A graduate employability lens for the SCONUL Seven Pillars of Information Literacy

Incorporating a review of sources on how
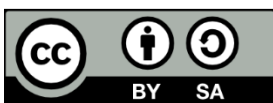graduate employability relates to information know-how

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INFORM ALL
information know-how for all

Contents

1 Introduction – purpose and scope of this project

1.1 SCONUL is looking to refine its Seven Pillars of Information Literacy, notably through the formulation of a new graduate employability lens, to complement the four existing lenses1 on research, digital literacy, open educational resources and evidence-based practice healthcare. Employability in an increasingly important issue in HE settings, and there is now a strong case for a mapping of information skills and competencies against the expectations of employers. The graduate employability lens will address this need and provide an indication of how such information know-how can make a valuable contribution to the future careers of students as they move from higher education to employment.

1.2 It has sometimes been stated that the Seven Pillars would benefit from better reflecting the context-driven perspectives and needs of different categories of users, rather than essentially the interpretations of information professionals[2]. The creation of a series of specialist lenses, following the revision of the core model in 2011, went some way to addressing such concerns. The formulation of a graduate employability lens will provide an opportunity to investigate the expectations and needs of employers, and to explain information literacy in a way that relates to these needs; this is potentially important, because the concept of IL, and its relevance to the world of business, is not well recognised by enterprises.

1.3 This project, undertaken on behalf of SCONUL by InformAll, has produced such a lens, structured broadly in the same way as the Seven Pillars Core Model, on the basis of a review described in the following report. The lens itself can be found at Annex A; the underlying review consists of the following elements:

- Section 2: definitions of employability
- Section 3: a review of selected sources on how employability attributes are perceived by key stakeholders, and particularly employers, including their expectations of how HEIs could help prepare students for future employment. This part of the report considers a range of frameworks and models devised by relevant organisations such as the Confederation of British Industry (CBI).
- Section 4: an overview of how employability attributes are viewed in a perspective that is broader than the immediate requirements of employers, and how these attributes might be affected by longer-term developments in working practices and behaviours.
- Section 5: a brief consideration of the scholarly literature on information literacy in the workplace.
- Section 6: a short review of how universities consider employability, notably through a consideration of frameworks devised by a small selection of institutions.

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[1] All available at http://www.informationliteracy.org.uk/definitions/il-models/

[2] See for instance Boon S, Johnson B & Webber S, 'A phenomenographic study of English faculty's conceptions of information literacy', Journal of Documentation, 2007, 63(2), pp204-228

- **Section 7:** an analysis that draws out the ways in which information literacy relates to the attributes and factors described in the report.

1.4   Also contributing to the report is a series of interviews with small range of key players, representing different sectors that have an interest in employability: librarianship, information science, career management. The list of interviewees is at **Annex B.**

1.5   It should be stressed that in this report, and in the lens itself, the term 'enterprise' is used to describe organisations that operate not just in the commercial sector, but also in the public and not-for-profit sectors.

2   Definitions of employability

2.1   There is a significant body of literature that seeks to define, frame and illustrate the concept of employability. For instance, SCONUL's 2014 literature review[3] provides an overview of the material and arguments that characterise this area; the Higher Education Academy (HEA), in a guidance framework developed for the HE sector[4] , also references a wide range of relevant material. HEA recognises employability as a major strategic issue, and its resources in this area include a range of reports, guides and references[5]. In its report on *Pedagogy for employability*[6] , it cites a succinct and widely-used definition of employability:

> "a set of achievements – skills, understandings and personal attributes – that make graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy".

2.2   But this is a definition based on attainment of quantifiable job-related objectives, and the same HEA report recognises that employability is not just about gaining employment. It therefore proposes a complementary definition:

> "Employability is not just about getting a job. Conversely, just because a student is on a vocational course does not mean that somehow employability is automatic. Employability is more than about developing attributes, techniques or experience just to enable a student to get a job, or to progress within a current career. It is about learning and the emphasis is less on

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[3] Wiley, M. (2014), 'A review of the literature on current practice in the development of employability skills', SCONUL (on behalf of the SCONUL User Experience and Success Strategy Group) – http://www.sconul.ac.uk/sites/default/files/documents/Employability%20Literature%20Review%20June%202014_0.pdf

[4] Cole, D. and Tibby, M. (2013), 'Defining and developing your approach to employability: a framework for higher education institutions', Higher Education Academy – https://www.heacademy.ac.uk/sites/default/files/resources/employability_framework.pdf

[5] See the employability portal on the HEA website at https://www.heacademy.ac.uk/workstreams-research/themes/employability

[6] Pegg, A. *et al* (2012), 'Pedagogy for employability', Higher Education Academy – https://www.heacademy.ac.uk/sites/default/files/pedagogy_for_employability_update_2012.pdf

'employ' and more on 'ability'. In essence, the emphasis is on developing critical, reflective abilities, with a view to empowering and enhancing the learner".

This reflects the view, suggested in the SCONUL review, that employability should be seen less as a set of clear-cut attributes and more as a complex form of learning development. It is not surprising that employers (and careers services, inasmuch as they reflect the requirements of employers) should adopt a view of employability that is closer to the first of these two definitions. The graduate employability lens reflects both perspectives.

3   Employability attributes: employer perspectives

3.1   Over the past few years, a number of organisations at the interface between higher education and employment have sought to explain the attributes and skills that contribute to employability. Most of these correspond to the more workplace-focused definitions of employability, although some relate to broader notions, such as openness to new ideas and cultural awareness. There is much overlap between these different sets of attributes, but also some distinctive features – particularly the future-looking factors suggested in the horizon-scanning exercise commissioned by the UK Commission for Employment and Skills (described in section 4). Eight reports were reviewed, reflecting the perspectives and priorities of key players: the Confederation of British Industry (CBI), Universities UK (UUK), the National Union of Students (NUS), the Council for Industry and Higher Education (CIHE)[7], the Association of Graduate Careers Advisory Services (AGCAS), Association of Graduate Recruiters (AGR) and, in the USA, the National Association of Colleges and Employers (NACE). The results of the various surveys in these reports point to the relative importance attached by employers to the different elements that compose employability; such findings are noteworthy, inasmuch as they indicate areas where relevance to information literacy needs to be highlighted.

3.2   The CBI explored and defined the notion of employability in its 2007 report on *Time well spent: embedding employability in work experience*[8], which relates to both graduate and non-graduate employment. The report came up with a definition, which has since been widely used, on the basis of a review that it undertook of then-existing literature and consultations with CBI members and others:

> "A set of attributes, skills and knowledge that all labour market participants should possess to ensure they have the capability of being effective in the workplace – to the benefit of themselves, their employer and the wider economy". [p. 11]

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[7] The Council for Industry and Higher Education is now known as the National Centre for Universities and Business (NCUB)

[8] CBI (2007), 'Time well spent: embedding employability in work experience' – http://www.educationandemployers.org/wp-content/uploads/2014/06/time-well-spent-cbi.pdf

3.3 This definition is fairly similar to the first of the two definitions set out by the HEA in the *Pedagogy for employability* report. But at the same time, the CBI also stresses that employability is not just about a set of mechanistic skills. As *Time well spent* emphasises,

> "The term 'employability' or 'employability skills' is used to refer to a set of generic softer skills such as self-management, teamworking and communication. Much work has been done in defining what employability means as well as in establishing a list of the competencies that are central to being employable. Although the term employability skills is commonly used, it is evident from our research that employability is not solely concerned with the possession of a certain set of skills". [p. 11]

3.4 The report goes on to explain more precisely what such competencies entail. They are broken down into a set of seven broad attributes [p. 12]:

- **Self-management:** readiness to accept responsibility, flexibility, resilience, self-starting, appropriate assertiveness, time management, readiness to improve own performance based on feedback/reflective learning.
- **Teamworking:** respecting others, co-operating, negotiating/persuading, contributing to discussions, and awareness of interdependence with others.
- **Business and customer awareness:** basic understanding of the key drivers for business success – including the importance of innovation and taking calculated risks – and the need to provide customer satisfaction and build customer loyalty.
- **Problem solving:** analysing facts and situations and applying creative thinking to develop appropriate solutions.
- **Communication and literacy:** application of literacy, ability to produce clear, structured written work and oral literacy – including listening and questioning.
- **Application of numeracy:** manipulation of numbers, general mathematical awareness and its application in practical contexts (e.g. measuring, weighing, estimating and applying formulae).
- **Application of information technology:** basic IT skills, including familiarity with word processing, spreadsheets, file management and use of internet search engines.

Crucially, the report suggests that a further factor, *positive attitude*, acts as an indispensable foundation for all these attributes. Positive attitude is described as "a 'can-do' approach, a readiness to take part and contribute, openness to new ideas and a drive to make these happen".

3.5 Building on *Time well spent*, the CBI subsequently collaborated with UUK and the NUS to produce two further reports, both using the same definitions of employability and descriptions of the seven broad attributes as in *Time well spent*. This further work presents a more refined view of employability that incorporates the perspectives of higher education institutions and students themselves.

3.6   *Future fit: preparing graduates for the world of work* [9], with input from UUK, addresses what universities can contribute to the employability agenda. In particular, it underlines the importance of students and graduates understanding the skills that employers value – and having the confidence to articulate this understanding when seeking to enter a very competitive labour market. The report indicates that the attributes are recognised as important both by universities and employers – although the former placed more stress on research skills, managing complex information and critical thinking. In her interview, reflecting the views of a university employability manager, Lucy Hawkins took a similar line: she suggested that many of the skills associated with employability are those which can also contribute to improving their academic performance, for instance adaptability and resilience. In addition, *Future fit* identifies a further, cross-cutting factor, whose relevance both sectors recognise; this is **entrepreneurship/enterprise**, defined as an ability to demonstrate an innovative approach, creativity, collaboration and risk taking.

3.7   The CBI-NUS report *Working towards the future: making the most of your time in higher education* [10] largely takes the form of a self-help guide aimed at helping students prepare themselves for the world of employment. In probing the concept of employability, it draws a distinction between technical skills ("specific skills needed to carry out certain specialist tasks") and the more generic and softer skills associated with employability. As with *Time well spent*, this report emphasises that employability actually means more than skills: it also stresses the underpinning factor of a positive attitude, which it describes as a personal attribute; and it underlines how knowledge is a vital component of what makes graduates employable – knowledge being closely associated to skills such as literacy and numeracy.

3.8   In addition to the categorisation deployed by the above reports, surveys of employers' expectations (and in one case, students' expectations) can also provide important pointers to attributes associated with employability. Five such surveys serve to illustrate this:

- *Gateway to Growth – CBI/Pearson Education and Skills Survey 2014* [11] is the latest available annual survey charting employers' attitudes to employment-related attributes among school and college leavers as well as graduates.
- The UKCES Skills *Employer Skills Survey 2013* [12] is the organisation's latest biennial, large-scale survey of UK employers, probing into their perceptions of skills for young people leaving education at all stages, including HE, covering such areas as skills gaps / shortages, recruitment, training and workforce development.

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[9] CBI / Universities UK (2009), 'Future fit: preparing graduates for the world of work' – http://www.cbi.org.uk/media/1121435/cbi_uuk_future_fit.pdf

[10] CBI / National Union of Students (2010), 'Working towards the future: making the most of your time in higher education' – http://www.cbi.org.uk/media/1121431/cbi_nus_employability_report_march_2011.pdf

[11] CBI (2014), 'Gateway to Growth – CBI/Pearson Education and Skills Survey 2014' – http://www.cbi.org.uk/media/2809181/embargo_00.01_4_july_cbi_pearson_education_and_skills_survey_2014.pdf

[12] UKCES (2014), 'Employer Skills Survey 2013' – https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/327492/evidence-report-81-ukces-employer-skills-survey-13-full-report-final.pdf

- A few years earlier, the CIHE report on *Graduate employability: what do employers think and want?*[13] examined the skills and capabilities that employers considered important when recruiting new graduates.
- In 2013, GTI Media Research, with input from AGCAS, produced a survey, *Great expectations: how good are universities at making their students more employable*?[14], which considered the attributes that undergraduates felt to be important for their post-university employment prospects.
- Finally, to provide a non-UK perspective, the NACE *Job Outlook 2013*[15], which looked at how employers rate the importance of different competencies, and also how they accordingly grade their graduate recruits.

Table 1 provides an overview of the different employability attributes identified by the three surveys, along with the factors defined in the CBI, CBI/UUK and CBI/NUS report.

Table 1 – employability attributes as identified by employer-informed reports and surveys

Competencies	Relevant reports and surveys					
	Three CBI reports	Gateway to Growth	Employer Skills Survey	Graduate Employability	Great expectations	Job Outlook
Positive attitude	✓	✓				
Integrity				✓		
Intellectual ability				✓		
Confidence				✓	✓	
Character, personality				✓		
Adaptability, flexibility					✓	
Leadership					✓	
Strategic management			✓			
Self-management, time management, resilience	✓	✓			✓	
Planning & organisation			✓	✓	✓	✓
Decision-making				✓		✓

[13] Archer, W and Davison, J. (2008), 'Graduate Employability: what do employers think and want?', CIHE – http://www.brunel.ac.uk/services/pcc/staff/employability/?a=92718

[14] GTI Media Research (2013), 'Great expectations: how good are universities at making their students more employable?' – http://www.agcas.org.uk/agcas_resources/540-Great-expectations-How-good-are-universities-at-making-their-students-more-employable-

[15] NACE (2012), 'Job Outlook 2013' – http://career.sa.ucsb.edu/files/docs/handouts/job-outlook-2013.pdf

Competencies	Relevant reports and surveys					
	Three CBI reports	Gateway to Growth	Employer Skills Survey	Graduate Employa-bility	Great expecta-tions	Job Outlook
Teamworking	✓	✓	✓	✓	✓	✓
Business or customer awareness and handling	✓	✓	✓		✓	
Selling, influencing, negotiation					✓	✓
Presentation					✓	
Entrepreneurship	✓					
(International) cultural awareness		✓				
Analytical skills		✓		✓		✓
Problem-solving	✓	✓	✓		✓	✓
Obtaining / processing information						✓
Creating / editing written reports						✓
Communication (oral and written)	✓	✓	✓	✓	✓	✓
Literacy / use of English		✓	✓	✓		
Foreign language skills		✓	✓			
Numeracy	✓	✓	✓	✓		
Technical and/or job-specific skills		✓	✓			✓
IT skills	✓	✓	✓		✓	✓
Knowledge about chosen job/career		✓				
Relevant work experience		✓				

Sources: *Gateway to Growth:* see p. 70; *Employer Skills Survey:* see pp. 31-32; *Graduate Employability:* see p. 7; *Great expectations:* see p. 4; *Job Outlook:* see p. 31.

3.9   The table outlines a comprehensive set of competencies recognised by employers, ranging from general character traits, attitudes and abilities to organisational aptitudes to

particular skills. Not surprisingly, there is much overlap between these sets of competencies. Teamworking and communication skills stand out as being highlighted by all the frameworks in these publications. Other attributes that feature prominently include problem-solving, literacy / numeracy and IT skills; and, to a lesser extent, planning and organisation, business and customer awareness, and technical and/or job-specific skills.

3.10 The surveys associated with the various reports identify those competencies that employers (and in one case, undergraduates) see as particularly important; they also show areas of concern where employers feel that employees, and not least graduate entrants to the labour market, fall short on competencies. Thus one of the questions in *Working towards the Future* relates to employer satisfaction with graduates' employability [p. 16]. It indicates relatively high levels of dissatisfaction with abilities such as business and customer awareness (44% not satisfied), self-management (25%) and teamwork (20%) – but conversely high to very high levels of satisfaction with use of IT (95% satisfied or very satisfied), basic numeracy (90%) and positive attitude to work (85%).

3.11 *Gateway to growth* ranks competencies according to employer satisfaction with graduates' employability skills. Employers express dissatisfaction with graduates' business / customer awareness, (53% dissatisfied), foreign language skills (51%), international cultural awareness (37%), relevant work experience (37%), self-management / resilience (31%) and knowledge about chosen job / career (30%). At the other end of the scale, there are high to very high levels of satisfaction particularly for use of IT (98% satisfied or very satisfied), technical skills (91%), basic numeracy (86%), analysis skills (85%), basic literacy / use of English (83%), positive attitude to work (82%) and teamworking (81%). To an extent, these findings echo those of the similar survey in *Working towards the future.*

3.12 *Great expectations* indicates undergraduates' expectations of employability attributes. Some of the views reinforce the concerns expressed by employers; most notably, only 29% of undergraduates believe that commercial awareness is a very important attribute. Conversely, 72% of graduates agree that time management is very important – but the high levels of dissatisfaction expressed by employers about the closely-related area of self-management skills (as reported at 3.10 and 3.11) suggests that there is a disconnect between what students recognise as important, and how they perform in practice [p.4].

3.13 *Job Outlook* provides a US view of employers' recruitment expectations by rating, under ten headings, the importance of skills and qualities for graduate job candidates. These bear much similarity to the attributes in the UK surveys outlined in this section. In decreasing order of importance, the top six of these abilities – those scoring more than 4 on a 5-point scale – are verbal communication within and outwith the organisation (scoring 4.63), team working (4.60), decision-making and problem solving (4.51), planning, organising, prioritising (4.46), obtaining/processing information (4.43) and analysing quantitative data (4.30). *Job Outlook* goes on to set out employers' satisfaction with the abilities of their new graduate recruits. The attributes used are not quite the same as those deployed for the above data on expectations, but there is at least some correlation between what employers expect and what they see in practice. The top attributes in this case – those scoring more than 10 on a 13-point scale – are team working (scoring 10.82); analytical/quantitative skills (10.63); problem solving (10.48); initiative (10.42) and work ethic (10.39) [pp. 31-32].

3.14   The *Employer Skills Survey* does not explicitly address employability. Its list of attributes relates to skills lacking among job applicants, at all levels of educational qualification. The analysis points to the number of vacancies that are difficult to fill because of skills shortages. Thus 63% of skill-shortage vacancies are ascribed to lack of technical, practical or job-specific skills. The proportion falls to 41% each for lack of planning and organisation skills and oral communication skills, and 40% for lack of customer-handling skills. The *Employer Skills Survey* uses the same list of attributes for its separate analysis of skills among existing employees that employers have identified as having a skills gap [pp. 38-40]. This shows that 5.2% of staff are deemed to have a skills gap as a proportion of the overall number employed; that figure is lower for staff with higher-level responsibilities, such as managers and professionals – 3.0% and 3.8% respectively.

4   Employability attributes: broader perspectives and the longer term

4.1   Section 2 outlines that there are further views of employability that look beyond the attributes reflecting employers' current expectations. As stated by Yorke, employability derives from complex learning, and is a concept of wider range than those of 'core' and 'key skills'; and it is not merely an attribute of new graduates: it needs to be continually refreshed throughout a person's working life[16] . Employability may even impact the lives of individuals beyond the confines of the workplace. Thus Jisc's Learning Literacies in the Digital Age (LLiDA) project placed employability in the context of lifelong learning processes dependent on the achievement of a range of literacies, including digital and information literacies. The report[17] from the project calls for employability to be more carefully and critically defined, with "a need for further work to extend perceptions of employability beyond conventional careers services to include approaches to learning, programme design and engagement with employers" [p. 6]. This view has been further articulated in a report[18] more recently commissioned by Jisc, notably through a map of what a generic employable student might look like. Although the report focuses on the use of technology to support employability, it recognises that graduate employability depends not just on attributes, capabilities and skills, but also on a range of commitments that graduates need to make, on an ongoing, long-term basis, to lifelong learning and lifelong employability. Digital literacy does not figure on the map, on the grounds that it is integral to or embedded within all of the map's elements. The same might be said of information literacy.

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[16] Yorke, M. (2006), Employability in higher education: what it is – what it is not', Higher Education Academy and ESECT (Enhancing Student Employability Co-ordination Team) – https://www.heacademy.ac.uk/sites/default/files/id116_employability_in_higher_education_336.pdf

[17] Beetham H., McGill L, & Littlejohn A. (2009), 'Thriving in the 21st century: Learning Literacies for the Digital Age (LLiDA project)', Jisc – http://www.webarchive.org.uk/wayback/archive/20140614091049/http://www.jisc.ac.uk/whatwedo/projects/elearningllida.aspx

[18] Chatterton P. & Rebbeck G. (2015), 'Technology for Employability', Jisc - http://repository.jisc.ac.uk/6249/3/Technology_for_employability_-_full_report.PDF#JR0053D_EMPLOYABILITY_REPORT_FULL_OCT2015_v10.indd%3A.84987%3A2833

4.2   HEA, in the guidance[19] that it drew up in 2013, also makes it clear that it does not view employability merely in terms of preparing students for employment. It describes different models which recognise that employability should be concerned also with helping individuals develop their self-awareness and self-belief, and preparing them to be good citizens and to contribute to the community and the broader economy. One of the best-known of these models, proposed by Knight and Yorke and known as USEM[20] , suggests that employability is associated with broader personal effectiveness, and results from a blend of achievements in four broad and inter-related areas:

- Understanding of disciplinary subject matter and how organisations work.
- *Skilful practices,* relating to academic endeavour, employment and life in general.
- *Efficacy beliefs,* reflecting the learner's notion of self, self-belief and the possibility for self-improvement and development.
- *Metacognition,* embracing self-awareness, how to learn and reflection; this encompasses knowledge of strategies for learning, thinking and problem-solving, and supports and promotes continued learning, including lifelong learning.

4.3   Approaching employability through the prism of perceptions of graduate identity is another way of identifying attributes that lie beyond conventional views on skills and competencies. Research undertaken with employers in East Anglia[21] suggests that performance is not the only criterion that employers take into account when assessing the potential in graduates; in addition, four key elements that characterise graduate identity are also deemed to be very important: value, intellect, social engagement and performance.

4.4   A further and more specific approach to employability stresses the importance of career management skills. The model developed by Bridgstock places an emphasis on what graduates need to know in order to build and develop their own careers, and navigate their way through the ever-evolving and highly competitive world of work[22] . This implies the acquisition of both self-management skills (appraisal and knowledge of self, including values, abilities, aptitudes and interests) and career-building skills (such as finding and using information about labour markets, locating and applying for work, creating professional relationships…). As outlined at paragraph 4.1, employability implies that graduates need to show a lifelong, proactive commitment. Success requires them to commit to display the foresight as well as the strategic, planning and social capabilities that would equip them for a lifetime of learning and work[23].

4.5   In her interview, Helen Beetham argued that, given the changing nature of work (see below), graduates need smart capabilities to help them wend their way through career

[19] Cole D. and Tibby M. (2013), *Op. cit.*

[20] Knight, P. and Yorke, M. (2004), 'Learning, Curriculum and Employability in Higher Education', London: Routledge Falmer

[21] Hinchliffe, G.W. and Jolly, A. (2011), 'Graduate identity and employability', British Educational Research Journal, 37(4), pp. 564-584 – http://onlinelibrary.wiley.com/doi/10.1080/01411926.2010.482200/abstract

[22] Bridgstock, R. (2009), 'The graduate attributes we've overlooked: enhancing graduate employability through career management skills', Higher Education Research and Development, 28(1), pp. 31-44

[23] Chatterton P. & Rebbeck G. (2015), *Op. cit.*

paths that are often more complicated than would have been the case in the past; they increasingly need to be sophisticated in the way that they knit together and manage their careers and their lives. These are lifelong attributes that look beyond the requirements of any particular job. But there is evidence to suggest that new graduates may have a poor grasp of what is implied by career management; they often find it difficult to apply either to their own career development the sort of information know-how that they acquire in the course of their studies[24] .

4.6   Lucy Hawkins reinforced this view during her interview, suggesting that, in their approach to identifying job opportunities, many undergraduates do not 'search smart': their ability to seek occupational information and data and their career planning ability are often weak, they have poor occupational awareness characterised by an uncritical approach to the use of employment-related resources. Hawkins added that this state of affairs perhaps reflects a tendency to take the easy route, an approach that many undergraduates adopt towards their studies.

4.7   The frameworks and models considered so far in this report reflect views and analyses of *current* employability factors, as perceived by employers and others. But much of the employment environment is evolving rapidly and even radically, driven by emerging business models, technological change (not least through the impact of digital technologies), fundamentally new perceptions of the nature of work – and also influenced by political and economic factors. In this context, factors relating to employability are unlikely to remain static.

4.8   A draft Jisc report[25] succinctly sets out the factors that characterise the changing nature of work, particularly inasmuch as this is influenced by digital technologies. The report describes a world of work that is becoming:

- less secure, more casualised
- more entrepreneurial
- fragmented in terms of attention, tasks, work-time and work-space
- multiple and hybrid
- dislocated from traditional workplaces, often characterised by home working
- automated or at risk from automation

The interview with Helen Beetham elaborated on these points. The notion of working, and how people are valued for their labour, is changing – and with it, the factors that are likely to influence employability. This should therefore not be accepted as a given, immutable set of attributes handed down by employers and career managers, but instead be considered in a way that is more open and less bound by established convention, paying heed to the views and experiences of emerging forms of business – including microbusinesses, which are generating a large proportion of the new types of jobs. Innovation and innovative, disruptive thinking should also feature more prominently – it is

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[24] Goldstein, S (2014), 'Transferring information know-how: information literacy at the interface between higher education and employment', InformAll – http://www.researchinfonet.org/wp-content/uploads/2014/09/Report-on-transferability-of-IL-beyond-academia-FINAL.pdf

[25] Beetham, H. (2015), 'Deepening digital know-how: building digital talent', Jisc [not yet published at the time of completing this report]

striking that there is relatively little mention of this in the frameworks described in **section 3** (although it is recognised by the CBI as part of business and customer awareness and under the heading of entrepreneurship).

4.9   The UKCES report on *Horizon Scanning and Scenario Building*[26] identifies the key drivers of change in the UK and globally which may impact on the employment and skills landscape in England by 2020. Through different possible scenarios, the report seeks to identify the skills needed to address the changing nature of the economy of the future. As with the *Employer Skills Survey*, UKCES does not make any explicit reference to employability, but suggests the role that education, at all levels, would need to play in order to foster a refreshed balance of generic attributes that address new and evolving ways of working:

> "Increasingly there is a view that education in the future should provide resilience, social skills, intelligence, interest, responsibility, understanding and awareness. Teachers will need to make available a wider range of social services, including mentoring. [Project consultations] raised the concept of the 3Rs rising to 7Rs adding reasoning, relationships, responsibility and rights. The growing use of technology may influence the continuing demand for generic skills, e.g. autonomy, initiative taking, problem solving, self-management, team working, flexibility/adaptability, communication (including inter-cultural communication), and media literacy. Similarly, working in chains, networks and clusters creates requirements for team-working skills.
>
> Whether working in teams, making presentations, influencing people to think differently, or helping to solve the many complex problems of modern workplaces, modern workers increasingly need to be able to communicate with others in more sophisticated ways. Another set of skills deemed particularly important by both policy makers and employers relates to innovation and creativity, which also puts a premium on systems thinking. These skills needs are likely to be subject to continuing debate about how 'new' they are and how 'teachable' they are." [p. 57]

4.10   The report provides a variant of these attributes by citing research undertaken in 2005 under the auspices of ESRC, which suggests a need to deepen the training effort in higher-level soft skills [p. 16]:

- assimilation and communication of information
- interpersonal communication skills
- 4Rs , being the 3Rs (reading, writing, and arithmetic) plus relationships (or emotional intelligence)
- logic
- application of acquired knowledge to real-world problems
- knowledge management skills.

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[26] UKCES (2010), 'Horizon Scanning and Scenario Building: Scenarios for Skills 2020' – http://webarchive.nationalarchives.gov.uk/20140108090250/http://www.ukces.org.uk/assets/ukces/docs/publications/evidence-report-17-horizon-scanning-and-scenario-building.pdf

Information and digital literacy are not mentioned explicitly, but there is an implicit understanding about the relevance of information-related competences as a foundation for success in professional environments characterised by the agile application and communication of knowledge.

5   Information literacy in the workplace

5.1   There is a significant and growing body of literature on how information literacy relates to employment settings, and by inference, what this might actually mean for employability. It is increasingly recognised that in the workplace, and more so than in academia, information literacy bears a strong relationship to factors driven by context and working environments, and that an approach based on defining a set of generic skills, as taught in educational/academic settings, is not always appropriate for addressing the multi-facetted requirements of employment. During his interview, Mark Hepworth stressed this point: he suggested the illustration of an IL employability kaleidoscope, rather than a lens, to capture complexity of the different contexts. A 2014 review of information literacy in the workplace[27] concludes that the ability to make use of information in employment settings "contrast[s] with the focus on more formal search skills and finding information which has often been the case in IL education and which is unlikely to translate well into workplace contexts. The nature of the sources used in workplace and professional contexts also differs from sources emphasised in traditional (i.e. academic library-focused) IL education: in the workplace a much greater prominence is given to the use of people as information sources (e.g. colleagues, contacts) and relatively little use of libraries. The interpretation of IL as a narrow skills-based approach is criticised as being inappropriate for the workplace" [p. 3]. A further literature review[28] , also undertaken in 2014, reaches similar conclusions, notably that although information literacy taught in higher education is relevant during students' time at university, it does not always translate into useful workplace skills. As some have commented, the workplace is rather more 'messy' than scholarly learning environments, characterised by business challenges (and associated information needs) that are often less linear, less predictable and more open-ended, with a requirements for employees to be more resilient and adaptable than they may have been used to during their time as students[29] [30] . Moreover, information needs are likely to vary according to different employee roles and levels of seniority within organisations; this added complexity reinforces the idea that IL in employment is highly context-specific.

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[27] Williams, D., Cooper, K. and Wavell C. (2014) 'Information Literacy in the Workplace – an annotated bibliography', Robert Gordon University, Institute for Management, Governance and Society (IMaGeS), in association with InformAll – http://www.researchinfonet.org/wp-content/uploads/2014/01/Workplace-IL-annotated-bibliography.pdf

[28] Inskip C. (2014), 'Information literacy is for life, not just for a good degree: a literature review', CILIP – www.cilip.org.uk/sites/default/files/documents/IL in the workplace literature review Dr C Inskip June 2014. doc.pdf

[29] Lloyd, A. (2013), 'Building information resilient workers: The critical ground of workplace information literacy, in What have we learnt? European Commission for Information Literacy: Communications in Computer and Information Science, Springer, Volume 397, 2013, pp. 219-228

[30] Mutch, A. (2000), 'Information literacy: A critical realist perspective', in Bruce, C. and Candy, P., eds, Information Literacy Around the World: Advances in Programs and Research.

5.2   The different nature of workplace information environments can be disconcerting for former students who come to discover the requirements and expectations of employment. In her interview, Moira Bent recalled that many alumni are thrown by the sudden loss of access to scholarly published material following their transition from higher education to employment. For such individuals, there is an imperative – which deserves to be recognised – to adapt rapidly to new and unfamiliar, non-academic information practices; and a corresponding need to prepare them for these changed circumstances. But on occasion, academic approaches to information may still continue to be relevant, and consequently, graduate recruits may need to develop working methods which recognise the balance to be struck by academic and non-academic information practices.

5.3   Notwithstanding this last point, much of the literature suggests that information literacy's contribution to employability should be driven largely by factors and requirements that reflect the reality of the workplace, rather than the particular exigencies of academic endeavour, and by the contextual nature of workplace information practices. Thus, Hepworth suggests that relevant training and learning, whatever form this takes, should focus, pragmatically, on the benefits of acquiring information capabilities in terms of successfully reaching workplace objectives – so that employees can more easily relate to such capabilities[31] . Building on this, a useful definition of information literacy, as adapted for the workplace, summarises the relationship to employability[32] :

> "A set of abilities for employees to recognize when information is needed and to locate, evaluate, organize and use information effectively, as well as the abilities to create, package and present information effectively to the intended audience. Simply speaking, it is a set of abilities for employees to interact with information when they need to address any business issues or problems at work." [p. 139]

5.4   It is beyond the scope of this paper to examine in detail how information literacy is perceived and addressed within the workplace and in the context of specific professional environments. But a brief overview of selected sources provides some valuable pointers. For instance, in their review, Williams *et al* [33] usefully highlighted three broad sets of information-related capabilities that characterise workplace environments – and that might consequently be matched to employability attributes:

- Social, informal, contextualised processing of information: the capacity to learn about and handle information in ways that are specific to and influenced by different working environments; and by the social interactions that influence how information is shared and used. Lloyd, in particular, has written extensively on the importance of information know-how acquired through the employees' practice and experience, and the construction of information practices specific to their professions[34].

[31] Hepworth, M. (2014), 'Information literacy in the workplace – Generic and specific capabilities', chapter 6 in Duckworth V. & Ade-Ojo, G., 'Landscapes of Specific Literacies in Contemporary Society', pp. 78-86

[32] Cheuk, B. (2008), 'Delivering business value through information literacy in the workplace', Libri, 58(3), pp. 137-143

[33] Williams, D., Cooper, K. and Wavell C. (2014), *op. cit.*

[34] Lloyd, A. (2004), 'Working (in)formation: conceptualizing information literacy in the workplace', Proceedings of 3rd International Lifelong Learning Conference, 13-16 June 2004, Central Queensland University Press, pp. 218-224

- Transformation of information into knowledge: the contribution that the effective handling of information makes to the growth of organisational knowledge.
- Information creation, packaging, and organisation: in work environments where information tends to be less structured (and, as suggested above, 'messy') than in academia, the ability and capacity to manage different types of information can be challenging for employees.

5.5   Two of the interviews concurred with these ideas about context and the diffuse nature of workplace information. Bonnie Cheuk stressed that this does not just reside on systems and tools, but importantly, is vested in the flows of knowledge that occur between staff members. Information is thus embedded in exchanges, in connections, in networks – and is very fluid, reflecting the ever-evolving and dynamic nature of such networks. Workplace IL should therefore address the complex and often informal web of organisational information and knowledge flows. IL training should seek to influence (i) the behaviour of employees, so that they may successfully exploit the information potential represented by these networks; and (ii) the ability of organisational leaders to foster a workplace culture and to enable systems that promote such flows. Mark Hepworth underlined the relevance of acclimatisation of employees to their business culture, allowing them to develop their information behaviours and practices accordingly; such acclimatisation takes place through daily social interactions, and also in reaction to physical environment, task-specific information tools and procedures. Hepworth likened this to osmosis, with organisations often unconscious of the processes taking place. There are questions about what employers might do to foster or encourage business cultures that favour good information and knowledge practices.

5.6   To complement the employer-derived frameworks described in section 3, some of the literature also proposes models relating to employability – but builds on these by relating employability attributes to information literacy. Thus one useful categorisation was suggested in a study of recognised workplace skills (as defined in the US Department of Labor's Occupational Information Network or O*Net database) in a broad range of business and finance occupations35 . The authors picked out the ten skills that were most useful in helping to define workplace information literacy and matched them against four of the five information literacy standards defined in 2005 by the Association of College and Research Libraries (ACRL)36 : (i) determining information need, (ii) accessing information, (iii) evaluating information and (iv) using information. The consequent correlations make up a further employability grid, summarised in table 2. The authors further refined this model by matching specific examples of work activities to illustrate how information skills are used in practice. They reached the conclusion that, "despite the failure of the business community to embrace the concept of information literacy, IL skills are in fact highly valued in the field" [p. 19].

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35 Klusek, L. & Bornstein, J. (2006), 'Information Literacy Skills for Business Careers: Matching Skills to the Workplace', Journal of Business & Finance Librarianship, 11, pp. 3-21 – http://www.tandfonline.com/doi/abs/10.1300/J109v11n04_02

36 American Library Association (2005), 'Information Literacy Competency Standards for Higher Education' – http://www.ala.org/acrl/issues/infolit/standards

Table 2 – relationship between selected employability attributes and information literacy

Skills as defined in O*Net database	Corresponding ACRL standard	O*Net definition of skills
Active learning	Evaluating information	Understanding the implications of new information for both current and future problem-solving and decision-making
Active listening	Determining information need Accessing information	Giving full attention to what other people are saying, taking the time to understand the points being made, asking questions as appropriate and not interrupting at inappropriate times
Critical thinking	Evaluating information	Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems
Complex problem-solving	Accessing information Evaluating information	Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions
Instructing	Using information	Teaching others how to do something
Judgement and decision-making	Determining information need Evaluating information	Considering the relative costs and benefits of potential actions to choose the most appropriate one
Learning strategies	Accessing information Evaluating information	Selection and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things
Monitoring	Accessing information	Monitoring/assessing performance of yourself, other individuals or organisations to make improvements or take corrective actions
Speaking	Using information	Talking to others to convey information effectively
Writing	Using information	Communicating effectively in writing as appropriate for the needs of the audience

Source: Klusek and Bornstein 2006

5.7 A further appreciation emerged from a study of 23 differently sized businesses in the US, ranging from microenterprises to large conglomerates, which enquired about employers' expectations of prospective graduate employees' information know-how[37] . Across all types of enterprise, there was a general expectation that candidates must have the ability to search online, and to possess a range of baseline information competencies that include knowing how and where to find information online with minimum guidance; using a search strategy beyond the first page of Google results; and articulating a 'best solution' and conclusions from the information that was found. In most cases, employers placed a higher premium on candidates who exhibited openness to learning and natural curiosity [pp. 85-86]. But at the same time, employers expressed concerns about relevant

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[37] Head, A. et al (2013), 'What information competencies matter in today's workplace?', Library and Information Research, 37 (114), pp. 74-104 – http://www.lirgjournal.org.uk/lir/ojs/index.php/lir/article/view/557

competencies which they felt graduates lacked, in particular (i) engaging team members during the research process, (ii) retrieving information using a variety of formats, (iii) finding patterns and making connections, and (iv) exploring a topic thoroughly. These concerns point to perceived shortcomings such as failure to take advantage of knowledge inherent in team-working, narrowness of views with regards to alternative sources of information, weak analytical skills and impatience when seeking information [pp. 87-89]. Lucy Hawkins made similar points during her interview when she suggested that employers expect their graduate recruits to work smart, and to have the ability to find resources.

6 How universities approach employability

6.1 UK universities determine their own approaches to graduate employability. They often draw on the models, categorisations and attributes outlined above to set out their perceptions of what employability means for their students, and sometimes to draw up employability frameworks; in some cases, such frameworks allude to information and/or digital literacy. The following examples, drawn from a sample of institutions across the UK, illustrate a variety of approaches. The approach taken by the Open University is the only one of the illustrated cases where an attempt has been made systematically to map digital and information literacy factors against employability attributes.

6.2 **Cardiff University:** the University explains the role of information literacy in employability, and sets out examples of how IL can be useful in the job seeking process and within employment[38]. These include the identification of trade publications and professional journals to improve professional knowledge, the identification of information sources and effective evaluation of online information as a prerequisite to compiling company reports or presentations, and the use of social media to stay up to date on industry/company news and developments.

6.3 **Exeter University:** the University defines a set what it terms workplace skills as part of its programme of employability training sessions that it runs for undergraduates[39]; many of these sessions are delivered on campus by employers themselves. The list of skills is very similar to those set out in table 1, but with some added attributes, such as people management and sustainability; and, with regards to information-related factors, sessions are also offered in social media know-how, particularly LinkedIn. In addition, the University lists, for each of over thirty academic disciplinary areas, how the knowledge acquired during studies can relate to workplace competencies[40]. Several of these subject profiles point to competencies that are linked to information or digital literacy. For instance, accounting and finance graduates are advised that their degree course will help them to manipulate financial and numerical data; locate, extract and analyse data from multiple sources; and present qualitative and quantitative information with analysis, argument and

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[38] Cardiff University IT and Library Services –
http://www.cardiff.ac.uk/insrv/educationandtraining/infolit/employability/index.html

[39] Exeter University Career Zone – http://www.exeter.ac.uk/careers/events/

[40] Exeter University Career Zone – http://www.exeter.ac.uk/careers/research/degree/

commentary. The rich tapestry of competencies outlined across all these areas demonstrates how employability factors are determined largely by different employment contexts.

6.4   **University of Glasgow:** the university's approach provides an illustration of how general graduate attributes may be mapped against transferability. The University has devised a matrix of ten attributes which are applied to three settings or dimensions: academic, personal and transferable[41]. It is the latter which most closely equates to employability. The relationship between these attributes and their transferable dimension is set out in **table 3.**

Table 3 – University of Glasgow graduate attributes matrix, transferable dimension

Graduate attribute	Transferable dimension
Subject specialists	Possess discipline-relevant professional skills, knowledge and competencies
Investigative	Are able to investigate problems and provide effective solutions
Independent and critical thinkers	Apply creative, imaginative and innovative thinking and ideas to problem solving
Resourceful and responsible	Manage their personal performance to meet expectations and demonstrate drive, determination and accountability
Effective communicators	Communicate clearly and confidently, and listen and negotiate effectively with others
Confident	Demonstrate enthusiasm, leadership and the ability to positively influence others
Adaptable	Demonstrate resilience, perseverance and positivity in multi-tasking, dealing with change and meeting new challenges
Experienced collaborators	Conduct themselves professionally and contribute positively when working in a team
Ethically and socially aware	Have a practical and contemporary knowledge of relevant professional, ethical and legal frameworks
Reflective learners	Identify and articulate their skills, knowledge and understanding confidently and in a variety of contexts

Source: University of Glasgow

6.5   **University of Leeds:** in explaining its view of employability, the University's Careers Centre chooses a model articulated around a combination of three factors[42] : attributes, skills and knowledge. Attributes are defined rather less loosely than in the frameworks reviewed in section 3 as a quality or feature regarded as a characteristic or inherent part of someone. **Table 4** sets out the structured model, with selected examples to illustrate

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[41] University of Glasgow, Graduate Attributes - http://www.gla.ac.uk/students/attributes/

[42] University of Leeds Careers Centre (2012), 'What is employability?' – http://careerweb.leeds.ac.uk/info/4/make_yourself_employable/202/employability_skills

each factor; some of these examples may be present under more than one heading. The factors bear much similarity to those listed in table 1, although the precise terminology sometimes differs, for instance positive attitude (table 1) is reflected in dedication (table 3). The University of Leeds lists IT and digital literacies as a distinct set of skills, but the focus there is on numeracy, technical know-how and ability to use different media. Information literacy is present under a range of other factors, such as networking skills, which includes information and knowledge sharing, and accuracy, which is exemplified by the ability to handle data.

Table 4 – Employability model devised by University of Leeds

Main factors		Sub factors	Selected examples
Attributes		Self-awareness	Confidence, vision
		Willingness to learn	Enthusiasm, openness to new ideas
		Self sufficiency	Managing own workload, planning/organising
		Resilience	Ability to work under pressure, flexibility
		Proactivity	Resourcefulness, sense of initiative
		Dedication	Perseverance, trustworthiness
Skills	Interpersonal skills	Communication skills	Influencing, negotiating
		Networking skills	Information/knowledge sharing, relationship-building
		Team-working skills	Co-operative skills, responsibility to others
		Leadership skills	Ability to motivate and inspire others, vision
		Customer orientation	Focus on customer needs, striving to improve products/services
		Cultural awareness	Global outlook, social/cultural sensitivity
	Generic employment skills	Flexibility	Multi-tasking, versatility, working under pressure
		Problem-solving	Innovative thinking, analytical skills
		Accuracy	Rigour, data-handling ability, attention to detail
		Commercial awareness	Business acumen, sector/industry understanding
		IT/digital literacy	Facility with databases, familiarity with range of media

Main factors	Sub factors	Selected examples
Knowledge	Specialist knowledge	Technical skills or experience, subject-specific knowledge, language skills, vocation-specific knowledge or experience
	Intellectual abilities	Ability to evaluate, research skills, critical thinking ability, ability to analyse and synthesise information, reasoning/logic

Source: University of Leeds 2012

6.6   **Open University:** the OU's guidance on digital and information literacy (DIL)[43] includes a section on DIL and employability, which the University defines as "a set of capabilities and achievements that support students in developing their careers, raising their aspirations and enhancing their contribution to society". It identifies a series of specific DIL skills and maps them against the attributes identified by the CBI, as described at paragraph 3.4. In reality, many of these skills cover realms which are broader and DIL; they include, for instance, learning independently, effective presentation and adapting flexibly to changing demands and technologies. And it is also the case that the outlined DIL skills veer more to digital than to information literacy, with much emphasis on developing a capacity to take advantage of digital environments.

6.7   **Oxford Brookes University:** the University has set out a Strategy for Enhancing the Student Experience[44], which incorporates what it terms the 'Brookes Attributes'; the Strategy stresses that employability is enhanced by their application. There are five such attributes, and significantly, one of them is digital and information literacy. For undergraduates, this is defined as:

> "The functional access, skills and practices necessary to become a confident, agile adopter of a range of technologies for personal, academic and professional use. To be able to use appropriate technology to search for high-quality information; critically to evaluate and engage with the information obtained; reflect on and record learning, and professional and personal development; and engage productively in relevant online communities."

There is therefore a clear recognition of the role that information literacy plays in supporting professional development. But the Strategy goes even further, because the four other Attributes – academic literacy, research literacy, critical self-awareness/personal literacy and active citizenship – all contain attributes which relate to the potential application of information literacy to professional settings.

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[43] The Open University (2013), 'Developing digital and information literacies through learning and teaching', Open University Library Services and Institute of Educational Technology [currently not available electronically]

[44] Oxford Brookes University (2014), 'Strategy for Enhancing the Student Experience 2 (2015-2020)' - https://www.brookes.ac.uk/services/ocsld/sese/sese2_2015-20.pdf

6.8   **University of Sheffield:** the University Library briefly outlines the relevance of information literacy to the workplace[45], and sets out six case studies of former students, now all in employment, who describe how information literacy skills relate to their current working lives. But more generically, the University Careers Service does not appear to articulate what it understands by employability. The nearest it comes to this is a list resources[46] to help students develop and reflect on their employability skills (curiously, most of the listed resources do not carry links to electronic versions; users are referred to hard copies borrowable from the Careers Service).

7   Analysis

7.1   Graduate employability is a well-recognised concept among stakeholders at the interface between higher education and employment. This is demonstrated by the range of statements, frameworks and surveys by interested parties such as the CBI; by the extent of the literature in this area; and by the positions and practices adopted by universities. There is a broad consensus about the relevance of employability to undergraduates and the need for universities to play a role in preparing them for professional life, and more broadly for managing their long-term careers. However, few of these positions refer in any way to information literacy. In the long list of attributes, drawn from a variety of frameworks, set out at **table 1**, the only factor explicitly related to IL – obtaining and processing information – is addressed by just one stakeholder, the National Association of Colleges and Employers (NACE) in the US. And as we have seen, some UK universities have attempted to include or at least to refer to IL in their own employability frameworks – most notably in the case of the Open University.

7.2   At the same time, there is a growing interest, reflected in a significant body of literature from both academics and practitioners, on the relevance of information literacy in the context of employment. The three cited literature reviews are a testament to the recognition of IL as a factor in the workplace. These reviews demonstrate that information literacy is rarely recognised as a term in employment settings – which reflects its relative absence as an explicit feature of employability frameworks – but that it is inherent in, and important for, a wide range of workplace-related behaviours and practices.

7.3   The challenge for any model that seeks to chart the relationship between information literacy and employability is therefore to tease out the employability attributes that can be most closely aligned with IL. It is these factors which form the basis of the graduate employability lens, set out at **Annex A**. Five main themes characterise the lens:

- **Business and customer awareness:** keeping proactively informed about the practices, expectations and goals of employers; the dynamics of the workplace; the evolving nature of the business environments in which enterprises operate and the needs of customers and users. This requires an ability to seek out, interpret, share and present information / data which exists in many forms, and which tends to be

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[45] University of Sheffield Library – http://www.sheffield.ac.uk/library/infolit/employ

[46] University of Sheffield Careers Service – http://www.careers.dept.shef.ac.uk/infotree/EmployabilitySkills.php

specific to given business environments. New graduates, with little or no experience of employment, may find this attribute challenging, and employer surveys suggest that there are concerns about graduates' often poor grasp of the business environment and what this entails.

- **Coping with workplace complexities:** understanding that the information needs of enterprises are complex, often messy and largely determined by the nature of their services, products and organisational cultures. Adaptability is therefore important to cope with a context-specificity that varies from enterprise to enterprise.

- **Analytical skills and problem-solving:** using, handling, interpreting and analysing information / data, to resolve business questions and problems. This bears some similarity to the skills and competencies necessary in higher education – but the key distinction is that, in the world of employment, such know-how is deployed for the purpose of providing practical, timely, innovative and cost-effective solutions to meet organisational goals.

- **Ability to work socially:** making use of people (colleagues, associates, clients and others) and teams as valuable sources of organisational information and knowledge; and sharing information as appropriate. This implies an aptitude to work collectively and to network imaginatively, seeking and obtaining information, and tapping into corporate knowledge, in ways which may be less formal and more diffuse than is the case in student settings.

- **Career management and lifelong learning capacity:** keeping informed about career opportunities, the evolving nature of work, and the adaptability and resilience needed to cope with that, as a means of charting career paths and defining lifelong learning and self-development preferences.

These sets of attributes are not intended to be exhaustive, but serve to illustrate some of the ways in which the lens needs to address factors that are not present in the Core Model.

7.4   One notable characteristic of such attributes is that each of them permeates several of the Seven Pillars and to a large extent cuts across them, so that none of these attributes is specifically associated with any particular Pillar. Moreover, the Seven Pillars are characterised by a structured examination of a sequence (although not necessarily a linear one) of well-defined information practices; they reflect a fairly scholarly approach to information use, founded on rigorous methodologies that are well-suited to academic endeavour. But, as suggested in section 5, academic approaches to information don't always translate well into employment settings. The review undertaken in this report has highlighted a range of factors that, in spite of their relationship to the elements of the Core Model, present fairly different perspectives and priorities which are founded on meeting business goals.

7.5   The contents of the graduate employability lens are therefore quite distinct from those of the Core Model; they reflect the more 'messy' nature of the workplace, and also the unpredictability resulting from the often rapidly-evolving nature of work. In particular, some of the more mechanistic elements of the Core Model – those focused on the methodologies and tools associated with the discovery and handling of information – have been dispensed with in the lens. Instead, more generic and strategic factors have

been proposed because they are the ones that seem to best address the imperatives of the workplace, and therefore of being recognised as important and relevant to the issues drawn out by this report. It might also be argued that the seven-fold structure is not necessarily the best way of addressing the relationship between IL and employability. Thus some employability factors could apply in equal measure to several Pillars (for instance, ability to tap into organisational knowledge); placing any such factor under one particular Pillar is, to an extent, contrived, and should not detract from its relevance to another Pillar. However, for present purposes, and in order to maintain consistency between the different lenses, the basic Seven Pillars model is retained, with one exception: pillars 3 and 4, relating respectively to planning and gathering, are treated as one because, in the context of employability, the distinctions between the two of them are too subtle to warrant distinct sets of factors.

8 Conclusion

8.1 The proposed graduate employability lens provides a means not only to draw out the clear relationship between information literacy and employability, but also to raise awareness among employers (and others at the interface between higher education and employment) of how relevant and often crucial information literacy is to meeting business goals. The lens, and this report, have been set out in terms that these stakeholders should recognise, deliberately removed from the academic contexts with which IL is often more closely associated. It is hoped therefore that the lens could be used as a means of demonstrating that, in the terms set out in one of the cited literature reviews47, information literacy really is for life.

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47 Inskip C. (2014), *op. cit.*

ANNEX A: The graduate employability lens

Pillar 1 – IDENTIFY

Understands:

- The business needs and problem-solving requirements of enterprises, and how information / data can help meet such needs
- The differences between information environments in academic and enterprise settings
- That information / data serve as an important basis for organisational knowledge
- That enterprises and their employees (individually or in teams) constantly produce new information / data
- The nature of information / data required to meet the expectations of customers/users, and to provide customer/user satisfaction
- What one's role and position in the enterprise implies with regards to the use and handling of information / data
- That being information literate is an important contributor to managing career paths, understanding the changing nature of work and navigating the complexities and uncertainties of rapidly-changing employment environments
- That being information literate helps individuals to develop the critical and reflective abilities necessary for successful lifelong learning and self-development

Is able to:

- Identify and recognise a lack of knowledge in a business area
- Exhibit an positive, can-do attitude, a willingness to learn and a sense of natural curiosity, and apply these qualities to the setting of the enterprise
- Recognise the nature and forms taken by information / data that are needed to help resolve business questions or problems, and more generally to help reach workplace objectives
- Recognise the relative place of academic and business information / data, where appropriate, for meeting business needs
- Keep informed about career options, and evolutions in the job market and in the nature of work

Pillar 2 – SCOPE

Understands:

- The nature, scale, diversity, context-specificity and different formats of information, data and knowledge created by enterprises
- That the diverse nature of the information environments likely to be encountered over a lifelong career reflects the diverse nature of the information environments likely to be encountered over a lifelong career
- The importance of keeping constantly informed about the needs and expectations of customers and users
- The relationship between information and knowledge, and how this contributes to organisational goals
- How being information literate may contribute to entrepreneurship, and associated organisational factors such as: creativity, innovation, openness to new ideas, disruptive thinking, collaboration and risk-taking
- That the nature and purpose of information / data created and used by enterprises is less linear, less predictable, more diffuse and often more open-ended than what is encountered as a university student or more generally in academia
- That access to academic sources of information may be limited in business environments

Is able to:

- Recognise existing and new business information / data, keeping up to date with business-relevant information and the means of accessing this
- Identify the information / data that best meet the needs of any particular working environment, given the varied, complex and context-driven needs of different enterprises
- Identify who within the enterprise is best able to provide advice, guidance and support in obtaining information / data
- Determine the amount of information or data needed to resolve business questions and problems, to propose solutions and to make decisions accordingly
- Consider the costs and benefits of time spent acquiring information / data, particularly with regards to meeting deadlines, and prioritise accordingly

Pillars 3 / 4 – PLAN / GATHER

Understands:

- The diversified sources of information / data (either systems or people) within and outwith the enterprise
- The dynamic, fluid and ever-evolving way in which information, data and knowledge flow within the enterprise
- The structure and culture of the enterprise, how this differs from academic culture, and how this might impact on these flows
- The importance of adapting to the information environment of the enterprise, following the transition from the academic world
- The ways in which business intelligence may be obtained, including information about customers / users, collaborative business partners and competitors
- That organisational information may be chaotic, messy, unpredictable and not always readily available
- The importance of being methodical and patient when searching for information / data
- That there may be constraints (e.g. time, resources) which make it difficult to locate information with academic rigour
- That approaches to searching for and locating information / data will necessarily vary across a lifelong career, reflecting the different business environments likely to be encountered

Is able to:

- Determine how the identification and tapping of information / data can help to address business challenges
- Define and enact information-locating strategies and methodologies that are constantly adapted to the requirements and constraints of business environments
- Identify relevant sources of information / data, internal and external to the enterprise, including alternative sources that haven't previously been used
- Identify available tools and resources (including Open Access resources) to access relevant academic information / data where they are needed for business purposes
- Identify the organisational contacts, teams and networks in which information and knowledge are vested
- Tap into the organisational knowledge of the enterprise, however diffuse this may be
- Make us of colleagues, develop organisational contacts and exploit organisational teams, networks and group dynamics as valuable sources of information and knowledge
- Define and pose questions that are necessary for obtaining and extracting relevant organisational information
- Contribute to and help develop an organisational culture that promotes and fosters flows of information, data and knowledge within enterprises

Pillar 5 – EVALUATE

Understands:

- The importance of critical thinking about information / data in business settings
- How the evaluation and analysis of information / data contributes to problem-solving, finding solutions, decision-making and the development of an organisational knowledge base
- That employability implies a commitment to lifelong learning and personal development, with an emphasis on the fostering of critical, reflective abilities

Is able to:

- Develop and apply learning strategies and methodologies – dependent on context, business need or career development purposes – for broadening critical and reflective abilities
- Use and review information / data to resolve business questions and problems imaginatively and innovatively, propose solutions and take decisions accordingly
- Assess the quality, accuracy, relevance, bias, reputation and credibility of the sources of information / data that are being used
- Think critically to evaluate and analyse information / data that are relevant for meeting organisational goals
- Make informed decisions about job and/or career choices, emerging employment opportunities and lifelong learning goals

Pillar 6 – MANAGE

Understands:

- The importance of being systematic and efficient in the organisation, management and preservation of information / data
- The importance of integrity in the handling and management of information / data, notably with regards to meeting ethical and legal obligations

Is able to:

- Demonstrate an ability for self-management and rigour in the processes of searching for, evaluating and analysing information / data
- Manage, manipulate and interpret information / data, paying heed to ethical and legal requirements
- Manage workplace relationships and foster networks as a means of drawing on organisational knowledge
- Make use of the collaborative potential of digital technologies, including social networking tools, as a means of creating and sharing information / data
- Use information to help manage one's longer-term career path and lifelong learning needs, and to plan strategically

Pillar 7 – PRESENT

Understands:

- How information / data is shared within the enterprise, and externally with customers/users
- The importance of effective and persuasive verbal, visual and written communication of information
- The channels, both formal and informal, networks and individuals to be exploited for sharing information / data within and outwith enterprises
- The different and varied nature of business audiences, the importance of developing a cultural awareness of these audiences and the need to adapt the presentation of information / data accordingly
- The importance of training in information use that is adapted to the needs of enterprises
- The importance of attribution and recognition of sources, and other ethical and legal issues relevant to the dissemination of information / data

Is able to:

- Share information / data with colleagues, associates and customers/users, deploying judgement about the best means of doing so
- Foster and take advantage of professional relationship, organisational contacts and teamwork to maximise the benefits of sharing information / data
- Structure, package and communicate information / data persuasively (verbally, visually and in writing), in a way that is pertinent and clear to the different intended audiences
- Use information / data as a basis for influencing and negotiating
- Motivate and/or instruct colleagues, associates, customers / users in the identification and use of information or data
- Explain licensing and copyright issues, including Creative Commons, inasmuch as they relate to the sharing and dissemination of information / data

ANNEX B: Individuals interviewed as part of the project

Helen Beetham – Consultant in Higher Education

Moira Bent – Faculty Liaison Librarian and National Teaching Fellow, Newcastle University

Bonnie Cheuk – Global Head of Knowledge and Collaboration, Euroclear

Lucy Hawkins – Career Consultancy Manager, University of Reading

Mark Hepworth – Professor in People's Information Behaviour, Loughborough University

Katharine Reedy – Library Services Manager (Digital & Information Literacy), Open University