ROLE OF CUSTOMER CHARACTERISTICS ON NEW SERVICE PERFORMANCE WITH SPECIAL REFERENCE TO NEW SERVICE DEVELOPMENT PROCESS

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Abstract: “Innovation is a strategy to keep customers satisfied” is an old adage but holds true even today. Service Industry in India is one of the fastest growing Industry contributing towards fifty percent of India’s GDP and generating huge employment opportunities. It is very dynamic and competitive in nature and thus innovations are becoming a lot more important in service industry. SD logic of marketing lays foundation for customers getting involved in service innovation process. There is dearth of literature linking the effect of customer characteristics on performance outcome of service developed. The paper proposes a model to bridge this gap.

Keywords: Customer Characteristics, New Service development, performance measures

Introduction

The service industry today is very dynamic and companies operating in service industry are facing challenges due to its competitive nature. The competition is growing and in order to sustain competition companies working in service industry are searching for new opportunities to attract their customers. One of the key strategy to attract customers is to offer them new and differentiated service. Innovation is the application of a new idea, or as Drucker (1985) proposed it is “changing the value and satisfaction obtained from resources by the consumer” (p. 33). Companies develop innovative products to attract new customers and to keep the existing customers satisfied.

Vargo and Lusch highlighted the change of lens through which marketing is viewed. Customers were treated as the most important resource as they have knowledge and skill as very important resource. Customers are given an active role to participate and perform for the company and in the process they are satisfied by better offerings from companies. The organizational boundaries are expanded and customers operate as temporary participants inside the organizations (Storbacka 1994). Customers have more power to influence the service production process and power to demand more from it. Therefore customers should be seen as an integral part of the organization. (Ojasalo 2003). In the present business environment customers want service value, total solutions and memorable experiences. The meaning of value and the process of value creation are rapidly shifting from a product and company centric view to personalized customer experiences. (Prahalad & Ramaswamy 2004). This paper is based on service dominant logic of marketing in which companies are
taking steps to build relationship with customers to explore the knowledge and skill that they possess to collectively achieve an objective that favours both customers and the companies.

However, involving customers in NSD can fail to meet expectations (Alam, 2002). For instance, there are situations where customer participation can lead to conflict, uncovers damaging information, or is actually dysfunctional (Fang et al., 2008). Against this understanding of the subject area, this study investigates the effect of customer characteristics such as lead userness and relational closeness on new service success factors as well as on new service performance indicators.

Customer’s lead userness is defined as the extent to which a customer faces needs that will be general in a marketplace – but face them before the bulk of that marketplace encounters them and; is positioned to benefit significantly by obtaining a solution to those needs (Franke et al., 2006; Herstatt and von Hippel, 1992; Urban and von Hippel, 1988). Relational closeness refers to the level of interaction outside the respective product development project and the length of the business relationship (Doney and Cannon, 1997; Gruner and Homburg, 2000). This study explores the new service performances mediated by success factor constructs of work done by Johne and Storey (1998), which bought into focus three broad success criteria as opportunity analysis, project development and offer formulation. Performance indicators of the new service development process is linked to the study in relational sales environments, which states that financial sales performance may not be a sufficient performance measure, because it neglects more long-term customer reactions (Hunter and Perreault 2007). Therefore in this study, we consider two types of performance that are customer satisfaction and sales performance.

Proposed Framework

The proposed framework of the study is illustrated in Figure 1. The customer’s lead-userness and customer’s relational closeness on new service success factors of opportunity analysis, offer formulation and project development. Customer characteristics of lead userness and relational closeness is based on the work done by Carbonell, Pilar Rodriguez-Escudero, Ana I.Pujari, Devashish, 2012. Customer’s lead userness is defined as the extent to which a customer faces needs much before the bulk of the marketplace needs them and; marketplace gets significantly benefitted significantly by the solution to those needs (Franke et al., 2006; Herstatt and von Hippel, 1992; Urban and von Hippel, 1988). Relational closeness refers to the level of interaction outside the respective product development project and the length of the business relationship (Doney and Cannon, 1997; Gruner and Homburg, 2000).

In accordance with the proposed framework in Figure 1 the effects of customer characteristics is studied on new service success factors of opportunity analysis, project development and offer formulation. Opportunity Analysis involves finding the synergy between operational requirements for delivering new service offer with the existing processes. Some of the sub-tasks that fall in this category are finding the market synergy, marketing synergy, product synergy, managerial synergy, market knowledge, market attractiveness, market orientation etc. Project Development involves launching new service offers in cost effective and timely manner. Some of the sub-tasks that fall in this category are innovation orientation, extensive testing, launch preparation, formal and effective launch etc. Offer Formulation involves activities to maximize customer attractiveness in terms of quality
and core offerings of the new service offer. Some of the sub-tasks that fall in this category are product advantage, customer knowledge, product quality, quality of service experience, effective communications, front-line expertise, extensive distribution system etc. Further the framework links effect of customer characteristics
in new service development process with new service performance outcomes of customer satisfaction and sales performance. Findings are based on data gathered from interviews with managers & customers of data from 5- Star deluxe and 5- Star hotels catering to leisure and business travellers and operating in at least 5 locations in India.

**Figure 1 : Effect of customer characteristics in New Service development process on new service performance**

**Objectives of the study**

To achieve objectives of the study data will be gathered from 5- Star deluxe and 5- Star hotels catering to leisure and business travellers and operating in at least 5 locations in India.

Following are the objectives of the study :

- What are the effects of customer characteristics on new service success factors?
- What are the effects of customer characteristics on new service performance indicators?
Hypothesis for testing

Opportunity analysis is to find the synergy between firms existing operational capabilities and operational requirements to deliver the new service offer. Studies done by De Brentanni & Ragot (1996) suggests that customer participation will benefit companies in terms of product synergy, which is the fit between firm's existing offerings and the new service offer. Alam (2002) found that managers involve customers to make them better understand usage, benefits and attributes of the product. Customer's Lead Userness helps companies to plan their customer service orientation, to make them adopt unfamiliar features of new service offer. Customer's relational closeness also gives companies a fair idea of market attractiveness in terms of size and growth of the market of new service offer. Therefore,

Hypothesis 1a, H(1a) : Customer's lead userness in new service development process positively affects Opportunity analysis of New service.

Hypothesis 1b, H(1b) : Customer's relational closeness in new service development process positively affects opportunity analysis of new service.

Some of the important requirements of project development as per the study of John & Storey (1998) are extensive testing, launch preparation, formal and effective launch and post launch effectiveness, which can be better managed through customer's lead userness. Customer's relational closeness helps to understand feedback of new service in testing phase, firms can take decision of making changes according to their feedback. Therefore,

Hypothesis 2a, H(2a) : Customer's lead userness in new service development process positively affects project development of New service.

Hypothesis 2b, H(2b) : Customer's relational closeness in new service development process positively affects project development of New service.

Firms can roll out a better offer in terms of quality by involving lead user customers in new service development process. Study conducted by Edvarsson and Olson, 1996 highlights that new services co-created with lead user customers are more customer friendly, easy to understand, which requires no effort from customers' end to understand it. A service generated along with close customers builds Brand Image without extensive communication and promotion from company's end . Therefore,

Hypothesis 3a, H(3a) : Customer's lead userness in new service development process positively affects offer formulation of New service.

Hypothesis 3b, H(3b) : Customer's relational closeness in new service development process positively affects offer formulation of new service.

Opportunity analysis highlights that the new service synergizes well with existing image, products and overall strategy of the firm. Customers relate and use the service which is such a close fit with existing image and strategy of the firm. Thus, a new service which is well opportunity analyzed keeps customers satisfied. Project development highlights that the new service development follows a formal development process backed by formal appointed team which includes customers and customer service team so that service caters to customer needs.
Thus, a new service which is well project developed keeps customers satisfied. Offer formulation highlights in improving the core performance attributes of the new service and augmenting products/services in such a way that it becomes difficult to copy. Thus, a new service launched through offer formulation is of higher quality and offer better attributes to satisfy customers. Therefore,

**Hypotheses 4a, H(4a): Opportunity Analysis positively affects Customer Satisfaction**

**Hypotheses 4b, H(4b): Project Development is positively affects Customer Satisfaction**

**Hypotheses 4c, H(4c): Offer Formulation is positively affects Customer Satisfaction**

As discussed earlier, Opportunity analysis highlights that the new service fits well with existing image, products and overall strategy of the firm. It fits well with the delivery system and operational expertise that the firm has to reach end customers. Thus, a new service which is well opportunity analyzed facilitates Sales Performance. Project development highlights that the new service development follows quality development process which emphasizes on speed to market. It works on the importance of launching new services in the market ahead of competitors. Thus, a new service which is well project developed facilitates Sales Performance. Offer formulation highlights at improving the core performance attributes which gives companies considerable competitive advantage. It also aims at gaining differentiation through communication and distribution strategy. Thus, a new service which is well offer formulated makes customers better aware of higher quality and core attributes of the service. Therefore,

**Hypotheses 5a, H(5a): Opportunity Analysis is positively affects Sales Performance**

**Hypotheses 5b, H(5b): Project Development is positively affects Sales Performance**

**Hypotheses 5c, H(5c): Offer Formulation is positively affects Sales Performance**

**Methodology**

**Data Collection**

Structured Questionnaire was used for data collection from senior managers working in hotel industry as well as from customers. Responses were collected on a seven point Likert Scale ranging from Strongly Disagree to Strongly Agree. Please refer to table I for the constructs used in designing instrument for data collection.

"Google drive" was used to make the Questionnaire and link of Google drive was mailed to respondents with a request to fill in their responses in the link. To increase the response rate, it was mentioned in the cover letter sent to managers for data collection that the results of the study will be shared with them after completion of the thesis.
<table>
<thead>
<tr>
<th>Construct</th>
<th>Items on seven point Likert Scale</th>
</tr>
</thead>
</table>
| Lead userness             | Customers were positioned to benefit significantly from the solution provided by the new service  
Customers faced the need for the new service before the greater part of the market |
| Relational Closeness      | Customers with whom our firm frequently interact (even outside development projects)  
Customers with whom our firm maintain a long business relationship |
| Opportunity Analysis      | New service offer fit with existing product line  
New service offer fit with company image  
New service offer fit with corporate strategy  
New service offer fit with existing delivery system  
New service offer fit with existing sales force expertise  
New service offer fit with existing advertising strategy  
New service offer fit with existing customer service  
New service offer fit with market research  
New service offer fit with organisation structure  
New service offer fit with financial resources  
In designing New service offer customer needs was well understood  
New service offer responds to change in the market place |
<table>
<thead>
<tr>
<th>Construct</th>
<th>Items on seven point Likert Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Development</td>
<td>Top management supported the new service development process</td>
</tr>
<tr>
<td></td>
<td>New service development process was well planned</td>
</tr>
<tr>
<td></td>
<td>New service development process was well executed</td>
</tr>
<tr>
<td></td>
<td>New service development process had experienced staff</td>
</tr>
<tr>
<td></td>
<td>New service development process had a formal development team</td>
</tr>
<tr>
<td></td>
<td>Front line staff was involved in new service development process</td>
</tr>
<tr>
<td></td>
<td>New service development involved inter functional coordination</td>
</tr>
<tr>
<td></td>
<td>Proper training process was adopted before new service launch</td>
</tr>
<tr>
<td></td>
<td>New service development was launched through a well planned process</td>
</tr>
<tr>
<td></td>
<td>New service development was followed by post launch evaluation process</td>
</tr>
<tr>
<td>Offer Formulation</td>
<td>New service has unique benefits</td>
</tr>
<tr>
<td></td>
<td>New service offer is easy to understand</td>
</tr>
<tr>
<td></td>
<td>New service offer is familiar to customers</td>
</tr>
<tr>
<td></td>
<td>New service offer is of higher quality</td>
</tr>
<tr>
<td></td>
<td>New service has high quality of service experience</td>
</tr>
<tr>
<td></td>
<td>New service involves customers in the delivery process</td>
</tr>
</tbody>
</table>
Construct | Items on seven point Likert Scale
--- | ---
Customer Satisfaction | How satisfied are you with the Hotel decision you made?
 | How satisfied are you with the service you received?
 | How satisfied are you with our Hotel overall?
 | How likely are you to visit us again?
 | How likely are you to recommend our Hotel to others.
Sales Performance | The new service exceeded market share objectives
 | The new service exceeded sales growth objectives
 | The new service exceeded sales objectives
 | Exceeded return of investment objectives

Sample

To limit extraneous variations (Wilson and Volsky, 1997), population is defined as Hotel industry organizations in India. Multiple cases were chosen only from Hotel industry operating in 5-Star deluxe and 5-Star hotels catering to leisure and business travellers to limit interdisciplinary variability. A sub-sample of 101 5-Star hotels were taken from Hotels listed in Table II below. Data collection involved three mailshots. In the first mailshot, mail was sent to 265 out of 303 five star Hotels in India. Ten days later, the second mail shot was sent to respondents who have not replied along with a reminder letter. Again after fifteen days of second mail shot, respondents who have not replied, third mail shot was sent as a reminder mail.

Out of the sample of 265 mails sent, response was received from 112 respondents by cut off date. The data was checked for missing values using SPSS 20 and 101 responses were considered as valid responses. Thus the response rate of 38.1 per cent was achieved, which is quite satisfactory. The problem due non-response bias was not significant due to following two reasons:

1) the good response rate and 2) the existence of no significant differences between the early and late respondents with regard to the mean.

Please refer to Table II for the sample set.

Table II : Population and Sample distribution of 5-Star Hotel Industry in India

<table>
<thead>
<tr>
<th>Hotel Name</th>
<th>Number in India (N)</th>
<th>Sample (n)</th>
<th>Final Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITC</td>
<td>10</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Shereton</td>
<td>2</td>
<td>0.6</td>
<td>1</td>
</tr>
<tr>
<td>Hotel Name</td>
<td>Number in India (N)</td>
<td>Sample (n)</td>
<td>Final Sample</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>---------------------</td>
<td>------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Welcome group</td>
<td>6</td>
<td>1.8</td>
<td>2</td>
</tr>
<tr>
<td>Vivanta by Taj</td>
<td>24</td>
<td>7.2</td>
<td>7</td>
</tr>
<tr>
<td>The Gateway Hotel</td>
<td>20</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Taj Safaris</td>
<td>4</td>
<td>1.2</td>
<td>1</td>
</tr>
<tr>
<td>Luxury residences- Taj wellington mews in Mumbai</td>
<td>1</td>
<td>0.3</td>
<td>1</td>
</tr>
<tr>
<td>Taj Exotica resort &amp; spa</td>
<td>1</td>
<td>0.3</td>
<td>1</td>
</tr>
<tr>
<td>Taj Luxury</td>
<td>14</td>
<td>4.2</td>
<td>4</td>
</tr>
<tr>
<td>Taj ( Unbranded )</td>
<td>8</td>
<td>2.4</td>
<td>2</td>
</tr>
<tr>
<td>The Park</td>
<td>9</td>
<td>2.7</td>
<td>3</td>
</tr>
<tr>
<td>The leela</td>
<td>8</td>
<td>2.4</td>
<td>2</td>
</tr>
<tr>
<td>The Ialit</td>
<td>10</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>The Oberoi</td>
<td>11</td>
<td>3.3</td>
<td>3</td>
</tr>
<tr>
<td>The Trident</td>
<td>10</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>The Hyatt</td>
<td>17</td>
<td>5.1</td>
<td>5</td>
</tr>
<tr>
<td>Jaypee</td>
<td>9</td>
<td>2.7</td>
<td>3</td>
</tr>
<tr>
<td>Marriott</td>
<td>24</td>
<td>7.2</td>
<td>7</td>
</tr>
<tr>
<td>Hilton</td>
<td>12</td>
<td>3.6</td>
<td>4</td>
</tr>
<tr>
<td>Carlson Rezidor Hotel group</td>
<td>15</td>
<td>4.5</td>
<td>4</td>
</tr>
<tr>
<td>GRT Resorts</td>
<td>7</td>
<td>2.1</td>
<td>2</td>
</tr>
<tr>
<td>Fortune leisure hotels</td>
<td>12</td>
<td>3.6</td>
<td>4</td>
</tr>
<tr>
<td>fortune business</td>
<td>27</td>
<td>8.1</td>
<td>8</td>
</tr>
<tr>
<td>Clarks group of Hotels</td>
<td>5</td>
<td>1.5</td>
<td>1</td>
</tr>
<tr>
<td>Movenpick hotels and resorts</td>
<td>1</td>
<td>0.3</td>
<td>1</td>
</tr>
<tr>
<td>Starwoods Hotels</td>
<td>12</td>
<td>3.6</td>
<td>4</td>
</tr>
<tr>
<td>Kempinski</td>
<td>1</td>
<td>0.3</td>
<td>1</td>
</tr>
<tr>
<td>Swissotel</td>
<td>4</td>
<td>1.2</td>
<td>1</td>
</tr>
<tr>
<td>Fairmont</td>
<td>1</td>
<td>0.3</td>
<td>1</td>
</tr>
<tr>
<td>Novotel</td>
<td>6</td>
<td>1.8</td>
<td>2</td>
</tr>
<tr>
<td>IHG - Intercontinental Hotel group (IHG)</td>
<td>12</td>
<td>3.6</td>
<td>4</td>
</tr>
<tr>
<td>The Claridges</td>
<td>4</td>
<td>1.2</td>
<td>1</td>
</tr>
<tr>
<td>Wind flower resorts and spa</td>
<td>6</td>
<td>1.8</td>
<td>2</td>
</tr>
<tr>
<td>Alila</td>
<td>8</td>
<td>2.4</td>
<td>2</td>
</tr>
<tr>
<td>Pride Hotels</td>
<td>12</td>
<td>3.6</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total**  333  103

**Scale development, Reliability and Validity**

To test the validity of the instrument, a study was conducted on 45 participant. Based on their responses collected, validity test of Cronbach alpha was conducted to check for the validity and usability of the instrument. Cronbach’s alpha measure checks the internal consistency reliability of the constructs used in the instrument. Based on the previous statistical studies if
the value of cronbach's alpha is greater than 0.7 the instrument is considered reliable. The value of cronbach's alpha for the study is mentioned in below Table III.

**Table III : Cronbach's alpha test**

<table>
<thead>
<tr>
<th>Construct Name</th>
<th>Cronbach's alpha</th>
<th>Number of Items</th>
<th>Items dropped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Userness</td>
<td>0.875</td>
<td>2</td>
<td>Nil</td>
</tr>
<tr>
<td>Relational Closeness</td>
<td>0.834</td>
<td>2</td>
<td>Nil</td>
</tr>
<tr>
<td>Opportunity Analysis</td>
<td>0.960</td>
<td>12</td>
<td>Nil</td>
</tr>
<tr>
<td>Project Development</td>
<td>0.927</td>
<td>10</td>
<td>Nil</td>
</tr>
<tr>
<td>Offer Formulation</td>
<td>0.912</td>
<td>6</td>
<td>Nil</td>
</tr>
<tr>
<td>Customer Satisfaction</td>
<td>0.947</td>
<td>5</td>
<td>Nil</td>
</tr>
<tr>
<td>Sales Performance</td>
<td>0.925</td>
<td>4</td>
<td>Nil</td>
</tr>
</tbody>
</table>

Since all the values Cronbach's alpha are greater than 0.70 the instrument is considered reliable for the analysis.

Before conducting confirmatory factor analysis it was to determine if the sampling is adequate for analysis. Sampling adequacy was determined by using the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (Kaiser 1974a). The KMO statistics came as .92 which gives a green signal to carry on the analysis.

**Data Analysis**

**Confirmatory factor analysis**

Confirmatory factor analysis usually termed as CFA is used in the study which is more rigorous and more parsimonious than the traditional forms of Factor Analysis.

**Model fit**

Determining model fit is an important step in CFA to understand how well our proposed theoretical model depicts the correlations between variables in the collected dataset. As mentioned by David A. Kenny (2014) model fit refers to the ability of a model to reproduce the data (i.e., usually the variance-covariance matrix). A good-fitting model is one that is reasonably consistent with the data and so does not necessarily require re-specification. (David A. Kenny , 2014). Initially the model fit was poor but by removing items with low loadings a descent model fit with specifications mentioned in table IV below was achieved.

**Table IV : CFA Model Fit**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Threshold (Hair et al, 2010)</th>
<th>Model fit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-square/df (cmin/df)</td>
<td>&lt; 3 good; &lt; 5 sometimes permissible</td>
<td>1.512</td>
</tr>
<tr>
<td>CFI</td>
<td>&gt; .95 good ; &gt; .90 traditional; &gt; .80 sometimes</td>
<td>.95</td>
</tr>
<tr>
<td>TLI</td>
<td>&gt; .90</td>
<td>.94</td>
</tr>
<tr>
<td>RMSEA</td>
<td>&lt; .05 good; .05-.1 moderate; &gt; .10 bad</td>
<td>.067</td>
</tr>
</tbody>
</table>
From the model fit values cmin/df, CFI and TLI suggest good model fit and RMSEA suggests moderate model fit so we proceeded to further analysis.

**Validity and Reliability**

Composite Reliability (CR) and Average Variance Extracted (AVE) are two important measures to establish validity and reliability. The thresholds for this are mentioned below (Hair et al, 2010):

Reliability

- CR > .70

Validity

- CR > (AVE)
- AVE > .50

Please refer to table V below for the Composite reliability (CR) and Average variance extracted (AVE) for the measurement model of the study.

**Table V: Composite Reliability and Average Variance Extracted**

<table>
<thead>
<tr>
<th>Factors</th>
<th>Composite Reliability</th>
<th>Average Extracted</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Userness</td>
<td>0.91</td>
<td>0.725</td>
<td></td>
</tr>
<tr>
<td>Relational Closeness</td>
<td>0.93</td>
<td>0.79</td>
<td></td>
</tr>
<tr>
<td>Opportunity Analysis</td>
<td>0.94</td>
<td>0.764</td>
<td></td>
</tr>
<tr>
<td>Project Development</td>
<td>0.92</td>
<td>0.69</td>
<td></td>
</tr>
<tr>
<td>Offer Formulation</td>
<td>0.93</td>
<td>0.74</td>
<td></td>
</tr>
<tr>
<td>Customer Satisfaction</td>
<td>0.92</td>
<td>0.72</td>
<td></td>
</tr>
<tr>
<td>Sales Performance</td>
<td>0.941</td>
<td>0.75</td>
<td></td>
</tr>
</tbody>
</table>

Both CR and AVE values mentioned in table V conforms the reliability and validity of the model giving a green signal to carry the further analysis.

**Common Method Bias**

Common method bias (CMB) refers to a bias due to some external factors influencing the responses. One of the reason of CMB is using a single method of data collection, which introduces a systematic error which inflates or deflates responses. In this study common latent factor method was used to check common method bias. Some evidence of CMB was found in few factors, to free the data from common method bias, CLF was retained for further analysis. Data imputation was done keeping CLF in the AMOS CFA model as the analysis moves on to structural model.

**CFA Examination**

Before moving to the next section which deals with Structural model, please refer to following table VI giving CFA results
Table VI: CFA results giving standardized factor loadings, standardized regression weights, t-values and reliability for 27 measures. (Hair et al. 1998)

<table>
<thead>
<tr>
<th>Construct (Hair et. al. 1998)</th>
<th>Standardized Factor loadings</th>
<th>Squared multiple correlations</th>
<th>T- Values</th>
<th>Composite Reliability</th>
<th>Average Variance Extracted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommendations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LU</td>
<td>0.7</td>
<td></td>
<td></td>
<td>0.91</td>
<td>0.725</td>
</tr>
<tr>
<td>LU1</td>
<td>0.87</td>
<td>0.74</td>
<td>12.897</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LU2</td>
<td>0.91</td>
<td>0.83</td>
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SP3 0.91 0.82 15.14
SP4 0.94 0.82 Fixed to 1

Legend
LU-Lead Userness; LU1, LU2- Items capturing lead userness; RC- Relational Closeness; RC1, RC2 - Items capturing relational closeness; OA - Opportunity analysis; OA1, OA2, OA3, OA5, OA7 - Items capturing opportunity analysis; OF- Offer formulation; OF1, OF2, OF3, OF4, OF5, OF6 - Items capturing offer formulation; CS - Customer satisfaction ; CS1, CS2, CS3, CS4, CS5 - Items capturing customer satisfaction; SP - Sales performance ; SP1, SP2, SP3, SP4 - Items capturing Sales performance

Structural Model Fit

While moving to structural model, composites were created by keeping latent factor in measurement model. It is important to assess model fit again for the structural model in order to sufficiently explore alternative models. Please refer to following table VII for structural model fit.

Table VII : Structural Model fit

<table>
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<th>Measure</th>
<th>Threshold (Hair et al, 2010)</th>
<th>Model fit Value</th>
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<td>Chi-square/df (cmin/df)</td>
<td>&lt; 3 good; &lt; 5 sometimes permissible</td>
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<td>CFI</td>
<td>&gt; .95 good; &gt; .90 traditional; &gt; .80 sometimes</td>
<td>.990</td>
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<td>TLI</td>
<td>&gt; .90</td>
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<tr>
<td>RMSEA</td>
<td>&lt;.05 good; .05-.1 moderate; &gt; .10 bad</td>
<td>.093</td>
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From the model fit values cmin/df , CFI and TLI suggest good model fit and RMSEA suggests moderate model fit so study proceeded to further analysis.

The hypothesized model in the paper was examined by the t-values of the paths and their standardized regression weights. 10 paths of study model gave absolute t-value over 2.58 presenting a significance level of 0.01 (i.e. p<0.01) and one path gave absolute t-value over 1.96 presenting a significance level of 0.05 (i.e. p<0.05). The significant paths had moderately strong size standardized regression weights (.445 - 1.452).

Mediation

According to the study done by Baron and Kenny (1986) on mediation, for existence of mediation there should be a direct relationship between independent and outcome variable, and then a diminishing or nonexistent relationship between them when a mediator is added to the model. The analysis was done to determine if there exists a significant direct relationship
between customer characteristics and the desired outcomes of customer satisfaction and sales performance. A structural model relating Customer characteristics directly to customer satisfaction and sales Performance (with no other variables present), demonstrated a very poor model fit.

So, the test of mediation provides no significant direct relationships and but do provide clear evidence of an indirect relationship of customer characteristics to desired NSD performance (customer satisfaction and sales performance) mediated by the success factors. Hence, there exists no mediation effect.

Final Model

Figure 2: Effect of customer characteristics in New Service development process on new service performance
Hypothesis Analysis

The test of the structural model provided strong support for the following hypotheses

Hypothesis 1a, H(1a) : Customer's lead userness in new service development process positively affects Opportunity analysis of New service. (t = 6.589)

Hypothesis 1b, H(1b) : Customer's relational closeness in new service development process positively affects opportunity analysis of new service. (t = 7.852)

Hypothesis 2a, H(2a) : Customer's lead userness in new service development process positively affects project development of New service. (t=9.752)

Hypothesis 2b, H(2b) : Customer's relational closeness in new service development process positively affects project development of New service. (t=8.532)

Hypothesis 3a, H(3a) : Customer's lead userness in new service development process positively affects offer formulation of New service. (t=11.232)
Hypothesis 3b, H(3b) : Customer's relational closeness in new service development process positively affects offer formulation of new service. (t=5.323)

Hypotheses 4a, H(4a): Opportunity Analysis positively affects Customer Satisfaction (t=22.27)

Hypotheses 4b, H(4b): Project Development is positively affects Customer Satisfaction (t=16.75)

Hypotheses 5a, H(5a): Opportunity Analysis is positively affects Sales Performance (t=9.54)

Hypotheses 5b, H(5b): Project Development is positively affects Sales Performance (t=5.67)

Hypotheses 5c, H(5c): Offer Formulation is positively affects Sales Performance (t=7.89)

Results

The analysis results show a significant positive effect of customer characteristics in new service development process on new service success factors like opportunity analysis, project development and offer formulation. The effect of customer characteristics is not direct on new service performance. But, there exists a significant indirect effect of customer characteristics on new service performance. Opportunity analysis and project development show significant positive effect on Customer satisfaction. The data showed that there exists no significant relationship of offer formulation on customer satisfaction. On the other hand there is significant positive effect of all the three success factors (opportunity analysis, project development and offer formulation) on sales performance.

Discussion

Prior research describes how service firms involve their most important stakeholders, their customers in the new service development process, but no studies have observed the relation of customer characteristics to NSD key success factors and performance outcomes. This study proposes a model for effect of customer characteristics in various stages of the NSD process affecting project success factors and in turn influencing new service performance outcomes of customer satisfaction and sales performance.

Many service firms believe on innovation strategies to sustain competitions as well as build competitive advantage. This study proposes a model in which customer characteristics like lead userness and relational closeness positively affects success factors of opportunity analysis, project development and offer formulation. This in turn affects new service performance outcomes like customer satisfaction and sales performance.

Managerial Implications

The results of this study provides valuable insights to service managers seeking to progress on their capacity to develop and launch successful new service products. From a managers point-of-view, findings from this study suggest that managers need to make conscious decision about co-creating new services, that is making customers high on lead userness and relational closeness to participate in the new service development process as it is an effective
way to increase NSD performance. Specifically, results of the study highlight that the customer characteristics such as lead userness and relational closeness in NSD influences new service success factors, which in turn leads to greater customer satisfaction and higher sales performance.

**Scope of future research**

Future research should focus of finding relative strength of above mentioned three success factors on performance indicators. Future research should also identify possible moderators of the model relationships, such as age of organization, investment done for co-creation etc. Below mentioned are some interesting questions which I would like to raise, which provides great scope for future research:

- Does intensity of customer participation vary across firms?
- Why are some consumers more willing and able to engage in development process? What is the relative impact of demographic factors in driving in development process?
- How should the ownership of intellectual property rights of co-created products be managed?
- How to design the metrics to quantify various benefits of the customer participation and its desired outcomes with customer characteristics?
- How firms can incentivize customers to encourage them to be better engaged in the development process?

**References**


Edvardsson, Bo and Jan Olsson (1996), "Key Concepts for New Service Development." The Service Industries Journal, 16 (2), 140-64.


Journal of Marketing, 71 (January), 16–34.


Neganova Valentina & Neganova Irina , " Development of innovation products based on the consumers' preferences," International Journal of Management cases


Patton, M.Q. (1990), Qualitative Evaluation and Research Methods, Sage, Newbury Park, CA.


with Complexity, European Marketing Academy Conference, ESADE, Barcelona, Spain, 25-28 May, pp. 1403-16.


Xing, H. (n.d.),"Service Innovation in Hotel Industry Case Study of InfoQuest", Karlstads University, pdf


