

2021

**EIRA: Enabling Innovation:
Research to Application**



Foreword

When we developed EIRA it was given a clear mission to support businesses in the East of England to grow and become more productive by harnessing the innovative capacity of the Universities of Essex, Kent and East Anglia, and drawing on other regional universities to jointly offer support in the areas of digital creative, artificial intelligence and biotech. Data from a number of studies had demonstrated that businesses in the East of England lagged behind other areas of the UK for productivity, and growth in productivity. EIRA was conceived to enable productivity through collaborative innovation built on our established EasternArc research partnership and brought in an extended network of the University of Suffolk, Norwich University of the Arts, Writtle University College and Harlow College, with BT as a key business partner. The themes were based on growth areas identified by South East LEP, New Anglian LEP and the County Councils, and purposely designed to provide support across sectors.

We are very grateful to Research England for supporting this work that helped us engage with over 2,000 businesses and form new collaborations across the universities. I'd like to give credit to the dedicated team based across UEA, Kent and Essex whose hard work and commitment made the programme such a success and enabled the phenomenal outputs detailed here. It has been a privilege to work with all of them under the excellent leadership of Prof Christine Raines. The new collaborations and projects created are just the start, and the links established should endure beyond the programme to continue to benefit the region.

Dr. Robert Singh, Director Research and Enterprise, University of Essex

What is EIRA?



EIRA (Enabling Innovation: Research to Application) was a pioneering new project that transformed the business and economic landscape in the East of England by creating a step change in the way Knowledge Exchange (KE) was delivered.

With £4.7 million funding from Research England, EIRA supported economic growth in the region by connecting businesses with the research power of universities through Knowledge Exchange initiatives EIRA.

EIRA connected the capabilities of 7 prominent higher education institutions (HEIs) including: The Universities of Essex (lead institution), East Anglia, Kent and Suffolk, Norwich University of the Arts, Writtle University College and Harlow College. By linking these institutions together and partnering with businesses, EIRA harnessed their combined capacity to build connectivity and support business growth, providing a one-stop solution for business innovation.

EIRA developed and delivered regional innovation support for businesses to address a gap in the funding landscape through academic expertise and specialist facilities in three core themes: artificial intelligence, digital creative and biotechnology. Through this thematic focus EIRA was able to engage with sectors traditionally less engaged with KE and provide funding in areas with limited alternative funding routes, for example in Digital Creative where innovation funding routes are more scarce.

Together, the EIRA partners responded to the needs of the region's business communities, enabling them to diversify and thrive, whilst supporting academics to commercialise their research, facilitating the creation of new products and services.

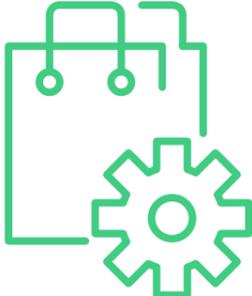
EIRA Partners

The EIRA collaborative partnership brought together a wide range of knowledge and expertise. Three partners who form the EasternArc consortium were in receipt of Higher Education Innovation Fund funding (HEIF), and four partners did not access this funding stream at the time.

- ▶ As lead partner, the University of Essex offered research expertise in AgriFood, the institute for Data Analytics and Data Science, and was first in the UK for the number of active KTPs at the time of writing.
- ▶ The University of East Anglia's research had a significant impact on policy and practice in areas including environment, health, culture, society, the economy and business.
- ▶ The University of Kent brought signature research themes that support social, economic, cultural, intellectual and public life with a deep science and engineering base, and the new Kent and Medway Medical School.
- ▶ Writtle University College was one of the largest land-based University Colleges in the UK with specialism in land-based, design and sport provision.
- ▶ Norwich University of the Arts was a leader in design and media education with a 170-year history of delivery in this field.
- ▶ The University of Suffolk was an enterprising and business-facing university, with a broad KE and enterprise agenda focussing on bridging the skills gap for students.
- ▶ Harlow College had capability in prototyping implementation and, due to this expertise and its geographic location, had the potential to offer niche benefits to the network.

By working collaboratively and connecting capabilities, EIRA capitalised on the research and innovation base of its partners, encouraging connectivity, harnessing a broad range of skills, resources and academic expertise to support business. EIRA enabled smaller institutions to access vital funding to better enable their engagement in KE and build their capacity to deliver regional research and development.

 **281**
regional
businesses
supported

 **34**
new products
and services

50 
business-focused
events with network
business partners

over  **2000**
businesses reached

158
academics
engaged
overall

 **268**
projects funded

32
student and
graduate
start-ups
supported with

7 
HEI partners

42 
interns retained in
continued employment

£93k
microfinance
grants

 **596**
students supported

60 interventions for
Non-HEIF funded
institutions awarded a total of
£310,807

153 
academics engaged
in business focussed
projects

EIRA Themes

EIRA Structure

The EIRA programme established a strong and diverse team that operated across the East of England, instrumental in implementing projects to fulfil programme objectives. Made up of 18 staff members including KE leads, programme managers and support staff based across the three Eastern Arc institutions, the KE team supported innovation by connecting businesses with academic expertise and specialist facilities across the region.

This cross-institutional KE team worked across three core themes, representing known innovative regional sectors: Artificial Intelligence, Digital Creative and Biotechnology. Each theme was represented by dedicated KE staff based across the Universities of Essex, Kent and East Anglia. They provided support and collaboration opportunities for each core theme, and supported cross-network collaborations, which in turn led to better quality external engagement, routes to commercialisation and research excellence.



EIRA Themes

Artificial Intelligence



AI (including data analytics, machine learning, deep learning, computer vision and machine reasoning) remains poised to have a transformative effect on consumer, enterprise, and government markets around the world. These technologies have use cases and applications in almost every industry and promise to significantly change existing business models while simultaneously creating new ones with worldwide revenue forecast to grow \$38 billion in 2025. Companies require innovation support to adapt their business models and on-board capability to future-proof themselves in this changing environment. This includes movement toward models for manufacture to fully utilise the internet of things and cloud computing technologies. Large companies are making acquisitions of technology start-ups to achieve this and for smaller organisations, the research expertise of universities offers a means to access knowledge and skills.

Examples of EIRA Artificial Intelligence Projects:

- ▶ Developed an in-ear device to non-invasively treat stress and anxiety.
- ▶ Applying machine learning techniques to improve seabed mapping speed.
- ▶ Research user journeys of an online platform for letting agents, landlords and tenants to connect.
- ▶ Creating VR experiences to diversify business model for property management.

Biotechnology

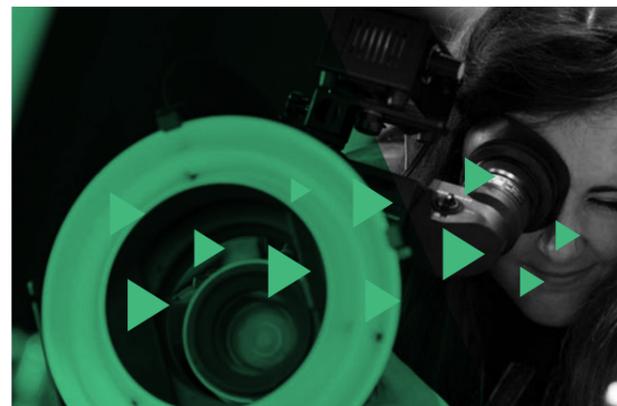


The Bio and Agri sectors are of key importance to the East of England given it contains large rural areas with substantial crop growing industry (e.g. British Sugar and G's Growers). Across EasternArc partners there is expertise in biotech across the disciplines of health, food, agritech, environmental science and in cross cutting technologies with multiple potential applications.

Examples of EIRA Biotechnology Projects:

- ▶ Paper crumble for soil enhancement & carbon storage offers benefits in arable soils.
- ▶ Biodegradable food spray that protects fresh salmon and reduces packing costs.
- ▶ Using local fruit waste as a feedstock for biofuel production.
- ▶ Increased efficacy of chemotherapy drugs by new nanoparticle cancer therapy.

Digital Creative



Creative industries are of great strategic importance to economy of the eastern region. Within the SELEP area, the creative economy accounts for around one tenth of the whole economy providing over 2.5 million jobs and **generating over £2.5bn in GVA**. The creative sector is characterised by small and micro companies and although support for company growth is important, it is recognised that economic growth can occur through expansion of clusters rather than individual businesses. Funding routes for digital creative work remain limited, and EIRA has enabled many projects to go ahead which would have struggled to find alternative funding.

Examples of EIRA Digital Creative Projects:

- ▶ VR used to enhance the delivery of theatrical performances as an immersive experience.
- ▶ Development of AR-based artwork at the world's first Digital Art Park.
- ▶ Development of safe virtual environment technology for assessing dangerous inappropriate fire interests.
- ▶ Development of digital creative marketing materials and capabilities to raise brand awareness.

“The EIRA internship funding was essential in allowing for the creation and delivery of both substantial experiences of work for students, whilst providing an essential boost to low SMEs in these distinct sectors. Although alternative funding models are available – the EIRA funding is far more accessible to businesses, notably the smaller enterprises. The EIRA internships had a much greater rate of employment than non-funded/ alternatively funded internships.”

- Business, Innovation Internship

The EIRA Interventions

Interventions

EIRA offered support across the Eastern region through nine specific funding routes/intervention types. Interventions offered funding for businesses, funding targeted towards students and graduates and funding for academic research.

Funding for Business

Innovation Vouchers	Up to £7.5k to pay for an academic expert to solve a business challenge or scope a new business idea or product.
Research and Development Grants	£20-50k of funded support for collaborative R&D activity for projects.
Innovation Internships	Providing eligible SME businesses with a student or graduate to work on a thematic project.
i-Teams	Multi-disciplinary student teams and business mentors work together to find solutions for business challenges.
Hothouse	Hothouse events taking place at BT's Adastral Park facility and bringing together a range of stakeholders and academic experts to explore collaboration and sector-specific topics.

Funding for early stage business, student, and graduate start-ups

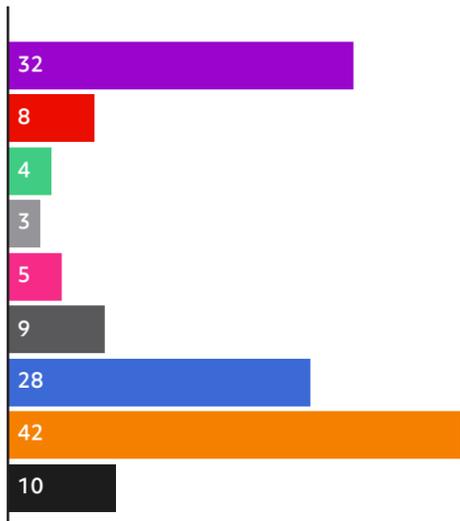
Start-up Microfinance	Small grants to test and develop business concepts.
Digihubs	Develop entrepreneurial skills through creation of digital products and services.
Enterprise Accelerator	Collaboratively develop entrepreneurial skills.

Funding for academic staff

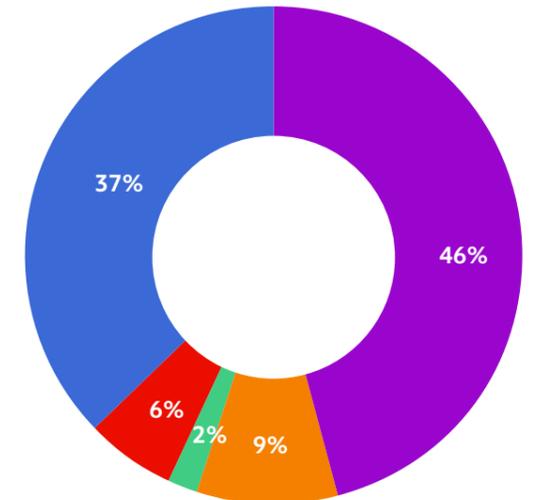
Proof of Concept Fund	Support to develop research output into licensable or investment ready propositions.
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EIRA Interventions

Microfinance
iTeams
Digital Hub
Enterprise Accelerator
Hothouse
PoC
R&D
Innovation Vouchers
Innovation Internships

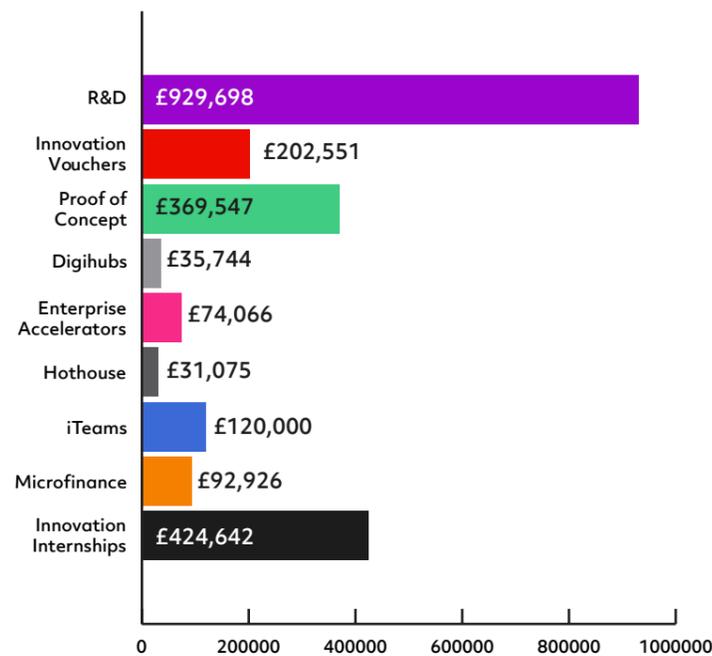


Types of Business Supported



Legend: SME's (Purple), Large (Red), Freelancer/Sole Trader (Green), Charity/NfP (Orange), Micro (Blue)

Funding Awarded to each Intervention Type



"I never thought I would have a company... it [iTeams] showed me there are ways to get into business and how I could enjoy it. I now see the importance of linking business with the research."
- Student, iTeams

Research and Development Grants

 **28** projects
 **£929,698** awarded

EIRA R&D projects increased business productivity by enabling the commercialisation of research to create new jobs and services for the region. R&D grants provided companies of all sizes with £20,000-£50,000 of funded support for collaborative R&D activity for projects. They supported a wide range of activity including feasibility testing, development of a product or service, de-risking a complex innovation, diversifying product range and optimising organisational processes. EIRA provided 75% of R&D project costs, with companies funding the remaining 25%.

Colour imaging pipeline for orchard aerial surveys

Outfield Technologies is an agri-tech startup based in Cambridge that is developing applications for drone and imagery recognition systems in managing fruit crops. Working with the UEA, this EIRA R&D project developed an imaging solution for assessing the colour of fruit in a commercial orchard from a drone survey, in order to predict the quality of the orchard yield. The resulting solution improved Outfield's current surveying systems and has contributed to developing future crop management services. The outcomes from this project will allow Outfield to offer fruit quality assessment as a feature to apple grower customers worldwide. This will increase the competitiveness of the Outfield system and its utility to growers.

Establishment of sperm DNA damage screening practices for UK fertility clinics

LogixX Pharma is a speciality pharmaceuticals company with core competencies in the fields of Pharmaceuticals, Nutraceuticals, OTCs and Medical Devices. LogixX Pharma were awarded an EIRA Research and Development Grant to collaborate with world leading fertility experts from the University of Kent to accurately measure DNA damage in sperm, and increase the scientific understanding of the causes and consequences of sperm damage. Both sperm DNA fragmentation assays have now been established as core screening methods in the labs at the University of Kent, with 100 clinical samples analysed using the acridine orange method. The team are on the pathway to MHRA registration and are continuing to evaluate the sperm oxidative damage assay.

LogixX Pharma is now in a position to market the DNA fragmentation assay tests commercially for animal samples and has already identified an equine company requiring analysis. LogixX Pharma will be able to offer human sample analysis commercially following MHRA registration.

The Mystery of the Raddlesham Mumps VR experience

Author of epic gothic poem 'The Mystery of the Raddlesham Mumps', Murray Lachlan Young, and Creative Producer, Matt Linley wanted to explore the commerciality and audience experience of multi-platform media based on the poem. Would a VR prequel of the poem increase audience engagement, understanding and enjoyment of the different texts? With the help of the University of Essex, this project explored how the VR experience could increase ticket sales by offering something unique to audiences. The project also explored how to successfully introduce elements of VR into a live performance of a family show, and understand the extent to which the VR element enhanced the experience of the live audience, with a view to informing the development of future cross-platform projects.



Proof of concept Funding

 **9** projects
 **£369,547** awarded

Proof of concept funding empowered academics to bring their research to market, resulting in ground-breaking studies including an AR solution for visual impairment that was selected for a national competitive funding opportunity. The Proof of Concept Fund provided support for academic staff to develop an idea with a commercial focus. The fund helped academics to further develop their innovative idea, to produce more robust data or generate more data to support a patent application, test feasibility, and prove market potential.

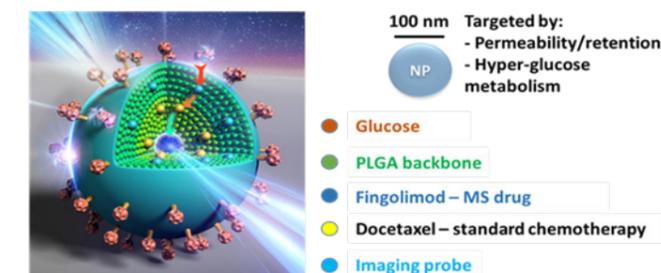
Real-Time AI-Assisted voice reconstruction

University of Kent academics developed real-time AI-assisted voice reconstruction for the voice impaired. This EIRA funded Proof of Concept project developed a wearable computer system utilising AI and Machine Learning techniques to reconstruct the voice. Using a miniature "system on a chip" connected to a microphone to pick up a users' impaired speech, academics were able to analyse the signal, identify impaired components in the speech and repair those computationally, then regenerate the reconstructed speech audibly through a loudspeaker.



New nanoparticle cancer therapy closer to clinical trials

Taxane chemotherapy is offered to patients with advanced or metastatic cancers, but has limited effect due to its dose-limiting toxicity, side effects and the emergence of chemoresistance. i.e. tumours developing a resistance to the drug over time. UEA researchers studying chemoresistance found a protein (SK1) was linked to the problem. Fingolimod is a clinically approved drug which suppresses the activity of SK1 and was therefore a potentially useful drug to combat chemoresistance. However, as it suppresses the immune system it cannot currently be used as a cancer therapy. With EIRA Proof of Concept funding, Professor Dmitry Pshezhetskiy and his team at UEA identified and developed a new drug delivery system using nanoparticles containing a combination of clinically approved SK1 inhibitor Fingolimod together with Taxane chemotherapy. This unique system targeted cancer sites with greater accuracy - safely delivering powerful drugs and increasing the efficiency of the chemotherapy treatment. EIRA funding enabled the novel cancer treatment to move closer towards human phase 1 clinical trials.



Innovation Vouchers

 **42** projects
 **£202,551** awarded

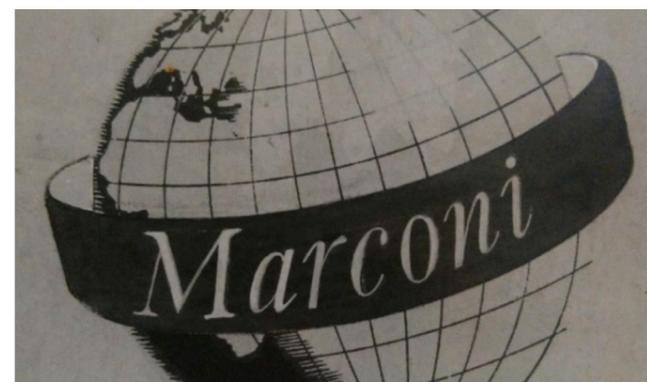
Innovation vouchers provided small or medium-sized business with up to £6,000 to engage with EIRA expertise, with the opportunity to foster a long-term partnership. Funds paid for academic experts to provide businesses with expertise tailored to their needs. They supported a wide range of activity including scoping or developing new products, improving business efficiency, exploring ways to stimulate growth, solving problems and developing employees. EIRA Innovation Vouchers covered 80% of the total project cost, with companies funding the remaining 20%.

Seaweed pods for personal care products tackle global plastic crisis

New start-up company Squish Ltd. received EIRA and Santander grants working with the UEA to develop a clean and green biodegradable packaging solution for personal care products. They plan to target the use of single use plastic bottles in the hospitality sector for bathroom products such as shower gel and shampoo with plans to capture market share across the sector with creative business models as the company grows.

A digital strategy to enhance the Marconi Photographic Archive

The Marconi photographic archive, held by The Essex Record Office (ERO), houses records of national and international significance on innovation and the application of technology that the county of Essex has made over the years. The ERO, the University of Essex and the UEA were awarded an EIRA Innovation Voucher for a collaborative project to inform the creation of a digital strategy to enhance public engagement with the Marconi photographic archive.



Applying machine learning algorithms for the 'Mature Movers' physical health, exercise and wellbeing framework

Vitality Hub, a Kent-based business that offers health, fitness and wellbeing courses, wanted to investigate the potential for applying machine learning algorithms to data collected from the 'Mature Movers' physical health, exercise and wellbeing programme. This programme specialised in fitness for people aged over 65, and involved working with individuals in their homes or within the residential and nursing care home industry. EIRA funding enabled the business to gain academic expertise from the University of Kent to identify a machine learning algorithm that could automate the grouping of Mature Movers clients to design personalised programmes for them. Rosaria Barreto, Director at Vitality Hub said: "This research provided the foundations for business vision and scalability options. The collaboration has brought about traction in the industry and unforeseen opportunity."



Innovation Internships

 **137** projects
 **£424,642** awarded

SME businesses based in the East of England were able to apply for an Innovation Internship with a student or recent graduate from one of the EIRA partner universities and colleges. The internship opportunity had to either align with the three key EIRA themes of biotechnology, AI and digital creative, or contribute to an innovation that will have economic impact for the region. 82 businesses took part in the Internship programme, and 30% of interns were retained in employment once the internship had finished.

AbBaltis Internship

Paige Policelli, a PhD student from the University of Kent, took on an EIRA internship with AbBaltis, who serve the in vitro diagnostics and biotech markets by offering innovative, reliable and quality biologically-based products for their clients. "My time at AbBaltis was thoroughly enjoyable and extremely valuable to my career as a laboratory scientist. I got to see the business side of science, which is something that was new to me, as I had never worked in industry. Giedre is a fantastic example of an inspirational woman within STEM and I'm now part of a great network".



Agile Research Internship

Agile Research is a start-up company that conducts desk-based and primary research with customers and end-users to improve products, services and marketing. The EIRA Internship scheme gave the company an opportunity to work with the University of Essex by taking on two student interns to help the business with digital marketing. The social media activity and campaigns which the interns led on greatly improved SEO rankings, produced multiple leads, and several contracts.



Microfinance

 **32** projects  **£92,926** awarded

The Microfinance fund enabled students and recent graduates from across the EIRA network to apply for a grant of up to £3,000 to help kick-start a business idea. Projects were diverse ranging from the development of a VR solution to tackle diversity and inclusion issues in recruitment, to an exercise pool for our K9 friends and the development of a social media platform grasping the use of 'Friendvertising'.

Blank Slate Body

Using EIRA Microfinance funding, University of Essex graduate Sara Lessman created Blank Slate Body, an online course for actors, which focuses on fitness and elevating movement. The main premise of this course was understanding the role of an actor as an athlete and achieving a higher level of physical fitness using what Sara calls a 'body-centric approach.' This was incorporated into the course using innovative methods such as animal study to better portray human character on stage, rather than using traditional athletic exercises. The course managed to attract an impressive number of customers, despite the setback of the global pandemic.



Talman HR

Talman HR is a talent management consultancy specialising in diversity and inclusion, set up by University of Kent graduate Chris Wright. Talman HR secured microfinance funding to develop a VR solution for businesses looking to tackle diversity and inclusion issues in recruitment. To do this, they created a VR experience using Cerebral Palsy as a case study which tested attitudes and opinions to diversity and inclusion. This could then be used for extending the concept to encompass the inclusion of others whose needs are protected in the Equality Act 2010. The microfinance grant also supported the business case for employing diverse talent and the 'hidden' impacts on business growth potential. Since completion of the project, Talman HR has received potential commercial interest from a number of different parties.



iTeams, Digihubs, Enterprise Accelerators

 **15** projects  **£229,810** awarded

Student focussed interventions included a broad range of activities from Enterprise Accelerator events, Digital Hubs to iTeams events. iTeams events combined teams of interdisciplinary students with industry mentors, who worked together to develop a product solution for issues affecting a business. EIRA Enterprise Accelerators built entrepreneurial thinking and developed skills in areas such as idea generation, market research and pitching. Digital Hubs supported software development, enabled innovation, enhanced business skills and increased the potential of business formation.

The EIRA / PepsiCo Innovation Weekender

The EIRA / PepsiCo Innovation Weekender was held in March 2020 (pre-lockdown) as an intensive, residential course for students from five universities to work together solving real business challenges.

In total 59 students from across the EIRA network participated in the event to produce innovative and creative solutions to a real life business challenge set by the Challenge Sponsor, PepsiCo. A range of skills development workshops were delivered and team building exercises undertaken via outdoor activities, to enable personal development and good team working. Students were split into mixed university teams before being allocated PepsiCo brands for the challenge: to make their brand and associated products more relevant to Gen Z. Judges were particularly looking at who had innovated against shopping habits, formulas / tastes, packaging, new product lines and routes to market. The project achieved the aims set for students which were reflected both in the solutions presented to PepsiCo and their feedback via the end of project survey. The University of Kent engaged an industry leader – the Challenge sponsor PepsiCo, the largest most high-profile sponsor of a student event, and although an existing client of Kent, this was the first engagement of this company in student delivery partnership with a select number of universities of this nature.



i-Teams

For 3 years EIRA funded the annual delivery of an i-Teams event at UEA. The aim of each 12-week programme was for post-graduate students and post-doctoral researchers to develop transferable skills vital for employability. Each programme supported students to identify the key commercial benefits of a technology and its product innovation. Students gained valuable insight into some of the challenges of the business world and developed their commercial awareness, analysing relevant competitors and potential collaborators, investigating and contacting relevant industry experts, extracting useful information from commercial contacts, and analysing incomplete data from a variety of sources to draw a justifiable conclusion.

The i-Teams programme provided business owners with additional information about their product or service, so that they could make more informed decisions about next steps. As well as a public presentation, each team handed over a project report to business owners, with more detailed information about contacts, ideas and feedback on their project.

"Walking the journey of market discovery with the i-Teams team was an incredibly rewarding experience. It brought to the project new perspectives that opened new possibilities that we had not previously envisaged."
(Business Owner)

Regional Overview

Hothouse events enabled business and academic collaboration for the topics most relevant to business. By attending events hosted by BT at their Adastral Park R&D headquarters, online or at our partner institutions, attendees were able to network with the wider business community and seek solutions for the most pressing challenges.

On the 14th January 2021, EIRA's Digital Creative team hosted an online event that explored how libraries and archives can use digital innovations to increase audience engagement with their services and content. Funded by Research England's Connecting Capabilities Fund, this virtual event was undertaken as part of the EIRA collaboration with BT's Hothouse team.



EIRA's virtual hothouse featured conversations with technologists, academics and archivists from national and regional organisations, including the BBC, BT, Innovate UK, and the British Library. As well as sharing their experiences of using digital technology to make libraries and archives accessible to the public, the panels discussed ideas for using these repositories of community knowledge to deliver economic and social good.



At the time of delivery, the size of the EIRA economy was £130 billion with a population of 6.1m. This equates to £21,300 gross value added (GVA) per head. The largest economies were those of Kent and Essex, both just under £40bn. The five counties in the EIRA region had similar GVA per head figures with Suffolk highest at £22,600. Compared to London, the rest of the East of England and the South East regions, the EIRA economy was lagging behind. The GVA gap between the EIRA economy and the rest of the two regions was 30% or £56bn below their neighbours.

Size of the EIRA Economies and GVA per Head 2016

	GVA (£million)	Population	GVA per head
Suffolk	16,839	745,274	£22,594
Kent	39,021	1,820,435	£21,435
Essex	38,268	1,802,164	£21,234
East Sussex	17,683	837,026	£21,126
Norfolk	18,015	892,870	£20,177
EIRA Counties	129,826	6,097,769	£21,291
London	408,478	8,787,892	£46,482
South East (exc. EIRA Counties)	202,201	6,368,836	£31,749
South East	258,905	9,026,297	£28,683
East of England (exc. EIRA Counties)	74,262	2,690,234	£27,604
East of England	147,384	6,130,542	£24,041
UK	1,729,092	65,648,054	£26,339

“When we got into this programme, it was like a whole doorway opened up into all these areas... going forward we will definitely work with academics in future, and we are doing it at the moment.”

- Business, Innovation Voucher

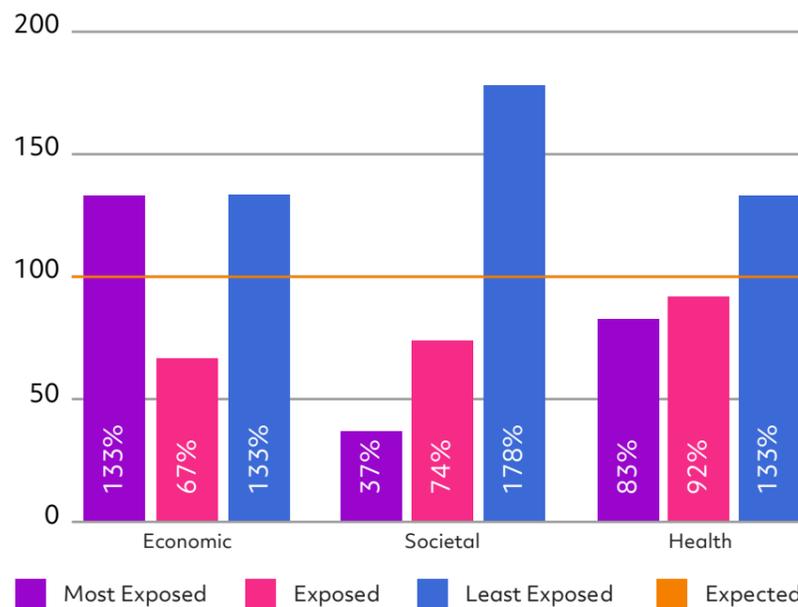
Impact of Covid-19

An assessment of the EIRA region’s vulnerability to Covid-19 exposure used a model devised by Hatch Ltd. The model categorised English districts into either ‘most exposed’, or ‘least exposed’ to the virus. An analysis against the three broad sets of indicators of ‘economic’, ‘societal’ and ‘health’ explained how the results were distributed.

A review of the 45 local authority EIRA districts presented quite a mixed picture.

The economic indicator (that has combined indicators for employment, businesses and self-employment), showed that EIRA districts were a third more likely to be in the most exposed category compared to the expected average. It had a similar proportion of least exposed businesses.

This meant that future support would need to cope with a high proportion of businesses at either end of the spectrum – high and low exposure.



“Even when projects have not come to fruition, new relationships have been developed... capabilities were connected and networks built for future projects.”

- EIRA support team

Financial Impact

An independent economic assessment of EIRA’s contribution to the regional economy, looking at net present value of each of the nine strands of EIRA’s activity over the last three years, including direct, indirect and induced impacts showed:

- ▶ Total GVA was £8.3million.
- ▶ Total project benefit cost ratio (BCR) of 1:3.65.
- ▶ R&D grants contributed 36.6%.
- ▶ Innovation Internships contributed 28.8%.
- ▶ EIRA enabled £2,618,882 in leverage funding from funds including IUK Covid, IUK SMART Awards, Seafood Innovation Fund, SBRI, EPSRC, DCMS and MRC funds.
- ▶ £1.5million of business investment to innovation projects.

EIRA’s interventions have shown an increase in regional productivity. Highlighted below are the interventions that produced notable BCR and their financial value to the region.

Intervention	BCR	Total GVA
R&D Grants	3.19	£3,024,083
Innovation Internships	5.61	£2,382,062
Proof of Concept	2.49	£809,603
iTeams	3.51	£412,742
DigiHub	3.13	£82,140
Training	2.08	£207,966

GVA NPV Impact	Total	%	BCR
Innovation Vouchers	£374,048	4.5%	2.63
R&D Grants	£3,024,083	36.6%	3.19
Hothouse Event	£51,593	0.6%	1.96
Proof of Concept	£809,603	9.8%	2.49
Micro Finance	£825,484	10.0%	2.53
Enterprise Accelerators	£103,186	1.2%	1.66
iTeams	£412,742	5.0%	3.51
Innovation internships schemes	£2,382,062	28.8%	5.61
Digital Hubs	£82,140	1.0%	3.13
Training	£207,966	2.5%	2.08
Total	£8,272,907	100.0%	3.65

Reach

EIRA engaged with businesses throughout the region, and some that brought direct benefit to the region although they were based further afield, for example Plant Raisers, based in East Yorkshire with a significant proportion of their customer base in the East of England. The map below demonstrates the regional coverage of EIRA delivery.



Online Engagement

EIRA's communication strategy was vital in increasing the knowledge and understanding of EIRA as a brand and what it could offer to those looking to benefit and participate in innovation in some way. The EIRA brand became recognised across the region and was a key highlight of the marketing and communications strategy.

EIRA's communication strategy sought to increase audience awareness and understanding of the EIRA project, drive traffic to the website and encourage business engagement, through EIRA social media channels and face to face at events.

Case studies played a key role in the dissemination of EIRA activity to a wider audience, and these were shared on the website and via social media channels, with some featuring in this report. The case studies provided a rich source of data regarding impact and outcomes of EIRA funding for each project.

“At the end of the day, it really benefits the region and SME companies and the community and provides the opportunity to utilise expertise from academics.”

- Academic, Innovation Voucher and R&D



20,747
Page visitors



145,873
Page views



Front Page Funding opportunities
Popular Pages



208
Conversions



21,000 users over 30,000 sessions
Total website views



67
Case Studies



811
Followers



396
Followers



73
Followers

Training

EIRA offered a substantial, collaborative and diverse training programme, which supported personal development and project delivery. EIRA enabled 663 learning days.

Training was provided to a wide range of professional services staff and early career researchers (ECRs), and has included commercialisation, value proposition and Intellectual Property Rights (IPR) for ECRs, training to develop facilitation skills, and in accessing/applying for funding.

Alongside the training delivered, EIRA also collaboratively produced online quick guides, an essential digital resource for academics and staff new to KE which remained as an online resource after the completion of the EIRA programme.

Early Career Researcher Training

Since the start of the EIRA, providing ECR training has always been a priority. EIRA training offered ECRs the opportunity to access training in commercialisation, collaboration and communication skills, alongside the chance to work closely with fellow researchers and build vital networks. 2019 saw the first round of ECR training, a 2-night residential training course based in Centre Parcs in Elveden Forest. Training was delivered by colleagues from Skillfluence, alongside University of Essex professionals. The event was a great success, with 20 attendees taking part from across the EIRA partner institutions. As a result of the pandemic, the second round of ECR training was held virtually. With 17 regular attendees, the online version of the training offered a more flexible options for ECRs to take part and offered the added bonus of 1-2-1 coaching for participants after the course had completed.

Be a Better Facilitator

Between June and September 2020, EIRA delivered the Be a Better Facilitator training programme, in partnership with KnowInnovation. The course explored the fundamentals, principles and tools used in facilitation. The programme was delivered online during the pandemic, and just under 50 participants benefitted from the training.

Innovation Canvas training

The Innovation Canvas training equipped EIRA network members to utilise the Innovation Canvas tool from the Knowledge Transfer Network. The tool is used to support organisations to identify the key challenges and actions that will accelerate their innovation journey, and the training enabled Knowledge Exchange Managers and the wider EIRA network to better use the tool to support business.



Quick Guides

The EIRA Quick Guides are a suite of interactive online resources which provide an overview of topics such as routes to commercialisation by explaining IP, trademarks, copyright and other commercial terms and signposts readers to areas within each institution as to where they can go for further information. The eight guides break down vital information into bite-sized pieces and will be beneficial for a number of audiences who will be able to quickly find the information they need. They remain available online and are a valuable legacy of the EIRA programme. Topics include Enabling Consultancy, Enabling Knowledge Exchange, Enabling Industry Funding, and Enabling Enterprise to name but a few.



Institution training plans overview

Alongside a centrally delivered training offer, each EIRA institution was able to access funding to deliver an institution-specific training programme throughout the life of EIRA. These varied greatly and included a diverse range of training opportunities for EIRA network members, such as video editing training, research impact training, effective communication for ECRs and PGRs, and contract management.



Institution Highlights



Highlights:

- ▶ Uropharma received an EIRA Innovation Voucher and then went on to do a DART iCASE - a UEA and Norwich Research Park Doctoral Antimicrobial Research Training (DART) MRC iCASE studentship.
- ▶ EIRA funding allowed further development of a successful existing i-Teams programme including the production of a promotional video and a brochure showcasing the i-Teams projects. Within the EIRA network, this was an example of sharing best practice with UEA providing training and support to network partners who had not run i-Teams before.
- ▶ Next Generation Ventures training was delivered for student entrepreneurs/start-ups, and provided effective communication for PGR and ECRs, alongside CPD for EIRA staff.
- ▶ UEA hosted and supported a wide range of events including Sync the City and the Norwich Science Festival, also accessing promotion of the EIRA project via radio and local newspaper advertorial.

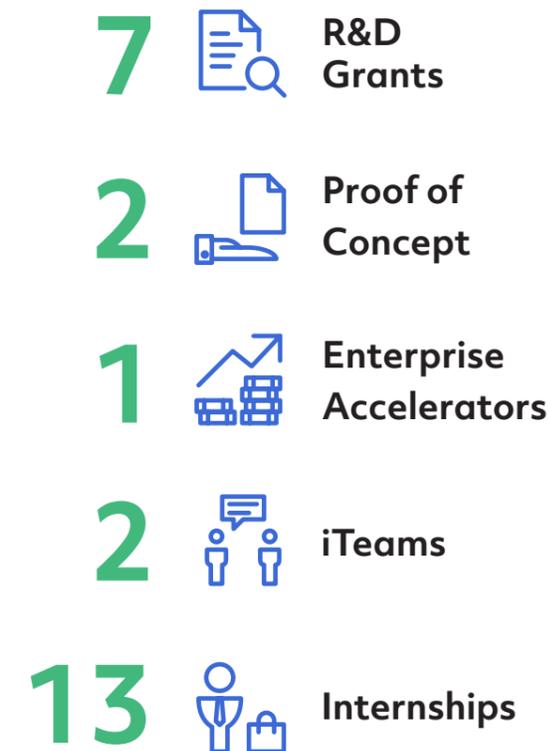


Total Intervention Funding Awarded:
£928,157.37



Highlights

- ▶ University of Essex Start up Wysper were awarded £3,000 of EIRA funding in the form of a Microfinance grant and went on to achieve £450,000 in further funding.
- ▶ November 2019's 5G Hothouse focussed on how 5G could change the ways in which live performers rehearse, co-create and deliver their work. The event led on to multiple collaborations and applications for funding to support new work.
- ▶ Prof. Tracy Lawson was awarded Proof of Concept funding to further her ground-breaking research into stomata behaviour and their function.
- ▶ A key highlight for the University of Essex has been the opportunity to collaborate on so many Knowledge Exchange projects.



Total Intervention Funding Awarded:
£541,768

Institution Highlights (Continued)



Highlights

- ▶ 16 academics from Kent benefitted from Early Career Researcher Training, which enhanced their skills in communication, commercialisation and collaboration.
- ▶ EIRA introduced 185 new business connections to the Knowledge Exchange and Innovation team (37 AI, 31 Biotech, 102 Digital Creative and 15 cross-thematic) through a variety of business engagement activities including networking events, business meet-ups, network communications and EIRA/Kent promotion.
- ▶ The EIRA Proof of Concept funding received an overwhelming number of submissions from Kent academics. 1 POC was funded for each core theme at Kent.
- ▶ 163 Kent students have engaged in various EIRA activities during the 3 years of the project.

5  **R&D Grants**

3  **Proof of Concept**

1  **Enterprise Accelerators**

2  **iTeams**

31  **Internships**

10  **Innovation Vouchers**

1  **Digihub**

0  **Hothouse**

7  **Microfinance**

**Total Intervention Funding Awarded:
£486,137**

Non-EasternArc partners



Highlights

- ▶ Writtle University College were supported by the University of Essex to successfully apply for a Knowledge Exchange grant. In partnership with iGrowing Ltd, the R&D project entitled *Off-grid DC based LED lit vertical farming systems* supported the development of a prototype growing system under. The prototype harnessed the advantages of LED lighting in controlled growing environments, without the carbon footprint arising from using grid sourced electricity, to significantly improve the economics of sustainable crop production.
- ▶ For NUA, highlights reflected the smaller nature of the institution relatively new to the world of knowledge exchange. Firstly NUA were able to learn from best practice in partner organisations which helped structure NUA's own approach, and made sense of a lot of the jargon. Secondly, NUA benefitted from being part of such a broad partnership, particularly where the skills and expertise they were able to offer were so complementary to knowledge in partner institutions.
- ▶ The University of Suffolk used EIRA funding to support 17 individual internships over 2 years, supporting businesses across the region with the fresh and innovative thinking of the students and graduates.
- ▶ Alongside 3 Innovation Voucher Projects, the University of Suffolk were awarded R&D funding to work closely with Suffolk Mind and the University of Essex to develop an online mental health and wellbeing training platform.

2  **R&D Grants**

0  **Proof of Concept**

0  **Enterprise Accelerators**

1  **iTeams**

45  **Internships**

8  **Innovation Vouchers**

1  **Digihub**

0  **Hothouse**

3  **Microfinance**

**Total Intervention Funding Awarded:
£324,186**

The EIRA Team



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University of Essex



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Knowledge Exchange Fellow – Biotechnology

University of East Anglia



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EIRA Evaluation Executive Summary

The programme

EIRA has been an ambitious and complex programme. The programme delivered 9 activities through 3 thematic areas across 7 participating Higher Education Institutions.

EIRA is a highly valued platform for all the institutions involved to develop business and university collaborations, in ways that are sensitive to their own capacity and context. It has allowed for access to specialist knowledge as well as the option to develop and expand projects across departments and institutions for the research intensive universities.

EIRA offered 9 very different activities targeted at beneficiaries including businesses, academics and students. These activities varied from commercialisation of research, to upskilling students and proof of concept grants for academics.

Delivery

The R&D and Proof of Concept grants filled a gap identified by academics for the smaller, testing phase of research, whilst iTeams was an activity that was transferred between the research intensive universities but which took on different formats, such as linking students to furthering commercialisation of intellectual property rights or consultancy projects for businesses.

Partners and beneficiaries consistently reported that it has been delivered and managed well.

The consistency and coherence of the communication of the programme as well as the strong relationships built between stakeholders at each institution are significant and notable. This combination allowed for the initial visibility of the programme to be raised to both internal and external stakeholders quickly and for this to be maintained throughout the programme.

Collaboration

The 3 themes (digital creative, biotechnology and artificial intelligence) have provided a platform to better understand the expertise available within the HEIs and to have a focus to collaborate with businesses in a thematic area. This has also supported academic to academic collaborations and led to better quality external engagement supported by the project resources.

The programme has demonstrated how universities can collaborate in local areas and support both university collaboration and university business collaborations coherently in terms of both practice and behaviours.

The collaborative culture created through EIRA is a strong outcome. The programme crosses nearly all aspects of knowledge exchange and partners institutions across the East of England.

Other lessons learnt

The programme has established important lessons which other programmes can learn from, in terms of how research intensive universities can work successfully with non research intensives.

However, on a longer term basis there is still work to be done by funders. The support that the non research intensives accessed particularly from the research intensive partners included contract support for example, which is what is needed particularly to increase capacity and capability, but cannot be accessed elsewhere.

The non research intensives also need to deploy fewer resources (i.e. funding grants) consistently over time for them to be able to match up their current capacity, with EIRA one of the only sources they could access funding for knowledge exchange activities. Without this support they are unable to continue the activity.

There were 9 evaluation questions posed which broadly focused on the impact the EIRA programme has had on HEIs, businesses, the East of England as a region and the three themes chosen (AI, Digital Creative and Biotechnology).

While the cross cutting findings from these themes have been summarised on the previous slide, the following provides a high level impact summary for each group.

HEIs and academics

New skills and capabilities were developed by academics specifically related to working with industry, increasing HEIs capacity to undertake KE activities. The collaborative culture created by EIRA also allowed for partnering not only between institutions, but also the opportunity to collaborate more internally, producing cross departmental projects and benefits.

Businesses

Collaborating with universities provides credibility for businesses and access to specific expertise which can be difficult to obtain. Long term relationships have been built through consistent contact points to access regional capabilities, supporting the local economy. EIRA have established a wider innovation network to stimulate growth and connections in research, which offer increased opportunities for commercialisation in the region.

"It's given us a dipping of the toe into the value of doing a proper research project for many years we have spoken of the advantages of being able to back up the things we were telling clients." (EIRA Business)

East of England

New companies have been created as a direct result of the EIRA programme through the development and production of new ideas and services which will directly benefit the region. It provided new opportunities for stakeholders and sectors that would be unavailable without it, and the forming of new networks and relationships will enable KE activity to continue and contribute to future economic activity.

Artificial Intelligence

Artificial Intelligence was supported with £320,878 of funding from 23 projects in the following activities: Innovation Vouchers (14), Microfinance (2), PoC (1) and R&D (6). The number of AI projects for each lead university was: Essex (3), UEA (11), Kent (9).

Using AI within businesses to innovate is invaluable to industry, and has had particular significance over the past year following the impact from COVID 19 on digital learning and working. AI was a strong theme for encouraging follow on projects and building longer term partnerships through combining the innovation vouchers and R&D grants.

Digital Creative

Digital Creative was supported with £514,427 of funding with 51 projects in the following activities: Digitalhub (2), Enterprise Accelerator (1), Hothouse Events (3), Innovation Vouchers (19), Microfinance (15), PoC (2) and R&D (9). The number of projects for each lead university was: Essex (19), UEA (10), Kent (9), Suffolk (5), and NUA (8). Academic departments who normally did not take part in KE activity found that the Digital Creative theme provided a link to engagement. This theme in particular allowed for collaboration across the HEIs.

Biotechnology

Biotechnology was supported with £744,702 of funding which was the highest amount of all the themes. It had 32 projects in the following activities: Digitalhub (1), Enterprise Accelerator (1), Hothouse Events (3), Innovation Vouchers (8), Microfinance (1), PoC (6) R&D (12). The number of BIO projects for each lead university was: Essex (5), UEA (22), Kent (4) and Writtle (1). The broad range of interventions have lowered the barrier for engagement between industry and academics, with innovation vouchers for example allowing smaller and micro SMEs to participate. However, it was recognised that Biotech innovation often requires significant funding to realise tangible benefits and EIRA funding therefore had to be used strategically.

Note: All figures were correct at the time of writing.

Impact

EIRA has had a transformative effect on the economic landscape, with £8.27 million contributed to the regional economy to date. EIRA has funded 268 individual projects in Biotechnology, Artificial Intelligence and the Digital Creative sectors and supported over 150 academics to work with industry, developing 34 new products and services.

EIRA R&D projects have enabled businesses to become more productive, for example by diversifying work streams in the property management industry through virtual reality, improving seabed-mapping speed with machine learning and revolutionising the way prescription medication can be administered. EIRA's R&D programme generated a GVA of 36.6% (£3,024,083).

EIRA Proof of Concept funding has empowered academics to bring their research to market, resulting in ground-breaking studies, including an AR solution for visual impairment that was selected for iCURE.

Through Innovation Voucher funding and Internships, EIRA has enabled 117 businesses to respond to the challenges they faced, critically important during the pandemic. With 30% of interns retained in employment post internship, and seed funding awarded to 32 student/graduate start-up businesses, EIRA has helped create new jobs and services for the region.

“I know full well I wouldn't be where I am [in a full-time job] without EIRA as wouldn't have got the funding or experience.”

- Student, Innovation Internship

EIRA increased the combined contribution of universities across the East of England to address productivity and economic growth challenges and provided a vehicle to deliver the Industrial Strategy aims of supporting business growth and increasing R&D capacity within the region. EIRA developed and delivered regional innovation support for businesses to address a gap in the funding landscape. EIRA's targeted social media strategy promoting project outcomes meant the brand became trusted and recognised by businesses as the go-to network for innovation support in the region. The EIRA programme was efficiently executed from idea through to delivery and continues to create value for businesses through new engagement.

Most importantly, EIRA's unique partnership had a transformative effect on the way KE is delivered across the region. Where collaborative opportunities were previously limited, EIRA has combined both expertise and resource to successfully address challenges across the three core themes as a collective, maximising the resulting outcomes for businesses and enabling research excellence.

By bringing together academics, business partners and professionals from across the region, cross-institutional and cross-disciplinary projects became commonplace. EIRA partners with limited access to research funding were enabled to deliver R&D projects, while others utilised the partnership to increase and diversify their offer.

This level of collaboration in the region had never been seen before. With its leading-edge collegiate practice, EIRA built new mechanisms for multi-partner working from the ground up, highlighting that collaboration really is the cornerstone of KE.

Closing Remarks

The past three years have seen immense changes in the ways in which Knowledge Exchange is delivered across the East of England, and the impact it can have for local business. As a partnership, the EIRA programme has brought together the rich wealth of skills and expertise that exists in the region under one banner, to effectively and dynamically support innovation in ways that are game-changing for our sector.

With colleagues from across the region, EIRA has built partnerships that extend widely across the East of England. As Chair of the Steering Group it has been my great pleasure to see how the EIRA programme has impacted positively on businesses across the Eastern region. Projects which benefitted from funding have been very diverse and their continued success is testament to the power of collaborative partnerships built up during the funding period between academic colleagues and external stakeholders.

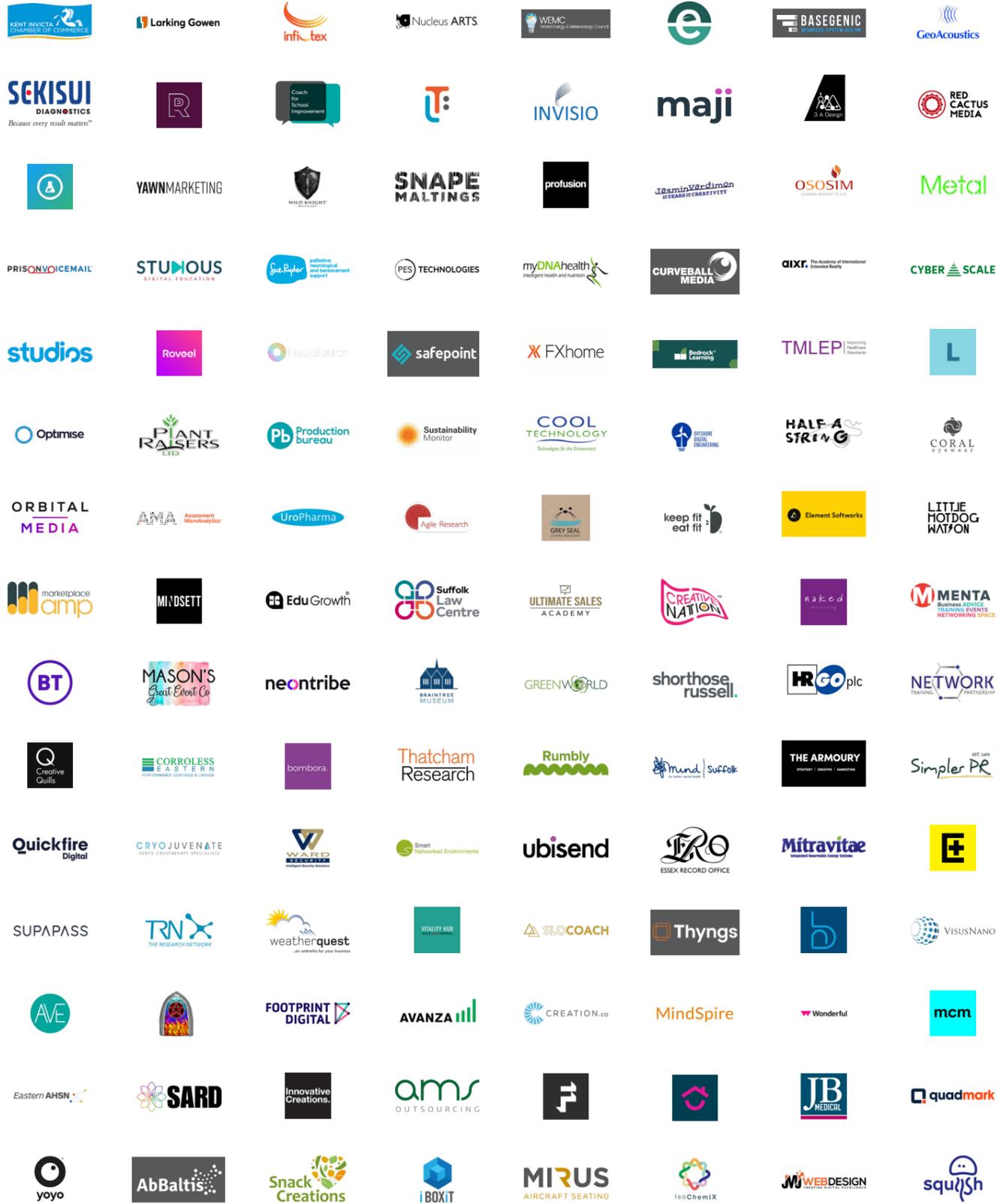
As the period of funding for EIRA draws to an end, our aim will be to ensure that the rich legacy of EIRA will continue to support innovation to benefit the development of our region. Key to this are the links established between universities and businesses, the embedded models for collaboration between Higher Education Institutions, and the new ground-breaking connected model for the delivery of Knowledge Exchange, all of which will ensure the region continues to benefit for many years to come.

Prof. Christine Raines, University of Essex

“Wouldn't have done it [the project] without EIRA, businesses like ours don't know where to start with these things which is a problem... we are very lucky that funding is available and were very lucky to have that introduction to academics. We wouldn't have known enough about the opportunities or what was available without them”.

- Business, Innovation Voucher

Organisations Supported





Contact

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The EIRA Network



Funded by Research England's Connecting Capability Fund, EIRA is based on the Eastern ARC (Academic Research Consortium) - a collaboration between the University of East Anglia, University of Essex, and University of Kent. Further information about the Eastern ARC is available at www.easternarc.ac.uk