



Breaking through

Although appearances may suggest otherwise, the UK remains one of the premier research locations in the world. And it's the job of the Engineering and Physical Sciences Research Council (EPSRC) to make sure that remains the case.

Its role is to promote and support high quality basic, strategic and applied research, along with post graduate training in the engineering and physical science fields.

If it meets its targets, then it will have helped to advance knowledge and technology, along with providing trained scientists and engineers for a range of application sectors. And numbered amongst these is the ICT sector, which is 'home' to the electronics industry.

Matthew Ball is EPSRC's senior manager for the electronics sector. He noted that the EPSRC is the main source of funding for academic research in the UK. "We have a budget of £740million a year available for projects across a range of disciplines. We invest a lot in PhD training and this is an essential platform."

EPSRC budgets are set following reviews which take place every three years. Currently, the EPSRC is in the first year of the latest three year plan.

Responding to the Government's 2008 spending review, EPSRC identified a number of main themes for its research funding. These include energy, the digital economy, nanoscience, the knowledge economy and health care. It is also concerned with supporting the next generation of

How EPSRC is helping researchers to meet the Grand Challenges.

By Graham Pitcher.

researchers and helping to exploit the research that is being undertaken within UK universities.

There is a range of funding approaches used by EPSRC. Ball says supporting PhD work through doctoral training is the main route. "We essentially provide a flexible 'pot' of

money to universities which they use as they see fit. But this is only open to European students."

The prime route is for a professor to apply for a standard research grant, he continued. "This means they need a permanent post. It's a very competitive route to take, but it can often be a platform from which to launch a career."

Ball pointed to a number of sectoral programmes, covering areas such as photonics, electronics and communications. "Each of these sectors has a person who interacts with that particular academic community. The head of those programmes will then develop a





business case and decide how much budget should be allocated to responsive mode.”

Another approach is for EPSRC to make ‘calls for proposals’ in certain technology areas. “We’ll have a consultation with people in that area, then take the proposal to a strategic advisory team.”

In the photonics sector, EPSRC’s portfolio comprises 184 grants, worth some £80million. In the electronics sector, which spans vlsi devices to rf and



Grand Challenges

One of the EPSRC’s latest initiatives is the Grand Challenges. It’s a new approach, said Ball, called signposting. According to EPSRC, signposting is a way of highlighting priority research areas.

The Challenges are intended to foster what EPSRC calls ‘community led’ research. The work to be undertaken within these Challenges is long term – with a horizon of at least 10 years – and generally requires collaboration between different sectors.

EPSRC says it identifies these areas from evidence provided by international reviews, community meetings and input from programme advisory teams.

The approach was first used in the physics sector, where the consensus pointed to responsive mode being the best way to support fundamental research.

EPSRC believes this provides an

Network (www.electronics-ktn.com), which has developed a series of seminars to broaden the audience.

There are four strands to the electronics Grand Challenge: Batteries not included; Silicon meets life; Moore for less; and Building brains. For something to qualify as a Grand Challenge, it not only needs to be politically and publicly comprehensible, but also unarguably challenging and universally engaging.

The silicon technology Grand Challenges include: novel silicon based devices and processes; modelling and simulation; characterisation; new materials; smart nano; silicon for life; and eco silicon.

More collaboration

In general, part of EPSRC electronics sector’s remit is to promote closer working between academia and industry. “We have strong links with the National Microelectronics Institute, the Electronics Leadership Council and the Electronics KTN,” Ball noted. “In some cases, it’s a brokering role, putting people in touch with each other, with the aim of getting more knowledge transfer from the research work we support.”

EPSRC also has strategic partnerships with a number of large companies, such as BAE Systems and Airbus. “We work with large companies with a significant research effort,” Ball explained. “If they have a priority that fits with ours, we can put some money on the table.”

However, there are no such partnerships with electronics companies at the moment. “So we’re looking to do more cross sectoral work,” Ball continued, “and energy management is an example of this, with work in its early stages.”

How does EPSRC determine its priorities? Ball says it’s all about keeping their fingers on the pulse. “We want the UK’s ICT community to maintain its world leading profile and critical mass. We’re trying not to be too ‘top down’; rather, it’s about pump priming in certain areas.” ■

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microwave, there are 98 grants worth some £49m.

In the latter sector, grants range from more than £6m for the University of Surrey’s Portfolio Partnership Award to just £3300 to support a workshop on reconfigurable computing.

How does EPSRC’s work differ from that being undertaken by the Technology Strategy Board? “The TSB is in a different space in terms of technology readiness,” Ball observed. “EPSRC is at the ‘bottom’ level, supporting fundamental research. The TSB picks up this work in the developmental stage and works with industry to take it forward.

“Nevertheless, we have a collaborative research programme with TSB in which industry and academics come together. While EPSRC funds the academic side, we can’t fund industry directly.”

alternative way of responding to new opportunities or to support researchers moving into areas where they have yet to establish a ‘track record’.

Two of the Grand Challenges are in microelectronics and silicon technology. Both are signposted until May 2010 and up to 10% of the ICT programme budget is available, depending upon the quality of proposals received. “But it’s up to the community to develop the ideas,” Ball noted.

The microelectronics Grand Challenge is a consensus programme outlining the major research opportunities within the electronics sector. The aim is to encourage greater coherence, communication and collaboration across the community.

The Grand Challenge has been picked up by the Electronics Knowledge Transfer