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Policies to Support Inclusive Innovation

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Policies to Support Inclusive Innovation

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Abstract

Innovation can help fight inequality and social exclusion. But, at present, there are too many barriers to this form of "inclusive innovation". New government policies are essential to reduce these barriers and new measures are needed to drive inclusive innovation forward. These must encourage formal innovation systems to focus on the poor; help low-income actors to adapt, diffuse and use innovations; and work to address structural roadblocks. In addition, new policy worldviews, processes and structures are required. This paper outlines a systemic approach that explains the rationale, objectives, goals, instruments and governance which will help governments support the expansion of inclusive innovation.

A. Inclusive Innovation and Policy

A1. Why Inclusive Innovation?

What is inclusive innovation, and why should policy makers care about it?

Inclusive innovation is the means by which new goods and services are developed for and by marginal groups (the poor, women, the disabled, ethnic minorities, etc). The subject is of increasing interest as nations look to use innovations to bring about more inclusive and equitable development: improving the income, wellbeing and livelihoods of those outside the mainstream of economic growth; particularly those on lowest incomes, who form the main focus in this paper.

Prompted by the recent financial crisis but reflecting longer-term trends, there are increasing concerns about inequality. Developing countries are seeing a disconnect, with steady overall growth masking economic and social stasis for large numbers at the margins (Chataway et al. 2014). Evidence is mounting that this growing inequality is not just morally unfair but also socially damaging (reducing cohesion, increasing conflict) and economically damaging (constraining both consumption and investment) (Stiglitz 2012, Wilkinson & Pickett 2010).

Innovation is seen as a principal driver of economic growth, leading to a view of innovation that centres on large-scale technical transformation of nations (Dosi et al. 1988). However, this type of innovation has supported the economic core not the periphery, and has fostered inequality and exclusion. This innovation has assisted large, formal firms not informal microenterprise; has developed goods and services for rich not poor consumers; and has supported industrial economic development while innovation for wider societal problems has been neglected (OECD 2013).

More inclusive development thus entails more inclusive innovation; a broadening of innovation to encompass the marginalised. In turn, this requires a broadening of policy beyond its traditional core innovation interests (Lundvall et al. 2009). This will include 'horizontal' expansion to bring in sectors that matter most to the marginalised like health and education and small-scale agriculture, and a 'vertical' expansion to bring in innovators, entrepreneurs and consumers at the base of the economic pyramid (Joseph et al. 2011, Lorentzen & Mohamed 2009, OECD 2013)

Thus this paper is both timely and important for policy makers because it shows the policy connection between innovation and inclusion: both issues of growing concern in development. Recognition of this connection is already seen in practice given inclusive innovation policies developed in India, Thailand and China, with South Africa, Colombia and Indonesia also participating in the OECD initiative on policy for inclusive innovation (Heeks et al. 2013, OECD 2013).

A2. Justifying Policy for Inclusive Innovation

This section justifies why active public policy for inclusive innovation is needed by demonstrating a clear rationale for intervention. Inclusive innovation is likely to closely link into activity and strategies led by the private sector as a driver of inclusive innovation, thus it is crucial that the role of policy is clearly articulated.

This work follows 'systems' approaches to understanding innovation, which provide a way of thinking about innovation as a dynamic set of market and non-market actors, innovation and linkages under an institutional setting (Freeman 1995, Nelson & Rosenberg 1993). Within a systems approach, the state's policy-making role is to complement, build and support market mechanisms within innovation systems. A rationale for policy intervention thus needs to satisfy three criteria (Chaminade & Edquist 2010):

- First, that market mechanisms do not presently achieve the innovation goals envisaged.
- Second, that the innovation goals will not be achieved through market adjustment mechanisms alone (or will take a long time).
- Thirdly, that the state has the capabilities to make an appropriate intervention.

This section covers the first two of these criteria. First, four clear limitations present in inclusive innovation are outlined based upon the existing literature. Second, these are then linked into five clear areas of 'innovation system failure' around inclusive innovation which the market alone will fail to rectify. The third point above links to the need for sound *policy governance* in the area of inclusive innovation, which will be outlined in a later section.

Indicators of Inclusive Innovation Failure

What signs are there that the current systems of innovation are not delivering effective inclusive innovation?

Development Failure: not enough inclusive innovations developed. High-profile examples of innovations that benefit marginalised groups are the exception, not the rule. Innovation systems are not producing the new goods and services that are required to address economic, social and even political development for those on lowest incomes (Juma & Yee-Cheong 2005).

Design Failure: current innovations mismatch the needs or context of marginalised groups. Closely related to the previous indicator, where innovations are being produced, they often fail to address the situational specifics of poor consumers. This arises with innovations developed for other geographic or income markets which are assumed also appropriate for marginal groups (Anderson & Billou 2007, London 2009). And it arises with innovations specifically intended for these groups, which suffer from "design-reality gaps" between in-built expectations vs. consumer realities. There may be one-size-fits-all assumptions which homogenise "the poor" as a single group, and fail to recognise the diversity and specificity of base-of-the-pyramid markets (Nakata & Weidner 2012).

Diffusion Failure: potential inclusive innovations do not scale. Even where innovations can be designed and developed for excluded groups, they often "fail to launch", with an inability to diffuse and/or to scale up. These problems have affected large firms struggling to distribute new goods/services to low-income groups (Anderson et al. 2010), and also informal sector entrepreneurs whose innovations remain restricted to their immediate locale (Daniels n.d.).

Use Failure: innovations are not used effectively to bring impact. Innovations that do reach marginalised groups frequently have a sub-optimal development impact because they are not used effectively. This encompasses use for a limited period of time, use in ways which are inefficient, emergence of unanticipated negative impacts, and full or partial breakdown of products or services (e.g. Dercon & Christiaensen 2007, Donner & Escobari 2010).

Causes of Innovation System Failures

The indicators identified above show that there is a problem, and set a context for possible policy intervention. But beyond these "symptoms", what are the underlying causes? Foundational ideas see innovation systems failing – and requiring interventions – because they cannot transition to new modes of operation; because they are insufficiently diverse; because they lack linkages between formal and informal; because of a lack of capabilities especially among informal actors; and because historic institutions and structures favour traditional 'exclusive' innovation (Bergek et al. 2007, Chaminade & Edquist 2010, den Hertog 2010).

Drawing on these ideas we can identify five main causes of failure which provide a rationale for policy intervention, and which can be flipped round to create the objectives for policy (see below):

1) **Formal innovators focus insufficiently on the poor**: firms, large R&D labs, universities, etc are typically attuned to industrial innovation for richer consumers and global markets. They lack information about the marginal markets at the base-of-the-pyramid; they see such markets as uncertain and risky; and they thus lack incentives to innovate for marginal groups. They therefore tend to stick to their familiar markets at the economic core (e.g. Vijayaraghavan & Dutz 2012).

2) **Informal actors are delinked from innovation systems**: peripheral locations are full of inventors and adapters but their marginality means they are cut off from formal institutions. They lack inputs of new ideas, capital, skills; and their own innovations cannot feed into broader circuits of support which could help to develop and diffuse those innovations (Cozzens & Sutz 2012).

3) **Those serving peripheral markets have weak adaptive capacity**: successful scaling of innovations to marginalised groups requires a whole series of adaptations (Foster & Heeks 2013b). These are not just adaptations to the core good or service but also to the whole chain of production, distribution, retail, support. Such adaptations typically take place within the communities of low-income consumers. But at present, the capacity to adapt is weak.

4) **Low-income users lack capability to use innovations effectively**: ineffective use of innovations at the margins arises partly due to poor design and adaptation. But it also derives from the lack of capability (knowledge, skills, attitudes) among low-income consumers.

5) **Underlying policies and context are weak or absent**: like all innovation, inclusive innovation requires a supportive sub-structure; a context of institutions (including markets and policies) and organisations. Poor recognition of the importance of inclusive innovation means this sub-structure is often not yet in place (Foster & Heeks 2013a).

B. Policy Framework for Inclusive Innovation

In the previous section, key indicators and causes of failure in innovation systems were identified. These now serve as a basis for building a core policy framework for inclusive innovation. The policy framework is split into a number of elements. Because inclusive innovation is a new area of policy making, it first requires a new *policy worldview* among policy makers as a precursor to appropriate policy.

With this precursor in place, the rationale from the previous section leads to a group of overarching *policy objectives*. For policy makers these provide a set of core directions in order to

spur inclusive innovation more coherently. Drawing on empirical literature, specific *policy goals and instruments* are outlined to identify for policy makers some of the practical tools that have been used to achieve these objectives. Finally, policy making must also have an appropriate context of *policy governance*: the processes and structures that are necessary for policy to be effective.

B1. Policy Worldview

The goals, actors and processes of inclusive innovation are different from those for traditional innovation (Foster & Heeks 2013a). Beyond mere awareness of these differences, policy makers must adopt a different innovation worldview if they are to produce policies for inclusive innovation. We do not reprise full details of the differences here, but highlight the key tenets that will be part of this modification of worldviews.

Inclusive innovation has a ***different focus***; on marginal groups and social inclusion, not just profits and core economic growth. This links to new types of demand: limited, poorly-articulated, atomised, heterogeneous. In such markets, innovation takes in ***wider processes***, including more than technical invention of new solutions. Innovation often links to business models or adaptation of innovations to meet social needs and improvement in diffusion processes. Thus, there is a need to consider the whole lifecycle of invention, innovation, diffusion and use within policy, including how actors in the system learn.

This interest in wider processes exposes ***new constraints*** around inclusive innovation that – as shown in the previous section – will not solely rely on supply-side activity as a source of innovation; and which see traditional R&D processes as often ill-suited for inclusive innovation agendas. Inclusive innovation systems include a set of ***new actors and relations*** often poorly-understood by policy makers. We see a more central role for informal and grassroots innovators, new formal innovators such as small and medium enterprises plus multinationals from the global South, and connections made via new North-South, South-South, and within-country inclusive innovation intermediaries.

Acceptance of a new worldview can be a long-term, incremental process of change. But this can be accelerated by actions from the international development agencies to raise the profile of inclusive innovation on the development agenda; through work by universities and consultancies that act as thought leaders; and via training workshops and other capacity building. This will include building a stronger evidence base to support policy making for inclusive innovation, building case studies that highlight the value of inclusive innovation, and commissioning harder economic and social data to support discussions of the importance of inclusive innovation at a political level.

B2. Policy Objectives

Innovation systems are path dependent, tending to follow the previous interactions and actors of the nation, sector or region. Thus policy for inclusive innovation must be strategic and transformative, pushing systems out of the straitjacket of existing prescriptions (Soete et al. 2009).

In line with this, a set of core policy objectives for inclusive innovation is constructed, drawing on the policy rationale outlined previously (and on Utz & Dahlman 2007). These objectives create a

clear target for inclusive innovation on which policy makers can focus, while providing flexibility in terms of specific policy goals and instruments, depending on particular context and priorities:

1) Orient Formal Innovation Systems Towards the Poor

Formal actors require policy support in order to improve their focus on more marginal groups within their innovation priorities and practices. This relates to specific policy support that orientates actors and reduces market risk to encourage more inclusive innovation (such as supporting global partnerships and local innovative research). Further, policy makers can look to specifically structure markets to support existing formal innovators, helping systems transition to a more inclusive role.

2) Promote Grassroots Innovators

Grassroots innovators – individuals, groups, informal businesses – are already undertaking small-scale innovation and have key knowledge of marginal settings. Policy needs to support and amplify these knowledge flows to support inclusive innovations that have hitherto been underplayed. Given the often marginal nature of these actors, policy can play a key role in encouraging and selecting innovations as well as building networks, to provide voice and link between local activity that is already innovative and larger firms to support better flow of innovations. Intermediaries are also likely to be a key linking actor between grassroots innovation and formal actors; translating, absorbing and serving as key diffusers of innovation, so policy additionally needs to support these actors. Such policies hence look to improve system weaknesses in networks and linkages within inclusive innovation systems.

3) Improve Absorptive Capacity of Low-Income Groups

Key innovators, informal sector actors and entrepreneurs need to be supported in building skills to absorb and adapt innovations – whether from top-down or bottom-up sources – that meet the diverse needs of marginalised groups. In addition, provision of support for complementarities can build ecosystems of low-income actors which can support ongoing learning and adaptations. Such policies help to enhance system diversity and appropriation within innovation systems.

4) Drive More Effective Use of Innovations among Low-Income Groups

Policy can support use of innovations within marginal communities. It can guide and highlight good practices and help expand impact of innovations as they diffuse. Key here are policy approaches that support markets on the demand side, pushing more affordable and expansive use of innovations within low-income communities. Wider intervention and support (such as through NGOs, CBOs and informal sector business development agencies) can be used to build the skills and knowledge necessary for effective use of innovations. Such policies help to rectify failures around capabilities of innovation users within systems.

5) Reduce Structural Barriers to Inclusive Innovation

Policy and institutions can themselves become a limitation in inclusive innovation. A key objective is to remove economic, social or spatial barriers that might prevent or limit the potential for inclusive innovations, actors and learning. This particularly relates to policy barriers, but also government rules and norms that exclude low-income actors not just from innovation specifically but also more broadly from economic and social activity. Thus policy attention in this area may run quite deep and wide, to encompass foundational economic and social policies and institutions since these create the context for inclusive innovation.

B3. Specific Policy Content

Dependent on context, location and needs, these policy objectives will be implemented through a set of appropriate policy instruments. While coherent inclusive innovation policy is still in its infancy, a great number of instruments have already been identified that can form part of inclusive innovation policy. These are outlined below linking back into the previous policy objectives.

Policy Objective	Policy Goals	Policy Instruments
1) Orient formal innovation systems towards the poor	New partnerships for inclusive innovation	• Donor funding for 'big' inclusive innovations • International partnerships and consortia tackling key inclusive innovations (e.g. medicine, vaccines, educational, etc) • Support public-private partnerships to develop inclusive innovations
	Support for translational and service delivery R&D	• Research and experiments around potential for local commercialisation of innovations for marginalised groups (e.g. state support for piloting, prototyping) • Research to support new business models or process innovation development (e.g. inclusive innovation funds) • Government procurement of innovative services for the poor • Recognise and promote innovation within social inclusion and social development policy
	Market incentives for inclusive innovation	• Market interventions to shape more inclusive action (e.g. universal service funds in mobile, tax relief on housing loans for low-income groups) • Embed inclusive innovation through market structures (e.g. roll-out requirements in mobile licensing) • Risk sharing
	Build new links into low-income groups	• Government promotion of new market entrants (e.g. financial subsidy, capacity support for national BoP-focused firms) • Support information flows about needs of marginalised groups (e.g. funded market research by inclusive innovation intermediaries) • Trade policies to encourage import of goods/services relevant to marginalised groups
	Support core institutional environment for inclusive innovation systems	• IPR regimes that allow innovative firms to protect their rights within markets • Competition policy and reduction in bureaucracy to push firms to expand into low-income markets • Support infrastructure for low-income groups, to improve availability of core inclusive elements (e.g. electricity, ICT, transportation) • Enterprise entrance and exit policy which supports all innovation systems actors in market
2) Promote grassroots innovation	Link informal sector into innovation systems	• Support linkages of informal sector actors to formal sector (e.g. network events, fairs, reports to amplify awareness of informal innovation) • Link and standardise informal activity through state marketing, quality and export skill development
	Incentives for grassroots innovation	• Raise non-economic incentives (e.g. competitions, awards) • Government procurement of innovative goods/services from MSMEs

	Nurture diffusive capacity of innovative local networks to support flows of local knowledge and innovations	• Incentivise transfer of grassroots innovations (e.g. local innovation databases, community knowledge) • Promote scaling of innovations (e.g. funds to support organisation and networks of grassroots innovators) • Improve IPR regimes to support grassroots innovation (e.g. defensive mechanisms, experimental IPR incentives to stimulate knowledge sharing)
	Support growth of intermediaries as key diffusive actors	• Sectoral support for intermediary networks (e.g. agricultural extension) • Capacity-building actions for inclusive innovation intermediaries • Loans and financial intervention to support intermediaries
3) Improve absorptive capacity of low-income groups	Build capacity of informal sector	• Finance and related mechanisms to support informal actors undertaking innovation (e.g. risk-based finance, moving beyond MFIs) • Business development support for informal sector actors • Capacity building of informal sector as part of technology upgrading programmes • Support local informal innovators and creative capacities (e.g. rural cluster support)
	Support complementarities in technologies and inputs within informal sector	• Cluster identification and support for informal sector agglomerations • Support for new models of innovative development (e.g. ICT-based hubs, centres)
4) Drive more effective use of innovations among low-income groups	Promote use of new innovations among low-income groups	• Integrate innovations into government delivery (e.g. embedding ICT in government services) • Accelerate affordability by supporting partnerships in key innovative sectors • Adopt demand-side policies specifically focussed on pushing low-income use through affordability of innovations (e.g. tax exemption for specific inclusive innovations)
	Improve capacity of low-income groups	• Support NGO/CBO use of innovation within interventions • Use social inclusion policy to build empowerment and capabilities • Identify complementary inputs required for effective use of key inputs • Technical training and advice for low-income groups/enterprises
5) Reduce structural barriers to inclusive innovation	Remove disincentives in policy to inclusive innovation	• Adapt specific policies with large firm bias (e.g. agriculture, biofuels regulations) • Adapt policy that may disincentivise local knowledge building (e.g. modulating agriculture modernisation against local knowledge/crops) • Adapt government specifications of standards to embed inclusivity
	Remove barriers in government to supporting informal sector development	• Alter government sourcing rules which exclude MSMEs from participation

B4. Policy Governance

For inclusive innovation to be encouraged, more than changed worldviews and new policy content are needed. Policy makers must also consider both the processes and structures through which policy is made, implemented and maintained.

Policy Lifecycle Processes

***Analysis*:** Policy objectives and goals must be specific to each individual context. The foundation for policy must therefore be a specific analysis of current actors and relations, strengths and weaknesses including indicators and causes of failures to achieve inclusive innovation. This could be seen as an inclusivity audit or simply a SWOT analysis. Sectorally, readiness surveys can also provide insight into the steps that policy needs to concentrate on and these might be usefully applied via an "Inclusive Innovation Readiness" appraisal.

***Planning and formulation*:** Given the goal of policy to be inclusive of marginal groups, planning processes can benefit from incorporating more participatory components in order to better understand policy needs, content and impacts. This might particularly focus on understanding the structural barriers around policy for inclusive innovation that have been outlined previously.

***Implementation*:** Inclusive innovation policy is in part aimed at informal, low-income actors. There is evidence that such policies can often be dissipated, avoided or appropriated, rendering policy instruments that seem useful less powerful or even powerless on the ground (Foster & Heeks 2013a). It is therefore important to take a localised, 'front-line' perspective on innovation. This should clearly define the institutions that will be implementing policy, ensure they have sufficient human and technical capacities, and also identify the incentives that will align local behaviour with policy intentions.

***Monitoring and evaluation*:** Tracking and understanding the progress of inclusive innovation policies requires metrics for evaluation of success/failure. Present metrics fail to encompass inclusive innovation. Thus, work around benchmarking and micro-innovation surveys will be needed to guide policy M&E (Heeks et al. 2013, World Bank 2010). Because policy for inclusive innovation may move governments into uncertain territory, it is also important there be mechanisms to enable learning and incremental adjustment to policy.

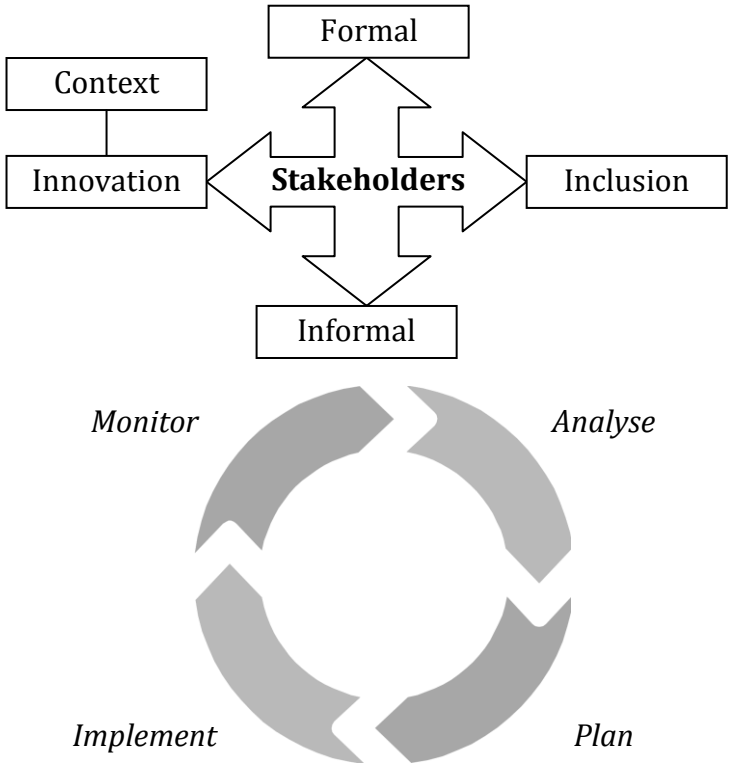
Policy Structure

Innovation policy is traditionally the domain of a single actor; typically a Ministry of Science and Technology. While such Ministries will be key actors in policy for inclusive innovation, responsibilities stretch much further. In simple terms, inclusive innovation requires not just insertion of inclusion into innovation policy but also insertion of innovation into inclusion policy; thus drawing in social development ministries such as Health, Education, Social Affairs, Housing and Water. But the importance of indirect policies in creating the context for inclusive innovation means Ministries of Business, Trade & Industry, and Agriculture will also be involved.

This has two implications. First, the need for a matrix-based understanding and allocation of responsibilities, filling in the type of skeleton shown below.

Policy Actors	Policy Responsibilities
Innovation Policy (e.g. Ministry of Science & Technology)	• Modify existing innovation policy to expand remit of formal innovators • Supplement with innovation policy focusing on grassroots innovators and inclusive innovation intermediaries
Inclusion Policy (e.g. Ministries of Health, Education, Social Affairs, etc)	• Recognise role of innovation within deliver of social development and inclusion goals • Incorporate innovation incentives and initiatives within policy
Contextual Policy (e.g. Ministries of Finance, Business, Trade & Industry, etc)	• Test impact of policies on inclusive innovation actors and processes
Other Policy (e.g. other line ministries)	• Amend procurement policies to encourage inclusive innovation • Develop in-house inclusive innovation policies

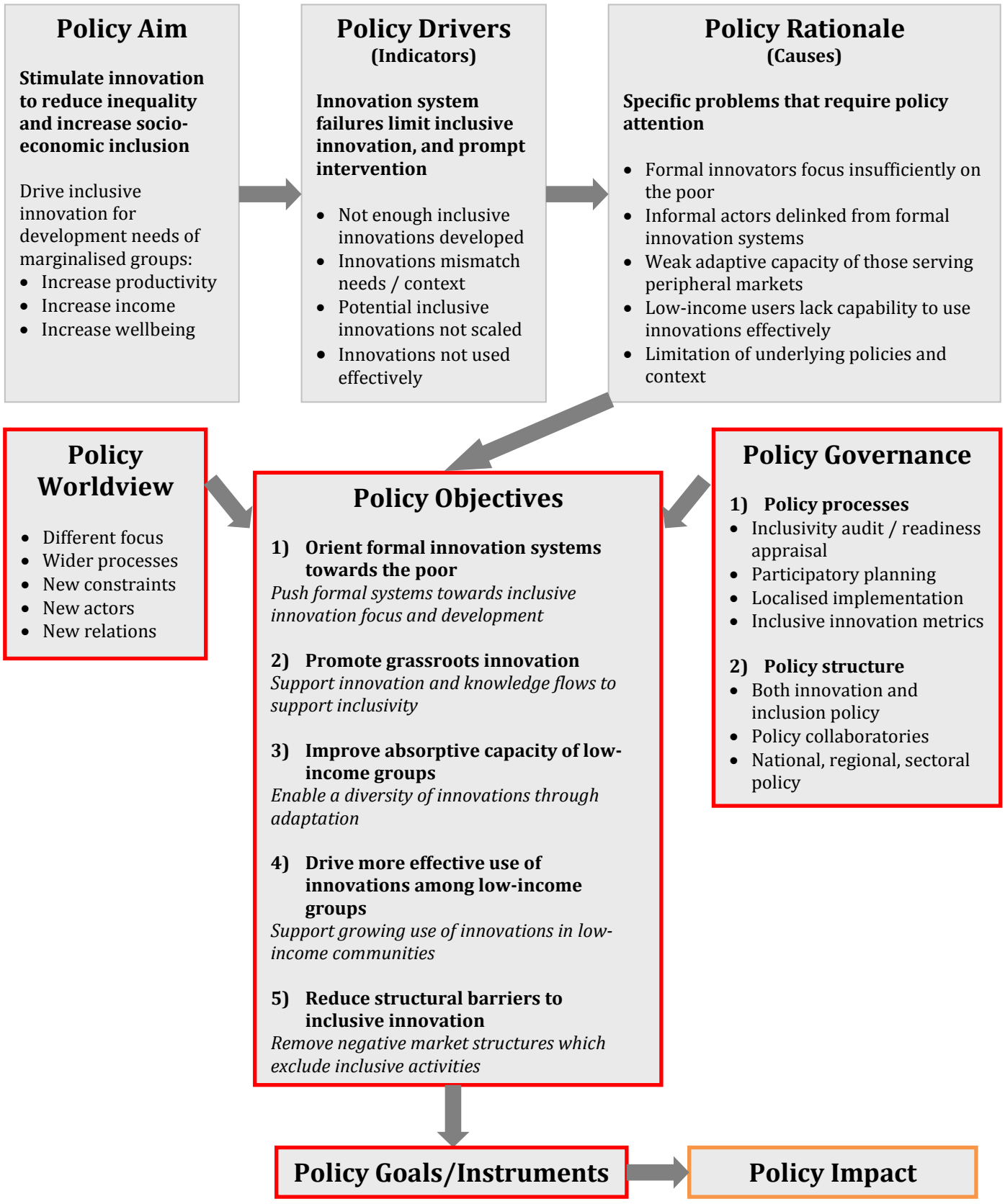
Second, the need for creation of "Inclusive Innovation Policy Collaboratories", summarised graphically below. These will perform a dual bridging role, drawing in horizontally policy actors from both innovation and inclusion (and context); and drawing in vertically those connected with both formal and informal sectors. They should also adopt an experimental and iterative approach to policy, allowing the incremental learning and policy revision noted above.



A national focus for inclusive innovation policy may be most effective in driving macro-level inclusion. But the complexity of institutions involved and the value of proximity to the grassroots suggests that a narrower policy focus should also be considered. This could be localised by geography (e.g. for particular regions or for cities via urban innovation policy) or by sector. For example, there are instances of inclusive innovation policy in agriculture and in ICT, where a range of policy instruments is under the purview of a single ministry making it easier to drive forward and control.

C. Summary

The diagram below provides an overview summary of policy background and recommendations provided in this paper.



However, it must be acknowledged that we are still at a formative stage in policy for inclusive innovation, and much remains to be explored. This leaves a set of knowledge gaps and thus a research agenda as summarised below:

Key Knowledge Gaps / Research Priorities around Policy for Inclusive Innovation

- (Failure) In-depth identification of the indicators and causes of inclusive innovation failure.
- (Rationale) Systematic conceptualisation of the failures that justify the need for inclusive innovation policy.
- (Innovation) Deeper understanding of the origins, trajectories, and external/internal factors that shape inclusive innovation (George et al. 2012).
- (Objectives/goals) Context-specific methods for identifying appropriate objectives and goals for nations, regions, sectors.
- (Governance) Analysis of the political economy of inclusive innovation policy, and guidance on how to prevent elite capture of such policies (Altenburg 2009).
- (Governance) Analysis of what level – national, regional, sectoral – will provide the most sustainable basis for lasting innovation policy.
- (Metrics) Development and testing of metrics for inclusive innovation policy including inclusive innovation readiness index; benchmarking of inclusive innovation and its impacts; and benchmarking of inclusive innovation policy making and implementation (Heeks et al. 2013) (given that official innovation definitions/metrics (e.g. Oslo manual) and definition of innovation in developing countries (Gault 2010, World Bank 2010) fit poorly with inclusive definitions).
- (Impact) Tracing through the impact of inclusive innovation policies.

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