



Ysgoloriaethau Sgiliau Economi Gwybodaeth
Knowledge Economy Skills Scholarships

CIPLUN O KESS 2
A SNAPSHOT OF KESS 2
14 MEDI 2018 : 14 SEPTEMBER 2018



UNDEB EWROPEAIDD
EUROPEAN UNION



Llywodraeth Cymru
Welsh Government

Cronfa Gymdeithasol Ewrop
European Social Fund

GWYBODAETH KESS 2

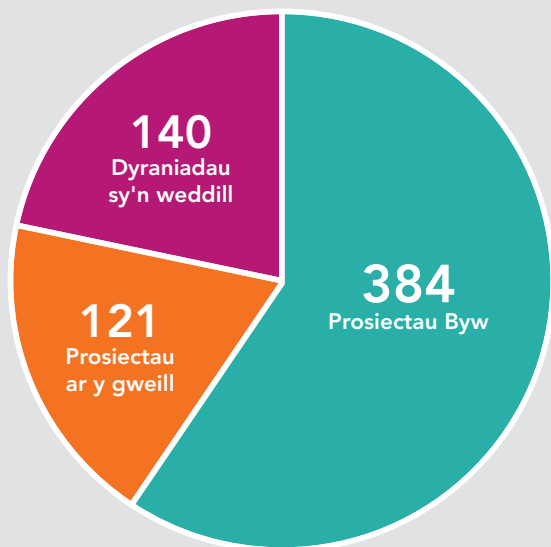
Mae Ysgoloriaethau Sgiliau Economi Gwybodaeth (KESS 2) yn weithgaredd sylweddol ar draws Cymru a gefnogir gan Gronfeydd Cymdeithasol Ewrop (ESF) drwy Lywodraeth Cymru. Mae KESS 2 yn cysylltu cwmnïau a sefydliadau gydag arbenigedd academiaidd yn y sector Addysg Uwch yng Nghymru i ymgymryd â phrosiectau ymchwil ar y cyd, gan weithio tuag at gymhwyster Meistr Ymchwil neu PhD. Caiff elfennau o ymchwil eu cyfuno â rhaglen hyfforddiant sgiliau lefel uwch, sy'n arwain at Ddyfarniad Datblygu Sgiliau Ôl-raddedig. Mae KESS 2 yn cynnwys pob un o brifysgolion Cymru, a chaiff ei arwain gan Brifysgol Bangor.

Mae prosiectau KESS 2 yn unigryw gan eu bod wedi'u teilwra i ddarparu ymchwil cyffrous ac arloesol, yn ogystal â diwallu anghenion busnesau gweithredol neu'r sectorau cysylltiedig. Rhaid i'r ymchwil a wneir drwy brosiect KESS gyd-fynd ag un o bedwar Maes Her Fawr Llywodraeth Cymru, sef:

- Gwyddorau Bywyd ac Iechyd
- Peirianeg a Deunyddiau Uwch
- Carbon Isel, Ynni a'r Amgylchedd
- TGCh a'r Economi Ddigidol

Prif amcanion KESS 2:

- Gwellu capasiti busnesau bach a chanolig o ran gwaith ymchwil drwy gysylltu â phrosiect PhD / Meistr Ymchwil
- Annog busnesau bach a chanolig i wneud gwaith ymchwil a recriwtio ymchwilwyr
- Paratoi a hyfforddi unigolion i gyfrannu at waith ymchwil fel gweithwyr proffesiynol
- Cefnogi'r gwaith o ddatblygu technolegau allweddol yn Ardal Gydgyfeirio Cymru
- Hyrwyddo'r gwaith o ddatblygu sgiliau lefel uwch



Ystadegau Cyffredinol y Prosiect:

(Medi 2018)

- 384 o brosiectau Byw
- 121 o brosiectau ar y gweill (dyddiadau cychwyn Hydref 2018)
- 140 o ddyraniadau sy'n weddill
- 645 Cyfanswm Prosiectau

Mae'r prosiectau canlynol yn y llyfryn hwn yn sampl o Brifysgol Bangor. Gallwch ddarllen ar-lein am lawer o'n prosiectau eraill gyda ein prifysgolion partner. Ewch i: <http://kess2.ac.uk/case-studies/>

ABOUT KESS 2

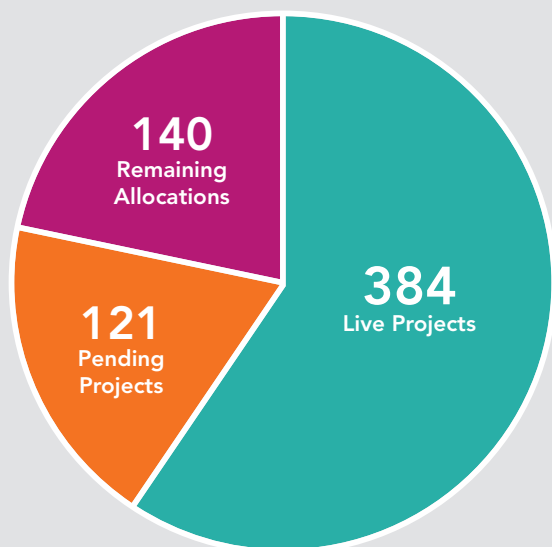
Knowledge Economy Skills Scholarships (KESS 2) is a major pan-Wales operation supported by European Social Funds (ESF) through the Welsh Government. KESS 2 links companies and organisations with academic expertise in the Higher Education sector in Wales to undertake collaborative research projects, working towards a PhD or Research Masters qualification. Research elements are integrated with a higher-level skills training programme, leading to a Postgraduate Skills Development Award. KESS 2 involves all universities in Wales, and is led by Bangor University.

KESS 2 projects are unique in that they are tailored to provide exciting and innovative research whilst meeting the needs of an active business or its sector. The research undertaken through a KESS 2 project must fit with one of the Welsh Government's four Grand Challenge Areas:

- Life Sciences & Health
- Advance Engineering & Materials
- Low Carbon, Energy & Environment
- ICT & the Digital Economy

Key objectives of KESS 2:

- To increase the research capacity of small to medium enterprises (SMEs) by linking with a PhD / Research Masters project
- To encourage SMEs to undertake research and recruit researchers
- To prepare and train individuals to contribute to research as professionals
- To support the development of key technologies in the Convergence Area of Wales
- To promote higher-level skills development



Current Overall Project Statistics:

(September 2018)

- 384 Live Projects
- 121 Pending Projects (with Oct 2018 start dates)
- 140 Remaining Project Allocations
- **645 Total Projects**

The following projects in this booklet are a sample from Bangor University. You can read online about many of our other projects at partner universities. Visit: <http://kess2.ac.uk/case-studies/>

"Investigation into the physical and chemical properties of soap bubbles with respect to their performance"

Ysgol Cemeg : School of Chemistry



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Dr Zigs Extraordinary Bubbles

Paola Dyboski-Bryant

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Prif Amcanion

- Mae swigod sebon yn siapiau caeedig o ffilm sebon sy'n cynnwys aer (neu nwy).
- Y math syml o ddatrysiad y gellir ei ddefnyddio i wneud swigod sebon yw sebon neu foleciwlau eraill arwynebol weithredol (syrrffactant) a dŵr.
- Syrrffactant yw'r cynhwysyn hanfodol i wneud swigod sebon.
- Mae defnyddio crynodiadau a mathau gwahanol o syrrffactant yn effeithio ar sefydlogrwydd, oes a hirhoedledd swigod sebon wrth i weithgarwch wyneb syrrffactant ddibynnu ar ei hyd cadwyn a'r grŵp pen.
- Yn y prosiect hwn, ymchwiliwyd i'r cysylltiad rhwng strwythur moleciwlaidd syrrffactant a sefydlogrwydd swigen sebon.

Effaith

Mae Dr Zigs, y partner cwmni yn y prosiect KESS 2 hwn, yn cynhyrchu ac yn gwerthu hylifau ar gyfer gwneud swigod anferth. Mae Dr Zigs yn fusnes sy'n tyfu sydd ag angen cyson ar gyfer datblygu cynnyrch. Mae hyn yn ymwneud â gwella'r cynnyrch presennol, e.e. o ran perfformiad a bywyd silff, a sicrhau ei bod bob amser o'r ansawdd uchaf posibl yn ogystal â datblygu ystod newydd o gynhyrchion. At hynny, mae'n bwysig i'r cwmni ddatblygu dealltwriaeth newydd i gynnal mantais gystadleuol.

Key Objectives

- Soap bubbles are closed shapes of soap film that contain air (or gas).
- The simplest type of solution that can be used to make soap bubbles consists of soap or another surface active molecule (surfactant) and water.
- Surfactants are the crucial ingredient for making soap bubbles.
- Using different surfactant concentrations and types affects stability, lifetime and longevity of soap bubbles as the surface activity of a surfactant depends on its chain length and head group.
- In this project, the link between molecular structure of surfactants and soap bubble stability was investigated.

Impact

Dr Zigs, the company partner in this KESS 2 project, manufactures and sells solutions for making giant bubbles. Dr Zigs is a growing business that has constant need for product development. This relates to improving the existing product, e.g. with regards to performance and shelf life, and making sure it always is of the highest possible quality as well as developing a new range of products. Furthermore, it is important to the company to develop new understanding to maintain a competitive advantage.

"Sustainable Craft Beer brewing"

Ysgol Gwyddorau Naturiol : School of Natural Sciences



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Welsh Craft Brewing Sector & Food and Drink Wales

Prif Amcanion

- Gwella effeithlonrwydd adnoddau a chystadleurwydd sector bragu crefft Cymru.
- Ymgysylltu â bragwyr crefft i gyd-gynllunio a phrofi methodoleg LCA.
- Ystyried gwerth bragu crefft yn lleol ac i economi ehangach yng Nghymru.
- Diffinio a nodweddu cwrw crefft gyda chyfeiriad penodol at Gymru.
- I fapio ac archwilio gweithgarwch bragu crefft yn ddaearyddol yng Nghymru ac i ddilyn tueddiadau yn y sector deinamig.

Effaith

- Cyfrannu at wydnwch y sector yng Nghymru trwy gyfathrebu'n uniongyrchol ac ymgysylltu â busnesau Nano a busnesau bach a chanolig i gefnogi datblygiad bragu cynaliadwy.
- Creu offeryn fel sail ar gyfer defnydd sector e.e. achredu a hyrwyddo bragu cynaliadwy fel 'proses a chynnyrch'.
- Ymgysylltu â Bwyd a Diod Cymru / Gweithgaredd Clwstwr Diodydd Alcoholig Cymru i hwyluso datblygu'r sector a chyfnwio gwybodaeth.
- Cymwysterau a chyfleoedd marchnata gwell ar gyfer busnesau crefftau unigol trwy gymwysterau gwyrdd sy'n seiliedig ar dystiolaeth.
- Gweithgaredd sector cwrw crefft cystadleuol a gwydn yng Nghymru sy'n seiliedig ar arfer rheoli adnoddau gorau.

Key Objectives

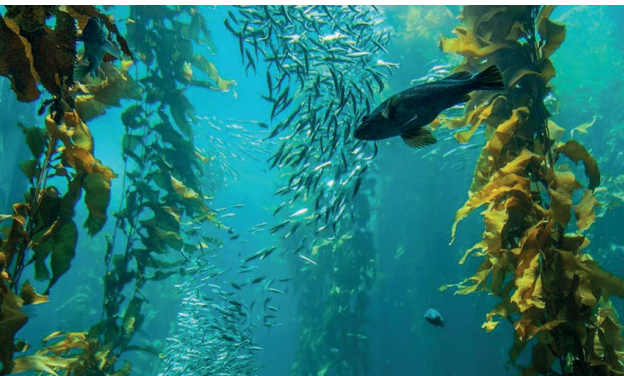
- To improve resource efficiency and competitiveness of Welsh craft brewing sector.
- To engage with craft brewers to co-design and test LCA methodology.
- Consider value of craft brewing locally and to broader Welsh economy.
- To define and characterise craft beer with particular reference to Wales.
- To map and explore craft brewing activity geographically in Wales and to follow trends in the dynamic sector.

Impact

- Contribute to sector resilience in Wales through direct communication and engagement with Nano & SME businesses to support sustainable brewing development.
- Create a tool as a basis for sector use e.g. accrediting and promoting sustainable brewing as 'process and product'.
- Engage with Food and Drink Wales/WG Alcoholic Beverages Cluster activity to facilitate sector development and knowledge exchange .
- Improved credentials and marketing opportunities for individual craft businesses through evidence based green credentials.
- Competitive and resilient craft beer sector activity in Wales that is based on best resource management practice.

"Developing an injectable and in-situ crosslinking hydrogel-based wound dressing for the treatment of chronic diabetic foot ulcer wounds"

Ysgol Gwyddorau Naturiol : School of Natural Sciences



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Prif Amcanion

- I addasu alginad, cynnyrch naturiol o algâu brown â chyfrifoldeb gofynnol fel y gallant ffurfio hydrogelau 'smart' yn eu lle o fewn clwyfau.
- Defnyddio gwahanol strategaethau i ffurfio hydroglau gyda gwahanol eiddo i weddu i amrywiaeth fwy o glwyfau.
- Ymgorffori cynhwysion bioactif fel peptid gwrthficrobaidd i fynd i'r afael â phroblemau mewn clwyfau cronig, yn enwedig haint bacteriol.
- I ffurfio cynnyrch sy'n effeithiol, atgynhyrchadwy a nad yw'n niweidiol i chwyldroi byd therapiwtig clwyf.

Effaith

- Bydd y galw am algâu yn codi, gan hyrwyddo ffermydd gwympwr ar hyd arfordir Cymru.
- Bydd llwyddiant y prosiect hwn yn agor posibiliadau newydd ac yn elwa ar gyfer ceisiadau eraill megis cynhyrchion gofal personol gan ddefnyddio alginad wedi'i addasu.
- Cynyddu ansawdd bywyd yn arwyddocaol a hybu annibyniaeth i lawer o gleifion cronig.
- Y clwyf therapiwtig cyntaf i'w ddatblygu'n gyfan gwbl o fewn ffiniau Cymru.

Key Objectives

- To modify alginate, a natural product from brown algae with required functionality so that they can form 'smart' hydrogels in-situ within wounds.
- Using different strategies to form hydrogels with different properties to suit a more diverse range of wound types.
- To incorporate bioactive ingredients such as antimicrobial peptide to tackle problems in chronic wounds, in particular bacterial infection.
- To form a product that is non-harmful, effective and reproducible to revolutionise the world of wound therapeutics.

Impact

- The demand for algae will rise, promoting seaweed farms along the Welsh coast.
- The success of this project will open up new possibilities and benefit for other applications such as personal care products using modified alginate.
- Significantly increasing the quality of life and boosting independence for many chronic patients.
- The first wound therapeutic to be developed entirely within the Welsh borders.

"Improving Forecasting at a Local SME"

Ysgol Busnes Bangor : Bangor Business School



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Prif Amcanion

- Gwellu'r swyddogaethau rhagweld yn y cwmni
- Datblygu system gynhyrchu hybrid yn y cwmni
- I lefelu cynhyrchiad
- Lleihau gwastraff a gwella sefyllfa'r rhestr

Effaith

- Drwy wellu'r rhagolygon yn y cwmni, rydym yn anelu at gynllunio a rheoli lefelau rhestr eiddo yn y tymor hir.
- Gellir ymestyn cynllunio cynhyrchiad ymhellach, sy'n golygu y gellir rhagweld lefelau staffio a thrwy hynny gynnal cyflogaeth yn y cwmni.
- Gwell dadansoddiadau fel y gall y cwmni ehangu i farchnadoedd newydd a datblygu cynhyrchion newydd.
- Yn academiaidd, dull newydd o ddewis sut i drin cynhyrchion unigol yn y cynllun cynhyrchu, a dulliau rhagfynegi newydd sy'n defnyddio modelau cystadleuol i ddefnyddio'r rhagolygon gorau ar gyfer pob cynnyrch.
- Yr effeithiau sy'n cyd-fynd â Deddf Llesiant Cenedlaethau'r Dyfodol (Cymru) ac anelu at leoli busnes teuluol sy'n rhedeg yn lleol fel y gall barhau i ehangu a darparu cyflogaeth gynaliadwy i'r rhanbarth.

Key Objectives

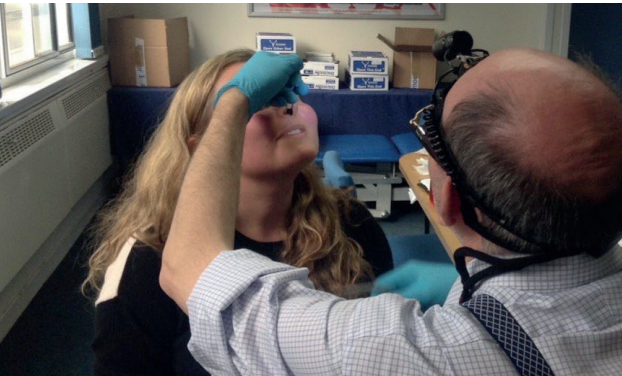
- To improve the forecasting functions at the company
- To develop a hybrid production system at the company
- To level production
- To reduce waste and improve the inventory position

Impact

- By improving forecasting at the company we aim towards better long term planning and control of inventory levels.
- Production planning can be extended further, which means staffing levels can be predicted thus maintaining employment at the company.
- Better analytics so that the company can expand into new markets and develop new products.
- Academically, a new method of selecting how to treat individual products in the production plan, and a new forecasting approach competing models to use the best forecast for each product.
- The impacts fit within the Well-being of Future Generations (Wales) Act and aim to position the locally run family business so that it can continue to expand and provide sustainable employment for the region.

"Element profiling in normal and pathological human nasal mucus."

Ysgol Gwyddorau Naturiol (Cemeg) : School of Natural Sciences (Chemistry)



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Mr David Hill, ENT Ysbyty Gwynedd

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Halen Môn

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Prif Amcanion

- Bydd cations divalent sy'n berthnasol yn fiolegol yn cael eu mesur yn y mwcws trwynol.
- Perfformir asesiadau poen a chysur o samplu trwynol.
- I gwmpasu dichonoldeb gwneud enffrydiad trwynol hyfwrth masnachol.
- Cydweithio â Halen Môn i ymuno â'r marchnadoedd iechyd a gofal personol.
- Gwella lles trwynol pobl gyda dau gynnyrch newydd yn seiliedig ar foroedd glân - cais "dros y cownter" a chais meddygol.

Effaith

Rhoi perfformiad trwynol gwell i bobol gan arwain at well iechyd.

Mae enffrydiad trwynol yn gynnyrch cynyddol werthfawr yn y farchnad gofal personol, a gall fod ganddynt eiddo meddyginiaethol gwirioneddol hefyd. Gall cynhyrchion o'r fath fod mor gyffredin â phast dannedd neu siampŵ nawr, er nad oes gan yr ychydig gynhyrchion sydd ar gael ar hyn o bryd unrhyw sail wyddonol profedig.

Mae'r ddelwedd uchod yn dangos gwirfoddolwr yn cael sampl mwcws yn cael ei gymryd gan Mr David Hill, ENT, Ysbyty Gwynedd.

Key Objectives

- Biologically relevant divalent cations in nasal mucus will be measured.
- Pain and comfort assessment of nasal sampling will be performed.
- To scope out the feasibility of making a commercially viable nasal douche.
- Collaborating with Halen Môn to break into the health and personal care markets.
- Improve people's nasal wellbeing with two new products based on clean seas – an "over the counter" application and a medical application.

Impact

Giving people better nasal performance leading to better health.

Nasal douches are an increasingly valuable product in the personal care market, and may also have truly medicinal properties as well. Such products may become as common as toothpaste or shampoo are now, although the few products currently available have no proven scientific basis.

The image above shows a volunteer having a mucus sample being taken by Mr David Hill, ENT, Ysbyty Gwynedd.

"An in depth analysis of salt production, crystallisation and the safeguarding of sustainability at Halen Môn"

Ysgol Cemeg : School of Chemistry



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Prif Amcanion

- Cynhyrchu archwiliad cemegol llawn o broses gynhyrchu halen môr Halen Môn a'i gydrannau allweddol a defnyddio'r data hwn ar gyfer mireinio.
- Lleihau a defnyddio gwastraff ffatri i gynhyrchu cynhyrchion newydd a chynyddu effeithlonrwydd.
- Ymchwilio i'r gwahanol morffolegau grisial sy'n digwydd yn ystod cynhyrchu halen môr Halen Môn.

Effaith

Mae Halen Môn yn gwmni halen môr celfyddydol enwog gyda Dynodiad Gwreiddiol o Darddiad (PDO) wedi'i leoli ar arfordir Ynys Môn, Cymru, y Deyrnas Unedig.

Defnyddiodd y prosiect hon llu o dechnegau dadansoddol i gynnal archwiliad cemegol llawn o gynhyrchu a all wedyn ffurfio sail ar gyfer mireinio a gwella holl agweddau'r broses.

Wrth wneud hynny, rydym hefyd yn cynyddu cynaliadwyedd trwy leihau gwastraff a datblygu cynhyrchion newydd o wastraff ffatri.

Key Objectives

- Producing a full chemical audit of Halen Môn's sea salt manufacturing process and its key components and utilizing this data for refinement.
- Reducing and utilizing factory waste to produce new products and increase efficiency.
- Investigating the different crystal morphologies occurring during Halen Môn's sea salt production.

Impact

Halen Môn are a world-renowned artisan sea salt company with Protected Designation of Origin (PDO) located on the coast of the Isle of Anglesey, Wales, United Kingdom.

This project utilised a host of analytical techniques to conduct a full chemical audit of production which can then form a basis for refining and improving all facets of the process.

In doing so we are also increasing sustainability via waste reduction by developing new bi-products from factory waste.

"Optimised management of upland pasture for economic and environmental benefits"

Ysgol Gwyddorau Naturiol : School of Natural Sciences



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Prif Amcanion

- Penderfynu ar effaith gwahanol opsiynau rheoli pori ar effeithlonrwydd cynhyrchu.
- Astudio effaith effeithlonrwydd gwell defnydd tir pori ar systemau cig eidion ar ffermydd ucheldir.
- Gwerthuso y masnachiadau amgylcheddol perthnasol.
- Defnyddio y canfyddiadau i raddfa hyd at lefel genedlaethol i bennu'r effaith net ar wydnwch a pherfformiad economaidd ffermydd ucheldir.

Effaith

- Mae cyfran sylweddol o Gymru wedi'i ddosbarthu fel ucheldiroedd ac fe'i rheolir yn bennaf ar gyfer cynhyrchu da byw. Er gwaethaf hyn, mae nifer y gwartheg yn yr ucheldiroedd yn dirywio.
- Ystyrir bod gwartheg yn boriwyr cadwraeth. Fodd bynnag, mae glaswelltiroedd yn cael eu tanbrizio fel adnodd ac mae systemau da byw cnoi cil yn cyfrannu at y cynnydd mewn allyriadau nwyon tŷ gwydr anthropogenig yn yr atmosffer.
- Mae pori gwartheg, ynghyd â strategaethau sy'n cynyddu effeithlonrwydd defnydd tir pori, yn rhoi cyfle i weithredu dwyseddiad cynaliadwy trwy wella cynhyrchu bwyd a chyflenwi gwasanaethau ecosystem yn yr ucheldiroedd.
- Dylai canlyniadau'r prosiect hwn helpu tuag at gwrdd â heriau cynhyrchu effeithlon, gan ddod â enillion economaidd ac amgylcheddol i'r ucheldiroedd.

Key Objectives

- Determine the effect of various grazing management options on production efficiencies.
- Study the effect of improved pasture use efficiency on beef suckler systems on upland farms.
- Evaluate the respective economic and environmental trade-offs.
- Use the findings to scale up to national level to determine the net effect on the resilience and economic performance of upland farms.

Impact

- A significant proportion of Wales is classified as uplands and is primarily managed for livestock production. Despite this, cattle numbers in the uplands are declining .
- Cattle are deemed as conservation grazers. However, grasslands are undervalued as a resource and ruminant livestock systems contribute to the increase in anthropogenic greenhouse gas emissions in the atmosphere.
- Grazing cattle, along with strategies that increase pasture use efficiency pose an opportunity to implement sustainable intensification by enhancing both food production and supply of ecosystem services in the uplands.
- The outcomes of this project should help towards meeting the challenges of efficient production, bringing economic and environmental gains to the uplands.

"Understanding social values and ecological impacts associated with intertidal collection and gathering around Wales"

Ysgol Gwyddorau Eigion : School of Ocean Sciences



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Prif Amcanion

- Ymchwilio i bwy sy'n casglu pa adnoddau byw o arfordir Cymru, a'r rhesymau y maent yn eu casglu.
- Archwilio y gwerthoedd personol, teuluol a threfnadaeth sy'n gysylltiedig â gweithgareddau casglu'r draethlin ledled Cymru, gan ganolbwyntio ar les personol.
- Er mwyn rhwystro'r ffactorau dynol a naturiol sy'n effeithio ar lannau clogfeini sy'n cael eu hecsbloetio gan gasglwyr crancod peeler.
- I ddefnyddio'r canfyddiadau hyn i ddatblygu a llywio 'dangosydd tarfu' i'w ddefnyddio gan reolwyr o lannau clogfeini sensitif o fewn Ardaloedd Gwarchodedig Morol.

Effaith

Yng Nghymru, gwyddom fod o leiaf 40 o drethi'r draethlin yn cael eu casglu am resymau sy'n amrywio o fwyd ac abwyd, i feddyginiaeth a gwrtaith. Er gwaethaf hyn, ychydig iawn o wybodaeth sydd ar yr adnodd pysgodfeydd traddodiadol a hynafol hyn. Rydym wedi gwarchod bwydydd cenedlaethol a gesglir o'r lan (fel bara gwlân a cocos), ond nid oes unrhyw wybodaeth am bwy sy'n casglu, lle mae hyn neu beth y mae'n ei olygu mewn gwirionedd iddynt. Mae'r darn hwn o ymchwil yn defnyddio Deddf Llesiant Cenedlaethau'r Dyfodol i gynorthwyo mwy o ymchwil i'r hyn y mae adnoddau arfordirol yn ei olygu i bobl, er mwyn sicrhau bod y bobl a'r gweithgareddau'n cael eu deall yn iawn cyn i unrhyw gorff cyhoeddus benderfynu rheoli'r gweithgareddau sydd heb eu rheoleiddio ar y cyfan.

Key Objectives

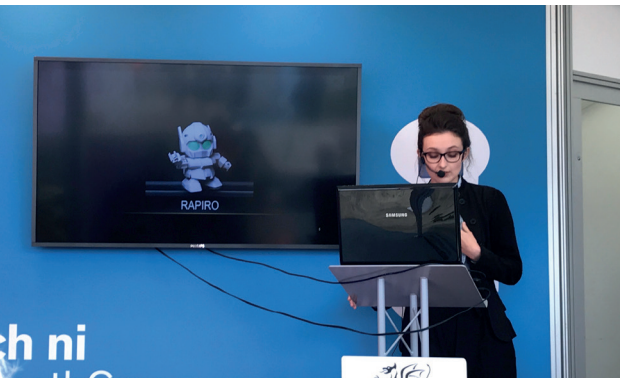
- Investigate who collects what living resources from the Welsh coast, and the reasons they collect.
- Explore the personal, family and heritage values associated with shoreline collection activities around Wales, with a focus on personal well-being.
- To tease apart the human and natural factors impacting on boulder shores exploited by peeler crab collectors.
- To use these findings to develop and inform a 'disturbance indicator' to be used by managers of sensitive boulder shores within Marine Protected Areas.

Impact

In Wales, we know that at least 40 shoreline taxa are collected for reasons ranging from food and bait, to medicine and fertiliser. Despite this, there is very little information on what is essentially a traditional and ancient fishery resource. We have protected national foods gathered from the shore (such as laver bread and cockles), but there is no information on who collects, where or what it really means to them. This piece of research uses the Well-Being of Future Generations Act to underpin more research into what coastal resources mean to people, to ensure that both the people and activities are properly understood before any public body decides to manage what are currently largely unregulated activities.

"Modelau Cyfrifiadurol o'r Gymraeg ar gyfer Prosesu Lleferydd" "Computational Models of Welsh for the Processing of Speech"

Ysgol Ieithoedd, Llenyddiaethau ac Ieithyddiaeth : School of Languages, Literatures and Linguistics



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Prif Amcanion

- Gwella technoleg adnabod lleferydd ar gyfer yr iaith Gymraeg.
- Casglu mwy o ddata sain addas.
- Rhedeg profion mwy penodol i ddeall anghenion technoleg adnabod lleferydd yng nghyd-destun ieithoedd llai eu hadnoddau.
- Gwella'r wybodaeth ieithyddol er mwyn gwella llwyddiant adnabod lleferydd Cymraeg.

Effaith

- Defnydd o fewn y maes meddygol drwy alluogi i bobl sydd ag anableddau gweld neu symud er enghraifft, i wneud yn fawr o'r dechnoleg.
- Defnydd o fewn y maes addysg mewn ysgolion a gyda dysgwyr hŷn wrth drafod a dysgu gwersi am y dechnoleg drwy gyfrwng y Gymraeg.
- Defnydd yn y cyfryngau a llyfrgelloedd drwy gatalogio a mynegeoio archifau.

Key Objectives

- Improve speech recognition technology for the Welsh language.
- Gather more appropriate sound data.
- Run more specific tests in order to understand the needs of speech recognition technology in lesser resourced languages.
- Improve the linguistic information to improve speech recognition success in Welsh.

Impact

- Use within the medical field through enabling people with sight or motor disabilities for example, to make the most of this technology.
- Use within the educational field in schools and with adult learners by discussing and teaching about the technology through the medium of Welsh.
- Use within the media and libraries through cataloguing and indexing archives.

"Valuing the ecosystem services of shellfish aquaculture"

Ysgol Gwyddorau Eigion : School of Ocean Sciences



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Prif Amcanion

- I gyfrifo'r gwasanaethau ecosystem a ddarperir gan ddyframaeth pysgod cregyn yng Nghymru a'r DU
- Rhoi gwerth ar y gwasanaethau ecosystem yn y diwydiant cregyn gleision yng Nghymru
- Er mwyn caniatáu cymhariaeth rhwng y gwasanaethau yng Nghymru a gweddill y DU

Effaith

- Y gallwn ni ddefnyddio bivalves i wella ansawdd dŵr trwy gael gwared â charbon, nitrogen a ffosfforws.
- Fod ffosfforws yn mynd i'r môr yn broblem a gellir defnyddio bivalves i'w ddychwelyd i ddefnydd ar dir.
- Fod angen talu a chymell ffermwyr pysgod cregyn ar gyfer y gwasanaethau ecosystem y mae eu ffermydd yn eu cyflawni.

Key Objectives

- To calculate the ecosystem services provided by shellfish aquaculture in Wales and the UK
- To put a value on the ecosystem services in the Welsh mussel industry
- To allow comparison between the services in Wales and the rest of the UK

Impact

- That we can use bivalves to improve water quality by removing carbon, nitrogen and phosphorus.
- That phosphorus into the ocean is a problem and bivalves can be used to return it for use on land.
- That shellfish farmers need to be paid and incentivised for the ecosystem services that their farms carry out.

"Promoting, archiving and digitising Welsh heritage to promote and foster heritage tourism"

Ysgol Cerddoriaeth a'r Cyfryngau : School of Music and Media



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Prif Amcanion

- Sefydlu'r arferion gorau ar gyfer hyrwyddo safleoedd treftadaeth trwy lwyfannau digidol
- Ymchwilio i ddulliau newydd o reoli archif ddigidol
- Nodi ymgysylltiad defnyddwyr â thwristiaeth treftadaeth
- Darparu llwyfan i GAT i wneud y gorau o'r cyfleoedd a sefydlwyd

Key Objectives

- To establish the best practice for promoting heritage sites via digital platforms
- To investigate new methods of managing a digital archive
- To identify consumer engagement with heritage tourism
- To provide GAT with a platform from which to maximise on the opportunities established

Effaith

- Cynyddu ymwybyddiaeth o dwristiaeth treftadaeth yng Nghymru
- Gwellu systemau rheoli cynnwys ar gyfer safleoedd treftadaeth archifo digidol
- Gwellu mynediad ac argaeledd adnoddau digidol sy'n gysylltiedig â safleoedd treftadaeth yng Nghymru
- Sefydlu dull gwell o archifo a catalogio cynnwys digidol sy'n gysylltiedig â safleoedd treftadaeth

Impact

- Increase awareness of heritage tourism in Wales
- Improve content management systems for digital archiving heritage sites
- Improve access and availability for digital resources related to heritage sites in Wales
- Establish an improved method of archiving and cataloging digital content related to heritage sites

"Development of a miniature vibration energy harvester for battery-less tracking of honey bees"

Ysgol Cyfrifiadureg a Pheirianeg Electronig : School of Computer Science and Electronic Engineering



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Prif Amcanion

- Dylunio ag optimeiddio gwneuthurwr ynni micro-raddfa
- Dylunio a datblygu antena drosglwyddo gyda chylchredeg integredig ar gyfer storio pŵer a rheoleiddio
- Datblygu gallu'r system ar gyfer canfod symudiadau gwenyn yn y tirlun ehangach trwy gludo'r unedau micro-drosglwyddydd i wenyn

Effaith

- Datblygwyd cydweithrediadau rhyngwladol â labordai allweddol yn Rothamstead yn y DU, Canada, Tsieina a Brasil
- Darllediad eang ar amrywiaeth o lwyfannau yn y BBC (gan gynnwys Countryfile)
- Dyfarnwyd rhagor o brosiectau PhD dilynol a chynhyrchodd ddiddordeb sylweddol o fewn academia

Key Objectives

- Design and optimize a micro-scale energy harvester
- Design and develop a transmitting antenna with integrated circuitry for power storage and regulation
- Develop the system capability for detecting bee movements in the broader landscape by gluing the microtransmitter units to bees

Impact

- Developed international collaborations with key labs at Rothamstead in the UK, Canada, China and Brazil
- Wide coverage on a variety of platforms at the BBC (including Countryfile)
- Awarded subsequent PhDs and generated considerable interest within academia

"Gwerthuso llwyddiant deunyddiau digidol ac apiau Cymraeg neu ddwyieithog"

"Evaluate the success of indigenous materials and Welsh or bilingual apps"

Ysgol Hanes, Athroniaeth a Gwyddorau Cymdeithas : School of History, Philosophy and Social Sciences



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Prif Amcanion

Prif hanfod yr ymchwili hwn yw gwerthuso llwyddiant deunyddiau digidol ac apiau Cymraeg neu ddwyieithog. Mae'r newidiadau ffrwydrol yn y defnydd, cynhyrchiad a dosbarthiad o dechnolegau digidol yn yr unfed ganrif ar hugain wedi trawsnewid y ffurf mae unigolion yn cymdeithasu a chyfathrebu a'i gilydd. Mae'n anochel fod y newidiadau hyn wedi chwyldroi ein defnydd o iaith, ac yn cynnig cyfleoedd, heriau a pheryglon newydd i ieithoedd lleiafrifol y byd. (Jones, 2013)

Effaith

Er bod pwysigrwydd technoleg fel dull o hyrwyddo goroesiad iaith (Crystal, 2000) ac yn benodol i oroesiad yr iaith Gymraeg yn cael ei grybwyll mewn llyfryddiaeth, mewn gwirionedd mae ymchwili i ddefnydd o'r Gymraeg o fewn y byd digidol yn parhau i fod yn faes gymharol estron o fewn ymchwili academiaidd (Honeycutta Cunliffe, 2010). O'r ymchwili sydd eisoes yn bodoli, gwelir pwyslais amlwg ar rwydweithiau cymdeithasol, fel Facebook a Twitter. Felly beth am y defnydd o dechnoleg arall?

Mae dyfodiad apiau cyfrwng Cymraeg neu ddwyieithog yn darparu cyfle ychwanegol i hybu'r defnydd o'r Gymraeg ym mywydau pobl Cymru. Drwy ymdrech gydlynol gan ddarparwyr, gellir ehangu perthnasedd y Gymraeg, a normaleiddio defnydd o'r iaith o fewn y byd digidol.

Key Objectives

The main essence of this research is to evaluate the success of digital materials and Welsh or bilingual apps. The explosive changes in the use, production and distribution of digital technologies in the 21st century have transformed the way in which individuals socialise and communicate together. It is inevitable that these changes have revolutionised our use of language, and offers new opportunities, challenges and dangers to the world's minority languages. (Jones, 2013)

Impact

Although the importance of technology as a means of promoting language survival (Crystal, 2000) and in particular to the survival of the Welsh language in bibliography, in fact research into the use of Welsh in the digital world remains a comparatively foreign field within academic research (Honeycutta Cunliffe, 2010). From existing research, there is an obvious emphasis on social networks, such as Facebook Twitter. So what about the use of other technology?

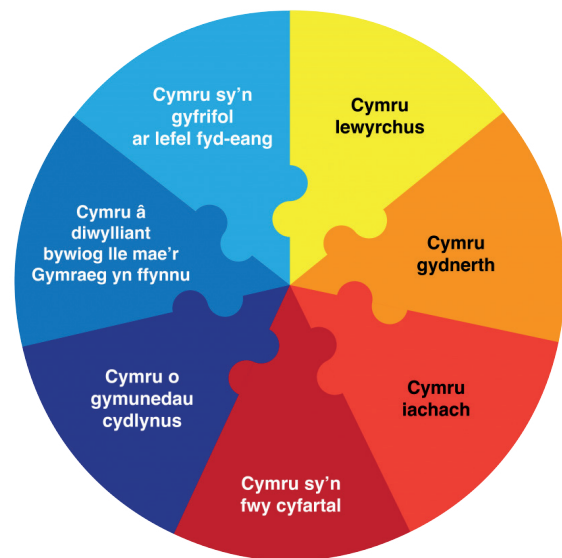
The advent of Welsh or bilingual Welsh apps provides an additional opportunity to promote the use of Welsh in the lives of the people of Wales. Through a coherent effort by providers, the relevance of the Welsh language, and normalization of the use of the language in the digital world can be expanded.

CYNALIADWYEDD KESS 2

KESS 2 has partnered with Bangor University's Sustainability Lab to ensure that our team and all our partners are able to demonstrate that we are giving meaningful consideration to the well-being of current and future generations in all we do.

Mae'n rhaid i ni weithredu mewn modd sy'n ceisio sicrhau bod anghenion y presennol yn cael eu cyflawni heb amharu ar allu cenedlaethau'r dyfodol i gyflawni eu hanghenion nhw. Wrth ddylunio prosiect mae'n bwysig ystyried effaith posib ein penderfyniadau ar y bobl sy'n byw yng Nghymru ar hyn o bryd ac yn y dyfodol.

Er mai'n prif gymhellant yw dod ag ysgolheigion prifysgol, myfyrwyr a busnesau ynghyd i ddatrys y prif heriau er mwyn rhoi hwb i'r economi rydym hefyd yn sylweddoli fod yr economi yn ddibynnol ar yr amgylchedd, cymdeithas a diwylliant. Os ydym eisiau datblygu mentrau cynaliadwy yn yr hir dymor, mae'n bwysig ein bod yn ystyried sut mae gwellau'r pedwar agwedd mewn modd cyfartal.



Drwy fabwysiadu'r dull arloesol a rhesymegol yma i reoli a chyflawni prosiect rydym yn hybu 'Deddf Llesiant Cenedlaethau'r Dyfodol (Cymru) 2015' Llywodraeth Cymru ddaeth yn gyfraith fis Ebrill 2016.

Mae hyn yn ffordd newydd o weithio i ni ac yn ystod oes KESS 2 rydym yn cynllunio i weithio drwy broses o ddysgu gweithredol er mwyn gwella ein dealltwriaeth o beth yw gwir ystyr cynaliadwyedd a llesiant i ni a'n partneriaid. Rydym yn frwdfrydig iawn am bartneru gydag eraill sy'n rhannu'r un weledigaeth ac sydd ar daith debyg. Dr Penny Dowdney sy'n arwain ar y Ddeddf Llesiant o fewn y tîm KESS 2.

Mae KESS 2 yn brosiect wedi ei ariannu gan Gronfa Gymdeithasol Ewrop (ESF), a drwy ddewis gweithredu yn y modd yma, rydym wedi dewis gwneud cyfraniad cadarnhaol tuag at yr Egwyddorion Llorweddol (Themâu Traws Torri fel yr arferid eu hadnabod).

Os hoffech rhagor o wybodaeth neu os oes diddordeb gennych mewn ymuno â Rhwydwaith Llesiant Prifysgol Bangor cysylltwch gyda:

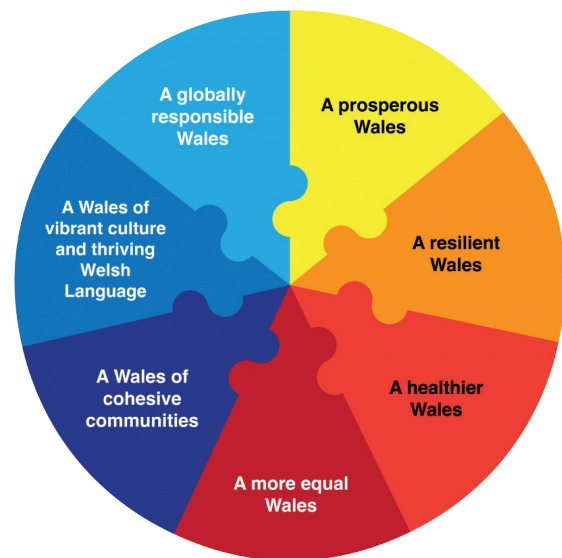
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KESS 2 SUSTAINABILITY

KESS 2 has partnered with Bangor University's Sustainability Lab to ensure that our team and all our partners are able to demonstrate that we are giving meaningful consideration to the well-being of current and future generations in all we do.

We must act in a manner which seeks to ensure that the needs of the present are met without compromising the ability of future generations to meet their own needs. When designing a project we need to consider the possible impact of our decision-making on the people living their lives in Wales currently, and in the future

Whilst our main motivator for bringing University academics, students and businesses together to the grand challenges is to boost the economy, we recognise that the economy is interdependent with the environment, society and culture. If we want our development initiatives to be sustainable in the long term, it is important that we consider how to improve all four aspects equally.



By adopting this innovative and logical approach to project management and delivery we are promoting the Welsh Government's 'Well-being of Future Generations Act (2015)' which became law in April 2016.

This is a new way of working for us and during the life of KESS 2 we plan to engage in an active learning process to improve our understanding of what sustainability and well-being really means to us and our partners. We are enthusiastic about partnering with others who share the same vision and who are on a similar journey. Dr Penny Dowdney is leading on the WFG within the KESS 2 team.

KESS 2 is an ESF funded project and this way of working is the way we have chosen to make a positive contribution to the Horizontal Principles (previously known as the Cross-Cutting Themes).

If you would like more information or if you would like to join Bangor University's well-being network contact:

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AR-LEIN : ONLINE



Lansiwyd gwefan KESS 2 yn 2017 ac mae'n cynnwys gwybodaeth bwysig a hawdd ei defnyddio ynghylch rhaglen KESS 2, llyfrgell o astudiaethau achos prosiect KESS 2 ac yr ysgoloriaethau diweddaraf sydd ar gael. Mae hefyd yn gartref i erthyglau newyddion KESS 2 fel bod modd hyrwyddo a rhannu llwyddiannau'r prosiect drwy gydol ei oes.

The KESS 2 website was launched in 2017 and gives easy-access to key information about the KESS 2 programme, hosts a library of KESS 2 project case studies and features the latest available scholarships. It is also the home of all KESS 2 news articles so that the successes of the project can be publicised and shared over the lifetime of the project.

Gwefan KESS 2:
KESS 2 Website:

<http://www.kess2.ac.uk>

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Ysgoloriaethau ar gael:
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