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*TECHNOLEGAU CYNHYRCHU CYNALIADWY UWCH*

## External Evaluation of the ASTUTE 2020 Operation

### Inception Evaluation

To: Swansea University

Version 2.1

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## Executive Summary

This report documents the findings of the inception evaluation<sup>1</sup> of the five-year ASTUTE 2020 Operation<sup>2</sup>. The Operation was awarded £14.7m funding from the European Regional Development Fund (ERDF) and its partners.<sup>3</sup> It will provide support to enterprises to facilitate the adoption of advanced, sustainable manufacturing technologies in West Wales and the Valleys (WW&V).

The Operation sits within Priority 1, Specific Objective 1.2 of the ERDF Operational Programme. The aim of which is to increase the number of small and medium sized enterprises innovating to bring new products and processes to the market.<sup>4</sup> The Operation will focus on three Adaptive Smart Specialisation areas.<sup>5</sup> The areas were chosen to target support where there are the best economic opportunities for manufacturing within WW&V.

The inception evaluation set out to identify a suite of indicators that will enable an assessment of the impact of the Operation at the mid-term, and final evaluation stages. And then, to establish a baseline position against which subsequent progress can be compared. The approach taken was largely desk-based with a small amount of primary research with key stakeholders. A logic model and monitoring and evaluation framework were developed through consultation with the Operation team following a review of existing operation documentation. Then, baseline data was collected from National Datasets, to establish a 'control group'.

A mid-term evaluation is expected to take place during 2017/8. This stage of evaluation will utilise the framework to understand the effectiveness of activities carried out (a formative assessment). Suggestions to improve delivery for the rest of the Operation will

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<sup>1</sup> One of three evaluation stages during the course of the Operation. A mid-term and final evaluation will follow.

<sup>2</sup> ASTUTE 2020 builds on the success of its predecessor ASTUTE.

<sup>3</sup> £10m funding from the ERDF and £4.7m from partner universities, namely: Swansea University, Cardiff University, Aberystwyth University, and University of Wales Trinity Saint David.

<sup>4</sup>

[[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/342297/ERDF\\_Operational\\_Programme.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/342297/ERDF_Operational_Programme.pdf)]

<sup>5</sup> Computational Engineering Modelling, Advanced Materials Technology, and Manufacturing Systems Engineering.

be identified. A final (summative) evaluation will be carried out towards the end of the Operation's delivery.

### The Monitoring and Evaluation Framework

The evaluators used a Theory of Change(ToC)<sup>6</sup> approach as the theoretical framework to develop the evaluation logic model. It shows the key dependencies in the Operation process and aims to map out 'what happened' and 'why'. Then, the evaluators developed a monitoring and evaluation framework based on HM Treasury's Green Book guidance.<sup>7</sup> That involved the identification of a process chain of inputs, activities, outputs, interim outcomes and emerging (desired) impacts. Subsequently, the evaluation team and Operation team identified a set of indicators to link observable outputs, outcomes and eventually impacts to direct and proxy variables. These variables indicate 'how' change will be measured. Further, the framework takes each element of the logic model and identifies evaluation questions that will need to be answered to understand what has changed as a result of intervention.

A summary of the monitoring and evaluation framework is included below:

**Policy Drivers & Needs:** the main evaluation question is 'how coherent is the fit of the objectives with current policy? Which will be answered by the evaluation team following a desk review of relevant Operation documentation and policies, as well as interviews with key stakeholders.

**Objectives:** the framework details seven objectives taken from the Operation business plan. The evaluation team will assess the extent to which ASTUTE 2020 is expected to contribute to each objective.

**Inputs:** the framework lists the expected Operation inputs. They are: the amount of funding the Operation is expected to require, the amount of time, effort and knowledge expected of delivery staff as well as other inputs such as communication and marketing,

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<sup>6</sup> C. Weiss (1995). *Nothing as Practical as Good Theory: Exploring Theory-Based Evaluation for Comprehensive Community Initiatives for Children and Families* (Connell, J, Kubisch, A, Schorr, L, and Weiss, C. (Eds.) 'New Approaches to Evaluating Community Initiatives' ed.). Washington, DC: Aspen Institute.

<sup>7</sup>

[[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/220541/green\\_book\\_complete.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf)]

demand from companies and referrals from other schemes. The external evaluation team will assess whether the inputs are sufficient, and are being used effectively for delivery, at the mid-term evaluation stage.

**Activities:** the activities expected to be carried out as part of the Operation are noted in the monitoring and evaluation framework. They are the logical link between inputs and outputs.

**Outputs:** the Operation's outputs can be categorised as either ERDF indicators (those required to be collected as agreed with the funding body) and additional, recorded indicators. This latter group are intended to capture impacts beyond that measured by the ERDF and so ensure the full impact of the Operation is understood. The report notes that data to inform the ERDF indicators will be collected by the Operation team. The external evaluators are responsible for the data collection to inform all other indicators.

**Outcomes:** The outcomes of the ASTUTE 2020 are the short-term and medium-term effects of the Operation outputs. There are six distinct outcomes, for which there are eleven individual indicators. Two of the outcome indicators are monitored ERDF indicators that have been approved by WEFO. They each have an associated target level. All other outcome indicators are additional, recorded indicators which are felt express the full impact of the intervention.

**Impacts:** The activities of the ASTUTE 2020 Operation are expected to generate substantial long-term impacts for the companies supported and the wider economy of WW&V. Although many of these benefits will be realised after the completion of the Operation, several indicators have been identified which are expected to be influenced by ASTUTE 2020. These will be assessed at the final (summative) evaluation stage. The report notes that consideration of the counterfactual will be an import aspect of the final evaluation, to ensure that only benefits which would not otherwise have occurred are credited to the Operation.

The ASTUTE 2020 Operation sets out a commitment to carry out activities in accordance with current best practice guidance on the ERDF's cross-cutting themes (CCTs).

### Baseline Position

The baseline position provides an evidenced position against which the subsequent evaluations can make comparison. The following provides a summary of each evaluation element.

**Policy Drivers & Needs:** an external review evidenced the need for intervention, which is clearly set out in the Operation business plan. It identified three distinct RD&I needs within industry in WW&V<sup>8</sup>. To reduce costly ‘trial and error’ approaches, to introduce new materials and to improve the utilisation of resources. The Operation takes a strong stance on its support of Smart Adaptive Specialisations. It notes the Operation’s alignment with policy areas, its relevance to industry and the expected high level of impact on economic performance (among others). This approach shows that the choice of areas, and thus the focus of ASTUTE 2020 has intentionally been constructed to address identified need.

**Inputs:** Generally, stakeholders felt that the level of funding for ASTUTE 2020 – although less than ASTUTE, was sufficient. A small number of stakeholders highlighted the importance of having the right partners or being able to find the right academics and Project Officers as an essential factor in ensuring that ASTUTE 2020 can comprehensively meet industry demand.

**Activities:** There is no baseline position as such, to inform the assessment of the effectiveness of ASTUTE 2020 activities. Rather, stakeholder were interviewed to understand their views on the planned activities. Headline findings were that the new approach<sup>9</sup> to the project approval process was more rigorous and transparent than the previous approach. The Operation team are aware of the need to test for and avoid private sector displacement during the approval process. Stakeholders felt that the inclusion of Industry Wales and EEF – The Manufacturers’ Organisation added value to the approval process, as well as referral to other schemes. The Operation will carry out a horizon scanning exercise to ensure that it delivers support in Smart Adaptive Specialisation areas.

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<sup>8</sup> Also acknowledging that this applies to the rest of Wales also and that impacts would spread out of the region.

<sup>9</sup> New compared to the previous ASTUTE Project.

**Outputs:** Theoretically, the baseline for all the outputs is currently zero. Although the indicator targets have been reduced in absolute terms, compared with the previous ASTUTE Project, (although increased when comparing pro-rata outputs), the choice of targets was based on sound rationale as expressed in the business plan. Further, there have been changes to WEFO's<sup>10</sup> definition of the jobs created indicator, which means that any jobs created must take into consideration the change (potential loss) in jobs elsewhere in the supported enterprise. Several stakeholders commented that the level of engagement between companies and the partner universities would have a big influence on the success of the ASTUTE 2020 Operation.

**Outcomes:** it is not possible to obtain a comparison value from existing datasets for the current level of private sector investment in R&D nor the amount of private investment matching public support in innovation or R&D projects

The external evaluators will use 2014 gross domestic expenditure on research and development. (GERD) data as an approximation of the general rate of change over time.

The external evaluators will collect data from supported companies regarding the indicator: average share of total turnover from product / process innovation, and innovation: new to market, new to business and significantly improved. This will be compared with the change in the equivalent indicator obtained from the UKIS.<sup>11</sup>

The external evaluators accessed BRES<sup>12</sup> data to derive the change in employment numbers between 2011 and 2015 (the most recent dataset), for the SIC codes<sup>13</sup> of enterprises supported during ASTUTE<sup>14</sup> - which is being used as an approximation of the companies that could be expected to engage with ASTUTE 2020. Over the three-year period 2013 to 2015 the rate of change in the employment level was 7 per cent. This

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<sup>10</sup> *The Welsh European Funding Office.*

<sup>11</sup> *The United Kingdom Innovation Survey. Also referred to as the Community Innovation Survey.*

<sup>12</sup> *The Business Register and Employment Survey.*

<sup>13</sup> *At the 5-digit level. See Appendix 3 for a definition of the SIC codes.*

<sup>14</sup> *The top 25 SIC codes (at the 5-digit level), which accounted for 52% of all companies engaged during ASTUTE was used to derive an approximation of the industry with which ASTUTE 2020 can be expected to operate in. Through a separate exercise, the SIC codes which are expected to relate to the SMART areas was established but this yielded more than 100 individual 5-digit SIC codes which was too large to derive data from BRES (the sample exceeded the maximum number of cells that can be processed using NOMIS). Thus, the top 25 SICs were used as the best alternative estimate of what the list of SIC codes for companies that engage with ASTUTE 2020 might look like.*

change could be considered the 'general' rate of change in employment levels across the ASTUTE 2020 target area. The observed change in the supported companies will be compared with this at the mid-term and final stages.

The external evaluators will collect baseline data from the supported companies during the mid-term evaluation, for all other outcome indicators.

**Impacts:** the external evaluators will establish the baseline position for all the impact indicators from the companies that are engaged through the external evaluation.

The evaluators will compare any increases in sales revenue in the treatment group with the general change in turnover among similar companies. Between 2015 and 2016 the mid-point estimate<sup>15</sup> of turnover for the proxy industry in Wales increased by 4%.

The external evaluators will collect baseline data from the supported companies during the mid-term evaluation, for all other impact indicators.

### Conclusion

The ASTUTE 2020 Operation has been designed through a very robust and comprehensive process which has clearly set out to identify industrial RD&I needs - which it then intends on meeting. As a result, the efforts of the Operation are concentrated on the areas of support which display potential for high economic impact. Thus, the ASTUTE 2020 Operation appears to have a strong coherence to the identified needs of the manufacturing sector in WW&V. Further, the ASTUTE 2020 Operation has a strong fit with overarching policy and strategic objectives.

The business plan sets out a comprehensive delivery plan, which has been well designed to ensure that the aims and objectives can be met. If carried out to plan, the external evaluators are confident that the ASTUTE 2020 Operation will lead to the expected and identified outcomes and impacts noted in this report.

Stakeholder noted that the main area which requires close attention is the level of engagement that ASTUTE 2020 can achieve with the target industrial sectors. Furthermore, the ability of the Operation team to find the right Project Officers that are

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<sup>15</sup> ONS provides turnover bands for 2-digit SIC codes by region. A mid-point estimate value was obtained based on the number of enterprises recorded in each category band.

needed to meet the needs of industry are essential for it to succeed. The length of contract being offered by the partner universities may negatively impact on the Operation's ability to recruit the right staff.

The Operation team should ensure that mitigating the risk of private sector displacement is given a high priority during the approval process to alleviate any concerns which may arise from industry.

The mid-term evaluation will follow approximately 9 months after the publication of the inception evaluation report. At that time, the external evaluators will gather the data collected as set out in this report to carry out an independent review of progress.

### Recommendations

Based on the evidence presented in this report, the following recommendations are put forward for consideration:

- Request a boost to the UKIS Wales sample so that further cross-tabulations are possible. For example, a cross-tabulation between question 5 (amount of expenditure on innovation related investments) and question 21 (total turnover) would enable an estimation of the amount of private sector investment as a proportion of total turnover in WW&V, which could be used as a control group comparison for indicator OC.1a.
- To continually monitor the effectiveness of the project approval process in avoiding private sector displacement.
- To monitor the effectiveness of referral mechanisms between Welsh Government's support team and ASTUTE 2020.