

Criteria for Technological University Designation

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'Policy needs to protect and enhance diversity, accommodate the ambitions of institutions, and support the national imperative for advanced levels of performance' – Hunt report, p. 97.

'... institutes of technology currently provide the overwhelming majority of Level 6 and 7 courses; they have an important role in key disciplines such as science and technology; and they enroll a very diverse student base. Any loss of this mission would be detrimental to the breadth of Irish higher education provision and would not serve our longer-term societal needs' - Hunt report, p. 102

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Criteria for Technological University Designation

I have been asked to suggest possible benchmarks for the designation of a Technological University in Ireland. The first part of this report sets out considerations that have framed the proposed benchmarks for designation as a Technological University. The final section, the Appendix, list those benchmarks.

1. Process in relation to the Technological University (TU) designation

The proposed two stage process

A threshold issue that needs to be considered is where these criteria will fit into the processes of policy and planning.

On page 104 the Hunt report provides for a two-stage process in relation to any application for TU designation. The first stage entails an ‘independent and expert’ panel that ‘would assess the application in terms of institutional performance and in terms of the wider system implications if the application were approved’. The second stage consists of ‘international experts’ who would assess whether the institution’s ‘performance... meets the standards of a technological university’. This raises the question of where and how the criteria for designation as a TU (i.e. the matter that is the focus of the present report) will be interpolated into the process. The question of process goes to the effectiveness of the criteria, and needs to be addressed here.

The first stage as described by Hunt does not preclude the introduction of criteria on the basis of the assessment of quality or performance. However, a first stage evaluation on that basis was not clearly specified in the Hunt report, and there is a risk that the assessment in relation to the interests of existing providers would cut across an objective evaluation in relation to the criteria for TU designation. Bluntly, the danger is that the politics of the application, being foregrounded at this point in the process, would contaminate if not overwhelm an objective assessment based on the criteria. Any consortia should be allowed to submit a proposal under the criteria and be evaluated accordingly. Its quality should be the consideration that matters. It should not have to clear a political hurdle before being heard on the merits. There is no need to address the questions of planning and duplication unless it is certain that there is a potential TU in the offing. Government should have all the facts at its disposal before making system ordering decisions. It would seem better to clearly separate these two elements (objective evaluation based on the criteria, and impact on existing providers) into distinct parts of the overall process.

As designed by Hunt the second stage might appear to constitute a more clear-cut opportunity to introduce an objective evaluation based on the criteria for designation. However, this exercise is fundamentally one of international benchmarking and international experts will be motivated primarily by what they consider to be international standards, not criteria developed in Ireland. At best, they would refer to the nationally-devised criteria, but understand the meaning of concepts such as ‘a PhD distinctive to the TUs’ in terms of their own international experience and values.

In sum, the above considerations suggest it is necessary to establish a *national* process that assesses all applications *objectively* in relation to the criteria for designation as a TU. In the first instance this evaluation would be separate from other considerations such as those relating to system organization and impact on other institutions. One solution to the conundrum might be to move some of the first stage Hunt criteria into the second stage, or even create three stages (threshold national judgment of merits according to the criteria, planning considerations, international standard).

The role of metrics

The brief for the present exercise specifies that ‘Where possible, the criteria should detail benchmarks against which evidence of advanced performance, improving performance and capacity in the areas outlined can be clearly and transparently assessed’. This raises the question of the role of numerical metrics within the group of potential benchmarks.

Uniform metrics serve more than one useful purpose. First, they side-step the need for expert judgments, which are complex, and also can be expensive to achieve: metrics can be administered at a more junior level. Second, they are more readily defended than expert judgments, especially in public. Third, they can provide an effective signal of the mission or orientation of institutions of higher education. Fourth, they serve as a strong driver of behaviour. Against that, more than one difficulty attends the use of metrics. In a higher education system local circumstances can vary markedly and in some instances different levels of benchmark, nuanced for local situations, might be more appropriate. Second, because numerical metrics readily drive behaviours there is a danger of unintended and unwelcome consequences. For example in relation to the TUs, if a numerical target that was both uniform and well in advance of present levels was set concerning the desired level of teaching staff with research degrees, this would be a strong incentive to run down the proportion of staff teaching below NFQ levels 8-10. In other words the target would encourage TUs to vacate levels 6-7 even if those same TUs wanted to retain a strong presence at those levels, as the Hunt report also suggests.

The approach taken here is to devise benchmarks in most areas but to be selective and spare in relation to the use of numerical benchmarks. Those metrics that have been chosen are seen as central markers of a TU sector.

2. Overview

A TU sector must have regional, national and international standing. While a TU cannot be expected to emulate or mirror the existing Irish universities – in some respects its mission will be rather different – it must have sufficient standing to be fully accepted as a ‘university’, and it must enjoy a broad parity of esteem with the existing universities in that respect. The task of policy at this stage is to build a viable second university sector with these characteristics. It is difficult but not impossible to achieve this development. Existing precedents include the stronger HBOs in the Netherlands (though these have been overly restricted in the scope of their activities), and the second sectors in Germany and Finland. Fortunately, the existing ITs have been a successful sector – in certain respects such as local orientation,

inclusion of first generation families in higher education, and selected applied research functions, they are international standouts - and this provides a good starting point for developing institutions that are upgraded as required by policy.

Much depends on the clarity of mission definition and the extent to which this becomes embedded in policy, in the public mind and in institutional practices, while leaving the executive leaders of TUs as much freedom as possible to respond to changing circumstances and develop new initiatives. International examples show Ireland that it can be done but not exactly how to do it. When compared with Germany, a second university sector in Ireland, while equally focused on the needs of enterprises in general, would be less specifically shaped by the national manufacturing sector. Manufacturing is much larger in Germany than Ireland. Almost certainly, a UT sector in Ireland would be more oriented than its German counterpart to local communities and to research, reflecting the history and activities of the present ITs. The orientation to local communities would parallel that of the Dutch HBOs but it would move ahead of them on research. Because this kind of mission is already in part understood in Ireland, it should be possible to achieve it in such a way that a strong TU and a strong classical university can exist comfortably side-by-side in the same city. This is already the case in countries such as Germany and Australia.

The ultimate key to building TUs of quality is not scale per se. The growth of scale is especially helpful in relation to administrative functions. Scale is a necessary condition. But it is not a sufficient condition. The key is to lift capacity and performance. A TU sector must be better than present ITs in crucial ways, not just bigger. It must be lifted and modernized to meet the challenges of the regional, national and global knowledge economies. Thus the formation of clusters does not provide short cuts to TU status, though they offer other potentials to public policy, for example through the evolution of a regional division of labour between higher education sectors, and by improving student throughput between sectors.

A note on the scope of the new TU sector

It is envisaged that a TU sector would have the potential to eventually absorb most or all of the existing Institutes of Technology (ITs), providing that through scale building and capacity building, through autonomous development, and consolidation, those ITs are able to make the transition required. This scenario is not essential to the criteria – they could still operate if there were only a couple of TUs – but it is nevertheless important to think about the scope of the new sector at this stage, as decisions made now on the criteria and other matters will have long term system setting consequences. The alternate scenario to eventually absorbing all ITs into the TU sector, would be to sustain a small number of TUs next to a small number of ITs. This might appear to offer greater system diversity and flexibility, especially in relation to the maintenance of higher education in more sparsely populated parts of the country. Under a best case scenario it would work out well. However the pressure for upward ‘drift’ by the remaining ITs would be very difficult to resist, as the more likely case would be to create a two tier sector higher education sector, in which some regions and some institutions were disadvantaged relative to others. The remaining institutes would be too small a sector to secure sufficient status as ITs. (Under the worst case scenario there might be a three tier sector, if the TUs are inhibited from achieving full parity of esteem with the orthodox universities). If the status of the

remaining ITs was diminished, this would likewise diminish the prospects of their graduates, and the institutions would face a continuing erosion of standing and the flight of both potential students and actual staff. This is in no-one's interests. This danger suggests that the best long term solution would be to establish a pathway that all existing ITs can go down, and to support them in this – while at the same time recognizing that it may take some time before all ITs are elevated to TU status or become consolidated with existing TUs.

3. Mission of a Technological University

'Technological'

The term 'Technological' should be understood as embracing a larger set of activities than those related to applied science alone. 'Technology' can be understood as knowledge in use, not just science or engineering in use. In fact, in most cases the majority of TU programs would not be in science-based areas, though industrial applications of science and engineering would be a crucial part of the TU mix.

General statement of mission

In general, following the Hunt report, the TUs would augment the mission of the existing ITs, and build additional functions on top, rather than jettisoning that original mission. In this report it is envisaged that a TU would be an institution with a clear and strong presence across all of NFQ levels 6-10. The additional mission functions of TUs, as distinct from the present mission of ITs, would be an expansion of teaching at levels 9-10, a corresponding improvement of capacity in both upper level occupational training and applied research, the thickening of networking with industry and community organizations in training and research, and an expanded international orientation and portfolio of international activity.

In relation to research and research training, TUs would be research informed, and research active in selected areas, rather than being research-intensive institutions across the full range of their activity. Research capacity would be built progressively with more attention to depth than breadth, at least in the early years.

Graduates from a TU would be professionally ready and be distinguished by their capacity in the practical uses of knowledge in the workplace, in continued learning, and in communication and enterprise. They would be prepared for working anywhere - locally, elsewhere in Ireland, and beyond the nation's shores.

Active across Levels 6-10

The commitment to a substantial presence across levels 6-10 provides the strongest single element of mission definition and would be a hallmark of both the all round economic and social utility of TUs and their particular strength as institutions that are good at facilitating pathways and articulation between levels of higher education. Sustaining a comprehensive mission across levels 6-10 is crucial. If ITs remain overwhelmingly focused on levels 6-8 they cannot become TUs. If TUs begin to vacate levels 6-8 they weaken their distinctive mission, there is academic drift and the TU sector begins to self-destruct, reducing the diversity of higher education.

There are significant international examples of an institution of 6-10 form. For example Victoria University and RMIT university in my own city of Melbourne in Australia cover the same levels. RMIT University also has a distinctively vocational mission across the university, and it emphasizes applied research—as do all of the former institutes of technology that were upgraded to university status in 1988-1990.

Local community and enterprise

TUs would maintain and augment the strong commitment to local communities and locally-based occupations, industries and employers that they inherit from their history as ITs. The local community and enterprise orientation would distinguish the TUs from classical universities, which pursue a portfolio of locally based activity, but for whom it is not as large an element of the mission. Like the ITs the TUs would stand or fall on their capacity to meet local needs. TUs would sometimes move ahead of industry and community needs by shaping them, i.e. supply could lead demand. But supply would not move too far out from demand: when innovating the objective would be to secure a genuine nexus between supply and demand as soon as possible.

4. Institutional Profile (scale, level and breadth of provision)

A TU must be large enough to fulfill all of its roles and to sustain a strong presence within higher education in Ireland. For example, it will need to have the scale capacity to compete meaningfully with the existing universities for funding, in those areas where responsibilities or activities are overlapping or equivalent.

Scale

The Hunt report notes a UK threshold of 4000 FTE with 3000 FTE at degree level. Given the size of the existing universities together with the range of TU functions, this would seem too small for a TU. A size of at least 10,000 students would seem closer to the mark. Once Level 6-7 enrolments are taken out of a TU of 10,000 that would leave an institution little or no bigger than the smallest existing university. Student numbers, rather than FTE, are relevant here given the Hunt report's argument about enhancing the element of equivalence between full-time and part-time students. But exactly where a size threshold should fall will always be debatable and it would be wise not to be prescriptive or rigid in this matter. Population density varies across the country, future population size cannot be known with precision, and all TU benchmarks must be able to stand the tests of time and universal applicability across the country. In addition, any benchmarks in relation to scale are affected by the growth of non-standard enrolments and international student numbers, which are both difficult to forecast, especially the latter.

Levels

As its presence at Levels 9-10 would be a key marker of the TU one important aspect of the criteria is the required commitment to Levels 9-10, both in total and also distinguishing taught Level 9, research Level 9 and the PhD at Level 10. It is suggested that the benchmarks should prescribe a minimum level of commitment to Levels 9-10 as a proportion of total student enrolments, and that a TU would be required to have in place a plan to increase that proportion over time.

Level 9 taught programs offering Masters and Post-Grad Dip qualifications offer the TU an important avenue of growth, both consistent with an upgrading of the IT role in occupational training and professional development, and differentiating the TU from ITs. Level 9 Masters programs also offer an important avenue for growth of international education, given the global market in English language programs in business studies, engineering and technologies, health occupations and other areas. (The PhD is discussed in fuller detail below under Research).

Non traditional programs

As noted by the Hunt report (p. 105), a key part of the emphasis on local engagement would be the further development of the inherited IT roles in adult education, occupational education and industry upskilling, ranging from programs developed in response to local under-employment to blended work/study learning and continuing professional education at the highest level. Some work-related programs will be especially strong in e-learning activities. The practical orientation of the TUs to adult and occupational education from basic to advanced would make them not just useful in the local environment but increasingly attractive to international students. It is suggested below that the criteria include a numerical indicator in relation to proportion of 'non-traditional' work-related enrolments in the institution.

However, it would be unwise to attempt to prescribe a minimum proportion of enrolments located in e-learning programs. Given the evolution of the usages of information and communications technologies in both education and daily use at work and in the community, we would normally expect all occupationally-based programs to provide some e-learning competences. In addition, most e-learning occurs in mixed mode programs where patterns of use are constantly changing and boundaries and weightings are difficult to identify for the purposes of regulation.

Access from Further Education

It is important that a TU maintains an effective interface with Further Education (FE), as the Hunt report noted (p. 105). There should be well-established throughput of students and established institution-to-institution cooperation. At the same time it would be unwise to prescribe a numerical benchmark such as a minimum percentage of student enrolments to come from FE. The provision of FE is not evenly spread across the country, tending to concentrate in the regions of Dublin and Cork. Likewise it would be unwise to prescribe a minimum proportion of entry subject to recognition of prior learning (RPL) arrangements, which are specific to location and field of study. The role of the criteria should be limited to an expectation that the TU would sustain developed systems for administering RPL in occupationally-related programs.

5. International

The Hunt report saw it is mandatory that a TU develop 'international collaborations with institution with similar mission – collaborative projects, staff / student exchanges, etc.' (p. 105). It could be expected that in the longer term a TU would develop more substantial forms of collaboration such as joint programs of study in two or more partner countries, programs with an international work experience component, etc. More generally, the TU ought to see itself as operating on a European

and global stage, as well as in relation to local and national markets. Its qualifications should be internationally portable and internationally benchmarked.

Fee-paying international students provide an important means of both connecting to the larger global environment and diversifying income sources. A TU should educate significant numbers of both non-EU students (paying full cost fees) and EU students.

6. Teaching and curriculum development

A TU could be expected to develop its own curriculum, in consultation with professional and occupational groups, business and industry organizations, and individual employers as appropriate. The involvement of business in curriculum matters would be a characteristic strength of the TU sector.

Normally teaching and learning programs would be underpinned by full engagement with scholarship in the field, and would be research-informed. It would be unrealistic and inappropriate to expect all teaching to be underpinned by an active research role. Despite rhetorical references to the teaching-research nexus in universities, this condition would not be satisfied by any university in the world.

7. Research

Strategy for growing research

One strength of the Irish model of TU would be its applied research mission, which would be joined as appropriate to high end professional and occupational training, and underpin relations with some local, national and global enterprises. The objective of most TU research activity would be to facilitate knowledge transfer and support knowledge intensive production; within the framework of the national innovation strategy and the national framework for PhD development. In the first instance the approach to research in the TU would be deep rather than broad. To spread research activity and PhD training across the full range of areas as quickly as possible would be to risk compromising both the effectiveness of the research and national PhD standards. It is especially important to ensure that PhD training and research activity grow together and do not become decoupled – PhD training not underpinned by staff research capacity would lead to poor supervision and this would quickly become apparent, undermining the reputation of the TU offshore and within Ireland. It would also undermine the general reputation of university research in Ireland.

The best strategy is therefore to build a permanent ongoing research capacity of quality on a lasting basis through an incremental progression, field by field. The threshold requirement for designation as a TU would be the existence of such a research capacity, capable of supporting research programs and project work and PhD training, in at least *two fields* not closely related to each other. As a number of the present ITs have the delegated authority to award PhDs in more than one field, such an approach does not set a high bar. However, a designated TU would be expected to extend the research role to a larger number of fields over time. Often, TUs would utilize collaborative arrangements to achieve this objective—and no doubt

collaboration (which is a central function in research) would often continue once capacity was fully established—but the medium term objective should be to move out of dependency mode and into full stand-alone research capacity, more so given that the TU will have a different research mission to that of the existing universities.

The Hunt report (p. 105) stated that in most cases PhDs in the TU should be delivered on a ‘structured collaborative basis’ with universities. However, while it is essential to work within the national framework for PhD study, caution is advised in interpreting the approach suggested by the Hunt report. Care should be taken to avoid a supplicant model of research that would persist into the future and stymie parity of esteem. Sustaining an autonomous effort and the capacity to take initiatives is all-important in research. If dependency is prolonged beyond the minimum necessary time this would slow the forward movement of research in the TU, weaken its confidence to take initiatives, and compromise direct relations between TU research and its users. It would also be a drain on the resources of the sponsoring university.

Applied and fundamental research

While the research mission of the TU would be applied in focus and much of it directly driven by client relations, this is not to preclude the potential for some fundamental research especially in domains adjacent to the applied research work. In research policy and management care hard and fast definitions and boundaries should be avoided, as fields of knowledge are complex and constantly changing, and in many fields there is a continual interplay between basic and applied work. Following from this, while it is highly desirable to develop a model of PhD training distinctive to the TU, emphasizing applications and work with industry, this should not preclude more orthodox PhD study. Regardless of the design of the PhD it is essential that the TU PhD would be fully credible internationally and would enjoy parity of esteem with Ireland’s university PhDs, including an equivalent level of resources. TU PhDs should have good prospects of attracting PRTL funding.

8. Staff capacity and staff development

A core issue in TU development is the need to lift IT staff capabilities and install an organizational culture of ongoing improvement in human capabilities. The benchmarks for TU designation need to both establish a starting position and lock in the essential process of continuous staff development. This is equally important among both teaching staff and administrative and servicing staff. It is especially crucial for those with management responsibilities (see below).

Staff sharing and exchange with enterprises

There are no short-cuts to lifting staff capabilities, but as noted in the Hunt report (p. 105), teaching staff exchange with business and industry, including the involvement of industry employees in teaching programs, can strengthen the distinctive TU mission and augment the work readiness of graduates. In many program areas this kind of adjunct teaching constitutes an essential component of the TU mission.

Staff qualifications

The question of minimum teaching staff qualifications for benchmarking purposes is difficult because of the heterogeneous character of the TU. It would be unrealistic and arguably unnecessary to invest, at an early stage of TU development, major resources for upgrading the qualifications of all staff teaching at Level 6. The more immediate priority is to lift capacity in the growth areas of the TU's profile such as levels 9-10 teaching and associated research. But care must be taken to avoid giving TUs an incentive to vacate Level 6; nor should all the focus fall on modernizing staff working at Levels 7-10 or 8-10 without regard for the professional development of other staff. Over time institutions should be expected to complete the transition from craft based approaches to professional teaching, and this would strengthen student transition and curriculum integration between levels. It is suggested that staff qualification benchmarks cover all staff but distinguish between goals related to the staff as a whole and goals related to staff servicing students as Levels 7 and above. Staff servicing Level 10 are a special category requiring a high level of PhD intensity.

A further issue related to the benchmarks is the fact that in some program fields, such as accounting or architecture, the terminal degree is not the PhD but the appropriate professional qualification. As professional preparation is at the heart of the TU mission care should be taken to avoid the creation of incentives to replace such professionally qualified staff with staff holding academic research qualifications.

Terms of staff contracts

Policy will need to address anomalies posed by hours based employment contracts, which lack equivalence with university employment frameworks in Ireland and elsewhere. For example these contracts – which reflect a supervised notion of sub-professional work rather than a transparent performance-related approach in which professionals function in an autonomous and self-responsible manner - make no provision for such summer activity as curriculum development and research. The resolution of these issues is outside the framework of the present report, except to suggest that a TU should be moving in the direction of output-related management.

9. Leadership, management and governance

Governing Councils

As suggested in the Hunt report the TU's governing council should include representatives of enterprises and also occupations, professions and local communities, consistent with its mission.

Self-awarding powers and freedom to collaborate

Throughout the English-speaking world, with a small number of exceptions universities are self-accrediting institutions. They schedule and award their own qualifications. If the TU did not hold the power to award its own qualifications without reference to another institution or process, the lack of parity of esteem with other Irish universities and with foreign universities would be blatant. This would undermine the claim of the TU to be understood as a university, weaken the standing of its programs and qualifications, handicap it in its effort to raise private income, and undermine the standing and employability of its graduates. If an institution is sufficiently advanced there are few risks in granting it self-awarding powers. The

involvement of enterprises in course development and graduate employment, and the peer-reviewed character of research and doctoral training, help to define standards and provide important ongoing checks. The system of quality assurance provides the final sign-off on the quality of TU qualifications at Levels 6-10. By the same token, the TU must be ready to exercise the functions of a self-awarding university.

The TU would function differently to the existing ITs in relation to its freedom to develop programs and enter into collaborative or joint program arrangements with other institutions inside and outside the country. Consider for example the existing HETAC policy on collaborative provision. This covers any initiative undertaken by the IT sector for joint programmes domestically or internationally. It involves a separate accreditation process for each such programme, requiring HETAC approval of institutional policy on collaborative provision, approval of a 'consortium agreement' between partners, and an elaborate submission document at the programme level culminating in site visits by a panel. Under the University Act, the university sector is not bound by this slow and elaborate procedure. This must slow responsiveness and inhibit the capacity for innovation. A similar freedom should be provided to the TU. A high element of public trust in the institution is one of the hallmarks of a university. This must be extended to the TU in Ireland, and be seen nationally and internationally to have been so extended, otherwise there is no parity of esteem between orthodox universities and TUs and the TU designation is emptied of meaning.

Executive leadership

Perhaps the ultimate key to the TU is the quality of its broader executive leadership and the professionalism of the systems of leadership, internal communication and feedback mechanisms, strategy making and planning, coordination, financial efficiency, and entrepreneurship in relation to opportunity.

In addition to the points about efficient resource management, engagement and strategic vision noted in the Hunt report (p. 104), another important need is the capacity to coordinate between the different fields of study, levels of program and the formerly separated sites brought together in the process of coordination. Bringing together various divergent organizational systems and cultures is challenging and can take a long time. But it is a crucial step and one sign of whether the prospective TU is ready to accept that designation. All parts of the TU must follow the strategic priorities of the institution and operate within its systems of performance management and accountability, or diseconomies and opportunity costs will result.

There will be a growing need for leaders and managers of the TU, across most of its programs and administrative divisions, to have the capacity to work internationally, often in new cultural contexts.

It is impossible to prescribe numerical benchmarks in these areas. Assessment of the quality of leadership and management is a crucial judgment call made at the point of designation. To be granted the TU designation the institution must not only be competent on an ongoing basis, it must be capable of change in response to new needs and pressures: an institution that renews itself more or less continually.

Business Plans

The executive leadership and central management of the institution must be fully equipped to operate as a functioning business. This requirement applies not only to areas of entrepreneurial activity themselves. For example, prospective TUs should frame their intended developmental trajectory in the form of a Business Plan.

10. Funding and entrepreneurship

Overtime all universities throughout the world can be expected to augment their capacities in enterprise and entrepreneurship and to raise more funds from business sources and in many cases, student markets including international markets.

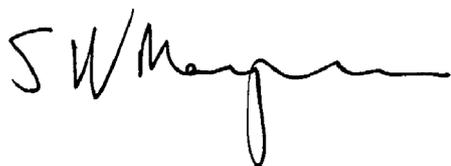
It is not appropriate to proscribe a proportion of the budget to be raised from enterprises. It should be emphasized that in all countries it has proven difficult to generate funding from business and industry even for client-specific programs and projects. For example in the United States, in research funding only about 6 per cent of total income is generated from industry sources, despite the presence of large communications, biomedical and pharmaceutical firms on many campuses.

11. Quality assurance

The quality assurance process for the TU would be the same as for other universities. It would combine self-regulation with transparent public accountability. It would combine external processes and internal processes, and both international and national referencing. Compared to the TIs the TU would make greater use of international benchmarking.

The merger of the Higher Education and Training Awards Council with the Irish Universities Quality Board has implications for a future TU sector. Given that the combined body might be inhibited in using quality assurance to rigorously scrutinize its own accreditation decisions, it may be necessary for a new element of external quality assurance to be introduced into the picture. However, as this matter concerns all higher education institutions and not just TUs it is not further pursued here.

Respectfully submitted

A handwritten signature in black ink, appearing to read 'S W Marginson', with a long horizontal flourish extending to the right.

Simon Marginson
28 February 2011

Appendix: Benchmarks for designation as a Technological University

An applicant institution will be specifically designated as a Technological University if it satisfies the following benchmarks, together with the legal and policy requirements of universities in Ireland:

Mission of a Technological University

- Extensive and high quality program provision and teaching/learning activity across the whole of NFQ levels 6-10, as indicated by enrolment data;
- Intensive and broad-based links with local occupations, employers and community organizations, *together with* a forward plan for advancing and deepening the local orientation of the institution. A strong local orientation should be pursued regardless of the number and spread of individual sites;
- A professional office within the institution with a specialized focus on building enterprise and community links, working in conjunction with other units;
- Graduates that are professionally ready, with a well-developed capacity to use knowledge in the workplace, and prepared for working anywhere in the world commensurate with their training.

Institutional Profile (scale, level and breadth of provision)

- An institution large enough to be comparable with existing universities in Ireland;
- At least 5 per cent of all higher education (HE level 6-10) students enrolled at Levels 9-10, and a clear plan in place to lift that proportion to 10 per cent within five years, and to 15 per cent in ten years;
- At least 15 per cent of all student enrolled in adult education, occupational education and industry upskilling, including part-time work-related programs and nested work-study programs, with a plan to reach 20 per cent within five years;
- Established procedures in place for facilitating and managing entry on the basis of recognition of prior learning (RPL) in appropriate fields of study;
- Established procedures in place for facilitating and managing entry of student from Further education, together with a plan to enhance the number of students using this route of entry.

International

- Developed international collaborations such as joint projects, student and staff exchange, and combined provision of programs;
- A plan in place for enhancement of international activities over the next five years, especially those related to teaching and learning, supported by a specialist and professional international office within the institution;

- The plan should provide for at least 5 per cent of all students as non-EU international students within three years, with a plan to raise this to at least 10 per cent or more by 2020. The plan to grow international student numbers should include identification of target offshore markets and active development of a recruitment strategy;
- Non-EU students should be balanced by a significant number of EU students.

Teaching and curriculum development

- Curricula that are developed in close consultation with business, professional and occupational organizations;
- Teaching programs that are research informed and underpinned by scholarship that reflects a full knowledge of the academic and occupational
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Research

- A research strategy that foregrounds the applied research mission, links to enterprises and the contribution of the TU to innovation and knowledge transfer. A TU would have a distinctive research mission, oriented to the national innovation strategy and also different to that of the existing universities. This would be marked by a close connection to industry and enterprise, and to other research units with complementary orientation, inside and outside Ireland; and an especially strong emphasis on the incubation of product development and on knowledge transfer;
- Existing capacity in research adequate to support ongoing programs, projects and doctoral training in at least two fields of knowledge not closely related to each other, with the research and PhD training of international standard. Capacity would be assessed using orthodox research indicators including number of staff with PhD qualifications; research equipment, staffing and infrastructure; research partnerships, teams and collaborations; income for research purposes; research publications and other outputs;
- A plan to extend research and doctoral activity to a third field within five years, subject to the requirements of the national framework for PhD study. In this process of development, it often would be appropriate for the TU to work in partnership with existing research providers where missions are compatible. Though such collaborations might continue after research capacity is established, the clear objective of developmental partnerships should be to create stand-alone TU research capacity in the medium term—more so given that the research mission of the TU would be expected to be distinct from that of the present universities;
- Close integration of research capacity, including staff supervision, and doctoral training;
- The development of joint research activities with enterprises, some based on shared funding;
- The development of a distinctive model of UT PhD, within the framework of the national approach to structured PhD programs. This model would emphasize research applications, knowledge transfer and relations with enterprises, including, as appropriate, jointly supervised UT/industry PhDs nested doctoral training in enterprise settings. This would not preclude more

orthodox forms of the PhD in the TUs but the main orientations would be to enterprises and to innovation-related networks in Ireland and abroad.

Staff capacity and staff development

- An institution-wide strategy for staff development that covers all teaching and other staff, including managers, and is designed to identify, develop and enhance staff competences; linked to a culture of transparent performance supported by management within the institution; and coordinated and resourced by a professional human resource management office;
- A plan to develop a more output-based approach to the management of working conditions and staff employment;
- Involvement of personnel seconded from and/or visiting from enterprises, occupations and professions in TU teaching programs at all levels;
- A majority of all staff teaching in each area of professional or occupational training to have qualified work experience in that field;
- At least 10 per cent of all teaching staff at all levels holding a PhD qualification, and at least 40 per cent of all teaching staff holding a Masters or doctoral degree or appropriate terminal professional qualification;
- At least 50 per cent of all staff teaching at levels 7-10 to be holders of a Masters or doctoral degree or appropriate terminal professional qualification;
- In teaching fields provided at level 10, at least one third of all staff holding a PhD degree and firm plans, as evidenced by the doctoral enrolments of staff, to lift that proportion to 50 per cent within five years.

Leadership, management and governance

- An institution operating at levels 6-10 that can assume full awarding powers at all of these levels;
- A governing body that includes representatives of enterprises, occupations, professions and local communities;
- A record of effective collaboration and cooperative arrangements with other higher education institutions, and further education institutions, including contributions to cluster development as appropriate;
- An executive leadership and management with the capacities for strategic planning and priority setting, budgeting and autonomous financial management, talent management and augmentation, effective communication and relationship building in all constituencies including international constituencies, and the ongoing transformation, reform and renewal of the TU and its mission;
- An executive leadership and management that secures full coherence between the different parts of the TU (across both its sites and its programs), all of which should follow the strategic priorities of the institution and operate within its systems of performance management and accountability;
- A developmental plan for its future development as a TU that is framed in the form of a Business Plan with due attention to projected incomes, expenditures, strategic developmental trajectory, and risk management.

Funding and entrepreneurship

- A spirit of enterprise and entrepreneurship in the executive leadership and across all parts of the institution, including the capacity to generate funds from non traditional sources, together with professional development programs in the development of these capacities within the TU;
- Management capacity for managing enterprise activities and the development of consulting and fee-based programs;
- A growing proportion of funds for teaching and research that are sourced from business and the community.

Quality assurance

- Demonstrably robust quality assurance processes underpinning taught and research degrees, and relevant support services, and an excellent record in recent quality reviews;
- In internal processes of quality evaluation, the universal use of international benchmarking of programs at Levels 7-10;
- Strong processes for feedback from, and as appropriate evaluation by, enterprises, community organizations, partner institutions and students