The future of IP: Where should university IP be in 2020?

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QUESTIONS FROM THE SECRETARY OF STATE

- The management of IP for the benefit of the university and the wider economy
- Incentives and rewards for institutions and staff
- The links between research students, graduate schools and effective IP generation and exploitation
- The co-ordination of technology transfer offices

KNOWLEDGE TRANSFER COMPONENTS

PATENTS LICENCES EMPLOYER ENGAGEMENT

KNOW HOW CPD

INDUSTRIAL DESIGN CONSULTANCIES TEACHING

FUNDERS' FORUM 2007

A recent report to the UK Funders' Forum on the university:business interactions identified three barriers to these activities and the effectiveness of our universities in assisting industry and the wider economy:

a) an over-emphasis on IP when universities and businesses work together on collaborative research projects;

b) a lack of clarity on the primary aims of collaborative research, allowing uncertainty as to whether the aim is to generate a direct income for the university or a wider benefit for the economy; and

c) a rather variable implementation of aspects of good practice in the process of negotiation.

MAJOR DRIVERS IN THE USA FOR RELATIONSHIPS BETWEEN UNIVERSITIES, INDUSTRY AND GOVERNMENT

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Universities:
- Bayh-Dole legislation has increased the desire to control who has rights to commercialise;
- Universities have been encouraged to be key actors in local and regional economic development;
- Breadth of the commercialisation function has increased.

Industry:
- Margins have reduced, product lifetime shortened and management decision time reduced;
- Funding to universities is now linked to strategic priorities and specific outcomes rather than philanthropy;
- Innovation and cost reduction have become simultaneous forces for progress.

Government:
- Strategic focus on R&D has increased in some sectors such as pharmaceuticals, biotechnology and security;
- Economic development has become a driving factor for all levels of government;
- Threat of loss of jobs is continually in the national focus.

UNIVERSITY RESEARCH COMMERCIALISATION

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a) The desired outcome for universities is not to generate a direct financial return as the primary goal

b) Universities <u>should</u> be able to demonstrate how they go about maximising economic, social and environmental impact

c) It is in the interest of universities, industries and governments that impact is maximised as this -

- ❑ Enhances confidence in the sector
- ❑ Finds the best route to adoption

RETURNS ON COMMERCIALISATON

Financial returns are very skewed:

- In the USA

  About 20,000 licences between universities and businesses. Only 0.1% returned more than US $1m in income to the university partner.

- In the UK

  BTG protected about 10,000 inventions. Only about a dozen return more than US $1m in income to the university partner

INTERNATIONAL BENCHMARKS (2004)

	Australia	USA	Canada	UK
a) Av staffing in licensing per institution	4.5	4.2	4.4	4.8
b) Invention Disclosures	23	41	40	45
c) US patents issues	5	9	5	2
d) LOAs executed	9	12	17	22
e) LOA income ($'000s)	1031	3357	1333	1005
f) Start-up	0.7	1.1	1.4	3.6

Measures b) – f) – normalised on $US100 million research expenditure

VARIATION IN UK UNIVERSITY PERFORMANCE

Two thirds of universities run TTOs with 10 staff or less

Median size is 5 staff

In 2004/05 : 20% universities no new inventions
25% universities no new patents
38% universities no LOAs executed

While 17% universities more than 60 disclosures
4% universities more than 40 patents
6% universities more than 40 LOAs
4% universities more than 7 spin offs

GRADUATE SCHOOLS AND IP

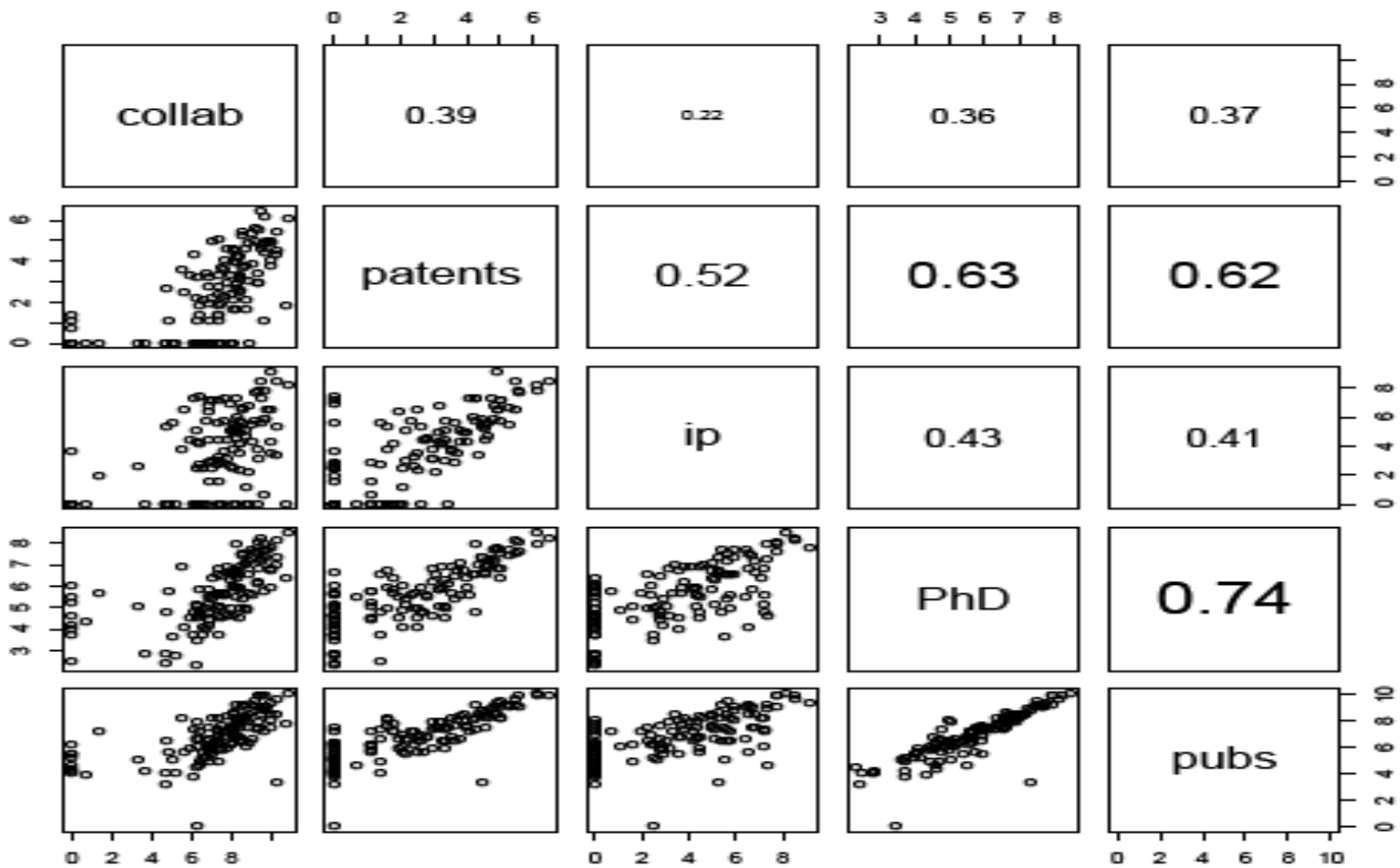
5 YEAR PERIOD 2002 – 06:

29 Universities less than 100 PhDs in total

UK median only 281

34 Universities produced 75% PhD graduates and 78% patents

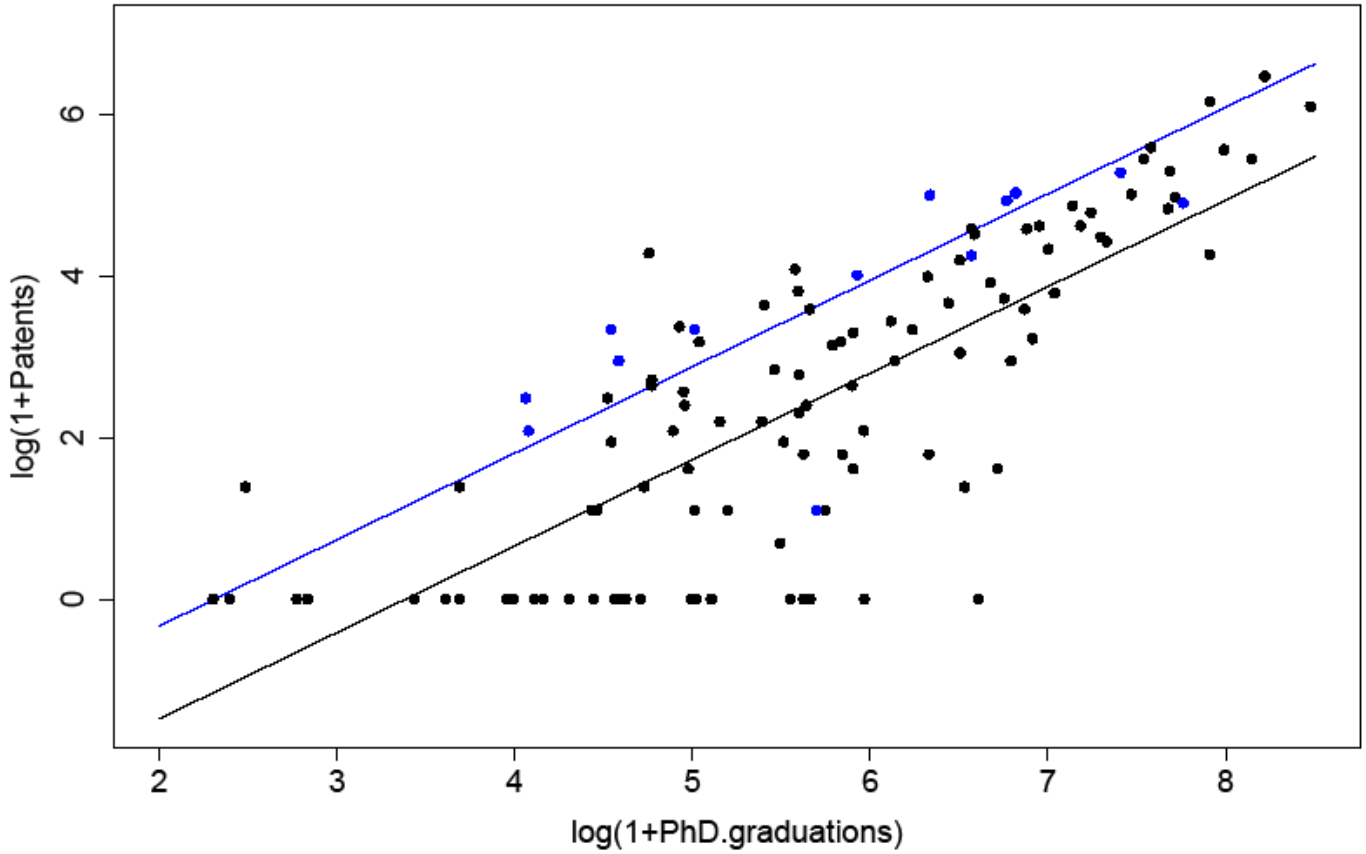
The relationships between collaborative research income, patents, IP income, PhD graduations and research publications for UK Universities



CORRELATIONS ON PAIRED ACTIVITY

Collaborative research income	39%	22%	36%	37%
	Patents	52%	63%	62%
		IP income	43%	41%
			PhD graduations	74%
				Publications

THE CORRELATION BETWEEN THE NUMBER OF PHD GRADUATIONS AND PATENTS GENERATED



REGIONAL DIFFERENCES

The relationship between patents created and PhD graduations is linear

England, NI and Wales: log (patents) = -3.62 + 1.07 log (PhD)

Scotland log (patents) = -2.47 + 1.07 log (PhD)

Scottish Universities are more active in patenting and this is also reflected in licensing income.

REGIONAL DIFFERENCES

- x 8 range in patent volume across regions
- x 17 range in IP revenue across regions

- Only 5 regions have universities which have registered 200 or more patents over the period 2002 -06:

Eastern England	Cambridge	: 442
London	Imperial College	: 470
	University College	: 258
North-Western	Manchester	: 231
South-Eastern	Oxford	: 641
	Southampton	: 265
South-Western	Bristol	: 231

Regional aggregated patent totals and aggregated IP income significantly positive correlation (64%)

RECOMMENDATIONS

GOVERNMENT

- Primary purpose to create a wide range of economic and social benefits
- Sort out variation in behaviour between Departments and Agencies
- Look at regional innovation indicators

RECOMMENDATIONS

HEFCE

- Universities should report on how they set out to maximise benefit
- Governing bodies should look at IP policies and procedures
- The sustainability of graduate schools should be examined

RECOMMENDATIONS

OTHERS

- Universities should look at IP policies and consultancies
- “Roberts” funding should be retained and expanded
- The regional organisation of TTOs should be enhanced