

# Engineers: an inter-country comparison

Report of a May 2010 survey of engineers  
in France, Germany and the UK

Prepared by

The Engineering Council

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## Introduction

At the suggestion of the Conseil National des Ingenieurs et Scientifiques de France (CNISF), the Engineering Council, the Verein Deutscher Ingenieure (VDI) and CNISF decided to conduct a joint survey of engineers in France, UK and Germany. The aim was to establish the similarities and differences between the profession as exercised in those countries. A common set of questions was agreed and each organisation tailored a national presentation for the web based survey which was operated by CNISF during May 2010.

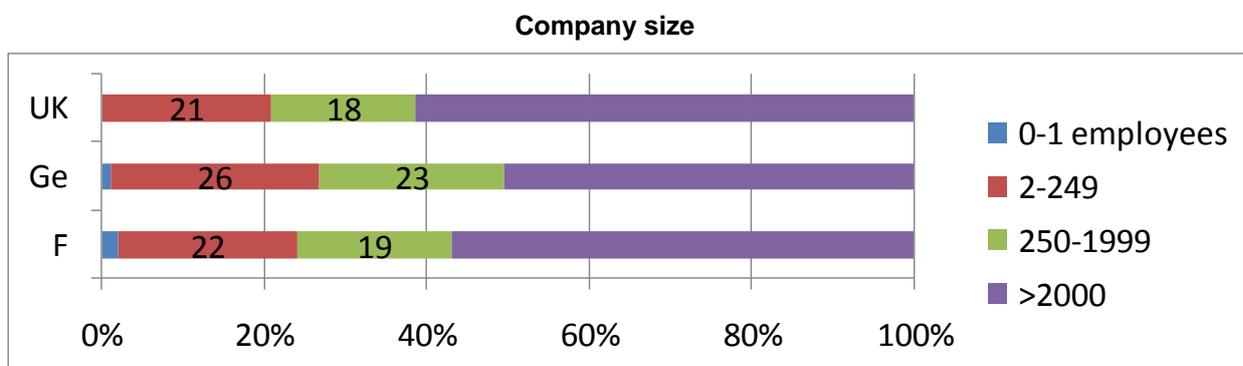
Each country solicited responses in its own way – the common denominator being that “engineers” were university graduates (or equivalently qualified). The numbers used in the analysis are: France 47000 (it was part of a long established national survey), Germany 2600 and UK 800 (comparison between common questions in this joint survey and a bigger UK survey of registrant engineers carried out in the same year showed good agreement and so gives support to the results from a comparatively small UK response). Results from the joint survey were nearly all statistically significant with the only inter-country bias being far less responses from UK engineers under age 30 (a consequence of the sample being Engineering Council registrants who mostly do not register until about age 30)

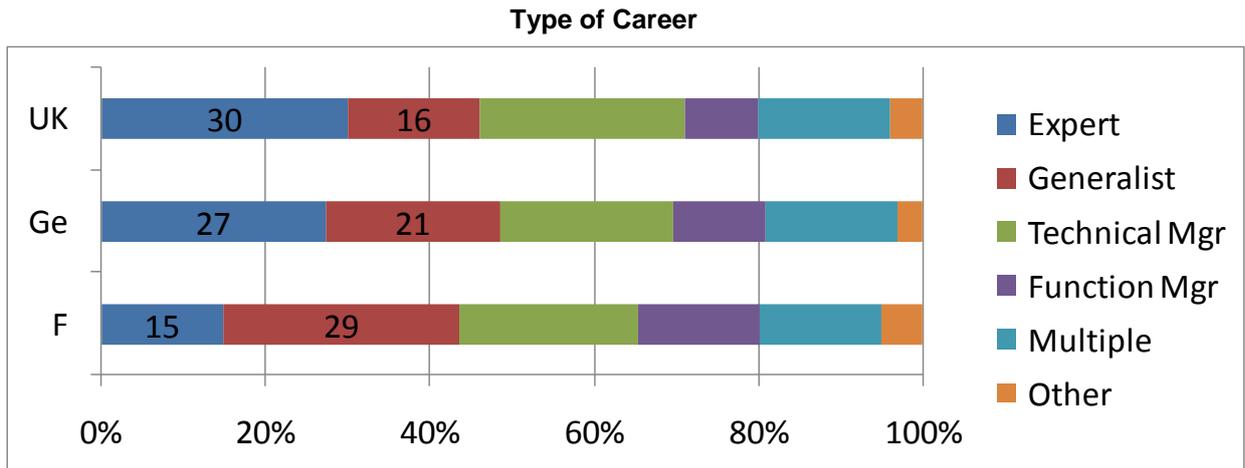
CNISF processed the data and provided the results to the partners for comment and discussion. Thus, although written from a UK perspective, the conclusions presented in this report represent the consensus of the three organisations.

## Gender, Education and Employment

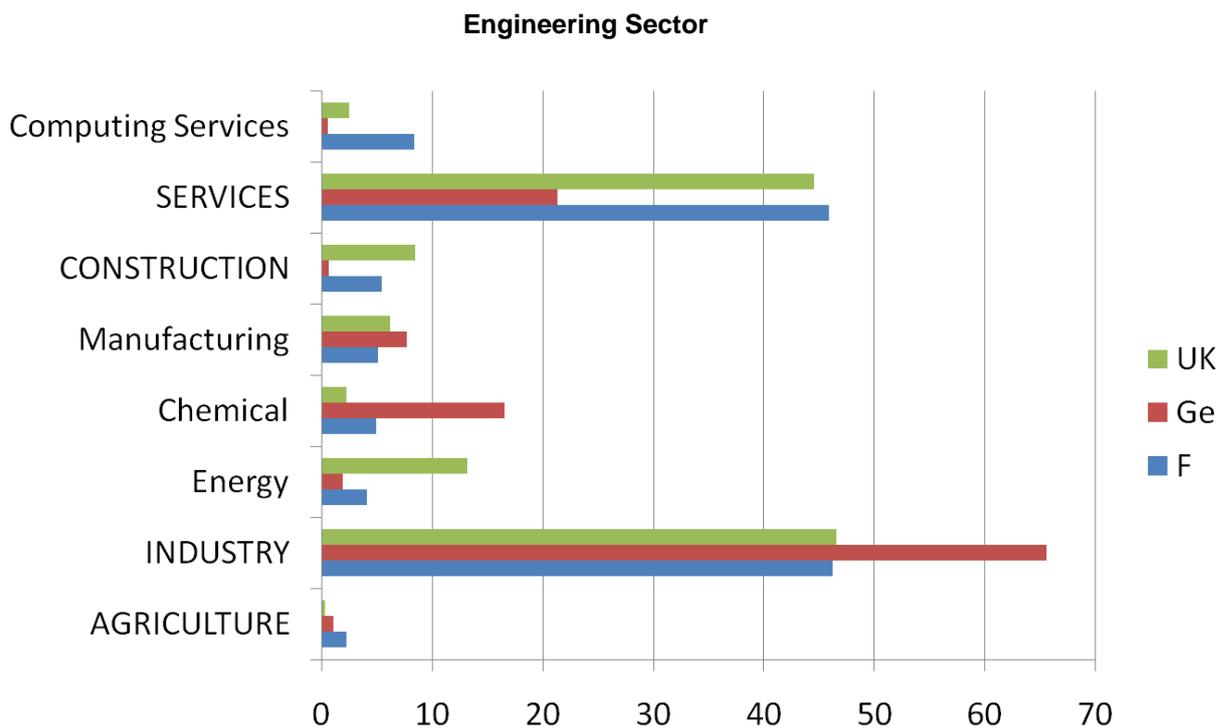
Although the number of women in engineering in Germany and France (15 and 17%) are nowhere near the population gender split they are significantly higher than the number in the UK (9%).

Responses on the type of degree held were not straightforward to compare. The three countries have historically had different systems and any convergence as a result of the Bologna Declaration has yet to filter through. By definition of its sample (itself a consequence of the French HE system) the French engineers all had a second cycle degree whereas Germany and UK each reported just over 50% as having second cycle (or higher) degrees. Where a second degree had been taken it was usually a technically based qualification, an MBA was only held by 7% (UK and Germany) or 15% (France).



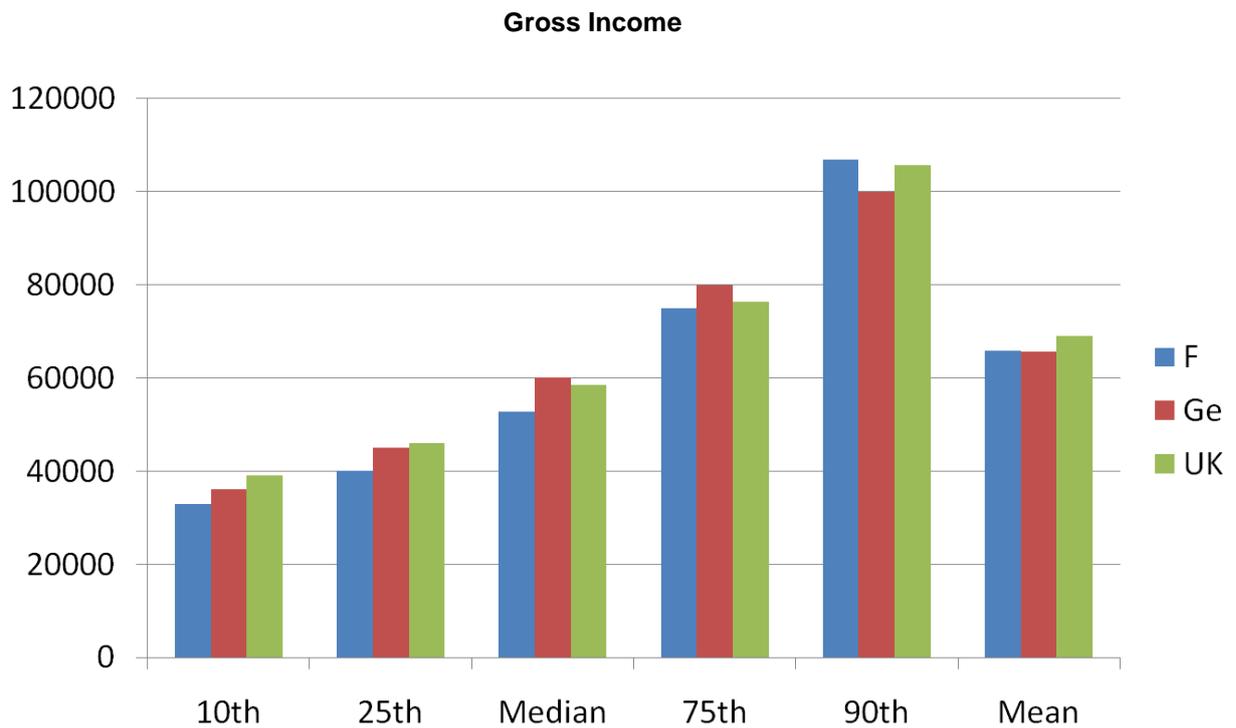


Engineers in all three countries overwhelmingly work in the private sector (84-91%) and the employer size distribution is similar. Regarding the broad categories of work undertaken these are also similar although a greater proportion of French engineers describe themselves as undertaking a general as opposed to an expert role.

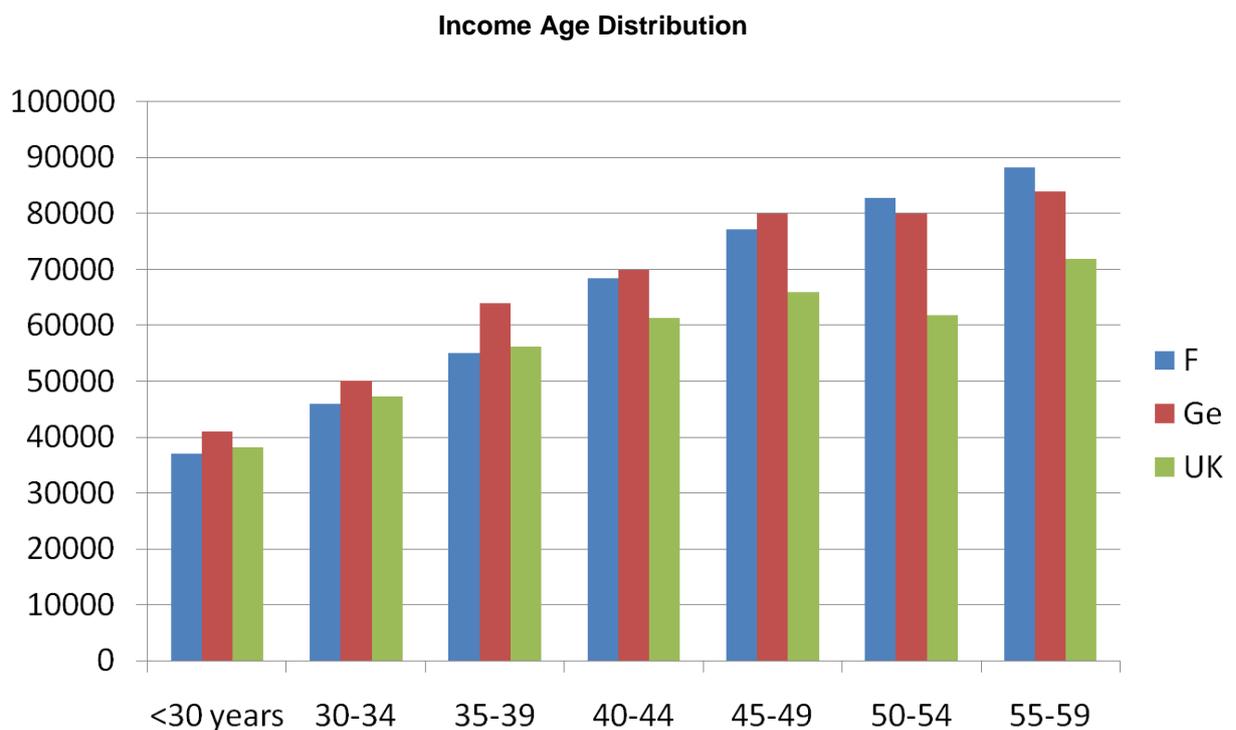


Half of German and UK engineers reported that they work in research and design (includes technical studies and testing) whereas only a third of French engineers do so. Engineers working in production are similar at around 25%. A greater proportion of French engineers (45%) are spread across non-technical functions than in Germany or the UK (25%). In all countries half the respondents said they had a people management function.

## Earnings



The gross earnings of engineers in the three countries are similar. Because the UK sample is biased towards older engineers (who earn more) then the UK figures are higher than they should be but even though that correction may change the relative standing the similarity remains.



The age distributed gross earnings show that UK earnings flatten out faster than Germany or France – indeed France is close to a linear progression right up to retirement. The results for net earnings could not be interpreted unambiguously but probably the UK position rose relative to the others.

The holding of a second degree did not have a significant effect on earnings unless it was an MBA in which case the gross earnings median was 20% higher in Germany and the UK. This may be a reflection of the type of job however as management jobs were the highest paid activity. The ranking by earnings of engineers functions were similar between countries (France had a slight tendency to pay more than Germany and UK for non-engineering functions) – the overall ranking (highest paid first) being:

- General management
- Sales/marketing
- Information systems
- Research and design
- Production
- Training

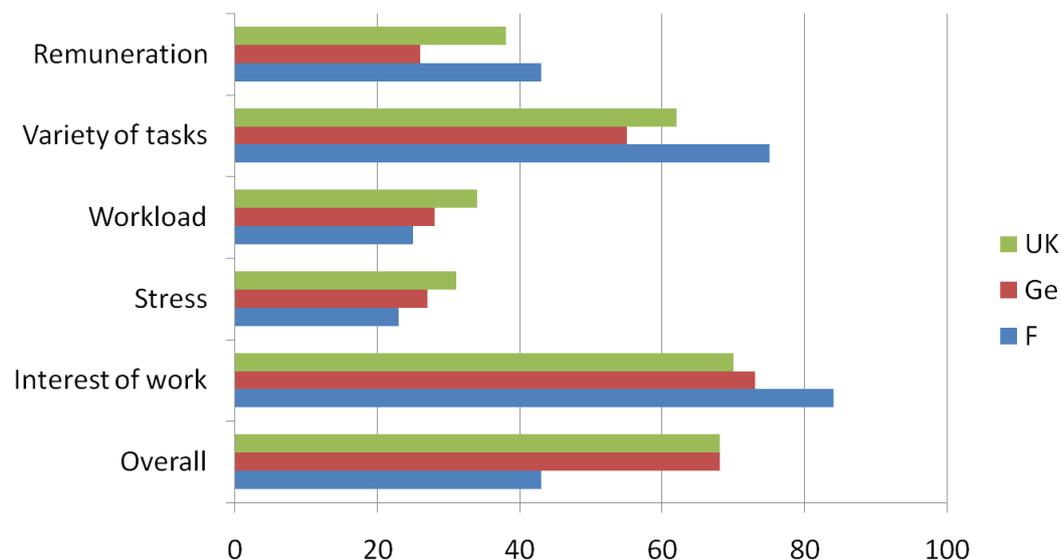
In Germany and France the median earnings in large companies were around 20% bigger than small companies. In UK the size effect while still positive was less at 6%. In France and Germany part time employment was reported by 3% whereas it rose to 6% in the UK. The UK also had a significant temporary contract sector whose gross earnings were 20% higher than the full time median. Earnings vary with main engineering activity in much the same way in all the countries (except for German agriculture/food industry which pays engineers significantly more). Averaging across the three countries the main activities ranking (highest paid first) is:

- Industry
- Construction
- Services
- Agriculture

### Job Satisfaction

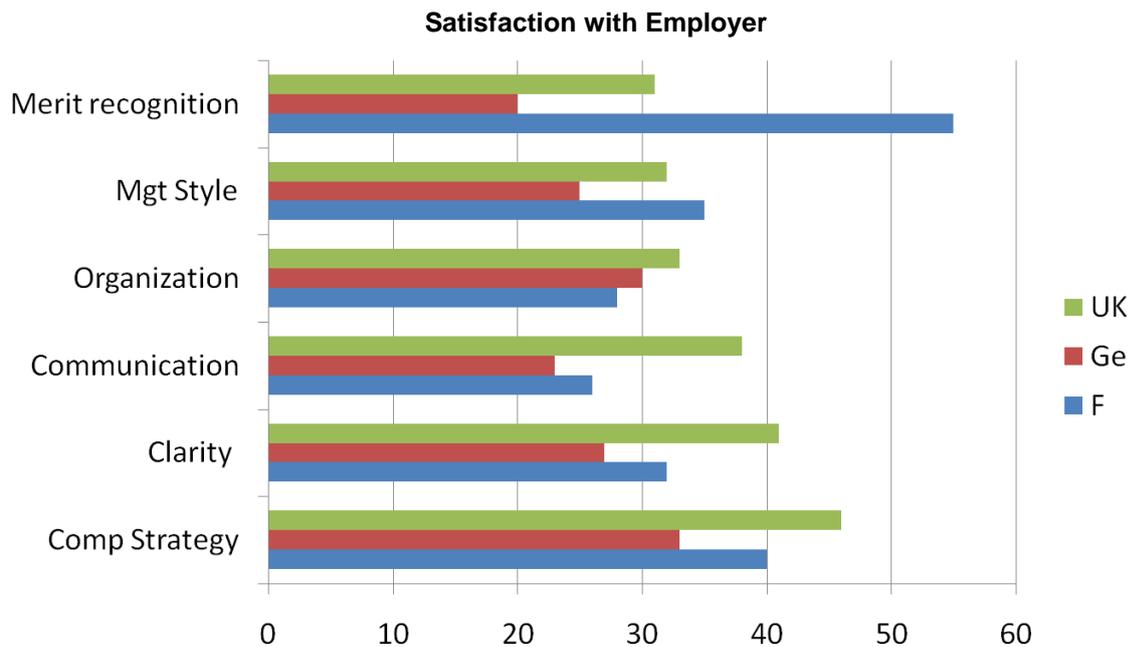
The survey asked a number of questions attempting to establish the level of satisfaction that engineers had with various aspects of their employment.

**Satisfaction with Job**



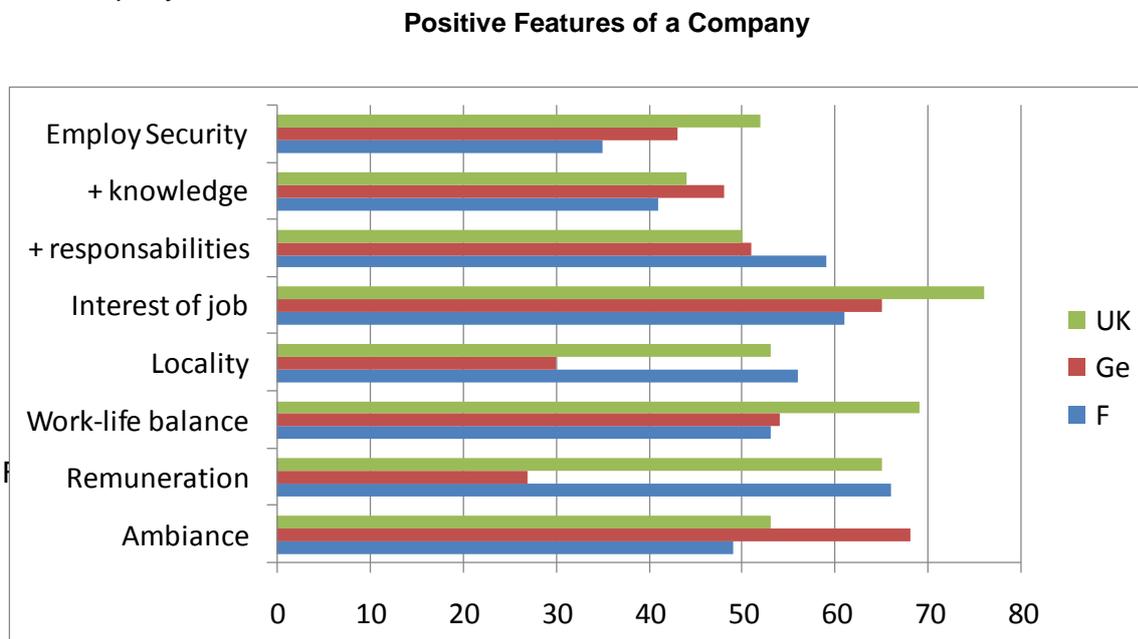
A number of employment aspects were surveyed the main ones are shown above. Although there are differences in the absolute percentage each country has the same profile. Most engineers are satisfied by the interest of the work they do and by the variety of tasks they perform. However, in all countries they are significantly dissatisfied with workload and stress levels, this is most marked in France.

The survey also tried to find out what features of a business gave them the greatest satisfaction in working there.



The satisfaction profile for each country is broadly similar, except that French engineers are particularly satisfied that their employers recognise merit. On the whole UK engineers are more satisfied with their employers than France or Germany. The greatest dissatisfaction was with quality of company communication, management style and lack of clear strategy. French engineers were most dissatisfied on these counts.

A related question asked what features of a company would attract an engineer to work for that company.



There is some between country variability in the responses but the general trends are similar. Taking the “top three attractiveness” items for each country these are (in order):

France -	remuneration	job interest	increase responsibilities
Germany-	work ambience	job interest	increase responsibilities
UK-	job interest	work/life balance	remuneration

### Economic Effects

In view of the financial problems which had beset the world the survey also investigated the effects this was having on engineers. Replies to questions on how engineers had already been affected indicated the following:

#### Employment

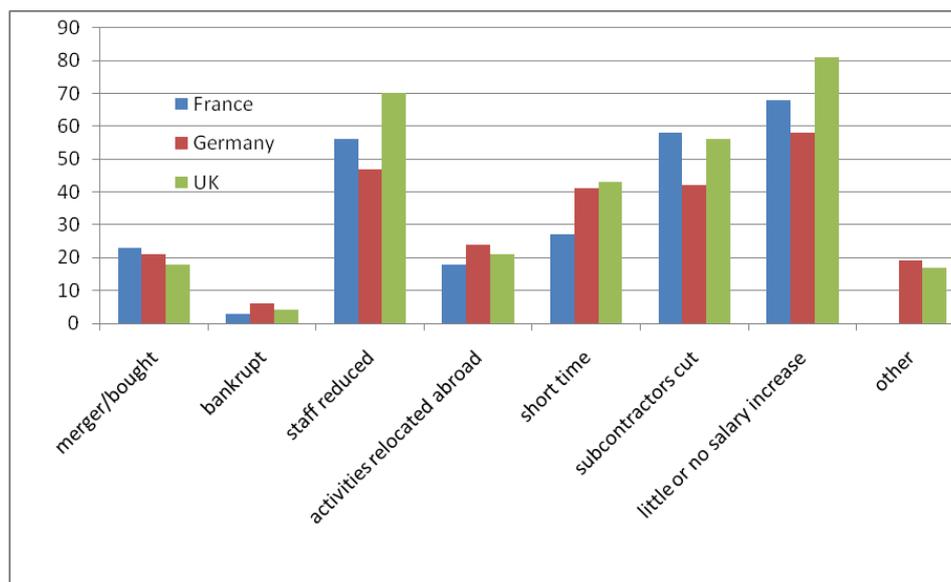
Germany-	5% redundant, 13% short time
France -	7% redundant, 10% short time
UK -	6% redundant, 6 % short time

In all countries half the engineers reported an increase in work load with 22-30% reporting a decrease in pay. Conversely 20% of French and UK engineers reported an increase in pay while 33% of German engineers were paid more. In reply to the question “ do you fear losing your job in 2010” 21% of UK engineers replied yes, compared with only 7 and 8% for Germany and France. Regarding the future, even in the most optimistic country, Germany, only 22% of engineers thought their company would be employing more people in a year’s time

#### Effect on Employer

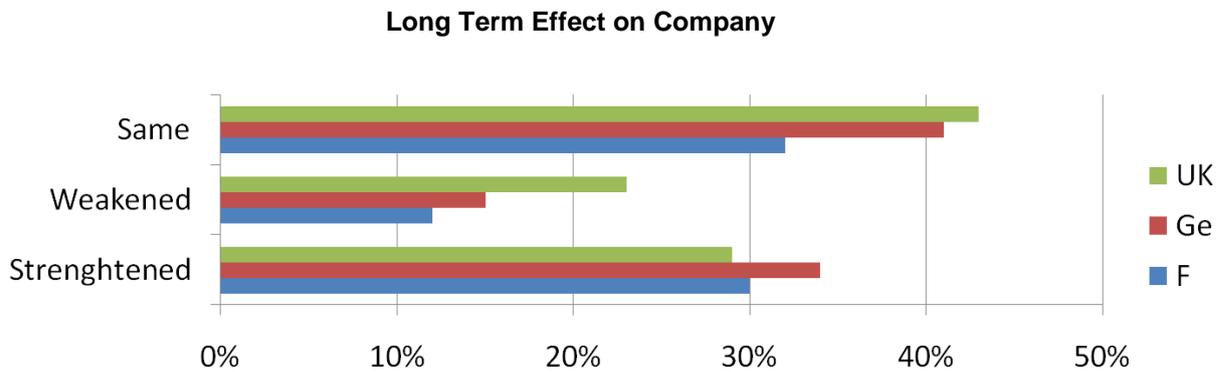
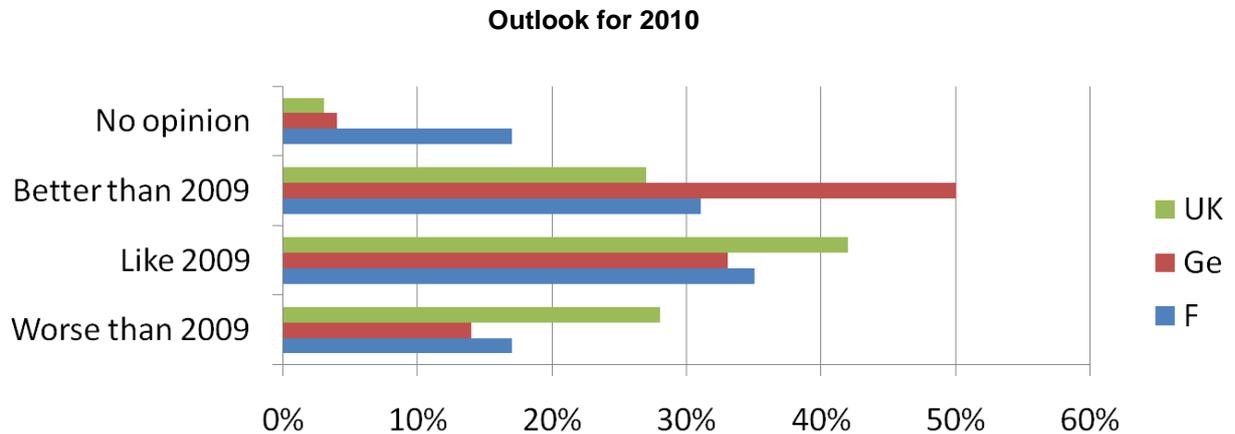
Engineers reported on what had happened or was happening to their company.

**Changes in Company 2009/1Q2010**



## Future Outlook

Engineers were also asked their views on what would happen to their company in the coming year and how it might emerge when the financial crisis is over.



The results show that although the direct affect on employment of engineers in 2009/1Q2010 was broadly similar the adverse affect on companies had been greatest in the UK. It was also the UK engineers that had the least optimistic outlook for the future.

## **Conclusion**

The main conclusion is that there are no major differences between the working lives of engineers in France, Germany and the UK. Perhaps this is unsurprising- the countries are all northern European, have similar industries and infrastructure, and have similar populations and economic size. However, there is a human tendency to think that the grass is greener elsewhere – this survey shows that it is much the same shade in all three countries.

There are some differences of degree rather than direction, eg a greater proportion of French engineers are engaged in non-technical occupations and in Germany most engineers are in industrial companies rather than being more evenly split with services and construction. Overall remuneration is broadly similar but for older engineers tends to be somewhat lower in the UK. However, the survey also shows that for all countries the variety and interest of the work being carried out is a greater factor in job satisfaction than remuneration.

The financial crisis had at the survey date affected individual engineers in France, Germany and UK more or less equally. However, the effect on the companies for which they work had been rather more severe in the UK and it was the UK engineers who were least optimistic regarding future trends.

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