

HOW TO *invigorate* THE INDUSTRIAL STRATEGY WITH NEW DIGITAL MEANING

The UK is a success. That is the initial government line of the Industrial Strategy. And for a handful of specific sectors, such as Pharma, Video Games, Aerospace and Automotive, it is. The pharmaceutical sector is the third largest in terms of R&D intensity globally¹; the UK automotive industry produced 1.7 million cars in 2015, with 80% exported²; UK Aerospace has 17% of the global market share³ and our video games industry is the sixth largest globally⁴, with standout stars (pun intended!), RockStar's key release *Grand Theft Auto V* selling £1 Billion in sales in just 3 days of its launch⁵. The issue is why are there not more sectors like these having the same level of success.

It is true, many factors come into play when understanding a sector's performance, however good productivity can be regarded as the key underlying facet to a high-performing sector. In the UK, labour productivity is 18% below that of an average G7 country (2015)⁶, only 10% of adults holding technical education as their highest qualification (e.g. HNC/D), and thus the UK is placed 16th out of 20 in the OECD numeracy and literacy ranking⁷. A further contribution to a lower productivity level was 'weaknesses in

the leadership and management skills within industry⁸.

These indicators to low productivity all carry a common theme: education and skills. Lord Heseltine stated "if I could design an industrial strategy, it would start in the primary schools."⁹ The reality is somewhat different, with mainstream schools in England having to make £3 Billion in cost-efficiencies by 2019–20, despite rising learner numbers, the redesigning of an educational system to align with the industrial strategy to **really prepare** learners for the future world of work from primary upwards is an educational utopia not likely to be embraced anytime soon.

Education, irrespective of constraints, is still the key to achieving the tenets the Industrial Strategy presents. All educational institutions have a fundamental role to play in raising the UK's capability to be productive. Colleges and training providers have a direct relationship with a region's ability to raise its GDP. Through the appropriateness and currency of their provision, they can support business invigoration and upskilling, re-skilling and continuous development of the labour market. Across the UK, some providers are supporting their regions to

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grow economically, however many, many others are delivering the same staid and redundant diet of provision, without challenge, that has contributed to regional businesses' performance coasting to eventual death, and regions becoming barren of opportunity. Key to avoiding this situation is for providers to interpret the Industrial Strategy as a 'Digital Transformation Strategy'. In fact, 'digital transformation' captures the tone of the world today, rather than the visionless moniker of "Industrial Strategy" which lingers with an acrid smell of the Victorian smog, suggesting regression rather than superfast visionary advancement, which is, as the spectre of Brexit looms, what is needed, if we're to drive the growth that will enable the UK to be a strong industrial global player.



What could a Digital Transformation Strategy include for a college or training provider? Given digital is all-pervasive, not just across sectors but countries, and is often seen in as much a negative (with cyber-hacking, invasion of privacy through surveillance etc.) as well as a positive light, the components of such a strategy need to be considered with due focus on the generation of 'value' reflection to outcomes.



The twelve-points below illustrate the principles as to what should be included in such a **Digital Transformation Strategy**:

1



MAKE DIGITAL AT THE HEART OF EVERYTHING

The digital learning market worldwide is \$243Billion¹⁰ (courses, platforms and MIS), with 49% of all learners globally saying they'd taken an online course within a year¹¹. Providers should consider what does digital mean to them and plan to allocate resources to transform their offering into a well-planned Digital Framework.

2



PLAN FOR IMPROVED DIGITAL AWARENESS AND LITERACY IN THE REGION

58 million internet users exist in the UK, but there is still 8% or 9 million people not digitally literate¹². And of 58 million, how many are using digital to enhance their life and their employment prospects? With 41.36 million users¹³, having purchased on line a total of £84.1 billion¹⁴ in goods and services, capability in digital skills is a predominant requirement for living in the 21st century, notwithstanding of whether you're a business owner or a citizen.

3



DESIGN FOR INTEROPERABILITY OF TECHNOLOGY SKILLS TO SUPPORT FUTURE WORKFORCE MOBILITY

Digital redefines the value and importance of what a business does, and is not sector-specific, enabling greater opportunities for workforce mobility. In their last Gartner CIO Agenda Report 2017, 34% of IT spend was on digital tech - business analytics, cloud services, digital market management and cyber-security. Gartner expects expenditure to rise to 44% by 2018. Providers thus, need to build digital tech skillset development into all their programmes, enabling all technical students to have the data analytical capability to move effortlessly between a variety of sectors such as pharma, chemical processing or oil and gas, reflecting job pull and economic demand to build a flexible workforce. Processing and interpreting from cloud-stored big-data sets, for example, will become an increasingly valuable technical skill-set of a mobile workforce.

4



PLAN FOR CONVERGENCE OF TEACHING AND LEARNING TECHNOLOGIES

Digitisation is changing the landscape of how we acquire knowledge. 16-24 year olds are online more than 27 hours a week¹⁵, and this is changing their perception of how to learn. Parallel consumption is their behaviour and multimodal platforms that deliver learning will support their expectation. The convergence of artificial intelligence, automation, virtual and augmented reality and machine to machine learning brings quickly a proposition where the future teacher will play the role of a hybrid Facilitator/Pastoral Carer/Assurer/Gatekeeper; with the greater body of knowledge delivered by the educational equivalent of Amazon's Alexa. An automaton structured to constantly update content, improve the learner experience and stretch their capability, whilst still keeping within safeguarding parameters. Providers should deliver plans now, as a matter of urgency, on how they can redesign programmes to take advantage of this convergence.

5



DESIGN FOR NEW LEARNING FORMATS AND STRUCTURES

Educational programmes of yesteryear need to change, and the government needs to support this change. In the Feb 2017 Review of the Industrial Strategy, it's stated that it's "deeply disappointing that the Green Paper fails to outline any detailed proposals for discussion in relation to encouraging the uptake of STEM subjects, and improving the skills of those already of working age". In recognition of this need, the government should encourage and fund (perhaps apportioning some of the £4.7 Billion Research & Tech budget) toward the development of Massive Online Open Courses (MOOCs) that focus on specific key STEM areas that the Industrial Strategy has highlighted. Creation of a 'Challenge' to educational institutions, training providers and business and industry, would be the start in developing MOOCs, in such growing areas as mobile app development in Android and iOS, data analytics and project management. The MOOC could form the core of the educational programme, with workshop/lab time, large seminars and other targeted e-learning modules to provide additional support.

6



DESIGN FOR DYNAMIC MIS FUNCTIONS THAT SUPPORTS KNOWLEDGE AUTOMATION

Administrative and management information functions absorb cash in time-consuming and poorly architected structures. Most providers continue to use separate systems that serve their different information requirements (e.g. student records, financial & accounting management, market intelligence). Many recognise the need to integrate these tools – or at the very least to arrange for a single point access to all relevant systems. Technical integration can and should also be considered. Process Automation of MIS systems should be evaluated and architected around three key areas to deliver agility and performance excellence. These areas are: data collection automation; information analysis automation; and cross function integration. For example, standardising the use of Near Field Communication and RFID protocols will enable data collection from any entry point, which then can be repopulated into different representations and reports thus improving strategic decision-making.

7



REFORM GOVERNANCE STRUCTURES TO REFLECT DIGITAL OPPORTUNITIES (INCLUDING MORE STEM-RELATED COMPANIES REPRESENTED ON THE BOARD) AND AVOID LEGACY-BASED DETERMINISTIC ATTITUDES AND PREDISPOSITIONS

Governance of educational institutions is an area requiring immediate revitalisation. Many governing bodies' primary focus is on achieving the Ofsted ratings and ensuring financials are positive. This should only be the starting point. Board structures should be made of representation from local companies that reflect economic and digital priorities. The forum of discussion should give significance to Open Innovation, and use the industry governors' expertise to input into new STEM programme developments and build capacity in areas that enable economic improvement in the region. Board members should not serve any more than two terms (6 years), as longer stretches result in their engagement being jaded and rote.

8



CREATE A RESEARCH, INNOVATION AND ENTERPRISE CAPABILITY HUB TO SUPPORT START-UPS AND SCHOLARLY ACTIVITIES

The interconnected ecosystem of research, innovation and enterprise with training and education should be identified, plotted and harnessed by providers to grow innovative advantage out of these relationships and interdependencies. A Hub should facilitate engagement with business and industry, and promote opportunities to offer consultancy, research and custom training, as well as provide a platform for scholarly activities of teaching staff. Colleges are well-known as hot beds of great ideas, and the Hub should supply structure, focus and business innovation guidance to young entrepreneurs wishing to explore the exciting start-up world. Channels to new funding sources including development of a National funding portal such as an education-based and focused 'Kick-starter' or 'Indiegogo', should be considered within the Hub to drive enterprise and business start-up, growth and survival. These Hubs should ultimately form a network of UK-wide regional centres to promote and focus on regional digital transformation projects and learning.

9



DEVELOP UNIVERSITY SCHOLARSHIP PROGRAMMES TO SUPPORT STAFF RECRUITMENT IN HARD-TO-FILL STEM AREAS

Recruitment of STEM teaching staff is an obstacle institutions face across the country, and is the reason most cited for new STEM programmes trapped 'in-development' hell. Such a situation could be reversed through creation of a national Scholarship programme (funded through part of the £4.7 billion research and tech budget) providing a paid top-up PgCertEd to any STEM based Masters or Doctorate student, thereby encouraging them to take up lecturing in STEM-based subjects. The Scholarship could run over a three-year period, giving the opportunity for the FE Community to grow a new era of STEM lecturers, proficient in the latest technologies and practices in their STEM subject matter.

10



PLAN TO SECURE 'AWARDING POWERS' AND DEVELOP 'OWN-BRAND AWARDS'

From direct experience, the notion of unimaginative and not fit-for-purpose qualifications holding back providers has been validated. Providers across the UK are hemorrhaging funds to awarding bodies to secure qualifications that are often out-of-date and fail to meet the true needs of business and industry. Despite some very recent additions by some of the awarding bodies, qualifications across the board are still straight-jacketed and offer little to providers, except an additional layer of bureaucracy and time-consuming admin. In practice, assuring providers to award their own qualifications should be no different to that of universities. Ofsted could assure that standards in a college are to a level as defined by Ofqual, and provided the institution meets that level, they should be able to award their own qualifications up to level 4. At level 4, provider qualifications should be subject to QAA scrutiny. Although a radical move, releasing funds that previously went to awarding bodies back to the providers would enable colleges to create qualifications that are innovative and align with business and industry needs. Providers could create a network community of external examiners and external verifiers (made up from education and business & industry) for course validations in the same way HE institutions do. Such collaborations could foster technical knowledge transfer, opportunities for staff development and exchange of best practice.



REASSIGN DISTRIBUTION OF BUDGETS TO SUBJECT RATHER THAN LEVEL

Perceived priorities at qualification level places the wrong focus on where providers should distribute their budgets. This practice precludes the opportunity to focus on supporting provision in areas of economic intensity or urgent skills need. For example Nursing – one in ten nursing jobs is unfilled and over 13% of the 600,000 strong workforce originate from EU countries (post-Brexit the nursing shortage will be an even bigger problem)¹⁶, Construction and Plumbing – 44,690 new entrants needed by only 7,280 apprentices completed their training¹⁷, with three of the biggest construction firms turning work down due to lack of talent¹⁸ and Cybersecurity – facing a skills shortage of 31%, with the sector expanding by over a third in two years, but the new candidates failing to keep up with surging demand¹⁹. These examples are just a handful of areas across the UK where skills shortages are critical and biting on economic prosperity. A reassignment of college budgets by subject rather than level will enable providers to be genuinely responsive and close skills gaps in their regions.



PLAN FOR CLUSTER DEVELOPMENT AND CROSS-CURRICULAR PROVISION TO REFLECT INDUSTRIAL BEHAVIOURS

Almost all technical and scientific challenges and projects rely on drawing together a collection of expertise from different disciplines and often this is where innovation happens. In fact, the demarcation lines of many industry sectors are converging or even dissolving. Educational providers will need to demonstrate examples of clustering adjacent disciplines and adopt cross-curricula approaches to support real, relevant and innovative programme development.

Education and training providers can have dramatic and accelerated impact on their learner and employer communities by balancing innovation across their educational, administrative and regulatory functions, as well as embracing technological change and assessing the economic value and social benefits from their interventions.



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