An Electronic Clearance Marketplace Leveraging Collaborations in Supplier and Buyer Communities: A Design Science Research Study

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Abstract

Effective clearance of unused service capacity is an issue of importance for managers and practitioners in consumer service industries. Taking a design science research approach, this research-in-progress paper proposes an innovative electronic clearance marketplace (clearance e-marketplace) based on novel design principles, namely, shared bundle purchasing and shared customer pooling, which arguably leads to more effective results than traditional clearance methods. We explain the design and implementation of this Information System (IS) artifact and develop hypotheses arguing that consumer service providers’ use of this proposed clearance e-marketplace in clearing their unused service capacity would lead to improved performance gains on new customer acquisition and percentage sales compared to their traditional self-managed clearance campaigns. Furthermore, we explain the details of an empirical study to evaluate the efficacy of the proposed clearance e-marketplace in achieving the said performance gains.

1. Introduction

Clearance of unused service capacity is an important business practice for consumer service companies to increase their resource utilization, and thus maintain efficient and profitable operations [1]. The most dominant method that companies use for clearance is price discounts [2]–[7].

Traditionally, companies have been managing their own clearance campaigns including activities such as in-store and online store promotions and marketing their clearance campaigns to the public. More recently, companies, regardless of size, have been increasingly using third-party e-marketplaces as indirect sales channels for the clearance of their excess product inventory and unused service capacity. The advent of e-marketplaces in the last few decades has provided businesses with another avenue of marketing their products and services and running price promotions besides brick and mortar stores [8]–[10]. These e-marketplaces act as a mediator between companies and customers where companies offer their unused service capacity at a considerably discounted price on the e-marketplace for customers to buy. Leading examples of such e-marketplaces include Hotwire.com and Priceline.com in the travel industry, LastMinute.com in the leisure, event, and travel industries, and Overstock.com in the consumer goods industry.

This growing shift into the use of third-party e-marketplaces offers companies and customers significant advantages that are not attainable in companies’ self-managed clearance campaigns. Particularly, e-marketplaces expand the choices available to customers, improve companies’ access to new customers, reduce transaction costs for both customers and companies [11], reduce customers’ search costs [9], and provide new opportunities for collaboration among stakeholders [12].

Similar to companies’ practices, existing e-marketplaces use traditional individual-selling strategies (i.e. transacting with an individual customer at a posted price). However, there is growing evidence that group buying delivers better performance for companies and customers compared to traditional individual-selling strategies. Group-buying (i.e. transacting with individual customers at a discounted price only after receiving orders from a minimum number of customers) [13] could have considerable opportunities for operational and profit performance gains in clearance campaigns that are yet to be explored.

While group-buying has been used in marketing applications such as Groupon.com and LivingSocial.com [14], to name a few, to the best of our knowledge, it has not been used in clearance applications. It is important to stress that marketing and clearance applications are quite different in nature and serve two different purposes. In marketing applications of e-marketplaces, companies may not have access to the capital necessary to invest in marketing their brand and getting customers’ through
their doors. This applies to restaurants for example that use Groupon.com to help boost their foot traffic. In clearance applications of e-marketplaces, on the other hand, companies that already have brand recognition as a result of their marketing investments are interested in clearing their unused service capacity, which is inevitable for most consumer service companies despite their investments in marketing. This applies to brand name hotels and resorts for example, which use Hotwire.com to clear their unsold rooms. Despite their marketing investments aimed at matching service capacity with demand, there are many occasions when there is still remaining service capacity that perish (go unused). Since most services cannot be inventoried, unused service capacity in a given time results in permanent loss of potential revenue.

The current literature is void of studies that explore the potential opportunities associated with the use of group-buying in clearance e-marketplace applications. In this paper, we follow a design science research methodology [15]–[17] to conceptualize, design, implement, and empirically evaluate the efficacy of an innovative clearance e-marketplace (an IS artifact), which arguably has performance advantages over traditional individual-selling strategies in clearing the unused capacity of consumer service providers. The proposed clearance e-marketplace follows two novel design principles, namely, shared bundle purchasing (a deviation from group buying) and shared customer pooling. We are particularly interested in two performance measures of clearance campaigns. The first is new customer acquisition, which is the percentage increase in the customer base of a given company at the end of a clearance campaign. The second is percentage sales, which is the percentage sales of the offered service capacity in a clearance campaign. These performance variables receive great attention in the current discourse in the price promotions and clearance literature [2], [3], [7], [18]–[20].

While the issue of clearance is pertinent for both product and service industries, we choose to limit our focus only to the population of companies in the consumer service industries. Indeed, product and service industries exhibit several idiosyncrasies [21] that explain our relatively limited focus. Chief among these idiosyncrasies is perishability, which is the forever loss of potential revenue on service capacity if not used in the time of its availability. This is because excess service capacity cannot be stored unlike excess product inventory, which can be stored to different degrees depending on the product. While our claims about the proposed design principles can be extended to product industries, taking into consideration the above mentioned idiosyncrasies, we opt to replicate the test of these claims on product industries in a separate future investigation.

This paper is organized as follows. Section 2 provides an overview of the literature on the methods and concepts under discussion. Section 3 provides design details of the proposed clearance e-marketplace. Section 4 presents the development of the hypotheses. Section 5 explains the methodological details of the empirical evaluation of the hypotheses. Finally, in Section 6, we outline the future work and potential contributions.

2. Literature review

Given the aforementioned scope of the study, we review the relevant literature on: design science research methods; price discounts and its applications in marketing and clearance (revenue management); and group buying.

2.1. Design science research methodology

We deem the design science research approach [15]–[17] to be the most appropriate research method for our study because it allows researchers to conceptualize, design, develop, and evaluate an information system artifact that potentially addresses a research issue of concern. Unlike positivist research that seeks to understand existing phenomena, design science research aims to produce knowledge through the creation and evaluation of artifacts that address issues of theoretical and/or practical importance [22]. The design science research methodology consists of five stages of research development [17]. The first stage, Awareness of Problem, is to identify a theoretically situated problem that is of importance to research and/or practice. The problem of interest here is the commonly challenging issue of the clearance of excess service capacity, which is of particular importance to the consumer services industries. The second stage, Suggestion, is to suggest a design framework based on the Awareness of Problem stage that potentially solves the problem of interest. The third stage, Development, is to develop the information system IS artifact, which is an instantiation or embodiment of the suggested framework [15], [23]. In this case, we propose two design principles for a clearance e-marketplace and develop the e-marketplace accordingly using state of the art web development technologies. The fourth stage, Evaluation, assesses the efficacy of the proposed design framework in solving the problem of interest. We propose to use an experimental design approach to evaluate the performance of our proposed artifact. The fifth stage,
Conclusion, extracts the elements of the proposed design framework and embodiment that worked effectively in solving the problem and those that did not. These conclusions are then used as feedback to improve on the design framework and embodiment. Repeated cycles of stages two to five eventually lead to refining the design and implementation of the solution, which is part of the knowledge creation process [24].

2.2. Price discounts

A price discount, also called a price promotion, is a temporary price reduction valid on a purchase or as redemption of a voucher [25]. Price discounts are prevalent in consumer markets [26] due to their effectiveness in increasing short-term unit sales [27]. Price discounts could be used mainly for the purpose of marketing to attract customers to try a product and/or a service or for the purpose of clearing product inventory and/or service capacity, which is often referred to in the management literature as “revenue management”.

2.3. Group buying

Group buying allows a seller to gain from facilitating customers’ social interactions (i.e. using group discount to motivate informed customers to work as sales agents to attract less-informed customers through information sharing). Furthermore, unlike the case in individual-selling strategies where the return on investment in operating and marketing clearance campaigns is uncertain, group buying strategies offer guaranteed sales at the discounted price as a result of binding the discount to a minimum number of sales.

Group-buying enables a group of interested buyers to get volume discounts and lower transaction prices [14], [28], [29]. In a typical group-buying mechanism, the promised discount (and hence transaction) takes place only if the total number of committed purchases by buying customers exceeds a specified threshold within a certain time period [14] often called the expiry period. Three types of group-buying mechanisms prevail in consumer markets [29]: (1) customer-initiated groups formed for the purchase of specific products/brands; (2) intermediary-initiated groups organized by intermediary individuals or companies for the purposes of making a profit; and (3) company-organized group-buying activities to promote their own brands and/or products.

This study proposes and evaluates an innovative e-marketplace based on the second type of group-buying mechanisms (i.e. third-party mediated grouping of customers’ demand) because it has favorable characteristics that offer advantages over the other two mechanisms including expanding the choices available to customers, expanding companies’ access to new customers, and reducing transaction costs for both customers and companies [11].

Groupon.com is the pioneering and largest e-marketplace that employs group-buying based price promotions for marketing purposes. On Groupon.com, a company can offer a deal on one or more of its products or services at a steep discount that is honored if and only if a minimum number of buyers bought this deal or otherwise the discount is deemed invalid. As such, this method creates some form of guaranteed sales volume at the discounted price. A growing number of small local businesses in particular, whose marketing activities are often challenged by their modest marketing budget, use e-marketplaces like Groupon to bring more and new customers through their doors. Offering their services at a steep discount, those small local businesses would incentivize the large customer pool of those e-marketplaces to try these services with the hope that these customers will return for repeat business in the future at regular prices. Despite its growing success as a marketing tool, group-buying e-marketplaces like Groupon are not positioned to help companies, especially large ones with well-established brands, which are interested in clearing their excess capacity. In these group-buying e-marketplaces, the company is normally allowed to offer a certain discount on an individual service or one fixed discount on all of its service offerings. That is because online space on these e-marketplaces is valuable and it would be in the best interest of the e-marketplace to have as many companies as possible offer individual deals that can be purchased by a large number of customers. This arrangement can be limiting in clearance applications, where it is typical to have a few spots in each one of a company’s range of services to clear. For example, these e-marketplaces are not positioned to help a gym that is running tens of fitness classes with a few empty spots each, which is typical of gyms. Running a separate deal campaign for each class would not justify the value of the scarce e-marketplace space given the small number of empty spots per class, which would generate low service fees.

3. Proposed clearance e-marketplace

Our proposed clearance e-marketplace comprises an online platform that acts as an intermediary between service provider companies and customers where on the one hand it enables companies looking to clear their unused service capacity to offer discounted deals on the services they offer and on the other hand it enables customers to access and purchase those deals.
This clearance e-marketplace hinges on two design principles (shared bundle purchasing and shared customer pooling) which distinguish it from other e-marketplaces. We explain these two design principles in Section 3.1. In Section 3.2, we explain the embodiment of the design principles in our implementation of this IS artifact.

3.1. Design principles

3.1.1. Design principle 1: shared bundle purchasing. A bundle has traditionally been understood and practiced as a discounting mechanism where a company offers a relatively small collection of its products and/or services at a discount if a given customer purchases all the items in the bundle. For example, a telecom company might offer a bundle of services such as home phone, cell phone, broadband internet, and TV at a discount if a given customer purchases all of these services in the bundle together.

In contrast, we define shared bundle purchasing as a bundle consisting of a relatively large number of heterogeneous deals that can be purchased by a group of customers. In order to speed up the clearance sale, the discounts on those deals become effective if and only if the aggregate purchases of the group equals or exceeds a minimum dollar value of sales volume in that bundle, which is referred to as the “tipping point”. It is important to note the novelty of this tipping point approach compared to the traditional group buying approach where the tipping point is measured by the number of individual purchases of the same deal. In our case, different customers can purchase the deal(s) of interest in a given bundle without having to buy a whole bundle, which is an innovation over traditional bundling. This way, the group “shares” the bundle.

A bundle is created by combining deals consisting of varying units of unused service capacity from different types of services offered by a company. Each deal in the bundle is customized, has its own terms and conditions for redemption, and can have a different discount rate than the rest of the deals in the same bundle. Once created, the clearance e-marketplace offers the bundled deals for sale to the public. The buyers can make pledges to buy individual deals from the bundle before the bundle expires. If sales volume in a given bundle does not reach the tipping point by the expiry time of the bundle, called expiry period, the pledged purchases become invalid. This mechanism of tipping a bundle creates an incentive for informed customers to share information about the bundled deals with less-informed customers to increase the likelihood that sales in the bundle reach the tipping point to activate the discounts, which helps the information sharer secure his/her deal of interest [14].

3.1.2. Design principle 2: shared customer pooling. The second design principle, shared customer pooling, creates a large pool of the existing customer base of participating companies in the e-marketplace for the mutual benefit of all players. With a much larger customer pool, the clearance e-marketplace can facilitate a greater market reach for the clearance offerings of each individual participating company. Most companies maintain a database of their customers and regularly use it to disseminate information about ongoing promotions and clearance campaigns. As a condition for participating in the clearance e-marketplace, a company will be required to disseminate information (by means of newsletter email) about bundled deals that include its clearance offerings on the clearance e-marketplace to its existing customer base. In the likely event when a customer of one company buys a deal from another company, the selling company will get information about this customer, hence effectively acquiring a new customer. However, this design principle maintains provisions that enable these synergistic dynamics only among non-competing customers across different industries.

This arrangement solves the issue of the rising customer acquisition cost for companies and e-marketplaces. For example, new customer acquisition costs rose by 485% to more than $30 per email address from 2010 to 2011 for Groupon due to increasing competition and market saturation [30]. Hence, instead of investing valuable resources in developing a new customer base, this design principle leverages the existing customer base of participating companies.

It is important to highlight that this design principle ensures that new customer acquisition happens in an organic fashion where no company can access customer information (i.e. email address) unless a customer buys a deal from that company on the clearance e-marketplace. Thus, this design principle allows companies to acquire new customers with proven interest in its services (through a first-time purchase). It should also be noted that the customer base of the proposed clearance e-marketplace is not the sum of the customer base of the participating companies. The participating companies are not required to share their customers’ information with the clearance e-marketplace. Only when a customer signs up for an account on the clearance e-marketplace does his/her information become available. Customers may be directed to the clearance e-marketplace by a company to buy its deals on the e-marketplace or by a friend’s referral of deals of possible interest to help tip a bundle the referrer is interested in.
3.2. Embodiment of design principles

Having explained the rationale behind the design principles in the proposed clearance e-marketplace, we present details about the embodiment of these principles in our IS artifact. This e-marketplace will serve two populations. The first is consumer service providers, which are given profiles from which they can create bundles of their discounted services. The clearance e-marketplace will offer capabilities that enable service providers to create bundles of deals. These capabilities include uploading deal images and inputting textual data such as deal descriptions, conditions of redemption, deal prices, time of service, and service locations. The second population of concern is customers looking to buy deals on various services. Once a customer successfully buys a deal, the customer will electronically receive a voucher to redeem it with the service provider under a set of terms and conditions. Customers will be given accounts to manage their choices and purchases of deal vouchers. Customers will also be able to manage their vouchers, view their purchase history, and share information about bundles and deals with their social network.

We have already implemented the clearance e-marketplace using a combination of PHP, HTML, and JavaScript programming tools to embody the said design principles. Accordingly, the clearance e-marketplace is ready for use to execute the experimental research which is explained in the empirical study in Section 5 below.

4. Hypotheses

In this paper, we are interested in studying the impact the proposed clearance e-marketplace has on two dependent variables; new customer acquisition and percentage sales in clearance campaigns. We develop the hypotheses on the effect of the proposed e-marketplace on acquiring new customer in Section 4.1 and on the percentage sales in clearance campaign in Section 4.2. Indeed, the two dependent variables are discriminant in that sales could be made to newly acquired customers and/or already existing customers and companies are continuously looking to acquire new customers.

4.1 The new customer acquisition hypothesis

Traditionally, individual companies have used marketing campaigns that target the public through advertising among alternative media outlets and/or marketed directly to their existing customer base through email and more recently through social media. Regardless of size, individual companies usually have a limited customer base to target in order to market their discount clearance campaigns. In trying to grow their customer base and get brand exposure, most companies are faced with the increasing costs of public advertising, which, combined with the deep clearance discounts, make it challenging for companies to achieve decent profit margins on clearance offerings. Furthermore, new customer purchases resulting from public advertising campaigns do not necessarily result in the company acquiring customer information such as email address for later targeting.

Based on the second proposed design principle that we call shared customer pooling, the clearance e-marketplace creates a larger pool of customers made up of the existing customer base of participating non-competing companies across different industries. This sum, which is greater than its individual parts, would give individual participating companies a much larger market reach for their clearance offerings. The clearance e-marketplace’s newsletters featuring the discounted clearance offerings of participating companies could reach a much larger audience than a company’s targeting of its own customer base. Where the customer base of participating companies do not overlap, each individual participating company will likely get brand exposure to new customers with the potential of purchasing and joining their customer base. As online purchasing requires customers to provide an email address, a given participating company is able to target new customers on their own even for regularly-priced offerings. Therefore, we hypothesize that

**Hypothesis 1:** Everything else equal, companies that use the proposed clearance e-marketplace in clearance campaigns will acquire a larger number of new customers than they do in their self-managed clearance campaigns.

4.2 The sales percentage hypothesis

In general terms, the proposed clearance e-marketplace will likely compare favorably, on percentage sales, to individual company’s self-managed clearance campaigns owing to two primary explanations, namely, the e-marketplace characteristics and its increased market reach. E-marketplaces have certain inherent characteristics that predispose them to achieving better sales results than companies’ individual e-commerce outlets. From a market efficiency standpoint, electronic markets will reduce customers’ information search costs to produce market efficiency gains [31], which would help attract more
customers to e-marketplaces than individual company e-commerce outlets. The proposed clearance e-marketplace will likely reduce the search costs for customers in the discounted deals market. Also, e-marketplaces reduce information asymmetry, which can provide customers with alternatives especially on pricing, potentially better enabling customers to make a purchasing decision compared to individual company’s e-retail outlet. Viable alternatives reduce customers’ willingness to pay more than the efficient price [32] when uninformed of available offerings or of their characteristics.

Furthermore, from a brand exposure standpoint, an e-marketplace setting increases brand exposure as customers are systematically exposed to offerings that were initially out of their scope of interest upon the start of their shopping experience. Typically, a customer searches an e-marketplace for products or services that may satisfy his/her identified need. This is followed by careful evaluations and comparisons of product alternatives based on key purchase decision criteria. This step concludes with a consideration set, a set of products capable of satisfying the customer’s needs. The final step is the purchase [33].

The second mechanism through which the proposed clearance e-marketplace will likely positively affect percentage sales in a clearance campaign is market reach. The shared customer pooling design principle allows a company’s clearance offerings to reach a much larger market than a company’s own efforts. This increased reach is likely to result in increased percentage sales in clearance campaigns. Additionally, the proposed clearance e-marketplace integrates social media capabilities to enable customers to act as social agents by spreading the word about their shopping experience through their social networks. A recent study [34] compared the impact of traditional earned media (initiated by focal company) and social earned media (initiated by customers and through e-marketplaces, etc.) on sales in the context of an e-marketplace using Kiva’s micro-loan e-marketplace data. This study found that while both traditional and social earned media affect sales and while the per-event sales impact of traditional earned media activity was larger than for social earned media, social earned media’s sales elasticity was found to be significantly greater than traditional earned media's because of the greater frequency of social earned media activity, after adjusting for event frequency. Furthermore, the study found that social earned media plays an important role in driving traditional earned media activity.

In specific terms, the proposed clearance e-marketplace has key characteristics that will likely positively influence percentage sales in clearance campaigns. Firstly, the shared bundle design principle will likely result in better percentage sales in a clearance campaign than in traditional clearance campaigns with separate individual item discounting. In a shared bundle, there is a minimum sales volume in the bundle within the availability period in order for the discounts to apply. This can motivate customers to purchase other deals they may have not been initially considering and/or act as social agents by spreading the word about the bundled deals so that others in their social networks may consider buying in the bundle, which would help reach the tipping point (minimum sales volume in the bundle) faster. Also, the shared bundle concept will likely deliver better sales results than the traditional bundling technique. Whereas in traditional bundling, a customer would need to buy an entire bundle of products and/or services in order to enjoy the discounts, in a shared bundle, a customer can buy only the deal he/she desires. Given that customers may not necessarily every offering in a given bundle, traditional bundle sales can be relatively slower in comparison to the case in a shared bundle.

Secondly, some companies are reluctant to offer deep discounts to avoid brand erosion. Following a hands-off approach by letting the proposed clearance e-marketplace manage their clearance campaigns, participating companies can reduce the risk of brand erosion while offering deeper discounts, which leads to repeated purchasing rates [18], increased service capacity utilization [20], [35], which would subsequently lead to increased return on fixed investments and profitability. Given these arguments that are general to e-marketplaces and specific to the proposed clearance e-marketplace, we hypothesize that

Hypothesis 2: Everything else equal, companies that use the proposed clearance e-marketplace in clearance campaigns will realize higher percentage sales than they do in their self-managed clearance campaigns.

5. Methodology

Evaluation is a crucial component of design science research as it shows the efficacy of the proposed artifact [15] in solving the problem of interest. Depending on the nature of the investigation, various research methods could be used in the Evaluation stage. In our proposed study, we will use experimental research to test the claim that our proposed design principles of a third-party e-marketplace will lead to efficiency, effectiveness, and new customer acquisition gains over traditional company-initiated clearance campaigns as represented by our hypotheses.
5.1. Experimental design

We follow a posttest-only control group design [36], which is a true experimental design, to compare the performance dependent variables of interest in the case when companies follow traditional self-managed clearance campaigns to the case when they use the proposed clearance e-marketplace that embodies the proposed design principles. In posttest-only control group, one group gets the experimental treatment or program and the other group is the comparison group and doesn't get the program. The choice of posttest-only control group allows for no pretest which translates into better control for internal validity threats due to maturation, history, testing, instrumentation and experimental mortality. As shown in Figure 1, the first line represents the treatment and observation of the control group while the second line represents the treatment and observation of the experimental manipulation.

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**Figure 1** The post-test-only control group experimental design

We will run the control and experimental groups in two different cities. We will identify two comparable cities, where the companies in the study sample operate, such that the two cities are demographically and socio-economically equivalent. The choice of which city to run the control or experiment group will be random, hence the R in Figure 1. For the control group, the sampled companies will use the traditional method of self-managed clearance campaign (X₁). In this treatment, each of the sampled companies will send a newsletter email to a randomly selected sample of its existing customers (whose email addresses are known to the company) in the first city informing them about the limited-time and limited-availability of the bundled discounted deals on specific services offered by the company. The newsletter email will follow a similar HTML design to that used in the control group treatment. However, the service deal posts will be linked to the proposed clearance e-marketplace where customers can purchase the service deals directly. As a result, traffic to the proposed clearance e-marketplace will be generated from the existing customer base of the participating companies in the experiment. A customer will be required to provide his/her email address in order to make a purchase on the proposed clearance e-marketplace.

In the first stage of the experimental group treatment, each one of the sample companies will send a newsletter email to a randomly selected sample of its existing customers (whose email addresses are known to the company) in the second city informing them about the limited-time and limited-availability of bundled discounted deals on specific services offered by the company and made available for purchase through the proposed clearance e-marketplace. The newsletter email will follow a similar HTML design to that used in the control group treatment. However, the service deal posts will be linked to the proposed clearance e-marketplace where customers can purchase the service deals directly. As a result, traffic to the proposed clearance e-marketplace will be generated from the existing customer base of the participating companies in the experiment. A customer will be required to provide his/her email address in order to make a purchase on the proposed clearance e-marketplace.

In the second stage of the experimental group treatment, we will repeat the same clearance campaign described in the first stage where this time the proposed clearance e-marketplace (not individual companies) will send the newsletter email to the pool of registered customers (who originated from the customer base of individual participating companies) who made earlier purchases on the e-marketplace in the first stage and provided their email addresses. After the second stage of the experimental group, we will observe (O₂) the dependent variables (new customer acquisition and percentage clearance sales) by collecting the data registered from each company in the study sample throughout the clearance campaign period. The target customer sample size, the service deals, and the time and quantity limits on deals availability will be the same as those in the control group treatment. This experimental design controls for the company and service offering characteristics by comparing the control and experimental groups using the same company and service offerings, which reinforces internal validity of the results. It also
eliminates internal validity threats attributable to maturation and history (time-variant changes in environment and/or subjects) by choosing to run the control and experimental groups simultaneously in two different cities instead of sequentially in the same city.

Prior to any data collection, ethics approval will be secured.

5.2. Sample

Our sampling frame will be major companies in customer service industries in Canada. We identified 60 customer service industries in Canada using major industry reports and databases such as IBIS World, Mergent Online, Factiva, Global Market Information Database (GMID) and HighBeam Business. We will target the top five companies by market share in their respective industries. Discounting practices in high-market-share companies are likely associated with clearance rather than marketing. Out of the positive responses, we aim to include five companies from different industries in the study sample. Given the complexity of this study, we deem a sample size of five companies to be large enough for establishing initial evidence on the hypotheses under investigation while being affordable for the research resources. However, this sample size is too small to judge the statistical significance of that evidence, which is a limitation in our study. The primary criterion for the selection of these companies is their ability to collaborate in running the control and experimental groups simultaneously with other companies in the sample and simultaneously in the two cities which will be the same for all sample companies. The two cities selected for each experiment will be randomly assigned to either the control group or the experimental group. Including companies from multiple industries increases the external validity of the results.

5.3. Measurement

In this study, we have two dependent variables of interest to measure the performance of clearance campaigns; new customer acquisition and percentage clearance sales. We measure these two variables using objective data collected from individual participating companies and also data generated through the use of the proposed clearance e-marketplace during the experiment.

We measure the two performance dependent variables of interest as follows: (i) New customer acquisition: given the list of email addresses possessed by a given participating company, we operationalize a purchase associated with a new email address as an acquisition of a new customer. Here we make an implicit assumption that each customer is represented by a unique email address and that the customer will use the same email address to sign up for the proposed clearance e-marketplace and the company’s marketplace; (ii) Percentage clearance sales: we measure percentage clearance sales as the ratio between the total quantities sold and the total quantities offered in a clearance campaign.

For the control group where the sample company manages the whole clearance campaign, we will ask the company to provide summary measures of the dependent variables of interest. In the case where participating companies are reluctant to share their operational and/or customer data to enable us to measure the dependent variables of interest, we will ask those companies to provide summary measures of the variables of interest based on clear instructions we will make available to them. For example, to measure the new customer acquisition resulting from clearance campaign on the proposed clearance e-marketplace, we will ask those companies to identify from a list of email addresses that we will provide those addresses that already exist in their customer mailing list. Accordingly, the remainder email addresses will be considered newly acquired customers.

6. Future work and potential contributions

The aim of this work in progress paper is to stimulate feedback that could help optimize the scope and design of this research study prior to the execution of the experiments and the collection of the data. The next steps in this research is to target the sample and obtain the commitment of the required sample of participating companies and then execute the experiment and collect the data.

To the best of our knowledge, our proposed design principles and solution for the effective clearance of unused service capacity is unique and valuable for research and practice. From an academic standpoint, [37] identified three possible contributions of a design science research project: design artifact, design construction knowledge, design evaluation knowledge. We hope that this research will contribute to the literature on design science research paradigm in all three ways, albeit to varying degrees. First, the IS artifact development (the proposed clearance e-marketplace) in itself is a contribution because it provides an innovative solution to an unresolved problem (capacity management) by combining existing knowledge bases (group buying, capacity clearance, bundling) in an innovative fashion [37]. Secondly, this study contributes to the expansion of knowledge base
by introducing design principles (i.e. shared bundle purchasing and shared customer pooling), which can serve as the basis for formalizing hypotheses for future research. Finally, empirical evaluation results will provide comparative analyses of the proposed clearance method using the proposed clearance e-marketplace vis-à-vis traditional methods and hence advance our understanding of how to best utilize alternative capacity clearance methods. From a practitioner perspective, our proposed research is of particular relevance since it addresses a commonly encountered business need, namely capacity management. Most goods and service retailers are faced with the issue of excess inventory and unused service capacity, which are considered waste without effective ways to prevent this from happening. The impact of this issue is exaggerated especially in the case of perishable services, which leads to forever loss of return on assets.

References


