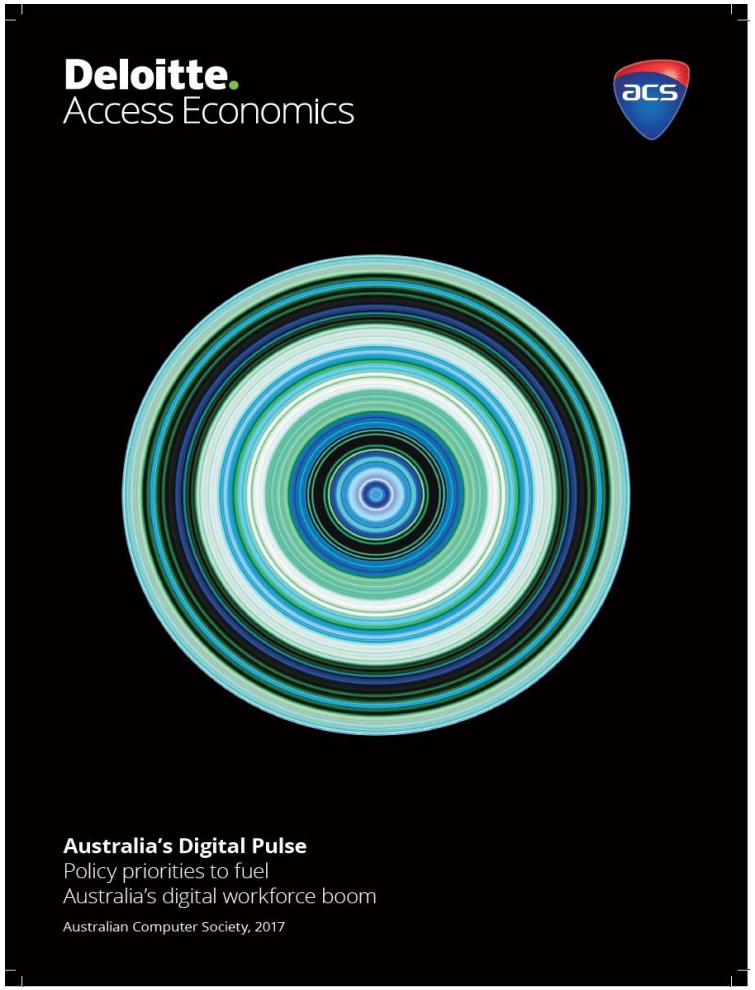
How to stop worrying and love SoFIA

Dr Nick Tate

20th October 2017

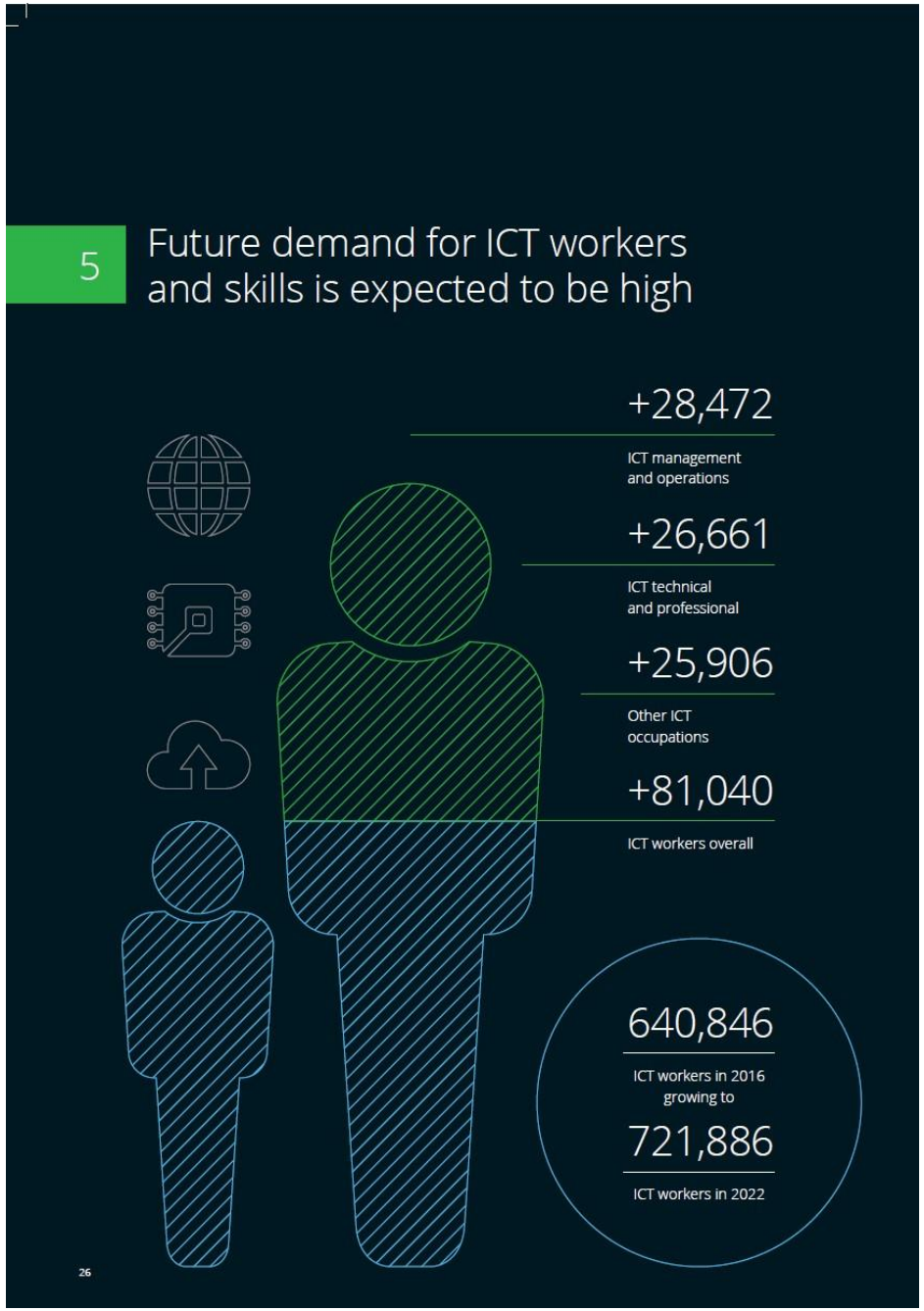
Source: http://www.liquidplanner.com/blog/next-generation-workforce/

TALENT WARS



"There has been a boom in the growth of Australia's information and communications technology (ICT) workforce in recent years, from around 600,000 workers in 2014 to more than 640,000 workers in 2016. Strong growth in the ICT workforce is expected to continue, reaching 722,000 workers by 2022."

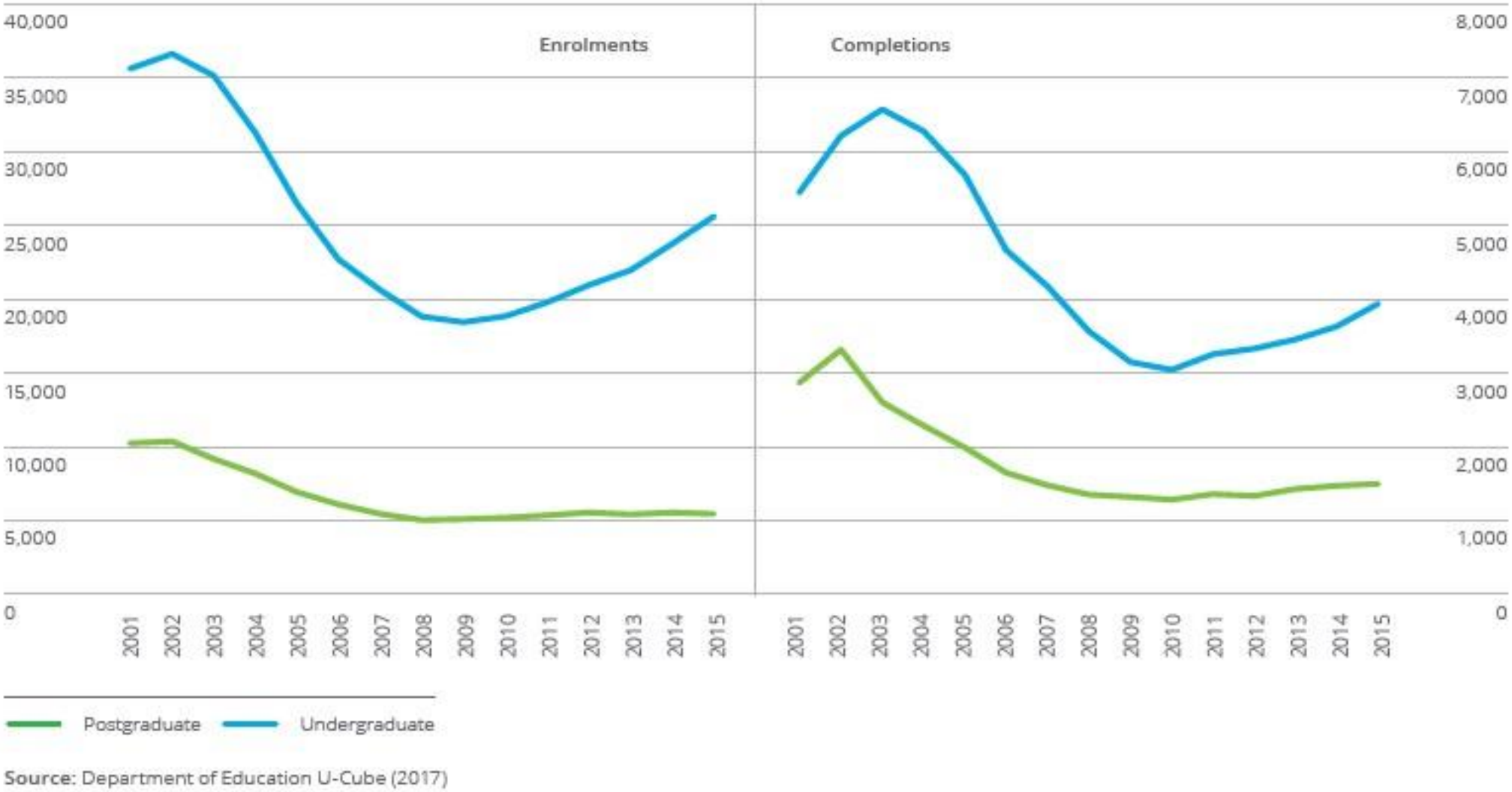
TALENT WARS



Demand for ICT skills by 2022

TALENT WARS

Chart 5.3: Domestic enrolments in and completions of IT degrees, 2001–15



Source: Department of Education U-Cube (2017)

TALENT WARS

Table 6.1: Net migration of ICT workers, FY2014–FY2016

Occupation	2013–14	2014–15	2015–16
Software and applications programmers	5,152	5,324	6,876
ICT business and systems analysts	2,503	3,018	3,146
ICT sales professionals	1,260	1,347	1,593
ICT managers	1,212	1,350	1,480
Management and organisation analysts	2,409	1,991	1,092
ICT support and test engineers	969	984	1,072
Other information and organisation professionals	1,223	1,150	1,066
Electrical engineering draftspersons and technicians	733	864	852
Graphic and web designers, and illustrators	631	823	812
ICT support technicians	670	602	512
Database and systems administrators, and ICT security specialists	610	579	625
Other ICT occupations	2,470	2,474	1,538
Total ICT workers*	**19,109**	**19,642**	**20,664**

* Excludes ICT industry admin and logistics support, for which breakdowns are unavailable; electronic trades and professional data is for all industries.

Source: Department of Immigration and Border Protection Overseas Arrivals and Departures Statistics (2017)

TALENT WARS

Table 6.2: Top 20 industries in which ICT workers moving to Australia were employed, 2016

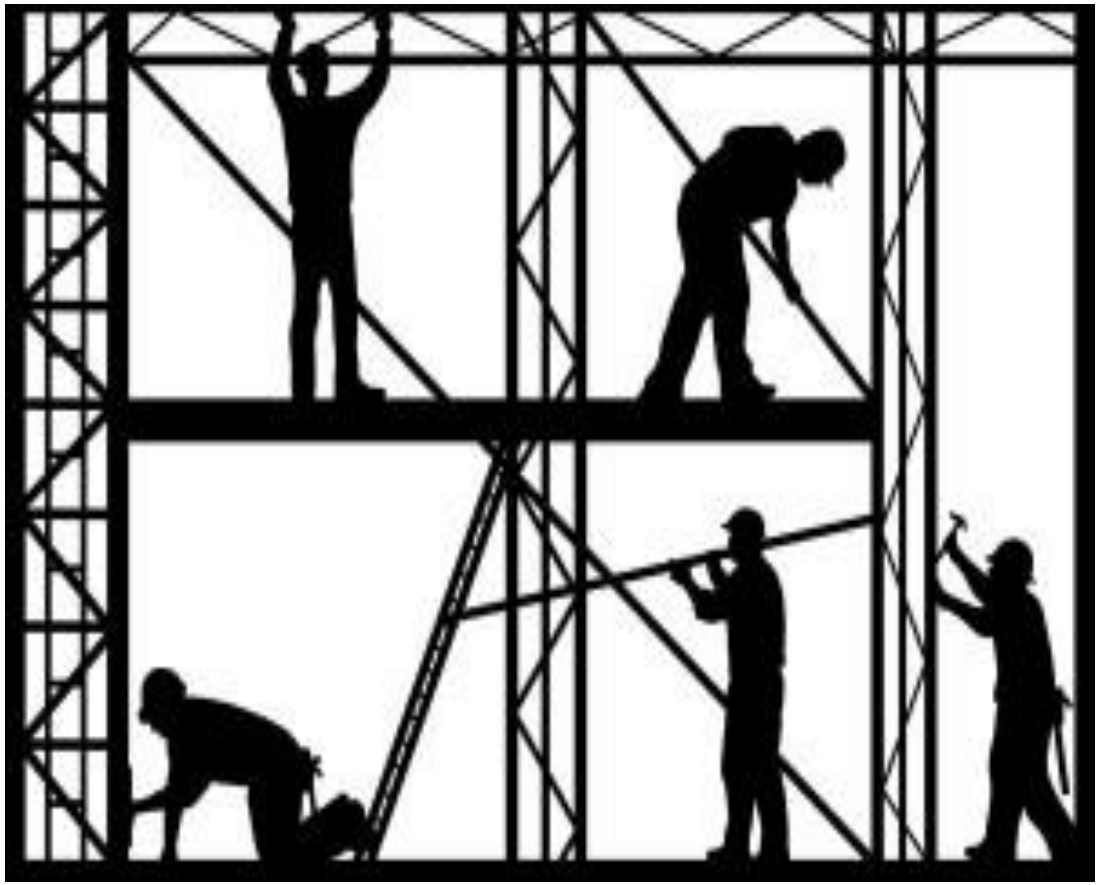
Rank	Industry
1	Information technology and services
2	Computer software
3	Financial services
4	Telecommunications
5	Internet
6	Higher education
7	Marketing and advertising
8	Banking
9	Electrical and electronic manufacturing
10	Retail
11	Management consulting
12	Education management
13	Oil and energy
14	Accounting
15	Government administration
16	Hospital and healthcare
17	Non-profit organisation management
18	Staffing and recruiting
19	Insurance
20	Human resources

Source: LinkedIn customised report (2017)

By Sander van der Wel from Netherlands - Bury your head in the sand..., CC BY-SA 2.0, https://commons.wikimedia.org/w/index.php?curid=34928688

Oh its not that bad!

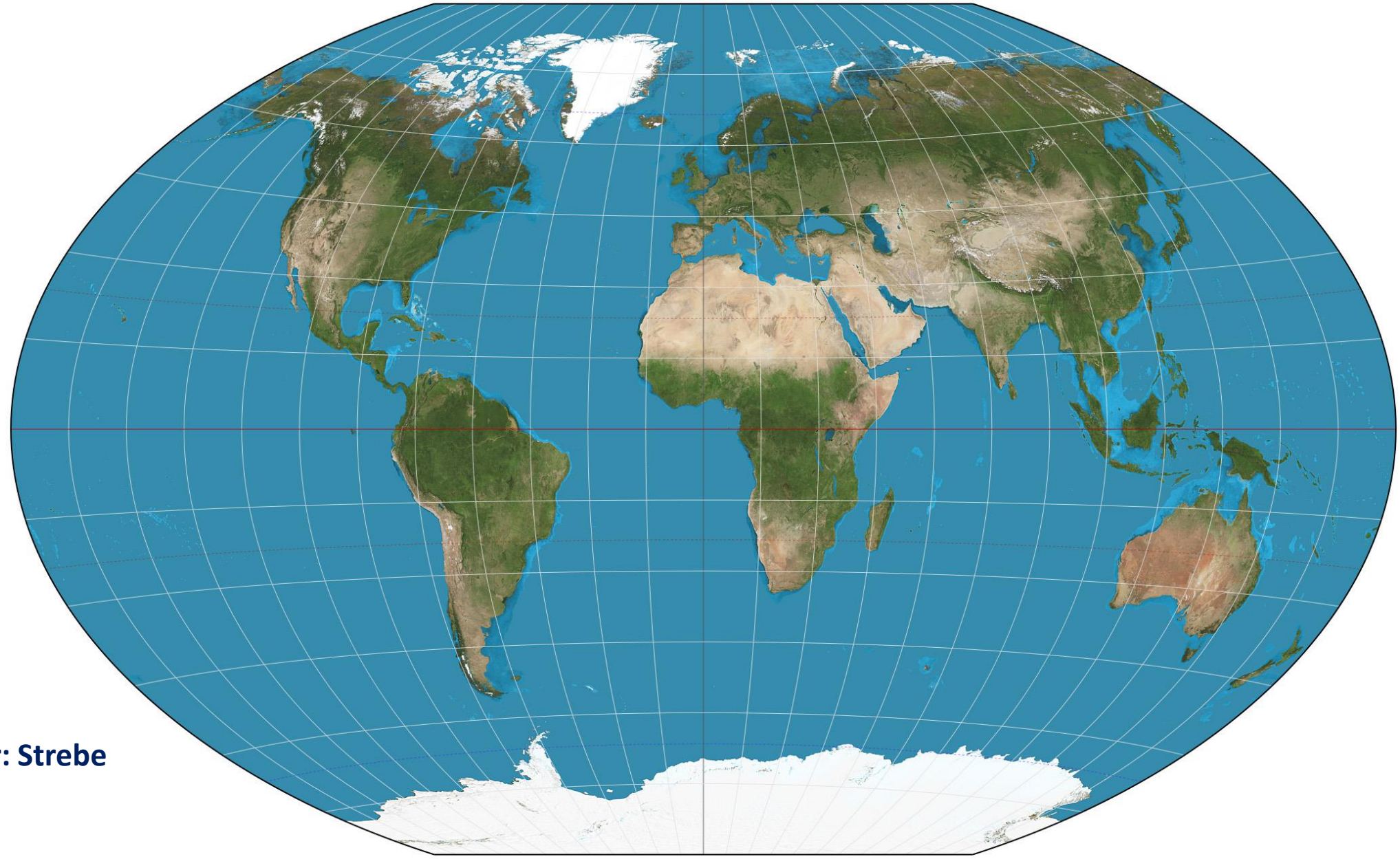
Well actually it is



A Framework is a common approach to describing digital skills

Source: http://constructionmarketingblog.co.uk/are-your-tenders-putting-you-in-the-frame-or-out-of-the-picture

Skills Framework for the Information Age (SFIA) Adopted in 200 countries



Author: Strebe

LEVELS OF RESPONSIBILITY IN SFIA

1. Follow
2. Assist
3. Apply
4. Enable
5. Ensure and Advise
6. Initiate and influence
7. Set strategy, inspire and mobilise

LEVELS OF RESPONSIBILITY IN SFIA

1. Follow	Basic capability to complete tasks under close supervision. Not expected to use much initiative. Should be organised
2. Assist	Uses some discretion and has a wider circle of interaction than level 1, especially in speciality. Works on a range of tasks, and proactively manages personal development
3. Apply	Complete work packages with milestone reviews only. Escalates problems under own discretion. Works with suppliers and customers. May have some supervisory responsibility. Performs a broad range of tasks, takes initiative, and schedules own and others work
4. Enable	Works under general direction in a framework. Influence at account level, works on a broad range of complex activities. Good level of operational business skills
5. Ensure and Advise	Broad direction, supervisory, objective setting responsibility. Influences organisation. Challenging and unpredictable work. Self sufficient in business skills
6. Initiate and influence	Authority for an area of work. Sets organisational objectives. Influences policy, significant part of organisation, and customers and suppliers at a high level. Highly complex and strategic work. Initiates and leads technical and business change
7. Set strategy, inspire and mobilise	Authority includes setting policy. Makes decisions critical to organisation, influences key suppliers and customers at top level. Leads on strategy. Full range of management and leadership skills

Skills Framework for the Information Age (SFIA)

Category	Subcategory	Skill	Code	1	2	3	4	5	6	7
Strategy and architecture	Information strategy	IT governance	GOVN					5	6	7
		Information management	IRMG				4	5	6	7
		Information systems co-ordination	ISCO						6	7
		Information security	SCTY			3	4	5	6	
		Information assurance	INAS					5	6	7
		Information analysis	INAN			3	4	5	6	7
		Information content publishing	ICPM	1	2	3	4	5	6	
	Advice and guidance	Consultancy	CNSL					5	6	7
		Technical specialism	TECH				4	5	6	
	Business strategy and planning	Research	RSCH			3	4	5	6	
		Innovation	INOV					5	6	
		Business process improvement	BPRE					5	6	7
		Enterprise & business architecture development	STPL					5	6	7
		Business risk management	BURM				4	5	6	7
		Sustainability strategy	SUST					5	6	
	Technical strategy and planning	Emerging technology monitoring	EMRG				4	5	6	
		Continuity management	COPL				4	5		
		Software development process improvement	SPIM					5	6	7
		Sustainability management for IT	SUMI					5	6	
		Network planning	NTPL					5	6	
		Solution architecture	ARCH					5	6	
		Data management	DATM				4	5	6	
		Methods and tools	METL				4	5	6	
Business change	Business change implementation	Portfolio management	POMG					5	6	7
		Programme management	PGMG						6	7
		Project management	PRMG				4	5	6	7
		Portfolio, programme and project support	PROF		2	3	4	5		
	Business change management	Business analysis	BUAN			3	4	5	6	
		Requirements definition and management	REQM		2	3	4	5	6	
		Business process testing	BPTS				4	5	6	
		Change implementation planning & management	CIPM					5	6	
		Organisation design and implementation	ORDI					5	6	
		Benefits management	BENM					5	6	
		Business modelling	BSMO		2	3	4	5	6	
		Sustainability assessment	SUAS				4	5	6	
	Relationship management	Stakeholder relationship management	RLMT				4	5	6	7
	Skills management	Learning and development management	ETMG			3	4	5	6	7
		Learning and development assessment	LEDA			3	4	5	6	
		Learning design and development	TMCR				4	5		
		Learning delivery	ETDL			3	4	5		
		Teaching and subject formation	TEAC					5	6	
		Resourcing	RESC					5	6	
		Professional development	PDSV				4	5	6	

Source: SFIA Foundation

Skills Framework for the Information Age (SFIA)

Category	Subcategory	Skill	Code	1	2	3	4	5	6	7
Solution development and implementation	Systems development	Systems development management	DLMG					5	6	7
		Data analysis	DTAN		2	3	4	5		
		Systems design	DESN		2	3	4	5	6	
		Network design	NTDS					5	6	
		Database/repository design	DBDS		2	3	4	5	6	
		Programming/software development	PROG		2	3	4	5		
		Animation development	ADEV			3	4	5	6	
		Safety engineering	SFEN			3	4	5	6	
		Sustainability engineering	SUEN				4	5	6	
		Information content authoring	INCA	1	2	3	4	5	6	
		Testing	TEST	1	2	3	4	5	6	
	Human factors	User experience analysis	UNAN			3	4	5		
		Ergonomic design	HCEV			3	4	5	6	
		User experience evaluation	USEV		2	3	4	5		
		Human factors integration	HFIN					5	6	7
	Installation and integration	Systems integration	SINT		2	3	4	5	6	
		Porting/software integration	PORT			3	4	5	6	
		Systems installation/decommissioning	HSIN	1	2	3	4	5		
Service management	Service strategy	IT management	ITMG					5	6	7
		Financial management for IT	FMIT				4	5	6	
	Service design	Capacity management	CPMG				4	5	6	
		Availability management	AVMT				4	5	6	
		Service level management	SLMO		2	3	4	5	6	7
	Service transition	Service acceptance	SEAC				4	5	6	
		Configuration management	CFMG		2	3	4	5	6	
		Asset management	ASMG				4	5	6	
		Change management	CHMG		2	3	4	5	6	
		Release and deployment	RELM			3	4	5	6	
	Service operation	System software	SYSP			3	4	5		
		Security administration	SCAD			3	4	5	6	
		Radio frequency engineering	RFEN		2	3	4	5	6	
		Applications support	ASUP		2	3	4	5		
		IT operations	ITOP	1	2	3	4			
		Database administration	DBAD		2	3	4	5		
		Storage management	STMG			3	4	5	6	
		Network support	NTAS		2	3	4	5		
		Problem management	PBMG			3	4	5		
		Service desk and incident management	USUP	1	2	3	4	5		
		IT estate management	DCMA			3	4	5	6	
Procurement and management support	Supply management	Procurement	PROC				4	5	6	7
		Supplier relationship management	SURE		2	3	4	5	6	7
		Contract management	ITCM				4	5	6	
	Quality and conformance	Quality management	QUMG					5	6	7
		Quality assurance	QUAS			3	4	5	6	
		Quality standards	QUST		2	3	4	5		
		Conformance review	CORE			3	4	5	6	
		Safety assessment	SFAS					5	6	
		Technology audit	TAUD				4	5	6	7
Client interface	Sales and marketing	Marketing	MKTG			3	4	5	6	
		Selling	SALE				4	5	6	
	Client support	Account management	ACMG					5	6	
		Sales support	SSUP	1	2	3	4	5	6	
		Client services management	CSMG			3	4	5	6	

Source: SFIA Foundation

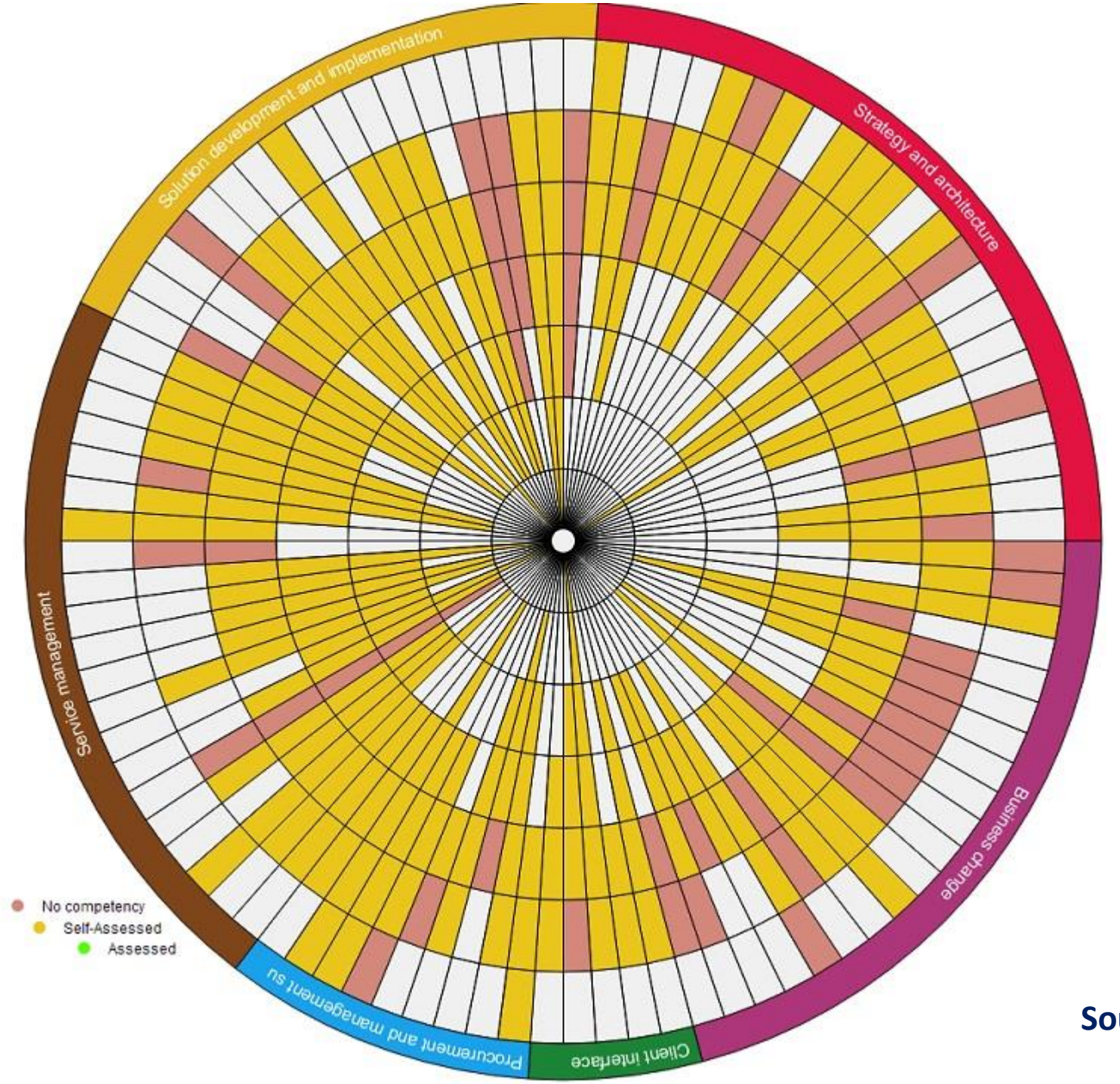
EXAMPLE

Programming/Software Development (Prog)

Level 3

Designs, codes, tests, corrects, and documents moderately complex programs and scripts from agreed specifications and subsequent iterations, using agreed standards and tools. Collaborates in reviews of specifications, with others as appropriate.

My SFIA



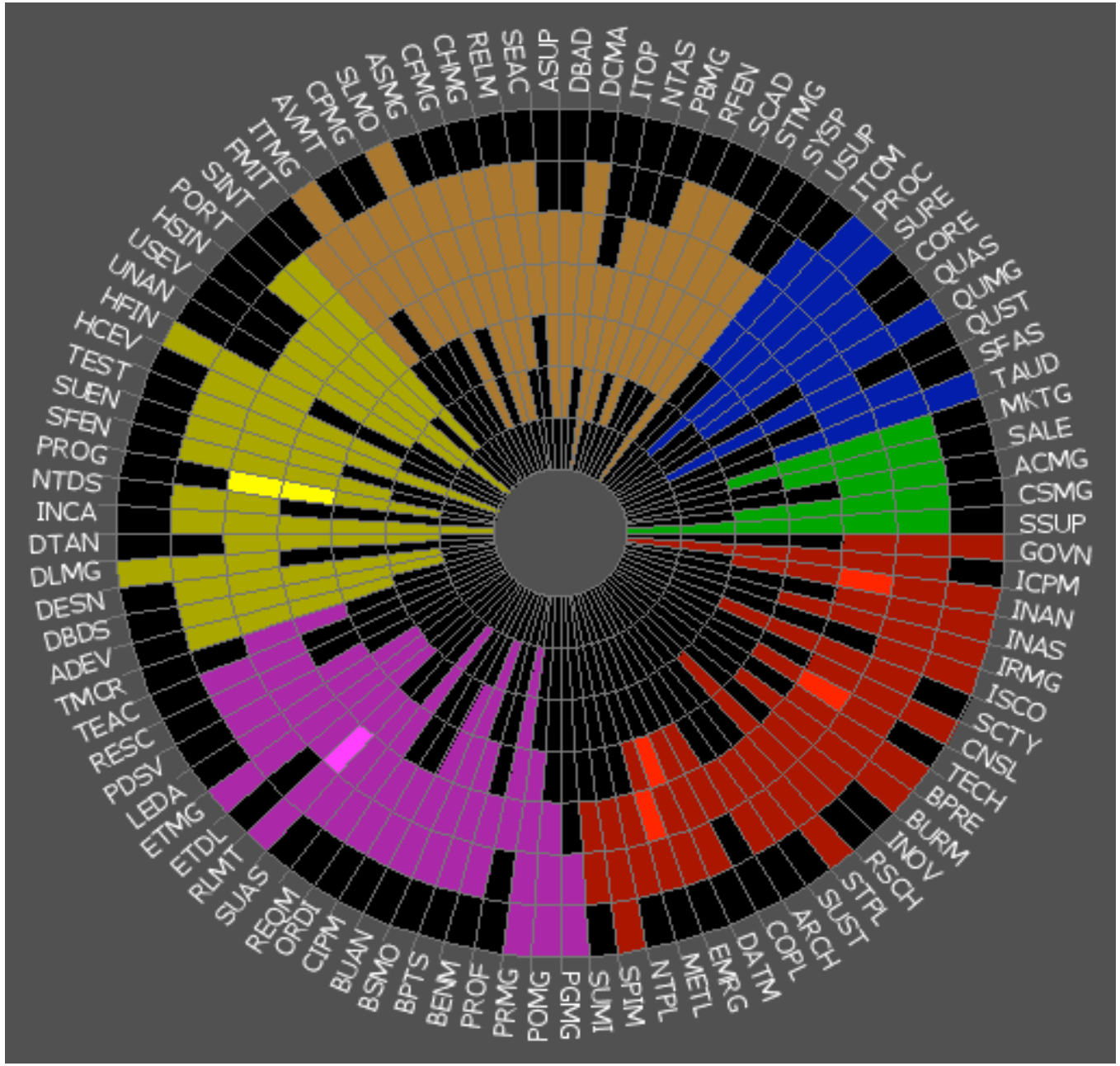
Source: ACS

Example of a specific application for a Data Scientist Role

Table 1. – Data Science career role descriptions mapped to SFIA (Level 5)

Principal SFIA Skills	Relationship to the Data Science Consultant Career Role
Information Analysis (INAN)	Data scientists analyse data to discover and quantify patterns in information using statisti statistical inference, regression analysis, and machine learning.
Data Analysis (DTAN)	Data Scientists manage data requirements and establish and modify data structures leadi the retrieval, transformation, and analysis of data.
Methods and Tools (METL)	Data scientists ensure appropriate methods and tools are applied to retrieve, transform, c visualise, and analyse data and to build related data products.
Consultancy (CNSL)	Data scientists consult with clients to recommend and implement approaches to address business questions, leading to new insights and knowledge, informing decision making ar predicting outcomes.
Research (RSCH)	Data scientists form and test hypotheses based on a statistically rigorous and repeatable methodology involving the analysis of complex data sets.
Technical Specialism (TECH)	Data scientists require specialist knowledge in a range of topics including statistics, statis inference, high performance computing, and visualisation.
Project Management (PRMG)	Data scientists manage data science projects within agreed parameters of cost timescale quality.
Programming (PROG)	Data scientists write programs and integrate custom-off-the-shelf solutions to retrieve, cle transform, and visualise data, and build predictive data products that inform business decisions.

Source: "Assessing the work readiness skills of ICT Graduates" - B.R. Von Konsky, Charlynn Miller, Asheley Jones



Example visualisation of skills and levels for a Data Science career role

Source: "Assessing the work readiness skills of ICT Graduates" - B.R. Von Konsky, Charlynn Miller, Asheley Jones

SFIA v7 Consultation Launch

In the current landscape, the level of interest and the vital importance of Digital, IT and Technology skills and capabilities has never been higher. The industry's concerns are:

1. The implications of skills shortages.
2. Digital transformation of both private and public sector organisations.
3. The engineering processes used for both developing software and operating the services which use software and technology
4. Enhancing the employability of those leaving education and reducing the time needed for them to become productive in the workplace.
5. Cybersecurity (privacy, confidentiality, security, trust, legal issues, and governance).

Consultation launches July 2017 and will be published in March 2018

Source: SFIA Foundation: SFIA V6 The Complete Reference Guide

Source: https://mhacks.devpost.com/submissions/17504-soapbox

Questions?

Source: http://www.dreamstime.com/business-is-full-of-thoughts-free-stock-photo-imagefree136985 |© Andres Rodriguez| Dreamstime Stock Photos

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