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The Imperative for Achieving Diversity

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An Innovation Eco-system

‘Smart growth means strengthening knowledge and innovation as drivers of our future growth. This requires improving the quality of our education, strengthening our research performance, promoting innovation and knowledge transfer throughout the Union’. *Europe 2020*, (2010, p13)

http://ec.europa.eu/commission_2010-014/president/news/documents/pdf/20100303_1_en.pdf

‘The presence of high quality universities, a strong human capital base/good education, and a strong research base are crucial.’ *Innovation Task Force* (2010, p22)

http://www.taoiseach.gov.ie/eng/Innovation_Taskforce/Report_of_the_Innovation_Taskforce.pdf

‘With rapid technology changes, single universities or research institutes may not be able to accommodate the needs of business development for skills, knowledge and innovation....[T]he most successful high-science locations today are those that take a multiple form, rather than a link between firms and a single university.’ (OECD, 2006, 119)

Overview of Presentation

- What is Meant by Diversity
- Globalisation and Pursuit of World-Class: valuing mission diversity
- Measuring what Counts: rewarding the full-breadth of scholarship
- Policy Challenges

1. What is Meant by Diversity



What is diversity?

- Diversity seen as a basic norm of HE policy because it best meets educational and labour market;
- According to Birnbaum (1983), institutional diversity is a normative value because it allows the HE system to:
 1. Meet students' needs;
 2. Provide opportunities for social mobility;
 3. Meet the needs of different labour markets (via increasing variety of specialisations);
 4. Serve the political needs of interest groups;
 5. Permit the combination of elite and mass higher education – the former being dependent upon the latter (Trow, 1979);
 6. Increase level of HEI effectiveness;
 7. Offer opportunities for experimenting with innovation.

Diversity is Broad

- *Institutional mission and core tasks*: emphasis on teaching, basic and applied research, services, continuing education or professional development, outreach;
- *Research*: spectrum from basic (e.g. CERN) to national/policy relevance, across all disciplines, and multi/inter-disciplinary;
- *Student profile*: ethnic, religious, or social background, gender, qualifications;
- *Staff profile*: ethnic, religious background, gender, previous academic and professional qualifications, functional emphasis, e.g., time spent on education, research, continuing education, innovation services;
- *Internal organisation*: governance, functional orientation of different units, funding mechanisms, reward structures;
- *Programme and pedagogical profile*: diversity of disciplines and their interactions, professional and academic orientation, pedagogical programme profiles.

(adapted from Reichart, EUA, 2009)

2. Globalisation and the Pursuit of World Class

Rankings Driving HE 'norm'

- Because innovation is the key to translating knowledge into new products and services, nations increasingly compete on the basis of their knowledge and innovation systems. This requires investment in 'academic capital' which is 'fundamentally stored in human brains' (Castells, 1996);
- As primary source of human capital, producer of new knowledge & contributor to innovation, HE is a critical beacon for international investment and talent. But in the global economy, national pre-eminence is no longer sufficient;
- Rankings focus attention on the 'attractiveness' of nations and the talent-catching and knowledge-producing capacity of HE;
- Generated policy panic: with policymakers making a simple correlation between rankings, elite higher education and global competitiveness.

The World Order?

Top 100	Times QS			SJT Ranking		
	2007	2008	2009	2007	2008	2009
US	37	37	32	53	54	55
Europe	35	36	38	34	34	32
Australia/New Zealand	9	8	9	2	3	3
Asia Pacific (incl. Israel)	13	14	16	7	5	6
Canada	6	5	4	4	4	4
Latin America/Africa	0	0	0	0	0	0
Switzerland	1	3	4	3	3	3
UK	19	17	18	11	11	11
France	2	2	2	4	3	3
Germany	3	3	4	6	6	5
Japan	4	4	6	5	4	5
China (incl. HK)	5	5	5	0	0	0
Ireland	1	1	2	0	0	0
Sweden	1	2	2	4	4	3
Russia	0	0	0	1	1	1
Singapore	2	2	2	0	0	0

Pursuit of 'World-Class'

- 'Everyone wants a world-class university. No country feels it can do without one. The problem is that no one knows what a world-class university is, and no one has figured out how to get one. Everyone, however, refers to the concept.' (Altbach, 2003)
- Policy emphasis has shifted to 'selective investment and greater concentration of research' with 'greater [*vertical/hierarchical*] stratification between universities':
 - A few research universities concentrate all world class research across all disciplines;
 - Remaining institutions concentrate on undergraduate or professional teaching with limited locally relevant applied research.

Alternative Models

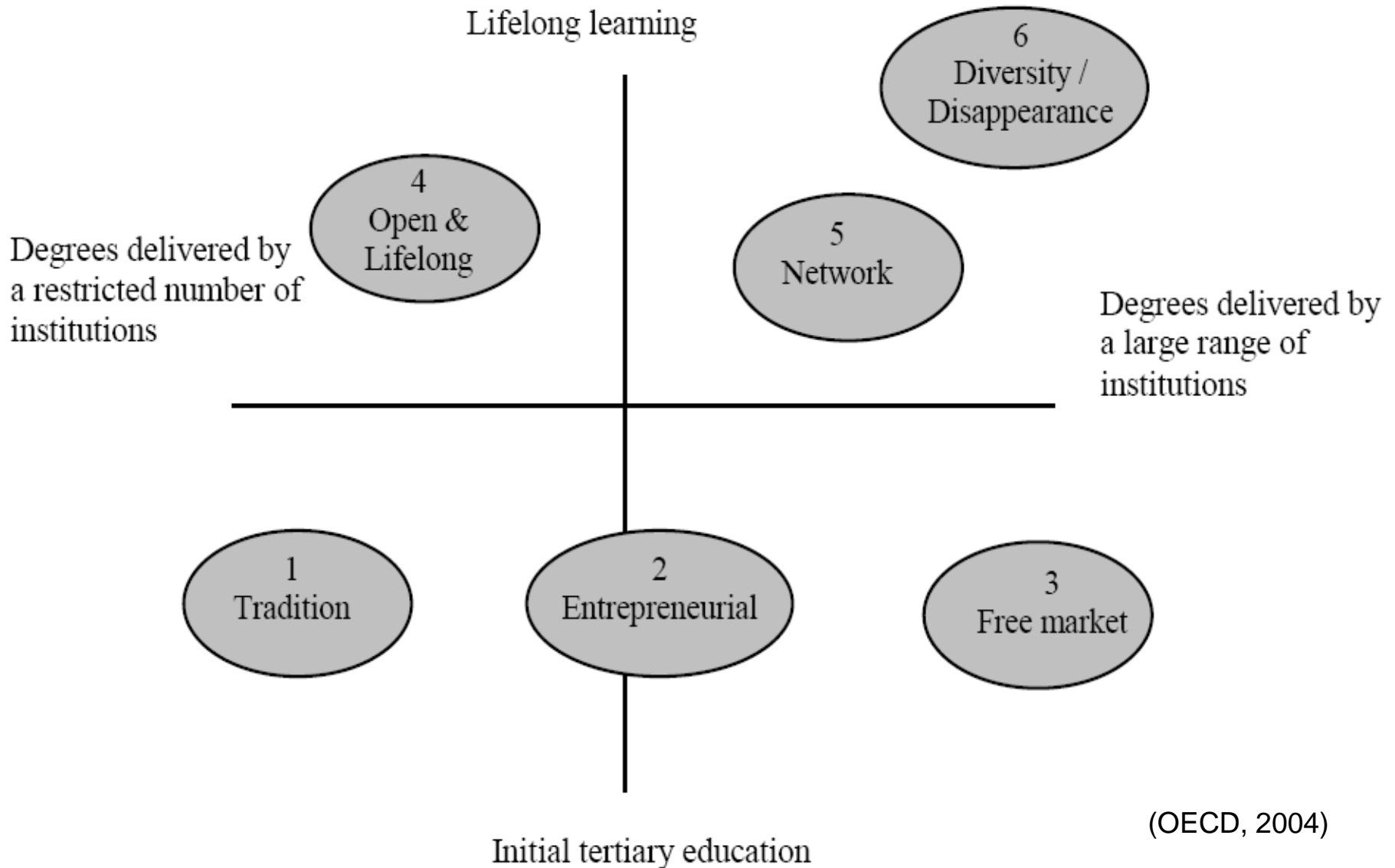
- Higher education has been under going significant change:
 - Boundaries between classical and professional disciplines have blurred, knowledge is more complex & knowledge economy more demanding;
 - ‘Academic drift’ and ‘vocational drift’ are two sides of the coin;
 - Impact of Bologna – qualifications frameworks;
 - Basic vs. applied replaced with ‘applied and not yet applied’ (LERU, 2008, p9).
- In Europe, diversity has traditionally been ‘solved’ by a binary system. This is changing.
 - Many countries are considering a portfolio of different university models for the future.
 - Increasing attention on *horizontal differentiation* w/ equal value attributed to different types of institutional profiles/missions.

6 University Models (OECD, 2004)

Assumption: Post-secondary system comprised of collection of specialised HEIs carrying out several missions or functions for different groups of the population and for different kinds of knowledge.

1. Tradition – catering to relatively small share of youth for credentials;
2. Entrepreneurial - teaching, research and service are well balanced;
3. Free Market – market forces drive specialisation by function, field, audience;
4. Lifelong Learning and Open Education – universal access for all ages w/ less research;
5. Globally networked – teaching/training institution in partnership with other orgs.;
6. Diversity of Recognised learning – disappearance of formal institution – distance, ‘open course’ education.

6 Scenarios for Higher Education



Four Future Scenarios & Models (OECD, 2006)

1. **Open Networking:** networking of institutions and gradual harmonisation of systems allow students to choose their courses from the global post-secondary education network, and to design their own curricula and degrees;
2. **Serving Local Communities:** embedded in their local and regional communities, and are dedicated to addressing local economic and community needs in their teaching and research
3. **New Public Responsibility:** HE is primarily publicly funded, as is currently the case, but there is a greater focus on the use of 'new public management' tools, including market forces and financial incentives;
4. **Higher Education Inc:** HEIs compete globally to provide education services and research services on a commercial basis.

University for 21st Century

Recognise changing environment and experiment with new paradigms (Duderstadt, 2000):

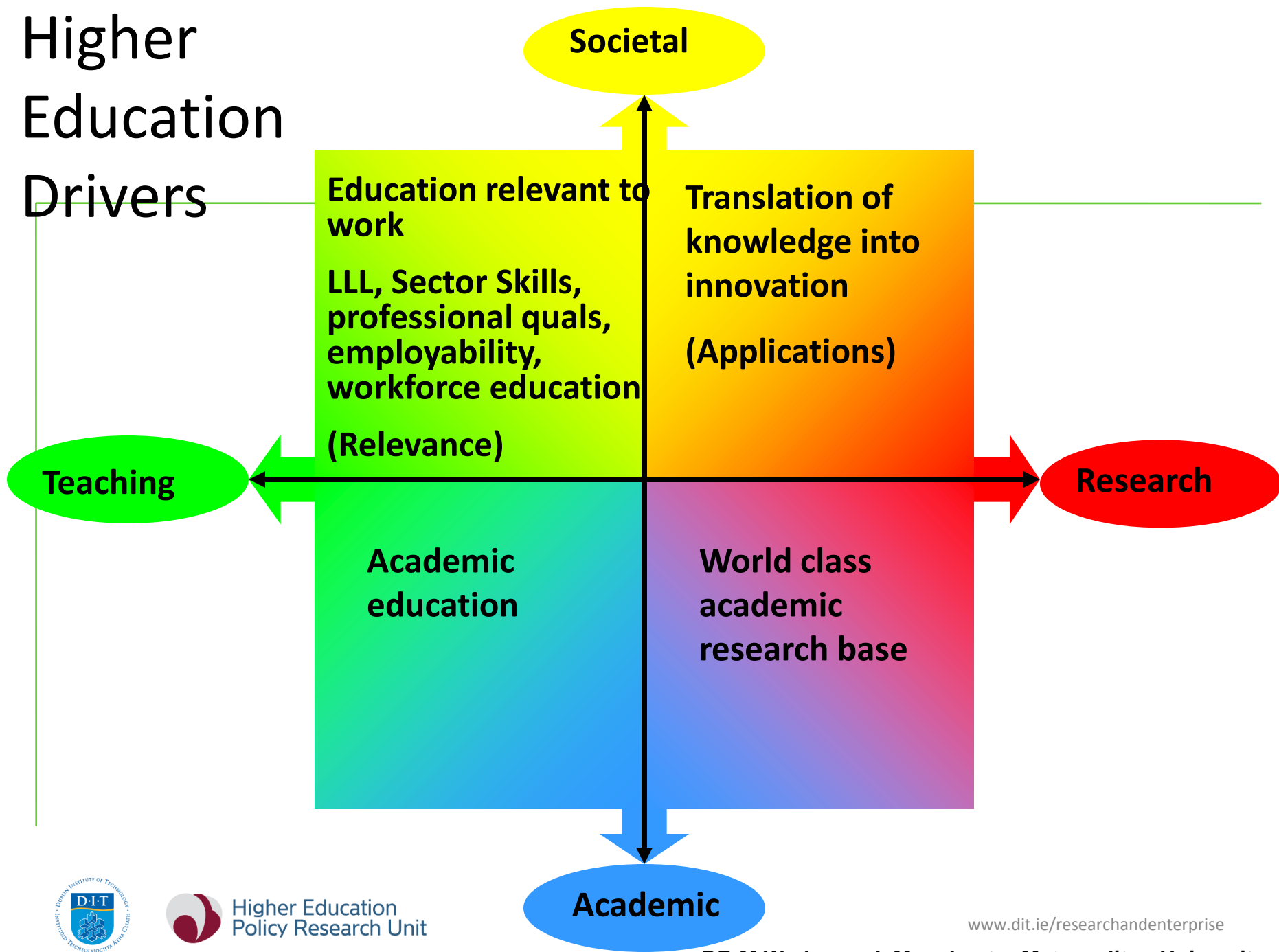
- 10 possible models:
 - The world university – international focus
 - The diverse university – social/ethnic diversity, pluralistic learning community
 - The creative university – university of the arts, media, architecture
 - The divisionless university – interdisciplinary approach to learning
 - The cyberspace university – open and distance learning
 - The adult university – advanced education and training
 - The university college – undergraduate provision
 - The lifelong university – programme provision throughout lifetime
 - The ubiquitous university – new ‘life-form’ linking/connecting social institutions
 - The laboratory university – new ‘green-field’ site ‘experiment’ in learning.

The Civic University (Goddard, 2009)

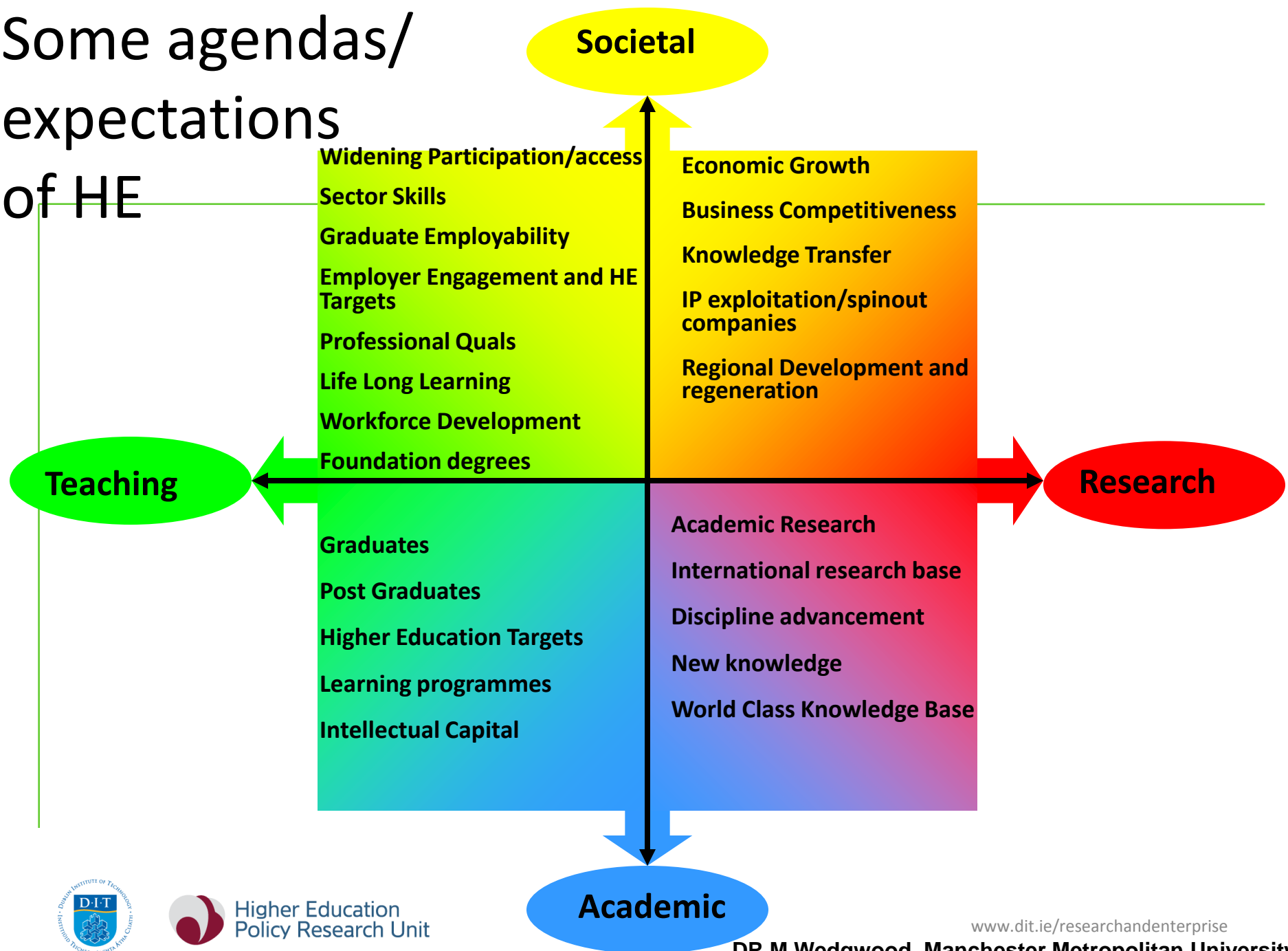
- Provides opportunities for the society of which it is part (individual learners, businesses, public institutions);
- Engages as a whole not piecemeal with its surroundings;
- Partners with other universities and colleges;
- Managed in a way that facilitates institution wide engagement with the city and region of which it is part;
- Operates on a global scale but uses its location to form its identity.

Each university/HEI positions itself strategically.

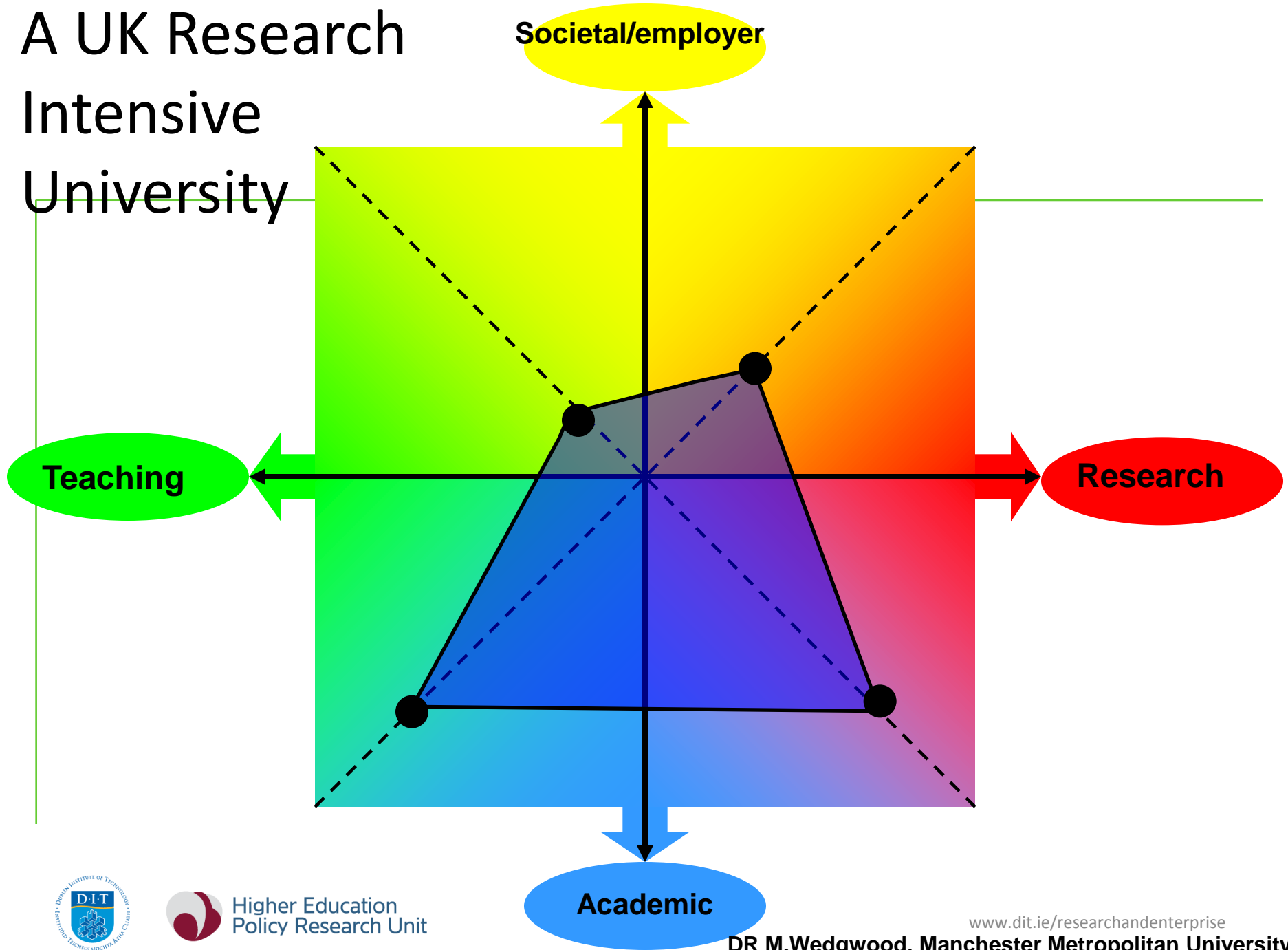
Higher Education Drivers



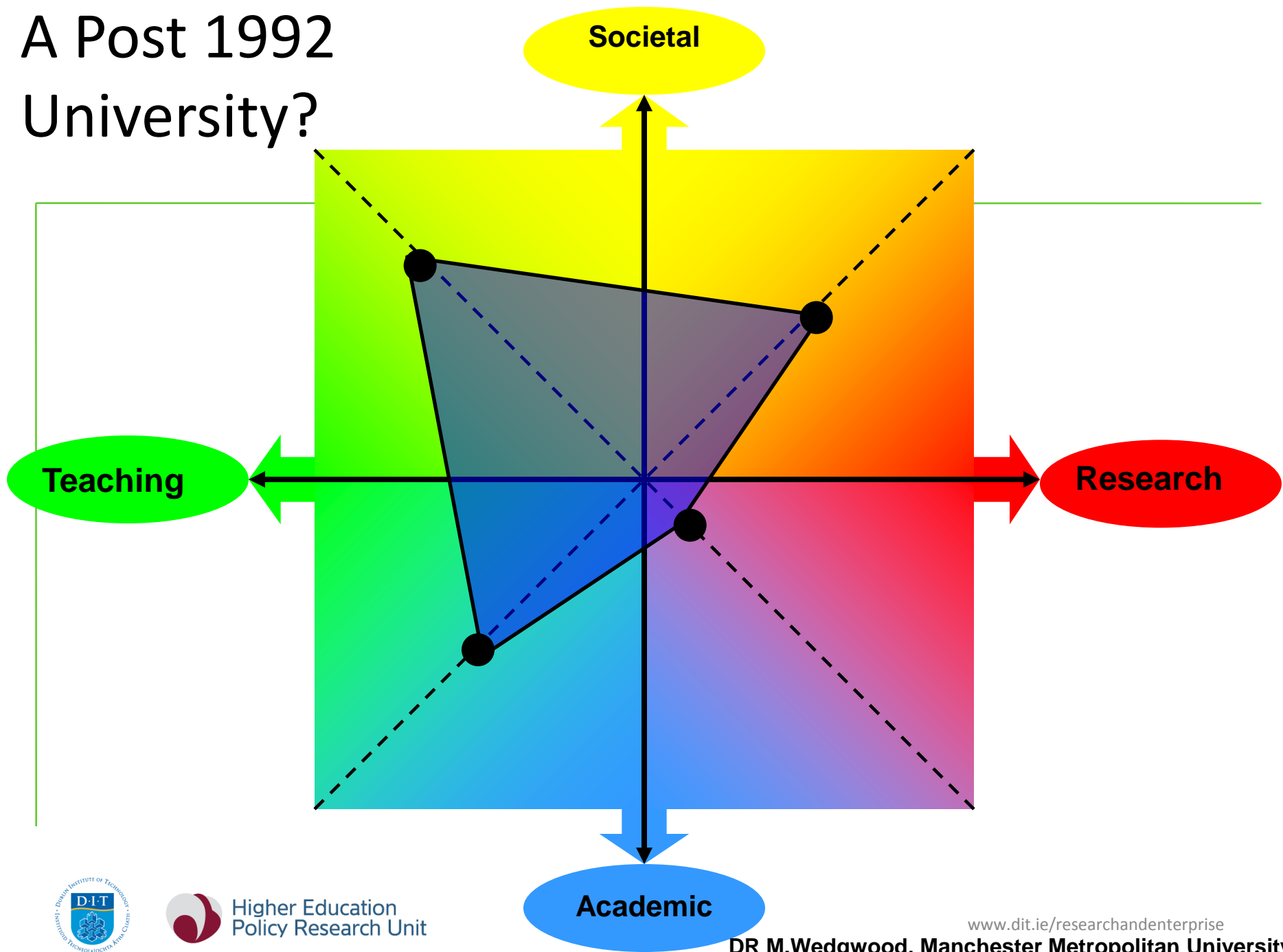
Some agendas/ expectations of HE



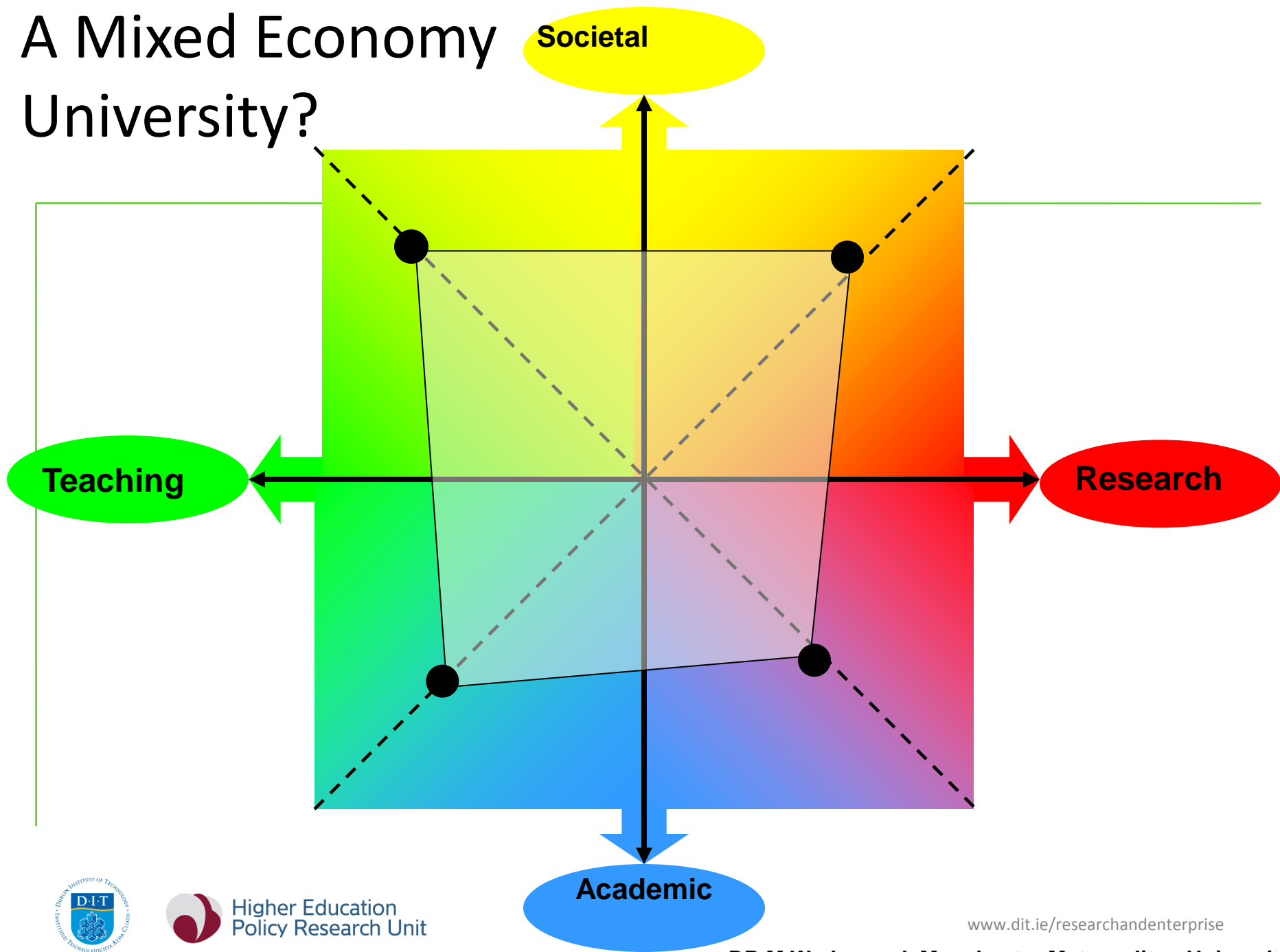
A UK Research Intensive University



A Post 1992 University?



A Mixed Economy University?



Selected Experiences

- *Commission for Higher Education (Norway, 2008)*
 - Institutions encouraged to merge to reduce number from 38 to 8-10;
 - Concept of ‘university’ includes many diverse types of institutions;
 - Build up ‘excellence wherever it occurs’.
- *Review of Australian Higher Education (2008)*
 - Recognize diverse set of high performing, globally-focused universities rather than concentrating funding in a small number of elite universities.
- *OECD Review of Tertiary Education – Finland (2009)*
 - Traditional differentiation weakening, [opening up] alternative models of engagement;
 - Intensify collaboration/merger around ‘HE cities’/regions across ‘binary’;
 - New entities to produce innovative trajectories of development, not merely rationalise.
- *Future Sustainability of the Dutch Higher Education System (2010)*
 - Strengthen research capability of research universities/universities of applied sciences;
 - Initiatives to address academic culture in universities of applied sciences;
 - Encourage new developments at the interface to facilitate flexibility/differentiation.

3. Measuring what Counts



Diversity of Scholarship

- Traditional view limited to a hierarchy of functions whereby basic research is the primary and essential form of scholarship;
- OECD *Frascati Manual*: basic, applied and experimental production.
- Boyer (1990) sought to expand understanding of scholarship/research to more realistically reflect breadth of the academic and civic mandate:
 - Scholarship of discovery: investigation which contributes to stock of human knowledge;
 - Scholarship of integration: give meaning to isolated facts & put them into perspective through synthesis;
 - Scholarship of application: applying knowledge through problem-solving;
 - Scholarship of teaching: not just transmitting but transforming and extending knowledge.

New Production of Knowledge

Trend from simple to complex knowledge reflected in rise of new disciplines, methodologies and ways of thinking (Gibbons et al, 1994; Nowotny, 2001) :

- Mode 1:
 - Disciplinary or 'curiosity-oriented' research;
 - Achieves accountability and quality control via peer-review process.
- Mode 2:
 - Collaborative and interdisciplinary work focused on useful application, with external partners including the wider community;
 - Achieves accountability and quality control via social accountability and reflexivity.

Grand Challenges

- ‘Grand Challenges’ are not bound by borders or discipline (National Academy of Sciences, 2004):
 - Research via bi-lateral, inter-regional and global networks;
 - Complex world problems dependent upon collaborative solutions;
 - Inter-locking innovation systems.
- Grand challenge problems are of economic and social importance, and include:
 - Environment/Climate, Energy, Human health and healthcare delivery, Food, Water, Security, and Urban infrastructure.

Why we Assess Research

- RAE used to measure value-for-money and public investment because research performance is widely regarded as being a major factor in economic performance:
 - Transition from inputs and outcomes to outputs and impacts.
- Metrics must be fit for purpose.
 - Improvement of research performance;
 - Improvement of teaching – via impact of research on teaching;
 - Allocation of resources;
 - Attraction of talent;
 - Promotion of innovation;
 - Engagement with business;
 - Driver of mission differentiation;
 - Concentration of research;
 - Etc.

Are We Measuring What Counts?

Indicator	Metric	Advantages	Disadvantages
Research Publications and Outputs	e.g. Total number of peer publications	Measures & Improves Activity	Bias in favour of bio-sciences and journal articles. Can't capture full range of publications/outputs across all disciplines. Ignores interdisciplinary work.
Quality and Scholarly Impact	e.g. Citations; High Impact Publications	Measures & Improves Quality	Assumes quantity = quality, and journal quality = article quality. Most effective in English-language. Bias against new ideas.
Human Capital	e.g. PhD completions; output/FTE or active researcher	Measures Timeliness of completion & Productivity	Differences between disciplines, and biased against mature learners and work-based research.
Investment	e.g. Income & donations	Predictor of performance	Difficult to get valid comparable data, and ignores differences across disciplines.
Economic and Social Benefit	e.g. Commercialised IP & employability	Link between R&DI	Time-lag and context
End-User Esteem	e.g. Appointments to high level organisations.	Measures reputation	Time-lag and difficult to verify

Unintended Consequences

- Assessment & rankings – like other performance-based funding – incentivise users because benefits are perceived to flow as a result;
- Are we incentivising the right behaviour or measuring what's easy?
 - Measuring quality through simple measurements of quantification distorts disciplinary differences and inter-disciplinarity;
 - Reliance on data that is easily measured encourages research that is more predictable;
 - Metrics measure past performance rather than potential;
 - Emphasis on global impact can undermine the importance of regionally relevant outcomes;
 - Narrow focus on bibliometrics and citations ignores contributions across the full innovation eco-system (Mode 1 rather than Mode 2);
 - Reinforces simplistic science-push view of innovation.

Concentration vs. Diversity of Excellence

Tendency to draw simplistic conclusions about economic performance based upon rankings/research assessment – with many countries concentrating funding around a few select universities or fields:

- But, undue concentration of resources can undermine institutional, regional and national diversity (HEPI, 2010; Lambert, 2003).
 - No evidence that more concentrated national systems generate higher citation impact than those in which article output is more evenly distributed (Moed, 2006);
 - Concentration/specialisation most relevant in only 4 disciplines of ‘big science’ (Moed, 2006).

‘Indeed concentration as a policy cannot be right, if it means funding less good research that happens to be conducted in a research intensive university, at the expense of better research in a university that is not marked out generally as research intensive’ (Adams and Gurney, 2010, HEPI).

Selective Experiences

- EU: *Assessing Europe's University-Based Research*
- UK: *Research Assessment Exercise*
 - Shift from RAE with peer-review to metrics-based – and back again;
 - Tied to resource allocation;
 - Social and Economic Impact indicators;
 - Reconsideration of use of citations.
- Australia: ERA (*Excellence in Research for Australia*)
 - Research output measured by 4 standard types: academic books, book chapters, refereed journal articles, conference papers;
 - Social and economic impact;
 - Tied to resource allocation.
- Netherlands: *Research Embedment and Performance Profile (REPP)*
 - Assessment tied to institutional mission.
 - Self-study element;
 - Not tied to funding.

4. Policy Challenges



The Imperative of Diversity

- Around the world, policymakers realise sustainable prosperity in the global economy requires more knowledgeable workers. We expect people to be ‘critical thinkers, effective communicators, ethical decision-makers and effective team members’ – to work in jobs we don’t yet know about (IHEP, 2010);
- Policymakers are looking afresh systems/institutional diversity to meet the roles/tasks going beyond traditional functions of teaching and research;

But:

- ‘Institutional diversity will thrive only if both the system of regulation and funding as well as the values which underpin institutional development do not favour a particular profile or particular dimensions of institutional activity over others’ (Reichart, 2009, p8).

Drivers of Diversity

- **Governance** (Reichart, 2009)
 - Formal binary is not necessarily more able to ensure diversity;
 - Reward system and public/policy values should support wider range of institutional missions – and research activity and outputs;
- **Competition** – for students, staff, socio-economic changes, reputation
 - High levels of autonomy or inter-institution competition do not encourage diversity if there is insufficient funding;
- **Reward structures**
 - Financial reduction – forcing definition of institutional niches
 - ‘Underfunded institutions will tend to scrounge for funds no matter where they find them’ and ignore institutional identity and mission (p155);
- **Policy** needs to take into account ‘whole array’ of actions to be effective – including parity of esteem.

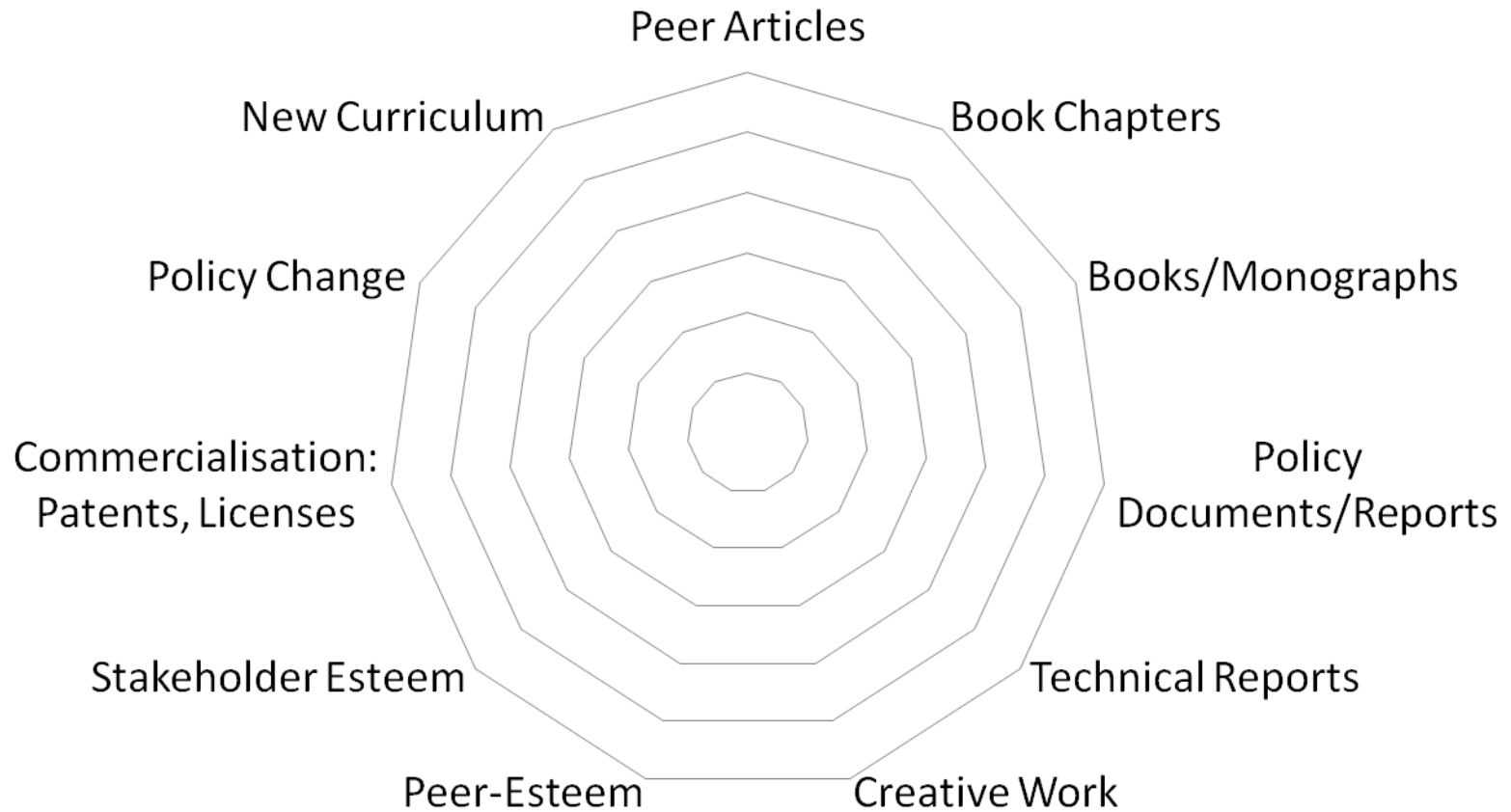
Diversity of Funding/Reward options

- Institutional grants on the basis of some input or output indicators, which may act as strong incentives for institutional behaviour;
- Special/additional development grants for specific purposes or projects, e.g. widening participation, introducing new learning technologies, particular reforms;
- Competitive research grants distributed after open calls for projects – across full spectrum of activity;
- Scientific infrastructure resources granted ad hoc or competitively;
- Targeted funding to build up capacity/capability in priority/mission critical fields.

Institutional Differentiation



Diverse Research Output/Impact



Policy challenges

- How can Ireland create a dynamic HE system where institutions can change and grow responsibly in response to external stimuli? What university models and designations provide the best opportunity to be globally competitive – while ensuring parity of esteem?
- What is the best way to ensure the diversity of research/knowledge perspectives across the innovation eco-system is supported? What will happen to areas of human knowledge that are not commercially viable – and what impact (if any) will this have on society?
- What kinds of incentives should be provided? What broad framework for accountability should be developed? How important is a policy co-ordinating and buffer agency dedicated to HE?

To summarise

- In periods of crisis, tendency to use simple controls to drive HE:
 - Government steerage
 - Performance measurements
- Lesson of rankings is that measuring the wrong things can produce perverse and unintended consequences:
 - Pursuit of ‘world class’ is skewing policy and institutional priorities:
 - Creating a single definition of institutional excellence;
 - Focusing on narrow definition of research and its impacts.
 - At the same time, too much focus on ‘real economic value of research outputs’ can undermine other contributions to society and innovation.
- HE fulfils wide range of social, cultural and economic roles. Using incentives cleverly can encourage a diverse range of universities and scholarly outputs that can position and sustain Ireland globally.

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<http://www.oecd.org/edu/imhe/rankings>



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