

The RDK-Hub

Powered by GCS



Resourcing RDK adoption

May 2021



Talent availability – as, where and when required - is critical to enabling the growth potential within RDK.

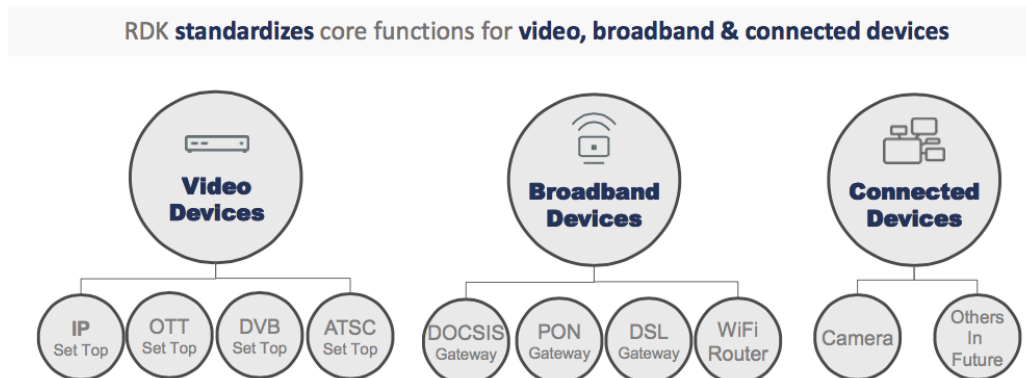
This report seeks to evidence:

- The scale of current RDK talent availability
- The drivers behind the exponential growth trajectory that RDK is on
- The urgent need for a structured process to enable the conversion of the significant talent pipeline into an accredited pool of professionals that employers can readily rely upon to capitalise upon RDK’s growth potential

The history, and current adoption, of RDK – and its Android rival

RDK (Reference Design Kit) is a modular, fully integrated software stack that any operator can use to develop and launch services on a huge range of broadband, broadcast or hybrid CPE (Customer Premises Equipment) hardware.

Originally launched by Comcast in 2009 as a migration platform towards IP for cable operators, RDK was developed to enhance the functionality of set top boxes. The open source software platform has now broadened out to enable the standardisation of the core functions used in video, broadband, and IoT connected devices – likely to spell the much anticipated “expiry into software” ¹, as Phil Hunter from Faultline defines it, of the set top box



According to RDK Central, the RDK community is comprised of more than 430 licensee companies, including CPE manufacturers, SoC vendors, software developers, system integrators, and service providers. Globally, the number of RDK devices deployed is now more than 60 million, and dozens of service providers across North America, Europe, Latin America, and Asia are in various stages of evaluation, testing, trials, or deployment.



430+ Tech Companies in the RDK community ecosystem

SI & Engineering Resources								
Applications								
CAS/DRM								
OEM								
SOC								

* This list represents a **select sample** of RDK partners, more partner choices are available.

It is administered by RDK Management LLC - a joint venture between Comcast Cable, Time Warner Cable, and Liberty Global. The RDK software is available at no cost to RDK licensees, in a shared source manner, and RDK community member companies are encouraged to contribute software changes and enhancements to the RDK stack.

Yet, despite the scale of the successful rollout of RDK, GCS’ research into the visible profiles of professionals working to affect this expansion evidences that its success – to date – has relied upon the work of an extremely small pool of in the region of c.4,500 professionals across the globe, which we profile later in this report.

Rivalling RDK for set top software dominance is Android TV.

“When Google shut down Google TV a few years ago, it replaced the platform with something completely different: Android TV. Simply put, Android TV is designed to bring the sorts of things you enjoy on your phone to your TV. Google TV had a lack of apps, but Android TV has access to the Play Store, so developers with a mobile app can easily apply some modifications to make an Android TV app. Plus, Android TV has Google Cast support. In a nutshell, Android TV is essentially Android optimised for the big screen.

Pocket-Lint, Sept 2020

Recognising the advantage that app access gave to Android TV, RDK4 was launched in October 2020. RDK Central believes that: “RDK4 marks something of a culmination of a process that really got serious ...when Metrological was acquired by Comcast (in 2018), the original creator of the RDK. As such, RDK4 can be seen as a more formalised way of boosting the RDK app ecosystem.”² The Metrological Application Platform delivers a complete product suite for on-boarding and managing the lifecycle of web and native apps and premium OTT services across set-top boxes. As such, according to the company, content providers are now able to reach over 40 million households across operator networks (RDK’s reach) by uploading a single app onto the Metrological App Library.



Predictions for the ‘expiry into software’ of the set-top box – and what comes next

“The death (of the set top box) will be drawn out for another decade during which there will be significant rationalization in the number of viable operating systems,”¹ Hunter from Faultline continues.

“Android TV, RDK and a handful of other specialist smart TV OSs will come to the fore, mostly at the expense of generic Linux variants, plus a new entry out of China in Huawei’s Harmony OS”. Hunter believes that the latter will benefit from the US China trade war, “surging to take 28% of the set top OS market there by 2025, holding Android back at 14%. Elsewhere, Android will take almost a third of the global set top OS market, although that will still be behind the sum total of various Linux-based variants to which many operators have made quite long-term commitments”.

Hunter also believes that RDK’s recent reinforcements have not just shored up their core base “but also enabled it to come out fighting against Android among lower tier operators with a competitive platform. We anticipate RDK making some headway then in Europe and to a smaller extent in both Asia Pacific and Latin America, although with no presence at all in China”.

Far from the set top box generated market opportunity for RDK, Android TV and Harmony OS evaporating along with the need for the physical device, however, these companies – and doubtless other rivals that will make strides forward over the next decade – are competing for a completely new space. This is a competition to control our connected world, its content and its valuable aggregate data – and not just in the home, but also within all buildings, modes of transportation and city spaces – which is a much bigger prize.

And fuelling this competition, and demand for and/or the opportunity for greater seamless connectivity, are two major forces: the potential of 5G and the likelihood that – for many millions – the home will also become their long-term place of work.

The impact of 5G and a significant – and likely permanent - shift to home working

According to Olivier Lafontaine, Strategy & Product Management Director for Technicolor Connected Home – one of the major manufacturers deploying RDK as their primary software stack on next-gen broadband gateways - “with 5G enhanced mobile broadband, Network Service Providers have three basic options: enhance mobile wireless services enhance broadband access to connected homes; or determine an optimum mix for using 5G spectrum among these options.”³

“The number of connected devices inside households is growing”, he continues. “On average there were approximately a dozen devices accessing Wi-Fi home networks prior to COVID-19. It is a



number that has likely grown since. 5G broadband access providers will be expected to manage the complexity and throughput of data shared by devices inside the connected home as it pulls and pushes a growing amount of data to and from external cloud resources”.

By 2019, RDK Management pointed to the fact its software had become the preferred stack for broadband gateways from leading suppliers (including Humax, Sagemcom, Arris and the aforementioned Technicolor) – focused on providing RDK systems across DOCSIS (data via cable), DSL (digital data over telephone lines) and PON (fibre optic networks). “But no longer individually,” Tommy Flanagan from Faultline noted, “as RDK says continued innovation in the connected home (NB: now all buildings, modes of transportation and cities), driven by consolidation occurring the world over, means service providers are embracing all three aforementioned access networks and, as a result, RDK is being expanded to accommodate all of them.”⁴

“This expansion across access networks by RDK”, Flanagan continues, “caused Faultline Online Reporter to ask the question of whether RDK could carve out a niche in broadband gateways and in turn standardization of other functions in the connected home, while leaving Android TV Operator Tier to go on and dominate the open video ecosystem? Admittedly, we have never encountered or heard murmurs of an operator already running or even planning to deploy both, although an RDK representative told us the idea is by no means implausible. It implies we could soon see an instance of an operator deploying an RDK-based broadband gateway alongside a set top or streaming device based on Android TV Operator Tier.”

If this scenario were to play out, we shift from a battleground of deployments of either RDK or Android (Harmony OS or others) to the opportunity for multiple simultaneous deployments. As such, it is likely that, whilst they are all rivals, greater opportunities lie within the potential for co-existence.

To enable this to happen, RDK will require a significantly larger pool of talented individuals to enable it to realise its potential. In addition to profiling the current talent pool, this report also evidences the demographics of the potential pools from which this talent can be developed.

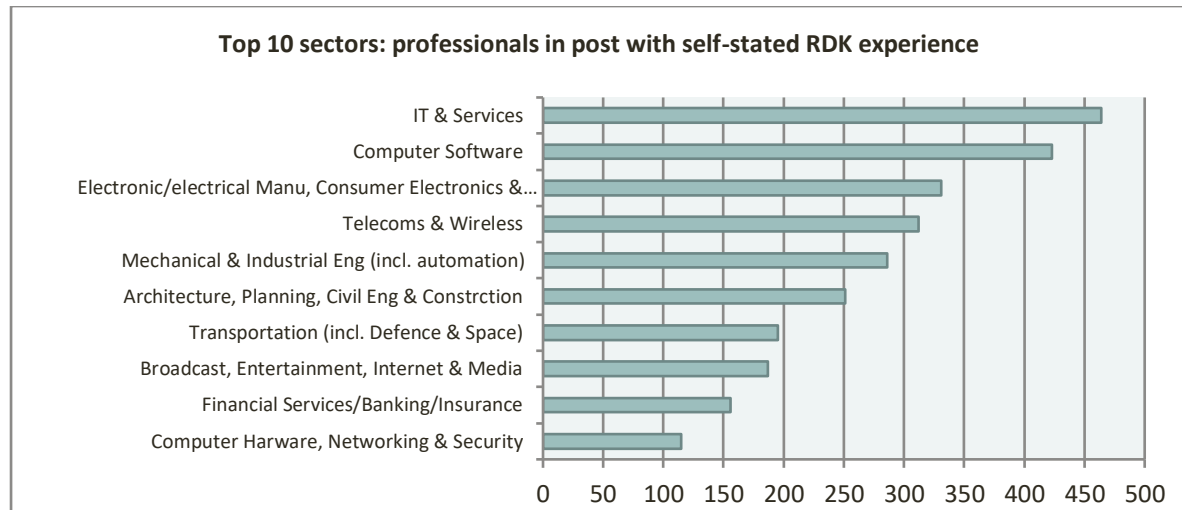
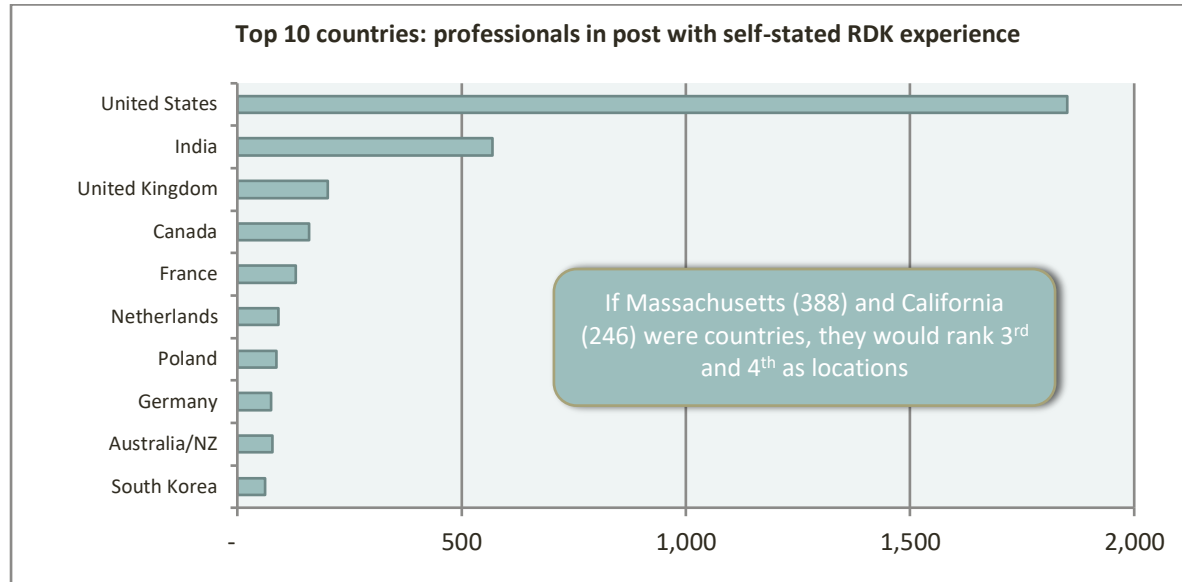
Resourcing RDK adoption: the current talent pool

GCS research has identified a pool of in the region of 4,500 professionals working globally with self-stated RDK experience. This pool could be visibly larger, if relevant experience were appropriately badged as RDK, but equally, some of those stating RDK credentials may not have robust enough experience for employers to rely upon with certainty. Analysis of this pool is, however, a useful starting point from which to consider ease of access to readily available talent.

More than four in ten (41%) of these individuals are currently based in the US – and such is the scale of concentration within some key states that, if Massachusetts and California were countries, they would rank 3rd and 4th, respectively in the world as locations.



From a sectoral perspective, far from the majority of these professionals being engaged within Broadcast & Media, they are spread far and wide across industries – highlighting the extent to which the application of RDK is spreading. Sixty per cent are engaged within ten sectors – and are sticking there. Just 2.7% moved post within the Q1 2021.



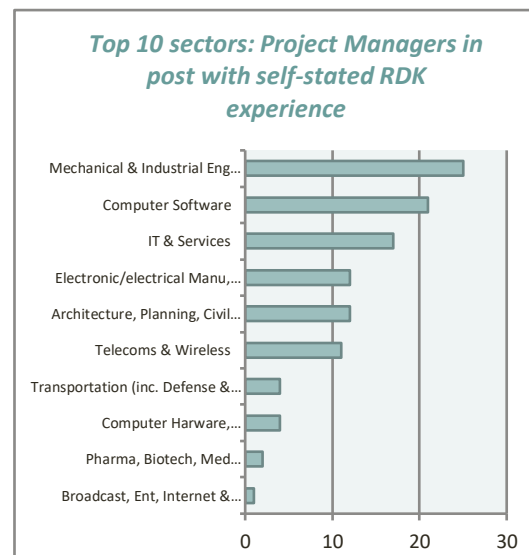
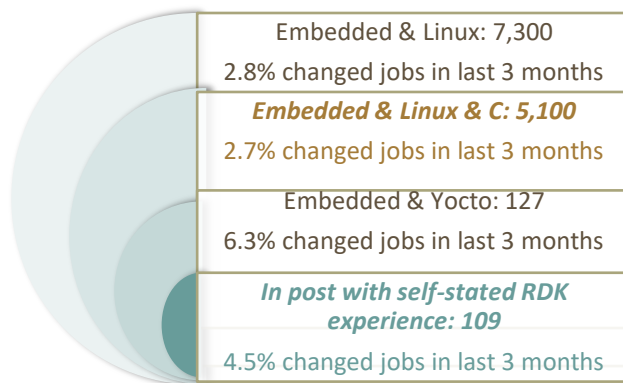
Source for both: GCS Recruitment: analysis of LinkedIn profiles

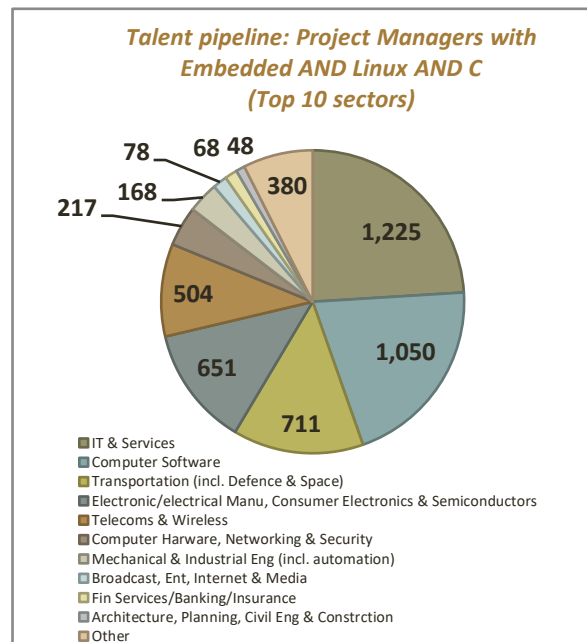
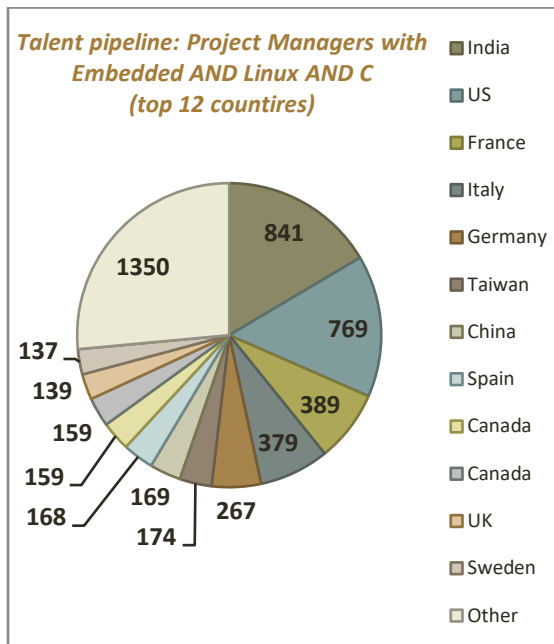
Delving deeper into the key skills functions required by RDK to capitalise on its potential, in the next section we examined the both the pool of professionals across eight disciplines with self-stated RDK experience and the wider pool with the underpinning skills required to move into this area of specialisim (Embedded, Linux, C and/or Yocto).



Project Managers: the current and potential future RDK pools

- GCS research identified 109 Project Managers in post with self-stated RDK experience.
 - With just 4.5% of this qualified talent pool moving positions within the last quarter, however, converting the talent pipeline into available resource is critical.
- The top sector in which those with RDK experience are currently engaged is Mechanical & Industrial Engineering (incl. Industrial Automation).
- The most qualified talent pipeline – Project Managers with Embedded and Linux and C experience – number 5,100 globally.
 - The largest numbers are in India and the US

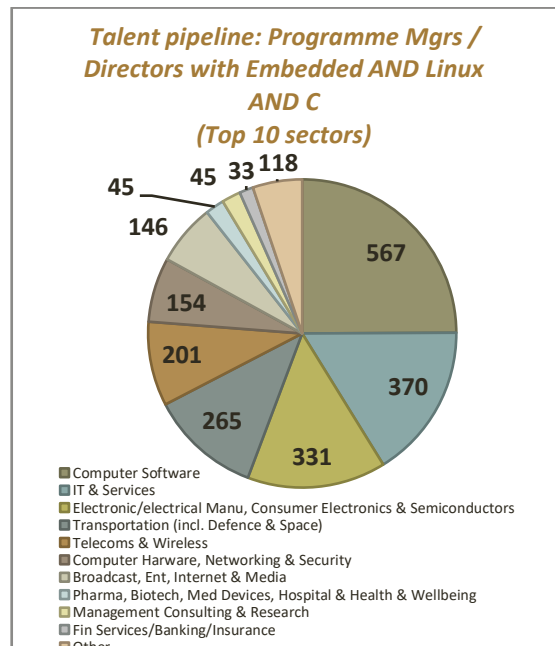
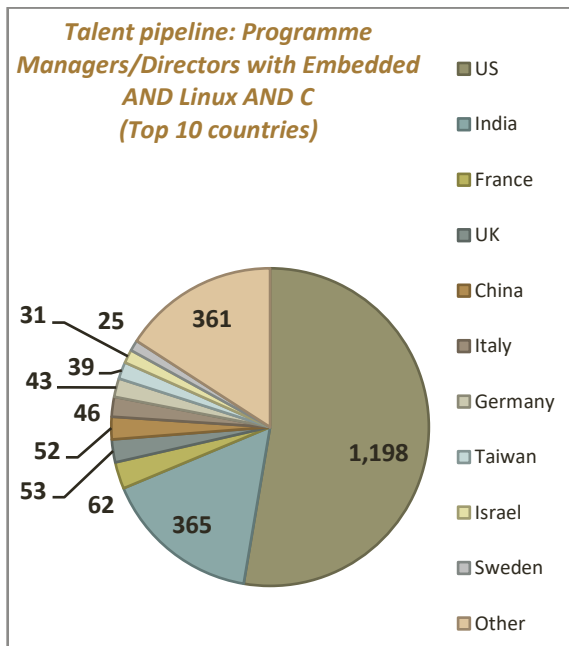
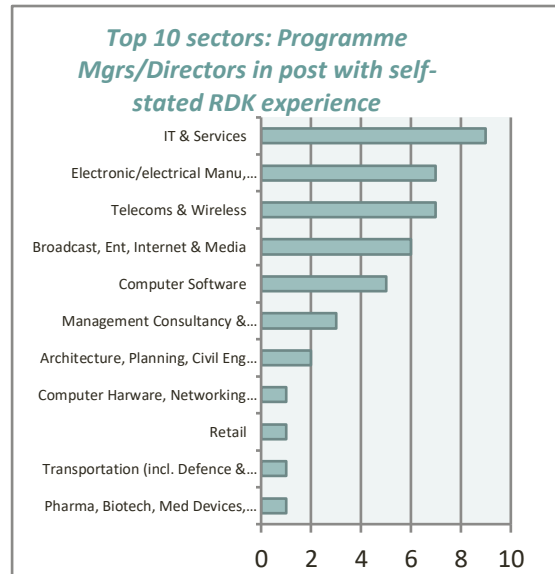
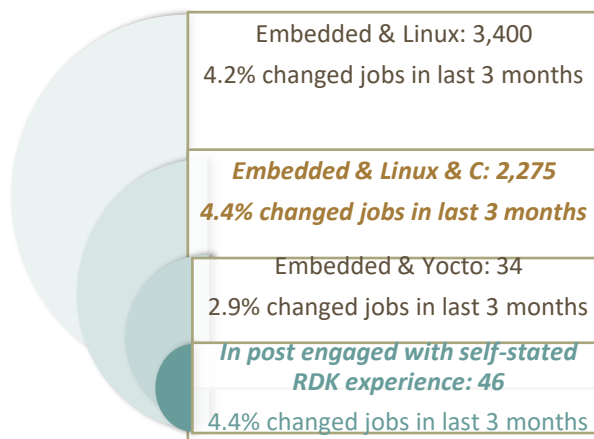




Programme Managers/Directors: the current and potential future RDK pools

Source: GCS Recruitment: analysis of LinkedIn profiles

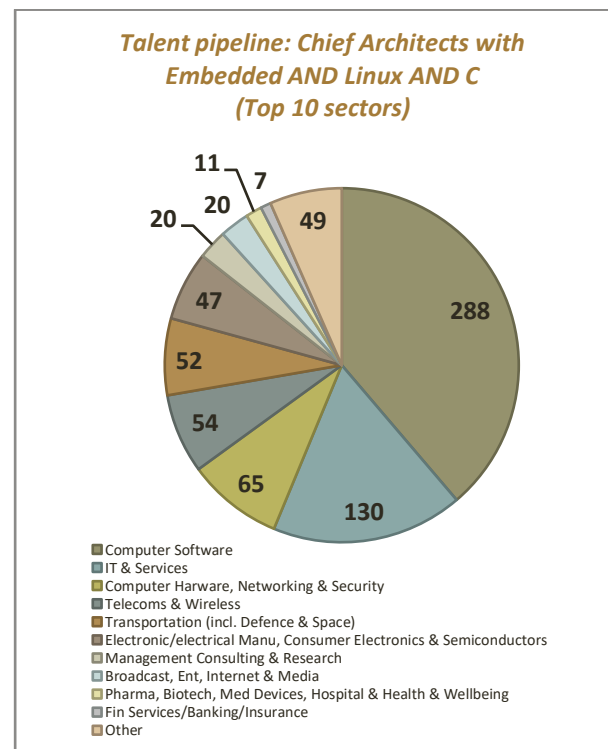
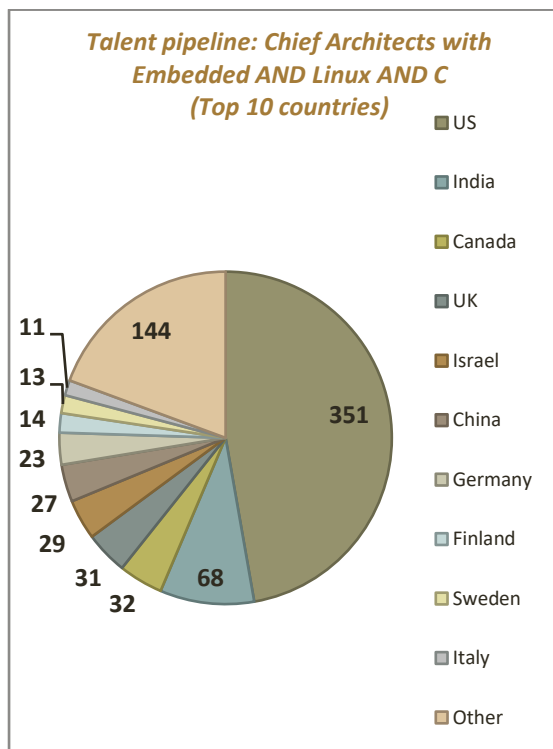
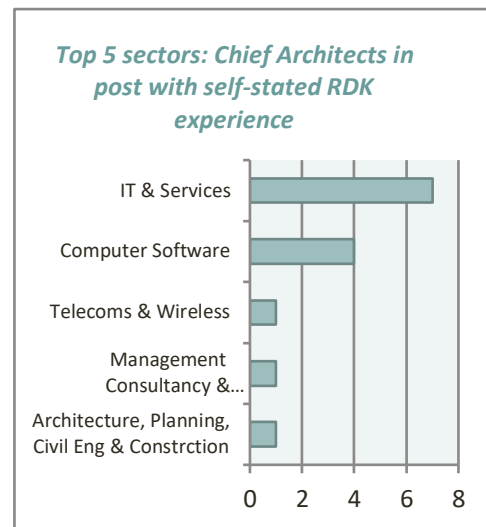
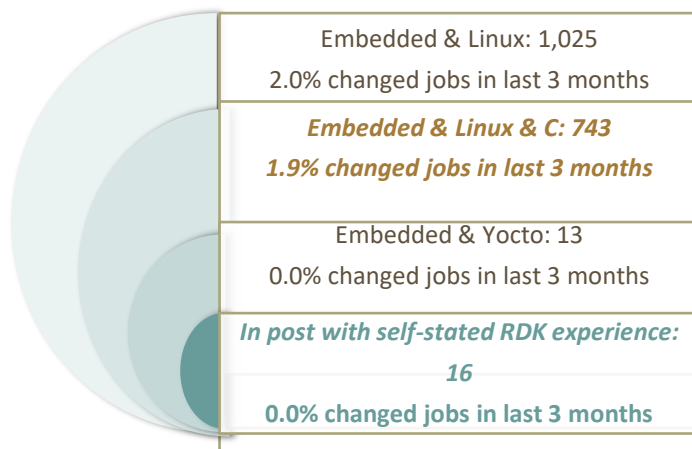
- GCS research identified 46 Programme Managers/Directors in post with self-stated RDK experience.
 - With just 4.4% of this qualified talent pool moving positions within the last quarter, however, converting the talent pipeline into available resource is critical.
- The top sector in which those with RDK experience are currently engaged is Information Technology & Services.
- The most qualified talent pipeline – Programme Managers/Directors with Embedded and Linux and C experience – number 2,275, globally.
 - More than two-thirds (69%) are currently located in either the US or India.



Chief Architects: the current and potential future RDK pools

Source: GCS Recruitment: analysis of LinkedIn profiles

- GCS research identified just 16 Chief Architects in post with self-stated RDK experience.
 - With no movers within the last quarter, converting the talent pipeline into available resource is critical.
- The top sector in which those with RDK experience are currently engaged is Information Technology & Services.
- The most qualified talent pipeline – Chief Architects with Embedded and Linux and C experience – number 743, globally.
 - More than half (56%) are currently located in either the US or India.



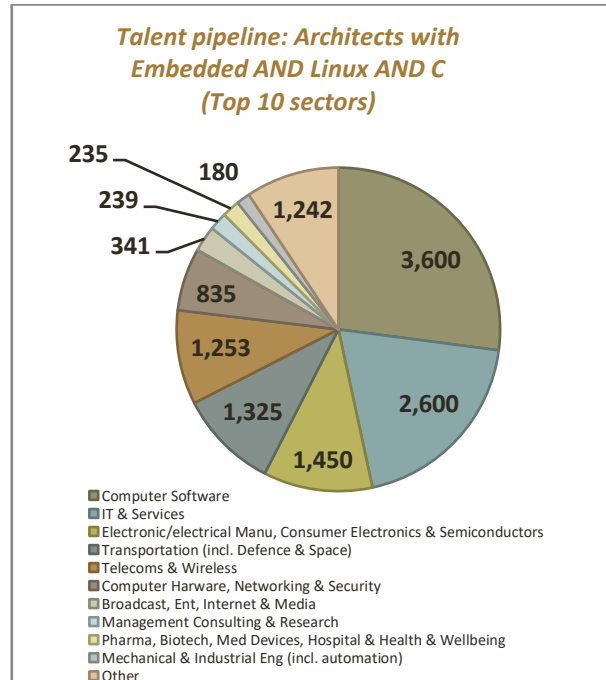
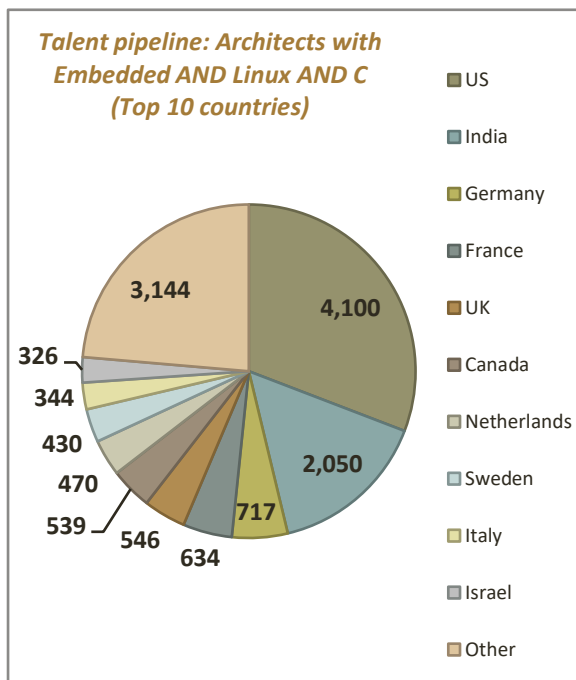
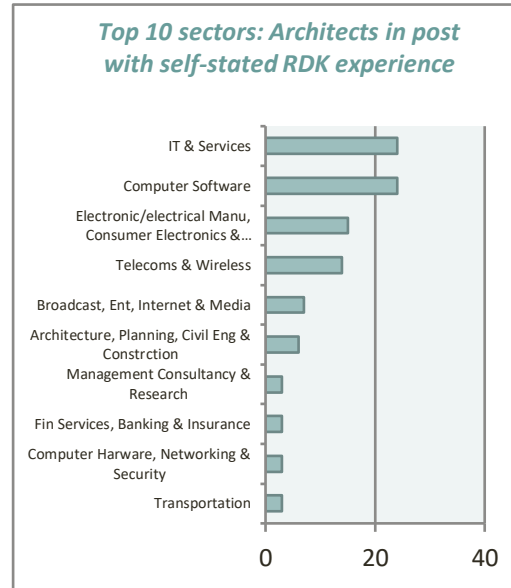
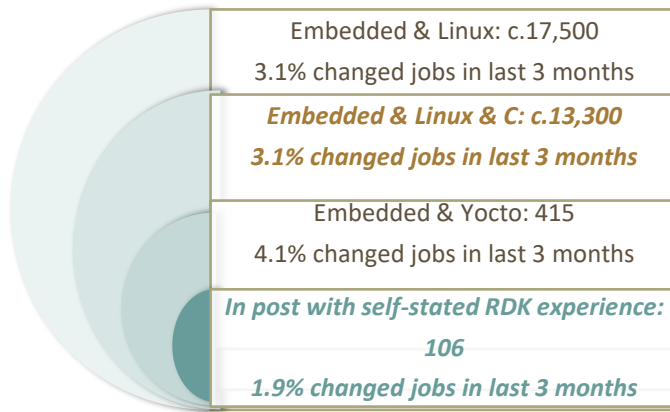
Architects: the current and potential future RDK pools

Source: GCS Recruitment: analysis of LinkedIn profiles

- GCS research identified 106 Architects in post with self-stated RDK experience.
 - With just 1.9% of the visibly experienced workforce moving posts within the last quarter, however, converting the talent pipeline into available resource is critical.
- The top sector in which those with RDK experience are currently engaged is Information Technology & Services.
- The most qualified talent pipeline – Architects with Embedded and Linux and C experience – number a notable 13,300, globally.



- They are widely spread across geographies and sectors.



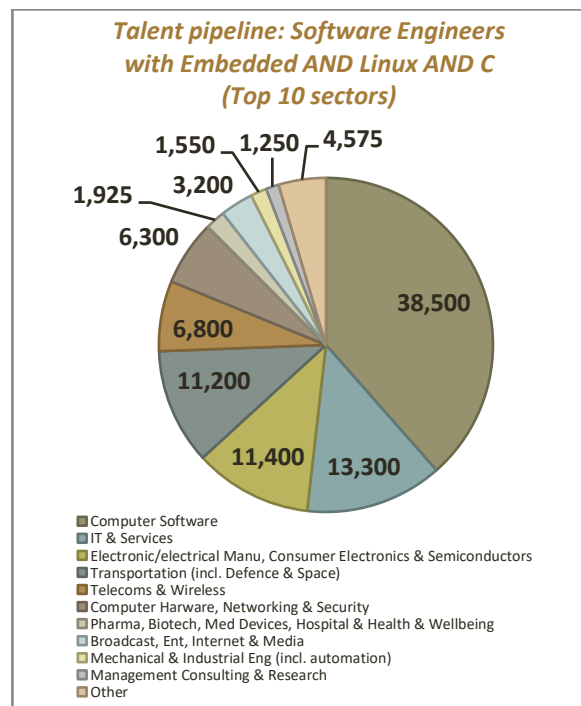
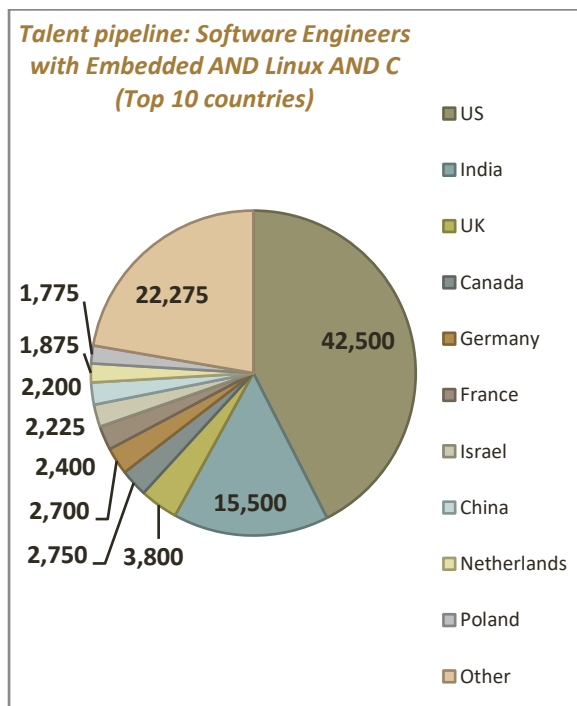
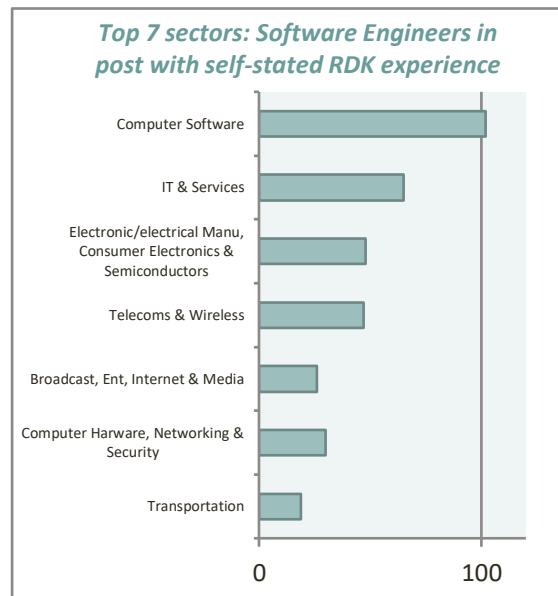
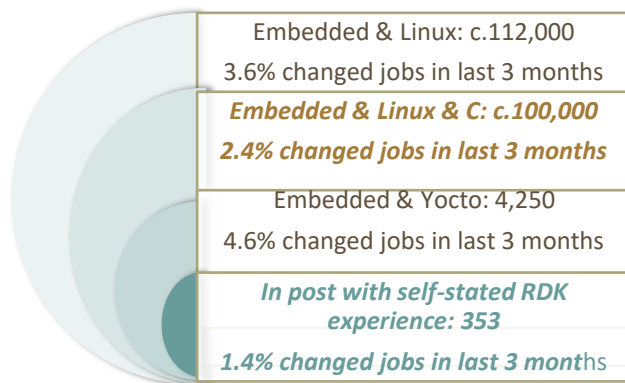
Software Engineers: the current and potential future RDK pools

- GCS research identified 353 Software Engineers in post with self-stated RDK experience
 - With just 1.4% of this talent pool moving positions within the last quarter, however, converting the talent pipeline into available resource is critical.
- The Computer Software sector engages most of those available with RDK experience.

Source: GCS Recruitment: analysis of LinkedIn profiles



- The most qualified talent pipeline – Software Engineers with Embedded and Linux and C experience – number a sizeable 100,000, globally.
 - More than half (56%) are currently located in either the US or India.



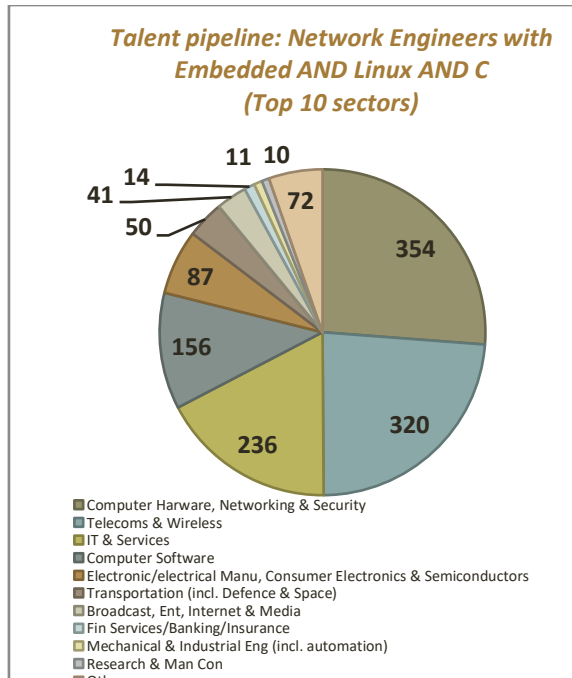
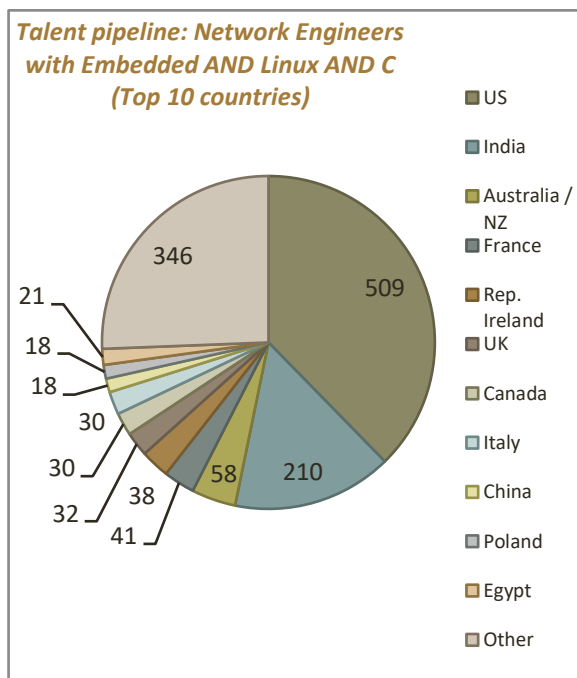
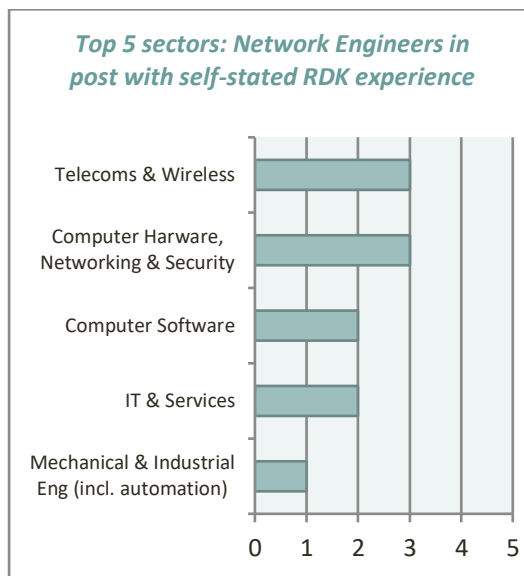
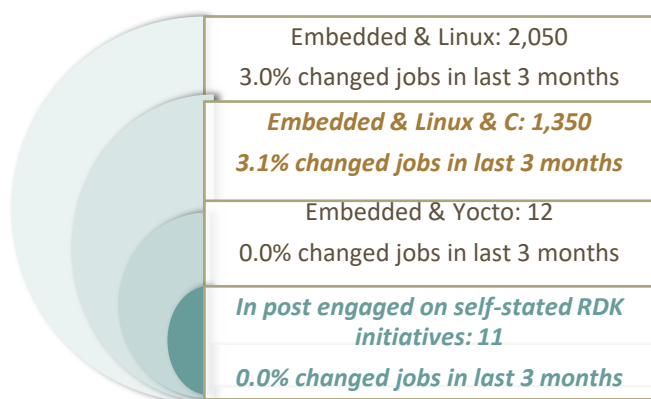
Network Engineers: the current and potential future RDK pools

- GCS research identified just 11 Network Engineers currently in post with self-stated RDK experience, spread across 5 sectors

Source: GCS Recruitment: analysis of LinkedIn profiles



- With no movers within the last quarter, converting the talent pipeline into available resource is critical.
- The most qualified talent pipeline – Network Engineers with Embedded and Linux and C experience – number 1,350 globally, however.
 - They are widely spread across geographies and sectors.

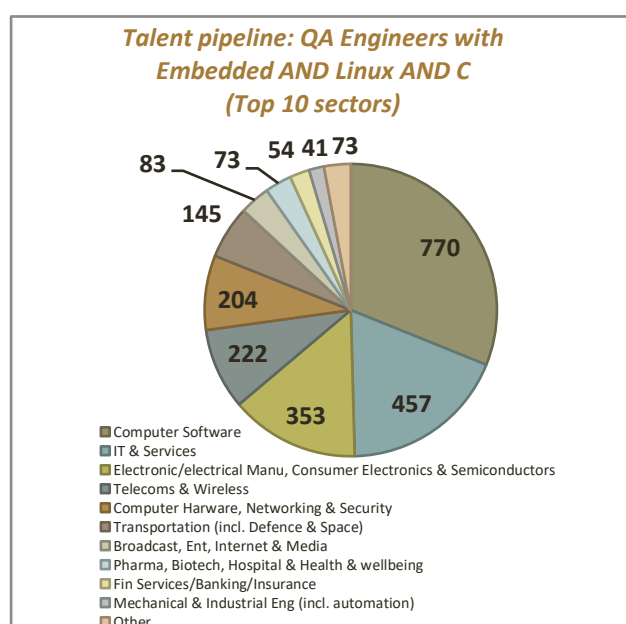
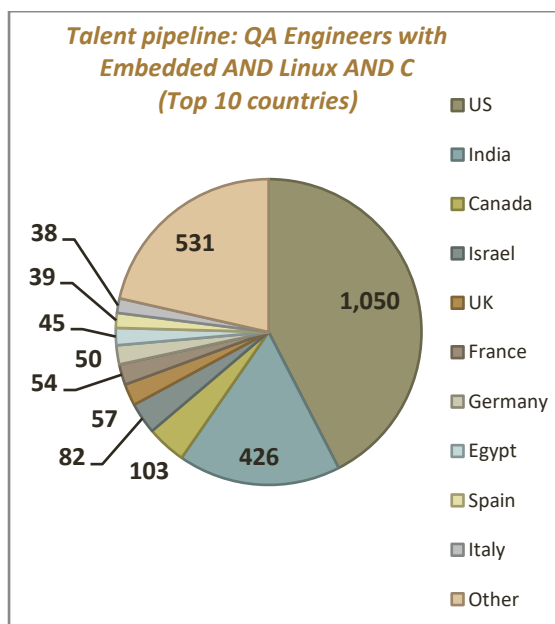
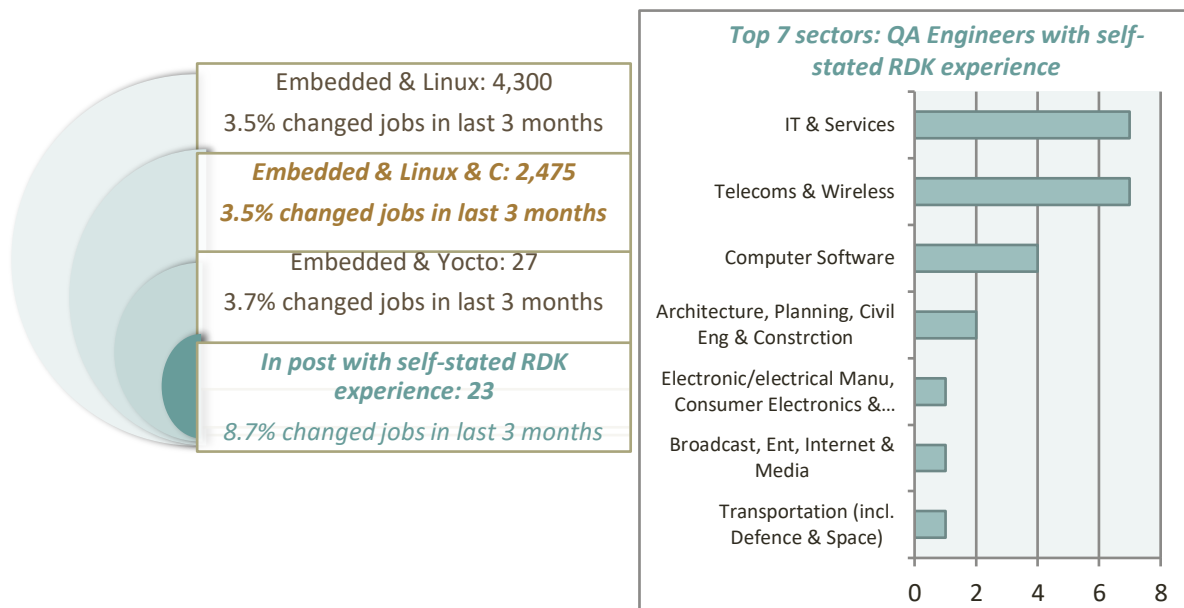


QA Engineers: the current and potential future RDK pools

Source: GCS Recruitment: analysis of LinkedIn profiles



- GCS research identified just 23 QA Engineers currently in post with self-stated RDK experience, spread across 7 sectors.
- Whilst 8.7% have moved positions within the last quarter, such low numbers meant that converting the talent pipeline into available resource is critical.
- The most qualified talent pipeline – Network Engineers with Embedded and Linux and C experience – number a 2,475 globally, however.
 - Whilst widely spread across sectors, six in ten are currently located in just the US and India.

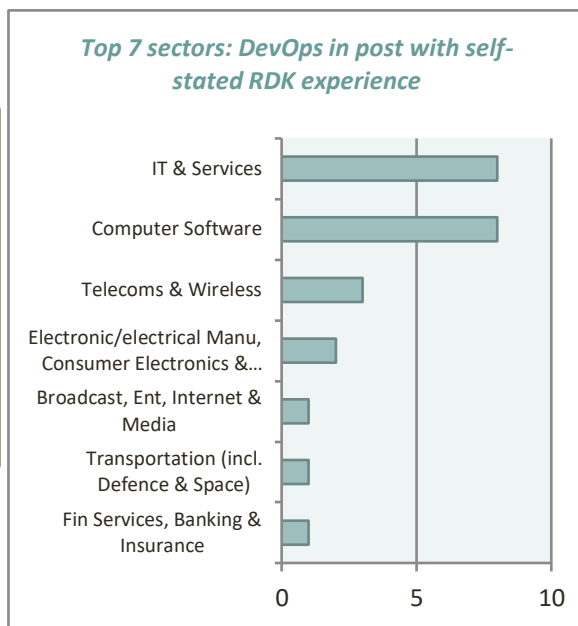
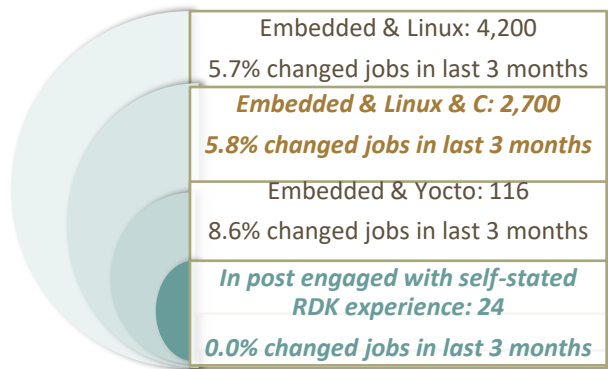


Source: GCS Recruitment: analysis of LinkedIn profiles

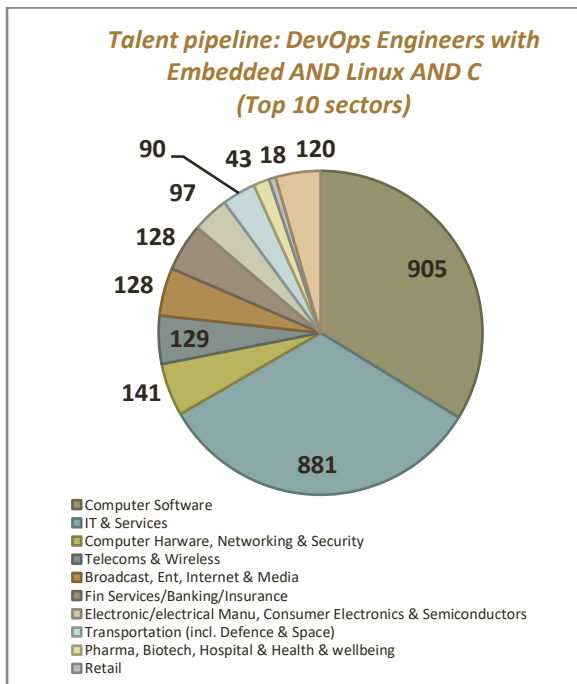
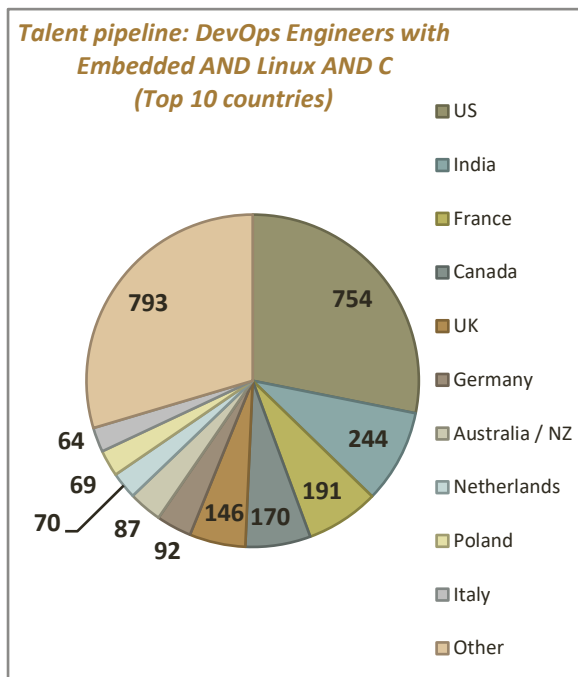


DevOps Engineers: the current and potential future RDK pools

- GCS research identified just 24 DevOps Engineers currently in post with self-stated RDK experience, spread across 7 sectors.
- With no movers within the last quarter, converting the talent pipeline into available resource is critical.
- The most qualified talent pipeline – DevOps Engineers with Embedded and Linux and C experience – number 2,700 globally, however.
 - Two thirds (67%) are currently engaged within IT Services or Computer Software – widely spread across geographies.



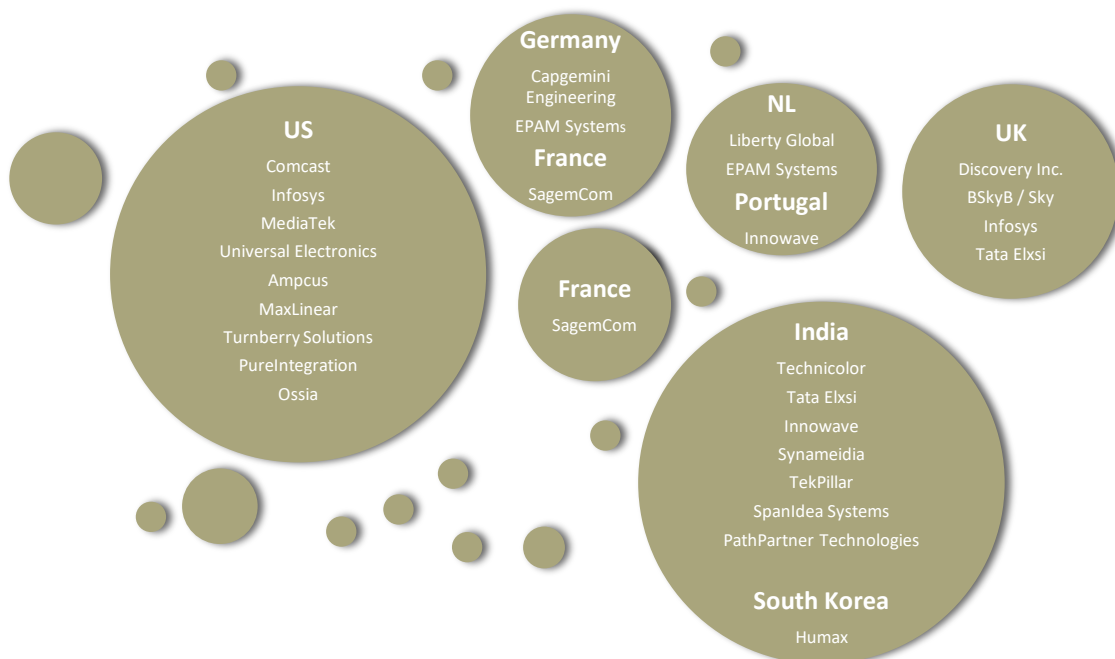
Source: GCS Recruitment: analysis of LinkedIn profiles



Candidate demand is outstripping supply – and is being rewarded well, as a consequence

Taking a snapshot of RDK hiring activity amongst major corporates in April 2021, demand spans IT & Services, Telecoms, Consulting, Broadcast and Consumer Electronics. Their requirements are wide-reaching, ranging from testers through to architects, developers, systems and software engineers, operational leads and business development professionals.

Key corporates hiring RDK talent, by country: April 2021





Based on the potential availability of qualified talent – and the slow speed at which workers are transitioning between projects – demand is quite simply outstripping supply.

What an acute shortage of talent also results in is a pay premium, as evidenced by RDK pay differentials for standard roles. The following are indicative average day rates for generic skills and the current indicative pay-premium bandings for those with RDK experience and skills.

Pay differentials for generic and RDK-related skills

	UK: generic (average day rate)	UK: Embedded / RDK (average day rate)	US: Generic (average day rate)	US: Embedded / RDK (average day rate)	Europe: generic (average day rate)	Europe: Embedded / RDK (average day rate)
Principal Architect	£600	£700-£800	\$750	\$850-\$950	€650	€750-€850
Architect	£540	£550-£700	\$640	\$800-\$850	€550	€650-€750
Software Developer	£390	£400-£550	\$500	\$600-\$700	€450	€500-€600
QA Tester	£325	£400-£480	\$400	\$450-\$500	€425	€450-€500
Network Engineer	£375	£420-£520	\$480	\$550-\$600	€400	€430-€480

Whilst all of the latter are above the generic rates, it is also notable that the average RDK premium rate ranges also vary significantly by location. There is also a strong likelihood – as evidenced earlier by the low churn rates – that additional premiums are also being paid to secure RDK talent in roles for the duration of project requirements.

Moreover, in the absence of any formal qualifications that evidence RDK experience, employers currently have to check self-stated credentials – a time-consuming and challenging task.

Bringing the future forward with the RDK Certification programme

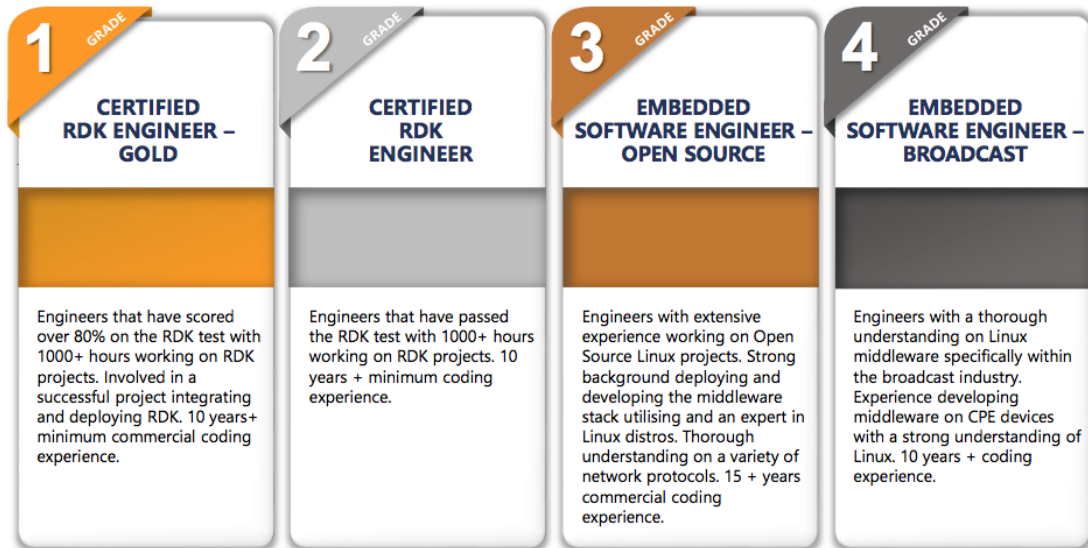
Through a recent collaboration between RDK and GCS, the industry is now in the process of establishing an accreditation process to help employers with both this validation process and to help build a future talent pipeline to enable RDK to capitalise upon its potential

Jason Briggs, Executive Director of RDK stated: “for RDK, the availability of experienced technical talent is always one of the top areas of need, and we wanted to help address that. We are impressed with GCS’ strategic approach, and we look forward to their support in attracting talented engineers and expanding the talent pool of qualified candidates for the RDK community.”

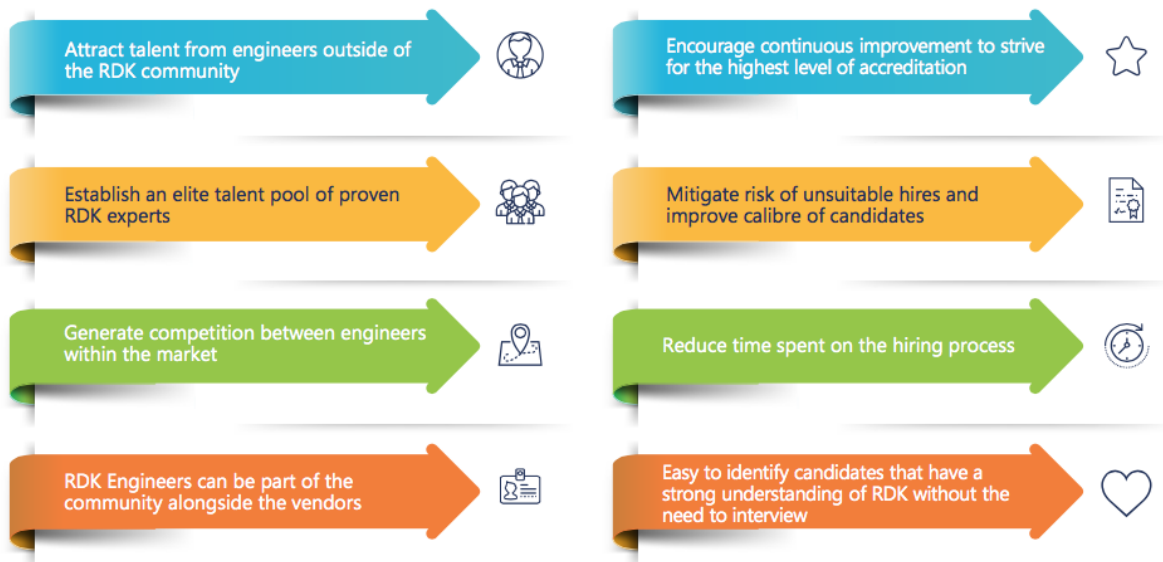
GCS will now help connect their market intelligence and specialist network of broadcast and media professionals with the RDK community. GCS will also help RDK build an accreditation platform, enabling engineers to get a recognised industry standard qualification whilst the RDK skillset and talent pool is being formalised.



A grading system for engineers will provide employers and technical professionals alike with the means by which to evidence knowledge and experience – enabling both instant matching of available skills to employer requirements and a formalised process through which the wider talent pipeline can progress through to work within the RDK arena.



“The relationship between GCS and RDK is beneficial to our community of service providers and ecosystem of suppliers,” concludes Briggs.



For further details of the RDK Accreditation Programme, please visit:

<https://www.therdkhub.com/rdk-accreditation>



Footnotes

1. Rethink Research: **Android to win set top OS leaderboard but RDK fights back in US**, 19 March 2020
<https://rethinkresearch.biz/articles/android-to-win-set-top-os-leaderboard-but-rdk-fights-back-in-us/>
2. RDK Central: **RDK4 takes on Android with App focus, Oct 27 2020**
<https://rdkcentral.com/rdk4-takes-on-android-tv-with-app-focus/>
3. Mobile Channels EU: **NPS carefully explore options for allocating 5G resources to deliver broadband access to the home**, 12 March 2021
http://www.mobilechannels.eu/index.php?option=com_content&view=article&id=2064:nps-carefully-explore-options-for-allocating-5g-resources-to-deliver-broadband-access-to-the-home&catid=66:industry-news&Itemid=84&utm_campaign=5G&utm_content=159840362&utm_medium=social&utm_source=twitter&hss_channel=tw-1229801337770119172
4. Rethink Research: **Could operators roll out RDK alongside TV operator tier?** - 6 June 2019
<https://rethinkresearch.biz/articles/could-operators-roll-out-rdk-alongside-android-tv-operator-tier/>