



Finance for Impact: the innovations now needed in public finance

Geoff Mulgan, November 2019

Summary

This paper shares ideas on a long overdue revolution in public finance to better meet the needs of the early 21st century.

I show the strengths and weaknesses of current models of public finance, that are primarily concerned with managing money, and raising it, rather than ensuring it achieves outcomes; I suggest some of the emerging priorities for innovations in finance in relation to evidence, innovation and impact, as well as public engagement; and I offer proposals on what a different landscape of public finance could look like, building on practical work Nesta has been involved in with governments around the world.

The UK is swinging from a decade of financial austerity to what looks set to be a surge of public spending. Yet, while politicians are promising much more spending of all kinds, there is little sign of interest in how the money should be spent well. That risks not just waste, but also a wasted opportunity to modernise how public finances are organised.

Here I address:

- *What* public money should be used for – aligning spending with public value, both present and future
- *How* money should be used – the many methods for spending and investment

- *Who* should get to decide and hold money to account – including new options around transparency and public engagement

I show various projects that are demonstrating how money could be used better, some quite mature and some at an early stage. Some of the suggestions build on my experience working in governments, and some on Nesta experience, including our practical work.

The paper also draws on some of our research, including our recent report on public value which brought together detailed analyses from fields as diverse as healthcare and the arts. The aim is to encourage more serious approaches to reform so that money can achieve more.

Background – making money work harder

Any government should want its money to work harder. They should want efficiency, value for money and transparency. But they are surprisingly unimaginative in their uses of money, and although some periods have seen energetic experiment and reform, innovation has slowed down in recent years.

Annex 1 describes some of the many ways governments can use money (particularly for innovation) with grants, investments, challenges, procurements or partnerships. Yet most departments and agencies only use a fraction of these methods, and generally just stick with the tools they've used in the past.

At Nesta we have tried to use a wide range of tools – equity investment to impact bonds, crowd-funding to challenge-based funding – partly to make our limited resources go further. They include:

- Budgets to back innovations that deliver cashable savings (Wales)
- Testing matched crowd-funding models (London)
- Running challenges – so that money is only paid out once specific goals have been achieved (US, Canada, India and Europe)
- Investing in impact Bonds of various kinds and impact investment funds (across the UK)
- Designing new forms of public-private partnership, whether around urban development or skills
- Working with governments committed to significant investment in innovation (UAE)

A very brief history of public finance

Public finance has been through many waves of reform ever since the very first cities in Sumeria created largely state-run economies based around grain. Here I just focus on two.

Integrity and control

One wave of reform – beginning in the 18th century, and still influencing current practice – was primarily concerned with integrity. These measures were essentially input based, using top down controls to ensure money went to agreed and approved purposes.

They were – rightly – focused on preventing overspending and corruption. Many were designed to strengthen parliaments in holding executives to account. Against a backdrop of chronic public debt in many countries these traditional aspects of public finance have not lost their relevance. It's just that they address only one part of what governments need to do.

Efficiency – late 20th century reforms

A generation ago another wave of reform focused on how to use finance to drive up efficiency and reduce waste. This cluster of reforms was associated with the ideas of 'New Public Management' and had great influence from the 1970s-2010s. They were substantially influenced by business, and encouraged new ways of managing public services and policies: privatisation, outsourcing, co-payments, fees and vouchers.

They fed into the already substantial body of theory and practice focused on issues such as optimal tax collection or how to structure private finance and partnerships.

Many tried to link budgets to quantitative targets, with performance management methods to check whether targets were being achieved and penalise failure. They favoured simple lines of accountability; clear prescription to minimise the scope for fudge; and tough penalties and rewards on each link in the chain to perform their task. They often tried to strengthen executives and their power over others lower in the hierarchy.

These methods became popular in the 2000s, though they often had unintended consequences, such as reinforcing silos that made governments

less able to cope with complex or cross-cutting issues. There is also now a huge literature – and experience – of how they can encourage manipulation on the part of lower tier managements, and generally achieve short-term gains rather than sustained improvements. But these are still the topics dominating public finance courses, and still being promoted by consultants. What counts as the leading edge hasn't changed much in two decades.

Impact: fields for innovation in finance

In the next sections I set out areas of future reform that are needed to help governments make better use of money, prioritising impact alongside the older goals of efficiency and integrity. These aim to be:

- More realistic in measuring assets as well as flows
- More suited to complex systems
- More transparent
- More effective in aligning with the interests and incentives of business and individuals
- More long-term
- More suited to innovation
- More accountable

Better understanding of financial dynamics

Better decisions depend on better understanding of inputs, outputs and outcomes and how they connect. How does health spending lead to improvements in health? How does police spending contribute to cutting crimes or making the public feel safer?

There are some very sophisticated analyses of costs and outcomes achieved within public services - for example looking at schools, police forces or hospitals, and showing very wide variations in performance. But there has been surprisingly little progress in achieving detailed, and widely shared, understanding of the nature of costs in the public sector, including the relationship between average, marginal and variable costs, despite the pressures of austerity. It's a rare public service which can see in real time how its finances are being managed (which is one reason why so many lurch into occasional crisis); or how cuts to one service might raise costs for




another; or what the true pattern of economies of scale or scope might be in different services.¹

Yet this is territory where better use of data to tag inputs, outputs and outcomes should generate many new insights. In principle it is becoming easier to tag many items of spending – by geography, by beneficiary group or topic area &c. It's not hard to imagine a much more standardised set of data headers for finance, making it easier to automate analyses of how funds are being used, and to connect management information systems that make it feasible to dig down through layers of accounting information, with what is available to the public.

Transparency

The moves to make public finance more transparent to the public (like France's [OpenFisca](#)) could help in improving understanding. The more data is open, machine readable and amenable to analysis the better, since there is less need to rely on the data skills of finance ministries.

Everything you can do with OpenFisca

 For economists	 For public administrations	 For developers
OpenFisca allows you to use survey data to simulate the impact of a reform on a given government's budget and on a population's standard of living.	OpenFisca allows you to stop building your micro-simulation software and tax & benefit calculators on your own. Instead, contribute to OpenFisca, collaborate with other administrations and reduce the bill for the taxpayer.	OpenFisca allows you to easily create web applications based on your simulation results, thanks to the web API. You can build a great variety of other services by coding formulas, hosting your own instance or building your own extensions.

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But so far there has been only faltering progress, despite some brave attempts. It should become much easier for the public to play with data, working out the implications of different budget choices, and for these to become a normal part of election debates. Instead in some countries the

¹ I wrote a paper a few years ago setting out some of the theoretical approaches needed, including a more detailed understanding of what I called the '12 economies', including economies of scale, scope, penetration &c. I found these were very useful for public service managers needing to cut budgets, but none of these ideas have been incorporated into the practice of public finance. A few years before I commissioned detailed research within the UK government on economies of scale in key public services. We found very little evidence of such economies – and that units of delivery could be efficient at multiple scales (the same applies to national governments). Yet most finance ministries still operate with an assumption of economies of scale that is not born out by the evidence.

reverse has happened. Indeed, in the UK, government has become a lot less transparent in recent years. Yet this is space where leaders of finance ministries should be embarking on 5-10 year programmes of reform, helped by peers, to make openness the norm.

Measuring the right things – aligning spending with public value

The old Oscar Wilde comment about knowing the price of everything and the value of nothing has been quoted in writings on public finance for as long as I can remember. It is clearly particularly important that governments attend to the things that matter and that money allocations are aligned to public value.

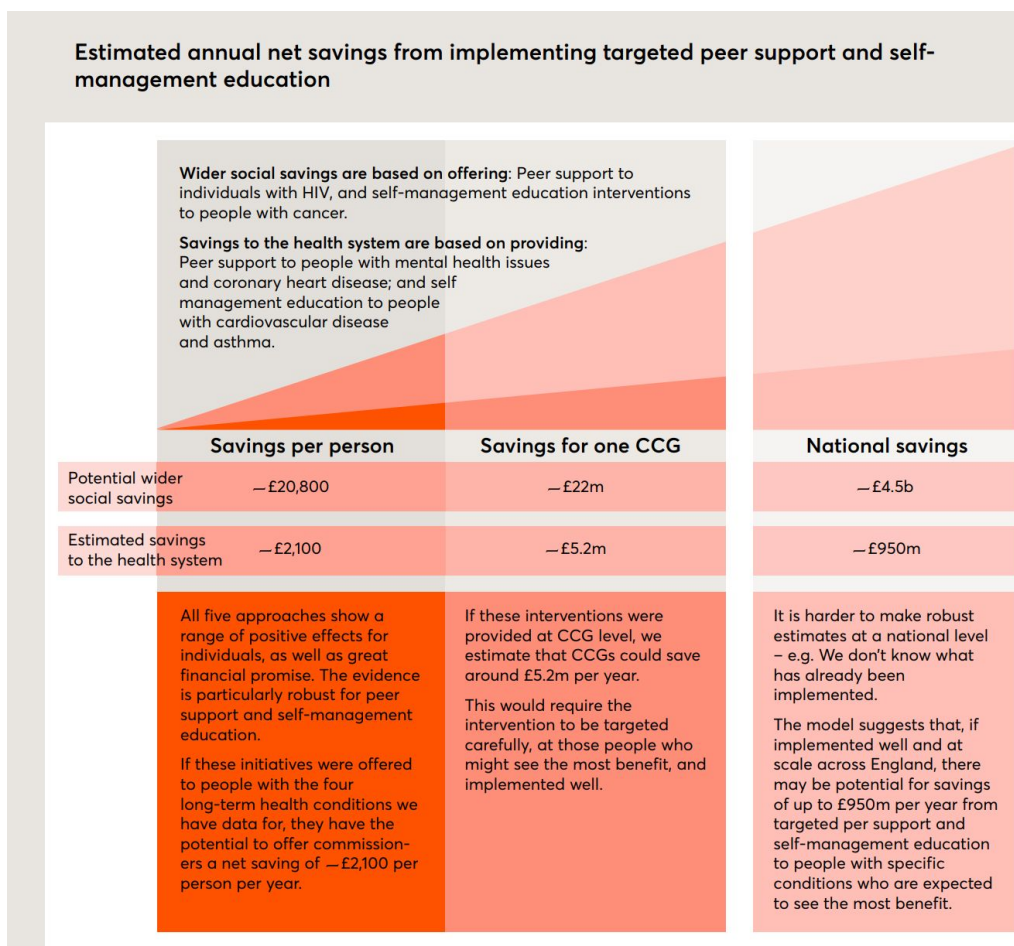
Standardised methods like CBA/BCA are widely used (and President Macron has required them for all spending over 20m Euro in France). But they can embed big imbalances in what is valued – they favour the physical over the intangible; the familiar over the new; past over future. Things like happiness; isolation; the quality of relationships; and potential are usually not valued and therefore at risk of being underfunded.



Our recent survey on [public value](#) provided a series of detailed examples of how a broader approach could be taken, covering everything from the arts to health. Public value at root means what the public values, but that includes many different things – the direct value of services (like healthcare); the less direct value of outcomes (like the security that comes from defense or reductions in extreme poverty); the value of good processes (like justice);

existence values (our willingness to pay for things like museums even if we don't use them); and long-term values (like mitigating climate change or investing in children's future employability).

There's a lot of vague rhetoric around public value, but this isn't much use if it can't be operationalised. We now have plenty of examples of how this can be done. The diagram below for example summarises work on capturing the true value around peer support and self-management in healthcare, part of an ambitious programme to better map the areas of health that were generally ignored and undervalued:



Balance sheets

A related point is the very limited use of balance sheets, or analysis of rates of return on assets held by governments (which requires national registers of

assets, preferably as open as possible). Even less use is made of intangible measures in the public sector.²

At a minimum governments should measure the value of physical assets – land and buildings - and pension liabilities. A more sophisticated approach also looks at long-term effects on things like human capital and natural capital too (though no countries do this yet). The IMF has been encouraging governments to take basic balance sheets more seriously, like this one:

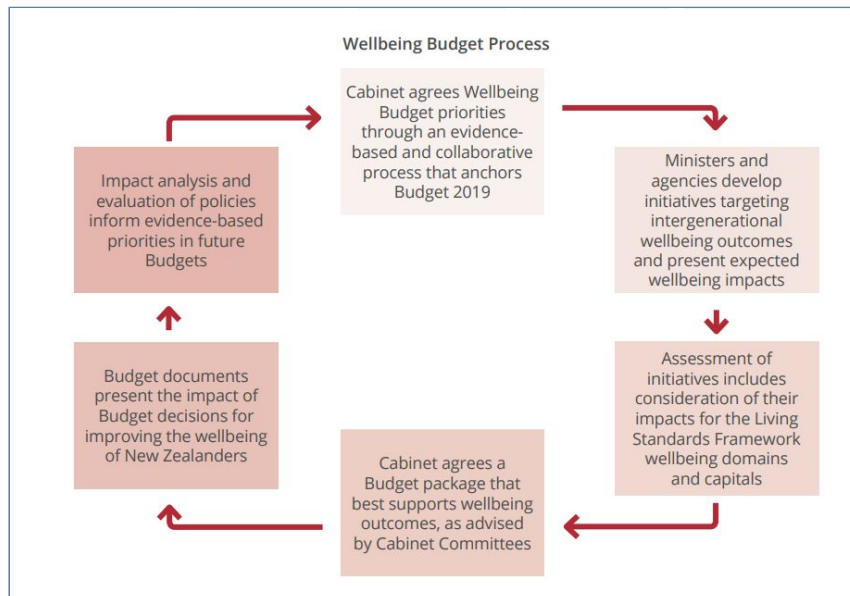
Table 1. Finland: Public Sector Balance Sheet, Dec 31, 2016

	General Government					Public Corporations				Public Sector
	Central Government	Social Security Funds	Local Government	Consolidation	Total	Non-financial	Financial	Central Bank	Consolidation 1/	Total
Assets	52.8	90.9	62.3	-2.8	203.4	17.9	20.2	36.9	-23.3	255.1
Nonfinancial	24.4	0.7	49.8	0.0	74.9	9.6	0.0	0.1	0.0	84.6
Financial	28.3	90.0	12.4	-2.8	127.9	8.3	20.2	36.9	-23.3	170.5
Liabilities	59.7	304.9	14.3	-2.8	376.1	11.9	19.8	33.7	-23.3	418.2
Financial 2/	59.7	3.8	14.3	-2.8	75.0	11.9	19.8	33.7	-23.3	117.1
Pension liabilities 3/		301.1			301.1					301.1
To public employees		103.3			103.3					103.3
To private employees		197.8			197.8					197.8
Net Worth	-6.9	-214.0	48.0		-172.7	6.0	0.4	3.2		-163.1
Net Worth, excl. all pensions liabilities	-6.9	87.1	48.0		128.4	6.0	0.4	3.2		138.0
Net Financial Worth	-31.3	-214.7	-1.8		-247.6	-3.6	0.4	3.1		-247.7

Wellbeing

Then there is the better measurement of what matters in the present. Some governments are starting to take wellbeing seriously, and New Zealand announced a wellbeing budget in 2018. Their big challenge – which I wrote about in the OUP Handbook on Happiness – is that while much is known about how wellbeing correlates with broad societal conditions, and a fair amount is known about specific programmes (eg in mental health), very little progress has been made in understanding how different policy approaches affect wellbeing.

² Nesta has been one of the pioneers of analysis of intangible investment in the economy through the Innovation index; but we've made little progress in applying comparable measures to the public sector.



Ecological value

Another important area of work is to treat the natural environment seriously. A lot of work has been done on measuring natural capital and the value of ecosystem services. In the early 2000s I commissioned a study on resource productivity and low carbon strategies, in a joint project of the Cabinet Office and Treasury, that we hoped would become a more normal way of looking at things. Its insights are now coming to seem more relevant than ever in the

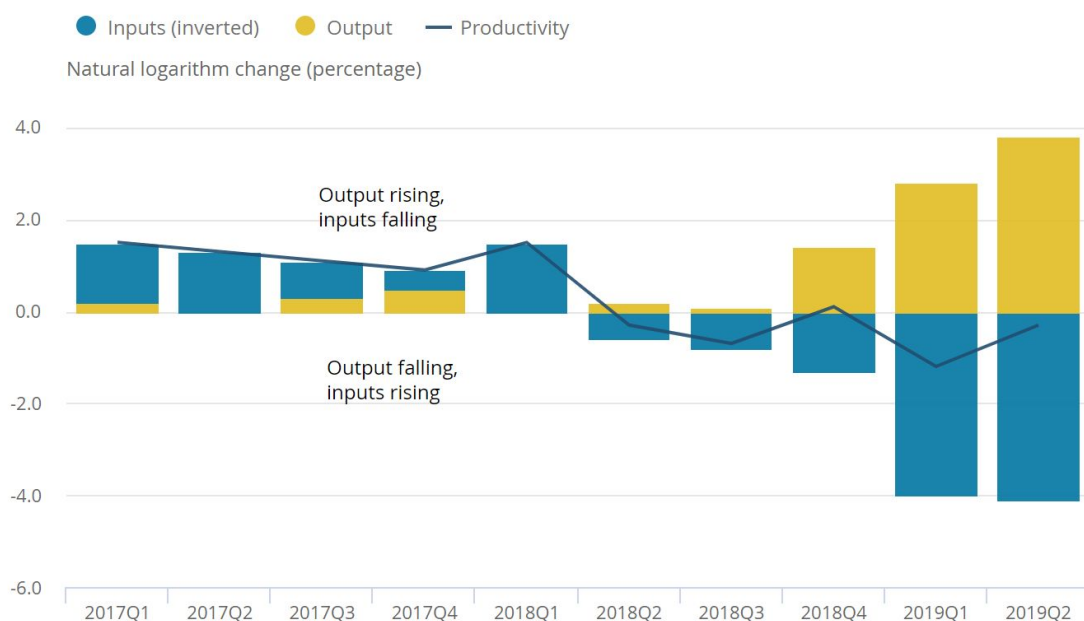
context of decarbonisation strategies and circular economy programmes, though they remain add-ons to public finance rather than integrated.

Productivity

Finally, we still understand far too little about public sector productivity. There was a big push in late 2000s involving the ONS and others. We had hoped to get much more fine-grained understanding of marginal costs and benefits to help resource allocation. In some fields progress was made in analysing productivity variations. But the overall project essentially stalled with the financial crisis in the late 2000s. As a result governments have detailed data on inputs but very few tools for understanding the relationship between inputs and outcomes, and the productivity of a large part of the economy. Although there are attempts at measurement, like the chart below, it is hard to interpret these in useful ways:

Figure 1: Productivity falls in Quarter 2 2019 when compared with the same quarter of the previous year

Public service productivity, inputs and output, quarter-on-same-quarter-a-year-ago growth rates, UK, Quarter 1 (Jan to Mar) 2017 to Quarter 2 (Apr to June) 2019



Source: Office for National Statistics – Public service productivity

Finance tied to outcomes

In an ideal world every allocation of public money could be clearly linked to the result it aims to achieve – whether a service output, policy outcome or one of the other types of value mentioned above. Budgeting processes would be transparent about the link between inputs and results – and when results were not achieved this would lead to systematic learning about the reasons.

Some governments – including some US and Australian states (such as south Australia) - have made important progress in setting strategic goals, transparently assessing when these are met or not, and establishing budgetary implications.

At a more micro level the spread of new tools for funding outcomes is providing a useful prompt for progress. These include:

- social impact and development impact bonds (of which there are now well over 100)
- PBR and payment for outcome schemes (which cover large sums of money)

These have mainly focused on fields with relatively simple measurable outcomes such as reoffending in criminal justice; getting unemployed people into jobs; or improving school results. As I wrote in a [paper on social impact bonds](#) in the 2000s these are much easier when they are operating in a field where there is no pre-existing government activity (since otherwise causation is hard to establish) and they tend to bring high transaction costs. I suggested that their biggest virtue might be in encouraging governments to be more explicit about inputs and results.

One of the most interesting projects of this kind is the [Reconnections project](#) in Western England which Nesta supported. It aims to reduce loneliness, and because success in reducing isolation lowers costs to the health service and local authority they committed to paying for demonstrable improvements in social connection of the target group. This commitment made it possible to raise funds which then supported local NGOs. Despite some early challenges the scheme is now working well and points to how new forms of finance can change how policy issues are conceived and addressed.

There have been attempts at outcome-based funding linked to multiple indicators in health (in the UK and Italy), as well as tools like advanced market

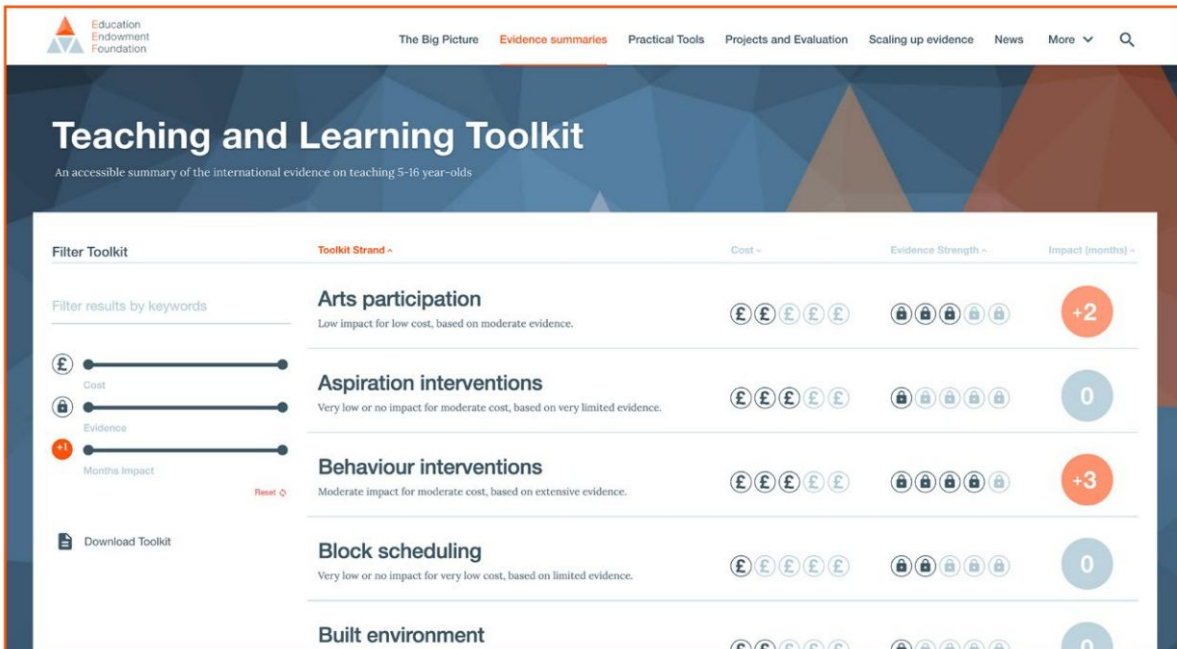
commitments. One oddity of this field is that although there is a lot of craft knowledge about what does and doesn't work it isn't very codified. There have been some meta-reviews, eg of impact bonds, but no global bodies offer a synthetic view of what works. As a result many mistakes get repeated.

Evidence, risk and experiment

In principle any government should want to know, when allocating resources, what risk is associated with that allocation. This depends on the state of evidence – how well established is it that investment of £Xm will lead to Y results? – as well as on whether there are capacities to implement well.

This is best discovered through experiment and one of the positive trends of recent years has been more systematic use of experimental methods. [Nesta's IGL](#) runs experiments in many countries on business support – bringing greater clarity to a field where hundreds of billions of Euros and dollars are spent each year but with very little knowledge about what works. [The Behavioural Insights Team](#) likewise has gone global promoting experiments that often generate surprising conclusions about value for money. Countries such as Canada and Finland have started to embed experimentation into the work of government.

But although some progress has been made in recent years in promoting experiments, orchestrating evidence in public services, and making more use of data, these methods have not permeated the day to day work of many officials responsible for public finance. It's interesting to observe that the [Alliance for Useful Evidence](#), and the various What Works Centres, have struggled to engage public finance professionals. They're not particularly hostile, and some are enthusiastic. But they don't see this as core to their jobs. Yet in the future finance ministries could be responsible for overseeing not only the inputs but also the impacts achieved, helped by the key budgetary and financial committees. The what works centres have certainly done some good work in systematising not just what's known about what works but also providing better insights into the cost effectiveness of different interventions:



Financing innovation – handling positive risk

Businesses devote large sums to innovation – from classic R&D to innovation in services, business models, processes and organisational forms. Some of this investment has in the past been mapped by Nesta.

But we never found reliable ways to map and measure innovation within governments - and almost none have a coherent view of what they do and what they should do.

Despite the detailed work done to understand the impact of public spending on R&D, and its impact on economic growth, as far as I am aware, no government can answer even quite basic questions about its own investment in innovation:

How much is spent? What might an optimal level of spending be? How would it be divided between upstream and downstream innovation, from exploratory research to design, incubation, testing and implementation? How is risk organised at different stages?

At Nesta we have published detailed overviews of how innovation can be funded which have been acted on by some governments – they emphasise significant investment upstream to improve the quality of proposals, and grow

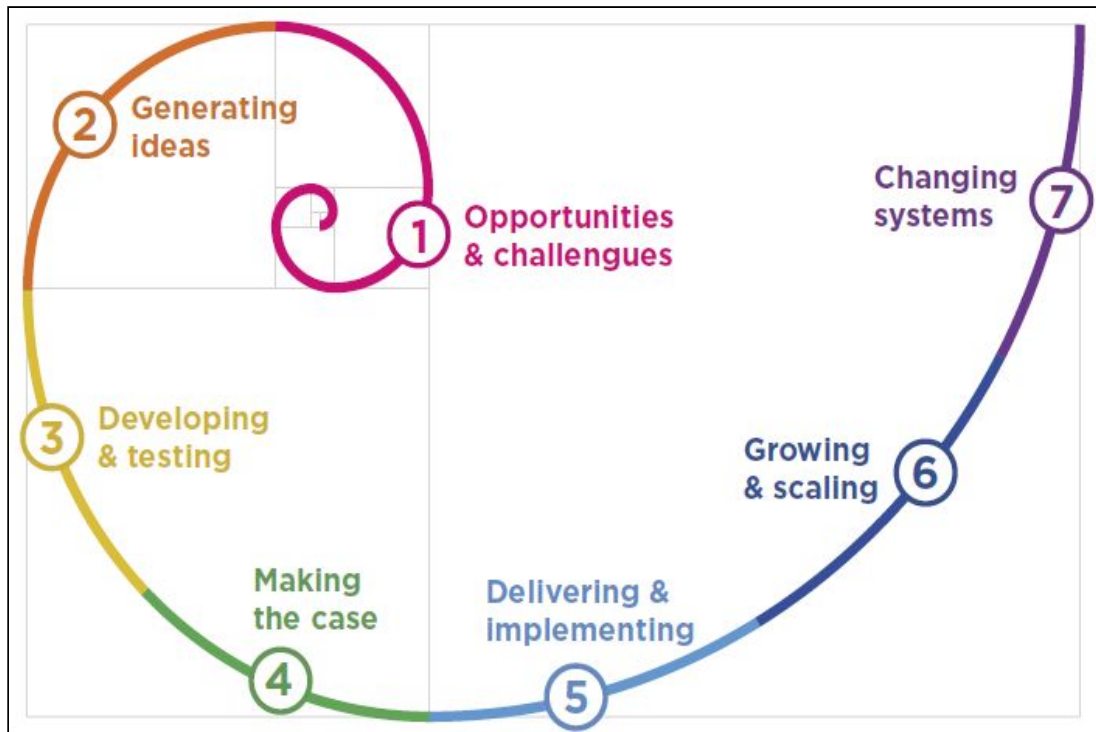
capability; the use of stage-gates; and the pooling of data and use of evidence standards as innovations mature to ensure they really do work.

Wales has gone ahead of other countries in the UK with the '[innovate to save](#)' budget (managed by Nesta) which provides loans to departments for innovative actions that can reduce costs in the medium term:



In general we would argue for a modest but significant allocation of resources (like the 1% commitment made to funding innovation by the UAE government), to ensure that public agencies are at least paying attention to funding for innovation.

Then it usually makes sense to organise stage-gates with different types of funding, and different approaches to risk at each stage of the innovation spiral (so that the further round you go, the larger the sums involved but also the lower the risk appetite):



Unfortunately the opposite methods are too often the norm in most governments – scattergun funding determined by occasional political or official enthusiasm; little consistent knowledge; poor execution; and only weak links between the innovation phase and adoption.

New forms of partnership and hybrid funding - investment funds, personal accounts and credit systems

Impact investment

There has been a great deal of experiment with new ways of combining public and private funding. Nesta for example has created an [Arts and Cultural Impact Fund](#) which combines philanthropic money, public money and commercial finance to support promising projects in the arts. It aims to achieve a mix of outcomes - financial returns, arts impact and social impact. And it uses layered finance to allow for different approaches to risk (with the public money accepting a higher level of risk in order to incentivise private investment).



Skills credits

A very different field of innovation is around human capital. For many years there have been attempts to create personal accounts with credits to encourage people to take more responsibility for their long-term skills. The UK experimented with Individual Learning Accounts in the 2000s - a project which was undermined by serious mismanagement and the absence of strong controls over spending.

More recently several countries have developed similar systems while learning from past mistakes. Singapore offers credits to adults as part of its broader Skills Future strategy. France has done the same with the Compte Personnel de Formation. Canada is likely to experiment with similar approaches in 2020s.

In principle such personal accounts can bring together government contributions; employer contributions; and personal contributions (with the latter two encouraged by tax treatment). Other Nesta projects are working on how to provide the right information and guidance to help people spend money well.

Their promise is to encourage personal long-termism and to give citizens a sense of power over their own futures.

Social credits

A very different route is the use of credit systems to reward people for pro-social behaviour and discourage anti-social behaviour. These include small fines for failing to recycle waste; or failing to turn up to doctor's appointments; positive rewards for paying taxes on time. Business of course runs many kinds of credit assessment based on past behaviour as well as loyalty schemes. China's social credit schemes are taking this into new territories on the boundaries of government and business.

I have long favoured some kinds of personal account in government to bring together payments and tax, and to enable more creative forms of support, such as loans for education or deposits on a house that are then secured on lifetime earnings. These have the potential to greatly reduce the cost of finance to individuals by reducing risks of default and transaction costs.

Long term investment

Much of what government does is by its nature long-term. Commissioning warships; building roads and railways; educating young children.

Money is spent today to give future generations a better life. Some of this spending is guided by detailed frameworks: cost-benefit analysis, Green Books, and analysis of rates of return. Big infrastructure projects are analysed in depth, and often at great expense.

But other areas of government activity are almost untouched by these methods, including almost all spending on people. As far as I'm aware (and again, I would like to be proven wrong), no governments use investment methods to assess spending on education, health and training.

Social science has become steadily more competent at analysing the links between actions now and long-term effects³ but spending on fields like health is organised year to year, with no accounting distinction between spending on a vaccination programme versus emergency care, with no forecasts done on how spending this year might affect health demand in a decade's time.

³ I was part of a UK government team in the late 1990s that tried to draft a 'green book' for people: a set of approaches to guide investment appraisal of things like early years programmes, preventive health and urban regeneration. Despite the enthusiastic engagement of parts of the Treasury, the project faltered. The main problem then was the lack of sufficiently hard evidence on the efficacy of preventive measures – it just wasn't possible to say with enough certainty that action x would lead to result y in a decade or two. The margins of error became so large that the tools were not useful.

There have been some attempts to modernise Green Books to cover human and social capital but these have not become mainstream. Yet this is territory where better social science; more experiment; and systematic measurement should steadily improve the capacity of governments to see finance in time.

Discount rates – how to value the future

A related issue is how to handle discount rates, something I've written about a lot in the past. How should governments think about value and costs in ten or fifty years time? Should a discount rate be applied to health? Or the environment?

These issues are deeply contested in the economics profession. You could summarise the dilemma as whether government should think like a bank (which means applying consistent discount rates to everything) or like a family (which probably applies a zero discount rate to things done for loved children). My own conclusion is that the usual approach of imposing standard discount rates is not intellectually coherent, and that discount rates should be different for different government activities.⁴

A broader view of resources

Much of our recent work at Nesta has tried to encourage governments to look at available resources in a broader way, ie not just money, paid staff and buildings but also latent capacities in the population. This was the focus of the Centre for Social Action Innovation Fund which backed many projects mobilising volunteers to complement public services (and avoided the errors of the Big Society programme which often seemed to want volunteers to replace paid professionals). We also developed the 12 economies method as a prompt for encouraging finance managers and others to think more creatively about how to achieve savings during periods of austerity.

These are:

- i) Pure economies – stopping doing things (eg fewer bin collections)
- ii) Economies of trimming – freezes, efficiency savings (eg 5% cuts to pay or opening times)
- iii) Economies of delay – to capital, pay rises, procurement, maintenance, improvements
- iv) Economies of scale – eg aggregating call centres, back office functions (these have often been greatly exaggerated in the past - but can sometimes deliver big savings)

⁴ See the argument in my book 'The Art of Public Strategy' Chapter 13 on the relevance of hyperbolic discount rates, and why societies might use different discount rates for fields such as health, defence or education.

- v) Economies of scope – eg combining multiple functions in one stop shops, multi-purpose personal advisers, neighbourhood media, extending roles
- vi) Economies of flow – eg hospitals specialising in a few operations, cutting bottlenecks
- vii) Economies of penetration – eg Combined Heat and Power, street concierges
- viii) Economies of responsibility – passing responsibility out to citizens, eg for self-testing
- ix) Circuit economies – reducing failure demand (recidivism, hospital repeated re-admissions) through tools like Social Impact Bonds etc
- x) Economies of visibility – mobilising public eyes (eg MP's expenses, public spending) and the power of shame
- xi) Economies of doubling up – actions that address two problems/needs simultaneously (eg retrofit programmes for young unemployed)
- xii) Economies of commitment – shifting provision from low to high commitment people and organisations (tapping into eg volunteer labour, motivation...)

Thinking through how to apply these to fields like rural bus services, care for the frail elderly or neighbourhood policing invariably opens up new options. But few of these ways of thinking form part of public sector training let alone public finance training.

Public engagement

Decisions on allocating resources require specialist knowledge. But there have been moves in recent years both to make those decisions more transparent and to involve the public more directly.

One approach is directly raising funds from the public, building on the spread of crowd-funding. Nesta recently published an overview of [these methods](#) and has used them in experiments with the government of London where government matches crowd-funding as a way to encourage recipients to strengthen their links to the community.



Democratic innovators have also tried out hundreds of different forms of participatory budgeting. Famous pioneers like Porto Alegre in Brazil showed that thousands of citizens could take part in quite complex discussions and at one point, the UK alone had well over a hundred PB pilots underway.

More recently in Paris the Mayor has committed around 100m Euro a year to PB (including 10m for schoolchildren).

BUDGET PARTICIPATIF

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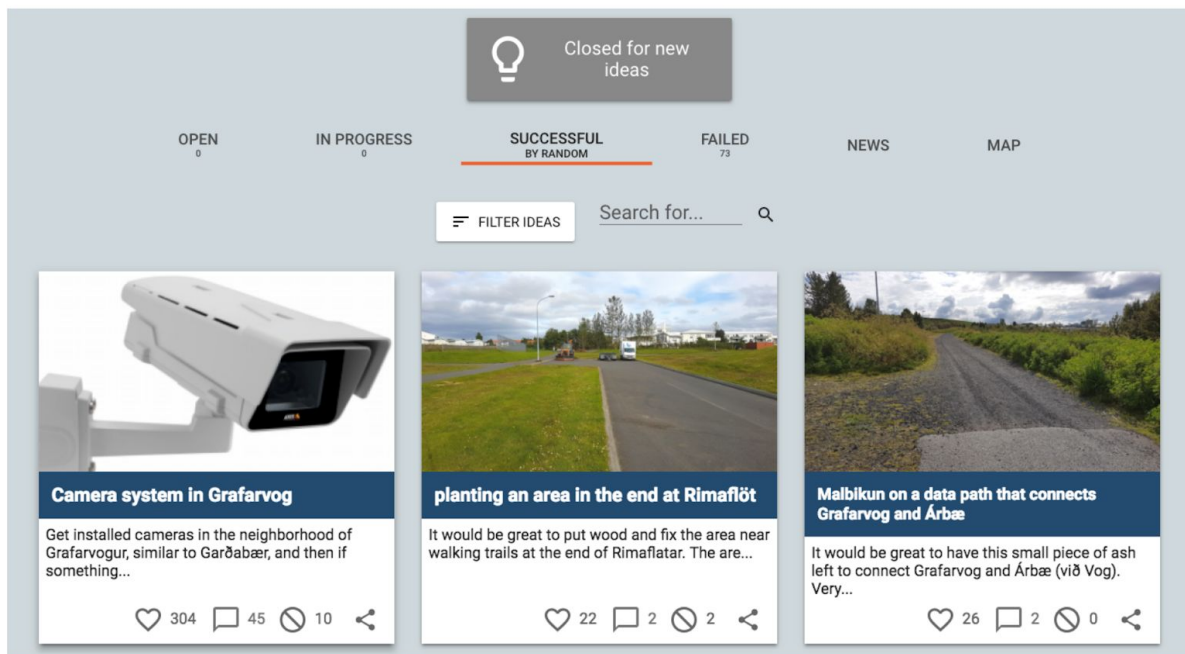
2019

#VivreEnsembleLaVille

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- ⑤ 45, avenue d'Italie
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- ⑦ 176, avenue d'Italie
- ⑧ 53/63 rue des Plantes / 6/16 rue Auguste Cain
- ⑨ 20, rue des 4 Frères Peignot
- ⑩ Allées des frères voisins / Rue du Colonel Pierre Avia
- ⑪ 7/7^{bis}, rue Scheffer
- ⑫ 73, bd Bessières / 3, rue Ernest Roche / 2, rue du Dr Paul Brousse
- ⑬ 3/7, rue Stéphane Grappelli
- ⑭ 2/14, rue Gérard de Nerval
- ⑮ 2, rue Raymond Queneau
- ⑯ 17/23, rue du Dr Potain
- ⑰ 51, rue de l'Ourcq
- ⑱ 13/15, avenue de Flandre / 10/14/16, rue Gaston Rebuffat
- ⑲ 1, rue Terre-Neuve
- ⑳ 66, rue des Couronnes
- ㉑ 15/27/29/31 rue des Tourelles / 13, rue Passage des Tourelles

We have suggested what types of topic are best suited to PB – generally ones that are not too laden with moral conflicts; that don't require technical expertise; and have a direct bearing on daily life. Choices over local public spaces tend to be particularly suitable, as in cities like Reykjavik which have used these methods for many years:



The challenge faced by all of these experiments is how to make budgets comprehensible: how to show the current balance of spending; how to help deliberation on the impact of shifts of budget from one category to another; and how to get the right mix of numbers, visualisations and prose. Exactly the same challenge of course applies to helping committees of politicians to make better decisions.

The PB wave came slightly ahead of the wave of open data and rapid advances in visualisation. Yet together these offer the prospect of making budgets significantly more comprehensible. Wider public engagement could make it even more obvious that some of the categories used by governments are obsolete – including some of the ones mentioned above, like anachronistic balance sheets, or the myopia on long-term investment.

Some conclusions

Public finance thinking has been rather stuck since the financial crisis. Yet the failure to tie finance into evolving ideas about innovation and evidence risks becoming a major barrier to making governments more effective.

If public spending really is going to move from bust to boom it's all the more vital that serious work is done to ensure it's not wasted. So there is a need for better theory, and better tools that can be applied, and shared by the leading practitioners, umbrella bodies &c, and put to use in governments at every level, whether national, regional or city and district.

Specifically we would encourage governments to consider how they might experiment with new tools:

- open data and transparency to allow the public to analyse and spot patterns
- stage-gate open innovation funds and challenge prizes to tap public creativity
- innovate to save funds to encourage investment mindsets
- matched crowd-funding
- personal accounts linked to learning or care

Although this may appear to be a very technical issue, one lesson from business is that each major evolution of business models required a comparable evolution of methods of management accounting, to track costs and revenues across complex production systems, to handle software, branding and other intangibles. Governments need a comparable evolution. Money is too important to be left only to the accountants and finance officers. Governments need to get some of the basics right. But finance should be more strategic, and more the ally of those seeking improvement, innovation and evidence than it often is today.

ANNEX – THE LANDSCAPE OF FUNDING TOOLS

FUNDING TOOL	DESCRIPTION	ADVANTAGES	CHALLENGES
GRANTS	Gift of money, usually linked to commitments on activities, outputs or outcomes.	<ul style="list-style-type: none"> Simple, established. 	How intensively to manage, can drive dependency. No return to funder.
R&D FUNDING	Stage-gate funding for developing technologies etc., usually grants.	<ul style="list-style-type: none"> Suitable for high risk/ reward projects. 	Requires greater management. Staging can limit project flexibility.
GRANTS/EQUITY IN ACCELERATORS IN STAGE-GATE	Grants plus small equity shares for new companies, often linked to non-financial help.	<ul style="list-style-type: none"> Higher success rate for startups. 	Intensive input needed to achieve successes.
GRANTS CONVERTIBLE TO LOANS, OR GRANTS WITH ROYALTIES	Grants with conditions that make them turn into loans once milestones are met, e.g. on revenues.	<ul style="list-style-type: none"> Recycles money. Drives good behaviours re: financial sustainability. 	Managing loan book - requires longer-term engagement/ communication with awardees to check on revenues; management of repayment schedule. Modelling of repayment will often be overly optimistic. Can be gamed if repayment triggers are not set right. Tax/accounting treatment not well established.
GRANTS CONVERTIBLE TO EQUITY	Grants which turn into rights to equity once revenue or other milestones are met.	<ul style="list-style-type: none"> Recycles money Share of high-value projects. 	Managing investment, follow-on funding, getting the conversion triggers right. Only feasible if recipients established with shares. Tax/ accounting treatment and legal enforceability not well established.
MATCH CROWDFUNDING	Committing money on condition that matched funding is raised through crowdfunding platforms.	<ul style="list-style-type: none"> Encourages mobilisation of public money and commitment. 	Skews to high income audiences; sums still quite small.
LOANS	Money lent to be repaid with interest over agreed timescale.	<ul style="list-style-type: none"> Recycles money. Straightforward offer to recipients (no cession of control or ownership). Easy to value cost and likely return. 	Managing loan book, risk assessment, security and seniority. Is there additionality? Many firms can get loans from other sources.
PROJECT-SPECIFIC LOANS	Loans linked to specific projects, e.g. in technology, repaid only if the projects succeed.	<ul style="list-style-type: none"> Recycle money. Straightforward offer to recipients (no cession of control or ownership). Attractive to recipient as do not need to be repaid if project fails. 	Less secure than loans secured against the firm as a whole (see above). Need to monitor project success to see if loan needs to be repaid (this can be gamed).

CONVERTIBLE LOANS	Loans offering rights to convert into equity.	<ul style="list-style-type: none"> • Gives lender chance to participate in upside in case of radical success, while still promising repayment in base case. 	Less attractive to funded organisation than loans or equity. Funder needs to manage conversion process.
QUASI-EQUITY	Loans offering revenue participation rights (e.g. shares of revenue or profit over given levels).	<ul style="list-style-type: none"> • Encourages business growth. • Recycles more money from successes. 	General challenges of oversight, monitoring etc.
IMPACT BONDS (SOCIAL, DEVELOPMENT ETC.)	Funding raised from philanthropy or capital markets linked to commitment of payments linked to outcomes.	<ul style="list-style-type: none"> • Shifts risk from government. • Encourages focus on evidence and outcomes. • Can bring in new skills. 	Relatively few fields with suitable conditions; still young model in experimental phase.
VENTURE EQUITY INVESTMENT (AND IMPACT VENTURE INVESTMENT)	Investment in equity in early stage companies, usually with aim of achieving significant growth in value, and usually linked to active involvement in management, strategy etc. Impact investment uses similar methods but also aiming to demonstrable social impact.	<ul style="list-style-type: none"> • Funder can participate in upside. • Funder gains (some) control in firm. • Allows rigorous linking of investment and outcomes (e.g. using standards of evidence). 	Intensive management needed for realising value and need for follow-on funding (B, C, D rounds) in order to realise value. No return to funder unless firm floats or exits. Not generally applicable to large firms or organisations that are not firms. If funder is charity, link to objects and public benefit must be monitored.
INTERMEDIARY FUNDING	Funding directed through intermediaries (e.g. on Big Society Capital model) which then invest loans, equity etc., in firms or social enterprises. Usually investors represented on investment committee.	<ul style="list-style-type: none"> • Can increase funding flows (e.g. with co-mingled funds). • Creates more specialist capacity and some healthy competition. • When working well interest from loans covers management costs. 	Difficult to exit. Average venture capital returns very low. Sometimes challenges raising matched funds; achieving sufficient scale; and handling timescales of investments and returns.
CHALLENGE AND INDUCEMENT PRIZES	Commitments of funding tied to proof of ability to solve a novel problem.	<ul style="list-style-type: none"> • Awareness raising, expectation that goal for winning is high - raising the bar. • Good for where market incumbents have little incentive to innovate. • Attracts new entrants, rewards success, favours technological/product based innovation. 	Defining success - ambiguity reduces effectiveness of intervention. Requires firms to spend money ahead of receiving funding, so capital constraints may still be a problem. Challenge of setting the right goal: requires expertise and is difficult to change once set.
REVENUE-BASED FUNDING MODELS	Releasing grants or loans in response to reaching revenue targets	<ul style="list-style-type: none"> • Aims to encourage trading and entrepreneurship, as opposed to grant dependence. • Used in development, technology funding, self-employment and other fields. 	Revenue results achieved can have many causes; may therefore provide capital where it's not needed; conversely can push recipients to maximise short-term revenue rather than long-term business building.
GOLDEN SHARE	Equity finance linked to a special share which cannot be diluted, or offers special voting rights.	<ul style="list-style-type: none"> • Opportunity to participate in upside without follow-on investment. • Gives funder control over firm. 	Represents a significant concession for organisation receiving funding. May deter future equity investors.
SERVICES CONTRACT TO SUPPORT INNOVATIONS	Procurement of services from small firms, charities or social enterprises as a way of helping them grow or innovate (e.g. SBIR).	<ul style="list-style-type: none"> • Use procurement process to support small innovative entities. 	Reliance on relatively untried service provider.