



Big Bang Cymru Robotics Competition

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What is Technocamps



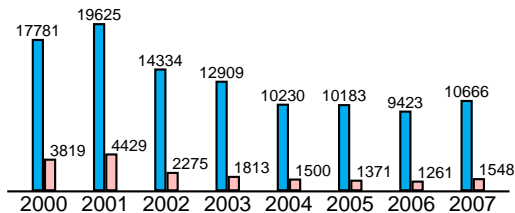
- ▶ (Since 2003) A schools outreach programme in the Computer Science Department at Swansea University.
- ▶ One of various activities run by IT WALES, the industrial liaison unit of the CS Department.
- ▶ (Since 2011) Supported by a 3-year, £6 million European-funded project led by Swansea University in partnership with the Universities of Bangor, Aberystwyth and Glamorgan.
- ▶ An extra £ $\frac{3}{4}$ million in project costs offered to continue project through to the end of 2015.

Why Technocamps?

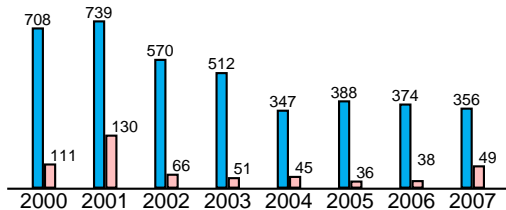
Dramatic reduction in applications to do Computing at University, along with a serious lack of females entering the field (UCAS figures)



UK:



Wales:



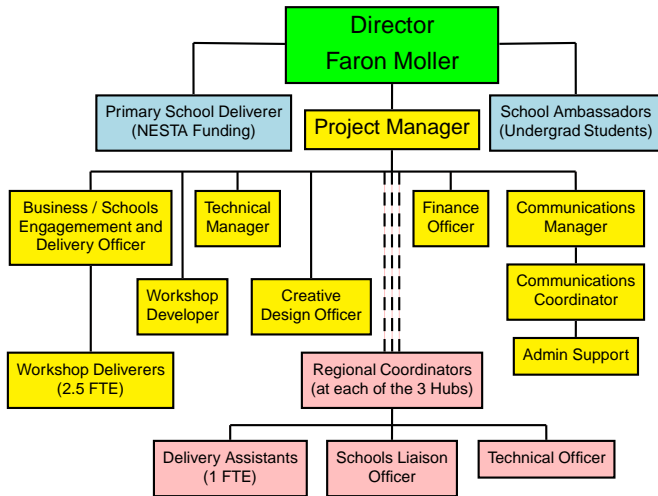
What is the problem?



- ▶ Geeky image
- ▶ Misunderstanding at the highest level of the difference between ICT and Computing
- ▶ Everyone needs ICT/digital literacy skills, not everyone needs computing skills...
- ▶ Boring and out-of-date curriculum
- ▶ Lack of qualified teachers in Wales in computing
 - ▶ Number of ICT teacher in Wales: 707
 - ▶ Number of ICT-trained teachers: 179

- *General teaching council 2008*

Technocamps Staffing Structure



Main Activities



- ▶ 5000 participants engaged with the project (Sept 2011 - June 2013).
- ▶ 1500 participants re-engaged.
- ▶ The majority have experienced a one or two day workshop, and/or attended a Technoclub at school.
- ▶ Popular Workshops:
 - ▶ Programming (Scratch / Alice / Greenfoot / iOS)
 - ▶ App development
 - ▶ Game development
 - ▶ Build your own Computer
 - ▶ Build your own Internet
 - ▶ Web development
 - ▶ Picoboard / Lilypads
 - ▶ Lego NXT
 - ▶ Printcraft: Minecraft Meets 3D Printing

Technoclubs



- ▶ Weekly extra-curricular activities in school
- ▶ Typically follow-up to a Technocamps Workshop
- ▶ Run by teachers or Technocamps Ambassadors (university students)
- ▶ Ideas and resources provided by Technocamps
- ▶ Popular clubs:
 - ▶ Programming (*Scratch, Python*)
 - ▶ App Development (*App Inventor*)
 - ▶ Robotics (*Mindstorms, Arduinos, Pi's*)
 - ▶ Computational Thinking (*"Computers Unplugged"*)

Annual Robotics Competition



- ▶ Lego Mindstorms kits supplied to 60 schools
- ▶ Competition held at Big Bang Cymru (early July)
- ▶ This year held at Glamorgan (last year in Swansea)
- ▶ Over 40 schools competing: 20⁺ at Glamorgan, the rest at regional events in Bangor and Aberystwyth with live video link-up to the main event
- ▶ Self-designed environmentally-friendly application with poster and live presentation; plus an unseen challenge on the day
- ▶ This year's challenge: *Dancing Gangnam style*