Symposium to Address the Decline in Computing Graduates in Many Countries


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Abstract: The symposium will address the on-going decline in computing graduates in many countries and will attempt to identify a range of actions that could alleviate this potential threat to the knowledge society and the global economy.

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1. Contextual Information

During the last few years, in many countries in the developed world, there has been a significant decline in the number of students wishing to undertake computing programmes at University. This has resulted in an ongoing decline in the number of graduates which has serious implications for the Information and Communications Technology (ICT) sector but for society in general. This problem was discussed during the meetings held by IFIP’s Technical Committee for Education in Genoa from 4th to the 6th September 2008. A draft declaration entitled “The Decline in Computing Graduates: An International Threat to the Knowledge Society and the Global Economy” was produced at the meeting which met with general agreement. The draft declaration listed what were seen as the major problems and challenges and identified a number of actions that could improve the situation. The draft declaration highlighted the following problems and challenges:

- In many countries Computing as an academic subject has lost much of its appeal. Many students no longer wish to undertake Computing degrees. Within countries in the developed world, declines of up to 50% in undergraduate
applications have been reported since 2002 with a resultant falls in graduate output. Yet the world ICT job market has almost doubled since 1994 and it is predicted to continue to expand.

- The ongoing decrease in suitably qualified graduates within the discipline means that many countries – if not the whole international economy – are sitting on a ticking time bomb. Unless action is taken, the Global Economy and the development of the knowledge society will be critically endangered.

- ICT employers will be in competition to find suitably qualified ICT professionals from a decreasing pool and will be driven to find staff from other sources and disciplines. Companies may find staff shortages to be so severe that they close or move their whole businesses from their home countries to those where there are available staff. Any such movements are likely to produce severe economic stresses.

- The fall in student numbers is resulting in contractions in universities and other higher education establishments with losses of staff, merging, restructuring and even closures. All this have a long term effect on the teaching and research base.

- The hope to having a highly a professional workforce will prove difficult if an increasing number of those entering the workforce do not have a computing qualification.

- Studies have also identified considerable concerns over the secondary school Computing curriculum and the qualification level and subject currency of secondary school Computing teachers. There is a resultant decline in school children taking the higher level Computing subjects. This is mirroring problems with mathematics and many established science subjects (for example, Physics and Chemistry)

- The potential for the knowledge society and for the global economy in the ICT sector and in many other sectors that rely on ICT skills is dependent upon a reliable and growing supply of highly skilled graduates with significant deep knowledge in computing disciplines, and with the skills to operate in multidisciplinary and fast changing environments in industry and research. The decline described above compromises this position and jeopardises the future.

2. Symposium Goals

It is not intended that the symposium will concentrate on the problems and causes since these have already been well researched. Rather we wish to take a much more positive approach and examine both actual and possible solutions. We are particularly keen to discuss the situation in parts of the developing world where the Computing discipline is still seen as a very attractive area. We also wish to identify a range of realistic actions that could alleviate this potential threat to the knowledge society and the global economy.
3. Symposium Sessions

It is intended that the three proposed sessions will have a highly interactive format that will involve the active participation of as many of the attendees as possible. Session 1. Recap the background to the symposium and outline what is hoped to be achieved. Invite short statements from attendees regarding problems and most importantly solutions to these problems.
Session 2. Brainstorming session – attendees will be organised into groups to discuss particular issues identified during session one. Groups will be required to produce a summary of their conclusions.
Session 3. From the outputs from session 2 (and any further general discussions) identify possible targeted actions for each of the following:
- IFIP itself
- Technical Committee 3 (Education)
- Member Societies
- Universities
- Schools
- Individuals

Acknowledgement and Source of Further Information

The draft declaration agreed on by the TC3 committee was developed from an original document produced by the UK Committee for the Council of Professors and Heads of Computing (CPHC). Information regarding the situation in the UK and the fall in the number of students wishing to study Computing subjects can be found in reports that are available via the publications page on the CPHC web site: http://www.cphc.ac.uk/publications.php