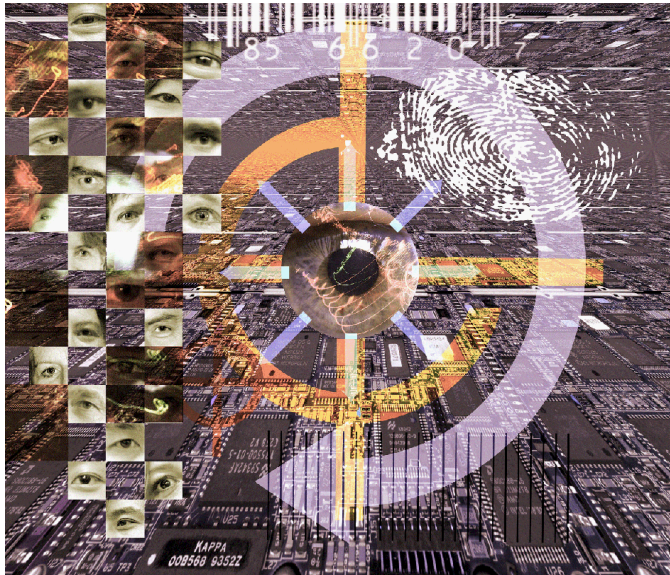


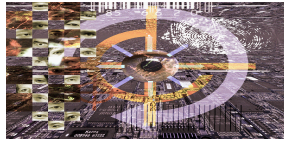
TECHNOLOGIES FOR CRIME PREVENTION AND DETECTION PROGRAMME



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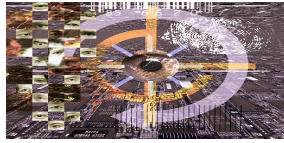


Outline of Presentation

History

EPSRC programme

Some issues



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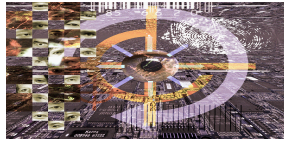
Starting Point

Foresight Round 2: 1999-2002

Crime Prevention Panel

Turning the Corner, December 2000:

- *opportunities for science & technology*
- *key recommendations*



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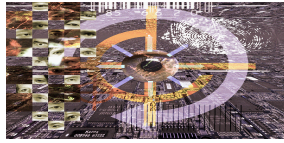


Foresight Report

Turning the Corner

Key Recommendation:

“That a dedicated funding stream is established to focus science and technology attention to crime reduction.”

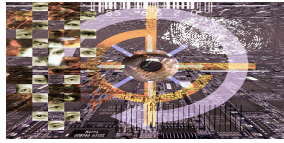


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Vision

To attract and harness the skills and expertise of physical scientists and engineers to engage in research that will produce innovative technical approaches to prevent and detect crime in partnership with users.

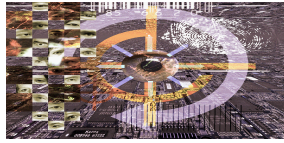


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Objectives

- To raise awareness of researchers of how their knowledge and skills might contribute to crime reduction in the UK
- To support research projects for technologies that will aid:
 - a safe living environment
 - personal and property security
 - proof and protection of identity and authenticity
 - forensic science and crime detection

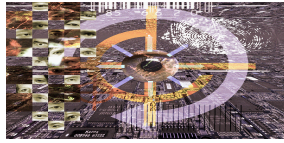


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Programme Characteristics

- Long-term, high risk, pre-development research
- Carried out in academic bodies & their analogues
- Clear involvement of user organisations: private (e.g. manufacturers, service providers) or public sectors (e.g. law enforcement agencies, police, government departments)
- Open remit within the main focus of engineering & the physical sciences
- Calls for proposals



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Open Remit: Exemplars

Designing Out Crime

Crime Detection

Security Marking

Person Detection/Biometrics

Security Control

Forensic Science

Vehicle Security

Adulteration of Foodstuffs

Building Security

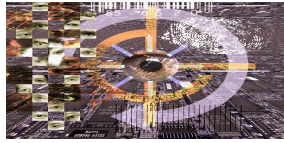
Anti-Terrorism

Illegal Drugs

E-trading/Commercial Communications

Property Protection

Offender Sentencing, Tracking and Identification

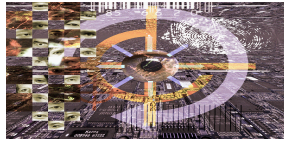


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Research Projects Supported

- handwritten documents
- forensic & security screening
- speaker recognition
- crime scenario modelling
- video analysis & control
- biological agent detection
- PCR development
- latent fingerprint chemistry
- fingerprint imaging
- textile security marking
- video wireless LANs
- millimeter wave imaging
- internet criminal detection
- bomb blast protection

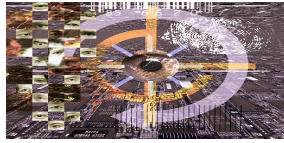


TECHNOLOGIES FOR CRIME PREVENTION AND DETECTION PROGRAMME



Research Projects Supported

- face recognition
- security critical systems analysis
- chemical agent detection
- illegal materials trafficking
- security marking materials
- age at death analysis
- data encryption
- people & property tracking
- witness identification
- luggage examination system
- detecting unusual activities on video
- handwriting analysis
- fast protein profiling
- video evidence recovery
- enhanced resolution imaging



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Research Networks Supported

- video-based biometrics
- identification science
- surveillance technology
- crime science

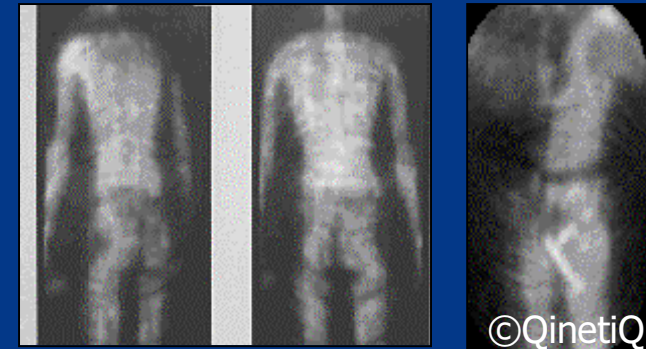
Automatic Detection of Concealed Weapons Using MM-Wave Imaging

Objectives

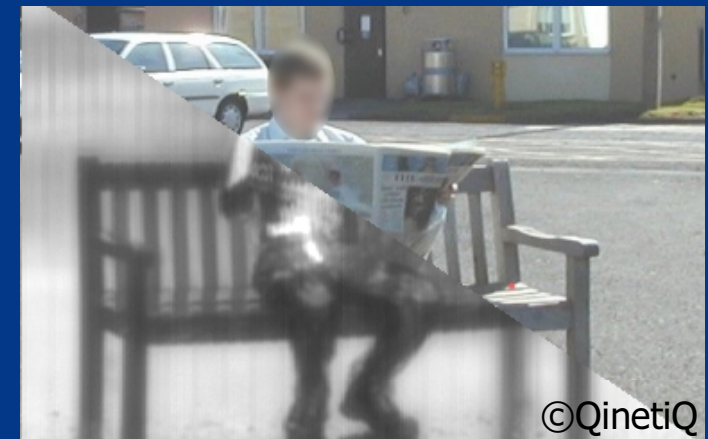
- Develop Algorithms for Automatic Detection of Threats (Weapons, Explosives) using mm-wave imagery.
- Ensure privacy of the users
- Model the mm-wave image formation process
- Improve the sensor for automatic screening
- Provide technology roadmap for algorithms and sensor
- Provide operational and Legal guidelines for system deployment.

Partners:

- **QinetiQ Malvern** World leaders in mm-wave imaging technology
- **Home Office, PSDB, DfT** Focus for applications, Legal and operational inputs
- **Heriot Watt University** Signal and Image Group. Project lead. Develop Imaging technology.



Indoor Scenes

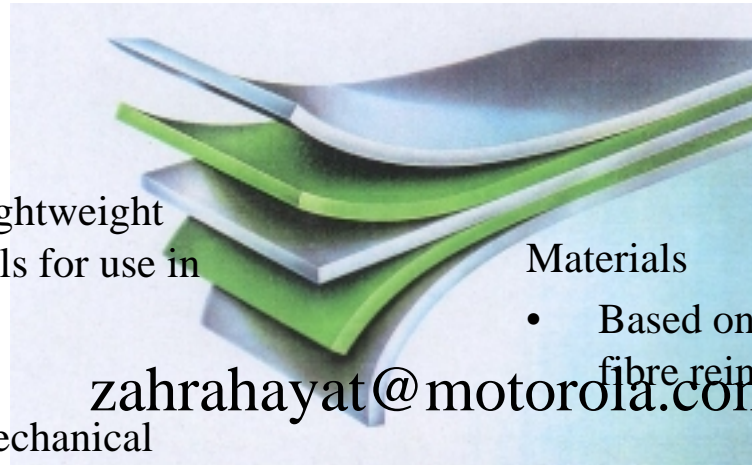


Outdoor Scenes

Bomb Blast Protection Using Novel Lightweight Materials

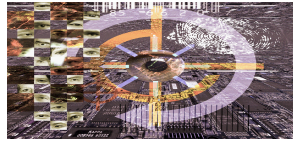
Objectives

- To test and develop lightweight blast-resistant materials for use in street furniture
- To characterise the mechanical behaviour of the materials at various rates of loading for optimum design
- To fabricate and test a prototype 'bomb-proof' container/liner



Materials

- Based on stacked arrangements of metal and fibre reinforced composite layers
- Thermoplastic-based FMLs have superior impact resistance and fracture toughness
- Processing times are short

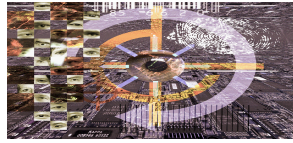


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Super-Resolution Imaging

- Long-range, high resolution cameras are hindered by atmospheric disturbances causing image distortion
- Project will investigate computer technology used by astronomers to enhance image resolution
- Potential for reducing illegal immigration, smuggling and other crimes
- Investigator: Dr Craig MacKay, Cambridge University, in collaboration with E2V Technologies Ltd, Instro Precision Ltd, Melford Resolution Ltd, Police Scientific Development Branch



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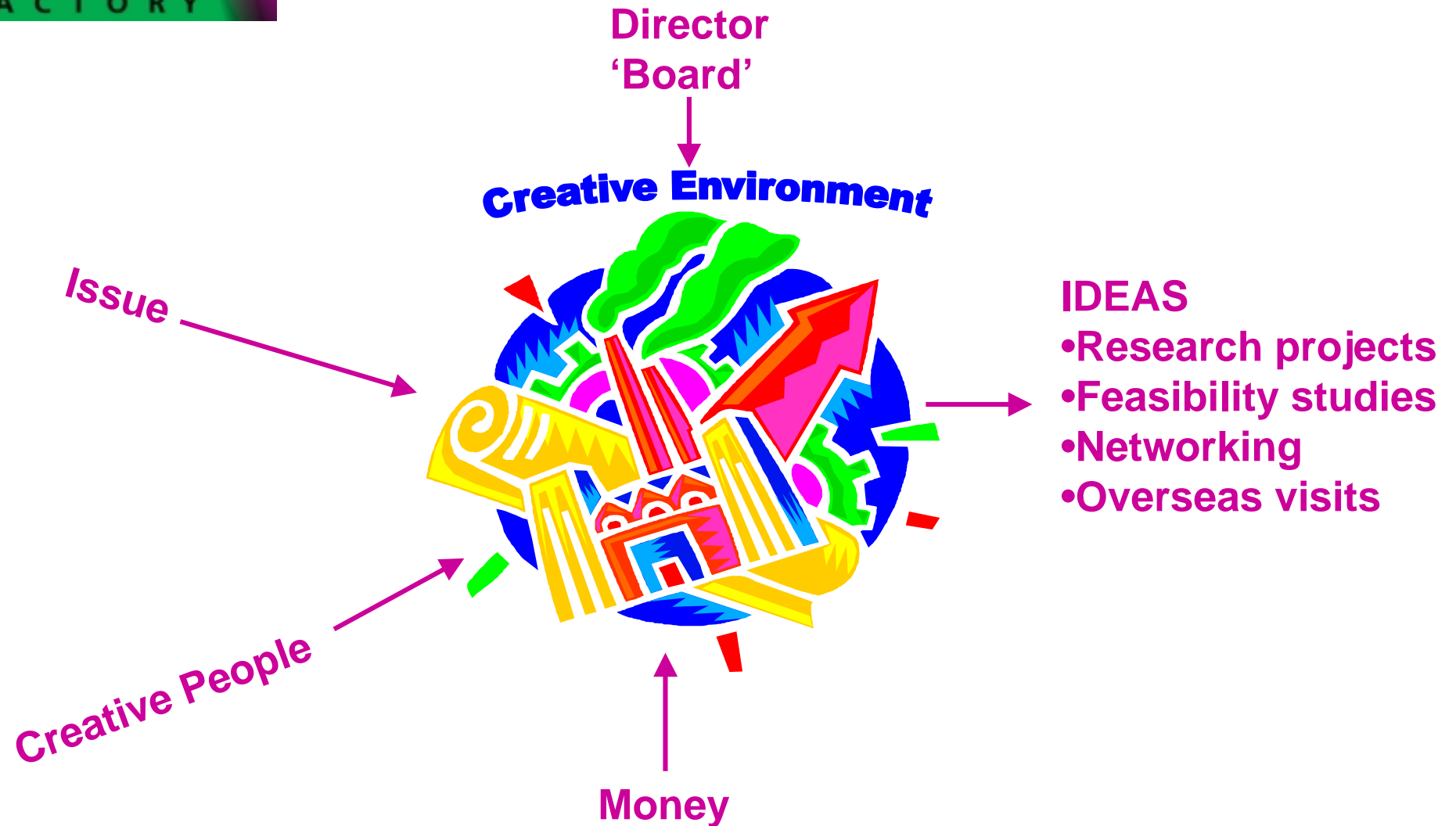


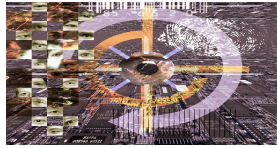
Future Developments

- New Funding Opportunities
- Ideas Factory
- Showcase Event



CONCEPT





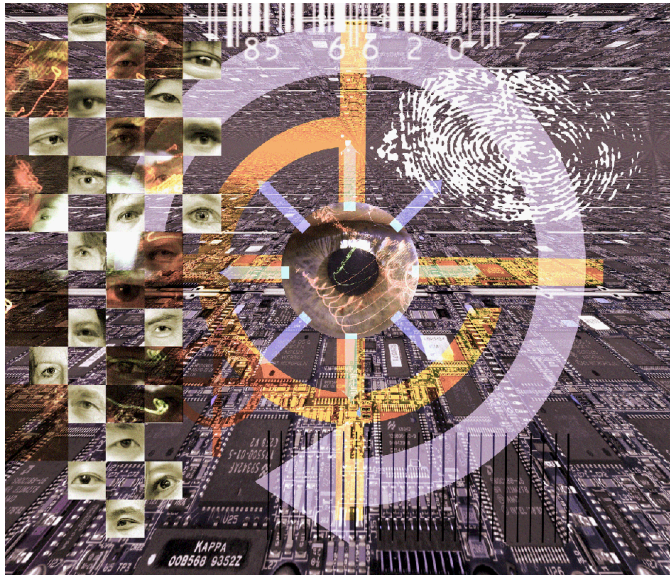
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Some Issues

- Is the EPSRC strategy to support technologies for crime prevention & detection in an unfocused way appropriate?
- Should the science base be encouraged to establish centres of crime technology excellence, and if so in which areas of technology, and how should they be funded?
- By what measures should the EPSRC programme be judged a success?

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