



E-COMMERCE AND CYCLEBEADS®





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This case study was carried out by the Washington, D.C.-based organization, Cycle Technologies, in partnership with the Institute for Reproductive Health, Georgetown University (IRH).

Organization Bio

Cycle Technologies is a Washington, D.C.-based social impact consumer product and technology company. Since 2002 Cycle Technologies has worked with researchers, scientists, and health providers to bring to market sustainable technologies that meet family planning needs globally.

Author Bio

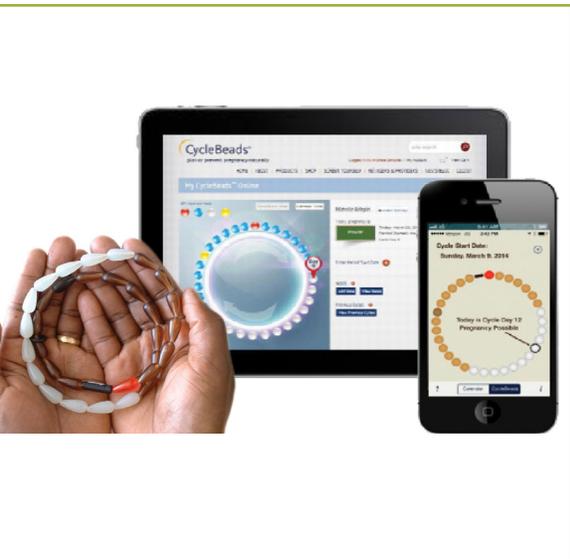
Leslie Heyer founded Cycle Technologies in 2002. Prior to her life as a social entrepreneur, Leslie was on the founding management team of two software companies and managed advertising accounts for global brands. She received her MBA from Harvard Business School, a BA from Georgetown University, and was recently named a Top 50 Most Talented Social Innovator globally by the World Corporate Social Responsibility Congress.





E-COMMERCE CASE STUDIES SERIES

This report is one of seven case studies, written to provide the reproductive health (RH) supplies community with a deeper understanding of the current landscape and future potential of obtaining RH supplies through e-commerce. Each case study focuses on either one specific country (India, Kenya, Mexico, and the United States) or one new and underused RH technology (emergency contraception, female condoms, and the Standard Days Method®). These case studies are descriptive only, and do not advocate for or against e-commerce as a means to distribute RH supplies.



EXECUTIVE SUMMARY

This case study report reviews the experiences, opportunities and challenges of e-commerce as it relates to the reproductive health (RH) product CycleBeads®. The primary objective is to examine the current landscape and future implications of using e-commerce as a channel for expanding access to CycleBeads. The report provides key findings from reviews of existing literature and research, internal company documentation, and interviews with distributors and non-governmental organizations (NGOs) involved in providing CycleBeads.

CycleBeads products support the use of the Standard Days Method® (SDM) of family planning (FP), an underused method suitable for couples who wish to use unobtrusive, non-hormonal methods of FP.¹ CycleBeads are available in two versions:

1. A color-coded string of beads
2. A recently developed set of three digital tools²

The physical CycleBeads are, in some ways, an ideal product for the internet age – small, lightweight, and non-prescription, with a long shelf-life. However, their international distribution is limited by logistical barriers such as few distributors, high international shipping costs, and a difficult revenue model with a product that is a low cost, one-time purchase.

By contrast, the digital forms of CycleBeads are more easily made available worldwide and can be accessed directly online through dedicated websites or marketplaces, such as Google Play and iTunes. These digital products were developed to take advantage of advances in technology and have the added benefit of overcoming some of the barriers faced by the original physical CycleBeads product. However, the digital products compete with a number of “fertility apps,” “ovulation calculators,” and “period trackers,” which can make it difficult for consumers to differentiate this product from others offering similar information within this space. Lack of awareness of SDM and CycleBeads has limited the market penetration of both the digital tools and the physical product. For all FP methods, access to the internet has changed how people learn about and access RH supplies. In the case of CycleBeads, technology has also changed the product itself.

ENABLING factors

HINDERING factors

Original CycleBeads (Color-Coded String of Beads)

- | | |
|---|--|
| <ul style="list-style-type: none">✓ Increased awareness and popularity of fertility awareness methods (FAM) can enable online sales to grow.✓ Websites and online tools can act as a dedicated informational resource for users who are new to SDM or FP.✓ Online selling allows for a more cost-efficient distribution outlet by cutting out traditional retail costs. | <ul style="list-style-type: none">✓ A lack of product awareness prevents customers from learning about or purchasing CycleBeads online.✓ Continued adverse perceptions about “natural methods” discourages users from seeking FAM online.✓ The business model, built around a one-time purchase product, is challenging to sustain financially.✓ Many countries still lack the infrastructure necessary to support online purchasing and delivery.✓ Lack of local distributors results in high costs for international shipping in most countries. |
|---|--|

New Generation of CycleBeads (Digital Tools)

- | | |
|--|--|
| <ul style="list-style-type: none">✓ A large dedicated market for the CycleBeads app through the app stores for iPhones and Android smartphones increases the number of people who can easily access SDM.✓ Digital tools allow for fast and efficient product improvements, which support the online user.✓ Digital tools provide an informational resource for existing or new customers.✓ Digital distribution increases the cost efficiency of the product. | <ul style="list-style-type: none">✓ The online and app world is an unregulated and cluttered market, making it difficult to build awareness and trust with users, and to differentiate from competition.✓ There is limited return on the investment, since customers expect low-cost or free web services and apps.✓ There is a need for dedicated staff to provide product maintenance and support on an ongoing basis. |
|--|--|



Original tools



Online app



Smartphone apps

Source: <http://www.cyclebeads.com/>

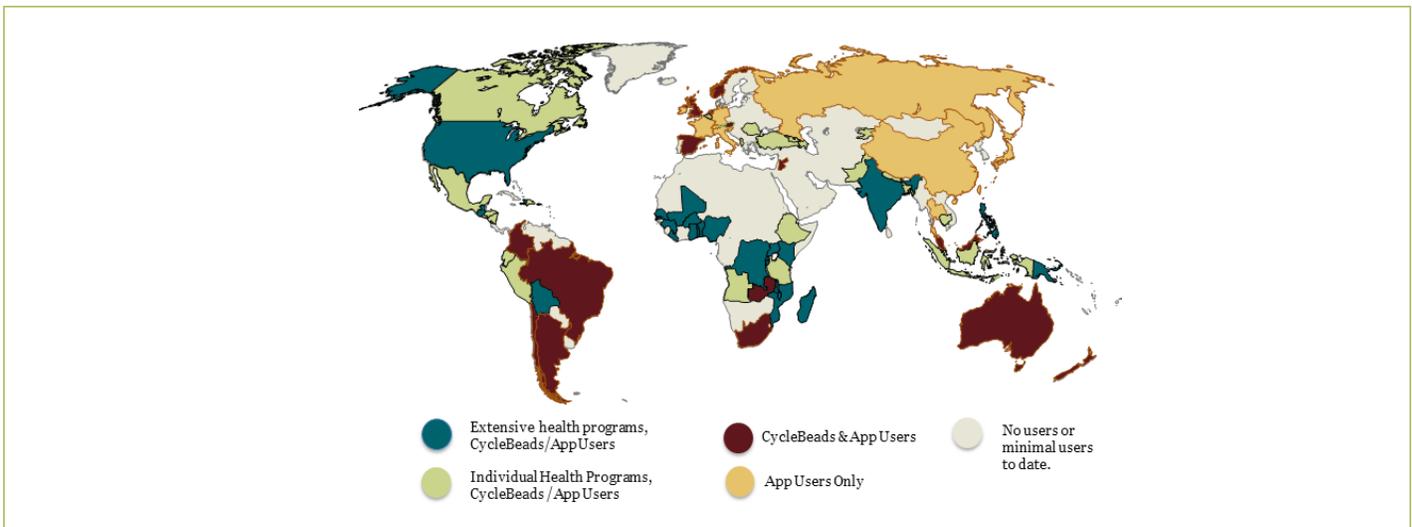
CONTEXT

The CycleBeads tools are based on SDM, a method for women with cycles between 26 and 32 days long. They help women track their menstrual cycles and identify the days when pregnancy is possible. To facilitate use of this method, a woman can use physical CycleBeads (a color-coded string of beads) or a range of digital tools including the CycleBeads smartphone apps (iPhone and Android), CycleBeads Online (an internet-based subscription service), and CycleTel™ (a short-message service-based [SMS] product). SDM is 88% effective in typical use and over 95% effective with perfect use.⁴ It has no side effects, and research shows that it is easy to use and can be offered through a wide range of channels.^{5,6,7} It has broad cultural acceptability in a variety of contexts, including areas where other contraceptive options may not be widely accepted.^{8,9} There is evidence that SDM brings new users to FP. Most CycleBeads users have not

used FP before.^{10,11} Both the physical CycleBeads and the digital products can be accessed at low cost. Couples who have not used barrier methods in the past or have used them inconsistently find that CycleBeads improves use of barrier methods on fertile days.¹² These attributes make SDM and CycleBeads an important addition to the range of FP methods.

Access to FAM information and supporting tools is increasing as more people have internet access. This growth is partially fueled by the increase in inexpensive smartphones, particularly in emerging markets where customers previously had no access to the internet. A good example is India, where the number of smartphones is expected to reach 200 million in 2016. Meanwhile, in established markets, smartphones are shifting the paradigm for consumer media and information access, making internet use more mobile-centric.¹³ Global marketplaces such as the Google Play Store and iTunes

Figure 1. CycleBeads Worldwide Usage



App Store provide a central location that can aggregate millions of potential users. As of 2015, Android users from almost every country in the world can download free apps, and paid apps are available to customers in 135 countries through the Google Play Store.¹⁴ Since a wide range of fertility awareness websites and apps can be readily accessed or downloaded, this trend can be expected to increase the visibility of FAMs.¹⁵

Physical CycleBeads Products

Cycle Technologies is the licensed commercial company responsible for the manufacture, distribution, and brand management of all products based on SDM. The company works with manufacturers in Hong Kong, India, and Peru and through in-country distributors, health programs and retailers to provide CycleBeads globally. It also distributes directly to end users via a website (www.CycleBeads.com) with a particular focus on the U.S. and Canada.

CycleBeads are available in more than 60 countries through health programs, including many in Africa, Asia, and Latin America. Over 3.75 million sets have been distributed, approximately 300,000-400,000 annually.^{16,17} The commercial distribution channels vary widely, based on a given program’s focus and the populations that

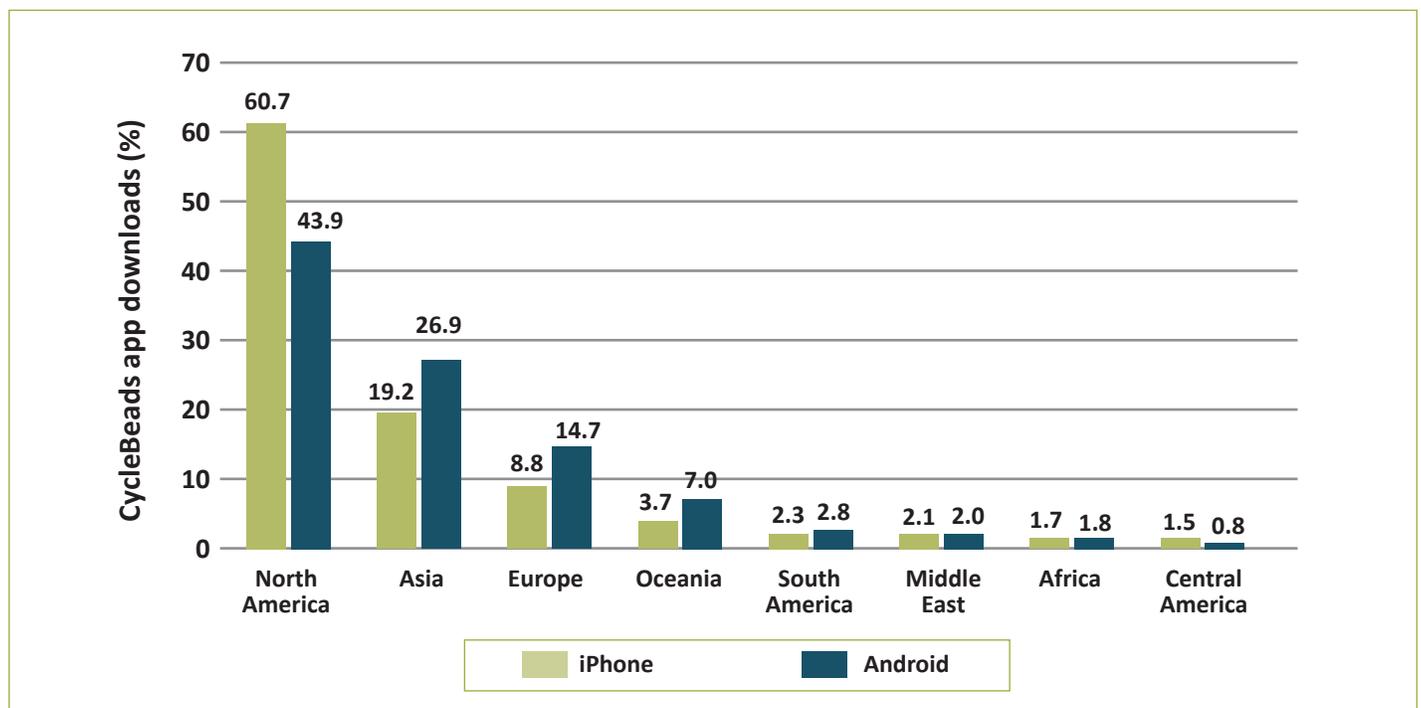
it reaches.¹⁸ Key international procurement agencies include the United States Agency for International Development (USAID), the United Nations Population Fund (UNFPA), and International Planned Parenthood Federation (IPPF). Current usage and distribution varies significantly by country, with the highest distribution of physical CycleBeads in Democratic Republic of Congo, Nigeria, Philippines and the U.S.¹⁹

Digital CycleBeads Products

Cycle Technologies has also developed a range of digital tools including apps for iPhone and Android smartphones (launched in 2010 and 2011 respectively), and an online service (launched 2012). Researchers from IRH have also tested the SMS-based service, CycleTel, in India and Kenya. To date, the smartphone apps have been the most widely used and appear to offer the most potential for growth with more than 100,000 downloads since launch, over 50,000 of these in 2015. See **Figure 2**.

In countries where access to smartphones is widespread, users have begun to use SDM via smartphones rather than purchase the physical CycleBeads tools. As shown in the **Figure 3** in North America, where 85% of adults ages 18-29 own smartphones,²⁰ sales of physical sets of CycleBeads

Figure 2. CycleBeads iPhone and Android apps: percent of new users by region, 2014-2015.



Source: Cycle Technologies

have dropped significantly as smartphone downloads have increased.²¹ This increase is likely due to a number of factors including convenience, cost (a free version of the app and a free trial of the subscription service are offered), and the availability of additional features such as proactive notifications and period reminders.

FINDINGS

E-commerce and Physical CycleBeads

For physical CycleBeads, e-commerce provides a valuable opportunity to increase availability and awareness among potential users and providers, and to lower cost. However, online distribution is hindered by a difficult revenue model (a low priced, one-time purchase), a lack of awareness of SDM, and challenges of international logistics.

Awareness

The CycleBeads.com website receives an average of 127,000 visits per month with 41% of visits from the U.S., 17 % from India, 5% from Kenya, and the remainder primarily from English-speaking countries such as Australia, Canada, Indonesia, the Philippines, South Africa, and the United Kingdom.

Online customers who have ordered through the CycleBeads.com website have cited “internet search” as the most common avenue of product discovery, followed by “friends and family,” and “health providers”

as a distant third.²² Almost 80% of traffic to the website comes from organic search;²³ 18% from direct links, and the remainder from referrals and social media.²⁴

It is clear that people are searching for FP information online. On Google, worldwide searches for multiple terms related to “family planning” and “contraception” (in English) ranged from 1 million to 30 million per month in 2014. For “CycleBeads” (and common spelling variations), the search is approximately 2,200 searches monthly worldwide.²⁵

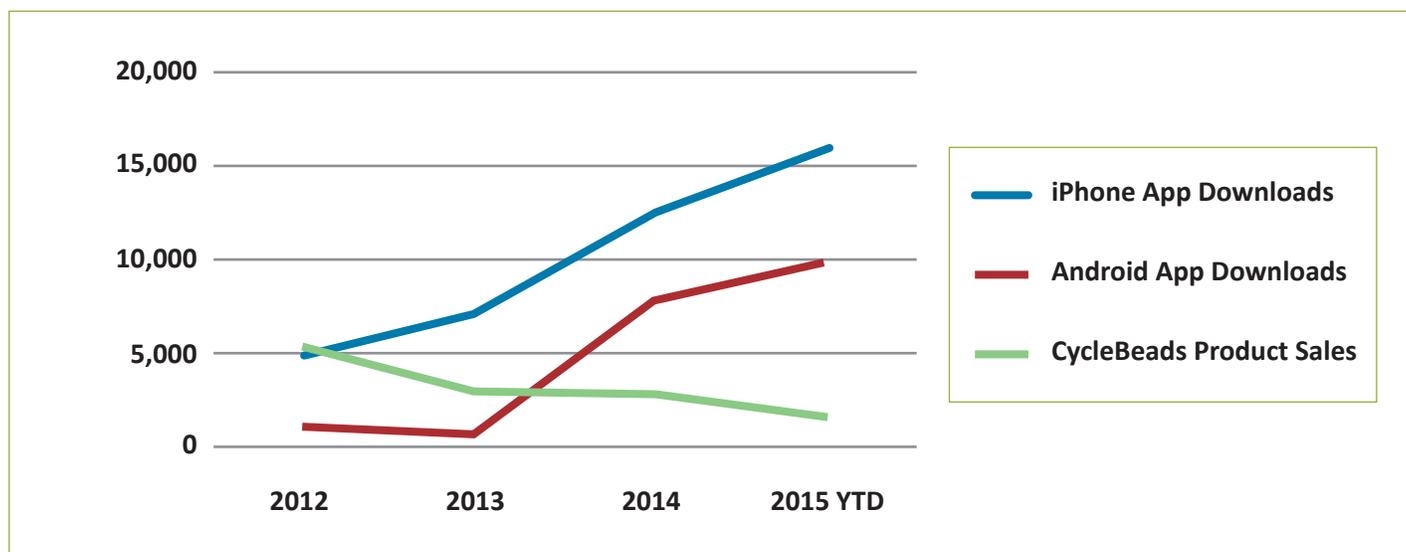
Even when purchases are minimal, an e-commerce website can facilitate offline sales. A distributor in the Philippines who operates an e-commerce website explained during an interview:



“Very few have actually purchased through the web, and we do not have this component of tracking visits in the website. But we do get hits and have been able to supply individuals and schools through the web.”²⁶



Figure 3. CycleBeads iPhone and Android app downloads, and CycleBeads product sales for North America.



Source: Cycle Technologies

In the U.S., the CycleBeads.com website receives 5-10 emails per month asking for a recommendation for a retailer or health provider where CycleBeads can be procured in a specific U.S. location. A feature on the website which enables people to locate a health provider or retailer by state, is used by 225-250 people per month.²⁷

Lack of product awareness is a critical challenge that will need to be addressed if CycleBeads are to become widely available both online and offline. Overcoming negative attitudes and misinformation, and increasing awareness of SDM and CycleBeads, are major processes that require extensive education, communication, and advocacy. Many health providers and potential users have negative attitudes and incorrect information about FAM. Despite strong evidence that the efficacy of SDM is comparable to other user-directed methods, negative opinions persist. For example, a public health nurse at a U.S. clinic commented: *“We don’t really recommend them (fertility awareness methods). We recommend something stronger.”* These attitudes affect both offline and online distribution and make education about these types of methods essential.²⁸

While general awareness is a challenge for the physical CycleBeads, it does not seem to be insurmountable in the e-commerce context. As suggested by a web manager in India,

“Building awareness about the site was a challenge but that could easily be overcome with more advertising and awareness-raising activities.”²⁹

Availability

E-commerce can enhance availability in places where there is a lack of distribution through offline channels. Potential users often seek a local retailer or health provider, but if unavailable, they will instead order online. Other users find the convenience and privacy of ordering online a key benefit.

“In India...most people don’t buy contraception online (though in the study we found that they loved the privacy of online purchase).”³⁰

In some cases, global e-commerce websites can even meet demand in places where e-commerce is not commonly used. For example, in 2014-2015, a limited number of orders were placed and fulfilled through the U.S.-based CycleBeads.com website to countries where e-commerce is not well established, such as Afghanistan, Ghana, El Salvador, Malta, and Nigeria.

In many markets however, challenging payment systems, inadequate fulfillment capabilities, and limited internet access have constrained e-commerce development. In contrast to markets where e-commerce is well-established, these attributes can make it difficult to manage a website effectively or profitably. It should be noted that the development of innovative payment systems (e.g. cash-on-delivery in India, direct bank deposits in Philippines,³¹ M-PESAⁱ in Kenya, and PayPal in North America and beyond) is changing the landscape.

Informational Resource and User Support

A website presence may provide comprehensive information which potential users can review privately at any time. For a unique RH product like CycleBeads, education is critical. Google Analytics reveal that visitors to the CycleBeads.com website spend an average of one minute on the website. By contrast, those who visit key informational pages such as the frequently-asked questions (FAQ’s) (2,751 monthly visitors), research (1,074 monthly visitors), and product-specific pages (2,000-3,000 monthly visitors per page) spend an average of 4-5 minutes on those pages, indicating that viewers are seeking specific information and reviewing it carefully.

ⁱ M-PESA is an agent-assisted, mobile phone-based, person-to-person payment and money transfer system popular in Kenya. It allows users to store money on their mobile phones in an electronic account and deposit or withdraw money in the form of hard currency at any one of M-PESA’s numerous agent locations.



WEBSITE PRESENCE AS INFORMATION RESOURCE

A website presence can also provide users with a resource to ask for more information. Through the CycleBeads.com website, Cycle Technologies receives 30-40 queries per month via email and contact form submissions from individuals in various countries. Questions range from method-related topics to highly personal situations.³² Offering this resource requires that one or more specialists be available to respond to customers' inquiries. *"Another challenge is that we need a dedicated person for something like this. A helpline is crucial because people don't understand what CycleBeads are from the ads."*³³

Cost-efficiency

Providing CycleBeads through e-commerce is more cost-efficient than offering it through retailers or health providers. A traditional retail model relies on "pull through"³⁴ to continue carrying products and therefore requires marketing to both the retailer and provider

as well as to the end-user. Additionally, many retailers require a 40% profit margin to carry products. On the other hand, potential users can be directed to a website via relatively low cost advertising in both the U.S. and in developing countries;³⁵ e-commerce also reaches a larger potential audience.

While cost-efficiency is a benefit of distributing CycleBeads through e-commerce, the cost for overall education and demand-generation, including offline promotion and support, should not be overlooked. In the table above, the costs of marketing to end users through e-commerce reflects the costs for customer acquisition using online advertising. However, it does not take into account that online customers may have been exposed to offline education and information.

Limited Return on Investment

Given the cost for establishing awareness of a new FP option, it is always challenging to find a model that will provide a reasonable return on investment. CycleBeads, as a one-time, low-cost purchase, is even more challenging for distributors than other RH supplies. While e-commerce makes it possible for retailers or providers to cover their costs in a market where e-commerce is already well established, it is not as financially attractive

Table 1. Comparison of historical costs for CycleBeads distribution in U.S.: retail distribution versus e-commerce (cost per set in USD).

CycleBeads Distribution Costs	Retail cost	E-commerce cost
Cost of CycleBeads	\$ 1.40	\$ 1.40
Shipping to central fulfillment center	\$ 0.45	\$ 0.45
Cost of packaging	\$ 1.00	\$ 1.00
Storage	\$ 0.25	\$ 0.25
Kitting	\$ 0.35	\$ 0.40
Shipping to retailer	\$ 3.00	Not applicable
Marketing to retailers	\$ 12.00	Not applicable
Customer service (logistics)	\$ 2.00	\$ 2.00
Marketing to end users	\$ 15.00	\$ 6.50
Client support (information)	\$ 0.75	\$ 1.25
Total product cost	\$ 36.20	\$ 13.25

Source: Cycle Technologies

as products that are purchased repeatedly. Furthermore, some discount e-commerce websites price CycleBeads so competitively that other retailers cannot compete, further reducing potential distribution. Several websites in the U.S. stopped carrying CycleBeads, complaining that discount websites made it impossible for them to cover costs.³⁶



“I think it’s important to have CycleBeads out there. I want my customers to have this. But I can’t compete with these guys. I can’t even cover my costs at those prices.” (U.S.-based e-commerce distributor, commenting on discount retailers on Amazon).



E-commerce Opportunities for the CycleBeads Digital Tools

Offering SDM through online tools, such as the CycleBeads smartphone app and CycleBeads Online, offers unique opportunities to increase access to FP. However, there are also challenges to a fully online model.

Distribution and Access

Given the increasing levels of internet access and cellphone use around the world, there is a significant opportunity for wider availability of CycleBeads. 84% of

people in emerging and developing nations now own a cellphone of some type, according to Pew Research.³⁷ While growth of mobile networks is spreading and more and more people have access to cell phones and the internet in developing countries, there are still large gaps. Rural areas lag behind urban areas, poorer people lag behind more wealthy people, and women have more difficulty acquiring technology than men, especially smartphones.³⁸

Product Improvements

Product improvements can be developed and implemented quickly. Online and mobile applications allow the consumer a direct communication channel to the company. Cycle Technologies’ customer service receives feedback, suggestions, questions, and concerns on a daily basis. Problems are often resolved directly between the company and the user. Feedback from users is evaluated quickly and applied to the product where appropriate. Upgrades and improvements to the CycleBeads app can be implemented quickly, not only because of direct communication with users, but also because programming an update or fixing a program flaw of a digital product can be done without retooling a factory and distributing physical products through logistics systems. An upgrade is available to consumers as soon as it goes live online or through the app market. This ease of product modification encourages continued development of improved function and features.

Additionally, given the nature of software as compared to a physical tool, the online product can be more proactive than the physical CycleBeads product—providing a



STANDING OUT IN A CROWD - POTENTIAL USERS ARE OFTEN CONFUSED BY SIMILAR PRODUCTS AND TOOLS

- “How do I know this is reliable? I’ve seen four other period trackers and they all have different information about which days are fertile.”
- “Can’t I can get this for free on WebMD?”
- “How is this any different than the other 8 period trackers I have on my phone?”



CYCLEBEADS: THREE EXAMPLES OF GOOD PRACTICE, INNOVATION, AND UNEXPECTED FINDINGS

- Mobile technology has the potential to completely change the distribution and business model for CycleBeads. It has become increasingly clear that as mobile technologies (and particularly smartphones) proliferate, this method can be offered entirely via mobile device in a variety of settings.
- In many cases, e-commerce websites like CycleBeads.com are resources for information and advocacy even if they have limited sales. For example, in the Philippines and the U.S., while dedicated e-commerce CycleBeads websites may have limited sales to end users, they provide information to support use of the method when women access it through health and government programs.
- The CycleBeads.com website receives significant traffic from a number of different countries. Additionally, as a result of this website, the company receives calls and emails from users and potential users from all over the world asking questions. While local e-commerce websites may be more readily found, it appears that people are comfortable with contacting a global website as well. This suggests that a global website can efficiently educate potential users and support actual users of CycleBeads wherever they are.

woman with alerts for fertile days, reminding her to enter her next period date, and allowing her to access information in her preferred language.

The digital-tools environment changes and evolves daily. Keeping up with the latest updates to the platforms—as well as potential innovations for the app and consumer

demands – involves continued monitoring, development and upgrades to apps. In other words, an app is rarely a finished product.

Informational Resource

As with e-commerce, information about the method and the product is readily available to an end user. In the case of smartphone applications, much of the information is embedded in the app directly and is therefore “at the user’s fingertips.” This allows the requisite guidelines for use to be available directly to the consumer without having to make a visit to a health clinic. Since CycleBeads does not rely on prescription or obligatory consultation and can be used correctly with basic guidelines, mobile apps can provide the complete information-based FP solution. As with the mobile apps and online services, educational and informational resources can easily be kept up-to-date with no need to reprint materials or deal with the logistics of educating health providers.

Cost-efficiency

Cost savings and efficiency are also benefits of having SDM available through mobile devices and computers. It significantly cuts production costs that are normally associated with a physical product, including costs for manufacturing such as freight logistics and distribution, storage, sale, and distribution to end users. Once the application or online service is built, the cost for managing it is limited to maintenance, marketing, and customer service.

However, the business model is challenging. Over 90% of health apps are available for free, and those that do charge tend to have a very low price.³⁹ Consumers are therefore unlikely to download an app that charges. Possible solutions are in-app upgrades that are paid for by the customer or advertisements that appear in the app. Other models are needed to help FP apps be sustainable.

Unregulated, Cluttered Market

There are over 165,000 mHealth⁴⁰ apps for iOS and Android devices,⁴¹ and dozens of “period” or “fertility” trackers. CycleBeads is different from competitors in that it can claim that the method it supports can be used for pregnancy prevention, based on a large body of research on SDM. However, the language used by many of the

other apps in this area can be confusing to customers. While “period trackers” typically make disclaimers that the apps are “not for contraception,” that is not always clear to the user.

There is very little oversight regarding the claims made by these apps and the information they provide. Unlike for physical products, a traditional network of distribution does not exist. Therefore, the trade structure for digital tools is underdeveloped and has few regulations and specifications. Mobile apps need only to be accepted by the app market (the iTunes App Store and Google Play Store) to be made available, but the markets do not vet the methods upon which a mobile app may be based. Making clear the distinction between CycleBeads – a tool to accompany SDM – and “period trackers” – which are designed only for tracking or pregnancy planning – is a challenge.

CONCLUSIONS

In offering the physical CycleBeads product through e-commerce, there are a number of opportunities and challenges. E-commerce has made it possible for potential customers to find out about the product and procure it, even when it is not readily available in their local healthcare or retail setting. It has also provided a resource for information and support for both existing and potential customers. However, it has been challenging to generate sufficient demand from online platforms to sustain a viable business model. Additionally, in many low-resource areas of the world, the lack of internet infrastructure and delivery systems has made it even more challenging to successfully offer CycleBeads tools through local e-commerce websites.

Table 2. Historical costs for CycleBeads smartphone app downloads

Activity	Cost
Ongoing maintenance	\$0.75
Marketing to end users*	\$1.00
Client support	\$0.75
Total download cost	\$2.50

* Customer acquisition costs for online marketing vary significantly by geography and demographic. Costs range from: \$.40-\$2.00 per download.

Technology is changing how people become aware of FP products and services and how they access them. In the case of CycleBeads digital tools, technological advancements have allowed for the development of new products to complement the physical product and new modes of distribution. CycleBeads can be offered entirely via mobile technology like smartphone apps or websites. The digital landscape is still changing and evolving; challenges of payment and accessibility in local languages and markets remain in many countries.

FUTURE RESEARCH

The findings from this case study suggest that while offline information and distribution continues to be important, e-commerce is promising channel for this CycleBeads. The challenge going forward will be to increase awareness of CycleBeads and SDM to allow for wider access while keeping in mind the need for information for this method to be consistently available for the end user. To better understand the scope and scale of both the physical and digital CycleBeads sales via e-commerce, some additional research could explore a number of questions, including:

- **Having a central online hub:** Can a global website be better leveraged to support CycleBeads access and use in a wide variety of countries? Specifically, what pros and cons exist compared to local websites?
- **Understanding the impact of mobile technology on user interest for underused FP methods:** How does mobile technology affect interest and demand for underused technologies—especially fertility awareness-based methods that can be offered entirely via mobile devices?
- **Staying aware of the offline needs:** What offline support do distributors and end users need for successful e-commerce distribution?

Endnotes

1. Pyper, C, Knight, J. "Fertility Awareness Methods of Family Planning for Achieving or Avoiding." *Global Library Women's Medicine*. (ISSN: 1756-2228). 2008; DOI 10.3843/GLOWM.10384. Available from <http://www.glowm.com>.
2. CycleBeads Website (www.CycleBeads.com) and Institute for Reproductive Health website (www.irh.org).
3. Cycle Technologies' Sales Report 2008-2015.
4. Arevalo M. et al., Efficacy of a new method of family planning: the Standard Days Method. *Contraception*, 2002; 65; 333-338.
5. Johri, L., Panwar, D., & Lundgren, R. (2005). Introduction of the Standard Days Method in CARE-Indias community-based reproductive health programs. Washington D.C.: The Institute for Reproductive Health Georgetown University.
6. Monroy, M., Lundgren, R., & Montano, G. (2003). El Salvador: Introducing the Standard Days Method into Community-Based Programs. Procosal El Salvador, final report, San Salvador, El Salvador: Project Concern International.
7. Kavle, J., Eber, M., & Lundgren, R. (2012). The Potential for Social Marketing a Knowledge Based Family Planning Method. *Social Marketing Quarterly*, 18(2), 152-166.
8. Ujuju, C., Anyanti, J., Adebayo, S., Muhammad, F., Oluigbo, O., & Gofwan, A. (2011). Religion, culture and male involvement in the use of the Standard Days Method: evidence from Enugu and Katsina states of Nigeria*. *International nursing review*, 58(4), 484-490.
9. Lundgren, R., Sinai, I., Jha, P., Mukabatsinda, M., Sacieta, L., & León, F. R. (2012). Assessing the effect of introducing a new method into family planning programs in India, Peru, and Rwanda. *Reprod Health*, 9, 17. doi: 10.1186/1742-4755-9-17.
10. Gribble, J. N., Lundgren, R. I., Velasquez, C., & Anastasi, E. E. (2008). Being strategic about contraceptive introduction: the experience of the Standard Days Method®. *Contraception*, 77(3), 147-154.
11. Lundgren, R., Sinai, I., Jha, P., Mukabatsinda, M., Sacieta, L., & León, F. R. (2012). Assessing the effect of introducing a new method into family planning programs in India, Peru, and Rwanda. *Reprod Health*, 9, 17. doi: 10.1186/1742-4755-9-17.
12. Lundgren, R., Cachan J., and Jennings V. (2012). Engaging Men in Family Planning Services Delivery: Experiences Introducing the Standard Days Method in Four Countries. *World Health and Population*.
13. Emarketer, "2 Billion Consumers Worldwide to Get Smart(phones) by 2016"
14. Google Play – App Availability.
15. For examples see: <http://appcrawlr.com/iphone-apps/best-apps-fertility-awareness-method?q=fertility+awareness+method&deviceSeo=iphone%2Cipad&prefix=top+apps&device=iphone%2Cipad&price=&max=12&offset=12> and <http://www.fertilityfriday.com/22-fertility-awareness-websites-you-should-know-about/#comments>.
16. "Scale-Up of Standard Days Method in DR Congo Country Brief." op cit.
17. Cycle Technologies' Sales Report 2008-2015.
18. Cycle Technologies Company Overview Informational Report.
19. Cycle Technologies' Sales Report 2008-2015.
20. "U.S. Smartphone Use in 2015", Pew Research – April, 2015.
21. Cycle Technologies' Sales Report 2008-2015.
22. CycleBeads.com Web Purchasers Client Surveys 2006-2012.
23. Accessed 12 December 2015 at <https://www.boxuk.com/insight/blog-posts/understanding-google-analytics-definitions-of-key-terms>.
24. Google Analytics.
25. Google AdWords Key Words Traffic Estimator.
26. Interview with Mitos Rivera, Executive Director, IRH-Philippines.
27. CycleBeads CRM System and Google Analytics.
28. Pallone, S.R. Burgus, G.R. "Fertility Awareness-based Methods: Another Option for Family Planning." *J Am Board Fam Med*. 2009, 22(2): 147-57.
29. Interview with Remya Sasindran, Communications Manager at Evidence Action, India.
30. Interview with Remya Sasindran, Communications Manager at Evidence Action, India.
31. Interview with Mitos Rivera, Executive Director, IRH-Philippines.
32. Cycle Technologies' Client Usage Data.
33. Interview with Remya Sasindran, Communications Manager at Evidence Action, India.
34. "...the pull-through effect is a coined phrase for what happens when consumers decide they want something and go after it. Pull-through is the result of brand awareness, which creates a demand that travels backwards from consumer to retailer/restaurateur to distributor to packer to producer." Accessed 12 Dec 2015 from http://www.answers.com/Q/What_is_a_pull-through_offer.
35. IRH Kenya research on CycleBeads Android app. Cycle Technologies U.S. Online Marketing Budget Estimates.
36. While the company requires retailers to sign a "Minimum Advertised Price Policy" agreement, it is challenging to monitor. Most retailers procure through a network of distributors, and the policy is not always enforced. It is not entirely understood how discount websites are able to offer CycleBeads below wholesale costs. It appears that in some cases, they may advertise CycleBeads as a "loss leader" so that a potential customer will visit the site and order other products. In some cases, the websites may receive free or heavily discounted samples which they are turning around and selling at below wholesale pricing.
37. "Internet Seen as Positive Influence on Education but Negative on Morality in Emerging and Developing Nations." March 19, 2015. <http://www.pewglobal.org/2015/03/19/1-communications-technology-in-emerging-and-developing-nations/>
38. Bridging the gender gap: Mobile access and usage in low and middle-income countries. 2015. http://www.gsma.com/connectedwomen/wp-content/uploads/2015/02/GSM0001_02252015_GSMARreport_FINAL-WEB-spreads.pdf
39. IMS Institute for Healthcare Informatics "Patient Adoption of mHealth" report 2015.
40. "mHealth (also written as m-health) is an abbreviation for mobile health, a term used for the practice of medicine and public health supported by mobile devices." Accessed 12 Dec 2015 from <https://en.wikipedia.org/wiki/MHealth>.
41. IMS Institute for Healthcare Informatics "Patient Adoption of mHealth" report 2015.

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