

Brand Orientation as a Strategy That Influences the Adoption of Innovation in the Bottom of the Pyramid Market¹

Mizan Rahman

University of Lincoln, UK

Md Rajibul Hasan

Kent Business School, University of Kent, Canterbury, UK

David Floyd

University of Lincoln, UK

A brand-oriented organization needs to consider the macro-environmental constraints in the "bottom of the pyramid" market.

Brand orientation significantly influences the "relative advantage" attribute of an innovation.

Our findings have strategic implications for multinational corporations designing or selling products to the millions of poor people living in developing countries.

If brand orientation is used as a strategy ensuring the "relative advantage" attribute of an innovation in the "bottom of the pyramid" market, it may influence the adoption of an innovation in the developing and emerging economies.

Introduction

Brand orientation can be used as a strategy for adopting social innovation in developing countries. Many people in developing countries live on less than \$2 per day. The late economist C.K. Prahalad (2005) famously used the term "Bottom of the Economic Pyramid" (BOP) for defining these people. Customers and firms in the BOP market are exposed to various macro-environmental constraints, and these constraints impact on their day-to-day life (Ersado, 2006). Separately, according to Urde (1994), managing a brand-oriented company consists of organizing and controlling the operations in such a way that an attractive value or competitive advantage can be created. Therefore, a brand-oriented organization needs to consider the macro-environmental constraints in the BOP market when creating competitive advantage for BOP consumers. Moreover, Wood *et al.* (2008) mentioned that global brands need to position their brand at radically low prices, and need to develop customer value while targeting the BOP market.

This research article investigates empirically how brand orientation as a strategy can be used to influence the adoption of an innovation amongst the BOP consumers in developing and emerging economies. It considers the Community Information Center (CIC) of Grameenphone as a case study in the BOP market of Bangladesh. Consumers in the BOP market generally lack education, and their income level is unfortunately below the subsistence level. Given their social and

¹JEL classification codes: F23, M11, O16.

economic background, there is maybe a traditional view that BOP consumers do not want to adopt innovation easily. However, Prahalad (2005) claimed against this traditional view, positing that the BOP market is very eager to adopt new innovations and they are brand-conscious. With this backdrop in mind, diffusion of innovation theory is used in this study to investigate how brand orientation as a strategy influences an adoption like CIC among consumers in the BOP market of Bangladesh.

So, what exactly is Grameenphone CIC?

Grameenphone CIC is an organization that is used as a means of maintaining the relationship with customers in the BOP market of Bangladesh. The objective of a CIC is to function as nodal points for information exchange, communication, entertainment, citizen-centric services, and learning. The CIC of Grameenphone fulfills the objectives by the establishment of IT infrastructure, and IT awareness amongst the local populace. The CIC puts the remote areas of the country on the IT map of the world.

It is basically an internet service-providing project. Grameenphone provides this service by using their Enhanced Data Rates for Global Evolution (EDGE), General Packet Radio Service (GPRS) technology. A CIC consists of one or two computers, printers, digital camera, web camera, etc. There are 525 CICs in Bangladesh, located in different villages and underprivileged areas (Grameenphone CIC, 2011).

For this, Grameenphone has united with different institutions and organizations, in a variety of categories, as strategic partners. The rollout partners of Grameenphone in this project are Grameen Telecom, Eagle, and the Society for Economic and Basic Advancement (SEBA), Kalikapur Daridro Kallan Sangsta (KDKS), and nationwide, the Socio-Economic Development Association (SEDA), SSTD Communication, and Karmakutir, Goriber Asroy, divisionally. All of these organizations are non-governmental development organizations working

with the population of the BOP market for the development of individuals and the community (Grameenphone CIC, 2011).

The effectiveness of CIC depends largely on how the concept is introduced to the people. This might pose a great challenge because most of the rural people might not have received primary education. The concept of IT services is completely new to them. Hence it is considered to be an innovation in the BOP market of a developing country like Bangladesh.

Initial technical know-how is a very important factor governing the success of the CIC program. The entrepreneurs are responsible for the operation; therefore, they are given preliminary training in basic computer knowledge, networking, installation, LAN setting, and the use of the internet. This training program is conducted by experienced professionals and provides the basic knowledge that is required for the operation of the internet services.

The services that are frequently used in a CIC are e-mail, video-conferencing, digital photography, printing (including high-quality photo printing), agricultural consultation, etc. Furthermore, e-mails are used by consumers as a substitute for traditional mail services. The best part is that this facility is accessible at incredibly nominal rates. As a result, visitors of all age groups come to CICs to communicate with others in the digital world (Grameenphone CIC, 2011).

In addition, video-conferencing is used to communicate with near and dear ones. There are numerous instances of people seeing loved ones through video-conferencing after many years. This has a tremendous effect on the social life of the rural poor people. Even illiterate people can chat via computers where live pictures are available. Another frequently used service is digital photography and the subsequent printing facility. People's pictures are taken and printed within 10 minutes, something which previously took 1–2 days. They can send their photos to relatives through e-mails. This has radically changed the total concept of communication (Grameenphone CIC, 2011).

People can use value-added services such as flexi load, public phone facility, ring tones download, etc. at each of the CICs. The internet browsing service is an important service provided by the CIC. CICs provide basic computer composing services which potential job candidates can use, for example, to compose their curriculum vitae for job applications.

The context of innovation

As stated before, CIC is a new concept in the BOP market of Bangladesh and can be considered as an innovation. The origin of the word “innovation” is the Latin word “novus,” which means “new.” Alternatively, “new idea, method or device” or “the process of introducing something new.” According to Rogers (1983, p. 11): “An innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption.” It appears that Rogers sees innovation as the newness of the idea, practice, or object. Therefore, Rogers believes that if the idea is new to the individual, then it is an innovation. According to Urabe *et al.* (1988, p. 3): “Innovation consists of the generation of new idea and its implementation into new product, process or service, leading to the dynamic growth of the national economy and the increase of employment as well as to create pure profit for innovative business enterprise.” It appears that Urabe *et al.* (1988) see innovation as the generation of new ideas. Therefore, it is argued that both Rogers and Urabe *et al.* view innovation as a new idea. In addition, Drucker (1985) argues that innovation is the precise instrument of entrepreneurs, the means by which they utilize change as an opportunity for a different commerce or service. It appears that Drucker believes innovation is the tool of entrepreneurs. Moreover, Bertz (1997) argues that innovation is to introduce a new product, process, or service into the marketplace. This author claims that innovation is related to a new product, process, or service to the marketplace. Furthermore, Afuah (1998) argues that the use of new technological and administrative knowledge to

present a new product or service to customers is an innovation. In sum, it can be said that innovation is related to products, processes, policies, and services that are new to organizations (Kimberly and Evanisko, 1981; Damanpour, 1991).

Adoption of innovation

Diffusion of innovation theory was first published by Rogers (1962), which was recognized as a landmark work in the field, and established as a standard introduction to diffusion study. Moreover, this theory is the most widely received academic work on adoption of innovation which can be generally applied to a variety of innovations. The theory of diffusion of innovation has been adapted and has progressed to serve technological innovation study across both consumer and business areas. According to Rogers (1983, p. 5), diffusion is “the process by which an innovation is communicated through certain channels over time among the members of a social system.” Moreover, he argues that this is the process through which individuals or other decision-makers have first knowledge of an innovation, to form attitudes toward the innovation, to a decision to reject or adopt, to confirmation of this decision, and to the implementation of new ideas.

According to Rogers (1962), there are five characteristics of innovation: relative advantage, compatibility, complexity, trialability, and observability (**Figure 1**) and these characteristics, as perceived by persons, help to describe their different rate of adoption. Therefore, it can be said that adoption of an innovation can be influenced by the characteristics of that innovation. Moreover, Rogers (1983, p. 232) defines the rate of adoption as “the relative speed with which an innovation is adopted by members of a social system.” Other researchers also provide alternative news of adoption attributes. However, most of the studies integrated attributes of innovation proposed by Rogers (1962). The five constructs of Rogers’ (1962) diffusion of innovation model used to evaluate the perceived attributes of an innovation are described as follows:

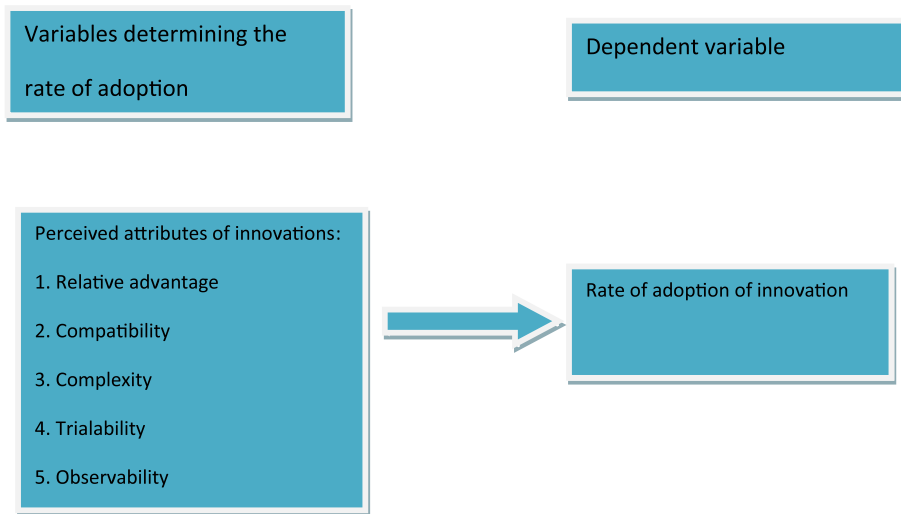


Figure 1. Rogers' diffusion of innovation model.

1. *Relative advantage*

Relative advantage is the degree to which a potential adopter perceives the innovation as being better than existing substitutes. It is also acknowledged as the intensity of reward or penalty by adopting or rejecting the technology. The degree of relative advantage can be measured in terms of economic profitability, low initial cost, lower perceived risk, decrease in discomfort, saving in time and rewards, and the immediacy of reward. Relative advantage has been found to be positively related to the diffusion rate in a later study (Rogers, 1983).

2. *Compatibility*

Compatibility is the degree to which a potential adopter perceives innovation as being consistent with their socio-cultural norms or is consistent with existing values, needs, and experiences. Moreover, compatibility has been found to be positively related to the diffusion rate (Rogers, 1983).

3. *Complexity*

Complexity is the degree to which the new innovation is perceived as complicated to comprehend or use. Moreover, Hurter and Rubinstein (1977) argue that complexity is related to the number of decisions

required and the number of decisions that must be repeated. Complexity has been found to be highly negatively related to the diffusion rate (Rogers, 1983).

4. *Trialability*

Trialability is the degree to which an innovation is capable of being experimented with on a limited basis. New ideas that can be flexibly experimented with will be adopted more rapidly than innovations that are not (Rogers, 1983).

5. *Observability*

Observability is the degree to which a product's benefits or attributes are observed, imagined, or described to others. Moreover, the easier it is for individuals to observe the outcomes of an innovation, the better they are likely to adopt them (Rogers, 1983).

Thus, the five attributes — namely relative advantage, compatibility, complexity, trialability, and observability — are considered in this study as the factors influencing the decision of adopting an innovation like CIC. This study finds out how brand orientation as a strategy influences these attributes of innovation for adopting an innovation as such in the BOP market. The following sections

examine the literature relating to BOP market, brand consciousness, and brand orientation.

The context of BOP market

A large portion of the world's population lives in Africa, Asia, Eastern Europe, and Latin America with lower income levels as potential consumers, and is traditionally ignored by the multinational companies and large local companies. This is based on the perception that low-income groups do not have the purchasing power to consume products offered by the MNCs and poor infrastructure in these regions requires a high level of investment. However, in terms of volume of sales, there are significant opportunities for MNCs because the BOP market was worth \$5 trillion globally back in 2007 (Hammond *et al.*, 2007).

According to Prahalad (2005), it is possible to capture the distribution of wealth and income-generating capacity of the world in the form of an economic pyramid, and this economic pyramid is illustrated in **Figure 2**. This pyramid contains four socio-economic segments, and this segmentation was developed based on per capita income for purchasing power parity (PPP). This PPP is a measure that evaluates the price of a basket of identically traded goods and services among different countries, giving a standardized comparison of real prices. Thus, it presents a valuable measure for dividing the population of the

world into different income levels (London and Hart, 2010).

However, there is some confusion here because of the different PPP lines proposed by different authors. According to London and Hart (2010), these values normally range from \$1500 to \$3000 per annum and \$1 to \$4 per day per capita, which provides a broad sense of variation within the BOP segment. The World Resources Institute (WRI) and the International Finance Corporation (IFC) carried out in-depth research to construct an understanding of the population size and collective purchasing power of the BOP. Hammond *et al.* (2007) used \$3000 PPP in 2000 US dollars (or \$3260 when adjusted to 2005 US dollars) as the per capita annual income threshold defining the BOP (London and Hart, 2010). In addition, back in 2005, Prahalad (2005) identified that more than 4 billion people in the world can be categorized as belonging to the BOP market.

Brand consciousness in the BOP market

Interestingly, D'Andrea (2006) argues that consumers of the BOP market have a strong preference for branded goods and purchase them when affordable because branded goods are perceived as providing backing, confidence, and quality. According to Prahalad (2005, p. 38): "Brand consciousness among the poor is universal." Prahalad argues that an ambition for a different and new

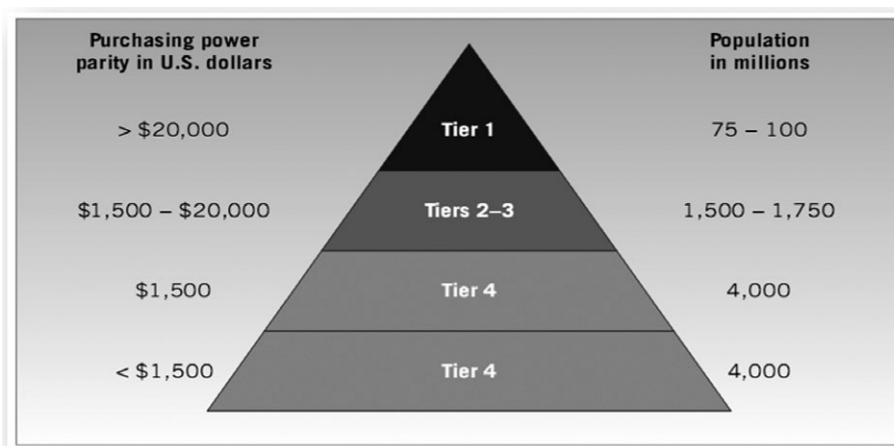


Figure 2. The economic pyramid.

Source: Prahalad and Hart (2002).

quality of life is the dream of everyone, including those at the BOP. He also mentions that BOP consumers are value buyers, which means that they expect good quality at affordable prices. Chikweche and Fletcher (2011) also argue that brands are important to BOP customers, although the dynamic circumstances at the BOP often reduce their importance at the actual point of purchase. In addition, according to Ghuman and Krishnamacharyulu (2008), rural customers in developing countries take a long time to decide on a particular brand, but once they are convinced, they are more brand-loyal than their urban counterparts. Furthermore, Mahajan and Banga (2005) confirm that societies in the developing world, particularly in rural areas, are still very conscious of brands.

Brand orientation in the BOP market

According to Urde (1994): "Brand orientation is an approach in which the processes of the organisation revolve around the creation, development and protection of brand identity in an ongoing interaction with target customers with the aim of achieving lasting competitive advantages in the form of brands." Moreover, Urde (1994) mentions that achieving the lasting competitive advantage depends on the competitors and the customers in the market. According to Ersado (2006), customers and firms in the BOP market are exposed to various macro-environmental constraints like political, economic, governance, cultural, and infrastructural challenges in their day-to-day life. Economic constraints recognized consist of low income, low gross domestic product, import price shocks, high inflation, declines in the terms of trade, lower remittance, foreign currency shortages, and reduced private capital inflows (Nwanko, 2000; Eifert *et al.*, 2005; Johnson *et al.*, 2007). Moreover, constraints like price shocks and price controls can also influence the availability of products, a firm's ability to manufacture products, and the procedures customers undertake to look for products (Ndulu *et al.*, 2007). Political and governance constraints include poor governance, political instability, weak legal systems, and corruption (Gyimah-Brempong and Traynor, 1999; Kaufman *et al.*,

2008). Additionally, political instability causes economic failure, leading to challenges for the firms, and restrictive legislation like price control can influence firms' operations. Infrastructure constraints like poor distribution channels, lack of reliable electricity, and unreliable transport are an established reality in the BOP market (Austin, 1990; Fay and Morrison, 2006).

Previous research has identified these constraints in the context of branding and identified consumers' perceptions on branding in the BOP market (Chikweche and Fletcher, 2011). According to Beard (2008), brands in the BOP market are influenced by promotions, lifestyle, social indicators, and consumption needs that affect consumer behavior in relation to purchase of a brand. Moreover, Rajagopal (2009) added that BOP brands extend the social contact and familiarity of consumers with the firms, and the buying behavior of the consumers toward the acquainted brands, which is referred to as "brand association." He also mentions that cultural and individual attributes of customers in the BOP market are vital to the strategy of any brands with the associated underlying brand propositions.

According to Chikweche and Fletcher (2011), BOP consumers consider branding as a key purchase influencer; therefore, BOP brands need to focus on a profit-oriented approach in order to access commercial advantage, boost the volume of buying by standardizing products, and run on low-price strategies (Rajagopal, 2009). Wood *et al.* (2008) suggest that the global brands need to position their brands at radically low prices, and require the development of customer value if they want to target the BOP market. Moreover, de Abreau Filo *et al.* (2003) mention that companies perform best in the low-income segment by following branding strategies.

Methodology

Mostly, descriptive research has been undertaken with quantitative focus. Primary data has been collected through survey questionnaires for quantitative research,

supported by some informal personal interviews. A sample of 120 people is used for the quantitative survey. However, 100 questionnaires from a quantitative survey were used for the analyses because 20 questionnaires were considered invalid as participants skipped some questions. Face-to-face surveys were conducted for the quantitative survey. The main respondents in the case of quantitative survey were the people in the BOP market of Bangladesh.

Sources of secondary data are annual reports, newspapers, and official websites. The secondary data also includes internet browsing, company prospectuses, news clips, etc. While using the secondary data the criteria — i.e., specification, error, currency, objective, nature, and dependability — of the secondary data are considered.

The questionnaire includes both open and close-ended questions so as to facilitate a more insightful understanding of the views and attitudes of the users. To meet the objective of the research, the questionnaire includes both Grameenphone CIC adoption and brand orientation-related questions. The questionnaire has been prepared with simple, direct, and familiar words, keeping illiterate respondents in mind, and was originally conducted in Bangla.

Research hypotheses

The verbal model of the hypotheses under consideration is that:

H1: The higher the relative advantage associated with CIC, the higher the levels of engagement with CIC.

H2: The higher the compatibility associated with CIC, the higher the levels of engagement with CIC.

H3: The lower the complexity associated with CIC, the higher the levels of engagement with CIC.

H4: The easier the trialability associated with CIC, the higher the levels of engagement with CIC.

H5: The higher the observability associated with CIC, the higher the levels of engagement with CIC.

H6: The higher the reflection of brand orientation, the higher the levels of engagement with CIC.

Data analyses and results

Each of the questions has been coded along with the variables in SPSS. The SPSS database has then become the source of further analysis. This helped to make the analysis of data collected during the research easier, more efficient, and more effective.

To recapitulate, there are two major research questions in this study. One is to find out the attributes of innovation which lead consumers to adopt an innovation like CIC in the BOP market of Bangladesh, and the other one is to investigate how brand orientation influences the attributes of an innovation like CIC.

Factor analysis is conducted to find out whether the underlying factors of the items are those suggested in the conceptual model of Rogers' attributes of innovation. Later, a regression model is run in order to investigate which drivers or attributes affect the adoption of CIC. Another regression analysis and correlation test is conducted to find out the relationship among the drivers of adoption of CIC and the impact of brand orientation.

Factor analysis and Rogers' attributes of innovation

After running the factor analysis using SPSS, some outputs of interest are found. These are presented in **Table 1**.

Bartlett's test of sphericity (Bartlett, 1950) and the Kaiser–Meyer–Olkin measure of sampling adequacy (Kaiser, 1970) are computed using SPSS software to measure the adequacy of their correlation matrices for factor analysis. In the case of Bartlett's test, very small values of significance level (below 0.05) specify a high probability that there are significant relationships among the variables; on the other hand, higher values (0.1 or above) specify that the data is inappropriate for factor analysis.

In addition, the Kaiser–Meyer–Olkin measure of sampling adequacy offers an index (between 0 and 1) of the proportion of variance in the midst of the variables

Table 1. Results from factor analysis of items on Rogers' attributes of innovation

	Factor				
	1	2	3	4	5
I would like to use Grameenphones internet and other services regularly after using the services of CIC.	0.805				
I am going to use the services of Grameenphone CIC for a long time.	0.64		0.371		
Adoption of services offered by CIC is going to make my life easy in the rural areas.	0.611				
Adoption of services offered by CIC would give me financial advantage.	0.577	0.379	0.562		
CIC services would give me more satisfactory experience.	0.522	0.379			
The practice of CIC is consistent with my daily practical needs.		0.833			
The philosophy of CIC is consistent with the cultural values of the rural areas.		0.612			
The services offered by CIC meet the needs in the rural areas.		0.55			
CIC is a simple way of trying out internet-based services.			0.605		
CIC can be easily accessed.			0.576		
The concept of CIC is easy to understand.		0.349	0.472		
CIC-related IT services are difficult to use.				0.91	
It is difficult to use the services in the CIC.				0.55	
I have seen other people benefit from CIC.					0.68
% variance explained	31.78	13.74	10.2	8.72	7.39
Eigenvalues	4.449	1.923	1.428	1.22	1.04
KMO = 0.723	Bartlett's test = 528.467 (0.000)				

that might be common variance. KMO near 1.0 suggested by the SPSS software supports a factor analysis.

From **Table 1**, it is found that all items can be grouped into five factors which are broadly in sequence with what was expected:

Factor 1. Relative advantage

Factor 2. Compatibility

Factor 3. Trialability

Factor 4. Complexity

Factor 5. Observability

Reliability and validity of the model

Before conducting the multiple regression analysis to investigate which attributes of innovation affect the adoption of CIC, the authors inspected the reliability and validity of the measurements. The reliability of the scale is good. Moreover, the majority of values of Cronbach alpha are between 0.7 and 0.9. Furthermore, the detail of the reliability analysis is presented in **Table 2**.

Table 2. Reliability analysis

Construct variable	No. of items	Alpha
Scale on levels of engagement with CIC	10	0.901
Rogers' attributes of innovation adoption	14	0.783

The results of the analysis confirmed the validity of the scale emerging from factor analysis. Factor analysis provides evidence on construct validity. Loading of items underlying a construct of more than 0.7 supports good validity.

Regression model

One of the objectives in this research is to explore the attributes of adopting an innovation affecting CIC adoption in the BOP market of a developing country like Bangladesh. Multiple regressions were chosen as the method to estimate a model of the factors thought to

influence the CIC adoption in the BOP market there. The metric scale on the levels of engagement with CIC representing CIC adoption in the questionnaire was used as the dependent variable in this model. Items of each construct were included to form the attributes of adopting an innovation in this model.

Multiple regression models of the factors thought to influence the CIC adoption

The models discussed in this article were of the best among all the models being tested in this type of analysis, as these models were revised by dropping insignificant variables.

Regression model: Adoption rate of CIC versus relative advantage, complexity

The implication of this model is that the variables “relative advantage” and “complexity” have significant influence on the variable “adoption rate of CIC.”

The regression model is determined by the following.

Independent variables

relative advantage (X1)

complexity (X2)

Dependent variable

adoption rate of CIC(Y):

$$\text{adoption rate of CIC (Y)} = \beta_0 + \beta_1 \text{ relative advantage (X1)} + \beta_2 \text{ complexity (X2)} + \epsilon_i$$

where

β_0 = coefficient of the constant

β_1 = coefficient of relative advantage

β_2 = coefficient of complexity

ϵ_i = error term

The hypotheses tested from this model are presented in **Table 3**.

The results of these tests are given in **Tables 4 and 5**.

Table 3. The hypotheses tested

Null hypothesis, $H_0: \beta_1 = 0$	Hypothesis tested using <i>t</i> -test
Alternative hypothesis, $H_A: \beta_1 \neq 0$	
Null hypothesis, $H_0: \beta_2 = 0$	Hypothesis tested using <i>t</i> -test
Alternative hypothesis, $H_A: \beta_2 \neq 0$	
Null hypothesis, $H_0: \beta_1 = \beta_2 = 0$	Hypothesis tested using <i>F</i> -test
Alternative hypothesis, $H_A: \text{at least one } \beta_j \neq 0$	

Table 4. Anova

Source	DF	Sum of squares	Mean square	F value	p value
Model	2	714.132	357.066	9.308	0
Error	97	3721.18	38.363		
Total	99	4435.31			

Table 5. Coefficients

Model	Unstandardized coefficients		Standardized coefficients	t	p value
	B	Std. error	Beta		
1 (constant)	37.6	0.619		60.76	0
relative advantage	1.96	0.689	0.264	2.837	0.006
complexity	-2.13	0.659	-0.3	-3.23	0.002

Dependent variable: Adoption rate of CIC(summation of items for levels of engagement with CIC).

Here, the null hypothesis H_0 is rejected and the alternative hypothesis H_1 is accepted, because the p -value (0.000) > 0.05.

The regression equation is:

$$\begin{aligned} \text{adoption rate of CIC (Y)} &= 37.63 + 1.955 \\ &\quad (\text{relative advantage}) \\ &\quad - 2.128 (\text{complexity}) \end{aligned}$$

From the revised regression model, it is found that the F -statistic is 9.308 with $p > 0.05$. Moreover, it can be seen from the t -test that “relative advantage” and “complexity” are significant at the 5% level. Therefore, “relative advantage” and “complexity” are the key drivers affecting the levels of engagement with CIC. Drivers with a p -value more than 0.05 were regarded as insignificant.

In addition, it is also essential to examine the goodness-of-fit for the model. The coefficient of determination R^2 of 41.2% was measured, indicating that the model is fairly fitted.

Single-regression model of brand thought to influence drivers of adopting CIC

One of the objectives in this research is to explore how brand orientation as a strategy affects drivers or attributes of adopting CIC in rural areas of a developing country like Bangladesh. Single regression is chosen as the method to estimate a model of brand orientation as a strategy influencing drivers of adopting CIC in rural areas. From the previous multiple-regression analysis, it is found that relative advantage and complexity are the drivers affecting the levels of engagement with CIC. Therefore, brand is considered as independent variable and relative advantage and complexity are considered dependent variables in the case of conducting the next regression analyses.

Regression model: complexity versus brand

The implication of this model is that the variable “brand” has significant influence on the variable “complexity.” It is found from the regression analysis that brand does not

affect the complexity driver of adopting CIC in the BOP market.

Regression model: relative advantage versus brand

The implication of this model is that the variable “brand” has significant influence on the variable “relative advantage.”

The regression model is determined by the following.

Independent variable:

brand (X1)

Dependent variable:

relative advantage (Y):

$$\text{relative advantage (Y)} = \beta_0 + \beta_1 \text{ brand image} + \varepsilon_i$$

where

β_0 = coefficient of the constant

β_1 = coefficient of brand

ε_i = error term

The hypotheses tested from this model are presented in **Table 6**.

The results of these tests are given in **Tables 7 and 8**.

Table 6. The hypotheses tested

Null hypothesis, $H_0: \beta_1 = 0$	Hypothesis tested using t -test
Alternative hypothesis, $H_A: \beta_1 \neq 0$	
Null hypothesis, $H_0: \beta_0 = 0$	Hypothesis tested using F -test
Alternative hypothesis, H_A : at least one $\beta_j \neq 0$	

Table 7. Anova

Source	DF	Sum of squares	Mean square	F value	p value
Model	1	6.099	6.099	8.009	0.006
Error	98	74.635	0.762		
Total	99	88.414			

Table 8. Coefficients

Model		Unstandardized coefficients		Standardized coefficients	<i>t</i>	<i>p</i> value
		<i>B</i>	Std. error	Beta		
1	(constant)	-1.21	0.436		-2.77	0.007
	Brand image of Grameenphone facilitates to adopt the service of CIC in the rural areas	0.307	0.109	0.275	2.83	0.006

$R^2 = 24.6\%$.

* Significant at $p > 0.05$.

Here, the null hypothesis H_0 is rejected and the alternative hypothesis H_1 is accepted, because the p -value (0.006) > 0.05 .

The regression equation is:

$$\text{relative advantage (Y)} = -1.208 + 0.307 (\text{brand}) + \varepsilon_i$$

It is found that the F -statistic is 8.009 with $p > 0.05$. Moreover, it can be seen from the t -test that “brand” is significant at the 5% level. Therefore, it is found from this regression analysis that “brand” affects the “relative advantage” driver of adoption of CIC.

In addition, it is also essential to examine the goodness-of-fit for the model. The coefficient of determination R^2 of 24.6% was measured, indicating that the model is fairly fitted.

Correlation test

From the previous regression results, it is found that “brand” affects the “relative advantage” driver of adoption of CIC. Therefore, the correlation test is the chosen method to find out if brand and relative advantage have a positive or negative relationship.

Test of correlation between brand image and relative advantage

The hypotheses for this test are as follows.

Null hypothesis, $H_0: \rho = 0$.

Alternative hypothesis, $H_A: \rho \neq 0$.

The results of the test are given in **Table 9**.

From the above output, it is quite clear from the p -value of the test that the null hypothesis of the test is rejected at any significance level above 0. This finding is also backed by the correlation of 0.275, which suggests a positive relationship. Therefore, it can be suggested that brand and relative advantage do converge on some level.

From the regression results and correlation test results, it is found that brand influences the “relative advantage” attribute of adopting CIC, and they have a positive relationship. Therefore, brand orientation as a strategy positively influences the “relative advantage” attribute of adopting an innovation like CIC.

Discussion and conclusion

In this study, CIC is considered as an innovation. According to Rogers (1962), the five characteristics of innovation as perceived by individuals are: relative advantage, compatibility, complexity, trialability, and observability. He also mentions that the adoption of an innovation can be influenced by the characteristics of that particular innovation. Other researchers also provide alternatives of attributes of innovation, but Rogers’ diffusion of innovation is considered as the relevant framework for this study. Diffusion scholars have found relative advantage to be the best predictor of an innovation’s rate of adoption. It is found from the majority of studies that the relative

Table 9. Correlations between brand and relative advantage

		Relative advantage	Brand image of Grameenphone facilitates the adoption of the service of CIC in the rural areas
Relative advantage	Pearson correlation	1	0.275**
	Sig. (2-tailed)		0.006
	<i>N</i>	100	100
Brand image of Grameenphone facilitates the adoption of the service of CIC in the rural areas	Pearson correlation	0.275**	1
	Sig. (2-tailed)	0.006	
	<i>N</i>	100	100

** Correlation is significant at the 0.01 level (2-tailed).

advantage of an innovation, as perceived by members of a social system, is positively related to its rate of adoption (Rogers, 1983) as well. Fliegel and Kivlin (1966) argue that as we are dealing here with innovations having direct economic significance for the acceptor, it is not surprising that innovation perceived as most rewarding and involving least risk and uncertainty should be accepted most rapidly. Furthermore, a study by Kivlin and Fliegel (1967) which includes US small-scale farmers finds that relative advantage is positively related to the rate of adoption. From the findings of this quantitative research, it was also found that relative advantage is significantly related to the level of engagement with CIC and the relationship between the relative advantage and the level of engagement with CIC is positive, which is demonstrated by the positive parameter (1.955).

From this research, it is also found that branding significantly influences the relative advantage attribute of an innovation like CIC in the BOP market. This is similar to the views of Tidd (2010), who argues that brands positively influence customers' attitudes toward the brands and eventually customers' adoption intention. Moreover, some people may be predisposed to the idea that poor people are not brand-conscious; however, Prahalad (2005), a major contributor to BOP-related studies, mentioned that BOP customers are actually brand-conscious. This

view is supported by Chikweche and Fletcher (2011), Ghuman and Krishnamacharyulu (2008), Mahajan and Banga (2005), de Abreau Filo *et al.* (2003), and D'Andrea (2006).

According to Urde (1994), brand orientation consists of achieving long-lasting competitive advantage in the form of brands. It was our intention to see empirically if brand orientation of Grameenphone in the BOP market of Bangladesh influenced the adoption of CIC. From the findings of quantitative research, it is found that brand orientation as a strategy of Grameenphone positively influences the adoption of CIC in the BOP market by positively influencing (as the correlation between relative advantage and brand is 0.275) the "relative advantage" attributes of adopting an innovation like CIC.

This empirical work has strategic implications for multinational corporations designing or selling products to millions of poor people in developing and emerging economies. Positioning the BOP brand at a low price point, and creating customer value (as suggested by Wood *et al.*, 2008 and Rajgopal, 2009) is similar to those (economic profitability, low initial cost, decrease in discomfort) measures of "relative advantage" suggested by Rogers (1962). If a BOP brand can ensure the relative advantage of an innovation in the market, then it may positively influence the adoption of an innovation in that market.

References

- Afuah A. 1998. *Innovation Management: Strategies, implementation, and profits*. New York: Oxford University Press.
- Austin J. 1990. *Managing in Developing Countries: Strategic Analysis and Operating Techniques*. New York: The Free Press.
- Bartlett MS. 1950. Tests of significance in factor analysis. *British Journal of Statistical Psychology* **3**(2), 77–85.
- Beard ND. 2008. The branding of ethical fashion and the consumer: A luxury niche or mass-market reality? *Fashion Theory: The Journal of Dress, Body & Culture*, **12**(4): 447–467.
- Bertz F. 1997. *Managing Technological Innovation: Competitive advantage from change*. New York: McGraw-Hill.
- Chikweche T, Fletcher R. 2011. Branding at the base of pyramid: A Zimbabwean perspective. *Marketing Intelligence & Planning*, **29**(3): 247–263.
- D'Andrea G. 2006. Breaking the paradox of emerging markets: strategies for reaching consumers at the base of the pyramid. Working Paper, Universidad Austral, Buenos Aires.
- Damanpour F. 1991. Organizational innovation: A meta-analysis of effects of determinants and moderators. *Academy of Management Journal*, **34**(3): 555–590.
- de Abreau Filo G, Calicchio N, Lunardine F. 2003. Brand building in emerging markets. *McKinsey Quarterly*, June.
- Drucker P. 1985. *Innovation and Entrepreneurship*. Cambridge, MA: Harvard Business School Press.
- Eifert B, Gelb A, Ramachandran V. 2005. Business environment and comparative advantage in Africa: Evidence from the investment climate data. World Bank Working Paper Series, The World Bank, Washington, DC, pp. 195–233.
- Ersado L. 2006. *Income Diversification in Zimbabwe: Welfare implications from urban and rural areas*. Washington, DC: The World Bank.
- Fay M, Morrison M. 2006. *Infrastructure in Latin America: Recent Developments and Key Challenges*. Washington, DC: The World Bank.
- Fliegel FC, Kivlin JE. 1966. Attributes of innovations as factors in diffusion. *American Journal of Sociology*, **72**: 235–248.
- Ghuman K, Krishnamacharyulu C. 2008. *Rural Marketing: Concepts and Practices*. New Delhi: Tata McGraw-Hill.
- Grameenphone CIC. 2011. Available at: <http://www.Grameenphonecic.org/index.php?main = 1> [accessed May 11, 2012].
- Gyimah-Brempong K, Traynor TL. 1999. Political instability, investment and economic growth in sub-Saharan Africa. *Journal of African Economies*, **8**(1): 52–86.
- Hammond AL, Kramer WJ, Katz RS, Tran JT, Walker C. 2007. The next 4 billion. *Innovations: Technology, Governance, Globalization*, **2**(1&2): 147–158.
- Hurter AP, Rubenstein AH. 1977. Market penetration by new innovations, technological literature. *Technological Forecasting and Social Change*, **11**: 197–221.
- Johnson S, Ostry J, Subramanian A. 2007. The prospects for sustained growth in Africa: Benchmarking the constraints. IMF Working Paper No. 07/52, IMF, Washington, DC.
- Kaiser HF. 1970. A second generation little jiffy. *Psychometrika* **35**(4), 401–415.
- Kaufmann D, Kraay A, Mastruzzi M. 2008. *Governance Matters VII: Aggregate and Individual Governance Indicators 1996–2007*. Washington, DC: The World Bank.
- Kimberly JR, Evanisko MJ. 1981. Organizational innovation: The influence of individual, organizational and contextual factors on hospital adoption of technological and administrative innovation. *Academy of Management Journal*, **4**: 689–713.
- Kivlin JE, Fliegel FC. 1967. Differential perceptions of innovations and rate of adoption. *Rural Sociology*, **32**(1): 78–91.
- London T, Hart SL. 2010. *Next Generation Business Strategies for the Base of the Pyramid: New approaches for building mutual value*. Upper Saddle River, NJ: FT Press.
- Mahajan V, Banga K. 2005. *The 86 Percent Solution: How to Succeed in the Biggest Market Opportunity of the Next 50 Years*. Upper Saddle River, NJ: Pearson Prentice-Hall.
- Ndulu L, Chakraborti LL, Ramachandran V, Wolgin J. 2007. *Challenges of African Growth, Opportunities, Constraints and Strategic Direction*. Washington, DC: The World Bank.
- Nwanko S. 2000. Assessing the marketing environment in sub-Saharan Africa: Opportunities and threats analysis. *Marketing Planning and Intelligence*, **18**(3): 144–513.
- Prahalad CK. 2005. *Fortune at the Bottom of the Pyramid: Eradicating poverty through profits*. Upper Saddle River, NJ: Wharton School Publishing.

- Rajagopal. 2009. Branding paradigm for the bottom of the pyramid markets. *Measuring Business Excellence*, 13(4): 58–68.
- Rogers EM. 1962. *Diffusion of Innovations*, 1st edn. New York: Free Press.
- Rogers EM. 1983. *Diffusion of Innovations*, 3rd edn. New York: Free Press.
- Tidd J. 2010. *Gaining Momentum: Managing the Diffusion of Innovations*. Imperial College Press.
- Urabe K, Child J, Kagono T. 1988. *Innovation and Management: International Comparisons*. Berlin: Walter de Gruyter.
- Urde M. 1994. Brand orientation – a strategy for survival. *Journal of Consumer Marketing*, 11(3): 18–32.
- Wood VR, Pitta DA, Franzak FJ. 2008. Successful marketing by multinational firms to the bottom of the pyramid: Connecting share of heart, global “umbrella brands”, and responsible marketing. *Journal of Consumer Marketing*, 25(7): 419–429.

BIOGRAPHICAL NOTES

Mizan Rahman has been a senior lecturer in marketing at the University of Lincoln since 2004. He is interested in macro-marketing issues at the nexus of marketing and society in areas such as advertising and marketing ethics, responsible and sustainable marketing, place marketing, international marketing, and economic development. Before his academic career, he worked in advertising, pharmaceuticals, and the charity sector.

Correspondence to:

Mizan Rahman
Lincoln Business School
University of Lincoln
Lincoln LN6 7TS, UK
e-mail: mrahman@lincoln.ac.uk

David Floyd is currently a senior lecturer in international business at the University of Lincoln. He has previously worked for the universities of London, Sunderland, and Derby as a lecturer and senior lecturer. Among other responsibilities, he has held external examiner positions for the University of Hong Kong and Sheffield Hallam University. He has also worked for the Department of Trade advising British exporters. His research interests are: globalization, foreign direct investment, and European integration.

Md Rajibul Hasan is a doctoral candidate in marketing at the University of Kent, and the recipient of a Kent Business School PhD scholarship. His thesis focuses on the adoption of innovation in the BOP market. His other research interests include branding, diffusion of innovation, theory of planned behavior, technology acceptance model, customer relationship management, ethics in marketing, and poverty alleviation.