

YORKSHIRE FORWARD
E-CAMPUS ICT SKILLS STRATEGY
ANNEX

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APPENDIX A – SKILLS PROFILE

Introduction

A baseline skills profile was developed by the consulting team, based on knowledge the ICT and digital sectors.

It is derived from experience and feedback from ICT company interviews, not directly from any formally published competency framework or skills profile. Indeed, on account of the diverse and fast moving and diverse nature of this sector, we believe that no substantive profile is in existence at the high level required for strategic research.

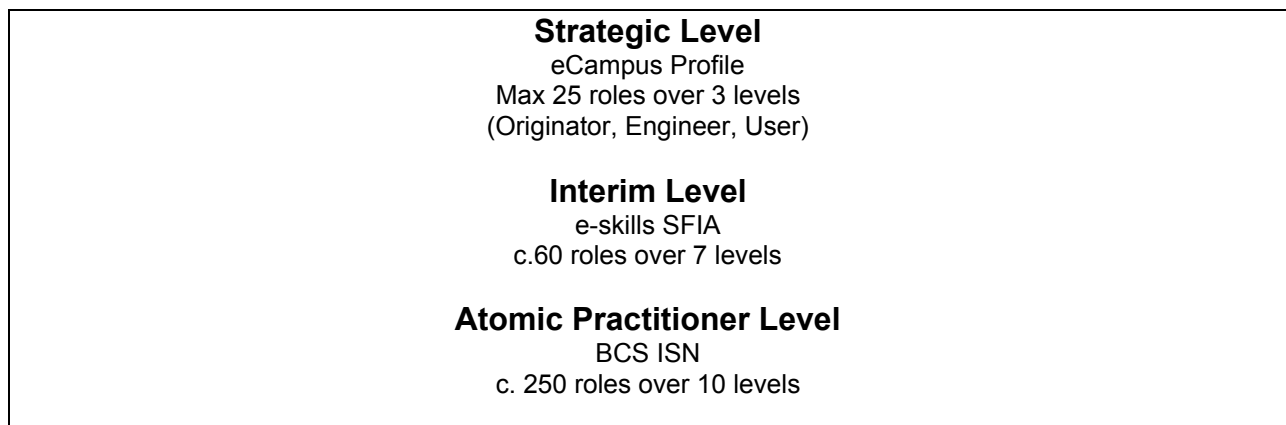
We note however the combined importance of the BCS ISM and the newly published e-skills NTO SFIA as the key models (see Appendix A). These models are significant and complimentary but suffer from two shortcomings in the context of this strategic research:

1. They are too detailed to support our initial work – though should be of greater value as the strategy is progressed and data collection is improved by SY LSC and YF over time.
2. They are relatively abstract in terms of the roles, skills and competencies described, whereas it is important in the current work to map specific required skills (eg Novell network engineering, Windows 2000, C++ programming) on to the pool of current and future provision.

The 'Assessment of Skills Needs in Information & Communication Technology' report (Institute for Employment Studies; 2001) was also used to validate our approach in terms of qualifications, skills, current gaps and future demand.

We have therefore chosen to develop a high level baseline profile in order to bootstrap our research into requirements, capabilities and provision. The process of refinement has included feedback from employers (focus groups; interviews with regional and national players), from providers (eg FHE institutions; Private Training Providers) and agencies. Further research may map this profile on to the SFIA and ISM models.

The potential cascade is shown in the following graphic.



Skills Profile Methodology

We have based the skills profile on a matrix mapping

Roles (Vertical Axis)

against

Enterprise Types (Horizontal Axis)

For example

Enterprise Types	Type 1 - Systems Development	Enterprise Type 2	Enterprise Type 3
Roles			
Role 1 - Software Engineer	√	√	
Role 2		√	√
Role 3	√		√
Role 4			

This matrix provides a reference framework for collating both quantitative and qualitative data.

√ Relevant cells in the matrix, where a Role applies to an Enterprise Type (such as a Software Engineer role to a Systems Development enterprise), can therefore be populated with a range of data such as

- Number of jobs predicted (eg in eCampus / in SY)
- Number of trainees required (ditto)
- Sample Job Descriptions (eg Supplied by employers)
- Skill, competency & qualification listings
- (eg ECDL, MCSE, Computing Degree, C++ programming)
- Available courses

Role Definition

It will be useful to categorise (classify) roles according to two factors

1. Domain expertise required

- T Technical
- M Management
- D Customer domain expertise
- X Skills from other domains
- A Ancillary

2. Levels of ICT (technical) expertise required

O	Technical – Originator
E	Technical – Engineer
U	Technical – User
Z	Technical – Zero

We have therefore classified the roles listed in the following section in this manner.

Roles

We have identified 25 roles, which are classified according to domain (Dom) and ICT expertise (ICT) in this listing.

Key ICT skills associated with each role are detailed in the Employer Survey appendix to this report.

Dom ICT Role

Technical - Analysis & Design

D	U	01	Business Process Consultancy
TD	OE	02	Analysis & Application Design
T	OE	03	System Design (including Architecture)
TX	U	04	Graphic Design & Authoring

Technical - Engineering

T	OE	05	Software Engineer
T	E	06	Network Engineer
T	OE	07	Systems Integrator
T	E	08	System Administration (including Web Master)
T	E	09	Database Administration
T	E	10	Configuration & Installation
TM	E	11	Technical Team Leader
TD	U	12	Tester

Technical - Supporting Roles

M	U	13	Project Manager
A	EU	14	Support / Help Desk
ADX	U	15	Training
AD	U	16	Documentation
ADX	EU	17	Content Authoring

Ancillary Roles

A	U	18	Data Entry
AD	U	19	Sales (including Tele-sales)
AX	U	20	Marketing
MX	U	21	Business Administration (including finance)
A	U	22	Quality Management
AX	U	23	Legal
A	U	24	Office User (including Reception, PA)

Management Roles

M	U	25	Senior Management (including Executive)
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Enterprise Types

We have identified a classification of Enterprise Types to represent the focus of ICT and digital creative industries businesses. They apply equally to public agency, corporate, SME and voluntary ICT undertakings.

Specialisms have been classified under 7 broad Enterprise Type headings:

- Type 1 - Hardware Manufacture – not applicable to eCampus
- Type 2 - Systems Development
- Type 3 - Content Creation
- Type 4 - Service Supply
- Type 5 - Value Added Supply Chain – Technical
- Type 6 - Value Added Supply Chain – Business
- Type 7 - Site Services

Legend:

@ *Enterprises favoured for eCampus*

+ *Enterprises favoured by the Cultural Industries Quarter (CIQ)*

Type 1 - Hardware Manufacture: Not applicable to eCampus

- *Chips*
- *Cards*
- *Boxes*

Type 2 - Systems Development:

- Embedded Systems (including Blue Tooth) @
- Real Time Systems (including manufacturing)
- Data Processing Systems @
- Data Communications Systems @
- Voice Communications Systems
- Software Tools development
- Operating System development

Type 3 - Content Creation:

- Multimedia authoring @+
- Web authoring @+
- Games / VR authoring @+
- Video & Film production +
- Music production +

Type 3 - Service Supply:

- Data Management Services (including outsourcing & ASP) @
- Data Communications Services (ie Raw services such as ISDN, ASDL, Mobile)
- Networked Service Provider (ie Value Added services such as ISP, ASP, XSP) @
- Hardware Maintenance @

Type 4 - Value Added Supply Chain – Technical

- Consultancy @
- Systems Integration @
- Security
- Documentation

Type 5 - Value Added Supply Chain – Business

- Marketing (including PR) @
- Tele-sales
- Reselling
- Brokerage (including Aggregation) @
- Professional Services (including legal) @
- Financial Services (including capital) @
- Training @

Type 6 - Site Services

- Security @
- Cleaning @
- Creche @
- Catering @
- Shops @

British Computer Society

The British Computer Society (BCS) publish a commercially available Industry Structures Model (ISM). The ISM is structured as a matrix of over 250 roles, categorised by ten levels of responsibility and competence. The tasks performed within each role are clearly stated, along with the experience and skills required, and training and development targets. Details are given of all relevant vocational and professional qualifications, including Scottish/National Vocational Qualifications (S/NVQs).

Nine functional areas are covered:

- management
- support and administration
- policy and planning
- systems development and maintenance
- service delivery
- technical advice and consultancy
- customer relations
- education and training
- quality

It was used by e-skills NTO as the basis for SFIA, which can be described as a superset of ISM.

Around 1,500 licences for ISM have been sold, to companies ranging from small operations with only a few employees through to large, multi-national corporations. BCS does not have comprehensive information on how the ISM is used once a licence is sold, but they are aware that it is used in a variety of ways. Some companies will use it to write job description, others for organisational planning of their information systems.

BCS does not research skill shortages in relation to the roles identified in the ISM. They feel that skills shortages generally cut across the whole industry.

Relevant documents: BSC's brief description of ISM, including the grid of roles / responsibilities.

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eSkills NTO

In June 2001 eSkills NTO published a Skills Framework for the Information Age (SFIA). It is effectively a superset of the BSC ISM, which serves as a diagnostic tool for employers examining their skills needs.

Documentation describing SFIA states that it does “not attempt a comprehensive description of the competencies engaged in performing a particular task.” However, it can be mapped on to detailed competency descriptions.

Roles are mapped against 5 high level Categories:

- Strategy & Planning
- Management & Administration
- Sales & Marketing
- Development & Implementation
- Service Delivery

Gordon Greaves of eSkills NTO is pleased with the take up of SFIA and the press coverage it received. It is already being used by several hundred organisations, including the Department of Health, the Ministry of Defence and Norwich Union.

SFIA partners of particular relevance to this report include:

- Cisco Systems
- EDS
- IBM UK Ltd
- ICL
- Microsoft
- Oracle

Information on skills gaps against SFIA is currently very poor. However, in August 2001 the National Computer Centre and Computer Weekly started a survey to map skills gaps to SFIA. Publication is expected by the end of 2001.

Relevant documents: eSkills NTO's description of SFIA, including the grid of roles / responsibilities and examples of detail from SFIA against a few roles.

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APPENDIX B – CURRENT PROVISION