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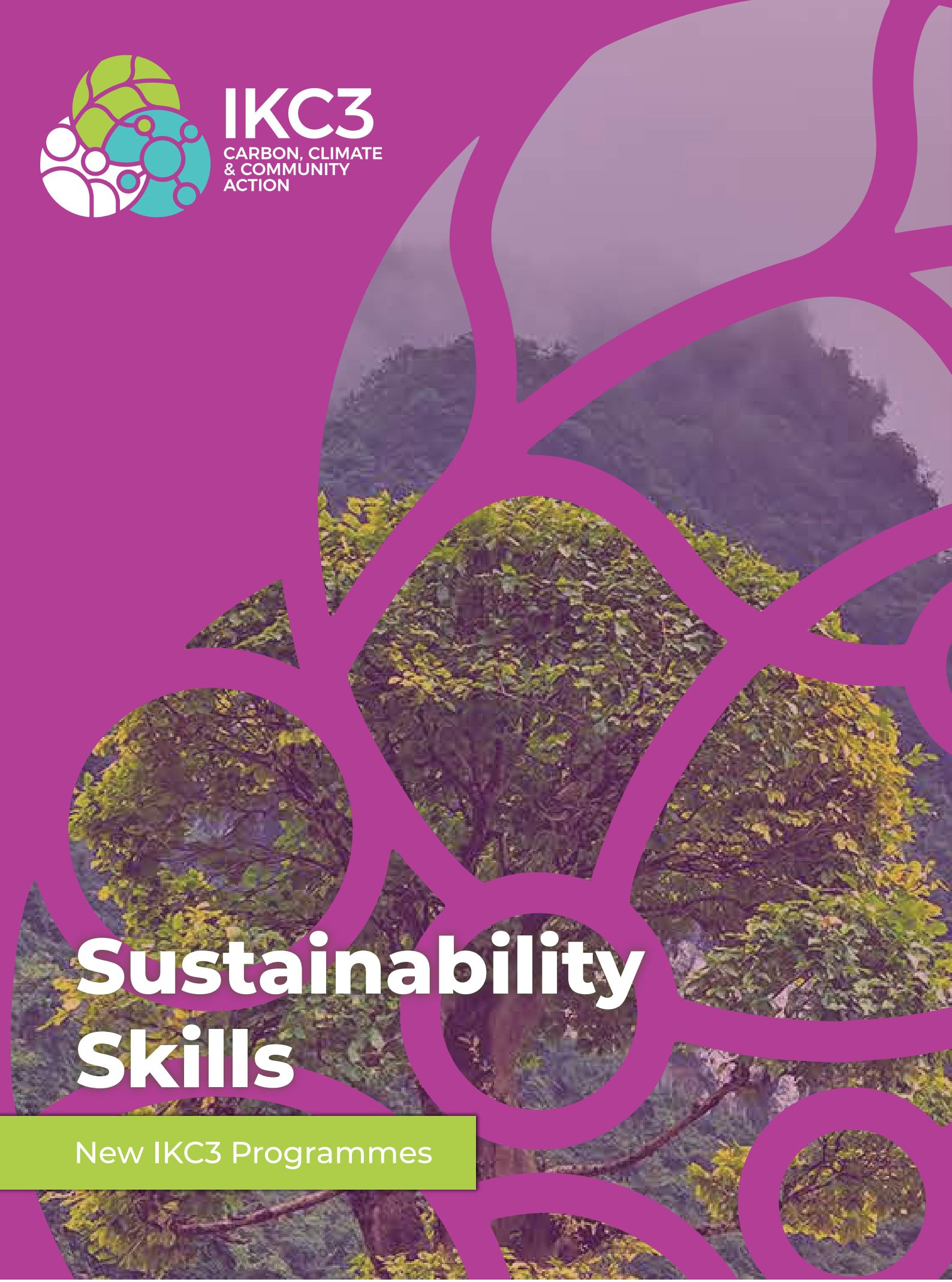

Sustainability Skills

New IKC3 Programmes

MTU Ollscoil Teicneolaíochta na Mumhan Munster Technological University
University College Dublin Ireland's Global University
Trinity College Dublin Coláiste na Tríonóide, Baile Átha Cliath The University of Dublin
HEA HIGHER EDUCATION AUTHORITY AN tÚDARÁS um ARD-OIDEACHAS
HCI Human Capital Initiative

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CONTENTS

1. Introduction 1
2. Industry and Industry Networks Consultations 2
3. Sustainability Skills Reports 4
4. Programmes Introduced & Programmes in Development 7
5. Future Actions 10

Sustainability Skills

New IKC3 Programmes

Ireland's Knowledge Centre for Carbon, Climate and Community Action.

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1. INTRODUCTION

This purpose of this report is to highlight a range of sustainability skills needs to inform opportunities for course development by IKC3 university partners. Research was undertaken between February and May 2023 and combines a) desk-based research reviewing sustainability skills needs identified in national and international reports, and, b) identifying skills needs directly with industry and through industry network groups.

Higher Education providers in Ireland are offering a range of courses seeking to upskill professional learners in sustainability-related topics including IKC3 partners Munster Technological University (MTU), Trinity College Dublin (TCD) and University College Dublin (UCD). Many of these courses are offered flexibly, online / blended to suit professional learner demands and some are offered as short, credit-bearing courses, such as micro-credentials.

Contained within the IKC3 HCI submission to the HEA, a range of sustainability-related areas of expertise across the HE partners was identified as offering potential for development, and following the initial research undertaken for this report, many of these topic areas align with skills needs identified within reports and through direct feedback from industry.

Those areas of greatest demand will be the initial focus for course development, and others will be introduced following further engagement with industry. This will be necessary as assessing sustainability skills needs for professional learners will be an ongoing process to align with changes in employer demand, learner preferences, advances in technology and how national policy and EU reporting mechanisms develop.

How industry will need to respond to achieving low carbon targets will be one of constant change; we shall continue to identify current skills needs required by industry and develop flexible accredited programmes, but also as highlighted in Section 5, we shall also seek to predict future needs, the skills solutions to these needs together with other areas where IKC3 can have a significant impact.

2: SUSTAINABILITY SKILLS NEEDS: INDUSTRY AND INDUSTRY NETWORK CONSULTATIONS

Direct Engagement with Industry and industry networks

Initial discussions identifying sustainability skills needs have been undertaken directly with industry. Organisations we have consulted with so far have included: Boston Scientific. Channelsight. Coca-Cola. Devenish. Fexco. Gas Networks Ireland. Logitech. O'Donovan Engineering. WEW Engineering. We have organised, and also contributed to, a number of industry group discussions working with stakeholder networks. These have included the Ballyhoura Development Female Entrepreneurs Network – facilitated session identifying sustainability skills needs for entrepreneurs working in rural communities; GreenTech Skillnet / Wind Energy Ireland - facilitated session identifying sustainability skills needs for the wind energy sector; Teagasc, Kerry Organic Farmers network identifying skills and knowledge needs; FANBEST / MTU / BIM Blue Economy – Innovation and Skills needs workshop; NatPro (hosted by Trinity College Dublin) facilitated session identifying skills and knowledge needs in the natural products sector.

In the forthcoming period we have planned discussions with a range of other industries and planned sector /profession joint activity with other partners. As highlighted in Section 1, these ongoing consultations with industry will inform future demand and programme development. From the consultations undertaken to date, a range of common needs arise as summarised below:

- **Practical insights.** Mentioned by all those consulted, courses should include practical insights and case study. Some also suggest that within any course being developed there needs to be explanations of terms, the regulations being introduced, introductions to / elements of Life Cycle Analysis, the Circular Economy and practical tools, especially for SMEs, of how to plan for sustainability, involve colleagues, undertake audits and how to report.

- **An Introduction to Sustainability**. Most of those consulted were of the view that for industry implement strategies an introductory course would be beneficial. This could be followed by an intermediate and advanced courses – a journey. Aimed at SMEs but also for larger businesses, many feel their teams need to understand the fundamentals. key topic areas suggested include:
    - The context. What is Sustainability (It is not just about the environment). Understanding the acronyms. Why is it relevant to the business (Not just about compliance).
    - How to set up an ESG function within the organisation- where are we now? Who are our stakeholders and how should they be involved (Customers, suppliers, peers and employees?)
    - How to set up an internal review of the organisation's ecosystem and priority areas across the ESGs and how to project manage the activity. How to design a

sustainability strategy, how to capture information and report this to senior managers. This is particularly important for smaller businesses as sustainability may, for many, be an add-on to existing role.

- **Circular Economy**. Highlighted by many of those consulted, a short course introducing the fundamentals of the Circular Economy, the key principles and how these might be adopted within an organisation. This could be extended to intermediate short courses for those looking to learn more. Some requested examples of how to manage waste and the role of the supply chains by adopting CE principles.

- **Sustainability leadership:** Leadership was frequently highlighted, stating that for sustainability to become fully part of organisation operations it needs to be led from the top. This could include the roles of leaders within their organisations for sustainability; an introduction to key sustainability topic areas and developing strategy; investment required and how to access green funds. Leaders need to be trained to know how sustainability is contextualised for themselves and for their organisation so that they can build this into their business models and embrace and encourage new ideas from their teams.

- **Sustainability marketing:** Marketing and communication skills were highlighted as areas for development. Those consulted see these professions will need a good understanding of the various aspects of sustainability, not just to inform customers about their organisation's green credentials as a selling tool, but also to inform internal communications to bring about change. Marketeers will be vital in spreading the message, influence behaviours. Also mentioned was green labelling and the skills required in offering authentic green claims on products and services.

- **Sustainability reporting:** Common among all those consulted is the need to prepare for reporting. Some are aware of reporting requirements on the horizon but not all. Many of those consulted expressed the view that many SME businesses have not considered that reporting will become a requirement or that their larger customers will be asking suppliers to report on their sustainability measures. It was suggested that a short course on this topic, or included in other courses being developed would be beneficial.

- **Digital skills for sustainability:** Highlighted frequently that utilisation of digital tools will be essential, with people needing to be skilled in how to gather sustainability data and also how to interrogate it and present to senior managers and auditors using Business Information tools. AI was also mentioned as area that will increasingly come into play here, particularly if it can help sustainability professionals find information. Utilising digital, for example in monitoring energy, helps inform the organisation's carbon footprint and informs energy options to consider.

- Relating to reporting and digital skills above, upskilling in implementing energy efficiency within an organisation was also highlighted - lighting, transportation, refrigeration, motor parts, and how for example an organisation responds to ISO5000.

- **Creative Thinking / problem solving tools and techniques:** Many businesses consulted advised that solutions will already be within the organisation. Upskilling in approaches to problem solving and creative thinking to find those solutions would help here. Some mentioned Systems Thinking, using for example a systems thinking approach to waste, considering other uses for waste materials and also the end to end to end impact especially in engaging with those who will process the waste. Essentially, a need exists to help business solve sustainability problems and embed these skills within their own organisations.

- **Project Management for Sustainability:** Project Management skills are seen as key for sustainability. For example, skills in how to plan and project manage an organisation sustainability audit, how to audit individual departments will, as one business put it, require project managers to be 'sustainability aware.

Other areas

Life Cycle Analysis: Mentioned by many is a need to upskill in this area; some are conversant with LCA whilst others feel they (and/or their colleagues) need a better understanding of the principles and how to conduct LCA as it can sometimes be complex. LCAs to help make right decisions for decarbonisation, such as waste and packaging. Whether this should be topic-specific course, or included as part of other courses will need to interrogated further.

Blue Economy: Following consultation with the sector future skills forecasts require roles including marine scientists and marine planners; Ecologists; R&D roles that conserve water and energy and similar to areas mentioned above, Project Managers; Digital skills; marketing skills and problem-solving skills to enable the innovations needed.

Agronomy: Another suggestion was to introduce a short Agronomy course as there is a national shortage of Agronomists. Areas to cover within a course included an introduction to organic agronomy, environmental planning, LCA and farm safety. Delivered online with suggested visits to some demonstrators.

Section 5 below highlights future actions we will be taking in the forthcoming period to identify sustainability skills needs across industry sectors to inform course development.

3: SUSTAINABILITY SKILLS REPORTS

To inform sustainability skills needs we undertook a review of reports in parallel to our discussions with industry and industry networks. Please refer to the IKC3 report *Skills for Sustainability: A Headline Review of National and International Reports Identifying Skills needs required for Transition to a Low Carbon Economy.* (2023). Over 20 reports were sampled, national and international, to gain a broad view of sustainability skills needs, some generic and others sector-specific.

The majority of skills needs identified align closely with the those we identified through direct industry and industry consultation workshops. The common skills needs identified from this initial review of reports are:

- **An Introductory to Sustainability**: Many reports highlight that the majority of Irish businesses are either yet to develop the required skills for sustainability, or at best, only have basic competencies. Recommendations are given for awareness raising and developing training, webinars and programmes on how SMEs could reduce carbon emissions, what this will mean for their organisations and how they could begin to plan for it. As well highlighting key concepts related to sustainability, assisting and enabling businesses, especially SMEs in developing sustainability plans and implementation of activity within their organisations.
- **Corporate sustainability strategy skills**: The reports highlight that many organisations, including many larger organisations, have still to develop a sustainability strategy and setting KPIs for ESGs. Most do not have a colleague tasked with identifying environmental sustainability priorities and implementing measures and reporting, indicating a potential demand for upskilling in this area. Although this would appear to the case for smaller enterprises there are indications that larger organisations may be reporting over-confidence in this area also, indicating an opportunity to upskill across all sizes of organisations.
- **Leadership skills**: Related to sustainability strategy skills above. National reports highlight a lack of leaders with suitable sustainability skills among Irish businesses when it comes to driving sustainable transformation, indicating upskilling needs for organisation leaders to set sustainability goals, incorporate sustainability into the organisation and create opportunities to bring people together and generate innovative solutions.
- **Digital skills to support sustainability**: Digital solutions can contribute to a lower carbon footprint, reduced use of natural resources and materials, sustainability of the life cycle (including in the supply chain), and extension of product life cycle etc. Although many organisations researched in many of the reports see digital skills as key in accelerating sustainability efforts, most have yet to harnesses the technology, again indicating an upskilling need in this area.
- **Sustainable finance skills:** Financial skills relating to investment and access to finance for sustainability, such as grants to SMEs to finance training needs is

identified. Dedicated courses for financing ventures and business growth, such as in the bioeconomy, is one example highlighted as well as recommendations for educating finance specialists at business schools.

- **Carbon management and reporting skills**: Reports sampled see a growing need in this area. Initially larger organisations, followed by smaller enterprises, will be required to report on sustainability measures.

  A driver for upskilling will be the Corporate Sustainability Reporting Directive (CSRD) of which there would appear to be a general lack of awareness across many organisations, as well as a lack of usage / awareness of sustainability standards and frameworks**.** Larger organisations and Irish-owned business see a need in this area and indicates a potential demand to support organisations prepare for reporting.

- **Managing waste, efficiencies, circular economy and design:** Among other issues**,** Irish organisations see waste management, energy and water efficiency as particularly important. Education in Circular economy and bio economy and energy efficiency design skills are called for requiring these to be contextualised for each business and training programmes should aim at enabling and fostering a culture of circularity/ green economy together with recommendations for introductory webinars on how SMEs could reduce carbon emissions.

- **Circular Economy.** Developing Circular Economy skills and mindsets - together with Life Cycle Analysis (LCA) to measure and quantify environmental or social impacts of products, services, and business models throughout their life cycles —repeats across reports as a key upskilling need to be embedded in training and programme development.

- **A range of other skills required:** Across all enterprises there are calls for training in software development; organisational and leadership skills; multimedia skills; web design and marketing skills; green procurement; carbon management; transport and logistics skills and in applied science enterprises there is particular need for mathematics, statistics, data management skills and across the board, entrepreneurial skills.

- **Green entrepreneurship / intrapreneurship**: International reports sampled give particular emphasis of the need to develop entrepreneurial mindsets and skills for sustainability. From the research undertaken by some of the reports there is limited provision currently and a growing need for both entrepreneurial and intrapreneurial skills to support green transition.

- **Transversal skills - creativity, innovation, systems thinking**: Several reports, particularly international reports, see upskilling in problem-solving, creativity, critical and innovative thinking as vital in responding to real-world sustainability problems, challenges, and opportunities. There is a call for decision-makers in educational institutions and governments to foster transversal skills, i.e. skills that employees can

use in various situations and work settings. Examples include, among others, critical and innovative thinking, teamwork ability, and perseverance.

Recommendations call for fluency in thinking in systems rather than silos, future thinking (thinking about the possibilities of the future rather than the routines of the past), normative or values thinking, and circular thinking (thinking in terms of circular production rather than purely linear processes). This indicates that not only would programmes specialising in systems thinking be key, but in part, should also be embedded within other sustainability programmes.

- **Supply and demand**. Whilst these upskilling needs are common across reports, there are some, as highlighted in *Talent for Ireland's Green Economy* (Skillnet + Economic and Social Research Institute, 2021) that highlight the current levels of demand and supply. Skills that support green innovation, and green skills that support the transition to a low-carbon economy that are high-demand and low supply/high recruitment difficulty include Climate change and sustainability strategy skills; energy-efficiency design skills and green procurement skills.

- **Specific sectors**. Ongoing skills needs research will be required to identify specific sector / profession skills such as consulting directly with industry groups and their sector bodies. Some sectors reports have already identified specific needs. The Bio economy sector for example, highlights circularity, systems thinking, sustainability and entrepreneurship as vital skills needs in *Promoting Education, Training and Skill across the Bio economy (2022)*. (Deloitte, Empirica and Fondazione Giacomo Brodolini Srl SB (FGB). Similarly, S*kills for Zero Carbon.* (2021) (National Skills Council + The Expert Group on Future Skills Needs) has already undertaken comprehensive work in highlighting a wide range of skills needs in required from learning providers, both FET and HE, in three specific sectors- Renewable Energy; Retrofit; Electric Vehicles and note that there are few courses aimed at
- professionals involved during the planning and environmental impact assessment stages for wind and solar
- training needs for those in Government and policy-making
- more accessible modular and bite-size programmes and blended learning
- a lack of engineering, environmental, legal and financial professionals with knowledge and experience of the zero-carbon economy sector
- a need for short courses to allow existing professionals to upskill in topics related to renewable energy, such as planning, environmental impact assessment and specific renewable energy technologies and emerging and niche occupations in the renewable energy sector and emerging needs such as specialised engineering professionals, specialised ecology and environmental experts, legal and financial experts, project managers, Solar Technicians and marine equipment and ROV operatives.

With new reports being produced weekly, we will continue to review and monitor these to inform IKC3 activity. See also Section 5 - Future Actions.

4: IKC3 PROGRAMMES INTRODUCED AND PROGRAMMES IN DEVELOPMENT

Based on the initial consultations with industry and the review of reports, IKC3 partners have introduced and will be looking to introduce new, flexible courses in the forthcoming period.

4.1 NEW PROGRAMMES INTRODUCED

TITLE: Certificate in Circular Economy
NFQ: Level 8
CREDITS: 20
AWARD TYPE: Special Purpose Award
LEAD PARTNER: MTU. Online and MTU Kerry South Campus
DURATION AND FORMAT: Blended, part-time.
COST: Fees do not apply to applicants who meet the Springboard+ initiative funding criteria. For employed applicants the HEA will pay 90% of the programme fee, the remaining 10% – €145 will be payable before registration. For applicants who do not meet the Springboard+ eligibility criteria the fee is €1,450.

TITLE: Postgraduate Diploma in Bioeconomy with Business
NFQ: Level 9
CREDITS: 60
AWARD TYPE: Major Award
LEAD PARTNER: MTU. Online and MTU Kerry South Campus and UCD Campus for scheduled workshops.
DURATION: Blended, part-time running January to December.
COST: Fees do not apply to applicants who meet the Springboard+ initiative funding criteria. For employed applicants the HEA will pay 90% of the programme fee, the remaining 10% – €540 will be payable before registration. For applicants who do not meet the Springboard+ eligibility criteria the fee is €5,400.

TITLE: **IKC3 Turas Learning Programme**
The Turas Learning Programme is a new upskilling activity developed by IKC3 partners Munster Technological University, Trinity College Dublin and University College Dublin.

Launched in April 2023 the programme runs for six months until October and features personal development sessions, online thought-provoking lectures and workshops, a week-long residential summer school in July and culminates in a networking summit and graduation ceremony. We have designed these activities to fit around work and education commitments and is aimed at upskilling existing professionals and adding value to primary degree areas.

As part of the programme students and industry develop innovative climate and sustainability solutions, create new potential products and services to contribute to the transition to net zero and achieving the goals of the Climate Action Plan. Key to the programme is equipping participants with Systems Thinking and innovation skills via the lens

of sustainability which are increasingly in demand and will enable them to be change agents in their organisations and in next steps in their careers.

4.2 NEW PROGRAMMES AND PROGRAMMES IN DEVELOPMENT

Launching this year are two new programmes that align to identified skills needs.

TITLE: Postgraduate Certificate in Climate Entrepreneurship
NFQ: Level 9
CREDITS: 30
AWARD TYPE: PG Cert
LEAD PARTNER: TCD
DURATION: Sep- March. 15 weeks blended.
LAUNCH: Sep 2023
COST: €375 for eligible applicants in employment. Free to eligible unemployed applicants.

TITLE: Grad Dip Carbon Accounting & Life Cycle Assessment
NFQ: Level 9
CREDITS: 60 credits
AWARD TYPE:
LEAD PARTNER: UCD
DURATION: I year p/t, blended.
LAUNCH: 2023
COST: € 6440 (EU)

TITLE: Systems Innovation for Sustainable Enterprise and Communities
NFQ: Level 9
CREDITS: 10 credits
AWARD TYPE: Certificate
LEAD PARTNER: TCD
DURATION: 12 weeks. Blended.
LAUNCH: Sep 2023
COST: €300

Also, in in the forthcoming period we are planning to launch two flagship programmes that respond to industry the needs identified in Sections 2 & 3 above. Through our engagement with industry we have identified two significant audiences to support with flexible upskilling programmes:

- **Sustainability Professionals** – those who have sustainability as dedicated role, or as a significant part of their role, or professionals looking to pivot their careers into

sustainability. This group of professionals will be the change makers within their organisations.

- **SMEs** – from our initial review and consultations with industry it became apparent that there are several training courses and accredited programmes, Ireland and Europe, that seek to upskill leaders and managers aimed particularly at larger organisations. It became apparent that there is an **upskilling need among SMEs**. As such, we are planning to meet this need and will introduce a programme that offers a general introduction to sustainability and supports SMEs to plan, implement and monitor sustainability within their organisations. This will be open to all sectors and size of business but particularly SMEs and small business where sustainability roles may only be part, or become part, of an existing role within the organisation.

TITLE: Sustainability Professionals Transformation Programme. *(Working Title)*
NFQ: Level 9.
CREDITS: 60 (6 x 10 credit module)
AWARD TYPE: TBC
LEAD PARTNER: MTU. Online and MTU Kerry South Campus and UCD Campus for scheduled workshops.
DURATION: Six 10 credit modules and a 30credit thesis/project, 90 credits overall, and with options for Post Graduate cert/diploma instead. Blended, part-time.
LAUNCH: 2023/24
COST: TBC

TITLE: Planning for Sustainability in SMEs *(Working Title)*
NFQ: Level 7
CREDITS: 20
AWARD TYPE: Certificate
LEAD PARTNER: MTU
DURATION: 12 weeks over one semester.
LAUNCH: 2023/24
COST: TBC

We can also report that we recently consulted with the natural products sector through a facilitated workshop at the NatPro centre based at Trinity College Dublin. The analysis on feedback is still underway and will help inform the level of demand for a potential short course/s for this sector. We are also exploring the potential of sustainability upskilling for those working in the marketing and communications professions, and this area is expected to be included within the two programmes proposed above. Further discussion with industry and activities which will be undertaken and outlined in Section 5 will help inform this and other programme development.

5: FUTURE ACTIONS

Identifying skills and knowledge needs to inform how the HE sector can respond will require a continuous review. This will be driven by the introduction of new policies and legislation, emerging technology and changes in consumer and societal behaviours among other factors.

IKC3 will track these changes and demands in the forthcoming period by

- **Working directly with industry.** What is industry telling us? Which skills and knowledge needs do they see as vital?

  Action: The initial 121 consultations with industry will be ongoing and will include engaging with more businesses and organisations – corporate, SME, micro and start-ups; public organisations, not-for-profit and social enterprise - to capture both generic and specific sustainability skills needs by sectors and professions (See Section 4). We will continue to identify skills and knowledge gaps to inform course development; current provision that could be adapted and built upon; preferences for either accredited or unaccredited learning; identification of preferred delivery format of provision.

- **Working with industry networks**. Consultations with groups of industries with IKC3 working in partnership with industry bodies and stakeholders. Initial partnership working to identify skills needs with groups of industries (See Section 4) has revealed generic and sector-specific demands. Partnership working has enabled IKC3 to reach a wide number of industries and has been beneficial not just for identifying skills needs, but also to raise awareness of sustainability, the transition to a low carbon economy and how this will impact on business models and provide new opportunities for business.

  Action: In the forthcoming period will extend our reach nationally and work with sector and professional bodies to reach more businesses and professional learners through collaborative working such as co-ordinating joint events. For example, we are will work closely with Chartered Institute of Professional Development (CIPD) to reach industry HR Managers to identify the sustainability skills and qualifications they are seeking; with sector groups such as Skillnets, to share intelligence and inform accredited upskilling; regional innovation and start-up hubs to support and embed sustainability with new business formation; and with our partners in Chambers Ireland to identify skills needs with Chamber members across regions together with providing content for Chambers to highlight sustainability skills in their marketing and communication channels.

- **Recruitment trends/ IKC3 dashboard portal**: What are the sustainability skills and qualifications employers are requesting on recruitment sites?

  Action: We will identify the sustainability skills sets, qualifications, knowledge and experience employers are seeking by analysing recruitment sites through data mining of industry sectors, professions and industry size. We are currently in the planning stages of developing the IKC3. We envisage providing real-time information, informed by data analysis, displayed as a series of live dashboards on the IKC3 portal. This will inform

course development and also inform Industry and industry networks, national and regional decision-makers. We are also considering how this may be extended to professionals seeking to develop a career in sustainability, potentially with a signposting tool of all national accredited sustainability-related courses.

- **IKC3 partners**: **National and European**. We will seek input to skills development working with IKC3 partners (See Section 5) to ensure our supply is aligned to demand, and where required, onboard expertise to meet the demand.

  Action: We will co-ordinate briefings with IKC3 HEI partners, national and European to share the sustainability skills demands we have identified and further inform this through demands partners may also be finding. This will include IKC3 academic partners and as required with Admission teams / Professional Studies / Lifelong learning teams to assess student (UG/PG and Professional) trends and demands for specific sustainability programmes. Similarly, we will co-ordinate discussions with our European partners to share trends and best practice skills and knowledge solutions learn from their engagement with industry to inform activity across institutions.

- **Sustainability Professionals Network Ireland:** Through our initial consultations it became apparent that those tasked with sustainability within their organisations would be keen to share ideas with others.

  Our initial plans in response to this need is for Sustainability Professionals Network Ireland (working title) to support those tasked with sustainability within their organisations to share ideas, best practice and learn from each other, the IKC3 team and invited guest speakers from industry and wider stakeholders both in Ireland and internationally. The network events will focus on topical themes and inform members of news and trends emerging. The network will offer network members the opportunity to seek solutions from the crowd as well as underpinning the new programmes proposed above.

  Action: We will pilot regionally in the forthcoming period, assess, refine and roll out nationally based on demand and value. This will also link with the intelligence we are seeking to obtain and present on the IKC3 portal dashboard. Please see details above. The combination of the two, together with the programmes we will develop presents an opportunity to create an impactful data-informed, solutions-driven ecosystem to build upon. It is also envisaged that piloting a network to share best practice will also develop a pipeline for accredited sustainability upskilling and help inform future programme development.

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