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The Ice Dome Concert Hall Project in Piteå

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Introduction

In a mode of amazement and anticipation I walk in the dark night along a snow path guided by candle lights behind beautifully designed ice blocks. I walk towards a huge snow structure shaped as a double-dome pile of snow. In itself not sensational, but now in the cold of subarctic northern Sweden, magically illuminated by a full moon above us, this snow-pile grows into a mystic world of the arctic. I open the wooden door and enter a strange magic world of snow and ice in different colorations of blue, turquoise and green, and I know I´m part of a very special cultural experience – a music concert on ice instruments in an ice dome concert hall! And when the ice-music begins we all know we are part of a very unique historical experience. It fills my heart with joy and excitement that our little township of Piteå in peripheral northern Europe has realized an artist's dream with this ice construction and unique concert. But how could Piteå end up having such an extraordinary experience production?

The story of the Ice Dome Concert Hall in Piteå is an amazing story of a man´s innovative dream in a world of slow bureaucratic structural organizations of financing and project planning, ending up in the lost future of this extraordinary innovation.

Background

Since the establishment of the Icehotel™ in Jukkasjärvi in 1990, snow and ice as a resource for innovation in culture and tourism has been on many agendas in northern Scandinavia. The Icehotel has become one of Sweden´s strongest trademarks beside Volvo and IKEA and is used as a raw model for cultural innovation within winter tourism and experience production. Despite the rhetorical high expectations on innovations from snow and ice, there have so far been only a limited number of true creative innovations developed based on snow and ice (Gelter 2008, Gelter 2010). Copycats using snow and ice within the original concept of igloos for living (i.e. ice hotels, snow hotels, igloo-villages), and transformations of these into snow chapels, snow/ice bars and snow/ice restaurants as well as snow castles in different shapes, are numerous (Gelter 2010). The copycatting of the Icehotel is interesting as Sweden still only has one ice hotel while Norway has at least three and Finland at least seven (Gelter 2010), and the number is growing worldwide.

In arctic, subarctic and high altitude areas, winter markets and winter carnivals as well as snow- and ice festivals based on snow and ice carving competitions and on art performances in winter settings are common (Gelter 2010). Besides these traditional

cultural manifestations based on snow and ice, in Scandinavia we have only found three new innovative cultural projects based on snow and ice. These are the Ice Music Festival – Geilo, The Ice Globe Theatre in Jukkasjärvi and the Ice Dome Concert Hall in Piteå, of which the two latter did not develop into economically sustainable projects.

Regional development and innovation in the creative and cultural area is expected to occur according to a model of triple helix cooperation between the public, private and academic spheres (Etzkowitz and Leydesdorff 1997; Leydesdorff and Etzkowitz 1998). This theoretical model has been used as a base for governmental and EU-founded projects and developed by the Swedish Knowledge Foundation *(KK-stiftelsen*) into a FUNK-model for a professional development of "cultural resources" into business (Nilsén 2006). FUNK stands for the Swedish words of *Forskning* (research*), Utbildning* (Education), *Näring* (Business) and *Kultur* (Culture). The model expects the organized cooperation of these four sectors to "absorb" ideas and innovative initiatives as cultural raw material "out there" in the cultural society, and through the processes of networking, cooperation and common projects to incubate and refine them into professional business. Although innovation has become a buzzword among politicians and decision makers, and become a base for regional development strategies, empirical data for successful FUNK-processes are still too rare to pinpoint success factors in regional development according to this model.

Maybe more interesting than learning from success stories such as the Icehotel, would be to learn from promising creative and innovative projects that did not succeed, and to identify factors and processes that prevented the innovation from becoming a success.

So far research about innovations in the cultural and creative industry have not paid much attention to this research approach. This can be illustrated by the Ice Globe Theatre in Jukkasjärvi, where the Icehotel in a bold venture without any cultural or innovative funding built a copy of the Shakespeare Theatre in London out of snow and ice. This unique cross-border production, where completely different concepts are combined into a new, innovative concept for success, mixed classic Shakespeare theatre with Sami culture, snow and ice, cold climate and northern lights, into a fantastic experience concept, that however, did not develop into an economically sustainable production. So far no scientific analysis of this great cultural project has been conducted. The aim of this chapter is to present and analyze a similar innovative project that failed to become a success story for regional development, the story if the Ice Dome Concert Hall in Piteå.

Prelude to the Ice Dome Concert Hall

Innovative use of snow and ice in the cultural context is limited and most often restricted to snow constructions or as a stage for traditional cultural performances (Gelter 2008, 2010). An interesting cross-border innovation is to use ice and snow to produce music. There are only a few musicians in the world that use snow and ice for their music. One of the most famous is the Norwegian percussionist Terje Isungset (Isungset 2008a). Together with Bengt Carling he created a battery of ice instruments that performed on television for the whole world during the millennium New Year celebration. Fascinated by the potential of this music art, he constructed string

instruments in snow, and produced a CD album of ice music, “Iceman Is”, recorded at the Icehotel in Jukkasjärvi (Isungset 2008b). A special recording studio was built in a room at the Icehotel with one meter thick walls for sound isolation. Since then Isungset has performed in several ice music concerts around the world such as in Québec City, The Ice Globe Theatre in Jukkasjärvi, the Sapporo Snow Festival in Japan, in Helsinki, and in Narvik and Geilo in Norway. Ice music as an annual festival was established in 2006 at the Geilo Ice Music Festival. This unique festival is held annually at the first full moon in January at a frozen waterfall on the 1,930 metre high mountain Hallingskarvet. The festival consists of music and dance performances inside and outside an ice igloo with instruments made from snow and ice (www.isfestival.no), and is dedicated to nature, as nature determines the conditions and date for the festival.

Ice music has the potential to become a cross-border cultural innovation unique for regions of snow and ice, such as northern Scandinavia. Ice music as a cultural phenomenon is, however, still mostly unknown. It also has yet to be accepted as “real music”, and is thus scientifically and artistically unexplored. In Sweden ice music started in 2003 when the Swedish Polar Research Secretariat held the SSW 2003 Arctic Science Summit Week in Kiruna between Mars and April 2003 (Polarsekreteriatet 2008). As part of the conference program “Science as Art”, an experiment was conducted as part of an empirical research project about ice music. The experiment was based on cooperation between the Swedish Polar Research Secretariat, the Royal College of Music in Stockholm and the ice sculpture artist Tim Linhart from New Mexico, USA. An ensemble of six musicians from the Royal College of Music, named “Voices of Ice”, performed on ice instruments constructed by Linhart at The Ice Globe

Theatre in Jukkasjärvi (Polarsekreteriatet 2003). On March 16th, the ensemble performed a piece called “Ice Music Fantasy for soprano, speaker, ice instruments and an audience with warm mittens” composed by Karin Rehnquist, and “Of Ice and Frozen Circles” by Bill Brunson. The Ensemble consisted of Gunilla von Bahr on flute, Ulrika Bodén vocals, Olle Hagson on contrabass, Jonny Axelsson on percussion, and Åsa Åkerberg and Susan Barett on cello. Two additional performances were given April 1st and 2nd. To construct the ice instruments for these concerts, Tim Linhart had been working since the beginning of February. He used his own developed technique where he mixes fresh powder snow with water that he pastes together into instruments.

This ice instrument concert became a success. When, the same year, the Swedish Queen Silviacelebrated her 60th birthday on December 23rd, she was invited by her family to stay overnight at the Icehotel in Jukkasjärvi. In association with this a performance of ice music was arranged at the Ice Bar in the Icehotel, with her favorite flute player Gunilla von Bahr (The Royalty Forum 2003). For this occasion Tim Linhart again built his ice string instruments, and again the performance was a success.

After these successes Tim Linhart decided to more actively establish ice music in Sweden, after his successful years in the USA. Tim Linhart constructed his first ice instrument in 1997 in the form of a three meter high bass cello. He got the idea from his friend Luthier Tony Sutherland, a guitar builder, during a camping trip. They were talking over the campfire about how an ice violin would sound. After this Linhart became obsessed by the idea of ice instruments (Vail Daily 2005). Before then Linhart had been working as an ice sculptures in the Rocky Mountains. To get access to a free

ski pass for the season at Taos Ski Valley, New Mexico, and to be able to be a "ski bum", he created snow sculpture at the ski resort. During ten years of snow sculpturing he developed his own technique that extended the strength of snow constructions beyond the expected and he discovered thus a fantastic flexible construction material. This inspired Linhart to start building ice instruments and to dream of his ultimate snow construction - a fully functional airplane made out of snow and ice (pers. communication)!

During his construction work of fantastic sculptures at the ski resort, he discovered the technique to mix fresh powder snow and water into "slush", not unlike the technique of clay sculpturing (Advice ibice 2008). With this technique he developed the skill to construct string instruments with walls only a few millimeters thick, but strong enough not to break under the pressure of the strings. The biggest challenge was to tune the string instruments without breaking the fragile snow constructions. An additional challenge is the influence of the heat from the musician and the audience during a concert, as a change in temperature quickly alters the tuning of the ice instruments.

Linhart's first instrument was the three meter bass cello with piano strings. He waited with excitement for the first tone, which sounded like sweet music, but after adjusting the strings a bit more the next sound was a loud bang and the instrument exploded into thousand pieces. But Linhart was captured by his idea and decided to build the world's first ice orchestra, and coined the word "Ice Lutherie" for building music instruments of ice. During the winter of 2000 Linhart built an igloo on top of Beaver Creek at an elevation of 3 500 metres. Here he constructed five instruments, and hired Colorado's

Symphony Orchestra to perform an ice music concert in a excavated amphitheatre in the snow, claimed to be the first in the world. During 2001 there was an ice music festival at Taos Ski Valley with the name "Fiddling While Rome Burns" that resulted in one of the first ice music CD recordings, called "Kiss My Ice Music". It included music from Mozart to "Ice Cello Blues" (Vail Daily 2005). Although these ice music concerts were successful and attracted nation wide media attention in the USA, Linhart could not find financiers to continue to develop his ideas about ice music. Therefore the invitation from the Swedish Polar Research Secretariat in 2003 made it possible for him to continue his work. Before the conference in Kiruna, Linhart visited Gunilla von Bahr at the Royal College of Music in Stockholm, to learn about playing the flute in order to be able to develop ice flutes. Ice flutes together with ice percussion instruments complemented his earlier developed ice string instruments. The concerts at the Icehotel in Jukkasjärvi ended with the recording of the CD "Voice of Ice", which also included the traditional Sami music style joik, together with ice instruments. Inspired by the attention Linhart received in Sweden, he continued with his next bold idea – to build a 54 pipe organ completely out of snow and ice!

During his instrument construction time at the Icehotel, Linhart met the Swedish snow- and rock sculpture Birgitta Johansson, whom he later married. To fulfill his dream of constructing a full scale organ, he needed to learn about organ construction. Luckily the organ building *company Grönlunds Orgelbyggeri,* was located in Brigitta's home town Luleå. Tim Linhart managed to persuade Yngve Bergkvist, the founder of the Icehotel, to let Linhart continue to build ice instruments at the Icehotel, including an ice organ. Yngve Bergkvist being fully occupied with the success of the Ice Globe Theatre, did not

pay too much attention to this and let Linhart do his construction work in an extension area to the Ice Bar in the Icehotel. Bergkvist also agreed to give Linhart free board, but no salary. Linhart started his work by spending two weeks in Luleå to learn how to construct an organ. *Grönlunds Orgelbyggeri* provided Linhart with copper pipes in different sizes as templates for the ice pipes of the organ. Around the pipes Linhart packed his "slush" snow to form ice pipes. The workers at the organ company were skeptical to the whole idea at first, but when they heard the sound after blowing air through an ice pipe they changed their minds and become enthusiastic. Linhart then spent three month in Jukkasjärvi to construct the 54 pipes. After a while he acquired an assistant Daniel Rosenbaum from Australia, who was a trainee at the Icehotel.

This whole unique project of constructing a full scale organ in snow and ice was initiated solely by a visionary artist and got no attention or funding during the three months of construction. To survive, Linhart luckily had a sponsor in the USA that was fascinated by Linhart´s visions and provided finance for travelling and other costs. Before starting his construction work, Linhart contacted the School of Music in Piteå at the Luleå University of Technology, as the School of Music which is the most northern in Europe, has a famous organist Prof. Hans-Ola Ericsson. The School of Music promised to arrange the concert production and provide musicians and the school´s media department was to document the concert with sound and film recordings. The School of Music was unprepared for this request, however, as it came in the middle of a school term, and the whole concert production had to be hastily organized by student and teacher volunteers. Planning courses and major activities such as concerts, usually take a long time in the academic world.

During the last weeks before the concert both students and teachers became involved in the construction of the concert room at the Icehotel. It became a race against time where about a dozen volunteers from the School of Music were involved in the construction and preparation work. After three months of hard work for Linhart the organ was ready for a concert on the 4th of April. That evening two concerts were performed for an audience of about 450 persons. After the evening the wonder that was the ice organ was allowed to melt away and return to the Torne River.

The ice music for the concert was composed by Jan Ferm, the organ was played by Professor Hans-Ola Ericsson and the other ice instruments were played by students from the School of Music in Piteå. The concert as well as the composition of the ice music was themed by an experience production student Jennie Lindström (now Gelter) based on the interaction of arctic mythology, the northern lights and the sounds of ice music (Lindström 2004). The theme was the "Re-emergence of Ymer in the shape of the ice organ". The storytelling of "how the Ice giant Ymer emerged from snow and ice and together with the northern wind Bore creates the mystic music of snow and ice" formed the basis for the music compositions, improvisations, lightning of the instruments and concert area as well as the costumes of the musicians. The compositions by Ferm were called "Improvisation on Ymer", "Awaiting Ymer´s re-emergence", "The dance of Aurora Borealis", "Ymer´s re-emergence" and "Snow and Ice". In addition Hans-Ola played "Improvisation on snow and ice" and "Improvisation on the cold". This world unique concert was much appreciated by the audience as well as by the musicians; as all

understood that a similar concert would probably never occur again. It was a once in a lifetime experience!

The whole ice organ project is interesting from an innovation and regional development perspective, as it was a kind of inverted FUNK-process. Here a visionary artist by himself initiated and almost “forced” research and education (School of Music in Piteå) and business (Icehotel and Grönlunds) into a development project, instead of, according to the FUNK-model, a public organization based on FUNK-partners refine a cultural idea to make it into an innovative business success.

Although the project through the two concerts was an experiential success, in economic terms it was financially unsuccessful, or even a disaster. The stakeholders (the Icehotel, the School of Music and the artist Linhart) committed considerable resources, while the revenues due to modest concert fees from the two concerts were minimal. In addition, the media attention, which could have compensated the limited economic returns by its attention value, was also limited, consisting of only small notices in the local press. Again this was due to the lack of a professional organization (within FUNK) for media promotion that could see and promote the unique innovation potential of the project. One important practical lesson from the two concerts at the Icehotel was that the design of the concert room was not adapted for the ice instruments in close proximity to the audience. During the second concert the tuning and sound of both the organ and ice instruments started to drift due to heat from the audience in the restricted area. Linhart concluded that lack of ventilation in traditional igloos is not suitable for ice music

concerts. He quickly developed a new visionary idea – a special constructed Ice Dome Concert hall (Figure 16.1).

FIGURE 16.1 NEAR HERE

Figure 16.1.Vision of the Ice Dome Concert Hall, drawing by Tim Linhart (with permission from Linhart).

From Icehotel to Ice Lab and Concert Hall

At the evaluation meeting of the project with the stakeholders, Linhart presented his idea about a concert hall in snow and ice. After the economical troubles with the Ice Globe Theater at the Icehotel, Yngve Bergkvist was not interested in another risky project. We (Gelter 2007) therefore suggested taking the concept to the School of Music in Piteå in the form of an "IceLab", where music students can be trained on ice instruments and research and development in ice music and ice concerts can be conducted before a full scale concert hall was constructed. Everyone at the meeting agreed that the natural place for an Ice Dome Concert Hall was in association to the world's most northern School of Music. Our vision was that the IceLab would develop the concept during some years and then a magnificent Ice Dome Concert Hall would be built on the sea ice outside the resort Piteå Havsbad, to become an attraction complementing the Icehotel in Jukkasjärvi. The resort Piteå Havsbad had initiated a process of developing winter activities called "*Winter Wonderland*", and the

municipality of Piteå had just started a winter festival "*Vinter I Piteå*" (Winter in Piteå). Developing ice music at the School of Music in Piteå would fit perfectly into these development processes and make the destination a world class winter attraction. The trio of the LumiLinna Snowcastle of Kemi by the Gulf of Bothnia in northern Finland, the Icehotel in Jukkasjärvi and the Ice Dome Concert Hall in Piteå would create a common attraction for unique winter experiences in Northern Scandinavia. As the CEO of Piteå Havsbad as well as the representatives for Piteå Municipality and the School of Music in Piteå were enthusiastic about this innovative development concept, this emerged as a perfect opportunity for a triple helix process according to the FUNK-model for local and regional development.

The Ice Concert Hall at the School of Music in Piteå 2005

During the spring of 2004 meetings were held in Piteå to plan for developing the IceLab in the shape of a larger igloo where Tim Linhart could construct his ice instruments. At the School of Music in Piteå discussions were initiated about which courses could be involved in the IceLab. The enthusiasm among music teachers and most music students was, however, subdued as "ice music" was outside the box of traditional music education and music culture. This was also expressed by Linhart stating that "Musicians are among the most difficult to sell the concept of ice music to."

After a period of local lobbying in Piteå, an informal and loose cooperation emerged between the School of Music and the Municipality of Piteå with its division Culture and

Leisure as the coordinator (Lenndin 2004). Despite the innovative approach of the project, neither the development organization for the experience economy, MUIP (*Mötesplats Upplevelseindustrin I Piteå*, Meeting Place for the Experience Industry, Piteå) an organization sponsored by the Swedish Knowledge Foundation *(KK-stiftelsen*), nor other development agencies engaged in the project. As with the musicians, most people did not take ice music and ice instruments seriously, and could not see the cultural and touristic potential of this development project.

So only a limited budget of 105,000 SEK (ca 10,700 EURO) was raised by the Municipality of Piteå, Piteå Havsbad and School of Music in Piteå, through course resources within the education program of Experience Production. None of the music courses actively engaged in the project. Tim Linhart was hired by the municipality, and was also invited to be a guest teacher to educate about snow constructions and ice music for students at the Experience Production program. The Municipality of Piteå also provided a trainee to help Linhart with snow sculpturing in the city's centre and at Piteå Havsbad, as a small compensation. The deal with the School of Music was that Linhart together with students from Experience Production would construct some ice instruments to be performed at a concert during the "Vinter-i-Piteå" festival between February 23rd and 27th in 2005. Piteå Municipality also arranged a freezing room to preserve the ice instruments for coming years, and together with personnel from Piteå Havsbad, ice blocks were harvested from Piteå River for the instruments, and 60 cubic metre of snow was piled up for an igloo construction at the School of Music.

Linhart accepted these offerings and started to negotiate with the Icehotel to rent a balloon they use in constructing their snow igloos. Instead the Icehotel offered to sell Linhart a balloon with a 8 meter diameter and a height of 4.5 meters that they did not need any more. With resources from his sponsor in the USA Linhart bought this balloon, together with his trainee stared to construct his Ice Concert Hall in the form of a double igloo, instead of the planed single igloo for the "IceLab". Instead of fiddling around for some years with students and researchers, Linhart developed his own plans of a full scale ice music concert, based on his extensive experience in this field. This new turn surprised everyone associated with the development project who quickly had to adjust to the new conditions. Instead of teaching and learning about snow construction and concept development for ice music concerts, the Experience Production students were engaged by Linhart in the construction of the snow concert hall. The double igloo was constructed for an audience of 100 people with the ice instruments in the centre, and the seating elevated around so the heat from the audience would not reach the ice instruments. To lead the heat away from the instruments a hole was made in the roof.

Due to the informal arrangement of the development project, a plan and organization was again lacking for organizing the concerts, as well as how the music teachers and students would be involved and prepared for the concert. As the whole concert hall emerged premature to the plans of a slow development project through the concept of an IceLab, nobody was leading this new development into a full-scale concert hall and ice music concert. The Culture and Leisure department of the municipality of Piteå could only manage the manpower and machinery to provide snow and ice for the construction

work, while teachers at the Experience Production program due to lack of time and resources, only could inspire their students to engage in the project outside their courses. As the date for the concert approached, Linhart became more and more upset about the limited involvement by the School of Music, and threatened to bring up music students and teachers from the Royal College of Music in Stockholm that were involved in the concert for the queen at the Icehotel. So a few days before the concert some voluntary students from the School of Music in Piteå became involved and started to practice on the ice instruments, and a program of two concerts with different music styles was planed. Media students were again engaged to film the concert and sound engineer students record them. This time, due to lack of time during the school term and a lack of extracurricular work, no experience production students were involved in the concert production.

The first concert was held at midnight the 26th of February 2005, and was according to the local press a magical experience with an excited audience. The concert was limited to 40 minutes in order to limit the amount of heat in the igloo. The second concert was held the next day on a Sunday afternoon and was rigged for filming and sound recording. Having not been properly acknowledged for his work, Linhart, within minutes of its start, abruptly stopped the concert. His motivation was that the quality of the music was too poor, as the music students had not practiced on the instruments long enough. This became big news within the music world around the globe and the project suddenly received global media attention. Linhart´s action resulted in a strong reaction from the project coordinator at the municipality who fired Linhart directly and the dean at the School of Music broke all formal cooperation with Linhart, and at the same time

defended his students as being just students and not yet professional musicians. This resulted in a catastrophe for the whole development project, and at a crisis meeting with all the stakeholders, Gelter suggested that the Experience Production students association (UPAP) should take over the Ice Dome Concert Hall to continue all the work that had been invested in the project. The municipality that formally owned the concert hall and the ice instruments agreed to the proposal, as well as the Dean of the School of Music.

Together with Linhart the students continued to plan for an additional six concerts in association with a small snow festival called "*Snöyran*" that the students created, to be held during the Easter holidays March 25th - 27th the same year. Linhart invited professional musicians from southern Sweden and abroad to play together with some music students from the School of Music in Piteå that had become interested in ice music. At these concerts the ice instruments consisted of an ice xylophone, bubble drums, ice cello, ice guitars, ice trumpets and the world´s first violin in ice played by Sofia Csakany from Romania. In addition experimental organ pipes were played by Christina Rödder from Germany. On Good Friday two blues concerts were planned, on Easter Eve two concerts with modern music mixed with folk music and on Easter Sunday the festival was planned to end with two classical music concerts. On Easter a church service was also planned in the concert igloo as well as children´s activities for families organized outside the igloo by the students. Unfortunately unusually warm weather with 10° C caused problems with the instruments, and the wet snow and slush outdoors caused by the sunny weather did not attract families to the planned activities. Nor did the concerts fill up the concert hall igloo. There were only 50 people at the first

concert and the following concerts also had only a few visitors. So, once again the concerts barely covered the costs for salaries and Linhart himself paid for the musician´s travel expenses out of his own pocket. The festival arrangement was also an economical disaster for the UPAF as the costs for the festival exceeded the returns.

The Ice Dome Concert Hall at Piteå Havsbad

After these two less successful attempts, the Ice Dome Concert Hall in Piteå could have been put to an end. But the business development office at Piteå Municipality now regarded the project as so unique and innovative that the experience and knowledge gained during the Ice Dome project shouldn´t go to waste. Therefore, they again contacted the CEO at Piteå Havsbad who also saw the Ice Dome Concert Hall a potential attraction for international guests during the low winter season. The Ice Dome Concert Hall could become a complement to their main winter attraction, the icebreaker Arctic Explorer, which attracts about 2000 international visitors annually. These two stakeholders agreed upon a test project to be conducted the first year in order to learn the construction process, and then a full scale production the second year. Linhart now intended to build the ice concert hall according to his original plans (Figure 16.1), a three dome igloo for the audience surrounding a central 15 metre high onion shaped dome for the ice instruments with a "chimney" to conduct the heat from the audience out of the hall. Linhart immediately prepared for this next step by sewing the onion shaped balloon at a hot-air balloon factory. During a kick-off meeting between Piteå municipality, Piteå Havsbad and snow construction researchers from the Luleå

University of Technology, it was decided due to safety reasons and the lack of empirical data on such snow constructions, that Linhart´s vision of the concert hall would not be built the first year. To Linhart´s disappointment the stakeholders instead agreed upon building a four-igloo dome with the capacity for 200 concert guests. But due to the lack of the central onion shaped heat-chimney, only 150 guests at a 45 minute concert were allowed.

It was decided that Piteå Havsbad would coordinate the project, and they invested 500,000 SEK, and Piteå Municipality invested another 100,000 SEK for the construction work. The aim was not to make a profit the first year, but rather to learn the construction process. By freezing the ice instruments in a freezer they could be preserved for the next season, thus speeding up the construction phase. The original idea to put the concert hall on the sea ice was abandoned due to construction problems in association to the changing sea level and sea ice conditions. Eleven professional musicians where hired from Sweden and Switzerland as well as music students from the School of Music in Piteå. Six concerts were performed during an ice music festival at Piteå Havsbad April 16-19, 2006. During the opening concert 120 guests experienced the exotic music event and in total 850 gusts visited the ice music festival. The concept created a great amount of interest and the Munich symphony orchestra, as well as the rock band KraftWerk, was interested in giving concerts in the coming season.

In evaluating the costs in relation to the income from the concerts, the owner of Piteå Havsbad suddenly decided not to continue the project unless external funding could be guaranteed. They did not want to make the same financial mistake as the Icehotel did

with the Ice Globe Theatre in Jukkasjärvi, and did not have the patience to wait for the long term indirect financial returns of a developing winter season attraction.

End of the Ice Dome Concert Hall story in Sweden

During evaluation meetings with stakeholders in the spring and summer of 2006 where the future of the project and different funding options were discussed, Linhart perceived a diminished interest in his ideas among the stakeholders in Piteå as well as a problem with the limited winter season due to weather conditions at the coast of Swedish Lapland. During that summer Linhart took a road trip through central Europe to find a new location and new sponsors for his concert hall and ended up in Schnalstal in northern Italy. Next to the mountain hotel Granwand at 3,000 metres elevation on top of the Val Senales glacier, Linhart started to construct a new Ice Dome Concert Hall, only 500 metres from the mountain cable car station. Here Linhart constructed probably the world's largest man-made glacier cave by filling a natural hole in the glacier with man-made snow covering his 23 metre high central onion shaped cupola and side igloos according to his original plans (Figure 16.1). The whole Ice Dome Concert Hall was thus completely buried in the glacier. At this high altitude location the concert hall can be in use the year round. With the help of a refrigerated truck Linhart took the ice instruments from previous concerts in Piteå preserved in the freezer room, to his new concert hall in Italy. The new Ice Concert Hall in Schnalstal opened the 18th February 2007 and was used for some years. But again the artist and the stakeholders disagreed on different issues, this time about the safety of the construction, and all future concerts

were cancelled. Today the world's largest man-made 'cave' still remains in the glacier, but is closed for visitors. After an attempt in 2010 to establish the Ice Dome Concert Hall as an attraction at Beaver Creek ski resort in Colorado, where 77 concerts were given for audiences totaling 10,000 people,, the concerts were successful but the investors did not see the greatness of the project. Linhart is now back in Sweden, trying to convince the Municipality of Luleå, north of Piteå, to take up his dream.

Conclusions and reflections on the project

What can we learn from this story about the Ice Dome Concert Hall in Piteå? Like the Ice Globe Theatre in Jukkasjärvi, the Ice Dome Concert Hall was a spectacular and innovative development project suitable for the far north of Scandinavia. Both of these projects contributed to the development of the cultural sector in a new and innovative way, using the unique local resources available in northern Sweden, such as snow, ice and cold. Both of these cross-border projects were therefore unique in their combination of traditional culture (theatre and music) with snow and ice, resulting in an exotic experience.

Unlike the Ice Globe Theatre that has so far not been scientifically described and analyzed, we now have the historical record of the Ice Dome Concert Hall by the authors' close association to the project. A descriptive analysis is of course not enough to get the whole picture of the project, but can function as a starting point for further analysis, such as stakeholder analysis, experience outcome analysis, artistic analysis etc.

of the project. But the main goal of this study is to try to pinpoint the importance of analyzing innovative projects that despite a potential high impact value on local and regional development, still fail. Identifying factors and processes that lead to the failure of the process may teach us to avoid these traps in future similar projects.

Despite any deeper analysis of the Ice Globe Theatre, one apparent common factor for the failure of the two projects was the economic sustainability of these projects. As the production costs for advanced snow constructions are high, the season short and the number of audience members at each performance restricted, the return on the investment becomes a critical factor. Unlike other "fine arts" projects and facilities in the cultural sector in Sweden, these two projects had no cultural funding from the government. Nor had they any external risk capital, EU-funding or other support other than the local stakeholders. The physical restrictions and the short season limit the total number of guests that can attend such productions. Thus if the admission fees alone have to cover the production costs they would have to be considerably higher than the modest ticket prices that were charged. This implies that these kinds of ice concerts should be regarded as very exclusive and expensive experiences and marketed and priced accordingly. Exclusive experiences, however, create high expectations of the artistic performance, (far beyond music students), high quality concert productions and design. But the measure of success cannot just be determined financially, such as the return on investment of construction costs. Indirect gains by such projects may for example, be an increased number of hotel nights and thus an extension of the tourism season for stakeholders such as Piteå Havsbad, as well as new categories of tourists to the destination. For the municipality and the destination of Piteå and Swedish Lapland,

the value of a world class attraction and “Unique Selling Point” USP, will be difficult to measure economically.

From a triple helix perspective we can learn that from the stakeholders’ point of view, “crazy” ideas from artists and others have to be processed in a professional way into commercial production. Here the FUNK-model (Nielsén 2006) on a theoretical basis could be one way to execute this, but then there needs to be a synchronized FUNK-organization in place to extract good ideas and process them into innovative development projects. Neither in Jukkasjärvi or Piteå was there such an infrastructure to manage the innovative cultural development processes. Such an organization must have the preparedness, resources, knowledge and interest to engage in such processes. As the situation was in Piteå, neither the university (School of Music), the municipality of Piteå, or the private stakeholders (Piteå Havsbad) had the financial and manpower resources to manage the Ice Dome Concert Hall project in a full scale and professional way. Without a project management organization and proper resources, any project is likely to fail. As the stakeholders were dependent on external financing, such as EU-funding, and the Academy was dependent on resources for research and artistic development, such funding processes that have an extensive application and decision making process for funding approval, they are therefore not suitable for a quick absorption and processing of innovative suggestions from driven artists and entrepreneurs.

This leads to the third lesson from the project. Innovators such as artists and entrepreneurs have limited patience with the slow processes of investigation, planning,

and testing ideas, which is a common procedure in triple helix processes. In both the ice organ project and the ice concert hall project the artist was pushing the project without taking the time to lay the ground work of his ideas among the stakeholders. He wanted quickly fulfill his visions and ideas. The skeptical attitude in the academic world of "crazy ideas" such as ice instruments and onion shaped concert hall constructions, despite their extensive and long time praxis of development, and the academic need to "test" and scientifically learn before going into business, was thus in contrast to Linhart´s extensive practical experience of ice and snow constructions. He didn´t need to test his ideas in an IceLab as he knew by praxis that they would work, and he wanted to express his art form - ice music, as quickly as possible in full scale concerts as he had been doing this for decades. Here also different cultures clashed, such as the meeting of the "American action culture" with the "Swedish negotiation and meeting culture", as well as the meeting of the impatient innovative entrepreneur with the slow administrative institutions.

Also the business stakeholders, here Piteå Havsbad, have a limited patience in testing and developing without proper financing, as the return on investment is often a demand of sustainable business. In tourism and the cultural field, businesses rarely have resources for research and developmental testing. Both the Icehotel and Piteå Havsbad withdraw from the concert hall project as they didn´t see the economical profit in engaging in the development process. This could have been compensated if business developing agencies took an active financial role in the development and testing process. Again slow bureaucratic processes in such agencies, such as in project applications, may have hindered their direct involvement in this development project.

Thus our conclusion is that a better pro-activity on the part of business developing agencies and other stakeholders in triple helix cooperation for development of the cultural sector is strongly needed in order to be able to catch and process "crazy" and exciting innovative projects without too long application and administrative processes. Instead of waiting for such slow processes among the triple helix stakeholders (academy, municipality and company), Linhart took his idea, his knowledge and entrepreneurial drive and left the country of bureaucratic meetings to find better grounds to develop his artistic ideas. At the same time the idea of an annual international ice music festival was taken over by Geilo in Norway. Thus Piteå, Swedish Lapland and Sweden lost the opportunity to develop and refine a unique and interesting cultural innovation based on cross-bordering music and snow and ice.

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