

# Retrofit for the Future

Neil Morgan  
Project Leader



# Who are the Technology Strategy Board?

- We are a national body set up to invest in business innovation
- We work across business, universities and government
  - ..and anyone else who can help
- We come from business (and the public sector)
  - 75 people with over 600 years of business experience
- We are responsible for investing £1bn over the next 3 years

## Our purpose

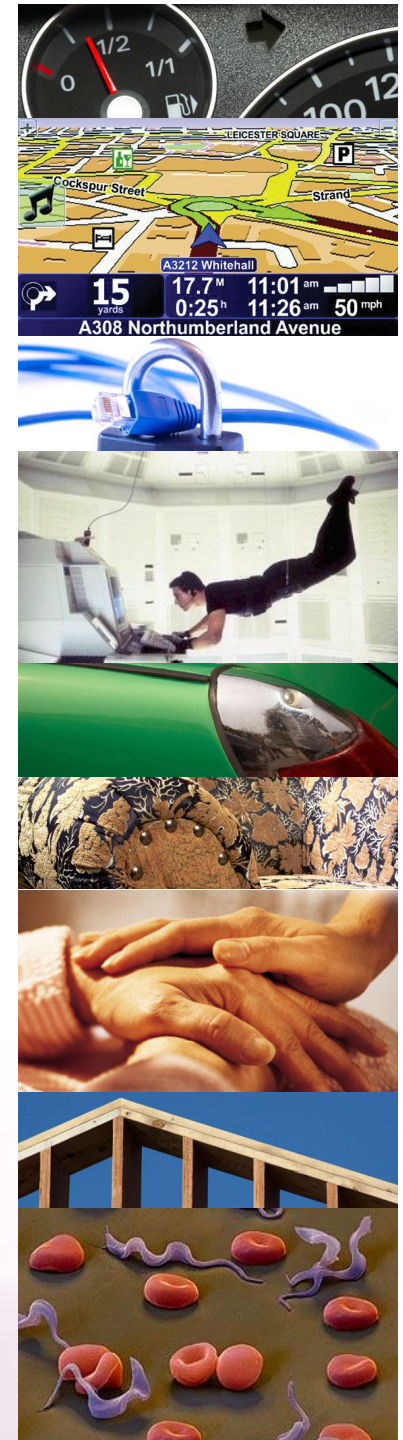
- Is to support businesses to be more profitable, now and in the future
- There are some markets we can predict...
- ...the ones that are driven by Governments to address societal challenges...
- ... and others driven by the needs of people, which need proper analysis before prediction

# Technology Strategy Board

Driving Innovation

## Innovation Platforms

- We work with Government as they address societal challenges to give business the future market definition they need to be competitive
  - Intelligent Transport Systems and Services
  - Network Security
  - Low Carbon Vehicles
  - Assisted Living
  - Low Impact Buildings
  - Detection and Identification of Infectious Agents



## Challenge

- 80% reduction in carbon emissions by 2050
- Housing in the UK accounts for 27% of carbon emissions
- >80% of the houses we will be living in 2050 have already been built



## Background

- Heat and Energy Saving Strategy consultation (DCLG and DECC)
- Social housing accounts for approximately 20% of UK housing stock
- UKGBC estimate the market to be worth £3.5 – £6.5bn per year



## Competition - £10m currently

- A minimum of 50 social housing demonstrators covering different housing types and geographic areas
- Suppliers receive a contract covering 100% of costs
- Solutions that focus on improving the performance of the whole dwelling



# Technology Strategy Board

Driving Innovation



Homes &  
Communities  
Agency



**Communities**  
and Local Government

Competition  
Launch

Submit application  
form

March - June

Unfunded

Outcome:  
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Feasibility  
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Submit  
Study

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Retrofit  
Demonstrator

Build

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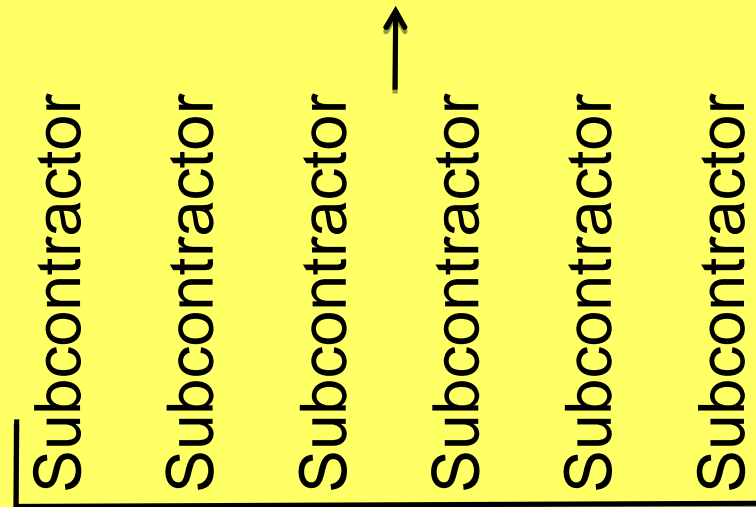
100%  
Funded  
(150K) max

Outcome: Review  
lessons learnt take  
forward exemplars

Replicate

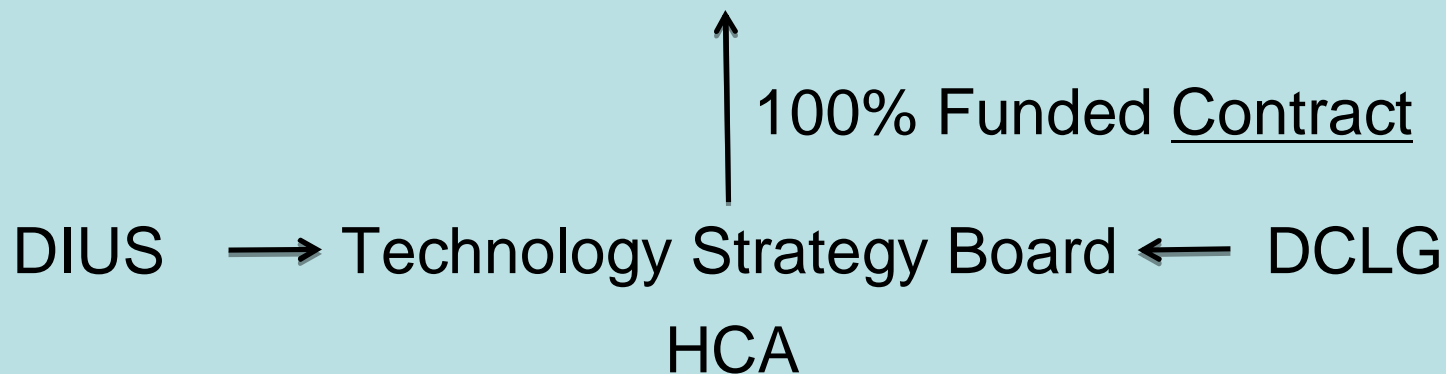


## Demonstrator House (Social Housing)



← Third party  
suppliers

Lead Company (architect, RSL, contractor etc)



## Outcomes

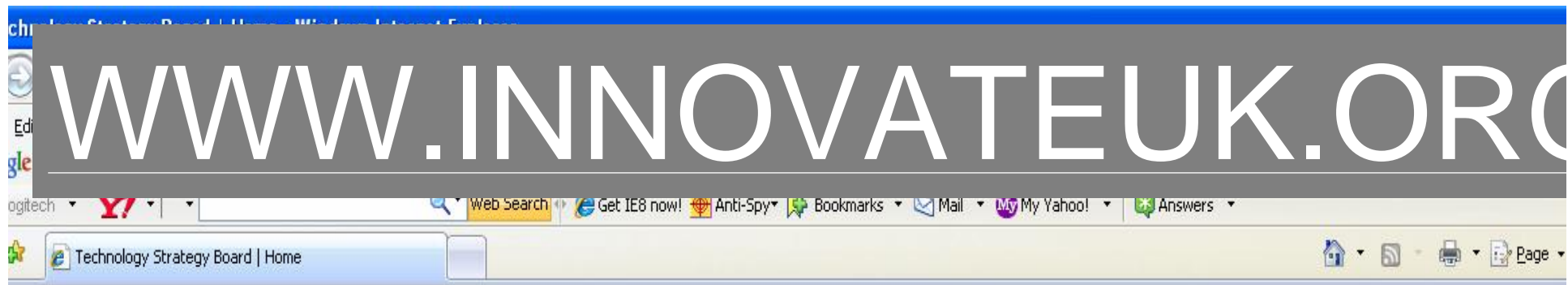
- Create exemplar retrofitted properties with radical solutions for real people
- Kick start the social housing retrofit market for UK business
- Build on Decent Homes standard, CERT, and Heat and Energy Saving Strategy consultation



## Outcomes

- Innovative solutions to evaluate for future procurement from UK business
- A demonstrator pattern book
- Development of UK skills
- Evidence of actual in-use performance benefits and costs





## Technology Strategy Board

Driving Innovation

[Access to competition administration](#)

Technology Strategy Board

[About us](#) [Our strategy](#) [Get involved](#) [Successes](#) [Delivering innovation](#) [Publications](#) [News and events](#) [Contact](#) [FAQs](#)

### Welcome to the Technology Strategy Board

Our vision is for the UK to be a global leader in innovation and a magnet for innovative businesses, where technology is applied rapidly, effectively and sustainably to create wealth and enhance quality of life.

Welcome

[Innovation Platforms](#)

[KTN](#)

[KTP](#)

[European Funding](#)

[SBRI](#)

The Technology Strategy Board promotes innovation in many ways

Our approach is summed up in the words *connect* and *catalyse*.

Go

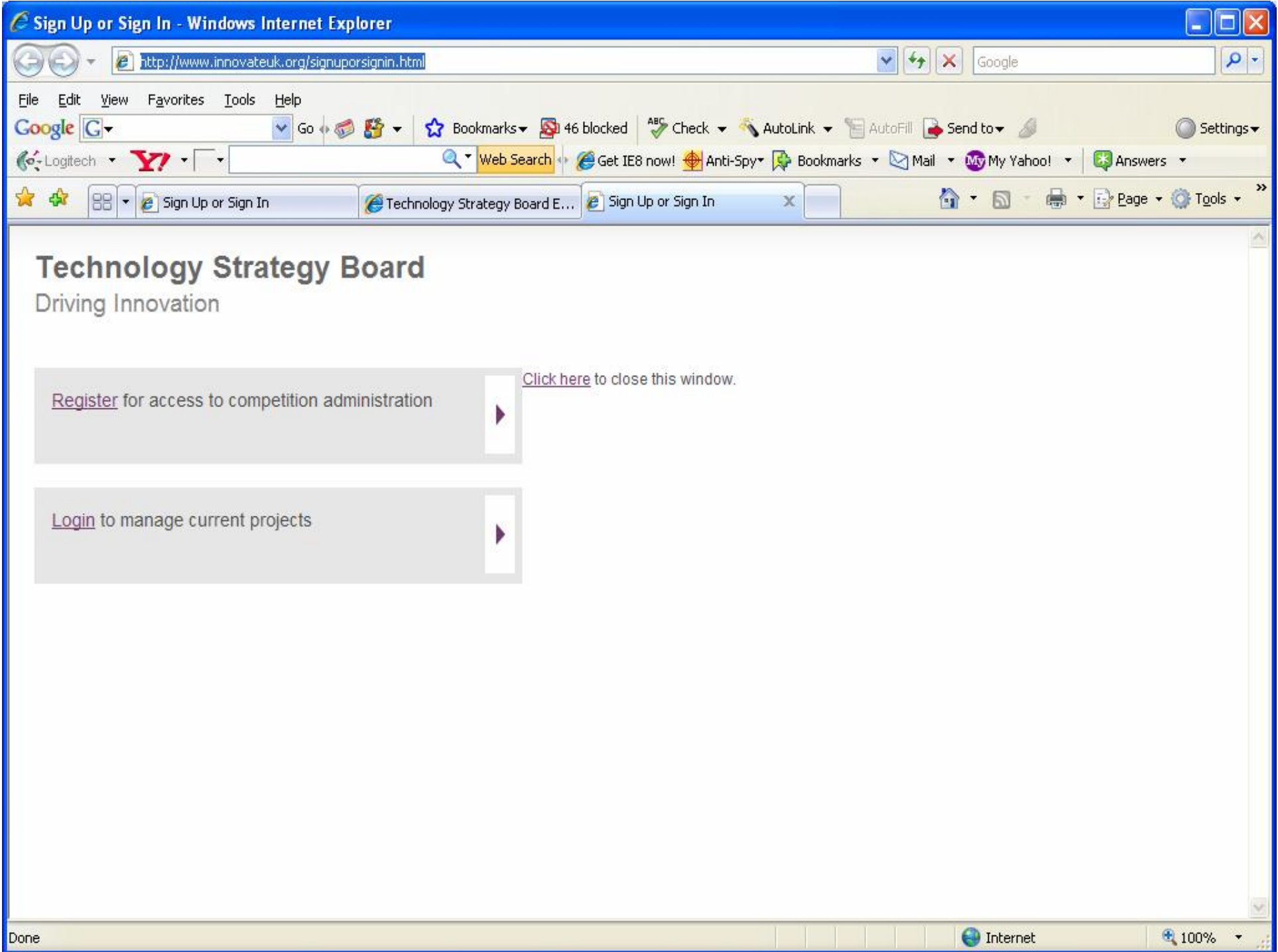
### News

#### [Press Release - Greener Buildings - By Design](#)

The Technology Strategy Board invites British companies to apply for funding to develop new design and decision support tools for building design.

#### [Press Release - Design Council and Technology Strategy Board partnership](#)

Design Council and Technology Strategy Board partnership places design and technology at the heart of UK innovation.





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DTI: Technology Programme | Registration

## Technology Strategy Board *Extranet*

Driving Innovation

Friday, 17 April 2009

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### Sign-Up

Please use the form below to sign up with the Technology Programme. Click on [home](#) to login if you have already carried out this sign up process.

Click here to check whether you have already carried out this [sign up process?](#)

**Please note this registration is for access to the Technology Programme extranet (Private Area) and does not constitute a Registration of Interest for any Technology Programme competition.**

When we are open for new competitions **Registrations of Interest can be made by completing this sign up process then logging in to the Technology Programme extranet** and following the appropriate links.

- **All fields are required entries.**
- You must enter a valid email address.
- Use the prompt field to help you remember your password.

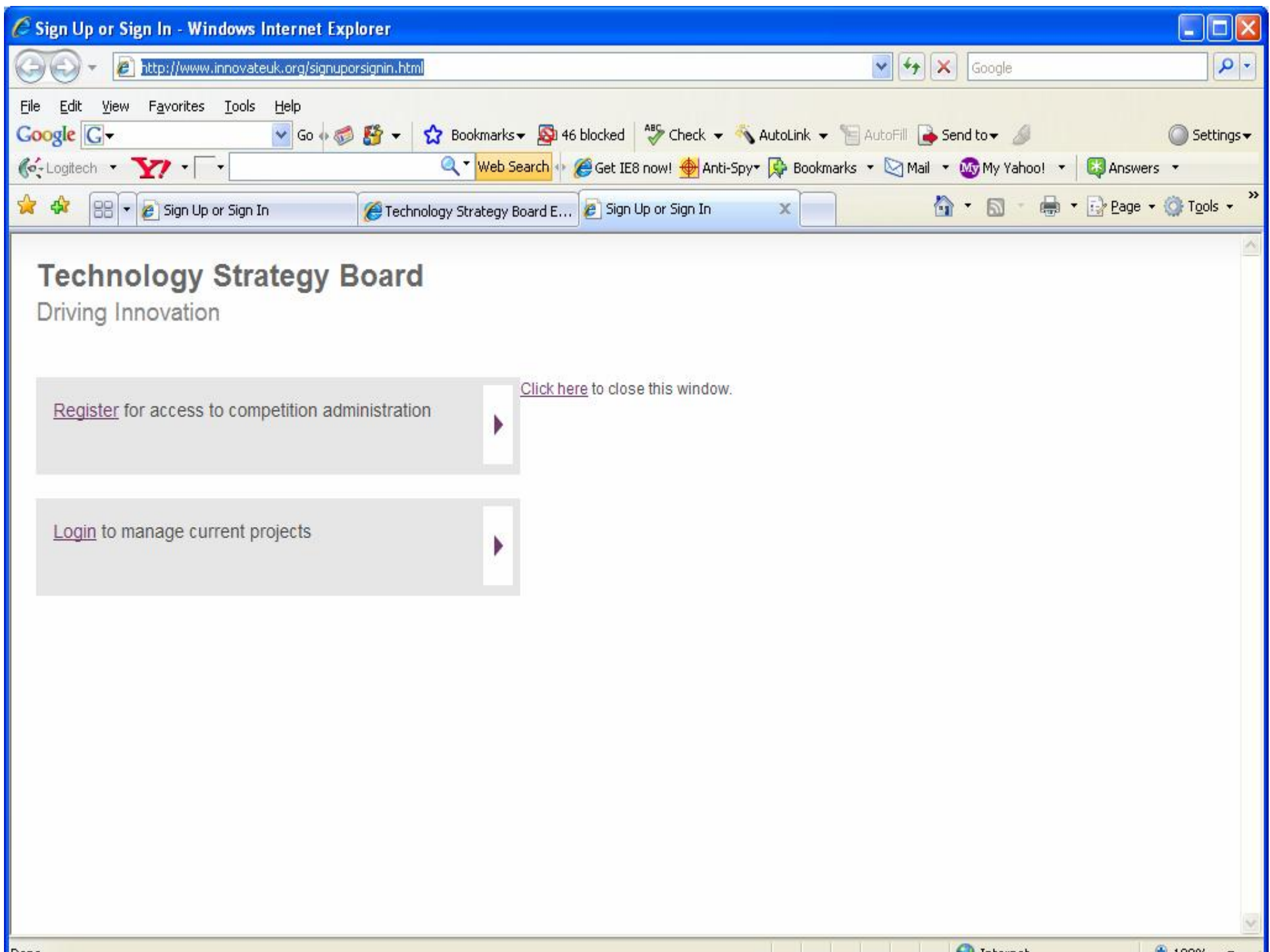
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#### Sign-Up Form

Email:

Done

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## Technology Strategy Board *Extranet*

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[Special Link](#)

### Welcome to the Technology Strategy Board private area

This is a secure website for the Technology Strategy Board and is used to provide competition information, download documents and submit forms for Collaborative Research and Development, Innovation Platforms and Knowledge Transfer Networks.

[For SBRI Competitions click here](#)

[For ALL other competitions click here](#)

#### Phase 3.

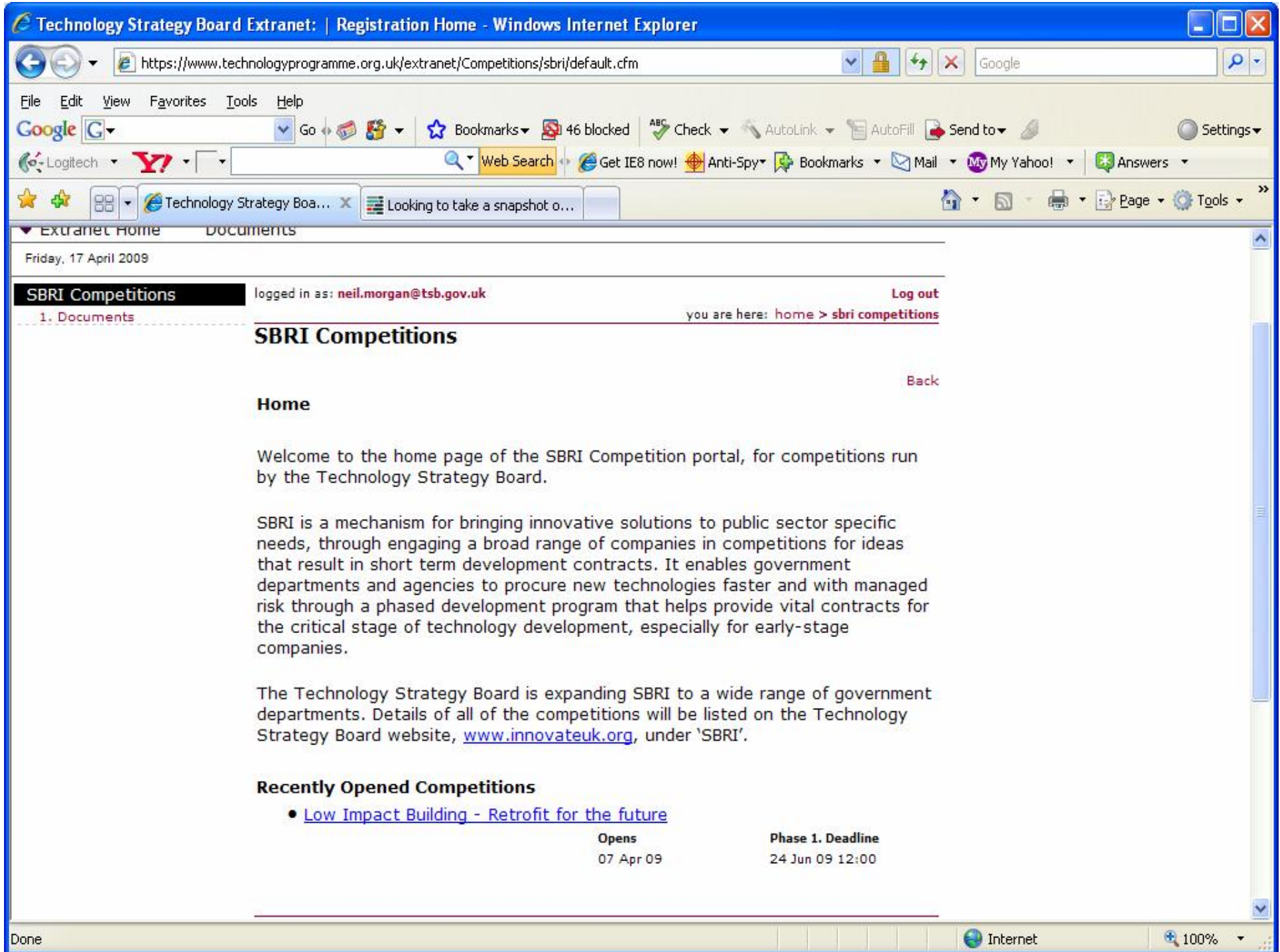
##### March 2009 Competitions

Competitions open 16th March:

- Energy Generation and Supply: Fuel cells and hydrogen technologies
- Network Security - Information Infrastructure Protection
- Network Security Fast Track - Information Infrastructure Protection

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https://www.technologyprogramme.org.uk/extranet/competitions/SBRI/comps/default.cfm?subcat=SBRIDFTHome&PriorityID=28

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Homes & Communities Agency

Communities and Local Government

The Technology Strategy Board is launching an SBRI initiative to Retrofit UK social housing stock in order to meet future targets in reduction of CO2 emissions and energy use. This competition is run with the Homes and Communities Agency and the department of Communities and Local Government. It will look for at least 50 demonstrator whole house solutions to improve the performance of the entire property with a goal to make deep cuts in carbon emissions. The key area of interest in this initiative is radical, low rise, whole house solutions.

**Important Dates**

Open	Phase 1. Deadline
07 Apr 09	24 Jun 09 12:00

Click on:

- The **Documents** button below - to obtain competition documents.

Documents

- The **Download Blank Forms** button below - to obtain your blank Phase 1. Form for **Low Impact Building - Retrofit for the future.**

Download Blank Forms

- The **Submit** button to upload your completed form.

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Government challenges.  
Ideas from business.  
Innovative solutions.

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1. Documents

SBRI Competitions

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Documents

Retrofit for the Future

[Context Document](#)

[Guidance Notes](#)

[Brief](#)

[Frequently Asked Questions](#)

[Invitation to Tender](#)

36 Kb

80 Kb

99 Kb

99 Kb

120 Kb

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3. Submit

Low Impact Building - Retrofit for the future

Back

Download Application Form

Please read the following important notes:

1. A unique **competition reference number** is allocated for each application when you download a Form. This number is used to identify your application throughout the submission process, so you **must not change** this **number** as attached to the file name conventions of the downloaded forms.

2. Forms are submitted via this website, no other submission method will be accepted.

3. **Office 2007:** Please save documents in compatibility format as **Word 97-2003 Document(\*.doc)** prior to submitting.

Summary of forms downloaded

Reference No.	Download Date	
ZA018H	14 April 2009	Download

If you would like to download another form please click **continue** below:

Done

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2. Download Blank Forms

3. Submit

SBRI Competitions

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Submit

You may **repeat submission of forms** as often as necessary until the deadline **24 Jun 09 12:00**. All documents must have the predetermined names and format as originally downloaded.

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Please save documents as **Word 97-2003 Document (\*.doc)** prior to submitting.

Click on:

• **Begin Submit** to start the upload process.

Reference No.

ZA018H

Begin Submit

List Submitted File

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## 4. Description of Proposed Idea/Technology

- Please summarise the proposed project and how it will deliver against the Retrofit challenge. (max 2/3 page).
- Summary of:
  - » Scheme
  - » House type
  - » Carbon Impact
  - » Geographic location
  - » Innovation
  - » Cost
  - » Differentiator
  - » Potential Impact

## 5. Technical Project Summary

- Please give a short background to the key technologies and innovations.  
(max 1/2 page)
- E.G.
  - » Fabric Insulation
  - » Windows
  - » Ventilation
  - » Lighting
  - » White Goods
  - » Control Systems
  - » Micro-generation

## 6. Background

- Please provide a description of the house type, its region (see drop down) and further details of geographic location, Please also provide planning implications and replicability of the solution. (max 1/2 page):
  - » House type (bedrooms, age, terrace, etc)
  - » Construction (cavity wall?, floor area, floor type, roof etc)
  - » Condition
  - » Existing insulating measures (SAP?) etc
  - » Heating and hot water (gas, storage heaters, etc)
  - » Planning
  - » Potential for scale-up, economies of scale
  - » Number of similar houses in the UK?



## 7. Carbon Impact Assessment

- Please estimate your target reduction in CO<sub>2</sub>, both in terms of % reduction bearing in mind the current rating of the proposed dwelling(s) and also please estimate the following absolute targets.
  - Space Heating Demand: kWh/m<sup>2</sup>/yr
  - Whole House Primary Energy Demand: kWh/m<sup>2</sup>/yr
  - Overall CO<sub>2</sub> Target Range: Kg/m<sup>2</sup>/yr
  - Target reduction of CO<sub>2</sub>: %
- Please give other carbon and energy impact information to support your application, include your assumptions when calculating the targets given above and how you calculated the numbers including any software used (max 2/3 page)
  - » Justification of numbers and other info

## 8. Technical Team and Expertise

- Please provide a description of your retrofit team the expertise of each member relevant to this application and the proportion of their time they will spend on the project ( $\frac{1}{3}$  page)
  - » Contractors, Architects, Social Landlords, Suppliers etc,
  - » Relevance
  - » Track record
  - » Estimated time

## 9. Application Finances

- Labour:
  - Materials:
  - Sub Contract:
  - Other :
  - **Total Cost (auto-calculated)**
- Overhead:
  - Capital Equipment:
  - Travel and Subsistence:
  - Other :

### 9. Application Finances (cont.)

- Please provide brief justification of the project costs with particular reference to subcontractors and suppliers. In addition please justify how the costs are marginal for Retrofit works and separate to any refurbishment costs ( $\frac{1}{3}$  page).
- Beyond other standards such as Decent Homes
- By submitting you are confirming that you and your company are actively engaged in the project and responsible for its overall management and will administer the award if made
- Make sure your company and any other key subcontractors are onboard

## Brokering Events

Register at [www.mbektn.co.uk](http://www.mbektn.co.uk)

- Scotland, 22nd April 2009 in partnership with Scottish Enterprise and the Scottish Construction Centre
- East Midlands, 5th May 2009 in partnership with the Sustainable Construction i-NET
- London, 7th May 2009 in partnership with BERR
- Wales, 15th May 2009, in partnership with Welsh Assembly Government
- Northern Ireland, 22<sup>th</sup> May 2009, in partnership with the Northern Ireland Housing Executive

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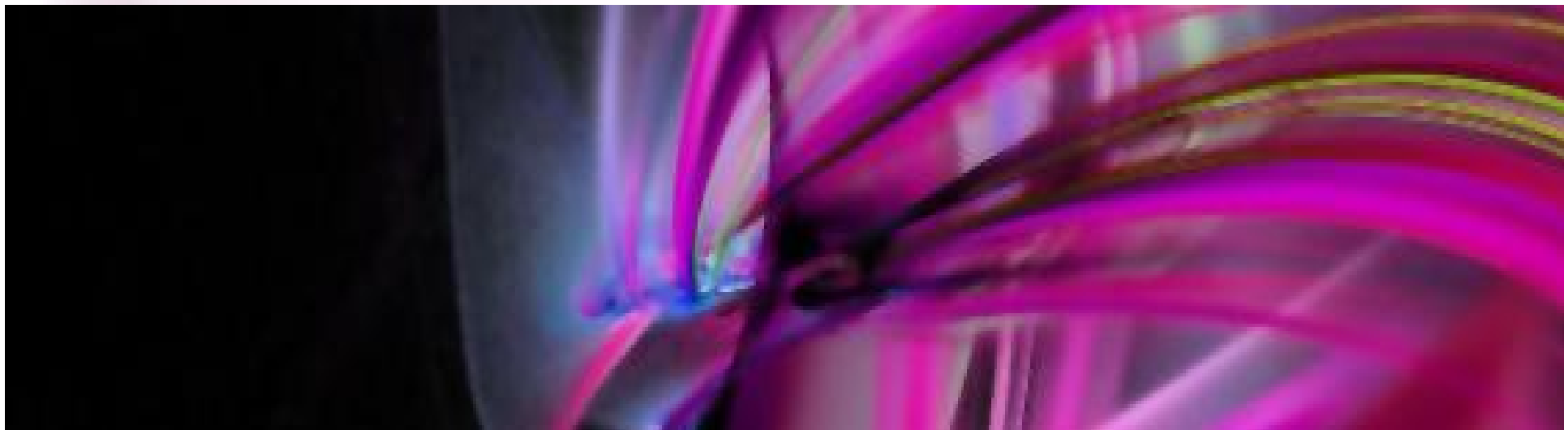
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**Design & Decision Tools (£4m)**

**Monitoring of Demonstrator Buildings (£10m)**

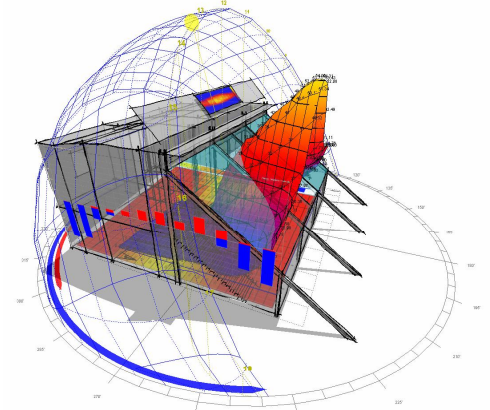
Project Leader - Dr Kerry J Mashford

[kerry.mashford@tsb.org.uk](mailto:kerry.mashford@tsb.org.uk)



# Technology Strategy Board

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## Design & Decision Key Facts:

- Tools and approaches for a dramatic improvement in the design of zero carbon and low impact buildings
- £4m Technology Strategy Board funding
- 50% match funding required – therefore total funding approx. £8m
- Follows standard Technology Strategy Board process for collaborative call
  - Competitive process
  - Projects must have at least two partners – at least one company
  - Lead partner must be a company
- Information events March- June
- Details published on web (TSB and MBE KTN) and brochure available at end April



# Technology Strategy Board

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## Monitoring & Evaluation Key Facts:

- Post occupancy evaluation of demonstrator low-impact buildings
- Open to all building types – new build
- £10m Technology Strategy Board funding
- Timescales flexible to accommodate build programme of candidate buildings
- Monitoring must satisfy common minimum data set and protocol and data must be provided for analysis across all projects and to improve industry understanding

**Technology Strategy Board**

Driving Innovation

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**Monitoring of Demonstrator Buildings (£10m)**

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