

# Higher Education and the Cogent Workforce<sup>1</sup>



## The Cogent Sector

Cogent encompasses some of the most **strategic, innovative** and **value-added industries** in the UK.

The **Processing industries of Cogent<sup>2</sup>** - Chemicals, Pharmaceuticals and Polymers – are **global leaders**.

The **Energy-related industries of Cogent<sup>2</sup>** – Oil and Gas, Petroleum, Nuclear – are **strategic to national infrastructure**.

## The Importance of Higher Level Skills

Cogent industries are **knowledge and skills intensive**, relying on higher level **science, engineering and innovation**.

**Higher Education and higher level skills** development of the workforce are an essential part of the **Cogent "Upskill"** initiative.

In support of its industries, Cogent SSC, through its Higher Education Strategy supports diverse flows of higher level skills in the workforce:

- First destinations of graduates
- Progression pathways to Higher Education from vocational qualifications
- Foundation Degrees with significant employer-approved work based learning
- Upskilling through Continuing Professional Development

## Key Messages

### Higher Level Messages

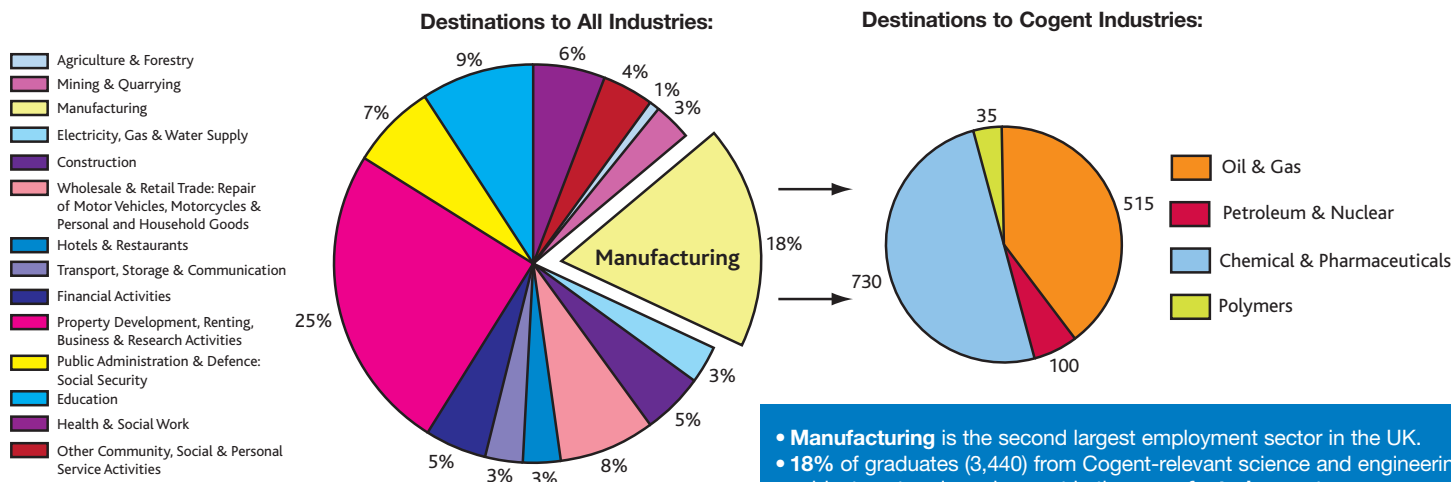
- **17% of Cogent workforce are qualified to Level 4 (90,000)<sup>3</sup>**
- **7% of Cogent workforce are qualified to Level 5 (39,000)<sup>3</sup>**
- **85,000 upskill gap<sup>4</sup> by 2020 to meet Leitch target of 40%**
- **54,000 retirements in higher level skills area by 2020<sup>5</sup>**
- **Manufacturing is one of the largest recruitment sectors for science and engineering graduates (18% in Cogent sector)**
- **Work-ready context not consistently embedded in HE provision<sup>6</sup>**

### Cogent – Economically Valuable Skills

- **£156bn turnover**
- **£49bn value-added**
- **6.5% of UK GVA**
- **12% manufacturing workforce**
- **7% of UK manufacturing enterprises**

## Science and Engineering Graduate Destinations

The destination of 2005-06 graduates from Cogent-relevant science and engineering subjects to all industries across the UK is presented below. The destination of those graduates involved in manufacturing has been broken down further by entry to the Cogent industries.



- **Manufacturing** is the second largest employment sector in the UK.
- **18%** of graduates (3,440) from Cogent-relevant science and engineering subjects entered employment in the **manufacturing** sector.
- **1,380 science and engineering graduates entered the Cogent workforce in 2005-06.**
  - **53%** entered the Chemical & Pharmaceuticals industry
  - **37%** entered the Oil & Gas industry
  - **7%** entered the Petroleum & Nuclear industries
  - **3%** entered the Polymers Industry

<sup>1</sup> Source: Higher Education Statistics Agency 2005-06 (Data extracted is based on a return rate of 74%)

<sup>2</sup> For each Cogent industry fact sheet see: <http://www.cogent-ssc.com/research/Industry.php>

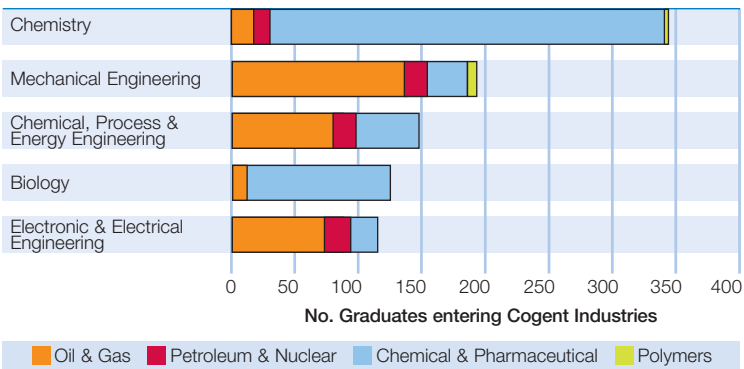
<sup>3</sup> Source: Labour Force Survey Q1, 2, 3 2006 – Q4 2005. Base Cogent workforce: 531,235.

<sup>4</sup> Calculated as 24% plus 16% enhancement by 2020 to achieve 40% Cogent baseline workforce with higher level skills

<sup>5</sup> 42% of baseline Cogent workforce is of age 45 or over: 42% of current higher level workforce (129,000) is 54,000

<sup>6</sup> Cogent Sector Skills Agreement 2006

## 'Top 5' Cogent Subjects of Study

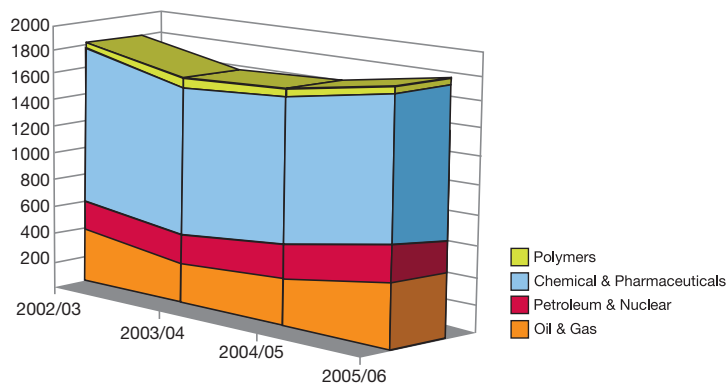


- Largest proportion of graduates entering the Chemicals and Pharmaceuticals industry in 2005-06 were from the subjects; **Chemistry** (315) and **Biology** (120).
- Largest proportion of graduates entering the Oil and Gas industry were from the subjects; **Mechanical Engineering** (135) and **Chemical, Process and Energy Engineering** (85).
- **Biology** was the 4th most popular subject and second most popular science; recruiting over 100 graduates to the sector in 2005-06.
- Graduates in **Business, Management, Accountancy and IT** subjects account for majority (88%) of graduates from subjects other than science and engineering.
- The most popular non-science subject was **Business Studies**; 350 graduates were recruited into the Cogent sector in 2005-06.

## Science and Engineering Graduates entering Cogent Industries\*

- Graduate recruitment in **science and engineering** has risen consistently since 2003-04 to **1,800 p.a. (weighted)**, reversing a sharp decline (9%) from 2002-03.
- Graduate supply in **science and engineering** is typically **45-50%** of total graduate recruitment in the sector.
- **60,000** predicted as total graduate supply **2005-2020**, based on averaged steady state at 2005-06 figures (4,000 p.a).

\*Defined by SIC 11, 23, 24 and 25; weighted accounts for 75% return



## Destinations from Cogent-relevant science and engineering subjects by Standard Occupational Classification

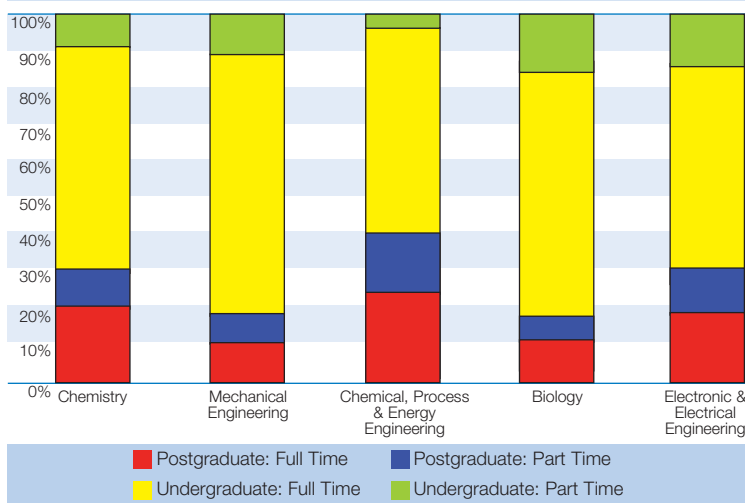
- **8%** of graduates from Cogent-relevant science and engineering subjects entered **Manager and Senior Official Occupations** in 2005-06.
- Manager and Senior Official occupations are typically **Level 5** positions.
- **46%** of graduates from Cogent-relevant science and engineering subjects entered **Professional Occupations** in 2005-06.
- Professional Occupations are typically **Level 4** positions.
- **21%** of graduates from Cogent-relevant science and engineering subjects entered **Associate Professional and Technical Occupations** in 2005-06.
- Associate Professional and Technical Occupations are typically **Level 3/4** positions.

### Typical Job Titles

- Production Managers
- Site Managers
- Maintenance Managers
- Chemists, Physicists, Biochemists, Biologists
- Mechanical Engineers
- Production & Process Engineers
- Chemical Engineers
- Laboratory Technicians
- Engineering Technicians
- Quality Assurance Technicians

## Graduate Supply and Workforce Development

### Cogent Science and Engineering Subjects by Mode of Study



### Graduate Supply (2005-06)

- **950** graduates were awarded science and engineering **Foundation Degrees**.
- **34,230** graduates were awarded science and engineering **First Degrees**.
- **18,020** graduates were awarded science and engineering **Higher Degrees**.
- **Graduate supply is sufficient, indicating a need to increase the attractiveness of Cogent industries to the graduate workforce.**

### Workforce Development

- **78%** of HE provision for the top-5 subjects are traditional **full-time** courses.
- Part-time provision for science and engineering is weak in the Higher Education sector.
- Graduate supply to 2020 (60,000) may match retirements at levels 4 and 5 (54,000) but it is variable.
- **85,000 skills gap** in-fill at higher levels require major upskilling from **level-3 workforce stock of 166,000**.
- **Transformational change in HE sector provision is a priority for Cogent workforce development.**

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Published 2008 COR040

