PALMASLAB: A STRATEGIC TOOLKIT TO FACILITATE INNOVATION

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Executive Summary

Instituto Palmas (IP) is an umbrella organization, based in Fortaleza, Brazil, supporting a network of over 100 community development banks (CDBs) throughout the country. Led by founder and Ashoka fellow, Joaquim de Melo, Instituto Palmas is well-established and highly regarded in Brazil for its work regarding financial inclusion and community development, and is specifically known for its methods based in community engagement.

Instituto Palmas is now striving to integrate innovative technologies to implement their mission and increase their impact. With the 2012-2013 SIPA Workshop Team, Instituto Palmas created a 3-year road map for PalmasLab, IP’s technology and innovation lab. The mission of the lab is to “contribute to the creation, development, and/or advancement of the financial solidarity movement through information technology solutions”. The three main objectives of PalmasLab are: (1) to develop technology solutions in order to increase access to financial services; (2) to develop a youth incubator that will foster the creation of solidarity IT enterprises; (3) to influence public policy by partnering with academic institutions who can use data collected through PalmasLab’s IT solutions and thus, identify and promote best practices for financial inclusion.

PalmasLab has developed one product, PalMap, intended to increase internal efficiency for the CDBs by gathering production and consumption information about their clients and their communities. While PalMap is currently serving the needs of IP internally, IP wants to identify if there is potential for it and future products to be revenue producing at a level that could create financial sustainability for PalmasLab.

With this objective, the 2013-2014 Instituto Palmas Workshop Team was tasked with identifying if there is a demand for PalmasLab’s products and where it might come from, as well as determining the feasibility of offering these products for profit. In this report, the workshop team seeks to address these questions through the creation of a Strategic Solutions Development Process: a process that PalmasLab can utilize to assess the products they have already
developed and as a guide for creating future products and solutions in relation to IP’s mission moving forward.

The SIPA Team has developed a **Strategic Toolkit** that offers structured frameworks for current and future solutions development that integrate: Theory of Change & Vision Mapping exercises; a Strategic Solutions Development Process and a supporting case study; essential market research; and a pricing strategy for future products. Together, this toolkit will provide PalmasLab with frameworks and processes that will help ensure efficient use of resources and fidelity to its mission and objectives as it grows.

Instituto Palmas has demonstrated success through its CDBs and community initiatives and PalmasLab provides immense potential for further impact and expansion. The initial products created by the lab are a crucial step in getting the work of the lab underway and if they prove efficient, there will be greater momentum moving forward with future projects. However, it is important to determine the best strategy for expanding and sharing these products, as well as identifying a clear product development process for future initiatives. The PalmasLab team members are motivated and passionate, and their energy, combined with a set of streamlined procedures, will combine to ensure that PalmasLab has an important, impactful future ahead.
VISION MAPPING & THEORY OF CHANGE

Part I: Background
Part II: Toolkit
Part III: March Trip Results
Part IV: Recommendations
PART I: BACKGROUND

In an effort to reinforce PalmasLab’s organizational development and strategic purpose within Instituto Palmas, the SIPA team determined that introducing Theory of Change and Vision Mapping exercises is a necessary step to ensure that the lab’s mission and objectives effectively describe what it is the lab wants to do and how they will do it. The team’s goal is to develop a toolkit for Vision Mapping that guides PalmasLab through the process of regular team exercises, intended to focus specifically on the activities of PalmasLab and how they align with their desired outcomes and intended impact. Also known as Outcome Mapping, we refer to the exercise at Vision Mapping to emphasize Instituto Palmas’ innovative work and strong reputation as visionaries within their community. This process will provide a structured framework for PalmasLab to follow as they expand and define their activities going forward.

Theory of Change

“A theory of change is the articulation of the underlying beliefs and assumptions that guide a service delivery strategy and are believed to be critical for producing change and improvement. Theories of Change represent beliefs about the needs of a target population and what strategies will enable them to meet those needs. They establish a context for considering the connection between a system’s mission, strategies and actual outcomes, while creating links between who is being served, the strategies or activities that are being implemented, and the desired outcomes.”

Theory of Change is a conceptual tool that provides, via a series of exercises, a detailed plan specifying an organization’s transformative goals, measurable indicators, and the logical phases necessary to achieve them. The Theory of Change

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1 INSP (2005)
guides all organizational decision-making and strategy based on what the organization aims to change through what activities. It defines and links the problems to address, the strategy for addressing them, how success will be measured, and what resources are available/necessary in order to provide a clear plan of action while building consensus among stakeholders. “Your theory of change is a dynamic, living set of ideas which should guide implementation and provide a framework for checking that the initiative stays on track.”2 In the case of PalmasLab, the tool is used to align the lab’s objectives, activities, and intended beneficiaries. It will catalyze active participation from stakeholders providing a better understanding of the lab’s purpose, improving service delivery and maintaining focus towards the goals established.

**Vision Mapping**

Vision mapping is a significant step in constructing a Theory of Change because it is an interactive exercise that maps out a change strategy, short/long outcomes, impact, and stakeholders. Essentially, the Theory of Change states what the organization is doing; Vision Mapping details the change the organization seeks to make and the motivation behind the work.

The Annie E. Casey Foundation’s Theory of Change: A Practical Tool for Action, Results and Learning3 outlines the type of change that can be mapped out depending on the outcome goals determined by Theory of Change and Vision Mapping. These intended results can impact people’s lives at the individual or population level; influence public policy by demonstrating success and showing policymakers how to apply lessons to policy; and leverage resources available for continued success.

Examples of the levels of change that can be mapped include:

- Impact on Individual and Family Outcome Areas

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3 Organizational Research Services (2004)
Vision Mapping and Theory of Change

- Changes in attitudes, e.g., perceptions and beliefs, knowledge, awareness, skills, behavior, health, family stability, financial status

- Impact: Population Level Outcome Areas
  - Changes in health, education, social conditions, economic conditions, safety

- Influence: Outcome Areas
  - Changes in visibility of issue, community norms, partnerships, public will, policies, regulations, service practice(s), business practice(s)

- Leverage: Outcome Areas
  - Change in public funds, philanthropy, resources available to the community, private investment
PART II: TOOLKIT

Developing a Theory of Change
To begin crafting a Theory of Change, it is necessary to have a facilitator to guide the brainstorming process with staff and any other stakeholders (though it’s important to have a manageable amount of participants so that everyone can be engaged). The facilitator should have paper/post-its, markers, and other related supplies ready to take notes and post for everyone to see and edit. When the meeting begins, the facilitator will instruct all meeting members to be active participants, having them take notes, share their thoughts, and respond to questions throughout the exercise. According to the W.K. Kellogg Foundation Logic Model Development Guide, the following are the essential steps when determining a Theory of Change:

1. **Problem or Issue Statement:**
   Describe the problem(s) your program is attempting to solve or the issue(s) your program will address. Include research in establishing the problem and any underlying causes.

2. **Community Needs/Assets:**
   Specify the needs and/or assets of your community that led your program to address the problems(s) or issues(s). Include data if available. Also include organizational resources needed to implement solutions.

3. **Desired Results (Outputs, Outcomes and Impacts):**
   Identify your desired results, or vision of the future, by describing what you expect to achieve, near- or long-tem, and measurable indicators to show impact. Define near- or long-term time limits.

4. **Influential Factors:**

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4 University of Arizona (page 69)
List the factors (e.g., protective or risk factors, existing policy environment, or other factors) you believe will influence change in your community.

5. **Strategies:**
   List successful strategies or “best practices” your research identified that have helped communities like yours achieve the kind of results your program promises. Investigate opportunities to collaborate.

6. **Assumptions:**
   State the assumptions behind *how* and *why* the identified change strategies will work in your community (e.g. principles, beliefs, ideas). Review plan and assess feasibility.

**Creating an Organizational Vision Map**
A facilitator is necessary to carry out this exercise. Stakeholders must be invited to participate: staff, community members, board members, etc. The facilitator will need materials like sheets of paper, markers and tape to take notes and post for participants to see and edit. Once the meeting begins, the facilitator will write out steps for the vision mapping and take notes. A large wall is necessary for arranging notes into a vision-mapping format and provides space to adjust notes to create a cohesive map. The facilitator will instruct all meeting members to be active participants, having them take notes, share their thoughts, and respond to questions throughout the exercise. According to The Annie E. Casey Foundation’s Theory of Change: A Practical Tool for Action, Results and Learning, the following are the essential steps for creating a Vision Map:

**Step 1: Identify Long-Term Objectives**
List intended impact goals. Have participants write down whom they aim to serve and the main goal of organization/program. Who is it trying to help? Avoid vague statements that are all-encompassing and don’t lend themselves to measurement or

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5 Organizational Research Services (2004)
appropriate resource allocation. Be prepared to divide goals into feasible short-term objectives.

**Step 2: Outline Strategies**

Describe activities that will inform main goals: programs, initiatives, etc. and determine what indicators show progress. Observe how activities correlate to objectives. Are there activities that don’t match objectives or objectives without a corresponding activity?

**Step 3: Produce So That Statements**

*So That* statements help to explain the link between all types of outcomes. Using a listed activity, assemble a *so that* statement that illustrates the outcome of the strategy. Produce for each activity. For example, in the case of PalmasLab, a *so that* statement could be: Create a youth tech incubator *so that* youth from Conjunto Palmeiras can create tech solutions *so that* they can contribute to their community while learning self-sustaining skills *so that* they can become entrepreneurs *so that* they become financially independent.

**Step 4: Connect Activities with Outcomes and Objectives**

Create *so that* statements in the order of activity, outcome, and objective. More than one activity or outcome may connect with an objective – often more than one strategy needed to achieve a goal.

**Step 5: Assess the Reason and Significance**

Examine with participants the results of the mapping to ensure activities, outcomes and objectives align.

**Step 6: State Assumptions**

Take note of assumptions throughout the process to provide context for mapping results.
**Vision Mapping and Theory of Change**

**Notes:**
- Strategies can be prioritized (short-term and long-term)
- Theory of Change should be tested and updated whenever relevant
- Use the map!

*While the steps are explained in a linear fashion – the map can be arranged in a way to suit community/organization’s style. It is also possible to set priorities so long as the Theory of Change defines “how strategies and actions will achieve changed, communicate the vision for change and identify expected results” – important to have multiple voices to come to conclusions. The goal of the Vision Map activity is to emphasize that as organization grows, a framework is needed to create new activities to ensure they align with objectives and goals and avoid wasting resources (time, energy, and money).*

**Key Points & Potential Pitfalls**
As crucial as it is that the staff at PalmasLab undertakes the Theory of Change exercise to strengthen the strategy for their intended impact, there are some potential risks that the team needs to be aware of to ensure a successful Theory of Change. According to the article “Six Theory of Change Pitfalls to Avoid”\(^6\): a good theory of change should answer six big questions:

1. *Who* are you seeking to influence or benefit (target population)?
2. *What* benefits are you seeking to achieve (results)?
3. *When* will you achieve them (time period)?
4. *How* will you and others make this happen (activities, strategies, resources, etc.)?
5. *Where* and under what circumstances will you do your work (context)?
6. *Why* do you believe your theory will bear out (assumptions)?

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Six potential pitfalls in establishing a Theory of Change are:

1. **Confusing accountability with hope**
   Intended results should be realistic and reflect accountability.

2. **Creating a mirror instead of a target**
   The Theory of Change isn't meant to highlight what the organization is currently doing, but instead to show what objectives it aims to meet and what activities it will undertake to meet them.

3. **Failing to take the external context into account**
   Incorporating assumptions generates more realistic strategies.

4. **Not confirming the plausibility of your theory**
   It is necessary to confirm the credibility of the theory of change.

5. **Creating a theory that isn't measurable**
   Need measurable indicators in order to test and improve theory of change.

6. **Assuming you've figured it all out**
   Important to test out theory constantly because information cannot be taken for granted.
PART III: MARCH TRIP FINDINGS

Vision Mapping in practice: PalmasLab

Overview

During the March 2014 field trip, the Columbia SIPA team conducted an exercise with the PalmasLab team in order to begin the process of Vision Mapping and Theory of Change development. A simplified framework was used, identifying three areas of interest: “Who?”, “How?”, and “What?”. The description of the content for each area is as follows:

Who?
• Identify the key beneficiaries that PalmasLab intends to serve (people, populations, institutions, etc.)

How?
• Describe all of the current and planned activities of PalmasLab

What?
• Outline the specific short-term and long-term objectives that PalmasLab seeks to achieve

This framework was developed specifically to create a full picture of the operations of PalmasLab and assess to what extent its activities are in service of its objectives and intended beneficiaries. In theory, all of the activities listed under the “How?” should directly lead to the objectives outlined under “What?” and should be for the benefit of a specific, defined population of beneficiaries listed under “Who?” With a firm framework in place, PalmasLab should be able to say “This is what we will believe will change, as a result of these activities, for this population”.

Our intention for this exercise was multi-faceted. First, given Instituto Palmas’ stellar reputation within Brazil and Fortaleza in particular, it is frequently asked to take on or join a variety of projects. While this is testament to the great work of Instituto Palmas, it opens the organization up to the possibility of taking on projects
beyond its capacity or mission. While growth is a worthy goal, PalmasLab will expand in the most sustainable, efficient way if it is clear on its end mission and objectives in a way that guides decisions about whether a new initiative is strategic or not. An initiative that is not strategic will be a resource-drain, as it will not serve the ultimate mission.

This exercise should be the first step in what should be a longer process of mission and objectives clarification, as well as Theory of Change definition. Below we will discuss the results of the initial Vision Mapping exercise, followed by an analysis of these results. From there, we will outline helpful next steps that PalmasLab can take to reach the ultimate goal of a well-defined mission and objectives that serve to guide the activities that PalmasLab undertakes going forward.
Results of the March Vision Mapping Exercise
Together, the PalmasLab team discussed the “Who?”, “How?” and “What?” of PalmasLab. The results of this exercise are presented below and the following discussion will provide an analysis of these results.

Who?
- Clients of Banco Palmas
- Community youth ages 16-24
- Entire community of Conjunto Palmeiras

How?
- **Current activities:**
  - PalMap
  - Youth incubator IT course
- **Planned activities:**
  - Community blog
  - PalMap expansion
  - SMS Push

What?
- Develop PC and mobile IT solutions to increase access to financial services, improve the management of CDBs, and enhance communication between communities, CDBs, and other relevant institutions
- Develop a local youth incubator that will facilitate the creation of solidarity IT enterprises, providing IT solutions for the periphery developed by the periphery
- Influence public policy by partnering with academic institutions who can use data collected through the monitoring and evaluation of the Lab’s IT solutions and, in turn, identify and promote best policy practices for financial inclusion.
The Who? and How? discussion was straightforward and easily agreed upon, although the What? section brought up some questions. The objectives defined here were first outlined in the 2012-2013 SIPA Team’s report\(^7\), however, it was established that there was a need to reevaluate these objectives in order to include more team input and highlight the importance of the solidarity economy versus financial inclusion. The analysis will provide suggestions for addressing these concerns going forward.

**Vision Mapping Results: Key Takeaways**

The vision mapping exercise carried about by the March SIPA team serves as a strong launching point for further discussion within the PalmasLab about the lab’s activities and objectives. We recommend that the team meet regularly to establish core objectives, refine the mission and to create a plan for the future projects of the lab. To guide these discussions, we will present strengths and opportunities that emerged as a result of this initial exercise.

**Strengths:**

- There is strong team unity regarding the objectives as they are currently defined
- The current activities of PalmasLab align with current objectives
- The team is excited about the work PalmasLab is doing and is motivated to grow it

The PalmasLab team is clearly motivated and eager to develop solutions to pressing community problems. They agree on the premise of the current objectives and are able to see how the in-progress and planned activities of PalmasLab feed into these objectives. There is a clear desire to expand PalmasLab to improve its impact and the team brings a variety of expertise that will help it grow.

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\(^7\) Barrineau (2013)
Opportunities for development:

- The current objectives are broad and may encompass activities beyond what PalmasLab intends to pursue.
- PalMap and the youth incubator course are the only active activities of the lab.
- Unified procedures (i.e. Strategic Solutions Development Process) can streamline the development of future activities and projects.

While it is positive that the PalmasLab team agrees on the current objectives of the lab and that these objectives encompass the activities of the lab, they are broad. Therefore, the ability for these objectives to guide priorities and decision-making will be limited, as they are nearly all encompassing. The objectives of the organization should serve to help PalmasLab determine which projects to take on and which to decline and thus, specificity in a way that still covers the true intended impact of the lab will be helpful. To that end, a few suggestions arose during the Vision Mapping exercise and will be discussed in the next section.
PART IV: RECOMMENDATIONS

1. **Discuss and define the assumptions behind PalmasLab.** A key part of Vision Mapping and Theory of Change work is understanding what underlying assumptions guide organizational strategy. For example, one assumption might be “Educating youth about technology will lead to the creation of solidarity IT enterprises”. While that might be true, there are many steps to fill in to get there. Thus, it is important to identify and question the assumptions that are influencing decision-making in order to (1) identify potential pitfalls if assumptions do not prove to be true and (2) identify which activities should be undertaken.

2. **Bring the team together to jointly discuss and form the objectives and ultimate mission of PalmasLab.** To do this, a series of meeting and brainstorming sessions may be required. The team can begin by all privately thinking about and writing down what they see as the main mission and short-term and long-term objectives of PalmasLab. It is also important that the team members consider what activities most efficiently will bring about these objectives or results and which of them they believe should be prioritized. From there, everyone should come together and share their ideas, discuss and begin to formulate the final definitions for the mission and objectives. It is important that each voice is heard. In the end, everyone should be in agreement and the objectives should be obtainable and clear. They objectives and mission should be displayed prominently so that they can inspire all staff members and visitors to PalmasLab.

3. **Use the objectives and mission of PalmasLab to strategically guide future activities.** Once the objectives and mission are agreed upon, they will serve to guide future planning. When a new opportunity or project is presented, the PalmasLab staff should together determine whether or not this new activity will
help lead to one of the ultimate objectives, in service of the mission. If there is a clear connection and understanding of how the activity will directly lead to an objective, discussion around the feasibility and plan for pursuing it can be discussed. If it is unclear how a new activity will lead to the ultimate objectives, PalmasLab should likely not undertake it, as it will not be the best use of limited resources.

TIP: This step will tie directly into the Strategic Solutions Development Process. As new solutions or initiatives are discussed within the team, they can be compared to the mission and the objective through the lens of the initial steps of the Strategic Solutions Development Process. If the “Empathy” and “Define” steps reveal that the problem at hand and the beneficiaries align with PalmasLab’s mission and objectives, the team can carry out the rest of the process to begin developing potential solutions. If in discussing these initial steps it is unclear that there is a linkage between the affected population/problem and the mission/objectives, it may be a sign to pursue other opportunities.

4. **Begin developing an organizational Theory of Change.** Using this report as a resource, combine Theory of Change Research and the defined objectives and mission of PalmasLab to begin creating a Theory of Change. The Theory of Change should explain what changes PalmasLab expects to create through what activities. This process will require multiple meetings and brainstorming sessions and could potentially be benefited by outside consultants who can provide neutral suggestions. A robust Theory of Change combined with a thoughtful Vision Map will provide a strong base for PalmasLab’s continued work.
5. **Determine how progress toward the main objectives of PalmasLab will be measured.** Vision Mapping and Theory of Change work will allow PalmasLab to clearly define its objectives and mission in service of the beneficiaries it aims to reach. However, it is critical that there are defined metrics for each outcome and objective that allows PalmasLab to measure its performance. Without these metrics, it will be difficult to know if resources are being used efficiently. Over a series of brainstorming sessions, the PalmasLab team should identify metrics and indicators for each intended result and objective of the lab. For example, if one of the objectives is to increase local spending within Conjunto Palmeiras, the specific metric could be “Increase local spending within Conjunto Palmeiras 20% to R$50,000 by December 2015”. **A key note: each metric must be attainable and measurable.**

Vision Mapping and Theory of Change development will be time well spent for PalmasLab, as these exercises will allow for strategic planning and growth. As the positive reputation of Instituto Palmas continues to expand throughout Brazil and the world, more projects and opportunities will begin to arise. **For PalmasLab to make informed, resource-efficient decisions, it must have a clearly defined mission and set of objectives, along with a system of metrics for determining progress toward these objectives.** After these processes have been carried out, regular team meetings should reaffirm the mission and objectives in a way that allows for PalmasLab to make strategic decisions about resource allocation, solutions development, partnerships and other opportunities for expansion. These exercises should be viewed as tools in a toolkit that will allow PalmasLab to make the most impact possible.
STRATEGIC SOLUTIONS DEVELOPMENT PROCESS

Part I: Background
Part II: Toolkit
Part III: March Trip Results
Part IV: Case Studies
Part V: Recommendations
PART I: BACKGROUND

Instituto Palmas (IP) created PalmasLab in order to contribute to the financial solidarity movement in the community through the use of information and communication technology. Over the past year, PalmasLab has created PalMap, an open-sourced application developed to improve internal operations. Since its inception, IP has been conducting production and consumption surveys to track spending within the local economy. The initial surveys were manual and thus time-consuming and error-prone. PalMap has been created to conduct the surveys over phone and transfer the data directly to the computer through a receptor. This allows IP to overcome the manual process and become more efficient at collecting and sharing information on trends of production and consumption within the community.

PalmasLab is also working on creating another app called the SMS Push System. This is a mobile-based application that will allow IP to share information with and receive feedback from the community through SMS (Short Message Service) and IVR (Interactive Voice Response) software.

**Figure 1: Illustration of the SMS Push System**

*Source: Presentation created by PalmasLab*
Strategic Solutions Development Process

Given that PalmasLab wants to continue developing and fine-tuning solutions that effectively contribute towards the solidarity finance movement in the community, the team has asked SIPA consultants to create a process for developing solutions for the community that is customized to the need of PalmasLab. Having a process for solutions development will ensure the following:

1. A dialogue is created and all key stakeholders - community members, staff etc., are involved in the process of solutions development.
2. PalmasLab is taking a structured approach towards solution development and is seeking to answer the right set of questions.
3. The solutions developed will be more sustainable, increasing the probability of this approach staying in place even in the face of staff turnover.

In order to create a process for PalmasLab for developing future solutions, SIPA consultants adopted multiple strategies that include consulting with faculty members at SIPA, understanding the context of the lab clearly through field visits, researching multiple existing tools for such processes, narrowing down to a suitable tool for PalmasLab and finally, customizing the tool by conducting the process as an exercise with the team from PalmasLab. The following segments will provide details on the process adapted for PalmasLab, additional resources on other existing processes relevant to PalmasLab, and recommendations for ensuring that the process is adopted and implemented successfully by PalmasLab.

Examples of Well-Regarded Processes

This section aims to provide an overview of renowned product development and business processes that have been adapted and used by well-known institutions globally and are relevant to the needs of PalmasLab. However, in order for any
process to be successfully integrated within IP, the key for PalmasLab is to be able to adapt, execute and ensure an accelerated feedback loop.

**Human-Centered Design**

Human-centered design thinking, pioneered by IDEO\(^8\), is a great example of a product development process. At the center of the process for creating successful solutions, lies its focus on closely studying human behavior, needs and preferences (and hence the name). Tim Brown, the CEO and President of IDEO, defines design thinking as ‘a discipline that uses the designer’s sensibility and methods to match people’s needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity’.\(^9\) He explains that design projects go through three stages, keeping the human centered approach at the core. These include:

i) **Inspiration**: the problem or opportunity that motivated the search for solutions

ii) **Ideation**: generating, developing and testing ideas that may lead to solutions

iii) **Implementation**: creating the path to the market

Although the process looks linear, constant reiteration is necessary and the design projects loop back through these stages, especially through the first two stages, as solutions are refined. IDEO has been very successful and boasts clientele that include some of the largest corporations such as GE and Hewlett-Packard\(^10\). Recently, IDEO has published a Human-Centered Design (HCD) Toolkit particularly for social enterprises and NGOs, where this process is described as ‘Hear-Create-Deliver’\(^11\). Essentially the process is the same but is presented differently in order to make it resonate with a wider audience. Again, similar to Stanford’s process, the

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\(^8\) IDEO is a design firm based in Palo Alto, California (www.ideo.com)

\(^9\) Brown (2008)


HCD Toolkit too starts with ‘empathizing’, followed by iterative steps. The toolkit is very detailed and can be a useful reference as PalmasLab focuses more on the creation of the process for developing solutions. According to the toolkit, starting with the human-centered approach allows an institution to understand what the target population wants (*desirability*), explore what is technically and organizationally feasible (*feasibility*) and finally, create a solution that is viable for the institution (*viability*). Applying these three lenses can help achieve a solution that is at the intersection of these three lenses (as shown in Figure 2).

**Figure 2: The Three Lenses Applied By The HCD Thinking**

The solutions that emerge at the end of the Human-Centered Design should hit the overlap of these three lenses; they need to be Desirable, Feasible, and Viable.

**The Lean Start-Up**

Another interesting solution development process, relevant to PalmasLab, is that advocated by ‘Lean Start-up’. This is a movement started by a tech entrepreneur called Eric Ries that has gained momentum in the recent years. Inspired by the success of Toyota’s Lean Manufacturing, Eric Reis adapted lean thinking to the
Strategic Solutions Development Process

process of innovation and therefore created a principled approach to new product development.\(^\text{12}\)

One of the key principles of the Lean Startup method is Build-Measure-Learn. This principle focuses on the need to have an accelerated feedback loop that can help a start up to turn an idea into a product, measure the customer response towards the product and then quickly learn whether to pivot i.e. take a different route, or continue along the same path. This process emphasizes on the creation of the minimum viable product to first test a hypothesis with the goal of proving or disproving it as soon as possible (as also shown by Stanford’s steps of ‘Prototype’ and ‘Test’). Having an accelerated feedback loop will ensure that the start up does not spend months or years in developing a product only to realize after the launch that the target population does not want it. Figure 3 illustrates this principle.

Figure 3: Build-Measure-Learn by Lean Start-up

Although IP has been operational for over a decade, PalmasLab itself is relatively new and still in the development stage. As such, there is an exciting opportunity to

determine what the work of the lab will be. Understanding the Lean Start-up principles can help at this stage and add value to developing a stronger process for the lab to create solutions.
PART II: TOOLKIT

The Strategic Solutions Development Process of PalmasLab

After reviewing several strategies for solutions development, the SIPA consultants decided to customize the design thinking process developed by the d.school from Stanford University. David Kelley, Stanford’s professor and founder of IDEO, is considered the pioneer of design thinking. His main contributions to the design field are a "human-centered methodology and culture of innovation". In 2005, David Kelley founded the Hasso Plattner Institute of Design at Stanford, known as the d.school. This institute trains students across Stanford University to use design thinking to solve problems in different fields\(^\text{13}\).

The Strategic Solutions Development Process (SSDP) for PalmasLab chosen is based on the Stanford design thinking. This process is composed of five stages: (i) Empathize, (ii) Define, (iii) Ideate, (iv) Prototype, and (v) Test. In addition, it is important to keep in mind that this solution development process is closely intertwined with the vision mapping for PalmasLab discussed in Section 1.

Figure 4: PalmasLab Strategic Solution Development Process

\*Adapted from d.school’s Design Thinking Process

Strategic Solutions Development Process

(i) Empathize

The first stage in the Strategic Solutions Development Process will allow PalmasLab to understand the needs of those that the lab aims to help. That is, the needs of the key beneficiaries (for example, clients of Banco Palmas or youth from the community).

There are several ways to empathize with the user/key beneficiary and the main themes of this stage are (i) observe, (ii) listen, and (iii) engage. By carefully observing the key beneficiaries, paying attention to what they say (verbally and non verbally), spending time with them in the context of their daily routine and living the users’ experience, we can obtain information about how users act and why, their needs, and how they think and feel\textsuperscript{14}. To summarize, we will start the SSDP by deeply understanding not only the users of the solutions we are going to develop, but also the challenges they face (even though the users may not be fully aware of these challenges). In order to move into the next step, it is important to process all the information collected for understanding the big picture. Members of PalmasLab must share their findings with others and put together the information collected.

It is crucial to ask and answer the following questions during the ‘Empathize’ stage:

- Who are you aiming to serve?
- What do these people do, say, think and feel?
- What barriers do they face?
- How can their voices best be heard?

Example:
In his book “Change by Design”, Tim Brown explains how IDEO applied the empathy stage to design a better experience for emergency patients of the SSM DePaul Health

\textsuperscript{14} d.school (2010a) and d.school (2010b)
Center in Saint Louis. One of the designers actually immersed himself in order to obtain insights of how patients feel: "With a video camera tucked discreetly beneath his hospital gown, Kristian captured a patient’s experience in a way that no surgeon, nurse, or ambulance driver could possibly have done... As they sat through minute after tedious minute of acoustic ceiling tiles, look-alike hallways, and featureless waiting areas... It triggered in each of them the mix of boredom and anxiety that comes with being in a situation in which one feels lost, uninformed and not in control."15

STOP: EVALUATE BEFORE GOING ON TO THE NEXT STEP

Have you spent enough time with the community to understand the problem clearly? Do you have enough data to frame the problem? These are some questions that the team must ask themselves in order to move from ‘EMPATHIZE’ to ‘DEFINE’

(ii) Define

After acquiring a deep understanding of the users of PalmasLab at the empathy stage, the define stage will help to craft a narrow, meaningful and actionable problem statement: the point-of-view (POV). Based on what we have learned about the user and the context during the empathy stage, the POV defines “the RIGHT challenge to address”16. It is crucial that all staff involved in this particular process share their findings with each other and reflect, in order to analyze the information they have collected.

One specific way to craft the POV is using the POV Madlib Tool. There are three components of this tool: users (be specific), needs (a verb), and surprising insights.

16 d.school (2010a) and d.school (2010b)
We have to fill the sentence until we find a POV: [User] needs to [Need] because [Insight]\textsuperscript{17}.

This stage is represented by the following themes: (i) analyze, (ii) problem hypothesis and (iii) frame. Thus, this stage is about not only defining the problem, but also developing a hypothesis about what you expect will change as a result of your solution. After analyzing the challenge we want to address and discussing some related hypothesis, we can continue into the ideate stage and start generating solutions for that challenge.

Some questions related to this stage are:
- What is the problem we are trying to solve?
- Who is affected by this problem? How?
- How can we frame the problem as an opportunity?
- What is the hypothesis? What do we expect will change and \textit{as a result of what}?

**Example:**
The next example has been taken from a design thinking process for museum visitor engagement for the San Francisco Museum of Modern Art\textsuperscript{18}. The example shows a POV in an initial phase: “A dad with two kids (user not specific enough) needs good educational programming for his kids (use a verb, and go for a deeper need) because art is important to him (this is superficial and doesn’t seem like you actually talked to him)”. A more refined example: “A burned-out dad (user) needs to refresh himself at the museum, not just babysit his kids (need), because his passion for art is the one thing he’s given up since his kids were born (insight)”.

\textbf{STOP: EVALUATE BEFORE GOING ON TO THE NEXT STEP}

\textsuperscript{17} “Define’ Pt. 2 of my Stanford Design Thinking Crash Course”, accessed on March 8, 2014. \url{http://joeyaquino.wordpress.com/2012/06/04/define-pt-2-of-my-stanford-design-thinking-crash-course/}

\textsuperscript{18} Mitroff Silvers et al. (2013)
During and at the end of ‘DEFINE’, re-visit the mission and objectives of PalmasLab and check if the problem you are trying to solve aligns with the objectives of the lab. This will ensure that valuable time and resources are not used up for problems that do not further the cause of the lab.

(iii) Ideate
The ‘Ideate’ stage begins once the beneficiaries and problem are defined and it is clear that the problem being solved is within the scope of PalmasLab’s objectives. Ideate involves gathering the team to brainstorm a variety of solutions to the problem. The brainstorming should not be limited by feasibility at first – instead it should be a free-flowing exercise where all ideas are mentioned and considered. For ideation to be optimal, a diverse set of people must be present in the room in order to ensure varied perspectives.

After all of the ideas are presented, it is time to consider practicalities. For example, to further understand which solution is most feasible for PalmasLab we need to consider the cost of each solution. By the end of this stage, through this approach we can narrow down the solution we want to prototype. Thus, the three main themes of the ‘Ideate’ stage are: (i) brainstorming solutions, (ii) multidisciplinary team, and (iii) cost.

In the ‘Ideate’ stage, the following questions should be asked and answered:
- How is this problem currently being solved? Who is solving it?
- What are the possible solutions we perceive to this problem? Are these solutions desired by the beneficiaries? What do they propose?
- Who are the team members? Who are the other stakeholders? Do they bring varied expertise?
- What are the potential costs of each solution generated?

Example:
In a Harvard Business Review article titled “Design Thinking”, Tim Brown mentioned the case of Kaiser Permanente, a large health care provider, looking to
improve the quality of patients’ and medical practitioners’ experiences. They use design-thinking tools for developing solutions. One of the projects IDEO and Kaiser worked on (a project to reengineer nursing-staff shift changes) gave a good example of working with a multidisciplinary team. “The core project team included a strategist (formerly a nurse), an organizational-development specialist, a technology expert, a process designer, a union representative, and designers from IDEO”. After identifying the main problem 19 “the innovation teams explored potential solutions through brainstorming and rapid prototyping” 20.

STOP: EVALUATE BEFORE GOING ON TO THE NEXT STEP

Is the solution you have finalized feasible? Before moving on to ‘PROTOTYPE’, it is crucial to check whether PalmasLab has the resources to support and implement the designed solution. If not, then IDEATION needs to continue until a solution that is feasible is found.

(iv) Prototype

A prototype is the first model or version of the solution. A prototype can be an object, an interface, a wall of post-it notes, etc. - anything that takes physical form and that people can interact with. Other prototypes are spaces, services and experiences. Thus, role-playing and costumes can be used when the results of prototyping are not physical objects. A prototype should be basic – the idea is to test your hypothesis regarding the usefulness of your solution before investing a large number of resources in creating a more advanced product. In further stages of the project the prototype might be more refined 21.

This stage helps us “making fast, low-fidelity representations of ideas, usually with the goal of communicating the ideas to users and getting feedback”. By having basic prototypes we can obtain user feedback quickly and thus, design more human-

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19 The main problem was that nurses spent 45 minutes at the beginning of each shift debriefing the departing shift about the status of patients, and this “felt like a hole” in patients’ care.
20 Brown (2008)
21 d.school (2010a), d.school (2010b) and Mitroff Silvers et al. (2013)
centered solutions. Prototyping is essential in the solution development process for several reasons: it allows the designers to iterate more quickly, helps discover issues early, allows the developers to gather design feedback, and encourages collaboration. Having an accelerated feedback loop will ensure that your solution yields optimal results.

The ‘Prototype’ Stage is summarized by the following themes: (i) visualize, (ii) minimum viable product (MVP) and (iii) share. Staff members of PalmasLab can use visual tools to communicate complex ideas to the key beneficiaries and to share their findings with different stakeholders. In addition to helping us visualize the possible solutions and share them with others (beneficiaries, staff, collaborators, donors, etc.), this stage allows designers to create refined prototypes, which can be minimum viable product (MVP) in the case of technology solutions or even spaces, services and experiences.

According to Eric Ries, the MVP is “that version of a new product which allows a team to collect the maximum amount of validated learning about customers with the least effort.” It could simply start of as a single mobile screen visual. The MVP should include the core features of a product that allow it to be used and nothing more. PalmasLab can construct MVP using programs such as balsamiq that allows the construction of simple mock-ups for solutions related to mobile phones or Internet applications. The MVP is more advanced than the prototype, but similarly allows the developers to test their product and incorporate feedback before investing time and resources into a completed product.

At the ‘Prototype’ stage, the following questions should be asked and answered:

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22 Mitroff Silvers *et al.* (2013)  
Strategic Solutions Development Process

- Which solution is feasible in this context? Is it desirable to the beneficiaries? Is it viable for us?
- What features does the product have? Is it possible to create a visual prototype (paper/web app)?
- What is the feedback of all stakeholders on the visual prototype?
- Create MVP based on prototype: who would be the “early adopters”? How and when to collect feedback?

Examples:
Grameen Foundation used prototyping for developing a mobile application that Village Savings and Loan Association members can use during their weekly meetings: “We involved potential users by acting out a "meeting" scenario with them, along with a mock-up of the proposed mobile application. The exercise helped us discover information they expected to see at certain points in the meeting”

Another health related example included in Brown’s article shows how they apply the prototype stage: “As the surgeons described the ideal physical characteristics of the instrument, one of the designers grabbed a whiteboard marker, a film canister, and a clothespin and taped them together. “Do you mean like this?” he asked. With his rudimentary prototype in hand, the surgeons were able to be much more precise about what the ultimate design should accomplish”. Finally, the goal of prototyping is not to have something finished, “it is to learn about the strengths and weaknesses of the idea and to identify new directions that further prototypes might take”

STOP: EVALUATE BEFORE GOING ON TO THE NEXT STEP

Can your target population understand the prototype you are proposing? If there are hesitations, then refine the prototype further so that the team is confident that the target population understands and has provided valuable feedback to improve the prototype.

27 Brown (2008)
Strategic Solutions Development Process

(v Test)
This stage consists of asking for feedback from users about the prototypes created in the previous stage. The three key themes of ‘Test’ are: (i) iterate, (ii) assess and (iii) deliver. By testing, staff members of PalmasLab can learn more about the users and obtain information for the next iteration of prototypes. Thus, more than going from prototype to test mode, these stages are strongly intertwined. In addition, in this stage we can assess and refine the POV developed in the ‘Define’ stage.

Sometimes by testing we acknowledge that we did not define the problem correctly\(^{28}\). After finishing the iteration process, members of PalmasLab can finally construct and deliver the solution at first to a smaller population segment. By testing with a smaller population segment, PalmasLab can get a sense of the fine-tuning required to rollout to a larger population.

The following questions should be asked and answered during the ‘Test’ stage:
- How will the project be rolled out? Who is responsible within the institution?
  What are the risks and how can they be mitigated?
- What is the feedback process? How will feedback be incorporated into the design?
- How will success/outcomes be measured? At what intervals?
- Does the product work? Is it clear it will create the desired results?

Example:
Using the museum example, the designers wanted to answer the following questions: “Would visitors want to open up in public about their emotional reactions to art? And would seeing others visitors’ reactions help or hurt this process? They tested these questions by setting up a prototype in front of a contemporary public sculpture in downtown San Francisco. The team brought pens and sticky notes, and asked people walking by to write down their reactions to the sculpture. They observed that passersby were initially hesitant to write down their reactions.
own opinions, but then the team ‘palpably saw people relax when they read comments that resonated with their own.’”29 Thus, their initial questions were answered by prototyping and testing.

STOP: EVALUATE BEFORE GOING ON TO THE NEXT STEP

Depending on the feedback of the pilot, re-visit the steps as required to iterate and refine the solution further

29 Mitroff Silvers et al. (2013)
PART III: MARCH TRIP FINDINGS

SIPA consultants led a workshop during the field trip in March 2014 to explain and discuss the Strategic Solutions Development Process with the participants from the youth incubator and some staff members from PalmasLab. The consultants introduced the process and talked about each stage.

After briefly explaining the empathize stage to the participants, the consultants ask the participants to come up with questions to ask in this stage. This process was repeated for the next stage. Participants shared their thoughts with the consultants and then SIPA consultants mentioned the questions they prepared stressing that there were not wrong or right answers.

In addition to the questions, the participants came up with problems that the community face. The main challenges they shared were related to health, transportation and education.

Later, consultants explained the last three stages of the Strategic Solutions Development Process and asked the participants to work in groups in order to apply what they have learned about this process to each problem they previously identified. Finally, each group presented their findings.
Participants considered that members of the community face difficulties related to violence, transportation, and access to heath care, among others.
PART IV: CASE STUDY

This Case Study serves as a guideline of how to develop an efficient product using the Strategic Solutions Development Process. There are useful directions and suggestions provided in text boxes throughout the guide that will help you better understand and apply the process.

Case Description: During the March trip, we consulted participants in PalmasLab’s youth incubator and community members about the challenges they experience living in the periphery. One of the most highlighted issues identified by both groups was crime in the neighborhood. The high rate of violent crimes creates fear in the neighborhood and reduces productivity. For the purpose of this case, we assume that one of the major crimes targeting youth between the age of 12 and 24 is mugging and petty theft. Let’s assume PalmasLab wants to create a technological solution that will help reduce mugging and petty theft targeting youth in Conjunto Palmeiras. In this section, we will demonstrate how PalmasLab can apply the Strategic Solutions Development Process to develop a product to support youth. Please note that the data and scenarios have been simulated for the purpose of this demonstration.

Review of Steps:

**Empathize:** understanding the needs of those you are designing for

**Define:** framing problems as opportunities for creative solutions

**Ideate:** generating a range of possible solutions

**Prototype:** communicating the core elements of solutions to stakeholders (beneficiaries, staff, collaborators, donors, etc.)

**Test:** learning what works and doesn’t work to improve solutions
STEP 1: EMPATHIZE- OBSERVE, LISTEN, ENGAGE

**Tip:** The key is to identify the target population and thoroughly understand them in light of the problem you are trying to solve for them. To answer the first question under Empathize, PalmasLab needs to consult members in the community to find out who is mostly affected by crime in the community. It is important to consult different groups within the society such as business owners, students, women, men, youth, etc. to get a well-rounded understanding of who is mostly affected by crime. After consulting different segments within the community, determine which group is most vulnerable and targeted by crime and continue to answer the three remaining questions under empathize from the specific group’s point of view.

**Example questions under EMPATHIZE:**

1. **Who are you aiming to serve?**

Identify who you aim to serve and specify age, gender, income group, location, etc. In this case, we have identified **youth** between the **age of 12 and 24** in **Conjunto Palmeiras** as targets of **mugging and petty theft** and decide to create a solution that can **reduce this type of crime** against this group.

**TIP:** If you found that another is the target group, for instance, older people in the community and you want to create a solution for this demography, then question 2, 3 and 4 will be focused on understanding how the older population is being affected by crime.
2. What do these people do, say, think and feel?

Answer this question from the perspective of the target beneficiary. Understanding what the beneficiary does, says, thinks, and feels about crime in general will help you develop and design the product to fit their needs.

**Do:** Walk home alone from work late at night; Walk to meet friends after dark; Go to buy soda in the corner store after dark; Adopt an aggressive attitude to deter attackers

**Say:** I know that walking outside by myself in the dark is dangerous, but I have to walk home from work/a friend’s house/the store; I am worried about my little brother when he goes to parties at night.

**Think:** I hope I don’t get robbed; I know leaving my house in the dark or staying out late at night increases my chance of getting robbed but I can’t walk around being scared, I rather have my freedom

**Feel:** humiliated, angry, powerless

This information provides essential insights such as: crime takes place at night; youth know the risks, but still go out; crime humiliates them; crime increases aggression in the target group

3. What barriers do they face?

Consult the youth to find out what barriers or challenges they face in relation to crime. Set up a small focus group of 6-8 youth in each and ask them a few broad questions about barriers or difficulties they face in their neighborhood. Ensure age and gender is well represented. Note common themes. This step is important since
barriers they face might differ greatly from preconceived ones. Check if the crime varies by age and gender.

**STEP 2: DEFINE- ANALYZE, PROBLEM HYPOTHESIS, FOCUS**

**Define stage** will help to craft a narrow and meaningful and actionable problem statement.

**Example questions under DEFINE:**

1. **What is the problem we are trying to solve?**

   **Directions:** Based upon the notes from the focus groups, determine which type of crime affects the target population most. This is the problem that you want to solve. It is also essential to determine if this problem can be solved with the resources you have. If it is not feasible to solve the problem you zoomed in on chose the next most urgent problem.

   As discussed earlier, for the purpose of this case study we have determined that mugging and petty thefts are two of the major crimes youth are exposed to and the problems we are trying to solve.

2. **Who is affected by this problem? How?**

   Youth walking home from the bus/work/a friend’s house late at night are mainly affected by this problem. The mugger usually uses a gun/knife to force the youth give up their belonging such as cellphone, wallet, etc.

   These details provide essential insights for designing the solution later on in the process.
3. How can we frame the problem as an opportunity?

This problem is a great opportunity for the community and police to map out where and when (the exact location and hours) this type of crime occurs to tackle it more efficiently.

4. What is the hypothesis? What do we expect will change and as a result of what?

Discuss with teammates and beneficiaries solutions to this problem and the assumptions that must hold in order for the solution to prove true. Below are a few example hypotheses:

Hypothesis 1: If youth walk together in larger groups, they will be targeted less by muggers.
Assumption: Muggers are deterred to attack larger groups of people.

Hypothesis 2: If we know where muggings and petty theft take place more security forces and police can be stationed in the area, increasing safety for youth.
Assumption: There are security forces and police willing and able to serve these areas.

Hypothesis 3: If the government perceives youth as an important group they will allocate greater funding to increase security for the protection of youth from petty crimes.
Assumption: Government is willing and has the resources to allocate to solve this particular problem
**TIP:** In this step of ‘defining’ the problem, revisit the objectives of the lab. **Using the vision-mapping exercise,** evaluate whether the problem you picked, the population you are targeting and the change you are aiming for, fit in with the broader mission and specific objectives of the lab. If it does not serve the mission and the objectives, then it is important to reconsider whether this is a problem that PalmasLab should focus its limited resources and time on.

**STEP 3: IDEATE - BRAINSTORM SOLUTIONS, FEASIBILITY, MULTIDISCIPLINARY TEAM**

**Example questions under IDEATE:**

1. **How is this problem currently being solved? Who is solving it?**

This question requires research and identifying stakeholders:

**Research:** To be able to come up with efficient solutions to the problem, it’s crucial to look to current solutions or ways the target group currently aims to mitigate this problem. This research will provide insights about holes in current solutions and help you design a sufficient solution. It is also important to research solutions used in other communities and countries to solve similar problems.

This problem might currently be “mitigated” by youth carrying weapons themselves and further exacerbating the violent nature of these crimes, serving as an extra incentive to find a better solution to this problem.

**Identify** who within the community is currently trying to solve this problem. These stakeholders’ buy-in is vital to design a sufficient solution. For example, the police will have to be included when designing the solution, as their success to respond to the crimes is essential to increase security.
2. What are the possible solutions we perceive to this problem? Are these solutions desired by the beneficiaries? What do they propose?

After researching current solutions to the problem, consult the target population to brainstorm potential solutions (these may be new and innovative solutions or building on current solutions).

**Directions:** Set up 3-4 focus groups with the target group (6-8 people in each group); Ask them to brainstorm what type of solutions they would suggest and whether or not they believe their peers would use such solutions. During these brainstorming sessions you can bring in research of solutions used in other communities and countries as well as verify hypothesis created in the ‘Define’ stage. Ask the group if they believe these types of solutions could mitigate this type of crime in their neighborhood; why/why not; how could they better mitigate this type of crime, etc.?

3. Who are the team members? Who are the other stakeholders? Do they bring varied expertise?

Ensure that the team involved in brainstorming the solution represents a diverse set of people so that a range of different perspectives are on the table during brainstorming. Besides staff from PalmasLab, include staff from other units such as microfinance. Bring in stakeholders from the community. This includes the youth, older community members, security personnel etc. The stakeholders identified here is very important. Reaching out to them early on, for example by involving them in the ‘Ideation’ stage, can help increase their buy-in.
**TIP: Who should be included in the team?** Team members constitute staff of IP and stakeholders beyond IP involved in the discussion of finding solution to the particular problem of crimes against youth. Bring in staff/stakeholders from multiple disciplines. Do not limit to only staff of PalmasLab. Include staff from other units of Instituto Palmas, community members with strong understanding of the neighborhood, someone with connection to the police or security forces, both affected and unaffected youth from the community etc.

4. **What are the potential costs of each solution?**

As a collaborative exercise, set up a table with cost and feasibility. This helps the team to decide which solution to pursue and for everyone to understand the rationale behind why a certain solution was selected.

<table>
<thead>
<tr>
<th>Solution</th>
<th>Cost</th>
<th>Feasibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solution for hypothesis 1: Encourage youth to walk home in groups</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Solution for hypothesis 2: A cell phone app that alerts friend and family or authority at times of danger.</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Solution for hypothesis 3: Campaign and advocacy at the national level to raise awareness of this issue</td>
<td>High</td>
<td>Very low</td>
</tr>
</tbody>
</table>
STEP 4: PROTOTYPE- VISUALIZE, MINIMUM VIABLE PRODUCT (MVP), SHARE

Example questions under PROTOTYPE:

1. Which solution is feasible in this context? Is it desirable to the beneficiaries? Is it viable for us?

This is the broad question that this section will try to answer through smaller steps.

2. What features does the product have? Is it possible to create a visual prototype (paper/web app)?

Assume that at the end of the first three steps, the potential solution that is possibly feasible and viable for PalmasLab and has been seen as desirable by the youth in the focus groups is a cell phone app that alerts friend and family or authority at times of danger. At this stage, before getting into the technical aspects of creating the app, do a quick visualization of it. For example: draw on paper how the splash page may look, what features it will have.

3. What is the feedback of all stakeholders on the visual prototype?

Take the visual prototype back to the youth of the focus group. What is their feedback? Do they find the features useful? Add further details to the prototype based on the feedback. Take the visual prototype to other stakeholders such as the local security personnel. Given that they are more familiar with the context, they can provide more specific feedback on can the app connect with the local system of the police force and if yes, how.
4. Create an MVP based on prototype: who would be the “early adopters”? How and when to collect feedback?

Build an MVP based on the prototype. Keep it minimal- it is meant to be the skeleton of what the future app may resemble. Without spending too long on the graphics and other features that are nonessential, take the MVP back to the group of stakeholders- youth, security personnel, staff of other units, etc.- for further feedback.

**TIP:** An *accelerated feedback loop* is essential to ensure that the product receives maximum feedback from the user community before it is launched. If too much effort or too much time is taken before the product is brought in front of users for feedback, PalmasLab may end up wasting valuable resources and time and with an inapt product.

**STEP 5: TEST- DELIVER, ITERATE, ASSESS**

Example questions under TEST:

1. How will the project be rolled out? Who is responsible within the institution? What are the risks and how can they be mitigated?

Decide on a timeline that incorporates (i) the launch of the app among a smaller group; (ii) the feedback process; and finally (iii) roll out of the app to a wider base of users. For each step, discuss what resources will be required, and who in the team shall be responsible for what activities. Do this at an early stage to avoid confusion of who is responsible for which task.
Strategic Solutions Development Process

Having a timeline and designated personnel will ensure strong accountability, which is critical for the success of the project. Once the product is developed, set up training sessions for all staff involved in the process to become familiar with the product. For example: the programmer may be developing the app, but other staff members responsible for helping the youth adapt to the app and market the app need to know how it works. They are the ones who will be in the field, communicating with the youth. Hence, if they are well-trained on the app, they might be able to troubleshoot while in the field and will bring back better-informed feedback. Identify the assumptions and risks of launching and take actions to mitigate them to the extent possible.

2. What is the feedback process? How will feedback be incorporated into the design?

Design a feedback process where the early users (i.e. the youth) may come in at regular intervals to share their feedback. Ensure that feedback meetings are well documented so that all feedbacks are accounted for. Share with the youth how their feedback has been incorporated. This will ensure accountability and also make the youth feel ownership towards the process.

3. How will success/outcomes be measured? At what intervals?

Create an evaluation process that will help PalmasLab understand whether the app or specific features of the app are successful or not. The evaluation process must be linked to the expected outcome of the solution decided in the ideation stage. In this case, high usage of the app among youth and a reduction in crimes against youth as a direct result of app usage are two key expected outcomes of launching the app. In order to measure this, carry out a short evaluation at baseline (before the usage of app starts), and then short surveys at intervals of 3 months for quicker feedback in the beginning of the project and then increasing the interval to ensure that
continued monitoring is in place. Unless results are tracked, valuable resources and time may be wasted.

4. Does the product work? Is it clear it will create the desired results?

Simply put, ask yourself ‘does the product work?’ Is it perceived as an app that is being useful to the targeted population for the specific purpose? In this case, the youth will have the answer to this question. If youth can naturally adopt and respond to the app, it is initial sign of success. Getting the users to use the app is essential to generate the content (crime related information) to make the app successful. Remember that even if the product “works”, there is always room for improvement and with a constantly changing environment there is a need for constant updates. This is why a continuous feedback loop is essential.
PART V: RECOMMENDATIONS

One can easily draw parallels between all three processes discussed in the previous sections. They focus on the need to understand the target population first (empathize) and then to have a process that is iterative and accelerated. This allows the institution to learn quickly and refine the solution it has created before investing significant time and resources in a product that will not suit the needs of the intended beneficiaries or solve the identified problem. In order to ensure that Strategic Solutions Development Process is successfully integrated in the operations of PalmasLab, the following points must be considered:

1. **The Strategic Solutions Development Process will be most effective if the entire PalmasLab team fully understands its usefulness and commits to participating in it.** Hence, it is essential that key staff members that include personnel both within and beyond PalmasLab, discuss the process to customize it further. The process needs to be adapted to the local needs. Creating a Portuguese version may also help personalize the process further for the team.

2. **It is essential that a timeline be set for each stage of the process to ensure accelerated feedback loop once the team has identified a problem that it wants to create a solution for.** Any proposed solution should be developed in close collaboration with beneficiaries and the skeleton of the solution should be promptly taken to the direct beneficiaries for feedback. This will prevent wasting valuable time and resources on developing a product that runs the risk of not being useful. It is important to note that many ideas will not advance through all stages. The idea of the feedback loop is to determine which ideas and initiatives should be pursued and which do not fit with the mission, objectives and capacity of PalmasLab.

3. **Strong communication between all team members is essential for the process to be successful.** At the end of completion of each stage, the key
team members must meet to discuss findings and refine the next stage. In the future, as PalmasLab’s capacity grows, multiple products might be in the process of development in parallel. In that case, it will be effective if monthly or bi-weekly meetings are set up to discuss the status of current solutions and refine next steps based on team member feedback.

4. **A brief training should be developed on the process so that every new member to the team has an opportunity to learn it clearly.** This will ensure that the process is internalized. The training may also act as a refresher for current staff.

5. **Institutional commitment to such a process is necessary.** Key team members for IP, including Joaquim, need to understand the process and endorse it so that other team members are willing to learn and adapt.
MARKET RESEARCH

Part I: Background
Part II: Toolkit
Part III: Research Findings
Part IV: Recommendations
PART I: BACKGROUND

There are several Information Communication Technology (ICT) products that PalmasLab can utilize to efficiently achieve short-term results under its long-term objectives. In the IT Product Market Research section of the paper we have identified several IT products that can help the lab further its objectives. Many of these products are open source, can be downloaded and used for free or at a low cost, and have been developed to serve bottom of the pyramid (BoP) communities like PalmasLab’s clientele. The IT Product Market Research also serves an instructional purpose as it demonstrates what type of information should be collected during a market research initiative. In the Strategic Solutions Development Process, market research falls under the step ideate and should be conducted after identifying a problem, but before starting to develop solutions. Conducting systemized market research will make sure that PalmasLab does not waste valuable resources developing products already available on the market. Market research should also be an ongoing effort, as new products and features are constantly developed and made available. Guidelines on market research are included in the Market Research Toolkit Section. The instructions under the steps Why? When? What? Who? How? allow anyone within the lab to conduct market research. Furthermore, examining the development, features, usage, and cost-structures of these products provides PalmasLab with insights about how to package products that are developed by the lab.

The first section of the IT Product Market Research identifies products that can be used to complement PalmasLab’s two main technology products: PalMap and SMSPush. The development of these two products fits in under the lab’s current first and third objective:

*Develop PC and mobile IT solutions to increase access to financial services, improve the management of CDBs, and enhance communication between communities, CDBs, and other relevant institutions.*
Market Research

*Influence public policy by partnering with academic institutions who can use data collected through the monitoring and evaluation of the lab's IT solutions and, in turn, identify and promote best policy practices for financial inclusion.*

PalMap helps PalmasLab to collect production and consumption data in communities where community banks are built. This data has been used to analyze the social currency’s success in increasing local production and consumption. In this way, PalMap has thus far assisted CDBs to communicate results between each other and to other relevant institutions. Complementing PalMap with software programs introduced here will enable PalmasLab to more efficiently develop and tweak questionnaires, collect and safely store data electronically, and visualize data. Some of the software programs featured in the market research are simple to use and allow anyone with basic computer skills to design an electronic survey. This makes it possible for PalmasLab to collect data beyond production and consumption data. PalmasLab can, for instance, use these software programs to develop a survey that asks community members about preferred community bank location and what key services it should provide – all before building it. Such data can be essential in the Banco da Periferia expansion that is planned to take place this upcoming year.

PalmasLab is currently developing SMSPush for the purpose of sending out essential information to community members, including loan repayments notifications and alerts about community gatherings. By complementing SMSPush with software programs introduced in this document (magpi, FrontlineSMS, and RapidSMS), PalmasLab could efficiently send out information to the community. Adopting these software programs would also allows PalmasLab to send out questionnaires via SMS, weblink, or recorded audio message to community members and to collect responses in an instant. These programs would, for instance, enable PalmasLab to ask low-income community members which bank services and products they deem
most useful. Such information can be used to promote best policy practices for financial inclusion.

Sending surveys via text messages may be preferred over going door-to-door when collecting consumption and production data as it would both save PalmasLab funds and time. Sending a survey via text message rather than going door-to-door will also decrease the security risk of researchers, as openly using a cell phone can attract unwanted attention in an environment where theft is common. Furthermore, it would enhance the privacy of the interviewees. The head researcher at PalmasLab, Elias Lino, noted that people many times were reluctant to provide the researchers with answers to questions about their expenditures. For example, answering questions about income may be a security concern and answering questions about expenditures relating to feminine hygiene products can be perceived as an invasion of privacy. A questionnaire sent over text messages could overcome such concerns as long as the responders are provided with an incentive to answer the cell phone surveys, feel comfortable answering phone surveys, and trust that their responses are anonymous. Lastly, sending questionnaires via text messages would allow PalmasLab to quickly scale up their research to include thousands of responders.

The second section of the IT Product Market Research gives examples of programs and applications that can serve as solutions identified by the community, in particular by participants in the youth incubator. This section mainly falls under PalmasLab’s second objective:

*Develop a local youth incubator that will facilitate the creation of solidarity IT enterprises, providing IT solutions for the periphery developed by the periphery.*

During our time in Conjunto Palmeiras the SIPA consultants met with participants in PalmasLab’s youth incubator, as well as community members about the greatest challenges they experience living in the periphery. The greatest issue identified by
Market Research

both groups was crime in the neighborhood. The high rate of violent crimes creates fear in the neighborhood and reduces productivity. A second issue is the lack of health professionals available at the health posts. When community members need urgent care they seek out the health posts. As the health posts are not always staffed with doctors, patients have to visit several health posts before finding a doctor. A third issue identified by the participants in the PalmasLab’s youth incubator was the unreliable bus schedule. This issue is exacerbated by the high rate of crime. Waiting for the bus, especially at night, is uncomfortable in a neighborhood where crime is particularly high. The software programs presented in this section introduce solutions to these particular problems. They can be adopted by PalmasLab directly or serve as inspiration for the participants in the youth incubator to build upon to develop more community specific solutions.
PART II: TOOLKIT

IT Product Market Research Guidelines & Suggestions

Why?
PalmasLab should conduct market research to avoid wasting valuable resources and to avoid developing products already available. Researching how stakeholders, other innovative institutes, and low-income communities attempt to mitigate these problems will help PalmasLab build new relationships and gain inspiration of how to design and develop products. By following the suggestions under When? What? Who? How? in this guide, anyone within the lab will be able to contribute to the market research.

When?
Conduct market research once a problem has been identified, but before beginning to identify solutions and developing prototypes. There might already be sufficient solutions you can adapt or alter suit your beneficiaries.

What?
What you are trying to find are solutions to a specific problem. Only collect information that will help you solve this very problem, as your team already has determined it being a priority. Stay focused. Identifying context-specific solutions is also essential. Research both IT products used to solve the identified problem and how other low-income communities have solved this problem.

Who?
Include PalmasLab's stakeholders in the market research. Example of stakeholders: Banco Palmas staff; staff within other CDBs; community members (youth, women, men, etc.), governmental officials working specifically with innovation, universities across Brazil but also abroad.
Market Research

Who your stakeholders are also depends on what problem you identified. If attempting to create a solution to unreliable buses, your stakeholders may include government officials within transportation and urban planning.

How?
1. Ask your stakeholders directly what IT products they use to solve this specific problem or have heard that other people or organizations may use.

Examples:
Universities: Use an Internet search engine for instance Google, Yahoo, Bing, etc. to cold search universities with innovation and/or IT departments. Find a contact number or email and contact them. Ask if they know any IT programs or applications that can help them solve the identified problem or who to speak to that might be able to provide some guidance. This will also help PalmasLab staff to create new connections within the field, especially given the community’s distance from a technology center.

Government officials: Contact government officials that are responsible for innovation and technology or related sectors. Ask them to connect you with companies or organizations that work on IT products for related problems.

Community members/beneficiaries: Identify members in the community that may be especially active using cell phones, computers, or other technologies. A good place to start identifying such community members could be at the local cyber cafes. Ask them if they know any IT programs or applications that may be able to mitigate the identified issue or if they can connect you to someone they know that might have such insights.
Market Research

2. **Perform cold searches online to see if there are any solutions developed for your particular problem.**

When the SIPA team performed the IT Product Market Research we searched on words such as “electronic data collection tools” to find programs similar to PalMap. When we searched for solutions to crime we searched on words such as “applications to mitigate crimes”, “technologies to report crime in low-income communities.”

3. **Create a table or format to collect the data.** This will assure that you stay focused and only collect data that you need to go ahead in the Strategic Solution Development Process. The format in the IT Product Market Research section can be serve as a template to guide you in what information may be important to collect on solutions.
Software programs to complement PalMap and SMSPush

• Formhub
• SurveyMonkey
• TaroWorks
• Open Data Kit
• Wikimapia
• Magpi
• FrontlineSMS
• RapidSMS
Market Research

PalmasLab can use formhub to design questionnaires, collect and store data, and visualize data in a wide variety of ways, including on maps. It can be used to complement PalMap or on its own. Formhub is free and would allow PalmasLab to collect, store, and analyze data simultaneously, without any glitches in information collection, which has been an issue with PalMap. Formhub also allows data to gather encrypted information that ensures privacy and anonymity of the data collected. This is especially important when collecting data on sensitive subjects such as consumption patterns where the responder is asked to disclose income. Formhub will be very useful for PalmasLab in a near future when community members switch to Android phones.

Product Snapshot:
Suitable for: data collection, aggregation and analysis
Time commitment: Understand the system and create survey; high; use the system once the survey has been created and managing the data collected: low
Technical expertise needed: High in the initial phase, due to the needed understanding of using excel to create the survey, but low after the system is understood and for the managing of the data collected/analysis system
Cost: The system is completely free

*Product Snapshot taken from https://innovation.internews.org/tools/formhub

SurveyMonkey's domain is in the field of Market Research.

SurveyMonkey can be used to design electronic surveys and to collect and analyze the data within minutes. The electronic survey can be sent via email, phone, Facebook, and weblink. Designing the survey requires internet access. The automated phone survey requires the audience to have access to a simple phone with a keypad and mobile network if using a cell phone. During our community visits in Conjunto Palmeiras, our consultancy team realized that many small business owners already use their email accounts to receive emails from Instituto Palmas. Therefore, sending emails containing a weblink with a questionnaire designed on SurveyMonkey could be a potential way for PalmasLab to connect with and collect information from the community. The greatest benefit with SurveyMonkey, compared to other similar programs, is its simplicity. It allows staff with limited exposure to software programs to design a survey, collect and interpret data.

Product Snapshot:
Suitable for: data collection, aggregation and analysis
Time commitment: Understand the system and create survey; low; use the system once the survey has been created and managing the data collected: low
Technical expertise needed: No real technical expertise needed.
Cost: It has four different cost plans ranging from $17 - $65/month. There are no setup fees and no minimums to send surveys via phone. SurveyMonkey charges 10 cents per call dialed and 10 cents for every 5 minutes if the audience is calling in to take the survey.

*Product Snapshot taken from https://innovation.internews.org/tools/surveymonkey

Formhub is a free mobile data collection tool developed by Mod Research Group at Columbia University. It was developed to empower governments, NGOs and local communities with tools to more efficiently collect data. Formhub was first used by the Earth Institute at Columbia University and has quickly been picked up by other institutions.

Formhub allows you to design a survey, use Excel, distribute surveys on Android devices or by web, collect information, and visualize and analyze the information.

Formhub is open source, allowing for continuous improvement of the product as the user modifies the tool to suit their needs.

For more information visit: http://formhub.org/

SurveyMonkey offers 15 question types including rating scales, multiple choice, and more. While it’s easy to use the program to create online surveys from scratch, SurveyMonkey also provides question templates. SurveyMonkey furthermore allows the customer to brand the survey. PalmasLab can, for instance, add its logo to the survey.

With over 15 million customers, SurveyMonkey is the world's most popular online survey software. SurveyMonkey’s clients include Facebook, Kraft, Virgin America, and Samsung.

SurveyMonkey’s popular question types include rating scales, multiple choice, and more. While it’s easy to use the program to create online surveys from scratch, SurveyMonkey offers 15 question types, including rating scales, multiple choice, and more. SurveyMonkey's question templates are easy to use, and it's simple to add a customer’s logo to the survey.

The basic package includes 10 questions per survey and 100 responses per survey is free. As PalmasLab usually surveys over 100 people when collecting production and consumption data, they might find it beneficial to purchase a premium package, which is priced between $17 - $65/month.

For more information visit: https://www.surveymonkey.com/
PalmasLab can use TaroWorks to design surveys, collect data using Android devices, manage projects, and analyze data. While Internet is necessary to set up the survey, TaroWorks allows for data collection without Internet connectivity and mobile network. TaroWorks can be used to complement PalMap and also help PalmasLab to monitor and manage research projects. TaroWorks project management feature allows organizations to manage individual and group performance, set performance goals, and research officers to track their progress against those targets. This could be a useful feature for PalmasLab’s researchers when surveying community members in the field.

**Positives**
- The mobile data collection program can collect images, videos and audio.
- Data is gathered in a Salesforce platform that allows you to manage, analyze and present your results in several ways.
- Provides user with access to a training center that includes several useful demos.
- Includes Field Management and Social Performance Management tools.
- Simple instructional videos accessible on website.

**Negatives**
- Only compatible on Android based smart phones.
- No instruction in Portuguese.
- Cost of TaroWorks is determined by the company on individual basis.
- Internet necessary for field staff to download the survey.

**Product Snapshot:**

**Suitable for:** data collection, aggregation, data visualization, mapping, and field project management.

**Time commitment:** Low.

**Technical expertise needed:** Low; Simple to set up surveys and download the survey on smartphones.

**Cost:** Information unavailable.

*Product Snapshot taken from https://innovation.internews.org/*

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TaroWorks** was created by Grameen Foundation to assist field staff working in remote areas to collect data and analyze data to inform decisions in real time. It is a mobile data collection built on the Salesforce platform and accessed in the field via Android devices. It currently provides 8 different question types. TaroWorks is also a field management instrument that allows organizations to set goals for their field staff and manage and monitor their work.

Compared to the other data collection tools presented in this research document, TaroWorks provides users with Social Performance Management tools. These tools allow organizations to collect data specific to your performance indicators.

**Institutions that use TaroWorks:** include Honey Care, Vision Spring, and Root Capital.

*For more information visit: [http://taroWorks.org](http://taroWorks.org)*

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PalmasLab could benefit from using Open Data Kit (ODK) to complement PalMap. ODK allows the user to design, send, gather, map and store data from questionnaires. As formhub has similar features to ODK but is easier to navigate, we suggest PalmasLab to use formhub over ODK.

**Product Snapshot:**

**Suitable for:** data collection and management.

**Time commitment:** High: The software needs to be installed and customized on a server.

**Technical expertise needed:** Medium. To design the questionnaire familiarity with excel is necessary. To design longer forms and more intricate branching, familiarity with XLSForm is necessary.

**Cost:** The software is free and open source, but there are costs associated with technical support.

*Product Snapshot taken from https://innovation.internews.org/*

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Open Data Kit (ODK) is an open source software that helps organizations design and manage mobile data.

ODK is composed of a survey form builder, an Android mobile app, and a back-end server that collects the results and allows users to export and/or analyze the results using simple graphs. ODK also allows the user to add multimedia, GPS locations, and images.

Installing the back-end server component for ODK, called ODK Aggregate, requires a technical specialist.

ODK was initiated as a Google sponsored project in 2009. Its core developers are researchers at the University of Washington’s Department of Computer Science and Engineering departments.

*For more information visit: [http://openDataKit.org](http://openDataKit.org)*
Market Research

Wikimapia

One of the objectives with PalMap is to stimulate local production and consumption. By allowing community members to map out their communities, Wikimapia can complement PalMap or serve as inspiration to reach this objective. Wikimapia helps service providers to map out essential services such as health posts, banks agents, and day care services. It also allows local businesses to advertise their products and services and thus, stimulate the local economy. Community organizations can also use the program to provide locations for upcoming gatherings. As Wikimapia allows anyone to add descriptions and photos of locations, PalmasLab can involve youth and community members in the mapping effort and also use Wikimapia to complement their youth blog.

Product Snapshot:
Suitable for: Mapping and describing locations
Time commitment: A location can be mapped within seconds
Technical expertise needed: Low
Cost: The software is free and open source.

*Product Snapshot taken from https://innovation.internews.org/

Magpi

PalmasLab can use Magpi to complement SMSPush to send out important updates to its clientele. Magpi has a recorded audio message feature that would allow PalmasLab to send out personalized voice messages. This is very useful feature when working with populations that have low familiarity with technology. The audience might also be more receptive to a voice message rather than a text message. For instance, a recorded message with a loan agent’s voice calling to remind about a loan payment may be more difficult to disregard than a reminder in the form of a text message.

Product Snapshot
Suitable for: Sending out notifications, collecting and storing data.
Time commitment: A form can be designed within minutes.
Technical expertise needed: Medium
Cost: The packages range from $0 to $5,000/year (Pro) $10,000/year (Enterprise). Each message to send to any country $1-2 cent per message.

*Product Snapshot taken from https://innovation.internews.org/
PalmasLab can use FrontlineSMS to complement PalMap and SMSPush. FrontlineSMS would allow PalmasLab to send out questionnaires to Instituto Palmas' clientele via text messages, store and analyze responses, and send out important updates to its clientele. The development and business model of FrontlineSMS, created to serve a specific market need, can also guide PalmasLab in their continued work.

**Positives**
- Works on simple featured phones
- No need for Internet connection
- Allows user to send forms and receive feedback
- Affordable, only cost is regular cost of SMS and if using FrontlineCloud $10/month
- Provides on-screen language support in Portuguese

**Negatives**
- Website not available in Portuguese

**Product Snapshot**
**Suitable for:** Creating and managing all of your SMS-related contact groups, sending and receiving messages via specific on-screen consoles, provides incoming and outgoing message history

**Time commitment:** Medium

**Technical expertise needed:** Medium

**Cost:** The software is free, and you pay SMS according to provider. FrontlineSMS gets its revenue from charging for training, consulting, and customization. FrontlineCloud is provided to a cost of $10/month.

*https://innovation.internews.org/tools/frontlinesms

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PalmasLab can use RapidSMS to complement SMS Push. It allows PalmasLab to design and send questionnaires to anyone with a cell phone.

**Positives**
- Using simple SMS on basic phones (good for high risk environments)
- Provides room for scalability: allows for interaction with thousands of users simultaneously; the system can handle a village or country
- Gathered data is constantly available via the Internet

**Negatives**
- Need for high tech staff
- No instruction in Portuguese

**Product Snapshot**

**Suitable for:** Large amount of incoming and outgoing SMS; Structured data; standards and alerts system. When you need a large-scale (enterprise) solution collected data can be accessible to many people in many locations via the Internet

**Time commitment:** High: the software needs to be installed and customized on a server

**Technical expertise needed:** High

**Cost:** The software is free and open source, but costs associated with the technical support need to be considered

*Product Snapshot taken from https://innovation.internews.org/tools/rapid_sms

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FrontlineSMS is a free and open source software program used to send and collect information using text messages (SMS). FrontlineSMS works without an Internet connection and with only a cell phone and computer. Version 2 of FrontlineSMS was downloaded 70,000 times in 2012.

FrontlineCloud was recently launched. FrontlineCloud provides additional features, a simple set-up, and sophisticated data management. For a price of $10/month the user gets access to FrontlineCloud, program development maintenance and premium user support.

FrontlineSMS was originally developed in 2005 for conservationists to keep in touch with communities in South Africa. Having seen how SMS was widely used in sub-Saharan Africa in 2004, founder Ken Banks built and launched the first prototype of FrontlineSMS in 2005.

Interest in the platform grew rapidly, and the staff behind FrontlineSMS created the kiwanja foundation, now the Social Impact Foundation, to house the product. In 2008, FrontlineSMS became open-source and began to see focused sector-specific application as FrontlineSMS: Medic and FrontlineSMS-Credit. In late 2009, FrontlineSMS hired its first in-house developer.

For more information visit: http://www.frontlinesms.com/

RapidSMS is a free and open source SMS service for data collection using simple mobile phones. The information collected can be presented on the internet as soon as it is received. Any cell phone that can send text messages can interact with RapidSMS and there is no need for any program to be downloaded on the phone to use it.

RapidSMS provides scalable solutions as thousands of users can interact with the system simultaneously.

RapidSMS was initially developed as a health platform for the Millennium Villages Project with backing from the UNICEF Innovation Group. It was set up to assist and organize the activities of community health care workers (CHWs). Using basic SMS, CHWs are able to register patients and communicate their conditions via a central web console that allows a health team to thoroughly monitor the health of their community. Powerful messaging features help facilitate communication between the members of the health system and an automated alert system helps reduce gaps in treatment.

For more information visit: https://www.rapidsms.org/
Software programs to solve specific problems identified by community members

- WikiCrimes
- CrimePush
- Community Website: ning.com; patch.com
- MTA Bus Time

WikiCrimes was launched in Brazil in 2008 and is used countrywide, including in Fortaleza. By encouraging community members in Conjunto Palmeiras to report crimes in their community, PalmasLab can assist security forces in identifying where crime rates are concentrated, potentially resulting in a safer and more productive community.

Positives
- Application, website, and tutorials available in Portuguese
- Built in Brazil, opportunities of collaboration

Negatives
- Android capability necessary to download application on cell phone.
- Internet necessary to access information
- No activity recorded since 2008 in Fortaleza.

When the team visited Conjunto Palmeiras we realized that a key challenge in the community was the high crime rate. The high incidence and violent nature of crime came up frequently in discussions with community members. PlamasLab youth incubator participants also pointed out crime as the main issue in their community. The Technical Advisor of the Ministry of Economic Development in Fortaleza also highlighted how crime is a key obstacles to increase tourism in Fortaleza. Given that Fortaleza is one of the most dangerous cities in the world, these concerns are not unwarranted. Fear of being subjected to violence and/or robbery discourages community members from going out at night and lowers productivity in the community.

WikiCrime is a website that allows community members to report on crimes using their cellphone or computer. The site provides crime statistics, such as type of crime, date, time, etc., that alert the public as well as security forces on crime concentration. The application also allows users to confirm and comment on reports.

On its website, WikiCrimes provides videos, reports, graphics of crime statistics and instructions in Portuguese. It is, however, strange that most activity in Conjunto Palmeiras seems to have been reported in 2008. PalmasLab has the opportunity to reach out to WikiCrimes and discuss opportunities to build upon the application to make it more useful in Fortaleza. One major obstacle is that to use WikiCrimes on a cell phone, Android capability is a requirement.

For more information please visit: http://www.wikicrimes.org/
Market Research

CrimePush is a software application for smartphones and Android phones that helps individuals to report crimes with the touch of a button. By touching a button that represents the situation, the phone sends information to authorities or family, and thus allows people to report incidents and ask for help without picking up the phone. The application can also capture picture, audio, and video.

Although not available in Brazil as of yet, CrimePush can serve as an inspiration for PalmasLab and especially the youth incubator as they go on to design IT solutions to crimes in their community. Allowing community members to report incidents to the authorities or ask family members for help in dangerous situations can increase security in Conjunto Palmeiras and in greater Fortaleza.

The application has several useful security features including:

SECURITY FEATURES

DISTRESS MESSAGING - Allows users to send multiple, GPS-tagged distress messages with the push of a button to designated emergency contacts.

PUSH BACK NOTIFICATION – School or University authorities can now send Timely Warning Emergency Notifications straight to a student’s phone, alerting them of a gunman or emergency situation on campus.

CHECK-IN – Allows users to notify family and friends when they have arrived at their destination safely, or if they are simply running late.

CRIME REPORTING – Allows users to report crimes ranging from vandalism to theft quickly, discretely, and efficiently. Providing authorities with clearer information direct from the scene of a crime. Report crime tips and threats with a simple user experience to make reporting crime easy and effective.

For more information please visit: http://crimepush.com/howitworks

Security Features taken from: http://crimepush.com

Positives
+ Multifaceted application with many excellent features that can serve as inspiration for product development

Negatives
- Android capability necessary to download application on cell phone
- Not yet available in Brazil

CrimePush allows individuals to report crimes without making a phone call, many times being a security risk.

By creating a community website, on a platform such as ning.com and patch.com, PalmasLab can convey essential information, such as neighborhood happenings, crime rates, business promotions, and doctor availabilities, to the residents of Conjunto Palmeiras.

Positives (ning.com)
+ Website available in Portuguese
+ Middle package (Performance package $49/month) affordable.
+ Plans can be upgraded, downgraded, or cancelled at any time and a 14 days free trial.

Negatives
- Ultimate plan ($99/month) expensive for a smaller organization

A Conjunto Palmeiras community website could be useful in several ways. It could be developed as a project under the youth incubator and be a place where PalmasLab youth blog is hosted. It can also serve as an announcement page for crime rates, neighborhood happenings, business promotions, and doctor appointment availabilities. Given that most of the households we visited in Conjunto Palmeiras had access to Internet, such a solution should be useful.

By teaching the medical staff at the health posts to post information about doctor availabilities on the community website, it can help solve the issue of locating a doctor in real time, being a key concern identified by the youth incubator participants. The participants in the youth incubator can also train the staff at the health posts to use SMS push applications, such as RapidSMS and FrontlineSMS to alert community members when doctors are available at the health posts. Let’s say a community member needs help with a broken bone. Instead of visiting several health posts or calling to see if doctors are available, s/he can go on to the website and see what hours doctors will be at the health posts and also sign up for an appointment.

As a second step, participants in the youth incubator can help medical staff at medical posts to set up their own website. Similar to Zocdoc.com where people can book a specialist and appointment time, a feature can be set up that allows patients sign up for one of the available appointments.

Ning.com and patch.com are both platforms for community websites.

For a price between $25 to 99$/month, ning.com provides several features including member sign in, publishing tools, custom design, and technical support.

For more information please visit: https://www.ning.com

Positives
+ Website available in Portuguese
+ Middle package (Performance package $49/month) affordable.
+ Plans can be upgraded, downgraded, or cancelled at any time and a 14 days free trial.

Negatives
- Ultimate plan ($99/month) expensive for a smaller organization
During our visit in Conjunto Palmeiras, community members raised concerns about unreliable bus service. Spending time waiting for busses decrease productivity and pose a risk to bus riders, especially at night. **PalmasLab can use MTA Bus Time as an inspiration to develop a software program to track busses and provide bus information to community members in Conjunto Palmeiras and other low-income communities.**

**Positives**
- Website available in Portuguese

**Negatives**
- Several requirements necessary including collaboration with bus company, GPS installed on busses, etc.

MTA Bus Time provides customers with accurate bus time. The information can be accessed on simple cell phones as well as on Android and smartphones. By sending a simple SMS, using a bus stop code or intersection, the user will receive a SMS indicating how many stops away the next bus is. Using the internet on a computer or smart phone also allows the user to track the bus by typing in its number.

MTA Bus Time also allows someone with a smart phone to scan the QR code at the bus stop and find out how many stops away the next bus is.

By communicating bus times accurately more people may be encourage to use public transportation, potentially relieving heavy traffic in Brazilian cities.

*For more information please visit: http://bustime.mta.info/*
PART IV: RECOMMENDATIONS

Recommendation on program adoption: The software programs that our consultancy team has identified most suitable for PalmasLab, are formhub, SurveyMonkey, and FrontlineSMS. These programs are free, simple to use, and combined they are compatible on basic cell phones and smart phones, accounting for the transition from basic cell phones to smart phones currently taking place in Brazil. Once PalmasLab grows, TaroWorks will become increasingly useful. TaroWorks would enable PalmasLab to manage field projects and collect data on social performance metrics as well as designing surveys and collect, store, and visualize data, also allow organizations. To guide PalmasLab further, we have rated the software programs on a scale from 1 to 5, indicated by stars in the IT Product Market Research.

Recommendation on cost-structure: Most of the products introduced in this section of the market research are open source and can be downloaded for free. Open source means that anyone has access to the product’s design, i.e. code, and can improve the product or tweak it for customized usage. The open source model is a collaborative model that allows for quick improvement of a product. If PalmasLab eventually make PalMap and SMSPush open source programs, programmers around the world could lend their skill and make them more cutting-edge and well-rounded products. Instead of charging for the programs, most of the products presented in this document earn revenue by providing technical support and more advanced versions of the product. PalmasLab could make PalMap and SMSPush open source and provide the program to other CDBs for free, but charge for providing technical expertise of how to use the product and to design customized versions. In this way, PalmasLab can further their first objective while generating revenue.
PRICING STRATEGY

Part I: Background
Part II: Pricing Structure Research
Part III: Recommendations
PART I: BACKGROUND

Pricing Strategy: An opportunity ahead

Instituto Palmas and its programs, as well as PalmasLab, are undergoing interesting economic and organizational changes. The negotiation of 10 new locations of Banco Palmas around the city of Fortaleza, Ceará, is bringing new opportunities and potential internal clients. The new branches, which are called Bancos da Periferia (banks of the periphery: community banks that operate under the model of Banco Palmas), represent a great opportunity for Banco Palmas to exchange experiences, products and business strategies with its new branches. Additionally, 30 more banks are expected to open in the next three years in the State of Ceará and in the long run, many more in the rest of Brazil. This expansion is a reality and is transforming Banco Palmas into a major player in access to credit, financial inclusion and poverty alleviation in the country.

Considering this expansion and all the opportunities coming ahead, it is crucial to plan the next steps for PalmasLab in terms of pricing strategies, cost structure and consequently, financial sustainability. As a leading initiative of Banco Palmas/Banco da Periferia, PalmasLab has the potential to gather strategic data about the production and consumption habits of its clients in all the new locations of Bancos da Periferia, giving them a comparative advantage over other microfinance institutions in the country. To assist in the development of this pricing strategy, we are going to introduce some of the strategies most frequently used by the companies listed in the Product Market Research.

A cost structure determines the prices of products and services that businesses provide. To calculate these prices, a company has to consider the fixed and variable costs that a business incurs. A fixed cost, as the financial website Investopedia

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defines it, is “an expense that has to be paid by a company independent of any business activity." These are costs such as rent, insurance or office supplies that remain fixed regardless of the production output of the organization. On the other hand, variable costs are expenses that vary depending on the production volume of the company. These expenses can include material and labor costs of production. In addition to these expenses, there are other factors such as market prices and marketing strategies that affect the pricing strategies that companies choose.

Another definition of Pricing Strategy is the one that “takes into account segments, ability to pay, market conditions, competitor actions, trade margins and input costs, amongst others. It is targeted at the defined customers and against competitors,” as described by The Economic Times. In choosing the right pricing strategy for PalmasLab, it is relevant to look at the more than 20 strategies that are in the market. Among this group of strategies, we emphasize in four of them that are referenced in the examples below.

**Freemium Pricing Strategy**: This is a strategy that offers a basic set of services free and then charges additional money for advance services and features. Many software companies use this pricing strategy to attract their clients. Some of the examples we suggest are Magpi or Survey Monkey. One of the advantages of this strategy is that there will always be a large group of customers taking advantage of the free costs, thus representing potential clients for additional fee services. This also means low marketing costs. However, one of the main disadvantages is that many companies have this same pricing structure, and therefore the risk of not breaking even may increase. Perception of free services all the time could affect the loyalty of the customers and the pricing strategy. The additional services have to be

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very useful to incentivize the user to buy them; otherwise there is a big risk of failure due to the fixed costs implied.

**Time and Materials Pricing**³⁴: This pricing strategy charges a standard labor rate per hour, as well as the actual cost of materials used. The strategy is often used in the construction and services industries (medical, legal, accounting, consulting, car repair). This pricing strategy is ideal for high-risk situations because the supplier assures profit despite the outcome. However, customers can impose a "not to exceed" clause to put a ceiling in the number of hours and material needed. In general, this is a good strategy for the services sector, but the company has to set competitive prices for the hours billed; otherwise, the amount of revenue generated will not offset the fixed costs.

**Penetration Pricing Strategy**³⁵: This is a strategy that sets prices lower than the market so that it can penetrate the market. Companies that do this need to have a high level of initial capital in order to lower prices and drive competitors out. In the case of PalmasLab, having internal clients represents an advantage that enables it to offer lower prices as a result of scale. This is a long run strategy and a large amount of capital is needed to achieve the strategy properly. The strategy reduces competition and puts a barrier for new competitors if applied properly. Yet, this is a good strategy for companies that have sufficient resources to lower prices. It is not a good strategy for companies with limited resources.

**Transfer Pricing Strategy**³⁶: This method is used to sell one product or service from one subsidiary to another in the same company. This can be a good option for PalmasLab when trying to transfer cost and debts from one jurisdiction to another. The Transfer Pricing process can help diversify revenue and save money from

Pricing Strategy

income taxes in different jurisdictions. Applying this strategy in the new Bancos da Periferia might incentivize the new clients to expand their production capacity to take on additional business. However, there are some tax regulations that have limits on price transferring and may be considered tax evasion. This will depend on the tax regulation of the states of Brazil.

To recommend a pricing strategy for PalmasLab, it is important to look at the pricing strategies that peer companies are using to measure and evaluate the impact they are having in the field.
PART II: PRICING STRUCTURE RESEARCH

Freemium Pricing Strategies

Magpi

Offers data collection and messaging services in three different plans: Basic, Pro and Enterprise. The Basic service is completely free, with no time limits, free support and no setup fees. However, the free plan limits the amount of data you can collect, the number of surveys and the amount of questions you can include in the form. The Pro and Enterprise account includes unlimited forms, unlimited online storage and many other unlimited services. Nonetheless, to get these services there is an additional price the client has to pay. The monthly fee for the Pro version is $500 and $5000 if you pay annually. The Enterprise version is $10,000 per year, which includes all the services that they offer. Magpi’s pricing strategy is called Freemium. It offers a basic set of services for free and then charges more money for additional services. Many software companies use this pricing strategy to attract their clients. Most of the examples we suggest use this strategy because they will always have large groups of customers in the free costs category that represent potential clients for additional fee services. Still, there is a lot of competition between software companies with this same structure. Another challenge is that the perception of “free services” does not induce clients to buy more unless the difference between the basic and pro services is highly beneficial.

“A 30-day trial of FrontlineCloud is free, and you can create your account in minutes. Get started now!” After the free trial, FrontlineSMS is also free to download. However, to easily send, receive and manage SMS massages and data the client has to buy the online storage service. One can’t work with out the other. FrontlineCloud, which is where the data is stored is available for a price of $10 per month. This price includes development maintenance, premium user support and web hosting of your account. Frontline has a Freemium pricing strategy. They offer a free service to hook clients who then will need to consume additional services with extra fees. Advantages and disadvantages of this strategy were analyzed previously. Yet, it is relevant to highlight how Frontline creates a stronger dependency between its basic and premium services.

Operating under a Freemium pricing strategy, Salesforce offers four different plans: Basic, Select, Gold and Platinum. The basic service is free and the plans that follow have prices that range from $26 monthly and $300 to $780 per month. The annual plans offer better features in designing, collecting, analyzing information, and the support service is much more detailed. In addition, the overall annual plan is reduced when calculation the monthly fee. This pricing and marketing strategy is very similar to the one Magpi uses - they both offer features that vary in accessibility depending on the plan the client purchases. For instance, the Basic Plan has very limited features in term of analysis and support. The Platinum plan offers all sorts of features and options

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to collect, analyze and visualize the data obtained.

The software is free for users. It tries to link the wiki philosophy with an online map. In other words, it is an open content collaborative map, “where anyone can create place tags and share their knowledge”. In terms of funding, two Russian internet entrepreneurs launched the initiative and the site now has 19 million tags. Although there is no pricing strategy for visitors and users, because there is no price associated to the mapping service they provide, there is a pricing strategy for business or individuals that want to highlight and pinpoint a place in the maps. In this case, Freemium pricing strategy is used to attract their clients. As opposed to providing additional services, Wikimapia uses the amount of users, views and clicks to hook their online crowd. “Brand your business on one of the most popular maps in the World, Let 1+ million people a day see your ad, Get one month FREE test period (and then you’ll have to pay JUST 9.99$/month),” is the advertisement/pricing strategy they use to attract their clients. It is important to remember that some of the risks associated with this strategy are due to high competition and the need to cover fixed costs while offering free services.

Time and Materials Pricing Strategy

TaroWorks operates under Salesforce software and Android devices. These represent fixed and variable costs for the client. Unlike previous examples, this organization uses a Time and Material Pricing Strategy, which consists of charging a standard labor rate per consulting service in addition to the actual

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cost of materials used. Hence, their cost structure is divided in two: their fixed
cost associated with the usage of Salesforce, which offers 10 free licenses for
NGO’s outside the US through its foundation. Secondly, it charges a rate of
$5,000 per year when using up to 31 android phones incorporated with the
TaroWorks Application. An annual plan of $10,000 is offered when the client
requires more than 31 phones to operate in the field. Technical support and
training is offered at the beginning of the negotiation and basic support
throughout the contract. This pricing method is good for high-risk situations
because the supplier assures profit despite the outcome achieved be the usage
of the product. TaroWorks is a special case because in spite of being an NGO, it
is charging for its services and generating profits.

Furthermore, TaroWorks is supported by its funder, Grameen Foundation, and
by EBay, Inc. Foundation, Qualcomm Wireless Research, Cisco, Pershing
Square Foundation, Salesforce Foundation, Master Card and the Moody’s
Foundation. These are great partners that assure the sustainability and
improvement of the service provided. PalmasLab and its initiatives might see
increased success if they start working with one of these large foundation that
can help build economic sustainability.

Free Software

formhub
formhub is tool created by The Sustainable Engineering Lab of The Earth
Institute of Columbia University. 41 It is an organization that offers a completely
free data collection service. However, as analyzed previously, there are fixed
costs that the company has to pay. To cover these costs they receive support
from Columbia University’s Earth Institute and strategic partnerships, which
range from small non-profits organizations to large government bodies mainly

working in the development world. The contribution they get from offering a free service is the data they receive and the feedback they get from people. In this case, there is no need to penetrate a market to come up with a with a pricing strategy. Creating partnerships to finance the entrance to the market of PalmasLab’s initiatives in the Bancos da Periferia could be a viable solution for PalmasLab.

The software is free and open-sourced; therefore it has no pricing strategy.\(^{42}\) They receive funding from external institutions that have benefited from the services RapidSMS provides. They have various strategic alliances that help them obtain funding and thus, cover their fixed and variable costs. They incur low marketing costs as a result of the free marketing they receive from very well known institutions such as Columbia University, UNICEF and several others.

This software is open-sourced and totally free. Hence, it does not need a pricing strategy.\(^ {43}\) The University of Washington’s Department of Computer Science and Engineering supports the development and economic sustainability of this software, in addition to the tax-deductible donations they receive from users. They receive technical development support from the developers, implementers and users and various companies such as Formhub, Survey CTO, Webfirst and Ulevel, Afrisis and Nextel among many others.


PART III: RECOMMENDATIONS

For-profit and non-for-profit companies use approximately 20 pricing strategies available in the market. Among these strategies the Freemium pricing strategy is the most commonly used in social media, software programs, online newspapers and web platforms in general. Companies like LinkedIn, Survey Monkey, and Google Earth use the Freemium pricing strategy, which consists of offering a set of free services and charging extra money for advance features. They offer the free service to attract new clients and expand their network, hoping to increase the number of consumers of paid services. The advantage of this strategy is that there is always going to be a large group of consumers, who are potential clients for the additional fee services, and therefore few resources that have to be spent in marketing.

However, a risk with this strategy arises because many companies use it, and if the service is not properly differentiated, covering fixed costs might be difficult. Therefore, companies have to offer innovative and useful services to attract more clients; otherwise people will remain in the free category without perceiving the difference. For PalmasLab, this does not represent a significant risk because they have at least 10 internal clients in different parts of the Fortaleza ready to use the application and the future services they produce.

Considering the opportunities PalmasLab has with the *Bancos da Periferia*, we believe a blend of a Freemium Pricing Strategy and a Transfer Pricing Strategy would be fundamental to take advantage of their potential clients. The Price Transfer Method is used when selling one product or service from one subsidiary to another in the same company. The advantages of this method are represented by the tax benefits the company receives when transferring income and prices from one jurisdiction to another. Transferring income through internal trade negotiations from one region with high prices to another with reduced prices represent an economic opportunity that companies usually call Transfer Pricing. This strategy linked merged with a
Freemium scheme can help diversify revenue and save money from income scale and price transferring between jurisdictions. The context could not be better to develop all the initiatives PalmasLab has in mind and build a strong, loyal inside clientele that will allow their products and services to penetrate the competitive market of mobile collection, management and data evaluation application.
Conclusion

The SIPA team has developed a set of tools that will guide PalmasLab towards accomplishing its mission and objectives in the most effective way. After a research process and field visits to Conjunto Palmeiras in January and March 2014, the SIPA team developed a strategic toolkit that is comprised of four elements: (i) vision mapping, (ii) strategic solutions development process, (iii) market research and (iv) pricing strategy.

The objective of the **vision mapping** is to help PalmasLab productively align their key beneficiaries (who), activities (how) and objectives (what). In so doing, PalmasLab will eliminate waste of time and resources as it will only pursue activities that directly serve its objectives and beneficiaries. The vision mapping is closely integrated with the **Strategic Solutions Development Process**, which originated at the d.school of Stanford University and was customized to PalmasLab. The Strategic Solutions Development Process is comprised of five stages: (i) empathy, (ii) define, (iii) ideate, (iv) prototype, and (v) test. If the two first stages reveal that the solutions and beneficiaries align with the results from the vision mapping, the PalmasLab team can continue with the rest of the process. If not, it may be a sign to pursue other opportunities.

As there might be already ICT products that solve problems identified in the “define” stage, conducting the **market research** will save significant time and money because the PalmasLab team can adapt existing solutions rather than create its own.

Considering the coming expansion of *Banco Palmas* around Fortaleza, it is crucial to plan the next steps in terms of pricing, cost structure and consequently, financial sustainability. Thus, we introduce some of the most frequently used **pricing strategies** by the companies listed in the market research.
So far, Instituto Palmas has demonstrated success through its CDBs and community initiatives, and PalmasLab provides immense potential for further impact and expansion. We recommend that the staff of PalmasLab come together to clarify its mission and objectives and then utilize the vision map and the Strategic Solutions Development Process to guide strategy going forward. Given that new technology solutions are being developed regularly around the world, we also recommend consistently carrying out market research to understand new trends. In addition, PalmasLab should continue researching for plausible pricing strategies for its products in order to determine the potential for financial sustainability. By guiding future actions in an effective way that is in direct service of PalmasLab’s beneficiaries and mission, this toolkit will allow the team to strategically manage future expansion in scale and impact.


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