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Workshop: The IoC Accreditation Standard

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The IoC Accreditation Standard

Doing something different

David Bowers

The Open University

Some useful urls

- Interactive questions:
 - www.menti.com code 58 40 14 (no spaces!)
 - NB – you can vote only once for most questions ... from the same device/browser combination
- Standard proposal document
 - <https://tinyurl.com/loCstandard>
- Shared Google doc for feedback / comments
 - <https://tinyurl.com/loCstandardcomments>
- PDF of slides (but not questions – yet!)
 - <https://tinyurl.com/loCstandardslides>

Context

- The IoC is an opportunity to do something radical
 - Aimed at bridging the skills gap, increasing participation, making more graduates more employable,
- Bringing together offers from (different) HEIs and industry training
 - Collaboration rather than competition (?)
- May also include MOOCS
 - Futurelearn plus several HEIs
- Underpinned by personal portfolio
 - validated through blockchain

Trying to be radical...

- aimed directly at reported needs of industry
- departs significantly from normal approach of focus on BoK
 - know how to -> capable -> competent
- Aims to deliver “week 1 billability”, recognising long-standing concerns of (particularly) SMEs

The journey so far

- Draft proposal circulated between partners whilst waiting for industry co-lead
- Shared with SFIA Foundation
 - Keen to collaborate
- Joint academic / employer workshop (Feb)
- Presented to OU C&C IAB
- This session

Feedback to date

- Mainly positive
- Particularly from industry
 - But variation between looking for very focussed, dynamic specifications to broader job descriptions
- Few minor (mainly implementation issues) identified
 - How characterise graduate profiles
 - Navigability of SFIA
 - some potential gaps, e.g.,
 - Creative industries
 - Ethics
 - Sustainability

Aims of workshop

- to gain specific feedback on several aspects of proposed standard
- to gather employer opinions of standard
- to test feasibility of standard with respect to HEI delivery

The problem - Shadbolt's analysis¹

- While many employers find that Computer Sciences graduates are well prepared for work, there continues to be a bloc of opinion that suggests that more could be done to improve graduates' skills and work readiness. [...] There are a number of commonly reported issues, with graduates lacking work experience and commercial awareness, a lack of soft skills and insufficient technical knowledge among those most often quoted.
- [...] lack of a coherent employer voice on what makes an employable Computer Sciences graduate. In addition to variations across industrial sectors and types of role, the needs of start-ups and SMEs should be taken into account as much as the requirements of large organisations. Small and micro businesses are increasingly at the heart of the digital revolution, and it is vital that the needs of these types of businesses are appropriately fed into the Computer Sciences graduate employment picture.
- It would benefit all stakeholders, including graduates, if employment outcomes, and employability, were to become a more central part of accrediting a degree programme.

1 [Shadbolt review of computer sciences degree accreditation and graduate employability \(2016\)](#)

Shadbolt's recommendations

- HE providers and employers should consider how new models of provision [...] may provide opportunities for students to develop work readiness skills alongside their academic studies. Employers should work with HE providers to support them in incorporating these opportunities into degree programmes. Employers should also recognise their role in providing training to graduates to enable them to develop professionally and to adapt their skills to the specific needs of a particular employer or industry.
- SMEs should be supported to ensure that their requirements for Computer Sciences graduate skills are captured and adequately reflected.
- Accreditation of courses should be focussed on outputs. Accrediting bodies should work to increase awareness and value of accreditation so that it is valued by HE providers, students and employers.

An employer's perspective

Paul Clarke – Develin Consulting Ltd

Aims of the standard

- NOT seeking to replicate what exists already
 - E.g., ACM BoKs/curricula, TP degrees,
- Designed collaboratively with industry
 - Must ensure that we address the concerns/needs of SMEs
- Degrees must still meet statutory benchmarks
 - FHEQ
 - QAA subject benchmark
- BUT focus fundamentally different
 - The individual student
 - Employability
 - Competence (evidence)
- Above all else, seeking to avoid offering industry yet another academic-defined set of programmes,
 - with employability just added on around the edges...

“Competence”? : Nursing

- **Novice**

Cannot perform this activity satisfactorily to the level required in order to participate in the clinical environment

1. Can perform this activity but not without constant supervision and assistance
2. Can perform this activity with a basic understanding of theory and practice principles, but requires some supervision and assistance

- **Competent Practitioner**

3. Can perform this activity with understanding of theory and practice principles without assistance and/or direct supervision
4. Can perform this activity with understanding of theory and practice principles without assistance and/or direct supervision, at an appropriate pace and adhering to evidence based practice
5. *As 4, plus*, able to adapt knowledge and skill to special/ novel situations where there maybe increased levels of complexity and/or risk

- **Expert**

6. *As 5, plus*, able to co-ordinate, lead and assess others who are assessing competence.

Adapted from: Herman GD, Kenyon RJ (1987) Competency-Based Vocational Education. A Case Study, Shaftsbury, FEU, Blackmore Press, cited in Fearon, M. (1998) Assessment and measurement of competence in practice, Nursing Standard 12(22), pp43-47.

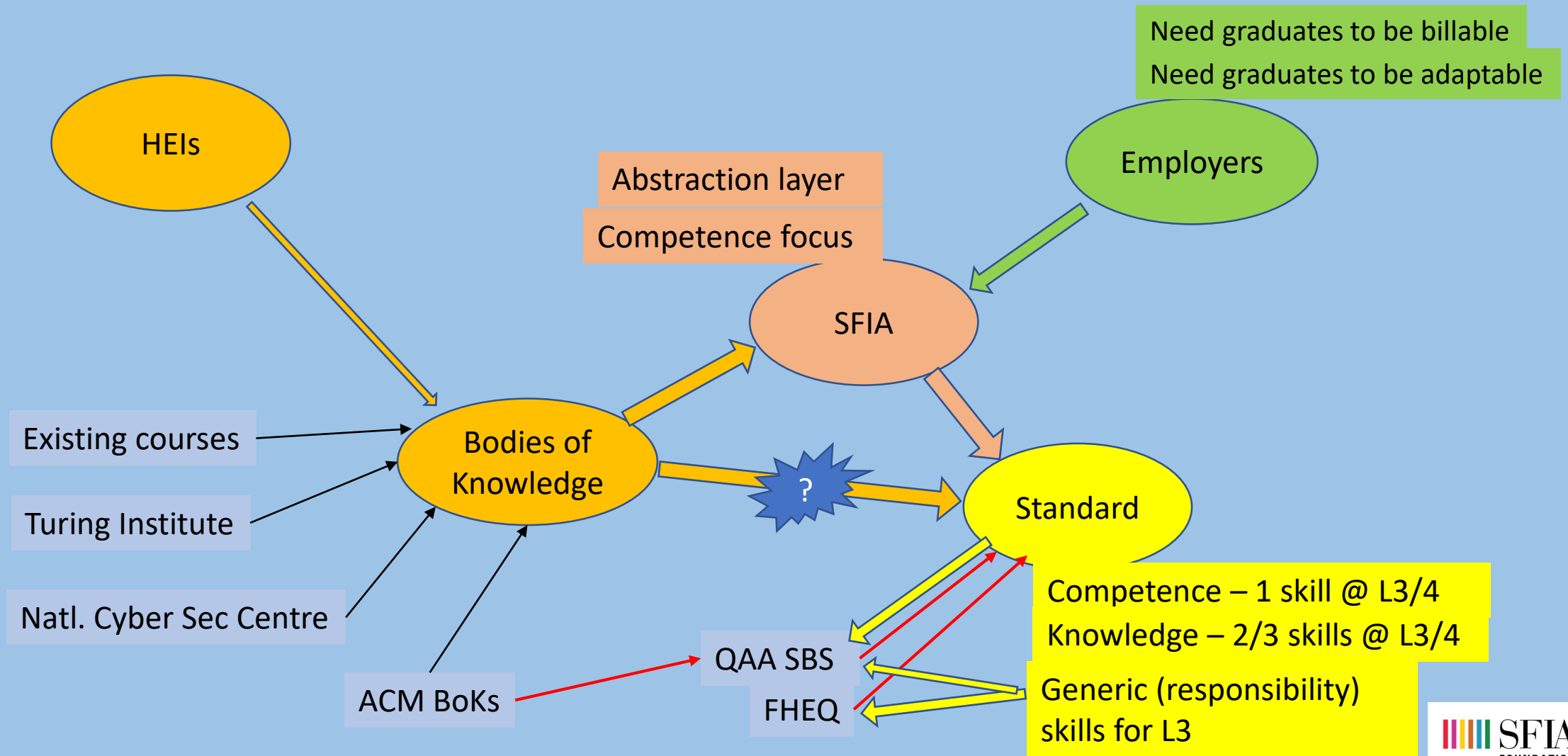
“Day One” Competences

- Look at other professions – e.g., Royal College of Veterinary Surgeons:
 - A new graduate who has achieved day one competence should be capable and confident enough to practise veterinary medicine at a primary care level on their own, while knowing when it is appropriate to seek direction from more experienced colleagues. New graduates are likely to need more time to perform some procedures. Support and direction from more senior colleagues should be available.

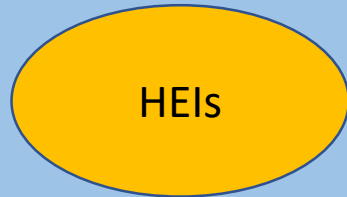
<https://www.rcvs.org.uk/document-library/day-one-competences/1day-one-competences-updated-26-march-2014.pdf>

- Similar in several other professions
 - Barrister
 - Even for HR!

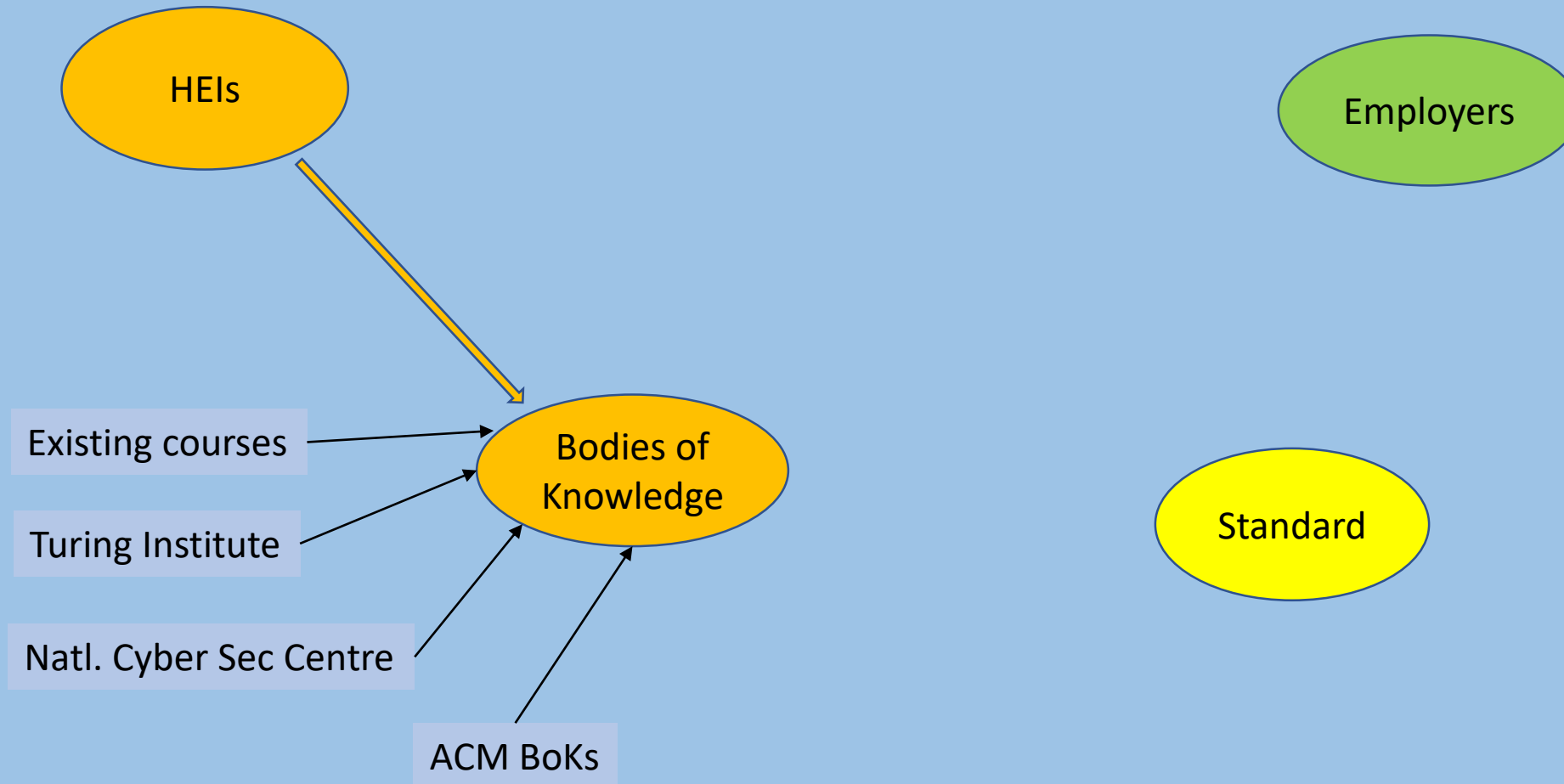
Constructing a standard



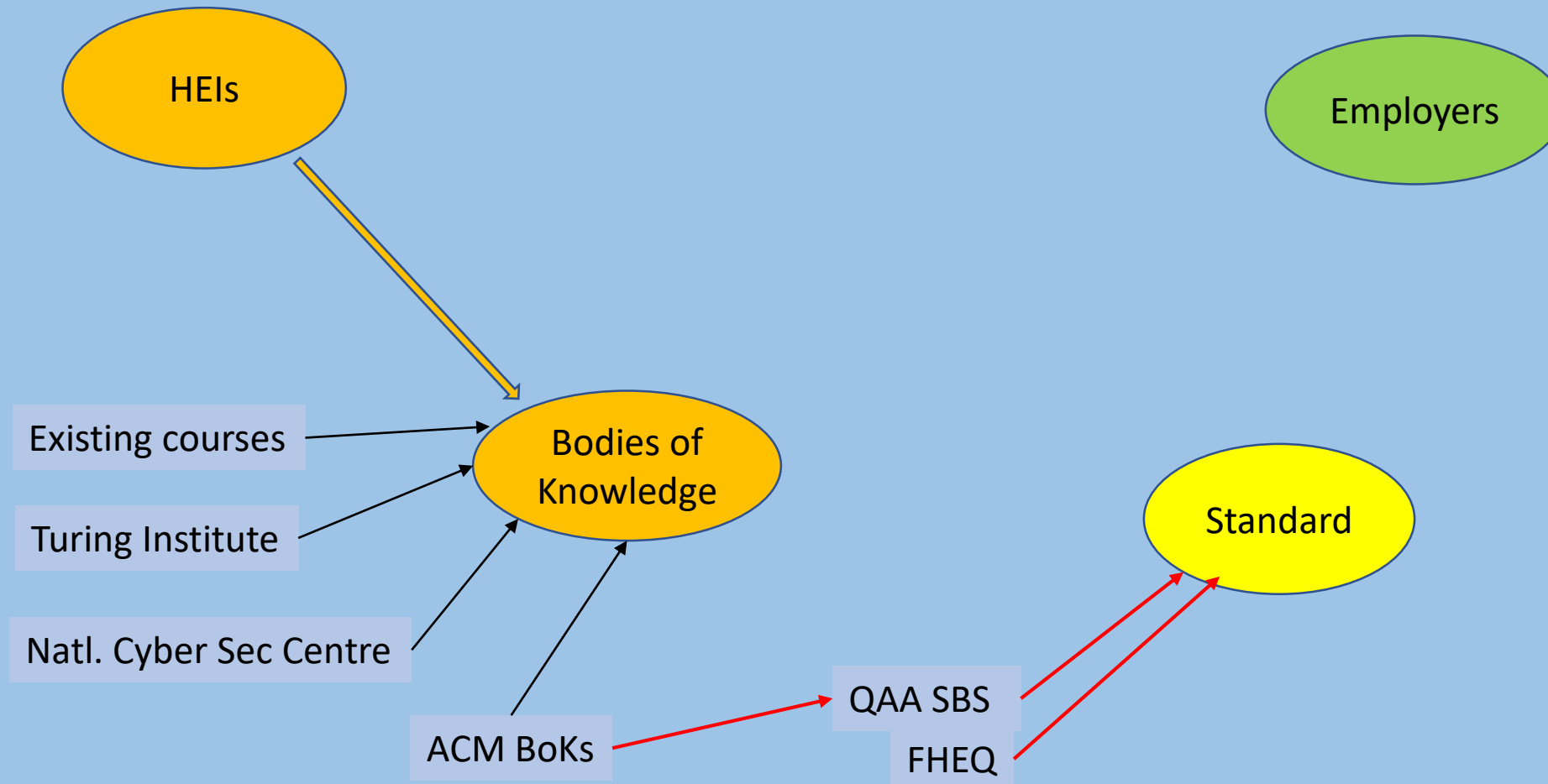
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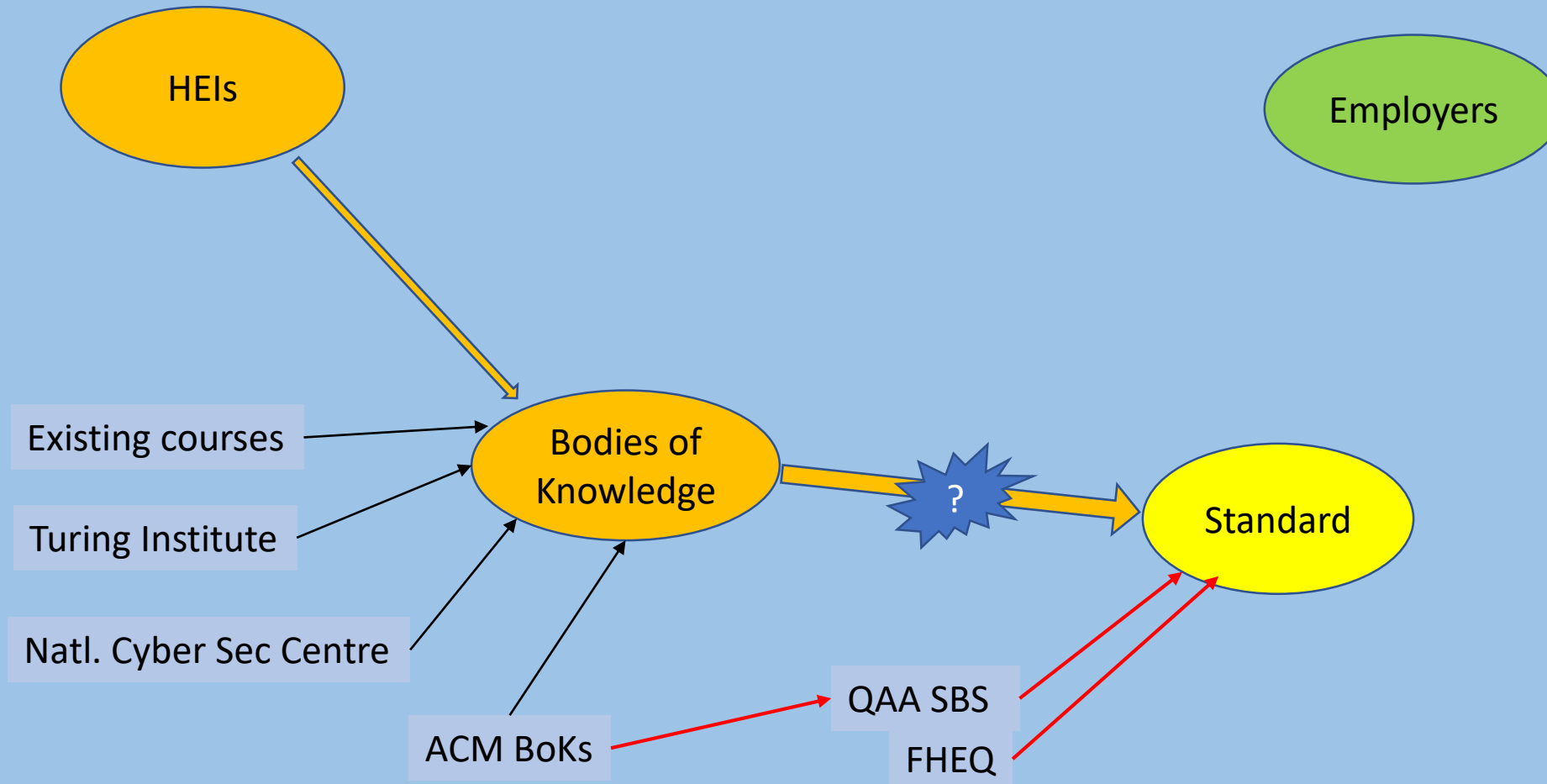
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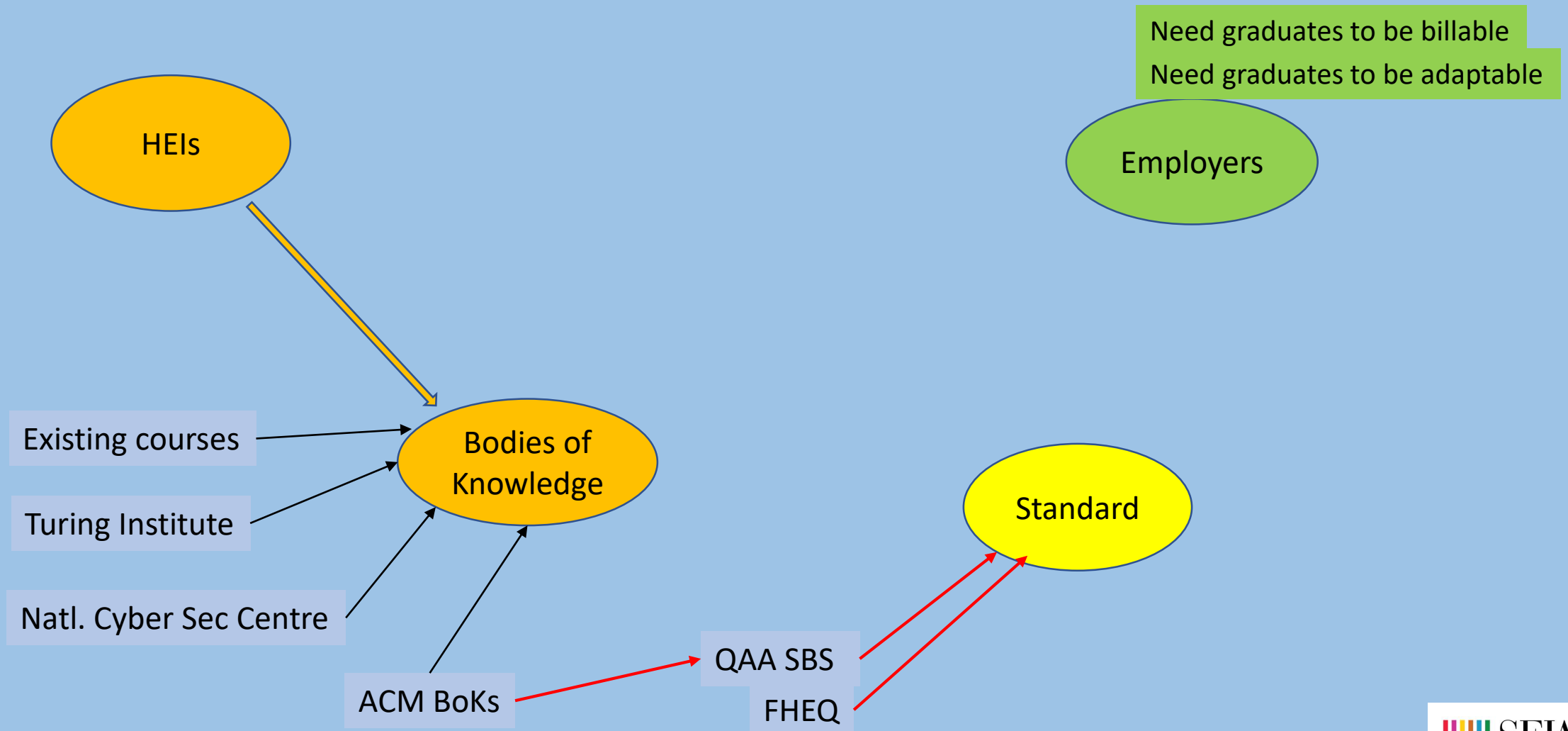
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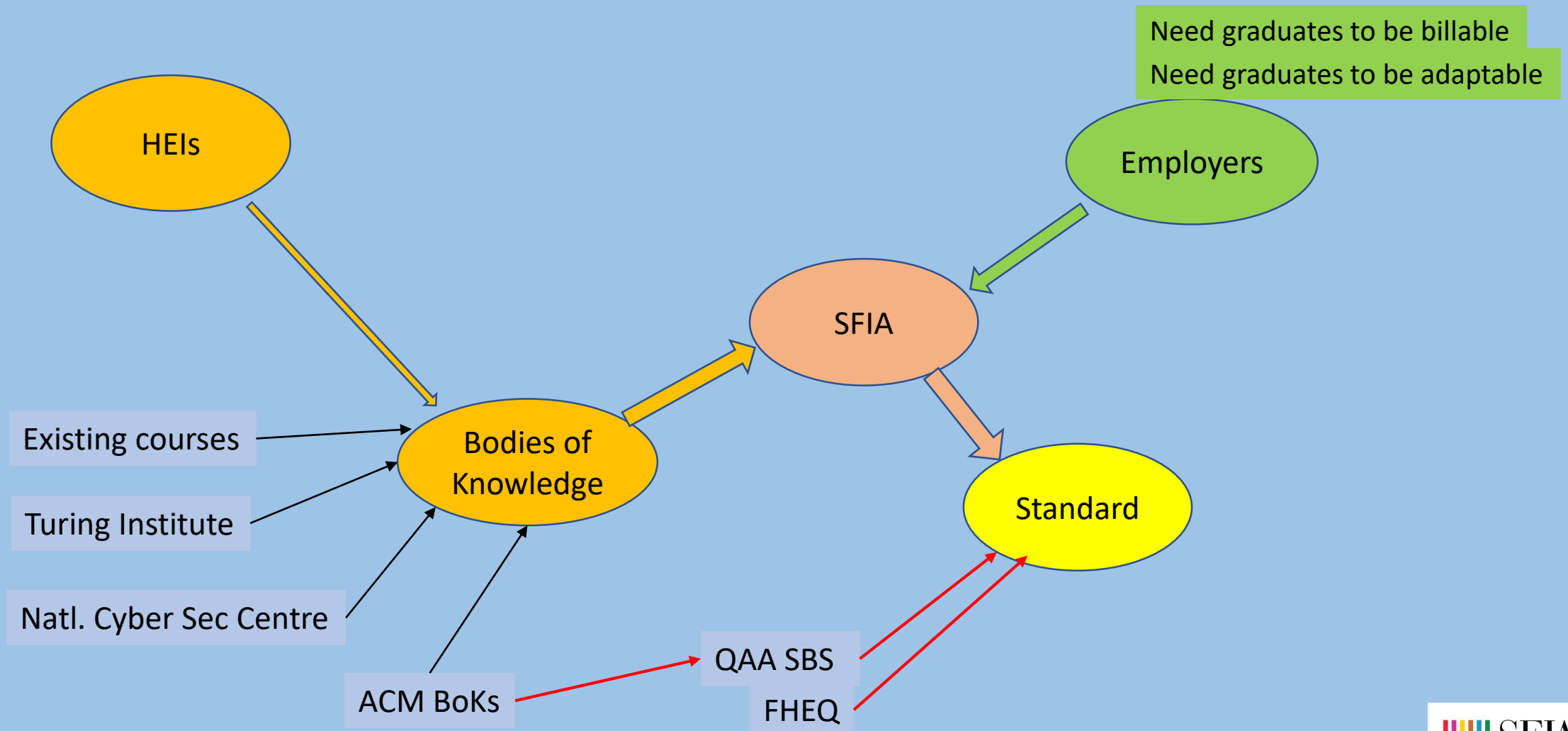
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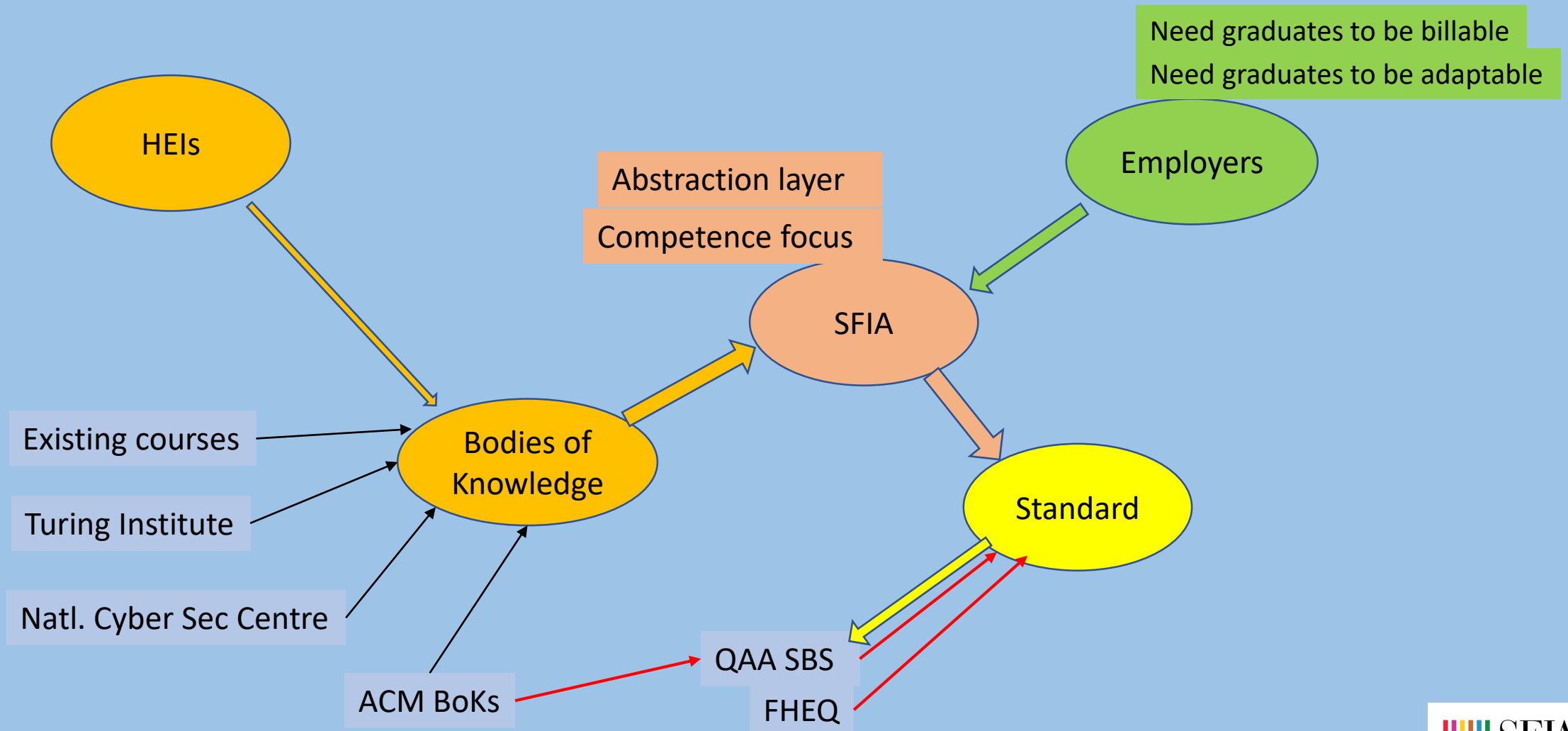
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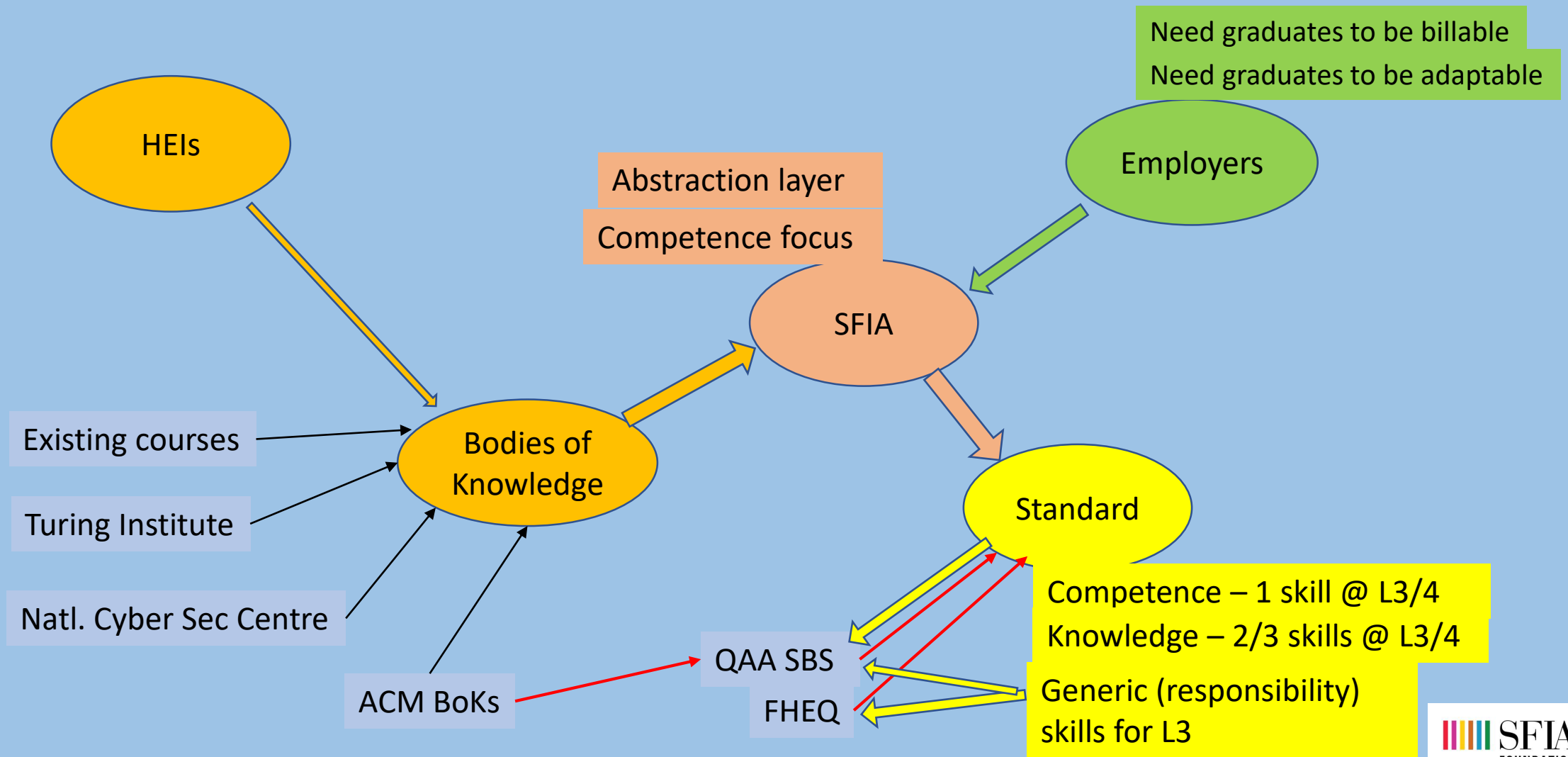
Constructing a standard



Constructing a standard



Constructing a standard



What's in a skills framework?

- Developed by users (employers)
- Often used for matching candidates to roles, building project teams etc.
 - Sometimes for pay and rewards
- Typically describe three facets:
 - **What** people should be able to do (skill)
 - The **complexity** required
 - How **autonomous** they should be
- Competence
 - Being able to do what is needed
 - ... in an appropriately complex context ...
 - ... with minimal routine supervision.
- Competence = “fly solo” for a customer (and be billable)

SFIA – Simple Straightforward, Generic & Universally Applicable

7 Levels of Responsibility

The Levels of responsibility are straightforward, progressive, generic and universally applicable.

Level 7	Set strategy, inspire, mobilise
Level 6	Initiate, influence
Level 5	Ensure, advise
Level 4	Enable
Level 3	Apply
Level 2	Assist
Level 1	Follow

5 Generic attributes

The 7 SFIA levels of responsibility are described in a consistent manner using a common set of generic attributes.

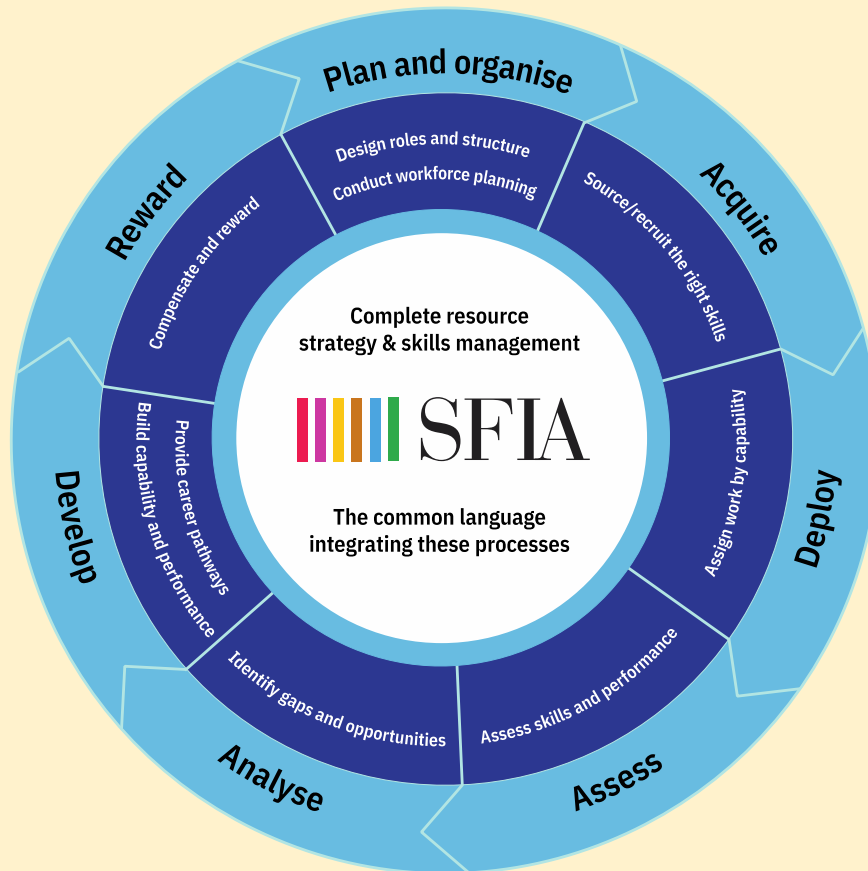
Follow	Autonomy
	Influence
	Complexity
	Knowledge
	Business skills
Level 1	

102 Professional Skills



SFIA – Skills and Competency Management – Human Capital Development

More than just a Framework



At its heart is Experience



You have a skill or competence because you have experience of practicing the skill in a real world situation.

Why is the IoC initiative of interest to the SFIA Foundation?

While the focus of IoC is UK-centric ...

The issue of a 'skills gaps' is a common issue for many countries (in particular the disjoint between academia and industry): some of those countries are looking to SFIA as a component of the solution

- it doesn't stop with getting the first job

SFIA is valued globally because of the industry & business-driven nature of the SFIA Framework, the established industry/business use of SFIA, its global reach and its Ecosystem ... the UK has a habit of not valuing what it already has ... many other countries don't have the same inhibition

Why SFIA?

SFIA, first published in 2000, continues to be updated through open consultation with industry & business, and is now in its 7th Version and has been truly global for around 16 years!

SFIA is translated into 10+ languages and used in around 180 countries

Global Council
Global Design Authority Board
Global Contribution to SFIA 7 (141 Countries)
Available in 10+ languages
Usage in around 180 countries

SFIA – is a not-for-profit Foundation

No Central Funding
Funded by Licence Fees and Volunteer Support
All revenue goes to developing the framework and supporting the Ecosystem

The vast majority of SFIA users do so under a free-of-charge Licence

IOC – SFIA Collaboration?

Exciting for SFIA and our global partners ...

Skills frameworks in other disciplines

- Tend to focus at “technician” level
 - Institute of Biomedical Sciences Certificate of Competence
- Sometimes specified as National Occupational Standards
 - NOS suites maintained by SEMTA
- Also appear in specifications for work-based learning
 - Nat. School of Healthcare Science – Scientist Training Programme
- Often just 3 levels
 - Novice – Competent – Expert (Nursing)
- Higher levels subsumed into Engineering/Science Council standards for registrants
 - Registered [technician], incorporated, chartered
- Note also international activities
 - CDIO, Singapore, Japan....

Proposed standard

- Meta-standard
 - Subject focus (e.g., “data science”, “cyber sec”) is in instantiations
- Seeking to identify what graduates can **do** on day one, and with what they will be equipped to get “up to speed” quickly
- Rather than looking at BoKs, existing benchmarks etc, seeking to build around Skills framework (SFIA)
 - Focus on **competence** rather than just knowledge
 - Will need **evidence** of competence (portfolio)
 - Skill descriptions in SFIA are **exemplars**, rather than tick-lists
- Jobs/roles/career paths vary enormously between employers/environments
 - Not seeking to tie to single SFIA skill
 - Particular job/role likely to combine 3 or 4 Skills

The proposed meta-standard – honours degree

- For a single honours degree:
 - Graduates must demonstrate **competence** in at least **one** relevant SFIA skill at **level 3**;
 - Graduates must have **knowledge to underpin one** SFIA skill at **Level 4**
 - Graduates must have **knowledge to underpin** at least **two** other SFIA skills at **level 3**
 - Graduates must demonstrate **all of** the **generic skills** defined for **level 3**

Task 1 – 30 minutes

- Consider hypothetical instantiation of standard
 - Skill descriptions in appendix to standard proposal, or see full reference guide
- Select ONE relevant SFIA skill for competence, defined at Level 3 or 4
- Select ONE further skill for “knowledge” at Level 4, and two more at Level 3
- Consider from perspective of employer (next slide)
 - *See also Employer questions in Appendix*
- Comment on challenges, issues, benefits etc.

Questions to answer

1. How well does the selection of SFIA skills for competence/underpinning knowledge meet needs of industry?
2. SFIA includes a range of generic skills – are these:
 - a) What industry needs?
 - b) Achievable within a University degree
3. Are the SFIA skills for particular areas sufficiently current/comprehensive?
4. Is there a problem with the flexibility inherent in the proposed standard?
 - a) Describing graduate profiles
 - b) Comparability between providers

How close can HE get to “competence”

- Recognition: *understand what the problem is*
- Knowledge: *knowing how to deal with it*
- Capability: *have done it at least once*
- Not incompetent: *doesn't make mistakes*
- Competent: *reproducible, reliable etc.*

How close can HE get to “competence”

- Recognition: *understand what the problem is* Perception
- Knowledge: *knowing how to deal with it* Set
- Capability: *have done it at least once* Guided response
- Not incompetent: *doesn't make mistakes* Mechanism
- Competent: *reproducible, reliable etc.* Complex overt response

Simpson's taxonomy (1972)¹ – Psychomotor domain

1. Simpson E. J. (1972). The Classification of Educational Objectives in the Psychomotor Domain. Washington, DC: Gryphon House.

Task 2 – 20 minutes

- Consider hypothetical instantiation of standard
 - Skill descriptions in appendix to standard proposal, or see full reference guide
- Select ONE relevant SFIA skill for competence, defined at Level 3 or 4
- Select ONE further skill for “knowledge” at Level 4, and two more at Level 3
- Outline a curriculum that would deliver the required **competence** and **knowledge** to underpin at least two more
 - Don’t include stuff just because “we always teach that...”
- Comment on challenges, issues, benefits etc.

Questions to consider

- *See also “academics” questions in Appendix*
- What would be **needed** in the curriculum to deliver the required competence?
- ... and knowledge?
- Are there any major gaps in (typical) current provision?
- ... or other challenges?
- Can you propose how to address the gaps?
- How achievable is the proposed standard for HEIs?

Accreditation or endorsement?

- Shadbolt:
 - “the process by which degrees are assessed by professional bodies and accredited as delivering learning outcomes that meet specific standards.”

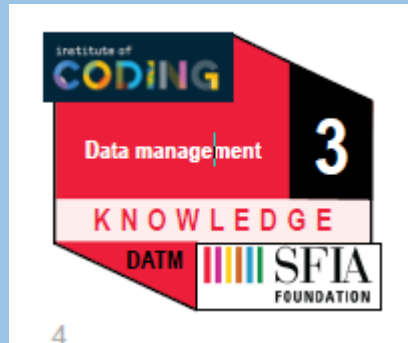
- IET and BCS
 - accreditation recognises achievement of milestone along route to professional standing

- TechPartnershipDegrees
 - Accreditation doesn't lead to any specific professional award, but represents (very important) endorsement by TPD's employer panel
 - Included by HESA as PSRB on basis of demand from HEIs

Taking the standard forward

- Feedback from this session will feed into proposal
 - -> Proposal for wider consultation
- Online survey – employers and academics
 - workshop (May/June) to review impact of feedback
- In parallel:
 - Instantiation of standard across IoC themes
 - Design of badges for portfolio
 - Exploration of accreditation / endorsement issues
 - Split of responsibilities between IoC and PSRB?

Portfolio (micro-credential) badges



Links

- <https://instituteofcoding.org/>
- www.sfia-online.org.uk
- <https://www.rcvs.org.uk/document-library/day-one-competences/1day-one-competences-updated-26-march-2014.pdf>
- <https://www.ibms.org/home/>
- <https://semta.org.uk/standards>
- <http://www.cdio.org/>
- <https://www.engc.org.uk/professional-registration/>
- <https://sciencecouncil.org/registrants/>
- <https://rcni.com/nursing-standard>