Platform for Growth

Day of Science and Careers Scotland
Starting your career in chemical and life sciences; concluding thoughts and summary.

R P Tooze

Monday 1 June 2015

Chemical Sciences SCOTLAND

UK Chemical & Pharmaceutical Industry

- Large industry, 160,000 directly, many more indirectly.
- Globally significant (top ten producer).
- 20% of all manufactured exports, £52bn (largest sector).
- Value added £20bn , £75m per day.
- Energy intensive – largest industrial user; reduced energy input per unit output by 35% 1990-2010. Lifecycle considerations.
- Research intensive £600m in Chemicals R&D, £4.2bn in Pharma.

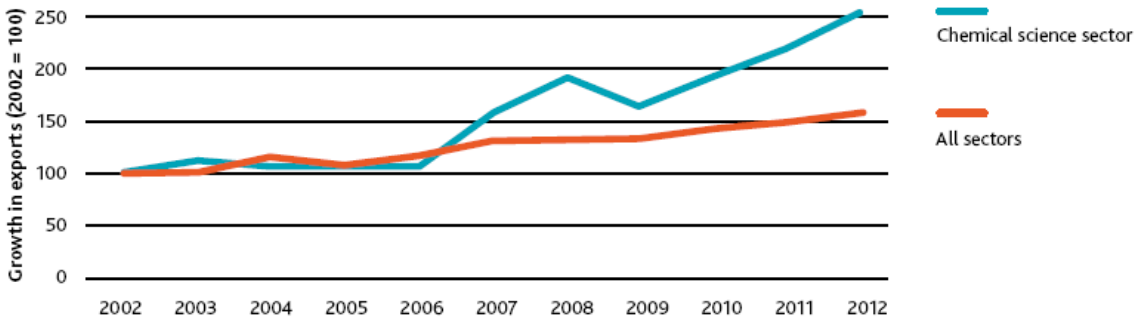
As at January 1st 2014

Established 1965
CIA Chemical Industries Association 50 YEARS
working for chemical and pharmaceutical businesses

The Scottish Chemical Industry

- Over 200 Companies.
- Turnover £8.7bn.
- Exports £3.8bn.
- Value Add £1.9bn.
- > 12,000 employees.

Figure 2.2: Growth in exports 2002-2012



Source: Global Connections 2012 – Scottish Government

Supported by Scottish Enterprise

Chemical Sciences SCOTLAND

Chemical Sciences Scotland

What is Chemical Sciences Scotland?

Chemical Sciences Scotland is 1 of 15 Industry Leaderships groups in Scotland aimed at shaping and delivering Scotland's economic ambitions.

Inclusive partnership bringing together key figures from private and public sectors to drive sector growth and industry wide collaboration and alignment.

Objectives of CSS

In 2012, this was updated to: "sustain a vibrant and competitive Scottish chemicals industry, which will contribute to the growth of the Scottish economy consistently over the next 20 years. Within this, we have ambition to increase manufactured exports by 50% by 2020."

The Strategy

Key Priorities

Exports: Driving increased export growth by attracting Inward Investment & increasing internationalisation

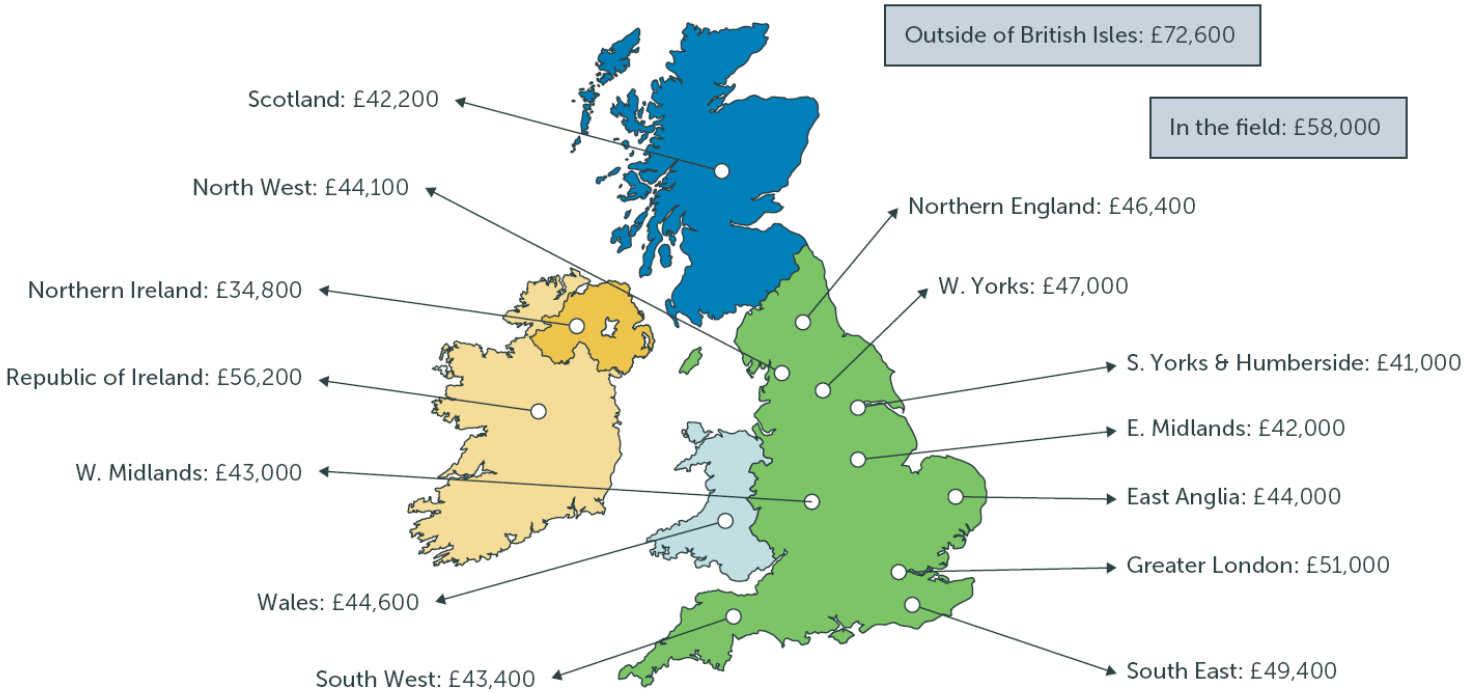
Low Carbon: Developing & manufacturing Innovative Products, processes & solutions which reduce GHG emissions over total product lifecycle; and through use of white (industrial) biotechnology

Collaboration: Within the chemical sciences sector with other dependent sectors

Transformational projects: Grangemouth, Industrial Biotechnology & Chemical Sciences Skills Investment Plan

RSC Trends in Remuneration Survey Report 2013

Remuneration Medians by Location



Published October 2013
For more information visit our website: www.rsc.org/trends

ROYAL SOCIETY OF CHEMISTRY

RSC Trends in Remuneration Survey Report 2013

Remuneration Quartiles by Qualification

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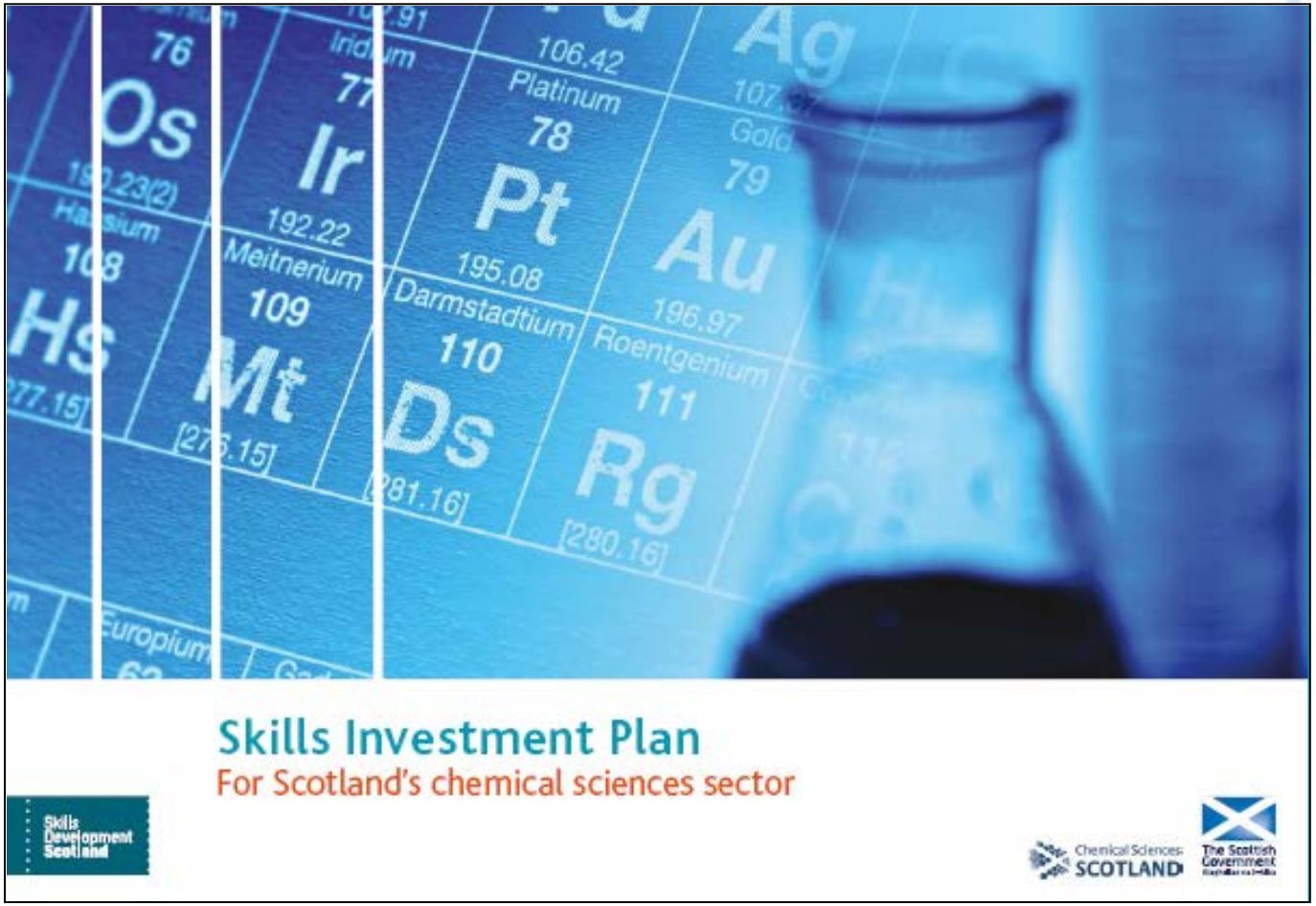

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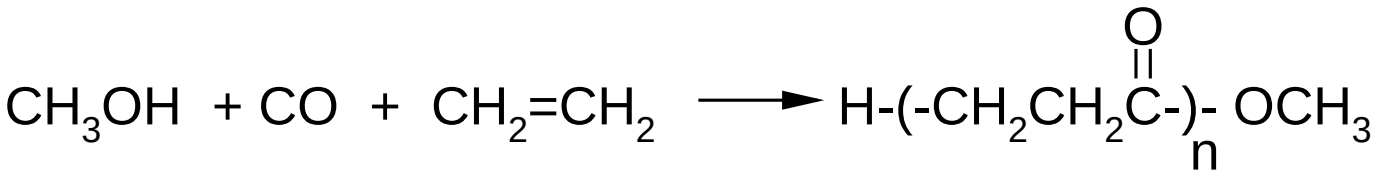
Chemical Sciences SCOTLAND

Commodity chemicals

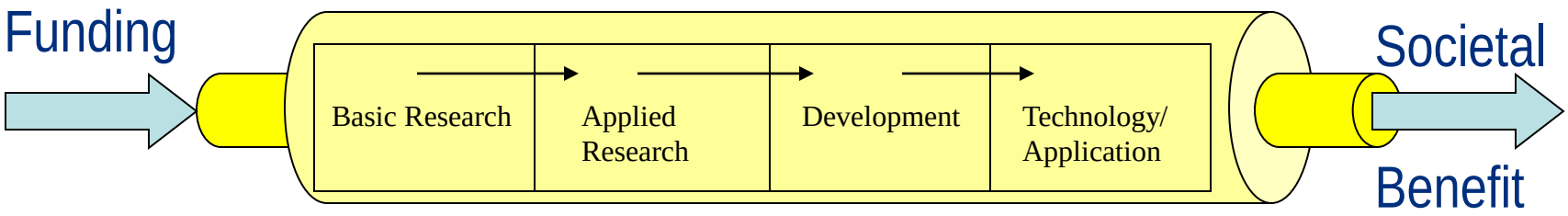
Pure or applied?

Identify, develop and commercialise a new low cost route to a commodity chemical as quickly as possible.

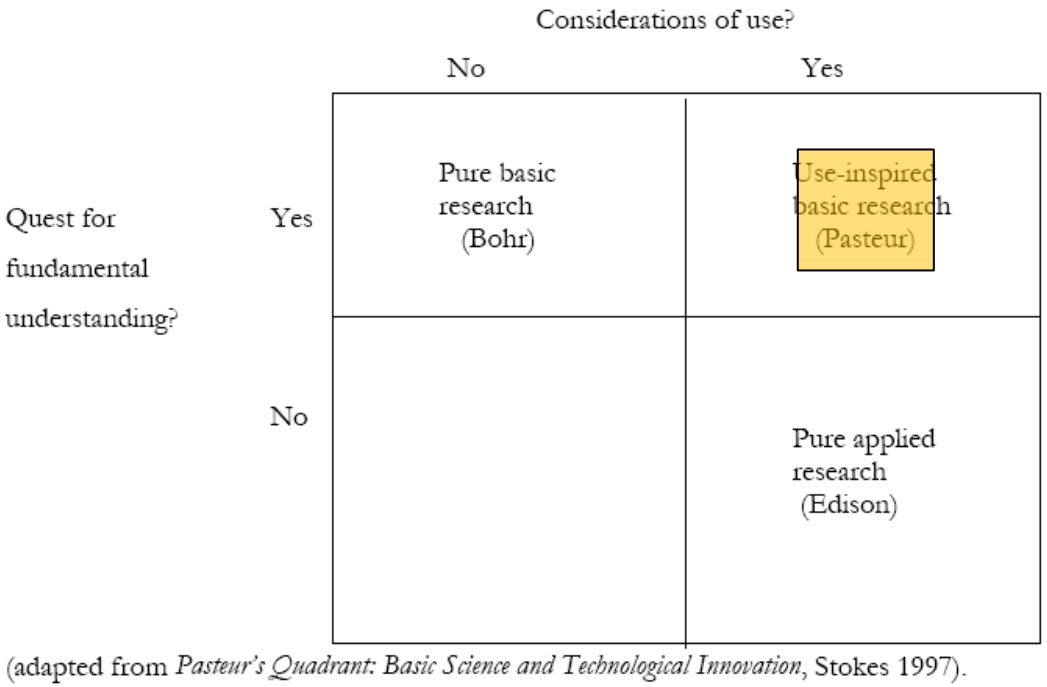
Understand fundamentals of Palladium catalysed carbonylation, new ligands, in situ spectroscopy and computational methodologies.



The “Linear” Model of R&D Leading to Innovation



Pasteurs Quadrant



(adapted from *Pasteur's Quadrant: Basic Science and Technological Innovation*, Stokes 1997).

"Work that locates Research in an area of basic scientific ignorance that lies at the heart of a societal problem."

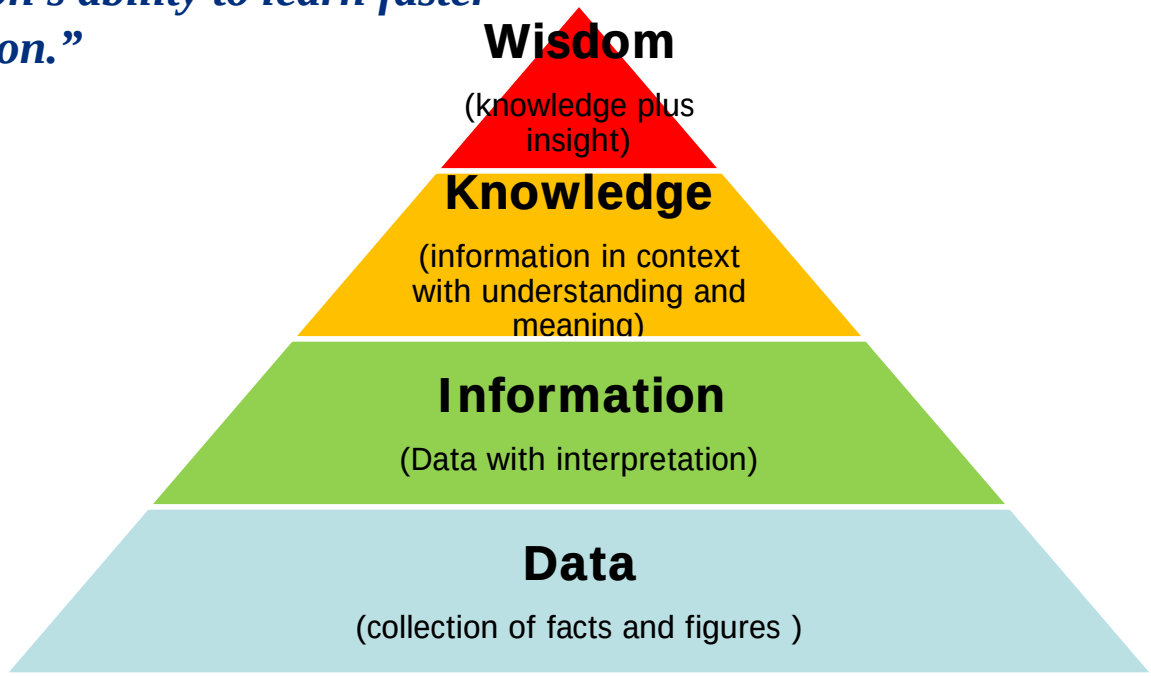
Gerald Holton

A career in science

- Have an impact on key challenges, energy, environment, healthcare, water.
- Work across disciplines.
- Global network.
- Starting point for a diversity of career options.
- The requirement to continually learn.

Data-information-knowledge-wisdom.

"The only sustainable competitive advantage is your organization's ability to learn faster than the competition."
Peter Senge MIT



Where is the Life we have lost in living?
Where is the wisdom we have lost in knowledge?
Where is the knowledge we have lost in the information?

The Rock by T.S. Eliot