



Easypaisa: A mobile operator-led solar PAYG model for Pakistan

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Executive Summary

In January 2014, the M4D Utilities Programme awarded a Seed grant to Easypaisa,¹ the first and largest mobile financial services provider in Pakistan. Easypaisa was jointly launched by Telenor Pakistan, the country's second largest mobile network operator and Telenor Microfinance Bank, the country's largest microfinance bank. The project aimed to trial a mobile operator-led solar service that leveraged key operator assets such as the cellular data network, mobile money service, distribution network, and knowledge of customers' historical mobile usage.

The grant was designed to trial the sale of 125 solar home systems (SHSs), and to test the following technology options for pay-as-you-go (PAYG):

- GSM-connected SHS: The SHS communicates over the mobile network with a central server that manages billing and remote equipment on/off functionality. It also uploads system information that allows the vendor to provide proactive maintenance services.
- Offline SHS with code-based timeout: Offline version for PAYG where the SHS autonomously shuts off after the prepaid credit expires. Credit can be added to the SHS by making a payment and keying in the code received over SMS.

In addition, Easypaisa tested two PAYG business models through its partners:

- Lease-to-own: The buyer makes a down payment and then makes payments over the term of the loan. Once the loan is paid off, the ownership of the SHS is transferred to the buyer.
- Rental or energy-as-a-service: As in the case of an urban utility customer, the buyer pays for use but never owns the electricity generation system, i.e., the SHS in this case.

Finally, Easypaisa planned to partner with a lender that provided Islamic financing² for the SHSs.

After an initial evaluation, GSM connectivity for SHSs was dropped from the project scope due to its high cost, complexity and inconsistent mobile coverage in some areas. Easypaisa partnered with two vendors, Roshan Energy³ in Sindh and Brighterlite Pakistan⁴ in Punjab, KPK and Sindh, to test the two PAYG business models.⁵ After an exhaustive search for a provider of Islamic finance, Easypaisa found only one lender, ORIX Leasing Pakistan.⁶ However, the two parties could not close an agreement due to a mismatch in loan sizes. More importantly, as part of a needs assessment survey⁷ conducted before the customer offer was designed, Easypaisa found that potential customers did not have a strong preference for Islamic financing versus conventional financing (although they had a much stronger preference for lending on Islamic terms). Eventually, Easypaisa opted for conventional financing, which opened up a range of financing partner options.

Figure 1 summarises the combinations available to the customer through Roshan and Brighterlite.

1. Easypaisa website: <https://www.easypaisa.com.pk/>

2. "Islamic finance refers to the means by which corporations in the Muslim world, including banks and other lending institutions, raise capital in accordance with Sharia, or Islamic law. It also refers to the types of investments that are permissible under this form of law." For details, see *Working with Islamic Finance*: http://www.investopedia.com/articles/07/islamic_investing.asp

3. Roshan Energy website: <http://roshanenergy.com.pk/>

4. Brighterlite Pakistan is a wholly owned subsidiary of Brighterlite AS, a Norwegian group, which commenced business in Pakistan in March 2015. See website: <http://www.brighterlite.com.pk/>

5. Roshan Energy and Brighterlite Pakistan were not partners in the grant application so they were not directly responsible to contribute to the learning outcomes.

6. ORIX Leasing Pakistan website: <http://www.orixpakistan.com/>

7. The needs assessment survey was conducted with 1,000 respondents across on grid and off-grid populations in rural and urban Punjab and Sindh.

FIGURE 1

Roshan and Brighterlite's offerings

	Roshan	Brighterlite
Business model	Lease-to-own	Rental
Payment term	18 months	Perpetual
Ownership	Transferred to buyer once loan is fully paid off	Brighterlite in perpetuity
Provinces deployed in	Sindh	Punjab, Sindh, KPK
Type of financing (conventional or Islamic)	Conventional	Conventional
GSM-connected?	No	No

The association with the Telenor and Easypaisa brands was apparent to customers, even though Easypaisa does not co-brand the SHSs, through the following:

- The retail channel, as the SHSs are available through some Telenor and Easypaisa agents;
- The payment channel, as payments are collected over Easypaisa. Customers can use their own mobile money wallet to make a payment or make a cash payment at an Easypaisa shop that is credited to their SHS account.

For the project, Easypaisa developed a special GSM/FS⁸ credit scorecard to evaluate creditworthiness, incorporating data from Telenor's GSM subscribers as well as Easypaisa customers.

8. The GSM/FS credit score is computed by taking into account a user's airtime history from Telenor and financial services history from Easypaisa.

The key lessons that emerged from this project are:

- **Seasonality imposes challenges on the PAYG model, especially on the rental model:** Due to the hot and humid conditions in Pakistan, fans are a highly valued appliance. However, fans are power-hungry and drain the battery faster, potentially leaving consumers feeling that the system performance is poor. The right messaging and customer education are important to set customer expectations. Furthermore, energy demand is seasonal which is a challenge for vendors, especially for the rental model.
- **Both PAYG models found traction in the market:** Although asset ownership is highly desirable, higher monthly payments are a deterrent to some customers. The rental model, which requires lower but perpetual monthly payments, is more practical for some customers. Both Roshan and Brighterlite have sold or rented over 2,000⁹ SHSs to date showing that both models are gaining market acceptance.

- **Customer satisfaction rates are high:** 84% of respondents were satisfied with their system with 36% being completely satisfied. The majority of respondents expressed willingness to recommend their solar solution to friends and family. The attributes most valued by promoters were that the product fulfilled a critical need, it was convenient and of good quality. Detractors considered the product expensive (including a high down payment) and thought it did not perform well.
- **Customers' GSM recharge history can prove valuable in evaluating creditworthiness:** However, it required a long period of piloting to fine tune and customise the algorithm and internal processes for each product.

Going forward, Easypaisa plans to scale up its offering of solar products by supporting its existing vendors to expand their reach as well as by partnering with other solar vendors.

Source: Easypaisa



Customer using Roshan's solar home system to light up his shop

9. Sales numbers are self-reported by the vendors.

Introduction

Telenor Pakistan is 100% owned by the Telenor Group, an international provider of high quality voice, data, content and communication services in 13 markets across Europe and Asia. Telenor Pakistan acquired a GSM license in 2004 and began commercial operations in March 2005. It has reported a subscriber base of over 36 million in 2016, making it Pakistan's second largest mobile operator. Telenor Pakistan has over 200,000 customer touchpoints including retail outlets and service centres.

In November 2008, Telenor Pakistan acquired 51% of Tameer Microfinance Bank and the two jointly launched Pakistan's first Mobile Financial Services brand Easypaisa. Easypaisa is the largest such service in Pakistan by the number of accounts and also by volume transacted, with Tameer Microfinance Bank being the largest microfinance bank in the country. Easypaisa serves its customers through 75,000 agents across 800 cities and towns in Pakistan. In May 2015, Telenor acquired 100% of Tameer Microfinance Bank renamed as Telenor Microfinance Bank.¹⁰ For the remainder of the Case Study, we will use Telenor Pakistan to refer to the GSM service and Easypaisa to refer to the mobile money service.

Key facts

FIGURE 2

Company overview as of March 2016

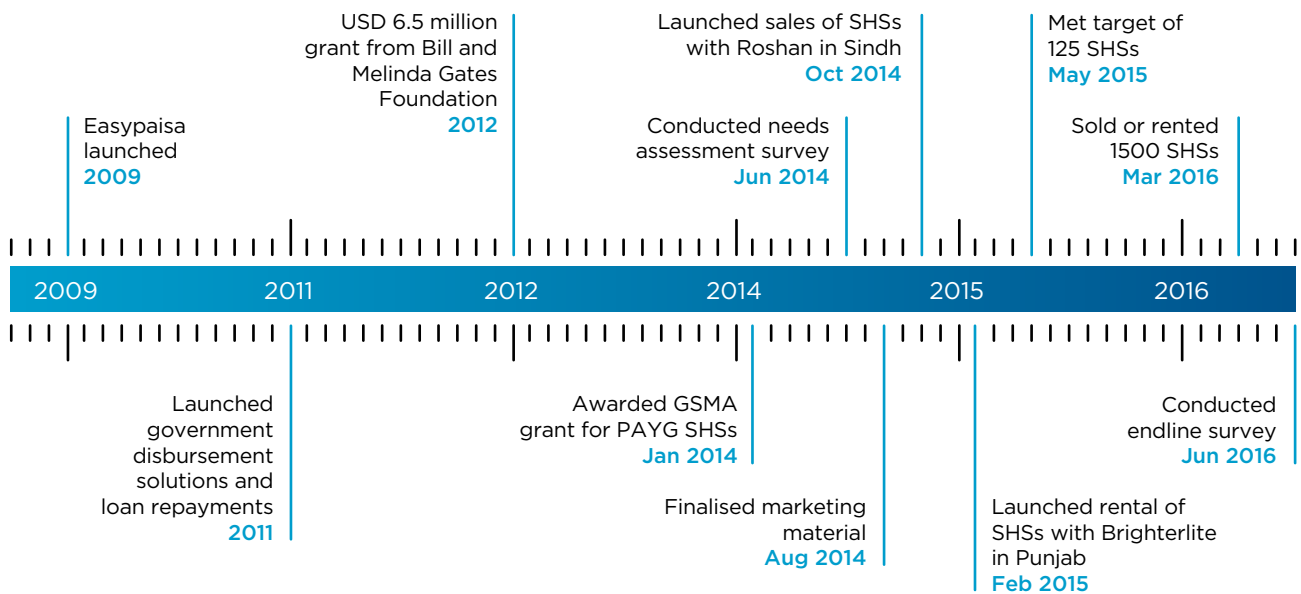
Name	Easypaisa
Sector	Mobile money operator, a subsidiary of a mobile network operator
Year established	2009
Product/service	<ul style="list-style-type: none"> • Mobile financial services • Pay-as-you go solar home systems (ranging from 7W to 100W) from vendor partners for improved energy access
Country footprint	Pakistan
Market segment	Off-grid households and small enterprises
Total systems/ customers served	Over 1500 solar home systems sold or rented by March 2016, well above the 125 SHS target under the grant with an estimated 9000 direct beneficiaries. Brighterlite's systems were financed by a separate project managed by Brighterlite Pakistan and co-funded by the Norwegian Agency for Development Cooperation, Norad
Use of mobile: technology and partnership	<ul style="list-style-type: none"> • Mobile money for customer payments, with the option of agent-facilitated over-the-counter (OTC)¹¹ payments • SMS and phone call reminders from vendor partners • Selected retail shops of Easypaisa and Telenor Pakistan as points-of-sale for SHSs

10. Telenor announces 100% ownership of Tameer Microfinance Bank: <https://www.telenor.com/media/articles/2016/telenor-announces-100-ownership-of-tameer-microfinance-bank/>

11. A transaction is considered OTC when it is conducted through an agent's account on behalf of the customer. See Mobile Money 2015 State of the Industry Report: http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/03/SOTIR_2015.pdf

FIGURE 3

Easypaisa's growth



Grant objectives

The objectives of Easypaisa's Seed grant were as follows:

- To sell or rent 125 SHSs to improve access to energy for approximately 750 direct beneficiaries
- To explore the synergy between energy access products and Easypaisa's mobile money service and distribution network.

The expected learnings for the broader pay-as-you-go solar sector, as defined by Easypaisa at the outset of the project were:

- The effect that mobile-enabled PAYG has on increasing the affordability of solar energy solutions
- Customer usage of mobile money wallet against over-the-counter (OTC) transactions
- Impact of increased access to solar energy on the quality of life for off-grid communities
- Whether GSM recharge history can be a reliable parameter in credit rating.

Market opportunity

Addressable market

Pakistan had an electrification rate of 69% in 2012 with 57% access in rural areas and 88% access in urban areas as per the International Energy Agency. In contrast, about 85% of the population of 182 million has access to GSM networks.¹² Thus, Pakistan's energy addressable market, defined as the number of people who have access to GSM networks but not to electricity, is estimated at 29 million people or 16% of the population.

An IFC Lighting Pakistan survey¹³ conducted in 2015 estimates that the total population that is off-grid or has unreliable grid access is significantly higher. Specifically, it estimates that:

- There are around 144 million people (about 78%) in Pakistan who are either off-grid or experience more than 12 hours of load-shedding per day.
- Pakistanis with no or unreliable access to electricity spend nearly USD 2.3 billion each year on poor-quality lighting solutions, such as diesel generators and battery-powered torches, that often fail to meet their needs, and pose additional challenges like safety risk or reliance on fossil fuels.

Mobile ecosystem

Pakistan's market penetration of unique mobile subscribers is 47%, which is just below the South Asia regional rate of 50%.¹⁴ In Q3 2016, there were eight mobile operators in Pakistan. Mobilink (Jazz) led with a market share of 37%, followed by Telenor (28%) and Zong (19%).¹⁵

Pakistan has a vibrant mobile money ecosystem dominated by three mobile money services. Easypaisa was the first mobile money service to launch in 2009 and is the current market leader with 8.1 million registered accounts followed by JazzCash (5.9 million) and UBL Omni (2.2 million).¹⁶ JazzCash leads the market with the highest proportion of active accounts (41%)¹⁷ closely followed by Easypaisa (40%) and UBL Omni (15%). Easypaisa also leads its peers in terms of volume of transactions (48%), value of transactions (49%), number of agents (30%) and number of active agents (49%).¹⁸ OTC transactions accounted for 56% of all customer transactions in the country.

Market assumptions

While looking for vendor and financing partners, Easypaisa conducted a needs assessment survey in June 2014 by interviewing a total of 1,000 households or commercial entities in on-grid and off-grid areas in urban and rural settings in Sindh and Punjab provinces. The breakdown of the respondents is shown in Figure 4.

FIGURE 4

Distribution of respondents for the needs assessment survey

	On-grid areas		Off-grid areas	Total
	Urban	Rural	Rural	All
Household	325	240	240	805
Commercial	75	60	60	195
Total	400	300	300	1,000

Note that respondents in on-grid areas do not necessarily have access to the electricity grid; they just reside in areas classified as on-grid.

12. GSMA estimate

13. Potential for Financing Off-grid Solar Devices through Pakistan's Microfinance Industry: http://www.ifc.org/wps/wcm/connect/d72aa0004886746d8388f7299ede9589/Pakistan+Solar+Consumer+Study+Overview_26th-May2015_LQ.pdf?MOD=AJPERES

14. GSMA Intelligence, Q3 2016

15. GSMA Intelligence, Q3 2016

16. Branchless Banking Newsletter, Jul-Sep 2016, issued by the State Bank of Pakistan: <http://www.sbp.org.pk/publications/acd/2016/BranchlessBanking-Jul-Sep-2016.pdf>

17. As per the State Bank of Pakistan's definition, a customer account from which at least one transaction was done in the past 180 days is considered active.

18. As per the State Bank of Pakistan's definition, an agent account from which at least one transaction was done in the past 90 days is considered active.

The key results of this extensive needs assessment survey were as follows:

Satisfaction with grid electricity was low but backup systems were not widely used:

In on-grid areas, the satisfaction level with the grid energy supply was very low, with the average score at or below 2 on a 7-point scale for all populations. Commercial establishments were even less satisfied than households and rural residents were less satisfied than urban residents. There were 6-7 reported power outages each day with an average duration of two hours in the summer season. The situation was somewhat better in winter with four outages daily. 69% of households had no backup systems such as generators, uninterrupted power supplies (UPS) or solar systems.

Despite reasonable levels of awareness, the adoption and intention to buy solar devices was low:

Respondents from households in off-grid areas were somewhat more aware of solar (72%) than those in on-grid areas (66%) but adoption in both types of areas was negligible. Commercial establishments (73%) were more aware of solar than households (66%). Awareness was highest (81%) among commercial establishments in off-grid areas. Intention to purchase solar in the following six months was low (11% in on-grid areas and 16% in off-grid areas).

Affordability was a key concern for over half the respondents: 52% of people in on-grid areas felt solar was beyond their means and 55% in off-grid areas felt the same.

People were both aware of financing and indifferent to the mode of finance:

Awareness of financing was relatively high. Among off-grid households, it was nearly two-thirds (61%). In all other populations, it was between 78% and 88%. The majority of respondents (between 50% and 60%) were indifferent to the type of financing offered for solar systems. Preference for Islamic financing was much lower than expected (between 20% and 30%). The remaining respondents had a preference for conventional loans. Thus, there was no strong preference to borrow on Islamic Sharia terms.

The majority of respondents were open to purchasing solar on a prepaid basis with a marked preference for monthly payments over more frequent payments:

In on-grid areas, over 80% of respondents were open to a prepaid plan for solar while only about two-thirds of respondents in off-grid areas were open to it. There was a very strong preference for monthly payments (over 90%) over more frequent payments. Stated willingness to pay was higher for commercial establishments compared to households and higher in on-grid areas compared to off-grid areas as shown in Figure 5.

FIGURE 5

Stated willingness to pay per month for solar energy

	On-grid areas	Off-grid areas
Household	PKR 860 USD 8.30 ¹⁹	PKR 580 USD 5.60
Commercial establishments	PKR 965 USD 9.32	PKR 750 USD 7.24

19. Prices in PKR converted to USD using OANDA Online Currency Converter for September 2016. Average: 103.566.

Business Model

Value proposition

A key insight revealed by the needs assessment survey was that the main hurdle to purchasing an SHS was financial. Easypaisa introduced the lease-to-own and rental options to overcome this barrier as well as to evaluate whether PAYG technology could help with enforcement of payments to reduce the risk of offering payment plans to customers.

The PAYG SHSs were meant for customers who wanted not only several lights and mobile charging capability, but also the ability to run a TV either at their home or place of business. Shop owners in particular were expected to use TVs to attract customers (primarily cricket fans) and increase revenue.

Easypaisa sacrificed the benefits of M2M connectivity that would improve customer service, primarily to

reduce the cost to the customer and secondarily to avoid the constraint of dependence on mobile network coverage during the pilot.

Easypaisa worked with two vendors for this project, Roshan Energy and Brighterlite. The types of models offered by the two vendors and other parameters are compared in Figure 6.

FIGURE 6

Roshan and Brighterlite's offerings

	Roshan	Brighterlite
Business model	Lease-to-own	Rental, i.e., energy as a service
Payment term	18 months	Perpetual
Ownership	Transferred to buyer once loan is fully paid off	Brighterlite in perpetuity
Provinces deployed in	Sindh	Punjab, Sindh, KPK
Type of financing (conventional or Islamic)	Conventional	Conventional
M2M-enabled?	No	No

The SHSs from Roshan, financed by Telenor Microfinance Bank²⁰ or by Roshan itself, become the property of the customer once the cost had been paid off in instalments over an 18-month term. Once all instalments are paid, the microcontroller becomes inactive and the SHS continues to function without any further top-ups.

Brighterlite provides SHSs on a perpetual rental basis, charging a monthly rental fee. Brighterlite owns the

solar systems in perpetuity and is responsible for maintenance.

Easypaisa's mobile money platform allows customers to benefit from easily accessible payments for both vendors. Both types of customers can pay at an Easypaisa shop or directly through their Easypaisa mobile accounts, although currently most people still prefer to go to an agent to make the payment using cash.

Products and pricing

Roshan Energy sold 30W, 60W and 100W SHSs and accessories. Brighterlite rented 7W, 25W and 40W SHSs and accessories. The lease-to-own model appeals to customers who prefer to own an asset but it costs relatively more. Customers pay a 15% deposit followed by incremental payments for 18 months until they own the system. The rental model brings down the monthly payments but the customer never owns the asset. The system details and pricing plans are shown in Figure 7 and Figure 8.

FIGURE 7

Roshan SHS products and prices

System name	Included components	Down payment	Monthly prepayment	Total price
RESHS - Basic	30W Solar Panel 10Ah LiFe PO4 battery 2 LED lights Squid adapter for mobile charger	PKR 4,125 USD 39.8	PKR 1,299 USD 12.5	PKR 27,500 USD 265.5
RESHS - Delux	60W Solar Panel 40Ah deep cycle VRLA AGM battery 2 LED lights Pedestal fan Squid adapter for mobile charger	PKR 5,775 USD 55.8	PKR 1,818 USD 17.8	PKR 38,500 USD 371.7
RESHS - Advanced	100W Solar Panel 65Ah deep cycle VRLA AGM battery 2 LED lights 2 x pedestal fan Squid adapter for mobile charger	PKR 7,425 USD 71.7	PKR 2,338 USD 22.6	PKR 49,500 USD 478.0

Roshan also offers customised packages based on consumer requirements by for example, offering more lights than are included in the standard packages above.

Initially, Brighterlite offered five options for its rental model which are listed in Figure 8.

20. Tameer Microfinance Bank website: <http://www.tameerbank.com/>

FIGURE 8

Brighterlite SHS products and prices

System name	Included components	Subscription fee ²¹	Monthly rental
L4	7W Solar Panel 2 x 100 lumen LED light 1 x 200 lumen LED light One mobile charger port	PKR 1,490 USD 14.4	PKR 490 USD 4.7
L9	25W Solar Panel 3 x 200 lumen LED light 70cm ceiling fan AM/FM/SW radio with USB and SD card port Two mobile charger ports	PKR 1,990 USD 19.2	PKR 790 USD 7.6
+L9	25W Solar Panel 5 x 200 lumen LED light AM/FM/SW radio with USB and SD card port Two mobile charger ports	PKR 1,990 USD 19.2	PKR 790 USD 7.6
L16	40W Solar Panel 3 x 200 lumen LED light 70cm ceiling fan AM/FM/SW radio with USB and SD card port Two mobile charger ports Capable of powering 15" or 18" TV (sold separately)	PKR 2,590 USD 25.0	PKR 1,090 USD 10.5
+L16	40W Solar Panel 3 x 200 lumen LED light 1 x pedestal fan AM/FM/SW radio with USB and SD card port Two mobile charger ports Capable of powering 15" or 18" TV (sold separately)	PKR 3,190 USD 30.8	PKR 1,090 USD 10.5

However, based on customer demand, Brighterlite now offers three options: L4, +L9, +L16 (with the latter two renamed as L9 and L16 respectively). Brighterlite believes this streamlined offering best serves the needs of low-income households. The reduced number of options also helped simplify the offering in customers' mind by making the options more clearly differentiated.

Source: Easypaisa

توہان جو گھر ہاٹی ہر وقت روشن
شمسی توانائی سان ہلڈ واریون شیون ہاٹی توہان جی پہنچ پر
LED لائٹون، پنکا، موبائل چارجر

پیکج L16
Rs. 1,090
رجسٹریشن چارجز پر
Rs. 3,190

پیکج L9
Rs. 790
رجسٹریشن چارجز پر
Rs. 1,990

پیکج L4
Rs. 490
رجسٹریشن چارجز پر
Rs. 1,490

تیار پیکٹجین جی رجسٹریشن چارجز پر سولار پینل، بیٹری، چارجر، پنکا، موبائل چارجر، لائٹون، فین شامل

Brighterlite
UAN: (051) 111 222 257 | www.brighterlite.com.pk

Brighterlite poster after streamlining the product line

21. Includes 14 days free service after activation.

Use of mobile: technology and partnership

Both Roshan and Brighterlite leveraged Easypaisa’s mobile money platform and agent network for payment collection as well as for distribution. Easypaisa developed a credit scoring algorithm to identify credit worthy customers.

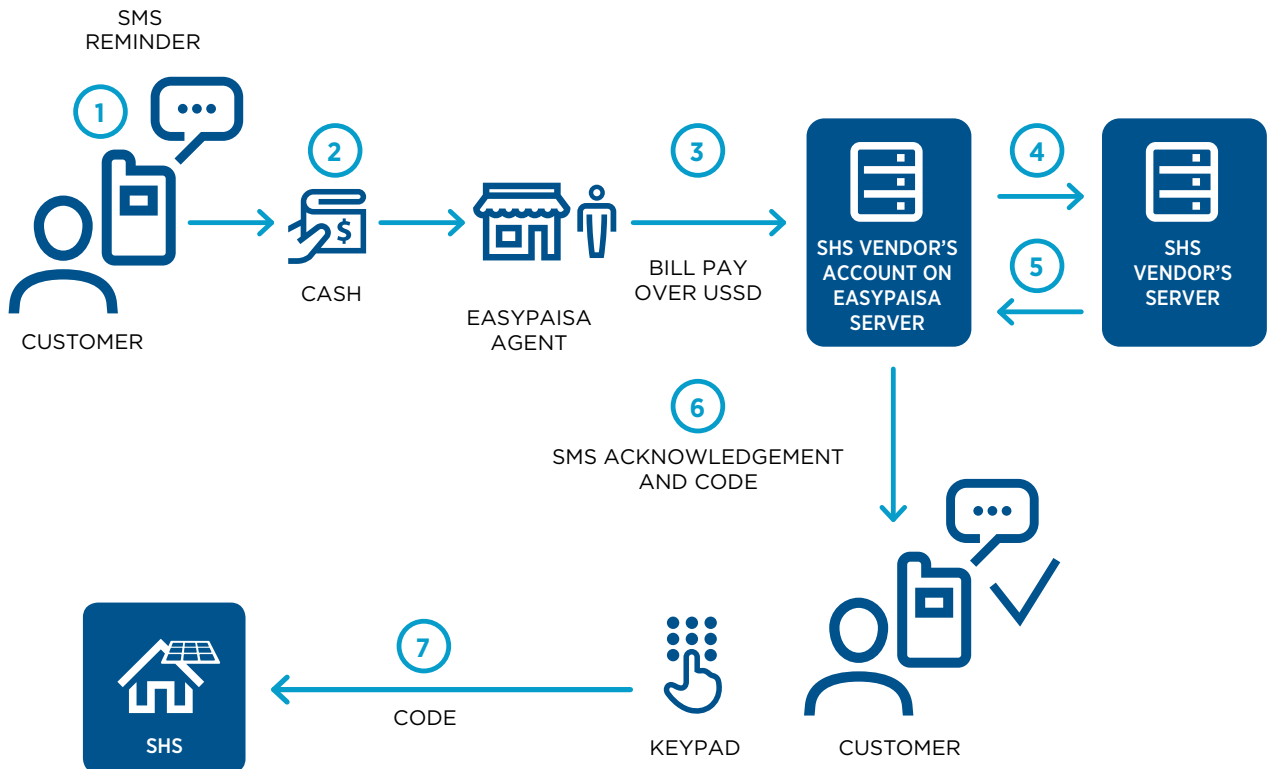
Payment process

Roshan and Brighterlite employed mobile money in similar ways. They maintained payment status separately on their respective databases and the SHSs. The PAYG process is shown in Figure 9.

1. When the SHS is nearly out of credit, the SHS vendor sends reminders to the customer, via both SMS and calls.
2. The customer either uses his own Easypaisa account to make a payment or more commonly pays cash to an Easypaisa agent who makes the payment on the customer’s behalf. (See following section for details on how the agent makes the payment on behalf of the customer using the OTC model.)
3. Easypaisa credits the SHS vendor’s account.
4. Easypaisa forwards the payment information including customer identification and payment amount of payment to SHS vendor’s server.
5. The SHS vendor’s server generates a code and returns it to Easypaisa.
6. The customer receives an SMS acknowledgement from Easypaisa along with the code to unlock the system.
7. The customer enters the code into the SHS and unlocks it for the next time period.

FIGURE 9

Easypaisa’s PAYG process



Over the counter (OTC) payment process

For any merchant (such as Roshan or Brighterlite) that is added to the Easypaisa’s portfolio of services, Easypaisa produces training material for their agents to explain the new service, how they can benefit in terms of increased transaction volumes and commissions, and how to process a payment as shown in Figure 10 for Brighterlite.

FIGURE 10

Explanation of the new service and commissions



Payment by merchant ID



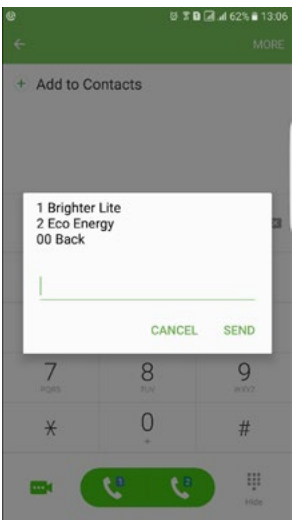
Payment by menu



Initially, Brighterlite payments could only be done by entering the corresponding merchant ID manually. Eventually, a dedicated menu option was added thus avoiding the need for the manual entry of the merchant ID number, as shown in Figure 11.

FIGURE 11

Dedicated option for Brighterlite in USSD bill payment menu



This greatly improved the usability for Easypaisa agents who were previously wary of entering the wrong merchant ID and running afoul of strict standard operating procedures they have to follow. An option for Roshan Energy in the menu will be added in the future.

Distribution

With the wide footprint of Easypaisa agents, it seemed natural to leverage their distribution network to sell and distribute the SHSs. It was agreed that Easypaisa should facilitate introductions between Brighterlite and Easypaisa agents in the pilot regions. Brighterlite then set up relationships and distribution contracts with interested agents independently of Easypaisa. This has the advantage of being a lighter-touch intervention from Easypaisa, ensuring SHS distribution is not mandated of their agent network and only interested agents can choose to diversify into this new venture.

Credit scoring

The major portion of the grant was allocated to developing a credit scoring solution for Easypaisa to better profile potential customers for the SHSs. For unbanked customers without a formal credit history, the traditional approach to lending is to have

two references, usually from an elder or influencer in the community. Instead, Easypaisa developed a credit scoring algorithm to assign a score to potential customers based on several parameters such as:

- Mobile behavioural data including:
 - The age of the subscriber on the network
 - Frequency and amounts of recharge
- Financial transaction data, if available

As credit scoring was designed to be used for assets underwritten by Tameer Bank, it was initially used on the first 125 SHSs which were grant-funded. Roshan Energy provided a list of pilot sites and of potential customer leads. The credit scoring algorithm was then run on these leads to assign them a score; potential customers with a score higher than a certain threshold were approved for the SHS loan.

Sales, distribution, customer evaluation, and customer service

Beyond product and pricing, Easypaisa's success depended on careful attention to the key business components of customer evaluation, sales, distribution and customer service. Figure 12 describes Easypaisa's operations for each of these business components.

Source: Easypaisa



An on-grid customer with Roshan's SHS

FIGURE 12

Description of Easypaisa's operations for core business components

Business Component	Structure & Strategies
Sales	<p>Easypaisa:</p> <ul style="list-style-type: none"> • Sales & Distribution network consists of 300 franchisees that work directly with Telenor and 75,000+ agents that work with these franchisees. There is a 20-80 split in commissions between franchisees and agents to keep both parties motivated. • Easypaisa provides branding and training to nearly all agents. This includes point of sale material, signage, and campaigns. • A total of 10 franchisees with 200 agents participated in the SHS project <p>Vendor:</p> <ul style="list-style-type: none"> • Vendor hires Easypaisa franchisee/agents as franchisee/agents • If no Easypaisa franchisee/agent is willing to join the vendor network in a specific territory, or if there are no Easypaisa franchisees/agents available, then vendor finds other interested parties • Easypaisa provides technical and sales training to their franchisees/agents • Vendor-appointed salespeople visit door to door to introduce the products
Payment collection	<ul style="list-style-type: none"> • Most customers pay for energy at the nearby Easypaisa agent • Some customers use Easypaisa mobile accounts so they can make payments themselves, anytime, anywhere. • SHSs are recovered from customers after two months of inactivity.
Distribution	<ul style="list-style-type: none"> • Roshan established its central distribution and service centre in Karachi • Brighterlite established their central distribution and service centre in Islamabad • Both distribution centres in turn work with Easypaisa to serve their designated markets and manage inventory across the franchisees and agents
Service	<p>Installation and maintenance:</p> <ul style="list-style-type: none"> • Brighterlite agent installs the SHS at customer premises • Customer call Brighterlite helpline in case they need support • Call centre staff triages the problem and assigns field support staff to visit the customer premises, if necessary <p>Warranties:</p> <ul style="list-style-type: none"> • Brighterlite maintains, repairs or replaces modules, batteries, controllers and LED lamps free of charge if they are no longer functional after normal and proper use. Other appliances like fans and radios that are not physically damaged, but have stopped operating, are replaced for free during the first 12 months • Roshan offers two-year after-sales service and six-month warranty on the bulbs and the battery

Results

Business viability

Sales

The target number of sales and rentals was 125. This target was easily exceeded by Easypaisa's vendor partners. Following the grant, Roshan and Brighterlite each have exceeded 2,000 SHSs with Easypaisa support by December 2016. Both are aggressively pursuing sales indicating that their payment collection rates through Easypaisa are healthy.

Barriers to uptake

Easypaisa agents had difficulty effectively selling the SHSs: Easypaisa's initial expectation was for agents to be the primary brand ambassadors for the SHSs. Easypaisa branded retail outlets with point of sale material and signage and also trained the agents. These agents were expected to not only use the SHS for their shops, but to also sell phone recharging service to their community, generating an additional source of income that should offset the SHS's recharge cost. However although agents did install SHS at their shops, they did not properly showcase them to the customer. Reasons for this include the availability of alternative on-grid power (even if limited to a few hours a day), and agents being secretive to protect their new source of income. Easypaisa is considering to conduct further research into agent drivers.

Payments vary seasonally: The maximum temperature in Thatta, Sindh, exceeds 30 degrees Celsius except in the winter months of December through February. As a result, fans are a highly valued accessory. Conversely, in the winter months, the perceived value of the SHS is lower leading to a lower frequency of payments.

Setting customer expectations correctly is very important: Although fans are highly valued, they are power-hungry and drain the battery faster, potentially leaving consumers feeling that the system performance is poor. The right messaging and customer education are important to setting customer expectations.

Hours of grid electricity have increased in some areas:

In some areas, the hours of electricity supplied by the grid have increased since the pilot started. This is good news for customers but also dampens repayment or subscription rates for vendors. As a result, vendors are increasingly offering their product or service to off-grid areas to avoid direct competition with the improving grid.

Impact on Easypaisa

The credit-scoring algorithm has proven to be effective for financing more than SHSs: The credit scoring algorithm has been further tested for the last two years on other products including handset financing and loans. A specific tool has been put in place to enable credit scoring and for each product, the set of parameters used and the threshold are customised. For example, to incentivise the first purchase of a smartphone among Telenor Pakistan's subscribers, Easypaisa began to offer smartphone financing to subscribers who did not consume data. The threshold for credit worthiness was set to a lower value than for an SHS as the ticket size for a smartphone was smaller than for an SHS.

Over these various pilots, the Easypaisa and Tameer Bank teams have assessed the effectiveness of using mobile service and financial transaction data to establish credit scores and have compared it to traditional methods of credit scoring. These pilots were used to hone algorithms as well as internal support processes, for instance the format and process to transfer data from one part of the organisation to another.

As these pilots have proven conclusive, the next step is for an increasing portion of Tameer Bank and Easypaisa's loan portfolio to now be underpinned by mobile-based credit scoring.

Despite a push to have customers adopt mobile wallets, OTC remains popular:

OTC is very popular in Pakistan, especially outside urban centres. Easypaisa tried to improve the adoption of wallets among customers of the SHSs by developing a new mobile app that enhanced usability. However, there was limited uptake due to a relatively low smartphone penetration in the target segment. The lack of reliable mobile coverage is another factor that dampens the uptake of mobile wallets outside urban centres.

PAYG payments increase Easypaisa agents' business:

Easypaisa was meant to be the exclusive payment channels for both vendors. While Brighterlite customers paid exclusively via Easypaisa, close to one-quarter of payments to Roshan were made by cash to field officers if they happen to be available at the time of payment. Thanks to solar payments, Easypaisa agents increased their transaction volumes significantly. In underserved urban areas, one Easypaisa agent saw an increase from 3-4 money transfer transactions per day to 18-20 transactions per day. Moreover, in rural off-grid areas, Easypaisa customers typically use the service only to receive money. Solar payments add another transaction category for this user segment.

Mobile operator sales channel synergy

Sales of SHSs require a different skillset than sales of airtime or servicing a mobile money customer: The business of selling SHSs significantly differs from that of selling mobile products from a number of perspectives, some of which are listed below:

- **Product:** Agents do not have to spend much time and effort selling mobile products to consumers who come to the shop requesting them. SHS products on the other hand are more of a “push” product. Above The Line (ATL) marketing is rarely used for this type of product given its cost but also because Below The Line (BTL) and proximity marketing have proven more essential and more effective. This is especially true in a market where most of the population will likely have had a prior negative experience with either a low-quality product or a free giveaway that soon broke down. The downside of the lack of ATL marketing however is that there is no clear brand recognition or notion of a market leader that customers can request. Agents thus have to spend time creating that demand and explaining the product and how it works, as opposed to servicing ready demand for mobile products.
- **Audience:** Another consideration is whether the footfall in an Easypaisa agent shop corresponds to the same segment that SHS vendors are targeting. Roshan Energy found better synergy with shops selling electrical goods: customers looking for energy solutions would naturally go there and furthermore, these shops already have the know-how to install and maintain electrical products.
- **Reach:** The agent is responsible to install and wire the SHS at the customer premises. As these customers are in off-grid areas which often also lack mobile coverage, their homes are often far from the Easypaisa agent shop and thus covering the “last-mile” requires time and effort.
- **Skill set and resources:** A different skill set is required of agent resources to:
 - Have the requisite know-how for SHS installations
 - Provide after-sales service and maintenance, in some cases including the removal of the systems
 - Follow up on regular payments

These challenges can of course be overcome if the right level of incentives and commissions is offered by vendors; however, the trade-off would be the profitability of the product and its ultimate affordability.

Nonetheless, Brighterlite has found that liaising and obtaining introductions to agents from Easypaisa makes it easier for them to identify the right influencers. Thanks to the introductions from Telenor franchisees to the many agents in their network (a couple of hundred each), Brighterlite has been able to easily identify and get access to the right people to target when setting up their distribution network.

Customer benefits

To evaluate customer benefits, Easypaisa conducted a detailed endline survey with 730 respondents in Sindh, Punjab and KPK provinces. The average duration the respondents had used the SHSs was nine months. Only 4% of respondents were women. This gender gap is not unique to SHSs; as per a GSMA report,²² 80% of men in Pakistan owned a mobile phone while only 38% of women did.

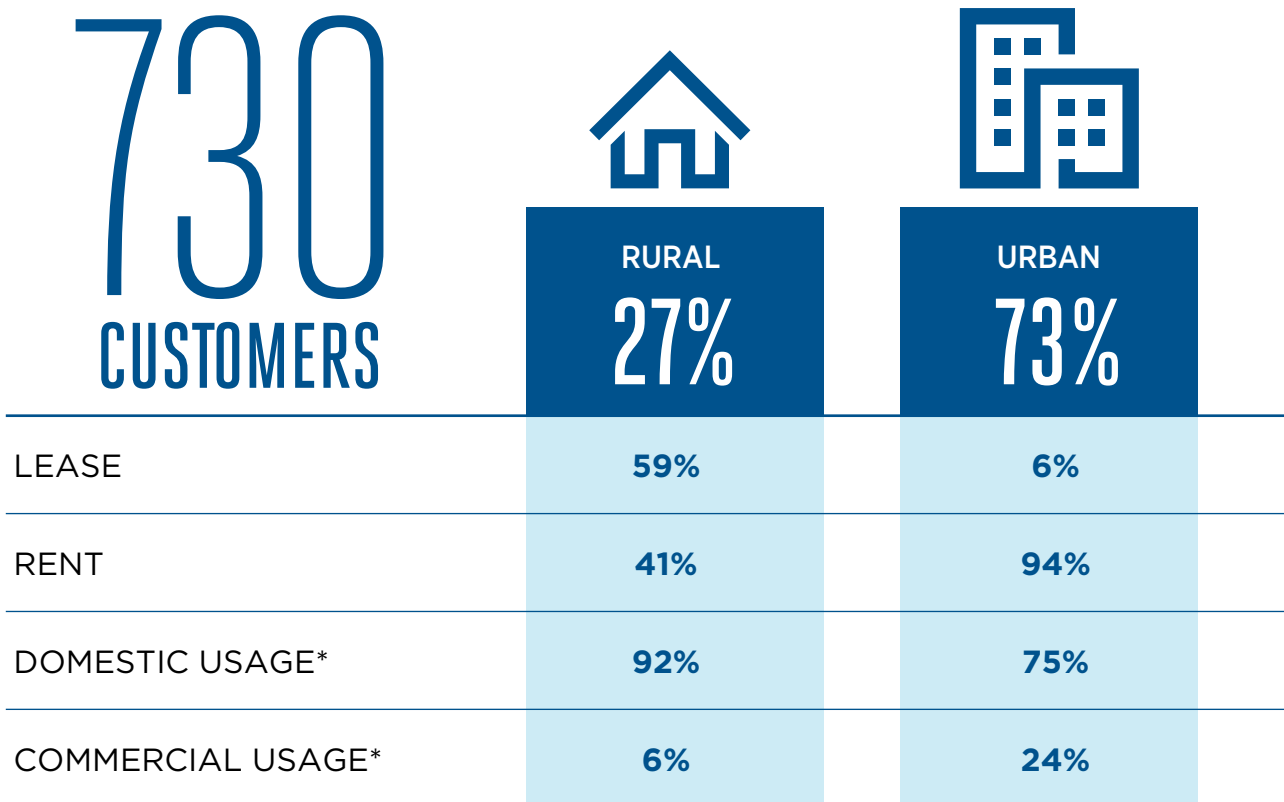
TVs were an important appliance in the target customer segment with 59% of customers owning a

TV set and 75% viewing TV, including somewhere other than in their homes. All households owned a mobile handset of which 16% were smartphones.

The urban-rural split of these 730 customers is shown in Figure 13. Urban customers (73%) dominated the mix. Three-fifths (61%) of all customers were aware of the various mobile data and calling plans indicating that they also had the capacity to understand and evaluate options for the SHS.

FIGURE 13

Rural-urban, lease-rental and domestic-commercial splits of SHS customers



* Some customers use the SHS for both domestic and commercial purposes

22. GSMA Mobile Money for the Unbanked and Connected Women programmes, September 2014, "Reaching half of the market: Women and mobile money", http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2014/09/2014_DI_Reach-half-of-the-market-Women-and-mobile-money.pdf

Urban customers strongly preferred renting while rural customers preferred ownership even though they may have had lower incomes on average:

Among urban customers, rental was preferred almost exclusively (94%). Rural customers preferred the option of eventually owning the SHS (59%) over a perpetual rental model. This may indicate that rural customers tended to see the SHS as a desirable asset and were prepared to pay higher monthly instalments to acquire it or that they were unfamiliar with rental and service concepts.

Rural customers almost exclusively used the SHS to power their homes as opposed to businesses: 92% of rural customers used the SHS to power their home. In contrast, three quarters (75%) of urban customers used their SHS to power their homes while the remaining powered their shops or restaurants.

Rural customers were twice as likely to be completely satisfied than urban customers: 59% of rural customers said they were completely satisfied compared to 28% of urban customers. However, more urban customers (87%) were at least somewhat satisfied as compared to 79% of rural customers.

Customers in on-grid areas were over twice as likely (48%) to be very satisfied as off-grid customers (19%): On-grid customers used the SHS as a backup supply. Consequently, they were less demanding of the SHS with nearly half (48%) being either completely or somewhat satisfied than their off-grid counterparts (19%). Off-grid customers desired longer battery life than the SHSs were able to provide. This indicates the importance of setting expectations and customer education in the optimum use of the SHS.

SHSs increase access to energy and help children study for longer hours: Before they bought or rented the SHS, 50% of respondents said that it was difficult to access electricity due to cost or lack of an alternative. Those who felt that access to energy was difficult had a higher level of satisfaction with the SHS mainly due to the longer hours of access and good services provided by the vendors. 51% said that their children were able to study for longer hours and 50% said the SHS improved their work-life routine.

Source: Easypaisa



Brighterlite SHS powering a customer's home

Source: Easypaisa

[Link to video of customer testimonials](#)

Source: Easypaisa



Solar panel on a customer's home

Mobile industry benefits

Easypaisa is working with vendors to develop the ideal SHS for the market to be offered on a lease-to-own basis. With such a product, Easypaisa expects to see growth in the use of its mobile money service, first in the limited target markets where the service is currently available, and thereafter from a nationwide rollout.

Furthermore, Easypaisa has developed a robust credit scoring methodology that is applicable to financing not only SHSs, but also handsets which directly improve Telenor Pakistan's revenue by increasing the penetration of smartphones in its customer base.

Telenor Velocity and EcoEnergy



EcoEnergy,²³ a fellow GSMA Innovation Fund grantee, recently graduated from Telenor Velocity's accelerator program and is now leveraging several of Telenor's go-to-market tools, including the Easypaisa bill payment menu, access to their distribution network and credit scoring. EcoEnergy is further refining, with the support of Telenor's data analysis team, the credit scoring algorithm by profiling EcoEnergy's existing customers who are defaulting on their payments.

Telenor Velocity is the first of its kind Digital Startup Accelerator, focusing on helping startups go to market, over a period of 6 months, by accessing Telenor Pakistan's scale and assets. Telenor Velocity provides a unique platform for startups to accelerate their products by providing:

- World-class data analytics to target the right customer;
- Access to one of country's largest retail network;
- Digital distribution and API platform;
- Online payment solutions;
- Mentorship from seasoned industry and Telenor experts; and
- Customised curriculum for each startup

During their six-month acceleration with Telenor Velocity, by using state of the art business analytics, EcoEnergy was able to identify a customer base of 13,000 potential consumers whom they targeted via SMS. Furthermore EcoEnergy has been able to on-board Telenor agents as their own customers in a value-chain partnership with a potential of reaching up to 2,000 customers in operational districts. EcoEnergy also incorporated Easypaisa bill payment solutions so their consumers could easily pay their monthly bills via a mobile account. The co-Founder of EcoEnergy, Jeremy Higgs said *"Telenor Velocity has helped us access new customers quicker, more efficiently, and in a much more affordable manner."*

23. In January 2014, the M4D Utilities programme also funded EcoEnergyFinance (now known as EcoEnergy), a distributor of solar equipment in Pakistan, to sell 50 SHSs and 750 solar lanterns on PAYG basis. For details, see GSMA Mobile for Development Utilities programme, May 2016, "EcoEnergyFinance: Distribution of Solar Pay-as-you-go in Pakistan", <http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/05/M4D-Utilities-EcoEnergyFinance-Distribution-of-Solar-Pay-as-you-go-in-Pakistan.pdf>. EcoEnergy's engagement with Velocity began after execution of both grant-funded projects was completed.

Conclusion

Even as the pilot exceeded its initial target of 125 systems and performed beyond Easypaisa's expectations, the barriers to scale must now be tackled.

Both vendors would like to expand their relationship with Easypaisa, most notably, with joint marketing activities and by continuing to leverage Easypaisa's agent shops as a place to showcase their products. Easypaisa will be supporting these vendors to enable them to reach scale and is looking for more providers to partner with. One of the realities is that the persistent load shedding issues have markedly improved in some areas since the pilot started. Whereas areas with an unreliable grid were formerly viable targets, vendors have now moved to completely off-grid areas to guarantee their revenue streams.

Another challenge is that for low-income, usually illiterate customers who are rightly wary of new products, it requires a slow, steady, and localised push to get them to adopt the product and become loyal. Furthermore, customer expectations of being able to run any and all appliances are also unmet and the perception is then that the price point for systems that only offer lighting and fans is too high. While many international organisations are funding the sector, government regulations have not been favourable and the lack of subsidies or tax breaks on solar products is not enabling a more affordable price point.

Appendix 1: Case Study Methodology

Overview: This case study is based on learnings that emerged throughout Easypaisa's Seed grant through the Mobile for Development Utilities programme. These were tracked through the following:

Grantee reporting: Monthly reports were completed on activities, project risks and mitigation, and key performance indicators. These were discussed during a one-hour call with the grant manager each month. Quarterly reports were completed to document progress on milestones, the grantee's learning objectives, barriers and other key project developments as well as financial compliance.

Customer surveys: Easypaisa carried out a needs assessment survey in November 2014 through phone calls from Telenor's call centre staff with 1,000 respondents in Sindh and Punjab. The distribution of respondents was urban in on-grid areas (400), urban in off-grid areas (300) and rural in off-grid areas (300).

Easypaisa conducted an endline survey in May and June 2016 through in-person interviews of 730 customers in Sindh, Punjab and KPK. Of the respondents, 398 were in on-grid areas and 332 were in off-grid areas.

Limitations of this study: The study aims to provide only the key learnings from Easypaisa's grant and cannot possibly cover all the day-to-day learnings from Easypaisa. It also aims to share learnings with the broader sector without releasing commercially sensitive data from Easypaisa, Roshan Energy or Brighterlite.

The customer surveys are meant to be representative while not necessarily statistically significant to a specified degree of certainty. Customer surveys are known to have limitations in accuracy, particularly around expenditures, income and previously carried out activities, where people often fail to recall these correctly or are influenced by perverse incentives (e.g., stating a lower income than reality thinking it will reduce the future pricing).



For more information on the Mobile for Development
Utilities programme visit:
<http://www.gsma.com/mobilefordevelopment/m4dutilities>

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