

Artificial Intelligence Growth Zone

Submission from



Llywodraeth Cymru
Welsh Government

to:

**Department for Science,
Innovation and Technology**

**Submitted on
behalf of:**

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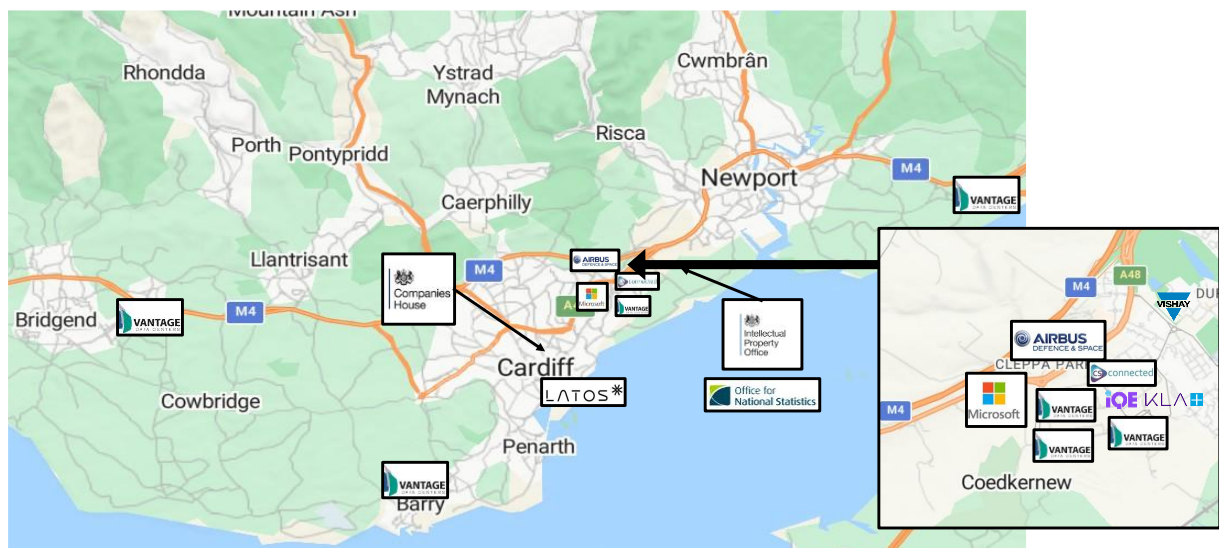
1. SUMMARY

This Welsh Government AIGZ bid directly responds to numerous recommendations and actions contained within the UK Gov AI Action Plan. It offers the opportunity to capitalise on what is a rare, maybe unique clustering of established, critical AI related assets, which collectively represents and incorporates all layers of an AI ecosystem. It represents an opportunity to deliver further data center capacity whilst linking existing data center operators with a responsive ecosystem to illustrate the real-world benefits that the enhanced AI infrastructure will deliver for the economy and public services.

Vision

An Artificial Intelligence Growth Zone encompassing all facets of an AI-ecosystem serving the region, Wales and UK digital economies.

This AIGZ proposal spans a region from Magor to Bridgend with high, achievable ambitions underpinned by a compelling case and high density of numerous, committed, globally recognised digital stakeholders representing the whole AI eco-system. Some of represent multi-billion-pound investments in Wales. e.g. Microsoft, Vantage.



Wales' AI ambitions, through support of ongoing development of DC infrastructure within a broader AI ecosystem, its ability for enabling the deployment of AI and the realisation of our economic and societal goals associated with AI are very real.

Welsh Government has worked hand-in-glove with significant international digital sector partners in development of this submission. The enthusiasm and commitment being demonstrated by the sector, coupled to that of the academic expertise in Wales is tangible. This bid further benefits from support and endorsement of all ten local authorities in the Cardiff Capital Region (CCR). All parties are highly motivated to realising the opportunities and ambitions both for Wales, and UK Government.

The awarding of AIGZ status, is viewed as an **intrinsically important** and **critical catalyst** to the ecosystem as the platform to realise potentially seismic outcomes and results.

2. TECHNICAL FEASIBILITY

Given the proposed zone incorporates several DC sites, the significant amount of evidence relating to technical feasibility has been appended to this bid document in separate evidence packs/submissions from each of the DC operators.

In each instance, the DC operators have been able to demonstrate their capacity to address the criterion outlined in the selection process.

The table below illustrates at a high level the site locations to underpin the proposed geography of the zone, the compute capacity of individual sites, power supply schedules and the planning/development status of each location.

TABLE REMOVED FOR REASONS OF COMMERCIAL SENSITIVITY

3. DELIVERY FEASIBILITY

Due to inclusion of multiple DC sites included in the zone, the accompanying evidence packs contain detailed levels of evidence required as relates to delivery feasibility. In each case the categories of regional power impact, delivery team and local support are addressed.

In each case, the operators are working closely with Welsh Government and Local Authority officials to execute their plans successfully.

Each of the operators have seasoned, professional teams allocated to the delivery of the developments. Furthermore, in the case of Vantage, they already house their white-collar operations for their EMEA region within the proposed zone.

The very nature of this submission being led by Welsh Government, demonstrates the support that exists for the operators from the Devolved Government, this is further reinforced by the collective endorsement of the ten Local Authorities Cardiff Capital Region for the bid, not least by the positive direct working relationship that each operator has from the authorities in which they are located.

4. LOCAL IMPACT

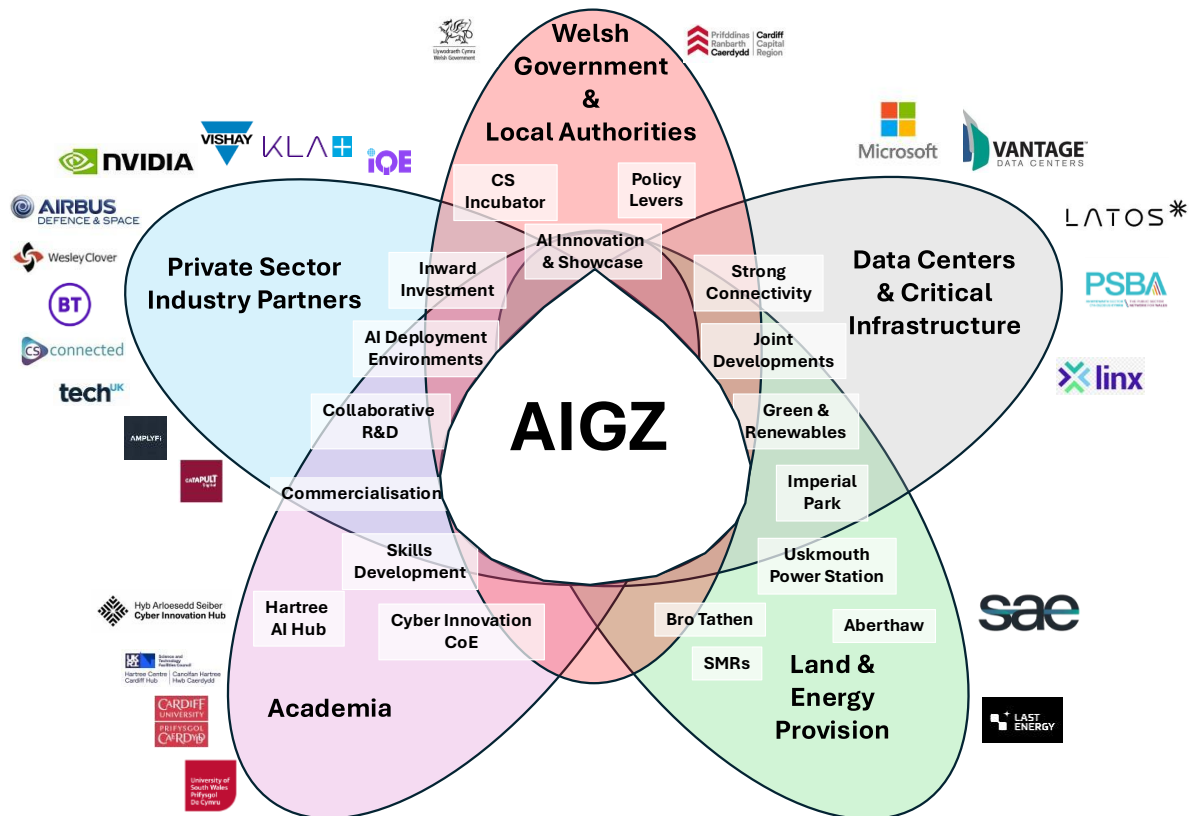
According to the criteria requested, operators have provided information which directly relates to the execution of their plans. As before, these are referred to in detail in the accompanying evidence packs for each. The table below aggregates the high-level job creation opportunities directly linked to DC deployment and other impacts such as localised infrastructure investment.

However, the significant local benefits and impacts are significantly extended beyond these metrics. This is due to the capacity for clear and measurable benefits that could be realised through the opportunities to energise the local AI ecosystem.

TABLE REMOVED FOR REASONS OF COMMERCIAL SENSITIVITY

5. AIGZ FOOTPRINT & ECOSYSTEM

This bid builds on significant opportunities as relates to data center capacity in the region which exceeds the AIGZ criteria set out by DSIT. This is supported by a cohort of established, committed stakeholders from complementary organisations to realise meaningful outcomes through symbiotic relationships and collaborative working.



The proposed AIGZ region incorporates a comprehensive layering of the component parts of an AI ecosystem. Across the proposed AIGZ, there are, and could be capitalised upon:

- **Significant Data Center & Associated Critical Infrastructure**
 - Estimated to be in the region of 1.5GW across multiple operators at various stages of operational status and development
 - Multiple instances of >500MW viable campus sites
 - LINX IX Nodes in two locations within the proposed AIGZ
 - Access to the Public Sector Broadband Aggregation (PSBA) Network
- **Presence, opportunities and development of low-carbon power generation and energy storage infrastructure**
 - Strategic CCR investment in £multi-million battery storage infrastructure
 - Commercially deployed JV DC Operator /1000MW battery storage facility
 - Opportunities in-flow with SMR operator within AIGZ footprint
 - Allocated land for strategic green/renewable energy projects at sites

- **Compound Semiconductor (CS) Cluster and Catapult**
 - Internationally recognised UK CS Catapult
 - Anchored international manufacturers in CS and chip design
 - Government led CS & Chip Design industry incubator
- **Public Sector Data Assets**
 - Presence of significant UK Gov and Welsh Gov Data Assets
 - Office of National Statistics
 - Intellectual Property Office
 - Companies House
 - Welsh Gov Data Assets & funded assets including SAIL Databank (anonymised health records)
- **Academic & Industry Expertise in both AI and Cyber Security**
 - Airbus Defence & Space Division Campus
 - THALES National Digital Exploitation Centre
 - Microsoft Dedicated AI Data Center (in build)
 - Academic CoE's in Cyber and AI recognised by NCSC and EPSRC
- **Industry commitment for collaborative AI R&D, innovation & showcase environments, skills & career pathways.**
 - Unrivalled world class cohort of committed, engaged global tech brands, seeking to meaningfully deliver and collaborate with joint R&D, innovation activities and AI solution development and deployment
 - Portfolio of younger tech businesses engaged in AI deployment and incubator/accelerator support
 - Scalable opportunities to strengthen and grow industry/academia partnerships for skills development, talent and career pathway activities for data science and AI
- **AI Deployment Environments**
 - Access to the PSBA Network, platform for deployment of AI solutions to all public sector user environments in Wales
 - Welsh Government devolved influence and support for public sector service delivery settings e.g. healthcare, social care and education
 - Presence of UK Gov platform hosting within localised DC Operators service providers

6. STRATEGIC ALIGNMENT & THEMATIC STRENGTHS

This AIGZ bid will satisfy the UK Governments specific ambitions to drive innovation, create high-skilled jobs and strengthen the UK's position as a leader in AI. Furthermore, the AIGZ will also deliver priorities contained within several Welsh and UK Government strategies and localised regional development plans and economic priorities. They are:

- UK Government: AI Opportunities Action Plan
- UK Government: Invest UK 2035: the UK's modern industrial strategy
- Welsh Government: Digital Strategy for Wales
- Welsh Government: Cyber Action Plan for Wales
- CCR Investment Zone
- CCR Innovation Fund

The AIGZ has credible opportunity to deliver against several core thematic strengths. The existing presence and focus of several key activities and players present the ability for the zone to focus on potentially three obvious area of AI. They are:

A. Cyber Security / AI product development and expertise

There are key cyber security industry and academic powerhouses within the portfolio of partners and geo-located organisations. Real opportunities exist, as part of an AIGZ, to build on established relationships in pursuit of collaborative activities. Partners include:

- Airbus Defence & Space – Cyber Security Division
- THALES
- Microsoft
- Cardiff University – Cyber Innovation Hub (NCSC & ACE-CSR CoE)
- STFC Hartree Hub

B. Public Sector / Healthcare AI Development & Deployment

With a unique cluster of public sector data assets, digital leadership organisations and deployment environments, the southeast Wales AIGZ is capable of drawing together focus for opportunities in public sector AI development and exploitation. The significant data assets and facilitators homed within the zone are:

- Companies House
- Intellectual Property Office
- Office of National Statistics
- Digital Health Care Wales
- Centre for Digital Public Services
- Centre for Social Care and AI Learning

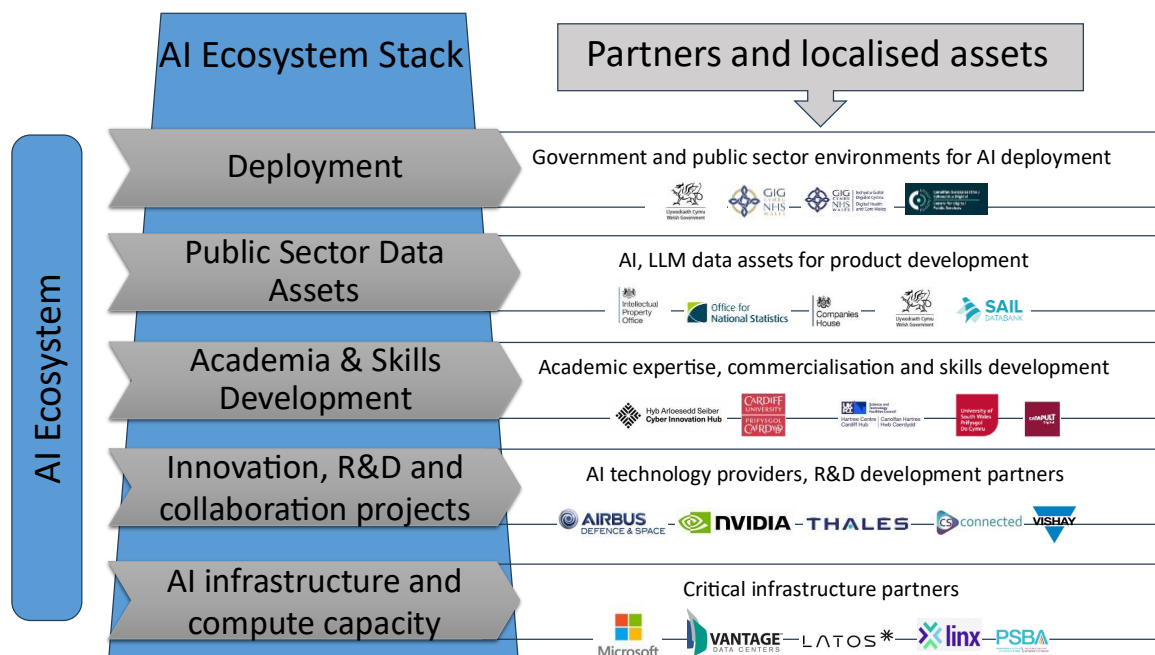
C. Compound Semiconductor (CS) & Chip Design

The presence of multiple CS Manufacturers, UK CS Catapult and Welsh Government's recent investment in a CS incubator and scale-up facility and industry-led semiconductor design centre provides huge opportunity to establish working relationships and physical environments to pair challenges and product development. Areas of focus could extend to include development of optical switch technologies,

(crucial to efficient power usage for DC's), alongside existing CS new product design and potential for AI hardware technologies. Key partners/players include:

- NVIDIA
- Vishay Intertechnologies
- IQE
- KLA
- Compound Semiconductor Applications Catapult
- CS Connected

7. AI ECOSYSTEM – PARTNERS AND LOCALISED ASSETS



7.1 Proposed Activities

Should formal recognised AIGZ status be realised, a full programme of work including benefits realisation plan with a suite of metrics will be developed to underpin specific outputs, outcomes and results associated with activities within the programme of work.

Activities could include, but not be limited to:

- Access to provision of newly developed DC infrastructure and compute capacity at scale through collaborative activities with DC operators
- Green & renewable energy projects with links to DC capacity and the wider National Grid infrastructure within the AIGZ
- Compound semiconductor and chip design development and advancements, facilitated through the CSA Catapult and Welsh Government led CS incubator
- Public Sector & Healthcare AI solutions development anchored with access to the localised public sector data assets
- Creation of Cyber Security AI R&D / innovation 'sandbox' environments - projects closely aligned to industrial challenges hosted by global technology player

- Creation of AI-IP with alignment to commercial and academic establishments, exploiting proven models for start-up, scale-up and commercialisation of IP
- AI inference led IP & Patent mining for industry and societal challenges
- Scaling of activities such as Hartree Hub for deployment of AI solution to industry
- Mobilisation of proposals, received for consideration by Welsh Government from commercial organisations, to support the growth and development of AI solutions
- Industry / academic partnerships to enhance and develop skills and talent career pathways. Building on and scaling provisions within the region for learners of all ages and existing workforces or re-skilling

7.2 Opportunity & Benefits

The Opportunity.

To create a golden thread of infrastructure, collaboration, R&D, commercialisation and deployment activities throughout the AI lifecycle.

The proposed AIGZ provides opportunities at all levels of the AI lifecycle that include component manufacture, infrastructure, hosting environments, R&D, solutions development, testing, commercialisation opportunities and accessible real-world deployment environments.

The Benefits.

The benefits that could be realised with the formal underpinning of AIGZ status are numerous. It is envisaged that the status or badge of an AIGZ will act as a gravity-well for attracting significant activities and at scale.

The benefits identified that could be realised at scale for the region, Wales and the UK are listed below.

- Continued Inward Investment opportunities
- Cross pollination of investments & supply chain
- Real-world securing of commercial investment in R&D
- Economic impacts at multiple layers of the AI lifecycle
- Skills and employability development
- Educational links and outreach
- Business adoption and start/scale-up activity
- Public services and productivity enhancements

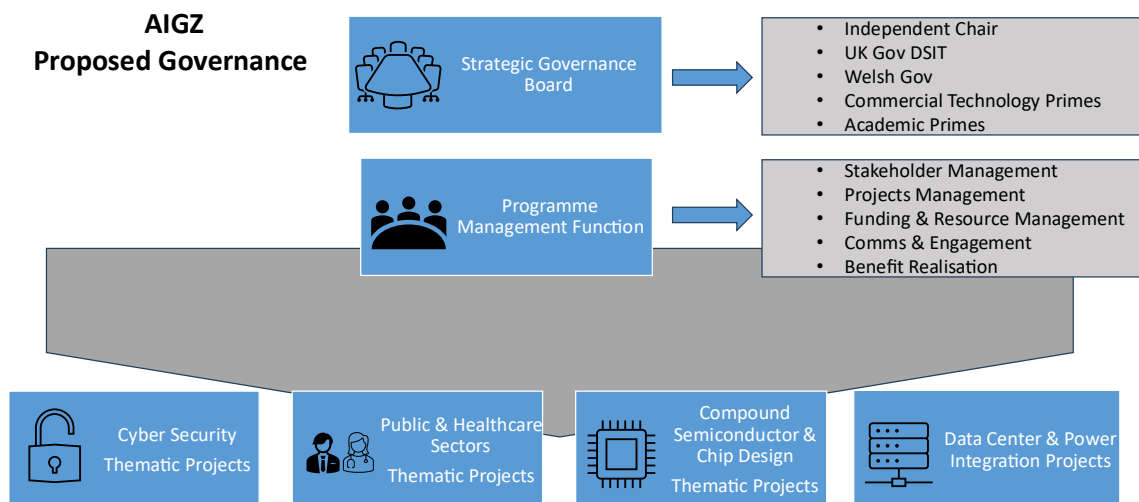
8. PROPOSED GOVERNANCE

With the proposed AIGZ spanning multiple activities including potential public/private partnerships and inter-commercial activities, a formal governance structure would be required to provide strategic oversight and adequate programme delivery support.

It is the Welsh Government's desire to see a collaborative governance structure which includes strategic joint Welsh / UK Government involvement, partnered with senior commercial and academic participation from appropriately senior individuals. This

would then be supported by an ‘engine room’ for programme and project management which would cascade across the AIGZ activities and undoubtedly to individual organisations deliverables where appropriate.

The parallel complimentary bodies of activity will benefit from these functions and supporting management activities which would include benefit realisation monitoring, management of funding mechanisms, stakeholder engagement, communications etc. The following governance structure is offered as an indicator of possible structure:



9. LOW CARBON ENERGY SOLUTIONS

There are several, significant opportunities of scale that are in-flow or represent substantial down-stream prospects for low-carbon or renewable power generation and energy storage infrastructure. Documentation accompanying this document provides further details for each of the power generation and storage solutions outlined below.

Within the proposed AIGZ, there are:

- SAE Uskmouth Battery Storage - Multi-million-pound investment, supported by the Cardiff Capital Region in 1000MW Battery Energy Storage System (BESS) facilities. (Newport)
- LATOS DC Joint-Venture Battery Energy Storage System (1000MW) as part of the development plans associated with the LATOS DC build (Cardiff)
- Small Modular Reactor (SMR) development, being commercially led by LAST Energy (Bridgend)
- Land designated by Welsh Government for solar-farm infrastructure, located within the site boundaries of the Brotathen development (Vale of Glamorgan)
- Long-term plans and opportunities at the former Aberthaw Powerplant site for a green energy DC campus and real-world opportunities for AMR, tidal and solar power generation. (Vale of Glamorgan)

10. LEVEL OF GOVERNMENT SUPPORT

- A. Resources for Public/Private partnerships** – Funding partnership with Welsh Government for operational deployment of public/private and interagency activities within the AIGZ.
- B. Coordination with Agencies** – Welsh Government seeks support and strategic influence and leadership from UK Government in the engagement of UK Government Data Assets located within the AIGZ. i.e. Office of National Statistics, Intellectual Property Office, Companies House. The objective being to facilitate their meaningful involvement with the AI ecosystem for the co-design, development and implementation of AI tools.
- C. Prioritisation of existing UK Government resources** – Strategic allocation and prioritisation of resources from UK Government funded organisations for AIGZ activities, (such as UKRI, InnovateUK, Science and Technology Facilities Council etc), in support of innovation R&D, commercialisation of IP and delivery of new products, process & services.
- D. Commitment to local hosting services** - Exploration of activities associated with capitalising on the compute and hosting capacity within the AIGZ for UK Government compute and hosting demands.
- E. Exercise influence with National Grid** – Grant National Grid the ability to prioritise connections within the AIGZ
- F. Energy market enhancements** – 1. Explore direct rebates on energy costs via reduced taxes on electricity in return for industry best practices for HPC & AI workloads. 2. Classify data centres as Energy Intensive Industries (EIIs)
- G. Clean-Power** - Explore potential for fast track for clean-power, green and renewable energy projects for co-located & AIGZ collaboration SMRs

11. ACCOMPANYING DOCUMENTATION

As has been referred to previously in this document, due to the number of partners and individual organisations linked to this bid, a suite of evidence and accompanying documentation is submitted. These are:

- **Vantage AIGZ Documentation** – Submitted directly to DSIT by Vantage Data Centers. The author of this document can confirm having had visibility of the submission and recognises the confidentiality and commercially sensitive nature of some of the contents – **Commercially Sensitive**
- **LATOS DC AIGZ Documentation** - Evidence pack and documentation as submitted to Welsh Government and submitted in zip-file format accompanying this document – **Commercially Sensitive**
- **Cardiff Capital Region** - Evidence pack and documentation providing detailed information relating to ambitions and opportunities for Aberthaw former power station site and Uskmouth Battery Energy Storage system investment – **Commercially Sensitive**
- **LAST Energy** – Evidence matrix providing details and information relating to SMR development project within the AIGZ and previously submitted AIGZ EOI material – **Commercially Sensitive**
- **Cardiff University Supporting Paper** – AI Growth Zone – Drivers from Academic Institutions
- **Formal Letters of Support from:**
 - NVIDIA
 - Fluidstack
 - THALES
 - Cardiff University
 - techUK
 - Cardiff Council (in support of LATOS inclusion)