‘Using SFIA to build a degree accreditation standard’
Q&A

Q: Universities often don't understand SFIA levels in that they sometimes claim students will attain SFIA ITech Skill levels >3 upon completion of their units, within their unit outlines. This is generally unrealistic, especially when the Generic Skill Level is considered and, consequently, becomes an issue for those presenting such units.

A-DB: Indeed. There are two points to be made: classroom-based courses, by their very nature, cannot develop real-world experience – let alone competence; and confirmation of competence requires validated evidence of successful completion of the activities specified for a skill, as suggested in the webinar. Of course, it is quite possible for a classroom-based course to cover the knowledge to underpin a SFIA skill at any level. But only knowledge.

Q: I wonder, what steps are taken by the SFIA Foundation to ensure local accrediting bodies are monitoring this issue?

A-Foundation: The SFIA Foundation is happy to endorse schemes that meet Foundation defined requirements. We have a number of other activities and pilots going on in this area and collectively they will be used to formalise several aspects of accreditation and certification using SFIA.

Q: Do we not need to consider the Generic Skill Level too, in addition to the Tech Skill Levels, as an upper capping to tech skill level claimed?

A-DB: Yes – demonstration of the Generic Attributes for levels is required for the award of a “competency” or “proficiency” badge through the IOC and is assessed. The importance of the SFIA Levels and how they are characterised by the Generic Attributes cannot be over emphasised.

Q: Can other partners have a license ?

A-Foundation: Any organisation can apply for a SFIA licence from the SFIA Foundation, as long as they meet the defined requirements. With regards to assessment (and issuing badges) we are currently working through this with both the IOC and also another organisation looking to pilot assessment before we go more widely.

Q: Some sectors like testing (penetration testing) have gone deep dive with perhaps the broader skills. How does the proposal deal with the culture around that area

A-DB: The key is probably in what a **new graduate** would be let loose on. Penetration testing PENT is currently defined only from level 4: if industry believes that new graduates could work in PENT (I.e., at level 3), then perhaps a RFC should be submitted to SFIA. In any case, there is nothing to stop a programme designed to meet the IoC standard delivering the underpinning knowledge for PENT Level 4. But, PENT is often safety-critical. To use an analogy, would you be happy for somebody to fly a passenger jet who has not previously demonstrated real-world competence as a private pilot in small planes?

A-Foundation: Additionally, your point about broader skills is a good one – even highly specialist individuals would need to have broader skills and Generic Attributes. But remember for this webinar we are talking about individuals moving from education to industry and these would typically be at the initial SFIA levels rather than the latter ones.

Q: Is this accreditation meant to be for IT industry only?

A-DB: This standard has been designed around SFIA, so it is applicable in any domain where SFIA skills are relevant – so, for example, in any working environment which relies on digital services, data, IT, software engineering, security etc.. However, it would also be possible to develop a similar approach using a comparable skills framework for another discipline.

A-Foundation: Further to DB's answer, many of the strengths of the SFIA Framework are universally recognised both across IT and also in other sectors. Several other framework initiatives do try to emulate SFIA in some way and SFIA can be used outside of IT by interpretation. Additionally, some organisations may extend the SFIA skills for other sectors through licence.

Q: In the degree design process, do you get industry opinion on what to have at what level?

A-DB: In the worked example, the bulk of the suggestions for relevant skills came from my industrial co-lead from IBM.

Q: Has the OU considered embracing Micro-Credentialing (Open Digital Badges) to evidence acquisition of transferrable knowledge and skills?

A-DB: The IoC/SFIA badges conform to the Open Digital Badge standard.

A-Foundation: We are aware of several micro-credential activities and they can contribute to broader SFIA credentials. The Foundation is looking at what it can do in this area – but the essential issue from the Foundation's point of view is to keep it real for industry in distinguishing knowledge from practice in a controlled environment and competence in a real working situation.

Q: Under what faculty will this accreditation be located?

A-DB: This standard is designed for "computing" degrees, so the accreditation would need to be requested by whichever faculty runs such degrees. Accreditation is an external process, normally carried out by a professional body such as ABET, BCS (in the UK) etc. An appropriate professional body could choose to offer the IoC standard – or something based on it – as a standard against which a degree programme could be accredited.

Q: The academic curricula are built around a required "role" (your web developer role example). Roles change very quickly in the ICT domain. The disadvantage of using 'roles' is that the role might be obsolete before the student is graduated. Would it not be better to design curricula around skills/competences, which is a more durable concept than 'role'. Also, about 'employability': employers ask for 'roles' and not skills/competences (which is silly actually).

A-DB: Although, in the worked example, we used the idea of a "web developer" to select a group or relevant skills, the curriculum itself is then built around those skills. Some of those skills may need context – in the example curriculum, "programming and software creation" would probably be contextualised for web development. But the outcomes of the programme focus on skills, rather than a particular role.

Q: The mapping is at the Module level, rather than at Module Learning Outcome?

A-DB: The worked example used module content (curriculum) as a surrogate for learning outcomes. The distinction between the two if often overplayed....

Q: Any reason not to use AI to infer skill from a learner's portfolio / completed learning activities / acquired credentials?

A-DB: An interesting suggestion. However, we need to get students constructing portfolios before we have anything to use AI on...!

Q: Does the assessor have to have the qualification that they are assessing for?

A-DB: In the scheme we have proposed, the assessor needs to have sufficient knowledge of the discipline to understand what the activities defined for a Level 3 skill in SFIA mean. That does not mean that they need themselves to have demonstrated competency in that skill – the criteria on which the assessment scheme is based are designed to be scalable / transferable between computing academics.

Q: Designing / mapping curriculum looks like it needs a good knowledge of SFIA. How can academics learn more about the detail of the SFIA framework before they start designing/mapping a curriculum

A-DB: Information about SFIA is available from https://sfia-online.org While a personal SFIA licence is free of charge, an institution would need to discuss licensing requirements with the SFIA Foundation before deploying a curriculum based around SFIA.

A-Foundation: DB's point about licensing is important but to emphasise his first point – information is available from the SFIA website and also SFIA training is available from SFIA Training providers. It is, of course, difficult to ensure people understand things just by reading them.

Q: How many times can the student submit evidence to demonstrate their competence

A-DB: Demonstration of competency is an output standard. How many times a student is permitted to (re)submit their evidence is a matter for the university. Think of the driving test – what matters is that (eventually) you pass, not how many times you may have failed previously. But universities may require, e.g., a single submission and possibly one resubmission, for consistency with normal academic practice.

Q: How is this evidence captured?

A-DB: The student needs to build a (reflective) portfolio. That portfolio could include any experience – whether on official university modules/placements etc., or even relevant work experience during the vacations.

Q: Does the student need to provide their supervisors validation of submitted evidence?

A-DB: Experience does need to be validated. Hence, one of the "items of evidence" is validating comments from the supervisor.

Q: Is there evidence that students following these curricula are more effective in the workplace?

A-DB: Universities who incorporate work experience – such as placements, internships etc – often report that their graduates are sought by industry, as they are "better prepared", even when the work experience is not fully integrated into the curriculum. The IoC approach encourages coherent integration of work experience into the curriculum to improve further graduates' work-readiness.

Q: How is this scoring process conducted?

A-DB: Whoever performs the scoring – typically a placement tutor, or an academic responsible for student enterprise modules (the clinics) - will need to read the portfolio to map it to the criteria. This may be easier if the university asks students to pre-map portfolio entries to SFIA!

Q: What steps would businesses need to follow to implement SFIA within their organisations?

A-Foundation: That is a very big question and begs many questions to be able to answer it well. But SFIA is used globally by industry, private and public sector, large organisations and SMEs etc. A whole ecosystem has evolved to help with this. You can find how to get help from the SFIA website (https://sfia-online.org). But by all means speak to the SFIA Foundation as a starting point.

Q: Is there any issue with industry placement supervisors being entrusted with assessment of knowledge/skills acquisition if they are the employer of the student and 'own' the outcomes of what the student delivers during their placement?

A-DB: This is a good point to raise. There will need to be some sort of quality assurance process. However, my experience has been that it is rare for workplace supervisors to be over-optimistic in their assessments of students' achievements. One suggestion that arose was that perhaps organisations providing work experience should themselves be accredited – but that would still leave a potential quality disconnect between the organisation and an individual supervisor.

A-Foundation: Excellent point. We are looking at this and are working on a couple of pilots that will start to address this and the wider uses.

Q: There's a "real-life" requirement to tie all this together - the OU delivers digital technology apprenticeships (DTSA) against an existing curriculum combined with work-based learning, and uses a mix of module and practice tutors to ensure that apprentices have reached the relevant competency before their End-Point Assessment. So how is this being done? Is the SFIA an input, or just the DTSA Standard? How is the curriculum assessed?

A-DB: Currently, the DTSA apprenticeships do not use the IoC approach, as the apprenticeships are completely curriculum driven (which is something of a missed opportunity on the part of TPD...). However, the IoC standard should be eminently appropriate for digital degree apprenticeships, as they do indeed integrate real-world practice into the curriculum.

A-Foundation: There are a number of apprenticeship activities in the UK and we are currently working with mapping apprenticeship standards – that is work in progress which we hope to publish soon. You are right that there needs something to tie all this together and that is SFIA, it's what is used in industry which is where people from these initiatives begin an industrial career.

Q: This is an excellent initiative. What engagement has taken place with industry to ensure that businesses are able (and willing) to engage with students in a manner that best supports this approach?

A-DB: Although it depends on their individual circumstances, the majority of businesses with which we have shared our ideas have responded positively to questions about their willingness to host placements etc. (This has been a standard question in post-presentation quizzes.). Improving the availability of such opportunities always depends on employers understanding the benefits (to them) of doing so.

A-Foundation: It's not just the IOC that is doing this, but the IOC is a good example of how over 30 universities and over 100 industrial partners have come together to use SFIA in this manner.

Q: I'm not a fan of trying to define (or measure) ROI for learning… Time to Competence is a more relevant outcome for workplace learning.

A-DB: Indeed – hence, "week one competencies" … But some industrial partners prefer to think in terms of RoI.

Q: Is there guidance on getting good at formalizing work experience in degrees- how to do it well

A-DB: I hope this presentation helped a little. There is ongoing activity in the Computer Science Education research domain – including, for example, a working group for ITiCSE this July. The ACM CC2020 report also tries to set out the requirements for competence, but then projectst them back into the purely academic domain.

A-Foundation: Those universities that do this well have already established relationships with industry and use SFIA. We have a number of interested parties that are willing to cooperate to help establish this formalism.

Q: In the past employers expected that graduates would have knowledge but little experience and were happy to provide graduates with the practical skills in graduate development programs. Shouldn't we be expecting them to continue to do this?

A-DB: I suspect that this is likely to continue for many large employers. However, one of the key issues identified by Shadbolt is that not all employers are in a position to do so – so this proposal helps to address that problem.

A-Foundation: That question opens up a much wider issue – whatever situation is seen, then SFIA is there to enable skills and competency development, rather than to say it is the responsibility of one or the other.

Q: I would be interested in knowing if I am the only one who is not convinced about the usage of the words "competency" and "proficiency"? It seems to me that being proficient is better than being competent...

A-DB: I might well agree, but ISO 24773 thinks differently!! The standard is quite clear that, in that context, "competency" is the highest level – even though, in the English language at least, "proficiency" might seem more impressive. In fact, the standard uses "proficiency" as a generic low-level term, as in "level of proficiency [required] for a particular task [in order to demonstrate] competency". Given this position, the SFIA Foundation is also adopting "competent/cy" as the highest level of recognition for performance in a skill at a particular level, and the IoC has adopted the same terminology, for consistency. That meant that we had to find a term for the intermediate level/partial competence – and "proficiency" was the only real option.

Q: Why not a follow up 'open mic' Q&A session?

A-Foundation: Good idea – there was a lot covered in the hour and many questions any of which could spark discussion.

Q: Standard requires all those 'marking' i.e. acadmic and employers understanding SFIA. How will this be arranged?

A-DB: Through internal (informal) training and resources provided within the IoC consortium – and covered by the consortium licence.

A-Foundation: We have a few examples where universities have similar programmes and have their evaluations overseen by a SFIA Accredited Consultant. We also are working through, with some industrial pilots, the formalisation of evaluation.

Q: Many Thanks - I am currently working with the eCF. A competence approach with SFIA has immense potential.

A-Foundation: Obviously it would be wrong to talk about other frameworks specifically, as they all have different agendas, core stakeholder groups and approaches to gaining use. But to talk about SFIA: it has a provenance going back 30 years and since 2000 has been updated every 3 years by its international userbase which is now around 200 countries and we translate into 11+

languages. SFIA collaborates with and has helped several framework initiatives but there is much more to SFIA than just the framework and it is difficult to replicate some of the attributes of SFIA that make it widely used.

Q: Thanks a lot Ian, I will get back to you to align our future Executive education at Solvay Executive education.

A-Foundation: Pleasure – glad you have been finding SFIA useful at Solvay

Q: How does this differ from an apprenticeship degree?

A-DB: Even within an apprenticeship degree, the outcomes are specified at a very low level – indeed, as a conjunctive tick-list of tiny components. There is no reference to a global skills framework like SFIA, which is built and maintained by employers.

A-Foundation: We are also working with a number of apprenticeship organisations. The power of SFIA in these relationships is that industry use SFIA and education feeds industry so it is a natural path and actually brings life=long learning and skilling activities underpinned by the global framework.

Q: How well are professional skills like ethics integrated into the practice of other skills?

A-Foundation: Ethics is already addressed within SFIA. SFIA has both Professional Skills and Generic Attributes. The Generic Attributes cover many behavioural factors including, for instance, ethics.

Q: How do you build competency and experience in a university environment if many academics don't have professional experience from industry?

A-Foundation: This question has been answered live

Q: My question has been answered. ("Will the practical implementation will be measured and controlled in an academic environment, or will there be a clear link to the "real world"?")

A-Foundation: Thanks Peter … but yes, it is the opportunity to work with real activities within industry as part of the academic course.

Q: Would you/SFIA endorse an industry provider of monitored/coached experience and competence?

A-Foundation: Yes – provided they meet certain criteria, some pilot activities are currently starting off … more to follow