

# DISRUPTION: Inevitability? Opportunity? Necessity?

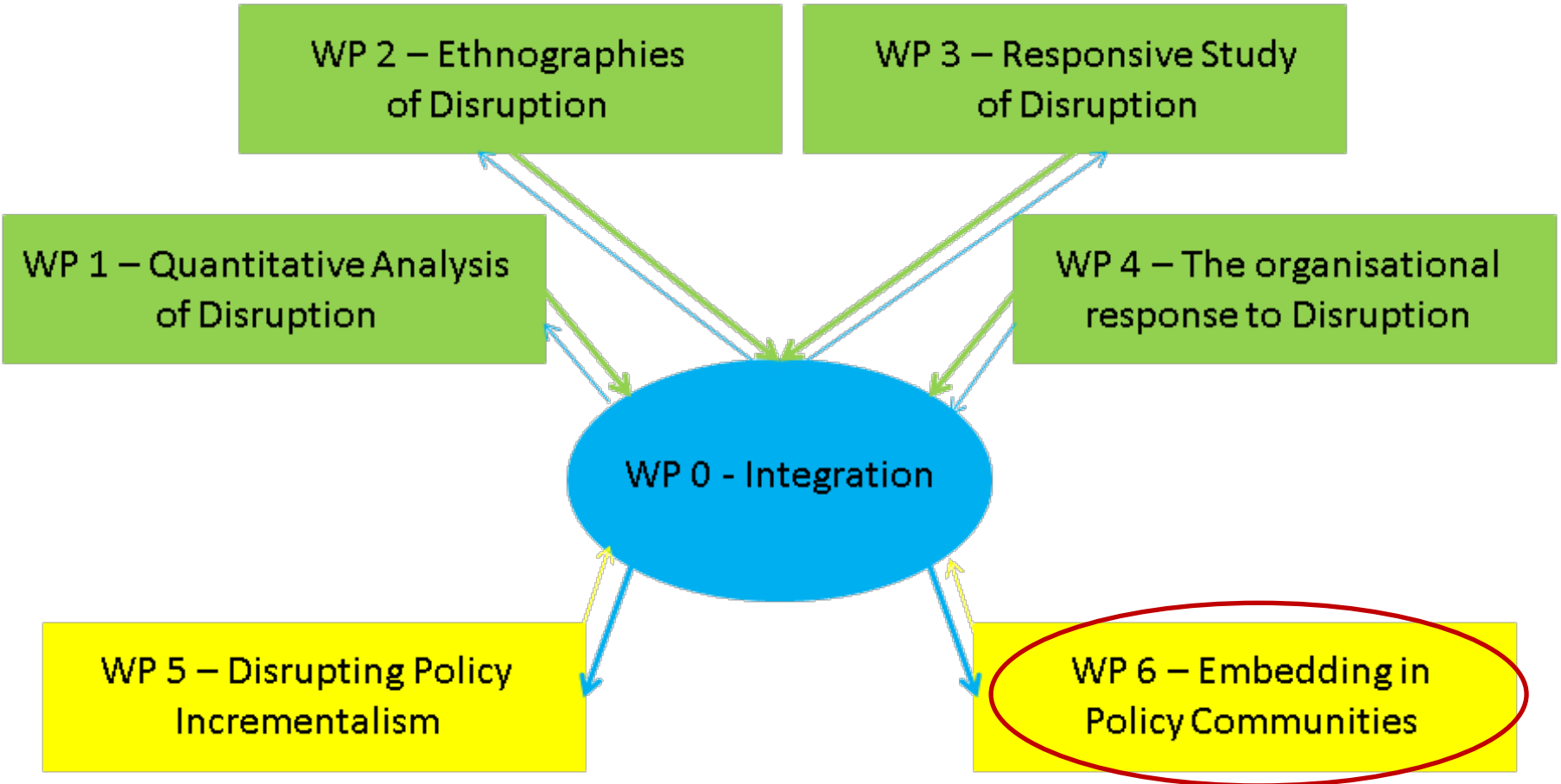
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University of the  
West of England





# What is Disruption? (1)

	Travellers or individuals' perspective	Decision-makers' and policy-makers' perspective
<b>Dimension 1: Context</b>	Broad environmental settings and the socio-technological context before the event, and levels of (un)preparedness for the event and other relevant circumstances.	
<b>Dimension 2: Nature of the triggers</b>	Disruptive events can be caused by natural phenomena (e.g. floods, land slides, volcano eruptions) or be anthropogenic (e.g. strike, demonstration, military attack). The implementation of certain policies can also lead to disruptions (voluntarily or not).	
<b>Dimension 3: Nature of event</b>	The event and how it has manifested in time and space (and across different layers of society/governance and economic sectors).	
<b>Dimension 4: Nature of impacts</b>	Direct impacts can be both negative and positive, and involve both supply and demand for transport. Disruptions can have multiple impacts, these can range from economic to social, from personal to collective, from easily observable to inconspicuous.	
<b>Dimension 5: Nature of the outcomes</b>	Outcomes can be both negative and positive, already in place or predicted, short term and long term, occur in a variety of economic and social sectors, and affect both supply and demand for transport. Outcomes can also occur in governance practices and structures.	

Planned/unplanned?

Natural/systemic/social?

How big/how long?

Positive/negative IMPACT

Positive/negative OUTCOME

# What is Disruption (2)

Regular



Hyperturbulence



Specific shock



Disruptive

(change on one dimension)



Avalanche

(change on multiple dimensions)



## Types of Environmental Change

(from Geels, 2007 after Suarez and Oliva, 2005)

# CRISIS MANAGEMENT STRATEGIES

# #1





**KEEP  
CALM  
AND**

**USE A LOWER  
CARBON FORM  
OF MOBILITY**

# Why might learning about 'Disruption' be useful? (in relation to climate change)

## Three arguments:

- 1. Inevitability** - It is going to happen and possibly more frequently
- 2. Opportunity** – It allows us to take advantage of situations to do things we need/want to do
- 3. Necessity** – We won't get where we need to be without it

# 1: Inevitability

Disruption is going to happen and will happen more frequently





# Weather

## Get used to 'extreme' weather, it's the new normal

Scientists have been warning us for years that a warmer planet would lead to more extreme weather, and now it's arrived



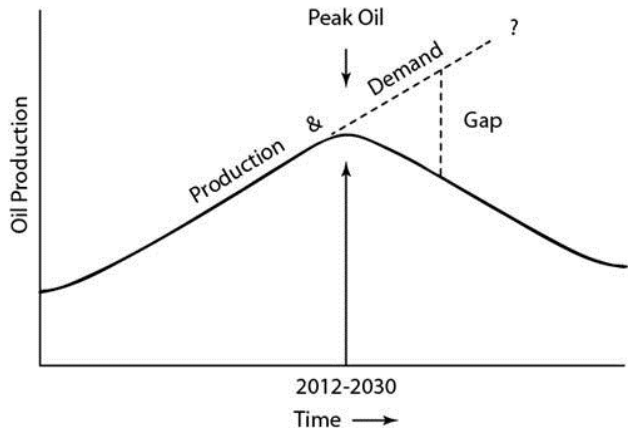
Connie Hedegaard  
theguardian.com, Wednesday 19 September 2012 16.45 BST  
Jump to comments (400)



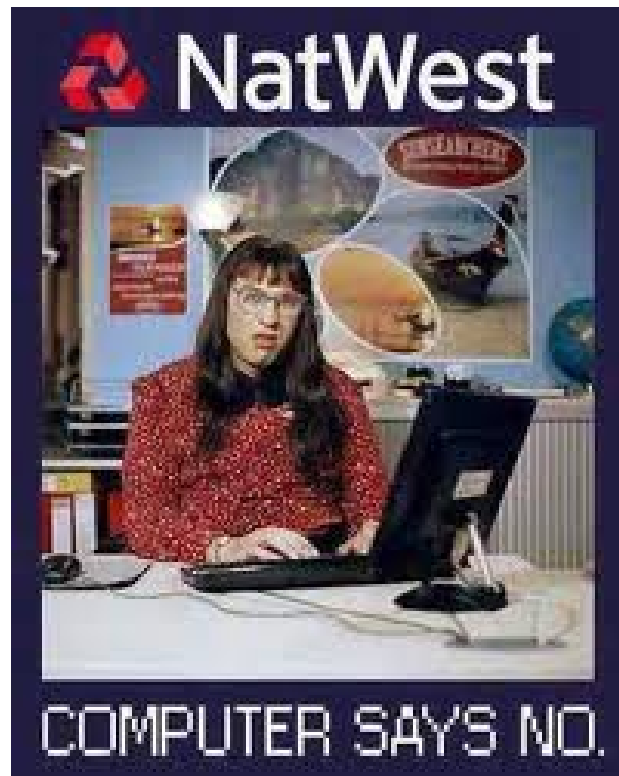


# Infrastructure





# System



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## Platinum, Palladium Shortage Most in a Decade on Supply

By Nicholas Larkin - Nov 13, 2012 2:37 PM GMT

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0 COMMENTS
QUEUE

Platinum and palladium will return to the biggest shortages in at least a decade this year strikes and safety stoppages in South Africa and falling sales from Russia cut supplies, Johnson Matthey Plc (JMAT) said.



Help Stop  
**Catalytic Converter**  
 theft with CAT Guard

- Alarm Protection for all Vehicles
- Optional GSM Text Alert
- Multi Function Vehicle Alarm





# Social/Political

## Pothole repairs fall below standard as budget cuts start to bite



By Mark Stead, Political Reporter

11:00am Wednesday 30th January 2013 in News

## Dublin bus strike enters third day

Bus services in the Irish capital will not run on Tuesday as an all-out strike at Dublin Bus enters its third day.

Management and unions are in dispute over a cost-cutting plan to save 11.7m euros (£10.16m).

Despite the bus strike, the Irish Department of Transport has said private motorists will not be permitted to use bus lanes.



Union members have staged pickets outside the Dublin Bus depot on Pearse Street, Dublin

sky NEWS HD

Watch Sky News LIVE 12 August 2013

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## Boris Bike Strike: Serco Workers Walk Out

Union members mount picket lines over the "exploitation" of the workforce behind the capital's bike hire scheme.

2:04pm UK, Monday 12 August 2013



The bicycle hire scheme was launched by London's Mayor in 2010



theguardian

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## Anarchists claim responsibility for railway signalling sabotage in Bristol

Informal Anarchist Federation says it set fire to signalling cables, causing severe delays to commuter train services

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Shiv Malik guardian.co.uk, Friday 25 May 2012 13:53 BST Comments (170)

Article his!

## Quantifying the Influence of Climate on Human Conflict Hsiang, Burke and Miguel, Science (2013)

"for each 1 standard deviation (1σ) change in climate toward warmer temperatures or more extreme rainfall, median estimates indicate that the frequency of interpersonal violence rises 4% and the frequency of intergroup conflict rises 14%"



### The greatest train robbery yet.

Over the past three years cable theft cost the taxpayer more than £43 million, and the problem is growing. But it also costs passengers thousands of hours of their time through signal failure caused by stolen and damaged cables. We're working with British Transport Police and train operators to stop cable thieves stealing even more of your time and money.



81% of bus drivers perceive anti-social behaviour on public transport to be increasing (Scottish Govt, 2005)

Report cable theft by calling British Transport Police on 0800 40 50 40

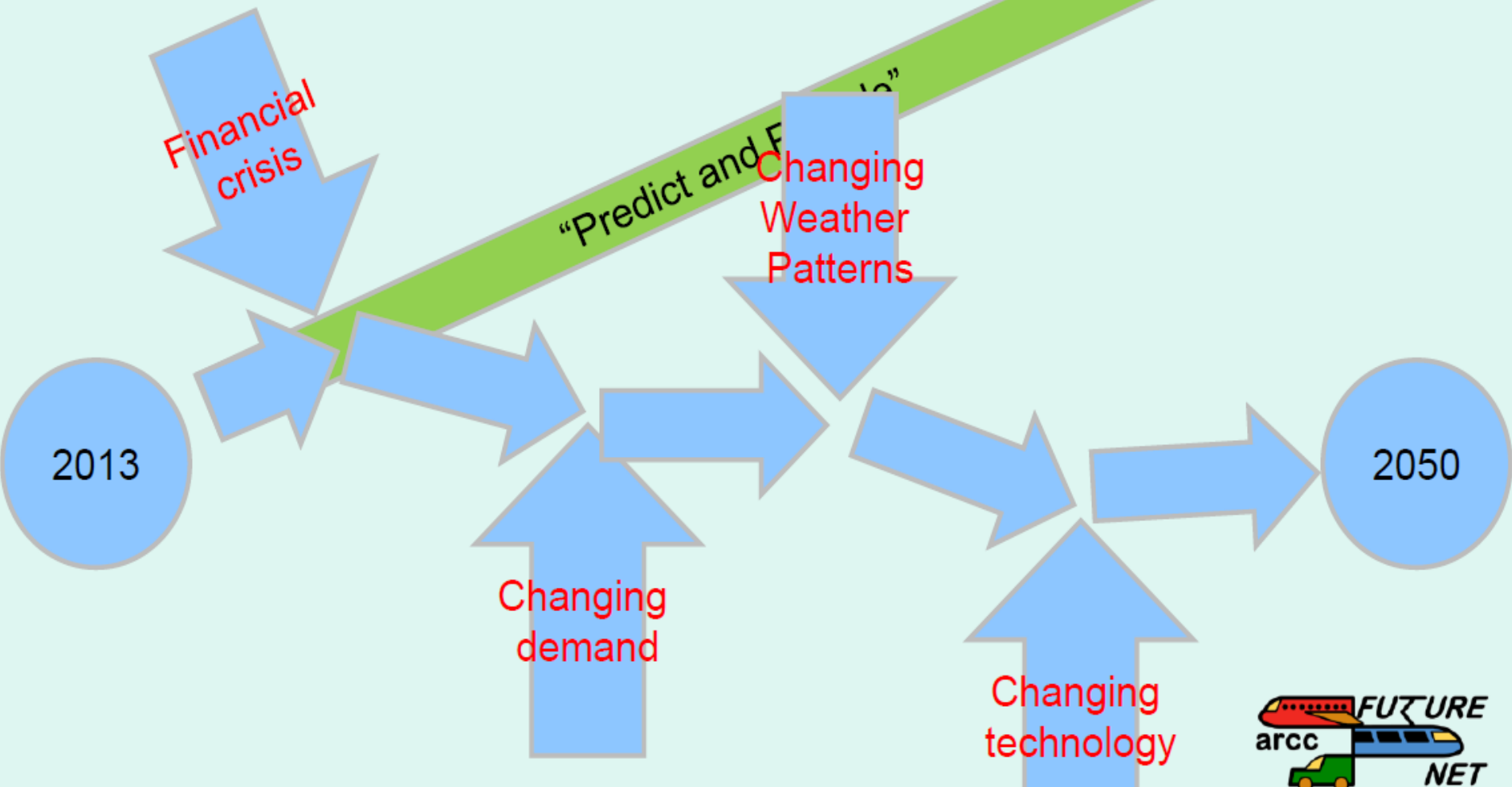
Helping Britain run better



National Rail


“The year is 2040. **There have been riots in the streets of London after Britain has run out of petrol because of an oil crisis in the Middle East.** Protestors have attacked public buildings. Several policemen have died. Consequently, the Government has deployed the Army to curb the protests. After two days the protests have been stopped but twenty-five protestors have been killed by the Army. You are the Prime Minister. Write the script for a speech to be broadcast to the nation in which you **explain why employing the Army against violent protestors was the only option available to you** and one which was both *necessary* and *moral*.”

# Tomorrow's World



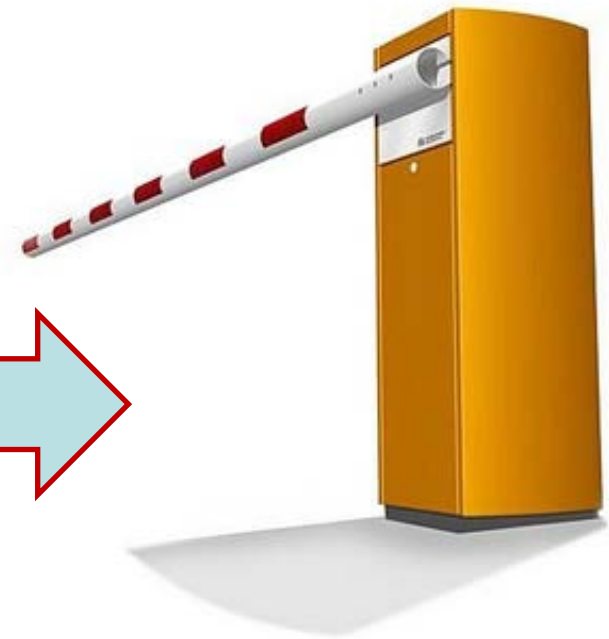
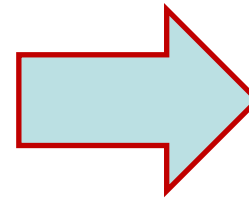
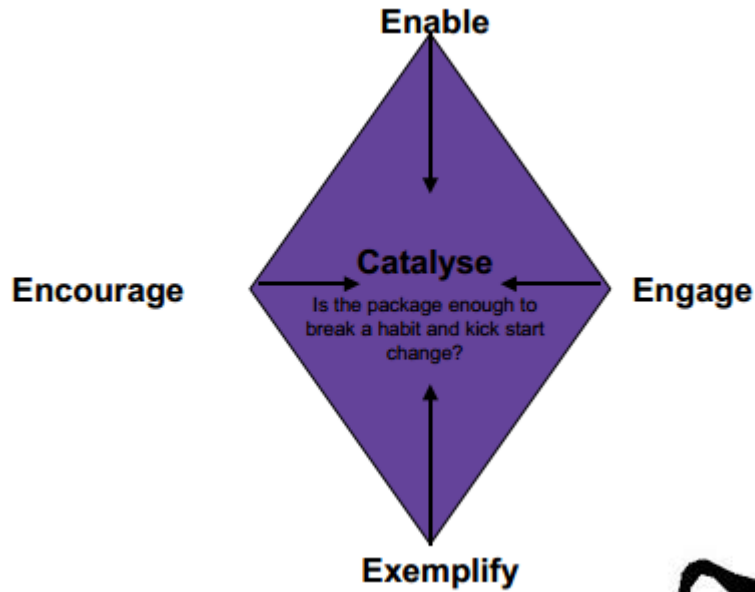
## 2: Opportunity

Disruption allows us  
to take advantage of  
situations to do  
things we need/want  
to do

A black computer monitor with a blue screen. The screen displays the text "Do Not Resume Normal Service As Soon As Possible!" in bold black letters. A black cable is plugged into the bottom left of the monitor.

**Do Not Resume  
Normal Service  
As Soon As  
Possible!**

# Current 'Behaviour Change' Approaches



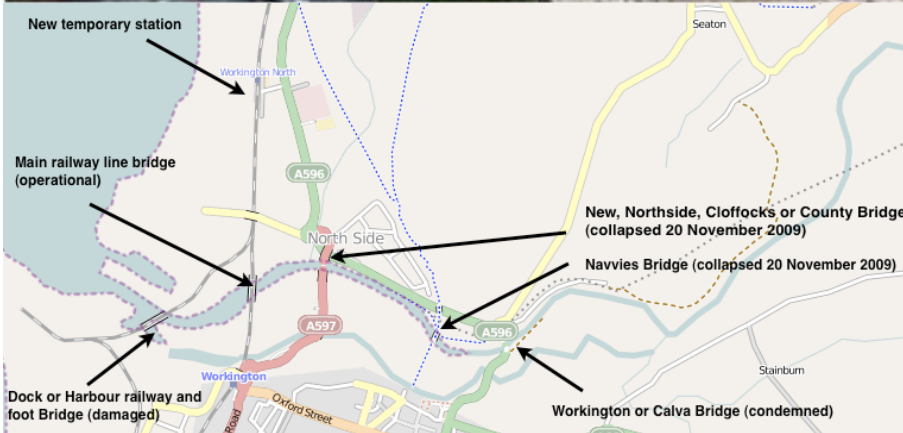


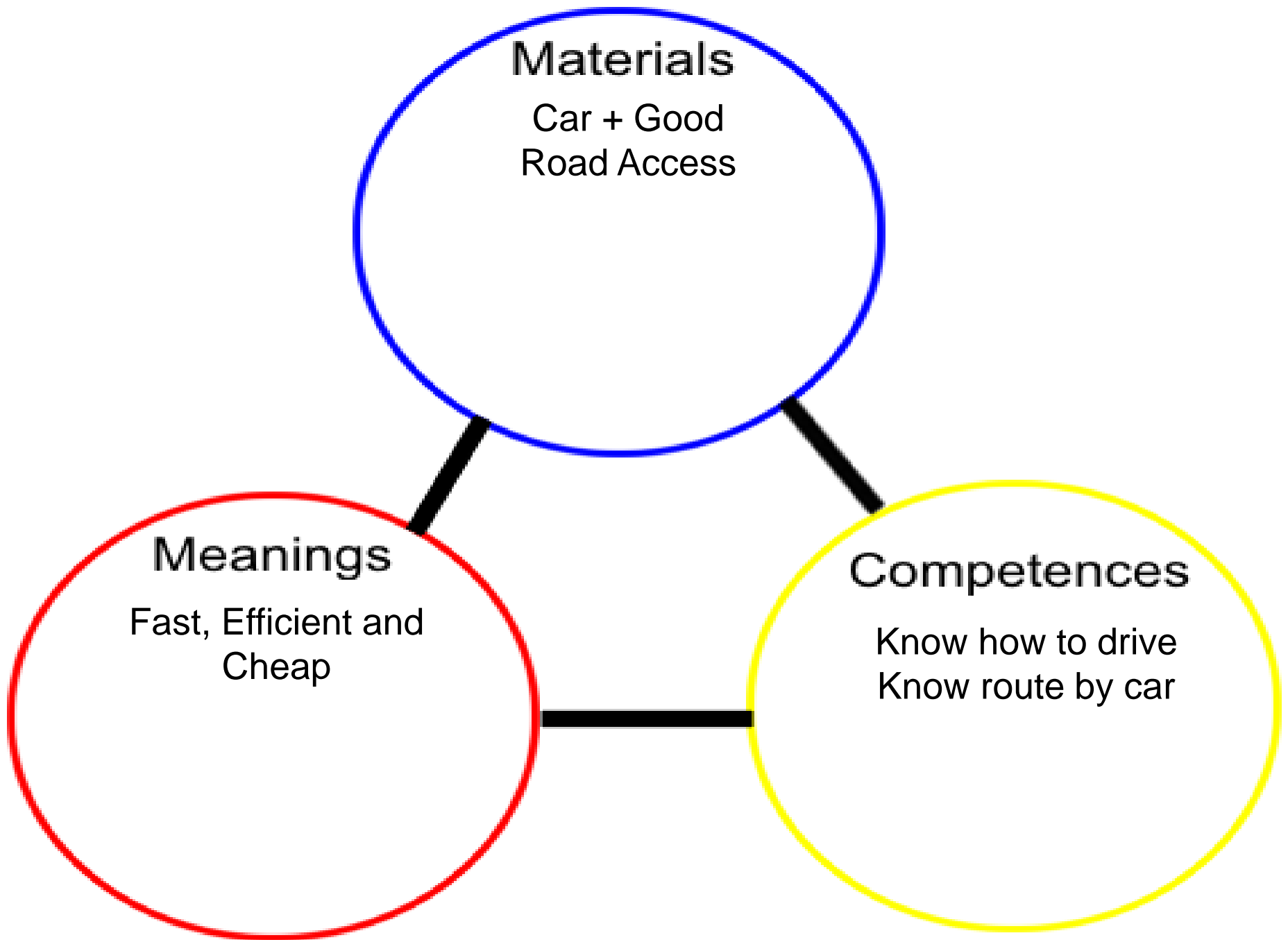
# ‘Locked In’ Behaviour

- “Habit requires frequency, automaticity and a ***stable context***” (Darnton, 2010)
- Social Practice perspective suggests behaviour locked-in to a way of doing by:
  - Materials
  - Meanings
  - Competences
  - Systems of provision



# Examples of Opportunities





## Materials

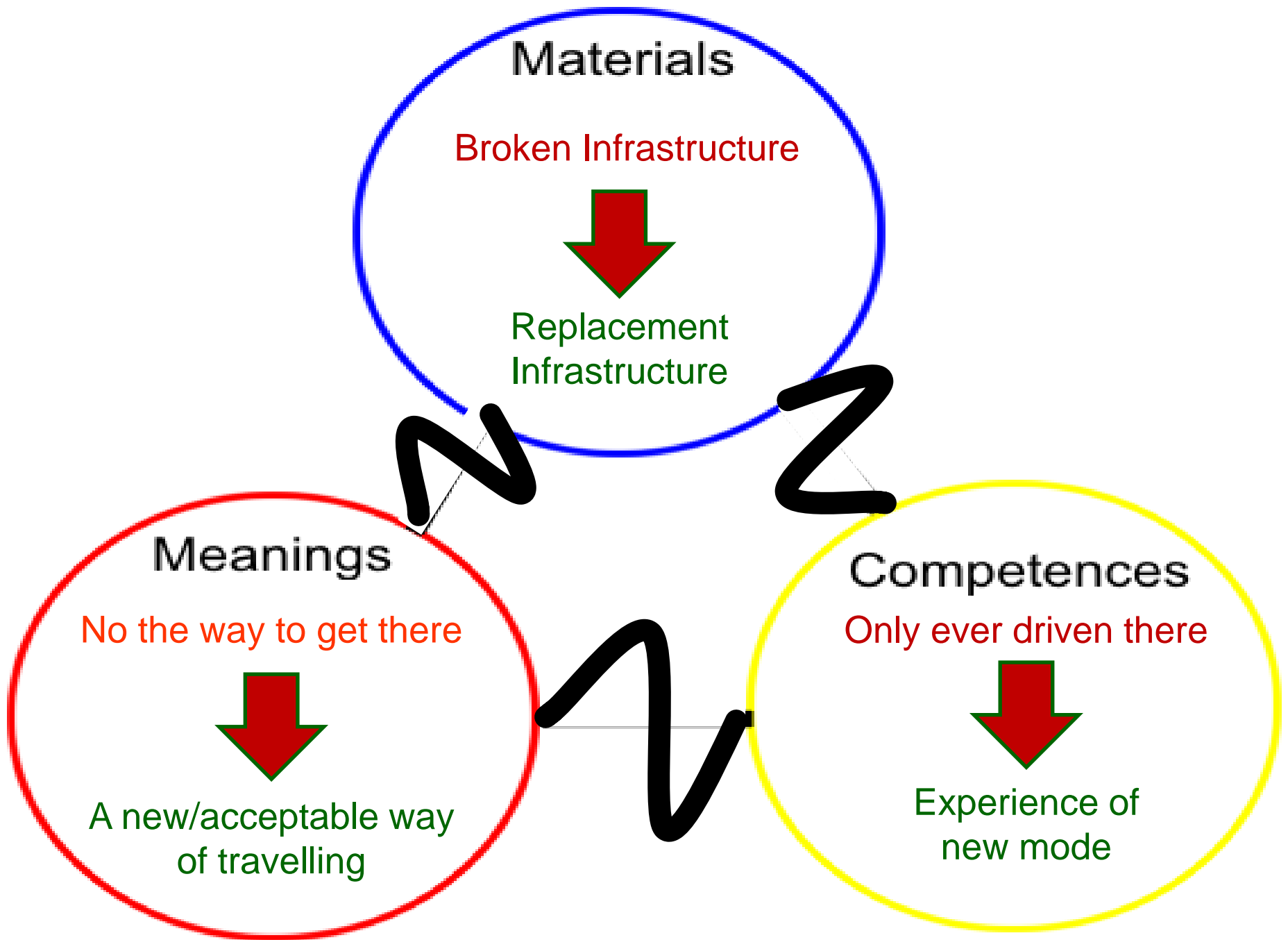
Car + Good  
Road Access

## Meanings

Fast, Efficient and  
Cheap

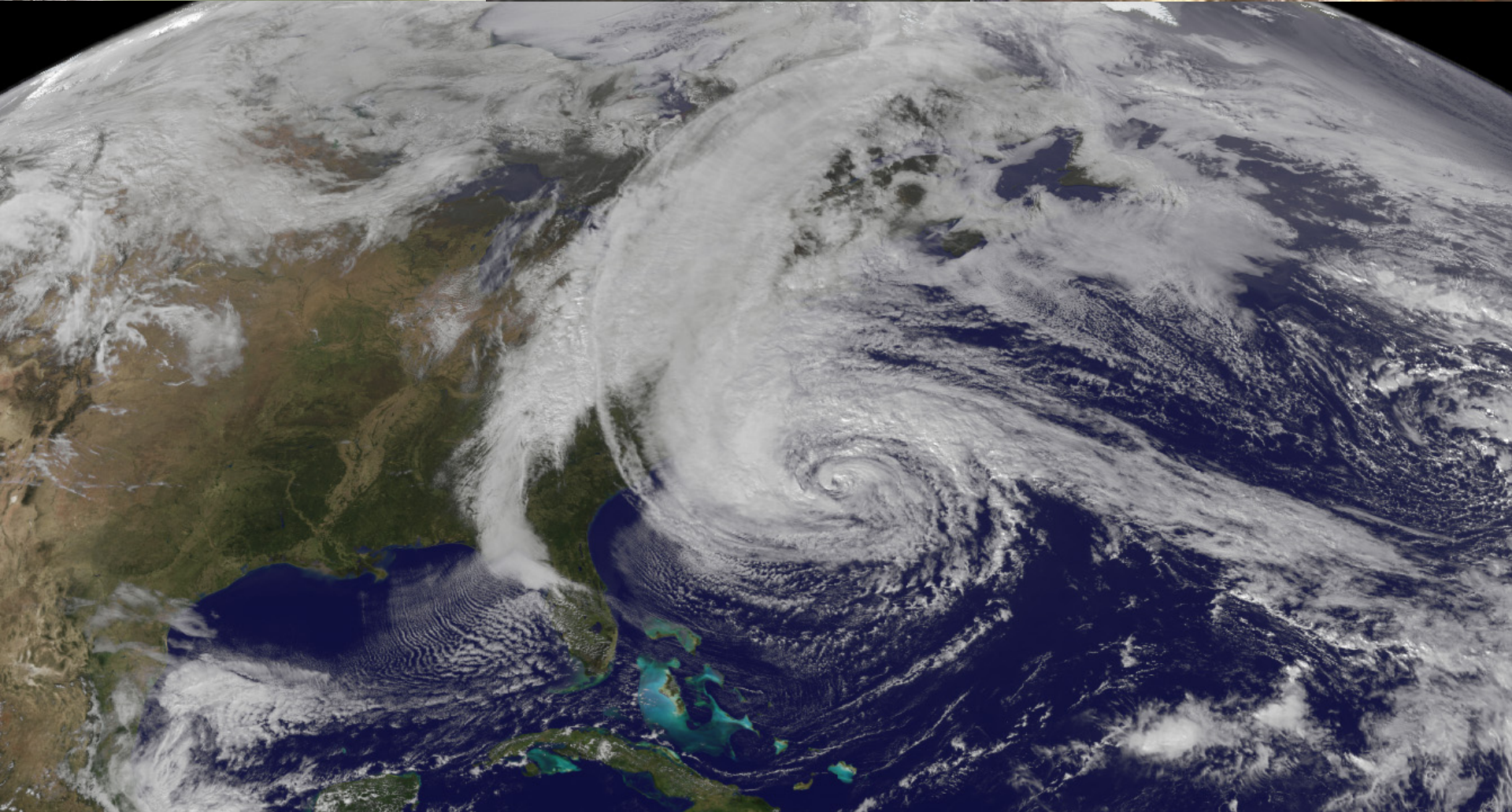
## Competences

Know how to drive  
Know route by car

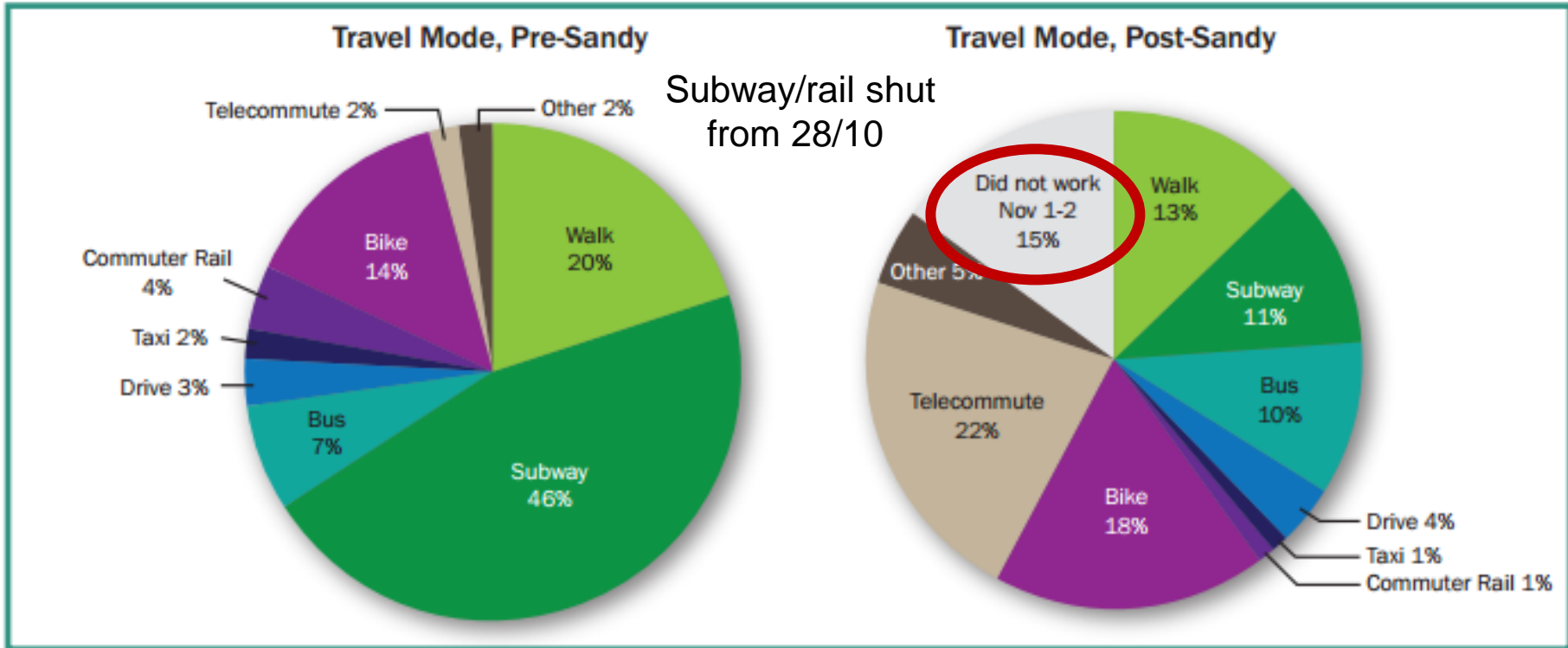


(3 Elements – after Shove)





# Room for Change?



Transportation During and After Hurricane Sandy ([Kaufman et al., 2012](#))

UP	Down
Telecommute (20%)	Subway (35%)
Bike (4%)	Walk (7%)
Bus (3%)	Commuter Rail (3%)
Drive (1%)	Taxi (1%)

*“Traffic gridlock on Tuesday made me appreciate the subways more than ever before”*

Commuter Survey Respondent



# Not just modes

Disruption project: Snow and Ice Surveys

Distance (miles)	Carry On	Mode Change	Conduct Elsewhere	Cancel	Rearrange	Ask Someone	Change Dest..
1-2	21%	9%	5%	44%	19%	4%	2%
3-5	21%	9%	8%	45%	22%	3%	3%
6-10	21%	9%	11%	42%	21%	3%	4%
11-20	20%	9%	13%	35%	22%	3%	2%
21-50	23%	7%	20%	34%	28%	2%	2%
51-100	24%	3%	6%	33%	42%	3%	2%
101+	20%	8%	10%	31%	41%	3%	1%
<b>Overall</b>	<b>23%</b>	<b>8%</b>	<b>11%</b>	<b>40%</b>	<b>24%</b>	<b>3%</b>	<b>3%</b>

>2/3 of people did something else

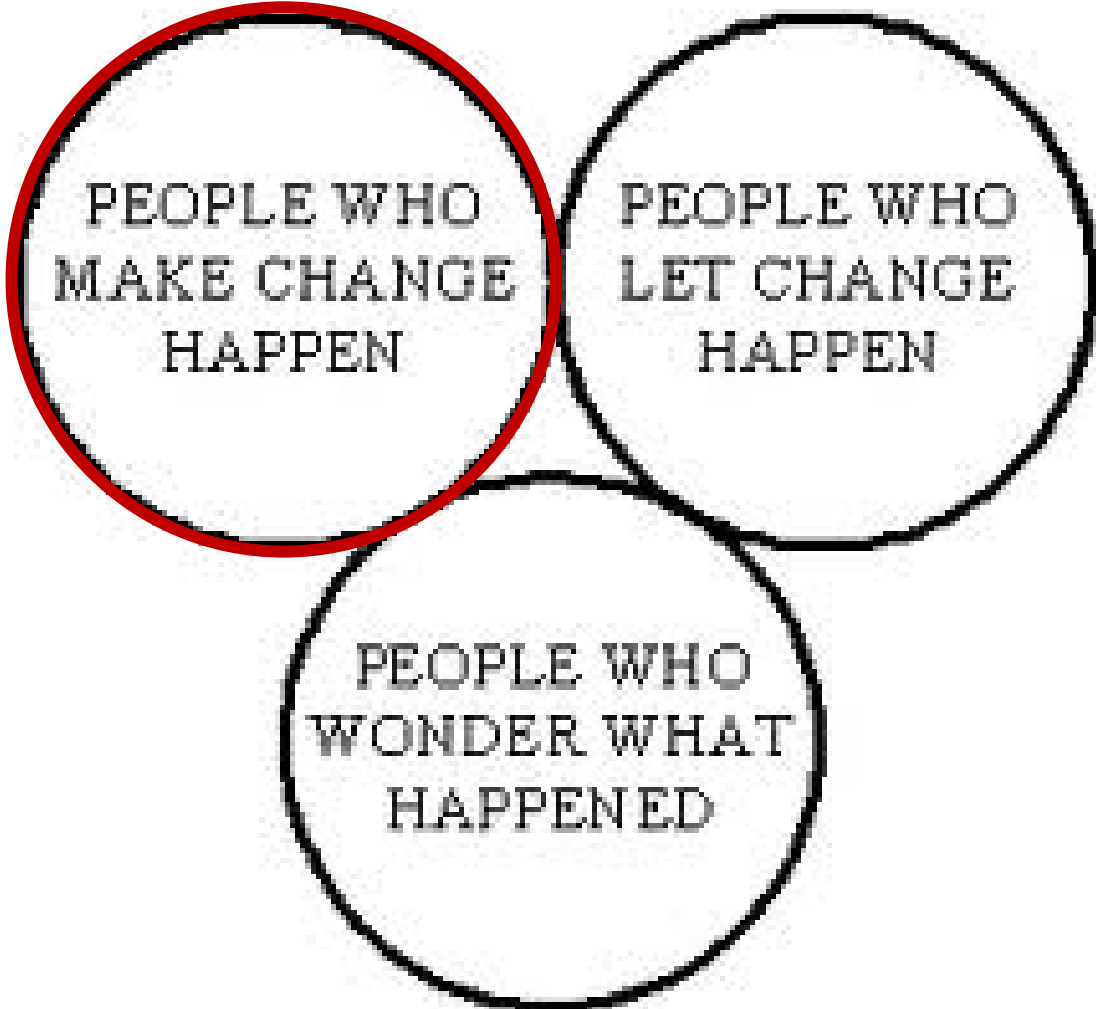
# Coping with Current and Future Disruption

- Minimise the impact on economy, quality of life and public opinion
- Use as opportunity to identify how/why people travel as they do
- Provide support for beneficial changes resulting from disruption
- Use as opportunity to shift to new patterns of behaviour
- Take opportunity to not to return to status quo



## 3: Necessity

We won't get where  
we need to be without  
disruption



PEOPLE WHO  
MAKE CHANGE  
HAPPEN

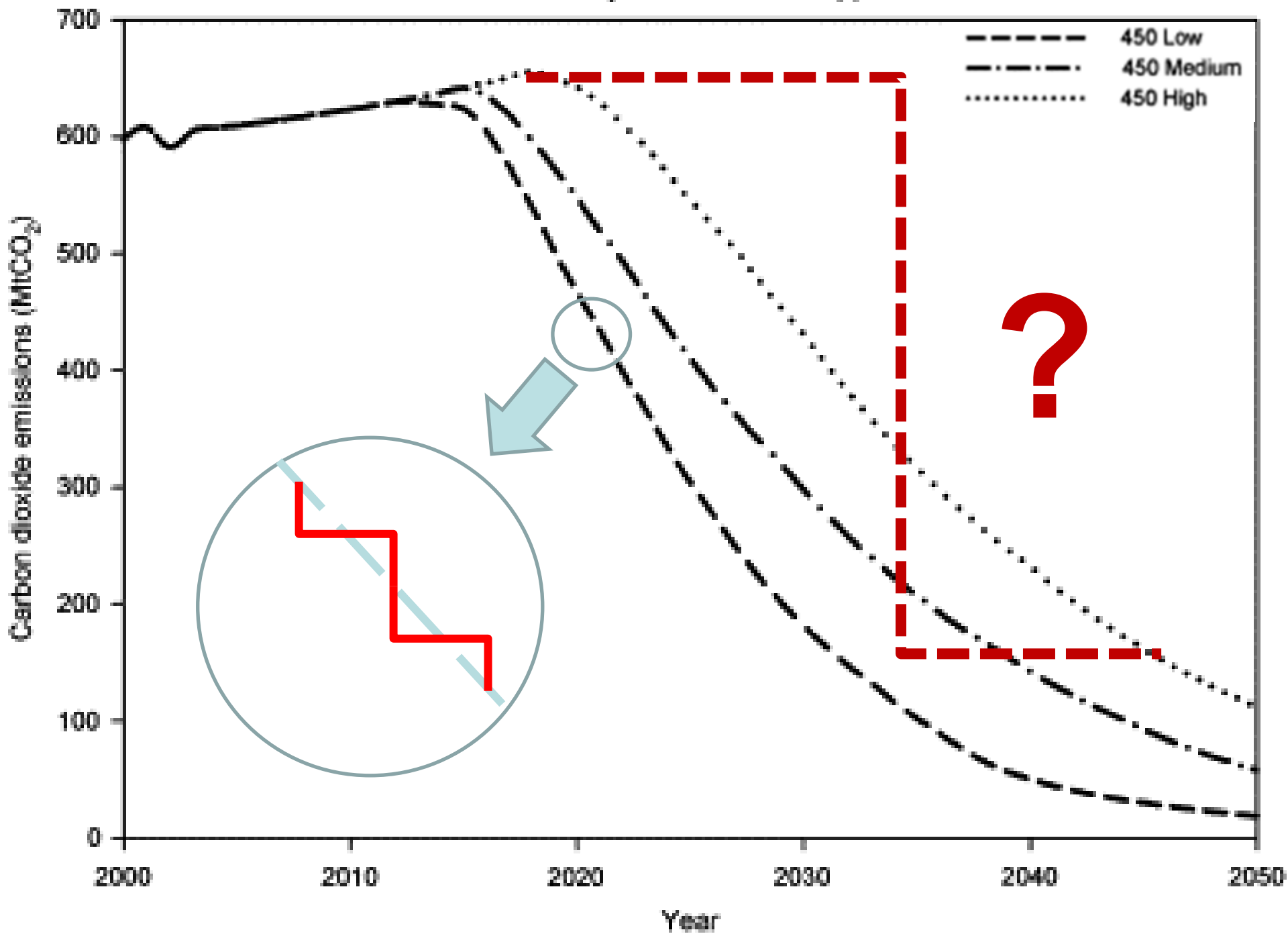
PEOPLE WHO  
LET CHANGE  
HAPPEN

PEOPLE WHO  
WONDER WHAT  
HAPPENED

# Bringing about future change

- UK currently 'committed' to reduce total greenhouse gas emissions by at least 80% by 2050 (Climate Change Act, 2008)
- 80-100% reductions in GHG emissions from transport required
- Currently the only increasing sector (at least till 2008)
- Gradual change *may* be possible when viewed at a national scale – but local and individual scale will require 'step-changes'

# UK Emission Trajectories for a 450ppmv Future



Perhaps at the time of the 1992 Earth Summit, or even at the turn of the millennium, **2°C levels of mitigation could have been achieved through significant *evolutionary changes within the political and economic hegemony.*** But climate change is a cumulative issue!

Now, in 2013, we in high-emitting (post-) industrial nations face a very different prospect. Our ongoing and collective carbon profligacy has squandered any opportunity for the 'evolutionary change' afforded by our earlier (and larger) 2°C carbon budget. **Today, after two decades of bluff and lies, the remaining 2°C budget demands *revolutionary change to the political and economic hegemony.***

# Bringing about future change

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- Currently the only increasing sector (at least till 2008)
- Gradual change *may* be possible when viewed at a national scale – but local and individual scale will require 'step-changes'
- What can be learnt from disruption to manage, facilitate, support, prompt and *force* these changes in order to help reduce carbon emissions?

# What are we learning?

- What are 'acceptable' levels of disruption?
- How do people respond, and what determines this?
- What tasks are seen as 'non-negotiable'?
- What do people really want/need? (instead of being able to get from A to B x minutes faster)
- What are the main influences on travel outside the transport sector?
- Where might *social* innovation/change be easier and/or more successful than *technological* innovation?
- What part does travel play in people's conception and expectation of normality?

# Conclusion

- The only thing certain is change.....
- Move from climate *mitigation* to *adaptation*
- Given change, can we meet or at least manage people's expectations?
- This is not something that can simply be addressed by technology without widespread social change...
- .....and it is not just about transport

# Thank you!

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