

Improving Monteverde's Newly Implemented Local Currency Program

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*Submitted by Aaron Andrade, Lauren Dishong,
Andrew Nicklas, Shannon O'Connor*



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Improving Monteverde's Newly Implemented Local Currency Program

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by
Aaron Andrade
Lauren Dishong
Andrew Nicklas
Shannon O'Connor

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Report Submitted to:

Kelly Lange
Jannelle Wilkins
Enlace Monteverde

Professors Sarah Strauss and Melissa Belz
Worcester Polytechnic Institute

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Abstract

To combat the economic recession caused by COVID-19, Enlace Monteverde created the Subcommittee on Circular Economies, which in turn implemented a new local currency, Verdes. Our goal was to help improve the functionality of the Verdes program and its digital platform, and to find funding options for the organization. We conducted a survey of participants registered on the platform and interviewed users and local sellers to determine the needs of community members and to gauge satisfaction with the program. Using this knowledge, we offered recommendations for Enlace Monteverde to improve the local currency program and its digital platform, increase awareness in the community, and generate funding for the program.

Executive Summary

Introduction

Countries around the world have been affected by the COVID-19 pandemic. In addition to the adverse impact on global well-being, the economic fallout from the pandemic has and will continue to negatively affect economic growth beyond anything experienced in the past century. Monteverde, one of Costa Rica's most popular tourist destinations, relies almost entirely on tourism to support their local economy. Tourism accounts for nine percent of Costa Rica's gross domestic product, showing how heavily the country depends on the tourism industry to support its citizens' livelihoods¹. Enlace Monteverde is an umbrella organization in Monteverde that was formed to support the struggling community amid the pandemic. Community members joined the organization with hopes of supporting each other as they continue to adapt to the new reality created by the pandemic.

Background

In January 2021, Enlace Monteverde's Subcommittee on Circular Economies launched Verdes, a new local currency that they created. News of Verdes spread quickly, and in only a few weeks, over 1000 community members had registered for the program. A local, or community, currency is an asset-based, complementary money system that is circulated in a geographically limited area². The concept of local currency helps to create a circular economy, where the exchanges of goods or services within a given community allow for the circulation of wealth to stay within that community's economy³. Additionally, local currencies can allow small economies to become more self-sufficient and resistant to changes in the global economy⁴. They also encourage the participation of small businesses⁵, therefore lowering unemployment and allowing community members to use unique skills to provide additional income for their households⁶. It is Enlace Monteverde's aim that, through the Verdes local currency, they could encourage this circular flow of wealth within their economy.

Our sponsor has chosen to use the money-sharing, blockchain platform, Cambiatus, to facilitate the exchange of Verdes. The digital platform allows communities to create their own digital currency and use it for exchanges of goods or services offered by community members. Users of the local currency can create listings for their items or services on the online shop. While awareness and use of the Verdes program continue to increase throughout Monteverde, it has been our aim help Enlace further develop and strengthen their new local currency.

¹ Shah, R. (2020, May 5). *Costa Rica's Monteverde faces an eco-tourism crisis*. Travel.

<https://www.nationalgeographic.com/travel/2020/04/costa-rica-tourism-struggles-to-survive-during-coronavirus/>

² Kwon, M., Lee, C., Xiao, Y., & McIntosh, W. A. (2019). Community currency activities, community attachment, and quality of life: A case study of the Crooked River Alliance of TimeBanks. *Time & Society*, 28(3), 1181–1220. <https://doi.org/10.1177/0961463X17716737>

³ Brown, H. (2018). Towards A Circular Energy Economy: Cross-Sector Successes in Brazil and India. *Consilience*, 20, 23–42.

⁴ Gomez, G. M., & Helmsing, A. H. J. (2008). Selective Spatial Closure and Local Economic Development: What Do We Learn from the Argentine Local Currency Systems? *World Development*, 36(11), 2489–2511. <https://doi.org/10.1016/j.worlddev.2007.11.015>

⁵ Seyfang, G. (2001). Community Currencies: Small Change for a Green Economy. *Environment and Planning A: Economy and Space*, 33(6), 975–996. <https://doi.org/10.1068/a33216>

⁶ García-Corral, F. J., de Pablo-Valenciano, J. de, Milán-García, J., & Cordero-García, J. A. (2020). Complementary Currencies: An Analysis of the Creation Process Based on Sustainable Local Development Principles. *Sustainability (Basel, Switzerland)*, 12(14), 5672. <https://doi.org/10.3390/su12145672>

Objectives and Methodology

This project focuses on ways to improve the overall functionality of the Verdes program for the general user base, as well as for businesses and sellers specifically. Our goal was to understand the needs of buyers and sellers within Monteverde's local exchange program in order to increase the impact and overall satisfaction with the program and to ensure longevity. Our project also provides recommendations for funding options for the program. The following objectives were created to address the goal of our project:

1. Evaluate and understand seller needs and satisfaction with the program in order to keep Verdes in circulation
2. Evaluate and understand user needs and satisfaction to ensure that Verdes are benefitting community members
3. Investigate funding options to ensure that operation of the program can be maintained

To accomplish these objectives, we utilized three different methods: interviews, surveys, and comparative analysis. We *interviewed* a series of business and local sellers to understand their experiences using Verdes as an exchange for their goods or services. We identified potential interviewees through current listings on the Cambiatus shop and through our sponsors. These semi-structured interviews gave us personal, in-depth feedback about the overall functionality of the program, the needs of sellers, and the values of the community. In response to the unprecedented growth of users, we developed a *survey* for users to complete. With participation on the platform already exceeding one thousand users, a survey was the most efficient method of gaining feedback about the use of Verdes within the community. This survey allowed us to get a broad sense of the general sentiments of the user base. Along with the interviews and survey, we conducted a *comparative analysis* of different funding models. This method allowed us to compare the different funding streams in order to provide Enlace with a list of recommended funding options. Without funding, there is no way to pay the fee required by Cambiatus and sustain the system, and the Verdes community will be removed from their website.

Findings

Using knowledge gained through 102 survey responses, sixteen interviews with both users and sellers, and other web- and literature-based research, we were able to classify our findings into three major areas: community knowledge, functionality, and funding.

Community Knowledge:

At the beginning of the program, many people were unfamiliar with Enlace Monteverde, the organization responsible for creating and administering the program. As word of the Verdes program spread through the community, the organization behind the project and the mission were not made clear. While the incentive of earning Verdes for registering was a great way to entice local people to participate, it resulted in many users who had not been instructed on how to properly participate in the program signing up with little prior knowledge.

In interviews with registered users, we learned that some community members had no idea where Verdes came from or who operates the program. This raised concern for these users who stated that, because they did not know who was behind the Verdes program, they were struggling to trust the system. Users who had more awareness of the program said that it was a great way for the community to come together and support one another during difficult times. Additionally, one community member noted that the Verdes program could be a huge incentive for people to change behaviors in order to lower emissions and help combat climate change. Further, users who were aware of Enlace Monteverde's work insisted that the group was so appealing because it is made up of locals who are working solely to benefit the community, rather than state or government organizations doing it for their own benefit. These thoughts should be shared with the community to increase support for Verdes. Users believe that it is important for Enlace Monteverde to create more publicity surrounding the program, encouraging more community members to join, while also creating a way to spread important information about the program.

Functionality:

There were also several functionality issues discovered through our surveys and interviews. Community members stated that the website lacked shop categories and an option to search for specific items, making it inconvenient and difficult for buyers to navigate the website. A lack of online security and problems with the registration process were also reported. After the rapid growth of the user-base, we discovered that the registration process had been unclear for many users, resulting in the creation of many invalid accounts on the website. Users stressed that the registration process needed to be clarified and the platform should allow new members to sign up with a personal password or pin number. Our survey also revealed that most of the users who completed the survey had access to smartphones; however, we learned from multiple interviews that the website was difficult to register for and to access from some smartphones. The platform also failed to prompt users to provide contact information. After these issues were brought to light, Cambiatus altered the website to require all users to provide basic information used to validate each user, along with contact information. Additionally, for the Verdes program itself to work effectively, it needs sellers who offer basic products that members of the community need. A lack of produce and food staples available on the shop means that many businesses could not use Verdes to purchase the goods they need to make their products. Many users and businesses have accumulated a large sum of Verdes, but they are not seeing items or services that they want to spend them on.

Funding:

The Cambiatus website requires communities to pay monthly fees after reaching a certain number of users. Enlace Monteverde expected to have more time to develop funding strategies, but within the first month of the launch, the Verdes community had drastically surpassed the first payment threshold with no plan in place for financial support.

Using multiple funding streams is seen as the best practice for non-profit organizations. The first option for funding the local exchange program, Verdes, is to implement a "fee-for-service" funding model. This funding model allows an organization to charge a fee in exchange for a service. In this case, sellers would pay a fee in order to use the Cambiatus platform to

exchange Verdes for their products. Membership fees are slightly different from the service fees in that all participants pay a fee for use. The amount of money that an organization will collect is predictable and reliable as well. Membership also increases the feeling of belonging and encourages long-term commitment from members. Another possible funding stream is individual donations. Individuals who feel that they are benefiting from the program may feel incentivized to help fund its operation. Enlace Monteverde could also utilize digital crowdfunding in addition to individual donations. Crowdfunding can be done live or on a crowdfunding platform such as GoGetFunding. This method can attract new donors who likely would not have donated otherwise. The final funding option that would work for Enlace Monteverde's local exchange program is grants. Grants are awarded to nonprofit organizations for a specific purpose. They can provide money towards operating support, capital support, or program development funding.

Close examinations of these findings and their relation to one another allows for a better understanding of the current state of the Verdes program. We shared with Enlace a detailed report that displays the data obtained through our survey.

Recommendations

This section details our recommendations for Enlace Monteverde. Each recommendation is sorted into short-term and long-term categories based on our findings.

Short-term:

Since we brought this information to Enlace Monteverde in the early stages of our project, they have already taken steps to find solutions to these problems. During one of their bi-weekly meetings with the Cambiatus team, Enlace created a list of potential categories and requested that they be added to the shop. We also recommend the option to include multiple pictures in one item listing. This is not a glaring technical problem, but it stands to benefit both users and sellers. Enlace Monteverde should also provide a clear list of rules for sellers. To help limit fraudulent or inactive accounts, we were able to compile a list of invalid emails from a list of registered email addresses that Cambiatus provided us. We recommend that Enlace Monteverde implements additional security measures, such as sending emails in order to verify accounts. One of our most important findings was that there is a lack of understanding surrounding how to use the Cambiatus website. It would be incredibly beneficial if there was a "help" tab in addition to the "dashboard" and "shop" tabs on the website. Additionally, many interviewees explained difficulties contacting community members regarding purchases. We recommend the creation of a communication interface on the website to allow users and sellers to easily communicate with each other. We recommend that Enlace Monteverde create Instagram and Facebook pages for the Verdes program. We created sample posts to provide examples of what Enlace could post on these platforms to provide them with initial content.

Long-term:

In order to spread more information about the program, we have learned that community members believe that Enlace could benefit from the long-term use of frequent newsletters, as well as an increased social media presence. These should be sustained over time, potentially by local high school or college students. A central part of the use of a local currency is the ability

for the currency to fully circulate within the community. To encourage this, we recommend Enlace implement a negative interest rate for their currency, which would incentivize people who received this currency to spend it quickly before it is devalued⁷. This is ideal in a community currency, where the frequency of transactions is central to its success. Similarly, Verdes could have an expiration date. Another way to generate many transactions within a community is by encouraging more businesses to join the community. This ensures that there are sufficient items in the shop that the users can purchase using Verdes. We believe that the best way to accomplish this is to increase marketing and social media presence, thereby promoting local sellers. We also recommend that Enlace work with Cambiatus to create a mobile application for the Verdes system in order to better serve the population. This would improve the experience for mobile users, since many have commented on the usability of the website on their mobile devices.

For funding, we recommend that Enlace Monteverde makes use of membership fees, service fees, and grants. First, we recommend that Enlace consider a “fee-for-service” model. Utilizing this funding source can help incentivize better use of the platform. We also recommend membership fees as a funding option that could easily fit into Enlace Monteverde’s current program. Each user could be charged a monthly or yearly membership fee to keep their account active. Finally, we provided a Enlace with a list of grants to investigate further.

Conclusion

Local currencies have the potential to support struggling economies by creating a circular economy, where exchanges of the local currency within the bounds of the region will provide a way for wealth to remain in the community. Our project sought to help Enlace Monteverde improve their recently implemented local currency, Verdes. Interviews and surveys with community members who use the currency system have increased our understanding of the awareness of the program within the community and the overall functionality of the system. Analysis of this data was used to design recommendations for our sponsors, which will allow them to increase awareness of the currency, improve the overall functionality of the system, and encourage more community members to participate. These recommendations will be useful for our sponsor as they continue their implementation of Verdes in Monteverde, creating a self-sustaining local economy, as well as to future organizations who wish to develop a lasting solution to combat economic struggle due to unforeseen events, like the COVID-19 pandemic.

⁷ Hallsmith, G., Lietaer, B. A., Lovins, L. H., & Meadows, D. L. (2011). *Creating wealth: Growing local economies with local currencies*. New Society Publishers.

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Table of Contents

Abstract	i
Executive Summary	ii
Acknowledgements	vii
List of Figures	x
Authorship	xi
1.0 Introduction.....	1
2.0 Background.....	2
2.1 Effects of COVID-19 on the Monteverde Economy	2
2.2 Circular Economy and Local Currency	2
2.2.1 Circular Economy	3
2.2.2 Local Currency	3
2.3 Community Benefits of Local Currency	4
2.4 Aspects of a Successful Local Currency	5
2.4.1 Conditions	5
2.4.2 Implementation Strategies.....	5
2.5 Cambiatus: A Blockchain Platform	6
2.6 Enlace Monteverde	7
3.0 Methods	8
3.1 Objective 1: Evaluate and understand seller needs and satisfaction in order to keep Verdes in circulation.....	8
3.1.1 Interviews with Sellers.....	8
3.2 Objective 2: Evaluate and understand user needs and satisfaction to ensure that Verdes are benefitting all community members.....	9
3.2.1 Surveying Registered Verdes Users	9
3.3 Objective 3: Investigate funding options to ensure that operation of the program can be maintained.....	10
3.3.1 Comparative Analysis of Funding Sources.....	10
4.0 Findings and Discussion	11
4.1 Community Knowledge	11
4.1.1 <i>Finding 1: There is a lack of knowledge in the community about the goals and benefits of the Verdes program, as well as about the Enlace Monteverde organization.</i>	11
4.1.2 <i>Finding 2: Community members do not know how to properly use the Cambiatus platform.</i>	13
4.2 Functionality.....	16
4.2.1 <i>Finding 3: The community has had problems with the functionality of Cambiatus platform and has identified areas in which they would like to see improvements.</i>	16
4.2.2 <i>Finding 4: Users and sellers believe that the Verdes program itself must be fundamentally improved to better meet the needs of the community.</i>	19
4.3 Funding Options	22

4.3.1 Finding 5: Funding Comparative Analysis.....	22
4.4 Discussion	24
5.0 Recommendations	25
5.1 Short-Term Improvements	25
5.1.1 Cambiatus System Improvements	25
5.1.2 Program Recommendations	26
5.2 Long-Term Improvements	27
5.2.1 Platform Trustworthiness	27
5.2.2 Economic Stability.....	28
5.2.3 Mobile Application.....	28
5.3 Funding Recommendations.....	29
6.0 Conclusion	31
References	32
Appendix	37
Appendix A: Blockchain Technology: An Overview	37
Appendix B: Interview Questions for Local Sellers.....	39
Appendix C: Survey Questions for Basic Users	42
Appendix D: Potential Cambiatus Shop Categories.....	45
Appendix E: Verdes User Guidelines.....	46
Appendix F: Social Media Plan	48
Potential Starter Post 1	50
Potential Starter Post 2	51
Potential Starter Post 3	53
Recurring Post Templates.....	54

List of Figures

Figure 1: Surveyed Users' Suggestions to Increase Participation	12
Figure 2: Percentage of Surveyed Users Who Have Seen Infographic Tutorial	13
Figure 3: Percentage of Surveyed Users Who Have Received the Verdes Guide.....	14
Figure 4: How Surveyed Users Heard About Verdes	14
Figure 5: Cambiatus Shop	17
Figure 6: Problematic Platform Features Identified by Surveyed Users.....	18
Figure 7: Percentage of Surveyed Users Who Have Spent Verdes	20
Figure 8: Percentage of Surveyed Users Who Have Posted Offers.....	20
Figure 9: Items Surveyed Users Have Spent Verdes On.....	21
Figure 10: Items Desired for the Shop by Surveyed Users	21
Figure 11: Current Cambiatus Dashboard	26
Figure 12: An Example of a Blockchain and its Structure	37
Figure 13: Social Media Post 1A.....	50
Figure 14: Social Media Post 1B	50
Figure 15: Social Media Post 1C	50
Figure 16: Social Media Post 2A	51
Figure 17: Social Media Post 2B	51
Figure 18: Social Media Post 2C	51
Figure 19: Social Media Post 2D.....	52
Figure 20: Social Media Post 2E.....	52
Figure 21: Social Media Post 3A.....	53
Figure 22: Social Media Post 3B	53
Figure 23: Social Media Post 3C	53
Figure 24: Social Media Post R1	54
Figure 25: Social Media Post R2	54
Figure 26: Social Media Post R3	55
Figure 27: Social Media Post R4	55

Authorship

The table below lists the primary author(s) and editor(s) for each section of this report. All members were involved in final reviews of each section as well as the creation of presentations for this project.

Section	Primary Author(s)	Primary Editor(s)
1.0 Introduction	L. Dishong & S. O'Connor	A. Nicklas
2.0 Background/Literature Review	All	All
2.1 Effects of Covid-19 on the Monteverde...	A. Andrade	A. Nicklas
2.2 Circular Economy and Local Currency	A. Nicklas	L. Dishong
2.3 Community Benefits of Local Currency	L. Dishong & A. Nicklas	S. O'Connor
2.4 Aspects of a Successful Local Currency	L. Dishong	S. O'Connor
2.5 Cambiatus: A Blockchain Platform	S. O'Connor	A. Andrade
2.6 Enlace Monteverde	A. Andrade & S. O'Connor	A. Andrade
3.0 Methods	All	All
3.1 Objective 1	L. Dishong	A. Nicklas
3.2 Objective 2	A. Andrade	S. O'Connor
3.3 Objective 3	A. Nicklas & S. O'Connor	L. Dishong
4.0 Findings and Discussion	All	All
4.1 Community Knowledge	S. O'Connor & L. Dishong	A. Andrade
4.2 Functionality	A. Andrade	A. Nicklas
4.3 Funding Options	S. O'Connor	L. Dishong
4.4 Discussion	L. Dishong	S. O'Connor
5.0 Recommendations	All	All
5.1 Short-Term Improvements	S. O'Connor	A. Nicklas
5.2 Long-Term Improvements	A. Nicklas	S. O'Connor
5.3 Funding Recommendations	S. O'Connor	L. Dishong
6.0 Conclusion	L. Dishong	A. Andrade
References	All	All
Appendices	All	All

1.0 Introduction

In December of 2019, a novel coronavirus that produces a disease now known as COVID-19 was first identified in Wuhan, China. Countries across the globe have been affected by the COVID-19 pandemic. Since then, the virus has spread rapidly, causing great economic and social distress and leading to over 2.4 million deaths as of February 2021 (*WHO Coronavirus Disease*, 2021). Due to the high transmission rates and lack of an effective vaccine, countries around the world are still struggling to stall the spread of the virus (Abbas, 2020). Many governments had to take difficult, yet necessary, measures, such as social distancing, travel bans, quarantining, shutdowns, and many additional public precautions in order to save lives. Developing and tourism driven economies have been especially impacted by the pandemic.

In addition to the adverse impact on global well-being, the economic fallout from the pandemic has and will continue to negatively affect economic growth beyond anything experienced in the last century. Tourism is one of the sectors most affected by the COVID-19 pandemic, as global gross domestic product (GDP) could reduce by 1.5% to 2.8% (World Tourism Organization, n.d.). Additionally, tourism supports one in ten jobs and provides livelihoods for millions of people in both developing and developed economies (World Tourism Organization, n.d.). In Costa Rica, nearly nine percent of the country's 2019 GDP was accounted for due to tourism alone (Shah, 2020). As a result, Costa Rica, like many tourism-driven countries, is experiencing economic hardship.

To combat the economic effects of the COVID-19 pandemic in the Monteverde region, the nonprofit group Enlace Monteverde has launched several initiatives that aim to aid the people of Monteverde during this time. Enlace Monteverde is an umbrella organization in Monteverde that has played an integral role in supporting the struggling community amid the current pandemic. Community members joined the organization with the hope of coming together to support each other as they adapt to the new reality created as a result of the virus. They have been assisting local families across the region by providing food and supplies, as well as checking for overall well-being. In Monteverde, there is a desperate need to bring the region out of its recession, which Enlace Monteverde believes can be done in part by stimulating local exchanges. Enlace Monteverde formed a series of subcommittees with ambitions to mitigate the effects of the pandemic on Monteverde's citizens. One of these subcommittees, the Subcommittee on Circular Economies, has begun the implementation of Verdes, the local currency that they have created within the Monteverde community. Successful implementation of a local currency will allow for goods, services, and capital to circulate within the region, thus strengthening the local economy.

In the background chapter of this report, we outline the research and information needed to understand important topics related to our project. We have identified key objectives that must be met in order to complete our project. Our methods for completing these objectives are outlined in our methods section. Ultimately, this advice could help Enlace Monteverde's current local currency system improve its value for both users and businesses and allow wealth to be successfully reinvested back into the local community by producers, citizens, and tourists alike.

2.0 Background

In this chapter, we discuss the adverse effects of COVID-19 on Monteverde's heavily tourism-dependent economy. We detail important aspects of successful local currencies and the benefits that local currencies bring to communities at large. Additionally, we explain Cambiatus, the currency exchange platform that Enlace Monteverde has chosen to use to digitally share their local currency. Finally, this section introduces our sponsor, Enlace Monteverde, and provides the full context of our project.

2.1 Effects of COVID-19 on the Monteverde Economy

Over the past few decades, Costa Rica has changed drastically from an agriculturally-based economy to one of the world's leaders in ecotourism (Monterrubio et al., 2020). When Costa Rica shut down its borders to international travelers from March 18th through August 1st, 2020, a large percentage of the Monteverde community was forced to live with little to no income, as many businesses let employees go amid this economic uncertainty (Baran, 2020). In the last ten years, ecotourism has become an important source of income in the country, indirectly creating thousands of jobs for residents; however, as a result of the pandemic, many citizens lost their jobs without the frequent travel of international tourists. The country's restrictions, aimed at limiting the outbreak of cases, were met with harsh protests. In Costa Rica and across the continent, students, workers, and many other residents joined together to protest budget cuts and shutdowns (van Teijlingen & Hogenboom, 2020). Today, the challenge for Costa Rica is to maintain economic growth and sustainability amidst the global pandemic.

One of Costa Rica's popular tourist destinations, Monteverde, is experiencing an economic recession (*Costa Rica*, 2020). As a result of the pandemic, the region has seen a severe drop in income, as restrictions in the country and across the globe have affected relied-upon tourist travel. In an overview of Costa Rica's COVID-19 situation, the World Bank predicted an increase in unemployment and poverty in the country (*Costa Rica Overview*, 2020). The Costa Rican government is facing interruptions in capital flow and the country's gross domestic product (GDP) is expected to fall over 5 percent within the year (*Costa Rica Overview*, 2020). Residents are nervous not only about the impact that the lack of tourism will have on the country's economy, but also about the health risk of the virus, when brought to their country by the travelers who do return. This dependency on tourism has severely crippled the economy in Monteverde, influencing community members to come together to look for a creative way to stimulate growth and income within their economy. Local currencies have the potential to be an innovative solution to this problem.

2.2 Circular Economy and Local Currency

Developing economies are affected greatly by changes to the global economy. Many tourism-driven areas like Monteverde rely almost entirely on international travel to keep their economies from recession. As a result, Monteverde's economy has struggled to support itself during these unprecedented times. There was a desperate need to conserve resources and to generate and keep wealth within the region, which is the goal of a circular economy.

2.2.1 Circular Economy

Circular economies have gained popularity as an alternative to the more common linear economy. Generally defined, a circular economy is a system in which output can be turned to input, reducing waste and maintaining a circular flow of products (Brown, 2018). In other words, a circular economy is created when goods that are nearing the end of their practical service are transformed into resources for new goods, therefore ‘closing the loop’ and ensuring that goods and services remain in the economy rather than being wasted (Stahel, 2016). Closing the loop places emphasis on the reuse of resources, rather than on mass production or disposal, increasing the usefulness and value of resources in an economy. Circular economies attempt to reuse products and resources, increasing each input’s effectiveness (Geisendorf & Pietrulla, 2018). This increases the value of each of the given inputs. Circular economies strive to encourage all members of the economy to remain environmentally conscious and maintain awareness around their use of disposable resources (Geisendorf & Pietrulla, 2018). Additionally, a circular economy empowers local economies to withstand the harsh effects of significant national and global changes (Gomez & Helmsing, 2008). For these reasons, circular economies can be extremely effective in smaller, environmentally conscious communities by increasing the effectiveness of their economies, as well as maintaining and encouraging practices that are environmentally sustainable. One way for a community to form a circular economy is to use a local currency.

2.2.2 Local Currency

A local, or community, currency is an asset-based, complementary money system that is circulated in a geographically limited area (Kwon et al., 2019). Communities create and circulate local currencies in order to keep wealth within the region, helping to stimulate their local economy and revitalize their community (Nishibe, 2018). Any individual, organization, or business in the community can participate in the use of a local currency by offering exchange for their goods, services, skills, or time (Kwon et al., 2019). This can serve to help lower-income individuals of a community by both providing a source of income from secondhand goods and increasing accessibility for goods and services (Mauldin, 2015). There have been many efforts globally to increase local spending with a created community currency (Maggio & Brockington, 2013). The currency itself could be a printed voucher or a digital credit, depending on the needs of the community (Kwon et al., 2019). Each example of a local currency is formed and operated differently, varying based on purpose and circumstance.

There are different methods in which local currencies have been formed. One example is to create a fiat currency that is backed by the national currency. One example of a nationally backed fiat currency is the Berkshares, implemented in the Berkshires region of Massachusetts. This type of currency is often referred to as a proxy currency (Mauldin, 2015). Another option is a local fiat currency that is not backed by any commodity or national currency (Mauldin, 2015). A local fiat currency has no intrinsic value, so its value is agreed upon by the community through exchanges (Mauldin, 2015). The Equal Dollars program that was implemented in Philadelphia, Pennsylvania, is an example that encourages service and equal opportunity throughout its community – a common aspect of a local fiat currency (Maggio & Brockington, 2013). Local fiat currencies, or units of exchange, can also reward people for completing tasks that benefit their

community, or tasks that are encouraged by the organizers of the unit of exchange (Mauldin, 2015).

2.3 Community Benefits of Local Currency

Local currencies offer numerous benefits to communities that are struggling economically. While national currencies are often scarce and heavily susceptible to systematic transfers of wealth, local currencies remain self-sufficient, as money stays within a community (Kenney et al., 2012). No matter the state of the national, or even global, economy, a successful local currency could help to keep a small community from economic turmoil. This could provide the community of individuals with a sense of belonging, trust, and control over their livelihoods (Kenney et al., 2012).

Local currencies can facilitate exchanges of goods or services within a community and encourage the circulation of the currency to stay within the given region (Mauldin, 2015). They empower individuals and local businesses to rebuild their community and strengthen their local economy by offering previously overlooked skills and trades (Kenney et al., 2012; Seyfang, 2001). A local currency can also help generate income for members of the community who may be struggling financially, thus increasing spending opportunities and continuously stimulating the local economy (Mauldin, 2015). These newly established business opportunities and enterprises can promote social inclusion for poorer households, while also helping them to diversify and increase their income (Gomez & Helmsing, 2008). This in turn may lower unemployment in the community and offer residents a new way to provide for themselves (García-Corral et al., 2020).

Local currencies can be used as a source of pride in the community and can also provide incentive for people to advocate for the values of the given society (Maggio & Brockington, 2013; Mauldin, 2015). Furthermore, these units of exchange can build deeply supportive social networks throughout a region (Seyfang, 2001). They can bring together people who wish to promote prosperity, where exchanges are guided by the principles of sustainability and reciprocity (Sanz, 2016). There is positive correlation between the motivation to support local business and the motivation to contribute to a more sustainable society (Sanz, 2016). Additionally, there is positive correlation between the desire to interact with people who share similar values as one's own and the motivation to promote a sense of community (Sanz, 2016). Along with the exchange of local currency, an ideologically connected group of individuals fosters the exchange of information, friendship, environmental awareness, and activism. The use of local currencies can encourage the participation of young people, while giving support to the elderly population. Likewise, it can encourage healthy living through exercise, while also promoting environmental projects such as the planting of trees or community gardens.

Local currencies can be earned through sustainable and environmentally friendly behavior, such as using public transportation, using green energy, recycling, volunteering, and other community service efforts. This empowers citizens, including those who may be unemployed, to benefit from making slight changes in their lifestyles by practicing more sustainable consumption patterns (Seyfang, 2001). Simply encouraging such tasks can help increase important conservation and sustainable development efforts in a community or region (Kenney et al., 2012). Local currencies may be used to promote values such as solidarity,

ecology, social justice, participation, and personal relationships (Sanz, 2016). Implementation of a local currency in a supportive community can bring together and benefit the key elements of society: local businesses, volunteer organizations, public agencies, and citizens (Kenney et al., 2012). The numerous benefits gained through a local currency, however, are determined by the conditions and strategies used throughout its creation.

2.4 Aspects of a Successful Local Currency

The overall success of a local currency is heavily dependent on how the exchange system is designed. Regions or communities that have certain preexisting conditions have proved to have more success with community currencies. Additionally, the strategies an organization or community uses to implement a local currency will affect the overall impact of the exchange program.

2.4.1 Conditions

There are many conditions and contexts that are associated with the success of a local currency movement in a region or area. The first important condition that helps to pave the way for a successful local currency is small population or geographic isolation. A study done on five local currencies in the US, Canada, and the UK, found that all successful movements were in less populated areas where a strong sense of community belonging and support were evident (Kim et al., 2016). Small population and geographic isolation allow for frequent interaction between consumers and businesses, as well as frequent communication between currency movement managers and local merchants. Additionally, successful movements were attributed to a community spirit emphasizing cooperation, solidarity, and belonging. Promotion of this sense of belonging, along with the emphasis placed on the locality of the currency, were also identified as success factors in local currency movements (García-Corral et al., 2020). Other circumstances tied to the success of community currency include history of low household income, high poverty rates, and high unemployment rates (Collom, 2005). The same study of five local currencies found that movements were more successful in areas with lower median household income, while unsuccessful movements were seen in areas with higher household income (Kim et al., 2016). Furthermore, areas with large self-employment sectors achieved greater success in implementing a local currency (Collom, 2005). The tourism industry, for example, often supports businesses that are individually or family owned, therefore creating a high level of self-employment that is often unstable and heavily dependent on travel (UNWTO & ILO, 2014). These conditions, along with effective implementation strategies, are essential aspects to the creation and sustained operation of a successful local currency.

2.4.2 Implementation Strategies

Proper implementation strategies are critical in the achievement of a successful local currency. Funding, early membership recruitment, and operation logistics are essential in the preliminary stages of development (Kim et al., 2016). Initial funding for the currency implementation would help pay for design and printing of the currency, marketing, compensating staff, insurance, and filling fees. In order to make the currency less vulnerable and more sustainable beyond the initial stage, the organization should explore grants, sponsorship, or a

business model in which the currency itself generates income (New Economics Foundation, 2015). Registration, membership, or transaction fees are examples of how a local currency could generate its own source of income to pay for operating and maintenance costs.

As the currency is created and implemented, it should reflect the values that a community holds. Local currencies encourage involvement and support across communities, and therefore, community members should participate in dialogue and decision-making surrounding the project (New Economics Foundation, 2015). Flexibility, transparency, and democratic decision-making are extremely important throughout the development and implementation stages of a new local currency (New Economics Foundation, 2015). Involving the community throughout the process encourages feelings of trust and safety regarding the currency.

Another important aspect of implementation of a local currency is developing a strong base of participating businesses. Successful movements started by engaging a small number of local, socially conscious businesses (Kim et al., 2016). Such businesses may include local food producers, farmer's markets, or small family-owned shops. Targeting businesses that are involved in the community and actively support local sustainability and improvement efforts appeals to the sense of belonging and support desired by the local community. This encourages community members to begin using the local currency; once people start using it regularly, other businesses wish to become involved. Implementation strategies can determine the overall success of a local currency movement. For this reason, in order for a digital community currency to be successful, choosing a favorable, user-friendly platform for the exchange system is crucial.

2.5 Cambiatus: A Blockchain Platform

There are many nuances in methods and strategies that will change the way that a local currency interacts with the community and determine its overall success. For a digital local currency to be implemented successfully, the platform must be easily accessible, secure, and reliable so that people and businesses become interested in using the system. One platform created for this purpose is Cambiatus: a blockchain system that was created for the purpose of implementing local currencies for various communities (*New Organizations for the Planet Regeneration*, n.d.).

The effectiveness of the Cambiatus platform comes from the EOSIO software, a blockchain system with a reputation of high speed and low cost, as well as economic friendliness and reliability. Enlace Monteverde was looking for a simple, yet secure, method of exchanging money that would allow people to make transactions at local shops or online. They wanted a platform that they knew people could trust, and that is where the idea of using blockchain technology came in. Blockchain technology “consists of a distributed database of records or public ledger of all transactions or digital events that have been executed” (Harris, 2018, p. 641). In other words, it creates a record-keeping system that securely keeps track of all the money that is shared in the system (Crosby, 2016). The public ledgers that are created are tamper resistant as well. Once published, no transaction can be removed or changed (Zheng et al., 2017). Since blockchain systems create tamper-proof records of all transactions ever completed within a system, it creates a secure environment for exchanging money and mitigating fraud.

The use of Cambiatus as a digital exchange platform allows communities to effectively incorporate a local currency into their economy. If users are properly educated on the platform,

they will see that safety and security are a high priority, which will provide a feeling of trust surrounding the project. More in-depth information about blockchain technology can be found in Appendix A.

2.6 Enlace Monteverde

Enlace Monteverde is a non-governmental organization that aided in supplying necessary food and care to struggling families in Monteverde during the COVID-19 pandemic. A network of people connected to the Monteverde community came together after realizing the devastating impacts that the community was facing due to the changes imposed by the pandemic. They work to collect food donations, deliver groceries, supply masks, and more.

After seeing the economic impact that the pandemic has had on Monteverde, Enlace Monteverde formed the Sub-Committee on Circular Economies to help alleviate the effects of the recession on the people of Monteverde. To combat the economic recession that faced the Monteverde community, Enlace Monteverde's Subcommittee on Circular Economies investigated the possibility of implementing a local currency that would encourage increased spending at local businesses and facilitate the creation of a circular economy (*Costa Rica*, 2020). They have been working on this circular economy and community currency project since the beginning of the pandemic, so it is vital to understand their role and the work that they have completed in the context of this project. Enlace Monteverde gained a solid foundation of research regarding the concept of local currencies and utilized this knowledge to begin implementing a local currency in Monteverde.

Monteverde was disproportionately affected by the COVID-19 global pandemic. Their economy has been challenged to withstand this impact, as it is a community that heavily relies on tourism to stimulate their economy. Enlace Monteverde saw the need to allow the Monteverde economy to be self-sufficient, even throughout an unforeseen global event. All of the above information has helped us to understand the nuanced problem that the community of Monteverde is facing and the solution that Enlace Monteverde is working on. With this knowledge, we can assist Enlace Monteverde with improving and sustaining their new local currency, thereby encouraging local exchange, and reviving the region's economy.

3.0 Methods

This project focuses on ways to improve the overall functionality of the Verdes program for the general user base, as well as for businesses and sellers specifically. Our goal was to understand the needs of buyers and sellers within Monteverde's local exchange program in order to increase the impact and overall satisfaction with the program and to ensure longevity. Our project also provides recommendations for funding options for the program. As the program continues to grow, operational costs are introduced; thus, in order to ensure longevity, funding solutions must be found. To achieve this goal, we assessed the reach of the current program and developed an understanding of the community's perceptions of the program's function and purpose.

The following objectives were created to address the goal of our project:

1. Evaluate and understand seller needs and satisfaction with the program in order to keep Verdes in circulation
2. Evaluate and understand user needs and satisfaction to ensure that Verdes are benefitting community members
3. Investigate funding options to ensure that operation of the program can be maintained

The following sections lay out the objectives that we completed in order to collect information that allowed us to provide our final recommendations to Enlace Monteverde.

3.1 Objective 1: Evaluate and understand seller needs and satisfaction in order to keep Verdes in circulation

The first objective that we investigated was to evaluate sellers' experiences with the local exchange program implemented by our sponsor. This research allowed us to understand how sellers were interacting with the program and how it could be improved to better serve their needs. It also gave us insight regarding what sellers need in order to keep the Verdes that they accumulate in circulation. More businesses and community members could be encouraged to sell their goods and services in exchange for Verdes if essential improvements are identified and implemented to the program.

3.1.1 Interviews with Sellers

We used interviews to understand the experiences that businesses and sellers have had using Verdes as an exchange for their goods or services. These interviews revealed the overall functionality of the program for sellers, and whether their needs were being met. We identified potential interviewees, both individual sellers and businesses, through current listings in the Cambiatus shop and/or through our sponsor. We used semi-structured interviews to gain detailed and specific information directly from the sellers. The open-ended nature of the questions within our semi-structured interviews allowed for comprehensive and diversified responses (Balbach, 1999). We designed a series of questions to evaluate the currency program from the perspective

of a seller. For example, we asked sellers what goods and or services they would want to see on the platform and what would entice other community members to join. We were careful to avoid confusing, offensive, or unprofessional language when the questions were designed to avoid misinterpretation of questions or bias (Bolderston, 2012). This structure allowed us to have successful interviews even in a digital setting.

Remote interviews were our most effective method of gauging the involvement and opinions of the local sellers in Monteverde. These interviews were completed over Zoom, removing the constraint of having to be there in person with our interviewee, giving us the ability to connect with the community during the pandemic (Janghorban et al., 2014).

Each interview began with an oral consent script detailing the conditions of our study, which allowed the interviewee to determine whether they wished to participate in the interview. Sixteen interviews were conducted and recorded with the interviewees' consent and detailed notes were taken during each interview. These interview questions can be found in Appendix B.

3.2 Objective 2: Evaluate and understand user needs and satisfaction to ensure that Verdes are benefitting all community members

To stimulate the local economy, promote sustainability, and encourage community involvement, Enlace Monteverde chose to use Cambiatus, an online blockchain platform used for digital money-sharing, to facilitate the use and distribution of Verdes. For this program to become successful, the platform must be user-friendly and appealing to community members. Gathering feedback from users regarding the overall functionality of platform, as well as how the program is benefitting them, helped us to make suggestions which will allow Enlace Monteverde to make necessary changes to improve the system.

3.2.1 Surveying Registered Verdes Users

Feedback is an important part of improving the process of implementing Verdes using the Cambiatus platform. To test the efficiency and convenience of the new currency system, we developed a survey for users to complete. With participation on the platform already exceeding one thousand users, a survey was an efficient method to gain a wealth of feedback about the use of Verdes within the community. It was important to design a survey that had clear and concise questions, allowing us to obtain information that was useful to our research. Questions that were poorly phrased or unclear would cause each respondent to interpret the meaning differently, limiting the questions' reliability (DeCarlo, 2018). The goal of the survey was to obtain information about users' interactions with the platform in order to make desired improvements. After thorough review by the team and the sponsors, a detailed and comprehensive survey was developed.

One concern with the use of a survey is the potential for low response rate from participants. The population of users might not be represented accurately by a survey if the number of responses is small. Without enough respondents, the reliability and accuracy of the survey diminishes. The respondents' "failure to participate raises the fear of nonresponse bias in achieved survey samples" (Miller, 2017, p. 206). In order to encourage more users to complete

the survey, those who completed the survey received three thousand Verdes. The 102 responses from the survey allowed us to gauge user satisfaction and improve the functionality of the system in order to make it as beneficial as possible for the community.

The survey also asked if the user would be willing to participate in an additional interview with our team. These interviewees were contacted via the email address that they provided in the survey. These follow-up interviews allowed us to obtain a deeper understanding of the users' experiences and satisfaction with the program. These interviews were conducted under the same circumstances detailed above (Section 3.1.1) and asked in-depth variations of questions found in the survey. The survey questions can be found in Appendix C.

3.3 Objective 3: Investigate funding options to ensure that operation of the program can be maintained

Cambiatus, the platform that Enlace Monteverde has chosen to distribute and transfer Verdes, charges fees at a specific number of users. As the user-base grows in a particular community on Cambiatus, the organization must pay a monthly fee to continue using the website for their community. In order to create a successful, long-lasting local exchange program, Enlace Monteverde must be able to continue funding the platform. If Enlace Monteverde is unable to pay for the website, the program will stall, and community members will no longer be able to use Verdes. Our third objective was therefore to evaluate, compare, and discuss funding options for Enlace Monteverde so they can choose the best way to fund the program and have a self-sustaining local currency.

3.3.1 Comparative Analysis of Funding Sources

Having a detailed plan to fund the program that Enlace Monteverde launched is an incredibly important aspect of the model. Without funding options, there will be no way to pay Cambiatus and sustain the system, and the Verdes community will be removed from their website. In order to evaluate and compare the available options that Enlace Monteverde could use to fund their website, we conducted a comparative analysis. This method allowed us to compare the different funding streams that exist.

The purpose of a comparative analysis is to compare two or more ideas under the same umbrella that we have grouped them (Walk, 1998). Our umbrella, or frame of reference, was funding streams that Enlace Monteverde can use to pay for Cambiatus. We compared funding options such as grants, crowdfunding, membership fees, and sponsorships. After collecting information about all of these funding streams, we analyzed the information and compared them to find the best option available to Enlace Monteverde.

The methods that have been detailed above allowed us to address the goal of this project. In the next chapter, we detail our findings established through our survey, interviews, and research.

4.0 Findings and Discussion

In January 2021, Enlace Monteverde officially launched their local exchange program using the new local currency, Verdes. They chose to use the Cambiatus platform to share the currency, and since its launch, the program has grown dramatically. Due to strong incentives for users to join, as well as to invite friends and family, the online community grew to over 1000 users within a few weeks. This quick growth has presented new challenges and considerations for the Verdes initiative, which we detail below. Through our 102 survey responses, sixteen interviews with both users and sellers, and other web- and literature-based research, we were able to classify our findings into three major areas: community knowledge, functionality, and funding.

4.1 Community Knowledge

As detailed in our methods chapter, we conducted various interviews and surveyed members of the Verdes community. This information helped us to understand how the community is interacting with the program. We have learned that there is a significant lack of public knowledge regarding how to use the Cambiatus platform and about the Verdes program itself.

4.1.1 Finding 1: There is a lack of knowledge in the community about the goals and benefits of the Verdes program, as well as about the Enlace Monteverde organization.

Enlace Monteverde created this local exchange program to help support the community during the economic downturn created by the COVID-19 pandemic; however, when the program was launched, many people in the community were unfamiliar with the organization responsible for administering the program. Word of the Verdes program spread rapidly, yet few actually knew of the organization behind the project or of its mission. One interviewee noted that in learning that they could earn Verdes just for registering on the Cambiatus website, many community members quickly registered, but had no knowledge about the program. While the incentive of earning Verdes for registering was a great way to entice the community to participate, it resulted in a large number of users who had not been instructed on how to properly participate in the program. The community needs to be informed about the organization and who runs the program. Including more information about the sponsors and allowing community members to put a face to Verdes will encourage more people to use them, thereby stimulating the local economy.

Enlace created limited educational content regarding how to use the platform but did not initially include information about their organization or the Verdes initiative. Recently since the initial launch, Enlace has created a YouTube video explaining the purpose of Verdes. This information, however, has not been distributed to all registered users. Community members offered various suggestions about how awareness and education for the Verdes program could be spread. One suggestion was to have open sessions, where community members could ask questions and learn more about the program. Others suggested short educational videos or more

guides, such as documents or infographics. Overall, users wanted easy access to all of the resources. Some suggested that there be a place on the Cambiatus platform where informational content could be easily located. Additionally, community members said that Enlace must use social media and local media outlets in Monteverde in order to spread awareness about the program. Surveyed users specifically suggested Facebook and Instagram pages, as well as local campaigning and advertising to increase publicity. The suggestions that community members offered to increase participation in Verdes program are summarized in Figure 1. *Notably, community members stated that they must know more about the Verdes program in general, such as who created and operates it, what the goal of the program is, and how it can benefit the community.*

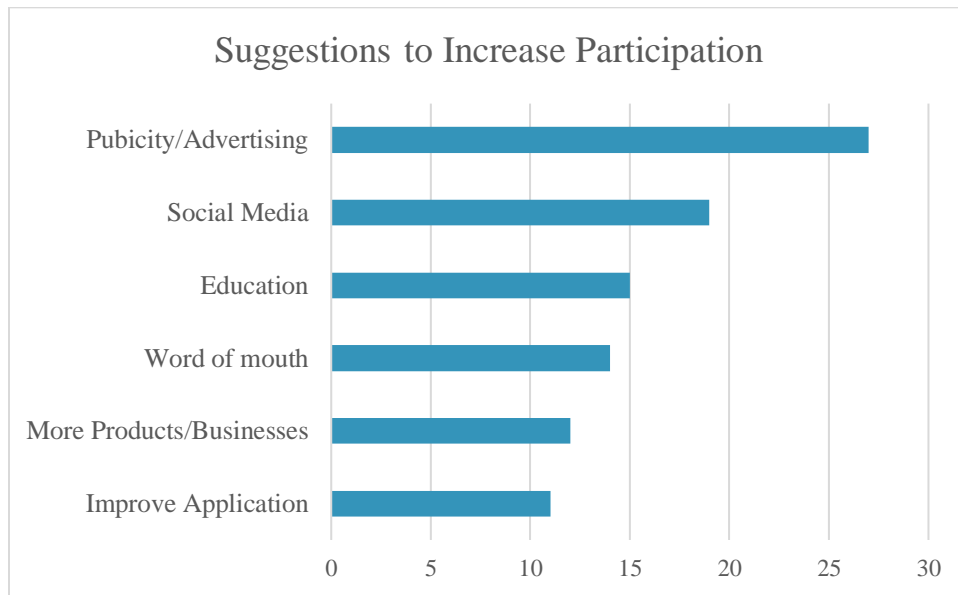


Figure 1: *Surveyed Users’ Suggestions to Increase Participation*

In a few interviews with registered users, we were shocked to learn that some community members had no idea where Verdes came from or who operates the program. They had never heard of the Enlace Monteverde organization. This raised concern for these users who stated that because they did not know who was behind the Verdes program, they were struggling to trust the system. They said that in order to receive more participation in the community, users must understand the meaning behind Verdes and be aware of who manages the program. Users who had more awareness of the program said that it was a great way for the community to come together and support one another during difficult times. Additionally, one community member noted that Verdes program could be a huge incentive for people to change behaviors in order to lower emissions and help combat climate change. Further, users who were aware of Enlace Monteverde’s work insisted that the group was so appealing because it is made up of locals who are working solely to benefit the community, rather than state or government organizations doing it for their own benefit. One interviewee stated that “there is a potential for anything ... it [the

Verdes program] is ready to grow.” These thoughts should be shared with the community to increase support for Verdes. *Users believe that it is important for Enlace Monteverde to create more publicity about the program, encouraging more community members to join while also creating a way to spread important information about the program.*

4.1.2 Finding 2: Community members do not know how to properly use the Cambiatus platform.

Enlace Monteverde was not expecting the Verdes community to grow as quickly as it did; they had anticipated having more time to put together and distribute additional educational content. As a result, when the program ultimately grew, users and community members did not have the base-level knowledge that they needed to participate. The only available tutorial content for the first month after the launch was a short infographic detailing various aspect of the platform, and a Verdes guide with FAQs in the form of a Google Doc. There was no organized way to distribute this information to users. This tutorial content was predominately shared from person to person, which means that it did not reach most users. Figure 2 shows that more than three-quarters of surveyed users had not seen the infographic tutorial demonstrating how to use Cambiatus. Additionally, the majority of surveyed users had not received the Verdes guide (Figure 3).

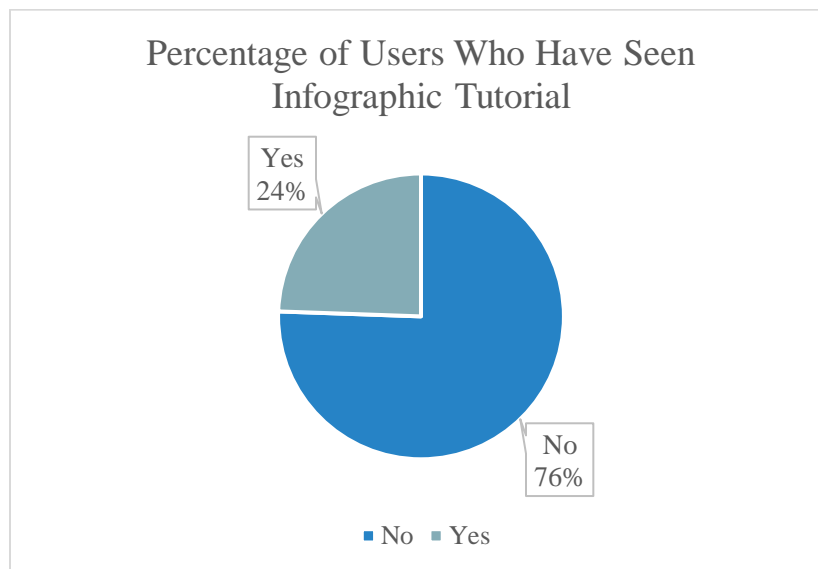


Figure 2: *Percentage of Surveyed Users Who Have Seen Infographic Tutorial*

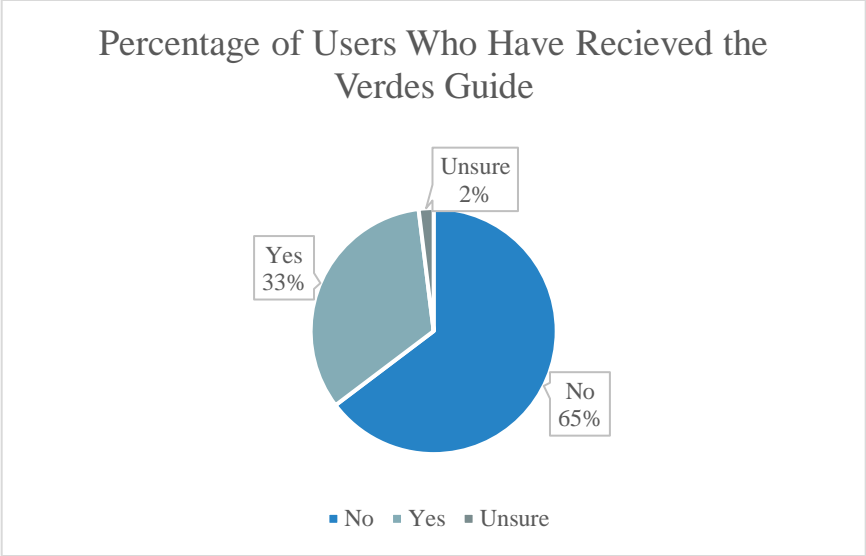


Figure 3: Percentage of Surveyed Users Who Have Received the Verdes Guide

As shown in Figure 4, most users heard of Verdes from a family member or a friend in the community; therefore, information was not shared uniformly throughout the community. One interviewee explained that users who were more technically adept were the only ones able to find and understand information to help them register and use Verdes. Users explained that there must be instructional content easily accessible to everyone in the community. This will provide increased understanding of how to register and interact with Verdes, including the purchasing or selling local goods or services.

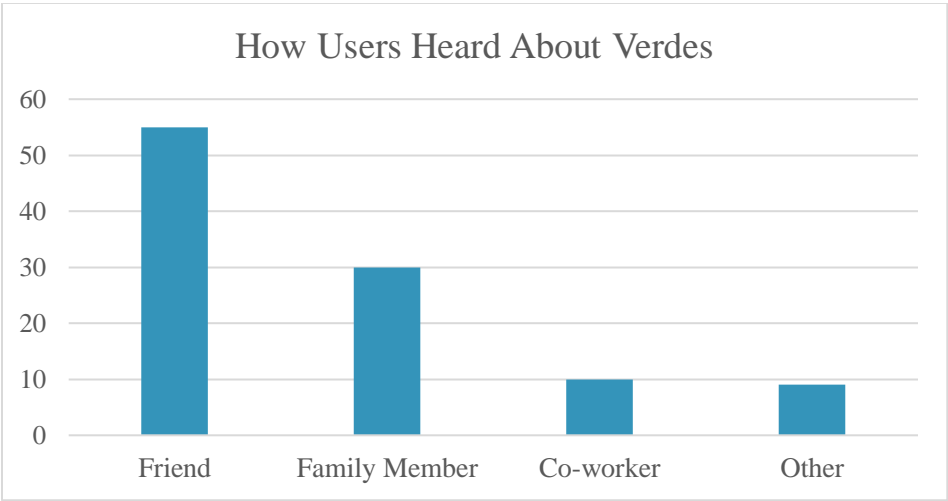


Figure 4: How Surveyed Users Heard About Verdes

Many users expressed frustration with the process of registering on the platform. This frustration is attributed to both the lack of guidance regarding how to register and the poor functionality of the registration process, detailed further below. Once users successfully enter the

website, they are presented with a few options. They can either shop on the store, transfer Verdes, or submit claims. Claims allow users to “claim” Verdes for completing certain tasks such as walking to work or volunteering for local organizations. This is a great way to motivate community members to be more environmentally conscious or become more involved with the community. Unfortunately, users reported having difficulty with this feature. To claim Verdes for a certain action, you must submit photographic evidence that allows an administrator to approve your claim. This process has proved to be confusing and complicated for users who had not received any tutorial content. Additionally, users were not aware of the many actions they could take to earn Verdes. Furthermore, some users stated that they had difficulty or did not know how to properly sell items in the digital shop. This is important, because the shop desperately needs more items, and users feel that they may have items to offer; however, they are unsure of how to use the system.

It is not only users who are having difficulties understanding the Cambiatus website without direction; sellers are also cautious when using the website. Sellers have been offering items for partial payment in Verdes and partial payment in Colones, the national currency in Costa Rica. Instead of listing the product for the Verdes price, they list it as the total sum of Verdes and Colones and specify their actual payment preference in the description. This has caused problems for some buyers who do not read the description explaining the partial payment before buying. These buyers could end up overpaying in Verdes if they fail to notice that part of the total payment is desired in Colones. Since the main shop page does not show descriptions, the offer is misleading because customers do not see the real price breakdown until they click onto the item’s page. We learned that some users are selling goods partially in Colones in order to make a profit or because they do not see items that interest them in the shop. For Verdes to be successful, they must be circulated constantly within the community; therefore, there must be rules established explaining what percentage of the payment for a product can be in Colones. *In order to have a successful program for both sellers and customers, sellers must understand how to properly list items.*

For the Verdes shop to function the way it was meant to and benefit the community, sellers want to establish guidelines that users must follow when posting to the shop. They believe that guidelines should determine which goods and services can be posted in the shop. Sellers also stated that the guidelines should include requirements to use clear pictures and accurate descriptions when posting items in the shop. Interviewees also mentioned that the guidelines should discourage sellers from posting the same product or service separately, many times to the shop. Instead, it should encourage sellers to group like items into one listing using the quantity function. This would help to address sellers’ concerns with their products being lost in the shop due to a mass number of items posted by a single seller. Properly educating users and sellers on how to use the Cambiatus website will create more confidence in the buying and selling process. Moreover, users will feel more comfortable and familiar with navigating the website, encouraging more use throughout the community.

4.2 Functionality

When the Verdes initiative was first launched by Enlace Monteverde, the number of users registered with the Verdes community grew faster than expected. The rapid growth of the user-base highlighted unforeseen issues with the platform. The Cambiatus platform itself is still in its early stages of development, which explains why accessibility and overall functionality issues became an early obstacle for Enlace. From our interviews with users and our survey questions, we were able to identify functionality issues with the Cambiatus platform and the Verdes program.

4.2.1 Finding 3: The community has had problems with the functionality of Cambiatus platform and has identified areas in which they would like to see improvements.

In the beginning stages of Verdes, there was limited information available about Enlace Monteverde or how to use the Cambiatus website. Unfortunately, Enlace Monteverde was understaffed and most members were only temporary volunteers at first, which made it difficult to manage. There was also a limited number of sellers, so only a few basic homemade items were available on the website. Within two weeks, the user base grew to over one thousand users and many new items were available, such as new and used clothes, household items, homemade items and more.

Although it was beneficial to have more items available, the website lacks categories or an option to search for specific items, making it inconvenient and difficult for buyers to navigate the website. Figure 5 shows the current setup of the shop on Cambiatus. In one interview, the user told us that he was “sick of scrolling through people’s used shoes and just random stuff.” It was made clear through additional interviews that users were struggling to find items that interested them because they had to scroll through every listing in the shop. In another interview, one participant explained that some users are hesitant to sell on the shop because their items might be lost in the stream of new incoming items. Other users suggested that the platform should have a search bar that would allow users to quickly find goods or services that they are interested in. *Ultimately, users believed that categories would allow members to find the items they want or need more easily, improving the overall platform.*

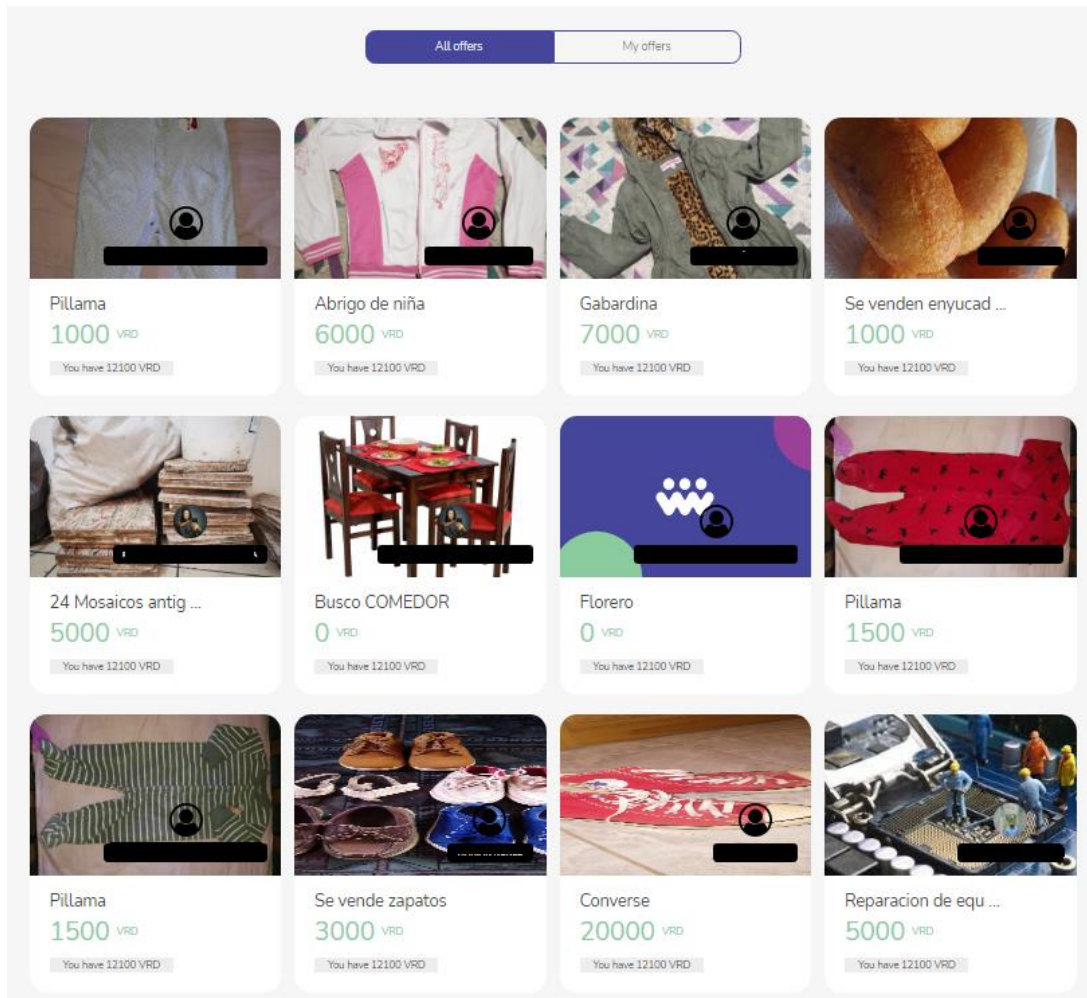


Figure 5: Cambiatus Shop

Another concerning problem with the Cambiatus platform was the lack of online security and the registration process. The user-base continued to grow rapidly for many weeks; however, after closer inspection, we learned that the process of registering had been unclear for many users. This resulted in the creation of many invalid accounts on the website, registered with incorrect, non-existing, or duplicate email addresses. There was no process to verify email addresses during registration, which posed a threat to the money-sharing system. After this was discovered, Enlace worked with Cambiatus to improve security by requiring a phone number and a personal identification number upon registration. Still, as shown in Figure 6, users experienced the most problems with registering on the platform. Each member is assigned a twelve-word passcode and must enter these twelve words to login each time, which proved to be inconvenient and difficult for many users. Additionally, any users who forget their twelve words no longer have access to their account. *Users stressed that the registration process needed to be clarified and the platform should allow new members to sign up with a personal password or pin number.*

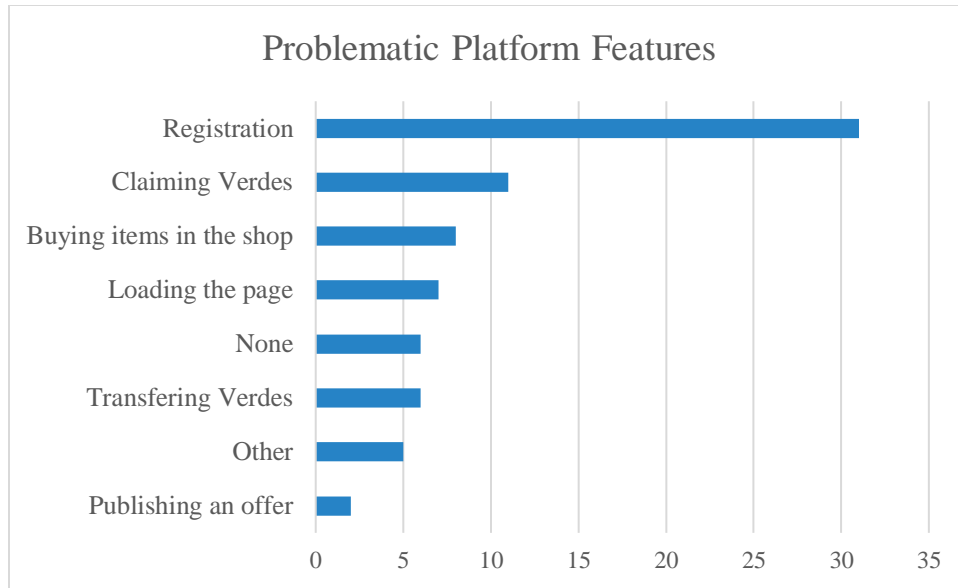


Figure 6: *Problematic Platform Features Identified by Surveyed Users*

We decided to investigate the legitimacy of all the current users and quickly realized that of the thousand users, there were a few hundred accounts using fake, invalid, or duplicate emails. We compiled a list of the invalid or repeat accounts, which Enlace Monteverde was able to send directly to Cambiatus to be removed. We examined the email list and transaction data from Cambiatus and discovered that new users were abusing the ten thousand Verdes reward for signing up, by creating multiple fake accounts and sending the initial Verdes awarded for registration to their main account. The invalid or duplicate accounts were not the only problem related to the registration process. The platform also fails to prompt users to provide contact information.

We learned that when users bought items, there was rarely any contact information or ways to message the seller to either pick up the item or have it delivered. Sellers were not initially required by the platform to enter contact information; hence they would only provide a way to contact them in the description of the listing, something sellers often forgot to do. Users repeatedly mentioned this problem, noting experiences in which they bought or sold an item and had no way to contact the other community member. After these issues were brought to light, Cambiatus altered the website to require all users to provide basic information used to validate each user, along with contact information. This creates a more secure platform that members of the community can trust and easily access or contact sellers within the platform.

Our survey also revealed that most of the users who completed the survey had accessibility to smartphones. We learned from multiple interviews that the website was difficult to register for or access from some smartphones. *This concern prompted many users to suggest the creation of a mobile app for Cambiatus in the future.* Users claimed that an app would make Verdes easier to use. In an interview with a local coffee shop owner, he stated that his customers, both locals and part time residents, would benefit from an app. He believes there is enough local

talent for someone in Monteverde to create an app. With the possibility of an app, Cambiatus must format the website to adjust the program for mobile use.

Part of the goal of the Verdes initiative is to promote sustainability through ecofriendly actions. On the Cambiatus website, users are provided with objectives, which they can complete to earn Verdes. These objectives include riding a bike or walking to work instead of using a car, as well as volunteering with local organizations. In order to collect Verdes for these actions, users must verify their claims on the platform. We discovered that the process of verifying claims was problematic because there were hundreds of claims and only a handful verifiers, who are volunteers for the Subcommittee on Circular Economies. The platform does not alert a verifier if there are claims to be verified, so verifiers must go through every objective just to verify one, making the process very slow. We heard from multiple users that it often took one to two weeks for their claims to be verified. *For this feature to be smoother for users and verifiers, the slow process of verification must be addressed.*

4.2.2 Finding 4: Users and sellers believe that the Verdes program itself must be fundamentally improved to better meet the needs of the community.

After the pandemic hit, many jobs were affected by the lack of tourism in the country. A successful Verdes initiative could help members of the community to exchange Verdes for goods or services they desperately need. The program, however, must be improved by clarifying the purpose of the exchange program and encouraging more local sellers and servicers to join.

Through interviews and our survey, we were able to understand the needs and wants of the sellers and the general users on the platform. As shown in Figure 7, more than half of surveyed users have yet to spend any of their Verdes. For users to want to purchase items, there must be participants who sell goods or offer services that are of interest to the community. Currently, the majority of available items are clothing or homemade goods sold by individuals. From our survey, we found that 79 percent of active users had yet to post any offers (Figure 8). This means that there are many users who wish to purchase items but have yet to post any offers in the shop themselves. This results in a demand issue in which there are not enough items available for community members to purchase. Users should be educated and encouraged to share goods or services that they may have to offer in the shop. Alternatively, users may not have items to offer and may wish to use the program solely to purchase items. In this case, more local businesses and stores must be encouraged to participate in the Verdes program.

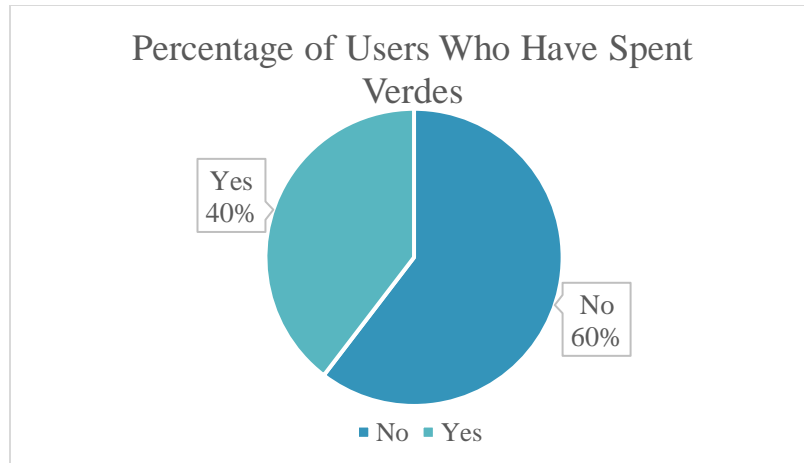


Figure 7: Percentage of Surveyed Users Who Have Spent Verdes

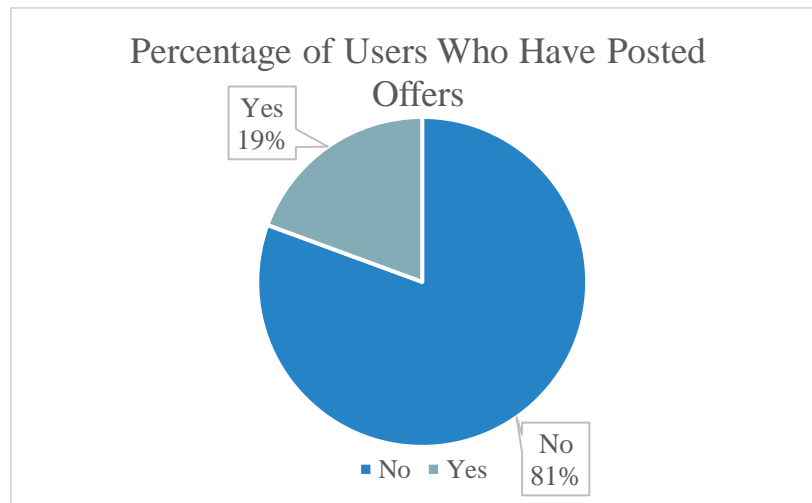


Figure 8: Percentage of Surveyed Users Who Have Posted Offers

For the program to work effectively, sellers must offer basic products that members of the community need. Figure 9 shows that most surveyed users have spent their Verdes on foods or beverages that have been available to purchase using Verdes. Furthermore, as shown in Figure 10, surveyed users want to see useful everyday goods, especially produce and other basic food items in the shop. Meeting these needs will encourage more community members to spend their Verdes. Enlace Monteverde continued to encourage users to offer goods on the platform, even considering the idea that sellers could offer items for partial amounts of Verdes and Colones. This led to many sellers offering items for a small number of Verdes and a larger amount of Colones. This is not the purpose of the program, as many of the users participating in Verdes were doing so due to economic stress. Some interviewees suggested that there be a limit on how many Colones can be requested as a partial payment for an item posted to the shop.

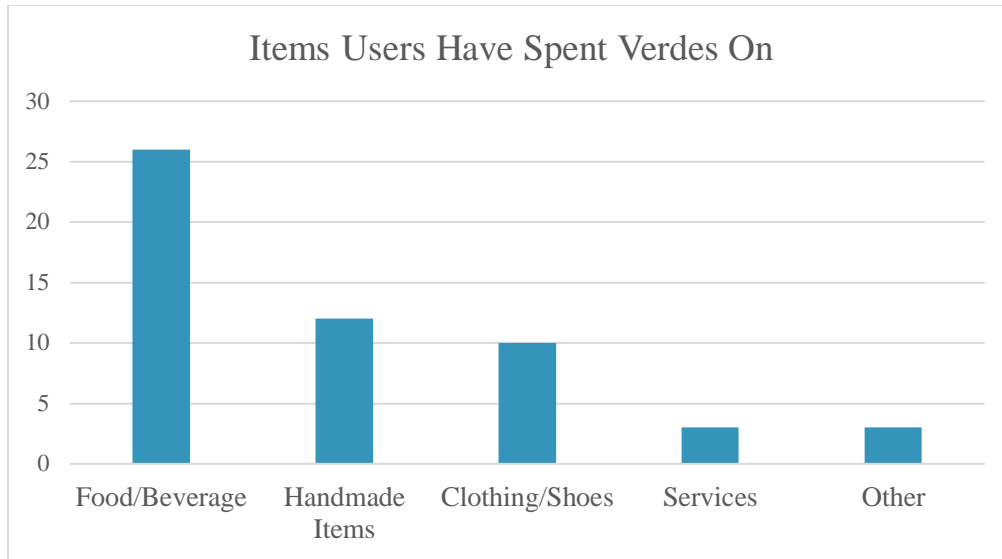


Figure 9: *Items Surveyed Users Have Spent Verdes On*



Figure 10: *Items Desired for the Shop by Surveyed Users*

In one interview, a member of the community explained that none of the items available in the shop were of any interest to her because they were nonessential. Furthermore, a lack of produce and food staples available on the shop means that many businesses could not use Verdes to purchase the goods they need to make their products. This creates less incentive for local sellers to accept Verdes, since they have no way to reinvest them into their business. A gelato store owner told us that she would be encouraged accept only Verdes in exchange for her product if she could buy the products needed to make her gelato, such as milk, sugar, fruit, and chocolate, using Verdes. This became a reoccurring issue when speaking with other sellers in the community. For example, the Cafés in the community explained that they cannot afford to

continue to accept Verdes if there are no items available for purchase using Verdes that support operating their business. One solution we learned of is that a supermarket in the community plans to offer a “Verdes Shelf” to sell certain groceries in Verdes. *However, still, many users and businesses have accumulated a large number of Verdes but have no items or services to spend them on.* Enlace Monteverde must address these findings in order to expand the Verdes initiative and encourage more local business and farmers to offer items on Cambiatus.

4.3 Funding Options

The Cambiatus website requires communities to pay monthly fees at certain numbers of users. Once a community reaches 500 users, they are required to start paying the monthly fee. After this threshold is met, the monthly fee increases incrementally as the community reaches certain numbers of users. Enlace Monteverde expected to have more time to develop funding strategies, but within the first month of the launch, the Verdes community had drastically surpassed the first payment threshold with no plan in place for financial support.

4.3.1 Finding 5: Funding Comparative Analysis

There are a variety of funding models which a non-profit organization could utilize. Not all of these models will work well for Enlace Monteverde's currency program; therefore, we compiled relevant funding options for their current situation. Funding streams include fees for goods and services, individual donations, grants, crowdfunding, and membership fees. The perfect funding option for non-profits varies from organization to organization. Using multiple funding streams is seen as the best practice for non-profit organizations. If an organization takes advantage of a variety of different funding sources, it will create a more sustainable financial model (*How Are Nonprofits Funded?*, n.d.).

The first option for funding the local exchange program, Verdes, is to implement a “fee-for-service” funding model. This funding model allows an organization to charge a fee in exchange for a service. In this case, sellers would pay a fee in order to use the Cambiatus platform to exchange Verdes for their products. The goal of this funding option is to provide long-term funding. This funding stream allows money to be paid directly to the organization, without the possibility of funds diminishing one day (*Developing a Fee-for-Services Structure*, n.d.). This money comes with “no strings attached” and allows organizations to remain open to additional funding options. Although this option seems very useful, there are some details that our sponsors must keep in mind. In order for this funding stream to be successful, they must advertise the benefits for sellers to use Cambiatus, otherwise they may not think that it is beneficial for them to pay to use the platform. Furthermore, if there is no structure set in place to automatically charge sellers for the platform, it may be difficult to collect payments from sellers (*Developing a Fee-for-Services Structure*, n.d.).

Membership fees are slightly different from the previous in that all participants pay a fee for use. This option is also a “no strings attached” funding model that puts money directly into the hands of the organization. The amount of money that an organization will collect is predictable and reliable as well. When a community member pays a membership fee, they gain

access to advantages that non-members do not have. In short, the goal of a membership fee is to “increase the financial... stability of the organization” (*Developing a Fee-for-Services Structure*, n.d.). Membership also increases the feeling of belonging and encourages long-term commitment from members. A strong volunteers base is crucial in order to organize and find members to become involved in the program. For this option to be a sustainable funding model, an organization must have a large number of members involved. Additionally, they need a system to keep track of membership status and the funds. Without these things, a membership fee would be a difficult funding stream to utilize.

Another possible funding stream is individual donations. Individuals who feel that they are benefiting from the program may feel incentivized to help fund its operation. This funding model is referred to as the “member motivator” model (Landes et al., 2009). Members of the non-profit donate to the organization because it affects their everyday lives. An organization could solicit individual donations through social media, mail, phone calls, e-mail, or personal conversations (*Developing a Fee-for-Services Structure*, n.d.). These contributions can be obtained from involved businesses, members, volunteers, staff members, or community members. This is a very feasible option for Enlace Monteverde; however, this option requires a great deal of planning. The organization must determine a list of people to contact, keep track of who they have contacted, determine the best times to contact people, and follow up with individuals (*Developing a Fee-for-Services Structure*, n.d.). Unlike membership fees, this funding stream is not predictable or necessarily reliable.

Enlace Monteverde could utilize digital crowdfunding in addition to individual donations. Crowdfunding can be done live or on a crowdfunding platform such as GoGetFunding. This method can attract new donors that likely would not have donated otherwise. Despite the reach and visibility that crowdfunding allows, it comes with a cost. Most crowdfunding websites require organizations or individuals to pay a processing fee to start their campaign. Additionally, if a campaign does not reach its goal, some sites do not release the money to the organization or individual until the goal is met. Some sites even charge more if a fundraiser does not reach its goal (*Crowdfunding for Nonprofits*, 2015). Furthermore, there are some regulations surrounding crowdfunding. In Costa Rica, there are no set regulations for crowdfunding, but if Enlace were to collect donations from the United States, for example, they would need to register their organization in each state they collect money from and follow crowdfunding guidelines for those states (*Charitable Solicitation Registration*, 2015).

The final funding option that would work for Enlace Monteverde’s local exchange program is grants. Grants are awarded to nonprofit organizations for a specific purpose. They can provide money towards operating support, capital support, or program development funding. Enlace Monteverde could benefit from program development funding or operating support funding. Operating support funding goes towards day-to-day operational costs, and program development funding goes towards the development of a specific project. Additionally, if an organization is awarded one grant, an organization is more likely to receive additional grants (Raj, 2020). If an organization does receive a grant, it also helps to improve the

organization's credibility and visibility (*Grants - Pros and Cons / Society for Nonprofits*, n.d.). Unfortunately, the process of writing grant proposals and applying for grants is very time consuming because it requires a lot of research and skill, and often goes unrewarded. Grant proposals need to be written by someone who is talented and trained in grant writing as well as someone who is very familiar with the organization (*Grants - Pros and Cons / Society for Nonprofits*, n.d.). Enlace may have a skilled grant writer; however, that individual must be willing to volunteer the large amount of time and effort required throughout the process. Also, many grants come with conditions that detail how you are permitted to spend the money, and the money is usually limited. An organization must keep a continuous cycle of grant funding because when it runs out, the application process must be repeated.

4.4 Discussion

Close examinations of these findings and their relation to one another allows for a better understanding of the current state of the Verdes program. *We compiled a detailed report that displays the data obtained through our survey, which was shared with Enlace.* A key finding that emerged is that without proper education about Verdes in the community, the program will not function properly. Enlace Monteverde must provide outreach to the community in order to teach users how to successfully sign up for an account and list items. Sellers must also understand the rules that they must follow in order to post an offer in the store. Recently, Enlace has determined a list of guidelines for participating in the Verdes program and emailed them to registered users. Additionally, Enlace Monteverde must communicate the mission and purpose of the Verdes community in order to persuade more sellers to join the program and provide more basic needs to the community. In order for the program to succeed, both users and sellers must understand what this program is, what they are trying to accomplish, and who is running it.

Further, a technically flawed program will not be well-received by the community, hence limiting the reach of the program because community members will not eagerly share the program with one another. Implementing features such as categories in the shop, a more user-friendly registration process, a more efficient claim verification process, and a mobile app will not only encourage more users and businesses to register but ensure that users continue to interact with the program. Increased knowledge and improved functionality of the program will work together to create a successful Verdes program. Additionally, without funding for the program, it will eventually cease to operate. Through interviews, surveys, and research we were able to thoroughly explore and understand these findings, allowing us to offer various recommendations to Enlace Monteverde, as documented in the next chapter.

5.0 Recommendations

This section details our recommendations for Enlace Monteverde. Each recommendation is sorted into short-term and long-term categories based on our findings.

5.1 Short-Term Improvements

After analyzing all our findings, we determined that there are specific changes that Enlace Monteverde is able to make in the short term in order to improve the Cambiatus system and the Verdes program.

5.1.1 Cambiatus System Improvements

Based on the above findings, there are various technical improvements needed to make the Cambiatus platform more user-friendly and intuitive for both users and sellers. Some of these improvements could be addressed relatively quickly, so we brought them up to Enlace Monteverde as our project progressed. These issues include creating categories within the shop and deleting fraudulent or inactive accounts.

Since we brought this information to Enlace Monteverde in the early stages of our project, they have already taken steps to find solutions to these problems. During one of their bi-weekly meetings with the Cambiatus team, they requested that categories be added to the shop and gave the Cambiatus team a breakdown of possible categories. The list of potential categories created by the Subcommittee on Circular Economies can be found in Appendix D. There are three main categories that are divided further into sub-categories. The Cambiatus team is currently working to implement this change.

To help limit fraudulent or inactive accounts, we were able to compile a list of invalid emails from a list of registered email addresses that Cambiatus provided us. To start sorting through the emails, we identified emails that had two accounts registered using the same email address. Further, when we sent out our survey to the master list of emails, we received error messages from various emails indicating that the email address does not exist, is invalid, or has a full mailbox. We were able to use this information to create a spreadsheet for Enlace Monteverde to use to identify valid and invalid accounts. Additionally, this list of valid emails allows Enlace Monteverde to create a mailing list for mass communication or a potential newsletter.

We recommend that Enlace Monteverde implements additional security measures, such as sending emails to verify accounts. This is a popular security measure among money-sharing apps. When users are creating a new account, they will receive an email with a link that allows them to verify their account. Without this measure, users can create infinite accounts with no difficulty, earning Verdes each time they sign up. It is incredibly important to have tight security measures, especially for money-sharing websites and applications. This is a feature that Cambiatus is able to implement, but since they are still a relatively new program, they had not yet faced the problem of fraudulent accounts.

One of our most important findings was that there is a lack of understanding surrounding how to use the Cambiatus website. *It would be incredibly beneficial if there was a “help” tab in*

addition to the “dashboard” and “shop” tabs. Figure 11 shows the current Cambiatus dashboard. This new tab could detail how to navigate the Cambiatus website, submit a claim, transfer Verdes, or complete a purchase. This tab could also link to the YouTube page and informational website that Enlace Monteverde is developing. Many users signed up for the program, but once they were on the website, they were unsure of what they were supposed to do. This can also be highly beneficial to people who are unfamiliar with using the platform.

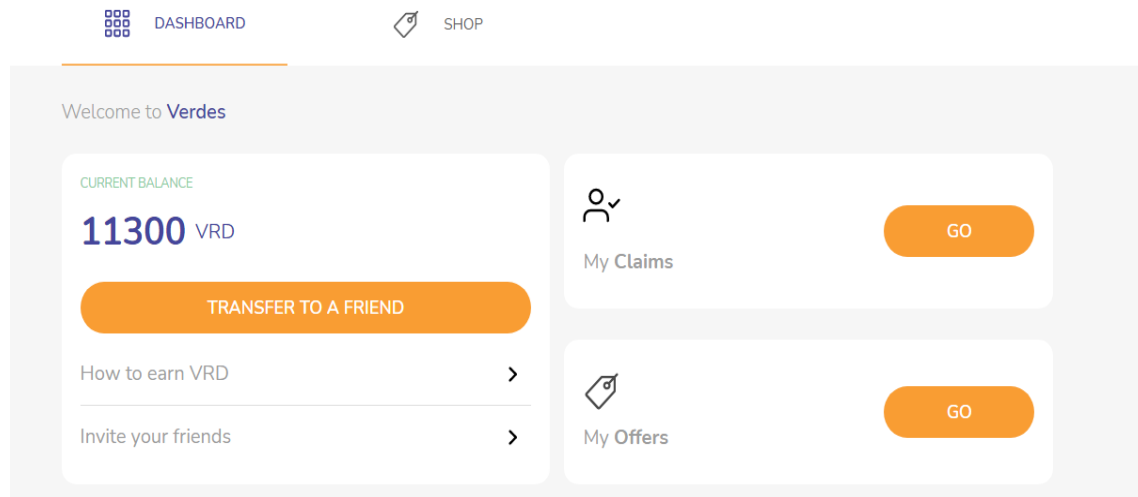


Figure 11: Current Cambiatus Dashboard

Many interviewees explained difficulties contacting community members regarding purchases. *We recommend the creation of a communication interface on the website to allow users and sellers to easily communicate with each other.* If a messaging feature is implemented on the app, sellers can communicate directly with buyers in the platform, and would not have to include their personal phone number in their product listing. Furthermore, it would be important to implement an email notification feature, so if sellers receive a message or if a customer purchases an item, sellers are notified via email. Having these communication features will make selling items in the store less complicated.

We also recommend offering the option to include multiple pictures in one item listing. This is not a glaring technical problem, but it stands to benefit both users and sellers. For example, if a seller is selling ceramics or artwork, they can include pictures of a variety of the same item instead of posting a new offer for each individual item they have. Additionally, if sellers have an item that they may need to show at multiple angles, they could do so. This will decrease clutter in the store and allow sellers to display their product however they see fit.

5.1.2 Program Recommendations

Based on our findings, there are also overall program improvements needed to make the Cambiatus platform more beneficial for both users and sellers. These issues include increasing public outreach and advertisement and creating distinct rules for sellers.

To create a smooth process for sellers, *Enlace Monteverde should provide a clear list of rules for sellers*. This list of rules should be present when sellers are creating an offer, so they do not have to go searching for the guidelines. After we discussed this finding with Enlace, they developed a list of guidelines not only for sellers, but also for general users. The rules were discussed thoroughly by the Subcommittee on Circular Economies in a meeting that we attended. The set of finalized set guidelines that were emailed to users can be found in Appendix E. This will ensure that the process of creating an offer is easy and clear for sellers and that customers will not be confused about any offers listed on the store.

Finally, it is important to promote this program on social media. Based on our interview and survey findings, the news of the Verdes program spread mainly through word of mouth and referral links. Without a social media presence, there is a lack of public outreach. By creating accounts online, users can see who is behind the project, the purpose of the project, and how it works. *We recommend that Enlace Monteverde create Instagram and Facebook pages for the Verdes program*. We created sample posts on Canva to provide examples of what Enlace could post on these platforms. These sample posts and templates can be found in Appendix F. Furthermore, we formed a plan explaining how Enlace Monteverde can use social media to gain visibility. There are also many local, well-known organizations that have close ties with Enlace Monteverde, such as the Monteverde Community Fund and Corclima, who may have newsletters or mailing lists that Enlace could use to advertise the Verdes program. Additionally, there is a very popular local news station that does radio broadcasts and has a popular Facebook page.

5.2 Long-Term Improvements

Other major problems cited by interview respondents were the lack of trustworthiness and concern for the economic longevity of the Verdes program.

5.2.1 Platform Trustworthiness

One of the key issues cited by our interviewees was a lack of trust with both the system and the people behind it. We found that many community members had no idea who was behind the program, and when prompted, had never heard of Enlace Monteverde. Recognition and trust are key components for the user-base of any money-sharing platform, and therefore, a digital local currency.

In order to spread more information about the program, we have learned that community members believe that Enlace could benefit from the long-term use of frequent newsletters, as well as an increased social media presence. Newsletters could serve as a medium for updates for the community members, a way to put faces and recognition behind the Verdes program, and a reminder of the values and principles that first motivated the creation of the Verdes currency. Without knowing who is behind the Verdes program and without being informed of how it is changing and growing, people may lose confidence in the program itself.

5.2.2 Economic Stability

A central part of the creation of a local currency is the ability for the currency to fully circulate within the community. For this to be the case, the majority of community members need to be motivated to participate in the currency. A successful local currency relies on constant consumer spending in order to form a self-sustaining method of exchange. The currency needs to be used in a sufficient number of transactions in order to be able to flow through the economy.

From a user standpoint, one of the ways to encourage this is the creation of a demurrage currency, or a currency that has a negative interest rate. Therefore, “the longer you held on to it, the more you would have to pay,” which would incentivize people who received this currency to spend it quickly before it is devalued (Hallsmith et al., 2011, p.56). This is ideal in a community currency, where the frequency of transactions is central to its success. Similarly, Verdes could have an expiration date. If users knew that the Verdes they earned would expire after a certain period, they would be more motivated to spend them. Another way to create an aversion to saving or hoarding the currency is to hold a raffle, as suggested by one of our interviewees. Users would be able to spend Verdes to enter a raffle for a desirable item/service. We believe this would not only encourage spending and provide the Verdes community a way to spend their Verdes, but also generate excitement and build community.

Another way to generate a large number of transactions within a community is by encouraging more businesses to join the community. This ensures that there are sufficient items in the shop that the users can purchase using Verdes. We believe that the best way to accomplish this is to increase marketing and social media presence. This, along with proper education, will spread word throughout the community about the benefits possible as a result of the Verdes program and will encourage more businesses to join. Additionally, Enlace Monteverde should team up with the World Trails Network in order to reach more local producers that may be looking to expand their businesses. Utilizing all of their resources as well as marketing the program well will increase the number of items listed in the shop.

5.2.3 Mobile Application

As mentioned in our findings, our survey indicated that the majority of surveyed Monteverde residents have smartphones. For this reason, we recommend that Enlace should work with Cambiatus to create a mobile application for the Verdes system in order to better serve the population. This would improve the experience for mobile users since many have complained about the usability of the website on their mobile devices. It could also be a way to increase the use of Verdes by both users and businesses in the community. If users are able to easily bring their Verdes around the area with them, it is more likely that they will use the local currency within the community. The app could also be a platform to test new features, such as the creation of a map which may include the geographic locations where items are available for Verdes. One of our interviewees informed us that there is local talent and funding that could potentially be used to create this app. Enlace has worked very closely with Cambiatus to fix other problems on the platform, so it is possible that Cambiatus could work with this local talent to create an app. We discussed this information with Enlace Monteverde, and they are considering these factors.

5.3 Funding Recommendations

There are many possible funding options that Enlace Monteverde can use, and each one fits differently into the current state of their project. The best possible course of action is to utilize multiple funding streams in order to create a sustainable funding model. *We recommend that Enlace Monteverde makes use of membership fees, service fees, and grants.* Additionally, one of our interviewees who has a lot of experience with local currencies encourages Enlace to utilize internal funding as opposed to external funding as the program will be much more self-sufficient this way.

First, we recommend that Enlace consider a "fee-for-service" model. Although charging a fee to use the Cambiatus platform may seem counterintuitive because of the purpose of the program, utilizing this funding source can help incentivize better use of the platform. Enlace Monteverde should charge fees for sellers listing items for partial payment in Verdes and Colones. Some users indicated that being unable to purchase items fully in Verdes makes it more difficult for them to afford things in the store, especially during challenging economic times. Another option would be to charge a fee for posting items that are not locally made such as lotions and perfumes. Many users indicated that they do not enjoy seeing these items posted for resale in the store because it makes it seem like a "Facebook Marketplace." Charging fees for posting this type of item will disincentivize some sellers from posting them, which is a positive effect, but this may not yield a large amount of funding. With very clear guidelines in place, this seller fee could be waived for businesses that are local or promoting items that align with the purpose of Verdes.

We also recommend membership fees as a funding option that could easily fit into Enlace Monteverde's current program. Each user should be charged a monthly or yearly membership fee to keep their account active. This could help limit inactive or fraudulent accounts. If a member wants to keep their account open and be counted as a part of the member base, they must help fund the program. If they create fraudulent accounts, they must pay to open and maintain them, therefore decreasing the amount of fraudulent activity on the platform. Additionally, since there is such a large user-base, users would have to pay less than one dollar per month in membership fees. When a Cambiatus community gets to over 500 users, the community must pay \$350 per month to keep the community on the platform. This price stays static until the community reaches the next payment tier. For example, with 1000 registered users, each member would only have to pay \$0.35 per month. Users can pay in monthly installments or potentially pay a discounted fee if they pay for a full year. Enlace could consider charging users yearly fees rather than monthly fees because the monthly fee is so low. This would also be a useful method if tourists are eventually introduced to the program. One local business mentioned in an interview that tourists are beginning to come back to Monteverde, and he would be open to accepting Verdes from tourists. Membership fees could give an indication of whether a tourist is still staying in Monteverde or not, thus indicating whether they are kept on the platform as an active user. This would allow tourists to stop paying for their membership once

they leave the area. Furthermore, this would allow Enlace to remove inactive accounts from the platform, potentially lowering the monthly fee charged by Cambiatus.

Next, we recommend that Enlace consider the “membership motivator” model and individual contributions that could benefit the program in the long run. After the program has gained significant traction and the program is benefitting people in their day to day lives, people may be motivated to donate to keep the program afloat. Once the local exchange program is more broadly known and users understand its purpose and the impact it has, community members, volunteers, and program members could be encouraged to donate.

Additionally, Cambiatus could function as a place to collect donations. Enlace Monteverde could have a place in the shop to list their SINPE (a popular money-sharing platform in Costa Rica) information for members to donate as they please. In order to solicit individual donations more broadly, Enlace Monteverde would need an extensive volunteer base that would be willing to compile a list of potential donors, contact them to solicit donations, and follow up.

Grants are another feasible option for Enlace Monteverde, but there are also potential challenges. Enlace Monteverde is already struggling with a limited volunteer base; therefore, dedicating the time and effort needed in order to write proposals and apply to grants may be challenging. It is also a longer-term commitment that will not provide funds immediately. Enlace Monteverde would need to find a volunteer who is talented and trained in grant application writing or have the funds to be able to hire someone. Based on our meetings with our sponsor, we know that one community member has a lot of experience applying for grants. We suggest that Enlace Monteverde recruits this person and works with them to apply for grants. If Enlace Monteverde has an experienced grant writer on their team, they can work around the many of the negatives of grants as a funding source. We have provided Enlace Monteverde with a list of grants that we recommend they investigate further and potentially apply for. One of these potential grants is provided by the Inter-American Foundation. *We highly suggest that Enlace Monteverde applies for this grant specifically, if not for all of the grants we suggested.*

None of these funding streams alone will satisfy Enlace Monteverde’s needs. In order to create a sustainable funding model, Enlace Monteverde must utilize a mix of approaches. Based on Enlace Monteverde’s current program, we believe the best combination of funding streams are membership fees, fees-for-service, and grants. Membership fees will allow Enlace Monteverde to fund their use of the Cambiatus website immediately, without having to wait for funds to be available from other sources. Fees-for-service will also help subsidize their budget even if it is in a small way, while disincentivizing undesirable actions on the Cambiatus shop. These sources together will provide a self-sustaining funding stream for the Verdes community that cannot be impacted by the global economy. Additionally, the goal of being awarded grants as a longer-term funding solution would allow Enlace Monteverde to have a wider budget to potentially pay volunteers for their time. All of these methods together will allow Enlace to continue their use of Cambiatus and create a long-lasting local exchange program.

6.0 Conclusion

Tourism-driven economies have been disproportionately affected by the COVID-19 pandemic, as they rely heavily on travel to support their local economies. Local currencies have the potential to support these struggling economies through the creation of a circular economy, where exchanges of the local currency within the bounds of the region will provide a way for wealth to remain in the community. Our project sought to help the Monteverde community improve their recently implemented local currency, Verdes. Interviews and surveys with community members who use the currency system have increased our understanding of the current awareness of the program within the community and the overall functionality of the system. Analysis of this data was used to design recommendations for our sponsors, which allow them to increase awareness of the currency, improve the overall functionality of the system, and encourage more community members to participate. These recommendations will be useful for our sponsor as they continue to implement Verdes in Monteverde, creating a self-sustaining local economy, as well as to future organizations who wish to develop a lasting solution to combat economic struggle due to unforeseen events, like the COVID-19 pandemic.

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Appendix

Appendix A: Blockchain Technology: An Overview

An important aspect of this project is the digital platform that was chosen to be used by the citizens of Monteverde. Enlace Monteverde was looking for a simple, yet secure, method of exchanging money that would allow people to make transactions at local shops or online. They wanted a platform that they knew people could trust, and that is where the idea of using blockchain technology came in. Blockchain technology “consists of a distributed database of records or public ledger of all transactions or digital events that have been executed” (Harris, 2018, p.641). In other words, it creates a record-keeping system that securely keeps track of all the money that is shared in the system (Crosby, 2016). These public ledgers are essentially tamper resistant as well. Once published, no transaction can be removed or changed (Zheng et al., 2017).

To understand Blockchain technology, you must first understand the structure. When a transaction is received, it is added to the chain as a block. Each block has a block header and a block body (Zheng et al., 2017). Every block header contains a link to the previous block’s header, which is their parent block, as well as a timestamp (Iansiti et al., 2017). The first block in the chain is called the “Genesis block” which does not have a parent block. The block body contains the transaction counter as well as the transactions themselves (Zheng et al., 2017). This structure, as detailed above, can be seen in Figure 12 below. Before a block is added, all the nodes in the network must agree that the transaction is valid. If it is not verified, the transaction will be ignored, preventing invalid transactions from being added to the network (Yaga et al., 2018). Finally, as blocks are created and verified, they are linked together in chronological order. Once a block has been added to the chain, it cannot be removed, tampered with, or changed (Zheng et al., 2017).

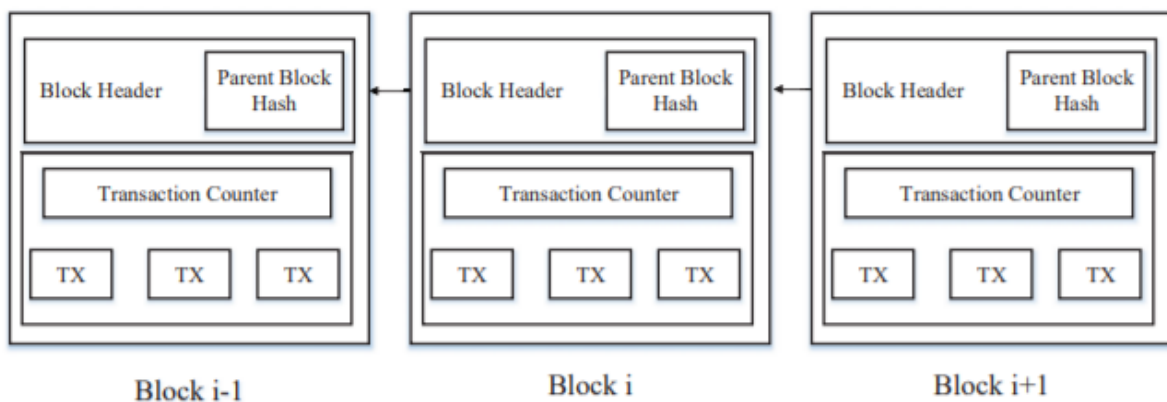


Figure 12: An Example of a Blockchain and its Structure

An example of a blockchain and its structure detailing the block header and body. Reprinted from “An Overview of Blockchain Technology: Architecture, Consensus, and Future Trends,” by Z. Zheng et al., 2017, IEEE International Congress on Big Data (BigData Congress), p 557–564. Copyright 2017 by IEEE.

The safety and security of blockchain technology is made possible by a few different attributes. First, it decentralizes the money-sharing process. In a traditional bank setting, money is sent from one party, verified by a third party, e.g., the bank, and received by another party (Atzori, 2016). Blockchain technology cuts out that middleman and verifies transactions through consensus algorithms. This ensures that each transaction can be trusted because there is no possibility of having a corrupt central authority verifying it. Additionally, the system is very persistent. Transactions are validated at a rapid rate and it is nearly impossible to erase them once they have been added to the chain. Finally, the system allows for anonymity (Zheng et al., 2017). Due to these three characteristics, this technology allows for digital money sharing that ensures the protection of peoples' personal information and security for their currency.

In the realm of money-sharing, blockchain technology was designed to increase the safety and security for users, but there are some potential drawbacks, dangers, and limitations. In terms of security, there is still the possibility of scams, security breaches, and account hacking. These things can leave users very vulnerable, especially because research has found that “the most targeted service [of security breaches] was currency exchange (41%)” (Yli-Huumo et al., 2016). Additionally, as mentioned above, each transaction must be verified by all nodes in the network to be added to the chain. Despite this security measure, if a network is taken over by a majority attacker node, they can take over (Harris, 2018). “The blockchain network is designed with the assumption that honest nodes control the network,” but if this assumption is incorrect, then the network is subject to attack (Yli-Huumo et al., 2016). Despite these issues, creating a sense of trust within the community is a huge factor that encourages a community to adopt and accept the blockchain platform (Hughes et al., 2019).

Blockchain technology was chosen by Enlace Monteverde for the safety and security measures detailed above. To encourage the community and tourists to participate in this new local currency, they must be able to ensure safety and security to provide a feeling of trust surrounding the project. They want to make sure that participants have a secure way of sharing their currency, without the risk of corruption or tampering. With Blockchain technology, one person can transfer money, it is verified by all the nodes within the network, the block is created and tamper-proof, and the other party receives their money. This decentralized way of money-sharing will create a digital platform that everyone can trust.

Appendix B: Interview Questions for Local Sellers

These questions were asked in interviews with businesses or users who have sold items on the Cambiatus shop in order to understand their experience and satisfaction with the program. These interviewees were identified through the Cambiatus shop or through our sponsor.

Interview in English:

Thank you for agreeing to participate in this interview. It is part of our research project about the use of the new the local currency system, Verdes, which Enlace Monteverde has recently launched. This research will be published as an academic paper to a database accessible to Worcester Polytechnic Institute, a college in the United States. We wish to help Enlace Monteverde implement a successful community currency which will strengthen the local economy. The interview will last 30 to 45 minutes and will be recorded with your permission. The final published paper may include direct quotes from this interview; however, personal or identifiable information will not be included. This process is voluntary – you may skip questions you wish not to answer or end the interview at any time. You are welcome to ask any questions about this interview or the nature of our study before we begin the interview.

For more information about this research or about the rights of research participants, or in case of research-related injury, contact us at gr-VER-MV-C21@wpi.edu or our advisors: mbez@wpi.edu and sstrauss@wpi.edu.

General:

1. Are you currently a resident of Monteverde (Monte Verde) or any of the surrounding regions? Is this your permanent residence, or do you live here part of the year?
2. How long have you lived in this region? What brought you to Monteverde? What do you enjoy most about the community? What are some things that you believe are an integral part of the community and its values?
3. If you are comfortable sharing, has the pandemic affected your employment or income in any way?
4. Do you own a computer or a smartphone? Do you have access to the internet at your home and surrounding areas? Are you technologically adept?
5. Do you own a business, or do you sell various items on Cambiatus?
 - a. If so, what is the name of your business?
6. What goods or service do you sell or offer?

Awareness & Evaluation:

1. How did you hear about Verdes?
2. When did you start using Verdes?
3. Do you accept Verdes at your business? Why?
4. What persuaded you to join the program?
5. Have you promoted Verdes to your customers? How?
6. What values of the Monteverde community would you like to see reflected and encouraged by a local currency?
7. What will you do with the Verdes once your business has accumulated a large amount?
8. What goods or services would be most beneficial for you or your businesses to be able to purchase using Verdes?
9. What, in your opinion, could entice or encourage other businesses to join the program?

10. Are there any ways the program could be improved for businesses specifically?
11. Are Verdes a beneficial tool to incorporate into your business model? Why?
12. What do like and dislike about the Cambiatus platform? What has worked well and what could be improved?
13. Have you earned Verdes in any other ways through the Cambiatus platform? If so, how was that experience?
14. Are there any changes or additions to the Cambiatus platform that you would like to see?
15. Were you provided with any tutorial content that taught you about Verdes and instructed you how to use the Cambiatus platform?
16. Would it be helpful to have a set of rules for businesses or individual sellers to follow when posting in the shop?
 - α. Can you think of any examples?

Interview in Spanish:

Gracias por aceptar participar en esta entrevista. Es parte de nuestro proyecto de investigación sobre el uso del nuevo sistema de moneda local, Verdes, que Enlace Monteverde ha lanzado recientemente. Esta investigación se publicará como un artículo académico en una base de datos accesible a Worcester Polytechnic Institute, una universidad en los Estados Unidos. Deseamos ayudar a Enlace Monteverde a implementar una moneda comunitaria exitosa que fortalecerá la economía local. La entrevista tendrá una duración de 30 a 45 minutos y se grabará con su permiso. El artículo final publicado puede incluir citas directas de esta entrevista; sin embargo, no se incluirá información personal o identificable. Este proceso es voluntario: puede omitir preguntas que no desea contestar o finalizar la entrevista en cualquier momento. Le invitamos a hacer cualquier pregunta sobre esta entrevista o la naturaleza de nuestro estudio antes de comenzar la entrevista.

Para obtener más información sobre esta investigación o sobre los derechos de los participantes de la investigación, o en caso de lesión relacionada con la investigación, contáctenos en gr-VER-MV-C21@wpi.edu o nuestros asesores: mbez@wpi.edu y sstrauss@wpi.edu.

General:

1. ¿Es usted actualmente residente de Monteverde (Monte Verde) o alguna de las regiones circundantes? ¿Es esta su residencia permanente o vive aquí parte del año?
2. ¿Cuánto tiempo ha vivido en esta región? ¿Qué te trajo a Monteverde? ¿Qué es lo que más disfruta de la comunidad? ¿Cuáles son algunas de las cosas que cree que son parte integral de la comunidad y sus valores?
3. Si se siente cómodo compartiendo, ¿la pandemia ha afectado su empleo o sus ingresos de alguna manera?
4. ¿Tiene una computadora o un teléfono inteligente? ¿Tiene acceso a Internet en su hogar y áreas circundantes? ¿Eres un experto en tecnología?
5. ¿Tiene un negocio o vende varios artículos en Cambiatus?
 - a. Si es así, ¿cuál es el nombre de su empresa?
6. ¿Qué bienes o servicios vende u ofrece?

Concienciación y evaluación:

1. ¿Cómo se enteró de Verdes?
2. ¿Cuándo empezó a utilizar Verdes?
3. ¿Acepta Verdes en su negocio? ¿Por qué?

4. ¿Qué lo convenció de unirse al programa?
5. ¿Ha promocionado Verdes a sus clientes? ¿Cómo?
6. ¿Qué valores de la comunidad de Monteverde le gustaría ver reflejados y alentados por una moneda local?
7. ¿Qué hará con Verdes una vez que su negocio haya acumulado una gran cantidad?
8. ¿Qué bienes o servicios serían más beneficiosos para usted o sus empresas para poder comprar usando Verdes?
9. ¿Qué, en su opinión, podría atraer o alentar a otras empresas a unirse al programa?
10. ¿Hay alguna forma de mejorar el programa específicamente para las empresas?
11. ¿Verdes es una herramienta beneficiosa para incorporar a su modelo de negocio? ¿Por qué?
12. ¿Qué le gusta y qué no le gusta de la plataforma Cambiatus? ¿Qué ha funcionado bien y qué se podría mejorar?
13. ¿Ha ganado Verdes de alguna otra manera a través de la plataforma Cambiatus? Si es así, ¿cómo fue esa experiencia?
14. ¿Hay cambios o adiciones a la plataforma Cambiatus que le gustaría ver?
15. ¿Se le proporcionó algún contenido tutorial que le enseñó acerca de Verdes y le indicó cómo utilizar la plataforma Cambiatus?
16. ¿Sería útil tener un conjunto de reglas para que las empresas o los vendedores individuales las siguieran al publicar en la tienda?
 - a. ¿Puedes pensar en algún ejemplo?

Appendix C: Survey Questions for Basic Users

This survey was created on Google Forms in both English and Spanish and sent to all community members who are registered on the Cambiatus platform. The survey consisted of both multiple choice and short-answer questions where users could share their experiences and satisfaction with the program.

Survey in English:

We would like you to participate in a survey. This survey will be a part of our research project aimed to identify areas of improvement for the local currency system, Verdes, which our sponsor, ENLACE Monteverde, has recently launched. This survey will also help us to gauge the current knowledge of the system and offer our recommendations to increase awareness and participation. This research will be published as an academic paper to a database accessible to Worcester Polytechnic Institute, a college in the United States. We wish to help ENLACE Monteverde implement a successful community currency which will strengthen the local economy.

The survey will take 15 to 20 minutes to complete. The final published paper may include direct quotes and information from this survey; however, personal or identifiable information will not be included. This process is voluntary – you may skip questions you wish not to answer or end the survey at any time. You are welcome to email us any questions about this survey or the nature of our study before you start the survey. You may contact us via email at gr-VER@wpi.edu. For more information about this research or about the rights of research participants, or in case of research-related injury, contact us at gr-VER@wpi.edu or our advisors Sarah Strauss (sstrauss@wpi.edu) and Melissa Belz (mbelz@wpi.edu).

1. Is Monteverde/the surrounding region your permanent residence?
2. What are some things that you believe are an integral part of the community and its values?
3. Has the Covid-19 pandemic affected your employment or income in any way? If you are comfortable sharing, please briefly explain below.
4. Do you own a computer/smartphone and have access to the internet?
5. Are you comfortable using a computer/smartphone and navigating the internet?
6. Have you heard of Verdes, the new local currency in Monteverde, Costa Rica?
7. If yes, how did you hear about the Verdes Community?
8. Who sent you an invitation to join?
9. How many of your friends/family use Verdes?
10. How likely are you to recommend the Verdes community to a friend?
11. Do you know how to earn Verdes?
12. If yes, what are the things you can do to earn Verdes? How do you claim these Verdes?
Explain your understanding in a sentence or two.
13. Have you earned any Verdes?
14. Do you understand what the purpose of Verdes is? If yes, explain your understanding in a sentence or two.
15. Have you spent Verdes?
16. If yes, how often do you spend them?
17. What have you spent them on?

18. Are there any businesses that are not accepting Verdes that you wish did?
19. What items/services would you like to see in the shop?
20. If you haven't spent your Verdes, why not?
21. Have you posted any offers in the store?
22. If not, do you have any products/services that you want to offer in the Verdes Community Store?
23. If you have products/services you want to post but have not, why not?
24. How can we persuade more users to join and participate? Share your thoughts in a sentence or two.
25. Did you receive a copy of the Verdes Guide, the PDF with explanations and the FAQs?
26. Did you view the Verdes guide and FAQs?
27. If yes, was the Verdes guide and FAQs helpful?
28. Do you have any unanswered questions about Verdes or Cambiatus? If yes, please explain below.
29. How easy was it to register for the Verdes Community on Cambiatus?
30. Is the Cambiatus website user-friendly? Rate in on a scale 1-10.
31. How visually appealing is the Cambiatus website?
32. Are there any features you wish the Cambiatus website had?
33. If any, are there any features you had problems with?
34. Rate your overall satisfaction of the Verdes Community on Cambiatus.
35. Do you have any final thoughts that you want to share regarding your experience with the Verdes community or the Cambiatus website?
36. Would you be willing to participate in an interview?

Survey in Spanish:

Nos gustaría que participara en una encuesta. Esta encuesta será parte de nuestro proyecto de investigación destinado a identificar áreas de mejora para el sistema de moneda local, Verdes, que nuestro patrocinador, ENLACE Monteverde, ha lanzado recientemente. Esta encuesta también nos ayudará a medir el conocimiento actual del sistema y ofrecer nuestras recomendaciones para aumentar la conciencia y la participación. Esta investigación se publicará como un artículo académico en una base de datos accesible a Worcester Polytechnic Institute, una universidad en los Estados Unidos. Deseamos ayudar a ENLACE Monteverde a implementar una unidad de intercambio exitosa que fortalecerá la economía local.

La encuesta tomará de 15 a 20 minutos en completarse. El artículo final publicado puede incluir citas directas e información de esta encuesta; sin embargo, no se incluirá información personal o identificable. Este proceso es voluntario: puede omitir preguntas que no desea responder o finalizar la encuesta en cualquier momento. Puede enviarnos un correo electrónico con cualquier pregunta sobre esta encuesta o la naturaleza de nuestro estudio antes de comenzar la encuesta. Puede contactarnos por correo electrónico a gr-VER@wpi.edu. Para obtener más información sobre esta investigación o sobre los derechos de los participantes de la investigación, o en caso de lesión relacionada con la investigación, contáctenos en gr-VER@wpi.edu o nuestras asesoras Sarah Strauss (sstrauss@wpi.edu) y Melissa Belz (mbelz@wpi.edu).

1. ¿Es usted residente permanente de Monteverde o el área circundante?
2. ¿Dónde trabaja o cuál es su ocupación?

3. ¿Cuáles son algunas de las características que usted cree que son una parte integral de la comunidad de Monteverde y sus valores?
4. ¿La pandemia Covid-19 ha afectado de alguna manera su empleo o sus ingresos? Si se siente cómodo compartiendo, por favor explique con una o dos frases.
5. ¿Tiene una computadora o un teléfono inteligente y tiene acceso Internet?
6. ¿Se siente cómodo usando una computadora/smartphone y navegando por Internet?
7. ¿Ha oído hablar de Verdes, la nueva unidad de intercambio en Monteverde, Costa Rica?
8. En caso afirmativo, ¿cómo supo de la Comunidad Verdes?
9. ¿Quién le envió una invitación para unirse a la Comunidad Verdes?
10. ¿Cuándo empezó a utilizar Verdes?
11. ¿Cuántos de sus amigos/familiares usan los Verdes?
12. ¿Sabe cómo ganar más Verdes?
13. En caso afirmativo, ¿cuáles son las cosas que puede hacer para ganar Verdes? ¿Cómo reclama estos Verdes? Responde en una o dos frases.
14. ¿Ya ha ganado algunos Verdes?
15. ¿Entiende cuál es el propósito de los Verdes? Si es así, explique su comprensión en una oración o dos.
16. ¿Ha usado los Verdes para algún servicio o producto?
17. En caso afirmativo, ¿con qué frecuencia se utiliza?
18. ¿Cuáles cosas ha comprado?
19. ¿Hay empresas que no estén aceptando Verdes y que usted quisiera que lo hicieran?
20. ¿Cuáles artículos/servicios le gustaría ver en la tienda?
21. Si no ha gastado sus Verdes, ¿por qué no?
22. ¿Ha publicado algún artículo en la tienda?
23. Si no, ¿tiene algún producto/servicio que quiera ofrecer en la tienda comunitaria Verdes?
24. Si tiene productos/servicios que desea publicar pero no los ha publicado, ¿por qué no?
25. ¿Cómo podemos involucrar a más usuarios para participar y usar Verdes?
26. ¿Recibió una copia de la Guía Verdes, el PDF con explicaciones y preguntas frecuentes acerca del uso de la plataforma y la unidad de intercambio?
27. ¿Vio algunas de las preguntas frecuentes?
28. En caso afirmativo, ¿le resultaron útiles las preguntas frecuentes?
29. ¿Vio alguno de los tutoriales infográficos?
30. En caso afirmativo, ¿fueron útiles los tutoriales infográficos?
31. ¿Hay algún contenido adicional de tutorial que le gustaría que estuviera disponible? ¿Qué preguntas tiene todavía sobre Verdes? ¿Qué preguntas tiene sobre Cambiatus?
32. ¿Qué tan fácil fue registrarse en la Comunidad Verdes en Cambiatus?
33. ¿El sitio Web de Cambiatus es fácil de usar? Califícalo en una escala del 1 al 10?
34. ¿Hay alguna característica con la que haya tenido problemas?
35. ¿Qué tan satisfecho está con su experiencia?
36. ¿Tiene algún pensamiento final que quiera compartir con respecto a su experiencia con la Comunidad Verdes o el sitio Web de Cambiatus?
37. ¿Estaría dispuesto a participar en una entrevista con nosotros sobre su experiencia con Verdes? Puede ganar más Verdes con su participación. Gracias

Appendix D: Potential Cambiatus Shop Categories

After we identified and discussed the difficulties of navigating the Cambiatus shop with Enlace, they created a list of potential categories and requested that Cambiatus implement this feature. There are three main categories for listing on the shop: local products; products that are not made in Monteverde; and a potential option for a “looking for” category where users could post a request for a certain good or service that they are looking for. The first two categories have been further subdivided to make the process of purchasing items easier for buyers. These sub-categories include fruits and vegetables, services, art, clothing items, and more.

Productos Locales	Productos que no están Hechos en Monteverde.	Se busca
Productos de temporada	Ropa, zapatería, y Asesorías	
Viveres Verdes	Cosméticos y cuidados personales	
Frutas y vegetales	Tiliches	
Panes y pasteles caseros	Joyería	
Productos procesados, salsa, mermeladas, etc.	Comidas y Bebidas	
Bebidas	Muebles y Cosas del Hogar	
Especias y plantas aromáticas	Autos, Motos, Bicicletas	
Arte, Artesanía, Ropa hecho a mano		
Cursos, Talleres, Consultarías		
Servicios		
Restaurantes y Cafés		
Tiendas		
Cosméticos y cuidados personales		
Eventos y Atracciones		

Appendix E: Verdes User Guidelines

After we found and discussed that rules would be beneficial for both buyers and sellers on the platform with Enlace, guidelines were established by the Subcommittee on Circular Economies. The guidelines explain the information required to register, the requirements for whether a user is charged a fee, how to pay the fee, and what items are allowed to be sold in the store. These guidelines were emailed to every user registered for the Verdes program.

1. Registering is very easy! To begin, in order to meet the users who are helping us to strengthen the local economy and this community, all people and businesses that register on the VERDES platform must enter the following data:
 - a. Full name and name of your business (if applicable)
 - b. ID / residence card number
 - c. WhatsApp number
 - d. Current email
2. It is important to note that only one account per user is allowed. If you also have your own business and want to trade on its behalf, you can register it in addition. If this is the case, we will also need a little more additional information:
 - a. Location of the company
 - b. Legal ID number
3. Good news! The people or businesses of Monteverde and surroundings (defined as the nucleus of interdependent communities located in the upper area of the Cantons of Puntarenas, Abangares and Tilarán) can advertise their products or services MADE LOCALLY IN MONTEVERDE within the platform for free; however, we kindly request that you help us keep the platform open with a voluntary contribution to continue the growth of the VERDES community. There are several levels of contribution:
 - a. Annual sponsorship: ₡ 60,000 or \$ 100.00
 - b. Biannual sponsorship: ₡ 35,000 or \$ 55.00
 - c. Quarterly sponsorship: ₡ 18,000 or \$ 30.00
 - d. Voluntary donation in any amount
4. Supporting our local producers is very important to the VERDES community! This is why any local product or service - manufactured and / or offered by Monteverde residents - will have priority in any activity promoted by our platform, such as fairs or festivals.
5. Our goal being to keep the VERDES community afloat by strengthening our local businesses, we establish a quota for those who wish to offer resale products not made locally - such as second-hand clothing, catalog products, non-local jewelry, craft, used household items, etc. There are several options to pay the fee in this category:
 - a. Annual fee: ₡ 60,000 colones or \$ 100.00
 - b. Biannual fee: ₡ 35,000 colones or \$ 55.00
 - c. Quarterly fee: ₡ 18,000 colones or \$ 30.00
6. VERDES is our new local currency, and we would love for you to enjoy the benefits! That is why any offer of products and services that is made on the platform can be in VERDES or a combination of VERDES and colones; however, no offer can exceed more than 50% of the value of the product or service in colones. For example: If you want to sell a homemade bread whose value is ₡ 3000 and you want to offer it in combination

with the VERDES ones, it must have a cost of at least 1500 VERDES, and the rest can be ordered in colones.

7. Local businesses - such as restaurants and cafes can post an offer in the store without the 50% restriction on VERDES: however, we kindly request that no offer be for less than 10% in VERDES.
8. To facilitate the experience of all users of our community, remember to provide your contact information in each post! In this way, your buyers can be easily located to claim the product or service that you are offering.
9. The sale of products and services such as illegal substances or activities that are inappropriate for minors are not allowed in the VERDES community. These publications will be removed from the platform.
10. If you experience a problem claiming the product or service you purchased, you should contact the seller first. If there is no response, any complaint will be received at our official email: verdesmtv@gmail.com.
11. The VERDES community reserves the right to remove any offer that does not respect these policies.

Appendix F: Social Media Plan

We have created Instagram and Facebook pages for Enlace Monteverde to use to spread awareness of the Verdes program. We included a set of suggestions for gaining a following on social media and provided templates for initial posts that the pages could share.

Plan:

1. Create accounts.
 - a. Include accurate contact information, descriptive bios and identifiable profile pictures.
 - i. Potential username: verdes.monteverde or verdesenmonteverde
 - ii. Profile picture: Verdes logo
 - iii. Potential Bio: “La Comunidad Verdes facilita el trueque de bienes y servicios entre vecinos y al mismo tiempo proporciona resiliencia económica y protección de nuestros recursos naturales. Es una moneda ecosocial con el fin de dar valor a lo local.”
 1. This is the description on their Cambiatus page. We believe it should be kept constant across platforms.
 - b. To make things easier, create Instagram posts and link the Instagram account to the Facebook account so you only have to post on one platform.
2. Follow/like other local organizations pages to increase visibility within the community.
 - a. Some potential accounts: Monteverde community fund (@fondocomunitariomonteverde on Instagram), Corclima (@corclima on Instagram), Monteverde Institute (@monteverde_institute on Instagram), Santa Elena Reserve (@reservasantaelena on Instagram), The Tilichera (@latili.cr on Instagram)
3. Follow community members who are involved in the community to increase visibility.
 - a. These people can be found by looking at who is following other local organizations such as the ones listed above.
4. Create an initial post.
 - a. This should welcome followers to the page and tell them more about the organization and the program.
 - i. Post 1: What is Verdes?
 - ii. Post 2: Who is Enlace Monteverde?
 - b. We made sample posts that begin to introduce these topics in **both English and Spanish**. A sample of the English versions of these posts can be seen below. We made sure that these posts follow the same color scheme as the first video on Enlace Monteverde’s YouTube page so their social media pages are all cohesive.
 - i. Aside from our sample posts, another idea could be creating “stories” on Instagram and allowing users to submit questions that they have about the program.
5. Ask organizations and community members to share these posts with their followers.
 - a. Contact the above organizations and any other additional local organizations and ask them to repost one of your posts/tag you in one of their posts.
 - i. If you tag an account in an Instagram story, they can repost it onto their story.

6. Remember to link all social media pages to other media formats such as websites and YouTube pages.
7. Post frequently.
 - a. Highlight items, businesses, or sellers each week, update followers when there is a new objective that they can complete to earn Verdes, post each time there is an event that involves Verdes, etc.
 - b. We have made templates for posts like this below.
8. Find a group to manage the social media pages.
 - a. We strongly suggest recruiting students from either the high school in Monteverde or the Monteverde Institute. Based on our interviews, younger community members are interested in using and earning Verdes. They can be paid to run the social media page with Verdes.

Potential Starter Post 1:



Figure 13: Social Media Post 1A



Figure 14: Social Media Post 1B



Figure 15: Social Media Post 1C

Potential Starter Post 2:

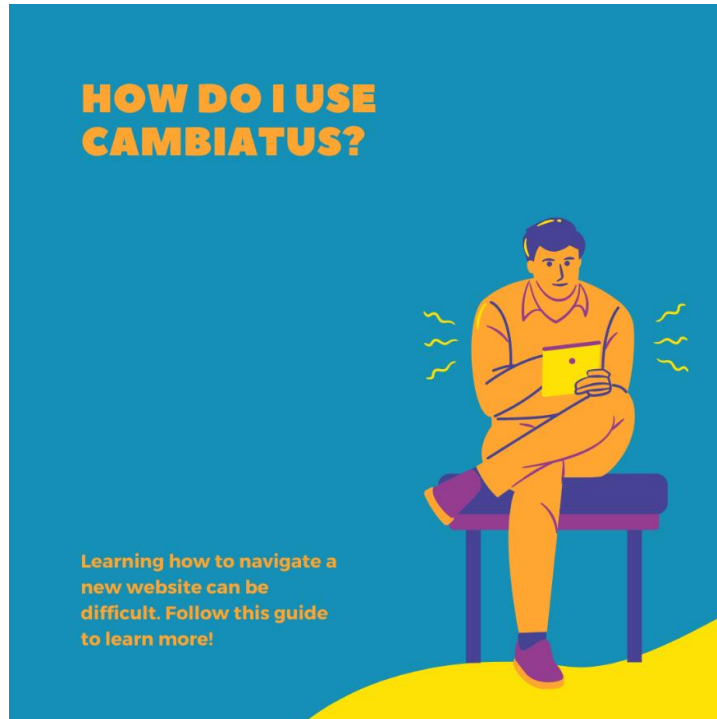


Figure 16: Social Media Post 2A



Figure 17: Social Media Post 2B



Figure 18: Social Media Post 2C

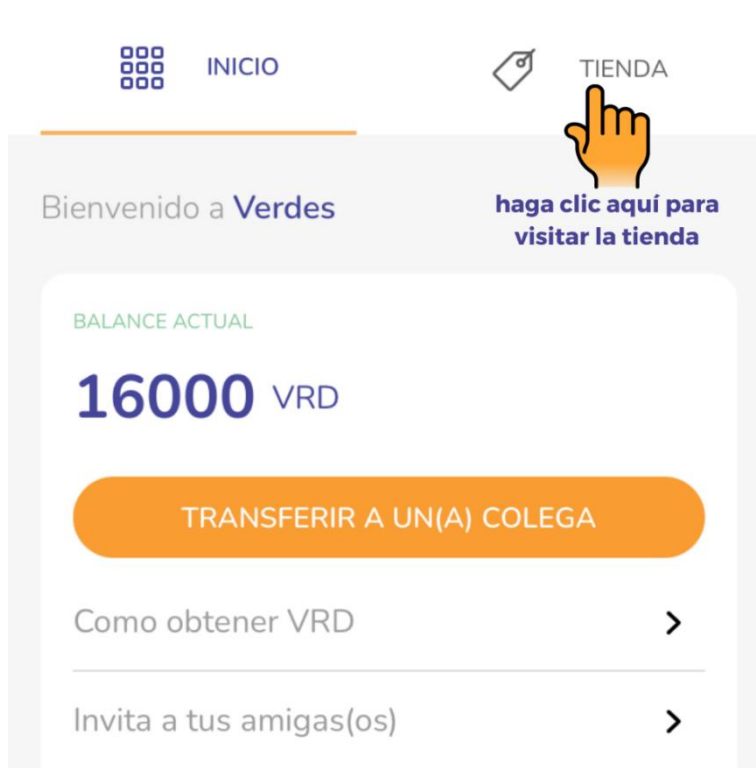


Figure 19: Social Media Post 2D

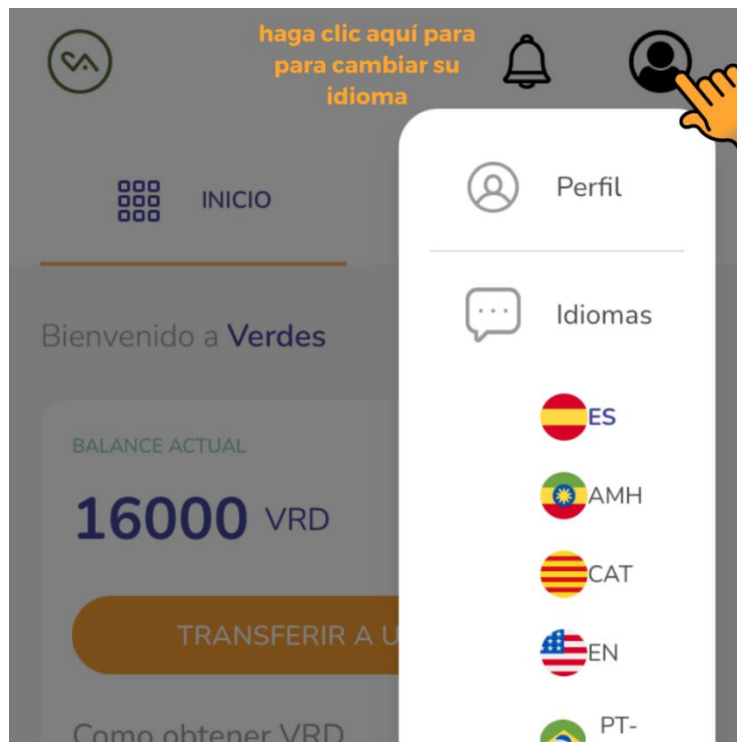


Figure 20: Social Media Post 2E

Potential Starter Post 3:



Figure 21: Social Media Post 3A

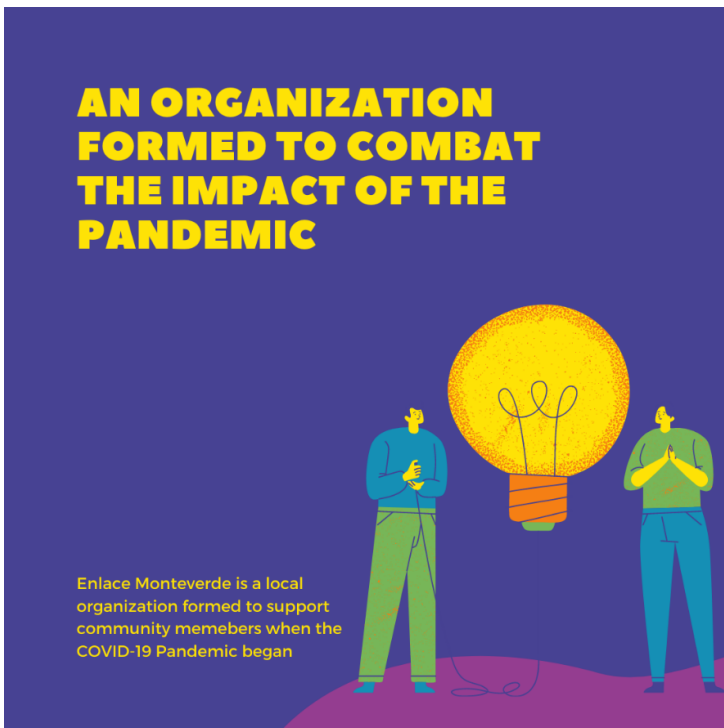


Figure 22: Social Media Post 3B



Figure 23: Social Media Post 3C

Recurring Post Templates:



Figure 24: Social Media Post R1



Figure 25: Social Media Post R2

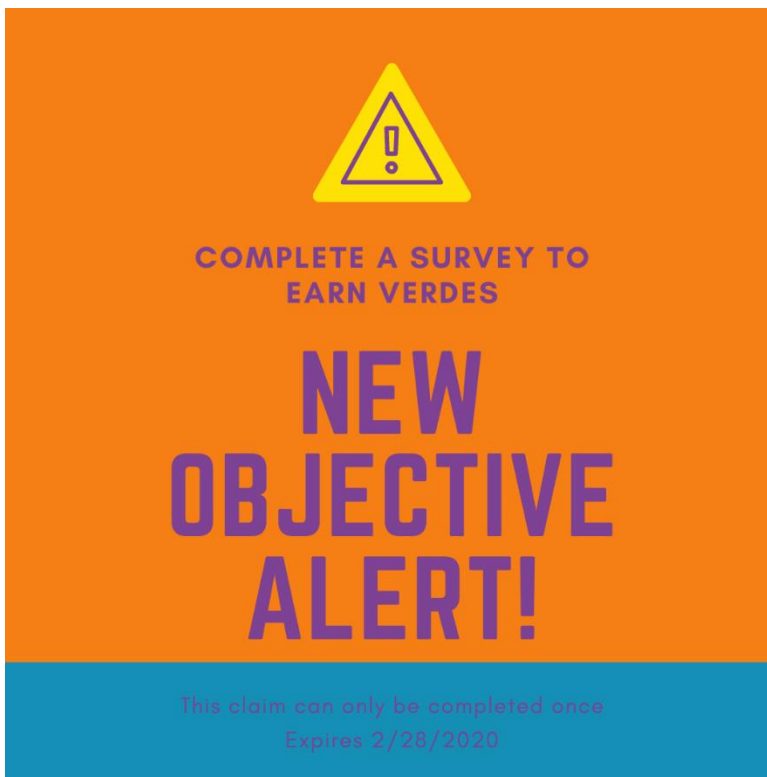


Figure 26: Social Media Post R3



Figure 27: Social Media Post R4