THEMATIC NOTE 4

Codesigning Innovations: How Can Research Engage with Multiple Stakeholders?

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SYNOPSIS

Codesign aims at achieving better articulation between research supply and user-driven demand for problem-solving. It implies that researchers engage systematically with multiple stakeholders in the iterative, adaptive, flexible, and nonlinear process of developing innovations. Core codesign principles include: (1) joint planning, implementation, and decision making related to activities aiming to foster innovation and (2) close coordination among stakeholders at the strategic and operational levels, combining scientific, technical, and local knowledge and other resources. Codesign may be implemented at any scale, depending on the nature of the problem, the innovation being developed, and the types of stakeholder involved. Investing in codesign approaches implies covering the costs of coordination, facilitation, and collective action inherent to working collaboratively at all stages of the codesign process. Investment is also needed to build capacity required by different stakeholders, including researchers.

BACKGROUND AND CONTEXT

Research is not necessary for innovation to take place, but often research is an important part of an innovation process. Innovations usually result from a process of networking and interactive learning among a heterogeneous set of actors, which may include farmers, input suppliers, traders, processors, researchers, NGOs, and government officials. Many research organizations and researchers in developing countries have some experience in research collaboration with other public sector professionals and with farmers (often within the framework of competitive research grants), yet they generally lack the more wide-ranging exposure, related skills, and attitudes to engage effectively in collaborative research with more diverse public and private stakeholders. Individual researchers and research systems need to change and expand the scope of their research, methodologies, and core skills.

Since the 1990s, "new" research approaches have emerged and been consolidated to ensure that researchers interact and collaborate effectively with users in identifying and producing the knowledge and innovations to respond to a rapidly changing local, national, or international environment, be it biophysical or socioeconomic. These codesign approaches include well-tested and documented "branded" approaches (table 4.5; boxes 4.20 and 4.21). Each "brand" has its specificities but also borrows more or less explicitly from related approaches, so the boundaries between approaches are blurred.

"Codesign" is a generic term referring to any approach by which researchers contribute explicitly to developing innovations together with other stakeholders (or users) at all or most stages of the innovation process by making use of four underlying principles (adapted from Liu 1997):

1. The processes of producing knowledge and solving users' problems have equal strategic importance and run concurrently during codesign.
2. All stakeholders involved have the right and a fair opportunity to take part in all stages of the codesign process. Research does not have an inherently stronger input than other stakeholders have. Researchers do not necessarily lead or even initiate the process.
3. Goals, objectives, ethical values, and the way that they are effectively translated into approaches, governance, operating structures, and activities are subject to explicit initial and periodic negotiations and formal agreements.
4. Periodic reflection on the progress achieved and the consistency of the approach in relation to the stated goals is integral and essential to an effective codesign process.

Table 4.5 Key Approaches or Brands Fitting under the Codesign Umbrella

Approach	Key references	Key features and focus	Examples
Participatory technology or innovation development (PTD/PID)	Veldhuizen, Waters-Bayer, and de Zeeuw (1997); Sanginga et al. (2008)	Systematized steps and methods to develop production or natural resource management innovations, with a strong focus on local people, knowledge, and resources	PROLINNOVA program (www.prolinnova.net)
Participatory action-learning and action-research (PAR)	Liu (1997); Almekinders, Beukema, and Tromp (2009); Hocdé et al. (2009); Faure et al. (2010)	Negotiating common goals and setups, combining production of knowledge and problem-solving	ASOSID (box 4.20)[b]
Participatory market chain approach	Bernet et al. (2006, 2008)	Add value by creating interactions and coordination among stakeholders along an existing or new value chain	Papa Andina Box 4.21
Companion modeling (ComMod)[a]	Bousquet, Trébuil, and Cerf (2005); Béguin and Cerf (2009)	Combining and representing different types of knowledge and exploring scenarios for collective action in natural resource management	New irrigation arrangements in northern Thailand

Source: Author.

a. See http://cormas.cirad.fr/ComMod/en/index.htm.

b. Asociación para la Agricultura Sostenible en base a Siembra Directa (Association for Sustainable Agriculture Based on Direct Seeding).

In codesign, the concurrent and explicit application of these four principles contrasts strongly with more conventional R&D and other so-called participatory or collaborative approaches, even though the latter may appear to share some characteristics of codesign.

While this module treats general issues related to the role of research in AIS, this TN focuses on how research may engage in AIS *in practice,* drawing from recent experience with codesign approaches to improve agricultural productivity, develop market chains, and manage natural resources in developing countries.

INVESTMENT NEEDED

Ideally, codesign approaches should be applied only when the context, the problems to be solved, and the stakeholders are well suited to such approaches (table 4.6). Usually the circumstances are right when one or several of the following conditions are met:

- Concerned stakeholders face changes in their socioeconomic or biophysical environment, or problems that typically cannot be solved by one of them alone, because of the complexity and/or scale involved. Examples include managing a dwindling common natural resource or adjusting to new policies or to changes in how markets function.
- A shared understanding of the problems and their solutions can be reached.
- Current scientific and technical knowledge and predesigned solutions to address the issues at hand are inadequate or inaccessible.
- At least some of the concerned stakeholders have prior experience with the skills necessary for the negotiation, facilitation, and coordination of multistakeholder efforts.
- Codesign requires a positive, open attitude, motivation, and sufficient degrees of freedom among individuals and institutions toward multistakeholder collaboration. This condition implies, among other things, that stakeholders can recognize the legitimacy of all other stakeholders in being part of the process, an incentive structure compatible with codesign exists, and participants have the ability to operate outside the established rules and paradigms within each institution.

Conducting an effective codesign innovation process typically involves organizing three main interlinked and overlapping phases: (1) exploratory phase, (2) implementation phase, and (3) a dissemination and exit phase. Investing heavily in capacity-building of all stakeholders involved, with regard to specific thematic issues as well as the principles and approach of codesign, will be necessary (Triomphe and Hocdé 2010). Box 4.19 summarizes the associated costs and investments.

Exploratory phase

Three goals may be pursued: (1) diagnosing the situation faced by stakeholders; (2) identifying and characterizing concerned stakeholders, their demands, and needs; and (3) negotiating the overall goals of the codesign process and the related institutional and operational mechanisms and arrangements, all of which influence the effective implementation of codesign activities during the next phase.

Table 4.6 Examples of Problems, Corresponding Potential Innovations, and Key Potential Components of a Codesign Approach Adapted to Address Those Problems

Types of problems or issues	Types of innovations	Examples of components of an adapted codesign approach
– Reducing costs or increasing profitability of cropping or farming systems, making farming more environmentally friendly	– New cropping or farming systems – New arrangements and institutions	– Joint experimentation – Creation of multistakeholder alliances and platforms – Multiscale networking
– Unequal access to irrigation among different types of farmers in a given watershed – Conflicts for common resource use (such as pastureland)	– New irrigation or grazing techniques – New rules or institutions at community watershed level	– Joint experimentation – Role-playing games – Participatory and simulation modeling
– Reducing deforestation – Managing erosion and natural resources (such as biodiversity)	– New farming systems – New land uses and new policies and/or regulations for land use	– Territorial multistakeholder committees – Participatory land use and policy planning – Creation of multistakeholder alliances, platforms, and similar mechanisms
– Responding to farmers' and consumers' needs related to crop and food quality	– New germplasm	– Participatory plant breeding – Geographical indications
– Limited access of poor farmers to high-value markets	– Infrastructure development – New food processing techniques – Farmer organization for marketing	– Approaches for pro-poor market chain innovation (such as development of geographical indications) – Supply chain coordination – Public-private partnerships

Source: Author.

Box 4.19 Costs and Investments Associated with Codesign

Codesign approaches require that proper funding (or cofunding) be made available for a number of specific expenses, especially:

1. Holding all necessary initial negotiations among concerned stakeholders: travel and meetings.
2. Enlisting researchers from several disciplines (biophysical and social sciences), as required.
3. Ensuring sufficient staff involvement from key stakeholders, and funding the time of those who are not in a position to support themselves.
4. Expenses related to the proper functioning of multistakeholder coordination instruments and mechanisms, such as multistakeholder platforms, steering committees, and facilitation costs, without forgetting the funding needed for corresponding communications strategies.
5. Resources to hire a full-time or at least part-time facilitator or innovation broker (these resources might be especially critical).
6. A multifaceted capacity-building program directed at strengthening the capacities and skills of each and every stakeholder on a variety of topics over the duration of the codesign process.
7. The establishment and implementation of a formal, rigorous, and participatory monitoring and evaluation system, which is necessary to provide feedback to guide the direction and content of the codesign process.
8. Sufficient funding should be made available to document the codesign process and its major outcomes in diverse media, from classical scientific and technical publications to videos, Internet-based products, and policy briefs. There should be as many formats and products as types of stakeholders involved or concerned by the problem.

Other costs typically associated with a codesign approach may not differ much from the costs of other approaches: the cost of running a multisite, on-farm experimentation scheme, costs of a large-scale dissemination strategy, costs of specific research activities, and so forth. It may be possible to share some of the costs among the partners, and as encouraging results are generated, it may be possible to leverage further investment.

Source: Triomphe and Hocdé 2010.

The perspective and perceptions of each stakeholder about problems and opportunities need to be brought shared, understood, and recognized by others as legitimate so that suitable solutions may be identified collectively. Diverse *diagnostic methods* can be used to achieve an accurate collective representation of the situation; they usually involve developing some sort of a conceptual model (or simplified representation) of the problem, as proposed in the ARDI method (actors, resources, dynamics, interaction) described in Etienne (2005).

In *characterizing stakeholders,* the key is to understand the actual motivation and goals of each stakeholder, its history and trajectory, its strengths and weaknesses, its actual political clout, and its past and current interactions with other stakeholders. Specific methods and tools have been developed to elicit this understanding, such as stakeholder mapping or the analysis of sociotechnical networks.

Intense *negotiations* in bilateral and multilateral arenas are needed to identify the mutually acceptable overall goals and objectives of the codesign process. Negotiations also revolve around identifying and agreeing on the roles and functions of each stakeholder and on the resources that each must commit or find. Negotiations need to come up with effective mechanisms for managing the codesign process during implementation at the strategic/governance and operational levels, such as steering and implementation committees. *At the strategic level,* goals and objectives need to be reassessed dynamically and adjustments made periodically to refocus the collective energies and to solve any tensions or conflicts, which frequently arise during multiple stakeholder endeavors. *At the operational level,* a key concern is effective implementation and dealing successfully with technical, logistical, and financial issues. Who is selected to represent the various stakeholders in these committees will greatly influence their eventual effectiveness.

Implementation phase

All activities are conducted in effective multistakeholder fashion, and the implementation is expected to reflect the overall goals, governance, and operational mechanisms established as an output of the exploratory phase. Joint experimentation and participatory M&E are two important activities occurring in this phase.

In *joint experimentation*, the nature of the experimentation depends on the types of innovations sought:

- When new cropping or farming systems are being designed, *agronomic trials* codesigned by farmers, researchers, and extension agents are often conducted. These same trials support field visits and hands-on training during which stakeholders may be invited to share their experiences and assess the results.
- When the goal is pro-poor market chain innovation, the implementation phase will usually involve *developing and testing new products*, or *finding safe paths* for small-scale farmers to enter high-value markets. This work involves not only technical research and innovation (to develop both pre- and postharvest technology) but also economic and organizational innovation (for example, to test the viability of new products or organize stakeholders more effectively along the value chain).
- Successful technical and commercial innovation often requires *changes in organizations and institutional arrangements.* Institutional innovation may require experimentation with new coordination or collective-action mechanisms, such as a new farmer organization in charge of collecting products for subsequent joint marketing.

In a codesign approach, *participatory M&E* focuses on outputs, the process itself, and on providing the elements needed to assess the continued relevance of the goals and the methods used to solve the problems identified during the exploratory phase. Participatory M&E thus provides strategic inputs for guiding and dynamically adjusting the overall codesign process.

Dissemination and exit phase

An important task is to conclude the codesign process in a way that will lead to sustained and scaled-up application of the innovations developed or enable the process to be used for other issues, in other settings. A priority is to document and take stock collectively of what was achieved, both the expected and unexpected outcomes. The outcomes can take many forms; examples include innovations of different types, new knowledge, individual and collective learning, strengthened capacities, and new institutional norms and behaviors. In this phase, some activities also aim at sharing some of the results as well as scaling them up or out. Successful codesign processes often pave the way for launching activities or programs pursuing one or more of the following goals:

- Consolidating and expanding the use of pilot innovations to achieve more significant and sustainable impacts (scaling up).
- Tackling new problems in the same area, with the same stakeholder group.

- Expanding the codesign/innovation process to new areas and new stakeholder groups, or institutionalizing the corresponding approaches within existing or new institutions.

At times, a codesign approach may also need to be terminated before a satisfactory outcome has been achieved, because conditions for continuing are no longer favorable. Some stakeholders might not wish to collaborate further; they may view the costs and time as too high or too uncertain. What is important under such circumstances is to minimize the potential long-term damage that an unmanaged failure (usually in the form of a conflict or crisis) might cause to future collaboration.

For examples of codesign processes in Mexico and the Andean Region, see boxes 4.20 and 4.21.

Box 4.20 Applying Codesign for Conservation Agriculture in Central Mexico

How it started: identifying a common problem and a potential solution. In early 2000, a small group of international researchers met with representatives from the private sector and the government of Guanajuato State in Central Mexico. They discussed the opportunities and challenges of a joint effort to develop and diffuse conservation agriculture in the Bajío (lowland) region, where a crisis in environmental sustainability was underway. Thousands of mechanized smallholders produced high-yielding cereals (wheat, barley, maize, and sorghum) in the Bajío using large amounts of fertilizer and irrigation water. Production costs had soared, making the profitability of grain production uncertain. Competition for scarce irrigation water was increasingly fierce. Conservation agriculture, internationally heralded for its potential to reduce costs and save water, was seen as a relevant solution. Conservation agriculture had been successfully tested for years in the region, but residual technical problems and poor coordination among stakeholders prevented its significant adoption.

Launching the codesign process. Researchers did not add to the pile of experiments showing the potential or drawbacks of conservation agriculture. Nor did they develop a participatory scheme to fine-tune and test even more locally adapted conservation agriculture with a handful of farmers. Instead, research broke away from well-established paradigms. A flurry of negotiations followed with key local or national stakeholders in the Bajío, including farmer-managed local and regional water associations, the state extension agency, high-level policy makers from the state government, the private sector (input providers, no-till equipment manufacturers), national research, and funding agencies. A major objective was to establish a means of coordinating and implementing a multifaceted conservation agriculture program in the Bajío. It soon became apparent that such a program would be complex, involving numerous diagnostic activities, trials and demonstrations, the introduction of new equipment, training of technicians and farmers, and monitoring and evaluation, among other activities. In 2002, all stakeholders agreed that the rather informal coordination started in 2000 had to make way for a more formal one in the shape of a nonprofit association, ASOSID AC.[a] The key stakeholders were the founding members of ASOSID, which became the recognized agency for implementing the program.

The role of research and the results obtained. Throughout the process, research played key roles. Unusually, it was a major innovation champion in the initial stages, assuming the role of innovation broker by enrolling key stakeholders and tirelessly negotiating (bilaterally, multilaterally) the common objectives and approach. At the same time, it produced technical, economic, and social knowledge about the situation, developed new cropping systems in close collaboration with farmer innovators, and helped shape the enabling environment to establish ASOSID. It strengthened stakeholders' capacity—an investment that continues. Aside from the creation of ASOSID (a major institutional innovation), key results included the increasingly wide adoption of conservation agriculture and related water-saving techniques. The capacity and reach of farmers' local and regional water-user associations expanded. The associations decided to venture beyond their original mandate to manage irrigation water and gradually got involved in advisory services and alternative crop marketing. Although it has gone through several stages, ASOSID is at work ten years later, long after international research ceased to be a major force in its agenda and activities.

Source: Author, based on Triomphe, Hocdé, and Chia 2006 and www.asosid.com.
a. Asociación para la Agricultura Sostenible en base a Siembra Directa (Association for Sustainable Agriculture Based on Direct Seeding).

Box 4.21 Features of Papa Andina's Partnership Programs

Papa Andina is a regional partnership funded by the Swiss Agency for Development and Cooperation and other donors. It involves the International Potato Center (CIP) and national agricultural research organizations in Bolivia, Ecuador, and Peru. Since its inception in 1998, Papa Andina has shifted its focus from implementing a regional research agenda to developing a regional learning agenda and strengthening national capacities for innovation.

Organizational interface. Papa Andina's participatory market chain approach (PMCA) features facilitated, face-to-face meetings that involve diverse market chain actors, researchers, and other agricultural service providers in exploring options for market chain innovation. The facilitating R&D organization then conducts or arranges for R&D on specific innovations. A project team based at CIP (with external funding) has continued to facilitate interactions between researchers, market actors, and decision makers at various policy levels (in theory this task should eventually pass to the market actors). This group sees itself as an innovation broker and plays a lead role in a Learning Alliance that has been established to promote exchanges among different groups working on market chain innovation and development in Peru. Full-time facilitators and innovation brokers reduce some of the transaction costs and coordination issues related to partnerships and networks. Financial sustainability beyond donor funding remains controversial and problematic for Papa Andina, both in CIP and in national research organizations.

Outcomes. PMCA and stakeholder platforms have achieved higher prices for native products, increased farmers' revenues, developed more stable markets for producers of native potatoes (partly through successful branding and marketing), and increased farmer's self-esteem. In Bolivia, new potato products sold to supermarkets enable farmers to receive 30–40 percent higher prices than they received in traditional markets. The innovation network in Ecuador (Plataforma) enabled farmers to raise yields by 33 percent, improve input-output ratios by 20 percent, and increase gross margins per hectare fourfold.[a]

New products and markets. Other key outcomes include the creation of a new brand of high-quality fresh potatoes for the wholesale market, a new native potato chip product and brand, and the first brand of high-quality native potatoes to be marketed in Peruvian supermarkets. Technological innovations improved pest and disease management and the selection of harvested produce. A national platform, CAPAC-Peru,[b] was established to promote the marketing of quality potato products and innovation, in which local actors are gradually taking more responsibility as their capacity and trust increases. CAPAC helped organize small-scale farmers to supply potatoes meeting the more demanding market requirements. When a multinational entered the market, Papa Andina began to work on corporate social responsibility to balance corporate interests with the interests of community suppliers and the environment. Other indirect results include the popularization of native potatoes in Peru's urban cuisine and the establishment of Peru's annual National Potato Day, which caused the United Nations to declare 2008 the International Year of the Potato.

Key lessons

- Approaches such as PMCA require substantial time and resources for capacity development if they are to strengthen linkages between researchers, economic actors, and policy makers.
- Traditional evaluation approaches based on objectives and logical frameworks do not work for innovation processes and innovation brokers' performance. The processes and tasks involved are too complex and results often take some time to be apparent.
- A pro-poor focus is vital to market chain approaches and innovation networks, which run the risk of benefiting those who are better able to take advantage of new market opportunities and innovations. In Peru, native potato varieties have evolved from "poor peoples' food" to a source of national pride, and the main beneficiaries have been the smallholders from the high Andes who preserved and grew them over thousands of years.

Source: Devaux et al. 2009, 2010; Horton et al. 2010; author.
a. Impact statistics from Cavatassi et al. 2009. (b) CAPC = Cadenas Productivas Agrícolas de Calidad en el Perú (Quality Agricultural Productivity Chains in Peru).

POTENTIAL BENEFITS

Benefits of codesign are diverse and depend greatly on the specific goals of each codesign experience. Generally speaking, benefits include a mix of:

- More suitable and diverse innovations that are more appropriate, easier to adopt, and developed more rapidly than innovations generated through conventional approaches.
- Involved stakeholders, whose individual and collective capacities for action, research, and problem-solving are strengthened. If attention has been duly paid to the weakest stakeholders, their technical, social, and at times political endeavors may be empowered.
- Institutions develop better routines and capacities to implement their respective missions and goals, owing to their involvement in codesign.
- New institutional arrangements allowing better coordination and synergies among stakeholders.
- A virtuous, sustainable circle through which, at the end of the codesign process, the various stakeholders are more willing and able to keep innovating as needs or opportunities arise. In short, a greater capacity for stakeholders to take their destiny into their own hands.

For research, experience and skills in applying codesign approaches can result in several additional benefits, such as a greater ability to work in an interdisciplinary fashion and to think systemically. The approach helps to renew and open the research agenda and to reduce the typical divide between research and societal needs.

POLICY ISSUES

Strengthening the capacities of stakeholders involved in codesign is an essential part of the process and improves their ability to interact with each other and with their institutional and socioeconomic environment. Such interactions allow the visions and concerns of a specific stakeholder group to become visible and legitimate to other stakeholders, and hence may eventually influence the scope and nature of the innovations being developed, the distribution of benefits among stakeholders, and other outcomes.

Practitioners must be prepared to deal with the strong ethical and political dimensions of codesign processes. Large power asymmetries can prevail among stakeholders. Codesign processes frequently deal with or uncover conflictive situations. The process can have different consequences for different stakeholders' livelihoods or their respective places and influence in the institutional and political landscape. In some cases, codesign empowers the weakest stakeholders, but empowerment is not automatic; it may be necessary to overcome tensions arising from the resistance and inertia of traditionally powerful stakeholders.

Codesign may affect the strategic positioning of research and its role in the innovation landscape. Research may decide it is legitimate to go beyond its traditional role as a producer of neutral knowledge and invest explicitly in such areas as innovation brokering or documenting stakeholders' positions and rationales in conflicts over resource management.

Public research organizations may also need to become better acquainted with innovation development initiatives and modes of collaboration led by private stakeholders, who often exhibit more responsiveness than public stakeholders to emerging opportunities and who possess the skills and tools to deal with consumers and markets. On the other hand, research may play a vital role in innovation programs by ensuring that public goods are identified, produced, and protected and that political agendas and concerns relating to sustainability, poverty reduction, and equity are duly reflected in the collaboration.

LESSONS LEARNED

Experiences with codesign show that efforts to innovate are most successful when they tackle innovation in its broad sense and diverse dimensions, including technological, organizational, and institutional dimensions. In ASOSID and Papa Andina, innovations ranged from production techniques (new pest management techniques) to new institutions. A narrow focus on predefined solutions is not likely to yield effective innovation.

By necessity, codesign is a highly iterative, dynamic approach. The unfolding of an actual innovation process is by nature highly iterative and dynamic. It typically involves overlapping and interlinked phases and activities, including participatory identification of demands and problems, stakeholder mapping and enrollment, the development of rules and modalities for collective action, joint experimentation on different innovative solutions, capacity building, participatory monitoring and evaluation, joint learning among stakeholders, and the sharing and dissemination of results and outcomes among stakeholders.

Codesign is really a set of guiding principles. It is not a blueprint or a ready-built, standard approach, method, or

toolbox that can be implemented "as is." Codesign is only one of many possible and complementary approaches that researchers may need and decide to use, after having thought carefully about its justifications, advantages, intrinsic complexities, and the limits of what it can or cannot contribute.

Innovations may be codesigned on a small to large scale, depending on the issue at hand and the stakeholders involved. While most experience with the approach has been gained at a local or limited scales (in problems affecting a few communities at a time, for example), proponents of codesign now tend to work at multiple scales and/or involve institutions, supply chains, and networks operating at a regional, national, or even international scale.

Codesign requires strong bottom-up, participatory processes shaped by interactions among key individuals ("champions") acting autonomously rather than along existing hierarchical and institutional channels and routines.

Different stakeholders need to be involved. As noted, each stakeholder has a unique legitimacy, role, knowledge base, and contribution to the codesign process, depending on its own stake in the outcome, demands, desires, needs, and previous experience, capacities, and skills in relation to the specific issues and objectives being addressed. For their part, end-users of innovations need to be given a fair opportunity to play a central role throughout the innovation process. Mapping and analyzing stakeholders is an effective way to increase the chances that a codesign approach will be realistic as well as successful.

Demonstrable, early progress with tangible (visible) innovations is important for keeping stakeholders motivated and actively engaged throughout the codesign process. It also increases their sense of ownership.

There are no theoretical limitations to the types and number of stakeholders that can or should be involved. In practical terms, however, the ability to effectively coordinate multiple stakeholders and maintain "reasonable" transaction costs can reach a limit. An important lesson for process management is to keep stakeholders' involvement as flexible and dynamic as possible, with stakeholders entering or exiting the process, or becoming more or less active, depending on the phase of the codesign process.

Stakeholder coordination needs to be formalized, however, via specific instruments (such as steering committees and multistakeholder platforms) to allow joint strategic decision making and effective joint implementation of activities.

Approaches for codesigning innovations still represent a novel field of investment, requiring investments in developing new roles and new methods. To increase the chances that researchers and their organizations will be successful in such endeavors, they need to critically assess the roles they usually play in an innovation process and take appropriate steps to develop new roles and skills that may be needed, such as skills in facilitation, negotiation, building and nurturing partnerships, understanding power relationships and how to deal with them, and reflection. They also need new conceptual frameworks and tools for assessing problems; understanding the diversity of stakeholders' objectives, perceptions, and criteria; exploring new scenarios and innovations effectively and ex ante; and assessing impact in its tangible and intangible dimensions.

Allow flexibility with project proposals. Donors need to adapt their guidelines for acceptable proposals to co-design approaches. Donors usually require clear proposals and funding plans that outline several years of activities, with detailed explanations of what, where, when, and how activities will occur and at what cost. In contrast, when funding "true" codesign approaches, donors should allow the maximum level of flexibility by those submitting proposals. This flexibility includes giving proper consideration to conducting a true exploratory phase (whose outcome, by definition, cannot be known beforehand), allowing a significant margin of freedom for plans and budgets to be developed and adjusted as and when needed, and allocating sufficient funding for the typically significant transaction costs and other specific costs related to operating a codesign approach. Since conditions for an effective codesign process are not always suitable, one outcome of the exploratory phase may be a decision not to engage in codesign after all. Far from being a negative or undesirable outcome, a decision of this kind should be viewed as an excellent way of preventing limited resources from being wasted on a potentially ill-fated process.