



# Movements with missions make markets

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# Movements with missions make markets

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## Abstract

Innovation policy makers are increasingly interested in mission-driven innovation as a way to maximise the beneficial social impact of innovation on issues that matter to citizens such as ageing, climate change and quality of life in cities. This paper argues that social movements are vital to the understanding and success of mission-driven innovation. Drawing on the case study of the development of the contraceptive pill it argues that movements of different kinds play four main roles in mission-driven innovation: helping to contest and shape a mission, to make it a political and social priority; organising knowledge and ideas, for example in scientific and technological communities which grow as the mission develops; preparing the demand side of innovation so people aspire to and want the solution which the innovation provides; connecting people across the boundaries of public and private, academia and business, activists and investors to bring about the system-wide change often needed for mission-driven innovation to be successful in addressing grand challenges. The paper argues that movements with missions can make markets, change norms and reform systems. As mission-driven innovation develops, so policy makers will have to become accustomed to dealing with the power and the limitations of movements.

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## **Movements with missions make markets**

The contraceptive pill is arguably one of the most significant innovations of the second half of the 20<sup>th</sup> century.

Until the 1960s contraception was crude, clumsy, unreliable and for the Catholic church controversial. For women sex came with an inescapable risk of pregnancy. For many married women, pregnancies came in such fast succession they could barely cope. If you were unmarried and became pregnant the choices were stark: abortion was illegal and potentially life threatening; life as a single mother was unthinkable for most women.

The Pill was approved as a form of birth control in 1960. (Eig 2016) Within five years millions of American women were using it to give them more control over the most fundamental aspects of their life. The Pill helped to spread wealth and opportunity by allowing more women to play a much fuller role in society: earning a living, pursuing a career, being able to plan and shape their lives by choosing when to become a mother and a wife.

The Pill was a breakthrough: a social and cultural innovation as much as it was scientific and commercial, it shifted power relations in society, allowing women much greater choice and far wider opportunities to play a role in society.

The recent research on missions addresses the critical issue of who sets the mission and purpose for innovation and how is a mission established that is not just compelling but legitimate, especially when the goal is societal change? Who set the mission to create the Pill and why did a wide group of scientists, philanthropists, medics and regulators respond to that mission? (See Kattel and Mazzucato for most recent discussions)

In some cases an innovation mission is set by government: the classic example is John F. Kennedy setting the mission to get a man to the moon and back. Lately, rich, entrepreneurial philanthropists such as Bill Gates have set global missions to eliminate malaria or reduce poverty. Many world changing innovations have emerged from the very broad mission of blue sky research set for academic researchers.

This story of the Pill focuses us on a different kind of actor, one which is involved not just in setting missions but also mobilising people, resources and knowledge in their fulfilment: social movements. The hypothesis is that it is often movements animated by a shared sense of mission that propel innovation to transform industries. The creation of the Pill, an innovation which was at once social and cultural as well as medical and scientific, exemplifies how innovation movements work. If Kennedy's man on the moon programme delivered by NASA is the classic case of an innovation mission set by government, in part to project geo-political power, the Pill is a classic case of a social-movement-driven innovation mission to shift power and social relations.

That is not obvious at first sight. The creation of the Pill looks like a straightforward story of corporate innovation. The original contraceptive pill was introduced by an innovative, family run pharmaceutical company called GD Searle which had helped to fund the research and

product development. The chief executive's wife was one of the first women ever to take the Pill as part of the field trials. It was GD Searle that made the application to the FDA to get approval for marketing the product.

Yet GD Searle was just the corporate tip of a very large iceberg. The iceberg was not a company, but the overlapping social and scientific communities that produced the innovation. Each of these communities was pursuing their own version of a mission they shared: to provide women with a form of contraception that would give them more control over their lives.

The person who provided the original inspiration for the Pill, the person who set the overall mission, was a prophet in the wilderness for most of her life. She was not a politician, a research funder nor a corporate executive. Margaret Sanger was a lifetime campaigner for women to have more freedom to enjoy sex and exert more control over their lives. Sanger opened the first US birth control clinic in Brooklyn in 1916. Sanger was a visionary: she was able to imagine a society in which women would enjoy sex free from anxiety because it could be detached from childbirth and marriage. The only thing she needed was a full-proof form of contraception that women themselves would control.

Katharine Dexter McCormick was the investor who would help her make it all happen. McCormick was the first woman to graduate from MIT. Shortly after leaving college she married Stanley McCormick, son of Cyrus McCormick, the inventor of the mechanical reaper and then one of the wealthiest men in the world. When Stanley died he left his wife \$35m. As a widow McCormick turned to the twin causes of her early life: scientific research and the women's movement. She and Sanger started working in league. McCormick would go on to fund most of the research on the Pill.

Sanger and McCormick had been searching in vain for years for a scientific solution when in 1950 at a party in New York, Sanger met Gregory Pincus, a remarkable scientist who looked like a cross between Albert Einstein and Groucho Marx. Pincus was one of the world's leading experts in the role of hormones in mammalian reproduction. Like Sanger he had become used to prospering as an anti-establishment outsider. After a stellar early academic career he was denied tenure at Harvard because his work on artificial fertilisation attracted too much public attention. Undeterred Pincus set up shop in a converted old-ladies home on the outskirts of the then booming industrial city of Worcester, Massachusetts. There he founded the independent Worcester Foundation for Experimental Biology which would go on to become for a time the largest and most successful private laboratory in the US. Sanger organised a grant of just \$2,000 from Planned Parenthood to get Pincus' research started.

Sanger and McCormick had a mission animated by the egalitarian values of the women's movement. Pincus endorsed their goal of providing women with more control over their lives, but his mission was framed in a slightly different way. Pincus had a scientific mission, to unlock knowledge, to solve a difficult problem: how to find the right formula, delivered in the right form to create a Pill. His scientific team were fascinated by hormones; they were not necessarily feminists.

The final player in the core team that brought the Pill to market came on board after Pincus met him at a conference in 1952. John Rock was one of the country's most esteemed gynaecologists and an upstanding Catholic. Rock proved to be the most effective advocate for the Pill with mainstream, conservative audiences. Rock was not a pure scientist; he was a doctor interested in solving the problems faced by his patients. He was dismayed by the many women he treated with unwanted pregnancies. Rock did not want to unleash a sexual revolution. On the contrary he wanted to strengthen the traditional family just as the church did. He thought the Pill would allow parents to plan when to have children and so reduce the strain on families. It was Rock who sold the Pill to the conservative, medical and religious establishment. He was an impeccably respectable advocate for a revolutionary liberation technology. He sold it through the language of control and planning, not as a technology for freedom and choice.<sup>1</sup>

Each member of this team represented a different community which had a slightly different mission. For Sanger and McCormick, who came from the women's movement, the mission was social: to liberate women and change social relations. For Pincus and the community of scientists he organised and orchestrated, the mission was about knowledge: how to understand the role of hormones in reproduction. For Rock, and the medics, the mission was medical: how doctors could help wives and their husbands plan for stronger families. The innovation of the Pill stemmed from the way these overlapping communities worked together, each animated by a slightly different framing of the overall mission: to provide women with a full proof form of contraception.

The Pill emerged from a movement in society bringing together scientists, doctors, philanthropists and social activists. For the sake of this innovation, the scientific and medical communities were nested within a larger social movement, the women's movement, which provided the overarching mission.

The Pill then was not the product of a single organisation, with a single mission. Like all significant innovations it was a complex undertaking. It required contributions, resources, knowledge and ideas from many different sources, from science and medicine, to public policy, ethics and sociology. Each of these contributions came from people who were part of a different community animated by a slightly different version of the overall mission. It was not mission-driven innovation so much as missions-driven. Significant societal innovation always requires the combination of different communities to create coalitions of change, each with slightly different interpretations of a common mission. Leading mission-driven innovation depends on being able to create and sustain these coalitions.

The Pill changed the lives of hundreds of millions of families across the world. The contraceptive products they used were made by companies and dispensed by public health systems, yet the innovation came from a cumulative, collective endeavour: the best way to describe this is as a movement.

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<sup>1</sup> In all innovation but perhaps especially in mission-driven innovation the framing of the mission, the challenge it meets and the values it embodies matters to how it is regarded.

Movements bring together a significant group of people to pursue a shared cause. (Hargrave and Van de Ven 2006) Movements are often by their nature somewhat emergent, bottom-up forms of organisation with porous boundaries. People do not go through a job interview to join a movement. Yet successful movements are rarely a free for all and nor are they self-organising. Usually they have at least a fluid form of hierarchy and a distributed leadership, which allows leaders to emerge depending on the challenge at hand and the skills and knowledge required. (Some of course are much more akin to military organisations with uniforms.) Successful movements master the art of decentralised productivity: they make the most of the shared beliefs and values, distributed resources and knowledge of their members, whether that be ideas, money, social connections or effort.

We are used to thinking of movements as social and political in their orientation, from the Suffragettes and the Chartists, to the labour movement and the Civil Rights movement. With the advent of social media, movements are now more commonplace. They seem to emerge, erupt and collapse with greater frequency than ever. Movements are driving change across society, from the rise of the Five Star movement in Italy and 'En Marche!' in France to #metoo, Time's Up, Never Again and the Alt-right. Movements seem to generate power from nowhere, an electricity flowing between people, with little warning and often scant formal organisation. (Liu 2017; Timms and Heimans 2018)

### **What is the relevance of movements to mission-driven innovation?**

Innovation movements play four important roles in mission-driven innovation of the kind now being pursued in many countries to ensure that innovation efforts contribute to meeting significant social challenges.

First, movements help to create, contest and shape the mission and purpose of innovation. They can challenge the direction of innovation in a dual sense. Movements often stem from frustration with how things are. They challenge a status quo which is regarded as unacceptable. But they also set a challenge to find a better solution. The Pill emerged from this dual sense of challenge, both negative and positive. Margaret Sanger, and the wider women's movement of which she was a part, was the original source of the sense of mission which produced the Pill. Sanger wanted to address what she regarded as a stark unfairness in the relationship between men and women. That is not to say that all mission-driven innovation requires a movement to make it successful. The mission to send a man to the moon and back, set by US President John F. Kennedy, was a mission set for a state machine by a politician. But all mission-driven innovation seeks to move people to action and so it has the potential to become a kind of movement. (Mazzucato 2018)

Second, movements help organise the supply side of innovation through the generation and circulation of ideas, knowledge and technology. Innovations often develop and spread within communities of scientists, engineers, and technologists who cooperate, emulate and compete in devising new and better solutions to solve shared challenges. Communities are a vital setting for this kind of shared but distributed experimentation as innovators try out new solutions in new settings and learn what works. Often these communities are geographically clustered to ease face-to-face communication and problem solving. (Saxenian 1996; Hall

1998) Increasingly these scientific and technological communities are international, cross-disciplinary and more loosely joined. For scientists and engineers, communities of peers provide the setting in which they can gain standing and recognition, building their reputation and social capital.

In the case of the Pill the scientific community that Pincus orchestrated played the critical role in developing basic science, testing out prototypes and refining the product. That community drew in people from academia, corporate research labs and government agencies. Pincus and his wife convened a growing community of hormone researchers worldwide through regular conferences. Pincus acknowledged the contributions that others made to the breakthrough: progesterone had been first used to prevent ovulation in rabbits in the 1930s. His role was to make all the connections between the different bits of the puzzle to turn the hormone into a safe and reliable drug that women could take daily.

Movements of ideas can orchestrate the supply side of innovation, developing and spreading new knowledge. They can also work on the demand side at the same time. This is their third contribution to innovation. (Mazzucato 2017; Edler and Georghiou 2007; Hippel 2007)

Movements with missions can make new markets when they crystallise consumer aspirations for better ways to live. They also facilitate the peer-to-peer learning among consumers that is required for a new product or service to gain traction and take off.

Margaret Sanger and Katherine McCormick were not just selling a new product, they were proponents of a different way for women to live. That aspiration to live in a different way helped to create the demand for the product. The fact that the market was ready to take up the radically new product when it arrived was due to the way the women's movement prepared the way by articulating this deeply felt aspiration.

Innovations often fail because they are too early for the market; consumers are not ready to take them up and do not know how to integrate them into daily life. That was not true for the Pill and that was because social movements made the market. Societal innovations will likely require social movements to make them a reality. That means they need to be seen in a wider social and cultural context to understand what makes them possible.

GD Searle asked the FDA to approve Enovid as a form of birth control on 23 July 1959, two days after Grove Press was given approval to publish Lady Chatterley's lover in the US. Deference to authority was waning. Women were expecting more to life than being a wife and mother stuck at home with little choice and no career to speak of. Attitudes to sex and pleasure were loosening up. The Beatles were just about to arrive and the 1960s were just around the corner. A social and cultural shift made the market which the Pill then satisfied. Women in their millions started taking the Pill, learning from one another as much as from their doctors how to cope with its side effects. The Pill was as much a social and cultural innovation as it was a scientific and commercial one. Timing is critical to innovation. Mission-driven innovations take off when they catalyse and embody larger forces of social change at work in society: that is what the Pill did.



For an innovation to be successful something new needs to be taken up enthusiastically, in everyday life, by millions of people. Having started off as an aspirational dream it has to become normal very quickly. That usually comes about when people learn collectively and from one another how to use an innovative technology. The Pill spread because women, doctors and scientists learned from one another and together how to make it work. It was akin to a process of collective problem solving. Movements lower the costs for consumers of learning new ways to live and so enhance the chances of an innovation being successful.

Finally, the movements perspective provides a way to understand how entire systems change.

Systems change is far more powerful as a form of innovation than the creation of a standalone product or service. (Mulgan and Leadbeater 2013) Systems change is never due to a single company acting on its own. It always involves coalitions of players, private and public, entrepreneurs and incumbents, investors and regulators, creating change together often over long periods through overlapping waves of investment. That is how freight shipping shifted to containerisation and the airline industry adopted jet powered planes. Systems change comes about through a collective process involving many actors. That requires something more like a movement bringing together people and organisations making complementary investments than a single company or for that matter a government agency.

Societal, mission-driven innovation involves systems change, to shift to new systems for energy and mobility, for example. Systems change always presents challenges of collective agency, decision making and commitment. Incumbents with a rational vested interest in protecting and perfecting the old system have little incentive to switch to a costly new system which might render their existing investments redundant. Shifting a system from an old to a new operating system often involves creating coalitions in which supporters of the new win over former adherents to the old system. One way to think about this process is that it is akin to creating a movement.

The Pill too required systems change. It needed to find a route through systems of pharmaceutical development and approval which were not set up with it in mind. The innovators needed to engage with this system and win over supporters from within it to succeed. Pasquale DeFelice, a rookie regulator at the FDA, played a critical role in navigating the Pill through the established system of drug testing and approval. That system was set up to test drugs which claimed to cure people who were sick. The Pill was not a cure for a sickness. It was to be taken by women who were perfectly fit and healthy. Without DeFelice's innovative approach to approving a drug that was not a cure, the Pill would not have made it through to approval. People inside the system needed to be part of the innovation coalition to bring about change.

JD Rock played a critical role in persuading sceptical doctors and conservative critics to see the merits of the Pill. His role was critical because he was not preaching to the converted; he won over sceptics who were operating within the old system.

Systems innovation always requires contributions from multiple actors at different levels from the meso and the macro to the micro. (Geels and Kemp 2007; Geels 2005) It always presents challenges of collective action and coordination. One way to overcome these challenges is to create something akin to a movement which enables a collective shift from one operating system to another. Movements with a shared purpose, underpinned by shared values, reduce the risks of innovation which require complementary investments from different players. If they all share the same goals and values they are more likely to make those complementary commitments.

Innovation movements of this kind allow society to move from one way of doing things to another, to adopt a new and better operating system. Social movements provided the committed innovators and consumers who want to rewrite the rules of the game and create these new models of business. These movements can provide the original inspiration for these innovations, the sense of mission and challenge; they can host the creative communities in which new ideas develop and spread; they make the early markets of committed consumers and they can help build the public, private and civil coalitions which can change entire systems.

Governments are increasingly turning to mission-driven innovation to tackle the biggest challenges they face as a society, from food to energy to housing and ageing. Many people believe with good reasons that current models of capitalism are failing. In much of the world they are delivering slower growth, greater instability, rising inequality and environmental degradation, without providing enough people with secure, decent and rewarding work. People all over the world are searching for better alternatives. The time is surely ripe for breakthrough innovations to take us into a new phase of growth which is more equitable, sustainable and creative. Incremental innovation is not enough to meet these challenges. Disruptive innovation offers superficially radical change but at the cost of dislocation and rising inequality as it rewards monopolists who take the lion's share of the profits in a new market. That is why people are turning to the idea of missions-driven innovation to propel innovations that will allow people to live better lives by creating new, better, different ways for people to live and work. Such missions can come from government and entrepreneurs, but social movements will play a vital role too in mobilising, harnessing, directing forces of change in society. Not only can they set and define missions but they can mobilise people, resources and ideas behind them to reach the missions.

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