

Entry: RK20_844

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Innovation Network Credits

**2020/21 RICHARD KOCH
BREAKTHROUGH PRIZE**

ENTRY NUMBER:

RK20_844

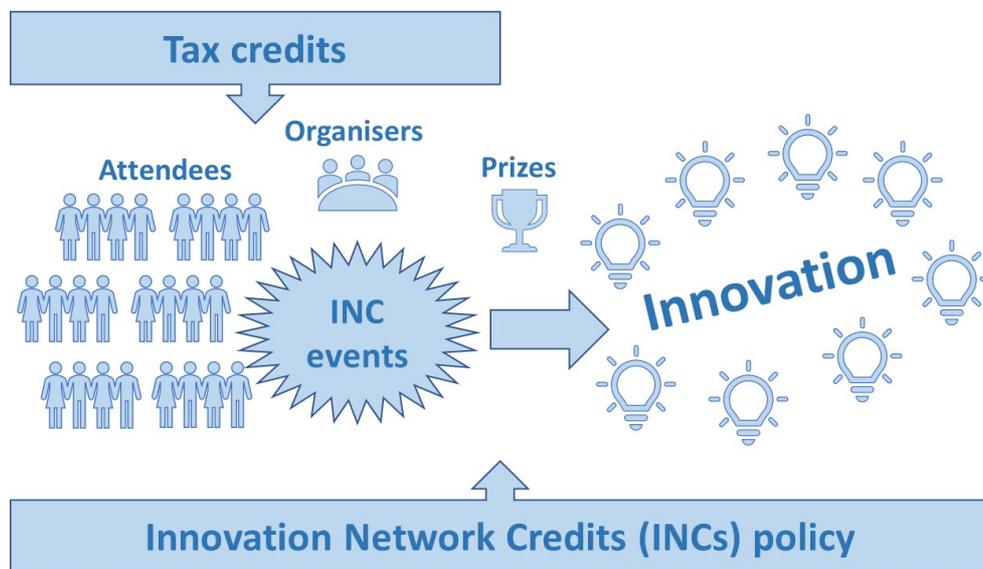
INCs

Supercharging growth using Innovation Network Credits

The only sustainable way to supercharge economic growth, employment and living standards in 'left behind' Britain is to supercharge the quantity of British innovation.¹ This Innovation Network Credits (INCs) policy offers a credible way to do this, at no net cost to the Exchequer, and avoids the usual pitfalls of Government innovation policy.²

The INC policy recognises the fundamentally broad and collective nature of innovation and proposes a novel way to exploit this by providing incentives and rewards for companies, individuals and organisations to collaborate throughout the innovation process.

INCs are earned by attendees and organisers of innovation-focused and INC-accredited events, and also in the form of prizes for solving important and difficult innovation challenges. These INCs translate to tax credits available to companies and individuals. By linking 50% of the value from the current R&D tax credits scheme to INCs, this policy heavily incentivises known innovators to participate in the new network. Cost savings from those R&D tax credit claimants who choose not to participate will be sufficient to cover the additional costs of the scheme.



This paper will discuss why common conceptions about innovation are wrong and why collaboration is key. It will then outline how INCs work and why INC events would be very effective drivers of innovation. The goals of the policy are then explained, particularly why benefits would be strongest in 'left behind' Britain.

¹ Solow, R. (1956) estimated 87% of total economic growth comes from innovation, 'A contribution to the theory of economic growth', Quarterly Journal of Economics 70. Whilst dated, many experts believe this figure is an understatement, for example Ridley, M. (2020)

² Butler, E. (2020), 'An introduction to entrepreneurship', Institute of Economic Affairs (London) describes many reasons why government policy in this area fail

Common conceptions about innovation are wrong

Innovation is often talked about in narrow terms, measured by national spend on R&D or the number of start-up companies created. These proxy measures do not reflect the fact that innovation is broad, driving economic growth through its impact on organisations of all shapes and sizes.

Ries³ describes innovation as a range of activities - not just building entirely new products but also developing new 'internal' products (to improve productivity), performing corporate development (M&A, spinouts, technology licensing) and undergoing corporate transformation. Innovation therefore boosts economic productivity in many different ways.

Drucker identified seven sources of innovation. Of these, knowledge-based innovation is the least reliable, least predictable and the slowest – the opposite of the mythologised stories of the flying Wright brothers, Stephenson's Rocket and Frank Whittle's turbojet engine.⁴ Much more common is innovation that emerges from the unexpected, whether this is an unexpected success (penicillin), failure (post-it notes) or outside event (fast food).⁵

For Ridley, innovation is a collective phenomenon, built on the exchange of ideas between different parties, unpredictable, incremental and always a combination of technologies and ideas. Innovation is more like evolution than it is to the Big Bang.⁶

These characteristics also help to explain why the adoption and adaptation of innovations already created by others are crucial parts of how innovation creates wealth across the economy.

³ Ries, E. (2017), 'The startup way', Portfolio Penguin (London)

⁴ Drucker, P. (2014) 'Innovation and entrepreneurship, Routledge Classics (Abingdon)

⁵ Fleming's discovery of penicillin was lucky and was enabled by unusual weather conditions. The glue used in 3M's first Post-It Notes was designed to be strong and permanent but failed, and no use was found for it for five years. Ray Kroc investigated why one of his customers was ordering more than the expected number of milkshake machines and thereby was able to develop the design principles that led to fast foodservice. These examples can be found in Ridley, M. (2020), 'How innovation works', Fourth Estate (London)

⁶ Ibid.

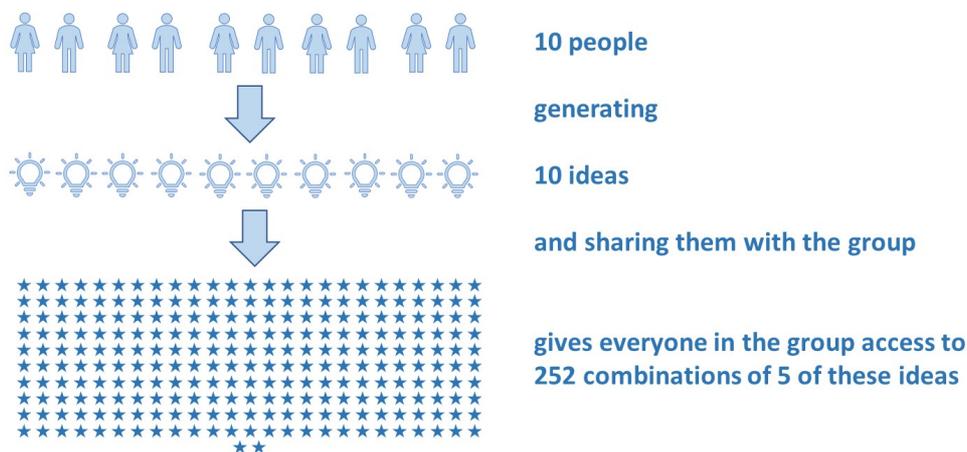
Collaboration is the key to innovation

A huge amount of academic research has explored the fundamental causes of the Industrial Revolution and why it happened in Britain at the time it did. Many factors researched in depth – access to raw materials, major inventions, growing international markets, accumulated capital, social changes, the creation of the limited liability company, serendipity and many others – were clearly important but cannot fully explain what happened – given the many other times and places when similar changes happened, but without the associated outcome of sustained progress.⁷

Given, as Ridley puts it, innovation is a ‘team sport’, always needing collaboration and the sharing of ideas, there is a compelling case that ‘it was the flowering of societies, clubs and mechanic’s institutes that gave Britain its lead in the Industrial Revolution.’⁸ This fostered an ‘improving mentality’, an evangelical belief that anything, in any field, could be improved – a contagious energy that accelerated innovation in Britain in a way not seen anywhere else before.⁹

The impact of collaboration is increasingly recognised by contemporary advocates of entrepreneurialism such as Wilkinson whose research highlights the power of bringing minds together to collaborate, creating a melting pot of experimentation.¹⁰

Some of the benefit from collaboration is purely numerical - groups of people generating and sharing ideas benefit from greater possible combinations of ideas available to them:¹¹



Like Hollywood films and venture capital in general, it only takes a small number of these combinations to succeed to make the whole industry very attractive.

⁷ Ridley, M. (2020) ‘How innovation works’

⁸ Ibid.

⁹ Howes, A. (2017), ‘The spread of improvement: why innovation accelerated in Britain 1547-1851’, working paper available at www.antonhowes.com/uploads/2/1/0/8/21082490/spread_of_improvement_working_paper.pdf

¹⁰ Wilkinson, A. (2016), ‘The creator’s code: the six essential skills of extraordinary entrepreneurs’, Simon & Schuster (London)

¹¹ Kealey, T. and Ricketts, M. (2020), ‘Innovative economic growth’, Cato Institute Economic Policy Brief number 3

But there are other mechanisms that also explain the power of group collaboration when it comes to innovation:

Factor	Mechanism
Greater energy	Sharing personal frustrations with the current situation can energise and focus others to pick up the challenge of finding better ways of doing something
Better feedback	Sharing stories about unexpected successes, failures and events multiplies the power of the natural 'trial and error' feedback loop. Each story can provoke new thoughts in others, creating new branches of possibility. Innovators do not need to understand why something has changed, only that it has
More openness	A group that includes 'outsiders' – people without a vested interest in the status quo – is much more likely to identify opportunities and seek ways to exploit them quickly. Groups consisting solely of 'insiders' – employees and executives of established firms – often see industry change as threatening
Faster speed	More ears, eyes and brains mean that a diverse group is quicker at spotting industry changes, particularly less obvious changes of consumer tastes, aspirations and other social phenomena. Speed is essential to exploiting such changes
Greater opportunity	A group with diverse backgrounds, knowledge and skills is more likely to find a successful combination of ideas – and is more likely to, somewhere among its members, recognise and resolve missing pieces of the combination
Diverse roles	Mixed groups are likely to include members playing a variety of roles – potential customers, suppliers, consumers, employees, investors, partners, allies and advocates – and this breadth makes successful innovation more likely

Formal collaboration in innovation by large companies is more common than conventional economics suggest should be the case, largely due to rewards from collaborating being greater than the costs, even taking into account the likely reduction in timescales where profit can be generated from innovation.¹²

The power of collaboration, at all levels from the individual to the large corporation, underpins the overall purpose of the INC tax mechanisms - to incentivise as wide a range of individuals and businesses to collaborate on innovation as possible.

¹² Baumol, W.J. (2002), 'The free-market innovation machine: analyzing the growth miracle of capitalism', Princeton University Press (Princeton)

How do INCs work?

Innovation Network Credits (INC) are tax credits earned by attending, and fully engaging in, INC-accredited events, and are available to:

- (a) companies claiming R&D tax credits (when their employees attend)
- (b) other companies (when their employees attend)
- (c) individuals who attend in their own right
- (d) organisers of events



Events are meetings, forums or other types of physical or online exchange related to innovation, sometimes large-scale conferences but more likely regular, frequent and short meetings.

Taking active part in any of these INC-accredited events would earn INCs. These INCs would form the basis for a significant financial incentive for R&D-intensive companies plus innovation-focused individuals and companies to become active members of the national network.

(a) Companies who claim R&D tax credits

A key part of the policy is to make a meaningful proportion (50%) of any R&D tax credit claim dependent on the applicant firm gaining an appropriate number of INCs during the year. The existing HMRC claim process would be amended to include a check against the INC register. One INC would have an implicit value of £1,000.¹³ An INC event could be worth one, two or several INCs to attendees, depending on clear criteria.

The population of eligible companies would include many high-innovation companies ranging from start-ups to large, established firms. In 2017/18, over 60,000 companies of all sizes claimed £5bn of R&D tax credits, translating to a potential 2.5m INCs annually – a significant amount of new high-quality engagement in the INC network.¹⁴

¹³ For example, 50% of a R&D tax credit claim of £100,000 could be linked to gaining 50 INCs with implicit value of £1,000 each

¹⁴ HMRC (2020), 'Research and Development Tax Credits Statistics'; 50% of total R&D tax credits claimed is £2.5bn, equal to 2.5m INCs with implicit value of £1,000 each

(b) Other companies

INCs would also work with other tax mechanisms for companies not claiming R&D tax credits. For example, incentives could be provided via a direct rebate to company payroll tax bills worth £1,000 per INC earned. This would broaden the range of companies and organisations that would be financially incentivised to engage in INC events. The value of each INC could be different to those earned by R&D tax credit claimants. In addition to direct creators and users of innovation, these could include potential investors, professional service firms, incubators, creative agencies and university spinouts.

(c) Individuals

For individuals, INCs would be claimed on annual tax returns as a credit to their tax bill. This would be at a lower but still attractive rate, say £200 per INC earned, up to an annual limit. INCs could also be credited against student loan balances, providing a mechanism to incentivise students and graduates to contribute to the INC network.

(d) Organisers

To promote increased supply of high-quality INC events, INCs would also be available to organisers - businesses, organisations and individuals forming and managing INC events. The value of INCs for organisers would be sufficient, and if necessary varied by region, to ensure widespread coverage of events.

A key condition is that events are free to attend for individuals and low cost for organisations. This feature is essential to ensure that barriers to participating are removed, and to support the goal of reaching all parts of the UK.

Trade bodies, universities, hobbyist groups and new start-ups would be incentivised to strengthen the network and existing conference and networking organisers would expand their focus from sales to innovation-based events.

Competition between different organisers would improve quality and ensure better geographic and sector coverage. High quality organisers - ones who excel in fostering collaboration and creativity across diverse groups of people, with facilitation skills to frame and reframe problems, challenge negative behaviour and ensure effective 'rules of the game' are followed – would proliferate.

INC prize awards

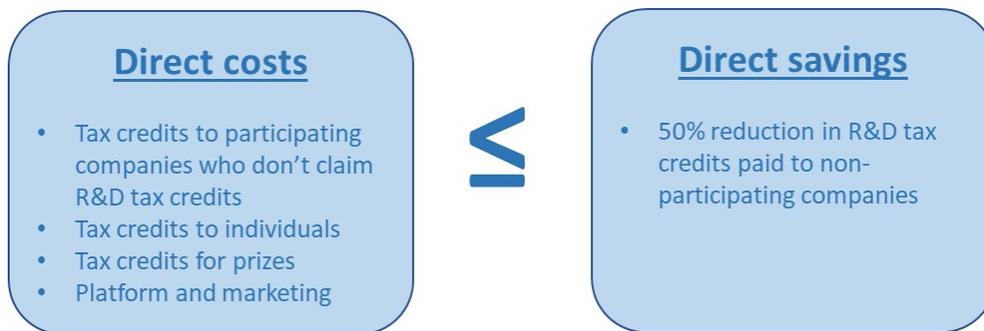
INCs would also be employed to drive innovation to solve specific and significant problems identified through the network, for example by being awarded as prizes, similar to the 18th century longitude rewards.¹⁵ The form of these INCs could be a tax credit of a certain value (for example, £100,000) or a

¹⁵ www.en.wikipedia.org/wiki/Longitude_rewards

tax holiday (for example, zero corporate tax rate for the first 24 months after an innovation has been commercialised), to incentivise the rapid adoption of the innovation. The INC administrator would have freedom to create prize competitions combining its budget with private sector contributions.¹⁶

The direct cost of the INC policy

The INC policy is net neutral in direct cost to the Exchequer - even with a majority of eligible companies claiming R&D tax credits building up INCs, there would be savings from companies who did not take part in the INC scheme (with low expected impact on their actual R&D spend given the generous nature of the current R&D tax credits scheme). This net saving would cover the costs of promoting INCs using other mechanisms:



The overall direct cost and efficacy of the policy would be managed by adjusting the value of INCs across the various tax credit mechanisms (R&D tax credit claimants, other businesses, individuals and organisers).

¹⁶ The INC administrator is likely to be established as a Non-Departmental Government Body

How INC events can drive high quality collaboration

The number and quality of INC events are key factors in the success of this policy. To become INC-accredited, an event needs to meet criteria on quality and format, to ensure good practice, and to be registered on the INC platform. This platform would provide functionality to simplify, promote, organise and attend innovation events. In addition to better advertising, best-in-class practices would provide simple checklists and consistency across local, regional and national levels.

The INC logo would provide a clear brand for events and help create national awareness of this new focus on making Britain the world leader in innovation.

Many different types of event would fit the criteria for INC-accreditation, including existing networks. In-person regular or one-off events could be organised as conferences, talks, demonstrations, competitions, hackathons, debates, informal discussions, workshops or networking sessions. The hackathon format, developed more recently in tech sectors, could be adopted for all sectors.

In addition to attracting employees of companies, INC events would also attract individuals from colleges, universities, hobbyist groups, trade and industry bodies and other existing networks. Individuals, whether employed, retired, studying or unemployed, would be a fertile source of ideas, experience and knowledge. Many of these groups currently lack opportunities for exposure to, never mind the potential to contribute to, innovation.

Online events and networks would complement in-person events, providing opportunities for collaboration to overcome barriers of distance and potentially bringing engagement from individuals not based in the UK.

How INCs can supercharge growth

By bringing large numbers of existing and potential innovators together in a sustained and collaborative way, the INC policy has three ambitious objectives:

Objective 1 – make Britain the world leader in innovation (again)

The INC brand and the national innovation network would create significantly better conditions for innovation by individuals, small and large businesses, students and public sectors – and reinforce other policy initiatives in this area. Individuals actively engaged in these events could find themselves acting as potential contributors of ideas and experience, testers of prototypes, allies, early adopter customers, investors or employees. This interaction would significantly improve awareness of opportunities for, and methods of, innovation and continue to drive new innovation in Britain.

The ethos of the INC policy is very much in keeping with the defining characteristics of the Industrial Revolution – evolutionary, decentralised and collaborative, accommodating a range of personal motives from individual self-interest to patriotism. The aim is to create a second age of widespread ‘improving mentality’.¹⁷

Publicity to launch INCs could easily take advantage of historical and global precedents, such as the Royal Society of Arts’ coffee shop debates of 18th century Britain, the Homebrew Computer Club of 1970s California (from which Apple and other companies emerged) and modern-day hackathons.¹⁸

Objective 2 – eliminate social barriers to innovation

It is certain that there are many frustrated would-be agents, contributors and allies of innovation throughout Britain. In addition, there are many potential innovators whose spark has not yet been ignited because they learnt that innovation is only done by scientists, genius inventors and rich businesses.

The INC policy dismantles the barriers faced by these potential innovators by making it free to attend high-quality and easy-to-find events. Open to all age groups, INC events would drive knowledge and experience sharing across generations and significantly increase the number of new entrepreneurs.

The INC register and accreditation would raise the standard of forums. Simple guidelines would establish consistent ‘rules of the game’, particularly important in sectors sensitive to trade secrets.

A free insurance scheme would lower barriers to new organisers whilst the national register’s membership list would provide free and effective advertising. Increased participation in forums by R&D-intensive businesses would make

¹⁷ Howes, A. (2017), ‘The spread of improvement: why innovation accelerated in Britain 1547-1851’

¹⁸ Howes, A. (2020), ‘Arts and minds: how the Royal Society of Arts changed a nation’, Princeton University Press (Princeton); www.wikipedia.com/wiki/Homebrew_Computer_Club

them more attractive to attendees including ‘outsiders’. A booming ‘innovation scene’ would attract better organisers, helping create a virtuous circle.

Objective 3 – supercharge growth in ‘left behind’ regions

There are a number of reasons why the INC policy would benefit ‘left behind’ regions more than the wealthier regions of London and the South-East.

The INC scheme would be open to all sectors and it financially incentivises individuals and businesses to engage in new events, building new networks of collaboration. The removal of barriers (individuals can attend INC events free of charge) and incentives (tax credits) – would be particularly beneficial in less wealthy regions and communities.

The marginal benefit from new events for innovators is higher in regions where fewer of such events currently exist. Innovators in London can already join functioning, if sub-optimal, local networks. But innovators in ‘left behind’ regions are far less likely to have access to existing networks and therefore have far more to gain from INC events.

‘Left behind’ regions may well face constraints on investment capital, due to the London-focus of many investors, but they have abundant human capital, arguably a more important factor needed to drive innovation. Evidence for this lies in the emergence of unlikely hotspots of global innovation where the power of ‘shared brainpower’ is solving complex challenges.¹⁹ A likely outcome of a successful INC policy would be the emergence of new industry clusters across Britain – as the network enables economic and social forces to take hold, centred on innovation.

Experimentation to maximise the nationwide effectiveness of the policy would be easy – for example, by doubling the value of INCs earned in particular regions, London-based companies would be incentivised to venture further afield (since the financial benefit to them could be worth more than the additional cost and time).

As a national programme, the INC policy would help overcome inertia in established industries by increasing the sense of urgency to innovate and improving the chances that British companies can compete successfully in new industries.²⁰

¹⁹ Van Agtmael, A. and Bakker, F. (2016), ‘The smartest places on Earth’, PublicAffairs (New York)

²⁰ These mechanisms are described in relation to policy that increases the amount and quality of information available in a nation by Porter, M.E. (1990), ‘The competitive advantage of nations’, Free Press (New York)

Conclusion – using INCs to supercharge growth

Not many people are aware that ‘during the 19th century, [collective invention] was probably the most important source of inventions’.²¹ This is the opposite of popular conceptions of the genius inventor and other myths holding back the boundless potential of innovators across 21st century Britain.

In contrast, most people do know that the regions labelled ‘left behind’ in today’s Britain, were, ironically, the birthplaces of much of the innovation that drove the Industrial Revolution. There is no compelling reason why these regions cannot become hotbeds of innovation again, complementing London and the South-East, to supercharge growth across Britain.

In the same way that individual ‘outsiders’ drive innovation, the ‘left behind’ regions of Britain have no vested interest in the status quo. Reigniting and opening up widespread innovation in these regions would ultimately help regional industries to compete more effectively in global markets. Moreover, these regions can, and should, be given as much opportunity as possible to be the birthplaces of future industries.

It is time for a new age of optimism, ambition and confidence when it comes to Britain’s innovation output and the potential of all its regions to drive this. This INC policy can play a crucial role in creating this to achieve supercharged growth.

²¹ Allen, R.C. (1983), ‘Collective invention’, *Journal of Economic Behavior and Organization* 4 (1983) 1-24. North-Holland