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Evaluation of the New Technology Institutes initiative

Report to HEFCE by Universitas

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List of abbreviations

1 Executive summary

1. This summary reviews the evidence presented in the report against the given objectives of the evaluation, which are summarised in the sub-headings and are given in full in the next section. Proposals for a network of New Technology Institutes (NTIs) and University Innovation Centres (UICs) were announced in the Department of Trade and Industry White Paper of February 2001, *Opportunity for all in a world of change*.

2. The Government's stated aim was: 'to introduce NTIs in each region, to be established by consortia of higher education institutions, further education colleges and private businesses. The aim of the NTIs is to boost the supply of people with technician and higher level skills in ICT and other advanced technology, and to make available better advice and support to small businesses on the effective adoption of new technology and innovate business practices.

3. HEFCE invited bids for funding for NTIs in July 2001 (HEFCE 01/47). Eighteen NTIs were set up, with public funding of £10 million in 2002-03 and £15 million in 2004-05. The initiative was administered by HEFCE in conjunction with the Learning and Skills Council (LSC).

4. In 2004 HEFCE commissioned us (Universitas) to review the initiative, specifically to:

- evaluate the extent to which the initiative has met its aims and objectives
- evaluate how far the initiative has helped higher education institutions (HEIs) and further education colleges (FECs) to contribute to economic development.
- identify good practice and areas for development.

1.1 Has the NTI initiative met its overall aims and objectives?

5. The NTIs have not achieved the ambitious goals set out in the 2001 White Paper, for two principal reasons. Firstly, the goals were for the NTIs and the UICs working in harness. The UIC initiative, beyond the five UICs launched with the White Paper, has come to nothing. Secondly, the objectives of the NTIs had significantly altered by the time bids for funding were invited, so as to break the intended conjunction with UICs and weaken the NTIs' potential significance to HEIs' 'third stream' activities with business and the community. We surmise that the two initiatives were conceived independently in separate departments of state and joined together for presentation in the White Paper, but were not planned adequately in consultation with HEFCE. The origin of the funding accounts for the burdensome monitoring.

6. Against the objectives set in HEFCE's call for bids, the NTIs have been moderately successful. There were two quantified targets. The first related to students,

and we construe it to mean that the annual output of the NTIs collectively should be between 4,500 and 9,000 leavers awarded NVQ Level 3 or 4 qualifications. Our estimate is that the recruitment in the last year of the initiative (2004-05) may lead to an output of some 6,200 qualified leavers. However, the initiative provided only capital and the courses charged no more than standard fees (although often attracting additional public subsidy, such as European Social Fund, ESF, grants), the provision may not have increased the total of FE and HE student numbers. At best the capital enabled institutions to fill capacity for which there was recurrent funding available.

7. Nevertheless the accommodation and equipment funded through the initiative have made a significant contribution to the development of foundation degrees, to which NTI-related recruitment has been perhaps an eighth of the English total in 2004-05. That recruitment must be a much higher proportion of foundation degrees in information and communications technology (ICT) subjects – an achievement all the more significant, as the NTIs were launched at the moment of the downturn in demand for IT professionals and from students for places on IT courses.

8. The NTIs have also delivered training to significant numbers of students, represented by some 18,600 enrolments in 2004-05. These were mainly for short courses of less than one week, not leading to a Level 3 or 4 qualification, though some were accredited in other ways (for example, as bespoke ‘vendor qualifications’ by suppliers of computing software).

9. HEFCE’s widening participation agenda was added to the NTI initiative’s objectives at the bid stage. It may have received more attention because of the downturn in demand for IT professionals and related courses: NTIs have had to work harder to meet targets and use facilities. Achievements in widening participation can be seen in a number of areas. Firstly, widening participation is an integral part of most foundation degree programmes. Secondly, NTI facilities have been used for adult education, Level 1 and 2 programmes, beginners’ courses in IT, courses for adult returners and for specific groups for which ESF funds are available. Thirdly, by working with small and medium-sized enterprises (SMEs) to identify training needs, NTIs have attracted people working for firms not normally offering staff development. Fourthly, NTIs have enhanced access by locating facilities for learning away from established campuses, in settings more familiar to those not already within the ambit of further or higher education

10. The second quantified target was to provide services to some 900 SMEs a year in total. The monitoring reports have not asked how many SMEs have been provided services (however defined), and the statistics collected are too uncertain to assess this target. The NTIs have provided a considerable volume of short-term training not contributing directly to Level 3 or 4 qualifications, but meeting specific needs of employers. Other services have been limited. This is understandable. The initiative was not aimed at ‘technology transfer’ from the frontiers of knowledge in universities. Business-support services are not something for which either FECs or HEIs receive core recurrent funding, but something for which Government provides funding through other channels. NTIs have had a tougher job in leveraging funds for services to business, than in relation to educational provision.

11. Technologies other than ICT and their applications in the digital creative industries are not well represented in the NTIs. Again this is understandable. Incremental expansion of ICT infrastructure is affordable, manageable and low risk. The funds on offer were modest against the cost of a facility to support a 'new technology' for many areas of manufacturing. The geographical reach is also limited: most NTIs are working in a sub-region, say a county, leaving students and SMEs in most of England without any opportunity to benefit from the initiative.

1.2 Has the NTI initiative strengthened HEIs' and FECs' contribution to economic development?

12. We can give a positive evaluation. Nearly all the NTIs' activity has been focused on regional or sub-regional economic needs, developed by consortia of HEIs and FECs and in consultation with local LSCs and Regional Development Agencies (RDAs), sometimes also with SMEs. The way in which widening participation has been tackled has concentrated on improving the skills of people in work or seeking work, and much of the educational provision has been within the NVQ framework or for foundation degrees.

13. However, within HEFCE the initiative has not been managed by the Business and Community team and has not been well integrated with HEFCE's own initiatives to enhance HE's contribution to the economy and society. For example we have found very little conjunction between NTIs and activities supported by the second round of the Higher Education Innovation Fund (HEIF). One reason is probably the concentration, introduced at bid stage, on FE and the lower levels of HE provision. Particularly with the Government's priority of expanding HE in FECs, rather than in HEIs, the bulk of front-end delivery under the NTI initiative has been by FECs. But HEIF has been restricted to HEIs and only exceptionally have FECs been involved. In some NTIs the role of the university partner has been nominal, though necessary if the funding was to be secured and administered; and rarely did we find that NTI delivery was by staff based in the university's academic heartland. With hindsight, it might have been better for the NTI initiative to have been led from the FE side. But developing FDs and associated structures for quality assurance and credit transfer has engendered much learning by staff about, and accommodation to, the different worlds of HE and FE – which has enhanced the capacity of both to address flexibly and coherently the needs of the local economy and community.

1.3 What are current good practice and areas for future development?

14. Underlying this objective for our evaluation, and much in the initiative, is the assumption that the initiative would create 'institutes', substantive organisations with a continuing existence, additional and parallel to, though linked to, HEIs and FECs. Certainly this is the rhetoric of the 2001 White Paper. But £25 million for capital, spread across the whole of England, cannot buy that without leveraging in other private capital or public or private recurrent funds. In the taxonomy of 'initiatives' in FE and HE, the NTI one is another setting up partnerships or consortia for a limited purpose. For many successful bidders, the initiative was an opportunity to carry forward something that was already being done or was planned by the HE and FE partners, at the cost of repackaging to fit the criteria and of adopting a particular label.

15. Nearly every NTI is intermingled with other activities of the host institutions at the point of delivery. So what is 'good practice' of the NTI and what has been

developed by virtue of the initiative is hard to separate from pre-existing activity. Given the overlaps with existing activities and other initiatives, we have not observed 'good practice' in running an NTI. What we have observed is local adoptions and diffusion of practice known elsewhere, such as setting up learning units on industrial estates and in shopping centres. We have mentioned staff learning across the FE/HE boundary about quality assurance and credit transfer. We can add, for example, some HEIs tackling work-based learning for the first time.

16. It follows that we do not envisage that the NTIs, as a class, should be 'developed'. We do not think that the initiative should be continued with further earmarked central funding. We envisage that what has been achieved by each NTI will be carried forward in a way appropriate to local circumstances. For example, foundation degrees will continue to run with HEFCE funds for teaching; other forms of training may continue to attract funds from the LSC, RDA or ESF; connections between partners may contribute to Lifelong Learning Networks. We note, though, that the consultation on the third round of HEIF (HEFCE 2005/36) does not mention any involvement of the FE sector. If the scope of HEIF is not immutably 'higher education', HEFCE might encourage HEIs which have benefited from NTI funding to show in their HEIF plans how they intend to exploit and carry forward what was achieved or learnt through the NTI initiative.

2 Scope and methodology

17. HEFCE commissioned consultants Universitas in July 2004 to review the New Technology Institutes initiative over the 2004-05 academic year. The given objectives were:

- to evaluate the extent to which the NTI initiative has met its overall aims and objectives
- to evaluate the extent to which the NTI initiative has contributed, and can contribute, to the broader HEFCE strategic purpose of strengthening the contribution that HEIs and FECs make to economic development.
- to identify current potential good practice and areas for development.

18. The evaluation was undertaken by John Farrant (team leader), Tony Barton and Paul Temple. Our method was as follows:

- each of us took responsibility for dealings with six of the 18 NTIs (listed in Section xx below)
- we read HEIs' original bids for funding, and the first four six-monthly monitoring reports
- we spoke to each NTI Manager by telephone, to establish contact and improve general understanding of what the NTI was doing
- two of us visited an NTI (Tony Barton to Wessex, Paul Temple to Humber)
- John Farrant attended the meeting of the NTI Managers' Network in Leicester in February 2005
- we circulated a questionnaire (Appendix 3), to be completed by a telephone interview with the NTI managers (17 out of 18 achieved).

3 Launch of the NTI initiative

19. NTIs were announced in the DTI White Paper of February 2001, *Opportunity for all in a world of change* – significantly in Chapter 3 on ‘Building regional capacity’ for innovation, skills and R&D, as a means for narrowing disparities between regions. The White Paper does not precisely define or quantify the problem or problems to which NTIs were to be a solution. The key references in the White Paper are as follows:

(2.33) We will expand specialist ICT and other high tech learning programmes in our further and higher education system. Courses will be provided at technician and first and post-graduate degree levels and will reflect a high level of business input into the curriculum. We will investigate how business can help deliver new learning programmes. By 2004-05 we will be training up to 10,000 students a year on full-time and updating courses. There will be new technology institutes described further in Chapter 3.

(3.7) [The Government] will establish top class university innovation centres and new technology institutes in the regions to boost the levels of research and development, innovation and technology transfer and to provide the regions with the skills in ICT and high technology they need. The innovation centres and technology institutes will be closely linked to form a major network to encourage further development of business clusters and business incubators in the regions. They will create new dynamic hubs for growth.

(3.15) We will also take decisive action to boost the supply of high tech skills including multi-media and link this with the transfer of expertise to local small businesses. We will establish new technology institutes based on partnerships between universities, colleges and local business. They will provide specialist ICT and other high tech learning programmes and will work closely with local companies to ensure they have the know-how to apply advanced technology practices. They will also help to cascade skills and know-how to the wider community.

(3.16) The university innovation centres and technology institutes will form a major new network, based in every region, to boost the level of research and development, innovation and technology transfer and to provide regions with the skills in ICT and high technology they need.

(3.22) Our aim is to establish up to two new technology institutes in each region. They will involve universities working with local colleges and small groups of businesses. They will provide courses mainly at technician level but also including foundation, first and post graduate degree level. The institutes will bring together teaching and skills development with work to support the transfer of new technologies and business practices to companies. This will involve exchanges of staff between institutes, business work experience placements for students and training sessions delivered on site with companies. Universities and colleges, working in partnership with leading IT companies, will be invited to bid for funding for the new technology institutes.

20. It was the Department for Education and Skills (DfES), rather than HEFCE, which gained the funding, from Round 3 of the Government’s Capital Modernisation Fund, as one of three projects in its ‘improving ICT skills package’. The given purpose at Treasury level was: ‘To introduce NTIs in each region: to be established by consortia of higher education institutions, further education colleges, and private businesses. The aim of the NTIs is to boost the supply of people with technician and higher level skills in ICT and other advanced technology, and to make available better advice and support to small businesses on the effective adoption of new technology

and innovative business practices.’¹ The funding available was £25 million, being £10 million in 2002-03 and the balance in 2003-04. HEFCE, in association with the LSC, was to administer the funds. The funding for the five University Innovation Centres (UICs) announced at the same time as the White Paper was £30 million from DTI’s budget.

21. HEFCE issued an invitation to submit first-round bids in July 2001 (HEFCE Circular 47/01). The initiative’s objectives appear in three variants in paragraphs 3, 8 and 14 (see Appendix 1), reflecting the repetition in the White Paper as quoted above, but with significant variations. Firstly, the invitation to bid drops the White Paper’s reference to postgraduate degrees, and points to pathways to, rather than provision of, first degrees. Secondly, it explicitly introduces the objective of widening participation to HE, which is not on the face of it an aim of the White Paper, unless implicit in the reference to NTIs helping to cascade skills and know-how to the wider community (beyond SMEs). The invitation speaks of encouraging lifelong learning, by giving new opportunities for those in employment to update and extend their knowledge and skills (paragraph 8b), and adds the requirement that training should be designed to attract ‘non-traditional’ groups of students. Thirdly, the Treasury’s emphasis on small businesses (fewer than 50 staff) has been widened to small and medium-sized enterprises (with fewer than 250 staff).

22. Following a two-stage bidding process, the results of the competition were announced in May 2002. Eighteen grants were awarded (see Section xx): of these, 14 were in the range £1,200,000 to £1,375,000; the remaining four were £1,629,000, £1,700,000 (x2) and £2,400,000.

The announcement stated that:

(paragraph 3) NTIs will offer: high quality facilities for teaching ICT and advanced technology skills from NVQ Level 3 to foundation degree, for both full-time students and those in employment, and to create pathways to honours degrees; and advice and support to SMEs on the effective adoption of new technology and innovative business practices. Each NTI will be expected to train 250 to 500 students per year, and to provide services to 50 SMEs each year.

(paragraph 6) The first NTIs are expected to start operating from this autumn [2002], and all NTIs should be fully operational by 2004-05.

23. Because the funds were from the Capital Modernisation Fund, every six months HEFCE had to report to DfES (which presumably reported to Treasury) in far more detail far than for the DfES’s own grant to HEFCE. Progress has not therefore been monitored in HEIs’ annual monitoring statement to HEFCE, along with other larger but HEFCE-originated initiatives. Rather, NTI managers were sent detailed questionnaires every six months (covering the periods to the end of February and the end of July), sometimes with return dates before the end of the half-year for which data were required. Managers were asked to estimate how much time it took completing the questionnaires. The replies indicate that the reporting requirements were burdensome.

¹ http://www.hm-treasury.gov.uk/documents/public_spending_and_services/capital_modernisation_fund/pss_cmf_round3.cfm

4 Funded NTIs

24. Table 1 lists the NTIs receiving grant under this initiative. It shows the region, the title under which the NTI reported in February 2005, the abbreviated title used in this report, and the grant awarded.

Table 1 Funded New Technology Institutes

Region	NTI	Lead HEI	Abbreviated title	Grant (£)
East	Thames Gateway South Essex NTI	University of Essex	Essex	1,629,000
East	Suffolk Institute of Technology	University of East Anglia	Suffolk	1,200,000
East Midlands (nominally: in fact in East)	Dagenham NTI	Loughborough University	Dagenham	1,275,000
East Midlands	East Midlands NTI	De Montfort University	East Midlands	2,400,000
London	Kingston University NTI	Kingston University	Kingston	1,347,000
London	Thames Gateway London NTI	University of East London	East London	1,200,000
North-East	Tyne & Wear and Northumberland	University of Northumbria	Tyne	1,700,000
North-East	Tees Valley NTI	University of Teesside	Tees	1,200,000
North-West	Lancashire & Cumbria NTI	University of Central Lancashire	Lancs	1,360,000
North-West	Manchester New Technology Institute	Manchester Metropolitan University	Manchester	1,360,000
South-East	North Kent Thames Gateway NTI	University of Kent	Kent	1,700,000
South-East	Thames Valley NTI	University of Reading	Thames	1,200,000
South-West	The Centre for Advanced Practice in Information & Communications Technology	Bournemouth University	Bournemouth	1,360,000
South-West	Wessex & Wiltshire NTI	University of Bath	Wessex	1,200,000
West Midlands	Coventry University NTI	Coventry University	Coventry	1,275,000
West Midlands	Birmingham & Solihull NTI	University of Central England	Birmingham	1,275,000

Yorkshire and the Humber	East Yorkshire/Humber/ York and North Yorkshire NTI	University of Hull	Humber	1,200,000
Yorkshire and the Humber	West Yorkshire NTI Partnership	Leeds Metropolitan University	West Yorks	1,275,000

5 Wider context affecting NTIs

25. Several events and developments occurring concurrently with the preparation of bids for, and the set-up of, NTIs deserve early mention. They have together significantly affected the development of the NTIs.

5.1 The 'dot.com bubble'

26. The 'dot.com bubble' – the rapid expansion of new technology businesses – burst early in 2001, leading to sharp reductions in job opportunities and career expectations in the IT industry, and working quickly through to a downturn in applications for related courses in higher education. The figures from the Universities and Colleges Admissions Service (UCAS) for the subject group including most courses directly relating to IT are not continuous, because of the change in coding system. However, they indicate a falling away from the peak of applications, made around the turn of 2000 and 2001, for admission in 2001 (see Tables 2 and 3).

Table 2 SCAS (Standard Classification of Academic Subjects) group: Mathematical sciences and informatics, by preferred subject

	1998	1999	2000	2001
Applicants	27,830	31,921	35,265	39,842
Accepted applicants	26,890	29,997	32,158	35,711

Table 3 Joint Academic Coding System (JACS) group: Mathematical and computer sciences, by preferred subject

	2002	2003	2004
Applicants	34,136	30,532	26,255
Accepted applicants	31,571	28,871	25,571

27. We have not looked at statistics for part-time students in HEIs or for students at Levels 3 and 4 in FECs, but our understanding is that recruitment in ICT has been affected across the board.

5.2 Foundation degrees

28. A new higher education qualification, the foundation degree, was launched in February 2000, and courses admitted their first students in autumn 2001. A foundation degree must be developed through a partnership between educational institutions and employers. In most cases the educational institutions comprise both HEIs (for the power to award degrees and the opportunities to progress to an honours degree) and

FECs (for all or most of the course delivery). Five core features, taken together, make a foundation degree different from other qualifications and degrees:

- employer involvement
- the development of skills, understanding and knowledge
- application of skills in the workplace
- credit accumulation and transfer
- progression – within work and/or to an honours degree.

29. The Foundation Degree Task Force in its September 2004 report to Ministers (paragraph 1.14) defined the distinctiveness of the qualification as being in giving credit for learning through engagement with employers and in employment practice, in addition to learning through more conventional academic study. Neither sandwich degrees nor the Higher National Diplomas or Certificates have offered students academic credit for learning in a work environment.

30. Foundation degrees are designed both to widen and to increase participation. They have been HEFCE's main priority for the allocation of additional funded student numbers, mainly to or for FECs. The build up of student numbers has been slower than the Government hoped for: enrolments stood at 24,000 in late 2003-04. The Foundation Degree Task Force predicted in its September 2004 report that they would reach 50,000 in 2006.²

5.3 e-skills UK

31. The Sector Skills Council for IT, telecommunications and contact centres – e-skills UK – was launched in 2002. It has taken upon itself to facilitate the NTI Managers' Network, seeing the NTI initiative as (actually or potentially) supportive to its mission. It commissioned research from Gartner Consulting, to assess the demand for IT skills in the UK between 2005 and 2014. Its report³ makes a helpful distinction between three groups of workers requiring IT skills:

- IT professionals (of which there were 960,000 in the UK, split roughly 40:60 between those in the IT industry and those working in other sectors. Their numbers were predicted to grow (including other occupations in the IT industry) by 1.5 to 2.2% a year, concentrated in the IT industry
- business managers and leaders who need to understand how to realise the potential of IT (4 million)
- people who already use IT in their everyday work (20 million in a total workforce of 27 million), 40% of whom have received no IT training.

32. The report is surprisingly unclear as to the size of the gap between the supply of people attaining professional-level skills, and employers' demand for such skills; and as to the numbers of people in the second and third categories in need of more, or initial, training. But as the aggregate numbers are very large the training needs must also be large; though it is reasonable to infer that, since the NTIs were conceived, the 'need' in the second and third categories has diminished much less than in the first category.

² These numbers seem to be headcounts across all modes and years of study.

³ *IT insights: trends and UK skills implications*, November 2004, e-skills UK and Gartner Consulting.

5.4 ‘Vendor qualifications’

33. The major suppliers of computing software certify individuals as qualified to undertake installation and maintenance of their products. Microsoft is the principal player, followed by Cisco. They accredit public and private training providers, to deliver the training and examine the students, and label these providers as, for example, ‘Microsoft Academies’. As part of the arrangements, the supplier usually provides the trainer with hardware and software free or at a discount. Until recently the LSC has not recognised the courses leading to these ‘vendor qualifications’ as eligible for funding, and FECs have charged full cost fees, or incorporated the training within the curriculum for another qualification that the LSC does fund. The 2001 White Paper refers to partnership with leading IT companies, without further explanation. For several NTIs the industry funding cited in applications and reports has been from such vendors. But with the bursting of the dot.com bubble and the easing of the skills shortages, the vendors’ interest in expanding training provision has waned.

5.5 HEFCE third-stream funding

34. ‘Third stream’ funding through HEFCE – for activities to increase HEIs’ capability to respond to the needs of business and the wider community – dates from 1999, with the first round of allocations from the Higher Education Reach-Out to Business and the Community Fund. This was followed by a second round and then, with a growing pot of money, two rounds of the Higher Education Innovation Fund (HEIF). The regional dimension has progressively gained greater emphasis, with the aim of enhancing higher education’s contribution to regional economic development. Forty percent of HEIF 2 has gone to collaborative projects, almost invariably between HEIs in the same region. In only a couple of cases was it envisaged that some grant would go from the lead HEI to one or more FECs.

35. The initiative for ‘University Innovation Centres’, as referred to in the White Paper, has disappeared almost without trace, at least under that name. The relevant page on the DTI’s website lists the five HEIs receiving the £30 million announced at the same time as the White Paper.⁴ The implementation plan contains the following target: ‘University innovation centre model to be adopted by around 10 other industry/university collaborations’. It reports under Progress: ‘Ongoing. Aspects of UIC model adopted in several HEIF bids and RDAs have adopted this partnership model using their own resources.’ It has not been part of our brief to verify this statement.

6 The concept of ‘New Technology Institutes’

36. This initiative offered capital funding only, at an average of £1,400,000 per successful bid. Bidders were expected to raise private funds, and to compete for finite public funds for recurrent costs. The capital funds available and the other funds which they might lever were likely to be tiny in relation to the scale of the ‘problem’, if the figures in the e-skills UK/Gartner report are a guide to what the problem was – and these figures relate only to IT, not to other ‘new’ technologies. Funds were likely to be modest in relation even to the ambition of the initiative.

⁴ The DTI website is the only one where the Google search engine found the term.

37. Given the mismatch between ambition and resources, we question the wisdom of the White Paper in adopting the label ‘New Technology Institutes’. An NTI is not an ‘institute’ in the normal sense within further or higher education, that is a corporation authorised under statute to provide education. Rather it is a mechanism to facilitate the provision of education and other services by several FE and HE institutions working collaboratively. They individually, not the NTI, remain ultimately responsible for the delivery and quality of what is provided – and they own the capital assets funded by the initiative. While it is possible to envisage a collaboration achieving a scale and continuity so as to justify the permanence (and management arrangements) of an institute, the funds on offer were too small to achieve this. The White Paper’s authors may have had the Cambridge University-MIT Institute in mind. But this had £65 million of public funds with few strings attached, and the names of two global players in the title. Ironically the NTI receiving the largest grant (and distinctive in ways we will indicate) has not been allowed by its parent university to use the word ‘institute’ and is known as the East Midlands NTI – New Technology Initiative.

38. In the taxonomy of ‘initiatives’ in FE and HE, the NTI is best described as one of setting up partnerships or consortia. The language of ‘creating a network of institutes’ used in the White Paper gave rise to the expectation of a national brand which would be promoted as such, rather as foundation degrees and Aimhigher have been. But, as we describe below, what the money has bought has been too modest, the geographical coverage too patchy, and the technologies promoted too limited, to justify such promotion. Local circumstances may make such a label appropriate, separate from any one partner, but its adoption should have been for local decision. Viewed from the perspective of many successful bidders, the initiative was an opportunity to carry forward something that was already being done or was planned by the HE and FE partners, at the cost of repackaging to fit the criteria and of adopting a particular label.

39. Having cast some doubt on the concept of the NTI, we need to determine what we may construe as ‘good practice’. Firstly, nearly every NTI is intermingled with other activities of the host institutions at the point of delivery. Hence what should be counted as the activities and outputs of an NTI may be fairly arbitrary, and is likely to be an agglomeration of selected activities and outputs of the partner FECs and HEIs. So what is ‘good practice’ of the NTI and what has been developed by virtue of the initiative is hard to separate from pre-existing activity. Secondly, given the overlaps with existing activities and other initiatives, we have not expected to find true innovations, but rather local adoptions of practice known elsewhere.

7 Regional coverage

40. It was planned at an early stage that there should be two NTIs in each of the nine government regions, implying that there would therefore be reasonably even access to the advantages of an NTI across the country. The ‘two per region’ is achieved only nominally, by crediting to the East Midlands the NTI at Dagenham (at the southern edge of the East of England) because Loughborough University is the lead institution. The East Midlands is compensated by its NTI having the largest grant, £2.4 million. The two East Midlands NTIs are atypical: Dagenham because the contributing HEIs, Loughborough and Warwick Universities, are at a distance, but

through their long-standing interest in automotive engineering are associated with the Ford Motor Company; East Midlands (based at De Montfort University) because it is more truly regional than the others.

41. Generally, though, each NTI is sub-regional or less in scope. This is understandable: such is the density of distribution of HEIs in England, that the hinterland of each, the area for which it is the nearest HEI, is considerably smaller than the government region. The emphasis on ‘access’, whether by non-traditional students or by SMEs, implies proximity and localisation, and collaboration with the local FECs. So there are many parts of the country falling outside the target zone of any NTI. In the South-East region, the Kent NTI is limited to the county, and the Reading NTI extends beyond Berkshire only into Oxfordshire and west London. Sussex, most of Surrey and Hampshire and the Isle of Wight are not served by an NTI. In the East of England, two NTIs are focussed on south Essex and the third on Suffolk, leaving untouched most of Essex, Norfolk, Cambridgeshire, Bedfordshire and Hertfordshire.

42. The ‘major network’ of NTIs and UICs, as promised in the White Paper ‘to encourage further development of business clusters and business incubators in the regions’, has not been realised partly also because the innovation centres have not taken off. Even if they had, there would still be a gap in the vertical integration of their activities, because the remit of the NTIs has been limited to foundation degrees and below. The concept of regional university innovation centres has to some extent re-emerged in HEIF, but there is limited integration between NTIs and HEIF 2 activity.

8 Governance and organisation

43. One NTI, East Midlands, is established as a company limited by guarantee, with the partners as members. The Dagenham NTI is nested in the Centre for Engineering and Manufacturing Excellence whose board of directors comprises representatives of Ford, two FECs, the Greater London Authority and the Heart of Thames Gateway Partnership. Suffolk Institute of Technology is a constituent department of Suffolk College, the role of the partner university being as the conduit for the grant and validator of foundation degrees in the college. The Manchester NTI is similar, with Manchester College of Arts and Technology, the only FEC involved, in the lead. Otherwise the NTIs are formally operations of the lead HEI, but managed by a board representing the partner HEIs and FECs at pro-vice-chancellor and vice-principal level. The board usually has responsibility for strategy and oversees an executive committee of managers involved day-to-day with the NTI. Some boards include representatives of other public agencies, such as the local LSC and Business Link, and of (usually large) businesses named as partners, but representation from business collectively is noted only at Coventry (by the Chamber of Commerce).

44. There is significant diversity in how the NTI’s activities are delivered. At one extreme the NTI is perhaps close to the White Paper’s vision, a free-standing entity with its own premises, buying in services from the partners (and elsewhere). At the other it is simply the umbrella under which the partners collaborate to the extent needed for their respective activities. This has been described as the ‘embedded’ model, whereby the partner in receipt of the funded facilities is responsible for

delivering and funding provision using them. Managers' answers to our questions largely depended on where on this spectrum their NTI lay. At the 'embedded' end, the NTI fades away, each partner continues the provision started under it to the extent that it is sustainable, and the successful networking between the partners rolls into the next relevant initiative – maybe HEIF, maybe a Lifelong Learning Network. At the free-standing entity end of the spectrum, there may be real issues of sustainability, with management structures and buildings to support.

9 The technologies supported

45. The leading statements of the NTIs' purposes in the White Paper embrace more than ICT, referring to 'ICT and other high tech learning programmes', 'skills in ICT and high technology', 'the know-how to apply advanced technology practices', and 'transfer of new technologies and business practices to companies'. The HEFCE invitation to bid refers repeatedly to 'advanced technology' and 'advanced technologies'. No definitions are offered of ICT, nor examples of high and advanced technologies, and none were necessarily needed.

46. We asked NTIs in what 'advanced technologies' other than ICT they were providing training and support. We did not define 'ICT', which we take to refer to all aspects of the infrastructure, organisation and components (particularly electronic) that transmit, collect, process, display, store, disseminate and act on information. ICT therefore embrace digital media, multi-media, e-commerce, wireless technologies for internet connection, and computer forensics.

47. NTIs frequently referred to the 'digital creative industries', a term which, a Google search suggests, is particularly used (along with 'non-digital creative industries' and 'digital/creative industries') by UK regional and local development agencies, but otherwise little used (it produced no results from the Department of Culture Media and Sport (DCMS) website). Unsurprisingly this term also appears frequently in HEIF 2 bids. We have not found a definition, but take 'digital creative industries' to be those (new) industries which are overwhelmingly dependent for their technology on ICT and otherwise conform to DCMS's definition of the creative industries, as those 'which have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property'. In practice this means mainly businesses exploiting interactive multi-media software for graphic design, web design, pre-press print, film and video animation, and sound and music performance. The classic example is the production of computer games.

48. In addressing a wider range of technologies, the East Midlands New Technology Initiative is outstanding. The HEFCE money went principally into nurturing networks for five sectors: food and drink, clothing and textiles, creative industries, high performance engineering, and health and biosciences. Funds went to partner colleges to buy cutting-edge equipment which demonstrates to SMEs the opportunities of the technology, and on which employees can be trained – and much of which, but this is incidental, utilises ICT. This is a traditional role of the technical college, if the equipment has been affordable. What is distinctive here is that the NTI made matching grants of up to £5,000 for equipment, to 200 SMEs, on condition that a staff member attended a relevant course. A measure of success is that the East

Midlands Development Agency has funded with £1.45 million another three networks, for aerospace, construction, and energy and environmental industries.

49. Similar, in the sense of supporting an industrial sector and demonstrating relevant technologies, is the Centre for Engineering and Manufacturing Excellence at Dagenham. From its proximity to and association with Ford, this has a focus on automotive engineering. The facilities include a large technical workshop (though not funded through this initiative), and the connection with Loughborough and Warwick Universities taps into academic expertise in the field. Otherwise, we noted only two instances of investment in technologies outside ICT: rapid prototyping facilities within the Bournemouth NTI; and a mobile food technology laboratory for the Humber NTI.

50. The concentration on ICT is unsurprising: the brief for the initiative gave that steer, the capital requirements (space and equipment) are nowadays generic and multi-purpose, the risk of under-use slight. Even for most digital creative industries the specialised facilities are relatively low cost compared with those for manufacturing.

51. One thing that emerges is a clear distinction from the technology transfer activities supported under HEIF 2 (stream A) and its predecessors. The NTIs are not a vehicle for the transfer of 'new technology' being developed in universities, the intellectual property of which the university may own. There is more likely overlap with HEIF 2 stream B and the centres for knowledge exchange which it funds, but even these centres are premised on 'less research-intensive groups or departments [in HEIs] exploiting knowledge which they may generate, acquire and develop'. With the exceptions of Dagenham and perhaps East Midlands, and probably a few other marginal cases, the NTIs are not bridging businesses to HEIs' command of new technologies. They are dealing in established technology, by and large embodied in commercially available equipment and software licences, and helping to apply them to the circumstances of the individual small enterprise, where management time to pursue such opportunities is very limited.

52. Even so, the integration with HEIF 2 activity does seem to be limited. The solo bids to HEIF 2 from the lead universities for the NTIs reveals only one instance where the NTI is integral to the HEIF 2 bid: East London, where the two NTI management staff have been taken onto HEIF 2 grant. The University of Hull's bid refers to a close interaction between the proposed Knowledge Exchange and the Humber NTI, and indeed the latter is now located in the former. A successful collaborative bid by De Montfort University builds on the East Midlands NTI. An unsuccessful collaborative bid from the University of Central Lancashire was for continuation of the Lancs NTI.

53. There is no sign of connection between the NTIs and the UICs announced at the same time. Five centres were named, with others expected. The DTI implementation plan for the White Paper includes the following action: 'University innovation centre model to be adopted by around 10 other industry/university collaborations'. The plan also notes under Progress: 'Aspects of UIC model adopted in several HEIF bids and RDAs have adopted this partnership model using their own resources.' If they have been established under different labels, the UICs will be attracting HEIF 2 stream A funding and operating at a level of technology transfer involving the creation of new knowledge. The implementation plan, under the action, 'Establish effective

networking arrangements between University Innovation Centres and New Technology Institutes’, records rescheduling of the target date from December 2001 to September 2004.⁵

54. The absence of connection is not surprising, given the narrowing of the NTIs’ scope, between publication of the White Paper and the call for first-stage bids, so as to exclude first and postgraduate degrees. That narrowing necessarily diminished the potential for links to HEIs’ core activities and made the initiative much more FE in focus.

10 What the initiative’s money has been spent on

55. The funds for the NTI initiative came from the Government’s Capital Modernisation Fund, and so have gone mainly into buildings and equipment. The character and location of the facilities established can be classified as follows:

- refurbishment of, or small (but often specialised) increments to, learning facilities in HEIs and FECs: Bournemouth, Essex, Humber, Kent (business friendly), East London, Tees, Kingston, Lancs, Manchester, Tyne, Wessex, Thames
- (small-scale) learning facilities in novel locations away from the HEI or FEC, and closer to the ‘demand’ or the workers: Essex (Learning Shops at Lakeside and Eastgate Shopping Centres), Kent, East London, Suffolk, Wessex (in Midsomer Norton’s High Street)
- a substantive new building for the NTI (and maybe other projects), away from the main campus of the HEI/FEC, housing its administration and (some) delivery of services: Coventry (delays), Birmingham (still in progress), Essex, Manchester (some delivery will be from a building funded by RDA), Suffolk, West Yorks, Dagenham, Tyne. Plans for a new building at Bournemouth were abandoned
- mobile: Humber, mobile food technology laboratory, and Lancs, bus with IT equipment for rural coverage
- on-line, virtual learning environments including Metropolitan Area Networks and Local Area Networks – a usual facility in HEIs and FECs. The following have given special attention to developing content: Kingston, Lancs, Manchester, Suffolk, Tyne (Camtasia software)

56. Some of the grant has gone into management and administration associated with establishing the facilities, and a small amount went into curriculum development, but (so we understand) that was in time ruled out.

57. The projects involving new build were not ideal for an initiative of this sort, where tranches of money in just two financial years were available from a central government initiative. In these building projects, the NTI money was usually a contribution to a larger project with other funding and different timing. There were several significant delays and changes of plan.

⁵ <http://www.dti.gov.uk/opportunityforall/whitepaper.html#B1>

11 The role of private finance

58. A thread running through the initiation of the NTI initiative was that it should lever in private sector funding. In allocating the funds, the Treasury said that the NTIs would be established by consortia of HEIs, FECs, and private businesses. The White Paper said that they would ‘involve universities working with local colleges and small groups of businesses’ and that ‘universities and colleges, working in partnership with leading IT companies, [would] be invited to bid’. HEFCE’s call for first-round bids said that consortia would need to demonstrate the ability to generate income and attract significant private sector funding as a means of sustaining NTI activity in the long term; and that they would be expected to bid in parallel for additional student numbers (ASNs), so that the enhanced capital facilities could support expanded provision for students.

59. No NTI is truly a consortium of HEIs, FECs and private businesses. Private companies are named as partners at Bournemouth, Coventry, Dagenham and Manchester. Financial contributions by the private sector, other than as payment for services, have been few. There have been contributions in kind or as discounts from IT suppliers, presumably to support the delivery of ‘vendor qualifications’, at Kingston (£700,000) and Thames (£750,000). What appear as cash contributions are reported by Wessex (£300,000), Coventry (£750,000 and £95,000) and Birmingham (£40,000), though one at least may be for vendor qualifications.

12 Other public-sector funding streams

60. HEFCE’s call for bids made clear that NTIs should expand provision for award-bearing courses at Level 3 and above, of types which were fundable by HEFCE and the LSC. It invited consortia to bid to HEFCE for ASNs and to secure assurance from the local LSC that funded places would be available (HEFCE 01/47, paragraph 19). The call made no suggestion as to how consortia should meet the recurrent costs of providing advice and support to SMEs.

61. The HEFCE ASNs required for Level 4 provision have been awarded more often than has the LSC funding for lower level work. Problems with LSC funding are reported by Bournemouth, Birmingham, Coventry, East London, Humber, Kent, Manchester and Tyne. There are several reasons why this should be so. Firstly, universities have had to cope with the downturn in applications for computing-related courses; they may have used new courses recruiting through the NTI to mop up spare capacity and may not therefore have applied for ASNs for all the NTI courses. Secondly, foundation degrees have been a priority for ASNs. Thirdly, as is implicit in the first point, universities have much more budget flexibility (and margins within which to start new courses), than do FECs with LSC funding. Fourthly and a related point, LSC funds FECs within much tighter guidelines and priorities, and the priorities in recent years have been provision at Levels 1 and 2, to meet national targets. Fifthly, HEFCE is much better placed, through its looser control but more central functioning, to deliver consistency than is the LSC through its 44 area offices operating more prescriptively.

62. The monitoring report form asked NTIs for financial data at two points: overall funding since inception from private sector partners and from other sources; and, in

the six-monthly report, ‘activities that have been undertaken to ensure that the NTI is sustainable after the HEFCE two year funding has ended’, with a monetary value attached. The distinction seems to be between contributions to setting up the NTI (funds of the same nature as the HEFCE grant) and earnings from providing services. Funding related to student numbers from HEFCE and the LSC is not included. Whether any other income stream is omitted is unclear, as is whether NTIs have adopted consistent reporting practices. The data should be approached with caution.

63. What is clear is that NTIs have been active in securing other streams of public funds. These include:

- local LSCs for development costs for new courses (HEIs, by contrast, are expected to be able to fund start-up costs from the HEFCE block grant)
- the ESF. Most of this is now allocated, with matched contributions from UK public funds, through Co-financing Organisations, principally in the present context the LSC and RDAs, usually to meet costs of teaching specified target groups such as the unemployed. For example, Wessex obtained £304,000 for teaching at the University of Bath’s Swindon campus, having installed the IT infrastructure with NTI money
- RDAs, mainly for work with SMEs.

64. It is a moot point whether these funds would have been available for provision in the HE and FE sectors through existing channels, and whether the NTIs, by enhanced competition for fixed pots of money, have simply caused reallocations of public funds, perhaps with adverse consequences elsewhere.

65. NTIs have also undertaken projects outside the direct remit of the NTI initiative, in part at least to collect management fees which can contribute to general running costs and keep staff in post.

66. The attribution of some sums to the NTIs in monitoring reports is questionable. In particular about half of reported income under the ‘activities’ head, £21.5 million by Essex, is the funding which the university has secured for its new building for phase 2 of the Southend Campus, to join South East Essex College’s new building and provide an academically integrated further and higher education campus. Although HEFCE’s NTI funding, part going to equip temporary premises in Southend, may have helped to get that project off the ground, the project is not the NTI’s.

13 Education and training provided

13.1 Numbers

67. We have been invited to evaluate ‘the extent to which the NTI initiative has met its overall aims and objectives’. The leading objective in the White Paper is:

‘To expand specialist ICT and other high tech learning programmes in our further and higher education system. Courses will be provided at technician and first and post-graduate degree levels and will reflect a high level of business input into the

curriculum. We will investigate how business can help deliver new learning programmes. By 2004-05 we will be training up to 10,000 students a year on full-time and updating courses. There will be new technology institutes described further in Chapter 3.

The executive summary in the White Paper and earlier statistics make clear that the 'up to' 10,000 students are additional to existing numbers. The DTI implementation plan confirms the link by stating the objective to: 'Train up to 10,000 more people per year in advanced ICT learning programmes through new technology institutes'.⁶

68. The words 'up to' arguably prevent the figure from being a target; whether 'train' refers to registered students or graduating students is unclear; 'full-time and updating courses' confuses mode of study and purpose of study. Some of this uncertainty carries into the HEFCE invitation to bid (HEFCE 01/47, paragraph 14a), but this does specify NVQ Levels 3 and 4 (up to foundation degree), and does set a target for each NTI: 'NTIs will be expected to make an appropriate contribution to government participation and qualification targets by training 250 to 500 students per year each.' This is a less ambitious target than the White Paper, as it would be met by a total of 4,500 students.

69. The participation and qualification targets are similar to the National Learning Targets for 2002 of a 7% reduction in non-learners (participation), and 50% of adults having a Level 3 qualification and 28% a Level 4. The last two targets, as adopted by the LSC for 2004, are 52% and 28%. So we construe 'training 250 to 500 students per year' to mean that between 250 and 500 students each year will *obtain* Level 3 or 4 qualifications. This is a measure of output and appropriate as such to the nature of the initiative.

70. HEFCE has collected data on student numbers in the half-yearly monitoring reports. But this monitoring has been at variance with the established Higher Education Statistics Agency (HESA) and LSC systems for counting and aggregating student enrolments in commensurable units, by counting a student only on first registration in six-month periods and counting each registration equally (i.e. headcount), irrespective of the course duration and intensity. The guidance is that 'NTI students are those learners studying full-time or part-time at various levels within a variety of curriculum areas associated with the local NTI initiative. These students must be enrolled with the HEI or FEC and simultaneously registered with an NTI.' However, the notion of simultaneous registration with an NTI does not apply in many instances, as the NTI is not an entity which meaningfully can register students. We must therefore assume that NTI managers have done the best they can to count students linked with the facilities funded by the initiative.

71. HEFCE officers have extracted all the reported numbers into a single spreadsheet which we have summarised by each of the six six-month periods, and by each NTI for the six periods in total. These statistics are in Appendix 2. The template provided for the reports have the following headings:

- NVQ Level 3
- NVQ Level 4

⁶ <http://www.dti.gov.uk/opportunityforall/whitepaper.html#B1>

- Foundation degree
- HNC
- HND
- Bespoke vendor course
- Degree
- Graduate Apprenticeship.

72. There are spaces for other courses to be listed, each to be subdivided between full-time and part-time. Seventy-three other course titles were added, but many of these have few registrations. The top 20 titles, all those with 300 or more registrations (full-time and part-time combined) account for 93% of all registrations. Some of the remaining titles should probably be collapsed with others (e.g. IT Supplier Bespoke Training may be the same as Bespoke vendor course, PDC level 4 is probably Microsoft PDC level 4 and therefore Bespoke vendor course) but we have not attempted to do that.

73. The figures for the top 20 and the balancing figures for the entire period, with the figures for the same courses for the academic year 2004-05, are shown in Table 4.

Table 4 Student registrations, by course type

Course	Aug 2002 - Jul 2005	Aug 2004 - Jul 2005
Bespoke vendor courses	5,008	1,908
Degree	1,290	576
Degree level credit-rated short courses	347	26
Foundation degrees	2,912	1,768
HE Certificate	505	82
HNC	1,511	665
HND	1,387	485
MSc	300	53
NVQ Level 3	12,124	4,249
NVQ Level 4	4,242	2,327
Other (not known/specified)	1,722	1,001
Short courses	710	302
Short courses (less than 1 month)	1,781	1,119
Short courses (less than 1 week)	8,581	5,518
Short courses (less than a day)	8,336	5,978
Short courses (over 1 month)	422	142
UK Online for business workshops	730	-
Workforce development	1,002	1,002
Other courses	4,172	1,480
Total	57,082	28,681

The total of 57,000 registrations over three years is impressive, all the more so when the figure for August 2004 to July 2005, is 28,700.

74. However, we must ask what these figures mean in terms of qualified output at Levels 3 and 4. One NTI, Dagenham, returns figures for short courses by duration, and those less than a week (and even then mainly part-time) account for 43% of the total for all NTIs for 2004-05. This NTI also lists award-bearing courses, so these short courses may not be credit-rated. The figures for NVQ Level 3 and Level 4 are heartening. They probably represent people registering for assessment of competences they have acquired in the workplace, and so of the competences they need to develop and the academic study they need to undertake, if they are to be awarded the Level 3 or Level 4 qualification by whatever awarding body. The teaching delivered by the NTI depends on the assessment.

75. NTIs have not been asked to report completions, and indeed it is too soon for useful data to be available. We have made a crude estimate of how many qualifications a year at Level 3 or 4 will result from the registrations in the last reported year. Perhaps 80% of the sum of registrations for degrees, foundation degrees, HE Certificates, HNCs, HNDs and MScs (some 3,600 in 2004-05) will lead to awards. For the roughly 6,600 registrations at NVQ Levels 3 and 4, we assume 47% will lead to awards, this being the success rate for students aged 19+ at NVQ Level 3 (long) in 2003-04.⁷ This gives a total of around 6,000, say 6,200 allowing for similar award-bearing courses under other titles – comfortably within HEFCE’s range of 4,500 to 9,000, but some way below the White Paper figure of up to 10,000.

76. Applying the same methodology to the data for individual NTIs produces the figures in Table 5.

Table 5 Estimated output of students qualified at Level 3 or 4, from 2004-05 enrolments

Birmingham	30
Bournemouth	381
Coventry	-
Dagenham	206
East London	1,380
East Midlands	1,025
Essex	75
Humber	14
Kent	276
Kingston	148
Lancs	26
Manchester	173
Suffolk	97
Tees	613
Thames	238
Tyne	211
Wessex	396
West Yorks	703
Total	5,994

⁷ Learning and Skills Council, Statistical First Release: ILR/SFR07 (28 June 2005), Table 2a: <http://readingroom.lsc.gov.uk/LSC/2005/learningdata/statistics/further-education-and-work-based-learning-for-young-people-ilr-sfr07.pdf> (accessed 14 July 2005). No data are given for NVQ Level 4.

77. In as much as recurrent funds were not allocated to the funding bodies for this initiative, this additional provision in new technologies (but mainly in ICT and related fields) has been at the expense of whatever provision HEFCE and the LSC would otherwise have supported. They might have supported additional provision in those fields irrespective of the NTI initiative.

13.2 Qualifications and delivery

78. Postgraduate courses were not within the scope of what institutions were invited to bid for, but HEFCE funded two bids that include such courses. Tyne is responsible for all the full-time MSc students reported and Wessex for all the part-time.

79. Four NTIs account for 83% of the first-degree registrations: East Midlands, Essex, Tyne and West Yorks.

80. A significant part of the provision, in both numbers and innovation, comprises the foundation degrees. Here the balance of responsibility shifts from the HEIs to partnership with the FECs. Eight NTIs have enrolled more than 100 foundation degree students: Wessex, Bournemouth, East Midlands, Suffolk, Kingston, West Yorks, Manchester and Tyne. Monitoring reports indicate that progress was slower than expected and that a good deal of inter-institutional learning has taken place as FE and HE colleagues collaborate in a new context. There is no reason to believe, though, that this has been any different from other foundation degrees not connected with NTIs. It is notable that the balance is towards full-time rather than part-time. The foundation degree numbers are also significant in a national context. The figure of 1,064 full-time enrolments in 2004-05 is 12% of 8,582 acceptances through UCAS for October 2004, but undoubtedly is a much larger proportion, even the majority, of the IT-related foundation degrees.

81. NVQ Level 4 registrations are dominated by East London which accounts for 81%, with East Midlands and Tees a long way behind. They are predominantly full-time. NVQ Level 3 is the principal form of award-bearing provision and is the customary 'technician' qualification. With over 12,000 registrations in total, eight NTIs have more than 500 each: Wessex, Bournemouth, East Midlands, East London, Essex, Humber, Dagenham and Tees. Here the balance is towards part-time, pointing to people in employment improving their qualifications.

82. Nevertheless, a couple of NTIs have commented on SMEs' limited interest in their staff accumulating credit and progressing towards formal qualifications (Kent, Tees, Suffolk), in the sense of demand for generic rather than specific skills. Several reasons can be detected. One, the employer wants training to solve immediate business problems. Two, ICT is a support function and the firm does not need, or does not anticipate the need for, a full-time specialist; so the employee who 'looks after the computers' and wants to go further may simply be qualifying him or herself to leave the firm.

83. This has led some institutions to deliver 'bite-sized learning' for the first time, with the associated problem that if the learner does not complete the assignment for assessment, the provision does not attract LSC funding. The NTI initiative has also encouraged institutions to develop 'blended learning' for the first time, combining distance learning and face to face methods.

84. In the context of the NTI, some HEIs have explored work-based learning for the first time (meaning learning in the workplace, derived from work undertaken for or by an employer, through which competencies and knowledge are gained).⁸ Doing so, however, is a necessary part of developing many foundation degrees.

85. Also mainly in the context of developing foundation degrees, the initiative has enhanced HE/FE collaboration. Dagenham underlined the necessity: industry has little idea of the difference between FE and HE, seeing it as ‘class based’, and has seen the NTI’s ability to act across the divide as beneficial. The University of Kent has built a network with colleges for the first time which has the capacity to respond to subsequent regionally-orientated initiatives such as JISC’s e-learning and HEFCE’s Lifelong Learning Networks. Wessex NTI says that, while starting from existing partnerships, the initiative has demonstrated to the FEC partners that there are financial benefits associated with this sort of collaboration – which has provided the platform to establish Bath’s foundation degree consortium and the Lifelong Learning Network – and has underlined the value of long-term strategic relationships. Working on the foundation degrees and a framework of credit accumulation has, for East London, increased mutual understanding across the partners at grass-roots level through sharing of cultures, procedures, content and approaches. Kingston University has put more effort than expected into liaison between the university and the colleges, to deliver staff development and to ensure consistency, but feels that the way liaison has been organised, with a university staff member ‘on the road’, is an example of good practice. Coventry, though, found FECs risk averse and more reluctant than expected to commit to partnership issues – and the same is hinted elsewhere, perhaps emanating from the tight and unforgiving LSC regime under which the colleges operate.

14 The widening participation agenda

86. The call for bids (HEFCE 01/47, paragraphs 8 and 14) introduced HEFCE’s widening participation agenda into the initiative, which was not present in the White Paper, with expectations of:

- additional pathways for progress to NVQ Level 3 and 4 qualifications and to honours degrees
- reaching ‘non-traditional’ students
- new opportunities for lifelong learning which upgrade and update the skills of people in employment
- innovative, flexible and user-friendly training.

87. The additional pathways have come from filling out the range of qualifications for which courses are provided. For example, through the Wessex NTI, Strode College now offers progression from a Level 2 ICT course to an Advanced European Computer Driving Licence. Similarly, City of Bath College offers progression from BTEC First Diploma for IT Practitioners (Level 2) to a National Diploma for IT Practitioners (Level 3). East London assesses vendor qualifications so that they can be awarded a university certificate, and Lancs links them with NVQs. Progression from Level 3 qualifications and to honours degrees are integral components of all

⁸ Helen Connor, *Work based learning. A consultation* (London: Council for Industry and Higher Education, 2005), 2.

foundation degrees which, as already noted, are the main form of award-bearing provision under the initiative. Several NTIs are expecting to secure the sustainability of what they have started through Lifelong Learning Networks (e.g., Wessex, Kent).

88. How the other three aspects have been addressed is not readily separable, but several dimensions can be identified. Firstly, NTI facilities have been used for adult education, Levels 1 and 2, beginners' courses in IT (e.g. Computing for the Terrified at Wessex), courses for adult returners and for specific groups for which ESF funds are available (e.g. IT for the unemployed, Tyne). Secondly, by working with SMEs to identify training needs, NTIs have attracted people working for firms not normally offering staff development (Coventry draws entirely from the workplace, Dagenham exploits Ford's long supply chain, East Midlands ties grants to SMEs for equipment to training). Thirdly, NTIs have enhanced access by locating facilities for learning away from established campuses, in settings more familiar to those not already within the ambit of further or higher education – in shopping centres (Essex), high streets (Wessex, Suffolk, East London), industrial estates and business parks (Kent), village halls (Manchester), a bus (Lancs) and a mobile food technology laboratory (Humber). Where the facilities are on campus, several NTIs have made them 'business' or 'adult' friendly, separate from those used by the 'young' students. Fourthly, many NTIs offer opportunities for self-paced on-line study from workplace or home, through virtual learning environments. But in nearly every case the distance learning is complemented by face-to-face sessions, in blended learning (e.g. Suffolk, Kent, Wessex, Kingston, Tees, East London).

89. None of these approaches is novel: they have been pioneered elsewhere. Rather the NTIs are using them where they have not been adopted before, adapted to local conditions and as a useful learning experience for the HEIs and FECs. The only national innovation claimed is by Suffolk for its foundation degree by employment-based independent study.

15 Business support services

90. From the start, the intention has been for NTIs to provide more than just education and training. The Treasury specified the second aim: 'to make available better advice and support to small businesses on the effective adoption of new technology and innovative business practices', and the same phrases reappear in HEFCE 01/47. But, as we have discussed, the failure to network NTIs with University Innovation Centres, the limitation of the NTIs' role to foundation degrees and below, and the concentration on the established uses of ICT have meant that, generally speaking, the NTIs are not connecting businesses to HEIs' command of new technologies. That is being encouraged through other initiatives such as HEIF.

91. HEFCE 01/47 set a target for each NTI: 'To work with SMEs to increase the use of new technologies and innovative business practices. NTIs will be expected to make an appropriate contribution to government targets by providing services to 50 SMEs each year.' We have not established what were the 'government targets' referred to: presumably predecessors to whatever targets underpin *A government action plan for small business* (DTI Small Business Service, January 2004).

92. The market for assisting small businesses (let alone SMEs) in adopting IT is a large one: the e-skills UK/Gartner report's estimate of four million business managers

and leaders who need to understand how to realise the potential of IT are likely to be disproportionately in small businesses. That fact is well and long recognised by Government, for there are already channels through which the small business can get free or subsidised assistance, mainly through DTI. For example, e-skills UK manages 'e-skills into business' (ESiB), 'an easy to use online business improvement programme for small to medium sized enterprises. The programme enables businesses to become more competitive and improve their "bottom line" performance through the development and effective use of IT, e-business and management skills in-house.' Business Link and RDAs in their respective regions provide several other forms of assistance. It is not self-evident that HEIs have any distinct expertise in this field nor that it is a priority for addition to their mission. While HEFCE's call for bids for NTIs identified HEFCE and the LSC as sources of recurrent funding for award-bearing courses, it made no suggestion as to how services for SMEs should be financed.

93. Compared with what they have been doing in delivering training, the NTIs' activity in business support has been modest, certainly beyond adjuncts to marketing of training which results in enrolments – such as training needs analysis and taster sessions. We have totalled the money reported half-yearly as income from 'activities' over three years (see Table 6). As already noted, Essex's figure is inflated by including £21.5 million for its Southend campus. Coventry's figure has been reduced for what appears to be double counting. RDAs appear to be by far the largest funder, followed by the LSC and ESF. The NTIs with the largest income are those gaining contracts from RDAs. Some NTIs have had RDA income indirectly by providing facilities for delivering activities in projects managed by others. Projects have titles such as E-Learning Hub (Coventry, reported under 'other funding'), Women in Enterprise initiative (IT strand), and Entrepreneurs South West programme (Wessex), while Birmingham has European Regional Development Fund money for 60 five-day consultancies. A form of support to SMEs which is not costed here is students' work-experience placements – which feature in several HEIF programmes.

Table 6 NTIs' reported income from activities, 2002-05

NTI	[Public funds] £k	Local Business £k	Training £k	Consultancy £k	Other £k	Total £k
Birmingham	1,290	-	-	13	-	1,303
Bournemouth	167	4	130	53	3	358
Coventry	4,084	-	-	-	33	4,117
Dagenham	248	-	-	-	4	252
East London	820	-	-	-	-	820
Essex	23,513	-	-	-	10	23,523
Humber	1,281	-	-	10	16	1,307
Kent	251	-	-	-	-	251
Kingston	184	-	-	-	6	190
Lancs	1,199	-	-	-	-	1,199
Manchester	1,053	-	200	1,224	317	2,794
Suffolk	771	-	12	43	10	836
Tees	157	-	79	32	554	822
Thames	100	-	-	-	2	102
Tyne	1,310	2	1	2	2	1,317
Wessex	818	-	2	7	300	1,127
West Midlands	6,092	-	-	-	-	6,092
West Yorks	4,436	-	138	10	137	4,722
Total	47,776	6	562	1,395	1,393	51,132

94. The forms for the monitoring reports asked, for each six-month period, the numbers of new contacts with SMEs, under the headings ‘Discussions/advice given’, ‘SME proposing to use NTI in future’ and ‘SME utilising NTI’ (see Table 7). The figures do not relate directly to the given target and there are problems of definition. ‘Utilising NTI’ may include counts of the employers of students attending training. Many of the blank returns may reflect not lack of activity, but problems in quantifying it. Several NTIs says that they redirect enquirers, as appropriate, to Business Link and similar services, or to consultancy wings of partner HEIs and FECs. All such contacts can reasonably be counted as ‘Advice’.

Table 7 Numbers of new contacts with SMEs

NTI	Advice	Future use	Utilising NTI	Other
Birmingham	402	1,044	373	0
Bournemouth	494	57	146	2
Coventry	416	0	74	3,032
Dagenham	387	2	0	0
East London	605	562	343	527
East Midlands	466	352	247	284
Essex	524	131	462	27
Humber	557	593	341	100
Kent	24	0	513	1,215
Kingston	0	0	81	0
Lancs	149	382	178	240
Manchester	551	557	512	1,802
Suffolk	559	274	365	177
Tees	476	66	425	21
Thames	13	0	323	15
Tyne	129	42	78	3
Wessex	274	41	89	15
West Yorks	853	355	368	357
Total	6,879	4,458	4,918	7,817

APPENDIX 1: NTIs' aims and objectives, from HEFCE 01/47

(Paragraph numbers are those in the original document.)

- 3 The core purpose of an NTI will be to meet regional needs for:
 - a. Increasing the supply of people with technician and higher level skills in information and communications technologies (ICT) and other advanced technologies.
 - b. Making available better advice and support to small and medium sized enterprises (SMEs), through improved links with higher and further education, on the effective adoption of new technology and innovative business practices.

Objectives

8 NTIs are intended to provide ICT and other advanced technology learning programmes, and to work closely with local SMEs to ensure they have the know-how to apply advanced technology. NTIs will:

- a. Expand the supply of high-level skills training, to help meet the economy's growing need for people with knowledge and skills in ICT and advanced technologies. That in turn will contribute to enhancing regional capabilities for undertaking, and exploiting the results of, research and development.
- b. Encourage lifelong learning, by giving new opportunities for those in employment to update and extend their knowledge and skills, and to progress from lower level programmes to higher education qualifications.

9 NTIs are thus part of the broader purpose of strengthening the contribution which HEIs and FECs make to economic development through promotion of a learning society and a knowledge-based economy. That broader purpose is being promoted through a range of knowledge transfer activities, including the Higher Education Innovation Fund (HEIF), described in HEFCE 01/34. NTIs will need to make appropriate links with other relevant activities, including university innovation centres, Faraday Partnerships, and Centres of Vocational Excellence.

10 NTIs are essentially regional and local in focus, not national. In considering bids, we will therefore want to secure a broad geographical distribution across the country. Our presumption is that there should be no more than two NTIs in each region. Two or more neighbouring HEIs and partner FECs can prepare collaborative bids if they believe that is the best way of meeting regional and local needs. We would also welcome any opportunities which NTIs see to use economies of scale and offer niche skills training across regional boundaries if they wish.

11 It will be for each consortium to decide the nature of ICT and advanced technology training provision which will best meet local and regional needs. For

example, it could be generic or focused towards particular areas. The main sources for identifying regional needs are the regional economic strategy, regional innovation strategy, and regional skills action plans for ICT and advanced technology training, prepared by Regional Development Agencies. Consortia should confer with their local Learning and Skills Councils (LLSCs) concerning their local skills priorities.

12 SMEs play a major role in local and regional economies and represent two-thirds of the IT industry. It is crucial therefore that they are helped to improve their business skills, technological know-how, innovation, and entrepreneurial skills. NTI consortia will need to demonstrate how, in partnership with key agencies such as the Small Business Service/Local Business Links, and LLSCs, they can help SMEs to develop by offering accessible, flexible advice and services. These should be designed to:

- encourage employer commitment to technician and higher level training
- in conjunction with the development and delivery of appropriate training, to advise and support SMEs on the effective adoption of new technology and innovative business practices
- increase entrepreneurialism and enterprise
- provide access for SMEs to consultancy services.

13 NTIs would be expected to use quantitative and qualitative local and regional market data (including labour market information where appropriate) to inform development of training programmes. They would also be expected to assess the economic impact of their activities, as a contribution towards evaluating the initiative.

What will NTIs do?

14 We want bidders to design their proposals in the way that they judge will best meet regional and local needs, against the objectives of the programme. There will be no single blueprint for an NTI. But we would expect the following activities to feature as core elements:

- a. To offer high quality facilities for teaching ICT and advanced technology skills, from National Vocational Qualification (NVQ) level 3 to Foundation Degrees, for both full-time students and those in employment. The balance between programmes at level 3 and level 4 will be for each consortium to decide in the light of regional skills needs. NTIs will be expected to make an appropriate contribution to government participation and qualification targets by training 250 to 500 students per year each. Training should be innovative, flexible and ‘user-friendly’. It should be designed to attract ‘non-traditional’ groups of students into advanced level training, and encourage them to progress from there into careers in IT and advanced technology.

- b. To create pathways for students to progress from initial further education courses to more advanced qualifications at NVQ level 3 and 4, and on to honours degrees. New programmes need to be linked into existing ICT provision in the region.
- c. To work with SMEs to increase the use of new technologies and innovative business practices. NTIs will be expected to make an appropriate contribution to government targets by providing services to 50 SMEs each year.
- d. To collaborate with local employers, the Small Business Service/Business Links, National Training Organisations, Regional Development Agencies and LLSCs to identify skills gaps and to tailor course content, modes of delivery and the NTI's activities overall to meet regional labour market requirements.

15 In pursuance of these core features, we expect that NTIs will also provide work placement opportunities for students as an integrated part of their training; organise exchanges of staff between NTIs; and provide training sessions delivered on site with companies.

Characteristics of an NTI

16 To meet these objectives, NTI consortia will need to demonstrate:

- a. A substantial track record in delivering similar training at NVQ level 3 (or equivalent) and above, so that new programmes can build on a successful base of regional and local ICT/technology skills development.
- b. A substantial track record of successful provision and transfer of ICT and innovative business skills to SMEs.
- c. A substantial track record of collaborating with local and regional partners, and contributing to regional training needs, including involvement with business and industry to ensure that courses and staff are up-to-date with the latest technological developments.
- d. Additionality – that the funds requested will enable the consortium to offer new programmes and services that would not be possible with existing funding from the HEFCE or the Learning and Skills Council (LSC).
- e. The ability to generate income and attract significant private sector funding as a means of sustaining NTI activity in the long term, through promotion, marketing and business planning.

Consortia

17 Consortia must consist of a minimum of one HEI, one FEC and an employer organisation. Facilities can be distributed throughout a region at different sites in line with regional requirements. But we would expect some form of identified centre for the NTI.

18 Consortia can select their own composition and leadership. But an HEI must be the contracting lead for HEFCE purposes, and will receive funding from us on behalf of the consortium. The contracting HEI will be responsible for distributing the funding among partners in accordance with their bid, and supplying evaluation data on NTI performance. We are considering with the LSC the best method for distributing funds, given that NTI activities cover both further and higher education, in a way which will minimise the administrative load for consortia. The standard provisions of the HEFCE's Financial Memorandum with HEIs will apply.

Student places

19 A core purpose of NTIs is to expand the number of places available on higher level ICT/advanced technology programmes. We would welcome applications for additional funded places for the higher education element provided by NTIs, through our normal process for allocating additional student numbers (ASNs). We will consider those applications in conjunction with the ASN approval mechanism starting in the autumn. As with other ASN bids, we shall need evidence from consortia of the likely level of demand for the additional places they wish to offer. We shall not be ring-fencing any ASN places for NTIs, but will look sympathetically on all soundly-based proposals. Separate arrangements will apply to FE places funded through the LSC. Each consortium should secure provisional assurance from their local Learning and Skills Council that sufficient places will be available to meet the consortium's plans.

APPENDIX 2: Statistics of enrolments

Appendix 2 is a separate Excel spreadsheet showing enrolments in NTIs by course and mode, and by six-month periods, from August 2002 to January 2005.

APPENDIX 3: Issues covered in telephone interviews

<i>NTI name</i>
<i>Section 1. Brief description of the NTI</i>
<i>1. Names of partners</i>
<i>2. Given mission or goals</i>
<i>3. Management structure at the level of the partners</i>
<i>4. How is the NTI positioned in relation to other (third stream) activities?</i>
<i>5. What have the HEFCE capital funds been spent on?</i>
<i>6. What are the facilities created being used for?</i>
<i>7. How are other (recurrent) costs being met?</i>
<i>8. Other activities of the NTI</i>
<i>9. What has the HEFCE money achieved which might otherwise not have been?</i>

<i>Section 2. Performance against 'aims and objectives' taken from HEFCE 01/47 (paragraph nos in brackets).</i>
<i>10. Is the type of provision broadly in line with that envisaged in the stage 2 bid? (3a, 8a, 14a)</i>
<i>11. What additional pathways have you created for progress to NVQ 3 and 4 qualifications and to honours degrees? (14b)</i>
<i>12. In what ways are you reaching 'non-traditional' students? (14a)</i>
<i>13. In what ways are you giving new opportunities for lifelong learning which upgrade and update the skills of people in employment? (8b)</i>
<i>14. In what ways is the training being provided, for your catchment area, innovative, flexible and user-friendly? (14a)</i>
<i>15. How have you identified skills gaps and in what ways have you tailored course content, modes of delivery and the NTI's activities overall to meet regional labour market requirements? (14d)</i>
<i>16. By what means are you improving the advice and support to SMEs on the effective adoption of new technology and innovative business practices? (3b, 14c)</i>

17. Give illustrative examples of services for SMEs. (14c)
18. In what 'advanced technologies' other than ICT are you providing training and support? (3a, 8a)

<i>Section 3. Other issues</i>
19. To what extent are you receiving the HEFCE and LSC recurrent funding assumed in the stage 2 bid?
20. Is the NTI helping the partners develop their capacity to contribute to (regional) economic development? Is there synergy with other initiatives (such as HEIF 2)?
21. Is there, beyond this initiative, value in an 'NTI brand', in addition to those of the HEIs and FECs delivering the training and support?
22. What are proving the critical success factors in what you are achieving?
23. What among the things you are doing may represent 'good practice' from which other NTIs could benefit?
24. With the wisdom of hindsight, what would you have done differently?
25. Is the current pattern and volume of activity sustainable?
26. In what directions do you think your NTI can and should develop?
<i>Interview with xxxxxx conducted by xxxxxx on xxxxx 2005</i>

Abbreviations

ASN	Additional Student Numbers
DCMS	Department for Culture, Media & Sport
DfES	Department for Education & Skills
DTI	Department for Trade & Industry
ESF	European Social Fund
FD	Foundation Degree
FEC	further education college
HEFCE	Higher Education Funding Council for England
HEI	higher education institution
HEIF	Higher Education Innovation Fund
ICT	information and communications technologies
IT	information technology
LLN	Lifelong Learning Network
(L)LSC	(Local) Learning & Skills Council
NTI	New Technology Institute
NVQ	National Vocational Qualification
R&D	research and development
RDA	Regional Development Agency
SME	small or medium-sized enterprise
UIC	university innovation centre