

Using Complexity to Help Understand and Manage Public Policy

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Who am I and what is my background in complexity and public policy?

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- I have been working on complexity for 15 years.
 - I tend to be on the 'general' side of the 'restricted' vs. 'general' debate in complexity (Edgar Morin).
 - To me, complexity is a meta-theoretical framework with fractal properties at various levels!
 - My work is focused on making complexity relevant and accessible to policy actors.
 - Key areas of interest: health and social policy, local policy, drug and drug advertising policy, GP commissioning, international relations and some aspects of development.
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From the big society to the big picture: The State of Play of UK Public Policy

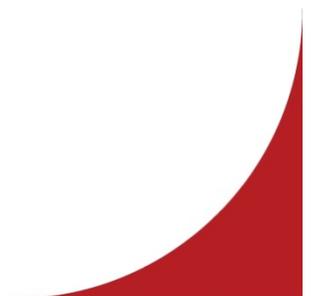
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- The Westminster Model
 - Rational, centralised, hierarchical
 - New Public Management
 - Intensive rationalisation and self-interest
 - Evidence Based Policy Making
 - Better evidence = better policy
 - Targeting/Audit Culture
 - More targets/audits = better information/control = better policy
 - ‘Big Society’ and ‘Bonfire of the Targets’ linked to new mantra of ‘Doing more with less’
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The Big Problem

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- Post-WWII UK policy tendency towards the rational, centralised, hierarchical, command and control Westminster model
 - EBPM and targeting/audit culture are merely latest manifestations/intensifications (deeper than New Labour)
 - Obvious weaknesses: misdirection, blunt, over controlling, waste of resources, ignores local actors, etc.
 - Current move away is temporary
 - Primarily based on budget issues and political expediency. When these change the tendency will resume with the same problems.
 - Key hidden change: growing differences between England, Scotland, Wales and Northern Ireland.
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How has this affected health policy? Reorganise, reorganise, reorganise...

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- 23+ reorganisations in the last 20 years.
 - Current commissioning reorganisation is latest in a long line of reorganisations.
 - Political elites and the IMT syndrome
 - Is all of this keeping the NHS healthy or critically undermining it?
 - Depends on how you look at it.
 - From the traditional orderly approach: this is the only way to save the system.
 - From a complexity perspective: may work but stifles learning, adaptation and flexibility in the long run.
 - Also, local actors learn to resist/ignore the system



How has this affected education policy? Test, test, test...

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- 2009 Cambridge Report
 - Most evaluated schools
 - Most tested students
 - Huge cost
 - Large diversion of resources
 - Only moderate improvement
 - Recent changes: recentralisation of all funding, increase control and constraints on testing, increasing ‘political’ control over testing (Gove – ‘too easy’)
 - Works for elites, but what about the rest



How has this affected social policy? Rules, rules, rules...

- 2010 Munro Review into child services concluded that the current system:
 - Leads to a ‘skew in priorities that has developed between the demands of the management and inspection processes and professionals’ ability to exercise their professional judgement and act in the best interests of the child’
 - Promotes ‘following rules and being compliant’ rather than doing the right thing for the child.
 - ‘operating within an over-standardised framework’
 - Performance data collected, at great effort and expense, ‘does not describe what matters’
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More...

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- ‘NPM seeks to ‘improve practice in child protection through targets and performance indicators’
 - Focused on ‘top-down regulation’ rather than ‘personalised service’
 - Media and public perception of risk and complex nature of child protection
 - ‘over-standardised framework makes it difficult for professionals to prioritise time with children’
 - *Problems of the traditional policy approach are well known (and the government agreed with the review!!!)*
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Munro - The goal is to create a system:

- that learns whether children are being helped, and how they have experienced the help, innovating in response to feedback.
- which is free from all but essential central prescription over professional practice but with clear rules about where and how to co-ordinate to protect children and young people.
- where professional practice is informed by research and evidence, competent judgement informing action when the work is too varied for simple rules.
- that expects errors and so tries to catch them quickly.
- which is 'risk sensible'.



Easy to say, hard to do

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- For UK central actors: often held responsible if local actions go wrong. Hard to get away from ‘something must be done’, ‘lessons must be learned’ – new target/new audit.
 - For local actors: increased freedom, responsibility and uncertainty. Dangerous and uncertain. Often support targets/audits to provide protection (legal and social)
 - At local level, despite many doing amazing and impressive work, they are not angels. Need to monitor and review. How to separate the good from bad?
 - Wider societal values often play a key role: How to get society to accept some failure and occasional horrible injustice?
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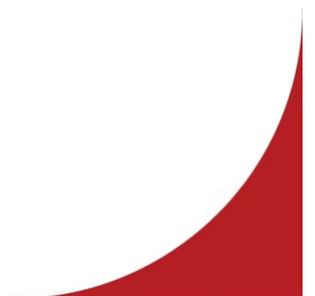
What can academics do to help move this process forward?

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- Get to the root of the policy makers and societal ‘scientific’ belief in the pre-eminence of orderly, rational policy
 - What John Dewey called, ‘the quest for certainty’!
 - Re-examine it in the light of complexity thinking
 - Apply new thinking, concepts and tools to policy

 - HOPEFULLY, THIS WILL ALLOW US TO:
 - Better understand the strengths and weaknesses of the current orderly policy framework and develop new and reasonable strategies for going beyond it without undermining its strengths
 - Recognise that this applies to ALL policy areas and even applies ‘culturally’
 - Show that with complexity one can ‘Do more with less’, but it does not guarantee success
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Critical perspectives are already well established

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- Again, the Munro review uses ‘systems thinking’
 - Substantial literature organisational, management and policy Peter Checkland and Russell Ackoff (hard, soft and evolutionary systems)
 - Systems thinking and NHS Modernisation Office
 - *Working in Systems* NHS 2005. Jake Chapman, *System Failure*, Demos 2002
 - Another field, ‘wicked’ or fuzzy problems
 - Substantial literature in management studies,
 - See (Head and Alford, *Wicked Problems: The Implications for Public Management*, 2008 and Australian Public Service Commission, *Tackling Wicked Problems*, 2007)



What does complexity add to this?

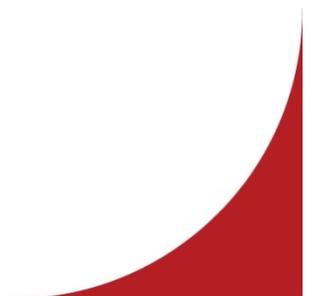
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- Significant overlap
 - However, deeper ‘scientific’ understanding and presence
 - Importance of the range of strategies needed to deal with complex social and child protection policies (‘don’t throw out the baby’ – example of DVL)
 - Variety of concepts and tools that can be useful.
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Where does the orderly framework (and eventually complexity) come from?

One can start with what could be called the “paradigm of order”

- Rene Descartes (1596-1650) and Sir Isaac Newton (1642-1727)
- Pierre Simon de Laplace (1749-1827):
If at one time, we know the positions and motion of all the particles in the universe, then we could calculate their behaviour at any other time, in the past or future (Celestial Mechanics).

Implications: Knowledge has an endpoint and is hierarchical!



Phenomena in the Paradigm of Order

DISORDER



ORDER

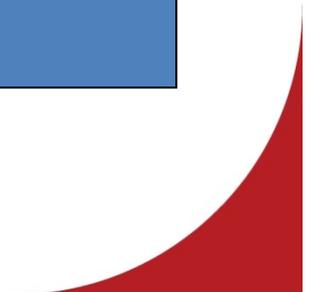
TIME



EXAMPLES:

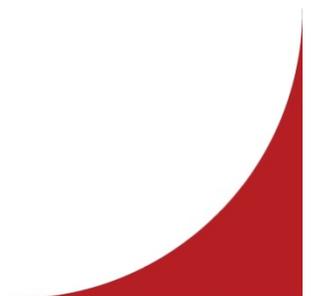
Unknown or not fully understood phenomena

Gravity or motion in a vacuum.



Four Rules of the Paradigm of Order:

- *Causality*: given causes lead to known effects at all times and places.
- *Reductionism*: the behaviour of a system could be understood, clockwork fashion, by observing the behaviour of its parts. There are no hidden surprises; the whole is the sum of the parts, no more and no less.



Four Rules of the Paradigm of Order:

- *Predictability*: once global behaviour is defined, the future course of events could be predicted by application of the appropriate inputs to the model.
- *Determinism*: processes flow along orderly and predictable paths that have clear beginnings and rational ends.



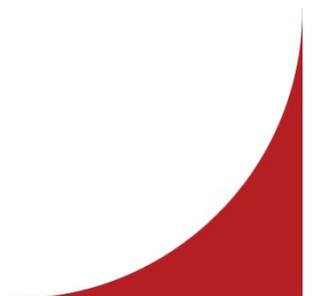
Spreading ripples of doubt in the orderly world view

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- Henri Poincare (1854-1912) early chaos theory.
 - Albert Einstein (1879-1955) relativity theory.
 - Werner Heisenberg (1901-1976) uncertainty principle.



The rediscovery of Complex Systems in the physical world

- Fluid dynamics
 - (sand piles and toilet bowls)
- Weather
- Complex, but not necessarily complicated



The range of physical phenomena in a Complexity Paradigm

DISORDER

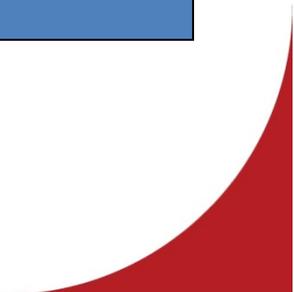
Zone of
Unknown/
Discovery.

COMPLEXITY

Fluid dynamics.
Weather
patterns

ORDER

Gravity.
Motion
in a vacuum.



Rules for physical systems in a complexity paradigm

1. Partial Causality: phenomena can exhibit both orderly and chaotic behaviours, cause may not lead to effect.
 2. Reductionism and Holism: some phenomena are reducible others are not.
 3. Predictability and Uncertainty: phenomena can be partially modelled, predicted and controlled.
 4. Probabilistic: there are general boundaries to most phenomena, but within these boundaries exact outcomes are uncertain.
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Complex systems in a biotic world

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- Peter Coveney and Roger Highfield (*Frontiers of Complexity*, 1995)
“Life is also an emergent property, one that arises when physiochemical systems are organized and interact in certain ways”
 - James Lovelock and the concept of *Gaia*.
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Range of biotic and physical phenomena

DISORDER

COMPLEXITY

ORDER

Biotic Complexity Physical Complexity

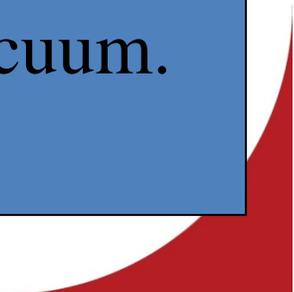
EXAMPLES:

Zone of
Unknown/
Discovery

Plant and
animal
interaction/
evolution.
Gaia

Fluid
dynamics.
Weather
patterns.

Gravity.
Motion
in a
vacuum.



Rules of biotic systems in a complexity paradigm

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- **Partial Causality:** phenomena can exhibit both orderly and chaotic behaviours, cause may not lead to effect.
 - **Reductionism and Holism:** some phenomena are reducible others are not.
 - **Predictability and Uncertainty:** phenomena can be partially modelled, predicted and controlled.
 - **Probabilistic:** there are general boundaries to most phenomena, but within these boundaries exact outcomes are uncertain.
 - **Emergence:** they exhibit elements of adaptation and emergence.
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Complex systems in the human world

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- Human complex systems are, ‘not reducible to a mechanical system.... for which the assumptions of average types and average interactions are not appropriate and are not made. Such systems coevolve with their environment, being “open” to flows of energy, matter, and information across whatever boundaries we have chosen to define. These flows do not obey simple, fixed laws, but instead result from the internal “sense making” going on inside them, as experience, conjectures and experiments are used to modify the interpretive frameworks within. (Peter Allen 2001)
 - **Or they are like throwing a duck!**



Rules of conscious systems in a complexity paradigm

- Partial Causality: phenomena can exhibit both orderly and chaotic behaviours, cause may not lead to effect.
 - Reductionism and Holism: some phenomena are reducible others are not.
 - Predictability and Uncertainty: phenomena can be partially modelled, predicted and controlled.
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Rules of conscious systems in a complexity paradigm

- Probabilistic: there are general boundaries to most phenomena, but within these boundaries exact outcomes are uncertain.
 - Emergence: they exhibit elements of adaptation and emergence.
 - Interpretation: the actors in the system can be aware of themselves, the system and their history and may strive to interpret and direct themselves and the system.
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The range of physical, biotic and conscious phenomena

DISORDER

COMPLEXITY

ORDER

Conscious
Complexity

Biotic
Complexity

Physical
Complexity

EXAMPLES:

Zone of the
Unknown/
Discovery

Norms.
Values.
Language
Narrative

Plant/
animal
interaction
and
evolution.

Fluid
dynamics
and
Weather
patterns

Gravity.
Motion
in a
vacuum.

Social sciences and the paradigm of order

- Thomas Hobbes (1588-1678) *Leviathan*.
 - Francois Quesnay (1694-1774) the economic system as a mechanical clock.
 - Condorcet (1743-1794):
“The sole foundation for belief in the natural sciences is the idea that the general laws directing the phenomena of the universe, known or unknown, are necessary and constant. Why should this principle be any less true for the development of the intellectual and moral faculties of man than for other operations of nature?”
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The social sciences and the paradigm of order: 20th century

- Modernisation in development theory
- Rational choice in politics
- Behaviouralism in sociology
- Positivism in economics

Drift to order and rule of the expert/
technocrat



Public policy and the paradigm of order: 20th century

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- Traditional bureaucracy and managerialism - hierarchical command and control approaches
 - The 'Westminster model' of public policy – centralisation of power
 - Elements of the modernist vision of the Keynesian welfare state
 - Rational Actor Model-utilitarian/economistic
 - New public management – emphasis on economistic and accountancy culture
 - EBPM and the targeting/audit culture

Drift to centralised control and criteria but constantly limited by lack of local knowledge and uncertainty



Complexity Tools

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- Complexity allows us to see the problems of order, but does not solve those problems. However, it does give us concepts and tools for understanding and managing our complex reality.
 - A Couple of Complexity Tools
 - Complexity mapping
 - Stacey diagram
 - Others include: Complexity cascade, fitness landscape, attractors, self-organisation, etc.



From Ideal-types to Complexity Mapping

Disorder ————— Complexity ————— Order

Conscious

Biotic

Physical

Detailed long term policy development and shock events.

Contested narratives between and within the actors and society

Political actors interaction: conflict, cooperation, evolution

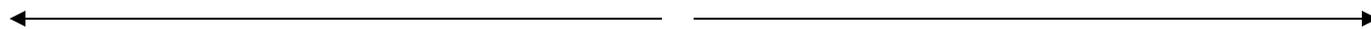
Types of decision making outcomes

Basic power resources and structures

Methods

Increasing Qualitative

Increasingly Quantitative

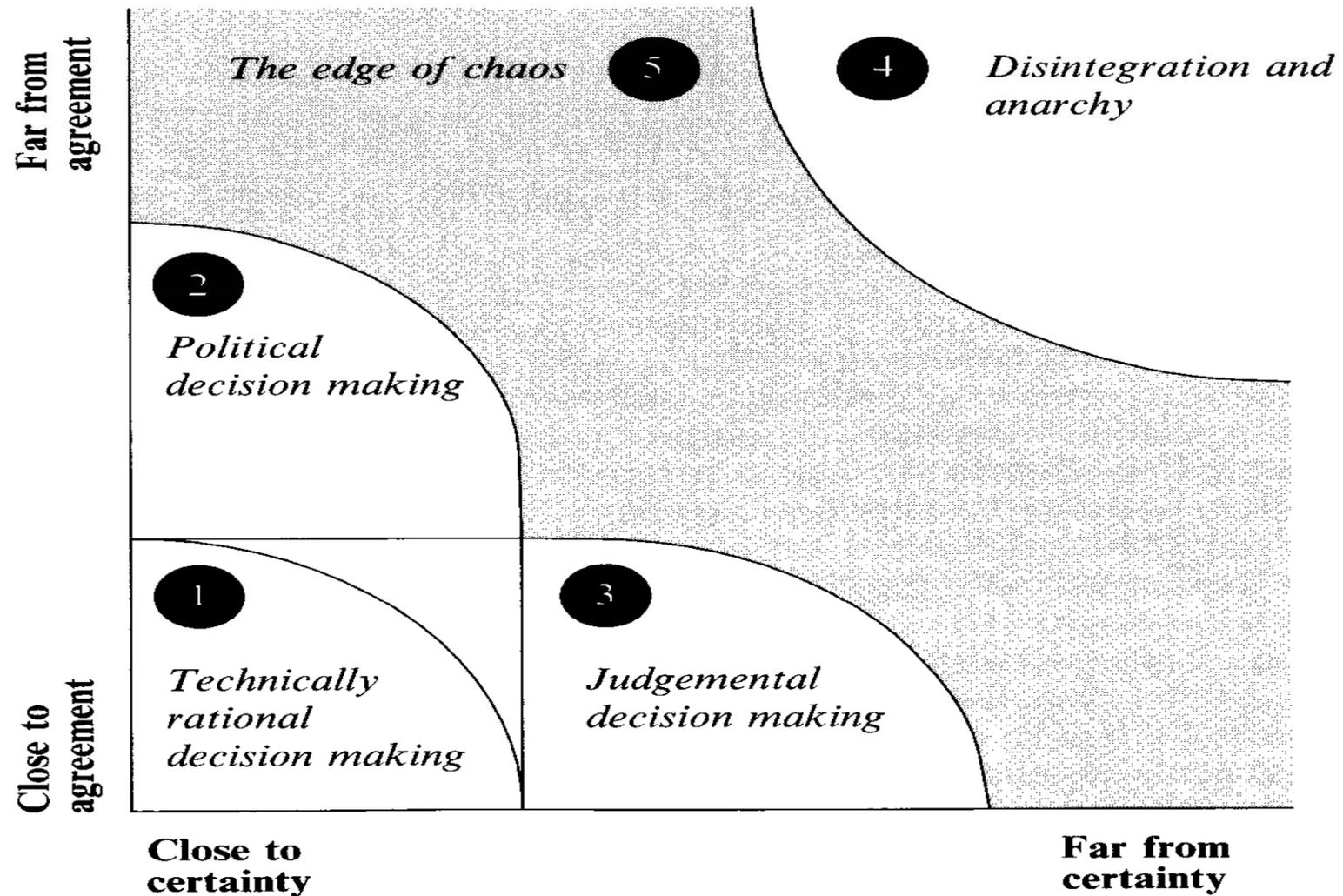


Local actor expertise

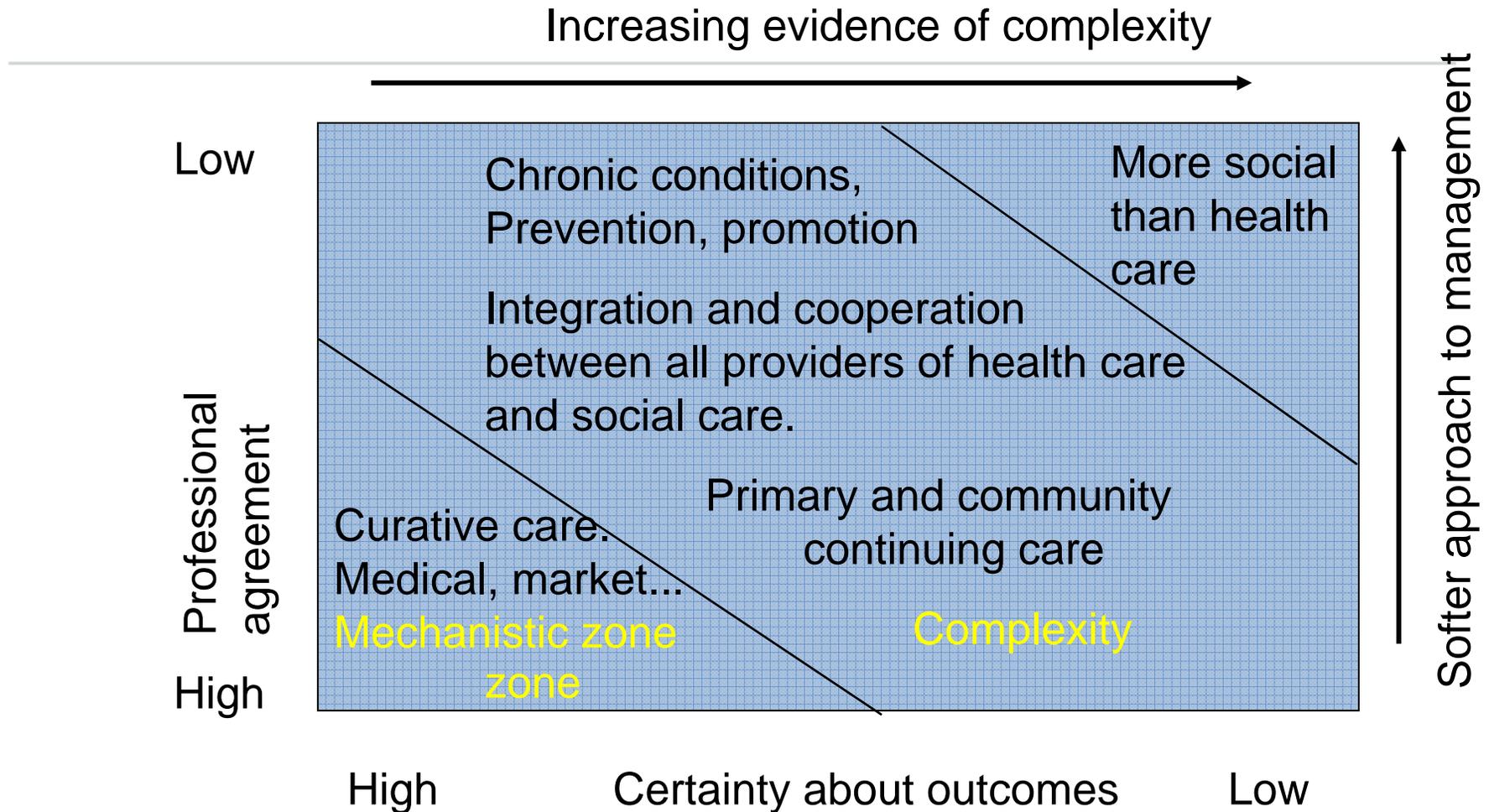
Policy actor expertise



From 'techno-rational decision-making' to the Stacey Diagram



Stacey diagram: Part 2



Important to note: This can be applied to individual patients and conditions

Social and health policy in an orderly perspective

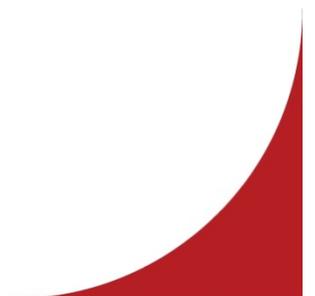
- Causality (more targets will lead to greater control and efficiency).
 - Reductionism (targets can be separated).
 - Predictability (add money and social/health policy will improve).
 - Determinism (we know how to improve social and health policy in the long run).
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Social and health policy in a complexity perspective

- Partial Causality (fundamental targets matter, detailed don't)
 - Reductionism and Holism (at best, degrees of separation between targets)
 - Predictability and Uncertainty (fundamental changes do matter, but so may minor ones)
 - Probabilistic (unknown long term impact of all major policies)
 - Emergence (policy change creates new strategies which create new policies and so on)
 - Interpretation (public opinion shapes social and health policy: interactive, adaptive and evolutionary not static and only rigidly determined by central elites)
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Final Examples

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- Complexity and GP Commissioning
 - Complexity and HE departmental reorganisations
 - Complexity and pragmatism



GP Commissioning

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- Setting GPs ‘free to make decisions for their patients’ or ‘the bravest thing’ that GPs will ever do?
 - Pro’s: local focus and accountability, stimulate new providers, encourage real decentralisation, better fit with patients needs
 - Con’s: increased variability, inappropriate relationships, strict contractual relationships, GP’s loss role as patient advocates, loss of GP ‘public actor’ culture
 - No simple answer - mix of localism, privatisation and re-centralising
 - Implications for GPs –the Stacey Diagram
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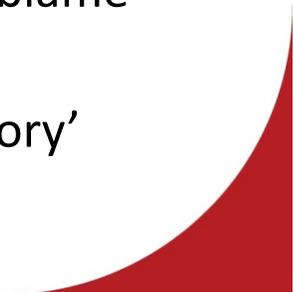
My case: from Politics to PPR

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- Spring 2009: took over as HoD and told to create PPR – no clear plan just general parameters and three very different departments
 - Key decisions: focus on basics, physical integration (bring together and alphabetise offices), decision-making integration (balanced management committee meeting weekly), cultural integration (try to work together to avoid factionalism).
 - Multiple tensions (REF strategy, recruitment strategy, and ‘political’ position in Faculty/University) and multiple changes to external system (new fees, mergers, etc.)
 - Where we are now: ‘good’ culture that is positive and flexible. Don’t know about future, but good now!
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Complexity and Pragmatism

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- Currently working with Chris Ansell at UCB on exploring the linkages between ‘pragmatist’ philosophy and complexity theory. Key work, John Dewey’s quest for certainty
 - Pragmatism helps to resolve key areas of complexity
 - Morality and complexity (what is right about complexity?)
 - ‘action’ and complexity (what is to be done???)
 - Power and complexity (what can complexity say to the weak)
 - Democracy and complexity (are they compatible?)
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Conclusions(?) and implications for future research and policy action

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- Complexity sciences and theorising are well advanced and numerous academic works are widely available and is having a growing impact on a range of policy areas.
 - **Key challenge:** how to translate this research and theoretical knowledge into policy action? In the UK, take advantage of the ‘impact agenda’ to make links and work with local policy actors.
 - In my experience, policy actors generally agree that their world is ‘complex’, but that actors above and/or below them force them to act in an ‘orderly’ fashion.
 - Nevertheless, complexity can be a way of ‘doing more with less’ for local and central actors.
 - Can help to move media and society away from culture of control/blame
 - Wide range of tools and concepts to use. **Key point:** make them SIMPLE/USABLE for busy policy actors who have little time for ‘theory’
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Thank you for your time and attention!

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- **If you would like to see the videos:**

<https://www.youtube.com/playlist?list=PLm5Zzashz3KfVHbncIaWuSyOaT92SJDmr>

- **Recent books:**(forthcoming) (co-edited with Paul Cairney) *Handbook on Complexity and Public Policy*. London: Edward Elgar 2015. (co-authored with Samir Rihani) *Complexity and Public Policy: A New Approach to 21st Century Politics, Policy and Society*. London: Routledge 2010.(co-edited with Jan Bogg) *Complexity, Science and Society*, Oxford: Radcliffe Publishing 2007.
 - **Next projects:** complexity and pragmatism. The role of intuition in public policy. Looking for new policy partners!
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