

THE NEW
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The Case For Exploratory Social Sciences

Geoff Mulgan

SEPTEMBER 2021

The Case For Exploratory Social Sciences

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Printed in Germany
on recycled paper

COVER: Detail from
the construction site
at THE NEW INSTITUTE
in Hamburg
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Preface

Wilhelm Krull, Founding Director of THE NEW INSTITUTE

To unlock closed doors, to explore the social world around us, to leave the beaten tracks of commonly held beliefs, and to transgress social as well as disciplinary boundaries – these are some of the actions required to face the challenges ahead. Often, breaking new ground requires envisioning and designing entirely new pathways (such as the sketch on the cover page—a new door being created at the Warburg Ensemble, the future home of THE NEW INSTITUTE). Both metaphorically and literally speaking, such breakthroughs not only open up new perspectives and enable us to build new connections, but help pioneer new modes of thinking and of working together on some of the most urgent issues of our time.

As a mission-driven Institute of Advanced Study and a platform for change, THE NEW INSTITUTE is looking for answers at the intersection of four futures: the global economy, environmental and climate change, democracy and digital governance, the human condition and behavioural change. Among the questions being addressed by our fellows and the facilitating team are: What is a consistent value system for a sustainable future on our planet? How can democracy provide adequate forms of governance for the 21st Century? What kind of regulatory interventions are needed to shift business as well as the economy at large in the direction of wellbeing and sustainability? How can we better understand what makes us change our habits and mindsets in order to empower citizens to transform their lives?

It is our ambition to move beyond the usual patterns of mapping, measuring and monitoring by encouraging our fellows to leverage their expertise in imagining, designing and experimenting with new approaches. The goal is to open novel pathways for social and environmental change. For many, the future is a place of fear as much as hope, and so it becomes ever more urgent to rekindle a sense of belief that positive change is possible.

In his essay, Geoff Mulgan gives shape to this position by calling social scientists to account. Mulgan urges experts to transcend their respective domains of expertise and patterns of analysis, to make use of their knowledge in the service of envisioning and shaping a more sustainable path forward. He offers a wide array of methods and techniques that could be adapted and applied in an exploratory manner in order to transgress disciplinary as well as institutional boundaries. Instead of sticking to

an “unrealistic realism”, social scientists should become more open to evolutionary ways of thinking, try to imagine alternative options, design possible remedies to social problems, and make extensive use of creativity methods such as extending existing practice, combining ideas from different fields, using models and digital twins, stimulating inversion of perspectives, or introducing a randomly chosen element of surprise. However, the results should not simply be taken for granted. They require rigorous reviews as well as testing and experimentation in order to ultimately prove their quality, validity, and appropriateness for different settings.

It is with great pleasure that THE NEW INSTITUTE presents Geoff Mulgan’s “The Case for Exploratory Social Sciences” as the first issue in the envisaged series of Discussion Papers. We hope this paper will stimulate further debates on the issues raised as well as new approaches to problem-solving in due course.

Wilhelm Krull

Founding Director

Hamburg, September 2021

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Summary

Should the social sciences only analyse the past and present? Or should they also try to help design the future? THE NEW INSTITUTE aims to support faster and closer connections between social science and the vital changes needed in our society as we respond to climate change, ageing, inequality and a world flooded with powerful new technologies. It is needed in part because our existing academies are not generating an adequate supply of options and designs for the future.

Here I make the case for a new way of organising social science both in universities and beyond through creating sub-disciplines of ‘exploratory social science’ that would help to fill this gap. In the paper I show:

- how in the 18th and 19th centuries social sciences attempted to **fuse interpretation and change**
- how a series of trends – including **quantification and abstraction** – delivered advances but also squeezed out this capacity for radical design
- how these also encouraged some **blind alleys** for social science, including what I call ‘unrealistic realism’ and the futile search for eternal laws

I show some of the more useful counter trends, including evolutionary thinking, systems models and complexity that create a more valid space for conscious design.

I argue that now, at a time when we badly need better designs and strategies for the future, we face a paradoxical situation where the people with the deepest knowledge of fields are discouraged from systematic and creative exploration of the future, while those with the appetite and freedom to explore often lack the necessary knowledge.

In the core of the paper I suggest an answer, describing the potential for growing **‘exploratory social sciences’** that combine disciplinary depth with systematic use of methods that make the most of creative imagination. I suggest what these social sciences could look like, how they might determine quality, and some possible steps to making this happen. And I show how exploratory social sciences could have helped us avoid some of the pathologies of the Internet, and how these methods could be applied to the challenges of creating a net zero economy and society.

Most of the pioneer social scientists saw themselves as both designers and interpreters.

1 The origins of the social sciences as a tool for social change

There was a time when many social scientists saw themselves not just as analysts but also as shapers and designers of possible futures. Their job was to see not just how things were in the present but also how they might be in the future: rather as architects and landscape designers learn to see the potential of a building or a place, or as biologists learn to see how things can grow.¹

This was the spirit of many of the great 19th century social scientists, from Jeremy Bentham to August Comte. The term "social science" itself first appeared in a book that was as much about design as observation, William Thompson's 1824 publication *'An Inquiry into the Principles of the Distribution of Wealth Most Conducive to Human Happiness; applied to the Newly Proposed System of Voluntary Equality of Wealth'*. Most of the pioneer social scientists saw themselves as both designers and interpreters. Two centuries earlier Hobbes had advocated deductive reasoning from axioms as a guide to political design for the future. Bentham created designs based on insights and what he took to be axioms, for example through the 'felicific calculus'. Marx believed there were hidden laws of change that needed to be discovered in order to discover the rhythms of history, and thus predicting its future course, and his grave is inscribed with his famous comment that 'the philosophers have only interpreted the world, in various ways. The point, however, is to change it' (though he also believed that there was little point designing the future society in any detail since evolution would do the necessary work when the time came). From their origins, in other words, the social sciences were concerned with how to shape the future, not just how to analyse the past and present.

2 Observation and praxis

This interest in shaping the future brought thinkers up against the epistemological question of how we can know anything about the future, whether of economies or societies. We can try to extrapolate from past trends, but that of course is problematic if conditions change; we can seek out laws, but these may turn out to be contextual rather than universal; or we can seek out pockets of the future in the present, vanguard places or groups that in some way prefigure the direction of travel of the rest of society. All of these methods can be found in the many writings on the 'just transition'.

An alternative approach, sometimes associated with the late 19th century pragmatic school of philosophy associated with Charles Peirce and John Dewey, argued that knowledge of the future comes best from praxis rather than detached observation. In their view, we best understand the future by trying to shape it, and we best shape it in iterative and adaptive ways rather than logical deduction. In the words of

one history of the movement: ‘Pragmatists believed that ideas are not out there waiting to be discovered but are tools that people devise to cope with the world in which they find themselves ... ideas are produced not by individuals—that ideas are social ... ideas do not develop according to some inner logic of their own but are entirely dependent, like germs, on human careers and environment ... and that since ideas are provisional responses to particular situations their survival depends not on their immutability but on their adaptability.’ⁱⁱ

A more recent account – by Fernando Flores and Hubert Dreyfus – echoed this perspective, explaining the work done by entrepreneurs, activists and innovators in shaping the future through the language of disclosing. Drawing on ideas from Heidegger, they conceived of their work as ‘disclosing new worlds’,ⁱⁱⁱ uncovering new ways of organising society, whether good or bad, that could only come from engagement in the world.

By the late 19th century many of the professions had taken on a similar perspective. Some parts of social science always placed a strong emphasis on design because of the tight links to a profession or practice such as law, government, public health and finance. None had a very clear theoretical account of how they might create or imagine, but it was assumed that the expert practitioner, who might also double up as an academic, would be ideally placed to design new laws, administrative arrangements or health measures, some of which could then be tested empirically. This spirit of more conscious engineering spread in the late 19th century and early 20th century as governments became more engaged in social policy and fields like public health. It influenced the ethos of many new universities (such as the LSE in London) in the late 19th century. Applying social science knowledge to fields such as industrial policy, public health, planning, social policy became a significant part of the work of universities, and did indeed involve some work of design, though this had to be generally cautious and incremental to maintain the confidence and engagement of partners in the state.

While much of the work involved getting deeply engaged in the everyday dilemmas and challenges of the real world, there was also room for imaginative leaps and speculation. The very widely read author H.G. Wells early in the 20th century summarised this view when he wrote that ‘sociology is the description of the Ideal Society and its relation to existing societies’, and throughout the 20th century some of the great shapers of social science remained unafraid to speculate and imagine in radical ways, while also engaging directly in the practical decisions of their times. In economics, figures like Keynes and Schumpeter were happy to design as well as analyse.

But, overall, this tradition waned. To the extent that there was interest in creativity it came to be seen as beyond the scope of the social sciences to understand. Milton Friedman, for example, asserted that design and creativity should be seen as exogenous, without a place in the discipline of economics itself: ‘the construction of hypotheses is a creative act of inspiration, intuition, invention; its essence is the vision of something new in familiar material. The process must be discussed in psychological, not logical categories; studied in autobiographies, not treatises on scientific method; and promoted by maxim and example, not syllogism or theorem.’ⁱⁱⁱ

The links between professions and professional policy-makers remain strong. But the more radical approaches that go beyond incremental improvement have struggled to maintain their place in universities (for reasons I explore in more depth later on), tending to drift towards critique rather than design.

Meanwhile, social science itself has shown surprisingly little interest in how its own methods could be creative.^{iv} Milton Friedman, for example, asserted that design and creativity should be seen as exogenous, without a place in the discipline of economics itself: ‘the construction of hypotheses is a creative act of inspiration, intuition, invention; its essence is the vision of something new in familiar material. The process must be discussed in psychological, not logical categories; studied in

autobiographies, not treatises on scientific method; and promoted by maxim and example, not syllogism or theorem.^v Although there is a rich tradition of thinking about the interaction of the natural sciences and the arts, there is much less literature on the equivalent interaction of the social sciences and creative methods and I have found very little written on the creative methods that the social sciences themselves might be using.^{vi}

3 The move away from design

Although many social scientists remained engaged in the tasks of design, the broader picture is of a retreat from radical imagination, and a remarkable lack of interest in how methods of creativity, art or design could be applied to the practice of social science. There are many reasons for this shift. Here are a few of the main ones:

Positivism: One is the changing influence of positivism in all of its many forms. Originally conceived by Auguste Comte and others as a science of social change, it instead became a conservative force, since it started with observation, and, by definition, it is impossible to observe anything which doesn't yet exist. So novel ideas or possibilities tended to be excluded from the positivist gaze. Heisenberg's famous comment on positivism captures well its inability to cope with an uncertain future: 'the world must be divided into that which we can say clearly and the rest, which we had better pass over in silence. But can anyone conceive of a more pointless philosophy, seeing that what we can say clearly amounts to next to nothing? If we omitted all that is unclear we would probably be left with completely uninteresting and trivial tautologies'.

Quantification: A related factor was the push towards quantification, which was thought to be essential for the social sciences to be respected as true sciences. Again, quantification has to be based on data from the present or the past. Models can extrapolate into the future and can be used for thought experiments. Comte hoped that 'from science comes prediction; from prediction comes action', but this is true only to a modest degree. Models and quantitative analysis can aid design but they cannot do the work of design. So, although the integration of social sciences with statistics, which was a separate discipline in the 19th century, was in many ways a very positive move, it tended to marginalise design work. The same has been true more recently of the extraordinary explosion of computational social science, making use of the vast quantities of data now available on human behaviour. While this has the potential to generate new insights, and can be used to guide designs (including of products that exploit human psychology), it has so far done very little to help social imagination.

Physics and biology envy: The prioritisation of quantitative analysis also reflects the ways that social sciences have suffered from periodic bouts of envy of physics and biology. E.O. Wilson, who later shifted to a much more balanced view, argued in the 1970s that the advent of socio-biology would cause "the humanities and social sciences to shrink to specialized branches of biology."^{vi} There would certainly be no need for imagination and design – natural processes of evolution would somehow do the necessary work. A recent comment (from Nicholas Christakis) confirmed how strongly held similar beliefs still are: 'a biological hurricane is approaching the social sciences. Discoveries in biology are calling into question all kinds of ideas, historically important ideas, in the social sciences—everything from the origin of free will, to collective expression and collective behaviour, to the deep origins of basic human behaviours'.^{vii} Recent fashions have maintained this desire to be more science-like: the development of subfields with the word evolutionary (psychology, economics); the use of the word 'neuro' as a prefix (again for econom-

ics, psychology); fashions like the tendency of papers to use images from FMRI to 'prove' hypotheses about human nature; and hybrid disciplines like econo-physics. These are all fertile routes to explore: but they have tended to crowd out work on practical design.

Abstraction: A very different trend which has also pulled the social sciences away from design has been the drive towards abstraction. In some fields this too delivered gains in terms of clarity. But in economics it encouraged the movement away from both empirical observation and experiment, and from creative practical design (though at its best it could prompt new approaches to the design of markets or taxes).

Critique: The move towards abstraction was mirrored in a very different form, and often on the opposite side of the political spectrum, by the rise of critical theory in sociology and cultural studies – which tended to make it more detached, harder to refute, and, again less engaged in design. One of the less attractive legacies of several decades of post-structuralism and post-modernism is that many academics believe they have much more of a duty to critique than to propose or create. This is also a safer space, since the detached critic can't be blamed when things go wrong. It is perhaps a logical response to the traumas of 20th century intellectual life when so many found themselves aligned with intolerable wrongs.

Suspicion of ideas: Overriding all of these is perhaps a trend towards suspicion of ideas, again, sometimes for good reason. A classic exposition of this case was written by the political scientist Charles Lindblom in 1959. He described government as 'muddling through', with clear goals and strategies the rare exception.^{viii} There are parallel positions in legal theory and political theory (Michael Oakeshott being a prime example of such conservative scepticism). Seen from these perspectives the social designer or engineer is more likely to be the source of disasters than triumphs.

There is no doubt that some of the trends summarised above delivered great gains in terms of understanding, in particular the attention to data and evidence. But they have also left the social sciences profoundly unbalanced – the left brain crowding out the right brain, the analytical crowding out the creative, the critical crowding out the constructive. Now within academic social science successful careers are more likely to be made by analysing past patterns, critiquing the present, or reviving old ideas, than by offering designs for the future.

4 Blind Alleys

These trends have also encouraged many unhelpful turns and blind alleys. Here I mention three of the most important which have undercut our shared ability to think radically about the future.

Unrealistic realism: One of the most common is what could be called unrealistic realism. What does it mean to be realistic about the prospects for the society or economy? An unintended consequence of positivism and its related tendencies is to over-reify: to exaggerate the naturalness of current arrangements. As a result, the social sciences have become over-realist. This becomes very visible in times of rapid change, like deep financial crises or revolutions. The dominant social sciences are rich in explanations for why these shouldn't happen but become mute at explaining why and how they do. In other words, reality jumps ahead of the realists.

Status quo bias: A related trend is towards excessive conservatism. As the Brazilian polymath Roberto Mangabeira Unger has argued, much contemporary social science assumes that current arrangements are natural, or the proven victors of evolutionary competition. Their implicit, and sometimes explicit, message is that 'there is no alternative' (and the best we can hope for are modest incremental adjustments

and upgrades to essentially unchanging systems).^x This makes it ‘career threatening’ to go much further in offering more speculative accounts of what could be in many of the social sciences. But it also undercuts the ability of the social sciences to explain change. It encourages a search for the lines of least resistance associated with new technologies and political economies, rather than a search for the optimum arrangement which, history suggests, will always involve structural change.

The futile search for laws: A related and equally fundamental vice encourages flawed epistemology. There have been innumerable attempts from Quetelet to the present to discover some universal laws of social physics, eternal laws based on observation. The former U.S. Treasury secretary Larry Summers once said that the laws of economics are universal. But the uncomfortable truth is that there is not a single discovery that can claim to be a law in any meaningful sense. There are no absolute laws in the social sciences that remain true across time and space. In economics, for example, higher prices should mean less demand—but luxury goods prove the opposite, and there are many examples of firms raising prices and then finding more consumers. Lower interest rates should mean less savings—but repeatedly lower interest rates have had the opposite effect, either because savers were targeting a future rate of return, or because they had become more fearful of the future. Economics has often been effective at spotting patterns and regularities and providing a disciplined way of thinking about human behaviour and counterintuitive causal relationships. But where economics does find regularities these seem to be contingent, and limited to particular eras and places rather than being as universal as the laws of physics. So prediction, forecasting and foresight can all give some insights into the future. But all knowledge of this kind has to be acknowledged as partial and uncertain.

5 Counter-trends

I’ve painted a fairly negative picture, but many social scientists have swum against the tide and tried to imagine and design as well as to interpret the world. Many recent fields have engaged in influence and action. A few examples are behavioural and environmental economics, including mechanism design in economics (which won its authors a Nobel Prize for their theoretical approach to designing rules for interactions that can achieve outcomes) and the design of choice architectures. Here I highlight four more positive trends:

Experimentalism: The most promising trend and one that connects some of the more mixed patterns above to the spirit of exploration is experiment. It is easier and cheaper than ever to run experiments (particularly online). Experimentation has long been normal in health and is now mainstream in many parts of business with companies like Amazon and Google doing AB testing on new services of all kinds. Many governments have become persuaded of the advantage of testing ideas out in practice, through labs, trials and sometimes Randomised Control Trials applied to welfare or education. The last five years have brought much greater use of experimentalism in governments, led by Canada, Finland, the UAE and UK, all of which in different ways have introduced more systematic approaches to testing out new policies on a small scale before they are implemented across the whole country.^x Having been closely involved in this shift I view it favourably.

But on its own the experimental method doesn’t of course tell you what to test and for me one of the fascinating aspects of working recently to codify experimental method was the clash between the designers on the one hand (who emphasised the creative exploration of new options) and the rigorous experimenters on the other (who emphasised the rigorous process of testing). There were almost no shared

concepts about how to conceive of the relationship between the exploratory, creative process of developing options and the methods for then testing them out.^{xi}

Evolution: The recent growing interest in evolutionary theories has also encouraged more openness to questions of design and creativity, since evolutionary processes depend on a multiplication of options. Darwinian evolution provides a way of thinking about any process that combines the three ingredients of variation, selection, and the replication of traits over time by any mechanism, including but not restricted to genes. Eva Jablonka and Marion Lamb's *Evolution in Four Dimensions*,^{xii} for example, showed that there are four mechanisms of inheritance: genetic, epigenetic (changes in gene expression rather than gene frequency), social learning (some forms of which can be found in many species), and distinctively human forms of symbolic thought. Many accept the ideas of Dual Inheritance Theory, that there are two main streams of inheritance in humans, one cultural and the other genetic, that co-evolve.^{xiii} So, imagination multiplies options, a few of which are then tried out, and then an even smaller number are replicated across time and space. An efficient society maximises its options; tries out many; and is good at selecting the ones which really are effective rather than just giving the appearance of effectiveness. In this view social science has a role to play both in the multiplication of options and in their evaluation and selection.

Complexity: Other intellectual trends that have been helpful include the greater interest in complexity and systems thinking of all kinds, since these depend on complex and continued processes of design and iteration, though they have at times fallen victim to vagueness and abstraction too. The emergence of new disciplines around digital technologies and intelligence is also helpful. Computer science tends to see the world as programmable and malleable,^{xiv} and so encourages deliberate design.

Design: There is also a long-standing intellectual interest in seeing many activities through the lens of design. Herbert Simon wrote that 'the intellectual activity that produces material artifacts is no different fundamentally from the one that prescribes remedies for a sick patient or the one that devises a new sales plan for a company or a social welfare policy for a state in large part, the proper study of mankind is the science of design, not only as the professional component of a technical education but as a core discipline for every educated person'.^{xv}

His book 'The Sciences of the Artificial' drew on the University of Chicago approach to rational problem solving and offered itself as an alternative to political science. Combining observation, quantitative analysis and breaking big problems down into smaller ones it hoped to discover a universal approach to solving problems of any kind. Unfortunately, though the aspiration was valid, history has not been kind to the approach taken which has turned out to be at best a very partial answer. Even at the time, many countered that while Simon's methods might work for simple or 'tame problems' they were wholly unsuited to the kinds of 'wicked problems' Horst Rittel and Melvin Webber identified, ones where there were clashing interests and values, and multiple equilibria, and where problems are ultimately resolved rather than solved. As a recent article concluded, 'in an ironic twist, even as digital technologies have become ever more ubiquitous since Simon's original lectures, the interest in the roles of intuition, experience, and judgment in design practice has increased rather than declined'.^{xvi} The idea that any problem could be translated into quantifiable, codifiable information with the designer turned into a type of expert computer coder now looks anachronistic rather than futuristic.

Futures: There are a few small pockets of more speculative, future-oriented work in universities, sometimes just focused on mapping out likely futures, but also often trying to encourage imagination, particularly in the strands of work associated with figures like Bertrand de Jouvenel (and his *Futuribles* programme) and Gaston Berger (whose invocation was to use futures to 'disturb the present'). Most attempt to analyse the future rather than shape it, including foresight methods that try to map

The recent growing interest in evolutionary theories has also encouraged more openness to questions of design and creativity.

out what's likely to happen to technologies (such as quantum computing) or fields of application (such as mental health), primarily drawing on expert analysis and discussion to provide an input for more imaginative exercises. The backcasting methods proposed by John Robinson, and offered as an alternative to forecasting, come closer to design in that these encourage a focus on a desirable future and then working backwards from that to the steps needed in the present. Other relevant methods include 'future cones'^{xvii} and 'Futures literacy', the family of methods proposed by the UNESCO's Riel Miller to promote stronger capabilities to imagine. This has helped a network of chairs in futures methods in universities around the world.^{xviii} Speculative design is a related discipline, associated with institutions such as the Royal College of Art in London.

Some of these methods have an uneasy toe-hold in universities despite being frowned upon by the main disciplines.^{xix} But they're seen as quite marginal, and a fair proportion of this work is inward looking – feeding into small-circulation academic journals and very small audiences – rather than feeding into political programmes and public imagination as happened in the past. They also tend to have two major weaknesses. Their practitioners often lack the in-depth knowledge needed to be plausible in describing possible futures for fields and they lack a shared theory of what counts as quality – how to distinguish the good, the bad and the mediocre.

6 The paradox of future design and the nature of the problem

The result is an odd situation. On the one hand there is surprising neglect in the mainstream. If you seek out in the social science literature, and the many thousands of academic journals, potential designs for, for example, the welfare state of 20-50 years' time; potential regulatory arrangements; designs for the workings of government or democracy or many comparable fields, there is little available. Indeed one of the oddities of the contemporary world is how little is done to curate the options for new policies or actions of all kinds. On the other hand, in too many of the writings and projects that are meant to be focused on the future, there is the vice of vagueness and lack of rigour. The people who have devoted their lives to understanding economies, societies, organisations are unwilling or constrained from thinking hard about the future while the people – usually outside universities – who are happy to speculate and invent do so without the depth of knowledge needed to do this well, or in overly generic 'futures' fields that sacrifice depth for breadth.

As a result, the analysts and the dreamers live in separate worlds, and we lack even a name for people who straddle the two. Even big programmes that are ostensibly designed to generate new ideas within the disciplines (such as INET in economics) are notable for avoiding any use of creative methods.

Instead, mainstream social science has largely given up on imagination. Its role is now primarily to analyse, theorise and explain, which are very worthwhile aims but

not the same as a deliberate role of offering alternatives, ranging from the radical to the incremental. For most professional social scientists, to speculate or invent has become risky. The new tools for social sciences – data, computational social science, network science – have greatly enhanced abilities to analyse and explain. But they have done nothing for imagination and design. Abstraction is allowed – particularly in economics – but not invention.

The resulting problem can be seen in many areas. One example is publishing, which reflects the pattern I just described. In the mainstream of serious social science book publishing, hundreds of books are published each year whether by Nobel Prize winners or aspiring intellectuals. These are packed with strong analysis and then in a final chapter a few pages of remarkably weak or conformist policy prescription. Most of the books which purport to answer the world's problems tend to converge on a small number of prescriptions which are perfectly reasonable but hardly imaginative. Meanwhile, there is a large fringe of more radical thinking, which often lacks in rigour or use of evidence.

The problem also becomes very visible when mainstream social science is faced by a new challenge. A good current case study is artificial intelligence, now in the later stages of another boom. That boom has produced a surge of reports and books and the creation of dozens of new centres in AI ethics, some of which have been lavishly funded. But, again, the ratio of analysis and warning to prescription is very high, and where there are prescriptions they are often so vague that they are hard to refute.^{xx} If you search for well-researched proposals on regulating AI, or shaping its uses in workplaces and shops, entertainment and warfare, you are still likely to be disappointed. There is no shortage of events, debates and good questions. But very few are willing to put their names to potential answers.

7 Exploratory Social Sciences: what they could do and be

There is nothing inevitable about this dearth of systematic imagination. It just reflects choices that have been made about how to deploy brainpower. I believe we now need some different choices so as to complement the work of mainstream social science with a new stream of work that encourages serious imagination. This shouldn't in any way constrain the best methods of the mainstream but should rather add to them. The central idea is to support 'exploratory social science' that combines depth and rigour on the one hand with openness and imagination on the other. A premise is that, as in other fields, a strong grounding in a discipline makes it more likely that there will be imaginative, useful and creative new ideas. Howard Gardner observed that it takes at least ten years of immersion in an art or discipline to make genuinely creative breakthroughs, and the same is likely to be true in the social sciences.

Exploratory economics would combine the insights of the discipline with the use of creative tools to design possible future ways of organising firms, sectors, trading, investment or labour markets. These would go beyond the classic thought experiments which are common in economics (and often use deliberately implausible premises) to more genuine design. Exploratory sociology would look at possible new ways of organising care, friendship or families. Exploratory urban geography might look at new ways of organising cities – everyday life in neighbourhoods or food systems. Speculative political science would imagine future ways of designing elections, legislatures, and government structures.

We could imagine Chairs in Exploratory Social Science disciplines and masters that would require students to show a grasp of the disciplines and an ability to create. In the next section I suggest some ways of defining quality in this work – com-

binning use of evidence, logic and creativity – which would be essential to incorporating these within universities, and which would help them answer the question that should be asked of anyone proposing a new concept or idea: how would we know if you were wrong?

These new sub-disciplines of exploratory social science would use some of the methods that are used in other fields to accelerate and amplify creativity: playing with scenarios, fictions, creativity tools such as extensions and inversions, or creating formal agent-based models. They would be constantly hungry to learn from the best tools used in other fields – from business to science – to accelerate imagination and creativity. Their output would not just be specific proposals but also potential new categories and classifications; frames for understanding society and its possible futures.

Creativity methods

An example of the kind of method that social sciences could be using more are tools that help people ask ‘What if...’ These can be used to think about the possible future of an existing activity (like care for children or building design) and then to imagine a series of transformations being applied to it, ideally informed by deep disciplinary knowledge:

- Extension
- Grafting
- Adding
- Inversion
- Subtracting
- Throwing in a random element

Extension means extending an aspect of existing practice to its logical conclusion: starting with an existing idea and just taking it further. This has happened repeatedly to ideas. A major strand of thinking on the radical libertarian right has played with extending the market into as many fields as possible, or imagining self-organising networks with the use of each new generation of technology. Others have steadily expanded the range of fields where rights can be used (with rights themselves being an extension of the theological ideas about human uniqueness), or the reach of welfare states or the role of commons.

Grafting or combining can also be productive: taking an idea from another field. What if schools became places for health; what if democracy was introduced into the workplace; what if platform models were applied to care? I like this comment on evolution which shows just how important grafting can be: ‘Sudden leaps in biological or technological evolution occur when an existing structure or behaviour is appropriated by a new function that spreads rapidly across the evolutionary landscape, taking advantage of a head start. Feathers must have had some other purpose before they were used to fly. U-boat commanders appropriated the Enigma machine first developed for use by banks. Charles Babbage envisioned using the existing network of church steeples that rose above the chaos of London as the foundation for a packet-switched communications net...’^{xxi}

This comment is a good prompt for any exercise in social imagination – can we find interesting patterns in other fields that could be appropriated or adapted? What could be taken from airports and applied to hospitals; from food that could be applied to schools; from health that could be applied to relationships?

The more radical approaches use inversion. What if farmers became bankers (as with some microcredit schemes); or patients became doctors; or social care was provided by people who had themselves been recipients of care?^{xxii} What if the young taught the old? What if consumers instead became makers?

Addition and subtraction can be useful: what if you had to cut a budget by 50%,

The central idea is to support ‘exploratory social sciences’ that combine depth and rigour on the one hand with openness and imagination on the other.

or double it? What options would most preserve value? Randomness is then a way of throwing in surprise: pick a page in a newspaper, or a billboard, and find ways to use it to generate novelty.

These tools can be used as methods to generate ideas quickly – taking a field, or function (which could be rural transport, the management of trees or early childhood education) and then exploring the possibility space by thinking through how extension, inversion and grafting might work.

Such ideas then need to be interrogated and analysed: Are they plausible in terms of potential legal forms? Are they plausible in terms of culture (using, for example, grid/group theory as a framework)? Are they plausible in terms of current or possible psychology (recognition, solidarity, incentives)? Do they have a plausible economic or metabolic approach (i.e. a circuit of inputs and outputs)?

From them we could hope for a complement to the evidence and literature reviews which are a vital and common part of the work of social science. These systematically review what is known from the past. But we lack comparable reviews of the options for the future – ‘options reviews’ - of describing what they are, and of making some assessments of their quality, plausibility and appropriateness for different settings.



Exploratory social science and social R&D

Exploratory social science ideally feeds into processes for testing and trialling ideas in the real world. As I’ve shown, societal self-knowledge often comes from praxis: the interplay of action and analysis, theory and practice, rather than detached observation. Anything that doesn’t yet exist (whether a new model welfare state or a novel way of providing eldercare) cannot easily be designed on the basis of backward-facing knowledge and data: hence the inherent tension between social creativity on the one hand and orthodox social science on the other.

The idea that R&D could be systematically funded and organised crystallized in the late 19th century. Today, between 2-4% of GDP in most advanced economies is devoted to R&D, either funded by government, foundations or businesses, and carried out by universities, government labs and corporations of many kinds. We now take it for granted that systematic R&D is crucial to economic growth and prosperity, which is why it is supported by all sorts of subsidies and tax breaks. The basic idea is to do fundamental research and then, using experimental scientific methods, to turn those insights into new products and services which can be useful in the world, whether these are pharmaceutical drugs or new kinds of aeroplanes.

The idea of social R&D however is much less common and indeed most R&D funders around the world focus almost exclusively on hardware and using knowledge from the natural sciences rather than on the social sciences.

At various points over the last century there have been attempts to apply R&D

methods to social change (including from big US foundations like Ford and Rockefeller in the 1960s). In recent years Canada^{xxiii} has been at the forefront of this, thinking through^{xxiv} how public funders of research and big foundations could finance systematic research experimentation on social challenges such as homelessness, integration of refugees or youth unemployment.

The mechanics of doing this are not so different from traditional R&D involving funding at multiple stages running from fundamental research through generation of practical ideas, testing, experiment, gathering of evidence and then hopefully the scaling and propagation of the models which work. However, there are still no examples of social R&D being done systematically and at scale and this debate has hardly started in most countries.

There are many challenges in doing social R&D well. They include how to orchestrate experimentation, how to harvest insights and ensure insights are used, whether in government policies or the practices of professions like teachers or social workers; how to handle the ethical and political challenges of experiments involving people's lives; and how to avoid some of the risks of distortion, such as ignoring lived experience.

I have had some direct experience of applying R&D in new fields through Nesta's digital R&D fund for the arts^{xxv} and its Innovation Growth Lab^{xxvi} which pioneered systematic testing out of economic policy ideas. The Behavioural Insights Team (BIT)^{xxvii} – which Nesta co-owns – uses similar methods in behavioural economics running dozens of real-life experiments to find out what kinds of nudges actually work in encouraging people to pay their taxes on time, retrofit their homes or adopt healthier lifestyles. This new culture of experiment is influencing many professions and turning them into social scientists. This shift is helped in the UK by a network of What Works Centres (linked by the Alliance for Useful Evidence.)^{xxviii} There's already a network of police officers using experimental methods – the Society of Evidence Based Policing^{xxix} – to generate useful knowledge. In some countries, school teachers see their role as combining both teaching and research, working with their peers to try out variations to curriculum or teaching methods (and the EEF^{xxx} encourages and funds this). The new What Works Centre for Children's Social Care is mobilising thousands of social workers to generate and use evidence in a similar spirit. This is embodying Karl Popper's vision of 'methods of trial and error, of inventing hypotheses which can be practically tested'. Much of government and social action remain untouched by any of this. But systematic social R&D is no longer a pipedream.

9 Some additional methods for exploratory social science

Here I describe some of the additional tools that could be useful for fleshing out a more mature set of exploratory social sciences:

Using models

Increasingly I expect that many future oriented ideas will be designed using formal models to work through how they might operate: simulations, games as well as complex agent-based models create a space for imagination to be exercised, varying assumptions and feedback to discover surprising patterns. Their practitioners might also experiment with the use of randomness to generate new options and might be liberated by the excitement that would follow. Over the next few decades we are likely to see much more use of digital twins as a tool for managing and planning everything from logistics within a company to energy in a city. Such twins could become very useful tools for exploration too.

A new kind of social engineering

There are few less fashionable ideas than ‘social engineering’ but I believe we can find some of what’s needed in exploratory social sciences through introducing an engineering mindset. I am now based in an engineering department (at UCL) partly because I believe this engineering mindset is more appropriate to addressing big social problems than quantification for its own sake, abstraction or distanced critique. Much of what the world needs in the next few decades are approaches closer to Aristotle’s *techne* than to *episteme*, where the key test is whether ideas work, not whether they are appealing or just consistent.^{xxxi} Engineering does not assume eternal truths; it requires attention to context and materials; it encourages bold design but also experiment; it favours precision; and it is pragmatic in combining multiple types of knowledge. Crucially too, it requires creative jumps: although we think of engineering as a problem-solving approach for novel problems and solutions, it is often necessary to leap beyond linear solutions, visualising and then interrogating a range of alternatives. Not surprisingly, engineering uses a wide range of creativity tools to make these processes systematic – in stark contrast with the social sciences.

Judging quality

A constant challenge for anyone involved in future design is how to assess quality. What counts as a good idea for something that doesn’t now exist? Ultimately only history can validate an idea and prove its worth. So, in advance, should these be judged by how well they accord with evidence (which is generally a good thing, but meaningless in relation to very novel problems or solutions)? Should they be judged solely by their internal logic (again good in principle, but taken too far a recipe for useless abstraction)? Or should they be judged by their alignment with existing literatures (again, good in parts but taken too far a recipe for disciplinary stagnation)? My suggestion would be to think of a three-dimensional appraisal method:

- Logic and coherence
- Use of evidence and existing knowledge
(while recognising the limits of knowledge)
- Creativity, novelty and imagination

There is no direct way to verify a work of social imagination – only history can do that. But ideas can be assessed in these three dimensions. For example, a project might look at how a world or sector without intellectual property rights could function; how firms could internalise different externalities; how new fields might be marketized. Or imagine if financial credit ratings could be turned into ownership rights of a nation’s banking system – earned equity. What would be the dynamics of that?

Exploratory ethos

A major challenge for any exploratory social science is how to avoid the excess realism described earlier. There is now very strong evidence on the limits of expertise. We know how often experts make errors of prediction (often more than non-experts) and how often they exaggerate the fixedness of the world (a notorious example is the conventional wisdom of the many experts who could give detailed and convincing accounts why the USSR would not collapse, until it did). So it’s vital that any team or department working on exploratory social science cultivates an ethos of openness, a willingness to imagine and consider, albeit tempered by scepticism. This can be helped through methods – for example working on what it would take to make an emerging idea viable rather than only working on why it could never work.

Interdisciplinarity and working backwards

I have emphasised creating sub-disciplines within the established 19th century dis-

ciplines, yet most of the tasks of design cut across multiple disciplines. Indeed, almost no designs can be solely imagined within a single discipline. Again, the model should be engineering, which starts with a problem or possibility and then works backwards to the contribution of different bodies of knowledge and thought – materials, energy, data. So in practice the work projects of teams involved in exploration should be defined more by their fields of focus than solely by the disciplines they bring to bear: exploration in health, exploration in work, exploration in politics, even if these start off grounded in a discipline. They should also use common tools for describing causation in the existing system and in a future one.

10 Possible priorities for exploratory social science: the Internet and decarbonisation

These methods described already can be applied to any major change. Here I describe an example of where exploratory social sciences were needed, but missing – the Internet – and an example where they are needed right now – climate change and getting to Net Zero.

Over the last 40 years the Internet has become part of almost every aspect of life – from relationships to banking, entertainment to democracy. Its spread is one of the great facts of contemporary life. But the social sciences have not done so well either in making sense of it or in shaping its design. During its early years there was a flood of utopian, panglossian accounts of how it would transform the world for the better, flattening hierarchies and opening up democracy. Wishful thinking was ubiquitous. There were also mirror critiques emphasising its dystopian potential, but it was rare for these to offer alternative actions or options. Indeed, there were very few useful designs as to how to amplify the virtues of the Internet and contain its likely vices, and it wasn't even clear where in the academic world these might come from.

Vast sums were spent on designs for click-through advertising, compelling behavioural nudges (through firms like Facebook) and for using the Internet for surveillance (through the NSA and other national governments). But even when strong evidence came through that the Internet might be having damaging effects on social relationships (notably the evidence in the US by the mid-2000s that the proportion of people who couldn't count on anyone in a crisis had sharply risen at the very time the Internet had spread), there were no programmes for designs to respond. Serious philanthropic spending on topics like fake news and echo chamber effects only began in earnest in the second half of the 2010s, more than twenty years after the launch of the web. Yet a serious capability in exploratory social science might have done much better in anticipating, and responding, to:

- Powerful oligopoly dynamics in markets organised around platforms and harvesting of data
- Powerful new tools for manipulating public opinion and democracy including the relative strength of misinformation relative to truth
- The complex positive and negative effects of the Internet on community and mutual support

I suspect historians will be baffled why so little attention was paid to these issues before they had become such central and visible problems, and why the few academic centres that were created concentrated so much more on analysis than design.

Societal self-knowledge often comes from praxis: the interplay of action and analysis, theory and practice, rather than detached observation.

Decarbonisation

The most important current field in need of exploratory social sciences is climate change, and the design of strategies to achieve net zero in cities, nations and the whole world. This is a challenge that is multi-dimensional – involving engineering, economics, politics and psychology. It requires the redesign of things, processes, institutions and habits.

The topic has already elicited an extraordinary range of impressive work, particularly through modelling future scenarios and impacts (gathered by IPCC) and through work by economists on carbon pricing. But we still lack detailed and plausible medium to long-range analyses of many of the most important issues, and in particular those that cut across disciplines (such as the political economy of decarbonisation strategies). A serious programme of exploratory approaches would go further and could include:

- economists designing how markets or supply chains might operate in a net zero environment, including the design of taxation and regulation, new financing models and secondary markets; digital simulations of fully circular economies; analysis of potential bottlenecks in such economies; effects on job creation and destruction, and skills demand; new intermediation roles, metrics and so on. Some of these would be turned into quantitative models to explore potential dynamics and sensitivities.
- sociologists exploring potential patterns of winners and losers, neighbourhood effects, changing family dynamics, urban design options.
- legal theorists exploring ownership models (commons, mutuals, coops), liability, tort and the new kinds of multidimensional contract that may be needed in a zero carbon world.
- political scientists looking at the design of governance (and how best to legitimate difficult long-term actions); how losers might organise and how identity dynamics could influence reactions.
- psychologists looking at how to encourage behaviour change, and how resistance might appear.

The key in such exercises is to avoid either fatalism or wishful thinking. All major transitions involve some turmoil, and patterns of gain and loss. As indicated above, the extraordinary wishful thinking around the Internet greatly impeded our collective ability to avoid its harms. It's vital this isn't repeated around climate change and the just transition where there will be strong temptations to believe that all good things can coincide. From more serious in-depth work, social scientists can develop scenarios and models – some as designs of a desirable future, some as prompts and some to enable a more dialectical understanding of likely dynamics.

11 What next?

I've written this paper in part as a provocation, in part as a proposal. I hope it will encourage debate on:

- **The diagnosis** – am I right in the various parts of this diagnosis? Is there a problem? If not, where are the many competing proposals for future welfare, health, education and democracy, and with what tools are they being both developed and appraised?
- **The prescription** – if the diagnosis is right, is the prescription for a new hybrid type of capacity in universities right, or are there better ways of addressing the problem?

If the argument is broadly right, the next stage is to engage with the main shapers and funders of social science and to discuss with them how to build, and rebuild, their capacity to imagine and design.

- i The UK Academy for Social Science, in a piece on why we need social science, puts as number 1: ‘Social scientists help us imagine alternative futures...’ Yet interestingly the piece then goes on to describe this role primarily in terms of analysis and critique.
- ii L. Menand, *The Metaphysical Club: A Story of Ideas in America* (New York: Farrar, Straus and Giroux, 2001), xi–xii.
- iii *Disclosing New Worlds: Entrepreneurship, Democratic Action, and the Cultivation of Solidarity*, MIT Press, 1999 by Charles Spinosa, Fernando Flores and Hubert Dreyfus.
- iv A study by McKinnon (in 2006) found no systematic research on the creative work processes of economists.
- v Milton Friedmann, *Essays in Positive Economics*, The University of Chicago Press, 1953, p. 43.
- vi Wilson, E. O. (1975). *Sociobiology: The New Synthesis*. Cambridge, Mass: Harvard University Press.
- vii See: https://www.edge.org/conversation/nicholas_a_christakis-a-new-kind-of-social-science-for-the-21st-century.
- viii Lindblom, Charles (1979) ‘The Science of Muddling Through’ *Public Administration Review*, 19:3; 79-88, and its follow up (1979) ‘Still Muddling, not yet through’ *Public Administration Review* 39:6; 517-26.
- ix Even for those engaged in everyday politics, radicalism can constrain imagination if too much faith is put in the indivisibility of social systems, or the idea that history follows a course of linear progression.
- x See: <https://www.nesta.org.uk/feature/innovation-methods/experiments-and-trials/>.
- xi See: <https://www.nesta.org.uk/report/experimenters-inventory/>.
- xii Eva Jablonka and Marion Lamb’s *Evolution in Four Dimensions* (2005).
- xiii Although far less is understood about how exactly the co-evolution with genetic inheritance happens, whether at the individual or the group level.
- xiv See for example: Joseph Henrich’s (2015) *The Secret of Our Success: How Culture is Driving Human Evolution, Domesticating Our Species, and Making Us Smarter*, Kevin Laland’s (2017) *Darwin’s Unfinished Symphony: How Culture Made the Human Mind*, Robert Sapolsky’s (2017) *Behave: The Biology of Humans at Our Best and Worst*. Edward O. Wilson also shifted position in books like *Genesis: The Deep Origin of Societies* (2019).
- xv Simon Herbert, *The Sciences of the Artificial*, MIT Press, pp 111-128.
- xvi See: https://www.mitpressjournals.org/doi/pdf/10.1162/DESI_a_00320/.
- xvii See: <https://thevoroscope.com/2017/02/24/the-futures-cone-use-and-history/>.
- xviii See: <https://en.unesco.org/themes/futures-literacy/>.
- xix Such as ImagineLancaster.
- xx I had a small experience of this five years ago when I published a proposal for a new approach to regulating AI (<https://www.nesta.org.uk/blog/a-machine-intelligence-commission-for-the-uk/>). I expected plenty of critique and lots of competing proposals, most of which would be more convincing than mine. Instead there was a deafening silence, or to be more precise, many conferences and debates but a continuing famine of prescription.
- xxi George Dyson, *Darwin among the Machines*, Basic Books, 2012.
- xxii As in TACSI’s ‘Family by Family’ programme. See: <https://tacsi.org.au/work/family-by-family/>.
- xxiii See: <http://www.sigeneration.ca/social-rd/>.

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- xxiv Rajasekaran, V. (2016). *Getting to Moonshot: Inspiring R&D practices in Canada's social impact sector*. Social Innovation Exchange [online]. Available at: <https://socialinnovationexchange.org/insights/getting-moonshot-inspiring-rd-practices-canadas-social-impact-sector> [Accessed 28 Feb. 2019].
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- xxv See: <https://www.nesta.org.uk/project/digital-rd-fund-for-the-arts/>.
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- xxvi See: <https://www.innovationgrowthlab.org/>.
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- xxvii See: <https://www.bi.team/>.
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- xxviii See: <https://www.alliance4usefulevidence.org/>.
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- xxix See: <https://www.sebp.police.uk/>.
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- xxx See: <https://educationendowmentfoundation.org.uk/>.
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- xxxi I was glad to stumble recently on a piece that had reached a similar conclusion: <https://blogs.scientificamerican.com/cross-check/is-social-science-an-oxymoron-will-that-ever-change/>.



About the Author

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