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Demand & Impacts on Tech & Digital Skills SFIA 8 Update

An ACS Technical
White Paper Supplement







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Education

Foreword

ACS uses SFIA (the Skills Framework for the Information Age) as the core set of definitions against which individual technology professionals, and the organisations for which they work, establish a skills benchmark. By applying the consistent definitions of, broadly defined, professional tech and digital skills, SFIA supports the alignment of skills and capabilities to people and roles, as well as future skills planning.

SFIA 8, released by the SFIA Foundation on 28 September 2021, has an additional 21 skills and is substantially restructured to highlight the need for deeper skills in:

- Security and privacy – including Vulnerability research, Personal data protection, Threat intelligence
- Governance, risk and compliance – with the skill of Audit
- Data and analytics – defining Data engineering, Machine learning, Data science, Business intelligence
- Change analysis and change planning – with Business situation analysis, Feasibility assessment, Organisational change management
- Computational science – identifying Scientific modelling, Numerical analysis and High-performance computing
- Technology management – Technology service management
- Security services – Security operations and Vulnerability assessment
- People management – Employee experience, Organisational facilitation, Workforce planning

An effect of the redesign of SFIA into version 8 is to more thoroughly encompass the complementary skills used by people, either specifically in their tech and digital roles or, for those that don't have an intrinsically technology role but, who support tech and digital teams. For example not every professional working in the field of data considers themselves to be in a tech or digital role, nor do those who might be working in security. Nevertheless SFIA 8 allows the comprehensive definition of security and data skills – in whichever context they are being used.

There are now also skills defined in SFIA that outline capabilities such as Business administration, Certification scheme operation, Subject formation – again adopting an inclusive approach to the skills used in and around the technology functions in organisations.

ACS' Workforce Development Team has mapped and updated the 90 tech and digital roles and their top five skills to those now available in SFIA 8. These 90 updated role profiles have also been published on mySFIA – ACS' platform for individual tech and digital professionals, and businesses, to define, benchmark and record the skills, abilities and expertise needed in tech and digital roles.

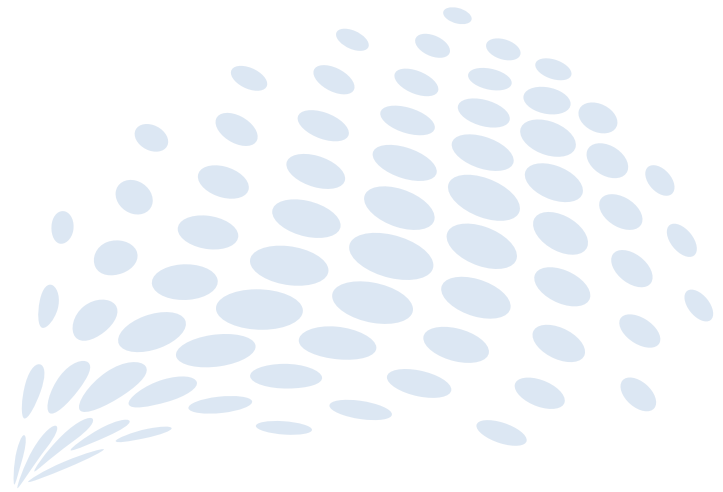
The refreshed framework that is SFIA 8, and its translation into the profiles of the 90 tech and digital job roles in ACS' *Demand & Impacts on Tech & Digital Skills White Paper*, continues the detailed examination of digital workforce trends, spotlighting skills and capabilities that are increasingly needed across the economy.

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01



Top 15 Roles & Skills

ACS members have been the vital source of information and data on the topline roles and skills currently in use. Using role and skills data from industry intelligence, and from the *ACS Tech & Digital Skills Survey 2020*, the top 15 roles and related skills have been identified and described against SFIA.

Each of these 15 roles are listed with related skills in Appendix 1 | 90 Tech and Digital Roles.

The following table lists the fifteen top reported roles, the career streams within which they sit in the Appendix and the percentage of that stream each role makes up. Features of these most reported roles and related skills are:

- Four of the top fifteen roles are in the Design & Development stream – Developer/Programmer, Software Engineer, FullStack Developer, Solution Architect
- Two of the top fifteen roles are in the Project, Program, Portfolio Management stream – Project Manager, Program Manager

Top 15 Roles	# Responses	Career Stream	% of Stream
Business Analyst	116	Business Analysis	94
Developer/Programmer	103	Design & Development	38
Systems Administrator	74	Systems Administration	50
Software Engineer	71	Design & Development	26
Data Analyst	60	Data, Big Data & Data Science	47
Security Analyst	43	Security - Cyber, Systems, Information	40
General Manager	43	Technology Leadership	52
Project Manager	42	Project, Program, Portfolio Management	41
Full Stack Developer	41	Design & Development	15
Solution Architect	38	Design & Development	14
Test Analyst	37	Testing	42
Service Delivery/Operations Manager	36	Service Delivery & Management	53
ICT/IT Consultant	36	Digital Transformation	47
Program Manager	35	Project, Program, Portfolio Management	34
Academic	35	Research & Development	90

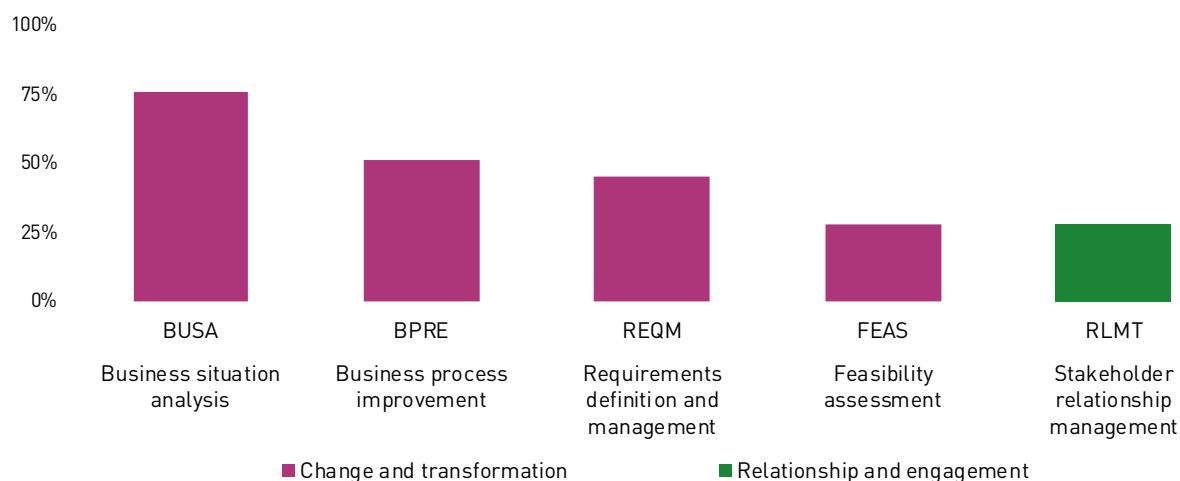
Table 1: ACS Tech & Digital Skills Survey 2020 – Most reported roles

The top 15 reported roles and the top five SFIA 8 skills for each role follow:

BUSINESS ANALYST

The following five skills are the highest reported by 116 respondents against the Business Analyst role:

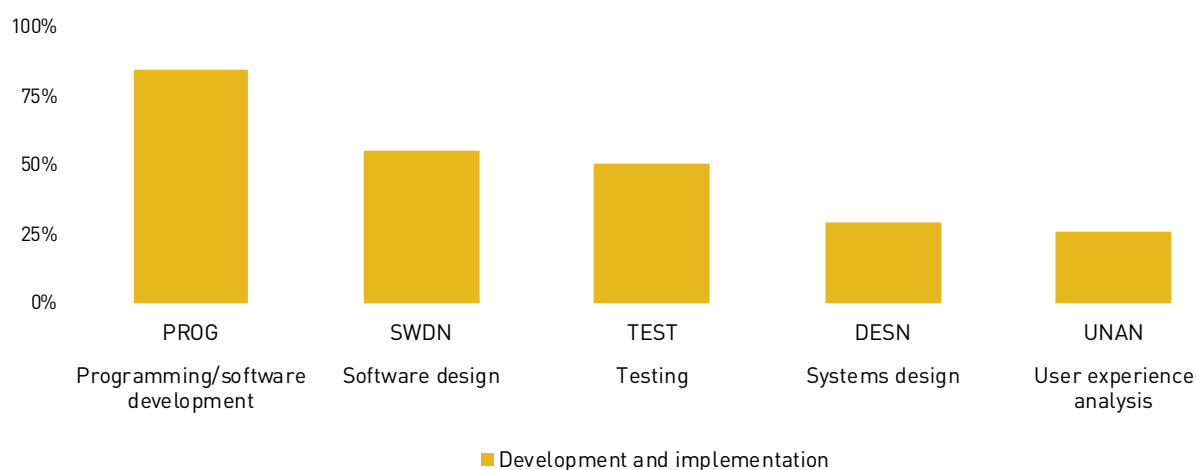
SFIA Level 5



DEVELOPER/PROGRAMMER

The following five skills are the highest reported by 103 respondents against the Developer/Programmer role:

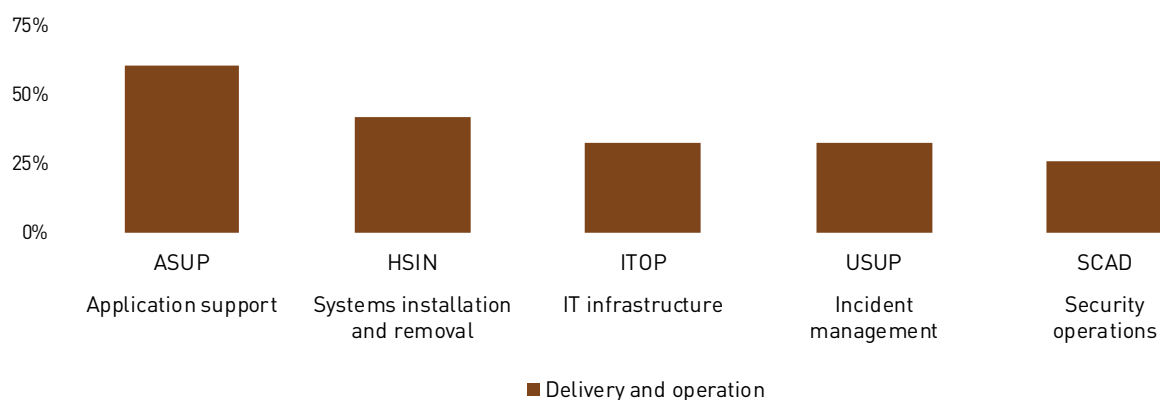
SFIA Level 4



SYSTEMS ADMINISTRATOR

The following five skills are the highest reported by 74 respondents against the Systems Administrator role:

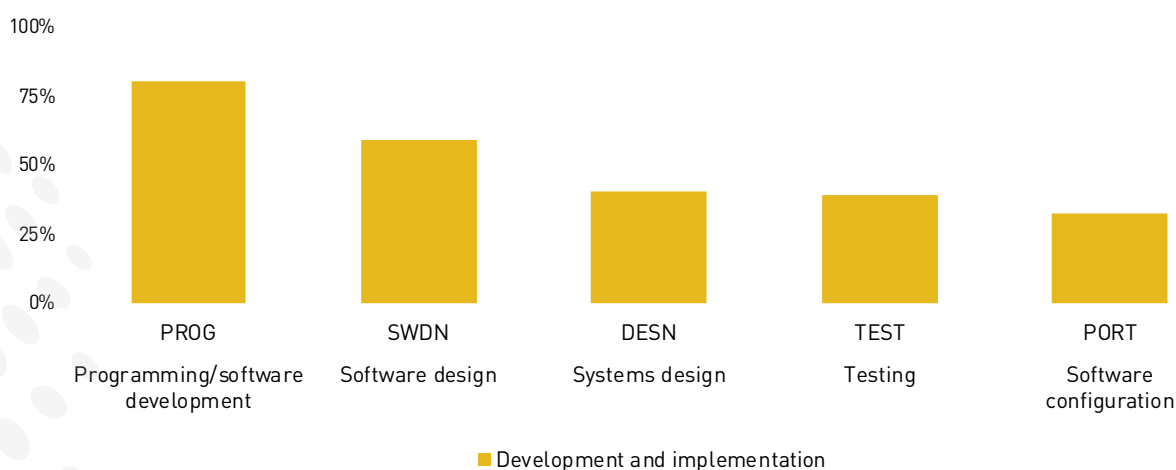
SFIA Level 4



SOFTWARE ENGINEER

The following five skills are the highest reported by 71 respondents against the Software Engineer role:

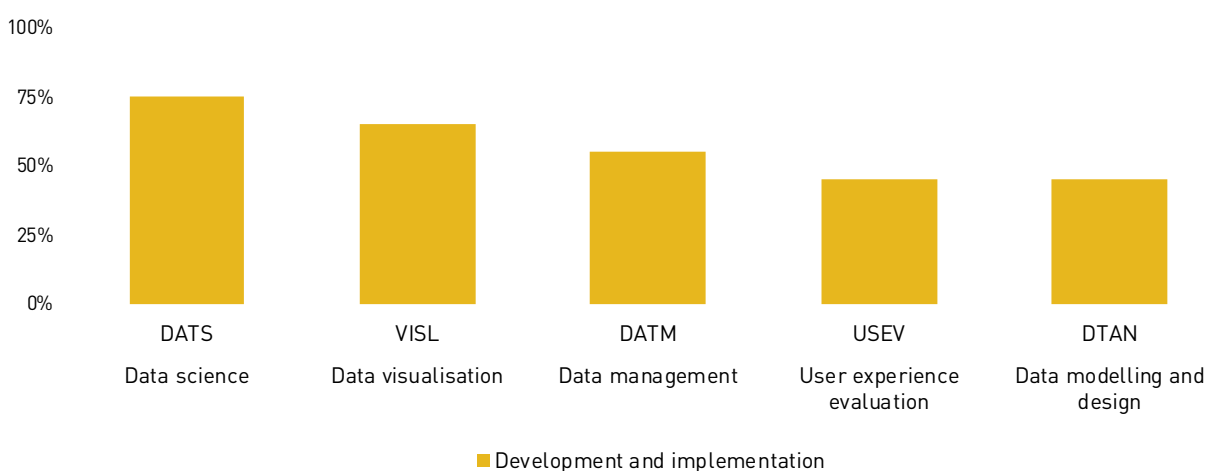
SFIA Level 5



DATA ANALYST

The following five skills are the highest reported by 60 respondents against the Data Analyst role:

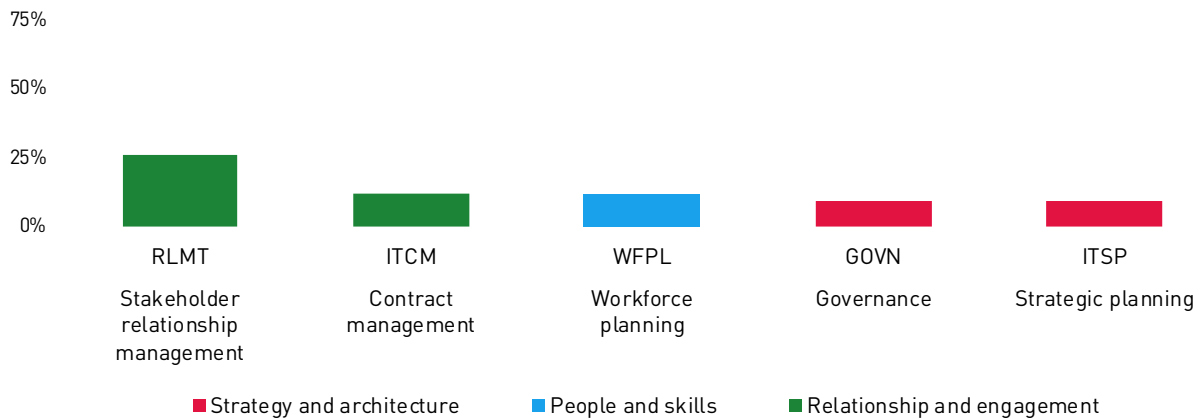
SFIA Level 4



GENERAL MANAGER

The following five skills are the highest reported by 43 respondents against the General Manager role:

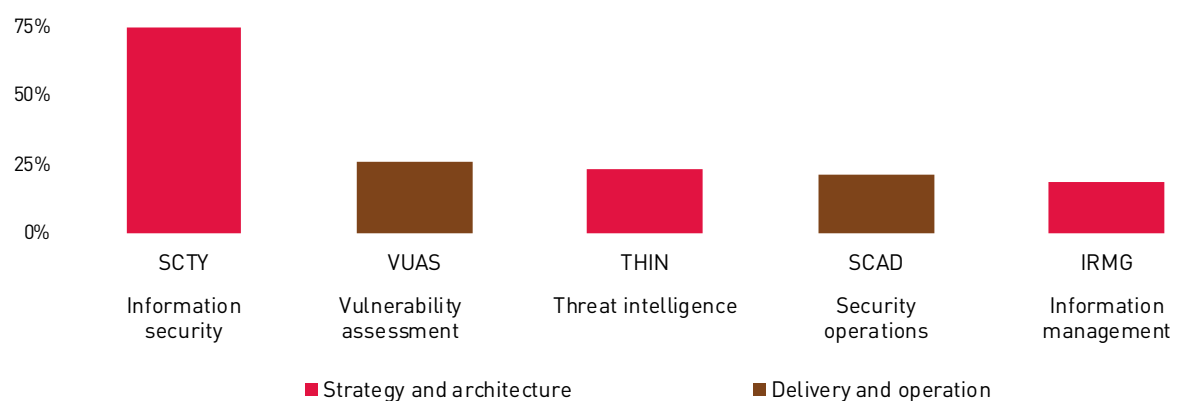
SFIA Level 6



SECURITY ANALYST

The following five skills are the highest reported by 43 respondents against the Security Analyst role:

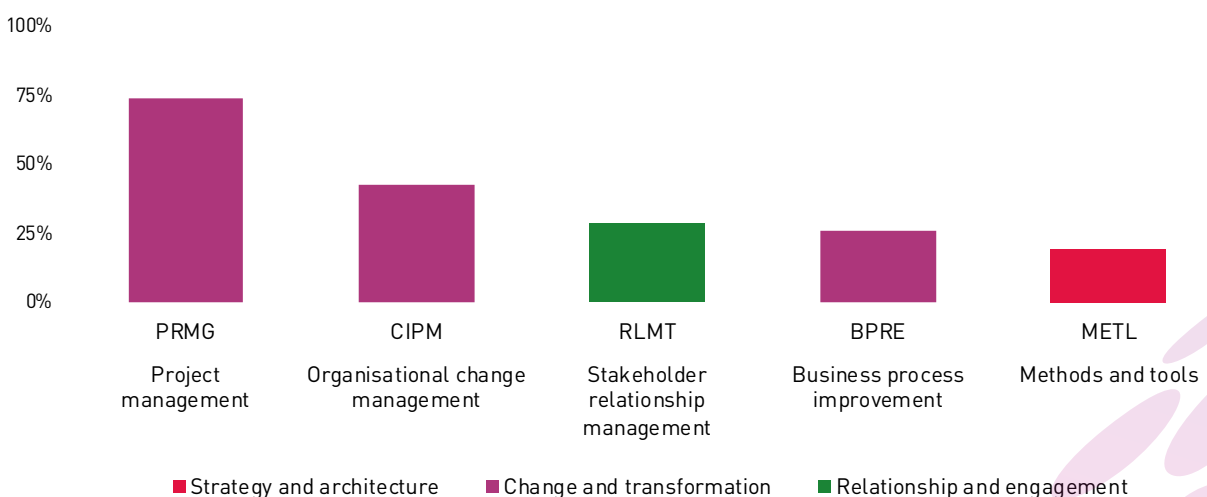
SFIA Level 4



PROJECT MANAGER

The following five skills are the highest reported by 42 respondents against the Project Manager role:

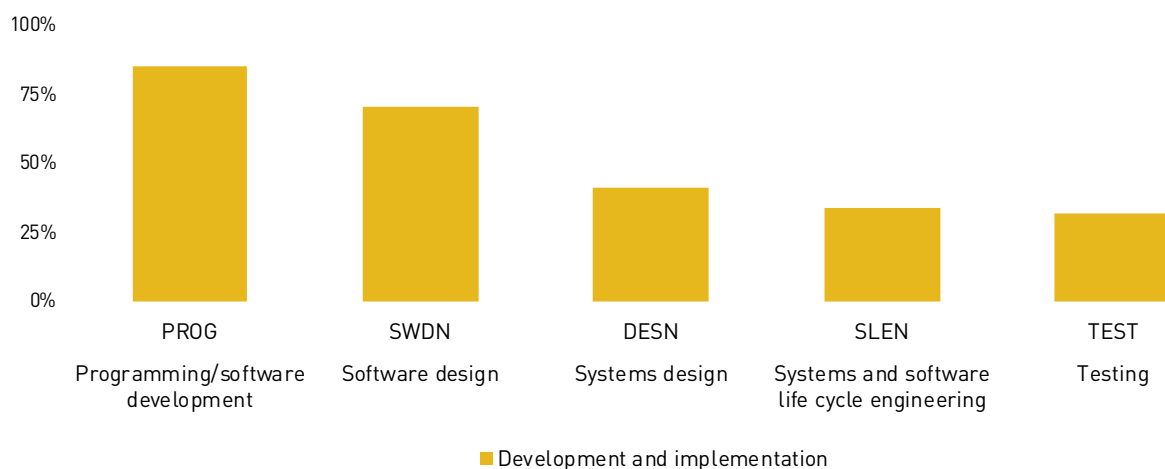
SFIA Level 5



FULLSTACK DEVELOPER

The following five skills are the highest reported by 41 respondents against the FullStack Developer role:

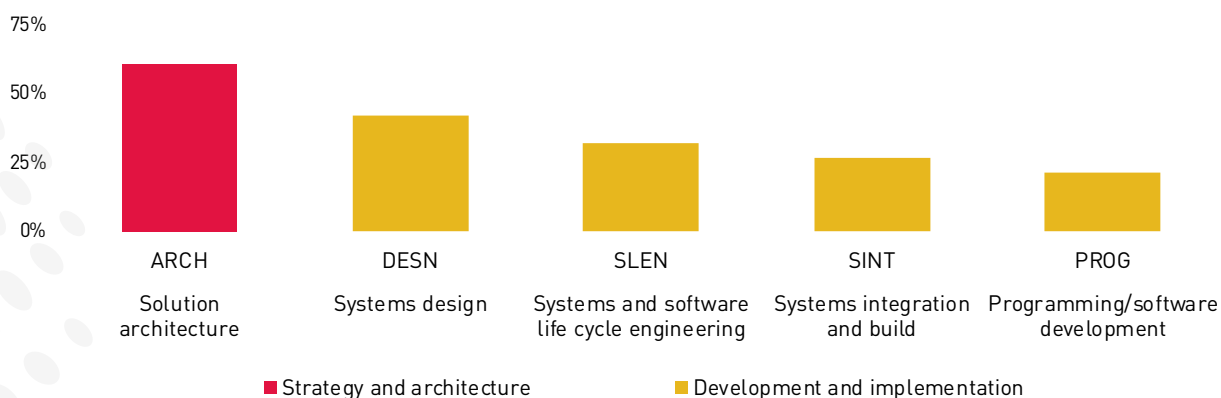
SFIA Level 4



SOLUTION ARCHITECT

The following five skills are the highest reported by 38 respondents against the Solution Architect role:

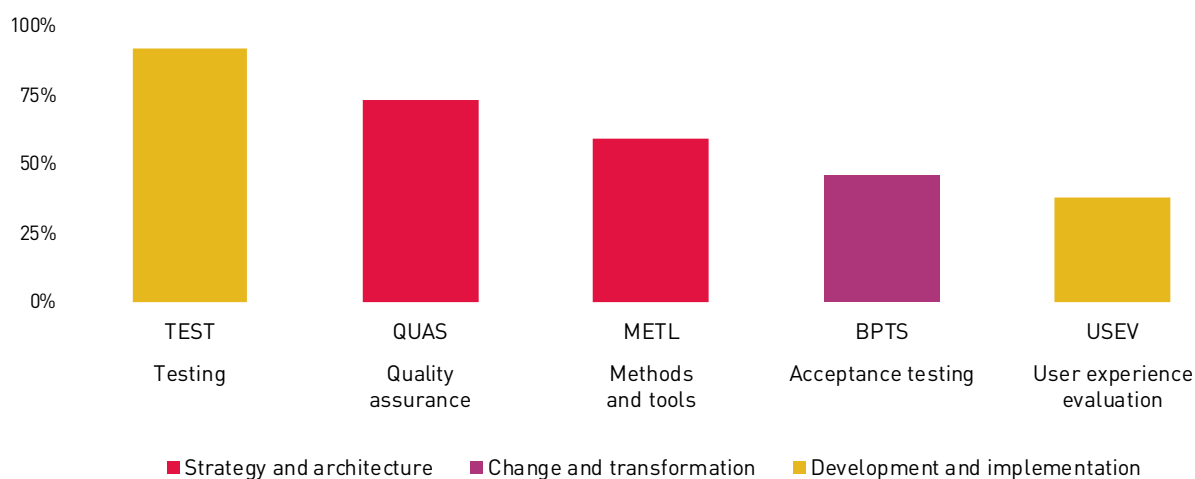
SFIA Level 5



TEST ANALYST

The following five skills are the highest reported by 37 respondents against the Test Analyst role:

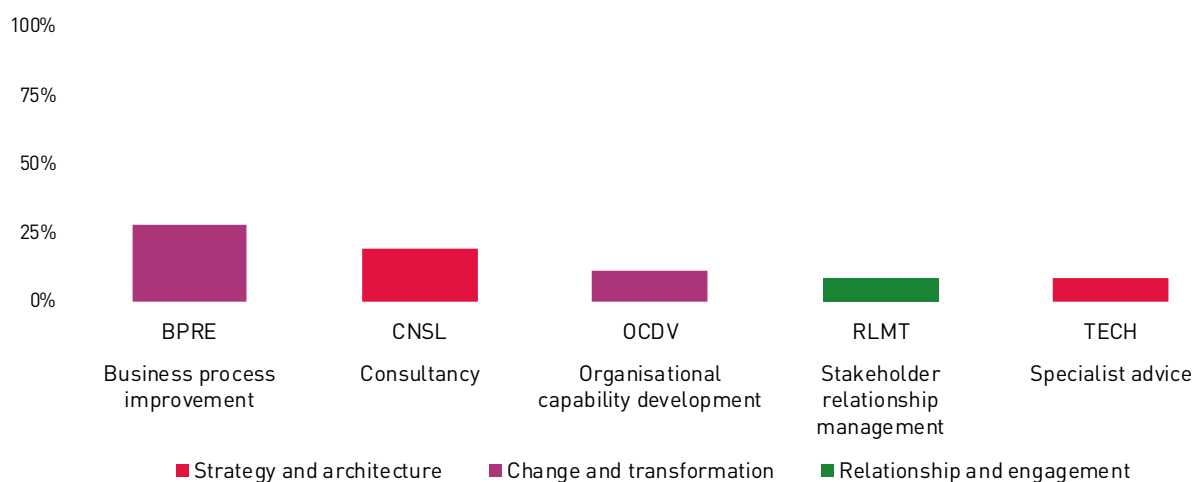
SFIA Level 4



ICT/IT CONSULTANT

The following five skills are the highest reported by 36 respondents against the ICT/IT Consultant role:

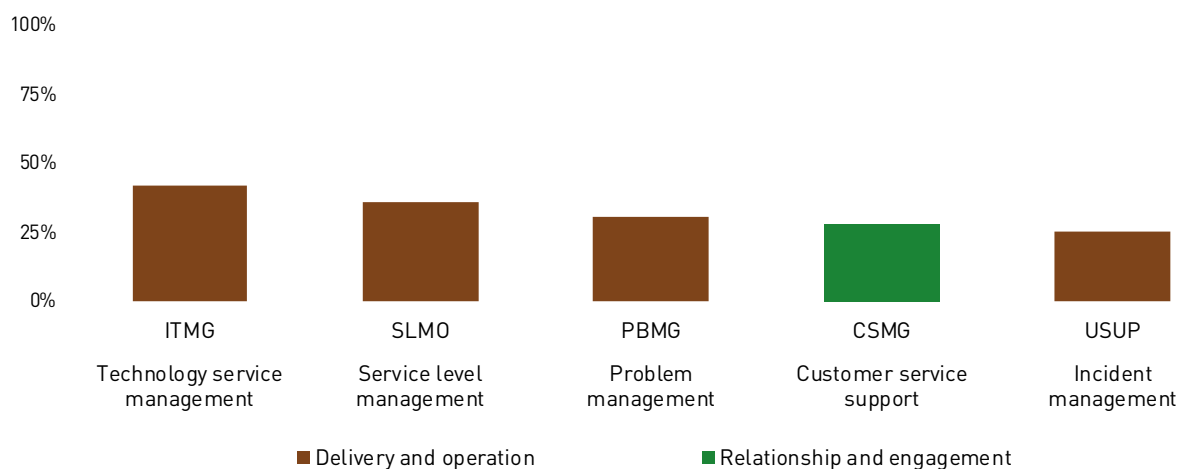
SFIA Level 5



SERVICE DELIVERY/OPERATIONS MANAGER

The following five skills are the highest reported by 36 respondents against the Service Delivery/Operations Manager role.

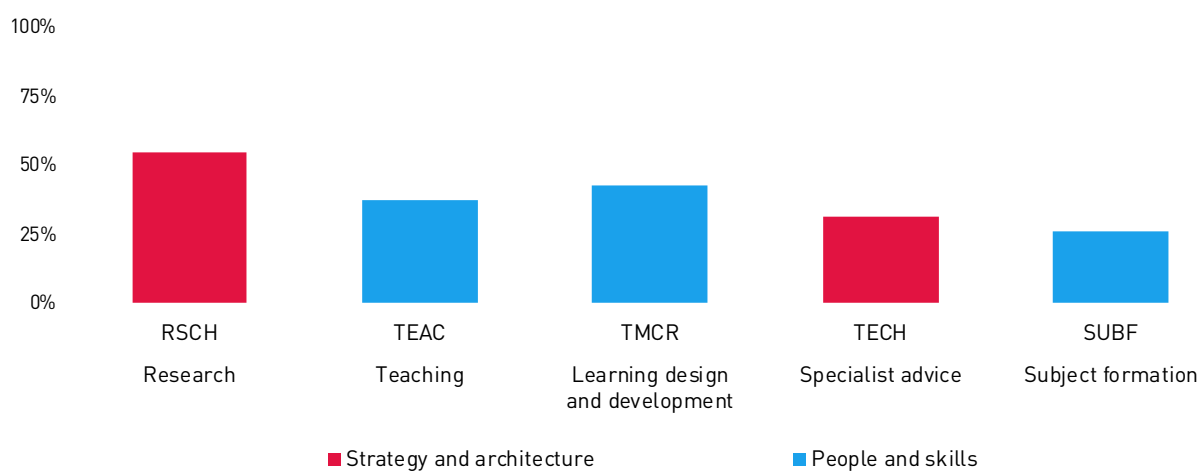
SFIA Level 5



ACADEMIC

The following five skills are the highest reported by 35 respondents against the Academic role:

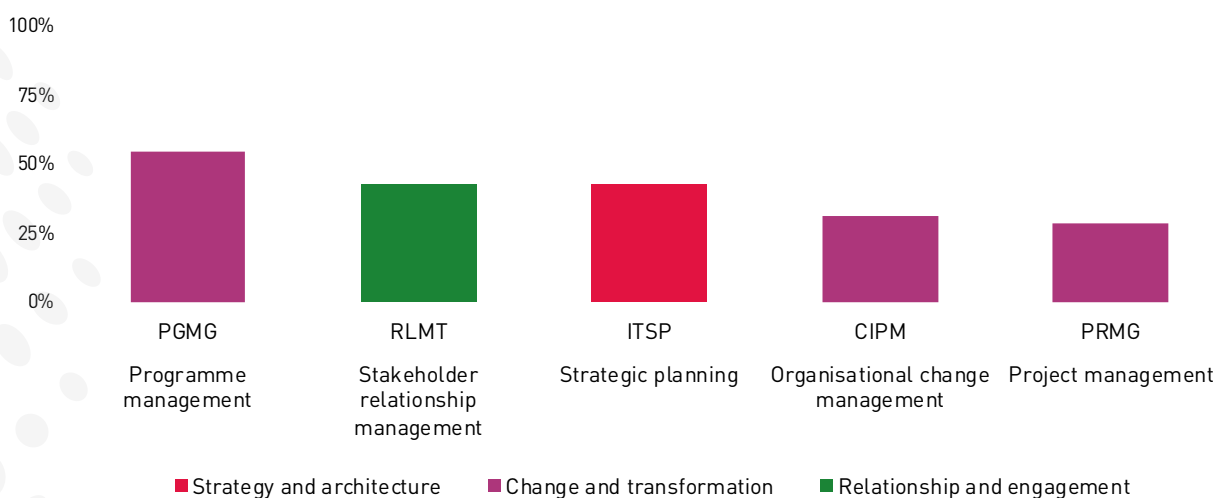
SFIA Level 5



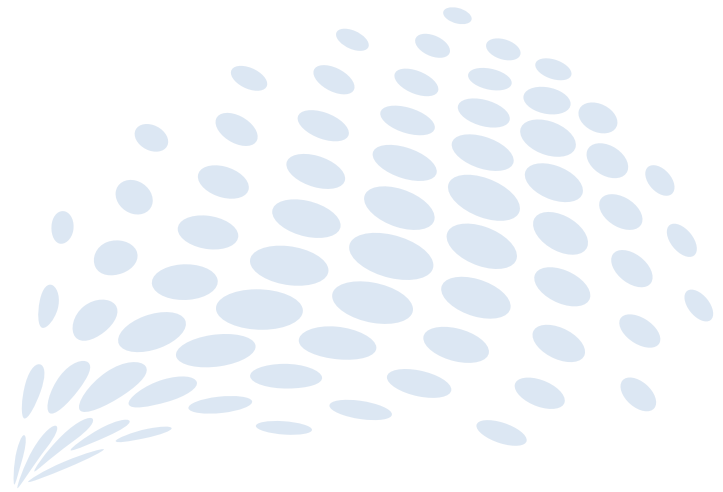
PROGRAM MANAGER

The following five skills are the highest reported by 35 respondents against the Program Manager role:

SFIA Level 6



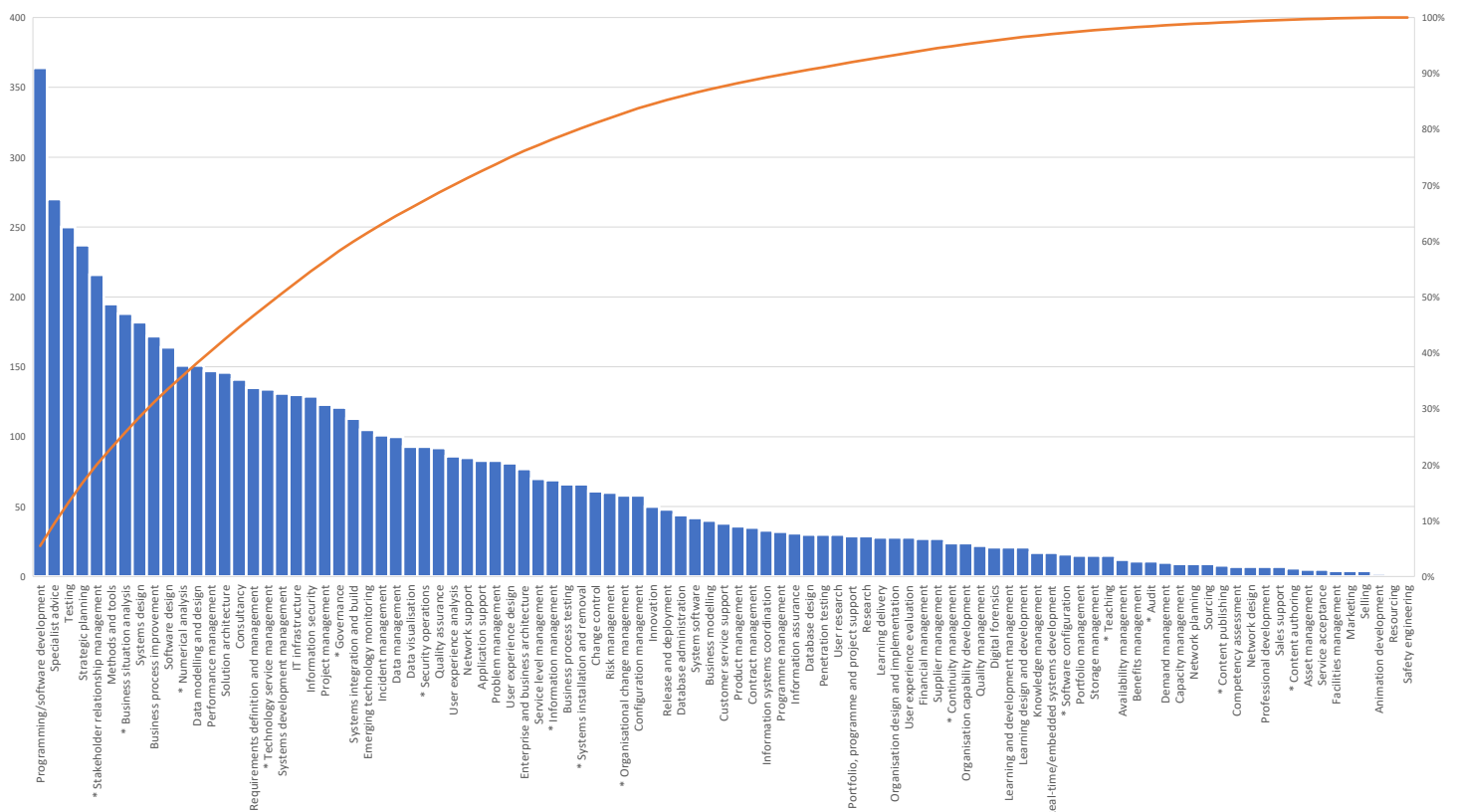
02



Most Reported Skills Across 90 Roles

This Figure has been retained from the White Paper to reinforce the skills most reported by respondents to ACS' *Tech & Digital Skills Survey 2020* and translated into SFIA skills, with 97 of 102 SFIA 7 skills having been reported.

MOST TO LEAST REPORTED SKILLS (SFIA 8)



* Skill name updated in mapping to SFIA 8

Figure 1: ACS Tech & Digital Skills Survey 2020 – Most to least reported skills

APPENDIX 1

90 Tech & Digital Roles

by Career Stream, with Top Five SFIA 8 Skills

This appendix provides the following information on the top 90 tech and digital roles that were reported in *ACS Tech & Digital Skills Survey 2020*:

- the **role** (from most to least reported) and its **SFIA 8 level** of responsibility
- the pathway, **stream** or domain in which the role is working or operating
- the **top five skills** related to the role and the **SFIA 8 category** in which each skill sits
- the **percentage of responses** for each top skill.

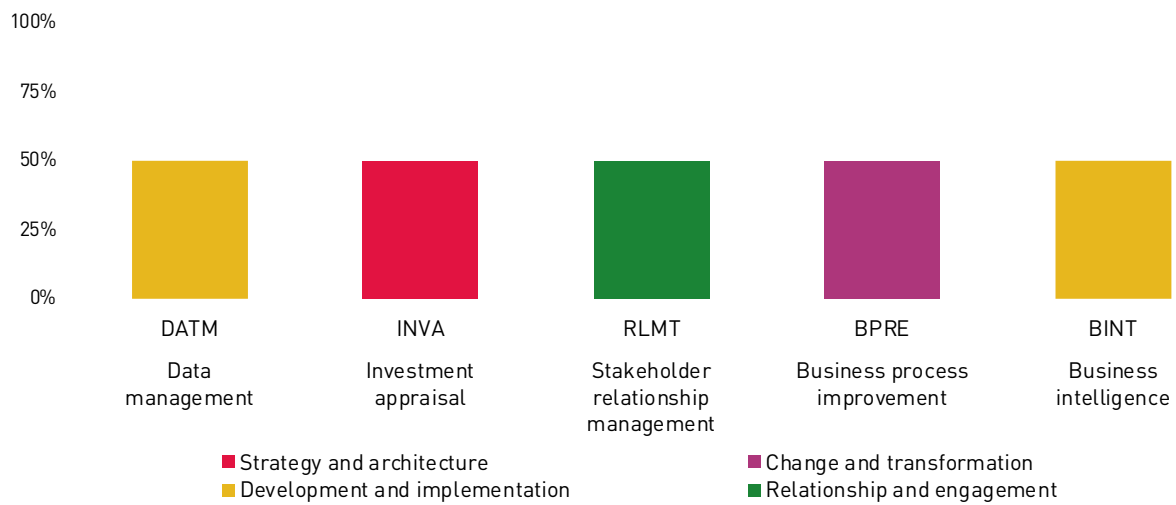
Commentary in ACS' *Demand & Impacts on Tech & Digital Skills White Paper* identified that tech and digital professionals are increasingly taking a pathway approach to setting up their professional careers. Noting the stream or pathway within which the role is operating allows both individual professionals and businesses to:

- look strategically at current roles
- upskill to future capabilities in a targeted fashion
- look at skills and role mobility within a logical stream or domain of work

AI, MACHINE LEARNING, ROBOTICS STREAM

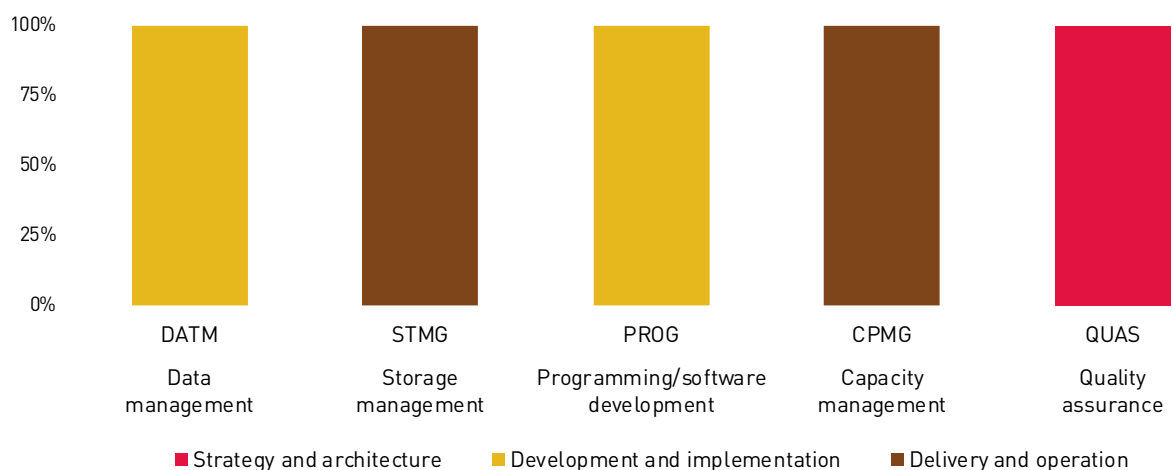
AI Decision-maker

SFIA Level 5



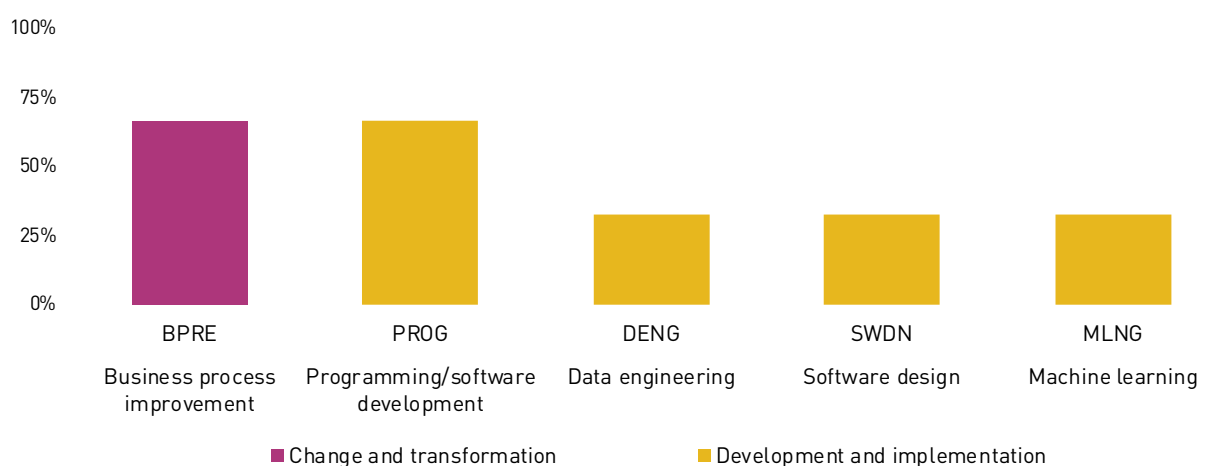
Deep Learning Engineer

SFIA Level 5



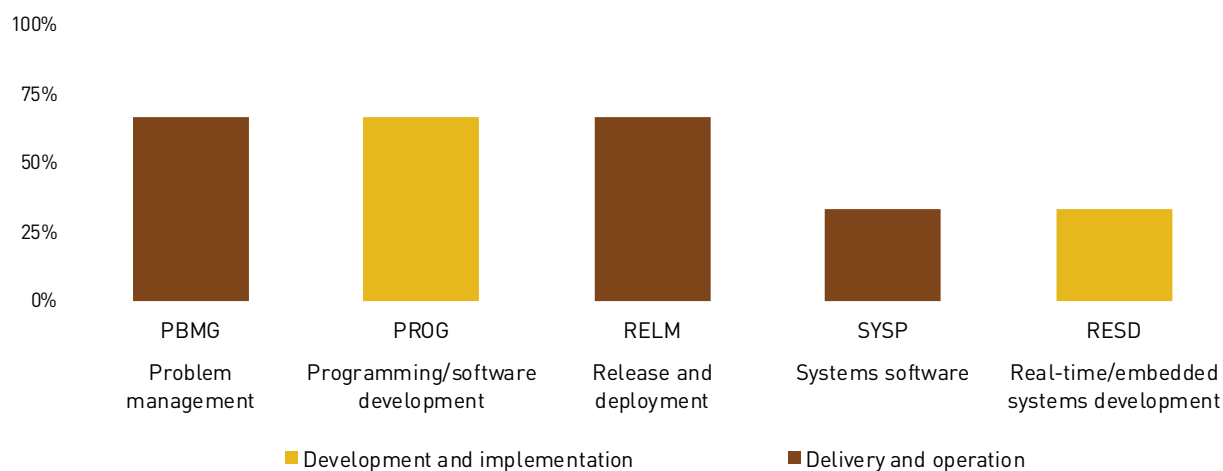
Machine Learning Engineer

SFIA Level 5



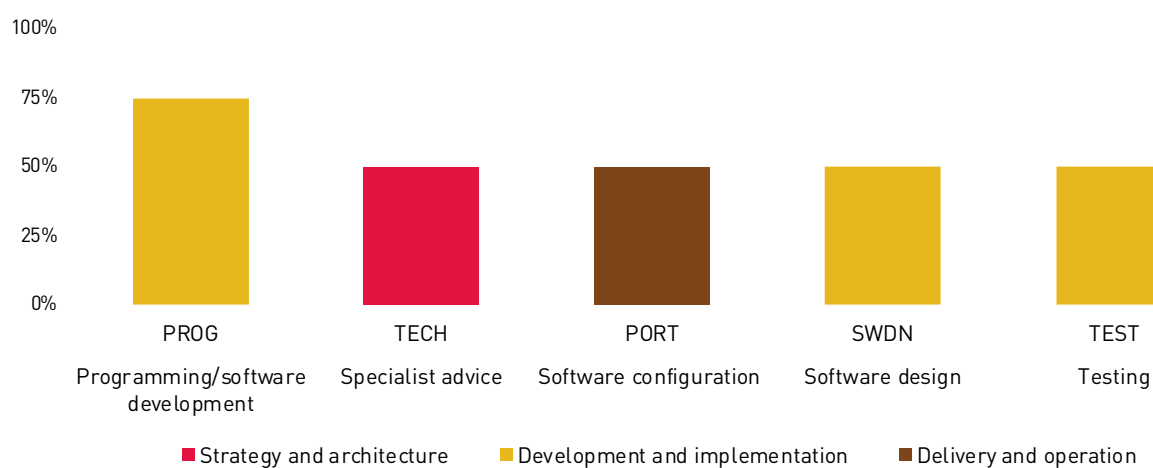
Robotics Technician

SFIA Level 4



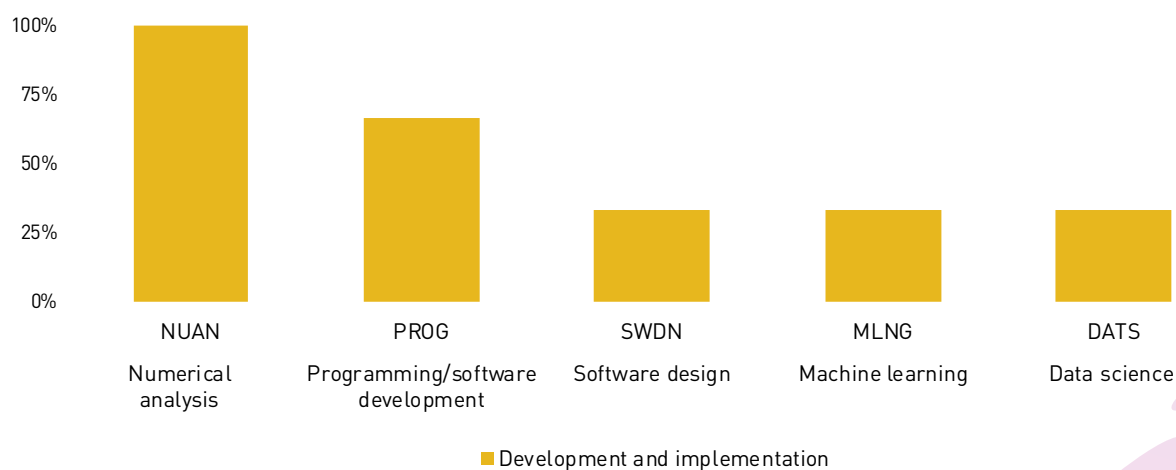
Robotics Automation/Developer

SFIA Level 4



Algorithm Developer

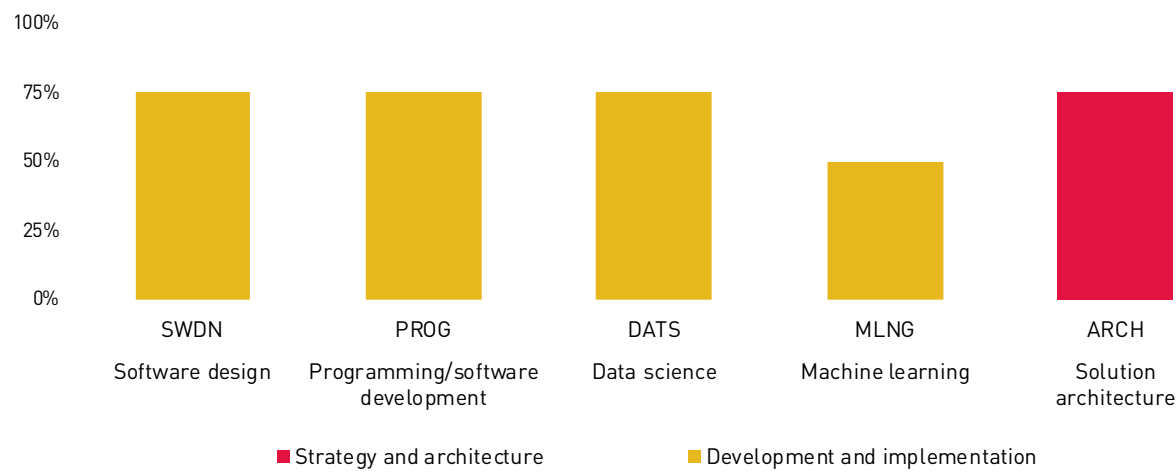
SFIA Level 4



BLOCKCHAIN STREAM

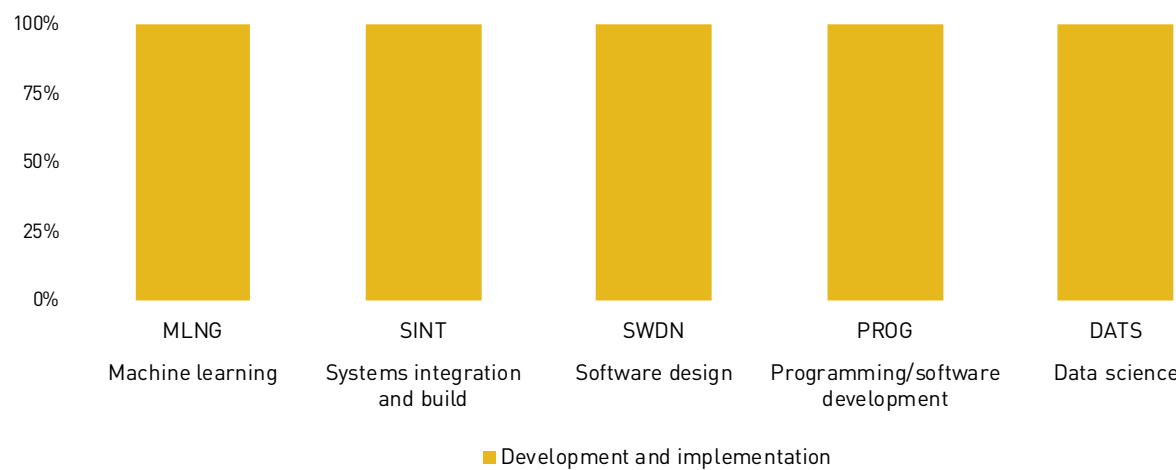
Blockchain Technical Architect

SFIA Level 5



Blockchain Engineer

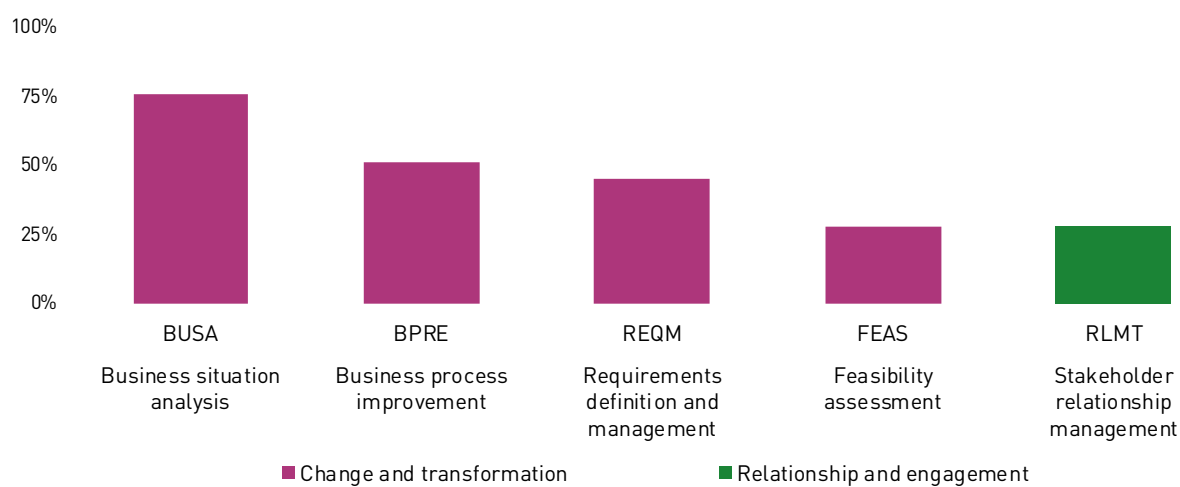
SFIA Level 5



BUSINESS ANALYSIS STREAM

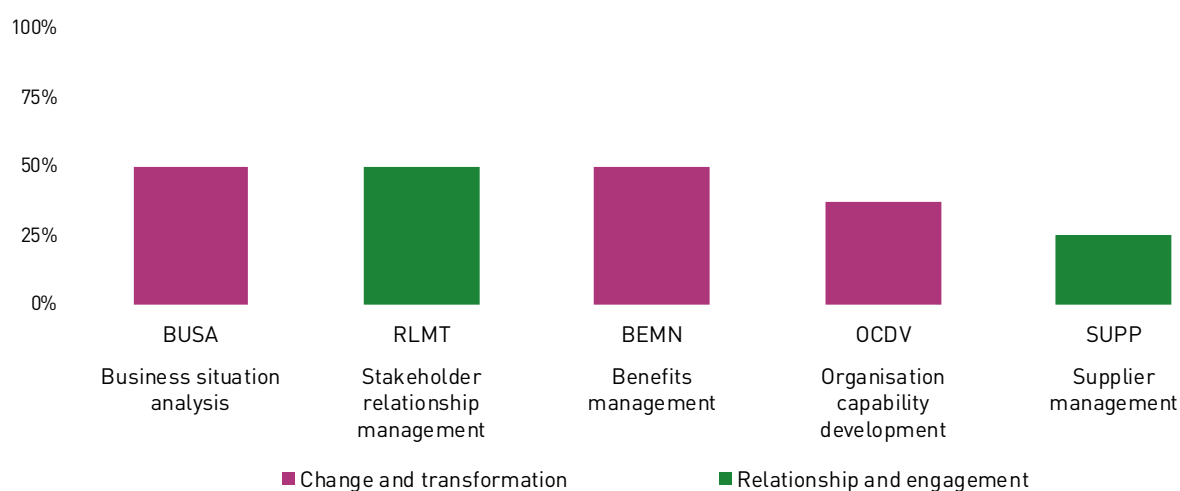
Business Analyst

SFIA Level 5



Relationship Manager

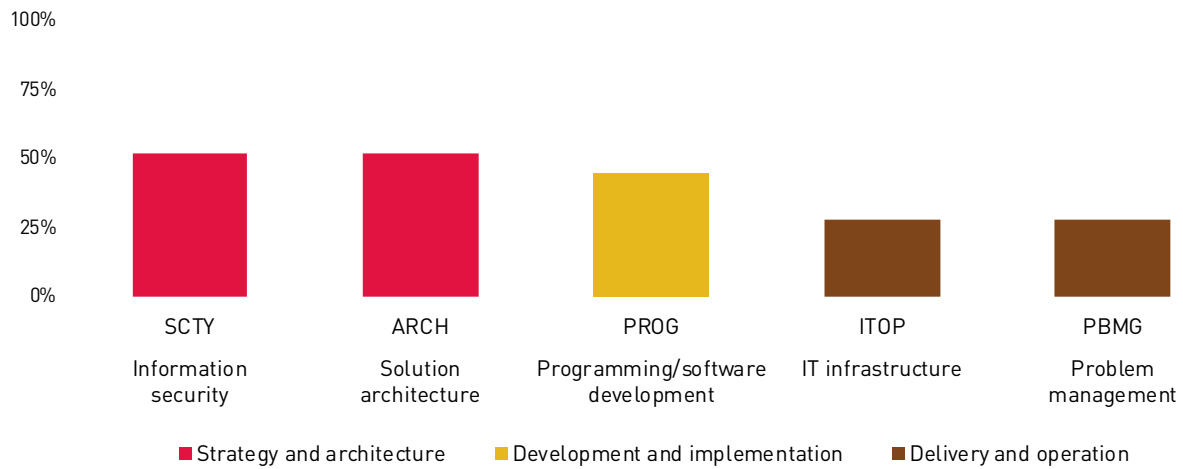
SFIA Level 5



CLOUD SERVICES STREAM

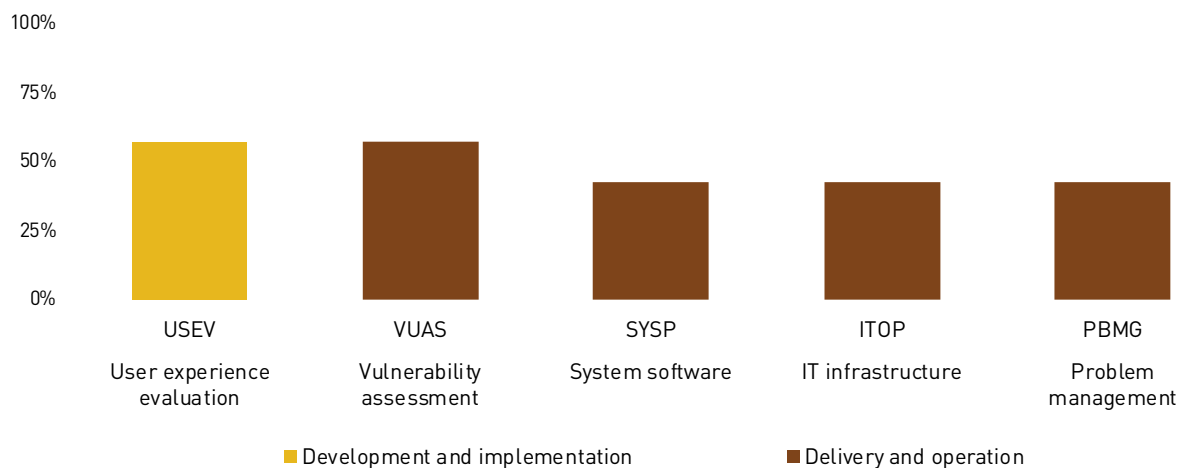
Cloud Engineer

SFIA Level 4



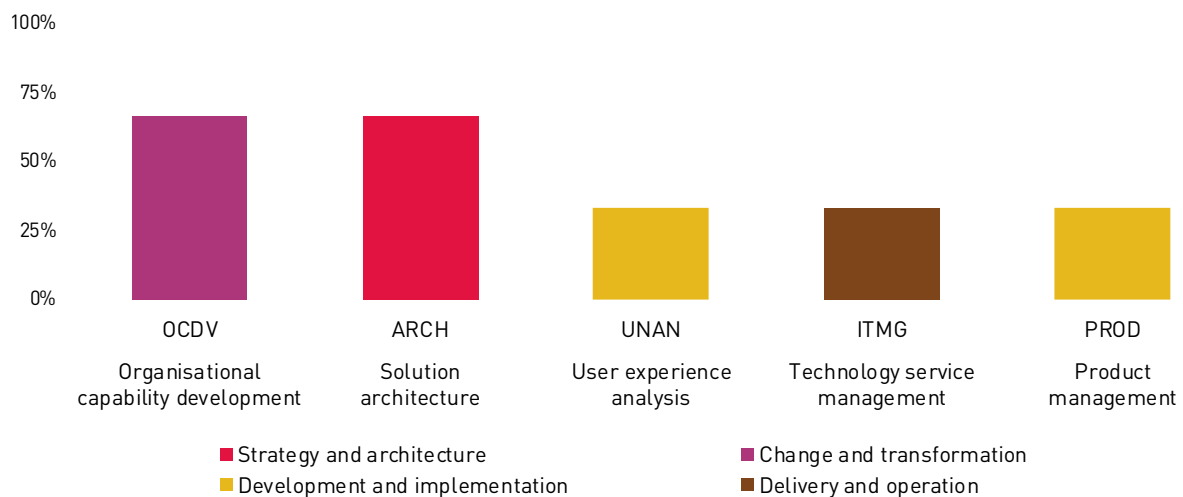
Cloud Analyst

SFIA Level 4



Cloud Evangelist

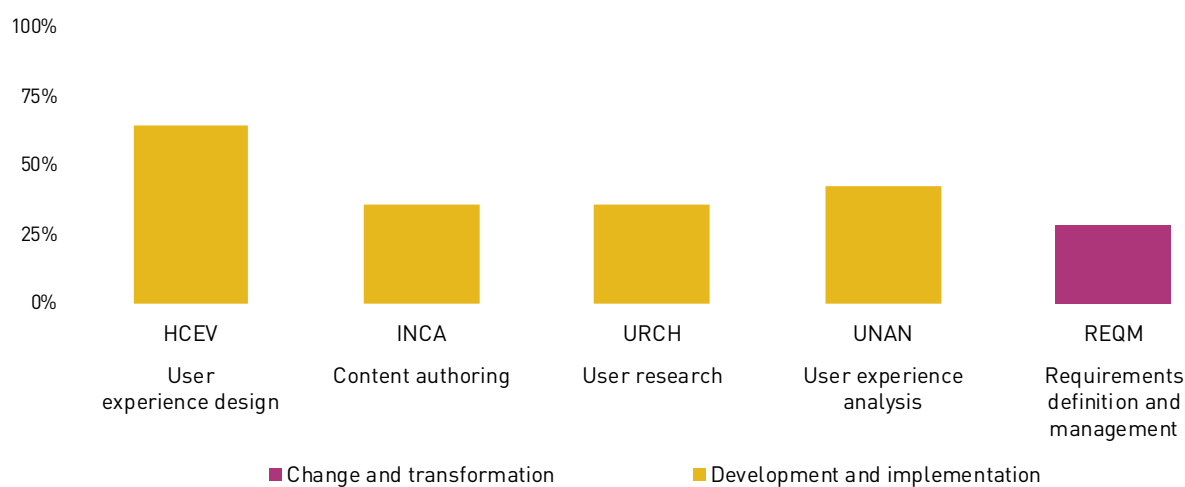
SFIA Level 5



CX/UX STREAM

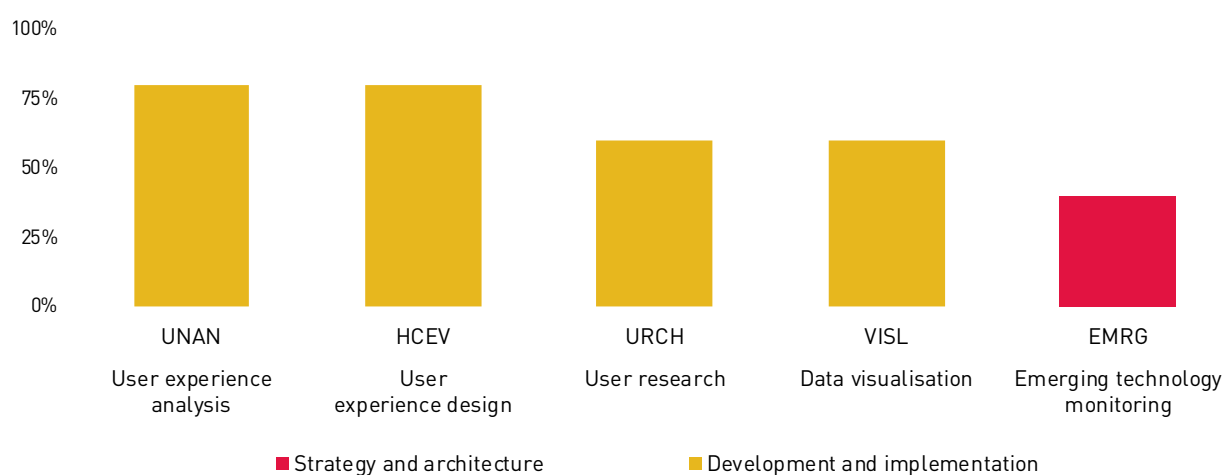
UX Developer/Designer

SFIA Level 4



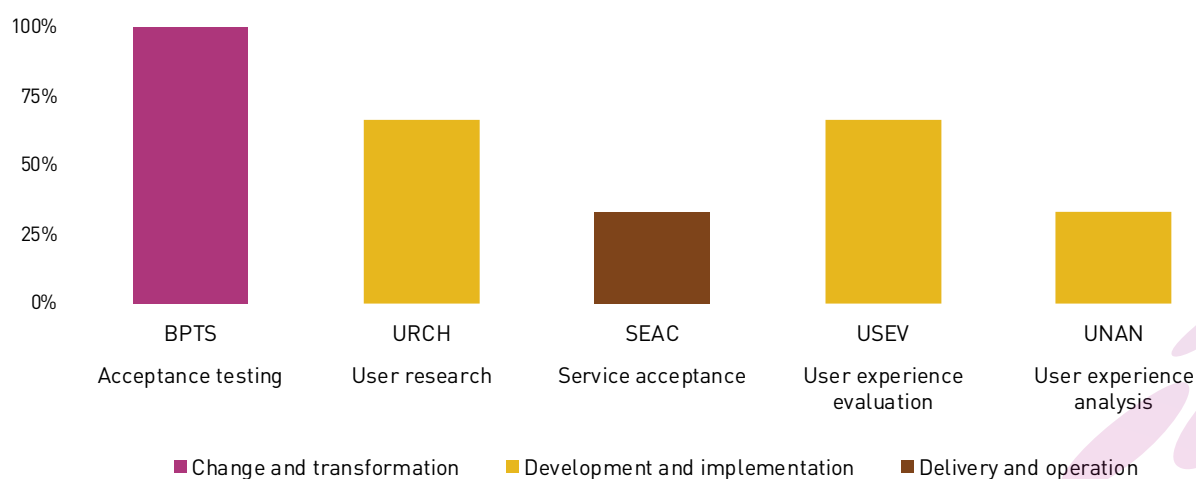
UX Researcher

SFIA Level 5



CX Specialist

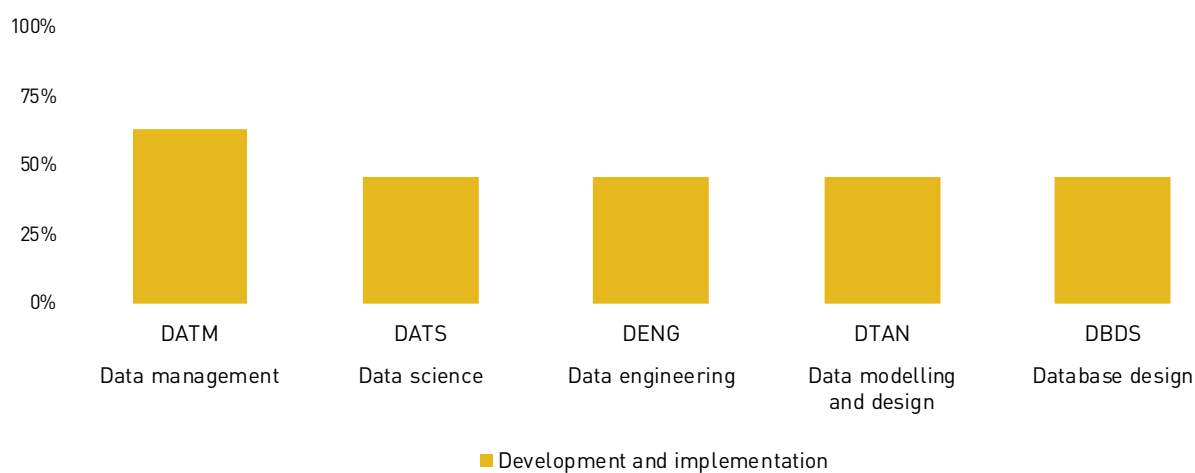
SFIA Level 5



DATA, BIG DATA & DATA SCIENCE STREAM

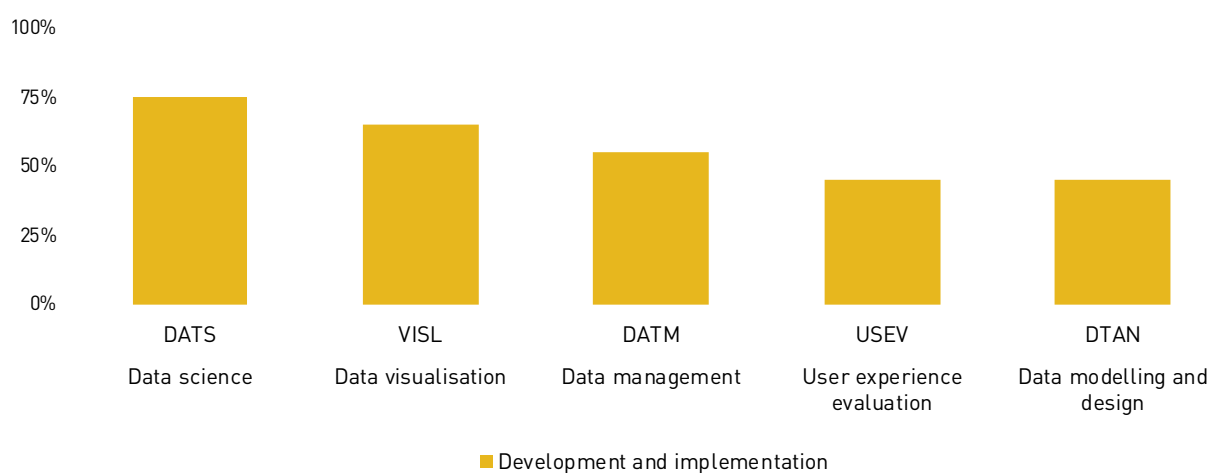
Data Engineer

SFIA Level 6



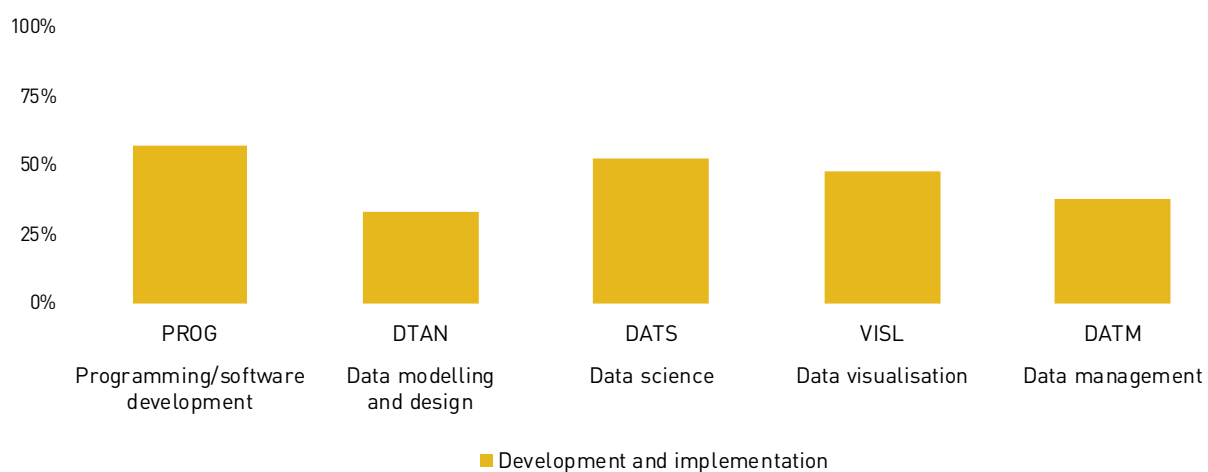
Data Analyst

SFIA Level 4



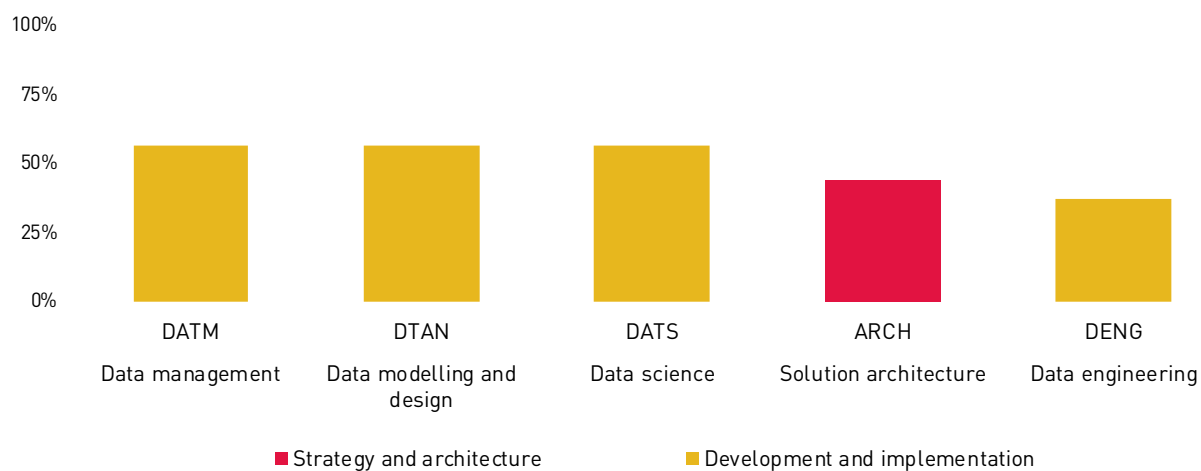
Data Scientist

SFIA Level 6



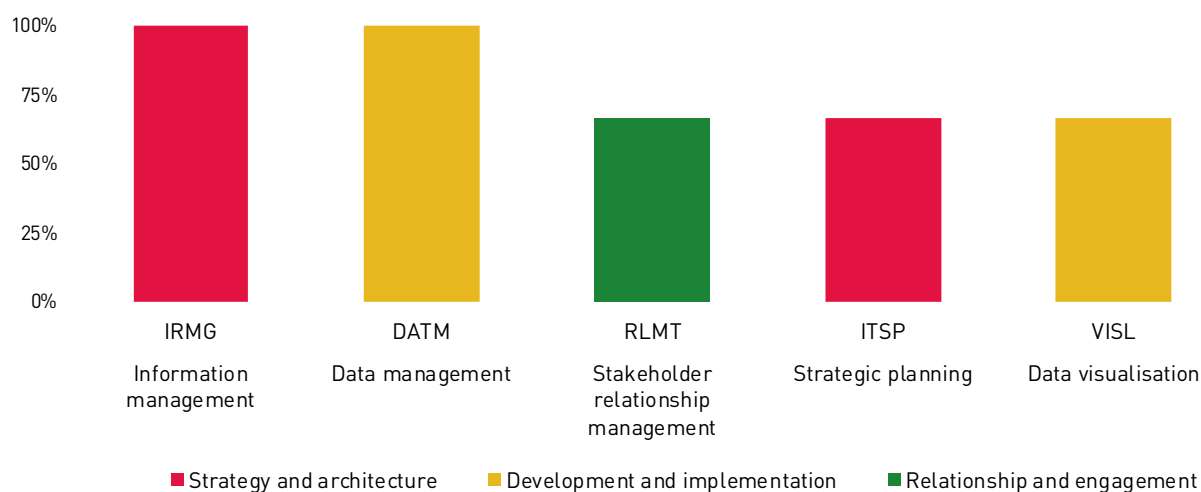
Data Architect

SFIA Level 5



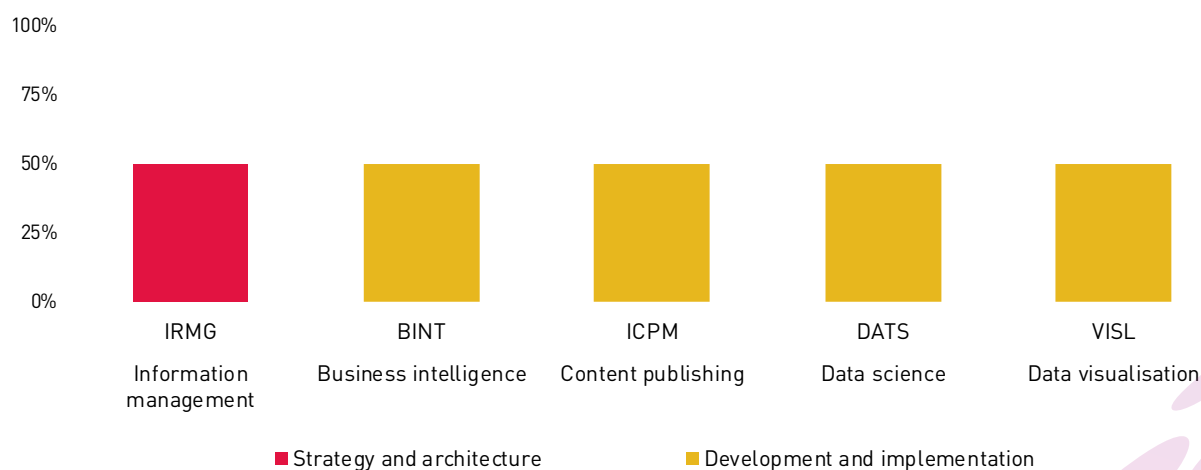
Data Manager

SFIA Level 5



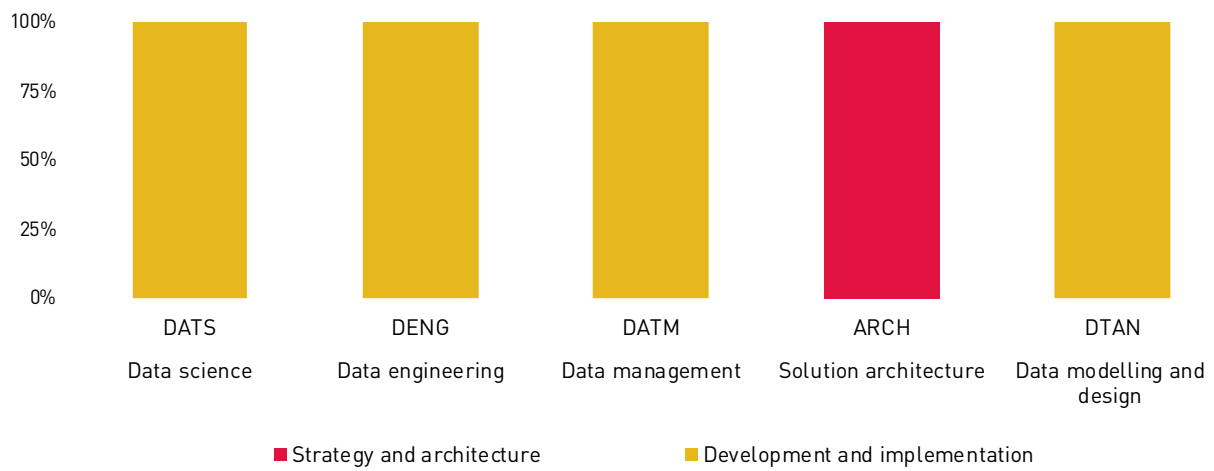
Data Visualiser

SFIA Level 5



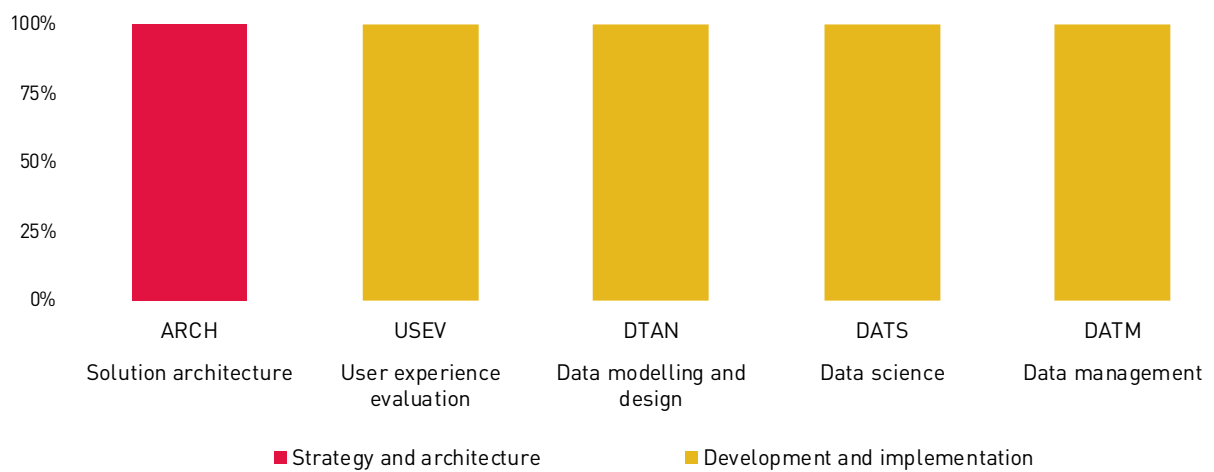
Data Wrangler

SFIA Level 5



Data Modeller

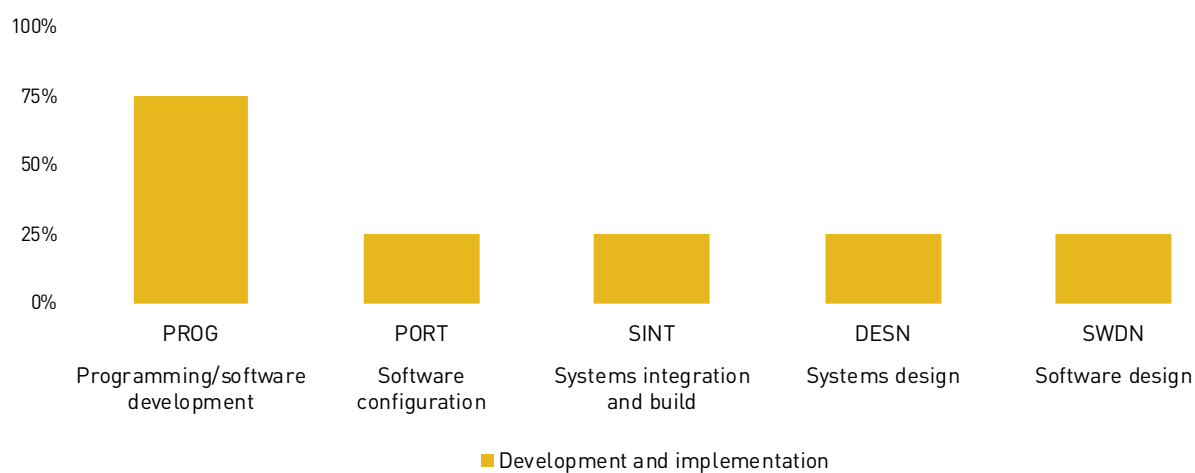
SFIA Level 4



DESIGN AND DEVELOPMENT STREAM

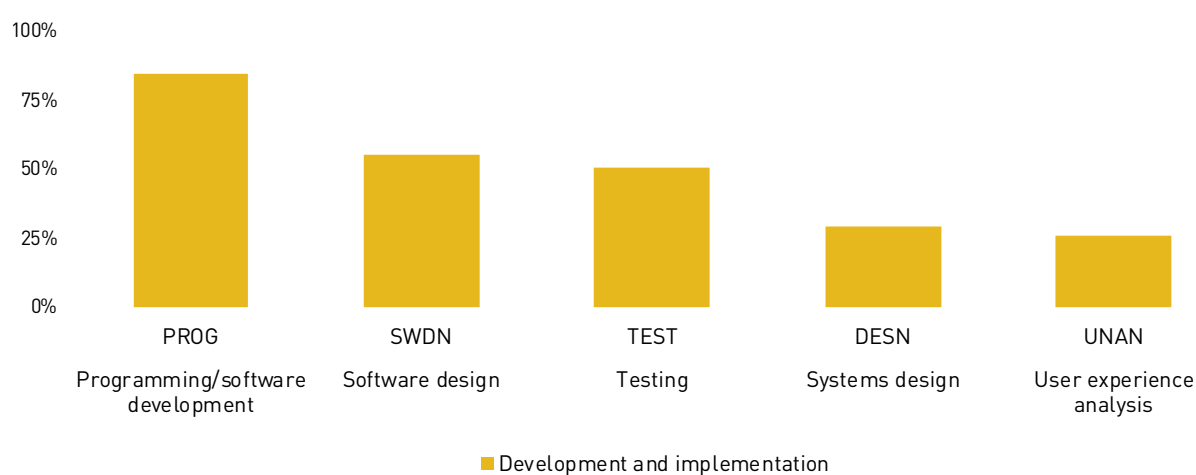
Back End Engineer

SFIA Level 4



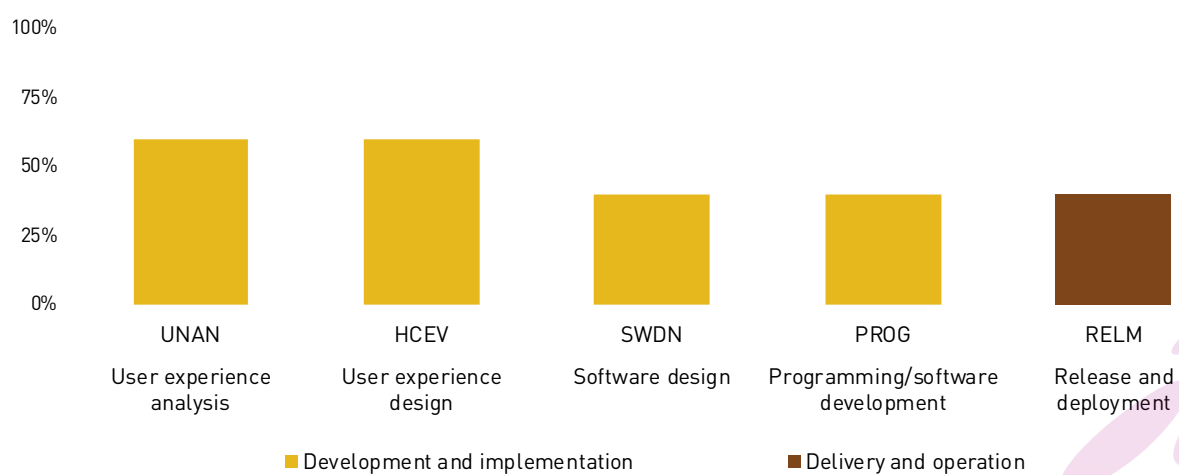
Developer/Programmer

SFIA Level 4



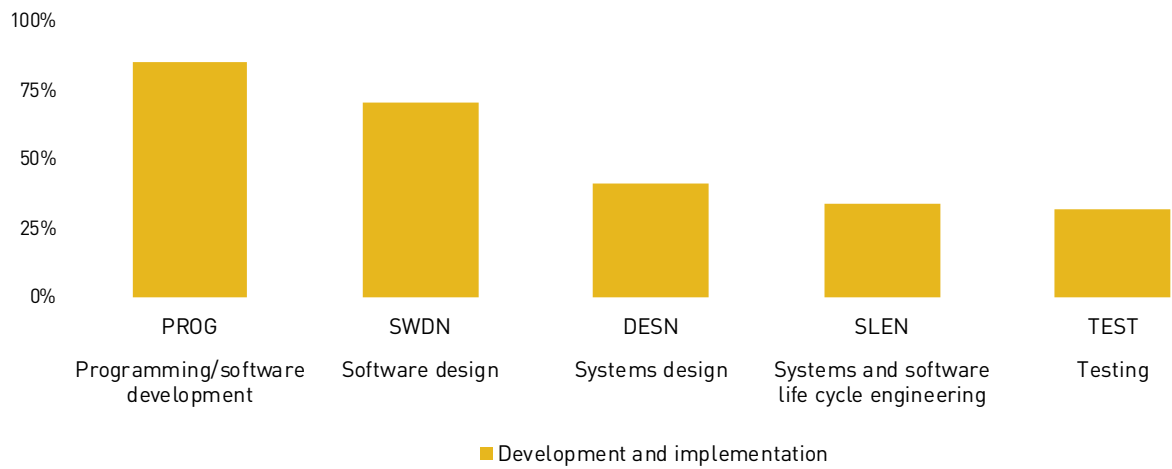
Front End Engineer

SFIA Level 4



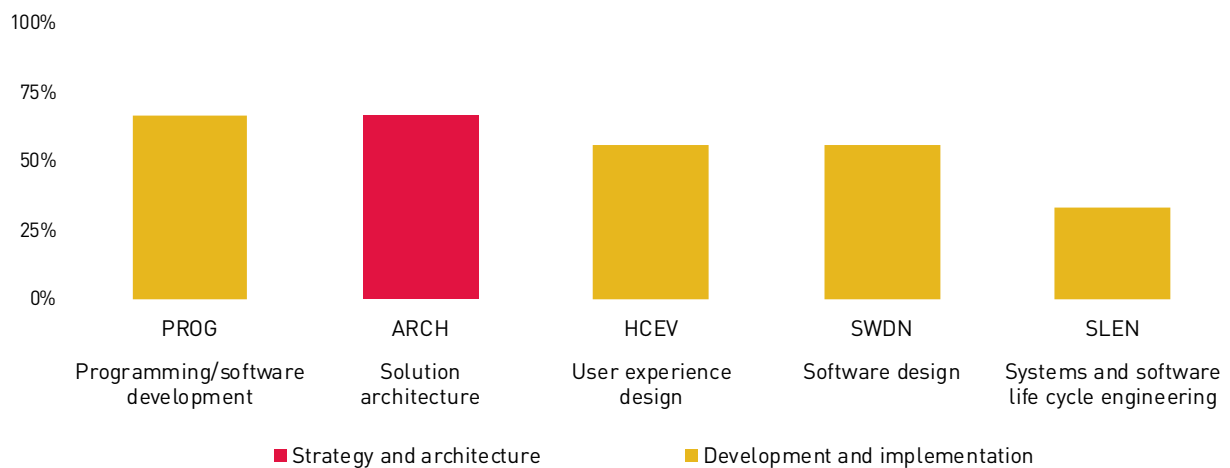
Full Stack Developer

SFIA Level 4



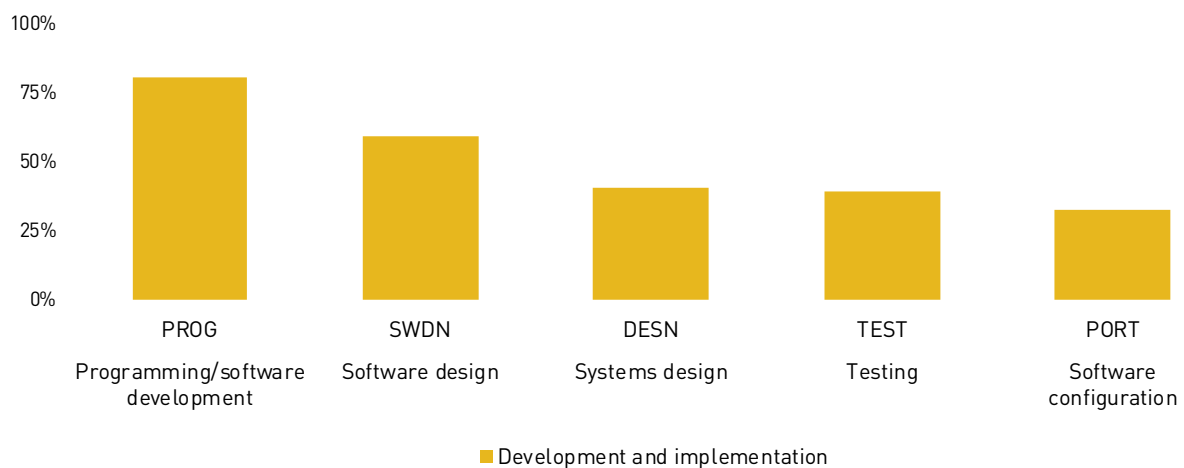
Software Architect

SFIA Level 5



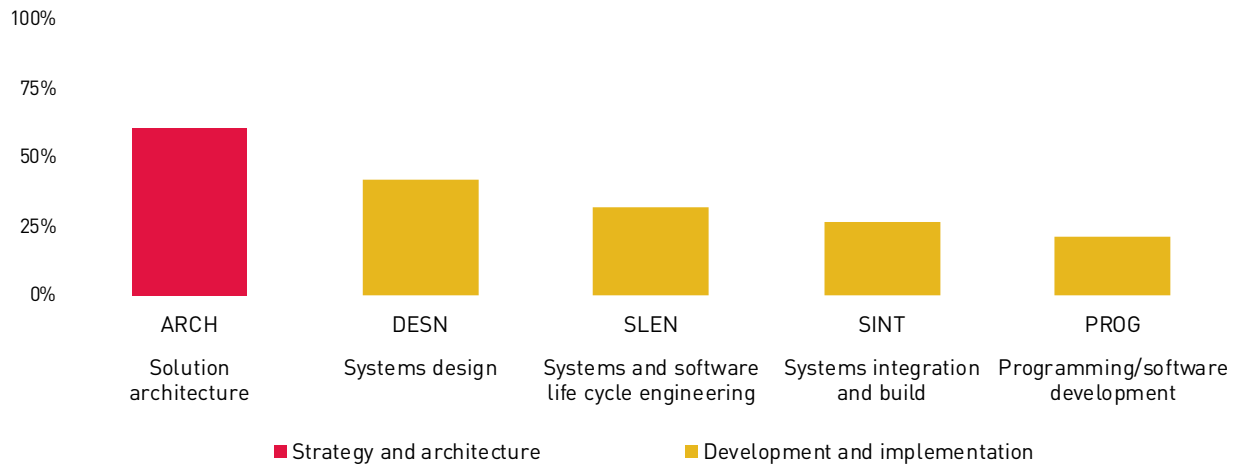
Software Engineer

SFIA Level 5



Solution Architect

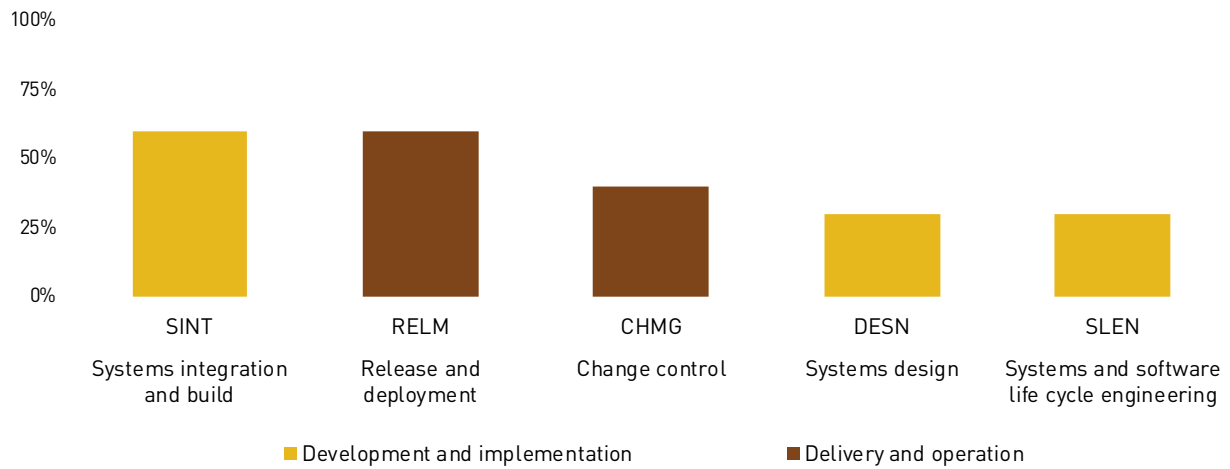
SFIA Level 5



DEVOPS STREAM

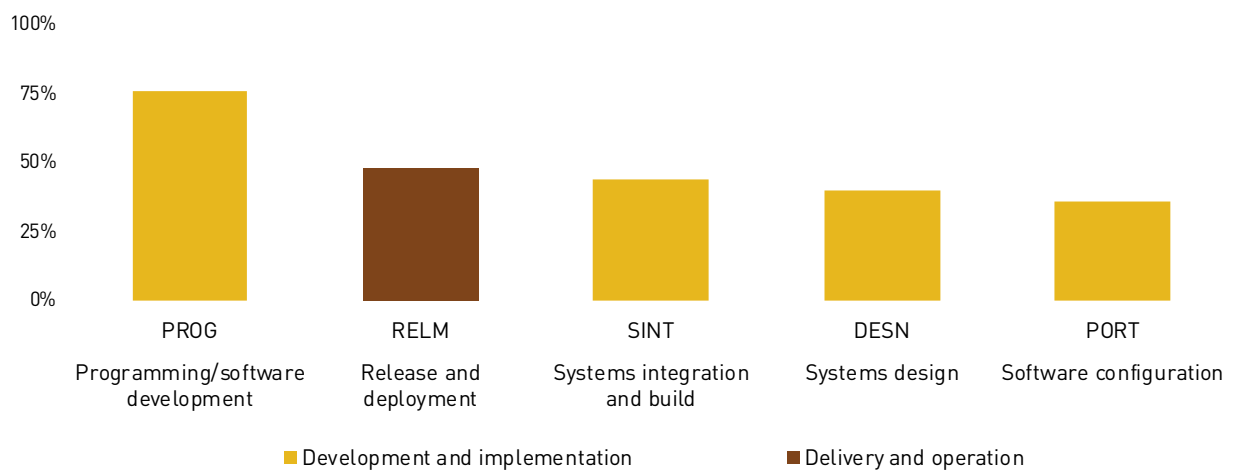
Automation Expert

SFIA Level 5



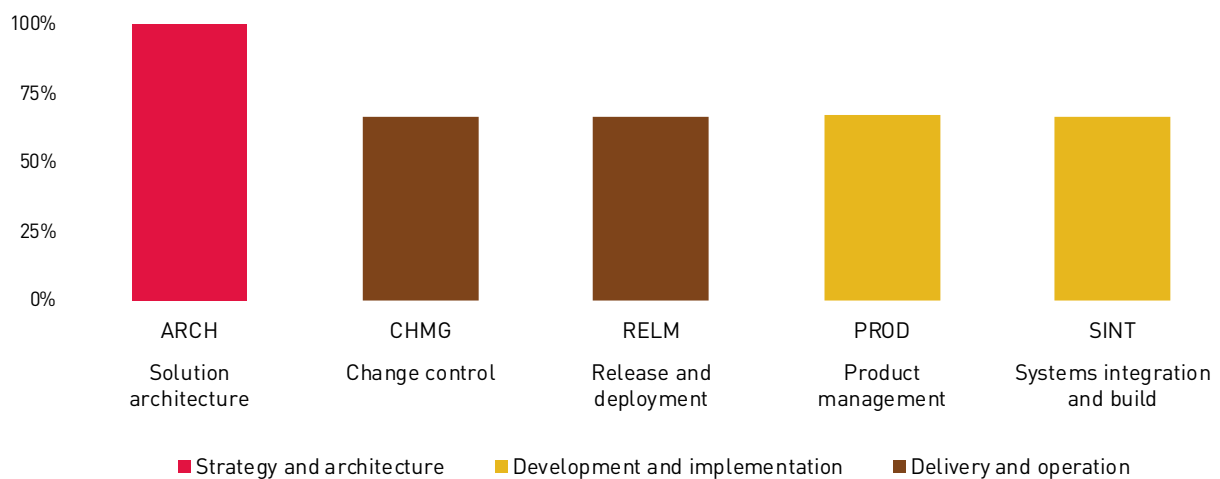
DevOps Engineer

SFIA Level 4



DevOps Evangelist

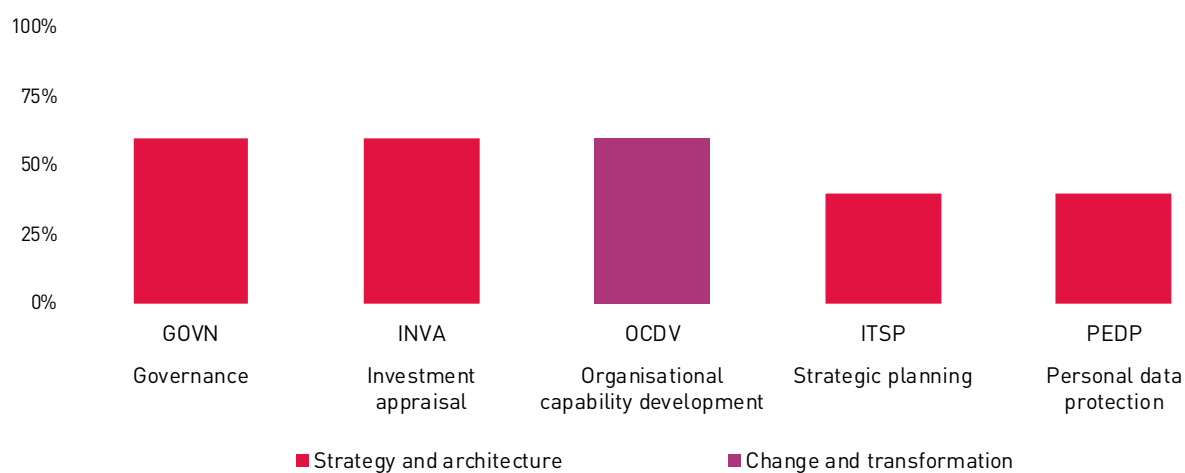
SFIA Level 5



DIGITAL TRANSFORMATION STREAM

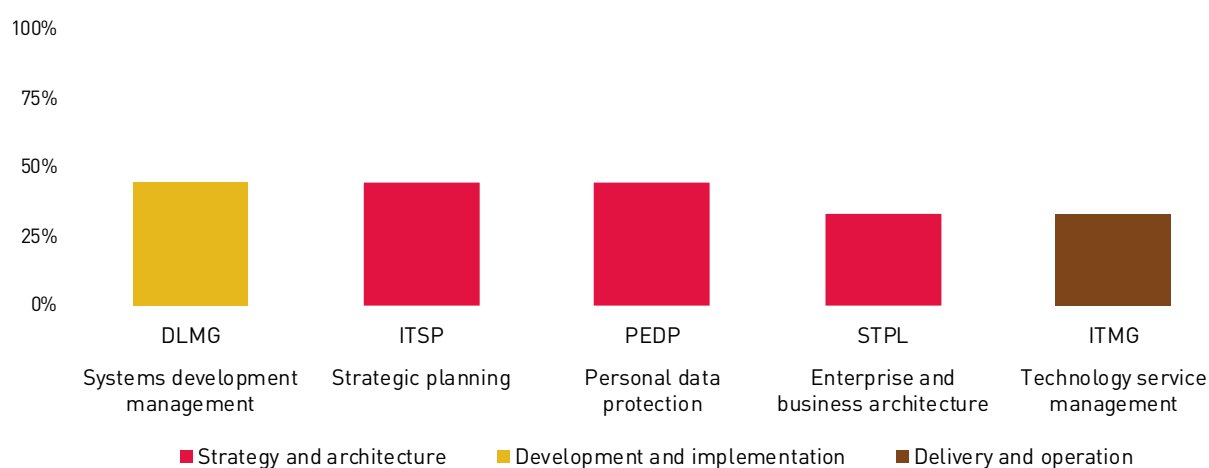
Chief Digital Officer

SFIA Level 7



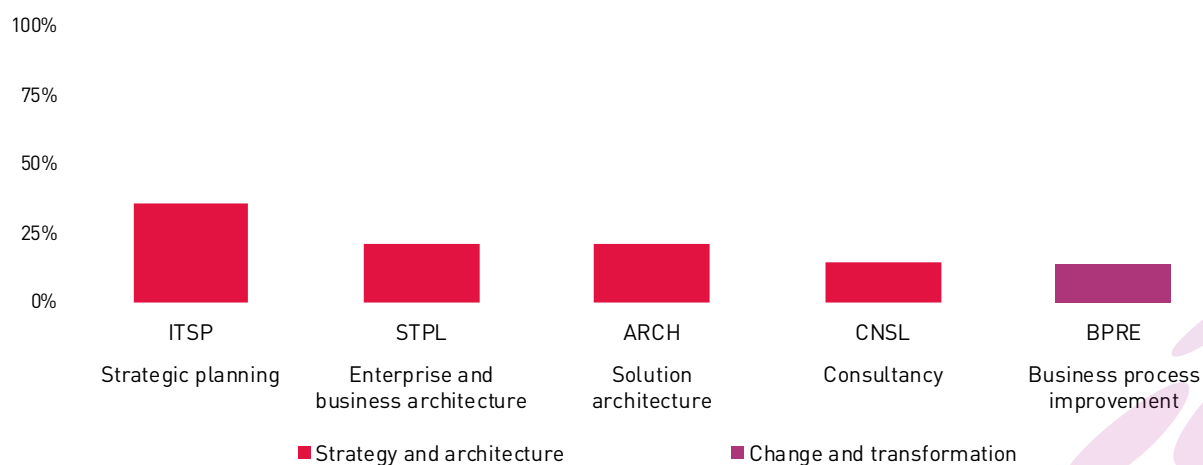
Chief Technology Officer

SFIA Level 7



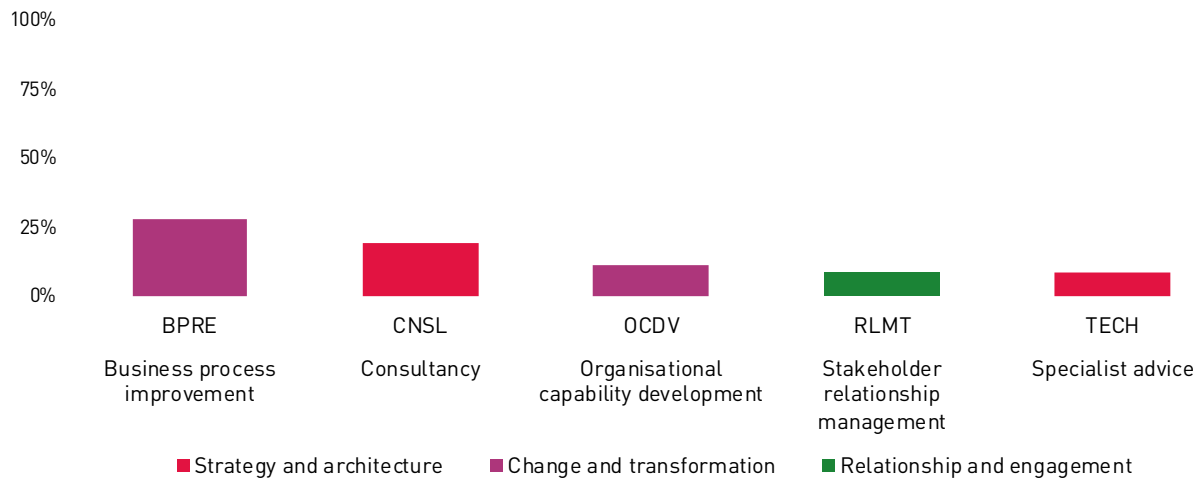
Enterprise Architect

SFIA Level 6



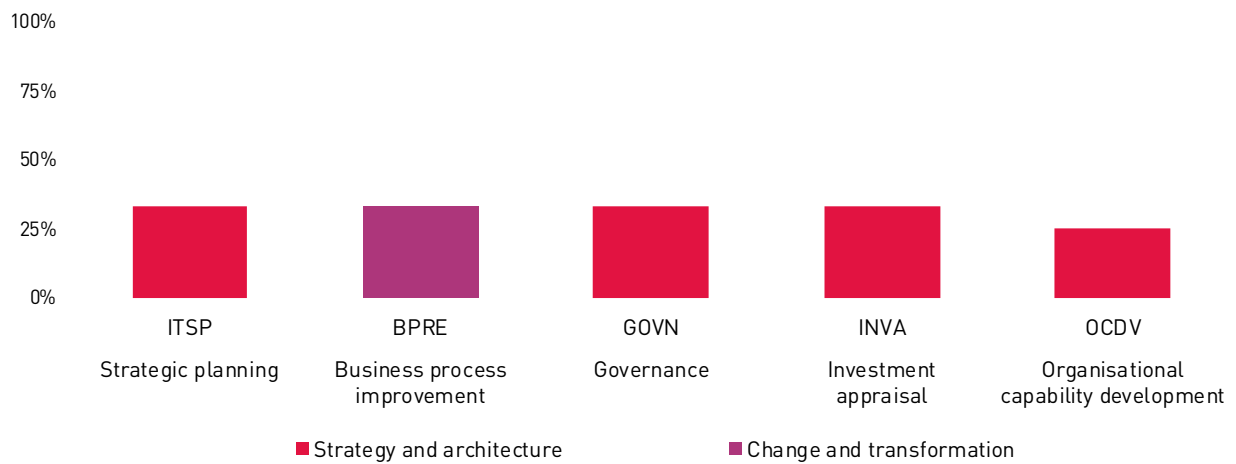
ICT/IT Consultant

SFIA Level 5



IT Director/Partner

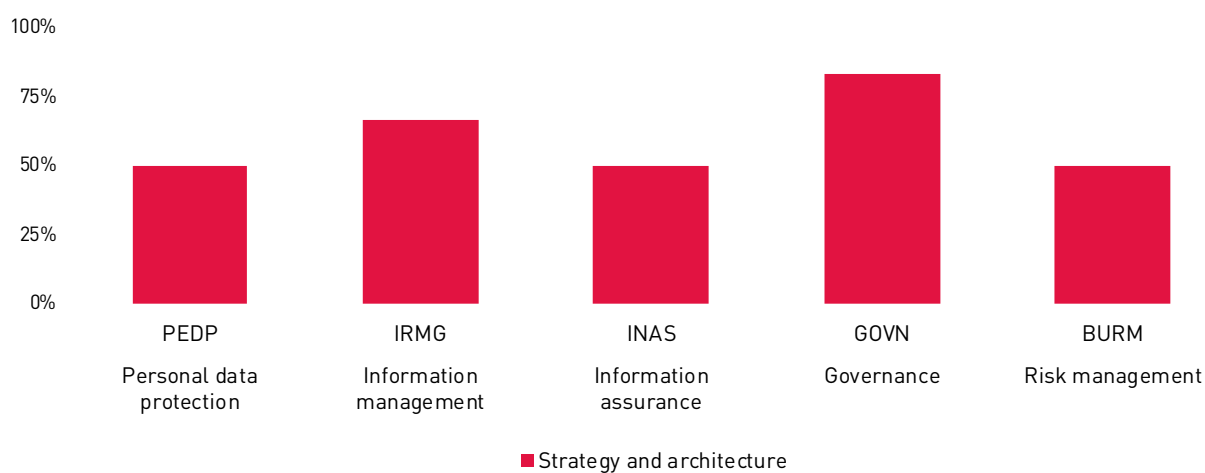
SFIA Level 6



GOVERNANCE & QUALITY MANAGEMENT STREAM

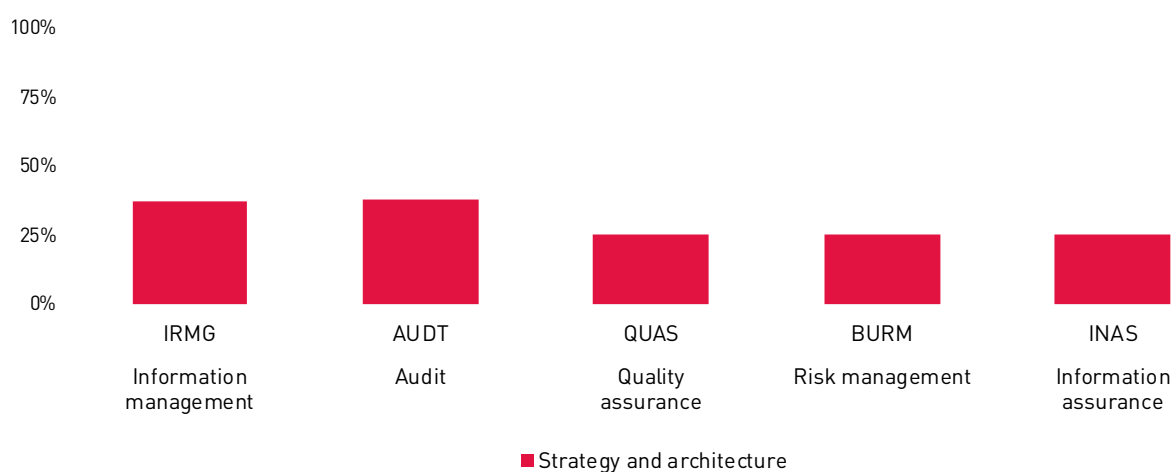
Governance Manager

SFIA Level 5



Risk & Compliance Manager

SFIA Level 5



Quality Assurance Manager

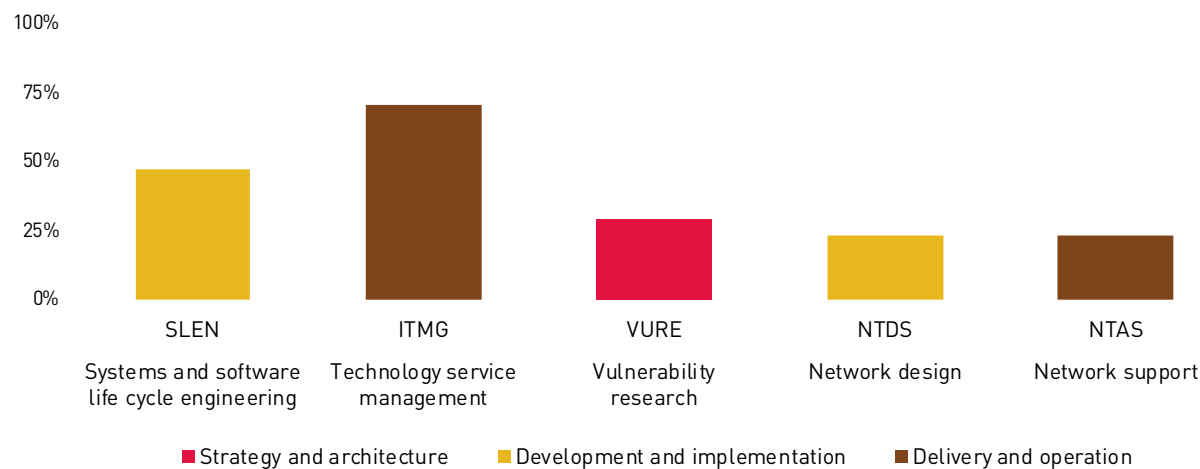
SFIA Level 5



INFRASTRUCTURE & FACILITIES STREAM

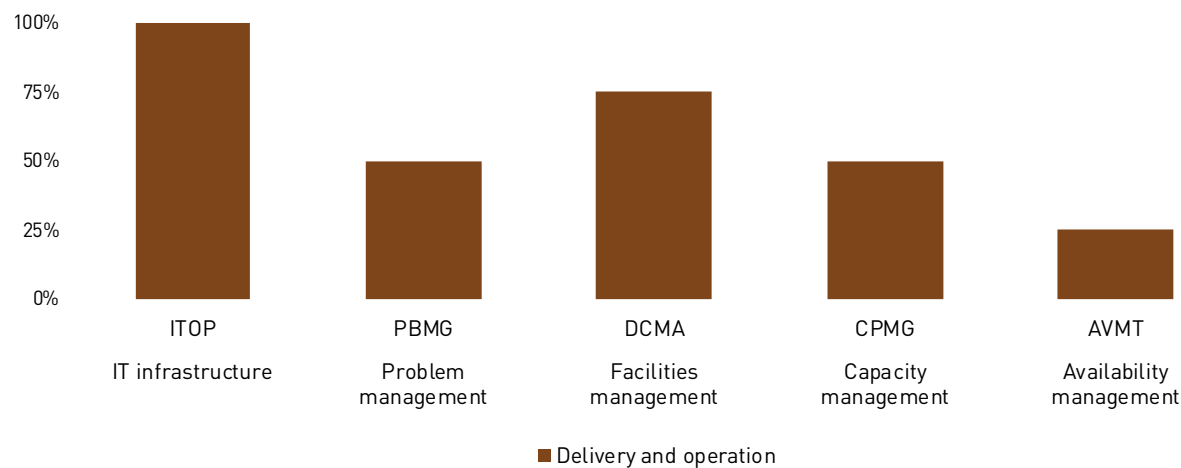
Infrastructure Engineer

SFIA Level 5



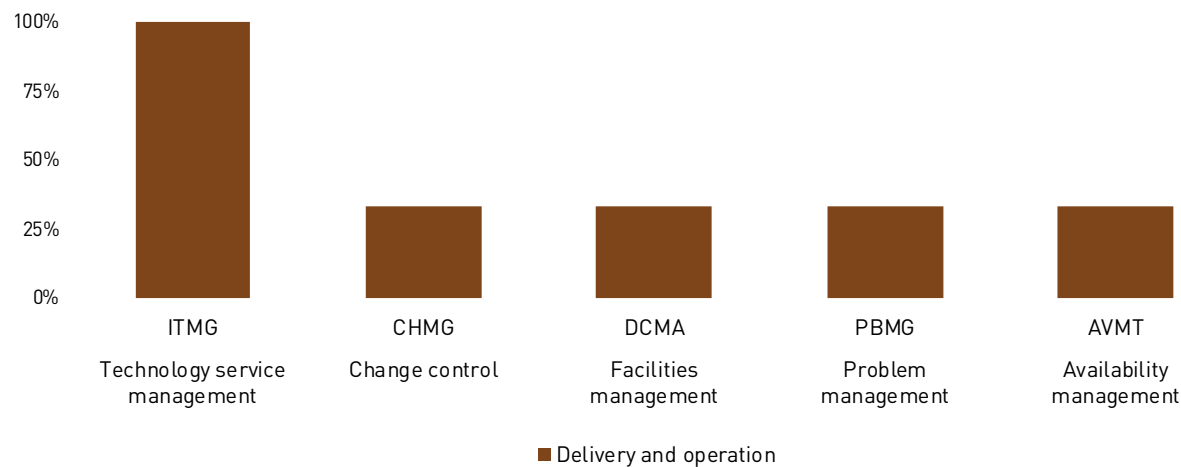
Facilities Manager

SFIA Level 5



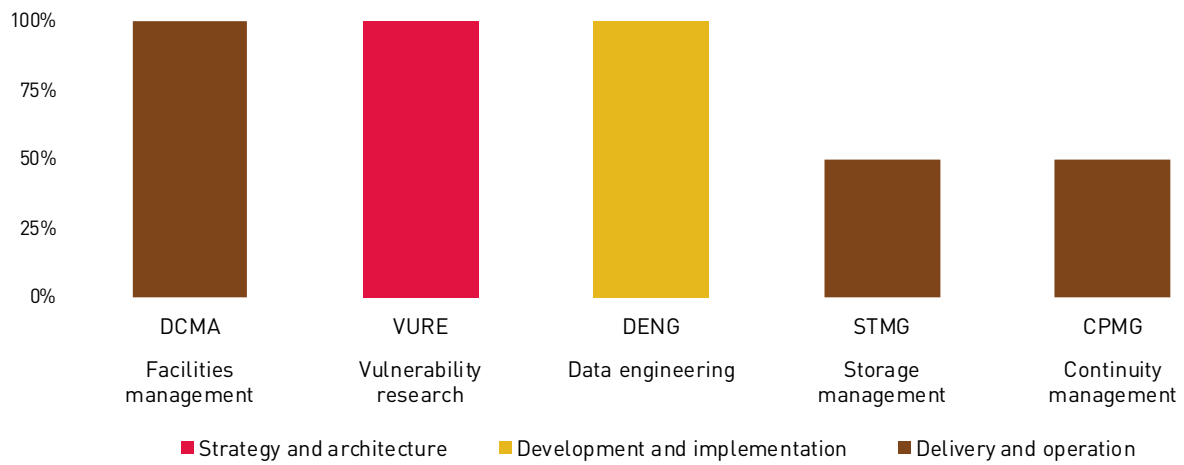
Data Centre Operations Manager

SFIA Level 5



Data Centre Engineer

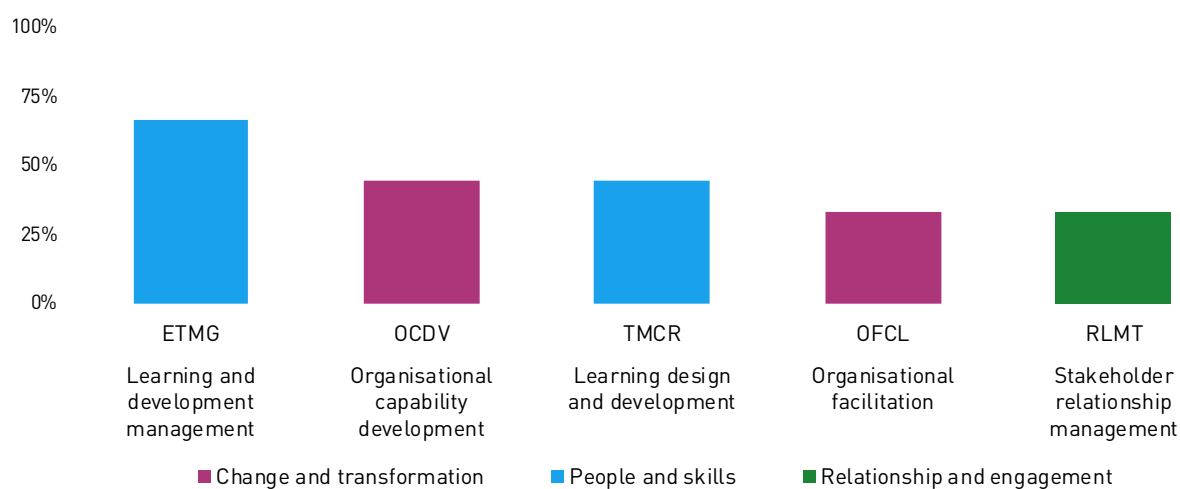
SFIA Level 5



ORGANISATION CAPABILITY STREAM

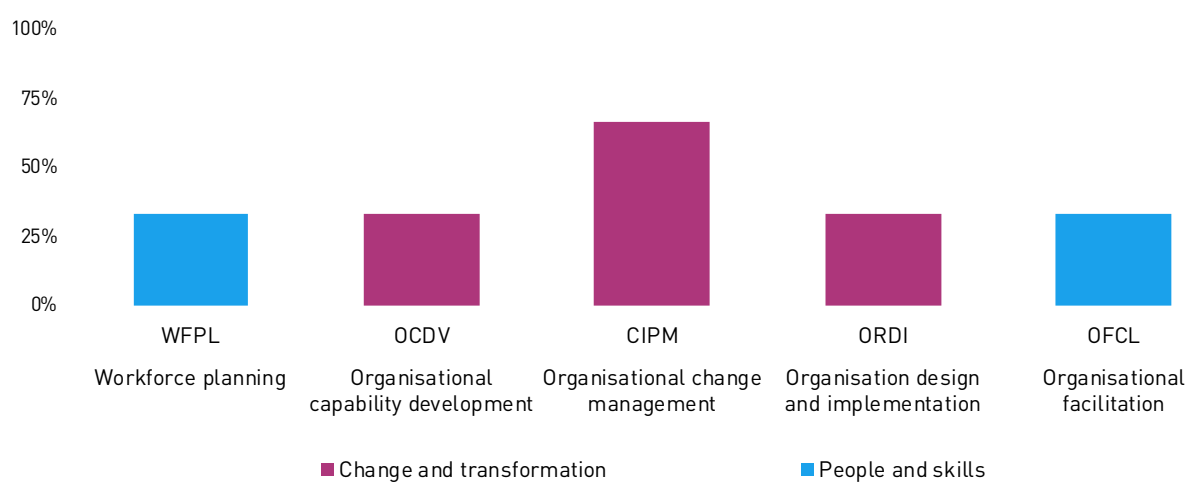
Learning & Development Consultant

SFIA Level 5



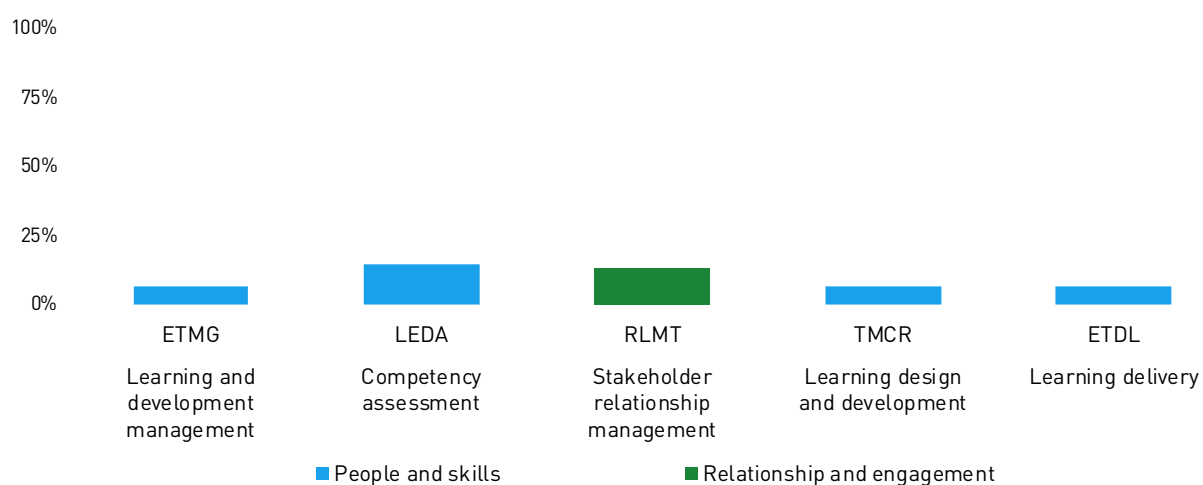
Organisation Change Manager

SFIA Level 6



Teacher, Trainer, Assessor, Tutor

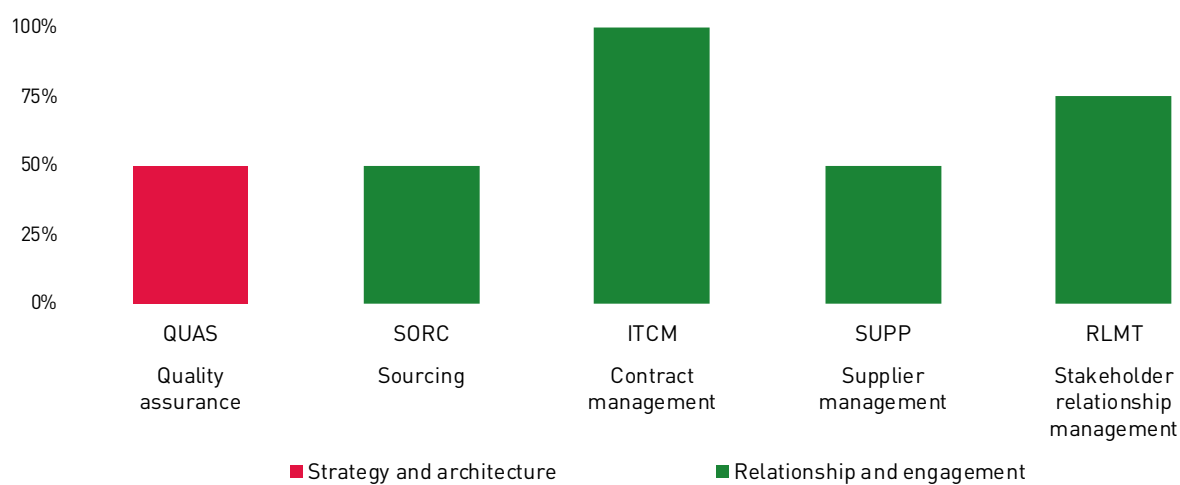
SFIA Level 4



PROCUREMENT & VENDOR STREAM

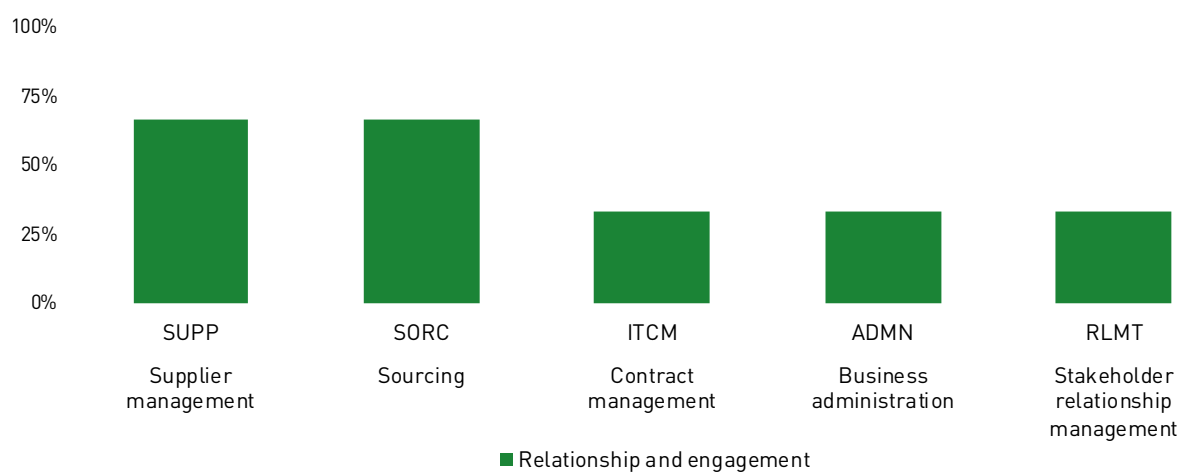
Contract Manager

SFIA Level 4



Procurement Officer

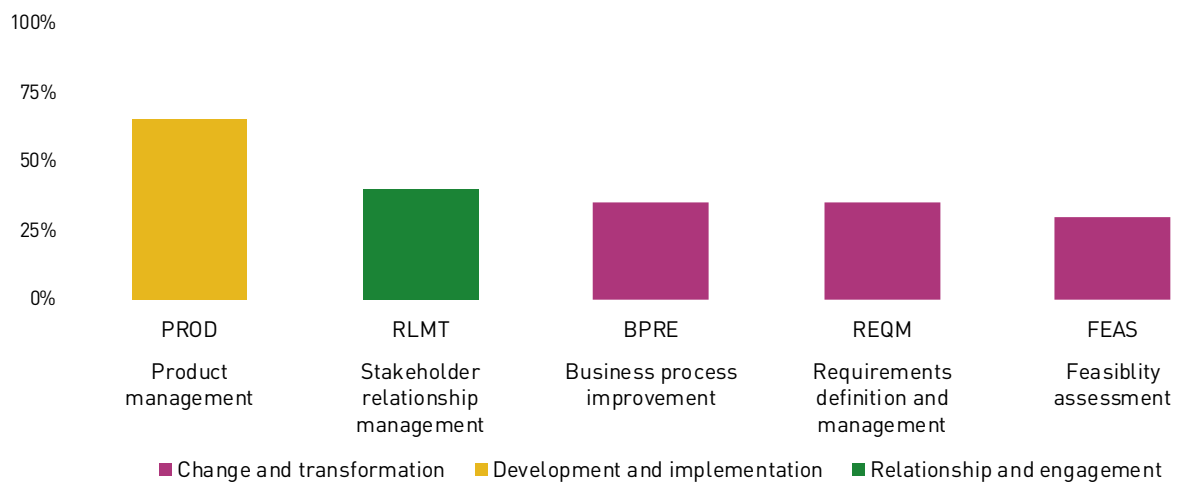
SFIA Level 3



PRODUCT MANAGEMENT, STARTUPS, INNOVATION STREAM

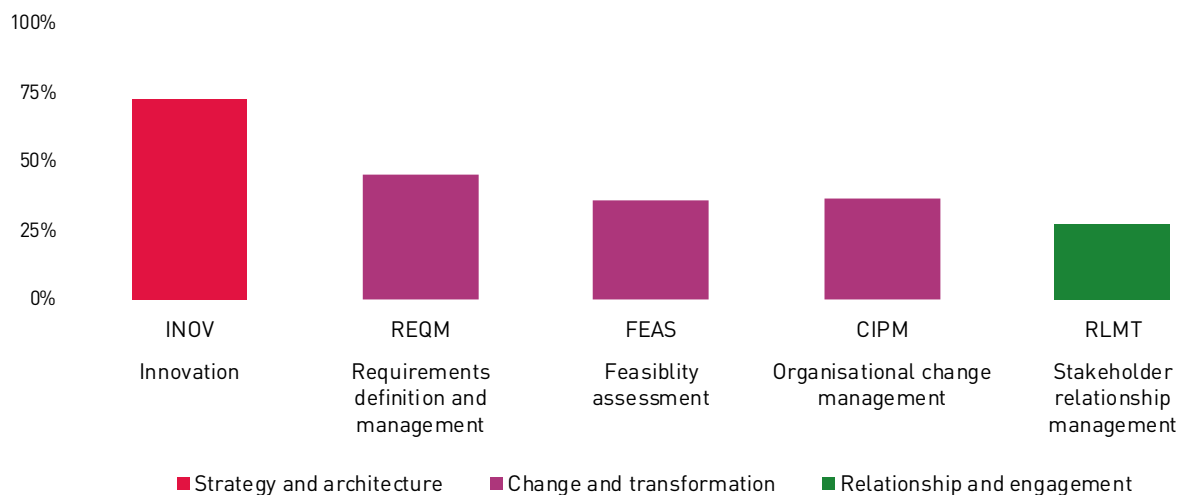
Product Manager

SFIA Level 5



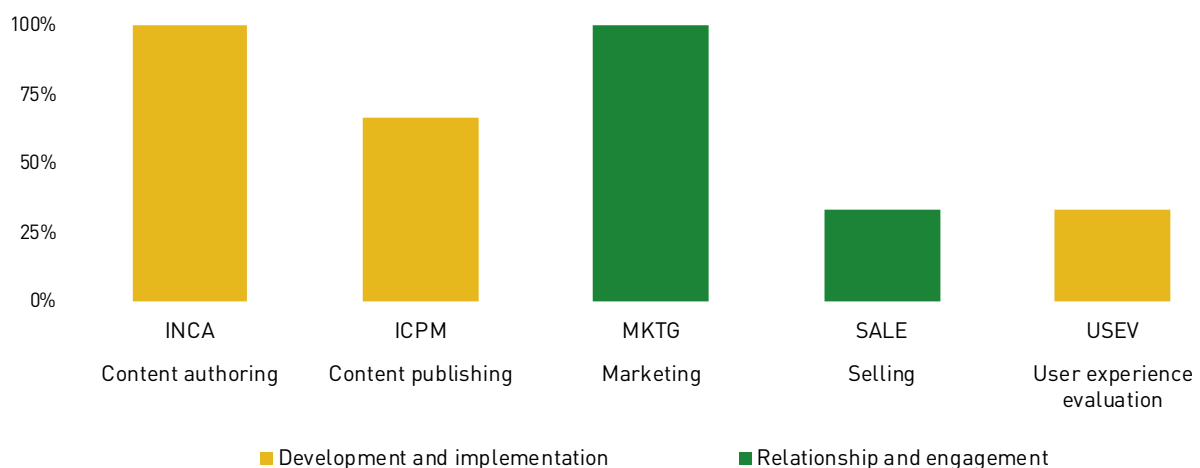
Innovation Manager

SFIA Level 5



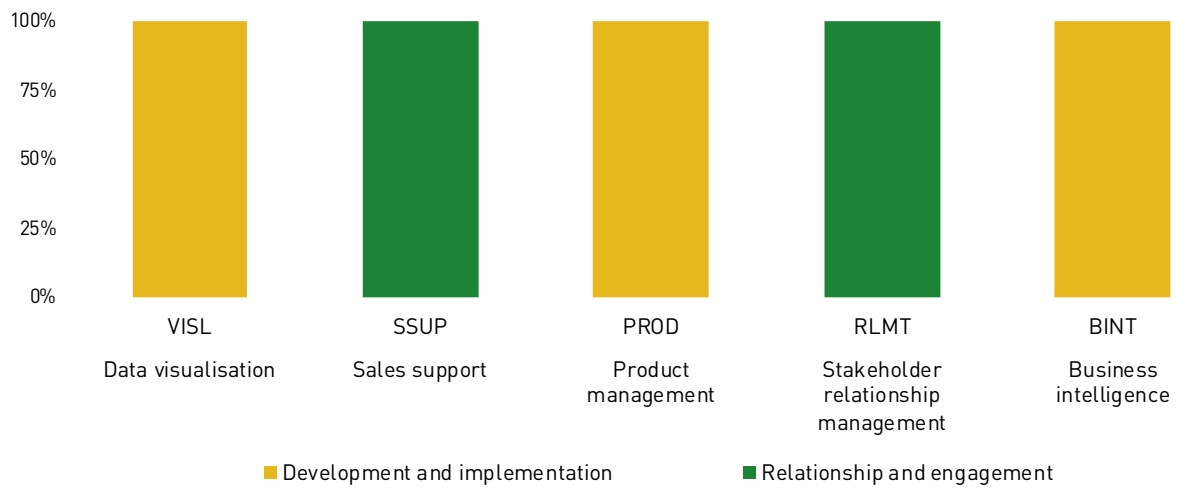
Digital Marketer

SFIA Level 5



Sales Engineer

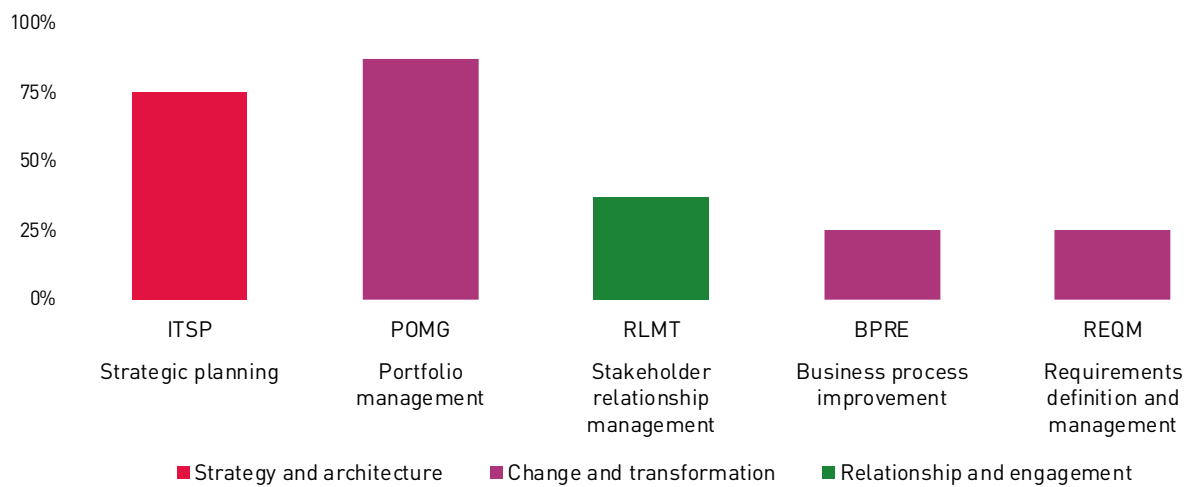
SFIA Level 5



PROJECT, PROGRAM, PORTFOLIO MANAGEMENT STREAM

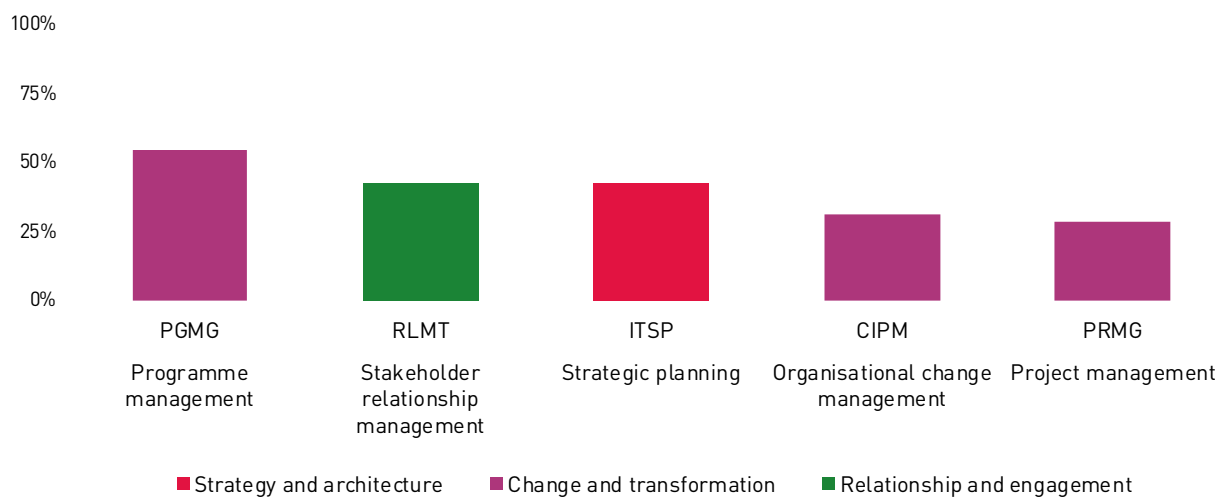
Portfolio Manager

SFIA Level 6



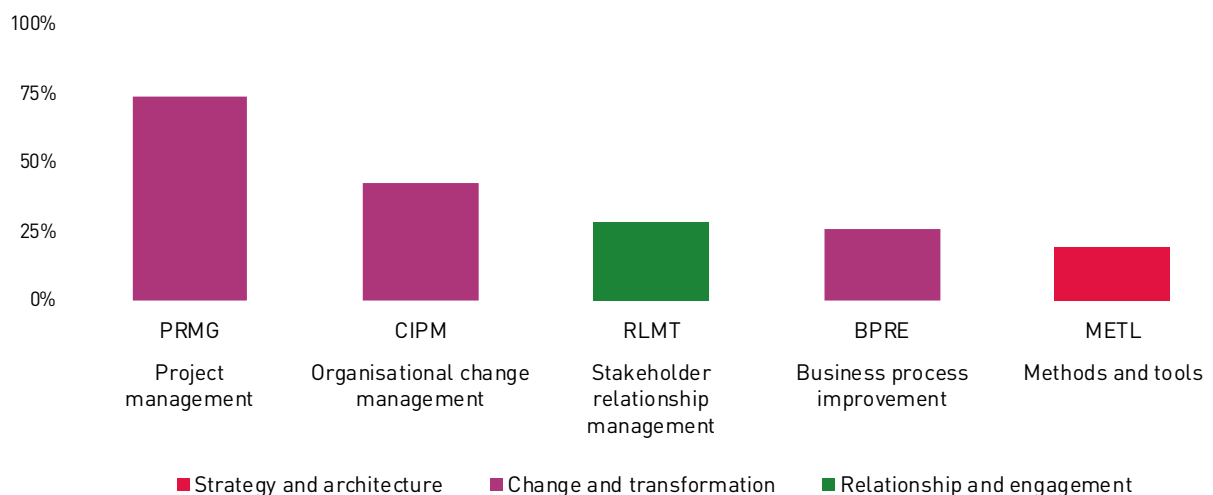
Program Manager

SFIA Level 6



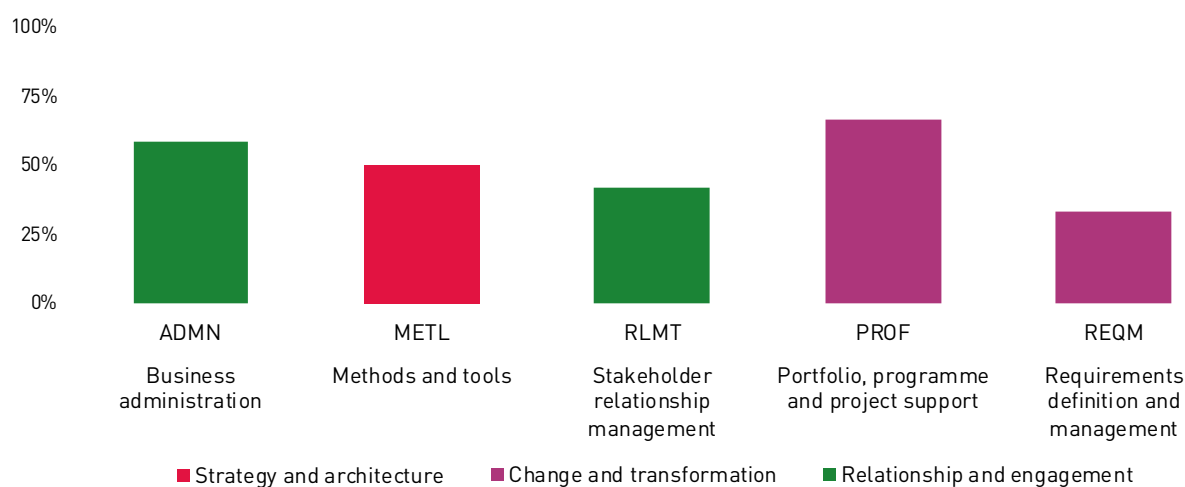
Project Manager

SFIA Level 5



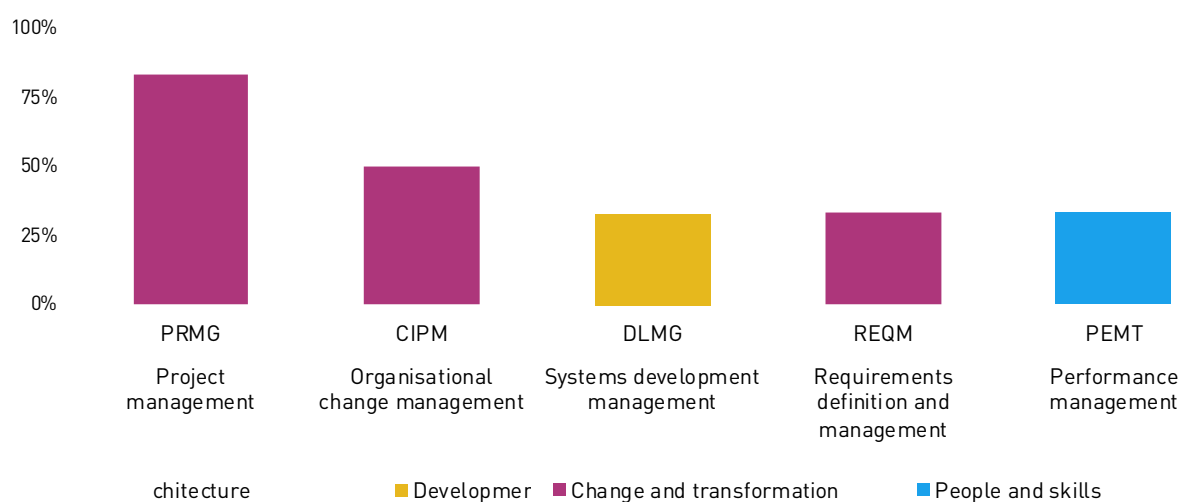
Project Support Officer

SFIA Level 4



Scrum Master

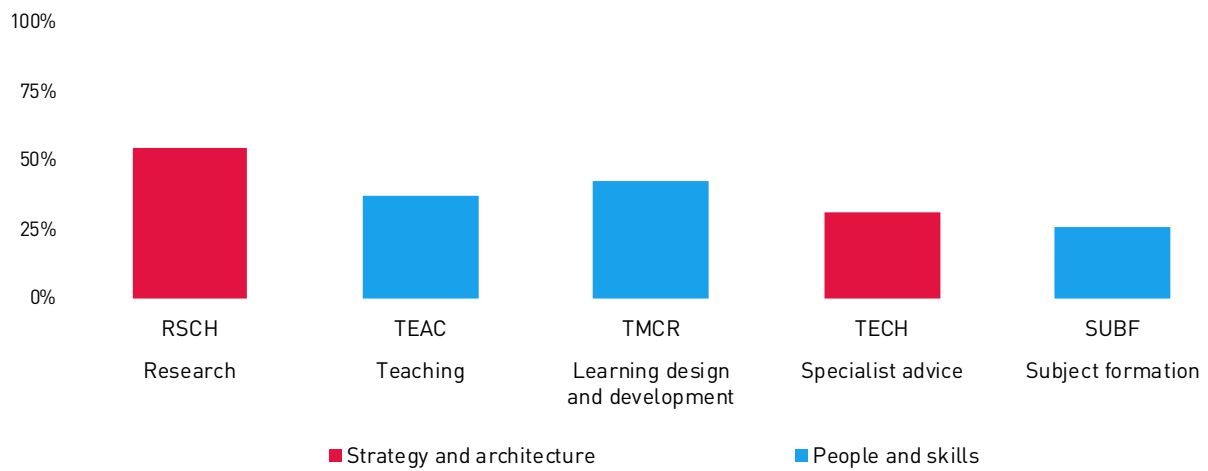
SFIA Level 6



RESEARCH & DEVELOPMENT STREAM

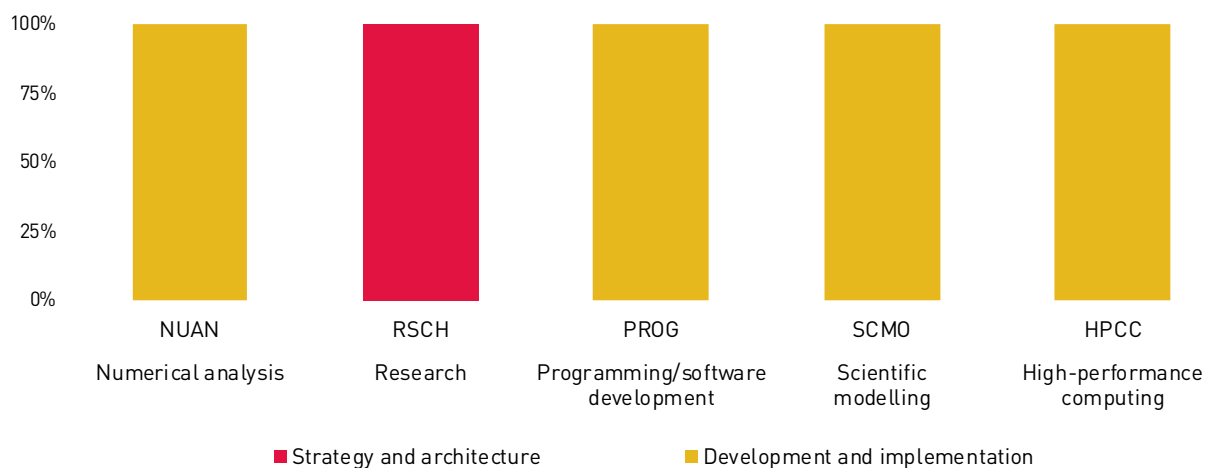
Academic

SFIA Level 5



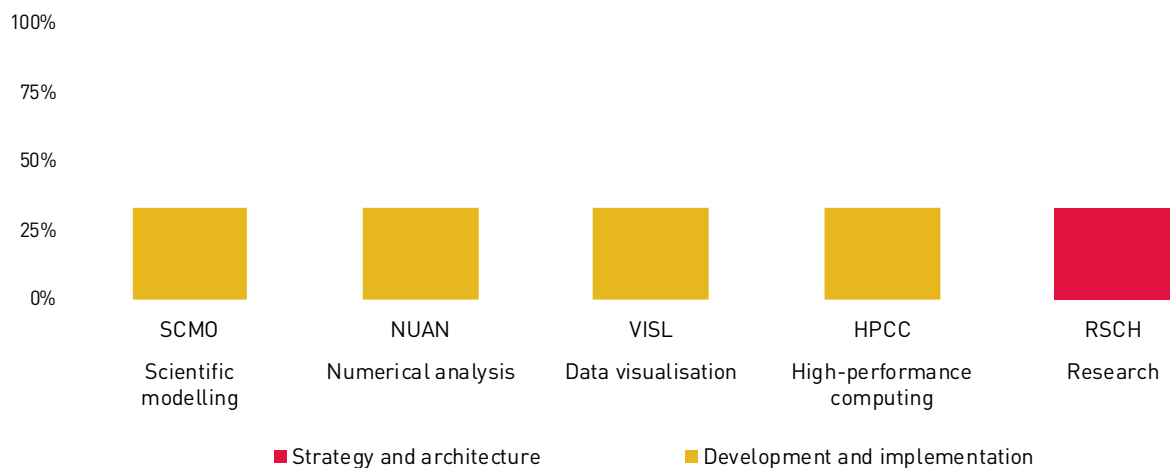
Computational Scientist

SFIA Level 5



eResearch Specialist

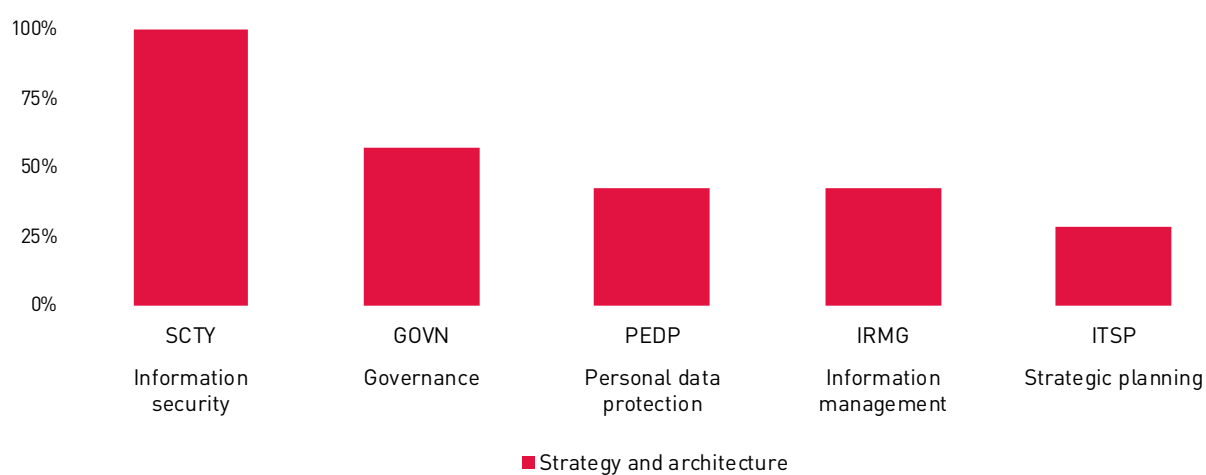
SFIA Level 4



SECURITY – CYBER, SYSTEMS, INFORMATION STREAM

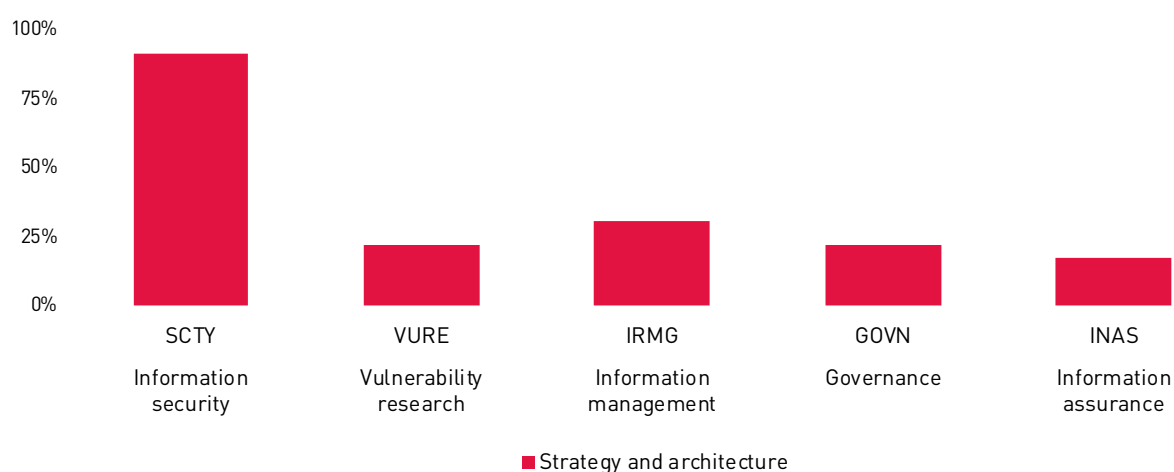
Chief Information Security Officer

SFIA Level 7



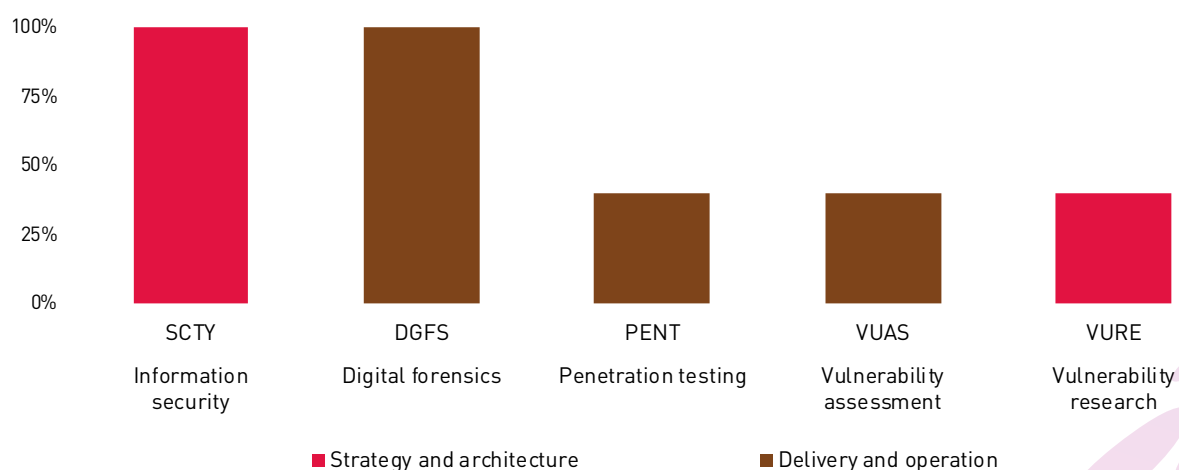
Cyber Security Officer

SFIA Level 5



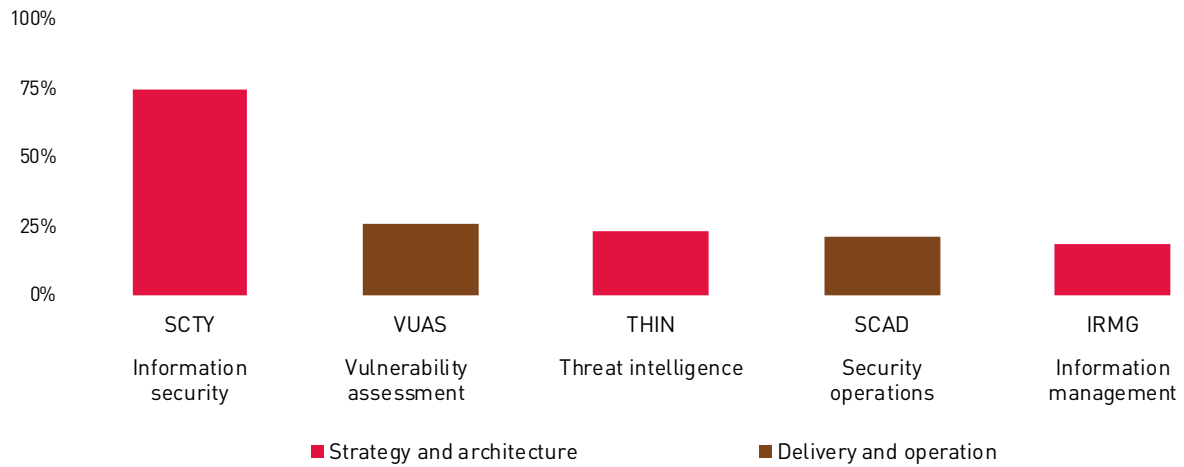
Digital Forensic Specialist

SFIA Level 4



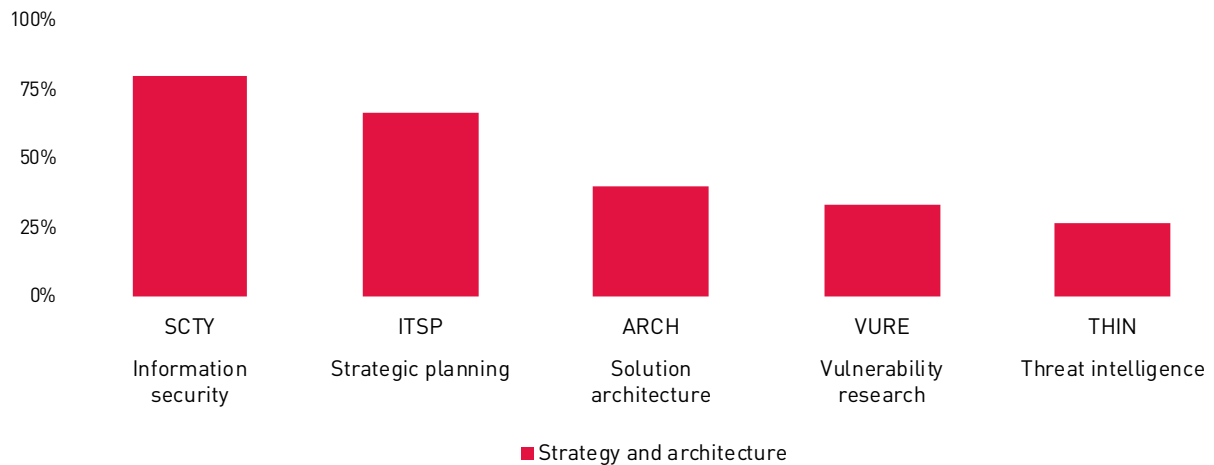
Security Analyst

SFIA Level 4



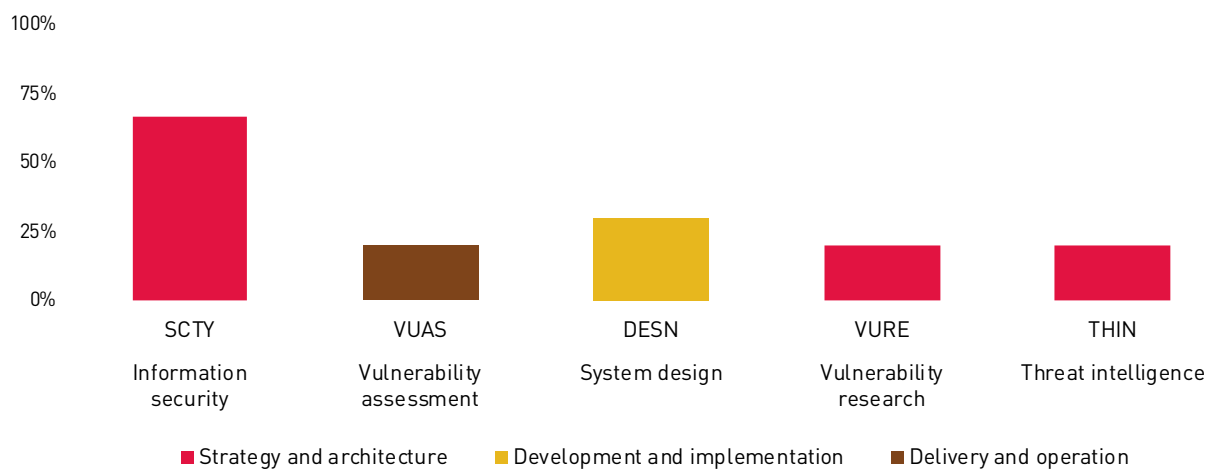
Security Architect

SFIA Level 5



Security Engineer

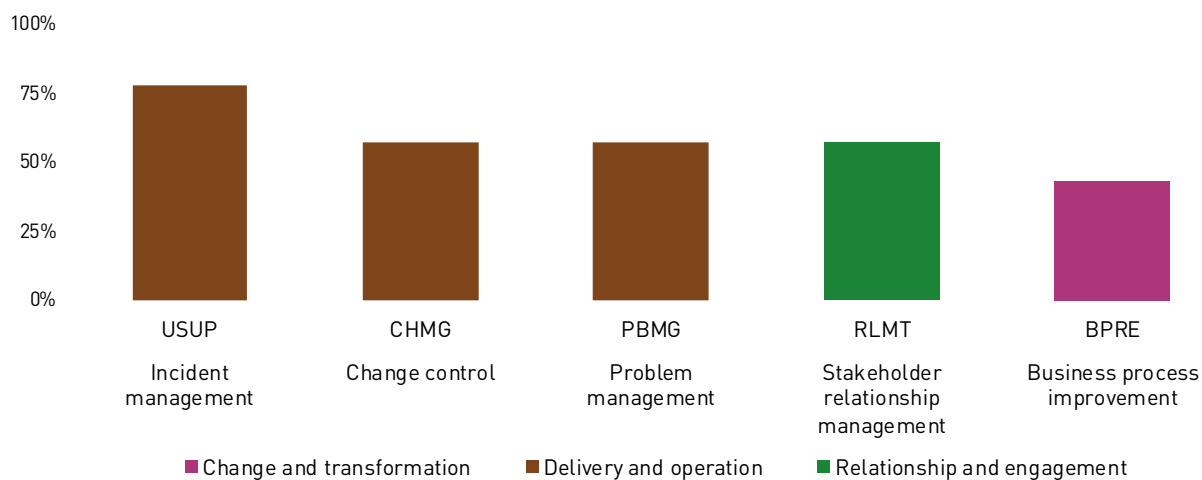
SFIA Level 4



SERVICE DELIVERY & MANAGEMENT STREAM

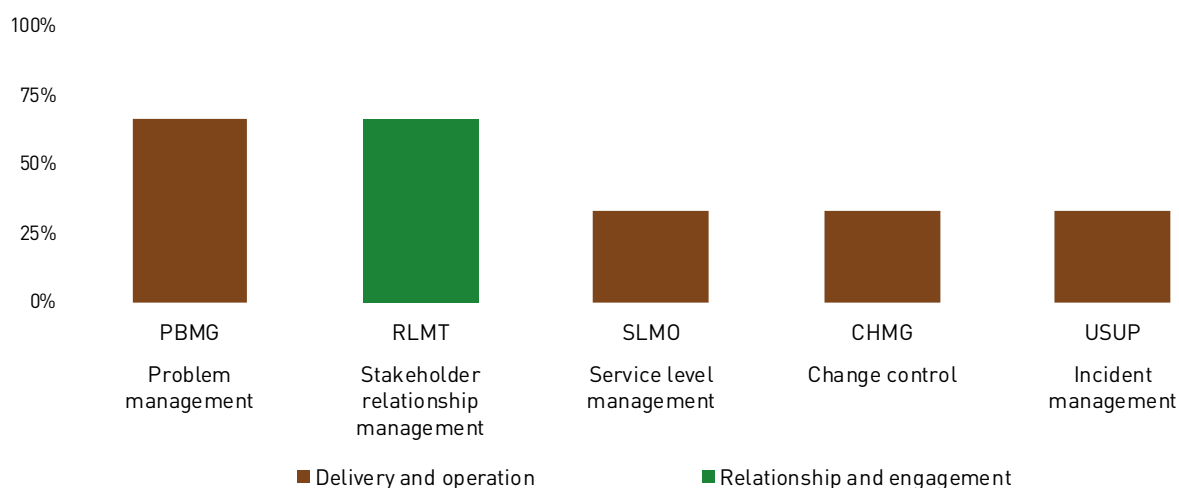
Incident Manager

SFIA Level 5



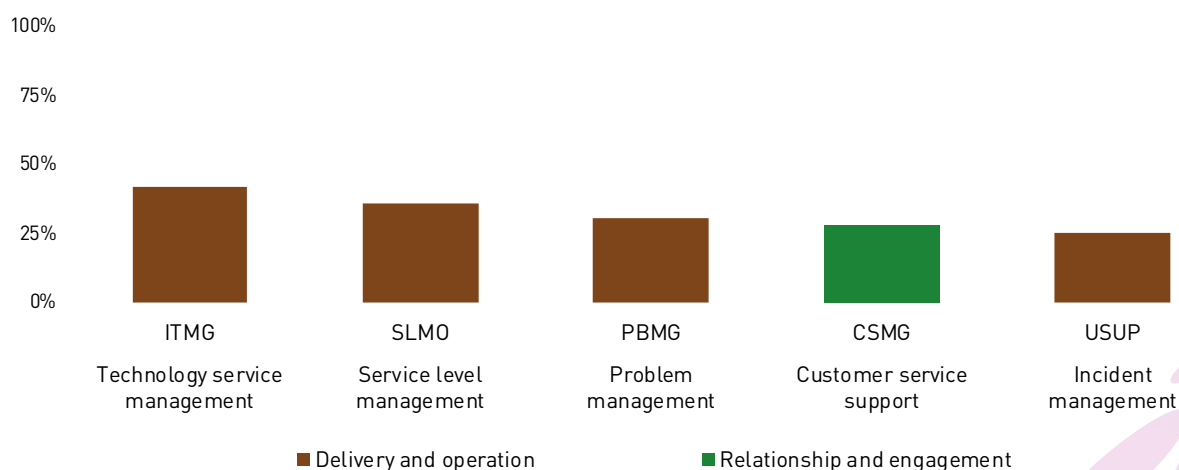
Problem Manager

SFIA Level 5



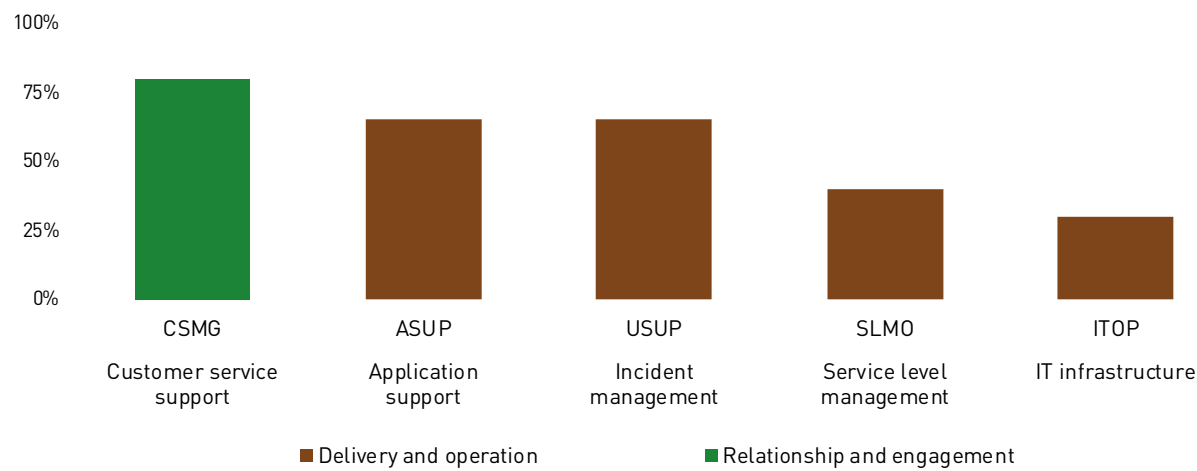
Service Delivery/Operations Manager

SFIA Level 5



Service Desk Operator

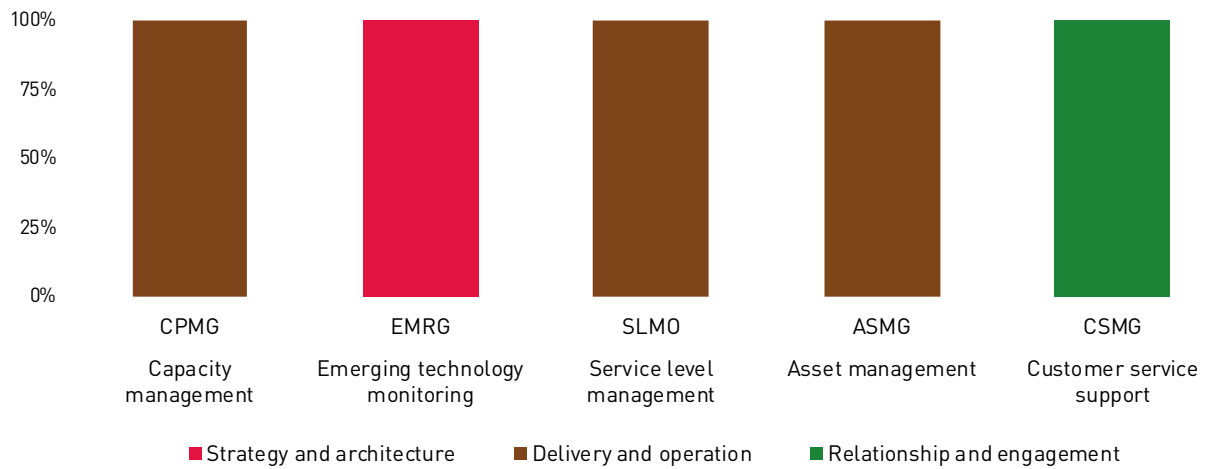
SFIA Level 3



SERVICE TRANSITION & INTEGRATION STREAM

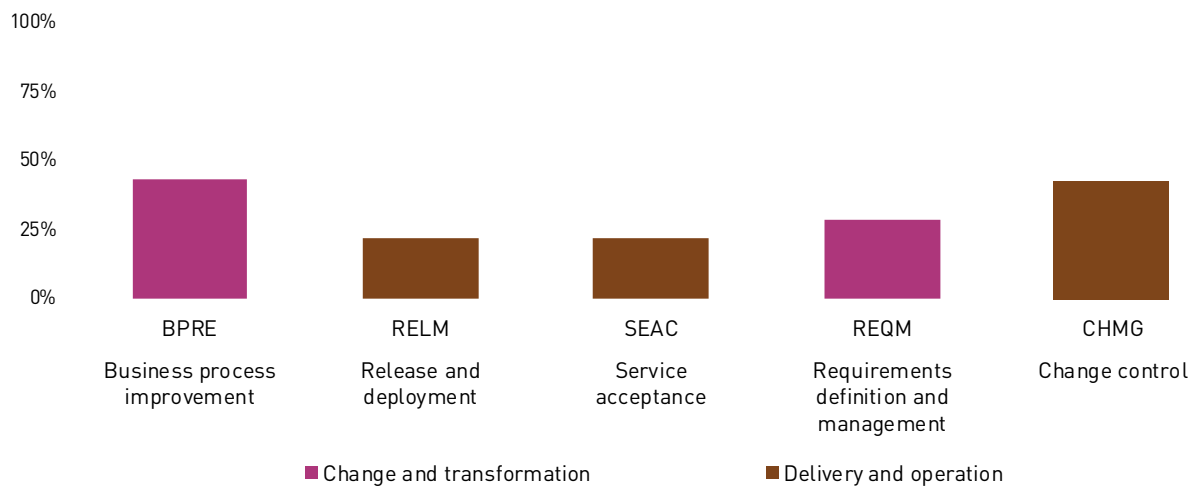
Asset Manager

SFIA Level 5



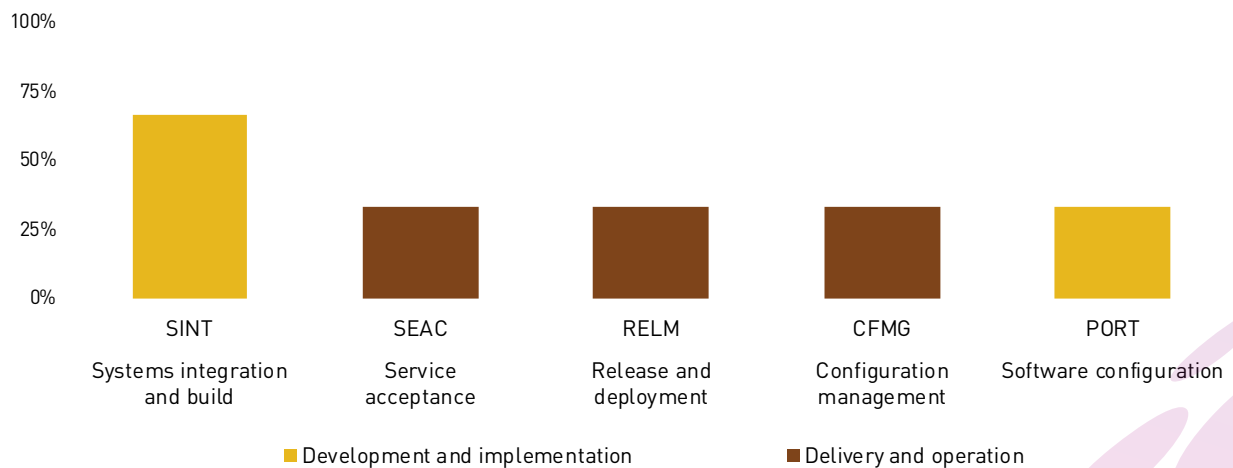
Change Manager

SFIA Level 4



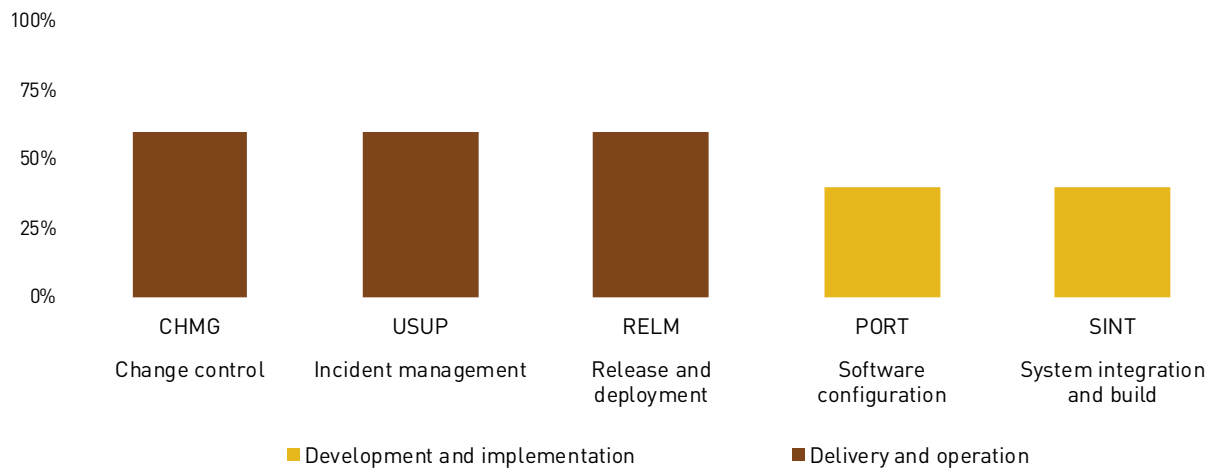
Configuration Manager

SFIA Level 5



Integration Specialist

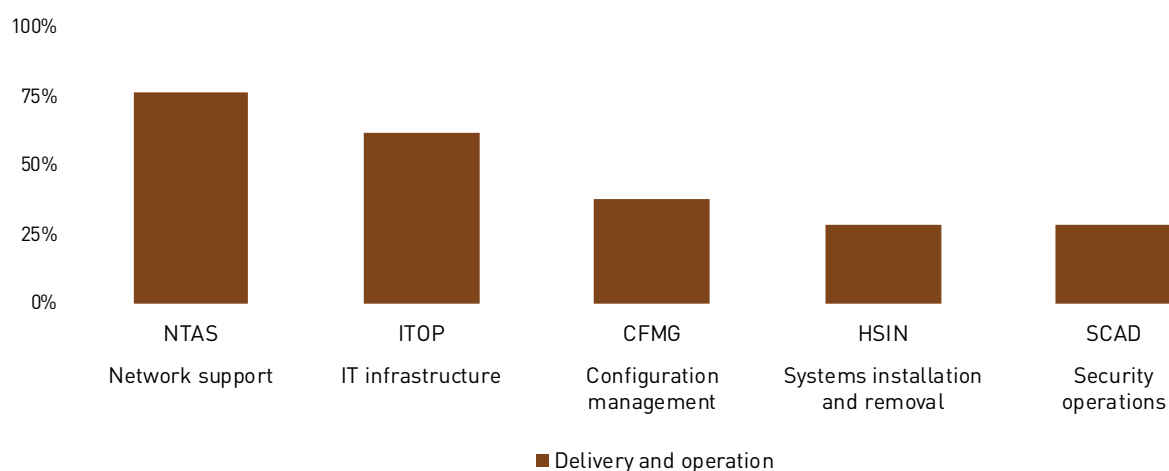
SFIA Level 5



SYSTEM ADMINISTRATION STREAM

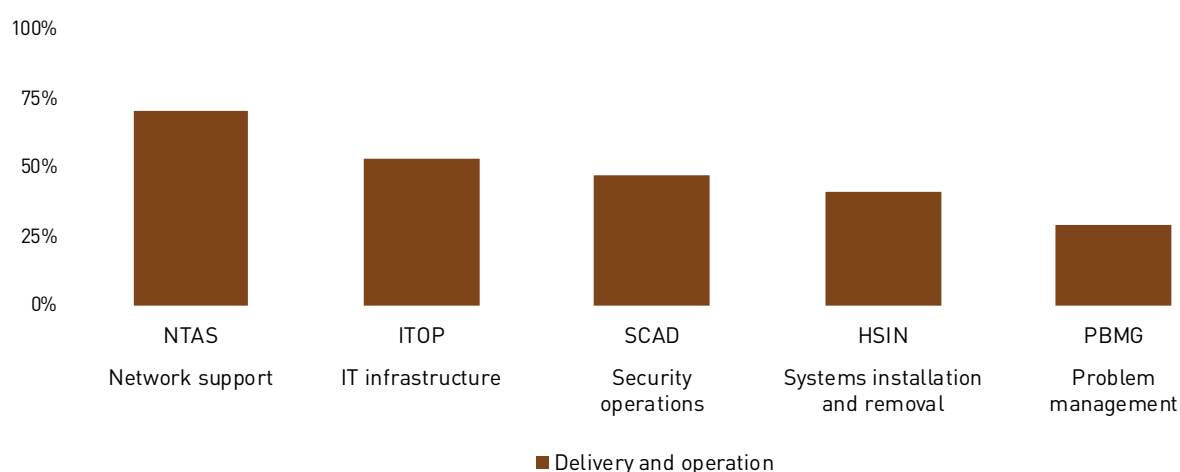
Network Administrator

SFIA Level 4



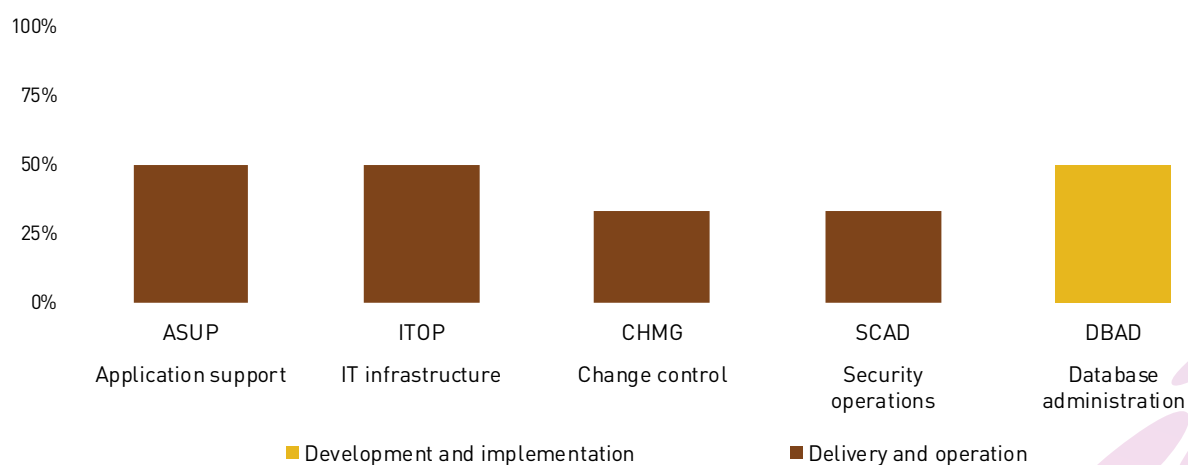
Network Operating Systems Administrator

SFIA Level 4



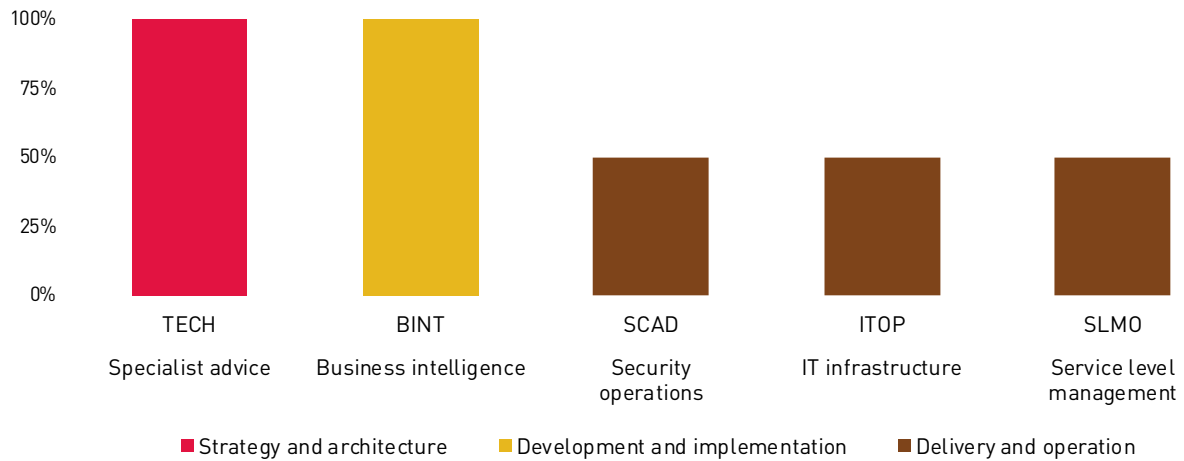
Database Administrator

SFIA Level 4



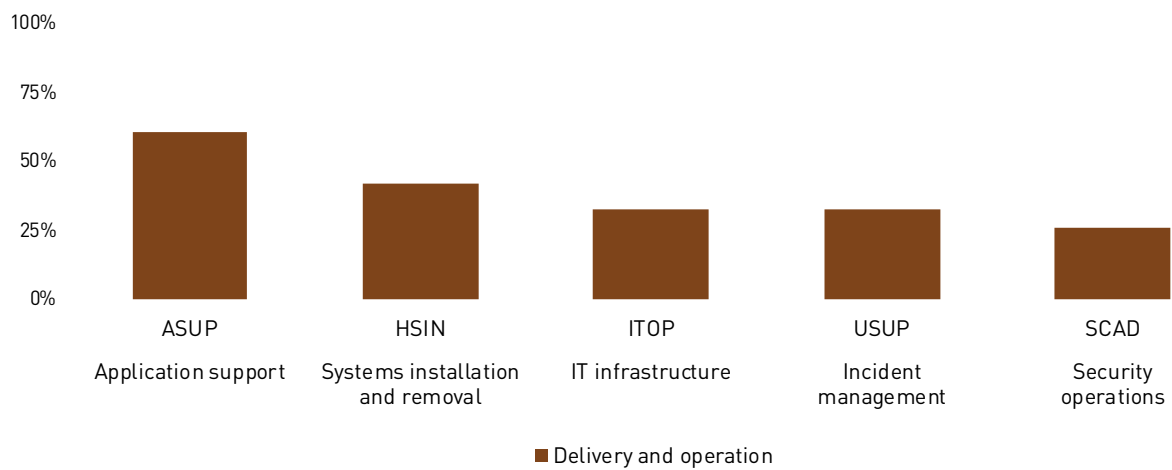
Technical Analyst

SFIA Level 3



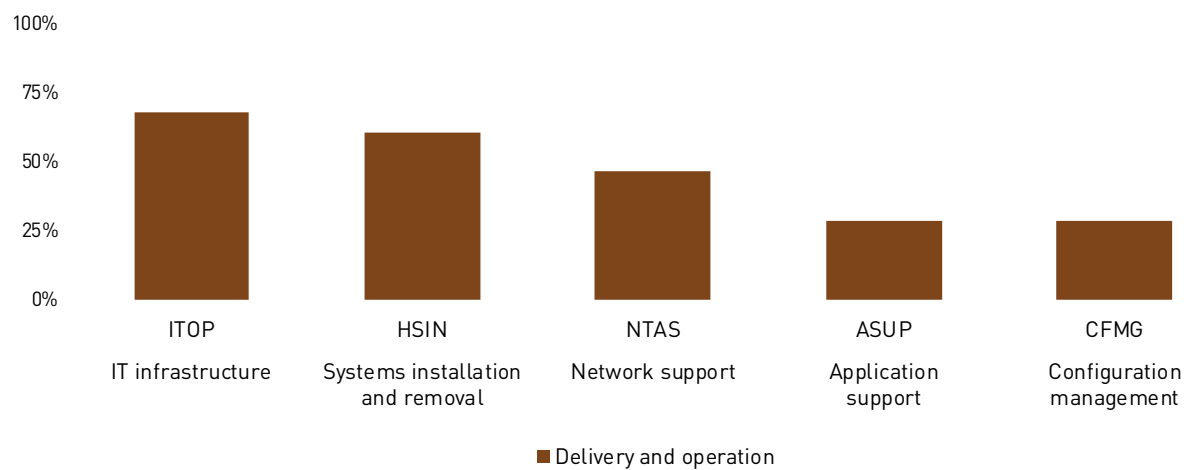
Systems Administrator

SFIA Level 4



Systems Engineer

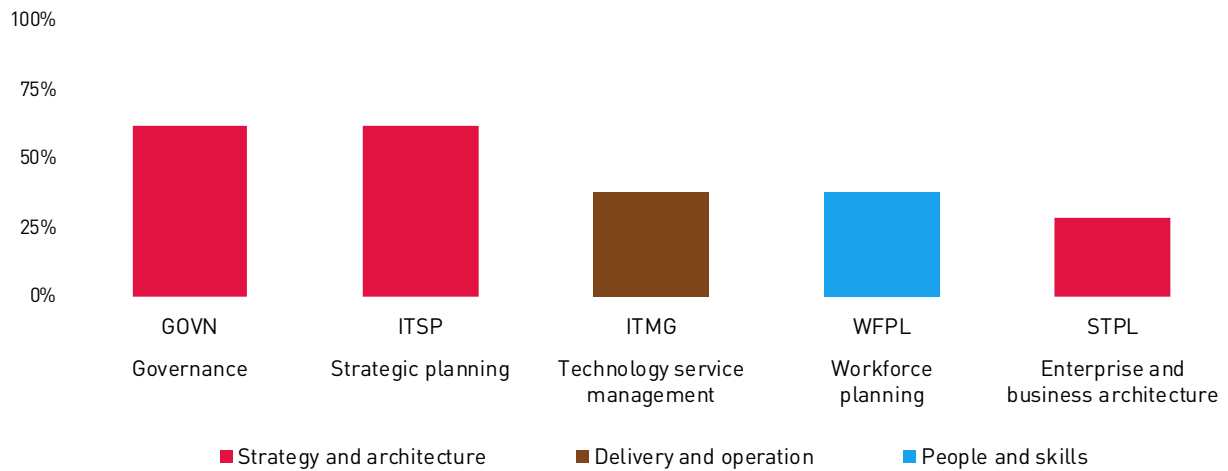
SFIA Level 5



TECHNOLOGY LEADERSHIP STREAM

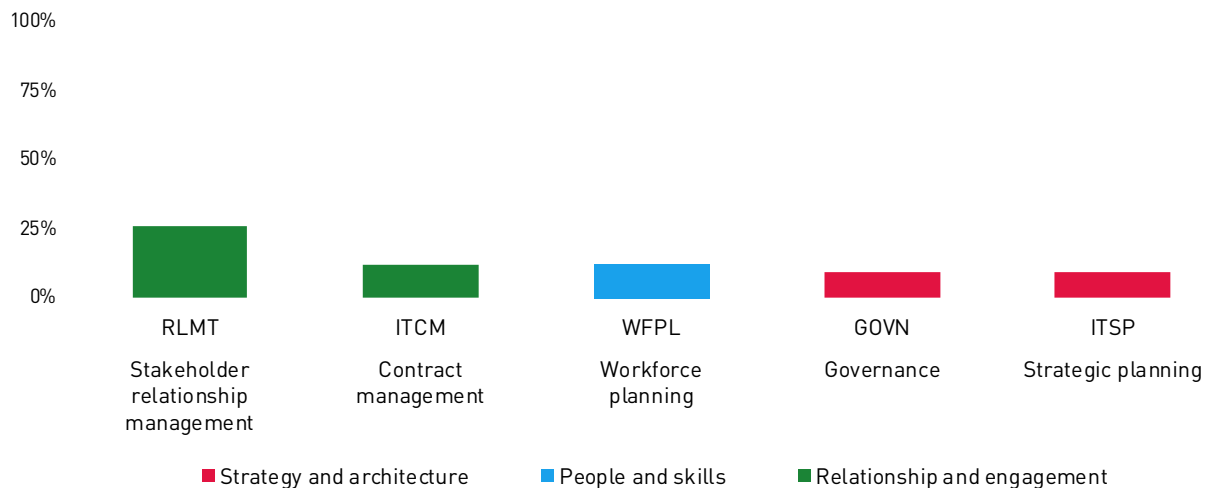
Chief Information Officer

SFIA Level 7



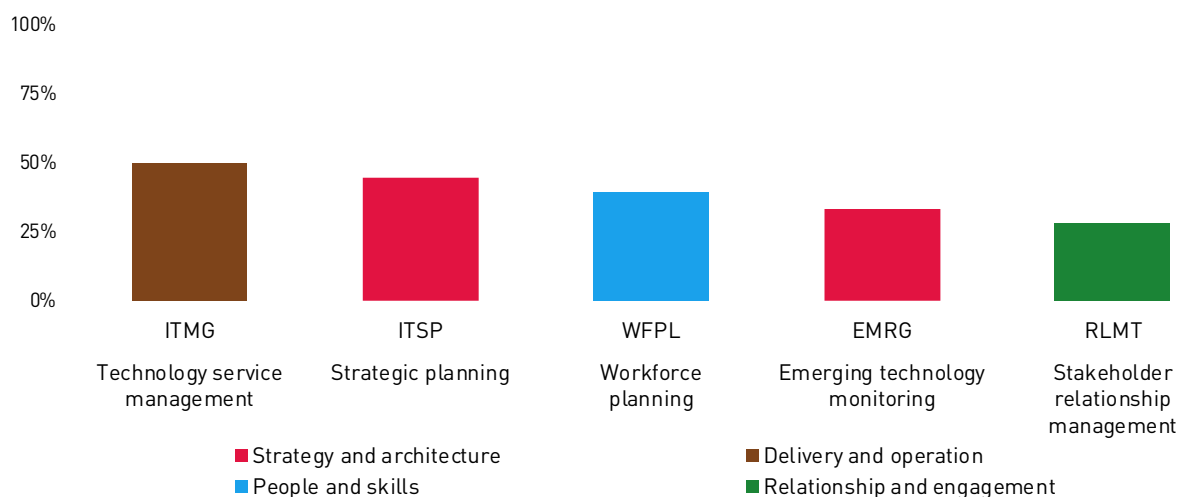
General Manager

SFIA Level 6



IT Operations/Technology Manager

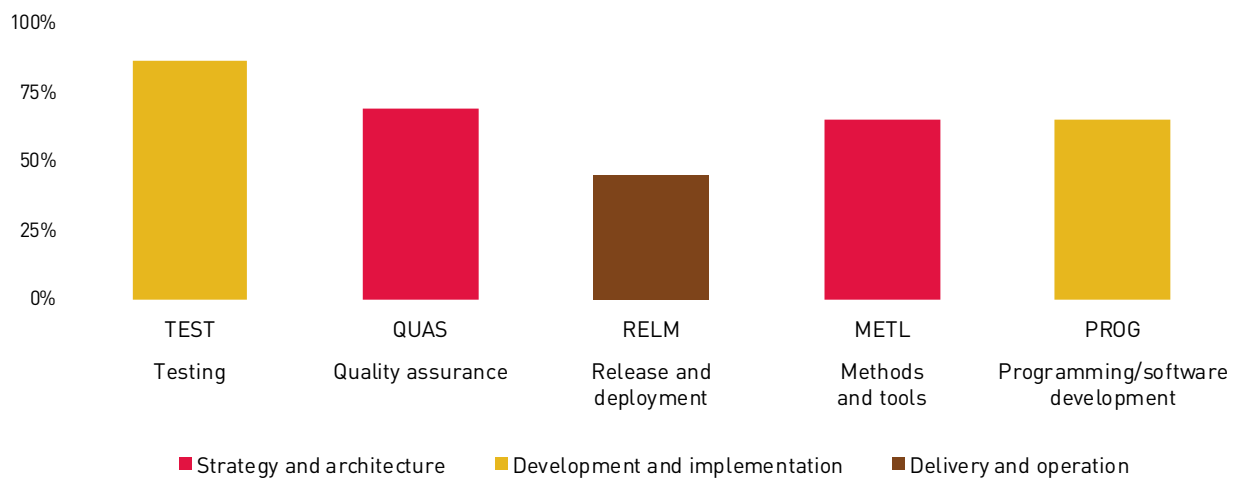
SFIA Level 5



TESTING STREAM

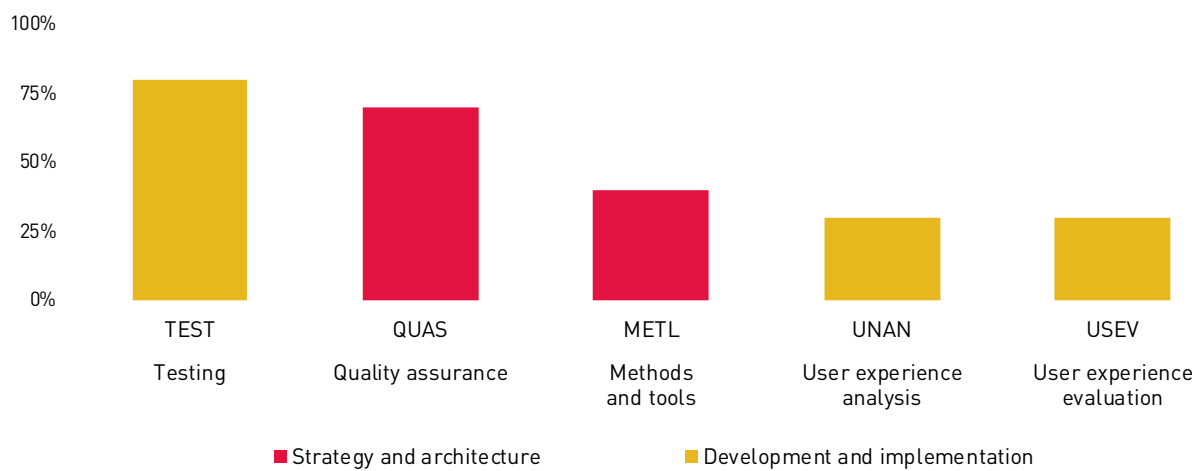
Automation Tester

SFIA Level 4



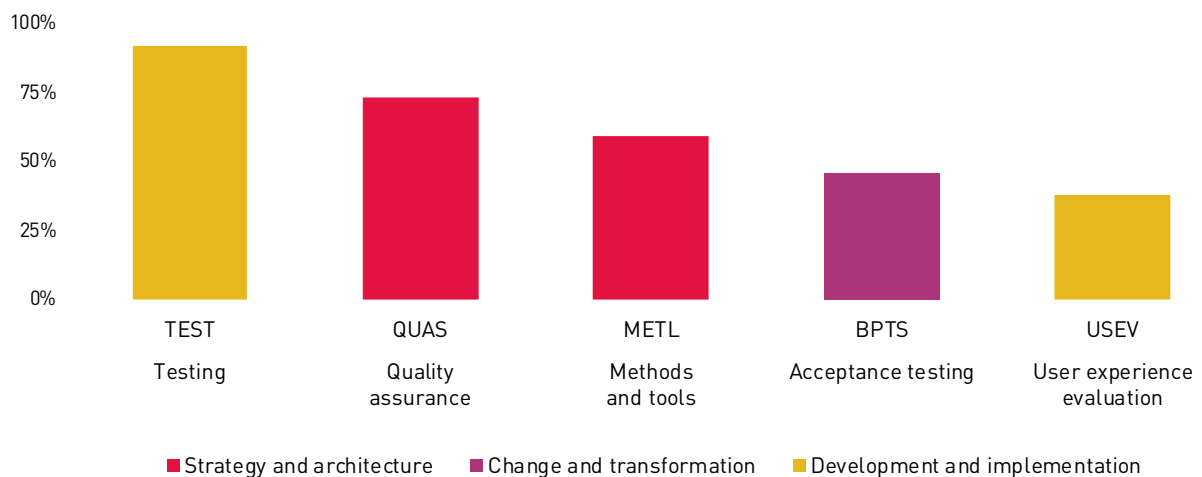
Testing Engineer

SFIA Level 5



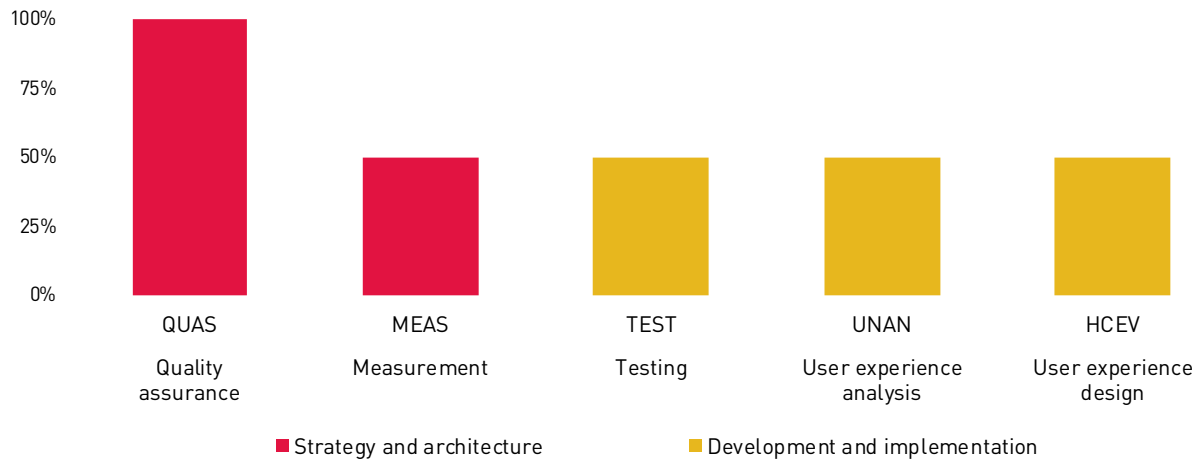
Test Analyst

SFIA Level 4



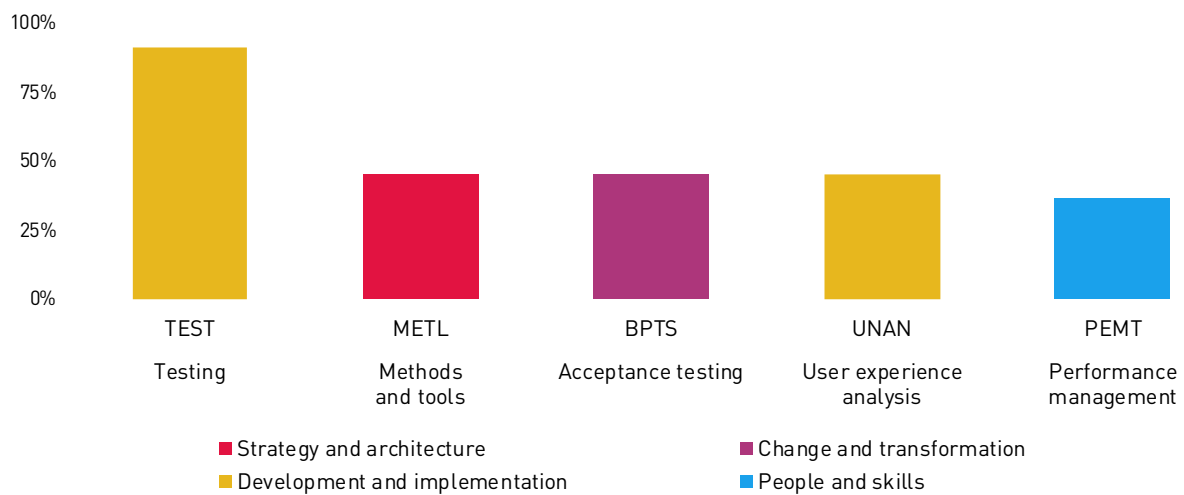
Test Assurance Officer

SFIA Level 4



Test Manager

SFIA Level 5





ABOUT ACS

ACS is the professional association for Australia's Information and Communication Technology (ICT) sector. More than 40,000 ACS members work in business, education, government and the community.

ACS has a vision for Australia to be a world leader in technology talent, fostering innovation and creating new forms of value. We are firmly vested in the innovative creation and adoption of best of breed technology in Australia, and we strive to create the environment and provide the opportunities for members and partners to succeed.

ACS works to ensure ICT professionals are recognised as drivers of innovation in our society, relevant across all sectors, and to promote the formulation of effective policies on ICT and related matters.

Visit acs.org.au for more information.



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