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ASTUTE EAST External Evaluation

Mid-Term Report: Executive Summary

Case ID 81399

For Swansea University and the Welsh European Funding Office

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Introduction

- i. This is the executive summary of a report that presents the findings of the second stage of the external evaluation of ASTUTE EAST, an Operation that aims to facilitate the adoption of advanced technologies, increase the competitiveness and contribute to the future-proofing of the advanced engineering and manufacturing industry of East Wales.
- ii. The Operation is part-funded by the European Regional Development Fund (under Priority 1, Specific Objective 1.2) and the participating HEIs: Swansea University (the lead beneficiary), Cardiff University and the University of South Wales (USW). The Operation commenced on 1 October 2017 and delivery is scheduled to continue until 31 December 2020.

March 2020 Update: Since the fieldwork for this stage of the evaluation was conducted and the bulk of this report was drafted, the Welsh European Funding Office has approved a proposal to extend the Operation.

ASTUTE EAST will now continue until the end of September 2022 and its formal ERDF indicator targets have been increased accordingly.

Current progress against the formal ERDF activity and innovation indicators are shown in the following table:

Indicator/Measure	Operation forecast	Cumulative profile to date	Cumulative achievement to date (March 2020)
Number of partners cooperating with supported research institutions	98	32	32
Number of enterprises receiving non-financial support	38	14	14
Private investment matching public support in innovation or R&D projects (£)	7,500,000	502,538	516,263
Number of enterprises supported to introduce new-to-the-market products	20	3	3
Number of enterprises supported to introduce new-to-the-firm products	35	4	4
Number of patents registered for products / processes	8	0	0
Employment increase in supported enterprises	75	4	5

The remainder of this executive summary refers to the Operation before this extension was approved.

Conclusions against evaluation objectives

Table ES.1: Progress against activity indicators: operation forecast (target by end of 2020), cumulative profile to date and cumulative achievement to date, July 2019

Indicator/Measure	Operation forecast	Cumulative profile to date	Cumulative achievement to date
Formal ERDF indicators			
Number of partners cooperating with supported research institutions	65	31	22
Number of enterprises receiving non-financial support	25	13	9
Operation-specific indicators			
Number of enquiries, referrals and other initial contact with companies	n/a	n/a	95
Number of formal requests for collaboration from companies	n/a	n/a	22
Number of referrals to other schemes (including Welsh Government)	n/a	n/a	1
Number of referrals to private sector	n/a	n/a	4

Table ES.2: Progress against innovation indicators: operation forecast (target by end of 2020), cumulative profile to date and cumulative achievement to date, July 2019

Indicator/measure	Operation forecast	Cumulative profile to date	Cumulative achievement to date
ERDF indicators			
Private investment matching public support in innovation or R&D projects (£)	5,000,000	345,000	395,787
Number of enterprises supported to introduce new-to-the-market products	13	1	1
Number of enterprises supported to introduce new-to-the-firm products	23	9	2
Number of patents registered for products / processes	5	0	0
Operation-specific indicators			
Number of items of non-patent IP retained by supported enterprises	n/a	n/a	3
Number of publicly available case studies on projects with supported companies	n/a	n/a	0
Number of scientific papers that include a supported company as joint author	n/a	n/a	1 (in progress)

ASTUTE EAST Monitoring Data

To increase the successful translation of research and innovation processes into new and improved commercial products, processes and services, in particular through improved technology transfer from HEIs

- iii. The ASTUTE EAST Operation is evidently focused on achieving this objective. At this point in time, as discussed in section 4 of the full report, ASTUTE EAST is on profile and set to achieve its target of enterprises supported to introduce **new-to-the-market** products. It is behind profile against the higher target of **new-to-the-firm** products; however, stakeholders remain confident that the Operation will achieve its target as ongoing projects are completed over the next few quarters.
- iv. Feedback from companies engaged with as part of the evaluation suggests that the translation of R&D into commercial products, processes and services facilitated by ASTUTE EAST may not have occurred in its absence, either because the company would not have the capacity or skills to carry out the R&D themselves or because their requirements could not be fulfilled by market providers. This, however, should be explored in greater detail at the final evaluation stage when the number of collaborating enterprises with a completed project is greater.

To speed progress from laboratory to concept to increase commercialisation of R&D for the benefit of the East Wales and wider Welsh economy through demand-led combination of academic and industry strengths

- v. At this point in the Operation's delivery, when few collaborative projects have been completed, it is not possible to quantify the extent to which ASTUTE EAST's support is increasing commercialisation of R&D for the benefit of the East Wales and wider Welsh economy.¹
- vi. Feedback from stakeholders and collaborating enterprises suggests, however, that the ASTUTE EAST model continues to remain agile and demand-led, and the high proportion of proposals that result in projects and low number of projects discontinued when started supports this. Similarly,

¹ Measuring (and, where possible, quantifying) the extent to which the Operation has delivered its outcomes and impacts will be the focus of the summative Final Evaluation, with the caveat that evidence of an intervention's outcomes and impacts is often not evident until some time after the end of its delivery.

feedback suggests that any changes to administrative/management processes (such as the project selection and approval process) made by the Operation's delivery team aim to reduce the burden on industry collaborators and reduce barriers to engagement, even if the result is not regarded as successful by all companies.

Bring together manufacturing innovation with product innovation and supply chain organisation to contribute to futureproofing the East Wales and wider Welsh economy

- vii. Although delivery is ongoing, there is evidence emerging of ASTUTE EAST contributing to the futureproofing of the advanced manufacturing sector in East Wales. For example, one possible proxy indicator of progress towards this objective is employment increases in companies collaborating with ASTUTE EAST.² Although ASTUTE EAST has not currently claimed any jobs created, internal stakeholders are confident that it will achieve its target on this front, and one of the collaborating companies expects a gradual increase in staff as the company moves from product/process concept to high volume production over the next few years. Another possible proxy indicator is the intellectual property generated through the collaboration between ASTUTE EAST and companies. Again, although ASTUTE EAST has not claimed any patents registered for products at this point in its delivery, it has evidence of intellectual property owned by both the collaborating enterprise and ASTUTE partners in the case of both completed collaboration projects (for example, improved understanding of manufacturing processes and actions to improve the quality of an innovative low-volume product).

Develop new and support existing local supply chains to become increasingly sustainable and resilient

- viii. With few collaborative projects completed at this point time, it is not currently possible to assess confidently the extent to which ASTUTE EAST and the enterprises collaborating with it are developing new and supporting existing local supply chains. Engagement with enterprises who are or have

² The rationale being that companies increasing the size of their workforce likely regard themselves as futureproofed in the short to medium-term.

collaborated with ASTUTE EAST suggests, however, that their supply chains are complex and a mix of local (Wales or the UK) and global suppliers, suggesting that the Operation does have the potential to address this objective to some extent.

Address current technical challenges and provide de-risking support for new technologies to enable regional sustainability and agility in responding to global disruptive megatrends

- ix. Evidence from the collaborating companies engaged with through the collaboration suggests that ASTUTE EAST is addressing current technical challenges that are demand-led and require a genuine research project to attempt to solve them. In terms of addressing global disruptive megatrends, the Operation's stated focus on Future Manufacturing Technologies and inclusion of relevant expertise from HEI partners suggests that it is attempting to achieve this. Only a few of the Operation's ongoing projects can, however, be considered to fall under 'Future Manufacturing Technologies'. This suggests that, at present, there is perhaps less demand or awareness of opportunities in this area amongst manufacturing companies in (East) Wales than anticipated, perhaps because this is a rapidly-developing area that needs to be further explored and better understood.³

Contribute towards a change in current innovation culture to increase innovation in business and to stimulate new business creation in East Wales

- x. Once again, the ongoing nature of many of the ASTUTE EAST collaborations means that it is currently difficult to identify whether the Operation has contributed towards a change in innovation culture amongst East Wales companies in advanced manufacturing.⁴ Stakeholders are confident that this will be the case with a number of companies, and suggest that, for example, some companies have used the collaboration with ASTUTE EAST to break apart old processes, systems and structures to provide the conditions in which

³ This sentiment is echoed in *Industry 4.0 – the future of work* (2018) National Assembly for Wales.

⁴ A change that is perceived to be required due to baseline evidence about R&D in Wales, such as Wales's score on the Regional Innovation Scoreboard, as discussed in section 3 of this report.

a culture of innovation can develop, but this will be explored further through engagement with collaborating companies as part of the final evaluation.

Use adaptive Smart Specialisation and leading research expertise to help regional responses to global megatrends in manufacturing and benefit local manufacturers

- xi. The ASTUTE EAST Operation appears to be effectively using adaptive Smart Specialisation and its research expertise for the benefit of the East Wales region, both through individual collaboration with companies and its building of links with other European- and Innovate UK-funded projects and programmes.

General conclusions

Coherence and relevance

- xii. The contextual review undertaken as part of this mid-term evaluation (see section 3 of the full report) demonstrated that the ASTUTE EAST Operation's design appears to remain highly coherent with the policy context surrounding research and innovation and Industry 4.0. Relatedly, the Operation's objectives appear to remain relevant to the needs of the advanced manufacturing industry in East Wales, as stakeholders are confident that the Operation's current position in relation to its indicator targets (that is, behind profile in a number of cases) is not reflective of a lack of demand. Feedback from collaborating companies suggests that ASTUTE EAST is broadly addressing the demands of industry,⁵ but, as discussed above, the small number of projects under 'Future Manufacturing Technologies' suggests that either the Operation is ahead of industry in addressing this trend (and therefore ahead of demand) or that other barriers are preventing industry from exploring this area.

Efficiency

- xiii. Due to the limited data available on the outcomes and impact of the Operation at this stage in its delivery, it is not currently possible to quantify the efficiency or value for money/return on investment delivered by the ASTUTE EAST.

⁵ The caveat here is, of course, that this group of companies is likely to be more content that ASTUTE is fulfilling demand than others that have not engaged with the Operation and therefore were not engaged with during the evaluation.

Feedback from stakeholders and collaborating companies, however, suggests that the Operation is utilising its resources in an efficient manner, not least thanks to the skills and experience of its management and governance teams.

Effectiveness

- xiv. As discussed in section 5 of the full report, the ASTUTE EAST Operation appears to have been delivered and managed effectively to date, and stakeholders and the collaborating enterprises engaged with through this evaluation did not report any concerns relating to this, despite the Operation being behind profile on a number of indicators.
- xv. The Operation's delivery processes appear to be functioning well, and a critical process – the project selection and approval process – seems to be robust, contributing to a high proposal approval rate, and undertaken within reasonable timescales.
- xvi. The delivery of the Operation has faced challenges, particularly with regards to recruitment and retention of members of the Technical Delivery Teams. Although turnover of staff was anticipated by the Operation delivery team based on past experience and knowledge of the career paths in industry and academia in the advanced manufacturing sector, one factor specifically highlighted by stakeholders was the timeframe of the Operation, particularly given that it took longer than some stakeholders expected to generate momentum for participation amongst companies in East Wales.
- xvii. The ASTUTE EAST Operation appears to have integrated successfully within its processes contributions to the Cross-Cutting Themes, utilising the experience of the ASTUTE 2020 Operation. As more collaborations with companies are completed by the Operation, further information will become available about the contribution of these projects to the Cross-Cutting Themes, particularly that of Sustainable Development, and this can be explored in the final evaluation.

Added value

- xviii. At this stage in the Operation's delivery, when its outcomes and impacts are very much emerging, it is difficult to identify specific examples of added value delivered by the Operation.

- xix. As discussed above, however, there is a certainly a perception amongst internal stakeholders that, through collaboration with ASTUTE EAST and its partner institutions, the Operation is engendering culture change within certain collaborating enterprises, both with regards to the benefits of innovation and in terms of challenging perceptions that collaboration with academia is a slow and burdensome process.

Recommendations

Operational recommendations

- The Operation should continue to solicit industry feedback in the project selection and approval process.
- The Operation should continue to engage and share information with its referral partners (such as the Welsh Government SMART teams) to ensure that referral pathways are clear and all opportunities for collaboration are maximised.
- The Operation should continue to identify and address opportunities to streamline administrative processes (particularly those involving collaborating companies).
- The Operation should engage with industry stakeholders to explore why demand for projects related to Future Manufacturing Technologies has been lower than expected and work out if it can do more to increase this demand.

Evaluation recommendations

- The approach to engagement with collaborating companies adopted for the final evaluation should seek a middle ground between the qualitative approach adopted for the ASTUTE EAST mid-term evaluation that provided rich data, but a small sample size and the more quantitative approach adopted for ASTUTE 2020.
- The evaluators and Operation delivery team should review whether the project status report template can be amended to support the collection of data for the final evaluation and reduce the burden on industry collaborators whilst also being mindful of demands on project officers.

- The final evaluation should consider the result indicator for Specific Objective 1.2: 'Average share of total turnover from product innovation, and novel innovation: new to market, new to business and significantly improved' and qualitatively assess and demonstrate the contribution of ASTUTE EAST towards this indicator.