

# Design of Services for the Incremental Innovation Management in SMEs

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## Abstract

The article presents an empirical study with small and medium Peruvian businesses in the health and hotel industries aiming to develop incremental innovative products and services through insights, ideas generation, and solutions validation at the front-end open innovation strategy. The indirect research of trends, customer journey mapping, ethnography, and direct interaction with users, through in-depth interviews and iterative dynamic group sessions, generated value creation. Small businesses can develop services design according to their human and financial limitations using knowledge management processes based on four axes: scanning the environment, observing, depth interviews, and lean and design thinking. There are alternative paths that take into account and involve a greater collaboration of users that small businesses can explore and exploit in a process aimed at the user. The case study allows concluding that incremental innovation processes do not have to be tedious, uncertain, or expensive for small and medium enterprises.

**Keywords:** SMEs; Peruvian Businesses; Tourism; Innovation; Health Industry.

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## Diseño de servicios para la gestión de innovación incremental en PYMES

### Resumen

El artículo presenta un estudio empírico con pequeñas y medianas empresas peruanas en el sector de la salud y la hostelería con el objetivo de desarrollar productos y servicios innovadores incrementales explorados en la vista, la generación de ideas y la validación de soluciones en la estrategia de innovación abierta *front-end*. Tanto la investigación indirecta de tendencias, el mapeo del viaje del cliente, la etnografía y la interacción directa con los usuarios, con entrevistas en profundidad y sesiones dinámicas iterativas, generaron creación de valor. Las pequeñas empresas pueden desarrollar el diseño de servicios de acuerdo con sus limitaciones humanas y financieras, utilizando el proceso de gestión del conocimiento basado en cuatro ejes: escaneo del entorno, observación, entrevistas en profundidad y pensamiento de diseño esbelto (*lean design*). Hay caminos alternativos que tienen en cuenta e implican una mayor colaboración de los usuarios que las pequeñas empresas pueden explorar y explotar en un proceso dirigido al usuario. El estudio de caso permite concluir que los procesos de innovación incremental no tienen que ser largos, inciertos ni costosos para las pequeñas y medianas empresas.

**Palabras clave:** PYMES; negocios peruanos; turismo; innovación; industria de la salud.

## Desenho de serviços para a gestão de inovação incremental em PME

### Resumo

Um estudo empírico com pequenas e médias empresas peruanas no setor da saúde e a hotelaria com o objetivo de desenvolver produtos e serviços inovadores incrementais explorados na perspectiva, a geração de ideias, a validação de soluções na estratégia de inovação aberta *front-end*. Tanto a pesquisa indireta de tendências, o mapeamento da viagem do cliente, a etnografia e a interação direta com os usuários com entrevistas em profundidade e sessões dinâmicas iterativas geraram criação de valor. As pequenas empresas podem desenvolver o desenho de serviços de acordo com suas limitações humanas e financeiras empregando o processo e gestão do conhecimento baseado em quatro eixos: escaneio do entorno, observação, entrevistas em profundidade, pensamento desenho *Lean*. Há caminhos alternativos que têm em consideração e implicam uma maior colaboração dos usuários, que as pequenas empresas podem explorar em um processo que é dirigido ao usuário. O estudo de caso conclui que os processos de inovação incremental não têm que ser longos, incertos ou caros para as pequenas e médias empresas.

**Palavras-chaves:** PME, negócios peruanos; turismo; inovação; indústria da saúde.

## Introduction

Mina, Bascavusoglu-Moreau, and Hughes (2014), in their study of the open innovation practices of British companies, conclude that companies in the service sector are more open to external knowledge than manufacturing ones. Another conclusion of the study is that collaboration in innovation of service companies tends to increase with the intensity of R & D and human capital. The Peru firms studied are small and medium sized in the health and hospitality services sector.

The search for external sources of innovation and the development of innovative services are supported by three factors: Software and technology that allow obtaining thorough information and discover unexpected patterns that can be immediately identified and followed. Organizational structure that includes a culture of innovation, risk taking, autonomy, flexibility, proactivity, and collaboration with users. Human intangible capital with innovator skills: Associate —establish connections between problems or ideas from unrelated fields, question —pose questions that do not fit in common sense, observe —analyze the behavior of users to do things in a different way, networking —knowing people with different ideas and perspectives, and experiencing —building interactive experiences and provoking unorthodox responses to see what ideas emerge— (Dyer, Gregersen, & Christensen, 2011).

However, for collaboration and users' relationship it is necessary to have integrative competences to incorporate innovation of external origin and the management of co-creation processes. Innovation management explores the changes and trends that occur in the environment of organizations, and manages tacit and explicit knowledge. Subsequently, the design of services with users for the development of new products, the proposition value, and value creation components of business models might be part of a strategy of an adaptive innovation, learning, and collaboration culture. Services design a process understood as an organized and coordinated set of activities, actors, resources, and KPIs to achieve a business' particular objective.

This applied research does not use traditional linear methods of product and service development such as ideation (market research), development (R & D), tests and validation (production), and launch (market diffusion), known as the Stage-Gate process based on linearly executed stages with control points, where innovation activities are verified before moving on to the next. We consider that it is a process that by including users at a late stage of the tests is inefficient, with a high cost of time and money for the firm to incorporate the modifications requested by users.

Although an updated Stage-Gate process incorporates practices to contrast the criticisms (linear, bureaucratic, without context or based experimentation) of Becker (2006) and Lenfle and Loch (2010), which makes less relevant the phases sequence of ideation, business case definition, development, test, and launch, the methodology chosen consists

of listening (discovering trends, customer journey map), immersion (learning through ethnography and in-depth interviews), problem definition, ideation, validation (dynamic group sessions), and prototype to generate value creation.

As defined by von Hippel (2001), obtaining information on the users' needs and their environment is very complex —conventional market research techniques are superficial, while techniques such as ethnographic studies are difficult and time-consuming. In addition, the pace of change in markets and users' needs grows faster and faster.

Hippel's goal is not so much to accurately and in detail understand the users' needs, but for users to participate in an iterative and learn-by-doing process of product and service innovation. Although users often have a lot of information related to needs about what they might want, usually at the beginning of the process of designing new services they do not know exactly or cannot say exactly what they want.

The research behind know-how from digital marketing includes classic market research tools that use iterative methodologies from group dynamic sessions —innovation games, design thinking— and prototypes —incomplete and partially inaccurate concepts and models of proposed solutions, which derives from an adaptable and trial and error process within the lean methodology by Eric Ries that consists of building (prototype), testing (value), learning (feedback), and reviewing (value proposition) until the final product version.

In our hypothesis, the management of the absorption capacity through the scanning of the environment and the validation of ideas and solutions through structured processes that include workshops and iterative sessions, could be valid for innovation in SMEs with limited resources. Changes in society and technologies establish new relationships between organizations and users, which allows a more active role in the creation of value through iterative collaborative processes. This study emphasizes research on small companies, which in the scientific innovation literature are usually associated with large companies; in addition, the services' sector is usually seen as dependent on the industry as regards the introduction of innovations.

This article is structured as follows. After the introduction in section two we follow a customer discovery approach in which we analyze users as a source of knowledge and the exchange of information between internal and external stakeholders. This section

relates the structured processes corresponding to phases of empathy, definition, ideation in the development of new products and services. The third section includes the customer validation approach, the co-creation in the validation of ideas and solutions, types of prototypes, and potential characteristics of the minimum viable product.

The results section presents the effective execution of service design methods in specific cases of Peruvian businesses in the field of health, tourism, and hotel services sectors. Likewise, this section describes the results obtained from multiple iterations with users in service innovation contexts.

## 1. Absorptive Capacity and Insights Methods

The processes of new products development (NPD) and new services development (NSD), in their front-end phase, include discovery and learning practices. As for detection of the non-articulated needs of users and changes during the development of the product, Steve Blank (2017) says that customers will say what we want to hear, but it is important to listen to what it means.

Customer discovery has been developed along four axes: scanning of the environment, participant ethnography, in-depth interviews, and customer validation through group dynamics for an understanding of how the products or services are used and the associated benefits in the context of use.

As we mentioned earlier in the introduction, the methodology used in this research is different from the Stage-Gate process, mainly for two reasons: the use of users in the initial phases of the NPD and the absence of the linearity of the process. This applied research will also measure efficiency in terms of number, quality, and originality of ideas; time and resources used, and the incremental or radical nature of innovation in each phase.

## 1.1 Coolhunting, Netnography, Customer Journey Map

The scanning of the environment is used to identify, collect, and translate information about external influences, including trends, signals, alerts, events, and expectations from different stakeholders (Albright, 2004; Bishop & Hines, 2012). Trends are longer-term changes, they are deeper than fads, and at some point they are recognizable in what could be considered the turning point (Gladwell, 2002). Through coolhunting, trends are identified and analyzed, business opportunities are detected, and competitive advantages are established by anticipating changes in consumer demands and knowing future scenarios. The process of identifying significant changes in the external environment, in general, and specific to the industry, in particular, are relevant for decision making.

To understand trends in a region or industry the Consumer Trend Canvas tool (TrendWatching, 2013) includes:

- Basic consumer needs, the desire to feel good about yourself while minimizing risk.
- Inspiration of trends of other industries, types of business, other scenarios where similar situations occur.
- Drivers of changes (global macro trends) and triggers (technological, social, economic) analyzed using the PESTLE model.
- Expectations and satisfaction of emerging consumers, analyzing what consumers want and what they currently have.

Content analysis is a systematic and objective study to identify emerging trends and signals by collecting and analyzing information from sources such as the Internet and media, newspapers, television, speeches (Evans & Sommerville, 2007; Bell, 2009). This research uses netnography, an interpretive research methodology, which is basically ethnographic research techniques optimized to the Internet (direct and indirect —forums, blogs, chats— horizontal and vertical social networks) to listen to the users' ideas and opinions as objective sources

of information. As a research method, netnography covers four theoretical aspects (Bartl & Tusche, 2016): Qualitative research that includes criteria such as the selection of the topic, the type of language used —done manually, online community research, recognizing key words and trends, and identify lead users and target groups, and quantitative research such as volume, frequency of messages and interaction, the monitoring of information on the web through software tools to track, and extract data, such as keywords to discover patterns and trends. Finally, the customer integration research.

The management of product innovation involves both a well-structured product development and a structured process of knowledge management. Knowledge can be distinguished from information, it occurs dynamically through social interaction (Ernst, Brem, & Voigt, 2013); in social networks, content is always changing, and users are responsible for evaluation mechanisms. The Internet allows conversations that were not possible before and also provides researchers access to a large number of participants —people who would otherwise be difficult to reach in addition to the anonymous feature of many of the online interactions and the absence of an intrusive investigator.

Social networks allow updated information to the organizations in order to develop an open innovation strategy in the use of purposely managed knowledge flows, users' insights, bidirectional communication, co-creation of products and services, and promotion channels.

The mapping of the consumer's journey is an accumulation of the interactions that the consumer has in the end-to-end journey that is before, during and after the experience of a product or service. The mapping will record the most important points of contact for the consumer, sequence, and frequency used and those responsible for the organization at each point of contact. The satisfaction perception at a point-of-contact is an accumulation of metrics from different processes of web pages, stores, chat, call centers, etc. (Maechler, Neher, & Park, 2016). In spite of the functional departments responsible for providing the service at these points of contact do not have a holistic view of the consumer experience, do not participate in the generation, development of new products and services, and their goals are to maximize efficiency and productivity in individual transactions.

This allows identifying two objectives for analyzing the consumer experience; one focused on pursuing the attraction, conversion, and retention of the consumer and the

other in the knowledge management. In the first case the co-production of products and services is developed at the level of marketing (contacts with the brand), CRM (organization and effectiveness of relationships with customers and prospects), service blueprinting focused on terms of multichannel distribution and efficiency of processes. Bitner, Ostrom, and Morgan (2008) suggested service blueprint as a tool to identify consumer relationships with the organization, but also organizational elements such as physical elements and operational stages visible and invisible to the customer.

The second case involves front-end phase innovation tools. Personal information and preferences exchanged in real-time or not, process of orders and reservations, experiences supported by conventional face-to-face contact or by technology as a complementary or essential role of the experience, assisted, improved, or enhanced (Neuhofer, Buhalis, & Ladkin, 2014). Understanding the context of the consumer pains in an ecosystem, managing this knowledge and creating dynamic feedback mechanisms to help the company continuously improve its operations and strategy. The design of contact points is not sufficiently addressed neither in scientific research nor in innovation through different points of contact (Clatworthy, 2011).

## 1.2 *Ethnography*

Ethnography is an anthropological method that makes observations about how people really behave in their context. It does not bring preconceived theories to prove, but develops explanations of what is observed (Bessant, 2015).

The best way to obtain a deep understanding of the client is through ethnography, observation, and empathic methods (Silverstain & DeCarlo, 2009). Ethnography allows us to perceive the needs of clients by deepening in people's daily lives through the observation of their behavior in real environments (Moritz, 2005), understanding how people live, observing the behavior of people on their terms, not in ours (Anderson, 2009). Ethnography goes beyond observation to move from unstructured observations to discovering the underlying meanings behind behavior; it is understanding feelings and intentions in order to deduce the logical implications for strategic decisions (Mariampolski, 1999).



It is a totally consumer-centered process that does not use traditional market research techniques to ask people questions about their preferences, desires, and needs that may not work since there is no proven correlation between what they say and how they really behave. In the observation, researchers shared the same scenario as the participants in the service delivery, which represented an opportunity to learn and perceive the same reality. The observation roles covered a range that included observation-participation through mystery shoppers involved in the entire purchase process and non-participated observation in which user activities were recorded that included: space —the place or physical places, actor —the people involved, activity —a set of related acts that people do, object —the physical things that are present, action —individual actions that people make, event —a set of related activities that people carry out, time —the sequence that takes place over time, goals —the things that people are trying to achieve, sensation —emotions felt and expressed (Spradley, 1980).

### ***1.3 In-Depth Interviews***

Methodologies such as ethnography and in-depth interviews help put the researcher in the skin of the interviewees. The latter are an effective tool to generate perceptions about clients, behaviors, and needs, and to discover their values and opinions (Polaine, Lovlie, & Reason, 2013). The interview in real contexts helps the interviewees remember and focus on specific details and allows the interviewer to understand the social and physical environment and interpret its effects (Stickdorn & Schneider, 2010). The importance of in-depth interviews reflects a tradition of emotionalism (Gubrium & Holstein, 1997), where the study of perceptions, meanings, and emotions behind these users is prioritized. Qualitative researchers emphasize the intimate relationship between the researcher and what is studied, and the situation limitations that shape the research. They look for answers to questions that emphasize how social experience is created and gives meaning (Denzin & Lincoln, 2000). The objective is to achieve the greatest confidence among the participants in all stages of the process to encourage the exchange of ideas among them.

## 2. Methods to Validate Ideas and Prototype Creation

The data collection provided in the observation and in-depth interviews phases made it possible to construct the value proposition canvas. On the right side (the circle), there are the observed things about the customer segment, the jobs to be performed, the pains (risks, obstacles), and the profits (benefits, results) and, on the left side (the square), the decisions relating to the products and services and the benefits and solutions for the target customer segment. The greater the adjustment on both sides in the client's perspective, the greater the value created (Osterwalder et al., 2014). Designing customer proposition values might be the first step to understand opportunities not exploited by current offers and business models in the industry.

Studies on open innovation in small businesses suggest that innovation processes in SMEs are very different compared to those in large companies because they have more flexibility in making quick decisions and reacting to environment changes (Vossen et al., 1998). However, they face limitations in terms of material, human, and resource factors (Acs & Audretsch, 1987). Although, these limitations should not be a disadvantage to develop dynamic capabilities and competences to innovate with collaborative processes and innovative organizational culture.

Given that explicit knowledge is usually considered easier for competitors to imitate, tacit knowledge is increasingly seen as a key to competitiveness (Weidenfeld, Butler, & Williams, 2016, p. 25). Businesses have the opportunity to manage that knowledge through group dynamics, given that tacit needs are expressed in the interaction. Füller et al. (2010) define the tools, enjoyment related to interaction, tasks of innovation, closeness to the category of products, and creativity of the participants as important factors when selecting people in co-creation activities.

A first approach is the change from a conception of users as participants, limited to the later stages of the innovation cycle, to participants in the first phases of front-end innovation, ideation, and validation. In the second approach the user is always a co-creator of value. From the point of view of innovation, the role of the consumer in the sense

of simple co-production for example, installing IKEA furniture or printing the airline's boarding pass, is not relevant. The user, besides being an external source of ideas in the process of trial-and-error of the development of new products and services, must be the facilitator of social and market acceptance through experience and perception, essential for the determination of value.

Trial-and-error processes in the creation and development of new products and services may focus on few tasks. Von Hippel (2001) considers that concentrating the process within a single product design task greatly facilitates the transfer of information of the users' needs. Small data provide depth of perception about users in a volume and format that makes it viable and feasible to be used. It is apparently irrelevant behavioral observations that contain very specific attributes that break perceptions of unmet customer needs (Lindstrom, 2016).

In workshops for services development, besides brainwriting, innovation games were used such as buy a product and service, speed boat, 20/20. Each collaborator expressed particular versions of what is a good service according to his/her interests and needs, which subsequently made it difficult to come to an agreement. Afterwards, design thinking sessions helped to clarify feasible and viable solutions. Design thinking starts with empathy toward users and their context, clear definition of the problem, ideation of solutions, prototyping, and evaluation or feedback. This methodology, in addition to empathy and collaboration, needs the optimism that it is possible to find a more adequate solution, an integrating thought of contradictory aspects, divergent thinking of alternatives not previously existent, and experimentalism.

In services design, the use of prototypes is conditioned by the characteristics of the service sector: intangibility, heterogeneity, inseparability, and perishability (Zeithaml, Parasuraman, & Berry, 1985). However, in the workshop sessions, in addition to the tools based on visualizations, cards, and post-it, canvases were used as prototypes that reinforced the change from the analytical to the experiential and quick test of the service experience (Polaine et al., 2013). The prototypes include physical objects, models, or simulations for the exploration of concepts (Meroni & Sangiorgi, 2011) and validation of solutions through debate, discussion, and users' participation. The prototyping is a concept or the visualization of an idea, used to validate ideas or solutions; although, for the final test the minimum viable product might

be used. Prototypes do not have to have the attributes or benefits of the product as opposed to the minimum viable product that is a version of the final product.

Prototypes can be of three types. The first one is physical through material artifacts (cardboard, polystyrene, foam, collage, photo montages, videos). 3D printing allows users to intervene in any phase of the production process, from the initial idea to the fully manufactured product (Rayna, Striukova, & Darlington, 2015); it is an important co-creation tool for SMEs in the prototyping phase, although limited in terms of user innovation. Support with technology prototypes can increase the perceived service tangibility, recreate environments and interpersonal relationships through a sequence of events, and force a detailed observation of the service process.

The second type is virtual reality in which the users interact through avatars or digital representations of themselves. The role-play in socio-drama is also a form of prototype because it allows co-producing experiences and service situations that are not yet real. The simulation of a real environment or situation helps the participants to consider the possible consequences of their actions and the possible actions and future reactions of other participants (Bell, 2009).

The third type is the storyboard that can be developed on paper or digitally. Creating three lines horizontally through the story map, the critical capacities are placed in the upper space, the capacities that turn into a more commercially acceptable product in the intermediate space, and in the lower part the most important ones that could be built later. The story map shows and defines the type of user, purpose, motive, and order of interaction.

Although the service sector has a degree of difficulty due to its characteristics, research is always incomplete, with variables that cannot be identified in their entirety and that depend on organizational culture bias, facilitators, actors, and processes. Thus, the need to pivot with test, evaluation based on metrics, and learning to consolidate the lean process.

The minimum viable product allows verifying the right track through the build-measure-learn feedback loop. It does not have to be commercially viable, but it must have the least number of characteristics for testing the ideas and basic capabilities that allow consumers to achieve the results they expected. From there, it is time to make corrections, create

the set of necessary functions based on the objectives and list of pains of the first phase of definition and ideation, and try again. Three types of characteristics must be present in the MVP: The attributes that customers expect to be present in a product; the attributes that are not absolutely necessary, but that are known and increase the satisfaction of the use of the product by the user, and the attributes that users do not even know they want, but that contribute to a state of excitement when they find them.

The creation and capture of value manifested in the Den Hertog model (2000) of innovative services with the introduction of a new service in the market includes client interface (new forms of what customers are involved in the production of the service, e.g., manage minibar from an app), the service delivery system (new ways in which real services are delivered to customers, e.g., concierge through twitter), and technology in terms of efficiency.

The process of designing services is essentially a process of knowledge development in which the analytical phases of search and understanding are mixed with phases of synthesis of experimentation and innovation. The exploration of ideas from practical processes with observation and interviews, conversion with dynamic group sessions into concepts and prototypes, and then practical application in the form of product or service proposals.

The iterative process of NPD and NSD used is stable as opposed to the information of the needs of the users that will have novel components for each new product or service desired.

## Results

For the case study, we choose two businesses of the industries of health tourism (hospital Solidaridad) and hospitality (3 star Hotel Gold Infinity) according to the fulfillment of specificity in four categories: services sector, small and medium size, industries, and user journey with high interdependence in the search of products and services at the destination Tacna, Perú. Tacna is a southern Peruvian city with essentially commercial activity, and it has the only free zone in the country. With 320000 inhabitants and 40 kilometers

distance from the Chilean border it has mainly inbound Chilean tourism from regions as far as Santiago (Chile's capital city).

The Chilean tourist is a multi-consumer with trips *à la carte* and fragmented visits several times a year, with low spending on transportation (buses and collective cars), to spend on entertainment, shopping and health at the destination.

The hotel receives reservations through travel platforms and social media, and since the evaluations by the clients are good or very good, word of mouth is important. At the hotel the critical touch points are the arrival at reception, contact with the room, and cafeteria since there isn't suitcase help or a dynamic use of Facebook previous experience.

The hospital clients go directly to information or cashier since there is plenty of specialties, and it is very fast to have an appointment due to all day availability. It is a one stop shop experience.

However, service design projects require a holistic view of the experience supply and not just of the points of touch with the organization. Chilean tourists go to Tacna to rest and stroll, they value kindness, the absence of stress, and the treatment received above economic value of functional activities such as dental braces revisions or leisure time for shopping or eating out. The analysis of hotel netnography revealed the superior hospitality of the staff, good value for money and location, and the use of the WordCloud tool discovered that the most significant words were "excellent", "attention", "very good", "we will return", and "personal". The hospital does not use a web page or social media.

This applied research used metrics relatively to process efficiency; number, quality and originality of ideas, and time and resources employed. In a first phase, executed from November 25<sup>th</sup>, 2017 to January 5<sup>th</sup>, 2018, a workshop with commercial engineering students of the Universidad Nacional Jorge Basadre Grohmann (UNJBG) generated 39 ideas: 14 related to coolhunting, 16 to customer journey map, and 9 to netnography-social networks. Of those, 21 ideas were discarded for being repeated or because they did not generate enough votes from the participants. Of the 18 ideas initially selected, only 2 of a technological kind were considered for the final phase of design thinking. The ideas related to communication, reception and cafeteria schedule. Others proposed an app for concierge

and an app to adjust clients' preferences for example, breakfast time. The proposal of a 360° video promotion and possibility to choose a room in the web page were suggested as opportunities to test.

The hotel observation was carried out in two phases. In the first one, two groups of two UNJBG students each stayed for 1 night on February 2018; in the second, two other groups of two students from Arturo Prat stayed at the hotel on June 2018. The main conclusions from the Peruvian students were focused on human resources, their lack of attention and warmth, and the heterogeneity of the quality of service. As for the comfort of the rooms, the absence of air conditioning, proper temperature upon arrival, and ventilation in the rooms were the negative points commented. In the café no variety at breakfast is what detailed the observation. Problems of internal communication, decoration, and the absence of a security guard were also commented. The Chilean students' perception contradicted the experience by Peruvians, they do not see any pains on hotel staff and regarding room comfort they only comment on no heating and no communication with reception.

In the in-depth interviews with older Chilean clients, they pointed to the same items as the Chilean students, which means age segment was irrelevant. While, country segment showed a totally different perspective. The decision to which segments the business wants to deliver the value proposition is crucial. The concerns were mainly about the comfort of the rooms and the cafeteria. The absence of intercom, fan/heating and amenities were the main pains, as far as breakfast is concerned the lack of variety in the products —although local products such as chicha morada (a corn drink from Peru's Andean region) or pastel de choclo (a corn pastry) were rejected— diversity of options (products without lactose, stevia), water dispenser, and mainly the cafeteria's timetable that does not adapt to Chilean's habits. It is important to note that between the two observations, the Chile time regarding Perú hour changed from +2 to +1, which explains, in part, the neglect from Chilean students to the cafeteria's timetable issue.

The research carried out at the Solidaridad hospital points to four key factors: Uncertainty, confidence, facilities, and prices. Uncertainty was the result of the information not being available on a website or social media, the client does not immediately recognize it, and the employees do not anticipate the initial contact at the information desk. Confidence is limited by the fact that the information provided was not updated and needed to be more

accurate, there was the impression of absence of authentic interest in the client's requests as well. In terms of comfort, there were doubts about the decoration and maintenance of the facilities, toilets, access to the second floor and availability of water. Again, perceptions from different segments were widely different, only the Peruvian users' observations made notice of hospital opening hours, no heating, and prices. Although the prices of the consultations are accessible, the treatments, medical exams, and drugs prepared in situ were considered expensive by these users; their perception is related to their lower purchasing power. These concerns were discarded altogether.

The innovation games with Chilean users allowed us to eliminate pains and concerns that were not top priorities. We did four games: buy a product and service, speed boat, 20/20, and brain writing. The last game, which uses lateral thinking, provided valuable and funny ideas such as recommendations to give samples at consultations whenever possible, e.g., chiropod, dermatology, dentistry, etc. Person disguised as cat doctor to distribute pamphlets with information and interact with older people and children. A stand of information located outside the building to stimulate initial contact and greetings. Hospital timetable, noises issues, hotel amenities availability, welcome snack, exterior view, and personalized attention at cafeteria were immediately discarded at buy a product and service games. Later, with the speed boat game, food alternatives, amenities, water fountain, food variety, hotel issues, and decoration and maintenance, heating, water availability, and prices as hospital issues were disregarded as well.

At the hotel, cafeteria timetables, options of different kinds of products, and water and coffee machine amenities were not considered top priorities. Although heating, intercom, and food breakfast assortment range were main concerns and the ideas got more votes with technological solutions providing hardware tablet, or software hotel app, or WhatsApp communication with reception/concierge. The food assortment could be overcome with nearby local restaurant for non-stop light food delivery by taking orders with the same app. Some other restaurants suggestions and helpful information such as taxis might be included in the app, but they need to be tested. At the hospital, facilities decoration and maintenance, water fountain, and employee greetings were not considered top priorities. Although, second floor accessibility, information update and accurate in situ and on the internet, and real concern on clients' request were main concerns. The proposals at the design thinking sessions suggested three main solutions: a glass elevator in the middle of the main floor, a



community manager that deals with social media, and in situ screen information, as well as an automatized evaluation system of customer satisfaction after each service usage.

## Discussion

Cognitive bias is a major concern for customer discovery in NPD from the initial phases of desk search of coolhunting, netnography, participant observation, and in-depth interviews methodologies. The perception of input by the researcher depends on his/her knowledge processing skills, cultural limitations and emotional/behavioral understanding. This affects the understanding of the meaning of a social phenomenon and, subsequently, the process of ideation. Collaborative efforts, innovative culture, teamwork and organizational structure, and innovator skills, divergent thinking, nonlinear vision, and multidisciplinary integrative research can alleviate cognitive bias. In a case study developed with users, small businesses and students/universities from Peru and Chile, we looked for balanced processes of group ideation, validation, and experimentation to avoid proposing solutions based on subjective social reality.

Proposing an innovation strategy for companies in Tacna is complex. The concept of win-win business/university/consumer does not exist in a non-collaborative culture based on distrust, superstition, and informality in some cases derived from illicit economic activities.

## Conclusions

Innovation does not have to be an expensive process with uncertain results, whatever business size and resources. With experimentation-based decisions, the most relevant aspect is risk reduction by more iteratively addressing the needs/demands of the end users. The absorption capacity management that we used in the applied research implies understanding the context of the problem (pain) and consumer, to gain reflection in the exercise of the value proposition. Initial selection of the right group segment is crucial for the research success

or failure. The classical market research methodologies fulfill the role for pains definition, although they are not sufficient because observation is limited by the heterogeneity of the service delivery, users' experiences and bias, and the relevance of face to face interviews is limited by interviewer skills. However, the dynamic group sessions using gamification and design thinking are conclusive for prototyping and testing. The tacit and explicit knowledge management and service design tools based on customer discovery, customer validation, and prototyping proposals helped to create loops of feedback to support the businesses continuously improvement of their operations and strategy.

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