

Preliminary manufacturing analysis of some EH applications

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Outline

- The ESP KTN- our interest in EH
- Timeline for Energy Harvesting commercialization in the UK
- Manufacturing challenges project
- Takeaway points



Electronics, Sensors, Photonics Knowledge Transfer Network

66 Joining the dots between who needs what, and who's got what...





We talk a LOT of different languages

Electronics, Sensors, Photonics... RoboticsInstrumentationSystems EngineeringAdaptive OpticsEnergy HarvestingEmbedded SystemsLarge OpticsCommunicationsPowerElectronics Additive Layer ManufacturingLaser ProcessingInternet of ThingsMulti-Core ProcessingMedical DevicesOrganic ElectronicsDisplaysLighting ...



We work with other KTNs and in other domains to address challenges

Energy Harvesting 2012, Hamilton House, London

Smart DC £ BIS EGS KTN MBE KTN ESP

Knowledge Transfer

Electronics, Sensors Photonics

Network



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Timeline for EH commercialization in the UK

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Photonics







Key challenges identified for commercialisation

- More power
- System design approaches and tools
- Sustainable product propositions and business models
- "Demonstrators" to build confidence
- Not enough new entrants, especially system integrators
- Specialist manufacturing capabilities and capacities to exploit R&D

Can't find this stuff in the RS catalogue



Manufacturing challenges project

Top-level energy-balance and system design of some disparate but "arguable" applications

For each, publish the trade-off study- especially

- Status of the manufacturing supply chain (UK and elsewhere)
 - capacity and capability
- Gaps and opportunities (especially new processes and materials)
- March –June 2012







A heads-up to the supply-chain, especially systems integrators and SMEs:-

- You can do something like this, or fill a gap
- Now you know who to talk to
- Think about propositions 2 years from now



Our Steering Group

Being recruited from the full supply chain- especially integrators

Carlos Huggins, ESP KTN	
James Johnston, Nano KTN	
Steve Beeby, Southampton	
Roger Hazleden, TRW Conekt	
Amanda Hall, Network Rail	
Simon Aliwell	
Others??	



The challenge areas

Several application areas, power levels (few 100nW up to maybe 1W?), and technology bases

Application 1 The energy-harvesting "Wii" or remote control handset
Application 2 Smart packaging for food
Application 3 One using thermoelectrics-TBD
Application 4 A body mounted sensor node- powered by piezoelectrics
Application 5 Power for a Sensor for agriculture?
Application 6 Power in a harsh environment (automotive, aerospace, ..)



Where are we now?

- Just getting to grips with the (appropriate) detail
- Preliminary energy balance model in place
- Working up a list of detailed meetings/conversations for April/May
 - Training, modelling and simulation, harvesters, electronics platforms, electronics design, storage, integration, new materials and processes
- Workshop event at S2k June 19th



Takeaway message

- Several KTNs working together in this area
- Commercialisation now needs greater activities in
 - System-level demonstration
 - Building the supply-chain
 - Attracting new entrants
- Tell us about your (potentially commercially useful) capability



Thank you

Questions?

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Register at the EH subgroup https://connect.innovateuk.org/web/eh1

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