INNOVATING SKI RESORTS’ BUSINESS MODEL

through a human centered approach

ANNEXES

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Annex I. The Business Model Canvas

With the Business Model Canvas, Alexander Osterwalder and Yves Pigneur created a visual tool that simplifies the design of business models for both individual and collective use. This strategic management tool does not require a deep expertise in the business model field. Within just one page made out of nine boxes, it enables a collective engagement in business model design among the ones employing it, because of its simplicity and ease of use. The authors themselves describe it as a “shared language for describing, visualizing, assessing, and changing business models”.\(^1\)

![The Business Model Canvas](image)

Figure A1.1. The Business Model Canvas (Osterwalder and Pigneur, 2009).

The nine building blocks represent nine key elements of a business model: ²

1. Value proposition

Acting as the nuclei of the business model, an organization’s value proposition is answering the questions: “What value does the organization deliver to the customer?” and “Which customers’ problems/needs are being solved/satisfied?”³

The value proposition is in the central part of the Canvas. In this first block, the organization provides a valuable solution to its customers’ problems or needs. It is important to note that the existence of various customer segments may imply the existence of various value propositions that address their respective problems or needs.

2. Customer segments

In the upper right side of the Canvas, there is the customer segments block, which addresses the following questions: “For whom is the organization creating value? Who are the most important customers?”

This block establishes the customers that the organization is targeting. As mentioned before, each customer segment has its needs or problems that may be equal or differ from the other segments. Therefore, it is possible that every segment will have a different value proposition as well as sharing commonalities.

3. Channels

This third block answers the following question: “How can the organization reach its customers?”

Channels establish the interface that the organization employs to connect customer segments with value propositions. There are three differentiated channels according to their purpose: communication, distribution, and sales.

³ Ibid.
4. Customer relationships

Customer relationship’s block addresses the question: “Which type of relationships do customers expect to have with the organization?”

The relationships an organization establishes with its customers depend on the objective pursued. By and large, customer relationships focus on acquiring customers, retaining them or boosting sales.

5. Key resources

“What key resources do organization’s value propositions require? And its distribution channels, customer relationships and revenue streams?” These questions concern this fifth block.

The most significant resources that every business needs to sustain its value created. That means all five blocks in the center and right side of the Canvas (the four mentioned above plus the Revenue Streams block).

6. Key activities

“What key activities do organization’s value propositions require? And its distribution channels, customer relationships and revenue streams?” These questions concern this sixth block.

As in the resources, an organization requires a series of important actions to operate according its offering, stipulated by the five blocks in the center and right side of the Canvas.

7. Key partnerships

The upper left block addresses the question: “Which are organization’s key partners? Which key resources are acquired from them? Which key activities are performed by them?”

Partnerships enable organizations to perform activities or acquire resources that the organization would not be able to do by itself as well as optimize firm’s operations and
reduce the risk. Partnerships can provide a significant competitive advantage in both organizations’ cost efficiency and differentiation.

8. Cost structure

In the left bottom, the cost structure block answers the following question: “What are the most inherent costs in the organization’s business model? Which are the costs of key resources and activities?”

The majority of business models’ cost structures are classified between cost-driven and value-driven. While the former is appealing to customers’ desire for low-cost value, the latter appeals to those with a high-value desire. This block also takes into account costs’ typology (fixed or variable) and the presence of economies of scale or scope.

9. Revenue streams

This last block answers the question: “For what value are customers willing to pay? How they prefer to pay?”

The revenue streams block defines the way an organization captures the value it creates for its customers. They are divided into two main categories, one-time payments, and ongoing payments.

Annex II. Interviews methodology
Interacting with people and discovering their emotions requires being very natural and empathetic. Before talking about emotions or feelings, the interviewer should follow a process to gain the interviewee’s confidence. Then, instead of a Q&A interview, the researcher, inspired by Staford’s d.school methodology, decided to address these encounters more like a conversation that consisted of the following parts:

- **Introduction**: In this first step one presents the project and oneself. Asking some casual questions, offering something of oneself and being affirming helps to start building trust.

- **Build rapport**: The focus is shifted to the interviewee, who is asked for general questions. The answers to these first questions are likely to be short and simple. To extract more information, they are accompanied by a second question asking ‘why.’ Some examples of these general questions are: “*Who do you go skiing with? What is the reason you come to this ski resort? Which other activities do you do on weekends besides skiing?*”

- **Evoke stories**: This part aims to seek for memories that the interviewee finds important or special. Questions that evoke stories can bring remarkable insights into the research: “*Can you tell me about the first time you practiced skiing? What is your best/worst/most surprising/funniest skiing experience? Could you tell me a story about...?*”

- **Explore emotions**: At this point in the conversation, users are comfortable and confident enough to start talking about feeling. Examples of these questions, which can lead to users’ core motivations are: “*Which new emotions did big mountain skiing bring to you that alpine skiing did not? What does skiing mean to you? What do you feel when skiing?*”

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• Follow-up & Question statements: After a final recap, it is important that interviewees express any thought, comment or doubt that they find relevant regarding the conversation so far.

• Thank & wrap-up: The final part is the moment to express gratitude to the interviewee and communicate the relevance of their contribution to the research.

Figure A2.1. The different steps to have a conversation, seek stories and talk about feelings.  

Annex III. Description of ski resort cases

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La Molina ski resort

La Molina ski resort is situated in the Pyrenees (Spain), a public owned ski resort that would fall into the category of *weekend ski resort*. Skiers are mostly national while the presence of international skiers is unusual. However, there is a division between *locals* (people from villages nearby the resort, namely natives of the region) and *foreigners* (people from metropolitan areas, by and large from Barcelona).

The facilities of the resort offer groomed slopes and racing stadiums. Thus the majority of skiers on the slopes beginners and intermediates, while expert skiers are in the racing stadiums. Disciplines as freestyle and freeride skiing are rare due to the lack of facilities for these purposes. A facility that makes this resort distinctive is a foundation that promotes the sport among disabled people. Therefore, there is a significant presence of disabled skiers on the slopes.

The weather in this resort differs significantly from the two other cases. With mostly sunny days, the resort provides a comfortable skiing experience. At the same time, though, the lack of snowfalls results in the heavy use of artificial snow, then skiers seldom have the chance to practice off-piste skiing or ski in powder snow. Plus, the geography of that region of the Pyrenees counts with less steep and higher mountains than in the Alps.

The ambiance in the base of the resort is quite inexistnt, given that most customers own their house, and they are not concentrated at the same point. The residential areas are spread over the different villages in the valley of La Cerdanya. Also, the villages from La Molina Village are also scattered over the mountain, instead of being concentrated in a nucleon as most villages do. Thus, there is no existence of the typical après-ski experience as in the other two resorts.\(^6\)

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\(^6\) Internal PGI resources
Verbier ski resort

Verbier is a big ski resort located in the Alps, in the canton of Valais (Switzerland). Its worldwide recognition results in many people traveling from foreign countries to ski in this mecca of skiing. Their reasons to come here are the exceptional skiing conditions and the “chic” international prestige that the resort owns. This customer usually disposes of high income to spend their holidays in the resort. The stay is for a short period (one week or two). Another group of customers is people, mostly from Switzerland, who own a chalet in the resort and come to spend either weekends or longer holidays. Finally, there are locals who live nearby the resort and regularly come to ski. Verbier expanded its domain merging with other small ski areas, as Bruson, which still conserves its local customer base.

It is also a well-known destination for new modalities. It geography and facilities attract practitioners of extreme skiing modalities, freeride and freestyle skiing. This year it also held the world championships of ski mountaineering. The skiers, in this case, use to have much higher expertise in skiing, with an advanced to expert ski level. In the lower part
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of the resort, we may find beginner areas, but they do not represent as high percentage as they do in the other two ski resorts.

The weather is the snowiest of all 3 cases and the one that counts with steeper and higher mountains. The combination of its snowy weather and high mountain geography opens up a wide offer of off-piste skiing, which attracts experienced skiers.

The high presence of international tourists who spend all their week in the resort need activities when the skiing time come to its end, especially of a social nature. The village is full of services as bars, restaurants, retail shops or even discos which “keep the resort alive.”

Figure A3.2. Verbier village behind the lines of one of the resorts’ cable car. Source: Verbier St-Bernard.

Grandvalira ski resort

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7 Ibid.
Grandvalira is a ski resort situated in the Pyrenees, in Andorra. As one of the biggest ski resorts in Western Europe, it attracts international tourists with a warmer weather but without renouncing to the quality of skiing. There is a considerable amount of international tourists. However, there are two main types of customers according to their country of origin. Some come from further destinations and spend the holidays in the resort (as Russia, England or Germany) and some from neighborhood countries (Spain and France) who spend the day or maybe the weekend. The presence of local skiers represents the lowest percentage in all 3 cases.

The facilities offered by the resort are the best in the region of the Pyrenees in terms of quality and quantity. For that matter, customers who come here dispose of higher income than the ones in La Molina and similar or slightly lower than in Verbier. The resort offers skiing experiences for all sorts of skiers in the same proportion. There is a significant offer in new modalities as freeride, freestyle and ski touring. That makes this case the one where you can find the biggest variety of skiers in terms of skills and modalities.
The weather, as well as the geography, in this case, would fall in between the other two cases. Although the weather varies from season to season, in average the snowfalls are less frequent, and the snow lasts less in the mountains (given a warmer weather) than in the Alps region. But still, Andorra counts with one of the best weather conditions for skiing in the Pyrenees. In terms of geography, it is both less steep and high than in the Alps, but one of the best for skiing in its region.

The resort, due to its big domain, does not have a main base. It counts with six different bases: Pas de la Casa, Grau Roig, Soldeu, El Tarter, Canillo, and Encamp. This fact makes difficult the presence of après-ski, although the base of Soldeu and Pas de la Casa is well known for their après-ski atmosphere. Another feature that attracts users in Andorra is the lower taxes compared with their neighborhood countries. That is a reason some skiers take advantage of their skiing trip to make some shopping or the other way around; they take advantage of their shopping day to do some skiing.³⁸

³⁸ Ibid.
Annex IV. Backing of findings

In this section, the findings from the ethnography research in the field have been thoroughly compared with other sources of data as existing literature and quantitative data. As mentioned in Chapter 5, the framework to classify the findings was the eight-stage model of Maslow’s hierarchy of needs.

In his work the hierarchy of needs, the American psychologist Abraham Maslow affirms that people’s motivations source is the willingness to achieve a series of common needs (Maslow, 1943). In his works’ first version, the author established an order among five needs (Maslow 1943, 1954). After fulfilling one need, humans seek to fulfill the next one situated in a higher position in the hierarchy. Even separated in different priority levels as shown in the following two figures, the “hierarchies are interrelated rather than sharply separated” according to the author. This first five stage model was further developed in a seven and eight stage models which included additional needs (Maslow, 1970a). Cognitive and aesthetic needs were added in the second version (seven stage model) and transcendence needs in the last one (eight stage model). 9

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Figure A4.1. Maslow eight stage model depicted in a pyramid (Maslow, 1970).  

<table>
<thead>
<tr>
<th>Maslow’s hierarchy stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Physiological needs</strong></td>
<td>This first set of needs is the required for a proper functioning of the human body. They are considered the highest priority needs, so humans will meet these priorities before any other. These needs embrace: metabolic requirements (air, water and food), protection from the elements (clothing and shelter) and sexual requirements.</td>
</tr>
<tr>
<td><strong>2. Safety needs</strong></td>
<td>The need to avoid anything that can threaten human safety both physically and mentally (armed conflicts, natural catastrophes, family violence, sexual or childhood abuse, etc.).</td>
</tr>
</tbody>
</table>

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10 Image source: http://www.thepeakperformancecenter.com (last accessed 05/15).
12 Ibid.
<table>
<thead>
<tr>
<th><strong>3. Love and belongingness needs</strong></th>
<th>This third level involves the individuals’ sense of belonging and acceptance among social groups. These needs are met through the creation and posterior maintenance of emotional relationships. Otherwise, humans may experience loneliness, social anxiety or clinical depression. They can be classified in friendship, intimacy, and family.¹³</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4. Esteem needs</strong></td>
<td>Maslow made a distinction between two versions of the needs of this fourth level, a lower and a higher version. The needs in the former version are fulfilled when the individual is accepted and valued by other human beings, which includes status, recognition, prestige or attention needs. The higher version is the acceptance and valuation of oneself; that is to say, self-respect and self-esteem. This last version includes mastery, self-confidence or independence needs.¹⁴</td>
</tr>
<tr>
<td><strong>5. Cognitive needs</strong></td>
<td>This level includes humans’ desire of acquiring new knowledge to increase their intelligence. All the actions are aiming to get a better understanding of their reality forms part of this level, as the need to learn, explore or discover.¹⁵</td>
</tr>
<tr>
<td><strong>6. Aesthetic needs</strong></td>
<td>These level’s needs are met with aesthetically pleasant experiences; that is to say, by appreciating and searching beauty, balance, form, etc. The most common source of these experiences, but not the only one, is nature.¹⁶</td>
</tr>
<tr>
<td><strong>7. Self-Actualization needs</strong></td>
<td>This level consists in the realization of oneself full potential or quoting Maslow himself “What a man can be, he must be”. According to the author, to meet this need and therefore</td>
</tr>
</tbody>
</table>

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¹³ Ibid.
¹⁴ Ibid.
¹⁶ Ibid.
accomplishing self-fulfillment, one must master (not just achieve) the previous needs.  

8. **Transcendence needs**
This last level of needs, sometimes referred as spiritual, when fulfilled leads humans to another level of being. They experience the so-called feelings of integrity, not being an individual anymore but part of a whole. Therefore, it involves the need to help others to achieve self-actualization.  

Table A.1. Description of the eight Maslow needs according his work: The Hierarchy of Needs.

In terms of users, in the table below are described all the users of the identified needs within the research:

<table>
<thead>
<tr>
<th>User</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>First timers</td>
<td>People who try skiing out for the first time</td>
</tr>
<tr>
<td>Learners</td>
<td>People who already tried skiing out and were willing to improve their ski technique</td>
</tr>
<tr>
<td>Pro skiers</td>
<td>Experts or professional athletes who count with lots of experience in the activity</td>
</tr>
<tr>
<td>Kids</td>
<td>Skier practitioners aged from 5 to 14. Their participation in skiing must be accompanied by an adult</td>
</tr>
<tr>
<td>Youth</td>
<td>Skier practitioners aged from 15 to 25. There is a significant difference between teens and young adults. Mainly teens (15-18) are not totally autonomous because they are under the legal age and do not have enough economical means. Young adults (19-25) might depend economically on their parents</td>
</tr>
</tbody>
</table>


| **Parents** | They have kids and go ski with them. These kids may be from different ages, from babies to youngsters |
| **Adults** | Aged from 30 and above. They may or may not have kids |
| **Groups** | Two or more people skiing together |
| **Off-piste skiers** | People with the willingness and skills to ski off-piste limits. |
| **Ski touring skiers** | People who practice a skiing modality that does not require ski lifts to ski downhill. Instead, they hike up the hill by themselves putting *skins* under the sole of their skis, specially designed for this modality |
| **Freestyle and Big Mountain skiers** | Freestyle modality is when skiers or snowboarders perform a series of tricks that mix skiing and acrobatics. Big Mountain is a mix of freestyle and downhill skiing in the backcountry, usually employing ski lifts, helicopters or hiking |
| **Bored skiers** | Skiers that find the activity of skiing on the slopes monotonous and predictable |
| **Dog owners** | People who own a dog and have an interest in skiing |
| **Non-skiers** | They don’t practice skiing either those who never tried it out or those who did but then gave up |
| **Passionate Music skiers** | They love listening to music in many situations, also when skiing |
| **Reckless skiers** | Skiers that take too much risk and are unaware of it, endangering themselves and other skiers. Young men represent a large percentage of them |
| **Anxious skiers** | Those skiers that are frequently tense, annoyed or afraid when skiing |
| **Traveler skiers** | Skiers who have to travel long distances to ski, regardless the means of transport |
| **Families** | Parents and kids who practice skiing together |
Lazy skiers | Skiers that find tough to do activities that demand a minimum extra effort or physical exercise
---|---
Sociopath skiers | For these skiers socializing is their priority number one. They have the need to communicate to the world what are they doing at any given moment
Lift users | Every person that employs a ski lift as a mean of transport, whether she is skier or non-skier

Table A4.2. Description of the users identified in the research.

1. Boredom and anxiety on the slopes

The state of flow and skiing

According to a psychology study published by Hyun-Woo Lee and colleagues (2013), there are four key factors that produce positive psychological effects on human beings when skiing.¹⁹ These factors, displayed in the following figure, are interrelated among them as shown:

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These factors are abstract concepts that might be difficult to contextualize in an everyday skiing situation. The following figure exemplifies a series of items, numbered from 1 to 12, associated with every factor. These items contextualize and give a clearer understanding what of these abstract concepts are about.

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Factors and items

Pleasure
1. I go out for skiing to feel euphoric.
2. I love skiing/snowboarding as it excites my senses.
3. For me, skiing/snowboarding is good as a pleasurable activity.

Flow
4. I get lost in skiing/snowboarding activities that time passes quickly.
5. When skiing/snowboarding, I am in a zone not conscious of myself.
6. I am very absorbed in skiing/snowboarding that I lose sense of time.

Involvement
7. Skiing/snowboarding is very important to my life.
8. I spend a lot of time thinking about skiing/snowboarding.
9. Skiing/snowboarding has a lasting meaning to me.

Satisfaction
10. My experience of skiing/snowboarding was fulfilling with fun.
11. I am satisfied with my experience of skiing/snowboarding.
12. Overall, I am satisfied with my experience at this ski resort.

Figure A4.3. The different items through which the authors determined the four factors, interacting with users in a ski resort.\(^{21}\)

According to the distinguished psychology and management professor Mihaly Csikszentmihalyi, to experience a flow state, humans must be in perfect balance between their skills and the challenge they aim to tackle. Boredom steps in when skills surpass the challenge while anxiety does when it is the other way around.\(^{22}\)

\(^{21}\) Ibid.

Back to Hyun-Woo Lee and colleagues, the imbalance between skills and challenge breaks the state of flow (engagement). Given their interrelationship, this affects involvement (meaning) and satisfaction (happiness). All the needs discussed in the main themes of Boredom on the slopes and Danger on the slopes result in anxious or bored skiers, reducing their engagement with skiing. In the worst cases, they give up the activity and taking up another activity that fulfills their needs better.

Same group, different skills

That said, the state of flow is essential for getting the positive psychological effects of skiing. At the same time, skiing reports high social benefits. However when the skiers within the same group have different ski levels, they are forced to choose between the

state of flow and the social benefits of skiing. The following situation illustrates well the consequences when a group of people with different skills goes skiing together.

A group of 4 people, two boys (the boyfriends) and two girls (the girlfriends and sisters). They had different skills, 2 two boys and one girl had an intermediate level whereas the other girl was a first timer. So they split the group, the guys go to do intermediate slopes (they chose the state of flow), and the girls stay in the beginners slopes (choosing the social benefits). The guys said: “Going with somebody with a lower level than you is a nightmare. You get bored because you have to wait for them all the time. The best is skiing with people from your ski level.” The girl of intermediate level said: “I’m getting bored right now, but it’s okay.” Indeed, teaching a first timer may be hard, tiring and especially boring for the instructor. Even the ones who dedicate professionally to this task, ski instructors, may fall in this state of boredom. As the high school student Pere said: “When I had a blue slope level and my snowboarding instructor sometimes brought me to black slopes.” After a while, the boys came back, and all of them went to do intermediate slopes, even though the first timer was not prepare to do so.

Another case is Susana, an eight years old girl, is very tall for her age. Because of that reason, in last year’s ski week she was told to join the advanced level ski group, with kids older than her. She spent the whole week going down for slopes that were too challenging for her skills. That experience made her reject the activity of skiing, and this year skiing week she stayed at school joining the workshops instead of going to the ski resort.

In most of the cases observed, beginners feel anxiety more often than advanced in the group feel bored. This excess of anxiety in the skiers may result in trauma or rejection of the activity.24

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2. The cost of skiing

According to a study published in March 2013 by the ski industry expert magazine Domaines Skiables, the average skier in the region Rôhne Alpes spends 117€ a person a day.

All the above makes clear that the average person can only afford skiing very few times a year, no matter how enthusiastic he or she is about practicing the activity. The following figure shows the relationship between household income and participation rate. The highest salaries represent almost a half of the skiers and more than a third of the snowboarders.

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Lodgment

Owning a house in a ski resort has a lot to do with participation. In the following figure, it is observable how about 3 out of 4 participants own a house.

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This fact conflicts with the current global situation. Due to the housing crisis, not many houses are going to be neither built nor purchased anytime soon. Plus the generation coming (Y) is not willing to own cars and houses as the previous generations did. Josh Allan Dykstra, a member of the Young Entrepreneur Council (YEC) argues that “Ownership just isn’t hard anymore. We can now find and own practically anything we want, at any time, through the unending flea market of the Internet. Because of this, the balance between supply and demand has been altered, and the value has moved elsewhere. The value now lies in the doing.” Many youngsters who do not own a house in the mountains prefer to do a round trip by car the same day to the ski resort, rather

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27 Ibid.
than spending the night. The ones that their families already own a house use to invite their friends in there.

An ever more popular way to travel among youth are Couchsurfing platforms and the like. Going back to Dykstra, these platforms allow its users do something else than sleep as you would do in a hotel room. It allows sharing live experiences with the people you meet, fostering cultural exchange and mutual respect according to Couchsurfing website.\(^\text{30}\)

**Transport**

As mentioned above, Millennials are not keen on the idea of owning a car, or at least less than previous generations were. However, the car is quicker, more comfortable and more flexible than train or bus. That is why many youths are more and more opting for sharing their empty rooms in their cars. They do so by word of mouth, contacting friends or colleagues or at a broader level, using internet platforms as Bla Bla Car, which connects drivers and passengers.\(^\text{31}\) Some skiers in Switzerland use a hybrid between owning a car and using public transport. Mobility car sharing in Switzerland is an alternative that allows renting cars in different stations by hours or kilometers.\(^\text{32}\)

**Ski pass**

Even though it is not the most significant cost of all, a lot of skiers mention it when they want to argue that skiing is expensive. A daily ski pass can vary starting from 20€ until 90€ and above depending on where you ski. The prices are according to the quantity and quality of skiing offered, as well as the region. In front of a wide offer, skiers make a choice taking into account all these factors.

When it is about ski pass, there is a big difference between seasonal pass holders and daily pass holders. The former group does not care spending little time skiing given they already paid for skiing any days they want throughout the whole season. Some even

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arrived the resort as late as 15h in the afternoon, enough for doing 3 or 4 runs. Daily pass holders’ behavior is the opposite. Most of them feel the need to amortize the ski pass skiing, with all its underlying risks already mentioned in the previous theme.

**Ski lessons**

Since ski lessons are not mandatory for skiing as it would be the ski pass, most beginners who struggle with their economy do not hire a ski instructor. This choice can have a very negative impact on the first skiing experiences of a person, explained further on in the next theme: ski learning.

Some families come to the resorts to show kids the snow. Travelling, lodgment and nutrition costs are a must. However in some cases, skiing is also optional. If parents want to bring kids to the snow, there are alternative ways of going sledding or snowballing, which are significantly cheaper than skiing. In case parents cannot ski, they must bear the cost of a ski pass plus ski lessons plus equipment rental. Thus kids from families who live far from a ski region and with a modest economy may go to the mountains, but most probably they will not ski.

**Ski equipment**

Ski equipment interacts with a skier in many ways. It plays an important role in the skiers’ performance and sociability. Nowadays there is very good quality equipment available. Sadly as good as expensive. Plus skis and boots are just a part of it: clothing, protection gear, goggles, backpacks, gloves, poles among many another kind of complements. The overall makes a pretty nice figure if one wants to have its ski equipment and clothing.

Another option is renting, which turns out to be a good option if you are just skiing a few days a season. More and more ski resorts are renting everything, from skis to gloves. The reason of that, as it will be explained further on, owning your ski material presents some disadvantages. A third option comes from portals like GearCommons, where “owners” and “renters” of outdoor sports gear get in touch and make a deal.33

The disadvantages when owning equipment encountered in the research are:

- Maintaining and fixing your skis

Skis, as cars, need to be regularly maintained and fixed whenever necessary. The wet and cold snow makes maintenance very important, and a must in ski competition. Skis can also be damaged in the slopes, especially if hitting rocks or debris found on the slopes.

While competition skiers know whether their skis are well prepared just looking them and touching them, the mainstream skiers realized how well are skis working when he or she is skiing on the slopes. What is more, in days of icy snow it will be easier for them to figure out whether they have the edges well prepared. As well in days of wet snow will make them easier to check whether their ski soles need wax.

Contrary to the competition skier, the mainstream skier does not maintain or fix their skis, they bring them to a specialized shop. Bringing the skis to a specialized shop is time-consuming. People need to go two times, one for bringing them there, and another for taking them back. For people who own a house in the mountains for the weekends, it is even more complicated. They usually arrive a Friday night (when shops are already closed). They need their skis for Saturday and Sunday to ski and leaving Sunday afternoon sometimes they lack time to bring their skis to the shop. Another option is bringing them for the week in a ski shop in their city. But this last option would imply carrying the skis back and forth in the car that makes the traveling a bit inconvenient as previously mentioned.

- Since you are home until you get your skis on

Fortunately for the skiing industry, skiing is so appealing that skiers are willing to spend hard time getting ready to do this activity. The following witness of a parent explains the mandatory procedure his family follow before start skiing. “Putting your clothes on, helping kids to put their clothes on, charging all the equipment in the car, put your boots on as well as other equipment, help kids to put their boots on as well as other equipment, walk with the uncomfortable boots until the chairlift while your carry the skis and poles
(yours and your kids’)... And finally, that sweet moment when you put the skis on the snow and take the chairlift, although you are already exhausted.”

3. The learning process

Skiing is a party with invitation

This metaphor illustrates that almost everybody in their first time skiing go with other people already initiated. Children and teens are initiated in skiing through their parents, family, friends or their school or high school with ski weeks and the like. Adults on the other side resort mainly to friends, or co-workers or classmates, either in informal appointments or events organized by companies or universities. This barrier of “nobody to go with” has been quantitatively contrasted in other research, as the following figure illustrates.

### The Results in the 2011 Participation Study

#### Reasons for NOT Participating in Snow Sports During the 2009/2010 Season

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unfit</td>
<td>5%</td>
</tr>
<tr>
<td>Changed Residences</td>
<td>7%</td>
</tr>
<tr>
<td>Heath</td>
<td>7%</td>
</tr>
<tr>
<td>Weather</td>
<td>9%</td>
</tr>
<tr>
<td>Don’t Want to Get Injured</td>
<td>10%</td>
</tr>
<tr>
<td>Age</td>
<td>12%</td>
</tr>
<tr>
<td>Prefer Activities Closer to Home</td>
<td>13%</td>
</tr>
<tr>
<td>Prefer Other Sports Vacation Instead</td>
<td>14%</td>
</tr>
<tr>
<td>Decreased Vacation Time</td>
<td>17%</td>
</tr>
<tr>
<td>Change in Family Situation</td>
<td>18%</td>
</tr>
<tr>
<td>Increased Work Commitments</td>
<td>18%</td>
</tr>
<tr>
<td>No One to Go With</td>
<td>23%</td>
</tr>
<tr>
<td>Increased Family Commitments</td>
<td>26%</td>
</tr>
</tbody>
</table>
Ski as a tradition

The term ‘ski tradition’ was often employed by many users, and what it comes to say is that skiing has been a kind of legacy. This because parents who practice skiing, teach their kids how to ski. Likewise, parents who are not familiar with skiing usually do not. Like many regions in Switzerland, the Jura has a strong skiing tradition. Céline, who was born there, told her story. She started skiing 30 years ago when their parents, who were skiers, introduced her to skiing. All her friends in town went through the same process.

Instead, in the schools visited during the research 2 out of 3 elementary school students and just 1 out of 3 high school students took part in the skiing week this year. Looking for patterns, it emerged a relationship between parents’ familiarity with skiing and kids who never tried skiing out or did it as an isolated event. All the cases observed of kids who are not able to ski; their parents are not either. Most of them also match with another trait; they are sons of immigrants. Because of their different origins and traditions, their parents see skiing as a foreign activity and never tried to learn.

Kids skiing when their parents cannot

Some kids in the school and teens in the high school, who never skied before, said things like “skiing does not interest me” or “I don’t like snow.” A ski coach and mother of two girls told me “For kids to like skiing, and therefore for them asking parents for it, first they need to try. At least once.”

These are the main barriers for parents to bring their kids to ski:

- Economic reasons

Most families who leave their hometowns because of either security or economic reasons or both. They usually struggle to find even a decent job and money is not

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35 The skiing week it is an initiative that comes from schools in skiing regions which consists in fostering the practice of winter sports for children or teens.
abundant. Therefore, activities like skiing are upstaged by others that require less economical resources like sleighing, snowballing or hiking.

- Lack of skiing skills and knowledge

Sara, a girl whose family comes from Romania told me about her case "*My dad works all week even on Saturdays. So on Sunday he wants to go outdoors with all the family, but he prefers to do an activity that he know how to do.*” Sara’s case matches with other immigrants I talked to. For parents, it is hard to start skiing when they are already adults, mainly because they are afraid of suffering injuries or embarrassed. As kids can’t go by their means, they see themselves constrained to the weekend activity chosen by their parents.

Dario, a teen from the high school, arrived two years ago in Cerdanya. He is coming from a part of Spain where is not possible to practice skiing. In his words "*I’d like to go skiing, but my parents don’t know how to, and they have no intention to bring me there.*” Then I asked him whether he considered the option of going skiing with someone else. He continued "*I went once with friends that already were able to ski. I felt discriminated while being with them and afterward they left me alone.*” Along the many research cases of beginners who were left behind emerged, and that means to them a big barrier to getting into skiing as discussed further on in the category *First timers left behind.*

**First steps in skiing**

As mentioned in the previous category, skiing is a very technique activity. The high skills barrier demand discipline and perseverance for a successful initiation to skiing. The main factors that affect first-time skiers are the following:

- Lack of control

First timers are terrified of the idea of hitting somebody or something. This fear of hitting people or objects concerns the powerlessness to break and control your speed explained in the following point. The lack of technique for breaking desperate first-time skiers. In the field, several people were observed employing unusual ways
to break. The most common is to throw oneself to the floor, which does not precisely please the employer of that method. Another technique not as common is using one’s hands. They bent down and used both hands to break.

All the above might be linked with the imaginary ski resorts drawn by some kids in the elementary school. One student drew special kind of poles that allowed to break. In a similar line, another student drew a steering wheel attached to the skis. In short, first timers need either a way to break down in case they lose control or a way to reduce or eliminate the hazards of hitting people or other objects.

- Afraid of injury

In his first time skiing in Grandvalira, Jaime told a common phrase that is very often heard, especially among adults and sport. “On Monday I need to go to work, I cannot afford injuring myself!” The perception of injury risk is far higher among adults than among kids. This reaction is fairly reasonable because first, adults are more likely to injure themselves, and it takes longer to recover. Second, the consequences for an adult that skips one day at work are usually more dramatic than for a kid at school.

- Traffic of fast skiers

When people cannot even control themselves, let alone noticing what is going on around them. The presence of skiers that may go fast in beginner slopes can difficult even more the learning process. Many interviewees choose to learn in the ski resort where the beginner slopes are isolated from the rest. Thus, they can learn relaxed and not bothered by skiers going fast.

First timers left behind

Let’s go back to Dario, the kid from the elementary school that felt discriminated and was left behind by his friend. As described in the Same group, different levels, more often than not the more skilled people in the group refuses to be bored teaching the inexperienced ones. Their easiest alternative, as in Dario’s case, is to leave their first timer friends on a beginner slope while they go to look for thrill in difficult slopes. Jaime is another good example. He and her girlfriend went skiing together for the first time.
However, she learned quicker and left him alone in the beginner’s slope. Leaving a first timer alone makes even harder to learn, because there is no one around for technical advice, emotional support and sharing the experience.

No ski instructor in your first time

Not hiring a ski instructor in the first time skiing is a common practice. Céline, who is running a hostel in Verbier, explained that many young customers that go skiing for the first time do not hire a ski instructor. “I am shocked that these guys, who never skied before, go to the slopes without any ski instructor or guide. Then is no surprise that sometimes they have accidents.”

The idea of not hiring a ski instructor from the view of an expert skiers seems completely foolish since danger perception varies with skiing expertise. Below are the principal reasons not to hire a ski instructor:

- Expensive

Skiing involves a lot of costs. Without ski pass is not possible, beyond all doubt, practice downhill skiing. Without renting skis and essential material, (if not owning ones) is not possible to ski either. But without a ski instructor there is still the chance of skiing, although people have to grapple with a tougher learning challenge.

- Pride

Jordi, an experienced mountaineer, told about what meant hiring a mountain guide to go mountaineering in the old times. According to him, this action was seen by other practitioners as a total ignorance about mountaineering. He says, “you were a novice, a newcomer, and in a manner of speaking you did not belong to “the club.””

He continues, “It was seen as a bourgeois thing, socially and economically speaking.”

A similar thing happens with skiing, where a similar vocabulary as “I don’t want to seem a novice” was employed by users to justify their choice of not hiring a ski instructor.

- Group pressure
Skiing with people who already has some notion about skiing is likely to be a guarantee of not hiring a ski instructor. However it is not easy that the group members will teach you how to ski:

- Some cases were found where one of the group members offered first-timers to teach them. Once in the slopes it turned out that the “teacher” has not enough experience to ski him/herself, not to mention to teach others.
- The other option is that the group members cannot resist the boredom feeling and eventually leave the first timers behind, as mentioned in First timers left behind.

- Privacy

In an ever more individual society, the presence of strangers is not welcome by some people. A couple in La Molina were spending their first weekend together on the slopes. They said that they wanted to be together, and it didn’t matter them if learning took them a bit longer. They also mentioned that the presence of a ski instructor would embarrass them and be a bit more tense.

4. Skiing is social

Creating and sharing content

Social media is the ultimate way of socialization. It is widely used by skiers to share their experiences with the ones that cannot be around at that given moment, especially youth. One of the students in the high school highlighted what means for youth sharing content on the web when he mentioned: “You need a lot of time to choose the right picture to post.” That gives a clear example of how teens care about what they share on the internet and its important role in their lives. For ten years, The Microsoft researcher Danah Boyd has been carrying out research on the social media role in teenagers’ lives. Boyd found out that in an ever more busy life of teenagers, with obsessive parents who fill up their schedules with activities, do not let them wander off with their friends like
in the old times. That is the reason kids resort to the social media as a way to keep in touch with their friends.36

Point-of-view (POV) videos are the last trend in skiing as well as in other activities. One can notice the growing influence of this devices in people’s lives by looking at how GoPro promotes itself on social media. This brand, for most the reference for action cameras, shows that almost, not to say all, aspects of your life can be recorded and, therefore, shared on the web using this type of video camera.

Figure A4.8. Like bungee jumping, nowadays almost any activity can be recorded and will last forever thanks to action cameras like GoPro.37

Thanks to action cameras and social media, one has at hand the ability to create content and share it in a dimension it would have been inconceivable in the past.

For many, the content (either pictures or videos) created during their skiing experiences have a high emotional value. Possessing this media content allow them to revive and share those experiences. Nora usually spends a skiing week a year with her family in the Alps. She always remembers when his dad took pictures of them and each day they

choose the best picture of all that would become “the picture of the day.” In a similar line, more and more ski resorts are offering the photography service. In different spots on the slopes, a photographer takes pictures of the skiers to sell them at the end of the day, as All Mountain Photo.  

**Communication within the resort**

In various occasions, people within ski resort employ walkie-talkies to communicate with a whole group, mainly for two reasons:

- It’s cheaper than phone calls, especially if the user is skiing in a foreign country.
- All people within the group are communicated. In a phone call, the communication is only two sided.

**Youngsters’ dilemma: Parents or Friends?**

The skiing industry has focused on promoting skiing as a family activity, given that the payers (parents) were asking for an all family experience. However, youths do not see it the same way.

Mary’s best skiing memories date from when she was seventeen (right now is in her forties). Back then she went on skiing holidays with her high school friends, which were organized by teachers but the students had the freedom to go on their own. According to her “When you went on your own, you could try more things and learned more and had more fun.” The students in high school also claimed that freedom of choice. According to Jordi: “Parents tell us which slopes to go, when to stop and whether something we are doing is too dangerous, or we are doing something wrong. Honestly, sometimes it’s a drag.”

Vince, 26 years old, used to go skiing with his parents about two weeks per season. But four years ago he decided not to go with his parents anymore, and he had to stop skiing because he did not have enough money to go on his own. Eleanor, 24 years old, argues

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that she does not go skiing as often as she did in the past. She is unemployed and does not have not enough money. Plus she dismisses the alternative of borrowing money from her family because according to her skiing is leisure, not something serious that requires the economic help from her parents.

This two cases point at one problem that youth has nowadays. Most of them prefer skiing with their friends, but they do not have enough economic resources. It is important to make a distinction between adult youth, as Vince and Eleanor and teens, as Mary and Jordi. The latter do not have the choice to do things on their own. The fact of being under the minimum age makes them completely dependent on parents when skiing.

That was the case of Noemi, a girl who wanted to stop skiing because she was tired. As her parents were willing to ski more, she decided to wait for them next to their car in the parking lot. As she was not able to drive yet, she could not get into the car, and she had to wait in there until her parents were back. She expressed anger, frustration and helplessness.

**Link with non-skiers**

Not everybody in a ski resort can ski. These people in the resort opt for different activities that allow them to fill up their time while their acquaintances are skiing. Below are described the cases observed in the research.

a) Dog owners

Many people along the research chose practicing human-powered snow sports, as ski touring or snowshoeing, instead of skiing because of one reason: those are dog-friendly activities. Companies like Ruffwear, a manufacturer of outdoor canine gear, show the increasing interest from society to bring their dogs to even more demanding outdoor situations. The *My dog is my...Share Your Adventure* Ruffwear’s campaign is according to them, a tribute to the dogs we love.40 As they mention in their website: “For each of

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40 My Dog Is My... A Tribute to the Dogs We Love Ruffwear’s promotional video https://www.youtube.com/watch?v=ep8daoZQvwY (last accessed 05/15).
us, the relationships we have with our dogs are unique – shaped by the adventures we share."

b) Parents with babies

Another fact is the role man and woman play with babies. If families have different aged children, usually the father bring the kids to the snow while the mother stays off the slopes with the baby.

c) People who can’t ski

- Stay in the bar

Many people who cannot ski opt to wait for the ones skiing in the bar. That is the case of Monica, a mother who waited for her husband and daughters reading a book while she had a coffee. When her family was back, they had lunch together.

- Snowshoeing or hiking on the slopes

The ski resorts have special trails next to the slopes for people who prefer doing these activities rather than skiing. That was the case for Sonia and her co-workers, who planned a weekend in a ski resort with many people in the company. They changed the initial idea of going skiing for a snowshoeing activity because some of them were not able to ski.

- Sledding in the slopes

In some ski resorts, it is allowed to use sleds. It is an activity open to people of all ages, from kids to adults.

In St. Cergue. In the base of the ski resort, there was a big esplanade where lots of families gather together to spend the day there. People were also playing with the snow, either snowballing or building snowmen and other snow constructions. All these people find a way to enjoy the snow without the means or skills that skiing requires.

41 My Dog Is My... Share Your Adventure Ruffwear’s campaing
http://dogblog.ruffwear.net/2014/04/16/my-dog-is-my-share-your-adventure/ (last accessed 05/15).
• Riding the lift

Other decide that the way up with the lift has something attractive, mostly the landscape view. As a German grandmother and her three grandsons who spent the morning riding cable cars in Verbier. The kids were too young, and the grandmother was too old to go skiing, so she was babysitting the kids while their parents went skiing.

• Skiing for pregnant

Sometimes even if people has enough skiing skills, the physical condition may be optimal to do so. That is the case of people with either broken arms or injured knees or pregnant. A young girl in Verbier decided to go XC skiing instead of alpine skiing because she saw the latter too dangerous given her condition.

• Professional athletes’ contracts

There are cases than even they want so badly practice skiing they cannot. An interviewee who was a professional football player went to spend the day in Zermatt. She was born in a village close to a ski resort, so her skiing is pretty good. However, she did not ski because in her contract, the football team does not allow her the practice of skiing because there is a risk of injury.

Combine duty and passion

The atmosphere in ski resort bars brims over with excitement, noise from large groups talking out loud and kids running with ski boots and yelling. It seems impossible to carry out a task that requires focus in this environment. However, few users manage to do so, as the following examples show. In Verbier, a man that was in the bar was sitting alone with his laptop, a notebook and his earphones on. He was talking, having a conversation and taking some notes down at the same time. For the way he behaved he was fairly focused, even a bit anxious. His job allowed him to work remotely, so he took advantage of that going to the ski resort. This lead user sheds light on what could be an opportunity
For ski resorts in the future, given that it is a fact that working remotely is becoming a more and more common practice.\(^{42}\)

When other users were asked about doing work or study within the ski day, they were very confused because they never thought about that possibility. Others had clear that they prioritized to unplug when skiing, trying not to think of anything that takes place in the office, university or high school. Given the few cases observed in the field and to acknowledge the magnitude of this opportunity, the number of people with that need should be studied quantitatively in further research.

**Parents and kids in the bar**

Parents and kids love each other so much, but sometimes adults need some time on their own. Some families decides to split tables while eating, with the kids and adults eating in different tables. However for kids is not easy stay quiet on the table. Kids like playing outside with snow or even inside the bar, while parents are still seated at the table. From their position, it is hard for parents to look after their kids. In the resorts visited during the research, even in the family oriented ones, there was no a playground concept as there is in *McDonald’s* or the like.

Figure A4.9. McDonald’s playground for kids.\footnote{Wikipedia. https://en.wikipedia.org/wiki/McDonald's (last accessed 05/15).}
Annex V. Ideation guidelines

The following guidelines were stipulated for the ideation sessions. They are inspired by Kelley’s brainstorming advice and adapted to this research particularities:

1. Well-honed problem statement

Focusing participants’ effort in a reduced number and well-defined needs allowed to tackle manageable problems and not to be overwhelmed by an endless list of needs to solve. Plus the time that the team is productive is limited. Therefore, the number of needs addressed each session was around three.

Participants received a document with details about the needs to be addressed that facilitated the understanding of those. Plus writing down the POV problem statement on a white board helped to keep the team on track and focused on the session’s objective.

2. Simple rules

The last thing to do before getting started with the ideation was explaining the rules the team had to stick to during the session. These rules aimed to give a simple and concise set of behaviors that would improve the quality of both the process and the outcome of the brainstorming. For the team to remember them, rules as the following were stuck to the wall in big size letters and bright colored papers. “Go for quantity,” “one conversation at a time,” “be visual,” “build on others’ ideas” or “encourage wild ideas” were some of the rules employed.

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3. Build and jump

Besides participating actively in the session, the researcher adopted a mediator role to guide the flow of the session’s discussions. This function has a significant impact on the outcome of the session, and it is based on two main actions. In front of an ongoing discussion, the mediator can decide whether to dig deeper in the current one (to build) or to stop the current discussion and set a new one (jump).

4. Space matters

Space can enhance or constrain team’s creativity and expression. In the extent possible, some measures were taken to make the space a bit more ideation-friendly.

According to Kelley, too clean or ordered spaces may constrain people to express themselves. That is because they might be worried to mess up the place. Walls were covered with paper to enable people to draw anywhere. Plus different objects (some of
them related to skiing) were brought to let people use them to express their ideas or inspire them.

Another important thing is the setting of the participants. During all the session, they were positioned in a rounded circle or similar. This equal distribution encouraged them to participate and built team cohesion.

5. Brain warm-up

Before getting started with the session, the team members introduced each other and did some brain stretching exercises. According to participants’ feedback, these three warm-up exercises helped them to feel more comfortable and set a playful and creative mindset:

- **Scope words:** A specific scope was chosen, for example, car brand names. Then each team member had to mention a car brand name, but without employing those already mentioned previously since the game started.

- **Collective phrases:** The team had to create phrases, but every member could only contribute with one word. The next participant had to think of a word that makes sense with the ones mentioned so far. For example: “Today” (p1) “we” (p2) “are” (p3) “not” (p4) “going” (p5) “to” (p1) “eat” (p2) “spaghetti” (p3) …

- **Yes and...:** To encourage collaborative thinking, in this exercise participants would build on others’ ideas. By promoting the use of the expression ‘Yes, and...’ and avoiding the ‘Yes, but...’ participants respected and leveraged others’ ideas. For example: “We are going to cross the Atlantic” (p1), “Yes, and we are going to use a boat” (p3), “Yes, and it will have a solar panel” (p4), “Yes, and that solar panel will allow to have the internet to talk to our families” (p5), …

6. Get physical

It results easier to express oneself using more than just words and drawings. As it will be explained thoroughly in the next chapter, building physical representations of ideas can help to understand and develop ideas. Because of that, participants counted with some materials to build their ideas in three dimensions.
7. Keep it informal. Bring food and drink

As mentioned in the fourth point, a too serious space can discourage participants to express themselves fully. So does a too serious behavior or formalisms. A playful and friendly atmosphere contributes to let creativity flow. Bringing food and something to drink helped significantly.

Figure A5.2. Ideation session.
Annex VI. Ideation outcomes

**Redesigned first-time experience:** First-timers, especially if they are adults, do not enjoy their first skiing day. This solution aims to provide a more autonomous, easier, funnier and safer first ski experience throughout a smooth transition. Inspired in bicycle training wheels, the solution consists of a series of support systems that keep skiers balance and avoid falls. These systems range from full support to minimum support. The idea is that first timers change gradually from one system to another, decreasing the external assistance and eventually skiing by themselves.

**Reality shows for kids, youth and ski professionals:** The success of television series like *MasterChef Junior* shed light on this idea. By adopting these sort of programs in the ski industry, skiing can be promoted among the youngest generations. At the same time, professional skiers get involved as well.

**Crowdsourced slopes information by ski resort users:** This solution consists of leveraging the big number of skiers across the ski domain. Through the appropriate platform, they can update slope conditions information at any given moment with text, images or videos.

**Active chairlifts:** A redesigned chairlift allows skiers to move both lower and upper parts of their body with a series of exercises. This physical activity keeps them warm for the next run.

**Warm-up zone in lifts’ upper platforms:** A signalized and adapted area located on the upper platform of a chairlift. It includes signals explaining specific warm-up exercises for skiing.

**Ski mall:** This solution is one of the three ideas that have been developed in detail in the next chapters. A building at the base of the resort offers a series of services as the ones found in shopping centers: cinema, fitness, fashion shops, dinner... The building also counts with a space where skiers can have access to showers and changing rooms. Plus
they can leave their skiing clothes and equipment there and not carry them back and forth from the resort to their house.

**Redesigned learning experience:** Instead of a ski instructor and its learners skiing all over the ski resort, this solution proposes a slope for the exclusive use of learning. Every run there is only one skier at a time. Thus the ski instructor responsible of the slope analyzes skiers’ runs (visually or recorded) and give them the pertinent corrections. That solution reduces the cost and, therefore, the price of ski lessons. It also allows for adapting the slope to the learners’ requirements (with the possibility of doing different “learning slopes” addressing different ski levels or modalities). Moreover, learners do not need to renounce to their privacy accompanied by a ski instructor all the time.

**Crowdsourced ski learning system:** An interactive platform that aims to create a non-for-profit community of expert skiers and learners. The experts share their expertise with the ones in the learning process, and the others learn from them.

**Voluntary ski resort guides:** Already existing in some ski resorts, this solution consists in allowing local skiers, especially elder, to organize non-for-profit ski tours and show the ski resort to groups of newcomers.

**Real-time communication system:** This solution is another of the three ideas that have been developed in detail in the next chapters. The solution enhances communication among groups of skiers. That is done through a real-time audio communication system together with point-of-view (POV) videos that skiers can see on their smartphones’ screens.

**House and car sharing:** This solution is based on the growing enthusiasm for society in shared economies, especially youth. It consists in lowering skiing costs associated with traveling and sleeping by using house and car sharing platforms.

**Kids’ equipment exchange platform:** An interactive platform that builds a community of parents and facilitates the exchange of their kids’ ski equipment.
Provide (sell/rent) already existing systems to finding skis: The resort provides solutions to find buried skis, ranging from simple, colorful straps to radio-frequency systems.

Add in regular slopes features of new terrains: Snow Park NZ ski resort (New Zealand) is entirely dedicated to Freestyle. The ski resort of La Grave (France) does the same thing with Big Mountain skiing. These ski resorts sparked the idea of including elements of the practice of ski Freestyle and Big Mountain all over the resort, like jumps or cliffs. These elements must always be due signalized.

Mirrors, sensors or cams in the landings: The use of mirrors, cameras or sensors allows skiers to check jumps’ landings before jumping, and nobody misses a single run.

Ski pass with identity: A customized and more visible ski pass, or other means of identification as stickers or ski accessories. Thus, skiers could show the kind of skier they are (the tribe they belong to) to other skiers.

Gamification of the skiing experience through group competitions and games: Many games were ideated. From dividing all ski resort customers into two teams and do a big game (for example, Humans vs. Zombies) to peer-to-peer games like a cat-and-mouse game tracked by GPS.

Checkpoints with prize raffle: This solution addresses the problem ski resorts have to capture the value they create for ski touring practitioners as well as benefiting this latter group. Establishing a route from the base of the resort to the top, these skiers have a series of checkpoints on the way. By paying a small fee and completing all the checkpoints they participate in a raffle of ski touring products or services plus an included drink in the bar.

First and last to ski: This concept allows skiers to enjoy a premium experience by skiing the first and last runs of the ski resort. By sleeping in a lodgment in the top of the resort, skiers would have access to the lifts that are located in the highest part of the domain. These lifts, not accessible from the base of the ski resort, are running an extra time exclusively for those staying in the lodge.
An exclusive slope for dogs and their owners: Neither lifts nor slopes are designed for dogs. This solution provides a part of the resort especially designed for the use of dogs and its owners.

Urban ski simulator: This is one of the three ideas that have been developed in detail in the next chapters. It combines a hang-out with friends or dates and the activity of skiing in a simulator. It increases the accessibility of traditional skiing by making it less expensive, lowering skills barrier and with less equipment.

Secured slope with no speed limit: A slope where skiers are free to go straight and gain all the speed they want. The slope should employ the necessary safety measures. One skier does runs at a time and with the presence of a medicalized unit.

Safety perimeter: This solution prevents skiers to collide with each other. It has two different versions. The first consists of a physical perimeter around skiers. The second has sensors that activate lights and sounds, with the possibility of including an airbag system, which already exists for city cycling and horse-riding.

Secure stop spots: These are zones due signalized where skiers can rest being protected against any collision from other skiers. It has a picnic zone provided with chairs and tables plus the option of adding vending machines.

Gamification of the chairlift experience: By including games during the chairlift time, like those in fairs, skiers will be entertained and able to try their luck. For example fishing plastic ducks or throwing Velcro balls at a dartboard. Ski resorts can establish small fees to participate and offer prizes for the winners.
Annex VII. Prototype Feedbacks

All the information facilitated by users during the prototype testing was divided into three categories according their purpose: *I like*, *I wish* and *What if*. The first category, *I like*, gathers all the positive comments regarding any aspect of the prototype. The second category, *I wish*, concerns any disagreement or shortcoming found in the current prototype design. Last, *What if* category concerns any new and different proposals to include in the prototype.

Feedback prototype 1: Real-time communication system

After ten tests with the initial prototype, down below are the insights gathered in the three categories:

*I like*

- “To talk about what is going on during the downhill, like motorbike riders already do.”
- “To keep explaining gossips, sometimes the chairlift time is too short.”
- “It could be really useful to join your group when you arrive at the resort later than your friends. Could it have a GPS or something to help in that sense? Seriously sometimes it is a nightmare.”
- “It would be hilarious if one of the guys falls or does something strange. In this situation, I would like to upload the video on Youtube.”
- “It is a good option to know where your kids are or to find them in case they get lost.”
- “I am thinking to use it when skiing with my little children. Since they go behind me to show them the trajectory, and it is hard to communicate with them. With this device, I would be able to talk to them and especially to hear what they say to me.”
• “I have always wanted to rent an action camera to use it once or twice because they are very expensive.”
• “I am quite sure I would use it, but how often depends a lot on the price.”

I wish
• “It was quite uncomfortable and time-consuming to put the headphones on and then the helmet with the camera on them. Plus I think it is much better if the headphones are wireless.”
• “I don’t like when we talked very close because I heard his voice twice, in the headphones and his real voice. Also in the chairlift this might be uncomfortable.”
• “I am not really good with smartphones, so I hope the app is going to be able for dummies.”
• “I am quite worried about privacy, especially in conversations. I don’t want to be worried about making an inappropriate comment. You know what I mean? Will the ski resort keep the conversations or something like that?”
• “What about privacy? Will someone get my passwords or that kind of stuff if I mention it in a conversation? How secure is it?”
• “Now because we were two, but what if I have something private to say to someone. Could I select the people who I talk with?”
• “It would be nice to be able to see what others are doing while skiing. I mean you have your mobile phone in your pocket so you can see what their cameras are recording while you are stopped. It would be kind of a video game with divided screens”.
• “Maybe if the group is very large, say school friends, some of them might be really annoying and not stop talking all the time. Could it be possible to kind of block them? I know that you can do that in some online video games.”
• “I was thinking about my girlfriend that she is just beginning, and it might be stressful for her to hear voices in her head. I think beginners have enough with the challenge of learning.”
• “Depending on the ski level of the one using it, can it be dangerous? Maybe it can be distracting, like hands-free phone calls while you are driving.”
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Albert Planas Cabani
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- “It seems like an expensive thing, I think I would use it only a few times a season.”

What if

- “Wouldn’t it be awesome to share the content that it’s been recorded in the social media? At least making the process of uploading it the smoothest possible.”
- “My grandmother is at home, and she would love to see her grandsons, could she virtually ski with us watching all our cameras and hearing all the conversations?” It would be great that she could participate in voice or even in the video.”
- “I would like to keep the video recording as a memory from our family holidays.”
- “Ski instructors could use it to give “live” ski lessons and tell you what you are doing right or wrong on the go.”
- “Because you can only talk to your partners’ group right? Maybe it could be linked to some dating app like Tinder and talk to new people.”
- “I know action cameras can be used with that stick to doing selfies. Could we use the helmet camera for that purpose?”
- “The other day I saw a guy with those Oakley goggles that display information about your speed, ski resort map and so on. Would it be possible to link those somehow?”
- “I know that there are on-board cameras that show people face expressions in some amusement parks. It would be really fun to see people expressions, not only what they see but how they see it.”

Feedback prototype 2: Ski mall

After ten tests with the initial prototype, the following points show the insights gathered, divided into the three categories:

I like

- “It’s a good option to go there when I get tired, and my husband wants to keep on skiing.”
• “I would not go much, just for eating or drinking coffee. However my wife and my daughters would spend lots of time and money in there.”
• “I like the idea of a wellness center when you finish skiing and you are tired.”
• “I love the “changing space,” I would use everything.”
• “With the “changing space” I would not put wet and dirty skis in my car anymore, sounds really good.”
• “It is a good idea for non-skiers to have something to do and also for skiers because they can ski without worrying that non-skiers, like my wife, are waiting there with nothing to do. We went to a shopping center that had an indoor skiing dome inside, and I skied while my wife went shopping.”
• “We would go there when our parents want to keep skiing and we get tired.”
• “As long as my stuff is secure and under control, I don’t find any reason not to use it.”
• “Before the drive back home it is pretty convenient to have a place where to buy something to eat. Then you can drive all the way back home without stopping for dinner.”
• “It is a good option when you arrive earlier than your friends. Then you can entertain yourself wandering around the building.”

I wish

• “I would go depending on the atmosphere. In some ski resorts, the après-ski atmosphere leaves much to be desired with all that drunk people and so on.”
• “We already have similar facilities in our hotel next to the slopes.”
• “I am exhausted after skiing. The only thing I want is to go back home and slouch in the couch.”
• “I don’t like other people to do my laundry.”
• “I’m not keen on having a shower in public places.”
• “I would use the showers only if they are proper and clean.”
• “I don’t think that I would go shopping after skiing; I end up quite tired.”
• “Will shops be more expensive or cheaper than back in the city?”
• “Is it secure? Is there any chance that someone steals my skis or clothes?”
• “Will the changing rooms be overcrowded in rush hour? Like in the early morning or the afternoon?”
• “Do I have to bring my towel and soap from home?”

What if

• “As a mother I think it is important to have space for children to stay either with parents or without them. I mean, a playground where we can bring them and a kindergarten where we can leave them.”
• “I like buildings that are up on the mountain. What about building it up there?”
• “In case there are specific fitness sessions, like yoga lessons, could it be to have a daily schedule available to plan your day?”
• “For events like theater plays or music concerts, could there be a seasonal agenda? Perhaps a special event would be the reason to come skiing in this resort and not in another one.”
• “Will there be trolleys to carry what you bought to your car?”
• “Sometimes on the drive back home we stop in a drive-through to buy fast food. There will be one of those? I think it is pretty convenient.”
• “When you leave your boots wet, if you don’t dry them, they are wet and smell bad the morning after. Is the boot dryer service included in the locker?”
• “At the end of the season ski resorts could hold a second-hand market, where people sell the equipment they aren’t going to use anymore. Same with clothes.”
• “In airports there are specific areas for frequent flyers, those VIP lounges. There will be a similar area for frequent skiers?”
• “Something I miss in ski resorts’ bars is a coffee shop where you can pick your coffee and go without getting inside. It is too warm inside with all your ski clothes on.”
Feedback prototype 3: Urban ski simulator

After ten tests with the initial prototype, those are the insights gathered in the three categories:

I like

- “It looks like an entertaining and different hangout.”
- “It might be good to learn skiing. You can get started in here and then go and hit the real slopes.”
- “It looks like a good option when there is no chance of going to the ski resort. Especially during weekdays.”
- “There are those days in autumn that everyone wants to ski so badly, but there is still no snow in the mountains. I think it would be a great thing to do then.”
- “I would use it to get in shape before the season starts, as in October or November.”
- “With my friends we are always doing the same hang-out plans. I think this could be a good chance to break that routine and doing something different. Plus you are doing some physical exercise with is always good.”
- “I love it! I would definitely try it out, at least one. Then I would decide whether it is worth going back or not.”
- “I like the fact of competing with your friends. I think it keeps you willing to try again and again, like bowling. Perhaps the simulator alone would be very monotonous.”
- “I have not practiced ski for a long time. Maybe it would be a nice opportunity to take it up again.”

I wish

- “What if people get drunk? They could injure themselves, don’t they?”
- “Can it be dangerous? I don’t know about this one, but I have seen many scary falls in running conveyor belts on Youtube.”
- “It looks cool, but it might get boring more than one hour. I don’t know; I should try it out to be sure.”
• “It is not the same as real skiing. There is no beautiful landscape, no snow, no slopes or chairlifts...”
• “I see it as an entertainment but not skiing at all. No way can it be the same experience.”
• “I am not sure how many times I’d go there. It may get boring after a few sessions.”
• “The situation might not be uncomfortable if you sweat?”
• “What about the ski boots? Do you need to wear them all the time? It won’t be too warm and uncomfortable then?”
• “I don’t like putting on rental ski boots. May I bring my own?”
• “It looks like an entertaining way to do your work out. I’d go if it were in a gym but not in a bar.”

What if

• “Does the virtual images have to be from a downhill ski race? What if it were a highway and you had to dodge cars for example?”
• “Will there be ski lessons? It looks like the perfect place to start skiing; it’s not cold!”
• “Will there be competitions, like open to everyone?”
• “A scoreboard would be great. Then you not only have the motivation to beat your friends but the best “simulator skiers” in the city.”
• “Would you be able to exchange the points you win in the game for real prizes? Say, free drinks?”
• “Maybe a gym or even a school could be interested in having one of those things.”
• “What if season ski pass holders have a discount, free access or similar?”
• “Could you book the simulator for a large group, say for a bachelor party?”
Annex VIII: Description of the Business Model Reconfigurations

BMR 1: Real-time communication system

The following points describe the nine building blocks of the Business Model Canvas to be added to the current ski resorts business model to implement the real-time communication system:

1. Value proposition

This first business model presents three different value propositions. The first two target skiers. First, a real-time communication system integrated into a wireless helmet, which provides live audio and video among a group of skiers. Second, the images and audio recorded during the day, which are provided to skiers as a memory of the ski day.

The third and last value proposition targets relatives or friends of a group of skiers. They stay home but would like to join the skiing experience of their acquaintances from there. A remote real-time connection allows them to join a group of skiers with video and audio.

2. Customer segments

According to the value propositions above, there are two main customer segments: Groups of skiers and their acquaintances who stay home. Within the first segment, the principal groups of skiers were identified as families, friends, corporations, schools and ski schools and clubs.

3. Channels

Communication is done mainly through the website, social media, ski resort’s current channels and partners’ channels. Sales channels count with a website and ski resort stores while the distribution channels only with the latter.

4. Customer relationships
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The ski resort offers to its customers a service for solving any problem it may occur and special deals to early adopters to incentivize demand. Also, it offers long-term rentals or sales to increase customer loyalty and a clear privacy policy for users concerned about that issue.

5. Key resources
The essential resources to count on are the ski resort’s domain and its customer base. All the other resources needed for the system are outsourced to partners.

6. Key activities
The rental and retail of helmets, as well as the operation of the system, are the everyday activities to run this concept. However, attracting partners and negotiating with them is vital for the success of it, given the high degree of outsourcing. Marketing plays an important role to create awareness of the product among customers.

7. Key partnerships
The manufacturing of helmets, cameras, communication devices and telecom are not part of ski resorts’ core business. Thus, the choice is to outsource the technical requirements for this communication system by establishing partnerships with expert companies in those fields.

8. Cost structure
There is an important difference between renting and selling the wireless helmets. According to the prototype testing, users would be more likely to rent although, in some cases, they would be willing to purchase them. That is the reason both options are considered. However, they incur a different type of costs, fixed for sale and variable for rent. The rest of the costs are related to the network (fixed costs) and employees and marketing (variable costs).

9. Revenue streams
Again relying on prototype feedbacks, users would be willing to pay for the three value propositions in the following manner. The skiers segment is willing to either rent or
purchase wireless helmets and purchasing the recorded images and audio. The other segment is willing to pay a fee to establish a remote connection with skier acquaintances from home.

**BMR 2: Ski mall**

1. **Value proposition**

As a center of this business model, the additional services in the base of the ski resort and an unstuffy ski experience compose the two value propositions. The first one offers customers a wide range of activities to choose from other than skiing. The second proposition gives the chance to skiers to leave their ski gear in the resort, having a shower and get clothes clean, and equipment prepared.

2. **Customer segments**

On the right side of the canvas, there are the two customer segments: non-skiers and skiers. The first segment is targeted for the first value proposition since they have much more time available to make use of these new services. The second segment, skiers, is divided into four subcategories. The skiers with non-skier acquaintances, those who live far from the resort and those with little interest in skiing are expected to be interested in the first value proposition. But for skiers segment to use the additional services they are expected to be interested in the second value proposition as well. The other subcategory of skiers, those with their ski gear are expected to be interested in the second value proposition and perhaps the first one.

3. **Channels**

Two main channels are employed to reach customers. First the current ski resorts channels, which are more likely to reach the skiers’ customer segment. The other channels are the ones from the additional services providers. They reach their clientele, which might include both customers segments. For example among a fitness center clientele it is possible to find skiers as well as non-skiers.

4. **Customer relationships**
Special deals are offered to the first segment, non-skiers, given their higher interest and, therefore, the economic value of the additional services. Both skiers and non-skiers loyalty is increased through memberships and loyalty programs.

5. Key resources

As mentioned before, ski resorts leverage their existing advantages to carrying out this solution. These are a large customer base and the construction of a services building.

6. Key activities

The design and construction, management and coordination of the services building at the base of the resort are crucial activities. Plus, offering all the additional services is possible only attracting and negotiating with specialized companies. Marketing is also an important activity to create awareness of the services available.

7. Key partnerships

The high degree of outsourcing makes all the services offered dependent on the partnerships established. Every specific service requires a specialized company.

8. Cost structure

The fixed costs inherent to this business model are the construction and maintenance of the building. The variable costs are mainly of labor, marketing, and utilities.

9. Revenue streams

The principal source of revenues comes from partners, who pay a fee to the ski resort for their location in the building to provide their services to ski resort customers.

BMI 3: Urban ski simulator

1. Value proposition

This business model provides its customers a hang-out experience together with the skiing activity.
• First of all skiing has never been that accessible. Customers do not have to leave the city to ski, being able to practice it on weekdays, something inconceivable in the current experience.
• The hassle of carrying equipment is over, having in the simulator location all the equipment needed.
• The virtual skiing images and sensors connected to an embedded software will allow users to compete among themselves, resulting in the gamification of the activity.
• It enhances the social component of skiing, being in touch with your group all the time.
• It has no restrictions due to weather. Neither the lack of snow, strong winds or avalanches would stop the simulator running. It will be open during the ski season as well as the off-season.

2. Customer segments
Given its social component plus its location, the targeted customers are groups of people who are in the city. Both groups of city inhabitants, as well as visitors or tourists, are considered potential customers segments, although the main common groups are friends, dates or families.

3. Channels
Customers are reached through the website and social media. This latter channel aims to build a community around the activity as it is explained in the next building block. The current ski resort channels are sized to maximize the synergies between both business models.

4. Customer relationships
Early adopters are rewarded, aiming to incentivize demand and create a buzz around the simulator experience. Also, it contributes to building a community of users around the concept by the word of mouth.
The services provided in place are automated, giving users a high degree of independence to respect their privacy. However, there are employees for the more technical aspects of the simulator and in case a technical problem occurs.

5. Key resources

The local is the base of the concept. For a high affluence of customers, its location should be in a shopping center, big recreational area or the like. Simulators are another crucial resource, as well as the software and screens embedded to them through connected virtual images and sensors.

6. Key activities

As said before, the local and especially its atmosphere is the base of the concept. It has to be a hang-out experience as it would be in another bar, but with the differentiated trait of the simulators. That is why the simulators operation and maintenance, as well as its embedded software, are of vital importance.

7. Key partnerships

As said earlier, shopping centers or big recreational areas are important partners to count with. Moreover, the concept is not possible without the simulators and its embedded software, whose manufacturing and programming is outsourced to specialized companies.

8. Cost structure

The local, simulators and software compose the main fixed costs to sustain this business model. Whereas employees, marketing, utilities and ski equipment and F&B compose its associated variable costs.

9. Revenue streams

The revenues come from users’ fees for the usage of the installations. These fees sources are twofold: Simulator usage and ski equipment rental. F&B sales are also an important revenue stream to take into account.