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Critically Evaluate the strengths and weaknesses of a strategic approach to Local Economic Development (LED)] emphasizing the development of indigenous business. Illustrate your answer with reference to the local economic development strategy of a particular place.

Since the nineteen sixties LED (Blakely, 1994, p.xvi; Wong 1996) has been an increasingly important activity to national, regional and local government. In parallel with this timeframe, there has been a transformational change in the context of LED taking account of: a qualitative shift towards a more reflexive capitalism; evolving / devolving structures of government and governance; new interventions and a shift in focus from quantity to quality of development (Pike et al 2006, p4). Furthermore, other matters have come to the fore including technological advancements, sustainability and 'globalization' (MacKinnon and Cumbers 2007; pp155-174) which have led to increased social and territorial inequalities.

In current day LED parlance, there is a shifting agenda. There is no panacea or unique strategy that can be applied, a key lesson recognised by Osmond (2009, p2) when in his summary he opines that there are no 'quick fixes or magic formula [to LED]. Successful economic regeneration policies must be tailored to local conditions, and then pursued consistently over decades'.

Allied to unbalanced approaches to development and ignorance of context, LED policy since the nineties has led to the emergence of bottom-up approaches neatly summed up by Vazquez Barquero (1999 cited in Pike et al 2006, p17-18) as being structured to include 'hardware' (physical and human capital); 'software' (LED strategies) and 'Orgware' (governance). Even though LED remains a site of contested views, the broad change in LED over the last two decades is one that points to an endogenous approach (Wilson, 1995; p. 646) (Osmond, 2009; p. 2) (Wong, 1998; p.707). Embedding economic activity and empowering local societies is now the aim of a holistic approach to local or regional development.

Prior to this shift, there was an over emphasis on an inward investment strategy relied on transnational companies (TNC) or exogenous resources. They were not fully embedded in the local and regional economies leading to a 'deadweight', 'branch plant economy' syndrome (Pike et al, pp175-194) and a mass exodus when the going got tough. Examples in Wales such as Sony, Halla and LG come to mind. Other examples of a heavy reliance on TNC's include Ireland once described as "The Celtic Tiger: Europe's shining light" and Scotland's 'Crisis in Silicon Glen' (cited in Pike et al, 2006; p 192). There are exceptions, for example, Bosch at J34 of the M4, and BMW's investment in Bavaria is widely believed to have been successful (Pike et al, 2006; p188-189). As a beneficiary of FDI in the eighties and nineties, Wales then experienced the greatest disproportionate loss in the following decade (Cooke, 2004).

So what are the dominant approaches to LED strategies and their relevance to indigenous businesses? The author's own experience confirms a traditional, homogenous approach to business support and the attraction of exogenous resources and investment. As a consequence, LED strategies are commonplace

Bush House, 39 Cardiff Road, Llandaff, Cardiff CF5 2DP T: 02920 553 108 F: 02920 569 586
E: robert@rchapmanandco.com www.rchapmanandco.com

Director: Robert I. Chapman Dip.Est.Man.(Hons) M.R.I.C.S.



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and increasingly uniform albeit NESTA's report (2007) encourages 'intelligent competition between local innovation efforts'. In similar vein, Malecki (2004; p1112) refers to the 'serial production, the imitation and replication of the same ideas from place to place'. The 'find and replace' mantra is not specific to context (e.g. Clone Town Britain; European Capital of Culture and 2016 Olympics). Against this backcloth, the CLES report (2009) suggest that the LED agenda needs to be broadened (2009; p 25) by taking account of 'soft' economics with measures of health and well being as well as growth.

In Wales, there are two fundamental challenges for the development of indigenous business: one concerns the WAG dimension, the other concerns the cultural dimension.

WAG Dimension: Whilst the devolution dividend was laudable, the author suggests that from a business perspective WAG has been a significant disappointment for 'Wales Plc'. This view appears to be supported by Professor Dylan Jones-Evans (Media-Wales, 2010) who refers to lowering prosperity; declining manufacturing and new business births; the abandonment of an arm's length relationship between economic development and politicians; and the general erosion of business. All of these are inimical to the development of indigenous business.

Cultural Dimension: Andy Pike (et al 2006; p158) distinguishes between 'enterprise' and 'entrepreneurialism', the latter requiring initiative and risk, characteristics that do not sit easily with the Welsh populace. Molly Scott Cato (Cato 2004 cited in Pike et al, 2006; p. 46) argues that entrepreneurialism jars with values around 'community, mutual aid and solidarity'. Instead, she argues that 'associative or co-operative entrepreneurialism goes with the grain of Welsh principles and values' exemplified by Tower Colliery in Hirwaun, South Wales.

The author intends to alight on the Technium Programme as an example of a local economic development strategy, albeit with an ostensible property focus (Jones, 1996). In doing so, and whilst acknowledging that this is an attempt at 'high' road LED, it is accepted that the debate around 'high' and 'low' roads of LED is contested (Cooke, 1995; cited in Pike et al 2006; p.43).

Why the High Road? In a Welsh context, post the hegemony of TNC inward investment, the writing was on the wall for the WDA to take the 'high road' to LED. Jones-Evans (2001), points out that Wales had a poor GDP because of low rates of economic activity; low paid jobs; poor productivity; low business density and low rates of new firm formation. He opined that 'The only way to improve the prosperity of Wales in the immediate future is to improve the performance of our indigenous businesses, ensuring that they become more competitive, innovative and entrepreneurial'. Morgan (2004; p886) notes that the Lisbon Agenda is the dominant development metric in the EU whose leaders wanted to transform the EU into the 'most competitive and dynamic knowledge based economy in the world by the year 2010'. Interestingly, Wales was one of the first Regions in Europe to develop a Regional Innovation Strategy (Jones-Evans, 2001; p12), something that would have chimed with a reference to the 'infrastructure' of

Bush House, 39 Cardiff Road, Llandaff, Cardiff CF5 2DP T: 02920 553 108 F: 02920 569 586
E: robert@rchapmanandco.com www.rchapmanandco.com

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regional development policy (Cooke and Morgan, 1998; p 152). The author puts this down to the dynamism of the WDA. In due course, a suite of Assembly strategies were to follow: 'A Winning Wales' launched in 2002; 'Wales: A Better Country' published in 2003 and 'Wales: A Vibrant Economy' launched in 2005. All three documents followed a discourse around 'high value added, high growth and competitive' economies.

Subsequently, different sources linked to knowledge, innovation and the knowledge economy (see appendix 1) lead the author to think that (notwithstanding Technium locations and creative milieu) the development of the Technium Programme may have been omniscient bearing in mind that the first one was built by the WDA in 2001.

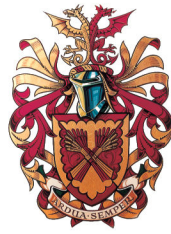
Just before moving to the Technium analysis, there are two matters in the LED arena that require some debate. The **first** is competitiveness (Turok and Bailey, 2004; p152). It has become 'a pervasive mantra' at European (Morgan, 2004; p886), UK and devolved government (WAG) levels albeit the idea is contested (ibid, 2004). Bristow (2005) suggests it has become a 'dangerous obsession' whereas Krugman (cited in Malecki, 2004) opines that unlike business, 'countries cannot go out of business'. In 'Jockeying for Position', Malecki suggests that 'creative workers are the core of the knowledge economy'. This takes us into Florida territory (2002a,b,c): from a LED perspective, the suggestion of creating a 'people climate' as well as a 'business climate' is a feature of Florida's work. He talks about 'the creative classes' and people being attracted to a particular environment (the three 'T's: talent, tolerance and technology.). Specifically, he states that in his opinion 'it is clear that diversity helps to attract talent, and that talent is in turn related to high technology industry and regional growth'. Peck (2005) counters Florida's theories with a coruscating critique referring to it as 'microsociology and crass celebration of hipster embourgeoisement'. The **second** is resilience defined in Hudson (2008; p54) and New Start (2009; p12) and discussed at a recent RSA (Welsh International Section) conference at Cardiff University. The discourse of resilience is developing appeal in LED and draws heavily on ecological issues – naturally pertinent to Wales.

Based on a tabular analysis, the remainder of this essay will concentrate on how in fact the technium project is a means to an end vis-à-vis knowledge, the knowledge economy and innovation. The premise being that nurturing indigenous 'knowledge economy' businesses in Wales will improve prosperity and result in higher skills, higher value added products and higher wages.

There is a network of ten techniums located throughout Wales (see figures 1 and 2 for locations and timeline). Research into the Technium programme has led to the reading of numerous documents, publications, articles and a meeting at Baglan with the Director of the Technium programme in Wales. After an initial degree of reticence, he was able to offer a number of insightful comments. The corollary of this research is set out in the form of 'pros and cons' in table 1.

Bush House, 39 Cardiff Road, Llandaff, Cardiff CF5 2DP T: 02920 553 108 F: 02920 569 586
E: robert@rchapmanandco.com www.rchapmanandco.com

Director: Robert I. Chapman Dip.Est.Man.(Hons) M.R.I.C.S.



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- 1. **Technium Aberystwyth**
- 2. **Technium CAST**
- 3. **Technium Digital**
- 4. **Technium Digital@Sony**
- 5. **Technium OpTIC**
- 6. **Technium Pembrokeshire**
- 7. **Technium Performance Engineering**
- 8. **Technium Springboard**
- 9. **Technium Sustainable Technologies**
- 10. **Technium Swansea**

Figure 1: Spatial Distribution of Technium Buildings throughout Wales

Bush House, 39 Cardiff Road, Llandaff, Cardiff CF5 2DP T: 02920 553 108 F: 02920 569 586
E: robert@rchapmanandco.com www.rchapmanandco.com

Director: Robert I. Chapman Dip.Est.Man.(Hons) M.R.I.C.S.

Company Registration No: 04590590; VAT Registration No: 801 1262 89 Registered office: Bush House, 39 Cardiff Road, Llandaff, Cardiff CF5 2DP





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Development Timeline



Figure 2: Extract from DTZ power point presentation to ERAP, 9th February 2009.

<u>Technium Programme</u>	
Pros	Cons
<p>Provision of high-tech BREEAM excellent incubator space throughout Wales to 'give business locating in the nation a 'soft landing'' (Financial Times 2009). But with strong links to research and expertise in Higher Education Institutions (HEI's), for budding 'spin-out' companies from Universities and new 'knowledge economy' companies thereby making the most of the HEI capabilities to encourage technology development, transfer and commercialisation. The nurturing of links between academia and business is essential: a point confirmed by the Deputy First Minister in the Wales Top 300 (2009) publication in which he referred to:</p> <p>(i) a £70M programme of Academic Expertise for Business; and (ii) Using the Technium network in commercialising 'the best and brightest ideas'.</p> <p>10 Techniums have been created to provide appropriate facilities in a number of sectors'.</p> <p>The NAW report (2006) states that '...success flows from its' existence and marketing as a network of well designed and provisioned premises'.</p>	<p>The WDA's Property Strategy (2004; p24-25) states that the Technium programme is 'a high policy ambition not yet matched by demand trends. A tightly controlled programme is advocated.....'. The narrative goes on to say: '...emphasis should be on the major centres of population and higher education in Wales, namely, Cardiff and Swansea.....(Newport, Wrexham, Aberystwyth and Bangor representing second tier locations). '...great care will be needed in extending the programme to locations with relatively small populations, away from the main road corridors, and with no critical mass of business, especially in key sectors targeted by the innovation centres.....'. The 'innovation centre programme should be based on robust demand assessments and concern for deal flow'.</p> <p>Were the key recommendations followed?</p> <p>The 2007 NAW report offers a number of countervailing statements:</p> <ul style="list-style-type: none"> '...one of the key priorities for any programme of commercialisation is not the accommodation but the quality of support given to the companies. Put simply, if companies are successful then solutions to meet their accommodation requirements will follow'.

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E: robert@rchapmanandco.com www.rchapmanandco.com

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Company Registration No: 04590590; VAT Registration No: 801 1262 89 Registered office: Bush House, 39 Cardiff Road, Llandaff, Cardiff CF5 2DP





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	<ul style="list-style-type: none"> Data suggests that the spinout programme has contributed to the formation of over 150 companies by providing debt facilities of £2.4M. A significant number are still trading but the relationship with a technium is not specified. '... An articulation of goals and objectives does not appear to exist' (p.15).....and there appears to be an emphasis on 'job creation rather than value creation'. <p>A business development initiative in a nice building.</p> <p>Previous regional technology programme informed by simplistic supply side in which supply creates its' own demand – 'cathedrals in the desert'.</p> <p>'It is difficult for new ideas to start in old industrial places' (NESTA, 2008). Past industrial development determines three things: '(i) types of occupation and skills available to support different sectors; (ii) knowledge assets and infrastructure, private and collective investment; (iii) the individual and collective capacities available to exploit learning and knowledge' (ibid, 2008).</p> <p>Poor, de-industrialised regions have no concept of innovation as an interactive process.</p> <p>Inconsistency of delivery and lack of co-ordination.</p> <p>Does it measure up to the characteristics of resilience?</p>
<p>Vice Chancellor of Swansea University inspired the Technium programme with the first one being built in 2001. This has supported a small number of new and growing knowledge based industries. The first Technium was established in partnership with Swansea University, the local authority, WAG, the WDA and private sector representatives.</p>	<p>But, this innovation / programme was followed by changes in the attitude of the University (Nesta, 2008) to research based industrial development (Clement 2005).</p>
<p>Technium Swansea was a catalyst for the SA1 Waterfront Regeneration Scheme. In hindsight, its' impact was not considered.</p>	<p>Techniums should be in areas where they are most needed. Contrary to Florida's theory, only two are located in a city.</p>
<p>Typically, jobs in Techniums will be at average £30K per annum compared with Amazon or Admiral jobs which will pay much less.</p>	<p>The customer (vis-à-vis the programme) is now the Minister – not the SME!</p>
<p>It now has a commercial network: an all Wales network of incubator units associated with HEI and FEI: addressing point 6 in the recommendations of the 'Knowledge and The Welsh Economy' report (Webb, 2001; p20-22). The all Wales R&D network is a £17M programme to strengthen the performance of the Technium Centres.</p>	<p>Does this beg the question 'why' eight years after the start of the programme?</p> <p>Previously, just super JANET – only for academic research traffic.</p>
<p>Annex 9 of WAG's 'Wales Science Policy' (2005) states that the 'Technium programme is a £150M investment over 3 years and has been substantially supported by EU Structural Funds'. Cadogan (2006) observes the 'absence of a science policy making function in Wales that is unparalleled in the UK and elsewhere in Europe'.</p>	<p>Science government policy and, in particular, its funding in Wales are largely undervalued.</p> <p>In response to various senior level requests for a policy (see opposite), a WAG Science Policy document was eventually issued at the very end of 2006 but with a limiting focus on: (i) Health Development; (ii) Low Carbon Systems; and (iii) Enabling sustained economic and social renewal.</p>

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	<p>Wales is responsible for 'for less than half of one per cent of global research' (Cotgreave, 2007; p55-56) with only two public sector research establishments (IGER and CEH).</p>
<p>Technium Optic was built to capitalise on a cluster of hi-tech businesses in North Wales e.g. Pilkington and Thales. This is an example of 'clustering' (Richardson, 2002; p30-32).</p>	<p>On the other hand, for example, the Auto-Technium Business Innovation Centre in Llanelli is remote.</p> <p>'The Technium network throughout Wales illustrates that innovation cannot truly flourish in isolation' (Kestenbaum, 2007; p30-31).</p> <p>Indeed, there are not always essential. E.g the Hydrogen research unit (http://www.h2wales.org.uk/hydrogen_centre.html)</p>
<p>Publicly funded commercialisation initiatives over the last decade have been pursued via initiatives such as 'Spin-out' (Finance Wales supporting projects coming out of Universities) and the Technium programme.</p>	<p>But the Technium programme needs Venture Capital for product development.</p> <p>In contrast, four years ago, Fusion IP (then Biofusion) entered into a 10-year deal giving it exclusive rights to commercialise all intellectual property derived from research at Cardiff University. There is no link with the Technium programme. The author is not aware of any formal links between Cardiff University and any of the Techniums albeit there is the prospect of a Biosciences oriented Technium in Roath Basin in Cardiff Bay.</p> <p>The independent task and finish group (NAW, 2006; p13) indicates that they 'have not had access to data for the Technium programme.....'. Figures for expenditure '.....do not include either capital or current expenditure associated with the high profile Technium programme'. As at the time of the report (2006) the Technium programme had cost over £85M since its' inception in 1999.</p>
<p>Allied initiatives such as the Technium Challenge, the Global Innovation Network and the Technium Associate Programme have been promoted. For example, the Technium Challenge has encouraged two innovative businesses (Madison Animal Health {MAH} and USA innovators Roomlinx to establish permanent bases in Wales creating 70 skilled jobs. The current 2010 challenge is being promoted by Duncan Bannatyne of 'Dragon's Den' fame.</p>	<p>But need note Technium companies going 'public'. E.g. Enfys and Cyden.</p>
<p>The National Assembly for Wales report (NAW, 2007) suggested an increasing contribution to economic performance with an inference that this was a reflection of WAG's various programmes: e.g. Knowledge Exploitation Funds; The Technium Programme; Centres of Excellence for technology and Industrial Collaboration; Finance Wales administered Wales Spinout programme.</p>	
<p>Huggins, Jones and Upton (2008) suggest that the Technium programme is a 'beneficial component of policies aimed at moving Wales towards a knowledge based economy'. They quote a comment from a policy maker: 'the underlying rationale behind the technium project is that they should be fully customer oriented, catering for the needs of companies in more ways</p>	<p>Whilst noting the emphasis on Techniums becoming financially self-sustaining, Huggins, Jones and Upton (2008) observe that 'there is no parallel commitment to allowing academics the time to participate in knowledge transfer, without damaging existing teaching and research commitments.'</p>

Bush House, 39 Cardiff Road, Llandaff, Cardiff CF5 2DP T: 02920 553 108 F: 02920 569 586

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than straight forward infrastructure provision'. They state that 'University involvement is critical if technicians are to be anything other than standard incubator space'.	
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Table 1: Analysis of the Pros (Strengths) and Cons (Weaknesses) of the Technium Programme

Discussion and Conclusion

What evidence there is on the success of the Technium Programme is patchy. The NAW instigated Independent Task and Finish Group made some telling observations about lack of clarity on goals and objectives and lack of transparency in relation to finances and outputs. In any event, they suggested that the initiative should have been focussing on value creation and not jobs created. The Triple Helix Analysis of Wales by Huggins, Jones and Upton is incisive in its comments on the Technium programme suggesting that it is a means to an end. It is meaningless without other support measures and infrastructure being put in place. NESTA's report (2008) that 'It is difficult for new ideas to start in old industrial places' appears to be very apposite and suggests a cultural dimension.

Perhaps the answers to questions such as: adhering to the WDA's property strategy; the reason for the time-lag for supporting soft infrastructure; commensurate Third Mission support; R&D investment; Venture Capital funds and a WAG driven Science Policy is about institutional drawbacks and a 'bedding-in' process (after all, regeneration takes a generation). This point was acknowledged by the Technium Director who mentioned inconsistency of delivery and lack of co-ordination. Worryingly he observed that the customer (vis-à-vis the programme) is now the Minister – not the indigenous business.

There have been successes (e.g. MAH, Roomlinx) and Wales has been able to take advantage of considerable European Funding to support this and associated programmes (the all Wales R&D network). Quality jobs have been created and a number of companies have gone public (e.g. Enfys and Cyden). The ideal is that these organisations should grow 'google-like' to support more quality jobs... and perhaps attract other companies and people. With the exception of Swansea,

The author believes that the initiation of the programme was extremely timely ahead of a big push towards the nirvana of the knowledge economy. This is ongoing: the knowledge economy per se is a process not an output and maybe there is something here about building resilience and attracting people. Notably, only two Techniums are located in a City and with the exception of Swansea there is little evidence to suggest creative milieu associated with Techniums.

So why shift from a de-industrialised region recovering from the demise of coal and steel and subsequently the demise of TNC inward investment, to a 'high' road approach to LED for indigenous business? Huggins, Jones and Upton (2008) suggest that 'Unless the economy does convert to one based more on high value added activity and knowledge based sectors, it is likely to become an increasingly detached and irrelevant component of the global economy'. The 'Knowledge

Bush House, 39 Cardiff Road, Llandaff, Cardiff CF5 2DP T: 02920 553 108 F: 02920 569 586
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Economy' report (BURANET, 2005) suggests that 'endogenous growth theory' provides a more likely and useful inspiration for today's relative policy consensus. ' Endogenous growth theory places a premium on investment in R&D (with fiscal incentives provided by the state), effective linkages between research universities and business, a ready supply of venture capital and effective business networks (both national and international) to facilitate technology transfer'.

Ultimately, the Technium programme is part of what one hopes is a balanced LED programme of initiatives to support indigenous business development. As Charles Darwin stated:

'It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one most adaptable to change'. Perhaps Wales began that adaptation in part with the instigation of the Technium programme.

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APPENDIX 1

- '...concern expressed by the US Chamber of Commerce at the comparatively low number of 70,000 graduate engineers joining the US workforce annually. In contrast, India produces 350,000 and China 500,000' (cited in NAW, 2007).
- 'World Intellectual Property organisations recorded about 300,000 patents from resident inventors in more than a 100 nations in 2002 – two thirds to American and Japanese inventors. 85% went to residents of just 5 countries: Japan, United States, South Korea, Germany and Russia..... Indian and Chinese entrepreneurs founded or co-founded roughly 30% of all Silicon Valley start-ups in the late 1990's' (Florida, 2005)
- Structural Funds focussing on the knowledge economy (see figures 1 and 2). Bob Macey CEO, WEFO - RSC seminar – 27th September 2007

Convergence Programme - ERDF Priorities

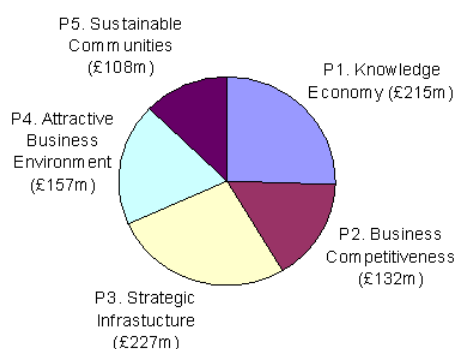


Figure 1

Competitiveness Programme - ERDF Priorities

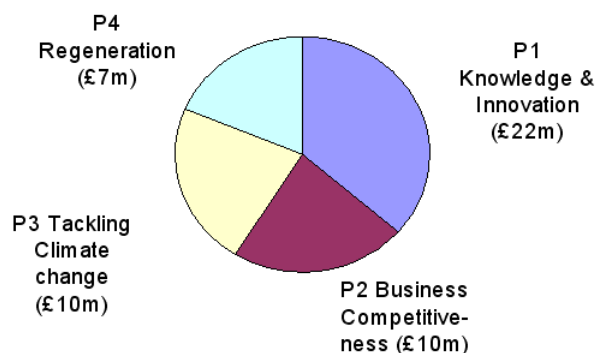


Figure 2

- In a private PWC client dinner, held in London on 10th June 2008, entitled 'Dynamics of the Indian Economy', Dr A P J Abdul Kalam observed:

Bush House, 39 Cardiff Road, Llandaff, Cardiff CF5 2DP T: 02920 553 108 F: 02920 569 586
E: robert@rchapmanandco.com www.rchapmanandco.com

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'The economic development of the nation is powered by competitiveness. The competitiveness is powered by the quality of the knowledge, and in turn the knowledge is powered by technology and innovation'.

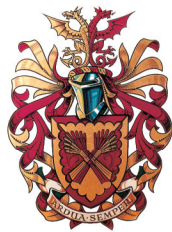
The Work Foundation (2009; p13) '.... Estimate that the share of consumer spending on goods and services associated with the knowledge and technology based industries went up from 19% in 1970 to 43% in 2008.

Bush House, 39 Cardiff Road, Llandaff, Cardiff CF5 2DP T: 02920 553 108 F: 02920 569 586
E: robert@rchapmanandco.com www.rchapmanandco.com

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Bush House, 39 Cardiff Road, Llandaff, Cardiff CF5 2DP T: 02920 553 108 F: 02920 569 586
E: robert@rchapmanandco.com www.rchapmanandco.com

Director: Robert I. Chapman Dip.Est.Man.(Hons) M.R.I.C.S.



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Bush House, 39 Cardiff Road, Llandaff, Cardiff CF5 2DP T: 02920 553 108 F: 02920 569 586
E: robert@rchapmanandco.com www.rchapmanandco.com

Director: Robert I. Chapman Dip.Est.Man.(Hons) M.R.I.C.S.