



What about Future Skills?

Phil Ford –Skills Strategy Manager (Scotland)



Legislative drivers

Climate Change		Waste Reduction
<p>Policy Drivers/Documents:- <i>Sullivan Report (2007)</i> <i>Climate Change (Scotland) Act (2009)</i> <i>Renewables Action Plan (2009)</i> <i>Energy Efficiency Action Plan (2009)</i> <i>Renewable Heat Action Plan (2009)</i> <i>Changes to Building Regulations in 2010</i></p>		<p>Driver: Zero Waste Plan</p> <p>Supporting Targets 70% recycling of municipal waste by 2025 No more than 5% waste being landfilled by 2025</p>
<p>New Build Zero carbon housing by 2016</p>	<p>Existing Stock 80% reduction of 1990 CO2 levels by 2050</p>	<p>Policy Documents Waste and Resources Action Programme (WRAP)</p>
<p>50% electricity from renewable sources by 2020 11% heat consumed in 2020 from renewable sources</p>		



Focus of CS activity

Innovation	Renewables	Zero Carbon	Low Carbon	Change	Environment
Product Innovation	Large scale renewables	New Build residential blgs	Refurb of existing stock	Change inc:	Climate change
Process Innovation	Nuclear decom/new build	New build non-residential blgs	Reduce carbon emissions	Design	Flooding
Innovation in offsite	Retrofit technologies		Energy Assessment	Low energy buildings	Waste
Lean manufacturing				Procurement	Pollution
Intelligent buildings				Industry strategy	
Intelligent materials				Performance, Management and productivity	
Interoperability				IT	
Sector innovation				Social/ behavioural Change	
Business Innovation				Accreditation	



SSC input into innovation

ConstructionSkills

Cogent

Nuclear power and decommissioning

Semta

Offsite activities and manufacturing of components or sections of buildings

EU Skills

Renewable technologies and energy infrastructure

Summit Skills

M&E activity, Renewable technologies

Lantra

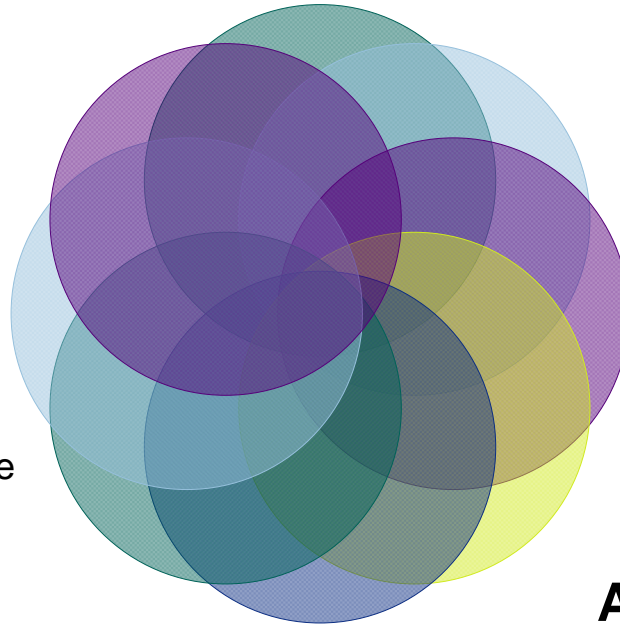
Green roofs

Proskills

Links to product development

AssetSkills

Retrofit renewables

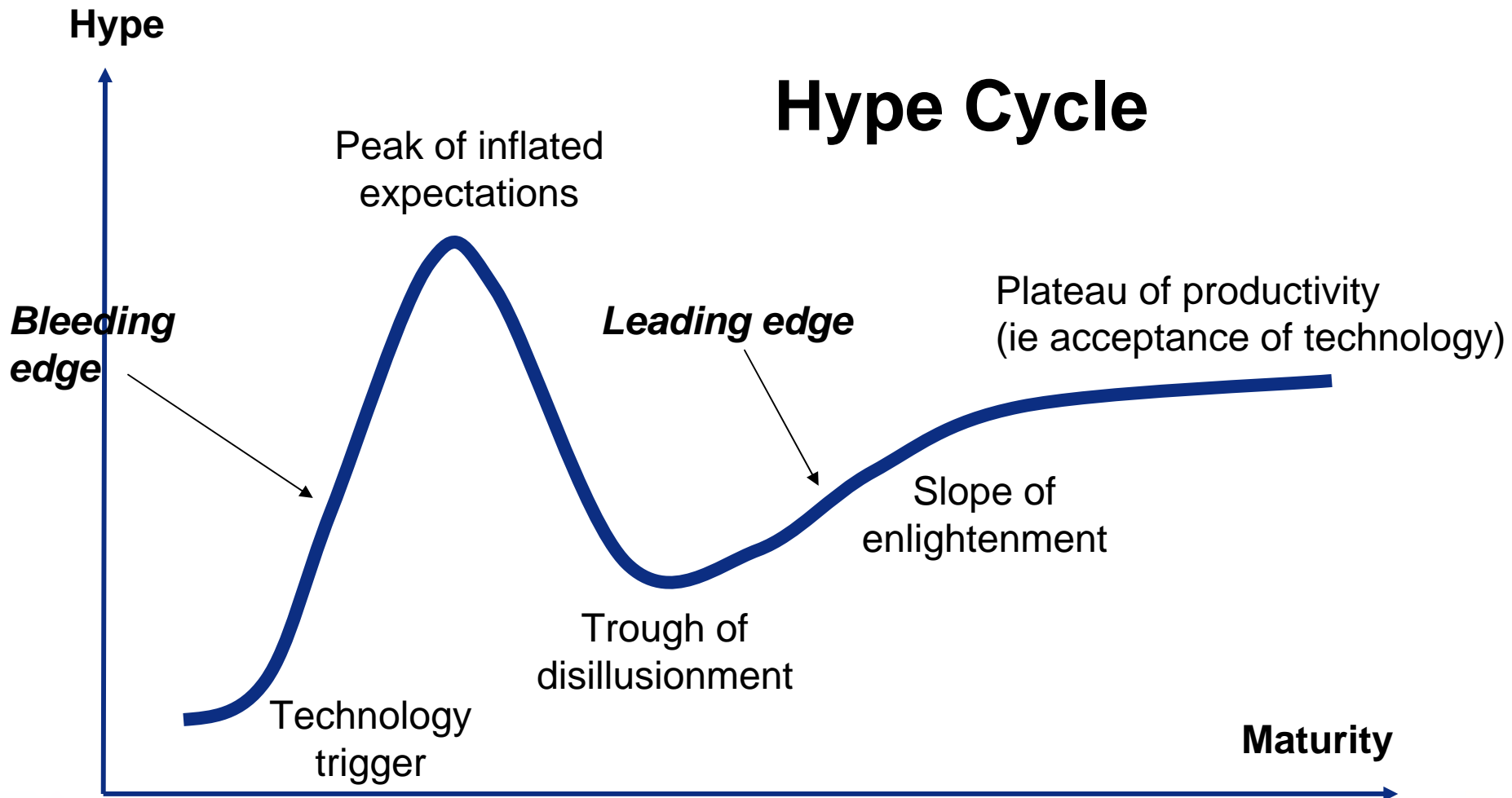


What is Innovation?

'If it is new to you and you are including it in your design, installing it or adopting it for the betterment of the construction product, or process, then that is innovation'



Hype Cycle



After Gartner, USA, 1999



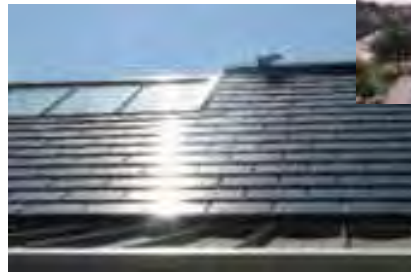
How long is innovation innovative?

constructionskills



Photovoltaic applications

- Mounted on roofs or walls
- Roof tiles
- Integrated into blinds or glazing
- Independent of the building
- Street furniture



Collector types





Wood Pellet Boilers

The fuel:

- Standard size, moisture, calorific value
- Sourced from seasoned waste e.g. from furniture manufacture



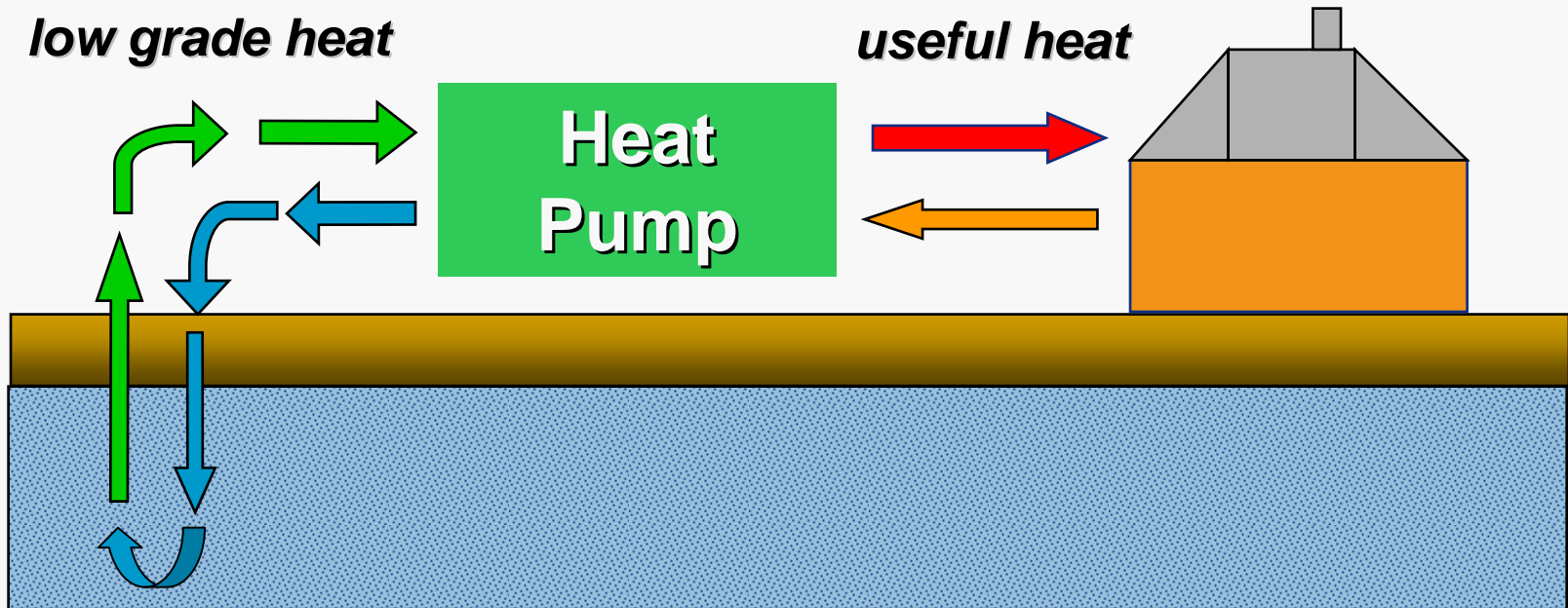


Ground source heat pump

Natural temperature at >1 metre below surface is a constant +10 C.
Plenty of heat energy – but at too low a temperature

low grade heat

useful heat



Ground source heat pump: trenched collector





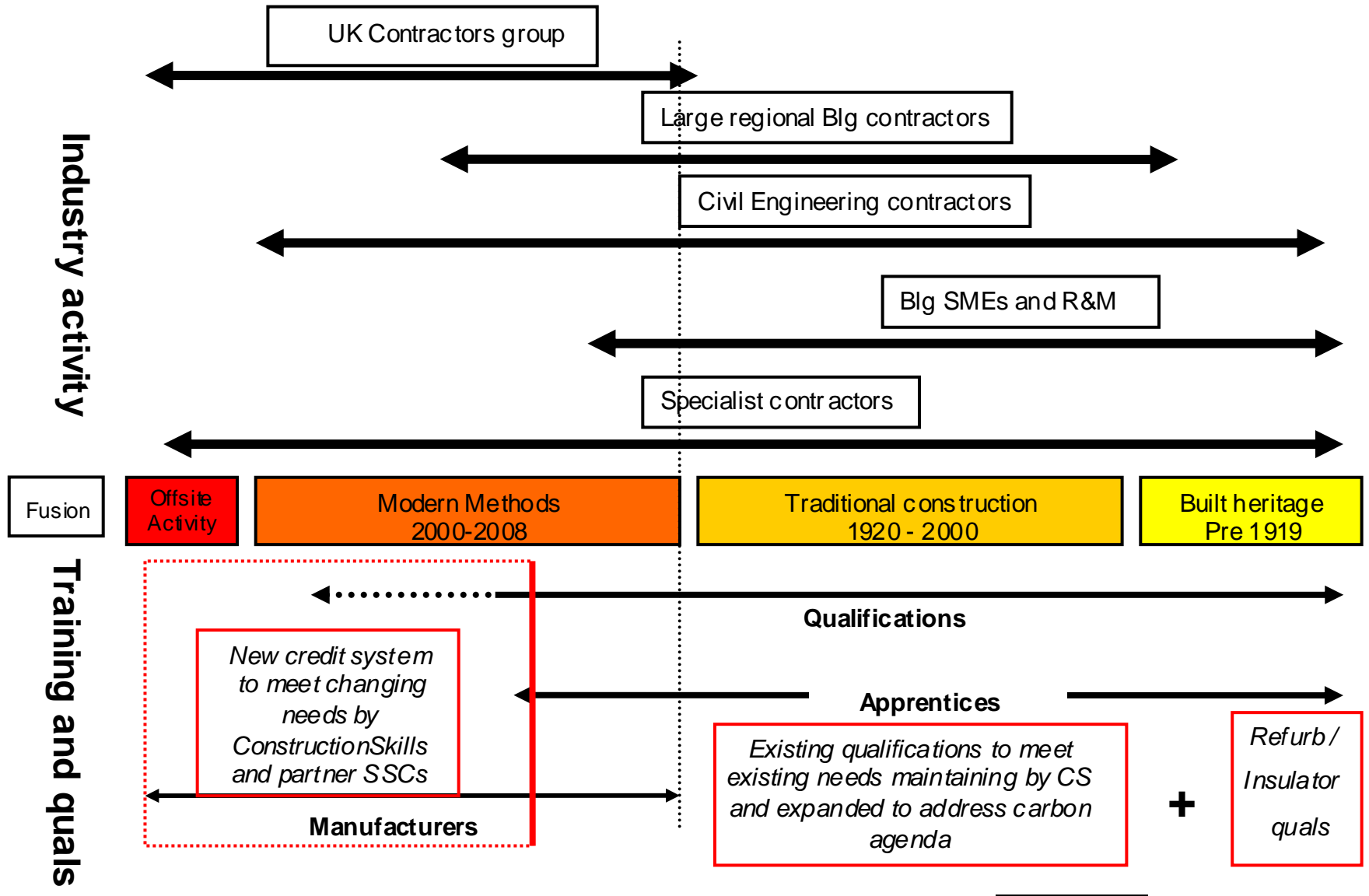
Turbine Types – HAWT Multi-blade



- Lift machine
- High C_p
- Self-starting
- Needs to yaw

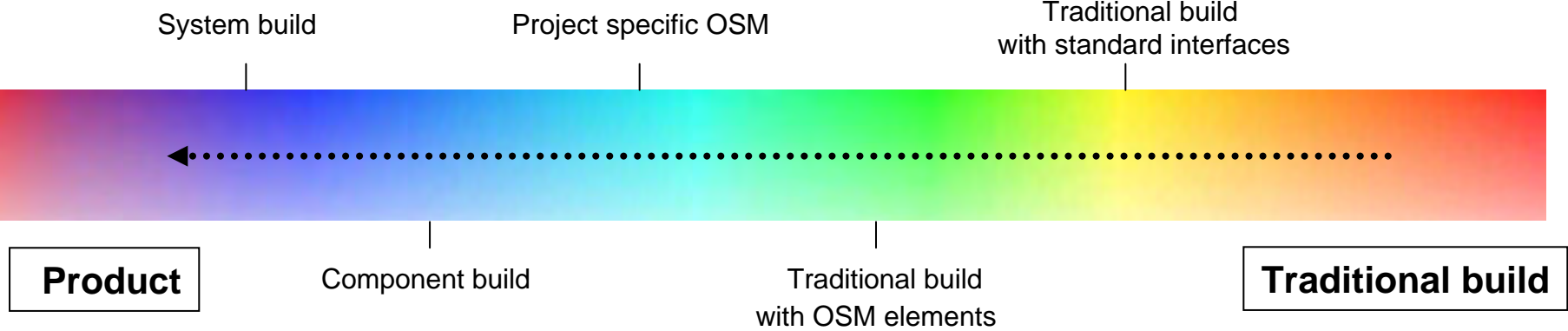


Construction Continuum





Construction Spectrum



Impact on housing repair and maintenance

Source of Carbon Emission	% of UK Total
New construction	13
Domestic Building	27
Non Domestic Buildings	7
Total of UK Carbon output	47%

Carbon emissions from the construction industry are greatest from the 25 million existing UK houses

Country	% of country total
England	21.6
Scotland	20
Wales	33
N Ireland	16

Wales has the greatest percentage of pre -1919 buildings



How will skills be affected?

- At a craft, supervisory and management and design level
- Greater understanding of low carbon, zero carbon and low energy buildings and longer term sustainability
- Reduced tolerances
- Greater manufacturer input
- Transformation of some occupations due to product changes
- Greater need for installer type activities
- Greater requirement for broader range of skills and competencies
- Ongoing upskilling (Continued craft development)
- Cross industry transfer of skills between linked sectors



Industry sub-sectors showing potential knowledge units

Construction Industry

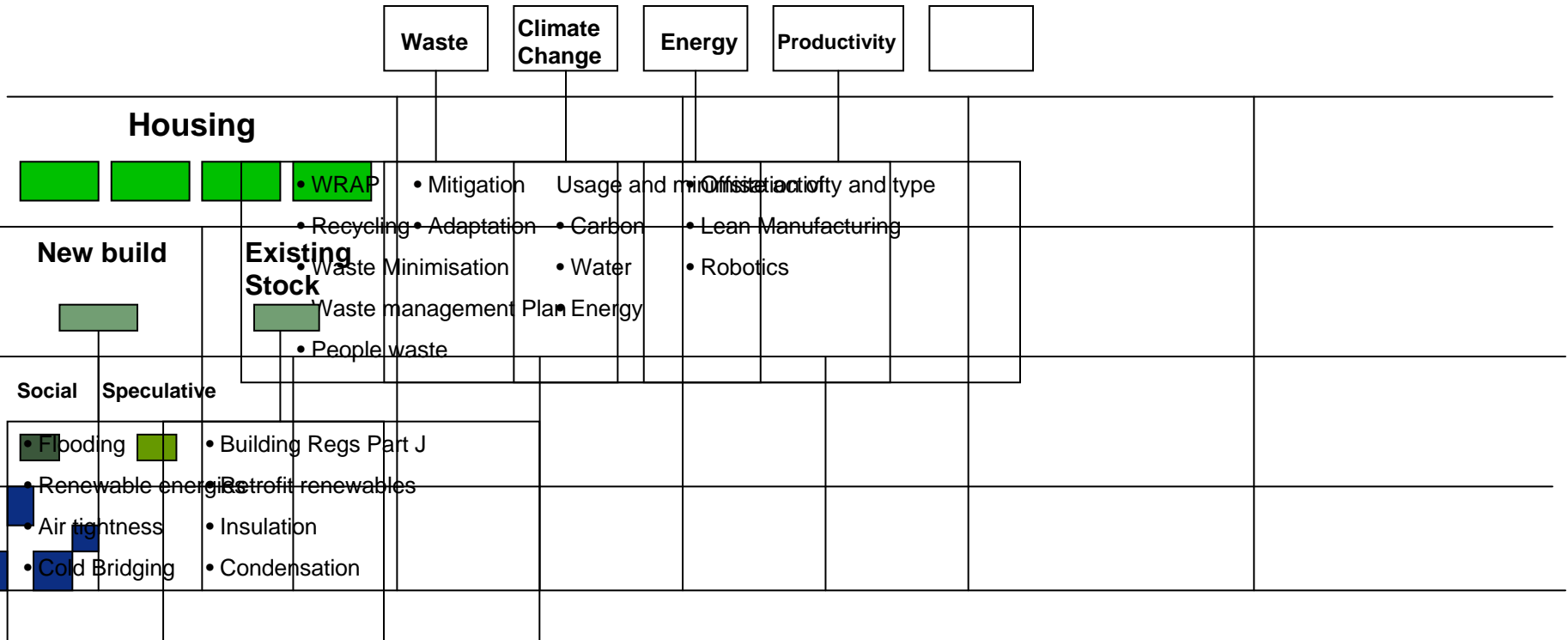


Housing				Commercial Bldg		Public Bldg		Civil Eng		Energy	
New build				R & M		Offices, Hotels, Supermarkets		Education, NHS, Defence, MOJ		Road, Rail, Water etc	
Wind, wave, Nuclear, Groundsource etc											
Social	Speculative	Pre 1919	1920+	New	Refurb	New	Refurb				
<p style="text-align: center;">← Craft, management and professional occupations →</p>											



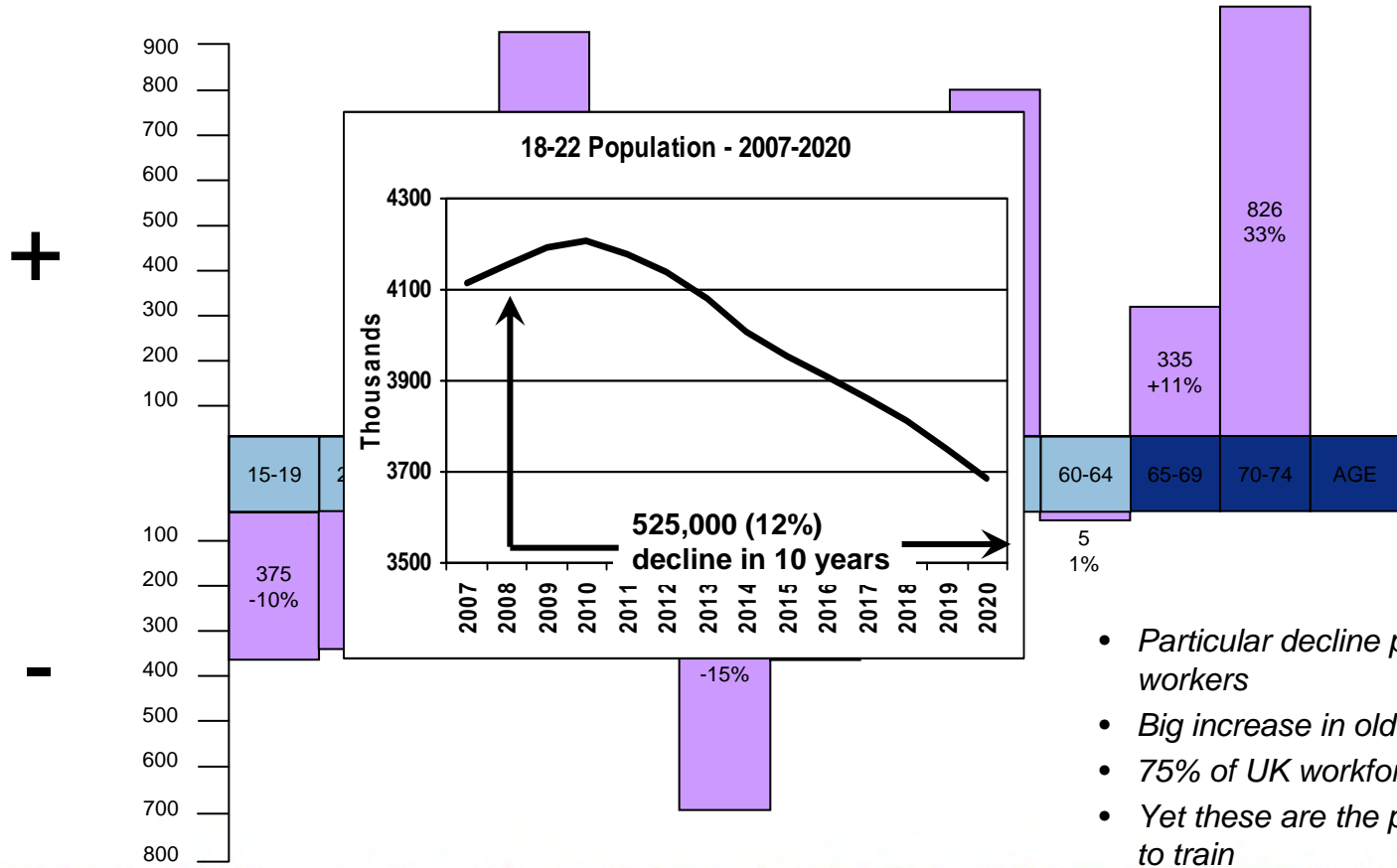
Training/qualification framework in home building sector for a volume housebuilder

Construction Industry



Changing Demographics

Projected change in age groups 2010-2020 (in thousands)



- Particular decline pattern amongst youngest workers
- Big increase in older workers
- 75% of UK workforce already in work
- Yet these are the people we are least likely to train



Practical considerations

- SCQF
- Levy
- Grant options and MSDP
- R&C
- Research
- NCC
- External Services / Internal training
- Awareness, Understanding, Operational Knowledge, Competence

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