



AEMRI Final Evaluation

Final Report

TWI Ltd and the Welsh European Funding Office

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AEMRI External Evaluation: Final Report

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Glossary

Acronym/Key word	Definition
AEM	Advanced Engineering and Manufacturing
AEMRI	The Advanced Engineering Materials Research Institute
AMRC	The Advanced Manufacturing Research Centre
ASME	The American Society of Mechanical Engineers
ERDF	European Regional Development Fund
EU	European Union
FET	Further Education and Training
FTE	Full Time Employees
GKN Aerospace	Guest, Keen and Nettlefolds Aerospace
HEI	Higher Education Institutes
HVMC	High Value Manufacturing
NCC	National Composite Centre
NDE	Non-Destructive Examination
NDT	Non-Destructive Testing
NAMRC	The Nuclear Advanced Manufacturing Research Centre
MTC	The Manufacturing Technology Centre
RTO	Research and Technology Organisations
TRL	Technology Readiness Level
TWI	The Welding Institute

Executive Summary

- i. This executive summary presents the findings of the final stage evaluation of the Advanced Engineering Materials Research Institute (AEMRI), an Operation to develop a state-of-the-art engineering inspection and validation facility based at TWI Wales in Port Talbot.
- ii. The Operation is delivered by TWI Wales and runs from January 2016 to the end of June 2023 (following an extension granted in Q4 2019). It has a total value of £14.4 million and is part-funded by the European Regional Development Fund (ERDF) through the Welsh Government at an intervention rate of 58 per cent.
- iii. The Operation is delivered under ERDF Priority Axis 1: Research and Innovation, Specific Objective 1.1 of the ERDF West Wales and the Valleys Operational Programme 2014-2020. Specific Objective 1.1 which aims to increase the success of Welsh research institutions in attracting competitive and private research funding.
- iv. The method for the evaluation included:
 - A review of Operation Monitoring Data.
 - Workshop with the AEMRI delivery team.
 - Online survey of collaborators- an online survey was developed using Smart Survey and disseminated via email by the AEMRI delivery team. In total the survey received 30 responses. 4 of these responses were from students, 21 responses were from employees and 5 were university/supervisors. It was discerned that a contributing factor to the low rate of response from university/supervisor collaborators could be attributed to their demanding work schedules. As a result of the low response rate, the evaluation team focused on collecting rich qualitative data through in-depth interviews with university stakeholders.
 - Qualitative interviews with stakeholders - 13 qualitative comprising of TWI officials, university collaborating partners and industry stakeholders who had engaged with the Operation.
 - Analysis and reporting – including a counterfactual assessment.

Operation Context (policy, needs and objectives)

- v. The contextual review undertaken as part of this final evaluation demonstrated that AEMRI remains highly coherent with the policy context surrounding research and innovation, and Industry 4.0 in Wales.
- vi. Key developments, such as the *Manufacturing Future for Wales Framework*, demonstrate a clear alignment with the Operation in helping future-proof the sector through embedding key functions, such as research and innovation in facilities and operations. Feedback from stakeholders suggests there is an opportunity for AEMRI to play a key role in shaping strategic policies moving forward and supporting Welsh Government on delivering its Smart Specialisation and Industry 4.0 agendas.
- vii. Relatedly, the market need for the Operation has remained the same as when AEMRI was designed and remains highly relevant to the needs of the sector. Feedback from stakeholders suggests that the Operation is addressing some key demands of industry, including:
 - Bridging gaps in knowledge and skills
 - Driving research and innovation
 - Facilitating valuable investments in businesses and enabling the exchange of best practices across Wales and the UK
 - Giving businesses in Wales access to knowledge and expertise
- viii. Stakeholders were confident that the objectives closely align with the needs identified and the wider context, and therefore the overall rationale for AEMRI remained strong. The Delivery team was unanimously confident that AEMRI has met all the original objectives and met or exceeded the majority of output indicator targets.

Operation design, delivery and management

- 1.1 Feedback from stakeholders and collaborating businesses suggest that the Operation has utilised its resources in an efficient manner, not least thanks to the skills and experience of its project team and an established structure in place. The Operation's delivery processes have functioned well and have demonstrated a high level of satisfaction from its collaborating partners and beneficiaries.
- 1.2 The delivery of the Operation has faced challenges, particularly in regard to the Covid-19 pandemic, whereby a number of industry collaborations were put on hold or delayed. Despite these issues,

stakeholders agreed that they have been well managed. The Operation's proactive approach to diversify and expand into new industries, such as nuclear and renewable energy sectors, in response to Brexit, demonstrates its resilience in addressing future challenges. This strategic decision serves as a safeguard to mitigate potential impacts and ensure a sustainable future for AEMRI.

- ix. The Operation has integrated successfully within its processes, contributions to the Cross-Cutting Themes.

Outputs – final progress

- x. Across all but one ERDF indicator, the Operation has met or exceeded output indicator targets.

Summary of AEMRI Outputs:

ERDF Output Indicators	Q1 2023 Cumulative Achieved	Q1 2023 Cumulative Target	End of Project Target	End of Project Achieved	Variance
Number of improved research infrastructure facilities	1	1	1	1	0
Number of researchers working in improved research infrastructure facilities	50.7	48	48	50.7	+ 2.7
Amount of Research Funding Secured	£9,628,353	£11,504,996	£12,600,000	£10,698,010	- £ 1,901,990
Number of partners cooperating in research projects	84	50	50	84	+ 34
Number of new researchers in supported entities	27.2	24	24	27	+ 3.2

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Outcomes and impacts

- xi. Evidence collected from Operation stakeholders demonstrates that collaboration with the AEMRI has led to multidimensional benefits for its collaborating partners and beneficiaries.
- xii. Collaborating beneficiaries felt that the AEMRI had been particularly successful in driving new developments and research in several areas, contributed to increasing economic activity within the Port Talbot area, improving the reliability of processes, and facilitating an increased transfer of knowledge.
- xiii. Data collected from the online survey of beneficiaries demonstrates that involvement in the AEMRI has led to a multitude of benefits for beneficiaries including: increased research capacity and capability, new links between industry and academia, increased collaboration, and high quality, high impact and world-leading research.
- xiv. A number of added value wider outcomes have also been realised, including increased collaboration between university partners, the development of a broad array of technical competence within the South Wales region, and TWI Wales' recruitment of graduates from the university partners.

Recommendations

Operational recommendations:

- In all future activity, it is recommended that the AEMRI continues to evolve and govern in line with policy. By doing so, AEMRI can effectively align its services with the evolving market demands, ensuring a robust response to the broader industry needs.
- Explore opportunities to establish and strengthen strategic partnerships within the context of Industry 4.0. This might include future discussions with Welsh Government (WG) representatives to proactively promote the exceptional work undertaken by the Operation and explore potential avenues for providing broader support in line with WG's Industry 4.0 agenda. By actively seeking these partnerships, the Operation can enhance its impact, contribute to the futureproofing of the sector, and play a pivotal role in advancing the objectives of the Manufacturing Future for Wales Framework.

- Building upon the achievements of the Operation, it is recommended that AEMRI continues its expansion into other sectors, specifically renewable energy and nuclear sectors. By continuing to diversify its focus and engaging in research and collaboration within these sectors, the Operation can enhance its ability to secure more research funding. This strategic move will not only contribute to the Operation's financial sustainability but also facilitate further advancements and innovation in line with the evolving needs of the industry.