

*Key lessons from three pilots
for pro-poor innovation*

BoP Innovation Cycle

The process of innovation to create inclusive business

THREE PILOTS FOR PRO-POOR
INNOVATION CONSORTIUM

Colophon

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3P4PPI

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Nicolas Chevrollier
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preface

Something new that creates impact for and in coordination with the Base of the Pyramid – that’s Inclusive Innovation. A challenging task? Certainly. For the past three years, DSM (a multinational life sciences and materials sciences based company), ICCO (the interchurch organization for development cooperation), and EPN (the Africa based Ecumenical Pharmaceutical Network) have worked together towards the production of a new antibiotic and antimalarial test kit that checks whether medicines contain the correct amount of active ingredients. SimGas B.V., a small enterprise providing affordable biogas systems for households in (sub)tropical regions, the Dutch Organisation for Applied Scientific Research (TNO) and SNV have created and piloted an electricity socket that allows BoP consumer with biogas digesters to produce electricity in their homes in Tanzania and Bangladesh. Mueller B.V., a leading company in cooling technology, with the support of LEI Wageningen University & Research Centre, have developed a small scale solar powered dairy cooling unit for the Ethiopian market. The Fruit Republic, Fresh Studio and the BoP innovation center have established a new line of business to sell safe vegetables produced by small holder farmers to main cities in Vietnam. These ventures were created within the programme “3 Pilots for Pro-Poor Innovation” (3P4PPI) and while there may still some debate on whether innovation can help to solve development challenges, the main question now is ‘how’, not ‘why’.

Can we manage inclusive innovation? With companies, international organisations and NGOs all embarking on creating new business opportunities in BoP markets, one of the main challenges is to optimise the outcome of this innovation development. This is also the stage where the biggest misconception about innovation lies, seeing it as the spark of intelligence from a genius that then leads to a transformative product or service. But while creativity and talent certainly feed into the process of innovation, ultimately they are only part of a process that can be managed.

To cope with the high level of uncertainty inherent in inclusive innovation, innovation processes use ‘iteration’, ‘co-creation’, ‘inclusion’, ‘fail early’ as elements of their DNA. By developing services and products in Kenya, Ethiopia, Tanzania, Rwanda, Bangladesh and Vietnam, the Three Pilots for Pro-Poor Innovation (3P4PPI) consortium has been able to test a BoP innovation cycle and use the knowledge acquired to improve it. Of course, it could be argued that the above principles apply to all types of innovation, inclusive or not. In essence that’s true.

However, inclusive innovation differs in terms of the context in which it occurs. In developing countries, innovation structures are far less advanced than in industrialised economies, thus adding complexity. Furthermore, inclusive innovations require hybrid partnerships (for instance businesses with NGOs), implying that partners have to find a common ground of resources, values and processes to work with. Development workers are then faced with the imperative to achieve a radical shift in the DNA of development towards learning – often by failing – via a lean approach.

Ultimately, it is possible to manage inclusive innovations in a rigorous way by creating effective processes, values and resources that increase the impact of these innovations. This also is one of the *raison d’être* for the Three Pilots for Pro-Poor Innovation consortium and the 3P4PPI publication serie that covers topics such as BoP Insights, Developing BoP Partnership, Co-creating BoP ventures and BoP Innovation cycle.

▶ Need to know

Introduction

From 2002 a growing number of companies and NGOs have launched innovative products and services at the Base of the Pyramid (BoP).

The BoP represents the four billion people with an income below USD 4 a day of local purchasing power. Most of them lack proper access to immediate basic needs of food, water, shelter and clothing – let alone sanitation, education and health care – resulting in life-threatening challenges such as chronic malnutrition and health issues. People at the BoP predominantly live in the developing and emerging economies of Asia, Africa and Latin America.

This experience-based review is part of a series of publications. The series covers key challenges for any organisation that wishes to address the most pressing issues experienced at the BoP.

BoP Innovation cycle

The BoP Innovation Cycle represents the iterative phases of the process of developing inclusive product and service innovation.

Inclusive innovation

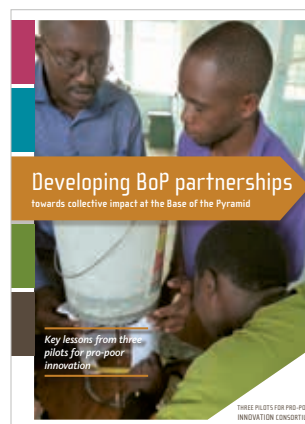
Inclusive innovation is the market-driven development of something new in collaboration with low-income groups in order to achieve shared value.

Phases and dimensions

Developing innovation at the Base of the Pyramid requires a specific approach. The cycle goes from identifying an opportunity to bringing it to scale. Key business dimensions of a BoP venture are developed over the course of each phase.



Previous publications



► Value

Added value of the BoP Innovation Cycle

Private sector partners can provide unique skills, knowledge and resources for developing innovations with the BoP. As not all organisations have the in-house experience or capabilities required for inclusive innovation, there is a general need for a creative multiple stakeholder approach in which each party has a different role to play.

By providing a clear overview of the process, companies can benefit through:

- ▶ Becoming aware of the nature of inclusive innovations.
- ▶ Identifying the role they can play in the innovation process.
- ▶ Assessing their capacity to develop inclusive innovations.
- ▶ Accessing appropriate sources of knowledge and information relevant to innovation in the BoP context.
- ▶ Becoming more effective in developing and implementing inclusive innovation strategies, thus saving time and investment.



Examples of companies using the BoP Innovation cycle



Research & Development (R&D)

The innovation cycle benefits corporate R&D departments with little or no experience in a BoP context because it presents a full overview of the activities to be performed. Progressing through the first phases of the cycle, they translate insights gained from the customer segment into product development requirements. A case in point is Mueller B.V., a Dutch mid-size company with little experience in the BoP context, which took part in the 3P4PPI programme in Ethiopia by following the BoP innovation cycle phases.

SMEs with a presence in the BoP country of operation

The companies involved can also be small enterprises with their headquarters in industrialised economies and with small-scale production facilities or a branch in a BoP context. They can use the BoP innovation cycle to assess their capacity and identify gaps where partners can add value.

Social entrepreneurs

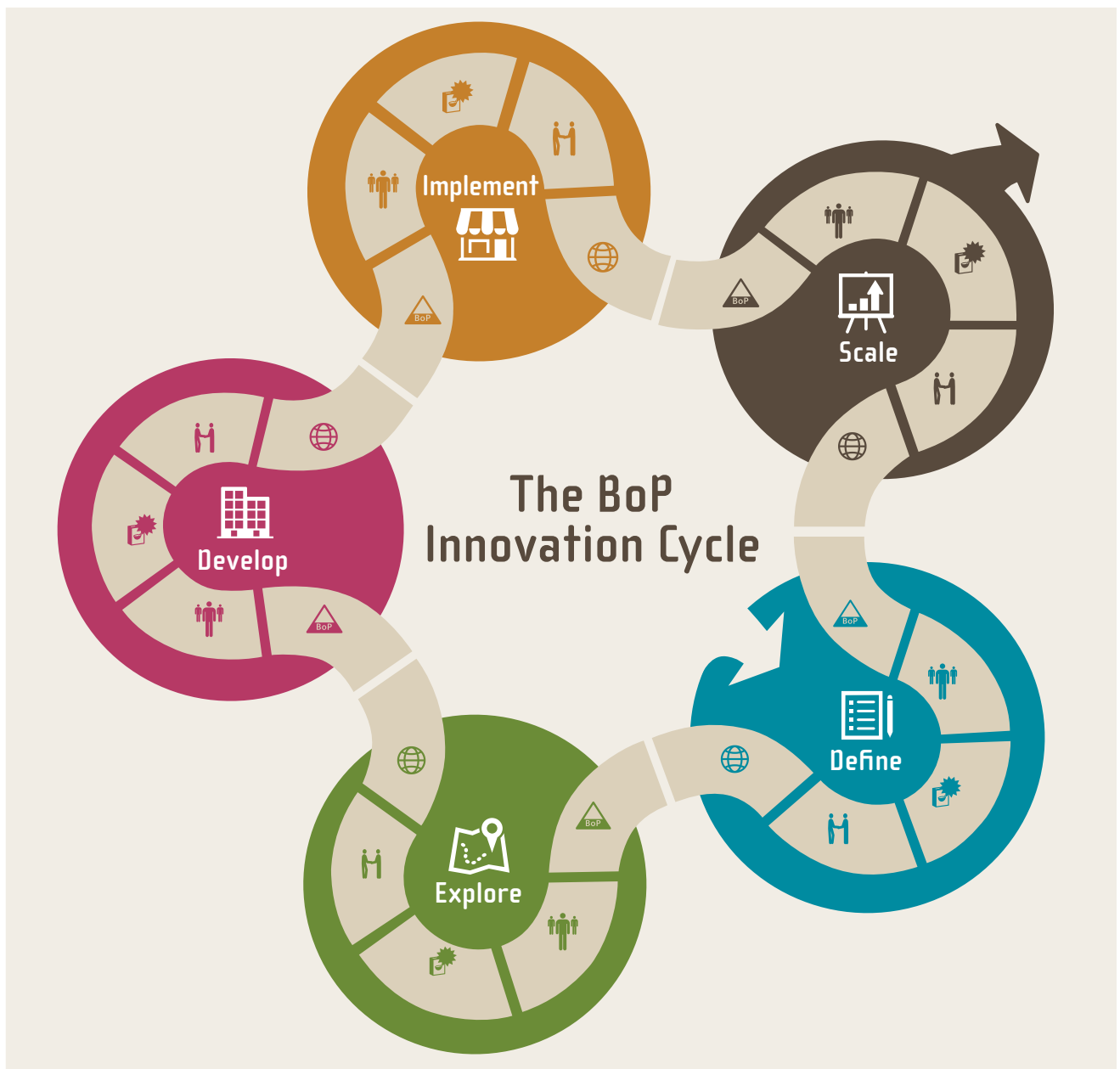
Entrepreneurs seeking to turn their social business ideas into reality often lack capacity and resources to scale their ambitions. These social entrepreneurs take part in identifying opportunities and developing small-scale products or services. In order to scale up their business and create a more significant impact at the BoP they need investments from and partnerships with larger firms.



Inclusive business service providers

BSpace is a consortium of innovation service providers that functions as an inclusive business hub for high-quality inclusive services specifically in Uganda. Using the innovation cycle as a basis, BSpace develops frameworks combining these services into multidisciplinary solutions that serve both companies and the BoP.

► Facts



Define the scope

As inclusive innovation is by definition market driven, this initial phase is crucial for gaining first insights into the needs and demands of the specific BoP segment, and sketch a potential ecosystem in which the innovation could function is defined. To define the scope for the Biogas pilot, SNV identified the need for electricity in rural Rwanda and Bangladesh and TNO researched the technology to power small household appliances with biogas digesters.

Explore opportunities

Deep insights on needs and demands of the customer segment are analysed and translated into multiple ideas and requirements for the products or services. These requirements go through various iterations to explore the product or service specifications in more detail. In the medical test kit pilot, based on DSM-standard procedures and insights from ICCO on criteria related to the BoP context, user requirements were identified and a proof of principle was made to convince potential partners and stakeholders of the product.

Develop a product plan

This phase is characterised by many feedback loops and iterations of field testing and building prototypes, factoring in requirements identified in the previous phase. Inclusion of the BoP, either through co-creation or co-testing, is crucial to the development of a product and business plan that will be accepted and successful. Through field testing of the Mueller milk cooling unit with potential customers that LEI organized input for further development of the cooling system was provided.

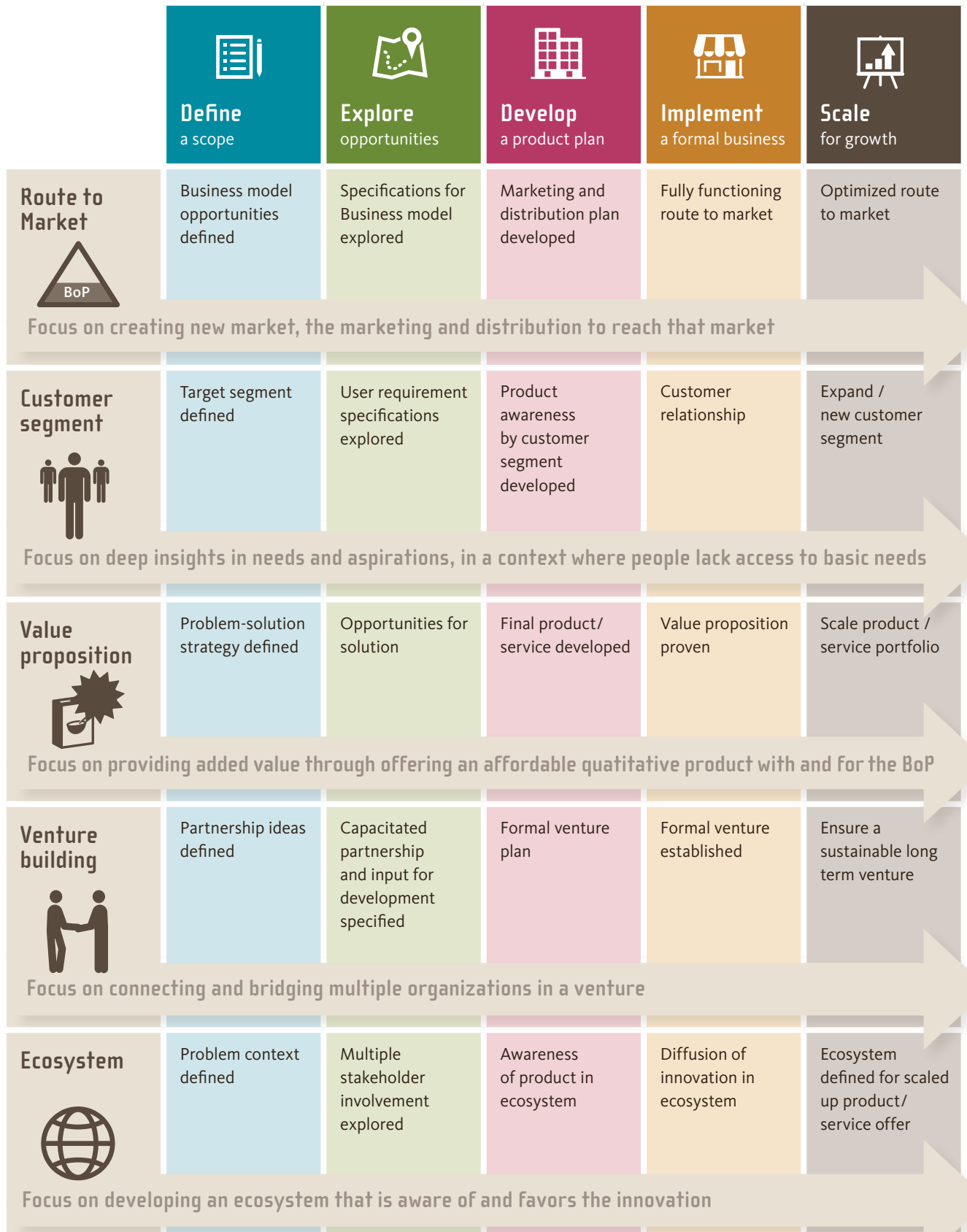
► **Motto**

*'Ideas will only get
you so far...'*

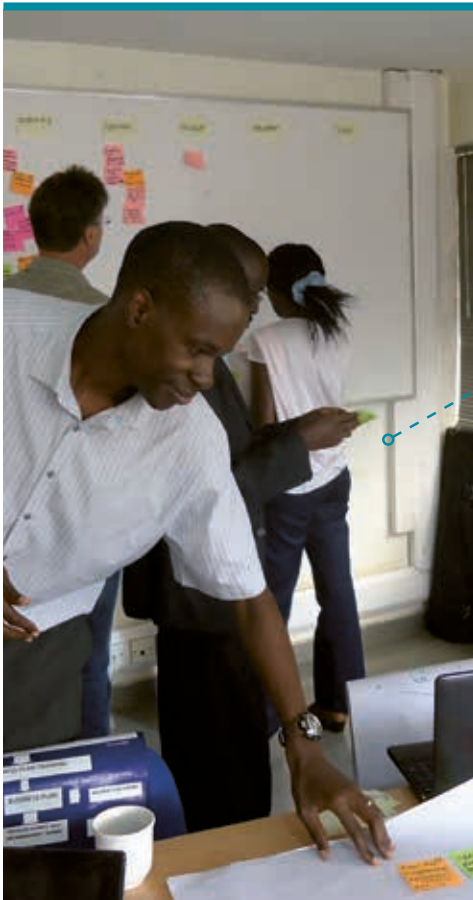
3P4PPI stakeholder workshop, Ethiopia

▶ Process

The BoP Innovation Cycle unwrapped



▶ Portraits



'Define route to market':

Consortium of companies in the energy sector define new distribution system for rural Uganda



'Explore customer demand':

Fresh Studio marketing experts interviewing vegetable buyers in Vietnam



'Develop value proposition':

Prototype testing in household in Tanzania by SimGas B.V.

▶ Lessons learned

Challenges

The inclusive innovation process can be challenging, especially for inexperienced BoP innovators.



Underdeveloped innovation and business ecosystem

One of the challenges in developing inclusive innovation is that the existing innovation and business ecosystem is underdeveloped. In concrete terms, this means that distribution networks need to be created, that state of the art technology resources are not always available from academia, that appropriate finance is not available locally or that the regulatory framework for importing goods is not inviting for new innovation. While none of these are showstoppers for the development of inclusive innovations, identifying innovation and business ecosystem gaps early on is crucial for success.

The unfinished symphony

Given the level of uncertainty in the BoP context, products and services should be co-created to ensure relevance and affordability for the target group. These products and services can be seen as 'unfinished symphonies' (Stuart Hart, Cornell University) which will be completed as you advance through the BoP innovation cycle.



Hybrid and complex partnership structure

Partnering with a variety of stakeholders is as valuable as it is challenging, especially when dealing with the non-traditional BoP market, innovative ideas and unknown outcomes. In the three pilots, companies partnered with NGOs and knowledge institutes. To mitigate the inherent challenges, the BoP innovation cycle emphasises developing a shared vision and training activities that bridge the gaps between different organisational DNAs.



Learning versus outcome

Given the high uncertainty, planning the implementation of inclusive innovations is virtually impossible. Learning milestones should help to answer questions regarding product definition, market size, partners to engage and business models to use. Compared to traditional project implementations, stages in the innovation process result in learning, not necessarily in outcomes. In our pilots in the agriculture sector for instance, testing whether an innovation's potential paying customers will be cooperatives or dairy investors as opposed to individual farmers is equally as important as building the perfect product.



The reticence to fail

In the non-profit world, planning is often based on a verified hypothesis that guarantees the success of the outcome, leaving limited room for accepting failure. This forms an obstacle to innovation, especially at the BoP, where design and testing cycles are kept short to minimise costs and optimise relevance of solutions. Our pilots incorporate strict 'go/no go' decision crossroads; this also led one pilot to be discontinued to avoid unnecessary development.

▶ Learning Notes

Lessons from Three Pilots for Pro-Poor Innovation

A learning environment to innovate for and with the BoP

Pilot

Key lessons **Medical test kit for the Kenyan market**

Learning question: **How can I mitigate technological development risks in my business planning?**

Though 'lab proof', our newly developed medical test kit ended up not being sufficiently reliable for market launch in Kenya. The key reason for this conclusion was that the professional skills of the new technology's intended user group – namely, professional nurses and lab technicians – did not fulfil the user skill requirements. For the test results to be 100% reliable, end users had to follow the specifications with the utmost precision, yet it became apparent that we

could not expect the users to have the required level of laboratory skills. This became a significant hurdle in the project and could not be easily resolved.

Lessons learned:

Involve all partners in technical R&D processes as early as possible in order to identify critical elements of product performance.

Develop a risk mitigation strategy at the start.

Ensure the local partner has a strong role in the design of field tests and account for the cultural aspects of giving and receiving instructions.

Distinguish between product experience (handling the product) and product effectiveness/performance, especially in cases where product use is complex.

Pilots

Key lessons **Safe vegetables in Vietnam**

Learning question: **How can I maintain a high level of flexibility during product development to account for uncertainty regarding target group demand?**

Regulations to ensure the safe production of vegetables require smallholder farmers in northern Vietnam to be certified under industry standards (GAP). This is a tedious and costly process. We developed an IT solution to digitise reporting on certification processes, along with a helpdesk for farmers, as part of a balanced business model. An iterative and incremental Agile software development framework, called SCRUM, was chosen to introduce these new technologies in local agricultural practice.

A key feature of Scrum is that it allows for customers to change their minds about what they want and need over the course of a project. It is also particularly suited to BoP development as it recognises that problems are only partially understood. Making changes requires a fast response from the development team through short iteration. It also uses cross-functional teams. In the case of the pilot, teams included IT developers, farmers, agronomists, Q&A officers and a product marketing manager.

Lessons learned:

Define your hypotheses upfront and prioritise them for development (short iteration).

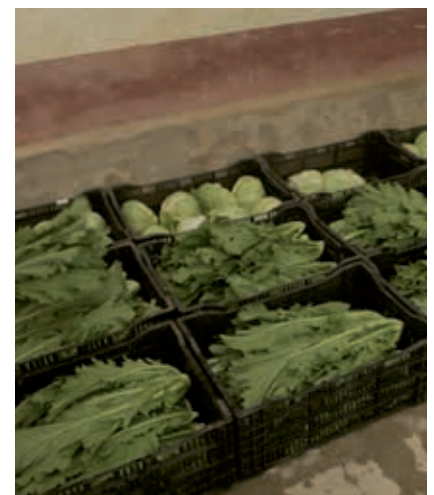
Use an iterative and agile development process. Scrum is a proven methodology for IT development.

Engage end users in developing the innovation, so they co-create the final solution.

► Discussion on quote

'Whoever wants to reach a distant goal must take small steps.'

Saul Bellow



Discussion on quote

Chandler Hatton (SimGas) - CH
Nicolas Chevrollier (BoP Innovation Center) - NC

Do you agree with the quote?

CH: Yes, certainly. Oftentimes it's necessary to split things up to make them tangible and feasible. By keeping those steps concrete and manageable you can move between them and iterate in a way that you'd otherwise not be able to. Our experience with small iterations in the Biogas socket project led us to see that those iterations help you attain the end result faster.

NC: In Vietnam we had an innovation in a different sector: ICT. We used very small steps, with a standardised IT development process called the Scrum methodology. Using a cross-disciplinary expertise team, we developed pre-selected priority features in each Scrum. This proved very useful in our pilot as it served to reduce the complexity of the innovation.

What is the nature of the process that you have chosen to develop your products with the BoP?

CH: For the biogas socket in Tanzania we used a flexible, iterative process, not only to develop the product itself but also to improve communication within the team. We learnt a lot in our first field testing iteration. There was a lot of communication between the people who were agglomerating information in Tanzania and Bangladesh and the team developing the product in the Netherlands.

NC: In Vietnam, where we're using the Scrum methodology, which is an iterative and agile process by definition, we could get a feedback loop at each string. We had to design a web application and a mobile application. Initially we thought to develop those in parallel, but it ended up being sequential. The whole plan of

development changed along the way just through user feedback, and the more iterations you do, the more feedback you can get.

What were the benefits of using such an iterative design process?

CH: Iterations save time eventually and bring more relevance. In the Biogas project, we quickly wrote up our requirements, designed based on that and then adjusted through iterations. A lot of good R&D people will tell you that it is relatively cheap to do R&D, compared to the cost of launching an unsuccessful product on the market. Iterative co-testing with end users yielded very valuable feedback in terms of design requirements that a designer would never think of. For example, potential retailers told us that the biogas socket would be better if it were collapsible.

NC: You can even change your direction of development completely, like we did in Vietnam. Initially, the IT application was supposed to be for mobile phones. But that ended up being completely impractical. Had we stuck to an app on a mobile phone, we would have had a great system that nobody used. The iterative process gives you the flexibility to go back when needed.

Which challenges did you encounter?

NC: The level of interaction between participants is much higher in an iterative process. The iterations provide learning loops, which might turn out quite differently than you planned initially. It requires much more involvement by the company developing the product. Plus, with this iterative process, you don't fully know what will come out of it in the end.

CH: The Biogas project had a very ambitious timeline to get the product out there as soon as possible. Though iteration on the requirements definitely has implications for the time to market

launch, in the end I would still say it is worthwhile. The question is whether you have the funding and the resources to do it. An overarching challenge is to keep the iterations within the budgetary constraints. In the end, the budget and the human resources determine your development process.

What capacity/expertise do you need to get this done?

CH: The Scrum methodology brings people together from all different areas. You need people who are technical, who know about the market and who are users. You need them together to get the right information on the table.

NC: In Vietnam, when selecting an IT company for the project, it was crucial to get an expert on Scrum methodology. An expert can make sure you maximise your budget and human resources for the project using agile and iterative methodologies.

Could iterative design for BoP products apply in any sector?

CH: Yes, definitely. Using iterations in product development is not unique to the BoP. In general, you tend to have designers who assume a lot about the end user. By recognising that you need to interact and to break things down, you can go a long way.

NC: That said, it is much more suited to be developed with low income groups. It reduces complexity and you are more in touch with your end user. We are now even trying out the Scrum methodology in product design for the further development of BoP products (currently, it's mainly used in the IT world).

What's next

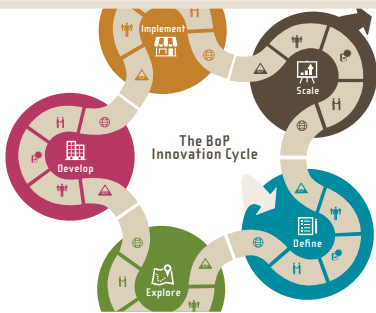
Read



The 3P4PPI publication series

Inclusive Innovation, Gaining BoP Insights, Developing BoP Partnerships, Co-creating BoP Ventures, The BoP Innovation Cycle

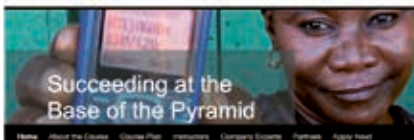
Course



BoP Innovation cycle training package

The BoP Innovation Center offers a training package dedicated to the BoP Innovation Cycle.

Inclusive Business Management Executive Course



Inclusive Business Management Executive Course

- An online course for company managers working on building business in BoP markets.
- 6 modules provide the essential management knowhow specific to inclusive business.

www.inclusivebusinessmgmt.com



Envi co-creation for positive impact

Envi is a company that aids in setting up projects that create positive sustainable impact through co-creation. This guide on co-creation for positive impact provides an overview of tools and information that give insight into consumer groups, iterations of ideation, prototyping, and venture testing and business development. As the title indicates, the focus is on gaining a better insight into user needs through co-creation.

Free guide downloadable at: http://envi.org/wp-content/uploads/2012/05/Envi_Cocreation-for-Positive-Impact.pdf

Do



Frog collective action toolkit

This toolkit guides you through the development of sustainable innovation, using the power of groups to build trust and solutions that create impact for communities. Starting with the creation of a shared goal, you can work together to develop solutions that create sustainable impact. Activities described in this toolkit are divided into: solving problems, building new skills and gaining knowledge.

This free guide is downloadable at: www.frogdesign.com/cat

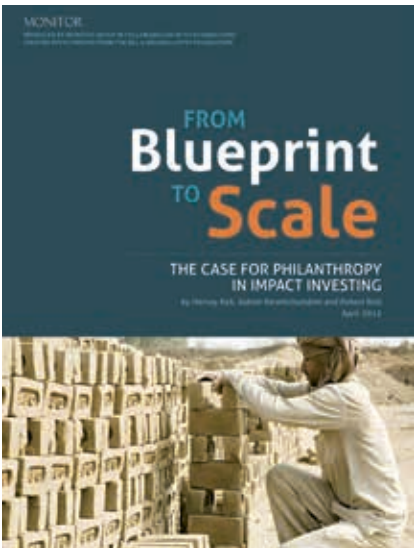
Know more



How to develop business and fight poverty

Inclusive business guide
Endeva (2010)

Download: www.endeva.org/fileadmin/user_upload/publications/IBG_final.pdf



From blueprint to Scale

The case for philanthropy in impact investing

Monitor inclusive markets (2012)

Download: www.mim.monitor.com/blueprinttoscale.html

Follow

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@NextBillion

NextBillion.net is a community for all professionals interested in inclusive innovation and development at the BoP. Objective: to explore the connection between development and enterprise through blogs and analysis.

@IDEO

IDEO is a global design firm that seeks to create impact through design. Objective: to stimulate creative innovation in the private and public sector based on the principles of human-centred design. IDEO has co-created a toolbox to help organisations gain customer insights.

@changemakers

Changemakers is a community platform set up by Ashoka where people can find and share ideas and inspiration on ideas for social innovation.

Objective: to share experience-based tips and trends on how to make a difference and develop innovations that create social change.

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www.bopinc.org

Join the WBCSD newsletter

www.wbcd.org/work-program/development.aspx

Visit



More on innovation cycles and tools

Nesta's Open Workshop guides you through the phases in the innovation spiral. Each of the phases is split into different topics, tools and examples, providing more in-depth information and an explanation of the innovation process. The platform also enables innovators to share their experiences.

<https://openworkshop.nesta.org.uk/>



HCD Connect is an online platform based on IDEO's human-centred design toolkit.

The toolkit has been developed to help international staff and volunteers understand community needs in new ways.

The platform walks users through the human-centred design process and supports them in activities such as building listening skills, running workshops and implementing ideas. It's also a place where people can share ideas and experiences with each other.

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