AI Industry in Wales: Landscape Overview

January, 2024

Global AI Ecosystem

DEEP KNOWLEDGE GROUP

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Introduction

As a subsidiary of Deep Knowledge Group, an international consortium known for its analytical and strategic expertise in DeepTech and Frontier Technologies, we are proud to present this publication that provides a comprehensive overview of the Artificial Intelligence (AI) landscape in Wales.

Our focus is on the pivotal role AI plays in shaping various sectors within Wales, highlighting its transformative potential and emerging as a central pillar in the nation's technological evolution. This deep-dive is especially crucial given the unique positioning of Wales in the global AI ecosystem, where it stands at a crossroads of traditional industries and burgeoning digital innovation. AI's importance in Wales cannot be overstated.

As industries worldwide pivot towards digitalization, AI emerges as a critical driver of efficiency, innovation, and economic growth. In Wales, AI's potential is highlighted against a backdrop of the region's rich history in manufacturing and its growing emphasis on tech-driven industries.

Introduction

This blend of traditional and modern sectors offers a fertile ground for AI to revolutionize workflows, enhance productivity, and create new opportunities for economic development. Our analysis identifies AI as not just a tool for automation and efficiency but as a catalyst for creating new business models and transforming existing ones.

The **AI Industry in Wales platform** offers a unique overview of the developing AI industry, composed of profiles, mindmaps, and databases of **50 companies, 40 investors, and 5 hubs.** Their innovative approaches are contributing to the advancement of such fields as HealthTech and BioTech, AI Infrastructure, Manufacturing, Real Estate and Construction, Finance and Banking, and many other important sectors. The creation of a strong AI ecosystem in Wales depends on the cooperative efforts of businesses, governments, and hubs, which are represented on this platform. Our examination into Wales's AI landscape is informed by Deep Knowledge Group's extensive expertise in AI and its applications across various sectors. We leverage our proprietary analytical frameworks and data-driven insights to assess AI's current state, its potential impact, and the challenges and opportunities it presents. This encompasses a wide range of AI applications, from healthcare and education to finance and public services, providing a holistic view of AI's diverse implications and benefits.

One significant aspect we explore is the impact of AI on the Welsh economy. PwC's projection that AI could increase the UK's GDP by up to 10.3% by 2030, translating to an additional £232bn, underscores AI's economic significance. For Wales, this represents a tremendous opportunity to harness AI for economic revitalization and growth, particularly in areas such as advanced manufacturing, digital health, and fintech, where Wales has shown considerable strengths and potential for further development.

Introduction

However, the journey towards fully realizing AI's potential in Wales is not without its challenges. A notable concern, as highlighted by businesses, is the lack of Welsh-specific data, which can lead to inaccuracies in AI translations and transcriptions. This points to a broader issue of data availability and quality, essential for training and fine-tuning AI algorithms. Addressing this will require concerted efforts from both the public and private sectors to gather and share high-quality, localized data sets.

Furthermore, our analysis reveals a gap in AI engagement, particularly among Small and Medium-sized Enterprises (SMEs) in Wales, many of which remain unengaged with AI and automation technologies. This disconnect poses a significant barrier to AI adoption and underscores the need for awareness-raising and education initiatives aimed at demystifying AI and showcasing its practical benefits.

As AI continues to advance, Wales faces both an imperative and an opportunity to integrate these technologies into its economic and social fabric. This report sets the stage for a deeper exploration of AI's role in Wales, offering insights into the strategies, policies, and initiatives that can accelerate AI adoption and maximize its benefits for Welsh society and economy.

Artificial Intelligence Ecosystem in Wales

AI Industry in UK Wales
(Beta Version)

Companies - 50
Investors - 40
Hubs - 5

Global AI Ecosystem

AI Industry Analytics

View more:
www.ai-ecosystem.org/wales

AI Infrastructure

LetMC.com® Letting & Estate Agent Software

GYRUS

resilio

i2i

VividBlock IT with clarity

iNDIGO

Talent Intuition

BuildTech

EBS AUTOMATION

Urban Intelligence

E-commerce

ROUTE KONNECT

we.

Manufacturing

ENTERPRISE AUTOMATION

evolve ROBOTICS

awen COLLECTIVE

BAI BAY AREA INNOVATIONS

SL spectrum leads

Finance

Talkative

Ortharize Business Travel Better.

Ship Shape

Entertainment

NightingaleHQ

AD Atticus Digital

BioMed

BUTTERFLY DATA

FLO-TEK Flow better with us

DO IT.

Antiverse

HEOR

carsnip

DO Digital Agency

Rescape Innovation

pandata

Other

da

UK VEHICLE DATA

VISIFISH

tech.wales

THE KVM YOUR INNOVATION GROWTH PARTNER

W2

PiSYS.net

trovo

ideal media TODAY

Artificial Intelligence Ecosystem in Wales

Companies by Sector

Data Warehousing & Management	6
Cloud Computing & Storage Solutions	5
Content Recommendation	3
Predictive Maintenance	2
Other	14

Companies by Industry

HealthTech & BioTech	2
Retail & E-commerce	2
Agriculture	1
AI Infrastructure	1
Other	4

Investors by Location

International Investors	35
Wales-based Investors	5

Investors by Type

Investor with Venture Investment Focus	27
Investors with Large AUM (Assets Under Management)	2
Investor with Specific Investment Approach	1
Other	5

Companies by level of AI usage

AI-related	26
Partially AI-related	14
AI-focused	10

Hubs by Type

Accelerators	2
R&D Hubs	2
Incubators	1

30 SECTORS

35 INTERNATIONAL INVESTORS

10 AI-FOCUSED COMPANIES

95 ORGANISATIONS

50 COMPANIES

40 INVESTORS

5 HUBS

Source: *www.ai-ecosystem.org/wales*

AI Industry in Wales: Landscape Overview

Platform

Platform: AI Industry in Wales
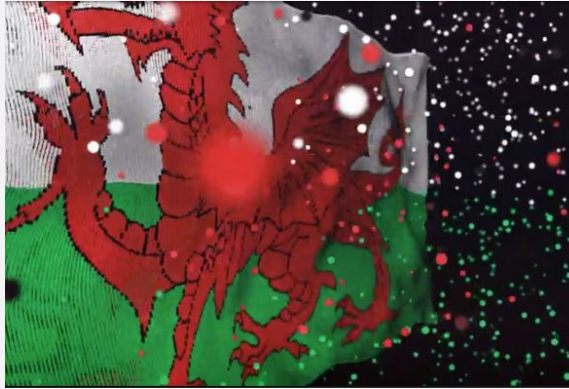
AI Industry in UK (Wales)
Beta Version

The AI Industry in Wales platform offers a unique overview of the developing AI industry, composed of profiles, mindmaps, and databases of 50 companies, 40 investors, and 5 hubs. Their innovative approaches are contributing to the advancement of such fields as HealthTech and BioTech, AI Infrastructure, Manufacturing, Real Estate and Construction, Finance and Banking, and many other important sectors. The creation of a strong AI ecosystem in Wales depends on the cooperative efforts of businesses, governments, and hubs, which are represented on this platform.

Source: *www.ai-ecosystem.org/wales*

AI in Wales Knowledge Hub (Beta Version)

Scientific & IT Resources

10 AI Books	
10 AI Journals	
50 AI Articles	
15 AI Benchmarks	
10 AI Reports	
10 AI Databases	
5 AI Software	
10 AI Models	

Education & Collaboration

10 Conferences in Wales	
10 Workshops in Wales	
20 UK Certification Programmes	
10 University AI Programs	
20 Online AI Courses	
5 Lectures by Leaders in Wales	
10 Wales Research Projects	
10 Scholarship Funds in Wales	

Media & Trends

10 AI Leaders Interviews	
10 Podcasts by AI experts	
20 Wales Blogs	
100 AI News	
40 AI Social Networks	
10 Market Trends in Wales	
10 Diversity Trends in AI	
10 Women Leading the Field	

Rankings & Top Leads

50 Wales Companies	
100 Leaders in Wales	
40 Investors	
5 Wales Hubs	
22 Wales Regions	
10 Consulting Services in Wales	
10 Wales Startups	
5 Wales Universities	

Online Communities

80 Linkedin	
80 Facebook	
40 Reddit	
40 GitHub	
40 Quora	
40 Twitter	
40 Discord	
40 Other Forums	

Source: *www.ai-ecosystem.org/wales*

Platform: AI Industry in UK Wales

General Number of Companies in Wales

AI Hubs
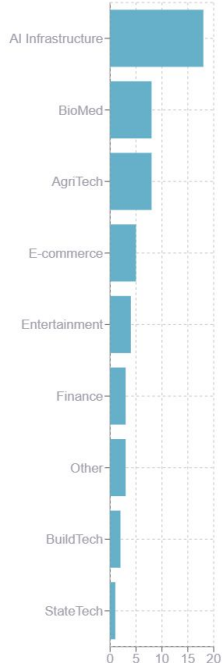
Accelerators · Government Offices · Incubators
Industrials Hubs · University Hubs · R & D Hubs
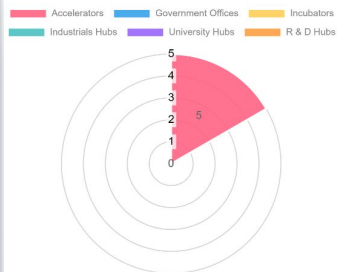
Companies Distribution by Industry in Wales

18 AI Infrastructure	8 BioMed	8 AgriTech
5 E-commerce	4 Entertainment	3 Finance
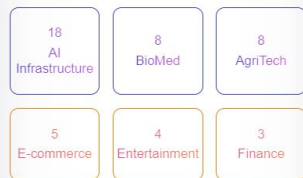
Digital Map of Wales
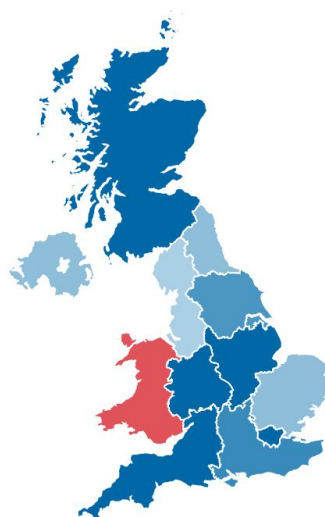
Key Features:

❑ **Company Directory:** A comprehensive directory showcasing the 50 AI companies in Wales, providing a detailed overview of their expertise, projects, and key personnel.

❑ **Expert Network:** A platform for AI professionals and experts to connect, collaborate, and share insights, fostering a culture of continuous learning and expertise enhancement.

❑ **Investor Portal:** An interface for the 40 investors interested in the Wales AI landscape, offering information on investment opportunities, trends, and success stories.

❑ **AI Hub Collaboration:** Facilitate communication and collaboration among the 5 AI hubs in Wales, serving as a catalyst for joint projects, research initiatives, and knowledge exchange.

Source: *www.ai-ecosystem.org/wales*

Artificial Intelligence Industry Overview

Main Principles

The Advantages of Artificial Intelligence Technology

5 Common Features of Artificial Intelligence

Learning & Adaptation

AI systems have the ability to learn from data and adapt their behavior over time. This learning process can occur through various techniques, such as machine learning, where algorithms analyze patterns in data and adjust their models to improve performance.

Problem Solving

AI is designed to solve complex problems by processing and analyzing large amounts of data. This involves making decisions, drawing conclusions, and generating solutions based on the information available to the system. Problem-solving in AI can range from simple tasks to highly intricate and specialized domains.

Automation

One of the primary goals of AI is to automate tasks that traditionally require human intelligence. This can include routine and repetitive activities, as well as more complex tasks such as decision-making, problem-solving, and natural language understanding.
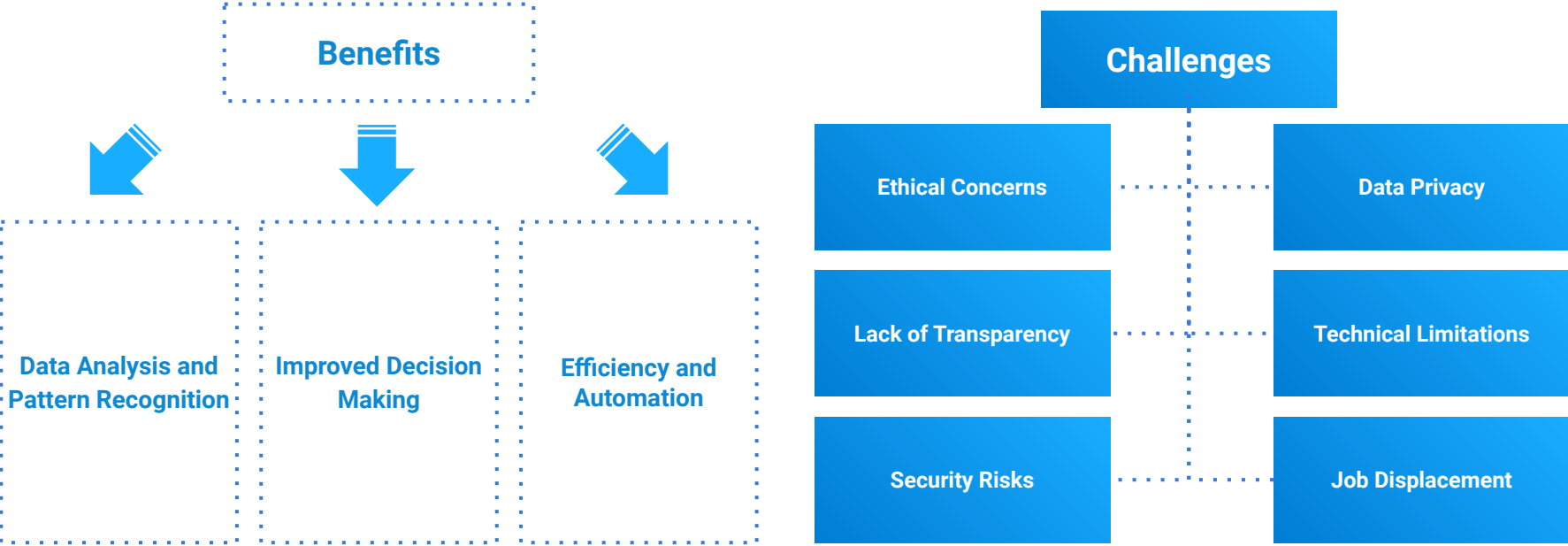
Perception and Interaction

AI systems often incorporate capabilities related to perception and interaction with the environment. This can involve computer vision for image and video analysis, speech recognition for understanding spoken language, and natural language processing for comprehending and generating human language.

Adherence to Instructions

AI systems follow instructions or algorithms to perform specific tasks. The ability of AI to execute tasks based on instructions is a fundamental characteristic, whether it's in the form of rule-based systems, expert systems, or more advanced machine learning models.

The Benefits and Challenges of Artificial Intelligence

Artificial Intelligence (AI) brings a host of benefits, driving efficiency, automation, data analysis, and personalized experiences across industries. It enhances decision-making processes, improves safety and security measures, and fosters innovation. However, AI adoption is accompanied by significant challenges. Ethical considerations, such as privacy and bias concerns, require careful attention. The lack of transparency in AI decision-making, security risks, data privacy issues, and technical limitations pose additional hurdles.

Benefits

Data Analysis and Pattern Recognition

Improved Decision Making

Efficiency and Automation

Challenges

Ethical Concerns	Data Privacy
Lack of Transparency	Technical Limitations
Security Risks	Job Displacement

Artificial Intelligence in Wales Analytical Framework

AI Infrastructure

Building robust systems to support AI workloads, optimize hardware, scalable cloud solutions, efficient data storage

SocialTech

Applications range from sentiment analysis for community well-being to AI-driven solutions addressing social challenges

BuildTech

Integrates AI in construction and real estate. Enhances project management with predictive analytics, accelerates design processes

Entertainment

Enhances user experiences. Content recommendation algorithms deep learning creates realistic animations, and chatbots engage audiences, shaping a dynamic and immersive entertainment

E-commerce

AI Optimizes business and customer experience. Algorithms provide detailed customer behavior analysis, augmented reality technologies, supplier management and many more

Finance

AI revolutionizes operations. From algorithmic trading and fraud detection to personalized financial advice, AI enhances efficiency, minimizes risks, and provides insights for decision-making

Biomed

AI accelerates healthcare innovation. It aids in drug discovery, interprets medical images for diagnosis, and personalizes treatment plans through predictive analytics, ushering in a new era of precision medicine
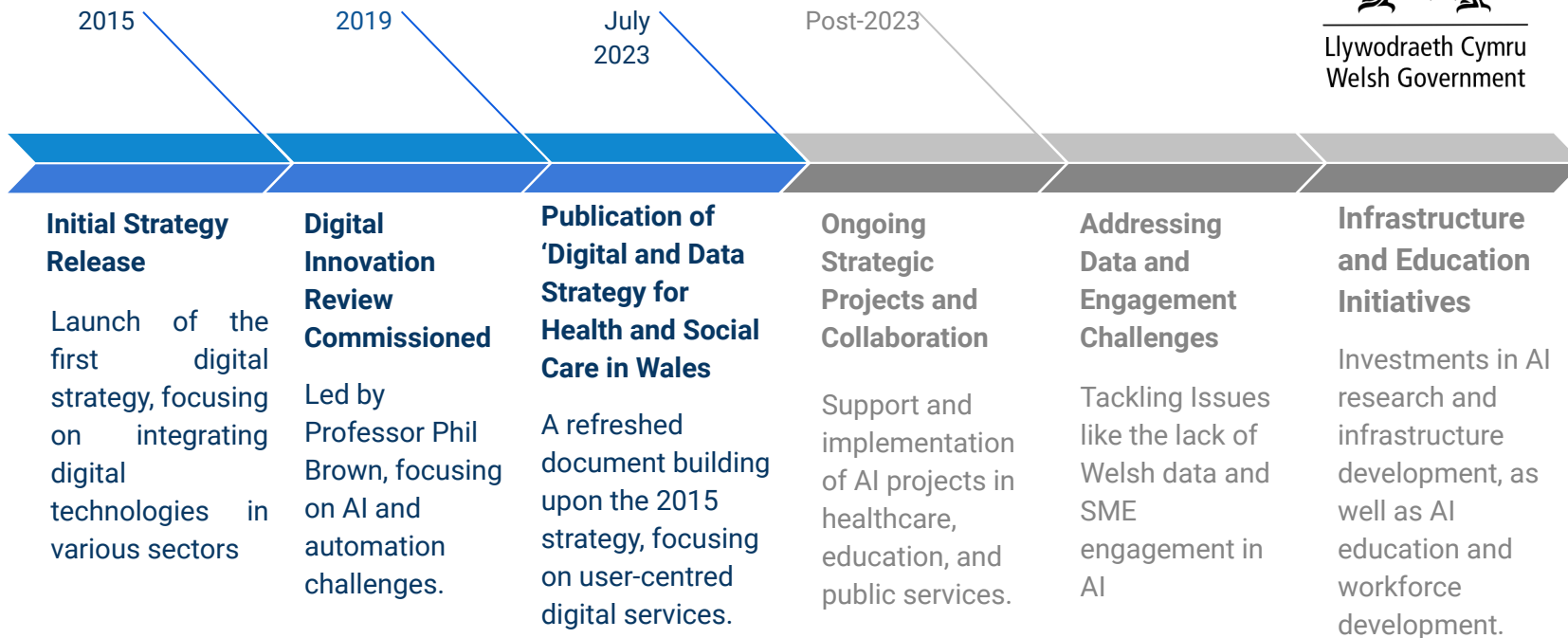
AI Industry in Wales: Landscape Overview

Policy and Governance

AI Policy Development in Wales

2015

2019

July 2023

Post-2023

Initial Strategy Release

Launch of the first digital strategy, focusing on integrating digital technologies in various sectors

Digital Innovation Review Commissioned

Led by Professor Phil Brown, focusing on AI and automation challenges.

Publication of 'Digital and Data Strategy for Health and Social Care in Wales

A refreshed document building upon the 2015 strategy, focusing on user-centred digital services.

Ongoing Strategic Projects and Collaboration

Support and implementation of AI projects in healthcare, education, and public services.

Addressing Data and Engagement Challenges

Tackling Issues like the lack of Welsh data and SME engagement in AI

Infrastructure and Education Initiatives

Investments in AI research and infrastructure development, as well as AI education and workforce development.

AI Policy and Governance: Challenges and Opportunities

3 AI Policy Challenges

Data Accessibility and Quality

Limited availability of high-quality, localized Welsh data for AI applications. This impacts the accuracy and effectiveness of AI solutions tailored to the unique needs and demographics of Wales.

Engagement with Automation and AI

A significant portion of SMEs in Wales remain unengaged with the automation agenda. This lack of engagement extends to the public sector, indicating a need for increased awareness and understanding of the benefits of AI and automation.

Skills and Talent Development

There is a need to ensure the education system supports life-long learning and adapts to the evolving requirements of AI and data science. Addressing the current skills gap is essential for developing a workforce capable of meeting the demands of an AI-driven economy.

3 AI Policy Opportunities

Leveraging Unique Data Assets

E.g. The Data Nation Accelerator initiative focuses on utilizing Wales' unique data assets for societal, health, and economic impact. By cocreating with various sectors, it aims to provide opportunities in public services health, and environmental management.

Cross-Sector Collaboration and Co-Creation

Collaborations across private, public, and third-sector organizations, including the Welsh Government, can drive the development of AI applications. This collaborative approach allows for the creation of AI solutions that are more aligned with local needs and conditions, enhancing their effectiveness and acceptance.

Investment in AI Education and Training

Collaborations across private, public, and third-sector organizations, including the Welsh Government, can drive the development of AI applications. This collaborative approach allows for the creation of AI solutions that are more aligned with local needs and conditions, enhancing their effectiveness and acceptance.

AI Industry in Wales: Landscape Overview

Summary

Obstacles to AI Adoption in Wales

SMEs largely disengaged from the automation agenda. Limited Awareness in Public Sector: Automation not a priority in public sector operations. Can be solved by targeted AI awareness Campaigns. Initiate sector-specific awareness programs for SMEs about AI benefits.

Absence of continuous learning infrastructure for evolving AI technologies. Can be solved with lifelong learning platforms. Establish AI and tech-focused continuous learning systems in education.

Lack of Engagement Among SMEs

Limited Awareness in Public Sector

Inadequate Lifelong Learning Systems

Unutilized Local Expertise

Automation not a priority in public sector operations. This can be solved by implementing AI-focused transformation initiatives in public services.

Failure to leverage Wales' world-leading experts in AI and automation. Can be solved with a comprehensive expertise utilization strategy: Develop strategies to employ local AI expertise in industry and academia.

AI Policy and Governance in Wales: Unique Obstacles

Obstacles to Adoption

Insufficient Welsh Language Data for AI Development

The development and accuracy of AI systems in Wales are hindered by a scarcity of Welsh language data. AI technologies, including chatbots and translation services, require extensive datasets to improve their accuracy and functionality. The current lack of sufficient Welsh language data limits the potential and efficiency of these AI applications.

Limited Engagement with Automation Among SMEs and Public Sector

A significant barrier to AI adoption in Wales is the lack of engagement with the automation agenda, particularly among SMEs (Small and Medium-sized Enterprises) and within the public sector. This apathy towards automation and AI integration suggests a broader unawareness or reluctance to embrace these technologies.

Solutions

Building Collaborative Data Repositories

In line with Deep Knowledge Group's focus on data-driven solutions, establishing collaborative data repositories for the Welsh language could be highly beneficial. These repositories would gather and provide access to extensive Welsh language datasets, aiding in the training and development of more accurate AI models.

Enhanced Awareness and Education Programs

To address the disengagement with automation and AI, targeted awareness and educational programs should be implemented. These programs could focus on the benefits of AI and automation, particularly for SMEs and public sector entities. The initiative could include workshops, seminars, and online resources, highlighting the practical applications and advantages of AI in various sectors.

Key Takeaways

Welsh AI Ecosystem's Growth: Wales is witnessing a notable evolution in its AI ecosystem, with significant advancements in both the private and public sectors, notably in healthcare and technology.

AI's Economic Impact: AI presents a substantial opportunity for economic revitalization in Wales, especially in advanced manufacturing, digital health, and fintech sectors, aligning with global trends towards digitalization.

Data Challenges and Solutions: A key hurdle in AI development in Wales is the lack of Welsh-specific data. Collaborative efforts to gather and share high-quality localized data sets are crucial for the accuracy and effectiveness of AI applications.

Key Takeaways

Engagement and Education: Addressing the gap in AI engagement, particularly among SMEs and in the public sector, is imperative. Targeted awareness and educational programs can demystify AI and demonstrate its practical benefits.

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Policy and Governance Evolution: 2023 marked significant strides in AI policy development, focusing on skills, partnerships, and digital platforms. The Welsh Government's updated strategies emphasize user-centered digital services and partnership-driven innovation in AI.

Key Takeaways

Sector-Specific AI Applications: AI's potential spans diverse sectors in Wales, from healthcare to finance. Its integration is revolutionizing workflows, enhancing productivity, and fostering new business models.

Challenges to AI Adoption: Apart from data challenges, other obstacles include limited public sector awareness, inadequate lifelong learning systems, and unutilized local expertise. Addressing these through strategic initiatives is essential for AI adoption.

Opportunities for Strategic Collaboration: The development of AI in Wales depends on the cooperative efforts of businesses, government, and educational institutions, highlighting the need for cross-sector collaboration and co-creation.

Deep Knowledge Group

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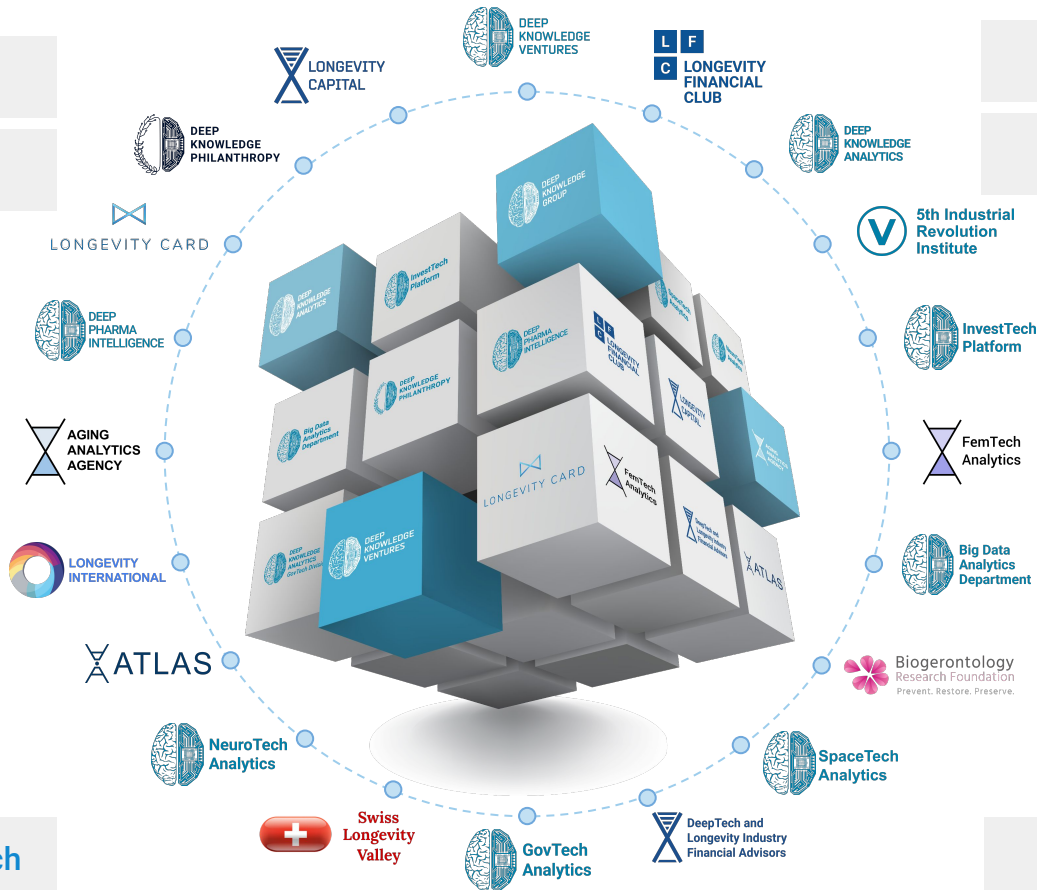
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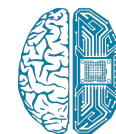
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