Tomorrow’s engineering workforce

Demand is outstripping supply in engineering based organizations in many countries across the globe. To attract, retain and engage the right workforce for the future, organizations will need to map their future workforce requirements, become an employer of choice and offer long term career prospects.
The world of engineering is under pressure. The challenges are well documented, including decreasing interest in engineering as a career option for young people, the underrepresentation of women in engineering roles and an engineering ‘brain drain’ in many developing markets. All of these challenges are leading to a dramatic shortage of engineers in many markets globally.

The shape of demand for engineering capability is also changing. Growing global focus on engineering services—providing solutions and support throughout the product lifecycle—calls for a broader engineering skill set. Whether a country is well placed to meet that new demand is very much dependent on the situation in that market, for example whether the national education system is set up to deliver a stream of well-educated talent to plug the gaps. This paper sets out to outline how you can attract, keep and get the most out of your engineering workforce.

Are you winning the talent war?

The continued growth of engineering in many countries is challenged by a fundamental concern: how can employers attract, retain and engage the qualified professionals they need? The same goes for supporting disciplines such as project management and supply chain. There are six dimensions to this question:

First, sheer numbers:
UNESCO\(^1\) estimate that some 2.5 million new engineers and technicians will be needed in sub-Saharan Africa alone if the region is to achieve the UN Millennium Development Goal of improved access to clean water and sanitation. The same report lists a ‘serious shortage of engineers in Germany’ and, in the UK, it is estimated that an additional 2,217,500 employees will be needed across ten principal engineering-related skill areas over the next five to ten years.

Second, attracting the right core skills: One in five employers in the UK have difficulty hiring graduates with STEM (Science, Technology, Engineering, Maths) skills, this figure rising to one in three in science, engineering and IT sectors. The percentage of students studying engineering is dropping compared to enrolment in other disciplines. For example, in Japan, the Netherlands, Norway and the Republic of Korea, enrolment decreases of 5% to 10% have been recorded since the late 1990s. The future of engineering will also call for different types of skills, including the latest technological skills in response to ground breaking advancements in areas like networking and telecoms. And greater commercial awareness which will be needed among the leaders of engineering organizations.

Third, competition for skills: With demand high for those with the right skills, what can you offer to set you apart from competitors? Salaries are one thing, but to attract and retain talent you need to offer more than money. This is where employer brand comes in. A recent survey by Universum shows graduates have clear preferences based on their perception of different employers, such is the high demand to offer more than just a competitive salary. This highlights a real source of competitive differentiation for those who successfully maintain, develop and promote their employer brand.

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1 UNESCO report: Engineering: Issues, Challenges and Opportunities for Development; 2010
Fourth, an aging workforce, particularly in Europe:
One in four employees of the UK rail engineering industry, for example, is over 50 years old—with retirement on the horizon. Similar proportions are seen in other areas such as oil and gas. One sector that seems to be especially hard hit by the lack of engineers is the public sector. In many European countries the demography is such that the public sector within the next 10-15 years will have to recruit a disproportionately large number of new engineers because of retirements.

Fifth, a move towards greater professionalization:
The sector has seen 15% to 20% growth in management/director functions, professional engineers and qualified technicians. Filling these positions requires access to a broader set of managerial and commercial competences, beyond basic technical skills.

Sixth, a lack of gender diversity is still a problem:
Efforts to boost women’s participation in many countries increased enrolment in the 1980s and 1990s from 10-15% to 20% and even above. But since 2000 the numbers have been sliding back down. In some countries the percentage of women in engineering is below 10%, and in a few countries there are virtually none at all.

Who’s winning the talent war?
Universum² asked 81,707 undergraduate engineering students in the US which companies they would most like to work for:

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² Universum: United States of America’s Most Attractive Employers - Engineering student 2015
How can you best tackle the workforce challenges of the coming five to ten years—and stay ahead of your competitors? Here we offer three insights that can help you attract, retain and engage the staff you need to secure your commercial future.

1. Understand your future workforce requirements

Collate facts, figures and foresight to help model future workforce requirement.

“What gets measured gets managed”—Peter Drucker’s dictum remains as true as ever.

In order to tackle the engineering workforce challenge, organizations first need to map out in detail the workforce they need to deliver their strategy in the future. We find it helpful to look at this from the following five angles:

- **Right Site**: Availability of capable staff at the right locations—to be able to meet changing requirements in the future.
- **Right Skills**: Clarity regarding needed and pivotal capabilities to meet future goals and actual gaps.
- **Right Shape**: Right composition of workforce—from enabling vs. operational, in-sourcing vs. outsourcing, staff vs. management, distribution across grades.
- **Right Spend**: All of this needs to be done at the right cost for the business.
- **Right Size**: Required number of staff for the jobs, that are needed to achieved the strategic goals efficiently and effectively.

Then they need to understand the capabilities of their legacy workforce, how it will naturally evolve and where the gaps are between the organization’s demand for talent in the future and what the legacy workforce can supply. The next step is to develop a plan to close these gaps.

Achieving this in a changing landscape requires an effective strategic workforce planning (SWP) program. SWP is an integrated, cross-company planning and development process, aimed at continuously producing the workforce a business needs. It helps identify—and solve—a company’s people issues on an ongoing basis.

However, our research in the UK\(^3\) reveals a degree of uncertainty among engineering firms when it comes to SWP. 69% of leaders said they currently have an SWP process in place. But digging a little deeper, we found some essential elements of SWP are missing in almost half of the organizations surveyed.

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\(^{3}\) The Gathering Storm report, Korn Ferry Hay Group; 2015
In our experience, many organizations only operate “manpower planning”—converting the employment budget into numbers of people. This falls short of mapping the business strategy to the roles, skills and capabilities needed to achieve it.

The benefit for organizations who do have a robust SWP program in place is a clear forward view of the workforce the organization needs, and an effective plan to make it happen.

“We’ve worked closely with our global functions to plan the skills and capabilities we’ll need five to ten years from now. The process has been to take the business, sales and product plans, and translate these into a technical schedule and then a workforce plan. Essentially, we’re asking ourselves, ‘What do we need to spend to add value to the business?’ as opposed to, ‘How do we spend what we are given?’ so rather than having our budget set once the business planning process is complete, all planning is completely integrated. In the past, global engineering was seen purely as a cost center. But this has significantly improved our reputation as a genuine partner to the business.”

Jane Keyse | HR Director | Global Functions | GKN Driveline

Case study
Planning a rail workforce

A major rail signalling and control firm which operates globally and designs and installs systems for both mainline and underground networks in the UK, sought to expand its operations in mature and emerging markets. The key constraint was provisioning its future workforce.

Korn Ferry Hay Group built a detailed role and skills framework and assessed over 1,000 members of the workforce. We also developed a model of forward demand for talent, based on the company’s actual and potential project portfolio. Having identified the capability gap, we developed a business case and support for the launch of an engineering academy, a two-year recruitment plan, a leadership talent program, a revamped apprenticeship program and a cross-skilling approach.

The firm now has a clear view of its future workforce requirements, and a series of measures in place to ensure that they are met.
2. Be an employer of choice

The best talent always has its pick of the bunch. Will they choose you? While understanding the potential shortfall in your future workforce is an essential first step, you also need to take a second one: ensuring that you are an attractive and distinctive organization in the wider marketplace.

We believe there are six elements to consider when creating an employment offer that will capture the attention of the people you most want to engage.

1. **Tangible rewards**—Many companies in the sector offer substantial pay, bonuses and other financial benefits to attract and retain staff. While important, the challenge here lies in how to stand out—what else can you offer employees to recognise and reward your finest talent?

2. **Quality of work**—The unique challenges, prestige and pride associated with a major engineering project will always be especially attractive.

3. **Work/life balance**—Getting this right and accommodating today’s lifestyles is increasingly vital to all employees.

4. **Future growth and opportunity**—How much are you prepared to invest in your employees’ career progress? Ambitious candidates will want to know.

5. **Values and principles**—What your organization believes in and stands for should be clear-cut, distinctive and inspiring.

6. **Organization and environment**—Workplace environment, tools for the job and clarity of role are all key factors in a candidate’s final choice.

Thanks to our extensive market comparison studies and practical experience of building distinctive employment propositions in the engineering sector, Korn Ferry Hay Group is well placed to help you attract leading candidates. Our research shows that a strong employment offer—backed, of course, by real substance in the workplace—cuts the premium for attraction by 10% of salary on average and leads to 40% less attrition.

It will also help you to attract the very best candidates from the widest talent pool possible (see The Diversity Imperative on page six) and help you to retain senior talent for longer (see How To Retain Your Current Crop Of Senior Engineers on page six).

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**Case study**

**Creating a compelling employment offer**

A global defence firm was experiencing job vacancy levels in excess of 15% in delivery critical roles such as engineering and supply chains. This threatened to impact delivery schedules, costing the organization many millions of pounds and slipping timescales on a national defence program.

Korn Ferry Hay Group developed a unique employment proposition to attract engineers, supply chain staff and project managers to fill vacancies for a major engineering program. Through engagement with staff and external recruiters, we identified a distinctive employment offer that would be attractive to potential recruits and retain existing staff.

As a result, we identified benefits of several million per annum and are working with the client to deliver this.
The diversity imperative

Engineering hasn’t traditionally been seen as the most attractive sector in many countries—particularly for women, ethnic minorities and younger talent.

A common perception persists that the industry is populated mainly by middle-aged, white males, which can discourage other groups from entering. What’s more, unconscious bias and entrenched behaviors may lead managers to hire, promote and develop people in their own image. So businesses can fail to recognise other types of talent.

It’s an image not without some justification: according to the Institution of Engineering and Technology, the proportion of female engineers in the UK fell to just 6% during 2014. If engineering firms are to recruit from a broader market to address the talent shortage, they’ll need to think carefully about their employment proposition. And they’ll need to make it compelling to as wide an audience as possible, using the six elements outlined above.

For example, flexible working arrangements should help attract more female candidates; while younger recruits will expect to be able to work remotely. Both measures surely make sense in a sector where large, complex projects require round-the-clock operations.

In addition, closer ties with educational institutions will help improve the image of the industry among future generations.

To widen their appeal as far as possible, engineering businesses must start thinking about diversity in its broadest sense. That means considering age, gender, ethnicity, and cultural and social background. It’s time for the industry to grasp diversity.

How to retain your current crop of senior engineers

If your most immediate problem lies around losing existing skills, knowledge and experience, you need to find different ways of working with older talent to retain it for longer. Your employee value proposition should help you to do this by offering benefits like flexible working, greater choice like carving new roles for themselves, possibly as part time consultants or lecturers. However, two essential strategies for retaining senior engineers are missing in most of the businesses we surveyed:

- a minority of organizations actively model risks of key workers near retirement age and put steps in place to overcome them
- just a quarter have formal alumni programs to maintain relationships with retired engineers, and find new roles for them.
3. Offer long term prospects

Rich, engaging careers breed a productive and loyal workforce.

Once the workforce needed has been identified and the right people attracted and hired, the next task is to provide them with a stimulating workplace, rich challenges and ample scope for their continuing professional development.

There are four specific actions you can take to make your company a powerfully engaging place to work.

1. Identify and support career paths for technical specialists and management alike.
2. Develop and train broader commercial, client management and leadership skills to allow progression into business leadership.
3. Define and facilitate career routes into neighboring disciplines such as supply chain and project management.
4. Ensure that your pay and reward policies recognize outstanding contribution and are effectively linked to progression and development.

“The best talent always has its pick of the bunch. Will they choose you?”

Case study
Career paths with opportunity for all

A large engineering company with some 30,000 employees had long intended to define and develop its engineering capability, in order to improve workforce planning and individual career development.

Korn Ferry Hay Group designed progression frameworks for engineers and project managers, within an overall career development architecture. The frameworks were incorporated into an employee career guide and online assessment platform.

The company is now able to provide progression routes for both technical and managerial staff, as well as having a solid basis for reward alignment, workforce planning and talent development.
Conclusion

Attracting, retaining and engaging the engineering workforce is central to the sustained success of most engineering organizations.

Achieving those objectives is a three step process

1. First, you must establish a detailed and accurate view of your future workforce requirements. This includes the skills that will be needed and the degree to which you can develop capability within your organization.

2. Then, consider what you offer to prospective employees. Have you built a sufficiently attractive “employee deal” to as diverse a population as possible, including the right set of rewards and benefits? Remember: when it comes to competing job offers, they have a choice.

3. Finally, it’s vital to make the most of the talent you attract, by providing them with daily stimulation, challenge, reward and long term prospects. Do that well, and your people will be both productive and committed for the long haul.

“Rich, engaging careers breed a productive and loyal workforce.”
Hay Group has more than 70 years’ experience in helping organizations and businesses—including the world’s leading engineering companies—to understand the people and processes required for their long term success.

Among our tailored services:

- future workforce analysis and planning
- workforce market and data analysis through our leading pay, employee survey and job databases
- employment proposition development, including engineering market comparison surveys
- career and talent framework development
- leadership development
- reward services.

How Korn Ferry Hay Group can help

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