Global annual spending on research and development exceeds a trillion dollars. Military and security-related applications are the single largest area of expenditure. Yet every day in poorer parts of the world, thousands of children die from waterborne diseases, more than a billion people go hungry and more than a thousand die in pregnancy and childbirth. At the same time, future generations face huge social, environmental and economic challenges from threats such as climate change. Yet global governance, economics and politics frequently work against the interests of poorer countries and people, worsening inequalities.

Meeting these interlinked global challenges of poverty reduction, social justice and environmental sustainability is the great moral and political imperative of our age. Science, technology and innovation of many kinds have essential roles to play in this. But along with many others, the STEPS Centre believes that this imperative can only be fulfilled if there is a radical shift in how we think about and perform innovation. By innovation, we mean new ways of doing things. This includes not only science and technology, but – crucially – the related array of new ideas, institutions, practices, behaviours and social patterns, purposes, applications and outcomes. Central to this, is a move away from change – about who is ‘ahead’ or ‘behind’ in some presumed one-track race. Instead, attention must focus on the many alternative directions for scientific, technological and associated institutional change. In short, we need a new politics of innovation. This is not about being ‘pro’ or ‘anti’ science or technology, but about addressing real questions of choice: ‘which science?’, ‘what technology?’ and, especially, ‘whose innovation?’ and ‘what
kinds of change? In other words, we need to foster more diverse and far more fairly distributed forms of – and directions for – innovation, towards greater social justice.

“A radical shift is needed in how we think about and perform innovation”

At the heart of this shift in the global innovation agenda is a greater respect for cultural variety, regional diversity and democratic accountability. Such a shift is possible. Indeed, in inspirational initiatives in many places around the world, it is already happening. But these efforts are often fragmented, poorly supported and resisted by unequal power relations. To challenge these forces means promoting innovation that really works for currently marginalised people and jeopardised environments. This requires the opening up of new political spaces, drawing in social movements, smaller businesses and excluded voices. The result will be more vigorous deliberation and argument over the many possible styles and directions for research and innovation. It also means radically changing the ways in which innovation is shaped, through: agenda setting, funding, capacity building, organisational arrangements and monitoring, evaluation and accountability. We take up each of these specific challenges in our final recommendations.

This New Manifesto lays out a political position, as seen from the particular vantage point of a single research centre concerned with these challenges. Yet our purpose is not to assert a single view. Most importantly, we hope to help catalyse and provoke more vibrant and explicitly political debate over global patterns and directions of innovation. In this spirit, we provide a host of links to more detailed examples and analysis on the associated New Manifesto website www.anewmanifesto.org.

While not pretending to achieve a representative synthesis, the production of this Manifesto has also learned much from – and owes much to – many colleagues, collaborators and critics. Most valuably, this includes the hundreds of participants in 20 roundtables in countries from China to Venezuela, India to Zimbabwe, Nigeria to Sri Lanka. As part of our wider New Manifesto initiative, the STEPS Centre is committed to assisting further processes of dialogue and argument about innovation, using our own website as a platform for divergent voices – including those critical of our own stance. Our aim is not only to foster debate, but to catalyse action. This will inevitably take contrasting forms in diverse places. Our hope is that – together with many other parallel initiatives worldwide – this will help result in more diverse and equitably distributed forms and outcomes of innovation.

“Meeting the interlinked global challenges of poverty reduction, social justice and environmental sustainability is the great moral and political imperative of our age”

Detailed examples and multimedia on the New Manifesto website http://anewmanifesto.org/
In 1969 the United Nations commissioned a study which became known as the "Sussex Manifesto," published the following year. This argued that science and technology were overwhelmingly steered by the interests of the global rich rather than the poor. With the late 1960s witnessing the moon-landing, the burgeoning Green Revolution and a global smallpox eradication programme, this was a time of great interest in the potential for science and technology to address the most stark of humanity’s development challenges.

Forty years ago the Sussex Manifesto focused on the scale and location of scientific and technological activity. This earlier manifesto was of its time; it distinguished between so-called ‘developing’ and ‘advanced’ nations in a way that is today problematic. It argued that research agendas needed to focus on the world’s ‘developing’ countries and their needs, with ‘advanced’ nations urged to devote 5% of their own expenditure on research and development to problems in ‘developing’ countries. It put forward challenging funding targets for government spending on research and development and scientific and technological services. It said ‘developing’ countries should increase the proportion of gross national product spent on research and development from 0.2% to 0.5% over the 1970s. In addition, ‘advanced’ countries were urged to dedicate 5% of their total aid budgets to capacity building including “…direct, financial and technical assistance to the build-up of indigenous science in the developing countries.” Recognising that it would “be folly if there were no reform of the institutions for carrying out these activities”, the Sussex Manifesto highlighted the importance of organisational reform.

The precise impacts and implications of the original manifesto are diverse and contested. However, along with a number of other related initiatives during this period, this
earlier manifesto did help to advance broadly progressive aims for building indigenous capabilities in science and technology. Since then, there have been significant achievements. The share of global research and development expenditure in ‘developing’ countries has increased from 2% in 1970 to roughly a fifth. However, much of this is concentrated in a few rapidly industrialising economies, including China, India and Brazil. Expenditure on research and development across ‘developing’ countries has risen to approximately 1% of aggregate gross domestic product. Yet, outside the emerging innovation centres in rapidly industrialising economies, levels of research and development as a percentage of gross domestic product remain at around 1970 levels in some countries—especially in parts of Africa. Moreover, and crucially, such aggregate figures say nothing about the direction of innovation pathways, the distribution of innovative activities within countries, or the outcomes actually achieved for the poorest and most marginal people in their diversity of settings and situations.

Forty years on, we are again witnessing coordinated international efforts to solve global problems using science and technology. Modern advances appear to offer more promise than ever, and private sector and philanthropic foundation involvement has added significantly to the potentials. Two arguments are now put forward in favour of this persistent emphasis on science and technology as the core solution to development challenges. In the first, scientific and technological innovations are seen as routes to national economic growth in a highly competitive global economy.

This is held also to lead indirectly to poverty reduction and capacities to deal with environmental protection—in line with general ‘trickle-down’ models of economic development. Yet, while scientific and technological advance has undoubtedly contributed to growth in particular areas, the benefits—and sometimes risks—have been very unevenly distributed.

The second argument responds to this problem through focusing more directly on particular poverty and environmental challenges. The assumption here is that targeted scientific and technological solutions—‘silver bullets’—can be rolled out and applied at scale. In particular, new philanthropic and public-private investments have massively expanded the scope for addressing challenges that were once neglected because addressing them was seen as unprofitable. Again, this has yielded successes—vaccines for childhood diseases, and crop technologies directed towards low-income countries’ agricultural challenges. But these have not been realised everywhere; these initiatives often founder in the face of the diversity and dynamism of local social and ecological realities.

In different ways, both these arguments about innovation for development focus quite narrowly on science and technology. Equally, they emphasise the scale and pace of innovative activity, over its direction, distribution or diversity.

Detailed examples and multimedia on the New Manifesto website http://anewmanifesto.org/
We are moving from narrow preoccupations with research and development to broader understandings of innovation systems – encompassing policy practices, institutional capabilities, organisational processes and social relations. There is acknowledgement of the crucial roles of a wider set of institutions and interactions, including laboratories, firms, funders, governments, international agencies and civil society organisations. This helps move us away from a simple model of technical progress, to an acceptance of a broader range of interactions behind innovation of all kinds – ranging across local and global scales.

However, a further array of questions remains typically unaddressed in policy debates. Asking the question ‘what is innovation for?’ includes – but goes beyond – issues of prioritisation across different sectors, such as military, health or energy. It also requires us to think about the particular directions of change that are supported in any given sector. Even in the narrow field of low carbon electricity production, for instance, a host of alternative directions for innovation pathways exists. These include those alternatively emphasising: small-scale distributed renewable energy; large-scale, centralised renewables in continent-spanning infrastructures; nuclear fission, and fossil fuels with carbon capture and storage. None of these strategies can be pursued to their full potential without detract-
industrial agriculture presents the ideal solu-
tion to problems of food supply and hunger. Yet this appearance of optimality reflects particu-
lar perspectives, strongly pushed by powerful commercial and institutional interests. In real-
ity, alternative low-input solutions are effective and efficient in many settings. Likewise, in the
health sector, innovation activity centres on options – like the development of pharmaceu-
ticals – which maximise private benefits through intellectual property rights. This is re-
forced by the interests and practices of pow-
erful companies and regulators, which margin-
alise attention to ‘open source’ public health
measures. It is in these ways that politics come
in at every level of decision making over the di-
rection of innovation.

Even where choices are settling around an
assumed optimal pathway, this can be mislead-
ing. Alternatives are often obscured by political
interests and the exercise of power. For exam-
ple, it is sometimes assumed that high-input,
industrial agriculture presents the ideal solu-
tion therefore go beyond merely questioning
the implementation of technology or conven-
tional critiques of the failure of innovation ben-
efits to trickle down. Marginal groups and places
also lose out both from the negative conse-
quences of lock in to dominant pathways and
because the alternative pathways that meet
their own needs are obscured, excluded, and
pushed aside – ‘crowded out’. These are the rea-
sions actively to challenge the directions of
dominant pathways and to recognise and sup-
port alternatives.

DISTRIBUTION

Because marginal people and places so often lose out, the appraisal of alternative innova-
tion pathways needs to focus specifically on the
distribution of benefits and address ques-
tions of social difference, equity and justice. Social arrangements for appraisal need to be
inclusive and deliberative and take place con-
tinuously from the earliest stages of innova-
tion pathways. Only in this way can we ensure
broad and equitable distribution of benefits
and impacts, with serious attention paid to
the highly differentiated nature of needs and
experiences in the real world – by place and
circumstance, gender and generation, iden-
tity and ethnicity. Of particular importance
here, are the many cases where marginalised
women and men are innovating for them-
selves, improving their livelihoods in difficult
political-economic situations, by making use
of indigenous knowledges and technologies
rooted in local cultures, histories and practic-
es. Examples include innovations by farmers
in crop and livestock production, by slum-
dwellers to secure water supplies and by
health practitioners to combine local and bio-
medical approaches in new, creative ways.

Such local innovations do not offer simple
remedies, but recognising and supporting
them can contribute in important ways to the
redistribution of power and resources needed
for greater social justice. Likewise, growth in
demand among relatively low income groups
near the ‘bottom of the pyramid’ worldwide
presents a massive – and still under-recog-
nised – opportunity for innovation processes
linked to small businesses to foster more
equally-distributed economic growth.

Further approaches that actively link science
with the interests of excluded communities can
help shift the distributional outcomes of inno-
vation towards the needs of the poorest groups.
Participatory approaches to plant breeding, for
example, start with the concerns of the most
routinely marginalised groups such as women
and resource-poor farmers, involving them in
designing and implementing the selection and
testing of different plant varieties. Such ap-
proaches bring users centrally into the scientific
process and allow for context-sensitive adapta-
tion and shaping of technologies – paying at-
tention to their social as well as technical dimen-
sions. A simple example here is where the
uptake of bednets in western Kenya rose dra-
matically when the colour was changed from
that of burial shrouds. Citizen initiatives and so-
cial movements have key roles to play in ‘open-
ing up’ hidden innovation pathways.

Direction matters because it shapes the distri-
bution of benefits, costs and risks from innova-
tion. In many low-income country settings, in-
dustrial agriculture can work well for those who
can afford the inputs, but often marginalises
small farmers in riskier and more resource-poor
settings. Intellectual property-driven pathways
for innovation in health notoriously result in only
ten per cent of the world health research budget
being spent on diseases that affect ninety per
cent of the world’s population. Issues of direc-

tion therefore go beyond merely questioning
the implementation of technology or conven-
tional critiques of the failure of innovation ben-
efits to trickle down. Marginal groups and places
also lose out both from the negative conse-
quences of lock in to dominant pathways and
because the alternative pathways that meet
their own needs are obscured, excluded, and
pushed aside – ‘crowded out’. These are the rea-
sions actively to challenge the directions of
dominant pathways and to recognise and sup-
port alternatives.

“Citizen initiatives and
social movements have
key roles to play in
‘opening up’ hidden
innovation pathways.”

Because marginal people and places so often lose out, the appraisal of alternative innovation pathways needs to focus specifically on the distribution of benefits and address questions of social difference, equity and justice. Social arrangements for appraisal need to be inclusive and deliberative and take place continuously from the earliest stages of innovation pathways. Only in this way can we ensure broad and equitable distribution of benefits and impacts, with serious attention paid to the highly differentiated nature of needs and experiences in the real world – by place and circumstance, gender and generation, identity and ethnicity. Of particular importance here, are the many cases where marginalised women and men are innovating for themselves, improving their livelihoods in difficult political-economic situations, by making use of indigenous knowledges and technologies rooted in local cultures, histories and practices. Examples include innovations by farmers in crop and livestock production, by slum-dwellers to secure water supplies and by health practitioners to combine local and biomedical approaches in new, creative ways. Such local innovations do not offer simple remedies, but recognising and supporting them can contribute in important ways to the redistribution of power and resources needed for greater social justice. Likewise, growth in demand among relatively low income groups near the ‘bottom of the pyramid’ worldwide presents a massive – and still under recognised – opportunity for innovation processes linked to small businesses to foster more equally distributed economic growth.

Further approaches that actively link science with the interests of excluded communities can help shift the distributional outcomes of innovation towards the needs of the poorest groups. Participatory approaches to plant breeding, for example, start with the concerns of the most routinely marginalised groups such as women and resource poor farmers, involving them in designing and implementing the selection and testing of different plant varieties. Such approaches bring users centrally into the scientific process and allow for context sensitive adaptation and shaping of technologies – paying attention to their social as well as technical dimensions. A simple example here is where the uptake of bednets in western Kenya rose dramatically when the colour was changed from that of burial shrouds. Citizen initiatives and social movements have key roles to play in ‘opening up’ hidden innovation pathways. These can help, both in generating locally rooted forms of innovation and in ensuring that the benefits of all forms of innovation are more widely shared.
“An emphasis on direction, distribution and diversity is at the centre of a new 3D agenda for innovation”
Examples abound of the crucial roles played by social movements, ranging from the origins of global industries like windpower to their crucial roles in urban sanitation, slum improvement, alleviating energy poverty and securing access to affordable medicines and healthcare.

While such bottom-up, distributed initiatives do not present panaceas, far more serious attention to these kinds of innovation—including at the highest levels of policy—are required in order to address the challenges of social justice and environmental sustainability.

Likewise, innovative organisational arrangements and technological innovations. For example, in community-led approaches to ‘total’ sanitation, the focus is no longer the ‘art’ of latrine-building. Rather, an innovative participatory process leads to diverse local solutions that combine social arrangements and technological innovations. Likewise, innovative organisational arrangements can connect technological innovations in new ways. For instance, the Honey Bee Network in India links a broader movement of grassroots entrepreneurs—innovators of a vast range of technologies from palm tree climbing equipment, to bicycle-powered washing machines—to an institutionalised form of open source information sharing. This allows people across India—and indeed the world—to gain access to, and build on, product development and marketing support.

However, an argument for diversity does not mean that ‘anything goes’. In plural societies there will always remain irreconcilable interests, perspectives, priorities—and choices. As we have said, our own aim is very specifically to promote the particular directions for innovation that most effectively meet the needs of the poorest women and men. This requires a much more deliberate focus on the politics of technological diversity. Informed by inclusive social appraisal, political debate must critically examine how different innovation pathways do or don’t fit together. In the energy sector for example, there needs to be a hard look at which low carbon options are compatible and where there are limits and trade-offs. Diverse small-scale renewables and gas turbines integrated into locally-distributed electricity systems can work well together to reduce carbon emissions. This can also be achieved using diverse large-scale nuclear, carbon capture and storage, hydroelectric and centralised renewable technologies. But these two different kinds of diverse portfolios do not dovetail with one another so easily. The question is: which diversity? Just like the earlier examples of choices between individual innovation pathways, so too does society face major choices between alternative portfolios of innovation pathways.

DIVERSITY

“In many sectors, protecting creative experimentation in diverse niches ... allows for new markets and innovation pathways to emerge.”

To take direction and distribution seriously means recognising the importance—and deliberately pursuing—a diversity of innovation pathways. It is only in this way that we can resist the processes of concentration and lock-in that, as noted above, close down the directions taken by innovation pathways and crowd out the paths favoured by more marginal groups. Likewise, attention to diversity enables sensitivity to varied ecological and economic contexts and disparate cultural settings. And designing policies that deliberately enhance diversity provides a crucial means to foster resilience—hedging against our uncertainty and ignorance about the future. For example, in approaches to crop development in Africa, actively enhancing agro-biodiversity with multiple crop types and varieties responds to varied agronomic and social contexts, as well as offsetting uncertainties linked to global markets and climate change.

In many different sectors, protecting creative experimentation in diverse niches—involving different combinations of users, businesses and applications—allows for new markets and innovation pathways to emerge. Many features of mainstream ‘sustainable housing’, for instance, have arisen out of just these kinds of diverse niches, initially supported and protected on the margins. On-going links between experimental niches and the housing industry continue to foster learning and innovation, showing how diversity can breed diversity.

Fostering diversity also means paying attention to the social and organisational—as well as technical—dimensions of innovation. For example, in community-led approaches to ‘total’ sanitation, the focus is no longer the technical challenge of latrine-building. Rather, an innovative participatory process leads to diverse local solutions that combine social arrangements and technological innovations. Likewise, innovative organisational arrangements can connect technological innovations in new ways. For instance, the Honey Bee Network in India links a broader movement of grassroots entrepreneurs—inventors of a vast

“Fostering diversity means paying attention to the social and organisational—as well as technical—dimensions of innovation”

The politics of technological diversity thus bring us back to questions of direction and distribution: focusing on which diverse portfolios—and which particular options within them—present the best ways to address imperatives and uncertainties of poverty alleviation, social justice and environmental sustainability.
A Vision for Innovation

ARISING FROM THE 3D AGENDA, WHAT IS OUR VISION FOR SCIENCE, TECHNOLOGY AND INNOVATION FOR DEVELOPMENT IN THE FUTURE?

Our vision is a world where science and technology work more directly for social justice, poverty alleviation and the environment. This requires innovation which is transformative — reshaping social and power relations to allow innovation in new directions. It means challenging the dominance of pathways driven simply by private profit and military aims. It means innovation for sustainability, paying attention to ecological integrity and diverse environmental and social values. It means that the benefits of innovation are widely and equitably shared, and not captured by narrow, powerful interests. It means encouraging open and plural forms of innovation pathway — social and technical; high tech and low tech; those which are currently hidden, as well as those which are more commonly recognised. It means organising innovation in ways that are networked, distributed and inclusive, involving diverse people and groups, including those who are poor and marginalised. And it means going beyond the technical elites in large international, state and commercial organisations to support and harness the energy, creativity and ingenuity of users, workers, consumers, citizens, activists, farmers and small businesses. As a result, this is a world where all feasible directions for scientific, technological and wider social innovation are discussed as matters for legitimate political argument, just as in other areas of public policy. It is no longer credible for politicians and business leaders to assert their own favoured directions for innovation as being somehow uniquely ‘science based’, ‘pro-innovation’, ‘pro-development’ or ‘pro-technology’ — as if there were no equally-valid alternatives. It is a world where scepticism over some particular innovation pathway can no more be excluded as indiscriminately ‘anti-innovation’ than opposition to any specific policy is generally ‘anti-policy’. In this way — whether locally, nationally or internationally — science, technology and innovation for development are shaped, designed and regulated through inclusive, democratic and accountable processes. It is a world where a deliberate diversity of innovation pathways flourish and interact. There are many worldwide who share — and strive for — this kind of vision. The crucial question is: how can such a world be realised?

"Our vision is a world where science and technology work more directly for social justice, poverty alleviation and the environment"
Areas for Action

Our recommendations are organised around the different areas for action identified at the beginning of this Manifesto: agenda setting; funding; capacity building; organising; monitoring, evaluation and accountability. Each set of actions addresses contrasting dimensions of innovation systems. They are therefore targeted towards different people and organisations who bear responsibility in each of these areas.

AGENDA SETTING

The setting of agendas for science, technology and innovation policy and investment needs to be informed by an explicitly political consideration of innovation direction, distribution and diversity. The institutional architectures for the setting of innovation priorities at national and international levels therefore need reworking to enable diverse interests and new voices, including those of poorer and marginalised people, to be involved in inclusive debate. In some countries and settings this will involve building on existing institutional arrangements; in others it will require establishing new fora.

Within countries, we recommend that governments establish and support ‘Strategic Innovation Fora’. Whatever they are called, these statutory bodies should be mandated to review funding allocations, debate major investment decisions, deliberate on controversial areas of science and technology options and audit the innovation pathways. These fora should also be inclusive: constituted by — and bringing together — diverse stakeholders with interests in science and technology futures, including citizens’ groups and social movements representing the most marginalised interests. These fora would address both public and pri-
Capacity building for science, technology and innovation must move beyond a focus on elite science and so-called 'centres of excellence' to support science that works more directly for diverse social and environmental needs. As a vital complement to training scientists and technology experts, this means extending the scope of capacity building to other players in the innovation system, including local entrepreneurs, citizen groups, small businesses and others. A key challenge in improving innovation processes is linking between groups, and facilitating inclusion of otherwise excluded people.

We therefore urge an extension of capacity-building support towards 'bridging professionals' who are able to link technical expertise with particular social, ecological and economic contexts. We additionally recommend capacity building investments focused on enhancing the ability of citizens and users to engage actively in innovation processes, not just as passive recipients but as active users, creators and inventors. We recommend

The funding of science, technology and innovation – whether from public, private or philanthropic sources – needs to be geared much more strongly to the challenges of poverty alleviation, social justice and environmental sustainability. This requires that the needs and demands of poorer and marginalised women and men as potential users of technologies, as well as the outcomes of innovation, are addressed in funding allocations.

We recommend therefore that all science and technology funding agencies (individually or collectively), regularly review their portfolios to ensure that a significant and increasing proportion of their investments are directly focused on these challenges. Such agencies should also progressively improve the balance in investments across basic science, technology, engineering, design and science services. They should demonstrate a shift towards increasing support for the social, cultural and economic dimensions of innovation systems. Transparent accounts linked to these criteria should be produced and made available to public scrutiny, including by relevant Strategic Innovation Fora.

In order to encourage diversity in innovation pathways, we recommend specific funding allocations to support experimentation in niches, and networking and learning across these, involving the private sector, community groups and individual entrepreneurs. In order to help democritise the process of innovation we recommend that procedures are established directly to involve end users of science and technology – including poorer and marginalised people – in the allocation of funding. And we recommend that incentives for the private sector to invest in forms of innovation geared to poverty alleviation, environmental sustainability and social justice – such as advance purchase agreements, technology prizes or tax breaks – are enhanced. Achievements of this kind should be more deliberately recognised and widely publicised: nationally, regionally and globally.

FUNDING

The funding of science, technology and innovation – whether from public, private or philanthropic sources – needs to be geared much more strongly to the challenges of poverty alleviation, social justice and environmental sustainability. This requires that the needs and demands of poorer and marginalised women and men as potential users of technologies, as well as the outcomes of innovation, are addressed in funding allocations.

We recommend therefore that all science and technology funding agencies (individually or collectively), regularly review their portfolios to ensure that a significant and increasing proportion of their investments are directly focused on these challenges. Such agencies should also progressively improve the balance in investments across basic science, technology, engineering, design and science services. They should demonstrate a shift towards increasing support for the social, cultural and economic dimensions of innovation systems. Transparent accounts linked to these criteria should be produced and made available to public scrutiny, including by relevant Strategic Innovation Fora.

In order to encourage diversity in innovation pathways, we recommend specific funding allocations to support experimentation in niches, and networking and learning across these, involving the private sector, community groups and individual entrepreneurs. In order to help democritise the process of innovation we recommend that procedures are established directly to involve end users of science and technology – including poorer and marginalised people – in the allocation of funding. And we recommend that incentives for the private sector to invest in forms of innovation geared to poverty alleviation, environmental sustainability and social justice – such as advance purchase agreements, technology prizes or tax breaks – are enhanced. Achievements of this kind should be more deliberately recognised and widely publicised: nationally, regionally and globally.
also the support of civil society networks and social movements to facilitate the sharing of technologies, practices and wider experiences and learning. Capacity support should further enable such groups to engage with national and international political debates about science, technology and innovation—for instance through memberships of Strategic Innovation Fora and the Global Innovation Commission.

This, in turn, will involve investment in new priorities for training, including key reforms to tertiary, further and higher education in the area of science, technology and development. These will require new institutions (or refashioned old ones) that actively link science and technology to located needs and demands, and the building of new learning platforms, virtual and face-to-face. They will also include greater provision for local community engagement in tertiary, further and higher education as well as wiki spaces for innovation support of a kind that enable more inclusive, networked and distributed forms of innovation.

**ORGANISING**

Organising for innovation requires identifying and supporting social and institutional arrangements that enable technologies to work in particular contexts, and to meet the needs of poorer and marginalised women and men. We recommend that firms, public and philanthropic organisations developing specific technological innovations invest in concrete plans to ensure that these social, cultural and institutional aspects of application are addressed. Further, local experiences with these organisational aspects of innovation need to be shared and learned from more widely. This requires an open, distributed and networked approach, with active investment in linkages between public, private and civil society groups.

We therefore recommend that future investments—by the public and private sectors—should especially highlight bridging functions, connecting formerly separate organisations and linking upstream and downstream research and development activity. While in many cases, new organisations will not be required, strategic investment in facilitating and coordinating bodies may be needed. Such bodies must be complemented by support for local organisations, networks and movements, and the ability for informal, lateral sharing of innovation. Overall, investment should extend its focus from basic science, to emphasise other aspects of the innovation system, including engineering, design, science services, and social entrepreneurship. Further, we recommend that support be increased for open source innovation platforms, with limits placed on narrowly-defined property-based systems which impede competition and constrain innovative activity.

We propose that at national level, and led by Strategic Innovation Fora, a broad framework for science and innovation policy is developed which puts poverty alleviation, social justice and environmental sustainability at its core. The legal underpinnings, regulatory rules and investment priorities that emerge from such a policy must explicitly reflect such priorities, and be overseen, reviewed and audited in a transparent and accountable way.

**INNOVATION AS ACCOUNTABILITY**

Increased accountability and full transparency must be at the centre of democratised innovation systems—across public and private sectors and at local, national and international levels. This requires active engagement by citizens in priority setting, monitoring and evaluating innovation activities.

We recommend that in all countries benchmark criteria, relating to the priorities of poverty alleviation, social justice and environmental sustainability, are set and so become the basis of indicators for monitoring innovation systems. At the international level, overseen by the Global Innovation Commission, similar criteria should be established for monitoring and annual reporting. Further, we recommend the improvement of data collection systems and methodologies, switching the focus from indicators such as publications, patents and aggregate levels of expenditure, to assessments of the wider development outcomes of innovation efforts. All organisations—whether government departments, philanthropic foundations, non-government organisations and private sector firms registered in a particular country—investing in research and development above a certain amount should be required to report on expenditures in relation to these criteria. Such data should be freely available and open to public scrutiny.

Finally, we propose that the Strategic Innovation Fora (or similar bodies), should have a statutory obligation to report publicly both to national parliaments and the Global Innovation Commission on a regular basis concerning innovation direction, distribution and diversity, presenting full data from all research and development organisations.

No single prescriptive set of actions can be sufficient, or universally appropriate, to fulfil the vision pursued in this Manifesto. Success will necessarily involve diverse contributions from different people and places. It will require shifts in power relations, culture, and values, as well as institutions, procedures and practices, amongst many people and groups worldwide. The potential value of actions like those identified here is their capacity to help catalyse and enable this new politics; harnessing the energy, creativity and commitment of marginalised groups, small business and civil society—as well as existing organised innovation systems. Only in such ways may the promise of more diverse and equally-distributed directions for innovation be fully realised.
Final word

WHAT IS NEEDED IS NOTHING SHORT OF A VIGOROUS NEW CRITICAL GLOBAL POLITICS OF INNOVATION. AS MUCH AS OTHER AREAS OF PUBLIC LIFE, THE DIRECTIONS TAKEN BY INNOVATION ARE A MATTER FOR LEGITIMATE DEMOCRATIC ENGAGEMENT AND CHALLENGE. THISRequires FUNDAMENTAL REDISTRIBUTIONS OF ATTENTION, RESOURCES AND POWER. THE RESULT WILL BE A FLOURISHING OF A MORE VIBRANT AND CREATIVE DIVERSITY OF PATHWAYS – SCIENTIFIC, TECHNOLOGICAL, ORGANISATIONAL AND SOCIAL. IT IS ONLY IN SUCH WAYS THAT HUMAN INGENUITY MAY TRULY RISE TO THE IMPERATIVES OF POVERTY ALLEVIATION, SOCIAL JUSTICE AND ENVIRONMENTAL SUSTAINABILITY.

Detailed examples and multimedia on the New Manifesto website http://anewmanifesto.org/

STEPS Centre publications are published under a Creative Commons Attribution – Non-Commercial – No Derivative Works 3.0 UK: England & Wales Licence. (http://creativecommons.org/licenses/by-nc-nd/3.0/legalcode)

Attribution: You must attribute the work in the manner specified by the author or licensor.

Non-commercial: You may not use this work for commercial purposes.

No Derivative Works: You may not alter, transfer, or build on this work.

Users are welcome to copy, distribute, display, translate or perform this work without written permission subject to the conditions set out in the Creative Commons licence. For any reuse or distribution, you must make clear to others the licence terms of this work. If you use the work, we ask that you reference the STEPS Centre website (www.steps-centre.org) and send a copy of the work or a link to its use online to the following address for our archive: STEPS Centre, University of Sussex, Brighton BN1 9RE, UK or by email to steps-centre@ids.ac.uk