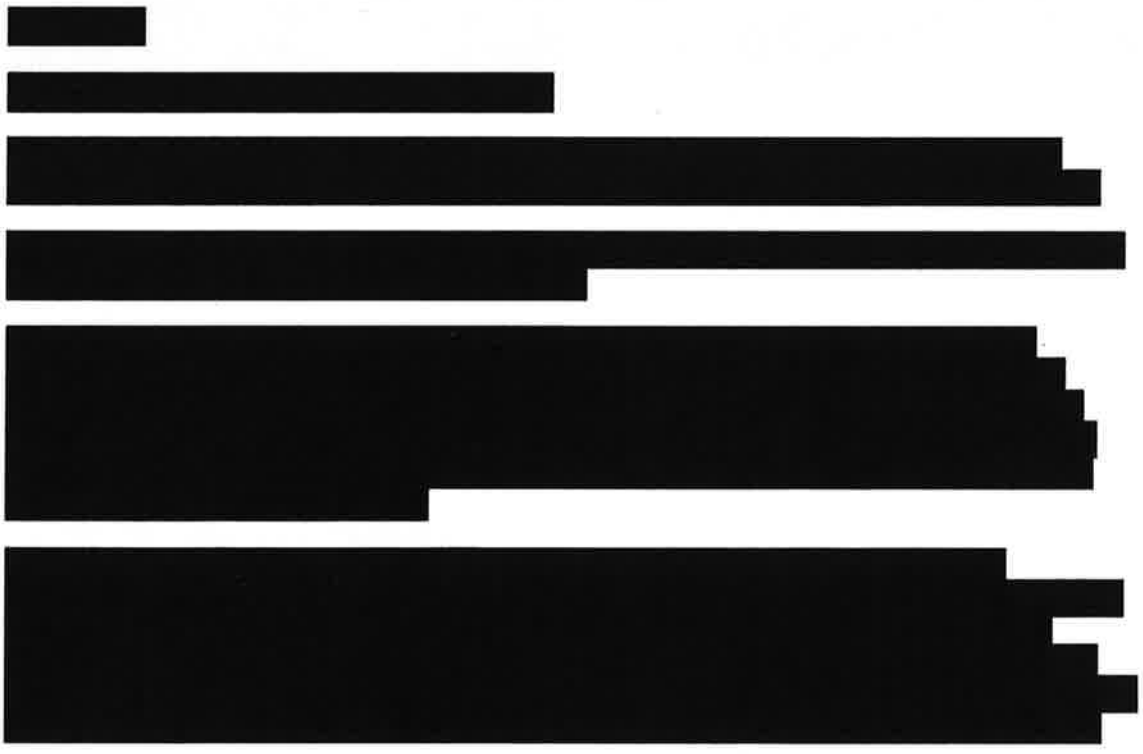
ANNEX A: Governance of the Digital Health Zone.

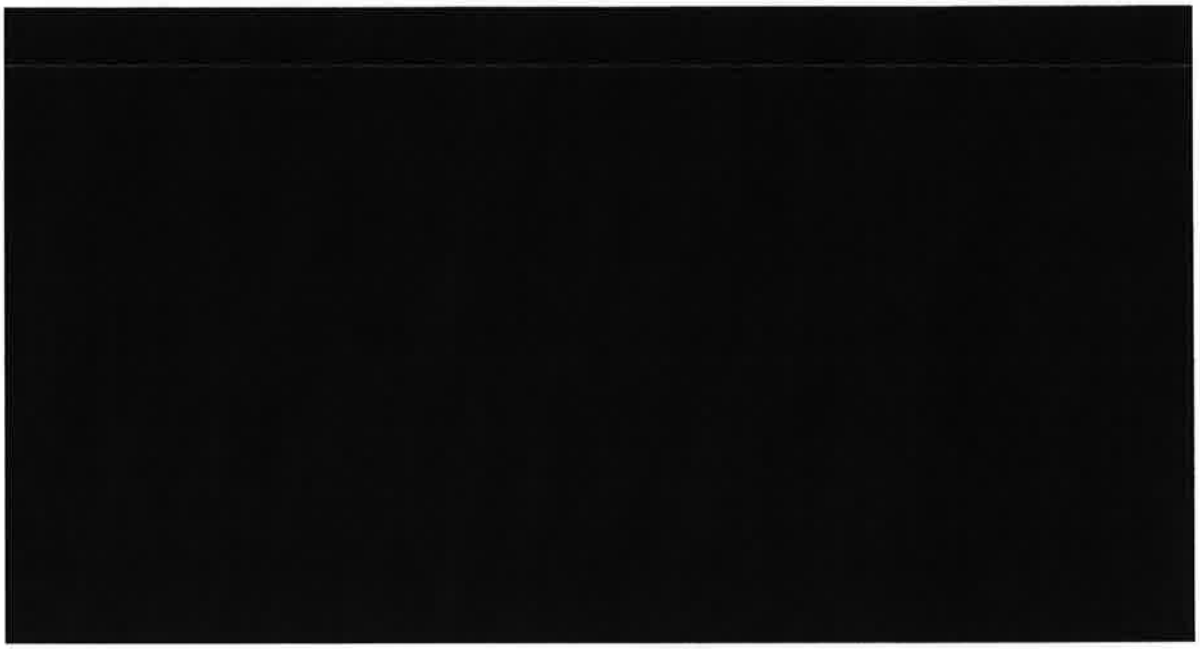
[redacted]

[redacted]

[redacted]

[redacted]





The Digital Health Zone

ANNEX C: Alignment of University of Bradford Research Interests with the Digital Health Theme

Area	Contact	Description	Digital Health Potential
Artificial Intelligence and Data Analytics		Research is focused on machine learning, information representation and integration, data mining, knowledge discovery with applications in data governance, health care, (privacy in) web databases and social networks, chemo- and bio-informatics, business intelligence, decision support systems, operations research and education.	Decision support systems. Evaluating interventions. Pattern recognition in Electronic Medical Records.
Born in Bradford		The Born in Bradford study answers questions about health and health inequalities by tracking the lives of 13,500 babies and their families from all cultures and backgrounds to find out more about the causes of childhood illness.	The data from this study can be used to consider culture and background of families and children to inform telehealth preferences and content.
Cancer Therapeutics		The Institute of Cancer Therapeutics houses a multidisciplinary team of researchers in the field of drug design, synthesis, screening and pharmacology. Research covers the three broad stages of cancer medicines development: discovery, pre-clinical evaluation and clinical application.	To explore telehealth approaches to communication on cancer awareness, cancer screening, cancer patients and cancer carers.
Circular Economy		The School of Management's re:centre partners with business to deliver radical business solutions, particularly around sustainability and the circular economy. The re:centre formalises the various strands of University research on sustainability to enhance research capability and embeds our commitment to corporate social responsibility.	Telehealth systems are resource efficient reducing the need to travel and for paper based records. Circular Economy approaches enable the maximisation of benefits from this efficiency.
Cyber Security		A University-wide network comprising experts in engineering; media, technology and design; peace studies and management. The team holds ISO27001 accreditation for information security.	The safety of patient data and how we avoid information about people's health being compromised will be a key consideration when increasing the use of technology in the health sector. The group includes ISO27001 in its planned training provision.

Dementia	Understanding, evaluating and improving quality of care for people with dementia, with a focus on care provision by paid care staff. The research is concerned with a variety of care contexts from day services, to residential care and acute hospital care as well as specialised nursing home provision. One key aspect is the development and appraisal of methods of evaluation of quality of care, such as observational methods (including dementia care mapping), and methods of gaining directly the views of people with dementia.	Telehealth is a fundamentally person-centred approach. This is the guiding ethos of the Bradford Dementia Group.
Digital Media Working Academy	The Digital Media Working Academy is a professionally run service using students to undertake commercial projects. They can develop websites, promotional videos and interactive products to meet client's needs.	The Digital Media Working Academy can provide expert advice and carry out work to create digital media solutions to Telehealth problems.
Emotion Recognition	The Centre for Visual Computing have developed a lie detector based on the analysis of human facial expressions, eye movement and micro facial expressions. Both visual cues (based on facial images through video) thermal cues (based on images from thermal cameras) combined with psychological analysis provide clues where a person may not be telling the truth.	Creating support systems to assist Telehealth practitioners in assessing the emotional state of patients.
Medical Engineerin	This research area covers clinical biomechanics, tissue mechanics, vision and mobility, orthopaedics, haemodynamics, neurovascular disease, epidemiological modelling and infection control. The multidisciplinary team brings together technologists and health experts, and has strong links with hospitals globally.	Clinical biomechanics and human movement analysis: opportunities to create video consulting tools for orthopaedic conditions.
Operations management	The Operations and Information Management Group encompasses themes around information security, the development use and effectiveness of information management systems, information systems strategy and investment, green IT and sustainable systems, organisational learning and change.	How health organisations structure and plan their telehealth services and consider learning and change processes required for their employees.

Pathology	Bradford Pathology provides education and training in the design and delivery of diagnostic histopathology; with a focus on factors that can speed the introduction of digital technologies into the laboratory setting. Bradford Pathology is in partnership with Philips Digital Pathology Solutions to develop diagnostic digital pathology and promote its adoption in healthcare.	Introducing telehealth into pathology laboratories to develop digital diagnostic tools.
Pharmacy	Major research areas include medicines development, pharmacology, medicines optimisation and education innovation, research and development. This area includes the Centre for Pharmaceutical Engineering Sciences which offers expertise in the areas of pharmaceutical materials, drug delivery systems, novel process development, reactive extrusion, material characterisation and Process Analytical Technology (PAT).	Patient information about their medication and communication between pharmacist and patient. Development of tools to assure compliance with prescriptions, especially with the complex combinations of medicines prescribed to older patients presenting several co-morbidities.
Psychology	The Applied Health and Social Psychology Group draw upon psychological principles and theory to research how a range of issues impact upon health and wellbeing. Key areas of interest in relation to telehealth are mental health and health advice to mothers.	The social impacts of telehealth approaches to mental health patients and mothers.
Service Improvement and Quality	This area has expertise in service improvement and quality providing efficient healthcare services that enable people from our diverse society to access the services they need at the right time so that patient outcomes can be improved. and is focussed around 4 main areas of activity: society, well-being and diversity; error reduction, patient safety and organisational learning; improving healthcare quality through practice innovation; measuring and monitoring healthcare quality. This area incorporates service quality in **midwifery, physiotherapy, nursing and occupational therapy**.	Developing innovative, high quality and cost efficient services for hard to reach communities and breaking down geographical boundaries of healthcare provision. Empowering patients (with electronic patient records, blood pressure monitoring, medicines safety initiative, tele-consultation) and carers (particularly those looking after elderly or demented relatives)

Skin Sciences	One of the largest academic centres in Britain for fundamental and translational skin and hair follicle research (including the Plastic Surgery and Burns Unit). The Centre's 30 year research profile is contributing to a greater understanding of what is required for healthy skin and hair.	Development of televisual assessment tools to diagnose skin conditions and monitor wounds, e.g. diabetic foot ulcers
Social Work and Social Policy	One of the Centre for Applied Social Research's key themes is living with Dementia and the changing response to this condition, including the way social care is changing to support people living with dementia. Another key theme is global health. The group are studying vulnerability to health problems, the social impacts of them and global interventions to prevent and mitigate against health outbreaks.	Exploring how technology can help educate people in their homes to mitigate against health epidemics and how people living with Dementia can be supported digitally in their decision-making about their own treatment.
Vision Science (including Optometry)	The Bradford School of Optometry & Vision Science research group comprises a cohesive, multi-disciplinary approach to investigating vision and visual perception to address important research questions. The group continues to build on over 35 years of vision research at the University. Research embraces a broad range of disciplines including; ophthalmology, optics, ocular imaging, machine vision, psychophysics, biomechanics and visual neuroscience.	For example, development of televisual capture and machine analysis of retinal scans for diabetes patients, enabling early diagnosis of diabetic retinopathy.
Wireless and satellite Communications	Research in this area covers Future Ubiquitous Networks (FUN), communications and networking, wireless sensors and embedded systems, future Internet and Middleware and satellite communications.	Secure communications to very remote areas, underpinning telehealth in the maritime sector or the Australian outback, for example.

28 March 2014

The Digital Health Zone

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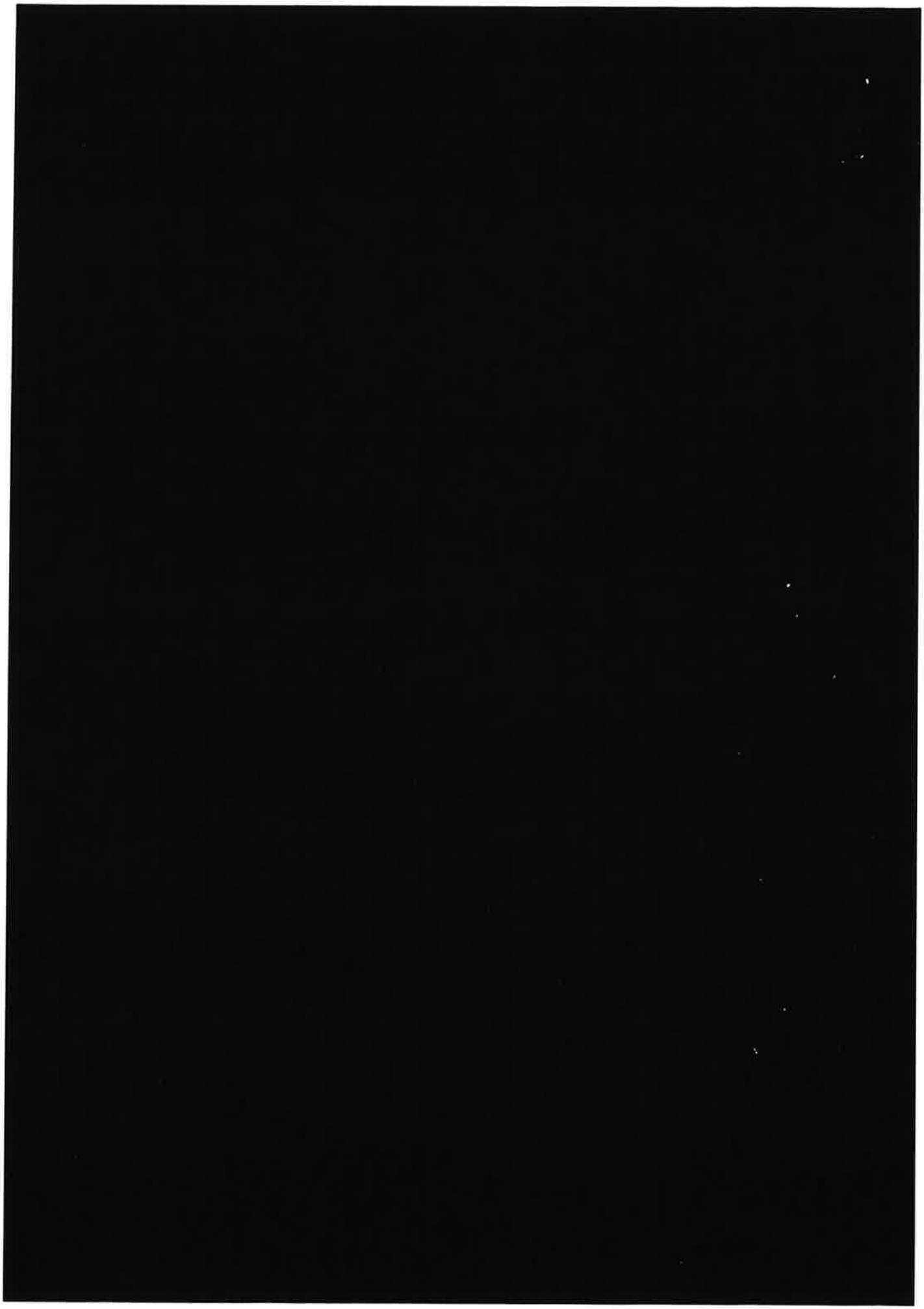
[redacted]



UNIVERSITY of BRADFORD

The Digital Health Zone

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UNIVERSITY of BRADFORD

The Digital Health Zone

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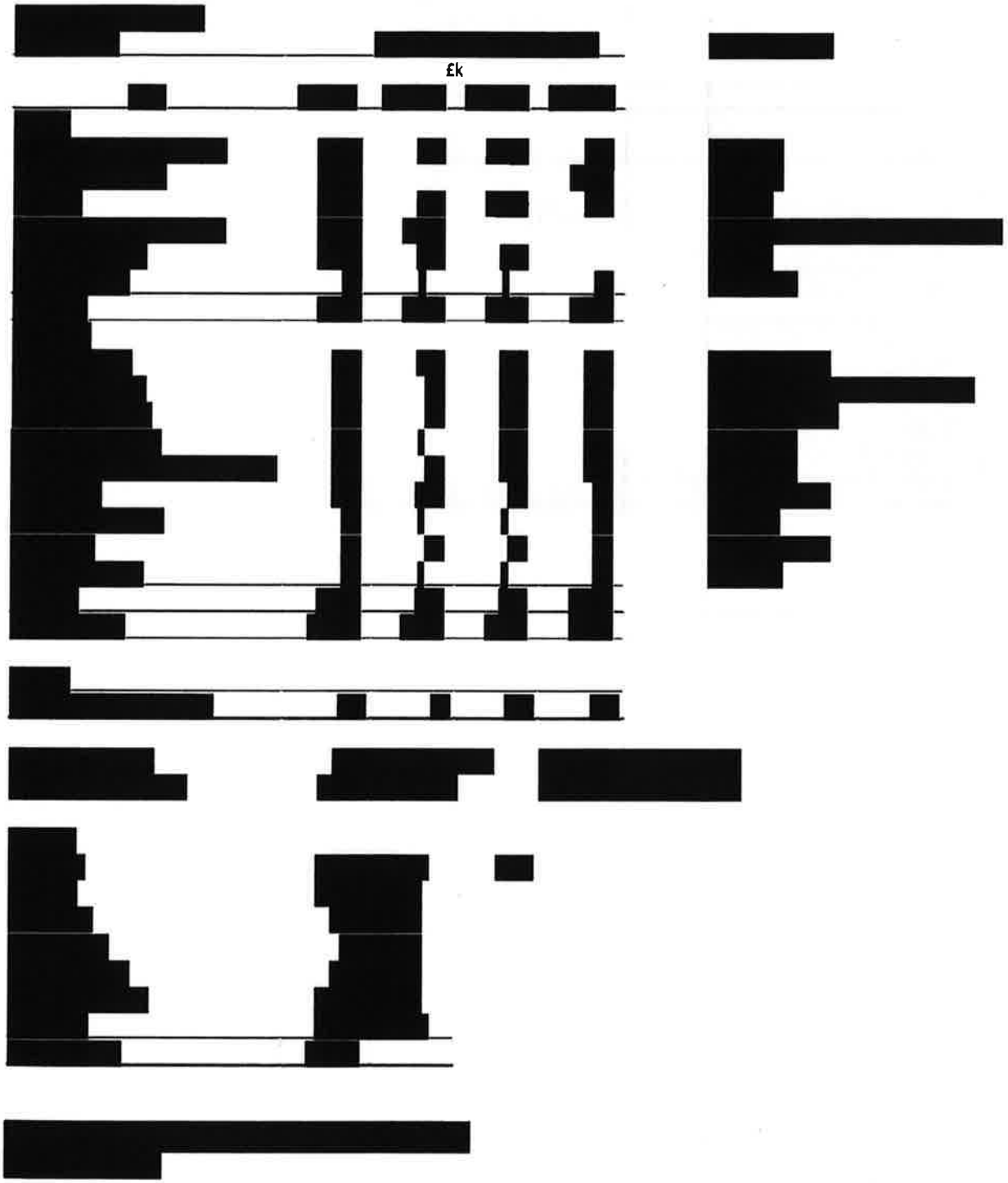

UNIVERSITY of BRADFORD

The Digital Health Zone

ANNEX G: Letters of Commitment and Support

Letters of commitment and/or support have been received from the following organisations and are provided with this Annex.

31 March 2014