

The All Party Parliamentary Engineering Group

What engineers does industry want?

Report of the discussion hover lunch held on 1 May 2012 in the Cholmondeley Room, House of Lords

Chairman

Professor the Lord Broers

Speakers:

Paddy Lowe-Technical Director at McLaren Racing

Stephen Uden-Head of Skills and Economic Affairs at Microsoft Limited

Colin Smith -Director of Engineering & Technology at Rolls Royce

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Introduction

Lord Broers welcomed guests and guest speakers, and thanked the Group's sponsors and Jennifer Bryant-Pearson. Lord Broers pointed out the variety of young engineers present ranging from 16-year-olds to young engineers employed by companies. He then introduced Paddy Lowe as the first guest speaker.

Paddy Lowe -McLaren Group

Mr Lowe described the variety of engineering activities which operated within the McLaren group - McLaren Innovation, McLaren Automotive, McLaren Electronics and McLaren Racing. 2000 employees work at the Woking office most of whom are engineers. The heart of the group is engineering. McLaren Racing employs 200 engineers (excluding pit stops). Aerodynamics is currently the big area for research (down force) including the use of software test versions. Once the engineering research and software had been tested design engineers convert the designs into parts and thence into the vehicles themselves. The objective was to get some of the best engineers in the UK and overseas (one third came from overseas).

What does McLaren want?

1. Important to make sure that people "enjoy" the job of being an engineer
2. Get a good "general" degree in engineering, not a "vocational" degree
3. Nothing is unique to McLaren, and good general grounding is important
4. Good ability to communicate and to lead - strong interpersonal/skills.
5. They are struggling to get electrical engineers.

Stephen Uden -Microsoft

Microsoft employs about 1000 engineers in the United Kingdom and works with approximately 3000 companies which employ engineers. He made the following points about the needs of Microsoft for engineers:

1. They need more engineers; they have 'an insatiable appetite' and they are prepared to retrain to their specialist skills
2. They are interested in creating opportunities for UK graduates. There's a shortage of 50,000 engineers in the UK. Microsoft is employing and training 500 apprentices and aims to do more.
3. If they can't get what they want in the UK they would have to recruit from outside the UK or move their businesses overseas.
4. 25% of their engineers are women, not enough, diversity is extremely important.

What skills does Microsoft want?

1. General skills in computer science and maths. They're looking for thinking skills and Microsoft will update engineers into the specific skills.
2. Communication skills, problem-solving skills, leadership.

Colin Smith -Rolls Royce

They recruit both undergraduates and apprentices. An average of 200 graduates are recruited each year and 300 apprentices. There is a programme of continuous development. There is a specific need at the present time for electrical and nuclear engineers. There is a shortage in the United Kingdom and therefore they import engineers from e.g. Eastern Europe and Spain.

What does Rolls-Royce want?

1. Ability in maths, physics and chemistry.
2. Ability to "do sums in your head." Must be good at maths at 11.
3. Enthusiasm
4. Aptitude
5. Hard work
6. Diversity - not enough women engineers in the United Kingdom
7. Ability to interact

Question and answer

In the question and answer session the following issues were discussed:

a). Education

1. Remember that apprenticeships are a good option
2. Not enough teachers know what the options in engineering are
3. WISE (women into science and engineering) but not enough women in motor engineering;
4. Microsoft: 'digi girl' and Computer clubs for girls
5. 'Young Railway Professionals' group
6. Maclaren goes into schools; organises day release and outreach schemes;
7. Schools shouldn't ration 'stem' subjects, 'stem' degrees are being rationed- bad thing
8. Teachers are important!
9. Artificial divisions in education at 16 into 'arts' and 'sciences' and 'vocational and 'academic': A levels are the problem but universities won't give them up; should try to delay choice as long as possible

10. Make it easier to change from industry into teaching
11. Should give careers guidance much earlier than year 9.
12. Improve the image of maths

b) Why don't more girls go into engineering?

It's baffling: up until 14 girls are equal with boys in physics, but after that they take a nose dive: In Sweden 100% of girls go on with physics. Need to make it interesting and glamorous; companies should go into schools before year 9.

c) Business and Engineering

- Media dumb down the issues; they should celebrate complexity more;
- Look at recent GE advertisements e.g. 'we make Budweiser'. These put engineering into a wider context;
- Rolls Royce organise their learning and development centre; visits to Farnborough; the Space Museum
- Programmes like 'Tomorrows Engineers' and 'Big Bang fair' help young people to make the connection.

Conclusion

Lord Broers summed up the session commenting on the outstanding quality of the questions and speakers whom he thanked again. His view was that 'the UK can do it'-he was confident of that, but so often we just don't do enough of everything (e.g. R & D) to make it really work effectively.