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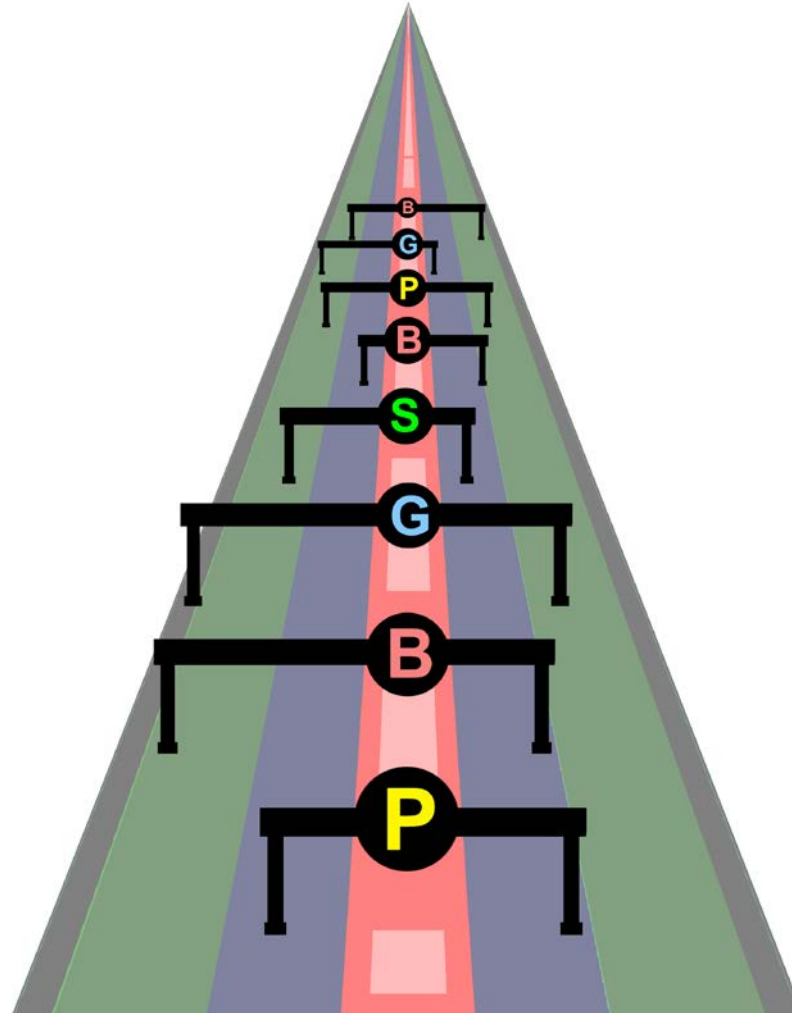
The need for a Systems Engineering approach in the Housing Industry

Mike Siebert, University of Nottingham



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Understanding the Barriers to Innovation







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planning red tape

help to buy

new towns

the localism bill

council housing

custom build

off-site manufacturing



WICKED PROBLEMS

problems that are difficult
or impossible to solve
because of incomplete,
contradictory, and
changing requirements
that are often difficult
to recognize.



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More affordability



More comfort



Better performance

WICKED PROBLEMS

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WICKED PROBLEMS

problems that are difficult or impossible to solve because of incomplete, contradictory, and changing requirements that are often difficult to recognize.



Less Carbon



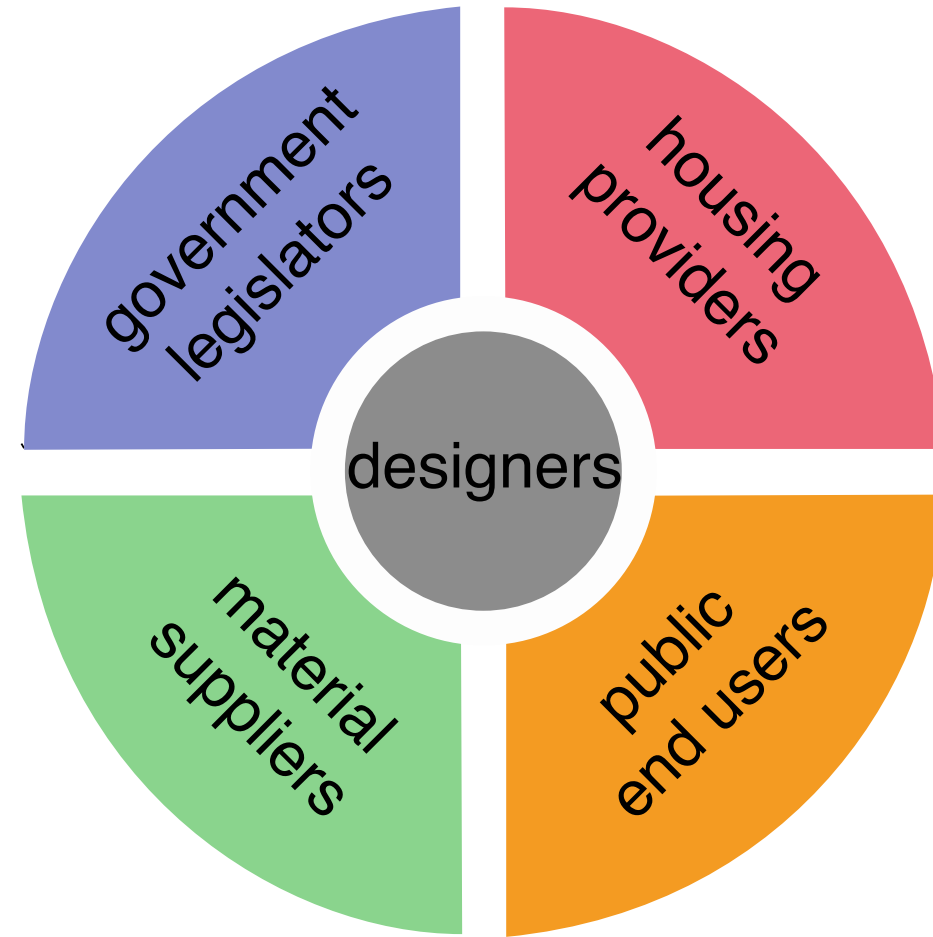
Less material use



Less waste



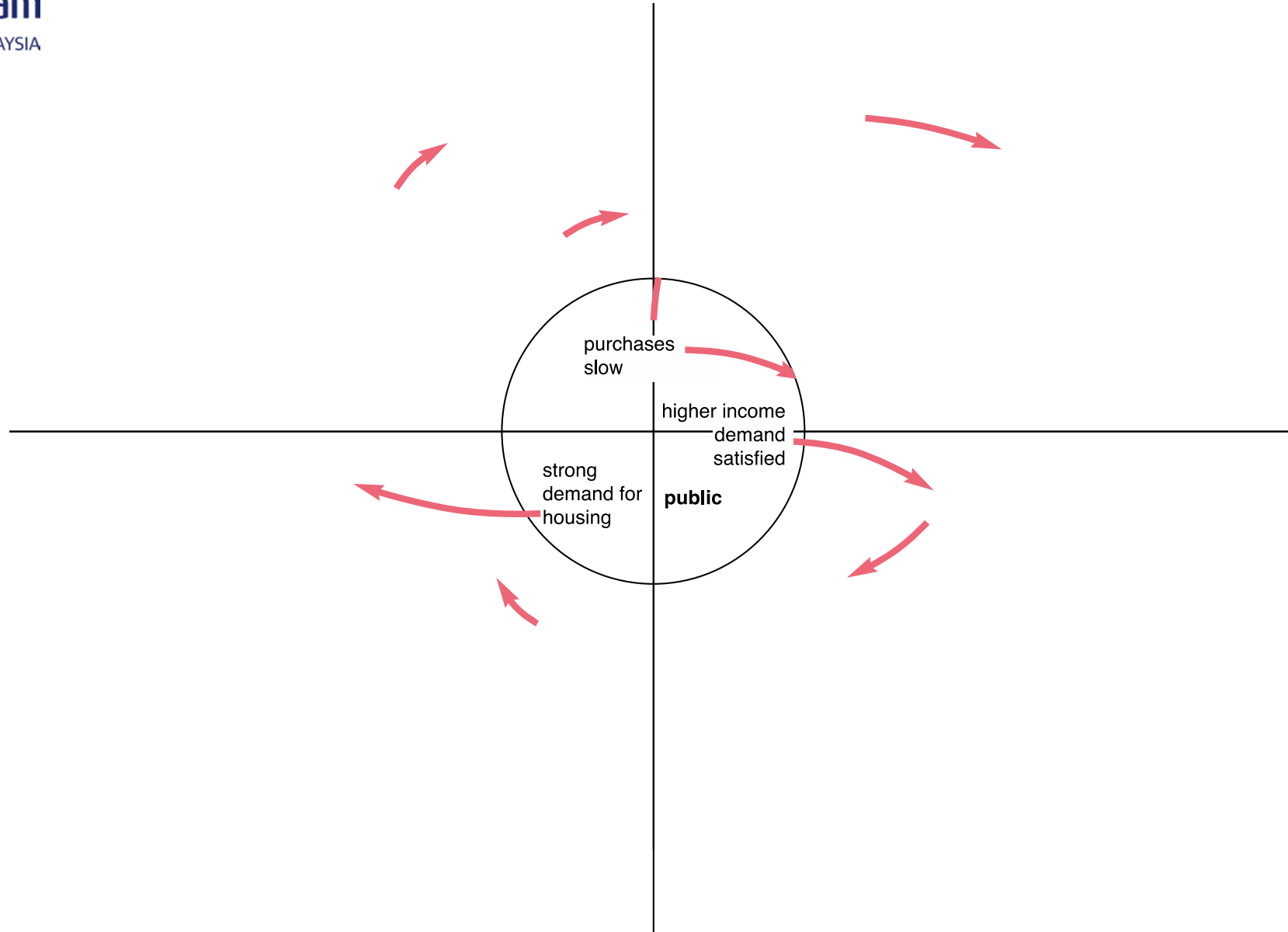
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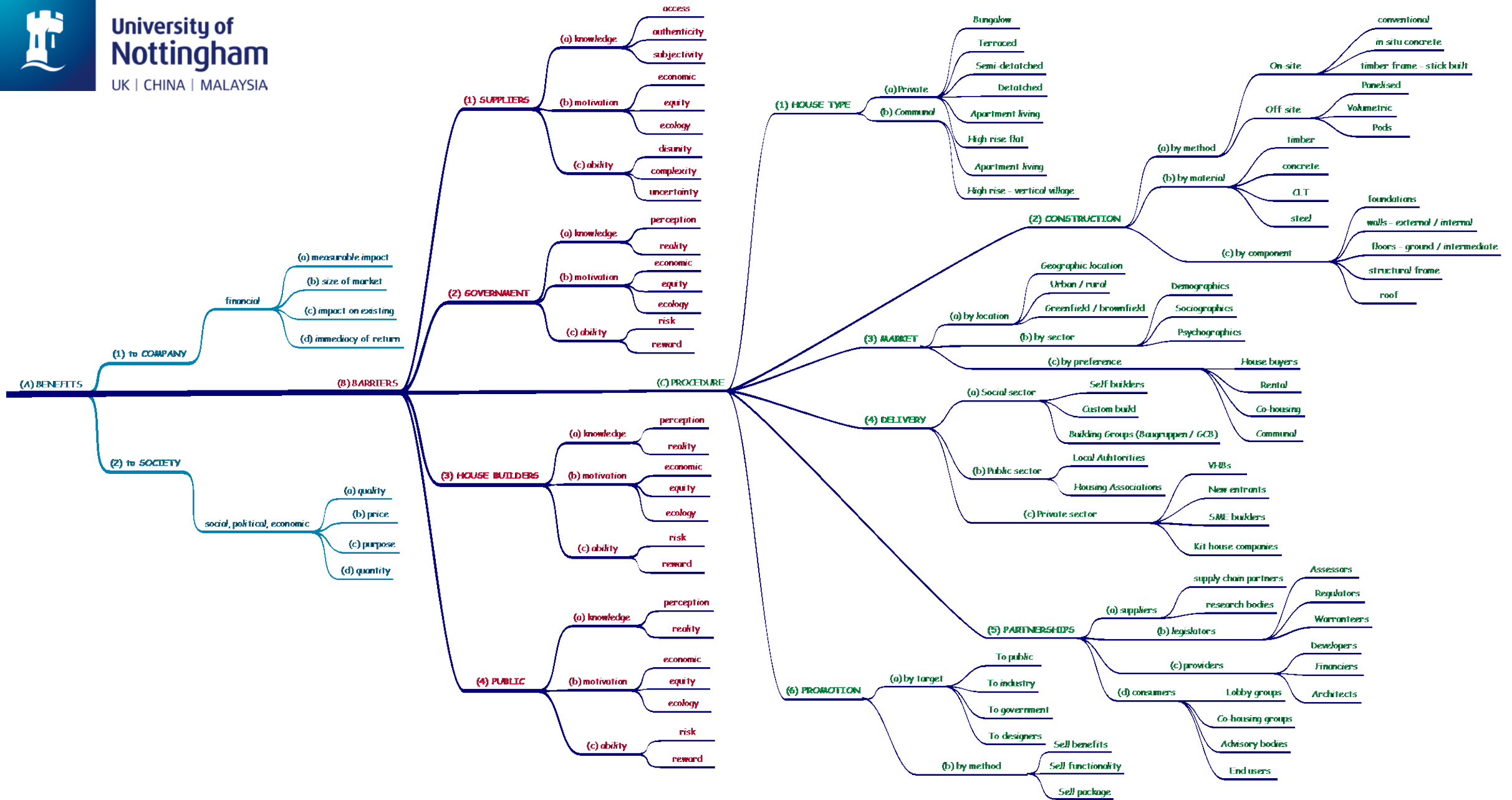




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knowledge	information in	what are the issues that need to be addressed?	Deconstructing the Data	Defining the Questions	existing strategies, known concerns and opportunities	list issues	delivers known issues that need to be considered. <i>what questions arise from these issues?</i>	Start by creating an exhaustive list of all issues, strategies, known problems, products requiring markets and markets requiring products. Base this on a SWOT analysis by each sector in turn
	assessment of known facts	what are the questions that stem from each of these issues?			generate questions, break down into simple choices	translate into questions	delivers questions that need to be asked. <i>how can these questions be categorised into tasks?</i>	
		how do these question inter-relate and how can they be categorised?	Reconstructing the Data	Understanding the issues	group into categories, position within a hierarchy	categorise into tasks	delivers tasks that compare alternative solutions. <i>what unknowns arise from performing these tasks?</i>	Consider whether the individual questions fit within a hierarchy of tasks to be carried out, either in terms of the staged processes they involve, the different sectors they relate to or the scope of the task and need for wider collaboration
motivation	assessment of unknown facts	what information is missing that needs to be added?			gather evidence	research unknowns	delivers research that needs to be carried out. <i>What emerges as a result of this additional information?</i>	Research the issue from all perspectives to fully understand what motivates each sector to make the decisions it does. Gather any evidence needed to substantiate the argument, or if that evidence is not available, carry out any further research needed to fully answer the questions being asked
					further research			
ability	assessment of available options	which option defines the most appropriate course of action?	Resolving the problem		change message	compare options	delivers options than need to be considered. <i>which option provides the best outcomes?</i>	On the basis of a broader understanding of the problem being addressed, decide which of the available options is the most appropriate, feasible, likely to succeed. The solution may involve a combination of tasks, but each should be recognised as an operation in its own right.
					change product			
					change market			
					change policy			
enactment	decision out	what are the decisions that will deliver that strategy?	Using the Data	Enacting the solution	house type and build process	define a strategy	delivers a process that needs to be followed. <i>What is the strategy that best delivers this outcome?</i>	Once an approach has been decided upon a strategy for enacting it can be defined. This involves considering each of these six categories within the decision making process.
					market and delivery method			
					partnerships and promotion			



What are the Benefits to be had?

What are the Barriers to be overcome?

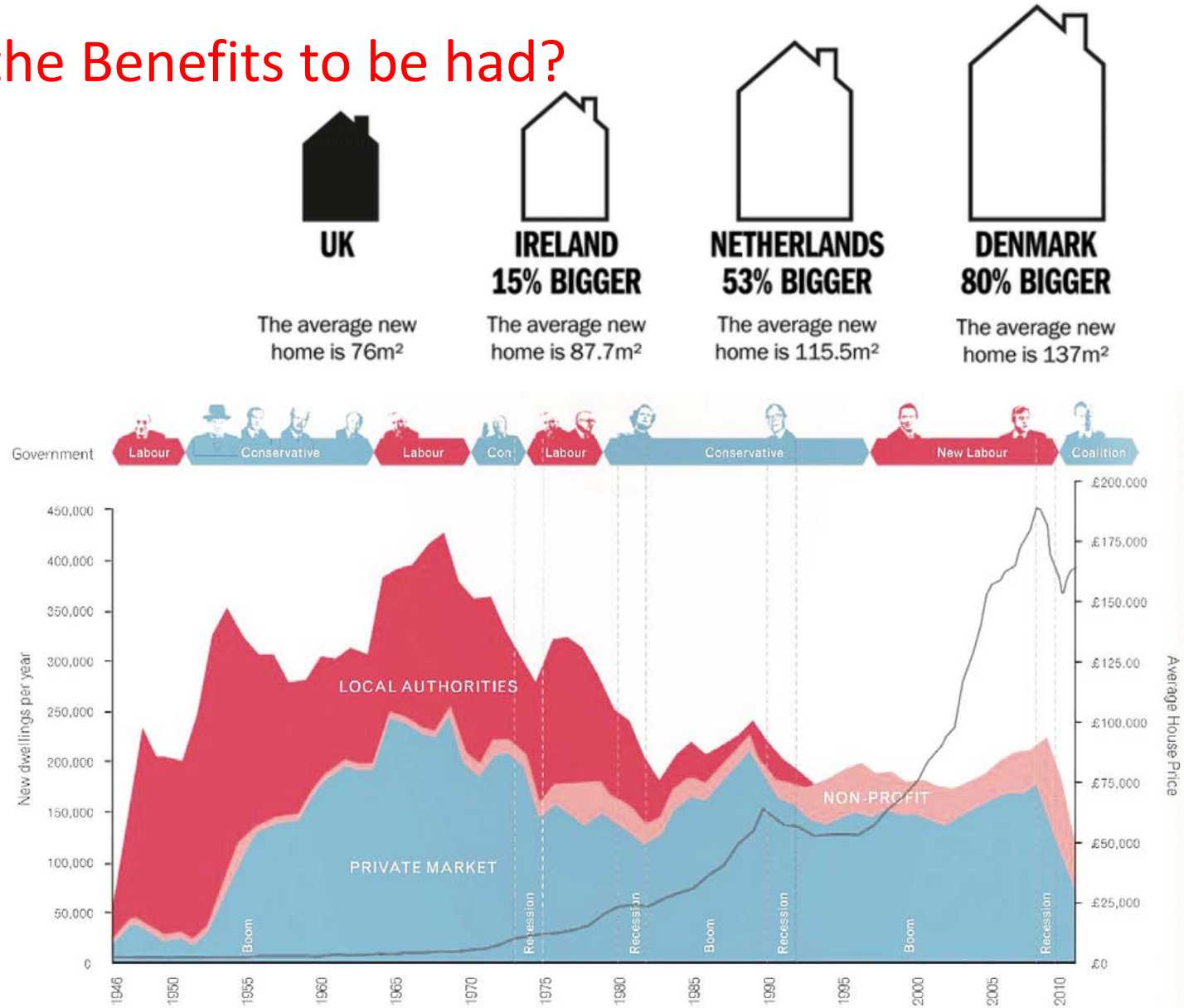
How do different sectors differ and which sector dictates the decision?

Where do these issues sit within a hierarchy of causes and consequences?

What are the options available and which are most feasible?



What are the Benefits to be had?





What are the Barriers to be overcome?

the guardian

UK scraps zero carbon homes plan

Treasury axes plans to make new homes carbon neutral from 2016, drawing widespread criticism from housebuilders and environmentalists

Philip Oldfield

Friday 10 July 2015 17.02 BST

Housebuilders, planners and green groups have condemned the government for scrapping plans to make all new UK homes carbon neutral.

The zero carbon homes policy was first announced in 2006 by the then-chancellor Gordon Brown, who said Britain was the first country to make such a commitment.

It would have ensured that all new dwellings from 2016 would generate as much energy on site - through renewable sources, such as wind or solar power - as they would use in heating, hot water, lighting and ventilation. This was to be supported by tighter energy efficiency standards that would come into force in 2016, and a scheme which would allow housebuilders to deliver equivalent carbon savings off site.

However, both regulations were axed by the government on Friday, in a move July 10. Hirigoyen, chief executive of the UK Green Building Council, said was "the death knell of the zero carbon homes policy."

"It is short-sighted, unnecessary, retrograde and damaging to the house-building industry which has invested heavily in delivering energy-efficient homes," Hirigoyen said. "There is no justification for building homes with a permanent legacy of high energy bills."

Big UK housebuilders increase land holdings

Plots held with planning permission rise by a fifth in 10 years



The largest housebuilders held nearly 399,000 plots of land in 2016 © PA

cml (/home/) 
Council of Mortgage Lenders

Issues affecting lending decisions

When lenders receive a mortgage application from someone who wants to borrow, they take account of the borrower's financial circumstances and also the state of the property.

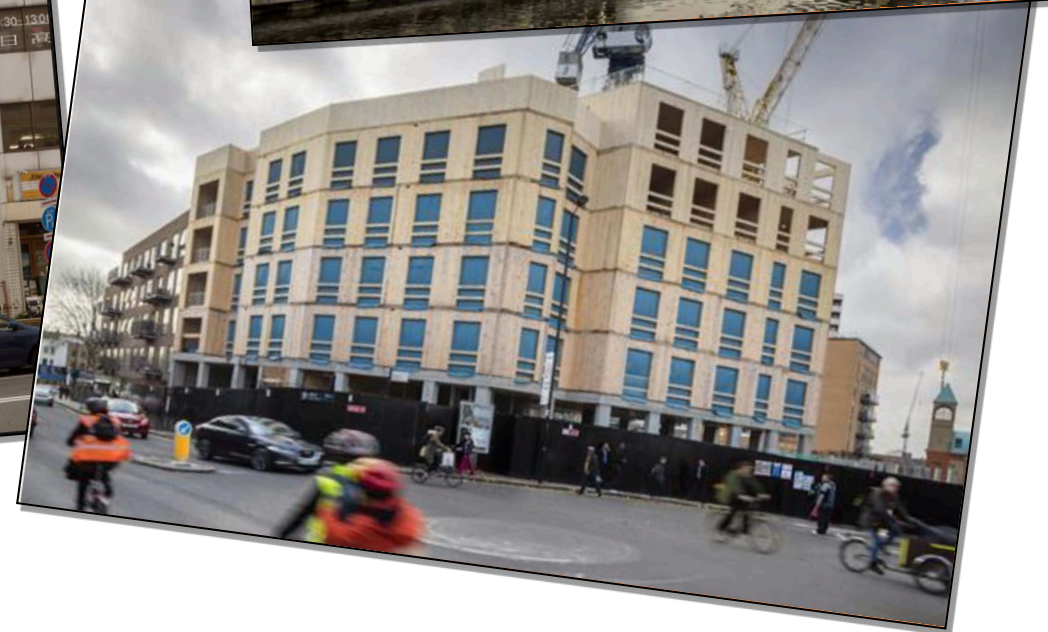
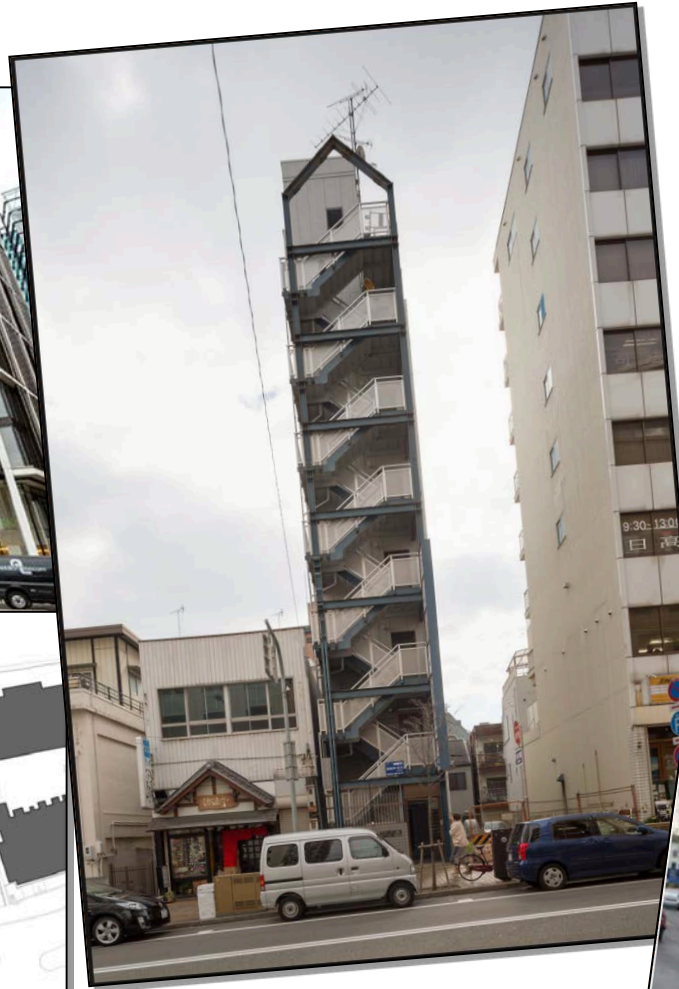
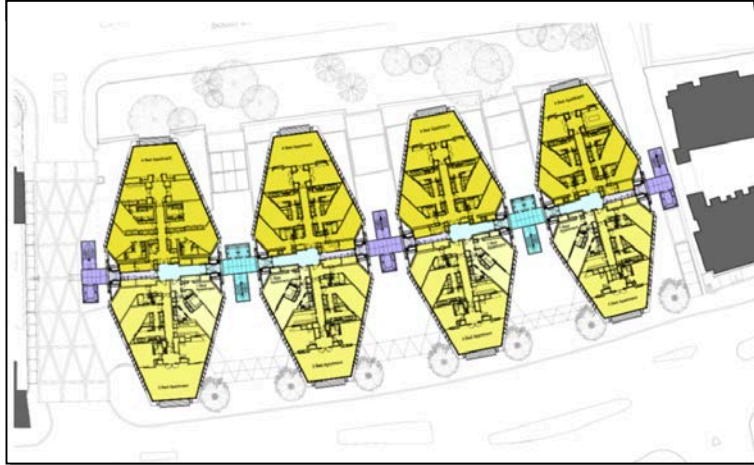
A mortgage is a combination of the borrower's "personal covenant" (their promise to repay), and the "security" of the property (so if the borrower does not repay, the lender can fall back on the value of the property and require it to be sold to repay the money due).

So it's not surprising that lenders take a close interest in the property itself, relying on information from valuers and conveyancers to assess its suitability underlying



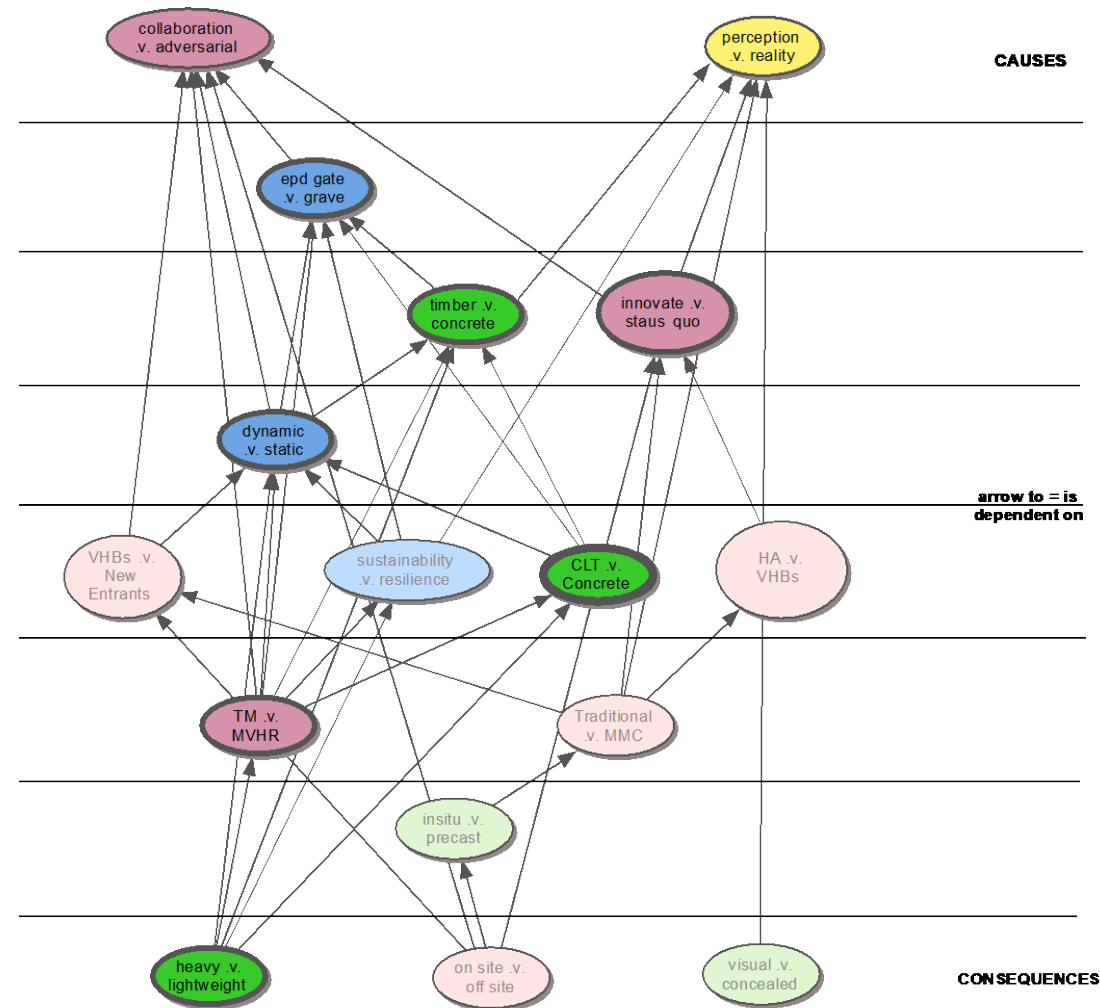
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How do different sectors differ and which sector dictates the decision?



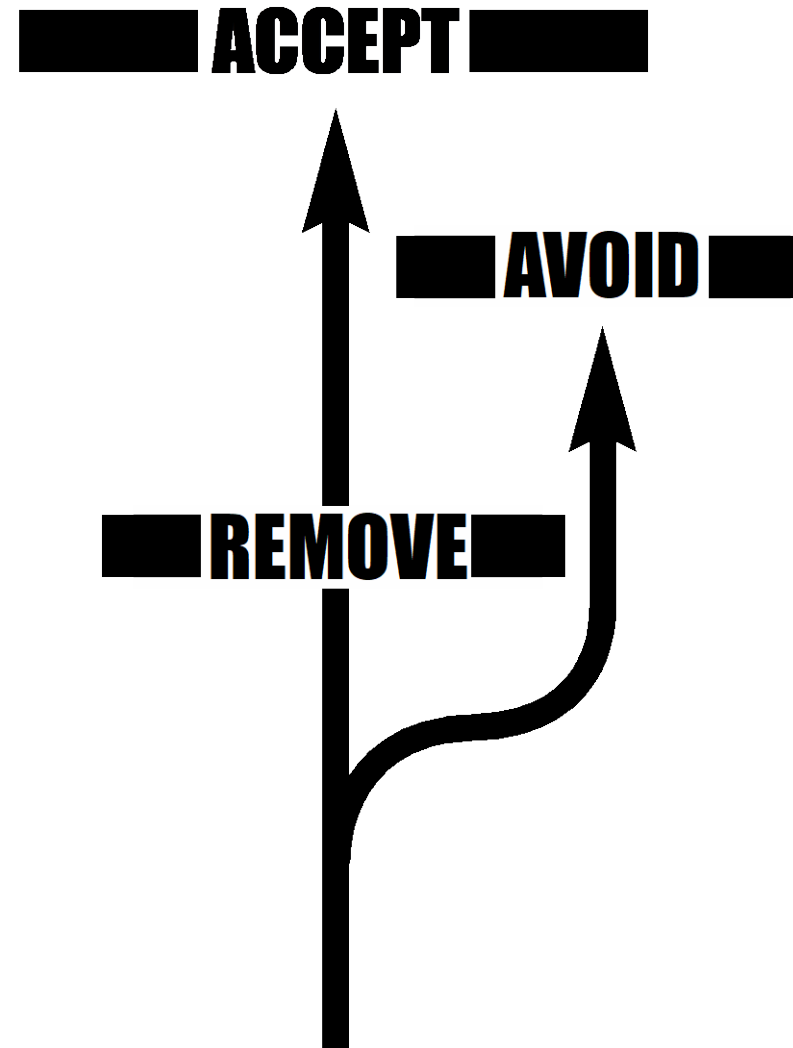


Where do these issues sit within a hierarchy of causes and consequences?





What are the options available and which are most feasible?



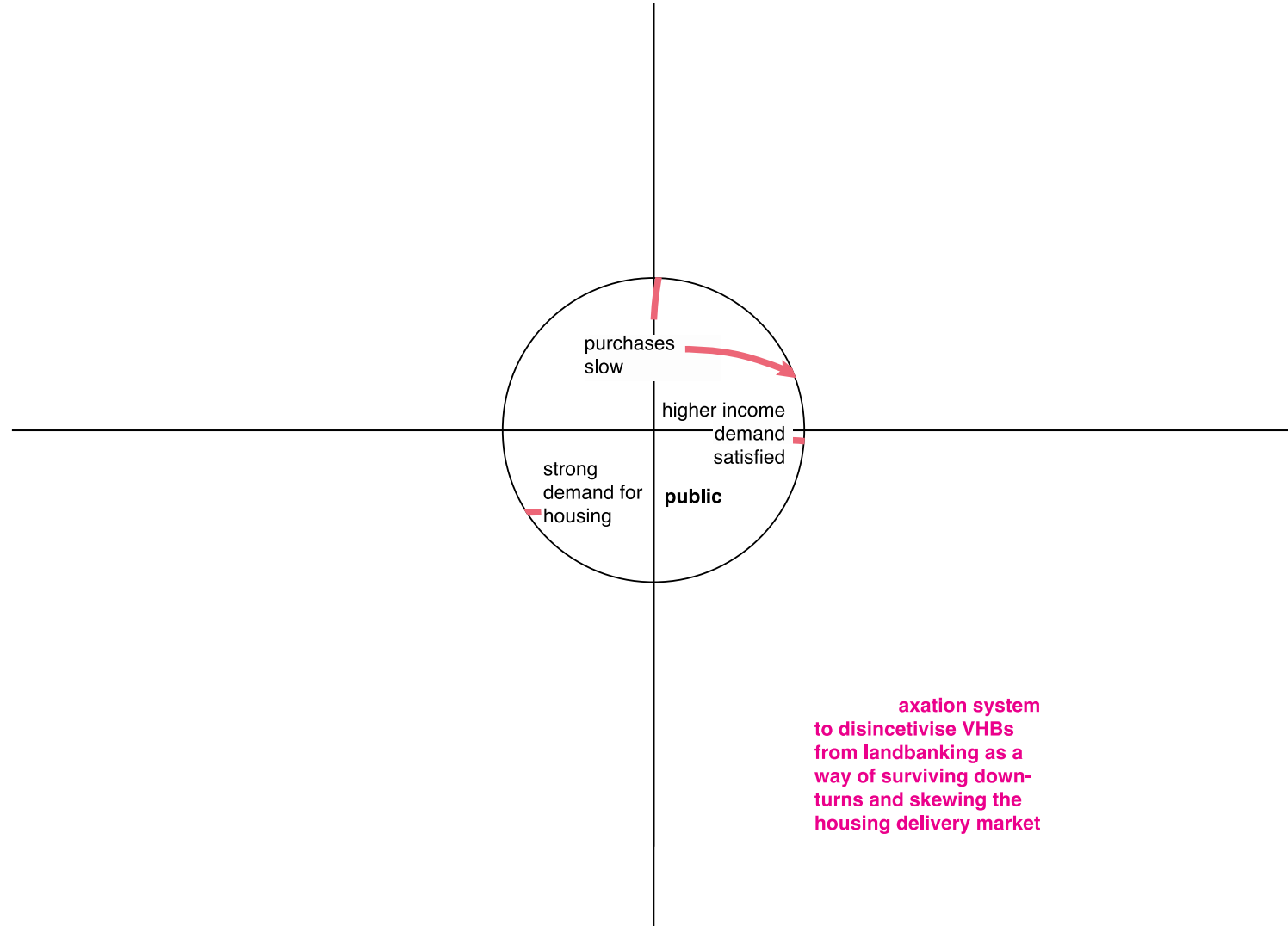


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RISK