



# Support for Research in the Science and Engineering Continuum



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# COME THE REVOLUTION?

- I don't see the need for revolution
  - Rather, I'd say we need continued evolution . . .
- . . . **but moving in Internet time!**

# Health of Disciplines

- EPSRC has a particular responsibility for seeking to protect the 'health' of the research disciplines within its remit
- Committed to supporting top quality research
- Responsive mode plays a crucial role here



# What we do!

Infrastructure & Environment

Manufacturing

Engineering

ICT

ICT

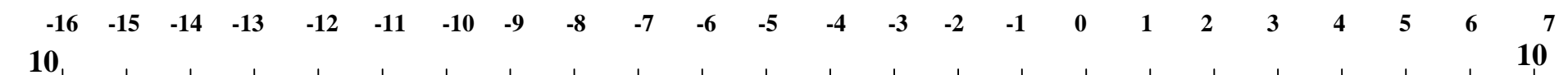
Materials

LSI

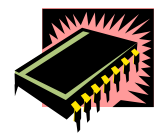
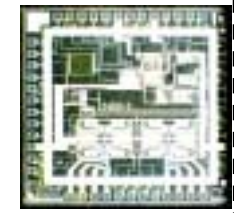
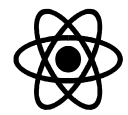
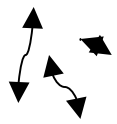
LSI

Chemistry

Physics



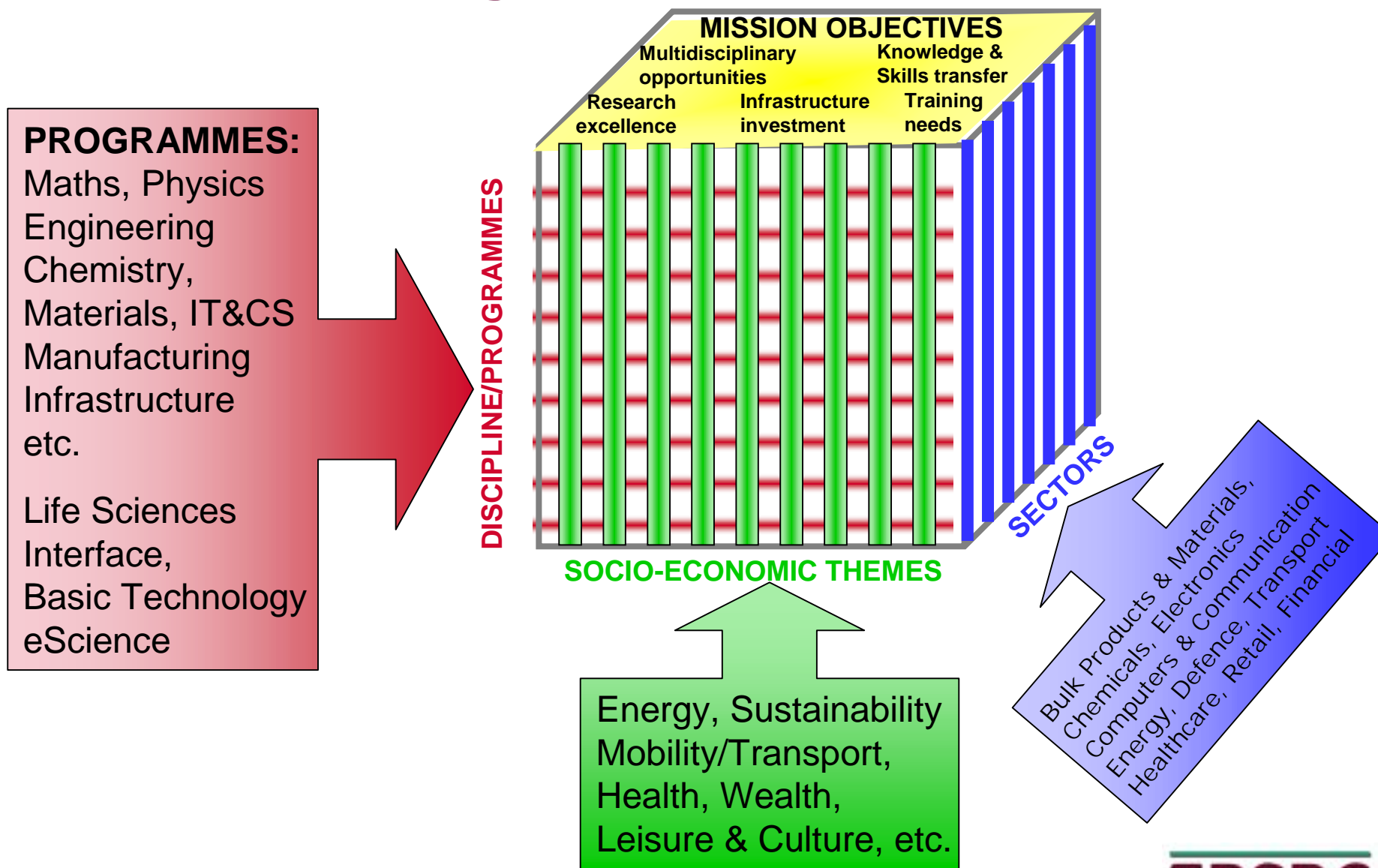
femto-world   pico-world   nano-world   micro-world   milli-world   meso-world   kilo-world   mega-world



# Strategic Framework

- Looking to cast existing activities within a 'strategic framework'
- This should help communicate more effectively – to government etc - the importance and excitement of what collectively we are engaged in
- A basis for further strategic planning

# Strategic Framework



# Greater Engagement

- Scope for yet greater engagement of researchers in helping EPSRC to formulate plans and develop strategy
- Strategic Advisory Teams, associated with programme areas, will provide input at a more detailed level than is possible for TOP and UP

# Strategic Advice

- Strategic Advisory Teams (SATs) for each Programme Area
- Each SAT has some 8-10 members
- Recognised figures in research
- Appointments initially for one year but plan for reasonable continuity of membership
- Chaired by CEO
- Additional advice stream to TOP and UP



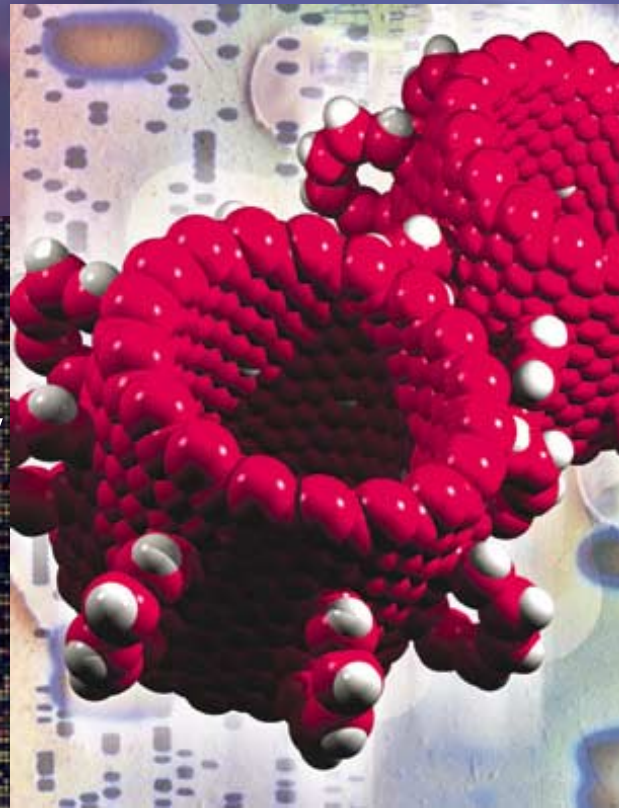
# An Observation

- “Real world problems do not respect the boundaries of established academic disciplines – nor indeed the traditional boundaries of science and engineering.”

# Some Recent Initiatives



- genomics
- basic technology
- e-science



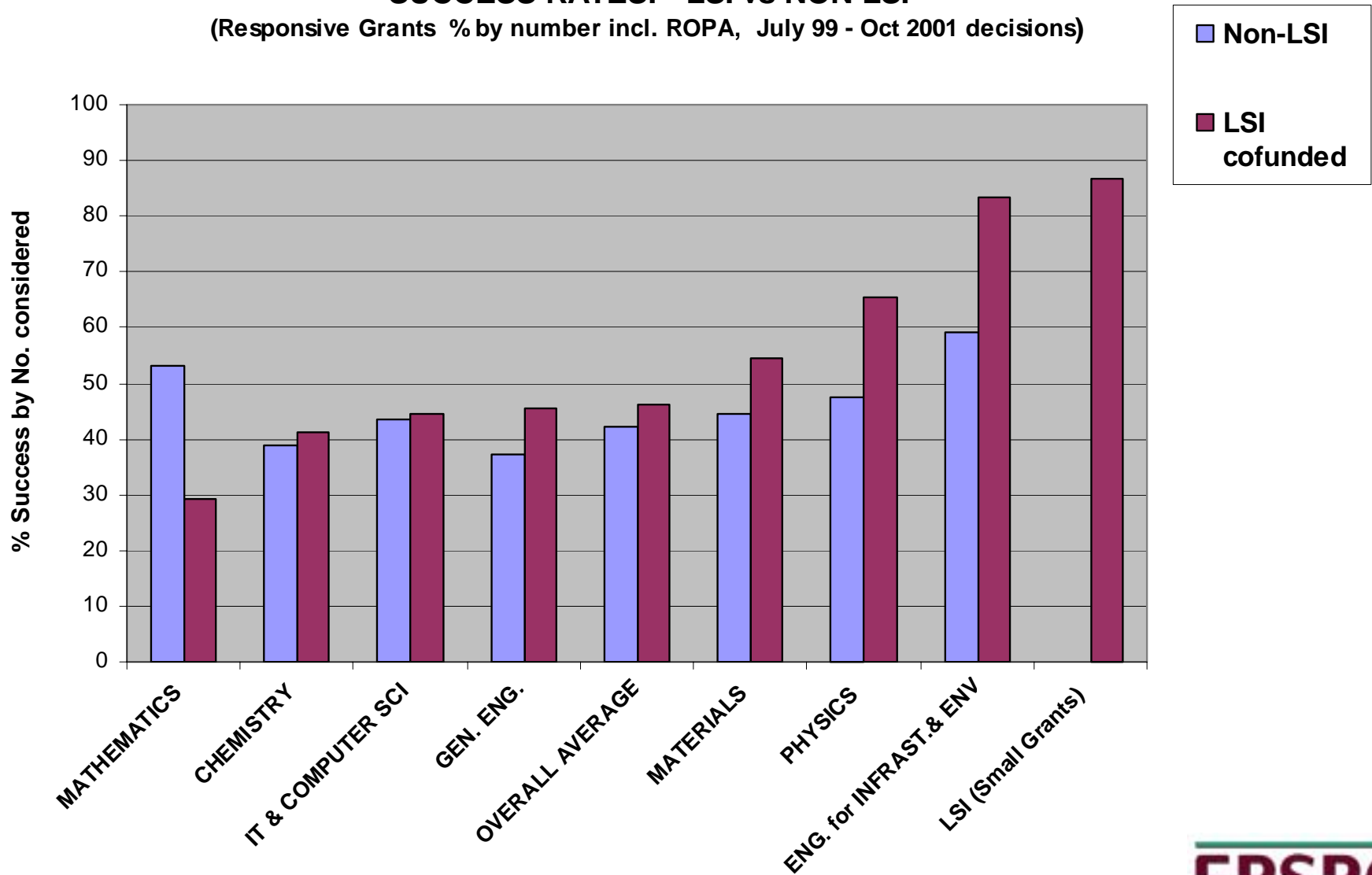
# Life Sciences Interface Programme

- Encourages physical scientists and engineers to 'look over the fence' and work innovatively in partnership with life scientists funded by e.g. Biotechnology & Biological Sciences Research Council, Medical Research Council, etc

# LSI Success rate

## SUCCESS RATES: LSI vs NON LSI

(Responsive Grants % by number incl. ROPA, July 99 - Oct 2001 decisions)



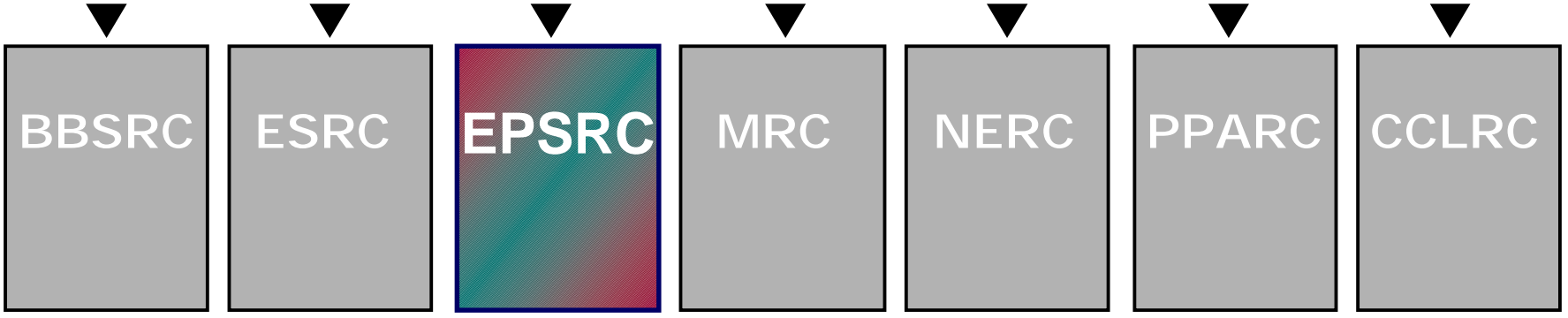
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**Research Councils, UK**

# Research Councils



Office of Science and Technology



# Research Councils, UK

- **Chaired by Dr John Taylor as DGRC**
- **Membership: CEOs of Research Councils**
- **Small secretariat hosted by EPSRC**
- **Strategy Group**
  - ◆ Science Strategy for UK
  - ◆ Facilities Road Map
  - ◆ Cross-council programmes/actions
  - ◆ Common interfaces where appropriate

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Issues of general  
interest/concern

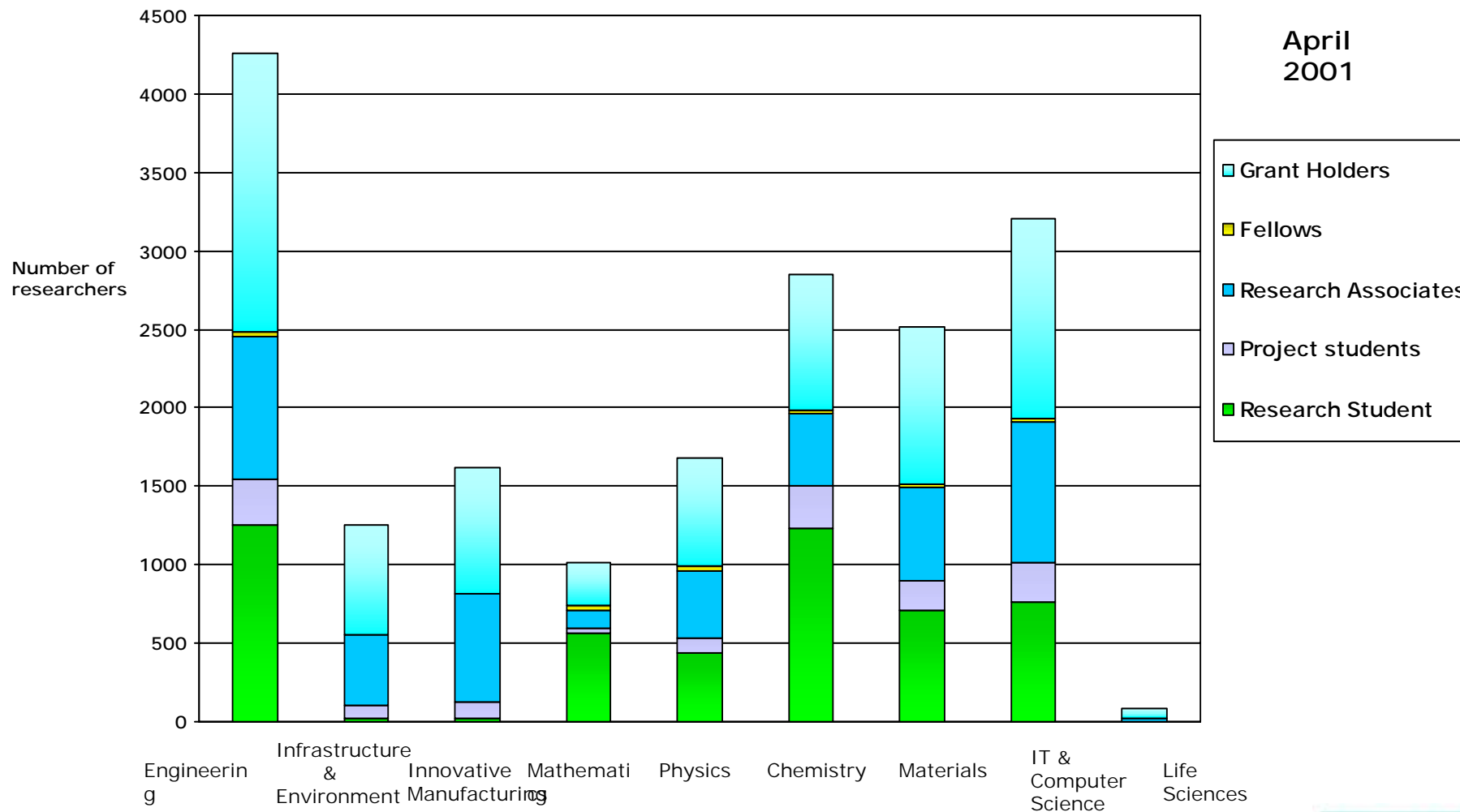


# EPSRC

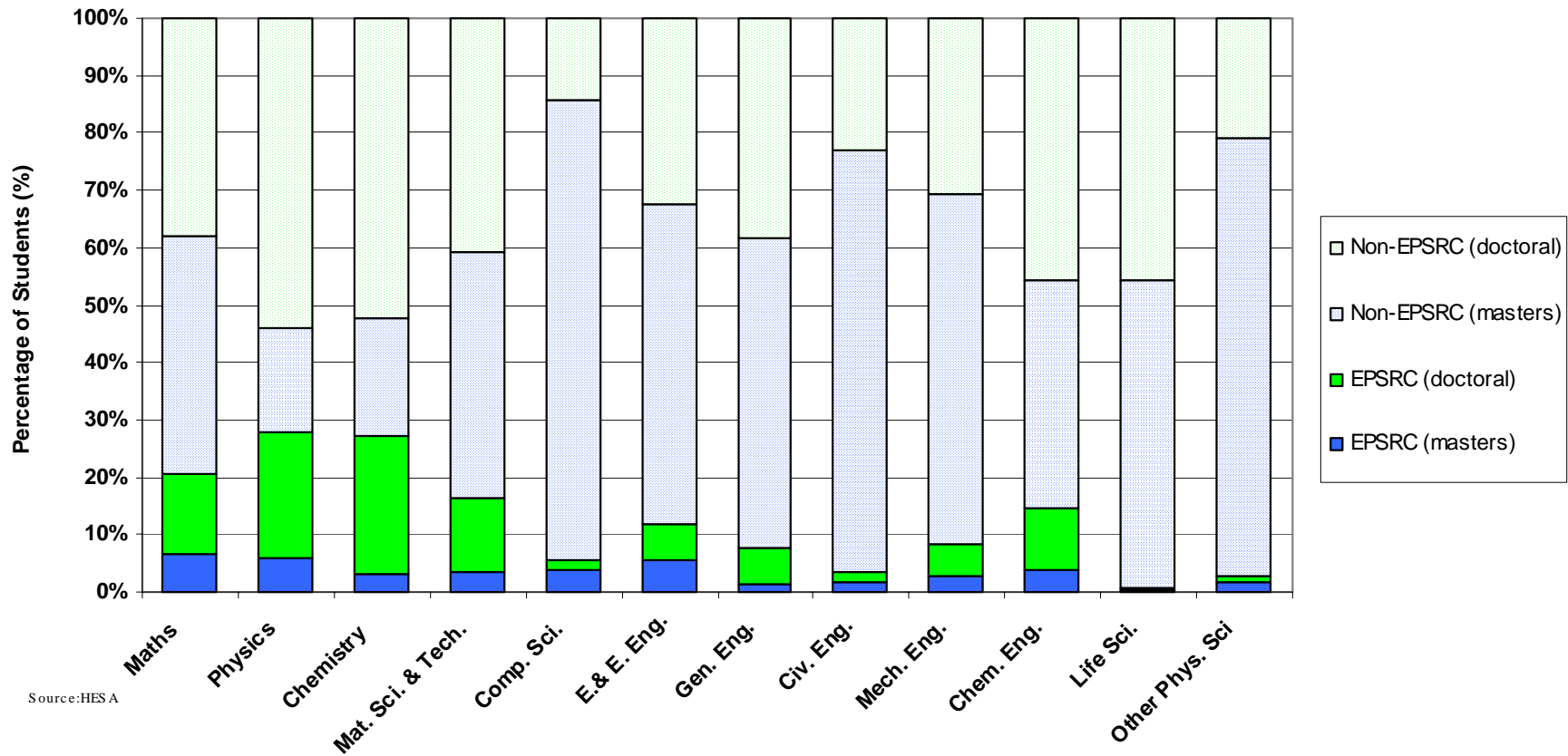
## Funding:

- Programme Areas
- Departments/Disciplines

# Number of EPSRC supported researchers

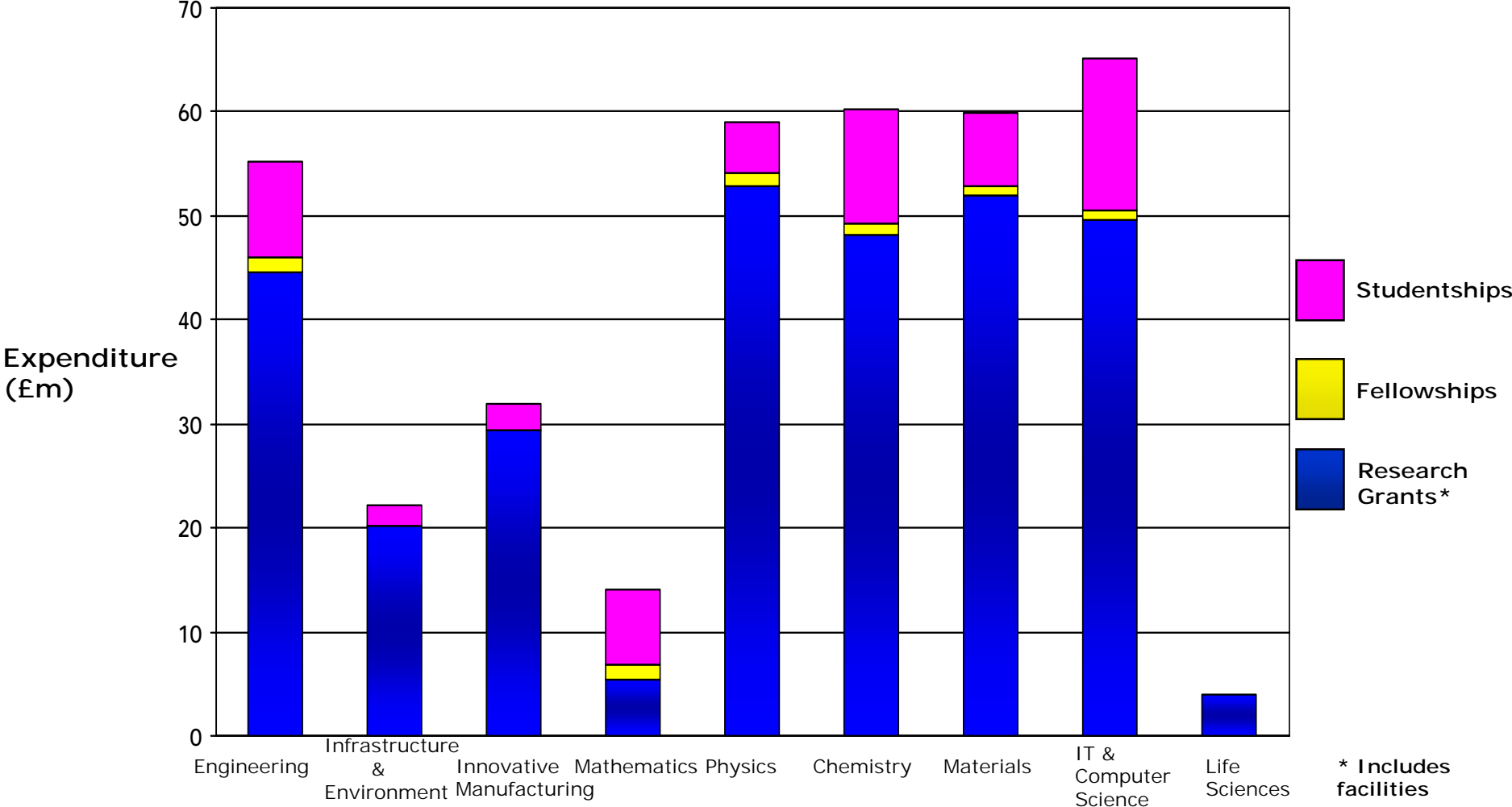


# EPSRC Postgraduate Studentship Training in Context

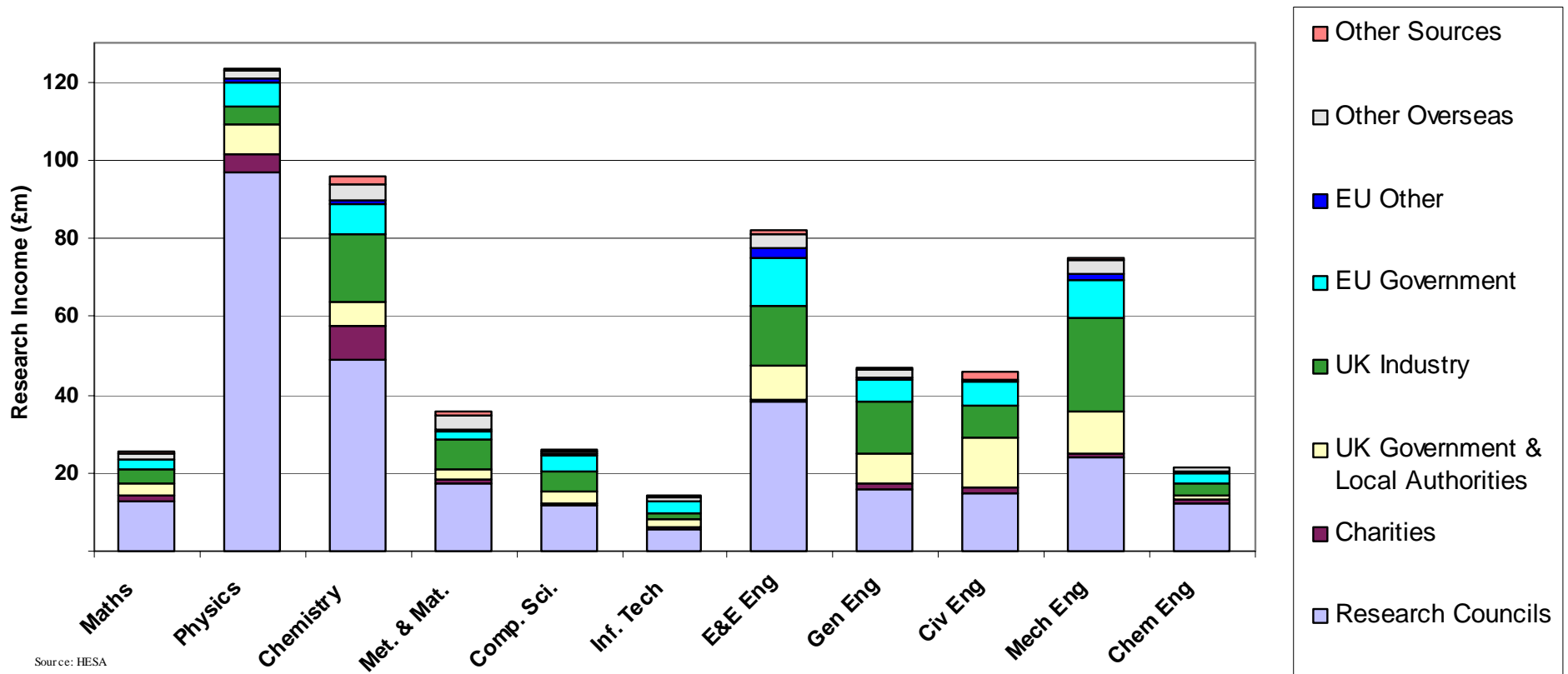


Source: HESA

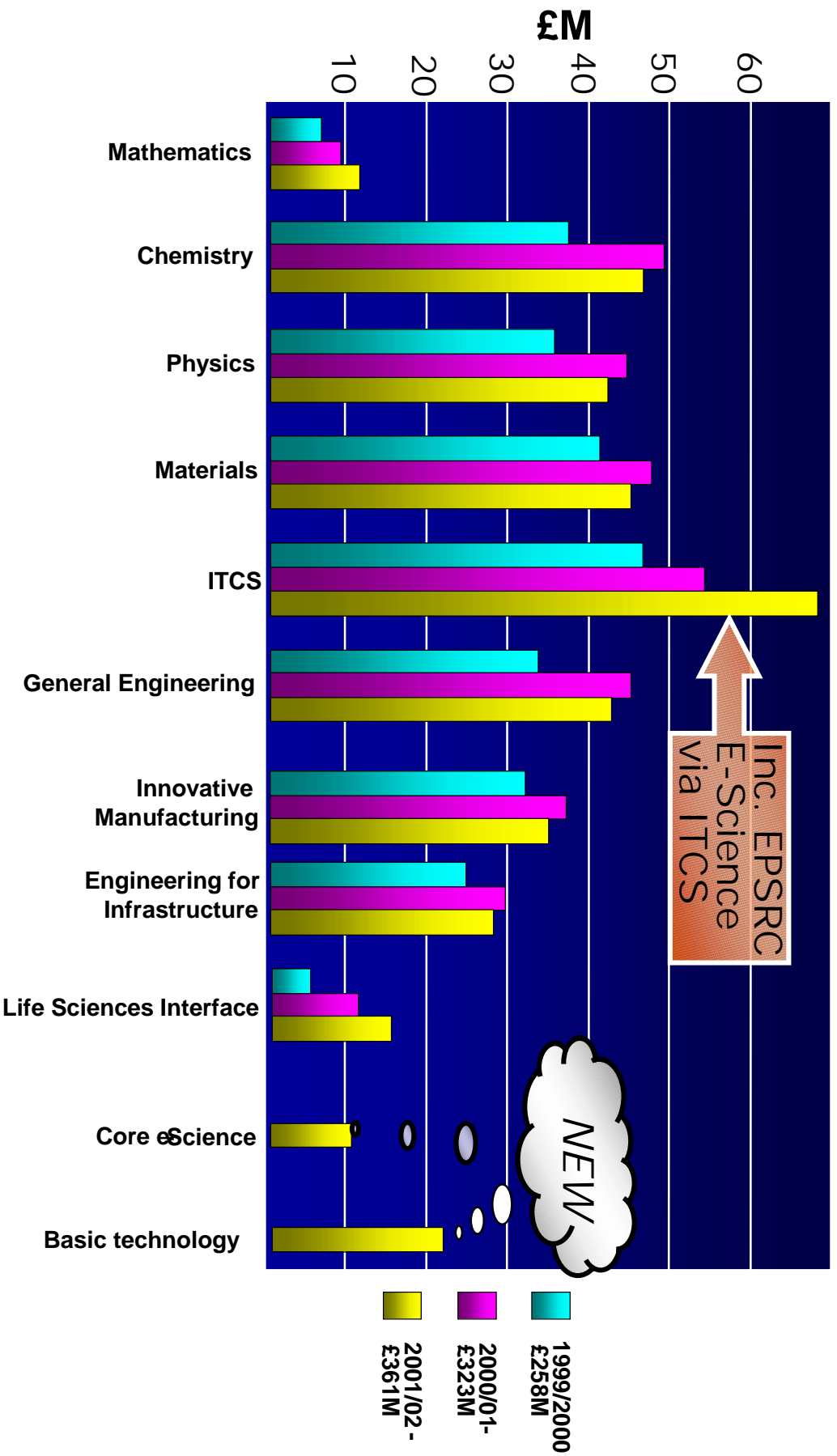
# EPSRC expenditure by funding category 2000/1



# HEI External Research Income by Discipline

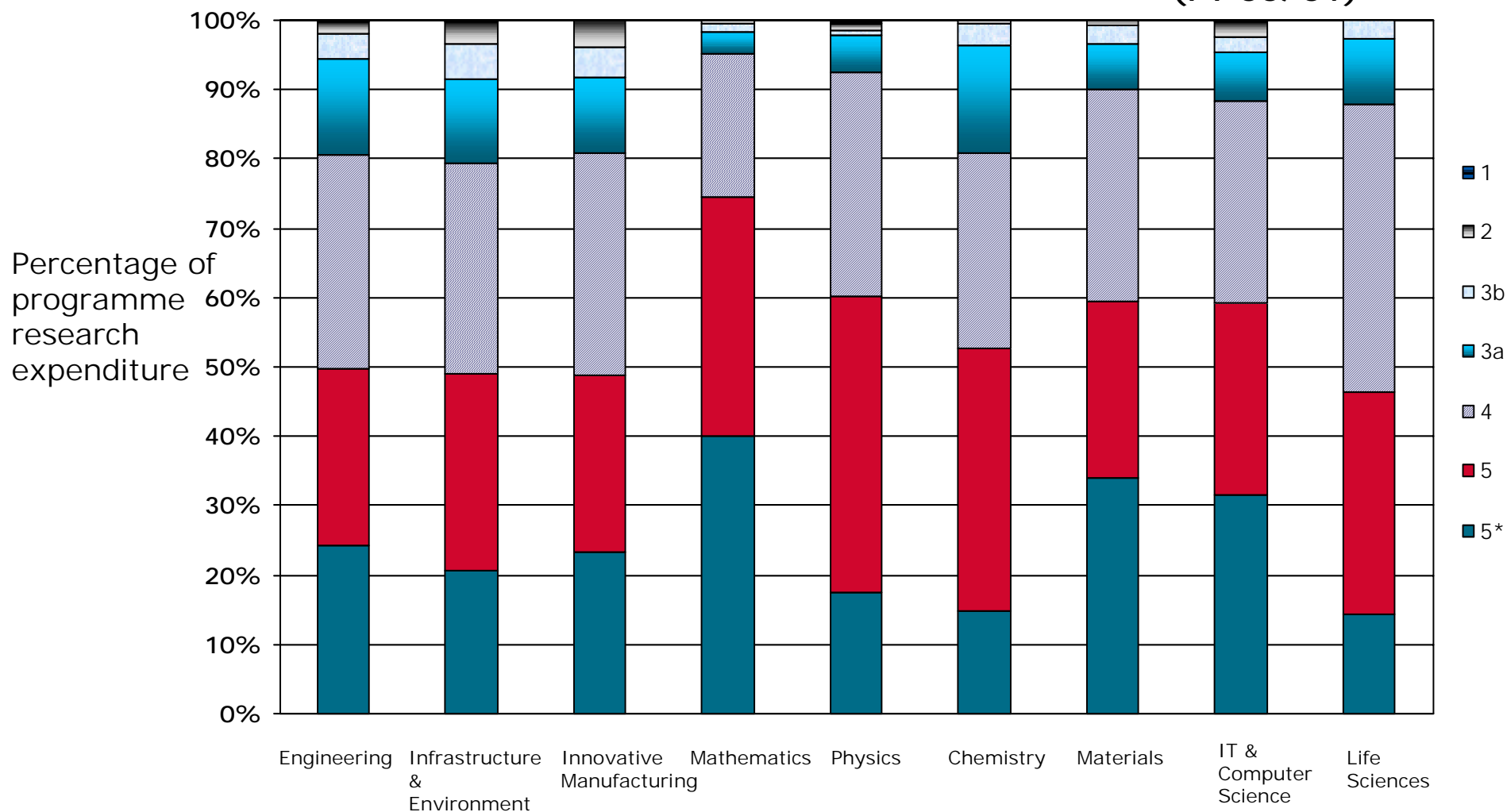


# GRANT COMMITMENT BY PROGRAMME



# Programme research expenditure related to department RAE scores

(FY 00/01)



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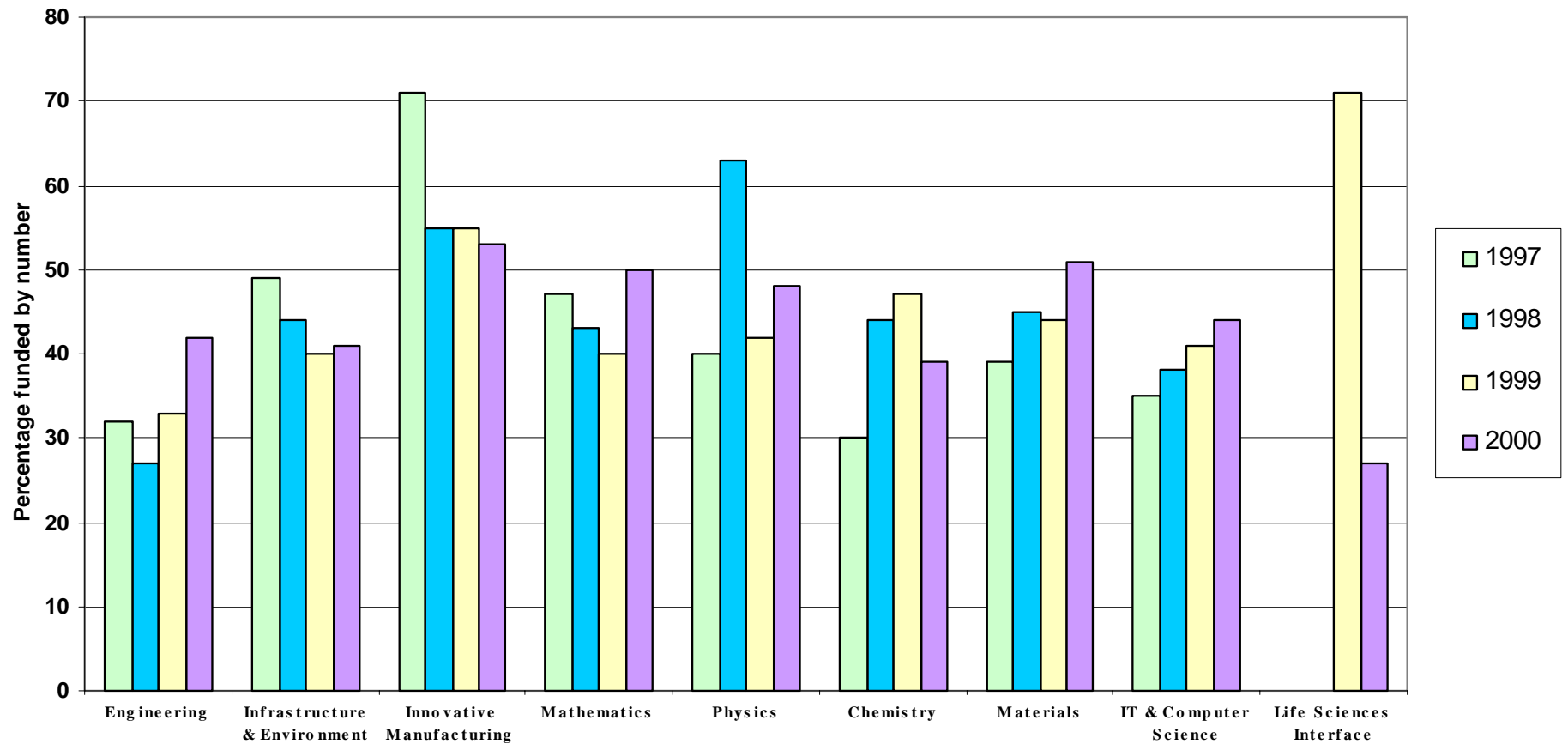
**EPSRC**

# Success Rates:

- By Programme

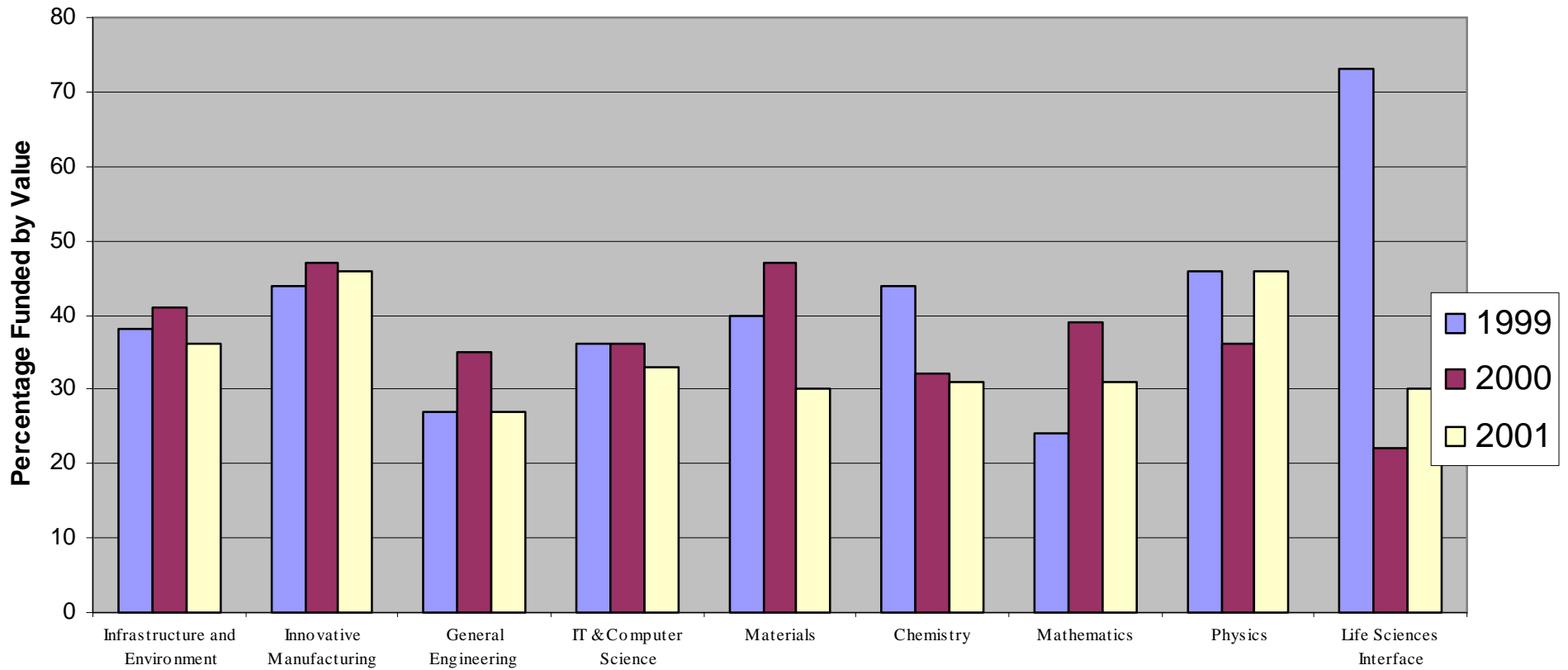


# Success Rate Trends By Programme (1996-2000)



# Success Rates, 2001

## EPSRC RESEARCH GRANT PROPOSAL OUTCOMES BY PROGRAMME

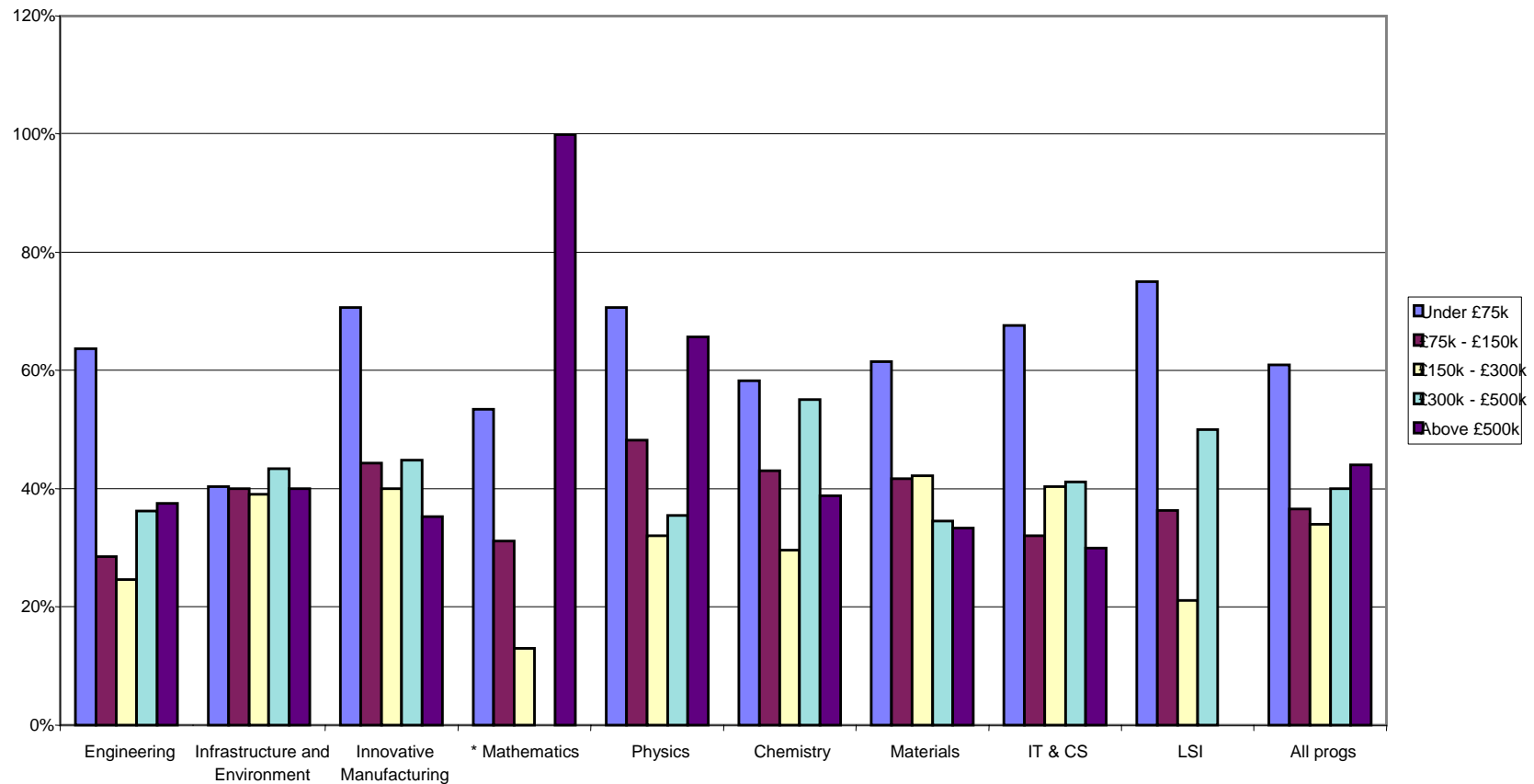


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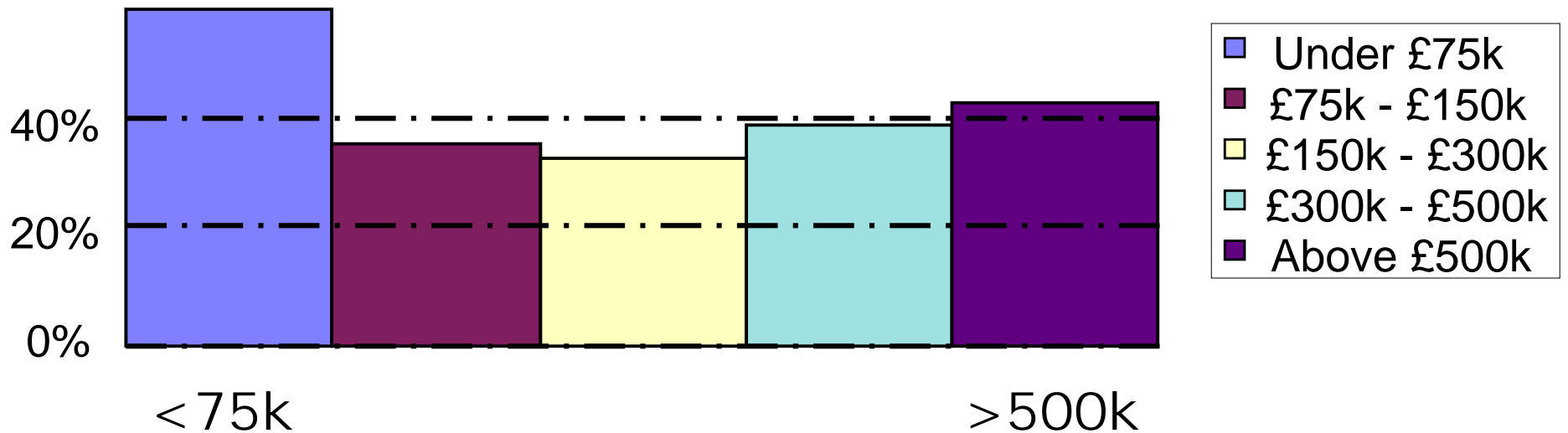
Does size matter?

# Success Rates:

based on "applied for" Funding by Programme



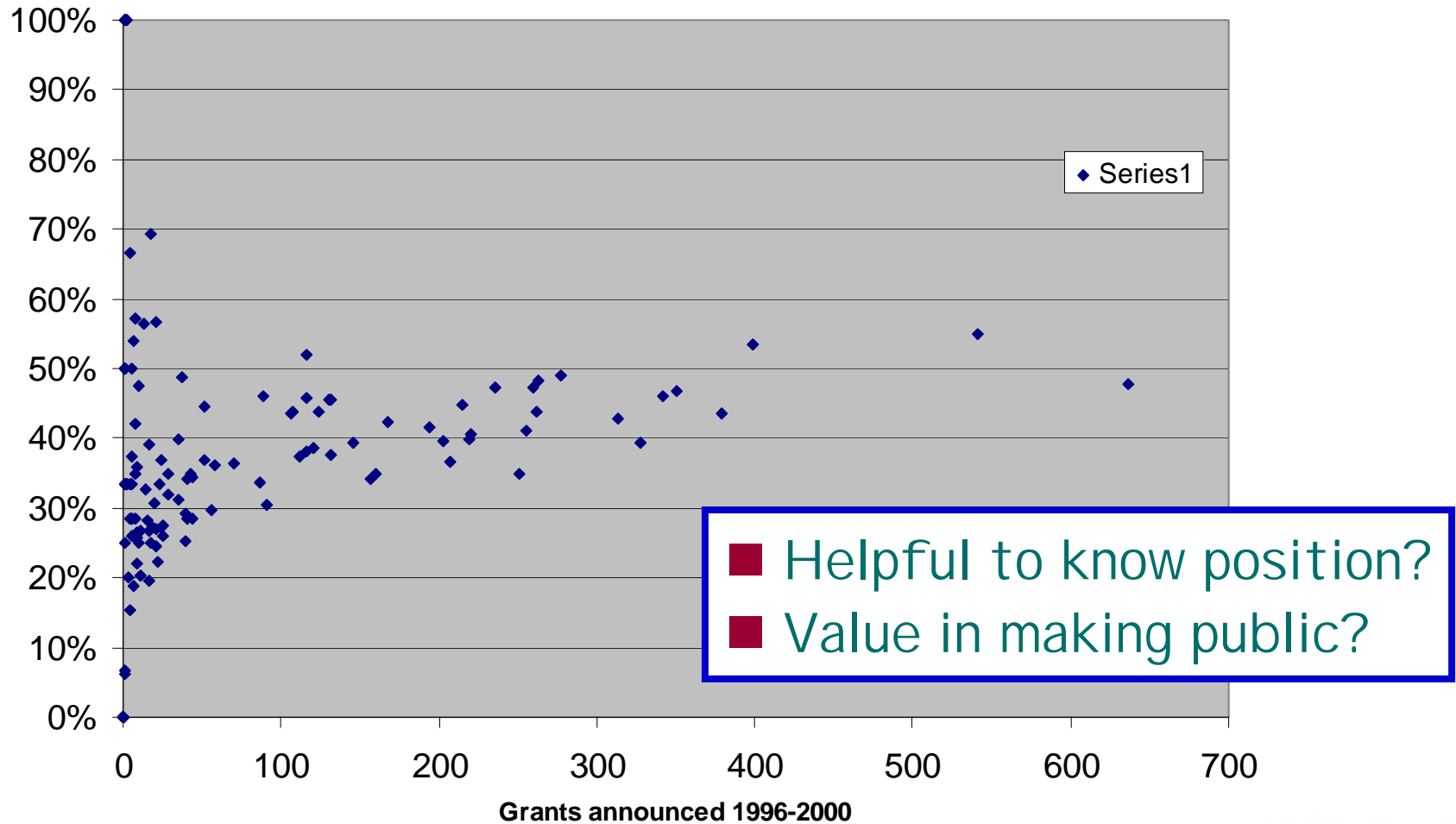
# Success Rates: by Grant Size (all programmes)



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# Subscription Rates and Success

# Scatter Plot of HEI Success Rates 1996-2000



# Cluster Analysis

- Detailed study has been undertaken
  - ◆ Mathematically sound
  - ◆ Statistically significant
- Assessing data and implications
- Simple, 'rough-cut' findings of note



# There are 3 kinds of people . . .

## ■ Group A:

- ◆ Apply frequently
- ◆ Stunningly high success rates

## ■ Group B:

- ◆ Apply occasionally
- ◆ Average success rates

## ■ Group C:

- ◆ Apply very frequently
- ◆ Depressingly low success rates

# Headline Messages

- **Group A:** Apply frequently, high success rates
  - ◆ Hyper-active elite
- **Group B:** Apply occasionally, average success rates
  - ◆ 'Bed-rock' of research in UK?
- **Group C:** Apply frequently, low success rates
  - ◆ Serial refinement through external peer review!

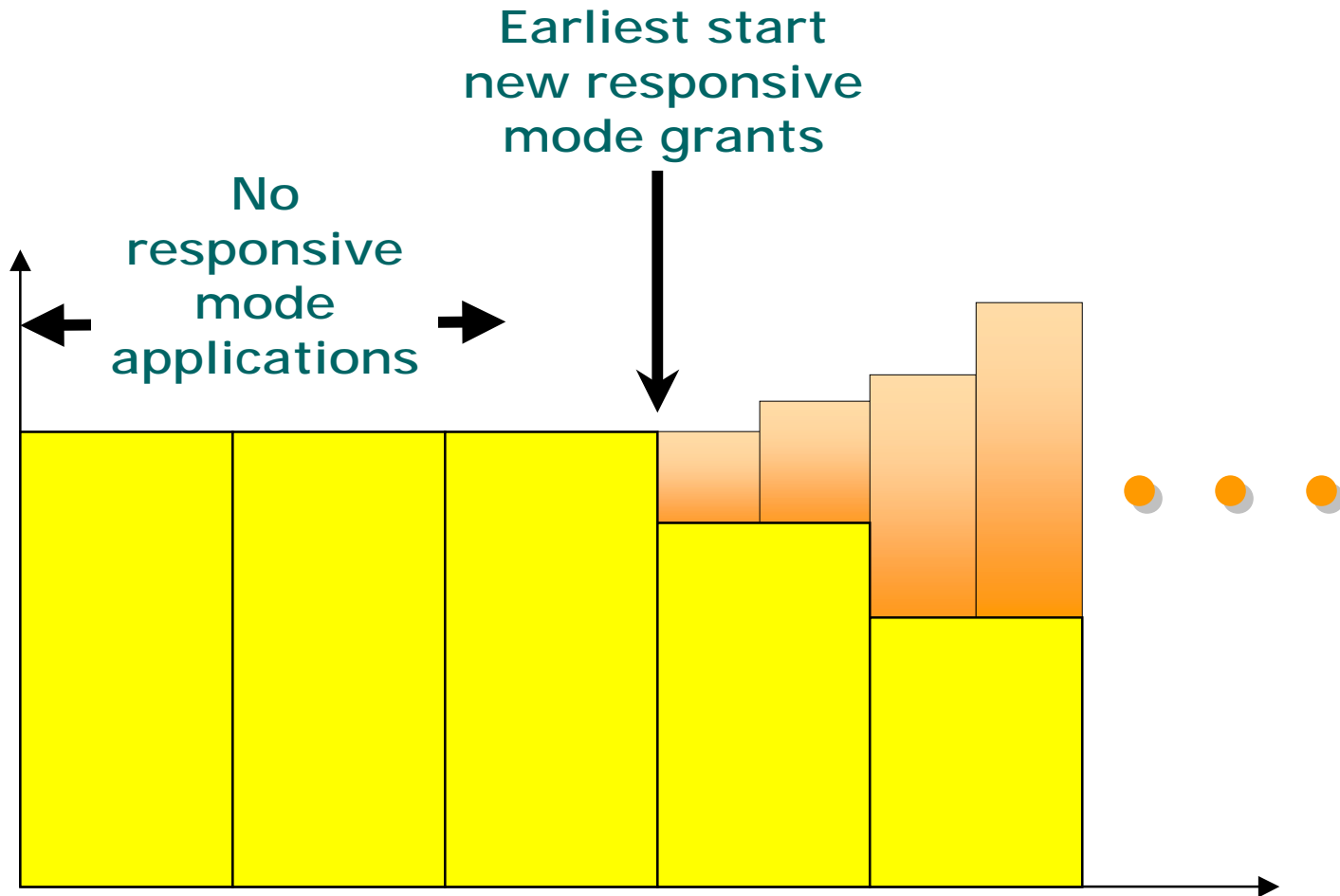
# Supporting Excellence

- Are 3 year grants of £150K the best way to support research?
- See merit in 'portfolio' grants to strong teams, effected by consolidation and enhancement
- Aim to provide greater stability and less bureaucracy for strong groups, reducing the burden of application, evaluation, tracking, reporting, etc. associated with multiple small grants

# Consolidation

- Consolidation of grant portfolio and extension out to 5 years in a 'profiled' form
- Grant profile is constant for 3 years, tapering down in years 4 and 5
  - ◆ No 'responsive mode' grant applications for first 2+ years
  - ◆ Earliest start for any new responsive mode grants will be the beginning of year 4
  - ◆ By year 5 the portfolio will be 're-tensioned'
- Selected 'pilot' teams being approached

# Illustrative Profile



*N.B. Indexing not shown*

The logo for EPSRC (Engineering and Physical Sciences Research Council) is displayed in the top left corner. It consists of the letters 'EPSRC' in a bold, dark red font, enclosed within a white rectangular box with a green border.

## Peer Review:

- Central to success
- Quality paramount
- A 'dead hand'?

# Peer Review - what of it?

- Commonly held views
  - Not entirely reliable . . .
  - Better than alternatives!
- Quality of College is critical
  - Needs leading researchers engaged
  - Timely, quality referee reports crucial

# New College in 2002

- 'Raise the profile' of membership
- Publish College Membership 'Directory'
- Indicate areas of particular expertise
- 'International Members' section



# A 'Dead Hand'?

- Are referees and peer review panels unduly conservative/risk-averse?
- Merit in fostering 'adventurousness'
  - ◆ 'Risk' is often associated with 'high return if successful'
  - ◆ Akin to 'Opportunity' vs 'Risk' Management
- New 'Risk/High Return' fund
- Exploring how to assess such proposals

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Can you help?

# The three 'A's

Aadvocacy

Apathy

Antagonism!

# Advocacy?

## An example of how not to . . .

“As an encouraging indicator of potential, we are happy to report that EPSRC, the UK Government Funding agency, recently rejected our application for funding in the related area of high power visible fiber based sources. This normally indicates that it is a potentially successful research and application area.”

*IEEE LEOS NEWSLETTER, December 2001  
P A Champert, S V Popov and J R Taylor,  
Physics Department, Imperial College*

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*Thank you for your  
attention!*