

*Professor Benoit Leleux, Stephan Schmidheiny Professor of Entrepreneurship and Finance, wrote this case as a basis for class discussion rather than to illustrate either effective or ineffective handling of a business situation. Copyright © 2021 by IMD - International Institute for Management Development, Lausanne, Switzerland.*

## ***Bobsla: E-Motion on Snow***

**FULPMES, AUSTRIA, AUGUST 2021.** It was still early morning but the sun was already illuminating Fulpmes, a village of 4,000 inhabitants on the sunny side of the beautiful Stubaital valley in Austria. The terminus of the Stubaital Railway, which had been running from Innsbruck since 1904, had been known as a center for the iron industry



since the Middle Ages, hence the anvil on the village emblem – a renowned trademark for tools. Sergey Ignatyev, the founder and CEO of Bobsla, was not a native. He had arrived in Austria in 2019 from his native Saint

Petersburg, attracted to the country by Startup Tirol,<sup>1</sup> a foundation dedicated to bringing top technology startups to Austria.

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<sup>1</sup> <https://www.startup.tirol/>

This morning, like every morning, he could not help but marvel at the beauty of his surroundings. After a few minutes of daydreaming, his mind was quickly drawn back to the day's more mundane tasks: Could he salvage his startup and finally turn it into the "Tesla on Snow"? Everything had to be ready for the next winter season, which was his last chance to make a difference in the world of snowmobiling after the COVID-tainted 2020 season. His revolutionary electric vehicle, a hybrid between a snowmobile and a sled on tracks, had already won multiple prestigious technology and innovation awards and was the talk of the town on European slopes. The list of possible uses was growing every day, making it increasingly difficult to focus on any single area. At the same time, the quest for investors had proved more arduous than expected, and Sergey was slowly reaching the end of the friends and family circle. Six Bobslas were making the rounds between exhibitions and technology fairs already, attracting attention and supportive editorials. Tests conducted in Gurgl and Schlick 2000 (Austria), Villars and Glacier 3000 (Switzerland) and other top ski resorts during the winter season drew smiles and enthusiastic comments on social networks from those lucky enough to be invited. The thrill of riding an electric snowmobile at 30 kph sitting only millimeters above the snow was incomparable and addictive. The hard part now was to define a proper business model (Selling hardware? Organizing events? Licensing the patented technology? B2B or B2C? Austria, US or Canada?) and developing a robust business plan for taking the Bobsla to the world's snowy slopes. Every dimension of the plan needed to be internally consistent and sustainable to make the Bobsla the "Tesla on Snow," the ideal replacement for snowmobiles craved by so many nature lovers around the world, which were actually environmental disasters: noisy, polluting and gas guzzling.

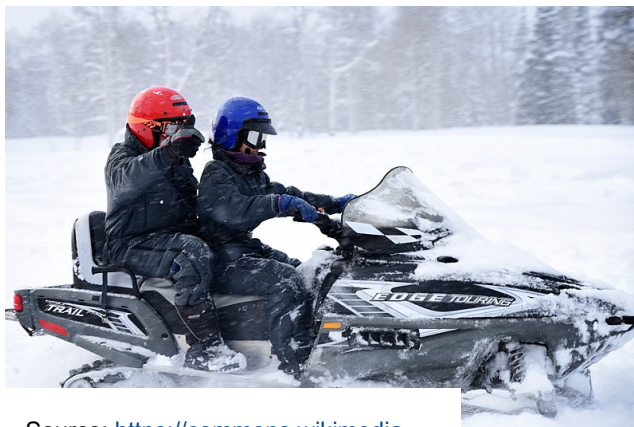


Bobsla at Greentech  
Festival 2020 (1'32'')

## ***The genesis of the Bobsla***

Sergey Ignatyev was born in 1971 in Leningrad, which reverted to its old name, Saint Petersburg, following a referendum in 1991.<sup>2</sup> Trained as an engineer, Sergey graduated in 1994 from LETI, the prestigious Electrical Engineering Institute, with a specialization in computer-aided design (CAD) of electronic circuits. This was followed by 17 years in various positions in sales and marketing and general management mostly in B2B companies in Russia. In 2011, he started a two-year EMBA program at ESMT, a business school located in the heart of Berlin with a clear focus on the management of technology, followed by another five years in various Russian and International corporations. In 2018, Sergey started to dabble in the design of an innovative electric engine snowmobile, primarily for his own recreational purposes. A first prototype was assembled rapidly in his garage in Russia to get the feel of the vehicle and to quickly identify the engineering challenges.

## **The snowmobile dinosaurs**



Source: <https://commons.wikimedia.org/wiki/File:Snowmobile-2.jpg>

Snowmobiles in general were expensive, sophisticated, heavy, dangerous and heavily polluting. The first modern track-driven personal snow scooter was invented in the late 1950s by Canadian Joseph-

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<sup>2</sup> [https://en.wikipedia.org/wiki/Saint\\_Petersburg](https://en.wikipedia.org/wiki/Saint_Petersburg)

Armand Bombardier, who called it the Ski-Doo Snowmobile, a name he registered as a brand and continued to develop for years. They evolved little from the original design and were all based on the same general features. They included a long travel front and rear suspension to allow for a comfortable ride over a largely varying type of terrain. A track wrapped around the rear suspension was driven by a set of drive cogs on a driveshaft. The front of the snowmobile was supported by two skis to keep its nose above the snow. The vehicle was steered by handlebars that included a throttle (on the right-hand side), a brake (on the left-hand side), an emergency kill switch (and a rider tether, which when disconnected caused the engine to shut down immediately if the rider fell off) as well as various rider comfort controls (hand and thumb warmers, headlamp controls, etc.). A snowmobile typically had a gas tank between 7 and 11 gallons (26-42 liters) and could travel in excess of 100 miles (161 km) over the most rigorous terrain. The weight ranged from 450 pounds to 650 pounds (200-300 kg), making them impressive machines to handle at speeds approaching 90 mph. Because of their power, speed, mass and at times questionable balance, snowmobiles were responsible for multiple accidents each year, producing over 200 deaths and 14,000 injuries annually in North America alone.<sup>3</sup>

### **A natural e-volution**

To Sergey, an avid mountain lover and acknowledged snowmobile enthusiast (like many Russians), it was quite shocking that nobody had ever conceived a more sustainable version of the vehicle, driven by an electric engine.

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<sup>3</sup> <https://pubmed.ncbi.nlm.nih.gov/12671482/>.

*I believe electrification is an important thing. If we do not care about CO2 emissions, we will soon have no snow at all. We must change it. The snow should remain clean.*

Tesla was making the news everyday with its radical reinvention of the car: why was nobody doing the same with the snowmobile? Clearly, there would be huge technical challenges, and it was not simply a matter of sliding an electric engine in place of the powerful fuel engine in an existing vehicle. Efforts to retrofit old snowmobiles had already been tried<sup>4</sup> but come to a dead end. Sergey explained:

*Electrification of snowmobiles is hard and expensive. Normally, sleds require a lot of power and can sink in snow. I've only seen one good e-sled in Europe that does not pollute and is not boring – and it costs a lot.*

In his backyard, he started to put together a “simpler” version of the vehicle, one that would retain all the fun of riding on snow but without the bells and whistles most users did not require. Weight and complexity were an issue, so he quickly toyed with the idea of merging the features of a sled with those of a snowmobile. Starting from a blank slate, without a background in snowmobile engineering, had its distinctive benefits, including not feeling bound to any specific feature or technology. The sled would provide the sliding body while the tracks would

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<sup>4</sup> AB Elmacchina, from Sweden, developed the world’s first prototype electric snowmobile back in 2011 but it proved expensive to produce and limited in capacity. <http://advantage-environment.com/transport/introducing-the-electric-snowmobile/>.

provide power and steering, like an army tank. The Bobsla was born... He quickly patented the solution and proceeded to further develop and test it under various conditions (see **Exhibit 1** for photos of the first Bobsla).



Bobsla at ISPO  
2020 (1'39")

As a pure electric vehicle, it offered zero emissions (compared with the 200-600 g/km CO<sub>2</sub> emissions of snowmobiles, roughly 2x to 4x that of a standard car), virtually zero noise (compared with up to 90 dBA for snowmobiles), instant torque and fast acceleration. Since the driver was almost literally sitting on the snow, it was great fun to drive, offering agility, drift and a feeling of speed that was disproportionate to the actual speed it was going. Designed by Russian and Austrian engineers and tested in the Alps, it offered the potential not only for functional uses (emergency personnel on ski resorts, transportation from parking lots to remote chalets, etc.) but also for pure recreational activities (wandering in the woods, racing in Grand Prix challenges, etc.). Built of stainless steel and aluminum, it offered the additional benefit of not rusting, even if left outdoors.

### ***The market for snowmobiles***

The global market for snowmobiles was estimated at between \$1.4 billion and \$1.8 billion for the period 2020-2027. StratView Research<sup>5</sup> estimated the global market growth between 2016 and 2021 at around 3.5% p.a., constrained by the high cost of the vehicles. The US, Canada and Russia were the largest markets, and together

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<sup>5</sup> <https://www.stratviewresearch.com/117/snowmobile-market.html>

occupied more than 85% of the global snowmobile market, with Canada and Russia expected to experience the fastest growth in the future.

Cision PR Newswire summarized the market situation for the 2021-2026 period in its Global Snowmobile Market report (2020 to 2026) of 19 February 2021:<sup>6</sup>

*The Global Snowmobile Market is expected to grow at a steady rate during the forecast period (...) driven by the increasing use of snowmobiles in snowmobiling sport and other recreational & leisure activities. Furthermore, ongoing technological advancements and new product launches by the major players (...) is expected to create lucrative opportunities for market growth through 2026. However, the high cost of snowmobiles can hamper the market growth. (...)*

The top global snowmobile producers in 2020 were Arctic Cat Inc. (US, part of Textron Inc.), Polaris Industries, Inc. (US), Yamaha Motor Corporation (US), Bombardier Recreational Products BRP (Canada), makers of the Ski-Doo, and Alpina Snowmobiles S.r.l. (Italy). In 2020, 123,862 snowmobiles were sold worldwide, 51,036 in the US and 43,535 in Canada alone,<sup>7</sup> with 1.1 million registered snowmobiles in the US and 600,000 in Canada.

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<sup>6</sup> <https://www.prnewswire.com/news-releases/global-snowmobile-market-2020-to-2026---by-product-type-engine-type-displacement-type-and-region-301231648.html>

<sup>7</sup> <https://www.snowmobile.org/snowmobiling-statistics-and-facts.html>

The economic impact of snowmobiling was not insignificant, with ISMA<sup>8</sup> estimating it at \$26 billion annually in the US, \$9.3 billion in Canada and another \$5 billion annually for Europe and Russia. Over 100,000 full-time jobs were generated by the snowmobile industry in North America in manufacturing, dealerships and tourism-related businesses. The average snowmobiler was 45 years old, riding 1,111 miles (1,788 km) per year in North America and spending \$2,000-\$3,000 a year on snowmobile-related recreation.

The use of snowmobiles in national parks in the US was regulated by federal law. The roads were groomed and marked for that purpose – the same roadways used by recreational vehicles, cars, trucks and buses. They could not be used as off-road vehicles in national parks such as Yellowstone, Rocky Mountain and Grand Teton. Because of the heavy disturbance to wintering wildlife, displacing wildlife from their preferred habitat or even reducing their chance of surviving the season, restrictions were increasingly put in place in many countries and regions, forcing snowmobiles back to established routes only.

### **Electric options on the market**

Bobslab was not the first mover into the world of electric snowmobiles, but to a large extent, it benefited from the experience of its predecessors, who had marked the route to market. As of 2021, three vehicles were worth mentioning.

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<sup>8</sup> International Snowmobile Manufacturers Association, <https://www.snowmobile.org>



The i-Cat Pro<sup>9</sup> (Austria) retailed for \$30,000, or close to 3x the price of the equivalent internal combustion engine version. Based on the traditional snowmobile design, its functional range barely exceeded 50 km, hampered by its excessive weight (350+ kg).

Mattro, based in Schwaz in Tyrol (Austria), put a tracked utility vehicle on the market, initially called the Ziesel<sup>10</sup> (later renamed the Mattro ROVO DC), for about \$38,000. With its original design and joystick steering, it offered impressive cross-country characteristics without emissions and noise. However, it did not last long, since the company was acquired and repositioned to develop industrial vehicles.

The most intriguing was the Aurora e-sled<sup>11</sup> from Finland, which was retailing at about \$35,000, probably the most developed e-snowmobile, tested in Lapland for four years and used for innovative discovery tours in Scandinavia.<sup>12</sup> Despite its engineering excellence, it relied on the same basic principles as other snowmobiles, resulting in heavy electric consumption (only 2.5 miles/kWh compared with the Tesla 3 SR at 4.2 miles/kWh), a heavy design (>350 kg) and consequently a limited range of only 50 km. Transporting additional batteries was considered but the vehicle sank in fresh snow.

A number of other snowmobile manufacturers were still in the process of evolving their solutions. Particularly notable was the 10-year deal between Polaris and Zero Motorcycles.<sup>13</sup> Presented as a cornerstone of *rEV'd up*, Polaris's long-term electrification

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<sup>9</sup> <http://www.icatpro.com/>

<sup>10</sup> <https://www.ziesel-adventures.com>

<sup>11</sup> <https://aurorapowertrains.com/>

<sup>12</sup> <https://auroraemotion.com/>

<sup>13</sup> <https://www.zeromotorcycles.com/polaris>

strategy aimed at offering electric vehicle options in all its core product categories by 2025, starting with off-road vehicles (ORV) and snowmobiles. The long-term strategic partnership was intended to combine the Zero Motorcycles revolutionary powertrains to power products in Polaris's most important categories, with the first vehicle by the end of 2021.

Montreal-based jet-ski maker Taiga Motors,<sup>14</sup> founded in 2015 by three McGill graduates, also announced with great fanfare, the arrival of electric snowmobiles promised since 2018. In February 2021, it raised \$148 million through a SPAC<sup>15</sup> deal that valued the company at about \$430 million, a phenomenal sum considering the lofty promises but the shortage of deliverables. But as of August 2021, the vehicle – presented with a 130 km range, 2.9s 0-100 km/h and 180hp – was still in pre-order mode for deliveries allegedly before the end of 2021 at a pre-order base price of \$15,000.

Despite the commotion, total sales of e-snowmobiles represented less than 0.2% of the market, not unlike the situation in the car market back in 2010. The most visible electric snowmobile competitors are shown in **Exhibit 2**.

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<sup>14</sup> <https://taigamotors.ca/>

<sup>15</sup> <https://www.bnnbloomberg.ca/electric-jet-ski-maker-taiga-to-go-public-via-canaccord-spac-1.1564698>

## ***Designing the Bobsla***

Learning from the experience of early movers, Sergey realized he had to rethink the vehicle in its entirety, not simply replacing the ICE engine with an electric one. The Bobsla would have to be low weight and low cost. To get there required creatively combining features of the snowmobile and the sled. Propelling and steering would be provided by tracks powered by an electric engine but to reduce weight and increase stability. Generating a high-speed sensation required a sliding body. In effect the vehicle would *float* on snow rather than *drive* on it. The design was significantly simpler than existing snowmobiles, requiring fewer sophisticated and expensive parts like suspensions, gearboxes, transmission and steering bars. The resulting vehicle, in a class by itself, offered a number of benefits: It was compact and low weight, offered unique driving pleasure (in particular its extreme agility and ability to drift), offered high levels of safety with its sturdy roll-cage and center of gravity an inch above the snow, did not sink easily into fresh snow and improved energy efficiency (3.5 miles/kWh vs. 2.5 miles, or +40%, for conventional design e-sleds). Sergey remarked:



*The first time we tested them, we found how interesting they are to drive – sharp perception of speed, driftable, no risk of overturning and instant acceleration.*

*We've done rollover and crash tests with very aggressive styles of driving. Only small parts were destroyed. Sure you can break the vehicle, but not the rider. It is the top importance for us as a startup.*

## ***Bobsla to the market***

With a first prototype series assembled and enthusiastic reports from early testers, Sergey shifted his attention to the business side of the project, i.e., how to organize the company to complete the development of the vehicle, take it to market and capitalize on the opportunity created. (A short company history can be viewed at <https://www.youtube.com/watch?v=q02d1C8U4aU> or by clicking on the QR code.)



Bobsla story in four minutes

With the help of a Russian partner, Sergey quit his corporate career in 2018, relocating to Tyrol (Austria). The first order materialized literally the week they arrived, so they had to quickly set up the company to start producing the vehicles. In 2020, the company earned many prestigious award designs but the successive COVID lockdowns forced it into financial survival mode. With most ski resorts closed in Europe, the expected flood of orders turned into a drizzle, creating a difficult cash flow situation.



Bobsla Formula on Snow (1'20'')

Nevertheless, the team (see ***Exhibit 3***) continued to refine the Bobsla design and engage as many ecosystem players as possible. To gain visibility in key ski resorts, it



Bobsla at Sorrisniva Igloo Hotel (Norway) (1'17'')

organized the "Formula on Snow" Grand Prix with its prototypes, letting potential customers loose on tracks for Formula-1 inspired races. To

generate as much publicity as possible, sponsors were enlisted to provide the financial means behind the events (see **Exhibit 4**). Hotels also proved avid at capitalizing on the vehicle by organizing innovative outings for guests. A particularly rewarding experience was offered by The Sorrisniva Igloo Hotel<sup>16</sup> in Norway, the premium Arctic wilderness destination on the banks of the Alta River at 70° latitude, offering a unique igloo hotel accommodation. Guests were able to race the Bobsle outside the hotel in the High Arctic.

Similar events were organized in Sweden, Finland and Switzerland to the immense pleasure of all riders. But the pandemic mood did not facilitate purchases and financially the company struggled its way into 2021. Sergey and the team took the opportunity to look through the various aspects of the business plan again. A number of key issues had to be dealt with, including reviews of the current pricing policy and manufacturing practices, and more fundamentally, key business model choices, such as product positioning, target markets, and the distribution, marketing and sales strategies.

## **Pricing**

From a market point of view, it was clear that a price beyond \$15,000 would create a serious hurdle for a vehicle squarely aimed at the “entertainment” market, i.e., fun in the snow. Some fanatics would of course be willing to pay more for a new gadget to impress their friends, but the mass market for such adult toys would be more in the \$10,000-\$15,000 range. This provided a cap on pricing.

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<sup>16</sup> <https://sorrisniva.no/>

## Manufacturing

Sergey decided early on not to get into manufacturing if it was not absolutely necessary. Austria had developed a great deal of expertise over the years in technical engineering and production, with pioneers such as Steyr (now Magna Steyr for automobile activities), proving the high-level of craftsmanship available. With his blueprint in hand,



Sergey went shopping for parts and soon realized it was relatively easy to source them locally and engage suppliers in co-development activities. He and his team would just focus on the design of the parts, final assembly and then sales and

marketing.

Components came from 20 subcontractors, screened for quality, price and their ability to scale from test series to thousands of units. The assembling unit capacity, assuming a few additional hirings, could easily reach 150 vehicles a year in the current location.

Based on the experience with the first units manufactured, the final unit costs would be around \$7,000 at small scale, dropping to below \$5,000 when critical mass was reached.

## Business model choices

The ubiquity of the novel vehicle created an overload of opportunities for Sergey. First came the question of **positioning**. The Bobsla could be marketed as a fun snow toy but also as a functional, professional vehicle, especially at high-end ski resorts, where it

could be used not only to service the ski slopes (accident intervention, ski lift maintenance, etc.) but also the restaurants, bars and chalets along those slopes (a Deliveroo-type service directly to the chalets).

The selected positioning would clearly impact the pricing but even more, the choice of **business model**. Would the company focus on selling Bobsla as hardware (e-sleds) to customers of all stripes or should it sell it as a service, retaining ownership of the vehicles and selling a unique snow experience like e-Grand Prix in famous ski resorts? Early experiments with the latter had already proved successful. It also seemed possible to envision a two-step approach, whereby Bobsla would sell batches of vehicles at a good price (€11,900) to event organizers in high-end ski resorts who would set up races on snow, selling 15-minute tickets for €20-25. Payback would take less than two seasons. These early customers would provide tech expertise and build brand awareness on the cheap, leaving open the options of hardware and service models.

**Sales and distribution** strategies also offered many choices. Initial attempts were mostly direct sales to institutional customers (ski resort owners), but the company was often approached by individuals for purchases. Sergey had not made his mind up yet as to whether B2B made more sense than B2C. In the early stages, it seemed to make sense to go the B2C route with sophisticated customers to learn from their early experiences.

There were still many issues around **marketing and advertising** or **after-sales service**. On the first front, the company relied heavily on editorials, trade fairs and conferences to spread the gospel, but this probably was only valid initially and a more purposeful approach to marketing was soon going to be required. The traction received

from 70+ free publications from Japan to Alaska was phenomenal, but now it was time to convert awareness into actual sales.

The choice of **target markets** also warranted a quick revisit. Austria was a welcoming host to Sergey after he left Russia, but was this the best location for the venture? KTM had done well to position the country as a powerhouse in mechanical engineering, as did Red Bull for the fun side of life. It was right in the center of European markets but also far away from the biggest snowmobile markets, US and Canada. Both of these markets also benefited from experienced and deep-pocketed investors ready to “fuel the rocket” on emerging concepts. Early discussions with Canadian partners had shown strong promises, and Sergey vouched to approach potential US partners and investors as soon as COVID-related travel restrictions were lifted. He was also slated to attend events organized by Snoriders<sup>17</sup> Canada, the main snowmobile online community and magazine.

### **Financing the dream**

Finding investors had proved more difficult than anticipated. Even with the support of Startup Tirol, a foundation dedicated to helping fledging technology companies in the region, it was difficult to reach beyond local angel investors. Leveraging every opportunity to showcase the product from Moscow to Lausanne, Sergey turned every stone to raise enough money to put the company on a more solid footing. With the high visibility of efforts on energy transition, he also investigated subsidies as a way to keep the company afloat. A number of grant programs offered €32,000 in 2020, with another €37,000 in the pipeline, and an additional €160,000 in various investment equity credit

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<sup>17</sup> <https://snoriderswest.com/>



schemes. Sergey continued to plough the angel networks, as he ascertained the validity of a "Formula on Snow" model, i.e., organizing Bobsled races for sponsors to promote the vehicle and raise money.

Among the other investors approached were a large Russian industrial group, an Italian industrial group (with \$1.5+ billion in sales) and a Chinese manufacturer. Negotiations were progressing slowly mainly because of discrepancies in valuation, timing and their controlling interests. Clearly Sergey was looking for investors to take a 10% to 20% position in the company, not for an outright acquisition just yet.

He had also started to investigate the possibility of an affinity financing campaign – crowdfunding – possibly on Indiegogo or Kickstarter. The rules of the game there were quite different, but the platforms basically allowed for pre-sales of the vehicle, an approach that was non-dilutive of the equity.

### ***Putting the plan together***

Despite the numerous prizes and awards received, the great team, the first few orders received, the successful testing of the Bobsled prototypes at various resorts in Europe, COVID had thrown a spanner into the company's plans, putting its finances to the test. Never prepared to let a good crisis go to waste, Sergey realized there may be a silver lining to this difficult period. With energy transition and sustainability on people's minds more than ever, this hiatus provided the pause needed to rethink the model through. Now was the time to put together a compelling business case for potential investors.

**Exhibit 1: Different views of the Bobsla electric sled**



Source: Company information

**Exhibit 2: Examples of electric snowmobiles on the market**



**The i-Cat Pro  
(Austria)**



**The Aurora  
e-sled (Finland)**

Source: Company information



### Exhibit 3: The Bobsla team

**Team**

Sergey: CEO, Founder  
 Vladimir: CTO - PhD Electronics  
 Werner: CTO - EV experience - 8 years  
 Bernd: Private Investor, IT and Finances  
 Vadim: Mentor & Advisor - Senior management

Plus great help of more than 30 new friends

START UP TIROL | Inn cubator | Tirol

Source: Company information

### Exhibit 4: The Formula on Snow sponsoring packages

**Sponsoring package**

Fair play: "First come First serve" for accepting sponsorship packages

Brand sponsor	Main Sponsor	Title Sponsor
<ul style="list-style-type: none"> <li>Logo on racing track</li> <li>All communication to participants</li> <li>Advertising in Live session</li> <li>Prizes for participants</li> <li>VIP package (per event) 5 Ski-passes</li> </ul>	<ul style="list-style-type: none"> <li>Extra to Brand level:</li> <li>Exclusivity in category</li> <li>Branded video</li> <li>VIP package (per event) 10 Ski passes</li> <li>Accommodation of Brand ambassadors (2 Persons per event)</li> </ul>	<ul style="list-style-type: none"> <li>Extra to Main sponsor:</li> <li>Brand on Vehicles</li> <li>Coordinated advertising</li> <li>VIP package (per event) 10 Ski passes</li> <li>Accommodation of Brand ambassadors (5 Persons per event)</li> </ul>
€ 2'500 / event	€ 10'000 / event	€ 20'000 / event

FORMULA ON SNOW  
 CLEAN RACES. CLEAN SNOW

Source: Company information

**Exhibit 5: Company references and social network presence**

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**YouTube**



<https://www.youtube.com/c/bobslagmbh>

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