Journal of Business Research xxx (2016) xxx–xxx

Contents lists available at ScienceDirect

Journal of Business Research

Strategic modeling to improve services and operation to energy industries' customers☆

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ARTICLE INFO

Article history:
Received 1 February 2016
Received in revised form 1 March 2016
Accepted 1 April 2016
Available online xxxx

Keywords:
Customers' attendance
Operational improvement
Customers' demands anticipation
Relationship
Attendance strategies

ABSTRACT

Continuous analyses of demanded services at the energy companies are the shortest path to recognize and anticipate customers' requests, reinforce and manage the communication and operational flows. Energy utilities need to increase their operational efficiency concerning costs and agility to improve useful media and evaluate customers' expectations and requirements. Operational effectiveness must pursue the demands, considering the amount of services that the companies provide at their relationship channels, the communication facilities and the systems' infrastructure. The companies need to organize a huge amount of historical and online data to represent and forecast customers' relationship scenarios. Resources evaluation ensure regional requirements and weather conditions best attendance response, adequately addressing faults at the energy distribution grid, motivate customers to use alternative media and improve relationship channels. Reaching this scenario, big data treatment techniques provide the necessary agility to achieve the monthly/hourly volume of data (millions of registers per month) and permit communication clusters' views.

1. Introduction

The Brazilian energy sector and the distribution companies seek for the continuous improvement of the understanding about their relationship with their customers. In Brazil, the energy distribution companies operate according to their federal concession areas and are responsible for delivering the energy to the customers' unities, which mainly belong to the regulated contracting environment. Even for the free market customers, the local distribution companies are responsible for the grid operation and maintenance, as well as the monthly billing of the delivered energy. To request for the energy companies' services, the customers have at their disposal different channels such as call centers, internet, social media, e-mail, letters, SMS and personal attendance offices. The amount of executed services is a consequence of customers' needs for services, new connections to the grid, events related to power outage, billing and overdue debts. The Brazilian regulatory agency ANEEL establishes some indicators (ANEEL, 2012), but in a novel analysis, the companies need to understand and improve customers' requirements and their operational procedures. The agency establishes rights and duties, and on the other side, the energy utilities need responsiveness and customer relationship services improvement (Kotler, Kartajaya, & Setiawan, 2010).

The analysis of customers' requirements and the regulated services conditions, the grid operational situation, billing, weather conditions and energy availability can improve the communication process. The increase of attendance quality indicators affects straightly the operational costs. The lack of investments on the distribution grid or on some kinds of services increases the customers' demands.

The energy distribution companies continuously seek to assess the costs of the attendance process, finding out new capabilities to address services and operational demands, developing new systems and features in a strategic level to improve, maintain and track customers' satisfaction. As an example, this work deals with CPFL Energy Company that operates at Brazil South and Southeast regions, at 8 federal energy concession areas, and has about 7.7 million customers (CPFL, 2014). The company continually looks for excellence and innovation in energy services. The utility improves the relationship activities to allow prompt response to critical situations, new or already known demands.

Thereby, the knowledge and forecast of the customers' demands need a view towards the asked and executed services, and the measures and volume of data records at the relationship channels. The operational

☆ The authors are grateful to contributions from Laura Petri Geraldino, CPFL Energia and Fabiana Nogueira Gamba M. dos Santos, CPFL Energia for their careful reading and suggestions on revising this essay. The authors acknowledge the team of the Brazilian energy distributor CPFL Paulista responsible for the customer service processes. This team has the great merit of seeking renew dynamics of actions and procedures across the new technological possibilities. This work allows them to devote time to customer's profile and non-compliance service conditions recognitions, and evaluate their knowledge organization techniques aimed to productivity and business intelligence, rearranging operational processes, modifying and empowering the decision-making.

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http://dx.doi.org/10.1016/j.jbusres.2016.04.044
0148-2963/

Please cite this article as: Fróes Lima, C.A., et al., Strategic modeling to improve services and operation to energy industries' customers, *Journal of Business Research* (2016), http://dx.doi.org/10.1016/j.jbusres.2016.04.044