



The IoC Accreditation Standard

Doing something different

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Context

- The IoC is an opportunity to do something radical
 - Aimed at bridging the skills gap, increasing participation, making more graduates more employable,
 - Departs significantly from normal approach of focus on BoK
 - know how to -> capable -> competent
- Bringing together offers from (different) HEIs and industry training
 - Academic courses
 - Industrial training / experience
 - Moocs
- Underpinned by personal portfolio (blockchain)
 - Microcredentials
 - For both completion of learning and demonstration of competence

Aims of the standard

- NOT seeking to replicate what exists already
- Designed collaboratively with industry, to meet reported needs
- Degrees must still meet statutory benchmarks
- Aiming to achieve professional recognition (CITP) as well as industry approval
- BUT focus fundamentally different
 - The individual student
 - Employability
 - Competence (evidence)
- Aims to deliver “week 1 billability”, recognising concerns of employers/SMEs
 - seeking to avoid offering industry yet another academic-defined set of programmes,

“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!

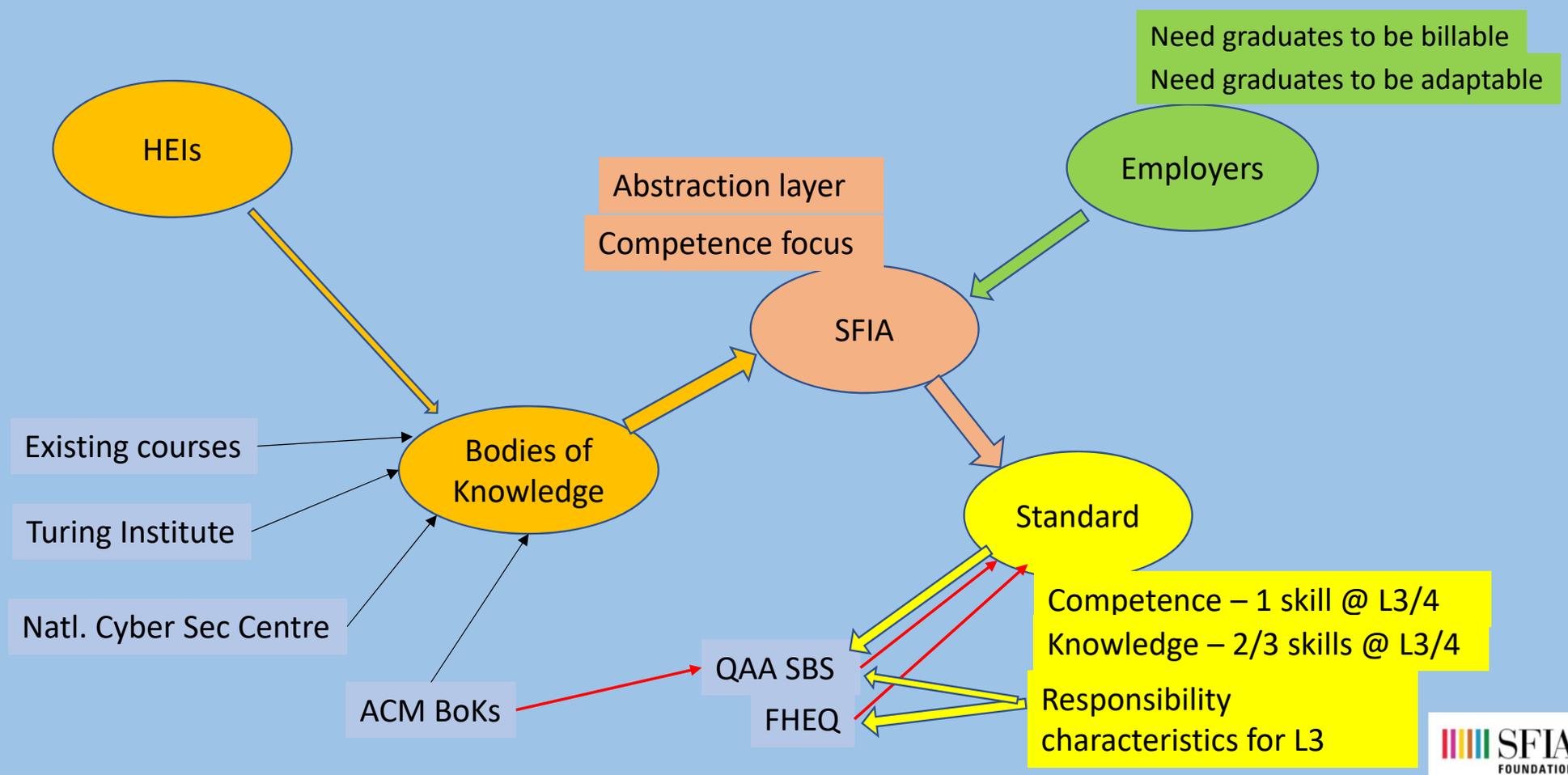
“Week One” Competences

- An IoC graduate...
 - A new graduate who has achieved week one competence should be capable and confident enough to work reproducibly in a specific area of computing, 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 tasks. Support and direction from more senior colleagues should be available.

Based on day one competence defined by Royal College of Veterinary Surgeons

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

Constructing a standard





50
YEARS

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

What's in the SFIA skills framework?

- Developed by users (employers)
- Often used for matching candidates to roles, building project teams etc.
 - Sometimes for pay and rewards
- Describes three facets:
 - **What** people should be able to do (skill)
 - The **complexity** of the context
 - How **autonomous** they should be (responsibility characteristics)
- 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)

The proposed meta-standard – honours degree

- For a single honours degree:
 - Graduates must demonstrate all of the **generic skills** defined for level 3
 - 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 also have **knowledge to underpin** four more SFIA skills at Level 2*

How close does HE usually 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 repeat mistakes*
- Competent: *reproducible, reliable etc.*

How close does HE usually 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 repeat mistakes* Mechanism
- Competent: *reproducible, reliable, creative.* 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.

SFIA vs QAA / FHEQ / CITP

- Responsibility characteristics for SFIA Level 3 address virtually all the generic requirements of QAA SBS and FHEQ outcomes statement.
 - Technical characteristics will follow from a technical instantiation
- SFIA Level 3 responsibility characteristics also cover many of those sought for CITP accreditation
 - A couple of omissions – notably LSEPI!
- BCS collaborating with IoC to explore whether the CITP educational component could be met *automatically* by an IoC honours degree

Modes

- a) Individual HEIs may propose a programme on their own that satisfies an instantiation of the standard
- b) An HEI may include material from other IoC partner(s) within a programme to instantiate the standard
- c) An industrial partner may construct a programme instantiating the standard using offers from several HEI/industrial partners
- d) Groups of HEIs / industrial partners may propose a collaborative programme
- e) Individual students may “build” their study by taking components which together sum to meet the standard.

Feedback to date

- Mainly positive
- Particularly from industry
 - Some differences between focussed, dynamic development paths and 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

An invitation

- The IoC standard has to be realistic
 - Implementable, achievable, useful, real industrial experience
 - Sufficient to deliver aims
- IoC invites expressions of interest to operate (small number of) pilots
 - To involve academic and industrial partners
 - Qualification “owned” by HEI; standard ensures meets QAA/FHEQ requirements
 - May be possible to offer CITP accreditation for pilot cohorts