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Adding Value to Geothermal Food Production through Experience Design

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ABSTRACT

Geothermal energy has long been a part of various forms of wellness tourism. Recently, however, it can be observed its preliminary growth in new innovative forms of agro-tourism. The focus of the paper is on the greenhouse horticulture sector that is exploring the potential of geothermal energy for heating as an alternative to fossil fuels. The authors analyse the intertwining of the trends of the so-called "experience economy" and "industrial tourism" on a selection of four case studies from three different countries: Iceland, the Netherlands, and Slovenia. Taking the experience design approach, the authors analyse the options for adding value to the business models of these greenhouse producers through designing educational, aesthetic, entertainment, and the escapist dimensions of experiences offered to visitors of geothermally heated greenhouse producers. Especially, the focus is on the educational dimension of sustainability of the production in relation to the use of geothermal energy and the analysis of the potentials in raising general awareness and dissemination of knowledge.

1. INTRODUCTION

Tourism organizations promote the creation of environmentally and culturally sensitive tourism programs as a strategy for sustainable development (Spenceley et al., 2015). Sustainability is regarded as a balanced approach toward economic, social, and environmental (tourism) development. In alignment with the original Brundtland's (1987), the definition of sustainable development, UNWTO (n.d.) defines sustainable tourism as “Tourism that takes full account of its current and future economic, social, and environmental impacts, addressing the needs of visitors, the industry, the environment, and host communities”. Hence, sustainable tourism should make optimal use of environmental resources while being ecological and helping to conserve natural heritage and biodiversity. It should also respect the socio-cultural authenticity of host communities (built and living cultural heritage, traditional values). Besides, it should ensure socio-economic benefits to all stakeholders (stable employment and income-earning opportunities, social services, and contributing to poverty alleviation) (World Tourism Organization, 2004).

When tourist destinations integrate sustainability in their core philosophy, their whole product is intertwined with this concept (Koščak, 2018). Their tourist experiences comprise authentic local culture, art, sport, gastronomy, and relaxation offered. They target different target markets as potential tourists and endeavour for higher quality products that are environmentally friendly or even encourage tourists to act ecologically. One of the sustainable and innovative ways of providing tourism products is a tourism offer based on the use of geothermal resources that goes beyond typical spa offers.

In this paper, the study is built on our previous research (Pavlakovič and Turnšek, 2019), whereby authors claim that geothermal energy has long had an important role in water-based geothermal tourism. The prime tourism product of many countries is attracting a great extent of tourists in geothermal spas and natural hot-water bathing areas. However, there are other innovative ways of combining the usage of geothermal energy with tourism. Here the focus is on combining geothermal food production and tourism into greenhouse industrial tourism as an innovative new trend, not only in developing original tourism products but also in the promotion of sustainable geothermal resources.

2. GEOTHERMAL RESOURCES AND TOURISM

Geothermal energy is considered as a relatively clean and renewable resource of energy that uses the Earth's internal heat. Geothermal resources are predominate of two types: high temperature (> 200 °C) as can be found in volcanic regions and island chains, and moderate-to-low temperature (50–200 °C) that are usually found in continental areas (Gupta and Roy, 2007). High temperatures are often used for the production of electricity, while lower temperature uses can be found in greenhouses or aquaculture. Flowers, vegetables, and various fish species and alligators are examples of products from greenhouse and aquaculture systems (Malloy, 2010).

These two systems are a part of the direct uses of geothermal resources. Direct utilization of the heat extracted from geothermal waters can be categorised in three groups (Gupta and Roy, 2007; Rajver et al., 2016): residential and commercial use, agriculture and related use, and industrial use. Among residential and commercial use, there can also be found a use for bathing, swimming, and balneology while people took benefits from thermal waters even back in antique times. Nowadays, thermal spas are highly popular touristic attractions and destinations. Rajver et al. (2016) write that geothermal resources for bathing and swimming purposes are used in more than 75 countries, mostly in China, Japan, Turkey, Brazil, and Mexico; likewise, it is also very popular in Europe.

However, tourism can also be integrated into the second group of direct uses of geothermal resources, which is agriculture and related use. Over 30 countries worldwide, geothermal energy is used to heat greenhouses for the production of vegetables and flowers, among them are Turkey, Russia, Hungary, China, and the Netherlands (Rajver et al., 2016). Greenhouses, with their high-tech approach to farming and with colorful and tasteful products, provide an excellent foundation for developing industrial tourism. Industrial tourism can be defined as tourists' visits to production sites, where productive activity is actually happening to witness production processes in motion, and to taste / experience the products or to learn about company’s history (Frew, 2000; Jafari, 2003; Otgaar et al., 2010;

Vargas-Sánchez et al., 2014). This kind of industrial tourism can be described as active industrial tourism (Rodríguez-Zulaica, 2017), while visits to inoperative and abandoned industrial heritage sites can be defined as industrial heritage tourism (Hospers, 2002).

Industrial tourism is not a new activity since companies have hosted visitors back in the late 19 / early 20 century (Frew, 2000; Marsh, 2008; MacCannell, 2013). However, it is attaining increasing importance nowadays as a part of the cultural heritage in a growing number of destinations. It is dynamic, interactive, and different from usual forms of tourism. Its foci are technology and knowledge that become the key elements that draw the most tourist attention (Jing, 2012). Greenhouses with their geothermal resources, thus provide an interesting new venue for developing industrial tourism.

3. EXPERIENCE DESIGN AND GEOTHERMAL RESOURCES

Greenhouse industrial tourism is potentially attractive to tourists since it represents a special on-site experience. Jia (2010) proposes that the concept of experience could be introduced into the industrial tourism program design as its essence is to create a special and interesting tourism experience to satisfy tourists' sensory and mental needs. Experience design is recently gaining heightened attention not only within the hospitality and events industry (e.g., Tussyadiah, 2014, Smit and Melissen, 2018) but also from other industries. Pine and Gilmore (1999) claim the economy itself is witnessing a shift from a service economy towards an experience economy.

As O'Dell (2005) claims, it may be impossible to completely re-present the phenomenological essence of people's experiences since these are highly personal, subjectively perceived, intangible ever fleeting, and continuously ongoing. However, he continues that as sites of market production, the spaces in which experiences are staged and consumed can be linked to stylized landscapes that are strategically planned, laid out, and designed. It is such spaces and related experience design processes that we focus on this research.

Pine and Gilmore (1998, 1999) claim that the last few decades have brought about a new stage in the economic progress from service economy into experience economy where “work is theatre and every business a stage” (Pine and Gilmore, 1999). Adding experiences seems to be the current answer to the question of the ever-progressing search for adding value and thus increasing the price and distinguishing one’s offer from the competition.

If Pine and Gilmore’s (1998) approach is applied to metaphorically represent the historical progression of adding value to the business of selling greenhouse-grown tomatoes, then it can be argued that there are historically at least four types of tomato growing businesses. These can, according to Pine and Gilmore, be also understood as stages of economic development (see Figure 1).

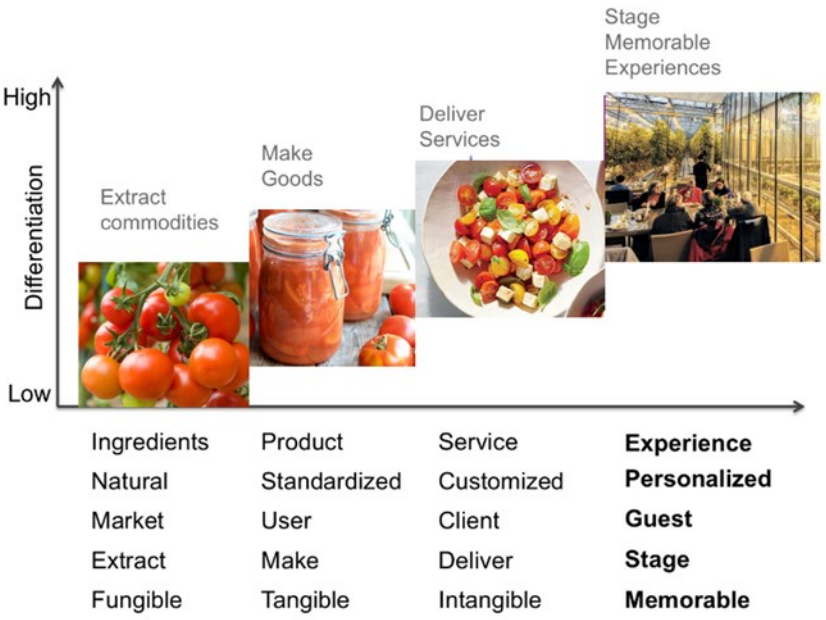

Figure 1: The progression of economic value in producing tomatoes. Based on Pine and Gilmore, 1998.

If Pine and Gilmore’s theory is applied to the case of greenhouse-grown tomatoes, it can be argued that in the agrarian economy, the added value was narrowed only to selling the commodities – tomatoes. As the goods-based industrial economy advanced, farmers and other specialized companies added value by transforming tomatoes into standardized products, for example, canned tomatoes. Later, when the service economy took hold, farmers also added services, such as preparing meals from the tomatoes. Finally, the experience economy means that farmers add value through providing experiences – memorable events.

An experience is defined by Pine and Gilmore (1998) from an economic, organisational viewpoint as a result of the process in which a company intentionally uses services as the stage, and goods as props, to engage individual customers in a way that creates a memorable event. For example, transforming a taxi ride from a mere service of getting from point A to point B into an entertaining event enjoyed for its own value. Pine and Gilmore (1998) were most concerned with the question of how to design an experience in a way that "sells" and thus be staged in a memorable way. They were thus amongst the first to propose specific steps in the experience design process. They advise building experiences within four broad dimensions of experiences: entertainment, education, escape, and aesthetic dimension.

Because of the easily understandable focus on the four dimensions of experiences, their work is still one of the founding pillars in business management approaches towards designing experiences (e.g., Sundbo and Darmer, 2008; Smit and Melissen, 2018) and evaluating experiences (e.g., Oh et al., 2007). Yet their proposal has specific limitations, as criticized by O'Dell (2005, 20): "their discussion takes the form of a cookbook, offering "how-to" recipes that fail to place their object of study in larger cultural, social and historical perspective." Additionally, O'Dell claims that Pine and Gilmore's analysis downplays the fact that the selling of experiences is not necessarily a new phenomenon – for example, almost from the start, General Motors understood that they were in the business of selling experiences and not just machines (O'Dell, 2005). However, it is difficult to negate the importance of Pine and Gilmore's (1998, 1999) "cookbook recipes" in the newly emerging field of experience design. This paper took into consideration their approach, although simplistic, yet classical, as the starting point of the present analysis of the four case studies.

4. USED METHODS

The paper introduces case studies of four companies: Tomatoworld and Duijvestijn Tomaten, the Netherlands, Fridheimar Company, Iceland, and Paradajz, Slovenia. Greenhouse production is, of course, not only focused on tomatoes since the horticulture sector includes a wide variety of crops, from food production to ornamental flowers. However, tomatoes are amongst most commonly produced crops in extensive, geothermally heated greenhouses due to their higher yields when produced hydroponically and in controlled climates.

The data collection for the case studies was based on interviews with the company representatives (either via e-mail or personally from the responsible persons at the site). Additionally, these were complemented with field observation and field notes from visiting the greenhouse production sites and connected tourism offer. Visited companies are presented in Figure 2. The Fridheimar company site visit took place in June 2018 (number 1 in Figure 2). The Paradajz company site visit took place in November 2018 (number 2 in Figure 2). The Duijvestijn Tomaten site visit was in December 2018 (number 3 in Figure 2). The Tomatoworld site visit was held in June 2019 (number 4 in Figure 2).

Figure 2: Visited greenhouses. Google maps & Barbara Pavlakovič, 2019.

5. SITE DESCRIPTIONS

Tomatoworld from the Netherlands is an information and education centre in Westland that was founded in 2008 with the support of leading companies in the greenhouse horticulture cluster (the initiators are Greenco Company) (Tomatoworld, 2019). The site has 0.15 hectares of demonstration greenhouse and an additional 500 m^2 for exhibition and is intended only for visitors (see Figure 3). In a 1.5 hour tour, visitors are acquainted with 80 different varieties of tomatoes while walking through the demonstration greenhouse and tasting the tomatoes. In the exhibition area, visitors become aware of the global challenges and the solutions that greenhouse horticulture has to offer.

Figure 3: Tomatoworld education centre in the Netherlands. Barbara Pavlakovič, 2019.

Duijvestijn Tomaten (Figure 4) is a family-owned company set up by four brothers Duijvestijn in 1988 (Duijvestijn Tomaten, n.d.). Today it covers nearly 15 hectares of greenhouses, where they produce approx. 10,000 tons of tomatoes per year. In 2010, they decided to direct their vision of sustainable production and invested in using geothermal resources. They use geothermal energy to cover more than 90 % of their energy needs and in this manner, implement the delivery of renewable, fossil-free heat. They have recently set up a new showcase highly energy-efficient greenhouse with double-layered glass that is used as the second-order use of geothermal energy. The greenhouse was co-financed within a project, and the part of the three-year project was offering visits as part of the dissemination of results.

Figure 4: Duijvestijn Tomaten site in Netherlands. Maja Turnšek, 2018.

The Icelandic company Fridheimar is a family-owned company with a yearly tomato production of approx. 370 tons. They use geothermal energy for hydroponic production. From initial small greenhouses, they increased their greenhouses to the first 0.1 and later to 0.16 hectares, with the current state being more than 0.4 hectares. The first visitors' greenhouse facilities were built in 2011 and extended in 2013 (see Figure 5). Additionally, the farm attracts tourists with an equestrian centre (Fridheimar, 2019). The farm is located within the so-called “Golden Circle” travel route in the south of Iceland, thus giving it an important competitive advantage in attracting visitors.

Figure 5: Fridheimar tomato farm in Iceland. Carlos Espinal, 2018.

The Slovenian company Paradajz Ltd. is settled in the North-East part of Slovenia, in the Prekmurje region. It was founded in 2007, but the expansion of the production and the marketing boom started in 2012 with the launch of the tomato brand Lušt. From the initial 4 hectares of greenhouses, they have grown to 9 hectares of greenhouses, where they grow multiple varieties of tomatoes. The company employs approximately 50 people, but they also cooperate in the Lušt association, where they combine forces with the local farmers, who also grow other vegetables like garlic, onion, potato, cabbage, and pepper. Paradajz Ltd. is settled in the region with high geothermal potential, and the company has its own geothermal well, which they use to heat greenhouses in the colder months (Paradajz, 2019). In April 2018, they opened a visitor centre and a demonstration tomato greenhouse where they offer guided visits and tomato tastings for visitors (see Figure 6).

Figure 6: Lušt demonstration tomato greenhouse in Slovenia. Barbara Pavlakovič, 2018.

6. FINDINGS

The greenhouse horticulture sector has a great potential to use geothermal energy for heating as an alternative to fossil fuels in many areas across the world. Likewise, geothermal resources can make a tourist attraction and add value to the production process itself. Combined, they form an industrial tourism product that builds on the concept of the experience economy. Three selected organizations were all examined regarding their design of educational, aesthetic, entertainment, and the escapist dimensions of experiences.

Tomatoworld welcomes visitors of different interest, and hence they have designed different guided tours for growers and Agri/horticulture business; primary school and high school; professional education and university; cooks/food/restaurants; food & retail; business; government/policymakers/ministers; consumer visits; tour operators. Guides come from the horticultural sector themselves and/or have experience in education, and they provide tours in different languages (Dutch, English, German, French, and Japanese). The tour itself takes 1.5 hours, where visitors are acquainted with 80 different varieties of tomatoes from the demonstration greenhouse. During the tour, the entire process from seed to tomato is represented. Additionally, in the exhibition "global challenges Dutch solutions," visitors learn about different global challenges like population growth and urbanisation; finiteness of fossil fuels, global warming, scarcity of freshwater; wasting food, and the importance of healthy eating. There is also an emphasis on energy, more specifically on geothermal resources. Tomatoworld presents approximately 14 places with geothermal heating projects that provide growers with warmth to heat up greenhouses. Used water is being pumped back into the earth layers, so no water is being withdrawn from the earth. The tour ends up with tomato tasting. However, visitors can also pre-order lunch or self-catering at the Tomatoworld and try tomato soup from their own tomatoes, sandwiches, or hot meals. Tomatoworld also offers facilities renting, while you can organise a meeting and other events at their premises.

Tomatoworld puts very much focus on the educational dimension of experience. Visitors are directly placed in the middle of the educational process, starting with the exhibition about global challenges. Among other issues, geothermal resources have an important part, since greenhouses are heated up by the power of geothermal energy. Education, later on, extends to the demonstration greenhouse, where the production and horticultural aspect is represented along with the importance of animals like bumblebees that pollinate tomatoes. Next dimension – aesthetics – is addressed by presenting the exhibition in colourful, interesting, and tasteful manner. With the use of different poster presentations and exhibition items, the education dimension is also regarded as an aesthetic experience. The demonstration greenhouse itself is also an aesthetic experience with its intense green and red colour of tomatoes. On the other hand, entertainment and the escapist dimensions of experiences are less visible. Entertainment depends on the personality of the guide, which can lighten up the atmosphere with jokes or funny stories. Besides that, visitors need to wear a white protective coverall and can regard that as funny. Lastly, the escapist dimension is even less represented. Since Tomatoworld is an educative centre, there is no real connection to the production site, and visitors cannot feel related to our farming roots or be really connected to the earth while tomatoes are grown from the substrate.

The second company from the Netherlands, Duijvestijn Tomaten, is primarily a tomato production site and not a tourist attraction. They offer visits exclusively to experts in the field looking for industrial knowledge or students within their field. In 4 years, they had 3000 visitors altogether, approx. half of these are Dutch the other half are foreign. They do not see that this would be interesting to general people from the Netherlands since greenhouses are a very common thing there. The manager is the one who guides foreign visitors due to the knowledge of English. He enjoys the visits of experts and students in horticulture because with the first group, he sees the potential in sharing innovation and build cooperation. With the students, they believe the knowledge should be shared and that the industry needs the interest of young people to work and lead it in the future. The showcase greenhouse has a conference room named "Innovation centre" with a balcony into the greenhouse. The visitors can thus partly step into the greenhouse environment to see it from above, but they cannot touch the plants, nor can they walk through them. The conference room has a round table with chairs for about 25 people where the manager accepts the visitors and talks about the company, its mission, business plan, use of geothermal energy, innovation and inclusion into projects. The presentation differs slightly according to the level of expertise of the visitors. The visits are part of the showcase project, and they need to be agreed on in advance. They present the offer on the webpage together with a few details about the interested parties. They do not want to extend the number of visitors or to include broader segments since that would mean the need for additional personnel who speaks English and they would have to be sure it would pay for that additional salary. In addition, they think it should be combined with a restaurant, which is more, than what they originally had in mind with the showcase project, where they were only focused on showing best practices to the people from the industry and not the public.

Therefore, Duijvestijn Tomaten is only focused on the educational dimension of experience design. Their main target groups are experts and students of horticulture or related fields. Their mission is to share knowledge about growing tomatoes and about the use of geothermal resources. The company is especially proud of its sustainability, and the use of geothermal resources is emphasized on its web page (Duijvestijn Tomaten, n.d.). Other dimensions of experience design are not quickly noticeable; however, the company itself has no intention to build upon them to attract tourists or public to their showcase greenhouse.

The Icelandic company Fridheimar offers visits to their greenhouses, their restaurant with a bar, and the horse stables. They wish to present and explain how tomatoes are grown in Iceland now and in history. They have an exhibition about the use of geothermal heating in Icelandic horticulture since they want to show the visitors how they use geothermal resources to grow food. This presents the foundation for their restaurant and souvenir shop offer, which is all together named a food experience. They offer food souvenirs such as Tomato Jam, Cucumber Salsa and Tomato Drink, and in the restaurant, you can order their tomato soup, pasta with tomatoes, desserts made from tomatoes, tomato beer, schnapps, coffee and other tomato drinks. At first, they welcomed only groups, but now they have also individual guests. Among them are many students with their teachers but also just people who are visiting Iceland, taking the route of the “Golden Circle” and lunch at Fridheimar. When groups arrive, they first have a 10-15 minutes speech about how Fridheimar grows the tomatoes in Iceland with the help of nature and geothermal energy. Next, the visitors can walk around the greenhouse, have lunch if they prefer and many go to see the horses. Individual guests have a short presentation of the place at the table before seeing the menu, while the company efforts are to provide a good food experience for every guest.

The product is very much building on Pine and Gilmore's (1998) advice to theme the experience, with the overall theme being the tomatoes. The visitors can observe the tomato production faculties while enjoying the sun at the restaurant inside of the greenhouse. They can also learn about tomato and greenhouse production in Iceland through history (if the group is guided via the guide, otherwise via the information billboards). Most markedly, they can even try the local beer made partly from tomatoes, with a cherry tomato floating inside the glass. In terms of the four dimensions of experience (aesthetics, education, escapism, and entertainment), the product builds on the first two but neglects the second two dimensions. Most emphasis is put on the aesthetic dimension of the product with its main value proposition is the restaurant and the bar positioned in the modern glass greenhouse environment. The guest can

thus enjoy the good mood or good food while having an overview of the tomato production facilities behind the glass. The educational dimension cares for either via guide interpretation (in case of group visits), but the individual visitors are left to educate themselves about the history of the farm of the greenhouse production via a number of information billboards positioned within the visitors' centre. However, there could not be found any signs of the entertainment or the escapism dimensions to be directly addressed within the design of the product.

Very similar is the experience at Paradajz Ltd. (or to be precise) at their so-called "Cute homestead" (Luštna domačija). Visitors are welcomed to come to a shop / restaurant and to visit a demonstration greenhouse since the production greenhouses are closed for the public. The company's goal is to present their tomato growing method with the use of greenhouses, geothermal energy, and natural substrate. They put emphasis on natural growing methods like populating greenhouses with bumblebees for fertilization and not using harmful spray preparations. Paradajz Ltd. welcomes visitors of all ages, groups and individuals. They have noticed that among visitors, there are many primary and high school groups, university students and general tomato lovers, who just want to learn about the fruit. The visit lasts approximately one hour. Firstly, one of the guides takes the visitors into a demonstration greenhouse where she presents the tomatoes and the growing technique. Next, the visitors go to the restaurant, where they have tomato tasting, visit tomato shop or order something from the bar.

It was used as a field observation research method. Data about the experience that Paradajz Ltd. provides for its visitors have been collected. First, accordingly to the objectives of the company, the most noticeable is the education experience dimension. Visitors learn about different varieties of tomatoes since the sample greenhouse hosts 100 tomato varieties – from small cherry tomato to big ox-heart tomato. Tomatoes are there to observe, touch, and taste since visitors can pick and eat any tomato they like from the demonstration greenhouse. Guide also talks about the tomato varieties, the growing methods, and about the use of geothermal energy. She also exposes the bumblebees and their beehives, which can be seen among tomato plants. Gained tomato knowledge can be tested during the tomato tasting in the restaurant, where the guide asks questions about the eaten varieties and about visitors' taste. Secondly, the aesthetic dimension is also highly perceptible. The company is set in the green soundings of Prekmurje region, full of fields and flora. The visitor centre is a new and tastefully constructed and arranged, and the greenhouse is full of orderly grown tomato plants, providing captivating green and red colour mixture. The greenhouse is due to its structure very bright and warm and very clean since tomatoes are grown from a substrate in a bag. Moreover, when tasting tomatoes in the restaurant, the fruits are attractively presented on a serving plate, ready to be eaten. The shop is also nicely arranged and offers different shades of red tomatoes. Hence, colours are the most aesthetical element of this offer. Thirdly, the entertainment dimension is somewhat less visible in the case of visiting Paradajz Ltd. The guide's speeches cannot be regarded as fun since they are much more educational and there is no other entertainer on the spot. Perhaps the most amusing moment happens at the beginning of the visit when the visitors have to put on a coverall and protective slippers. Dressed up visitors in white coverall and blue slippers can take photographs before entering the greenhouse and this moment causes great laughter while making this "alien-like" pose. Finally, the escapist dimension is also not distinguishable at the first moment. However, it can be noticeable as a quest for an authentic life of growing food and using the land for humankind survival. Visits to food production facility bring us back to our roots as farmers, and watching other people grow tomatoes, gives us an experience of something extraordinary for nowadays office workers. Even though in the Paradajz Ltd. demonstration greenhouse, there are no farmworkers, the glass walls of the greenhouse offer an insight into the production greenhouses, where the employees can be seen during their actual work. Moreover, the name of the place "Cute homestead" highlights our connection to the earth and former ways of authentic farmer life. In this way, visitors can participate in escapist experiences.

To summarise the data from all four organizations, Table 1 is presented here. All four dimensions of experience are regarded whether they are perceived as strong, medium or weak while being used in the individual organization.

Company	**Education dimension**	**Entertainment dimension**	**Aesthetics dimension**	**Escapism dimension**
Tomatoworld	STRONG	WEAK	MEDIUM	WEAK
Duijvestijn Tomaten	STRONG	WEAK	WEAK	WEAK
Fridheimar	MEDIUM	WEAK	STRONG	WEAK
Paradajz	STRONG	WEAK	STRONG	WEAK

Table 1: Comparison of four case studies regarding four experience dimensions.

7. CONCLUSION

As shown in the four selected case studies, the focus of their experience design is especially on the educational dimension of tomato production and on the sustainability of the production in relation to the use of geothermal resources. Facts about tomatoes and about growing tomatoes were the centre point of all three presentations since visitors seemed to value the extension of their tomato knowledge greatly. All three also highlighted geothermal resources as an important condition of successful greenhouse operation and a sustainable approach to energy resource usage. In addition, they also focus on aesthetics dimension of experience design, while escapism and entertainment dimension remains a challenge. The aesthetics dimension has an important role in attracting visitors and creating a positive atmosphere where visitors enjoy spending their free time. Intensive colours, modern architecture, and warm greenhouse air are the main aesthetic charms. Geothermally heated greenhouses are by its aesthetic dimension not typical cases of agro-tourism, but belong much more to the arena of industrial tourism. Willim (2005) describes how traditional sites of industrial production such as large factories and hydroelectric dams have long functioned as tourist attractions because they were considered objects of aesthetic beauty and awe-inspiring, majestic and powerful. The same may be true for the analysed cases of modern industrial farming.

On the other hand, companies do not put emphasis on escapism and entertainment dimension. The visited greenhouses cannot be described as fun or self-expressing and therefore, are missing two dimensions of full experience design. In order to provide memorable overall experience, companies could offer entertainment in the form of a funny mascot, quizzes and billboard jokes about tomatoes, humorous videos or something alike. In terms of escapism, tomato growing or cooking classes could be offered. However, there are plenty of other opportunities to offer to the visitors for their self-expression together with the overall theming of sustainability and geothermal energy.

All four organizations are an important and innovative contribution to spreading the geothermal resources knowledge as has been pointed out in the analysis of the potentials in raising general awareness and dissemination of knowledge about geothermal resources. Their focus is on the education dimension of the experience design. However, all four dimensions are important to experience the product itself truly. This paper proposes companies to continue with the excellent mission of sharing the geothermal knowledge while building on other dimensions to make the experience even more memorable. Further study on how to implement mainly escapism and entertainment dimension could contribute to the overall improved method of sharing knowledge about geothermal resources.

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