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Getting better value from IT: integrating organisational capability and skills framework

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Abstract

This paper reports on a collaborative project to integrate an IT organisational capability framework, the IT Capability Maturity Framework (IT-CMF) with an IT skills framework, the Skills Framework for the Information Age (SFIA). The aim is to develop an integrated tool and method for improving IT capability at a strategic organisational level through a focused improvement plan which also identifies key skills needed to drive that improvement. The research, policy and practice drivers are discussed and the method of mapping the two frameworks is described. Finally, the proposed user journey and prototype tools are described and plans for future development considered.

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Keywords: IT capability, skills, IT-CMF, SFIA, maturity models, skills frameworks.

1.0 Introduction / Problem Statement

How can we best provide integrated support for organisations to strategically improve their IT capability in tandem with developing the appropriate skills of their people? This paper presents a research and development project in progress, which explores how skills frameworks can be optimally combined with organisational capability frameworks to drive overall improvement of the organisation's IT capability. We consider 'organisational capability' as the effective mobilisation of the resources required to support the achievement of an organisation's objectives (Peppard and Ward, 2004). These resources are typically defined as people, process and technology as shown [illegible]

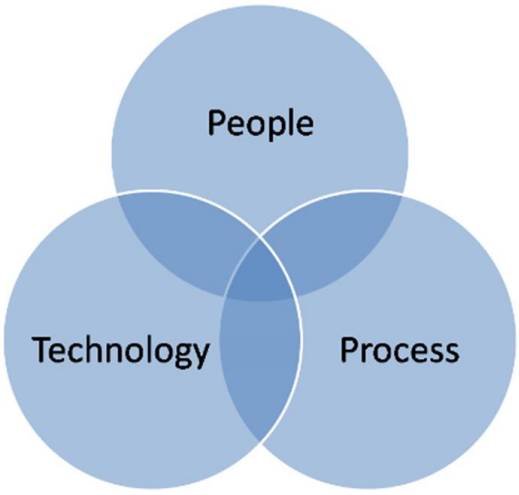

Figure 1: Resources for organisational capability

We conceptualise IT frameworks as a synthesised and structured representation of shared knowledge from practitioners and literature of 'what works'. There are two key types of IT framework available: one that focuses on people's skills and the other that focuses on organisations' capabilities. This prompted us to explore how we might best integrate different IT frameworks as needed when looking at a multi-faceted problem like improving IT capability. This project also aims to address the gap presented by the lack of existing tools and support to help organisations get started on using relevant frameworks together.

Research Questions

- How can individual skills development and organisational IT capability building be integrated to help organisations get better at using IT?
- How can developing tools that integrate an organisational IT capability framework (IT-CMF) with a skills framework (SFIA) assist organisations to effectively develop IT capability and IT skills?

This paper presents the first stages of a research project and discusses progress towards investigating these research questions.

2.0 Methodological approach

The primary objective of this project is to improve practical guidance to organisations rather than develop theory *per se*. Stage 1 of the research was concept testing of the initial proposition. This was done through a series of workshops with SFIA and IT-CMF users. Having established the potential value of the project we progressed to mapping SFIA and IT-CMF and developing initial prototypes and tools. These were further developed through iterative engagement with a range of relevant stakeholders (e.g. SMEs, education bodies, professional associations, and businesses).

The next stage is to trial a longer engagement, based on the ideas of Action Research (Ashurst et al., 2016; Lewin, 1951; Ragsdell, 2009), with a small number of organisations. They will use the tools, described in section 8.0, as part of an IT capability programme and feedback any learning from it into tool design and optimising ways to support their use. The data gathered will also provide insights to

the ongoing theoretical problem of integrating knowledge and learning from employees into organisational benefits (Kim, 1993; Vargas et al., 2016).

3.0 What are frameworks?

Organisational capability frameworks, sometimes also known as maturity models, are conceptual structures that outline key topics in any subject area and describe different levels of maturity. Maturity is generally scaled from 1 (low) up to 5 (high). Skills frameworks are similar in structure but, rather than defining organisational practices at different levels of maturity they describe skills. We based this work on two frameworks: the IT-Capability Maturity Framework (IT-CMF) (Curley et al., 2015), and Skills for the Information Age (SFIA) (SFIA, 2015). This is a collaborative project between the Innovation Value Institute, the SFIA Foundation, and the British Computer Society (BCS)-the Chartered Institute for IT.

The IT-CMF is designed around addressing IT Management needs from the perspective of organisational capability. It is a maturity model with 37 Critical Capabilities (CCs), each of which addresses a specific domain of IT management or operations across four broad 'macro capabilities'. The CCs are structured around Capability Building Blocks (CBBs) which each contain 5 maturity level descriptions. The IT-CMF is designed to help organisations identify their current maturity, their desired maturity and it provides an improvement toolkit. This includes: maturity assessment questionnaires; white papers; practices, outcomes and metrics; KPIs; training resources.

Figure 2: IT-CMF list of Critical Capabilities

SFIA is designed around identifying and addressing the skills required to manage and operationalise IT across 97 individual Skills grouped into 6 main categories. These skills are further described at different Levels, from lowest (1) to highest (7), which correspond to degrees of autonomy, influence, complexity and business skills. SFIA has been though several iterations (version 7 was released June 2018), but our initial work is based on version 6. The SFIA***plus*** add-on, developed by BCS, breaks each Level-specific Skill into a series of Work Activities (WAs) that provide more detailed and modular descriptions. We used these for the mapping to provide the most accurate relevance judgements possible.

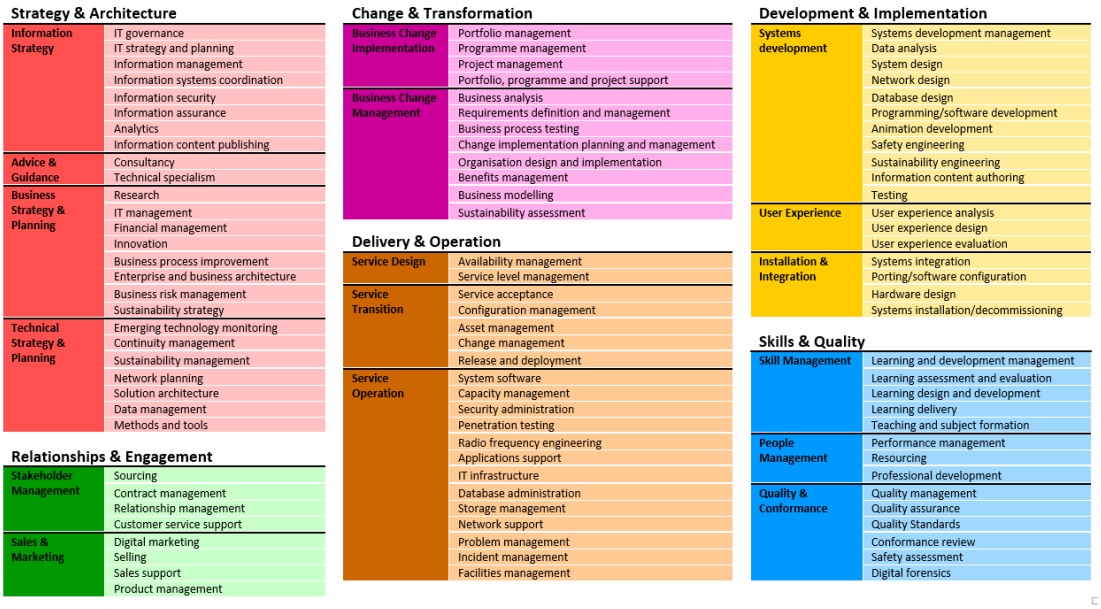

Figure 3: SFIA Skills list

4.0 Drivers for research: literature and policy framework

The failure of IT to fulfil its potential to provide value and benefits to organisations is largely due to a lack of capability with respect to the management of those IT resources (Peppard et al., 2000; Peppard and Ward, 2004). If we consider 'organisational capability' as the effective mobilisation of the resources (i.e. people, processes, and technologies) to support the achievement of an organisation's objectives (Peppard and Ward, 2004), then what role can the integrated use of supporting IT frameworks play in making the mobilisation actually effective? Empirical studies have demonstrated the multiple challenges associated with transitioning to a capable organisation i.e. one in which IT is focused on generating benefits and business value (Ashurst et al., 2011). At the same time, if an organisation's structures do not support the full deployment and leveraging of skills, then the role and impact of skills development will be limited (Gama et al., 2011). There are also well-documented social and economic problems caused by inadequate or inappropriate IT skills, which are illustrated both at policy level in the EU (van der Linden, 2017) and more internationally (Anderson, 2014) .

It should be noted that within IS research and practice it is certainly not 'a truth universally acknowledged' that organisational maturity models and skills frameworks are really making IT better and improving life for IT professionals. Recent discussion and research has suggested that the use of IT frameworks, with reference in particular to ITIL, can have implications for de-skilling IT workers by routinizing their tasks and focusing on subservience to business objectives (Trusson, 2018). In terms of maturity models there have also been critiques of the rigour behind definitions of best practice and the perennial difficulties of actually implementing change (Mullaly, 2014). We acknowledge that frameworks, almost by definition, can over simplify and, like any tool, can be used in unhelpful ways. We hope, however, that our proposed approach of integration may offer a more nuanced and 'closer to practice' tool for those wishing to improve IT capability. Indeed, one of the issues around failures in change management is often the lack of adequate thought regarding the skills and roles needed to drive and affect change (Sirkin et al., 2005).

5.0 Drivers for research: practitioner and partner input

Feedback from users of the IT-Capability Maturity Framework (IT-CMF) has indicated that while the capability improvement tools provide a roadmap of what to aim for, there is a gap in terms of how to go about enabling that and where to start. This is perhaps one aspect of Pfeffer & Sutton's 'knowing-doing gap' (2000): a picture of where to go does not necessarily get one there. Similarly, input from our collaboration partners, the BCS, and the SFIA Foundation, indicated that users of the Skills Framework for the Information Age (SFIA) find it very useful for identifying skills gaps and training requirements. It does not, however, support as well ensuring that skill development really addresses organisational priorities in an evidence based manner, as there was no structured formalised assessment of current organisational performance or priorities. This also caused a weakness in demonstrating the impact on organisational improvement following a skills-based intervention, as no clear 'before' and 'after' picture of organisational maturity existed. This issue with SFIA is also discussed in a case study of restructuring the IT function of the Portuguese navy (Gama et al., 2011) that proposes developing an organisational improvement model in which to situate skills development.

IVI is engaged with a range of current EU initiatives around the development of an ICT Profession. Stakeholder input from these projects has also confirmed the importance of the relationship between individual skills and organisational capability (van der Linden, 2017) and the ways in which focusing on only one or the other does not reap optimal results (Plessius et al., 2018). In terms of new IS developments like Industry 4.0 a major organisational shift takes place but this is not always aligned with people and skill management (Helm and Graf, 2018; Kilic and Özkan, 2018) and this can result in failure.

Developing a holistic IT capability to include individual and organisational perspectives is important both from a theoretical and practice development perspective. In summary, it seems clear that this is a problem for organisations and that more could be done to help them. In particular, we could start by looking at existing frameworks and see if we can synthesise their content in a useful way. If the improvement tools can be integrated will that help?

6.0 Description of mapping methods

The frameworks were mapped to each other at the lowest possible level of comparable granularity: IT-CMF's CBBs to SFIA***plus***'s WAs (see Figure 4). Although the mapping was done between IT-CMF and SFIA***plus***, the frameworks' designs allow us to report relationships between the IT-CMF and SFIA at higher levels of abstraction.

The CBBs offer the most detailed maturity-neutral description of an area of capability within the IT-CMF. Further elements of the IT-CMF that sit beneath the CBBs describe the capability in more specific maturity-defining ways. The WAs similarly offer the most detailed view of how a skill is demonstrated at various levels.

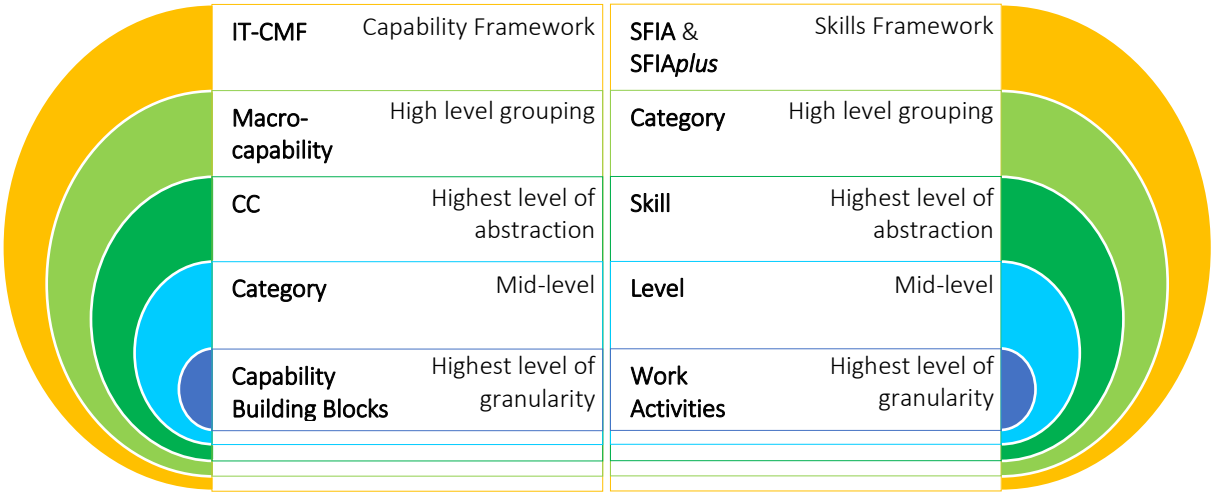

Figure 4: Comparable levels of abstraction and granularity

The IT-CMF CCs were grouped into clusters of related capabilities for mapping. Potentially relevant SFIA Skills were identified for each CC or cluster in several ways:

- Cross reference to a Skills/Capability correlation spreadsheet developed by a colleague at BCS
- Reference to associated Job Roles to identify relevant Skills and Levels
- Consultation with IVI Researchers and Subject Matter Experts specialising in particular capability areas
- Review of Skills list and descriptions to identify any additional potential corollaries

The list of WAs for each of the identified Skills were compared to the CBBs of the selected CC(s). Any WAs that were judged to fit within the requirements or actions described by the CBB were noted. Each CBB had multiple WAs mapped to it and

indeed, several distinct Skills areas usually contributed to each CBB. Similarly, WAs could be mapped to multiple CBBs (in multiple CCs) when relevant.

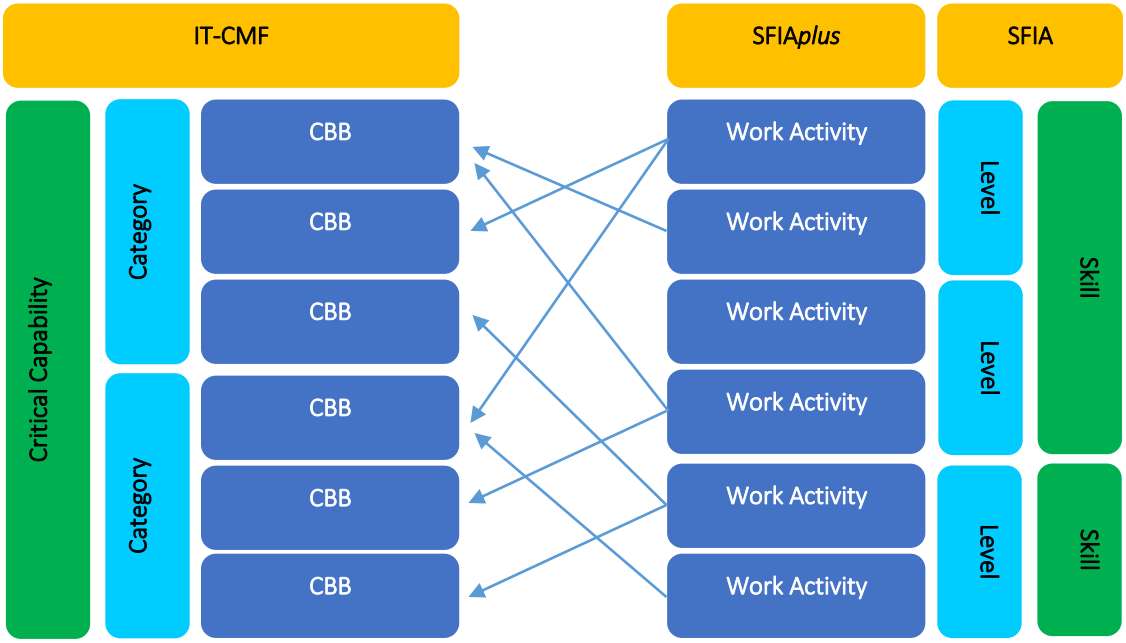

Figure 5: Illustrative example of mapping between frameworks

The mappings were validated through cross-checking mappings within the project team and other stakeholders.

7.0 Proposed user journey

While IT-CMF provides a roadmap of what an organisation needs to do to improve, skills frameworks are useful to identify skills gaps, developmental needs and training requirements. The integrated tool includes detailed maturity descriptions of practices, structures and processes and also an indication of what skills, based on SFIA, are going to be needed to implement those improvements and to operate successfully in the new improved state. Together, they are a powerful tool to help organisations identify their strategic priorities; design and support the implementation of holistic improvement plans; and demonstrate organisational improvement afterwards.

8.0 Prototype tools

Drawing on input from different potential users, we developed some prototype tools which we have tested at two user workshops to date. These included different methods of searching and presenting the Skills information related to specific

capabilities. We also developed tools for structuring and using the information such as improvement planning templates and outline job roles.

9.0 Next steps

Our next step is to further develop the prototype tools and trial them out. The aim would be to ascertain how different organisations go about using capability and skills frameworks together and what methods of integration and supporting tools are most useful. Finally, it would also investigate what supports in terms of training and consultancy input provide the most value. We would welcome the opportunity to discuss the work, demonstrate prototype tools, and get input on future plans with the UKAIS audience.

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