

# **Idea Contests: The Effectiveness of Integrating Consumer Creativity in Destination Management Organizations**

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Bachelor of Business Administration in

Tourism and Hospitality Management

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## **Affidavit**

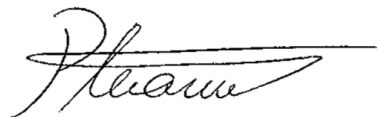
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## **Abstract**

Innovation is the key to adaptation and excellence in a market that is defined by a dynamic spread of information through technology and a rapid rise of competition. More specifically, it can act as a very powerful tool in creative process as well as proving notably beneficial in providing inputs for product development. The aim of this study is to emphasize the importance of consumer creativity in tourism innovation, particularly for Destination Management Organizations. Being a rather exploratory but rapidly evolving topic, the research is intended to support previous findings in the field of Crowdsourcing and provide a distinct view over the possible applications for user innovation in the field of tourism by testing the efficiency and implications of the Vienna2020 idea contest for the local Destination Management Organization and the city itself. The study will demonstrate the influence of novelty over the quality of user-created ideas as well as the importance of content relevance and accuracy in generating competent inputs.

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# 1 Introduction

Several studies emphasize the importance of harnessing consumer creativity as a valuable resource in generating innovative ideas and products. Open Source Software programs such as Apache or Linux are famous examples of user-generated products that ultimately led to notable advancements in technology (Poetz & Schreier, 2012) and considerable influence in the evolution of their competitors. Walter and Back (2011) include the process of encompassing externally generated information to internal business processes in the concept of Open Innovation. According to this study, Open Innovation is a part of the process of developing a new product within a business, also known as the New Product Development (NPD) stage, and it primarily consists of the initiation and support of creative endeavors undergone by customers (users) in a problem-solving context. Poetz & Schreier (2012) also integrate Open Innovation, particularly Crowdsourcing projects, in the process of NPD as a complementary element to internally-generated content. Hence, the concept of Crowdsourcing can be defined in the current context as the outsourcing of an internal process of innovation to a crowd of people by means of the Internet (Walter and Back, 2011).

Howe (2009) introduces four main categories of crowdsourcing initiatives: Crowd Creation, Crowd Voting, Crowd Funding and Collective Intelligence (or Crowd Wisdom). The first segment is very common among businesses that solicit the knowledge of its users for the creation and development of a product. Secondly, crowd voting is a strategy of systematization of data through the votes of the crowd. The third type of crowdsourcing is a method of gathering funds through the small contributions of a crowd that has an interest in the specific project while the last category consists of the process of creating a suitable environment for harnessing the knowledge of the crowd and of gathering them. As opposed to crowd creation, collective intelligence appeals to the customer only for ideas for products or strategies, not the entire development process. This strategy is one of the most common and it is widely used by means of Internet based brainstorming sessions or competitions (idea contests) that aim to tap into the common customer knowledge.

Idea, or innovation, contests are thus defined as “the invitation of a private or public organizer to a general public group to submit contributions to a certain topic within a timeline” (Ebner et al., 2008). Sawhney et al. (2005) highlight the importance of the Internet in connecting with consumers and assimilating collective user knowledge. The lack of geographical boundaries, fast spread of information and abundance of user-to-user interactions consolidate the assumption that virtual contexts are perfect environments for user-generated innovation. In the context of using these technological advantages, online idea contests can be powerful tools in generating consumer knowledge for the purpose of their integration in the innovation process.

The fundamental trait of the tourism industry is the need for close interaction between the service providers and its customers, in order to ensure the best tourist experience possible. However, the sector is not currently harnessing the power and advantages of crowd wisdom to its full potential. Although rudimentary forms of Open Innovation used for feedback and rating platforms such as Trip Advisor or route planners such as Google Routes encourage the communication between the two parties and the use of this knowledge for further development, there is still a limited understanding, and thus practice, into how the knowledge of the tourists can be used to improve the destinations and the services provided. Consequently, the study will focus on a relevant example of the use of Open Innovation in tourism, particularly for the organizing Destination Management Organization.

The “Vienna 2020” idea contest will be brought into discussion as an example of a user innovation contest that has the potential to initiate a trend within an industry where the advantages of such practices have not yet been fully discovered. Launched in February 2014, the initiative was an open innovation contest launched by the Vienna Tourism Board (VTB) which aimed at improving its 2020 Tourism Strategy by challenging tourists and tourism stakeholders from all over the world to contribute with ideas.

As an initiative of a Destination Management Organization (DMO), the idea contest aimed at attracting people from all around the world to provide valuable inputs in regards to the city of Vienna as a tourist destination. 650,000 people, reached

through social media, PR activities and direct mailings, were challenged to generate new and innovative ideas, within the timeframe of one month, which would improve Vienna as a tourist destination. The targeted public generated 546 ideas that were mostly generated through joint effort (as the participants could add their personal inputs to other ideas). Out of these, 74 ideas were selected by local stakeholders as being appropriate for further analysis, judging by four criteria: innovativeness/uniqueness, feasibility/implementability, benefits for visitors and residents of Vienna and clarity of proposal. Rewards were offered to the ten most attractive ideas but there could only be one grand winner.

This study aims to provide further insight into the advantages and new opportunities that Open Innovation practices can bring to the tourism industry by analysing creativity and innovation and the means of using the knowledge of the crowd in developing and implementing new concepts. Thus, the research will seek to answer the following question: *How Effective are Idea Contests in Integrating Consumer Creativity in Destination Management Organizations and the tourism industry as a whole?* In order to ensure a competent resolution to this inquiry, three auxiliary questions will be answered:

- a. What is consumer creativity and innovation?
- b. How can creativity be measured?
- c. What is the role of creativity in New Product Development?

The current research will provide further insight into the field of consumer creativity and consolidate previous findings regarding its practicality in business innovation. More specifically, the use of virtual idea contests in processes of innovation within the tourism industry will be emphasized and investigated. The paper will consolidate previous works by stating the importance of consumer innovation in product development stages and at an organizational level as a whole. Hence, this study will be beneficial for the research community interested in the field of tourism innovation as well as all businesses that harness the wisdom of crowds or plan to do so in the future.

The next chapter will present relevant theoretical background into the fields of creativity and innovation followed by a detailed description of Open Innovation processes and crowdsourcing projects, with a specific focus on idea contests. The Vienna 2020 competition will subsequently be discussed, including a description of the overall tourism strategy for the city of Vienna by the year 2020 and the role of the cited contest in this plan. The sample and methodology used in this study will further be presented, followed by a series of results. The paper will end with a thorough conclusion of the theoretical background and the research performed with additional specifications about the limitations of the present study and possibilities of further development.



## **2 Theoretical Background**

This chapter will serve as an initiation into the concepts of creativity, innovation and the implications of their use within the business environment. Further, the means of harnessing the power of the crowd through crowdsourcing projects, particularly idea contests, will be analyzed followed by means of measurement of creativity and idea quality and possible drawbacks related to the process.

### **2.1 Creativity**

The notion of creativity is commonly closely associated with innovation. Although there is an undeniable correlation between the two concepts, significant differences exist. As a defining characteristic of a superior intelligence and evolutionary as well as scientific progress, creativity has always been a focus in sciences such as psychology, anthropology or leadership. All the great minds in history that are renowned for their progressive thinking and major breakthroughs have been directly associated with a creative personality. Hence, a central part of any business' activities is the harnessing of creative minds. However, one must take into consideration the circumstances of their lives, the social and cultural environments as well as major opportunities created by gaps in knowledge (Kaufman, 2003) which make it difficult to establish a clear set of attributes that lead to creative thoughts and actions.

Due to the lack of consistent patterns, no definite consensus has been reached in regards to the nature of creativity (White and Smith, 2001 as cited in Blohm et al., 2011). Generally, a creative character implies the ability to overrule existing practice with the aim of transforming it (Briskman, 1980) but whether the transformation takes place or not is a question of resistance or inclination to change.

Nevertheless, researchers have established that the main characteristics of creative actions are primarily usefulness and novelty, accompanied by feasibility and elaboration (Blohm et al., 2011). In this context, usefulness refers to the value of an action or idea and its importance in the framework of a predetermined purpose whereas novelty is associated with uniqueness and rarity (Blohm et al., 2011) traits that are emphasized by Hausman (1987) who distinguishes creative novelty from

any other, more trivial, forms by imposing the term “radical novelty” or “unconventional thinking” (Newell et al., 1979 as cited in Kaufman 2003).

In his exceptionally detailed analysis on creativity and its confounding factors, Kaufman (2003) distinguishes four main categories of creativity categorized according to the degree of novelty of a task and familiarity of the solution: Familiar Task – Familiar Solution, Novel Task – Familiar Solution, Familiar Task – Novel Solution and Novel Task – Novel Solution (Figure 1). The first category defines activities that require the least creativity, such as daily endeavors that have a predetermined structure, and only require little improvisation. The second category, also known as *Intelligent Adaptation*, implies a situation in which predetermined knowledge of problem solving is applied in a new situation and, as the previous division, doesn’t require a high degree of improvisation. With this division Kaufman opposes previous research (Spearman, 1927; Sternberg, 1985; Gardner & Sternberg, 1994 as cited in Kaufman, 2003) that includes novelty as a fraction of intelligence and argues that the two, regardless of their correlation, have to be treated separately.

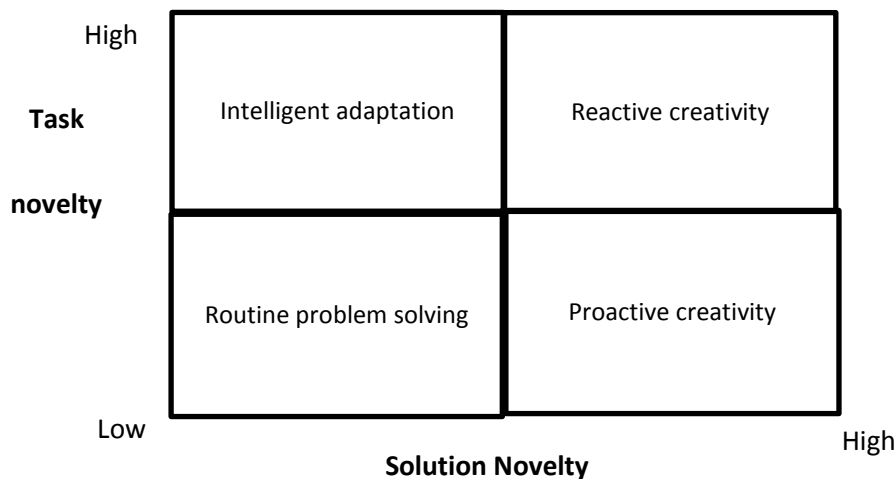


Figure 1. The novelty-creativity taxonomy (Kaufmann, 2003)

The following two categories best explain the concept of creativity as it is defined in this paper: Familiar Task – Novel Solution or *Proactive Creativity* (familiar task that requires an original solution, most common) and Novel Task – Novel Solution or *Reactive Creativity* (the predetermined situation that is needed to reach a goal is

considered faulty thus entailing the need for novelty in both task description and solution).

Researchers have extended their focus on novelty by associating the term with originality and its linking characteristics: surprising, spontaneous, unusual, and ingenious (Ang and Low, 2000; Dean et al., 2006 as cited in Blohm et al., 2011) whereas Kaufman (2003) argues that, rather than being associated with novelty, originality is a direct constituent of creativity. Nevertheless, the most relevant trait of novelty is its undeniable connection to “relatedness”, a notion that indicates the ability to transform predetermined knowledge and surpass conformities by promoting radical new ways of thinking (Besemer and O’Quin, 2000; Nagasundaram and Bostrom, 1994; Christiaans, 2002 as cited in Blohm, 2011). In the context of New Product Development, Blohm et al. describe relatedness as the capacity to innovate.

## **2.2 Innovation**

The concept of innovation is widely used in a business context within idea and product creation and development stages as well as everyday phrases used to describe a creative process. Sciences such as Engineering, Sociology and Economics rely heavily on the term in order to explain novel processes (O’Sullivan and Dooley, 2009). However, consensus in terms of what the term actually entitles for each of these subjects and any other possible applications has not yet been reached.

A fairly unequivocal definition of innovation projects describes the concept as the creation, approval and application of novel ideas, practices, and products or services (Thompson, 1965), a framework that is also consolidated by West and Anderson (1996) who describe it as the efficient utilization of processes and outputs that are unique to the organization and were created for the purpose of benefiting the business and its stakeholders.

In a business framework, innovation is portrayed as a series of actions that transform concepts into physical products (Baregheh et al., 2009 as cited in Schulze et al., 2012). In an increasingly competitive economic environment with rapid developments and changes in practice, innovation is the key factor for business success (Schulze et al., 2012). Thus, “in order to obtain a competitive edge,

companies have to constantly try to find inadequacies in existing products and technologies compared with a vision of a future desired state that involves an improvement over the status quo" (Kaufmann, 2003).

Traditionally, innovation was an active internal process of the Research and Development department of a business with a rather rudimentary focus on other stakeholders. Schulze et al. (2012) present alarming proof for the lack of attention placed on innovation in businesses and thus the lack of a systematic process for stakeholder interaction during new product development. His findings indicate that approximately a third of businesses allocate less than 2.5% of their annual revenue to innovation while only 7.3% dedicate over 10% of their total revenue to their research and development departments. However, the search for new and different ideas with high potential as well as increased competition has shifted the process to a more outward approach that, rather than creating a product based on the business concept and goals, analyses the exterior factors and interested parties and, most importantly, includes them in the process.

Although the importance of the customer has always been acknowledged, business strategies have inclined to assign them a more "passive role" when it came to innovation (Sawhney et al., 2005) due to conflicting interests, lack of organizational structure or financial constraints. Recent studies on the field of innovation as an integrated part of business and product development, have noted that the major influence for product development is exercised by the customer. Poetz and Schreier (2012) cite a number of studies that suggest that the most successful products were the ones initially developed by the customers rather than the manufacturers, with indications that approximately 30% of customers surveyed played an important part in product creation or development with successful commercial results, emphasizing the importance of business-customer interaction as a crucial part of the innovation process.

This interaction with the customer during new product development was conceptualized by Von Hippel, (2005) as "user innovation", which represents the creative actions of clients that have high involvement in the innovations process. Thus, the client is seen as an "actor" in the process of developing a business product that proves mutually beneficial for both parties.

User contribution in idea generation processes can be structured into two main categories: first, customer needs are analyzed in extensive market research, leading to the discovery of relevant needs that are not covered by existing products, also known as “need-based information”. Second, the market research process does not only focus on existing and unsatisfied needs, but also on possible customer-generated solutions, concept also known as “solution-based information”. (Poetz and Schreier, 2012) The latter, an initially controversial method, referred in this study as *Open Innovation* (Chesbrough, 2003), has been the crucial factor in transforming classical product development processes into the new, user focused, innovation strategies that have better outcomes in terms of novelty and customer benefit. (Poetz and Schreier, 2012)

### **2.3 Open Innovation**

The concept of Open Innovation was introduced in 2003 by Hernry Chesbrough in his famous book *Open Innovation: The new imperative for creating and profiting from technology* where he defined the term as the exchange of knowledge from and to the organization with external sources and the use of this information by the “open innovators” for the development of in-house processes and market expansion. In simpler terms, “Open Innovation means that valuable ideas can come from inside or outside the company and can go to market from inside or outside the company as well.” (Chesbrough, 2003).

The author also places the term in a distinct opposition with the standard, “closed”, innovation processes that rely only on internal designs and strategies, and hence an adverse of classical organizational structures in which products are developed by the company, for the client, with few efforts placed on market research and low budgets for product development. However, it must be emphasized that Open Innovation is not distinct to Research and Development (R&D) processes but an active part of them and a counter of the traditional strategies used for these activities (Walter and Back, 2011).

There are numerous examples of companies that actively use Open Innovation in their daily creative endeavors such as businesses that use the knowledge and expertise of consultants or HR departments that temporarily hire trainers for their

teams or external lecturers that participate in academic research projects of a university (Sloane, 2011). Because of the direct link to business innovation and success, more and more organizations are outsourcing their innovative processes towards users and partners (Chesbrough, 2003). This implies a radical change in organizational structure and design (Sawhney and Prandelli, 2005), particularly due to the need for large investments in R&D. The structure of the department would most probably be required to change its strategy from plans established for low risk and small gains processes to high risk but also high gain activities (Marsili and Salter, 2005 as cited in Laursen and Salter, 2006).

When analyzing Open Innovation, Walter and Back (2011) include user innovation (or client *Co-creation*) as a critical part in all outsourcing approaches and a massive influence for market expansion. Kirton (1976, 1987, 1988 as cited in Kaufmann 2003) separates users into two main categories: 'Adaptors' and 'Innovators'. The *Adaptors* are the customers that update solutions within previously established themes whilst the *Innovators* think and act in a different manner and hence transform tasks and methods according to their way of thinking. The latter division is the most relevant in Open Innovation efforts, as they anticipate future market demands before they become acknowledged by the market itself (Piller and Walcher, 2006).

As Poetz and Schreier (2012) accurately report, "the ability of users to come up with promising ideas might not only depend on the type of problem itself, but also on the way it is communicated". True Co-creation depends extensively on the marketing efforts of a business and the flexibility of the organizational structure with the purpose of enhancing and supporting communication with customers for informational exchange that ultimately leads to innovation (Sawhney and Prandelli, 2005). In this context, the user-manufacturer interaction is much more important than in a normal purchase relationship. The firms' structure would require a re-design in order to align its communication strategies and technology to the highly dynamic and interconnected digital world in which users are part of today. Hence, the use of the Internet, social networks and all other communication means have to be adapted to enhance customer engagement in the highest degree.

## 2.4 Crowdsourcing and Idea Contests

As stated in the previous subchapter, networking and connectivity between communities have become a critical part of any innovative endeavor (Laursen and Salter, 2006). As innovators tend to be much more involved in a group and are supported by a feeling of belonging to a community with similar practices and views, companies have learned to develop this need for interaction into a creative environment where the much needed innovations can be born. Also defined as *Crowdsourcing*, this method allows firms to outsource problem-solving or product-searching processes through the Internet and to a group of people with similar skills as their own employees but with a larger scope and diversity (Walter and Back, 2011).

Through the use of the internet as a central part of Crowdsourcing, this approach has the potential to bring firms many gains in the ease of reach to an otherwise unattainable global market, high speed, increased flexibility and most importantly incremental communication with and between users (Sawhney and Prandelli, 2005). Thus, Crowdsourcing has become an important resource of non-expensive and competent workforce (Howe, 2006) and a necessary practice for R&D departments that require innovative problem-solving skills. Every day, competent minds use Crowdsourcing websites to connect with firms and perform tasks or provide input otherwise inaccessible for businesses (Walter and Back, 2013) and thus engage in transforming ideas and solutions into 'information goods' (Walter and Back, 2011). Platforms such as Presans, Innocentive or IdeaConnection establish secure means of interaction between corporations (*Seekers*) and users (*Solvers*) by allowing peer-to-peer interaction, problem solving, discussions with like-minded people and overall creating a sense of community (Hutter et al., 2011; Walter and Back, 2011; Adamczyk, Bullinger and Moeslein, 2012). It must be noted that these users can be both customers and experts in the field, depending on the market the firm is targeting for that specific project.

However, the critical element of Crowdsourcing is its capability of collecting and developing the "wisdom of crowds". This concept indicates that the quality of communities input is notably higher than the individual one (Walter and Back, 2011) by allowing constructive dialogue and criticism to shape the ideas and dynamic of

the group (Howe, 2009). Albeit there are several tools that make use of this concept in their crowdsourcing efforts by increasing communication and communal experience, none are more effective or more widely used than *Idea Contests*.

Adamczyk, Bullinger and Moeslein (2010) define Idea (Innovation) Contests as “as IT-based and time limited competitions arranged by an organization or individual calling on the general public or a specific target group to make use of their expertise, skills or creativity in order to submit a solution for a particular task previously defined by the organizer who strives for an innovative solution”. These solutions are then assessed by an assigned group in order to determine the most suitable solution for the problem at hand (Blohm et al., 2011). Despite its increasing popularity, the concept of a crowd-based competitions is not a recent one; Idea Contests can be dated back to the 18<sup>th</sup> century, when the British Parliament summoned its people to create a method that would help establish the longitude of a ship’s whereabouts for a reward of 20,000 pounds (Hutter et al., 2011). Being more popular in the business world rather than institutions or NGOs, successful firms – such as IBM or Siemens - from varying industries are increasingly applying this method to target a crowd that is essentially becoming a business entity with an established demand (Boudreau and Lakhani, 2013).

Bullinger and Möselein (2010) and Ebner, Leimeister and Krcmar (2009) proposed a framework of ten ‘design elements’ that best describe the constituent parts of an innovation contest: Media, Organizer, Task/Topic Specificity, Degree of Elaboration, Target Group, Participation As, Contest Period, Reward/Motivation, Community Functionality and Evaluation. An idea contest can be coordinated on different *media* platforms (online or offline) by a particular *organizer* than can be either a person, business or public institution that communicates a *task* with varying levels of *specificity* (from very specific to very broad) and *elaboration* (from simple, succinct text to complex input) to a specific *target group* that can participate as groups or individuals with particular skills and preferences. Also the competition is created in the framework of a time limit (*contest period*), with a clearly established beginning and end and it includes a *reward scheme* that is developed to encourage the users to participate with valuable input and create social interaction (*community functionalities*). At the end of the predetermined contest period, an *evaluation*



process takes place that can take the form of self-assessment, peer-to-peer or jury valuation.

Adamczyk, Bullinger and Möslin (2012) propose five 'novel' design elements that, complement the ten existing ones: the *attraction* of participants towards the contest, the process *facilitation* by the organizers in the form of support for the users, the *sponsorship* of financial or emotional assistance from outside the contest, the *contest phase* (the rounds of the contest) and the *replication* of the contest biannually, annually or even less frequently.

The reason for the growing importance of Idea Competitions, such as the Vienna 2020 contest, is the power of the crowd. By encouraging such actions, firms can not only access individual customer preferences but also identify crucial 'social knowledge' (Sawhney and Prandelli, 2005) that could not be gained through any other research methods. Thus, targeting the right market and motivating the individuals is essential to the success of any Crowdsourcing initiative. Although it has been established that innovators have no restrictions as to sharing their knowledge with like-minded people in a social framework, the best motivator for them to share this information also with firms is still uncertain (Poetz and Schreier, 2012). However, as Sawhney and Prandelli (2005) accurately claim, pertinent reward schemes are imperative to boosting user involvement and one of the most important design elements in idea competitions.

Several authors (Piller and Walcher, 2006; Walter and Back 2011; Sawhney and Prandelli, 2005) distinguish between monetary and non-monetary reward schemes, with the possibility of mixing the two together in a more complex plan (Bullinger and Möslin, 2010). Monetary incentives such as physical rewards in cash, licensed contracts or presents (e.g. the 'goodie bag' for the Vienna 2020 winners), although efficient and widely used, can have a negative effect on the motivation of the users and quality of their input (Walter and Back, 2011). Rather than using such a strategy, business should focus on more empirical motivators such as professional recognition by experts in the field, the willingness to improve and to contribute to society, the sense of belonging to an elite community or the realization of the users' idea which ultimately leads to meeting customer needs, (Piller and Walcher, 2006;

Sawhney and Prandelli, 2005; Boudreau and Lakhani, 2013; Hutter et al., 2011; Adamczyk, Bullinger and Möslin, 2012).

The previously cited research focuses more specifically on non-monetary motives, particularly the intrinsic need of users to interact with peers and be part of a community of like-minded characters. This concept can be intertwined with the concept of Co-creation but, rather than developing a product with the firm, customers are collaborating to improve each other's' ideas while still competing for the prize, if any (Sawhney and Prandelli, 2005; Hutter et al., 2011; Adamczyk, Bullinger and Möslin, 2012). Hutter et al. (2011) defines this process of simultaneous collaboration and competition between contest participants as '*Communitation*', a term originated in the notion of *Co-opetition* (complementing parts of a supply chain as well as competitors collaborating and improving one another's organizations). Consequently, the process of contributing for the purpose of winning a predetermined prize is not sufficient anymore.

Co-opetition can thus be an important asset for businesses that harness the power of crowds through Innovation Contests because of its potential for informational stimulation and progress, technological improvement, reduced levels of hazard and expenditure normally correlated with innovation processes and also solidifying customer-provider relationships as well as brand loyalty. Most importantly, the involvement in simultaneously collaborative and opposing behavior has a positive effect on the quality of the ideas introduced by the users (Hutter et al., 2011).

However, there are also risks involved in such co-operative behaviors as well as Idea Contests as a whole. A high level of involvement and attention given to the control of the competition and the direction of the crowds' collaboration can be very time consuming for business (Hutter et al., 2011). Furthermore, unpredictable costs, the protection of intellectual properties and even the risk of the solutions themselves not being appropriate (Boudreau and Lakhani, 2013) can heavily damage the outcome of such a process. Most importantly, user subjectivity in idea input and a lack of clear evaluation methods could create difficulties for firms that are trying to establish the success of such a competition.

## 2.5 Measuring Idea Quality

A critical point in the any Crowdsourcing process is the quality of the input and the means to measure it. Once the idea contest has been successfully finished, the input provided by the community needs to be analyzed. However, this evaluation might prove difficult for an organization without the necessary technology that could filter and process the ideas rapidly and efficiently (Schulze et al., 2012). Consequently, businesses might risk losing their Crowdsourcing efforts because of the high volume of information and the insufficient resources to channel it (Walter and Back, 2013).

In their study, Schulze et al., (2012) established that 20% of businesses do not assess collected ideas at all and 40% do not have the technology to analyze this input. They invoke multiple reasons for the lack of proper methods of measurement: lack of tools necessary, lack of competent staff for the task of assessing the input, financial constraints, employee resistance, lack of assessment criteria and knowledge for idea selection and, most interestingly, the lack of interest in analyzing the idea due to the use of idea contests purely as a marketing strategy aimed at engaging the public.

Although financial constraints have proved to be critical in justifying 40% of the businesses that lacked efficient means of idea quality analysis (Schulze et al., 2012), the main obstacle in processing the ideas resulted from Innovation Contests is the lack of properly defined criteria for the construction of a quality framework. Because of the subjective and ambiguous character of creativity, finding a set of principles that could jointly describe a valuable idea is a hard task (Kaufman and Baer, 2012). Blohm et al. (2011) aimed to solve this issue by proposing a model, defined as *The Four Dimensions of Idea Quality*, that employs four criteria in the process of determining the quality of the input and its applicability in the business: Novelty, Relevance, Feasibility and Elaboration. As explained in subchapter 2.1 (Creativity), novelty is an essential part of creativity through its uniqueness and rarity, both essential parts in the measurement of idea quality (Walter and Back, 2013). The second dimension measures the value or applicability of the input in the business framework, namely its ability to reach financial success, to gain competitive advantage and ensure customer satisfaction. Feasibility refers to the extent to which an idea is suitable for the transformation into a business product and the correspondence between the idea and the firm's intrinsic features and external

image while the last dimension essentially refers to the content of the idea, its comprehensibility, specificity and fullness. (Blohm et al., 2011)

The existence of these criteria greatly improves the process of determining which ideas should be implemented by firms. However, whether this analysis should be an internal process or an additional part of the idea contest by allowing the users to do the assessment is still up for debate. On one hand, researchers argue that the assessment process should be performed by an expert committee, as customers lack the necessary skills to anticipate potential successful products (Poetz and Schreier, 2012). This argument can be supported by the implementation of the Consensual Assessment Technique (CAT) which proposes the measure of idea quality through a panel of experts in the field that act as judges in the assessment (Baer and Mckool, 2009; Kaurfman and Baer, 2012). On the other hand, there is convincing evidence that the analysis of the ideas should be, at least partially, performed by community members or customers with limited knowledge in the field (Katila and Ahuja, 2002; Lilien et al., 2002 as cited in Poetz and Schreier, 2012).

The main issue with this debate is that, in most cases, experts and community members have different opinions in regards to the quality of an idea (Walter and Back, 2013). The difference between opinions clearly lies with the abundance/lack of expertise in the field. When considering an expert's perspective, users are novices in the domain that do not possess the knowledge required to develop feasible, readily applicable schemes. However, studies show that the previously gained knowledge of experts and their antecedents in product development are obstacles in developing genuinely creative ideas (Poetz and Schreier, 2012) leading to an impasse that blocks the business from adapting to the dynamic environment due to the over-dependency on previous experience, concept also known as a *Success Trap* (Kaufmann, 2003). A viable solution would be the formation of a mixed panel of both experts and novices that would jointly use previous experiences and novel thinking in filtering and establishing the best idea (Lilien et al., 2002). In order to provide more insight in this regard, we will further analyze the practices of implementing crowdsourcing principles and idea quality measurement tactics in the Vienna 2020 contest.

### 3 Vienna 2020

This chapter will introduce the Vienna 2020 initiative as part of the Vienna 2020 tourism strategy. The details of the contest organizations will be elaborated upon as well as the methods used in reaching the users, quantifying and evaluating their ideas. The division will end by providing some insight into the reward schemes used by the organizers. This study will further be used as a reference in the following sections, as the primary source of the data to be analyzed and interpreted in order to best answer the proposed research questions.

The open innovation contest organized by the Vienna Tourism Board, called "Now or never: Your idea for #Viena2020", was organized in 2014 between February 18th and March 18th. The project was part of the Vienna Tourism Strategy 2020, a 5 year plan created for a better positioning of Vienna as a leading tourism destination. The main design behind this ambitious project is "Global.Smart.Premium", three strategic orientations that aim to analyze and develop the city's existing attributes and foster innovative processes and solutions that anticipate future trends in global city tourism. The main goals of this plan are the development of Vienna as an international, sustainable and cultural hub (Global) that embraces technology and state-of-the-art urban development (Smart) while maintaining high levels of quality and elegance (Premium). (Vienna Tourism Board, 2014)

"Through their multifaceted interaction, Global, Smart and Premium will make sure that Vienna in 2020 will be perceived as a metropolis of tradition and grandeur that, however, is definitely not stuck in the past but rather keeps pace with the times – a city that is vibrant and constantly changing and renewing itself." (Vienna Tourism Board, 2014)

As part of the Vienna 2020 development process, the entire SMART project is based on innovative design plans that establish communication and enable informational exchange with all stakeholders. In addition, experts, tourists and local stakeholders were also used as creative sources by contributing to the development of the strategy on different levels: expert SWOT analysis, International Advisory Panel, Open Innovation and Stakeholder Rounds. Consequently, by including Crowdsourcing in their Destination Marketing strategies the board involved stakeholders in Vienna's strategy for the future and transformed consumers into active contributors for innovative inputs and solutions. (Vienna Tourism Board, 2014)

"Open innovation is a powerful instrument to tap the creative potential of many individuals within a minimum timeframe. Vienna has made use of this opportunity to build a strategy for the future on the ideas and discussion input of hundreds of laypersons and experts – an entirely novel, participatory dimension of shaping the future that should be widely emulated."

Matthias C. Wendt, Managing Director of inno-focus business consulting gmbh; Manager of the open innovation process "#Wien2020"

"Now or never: Your idea for #Vienna2020" is a corner-stone in the SMART strategy. Applied for the first time by the Vienna Tourism Board as a web-based Idea Contest, the initiative challenged 650,000 former and potential tourists, experts and local stakeholders to submit their ideas for the development of Vienna as a leading tourism destination by the year 2020. The ideas were labeled by the type of stakeholder (*I have already been to Vienna before or I have never been to Vienna before*) and the type of input, by grouping the ideas by 17 different criteria: Sustainability, Mobility, Culture, Sightseeing, Communication and Technology, Hotels and Accommodation, Dining, Out of the box, Accessibility, Scene and Events, Orientation and Information, Cityscape, Shopping, Safety, Arrival, Traveling on business, Green Spaces. (Vienna Tourism Board, 2014)

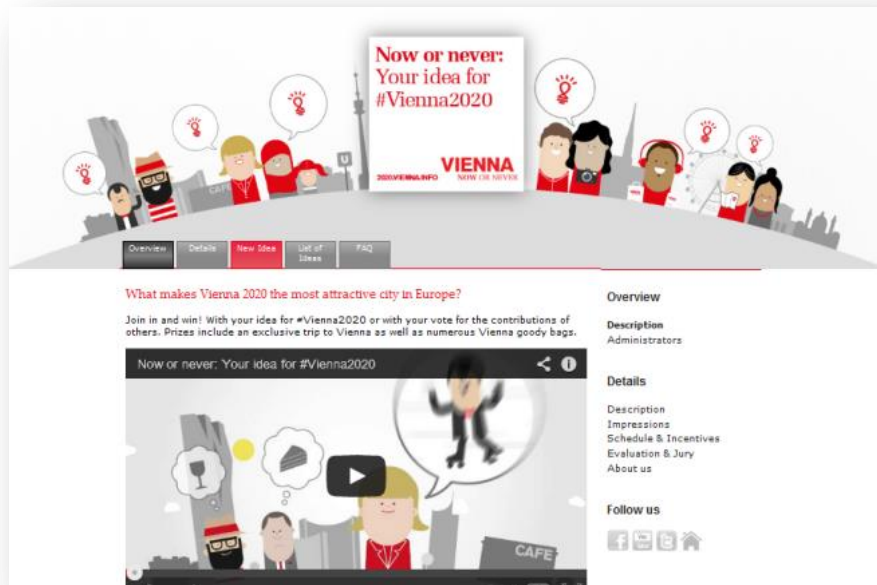


Figure 2: Open-Innovation-Platform Phase I | 2020.vienna.info | available in German & English

The process resulted in 546 ideas expressed in English or German from participants originated in more than 40 countries worldwide. The platform provided rating options and enabled comments from users, thus enhancing the competition and inducing a joint-effort and community feeling. 74 ideas were then selected from the original sample by a panel of approximately 250 experts and tourism industry stakeholders as well as an International Strategy Advisory Board that discussed the ideas and reflected upon their implementation. The inputs were scrutinized according to four main criteria: innovativeness/uniqueness ("no idea is too bizarre"), feasibility/implementability (how can the idea be implemented), benefits for visitors and residents of Vienna (who will benefit from the idea) and clarity of proposal (simple and clear content).

The winning idea consisted of a futuristic plan of connecting the green spaces located on top of Vienna's buildings through suspended walking platforms made of glass. The system included resting points and appropriate accessible infrastructure for disabled persons and children. The winner of the idea contest won a weekend in Vienna and, most importantly, the privilege of seeing his/her idea being introduced and implemented in the Vienna Tourism Strategy 2020. In addition, the ten best-rated ideas as well as ten users that were randomly elected from the voters list were awarded with Vienna goody bags.

## 4 Methodology

This chapter aims to give a detailed description of the data analysis process performed in this study. The idea sample extracted from the Vienna 2020 idea contest and the methodology to be used in order to analyze and interpret this output will be explained and developed.

### 4.1 Research Design

The design of the study will be mainly based on quantitative data analysis. In the context of research studies, quantitative data can be described as numerical values that express a certain quantity, amount or scale (UNECE, 2000) used to describe patterns and analyze tendencies from statistics (Chambliss and Schutt, 2012). The Consensual Assessment Technique (CAT) will be used as a basis for the evaluation of the selected ideas. However, this method will only act as a guideline in the grading of the ideas, as the evaluation will be solely based upon the researcher's evaluation.

From the original sample of 546 inputs, the 177 ideas submitted in English will be evaluated and graded by the researcher according to fifteen criteria that best represented the Four Dimensions of Idea quality conceptualized by Blohm et al. (2011). The Novelty dimension encompasses 6 constituents (Novelty, Uniqueness, Surprise, Revolutionary, Radicality and Trendiness) while the remaining elements, Feasibility, Relevance and Elaboration, will each be measured through three divisions (Table 1).

The evaluation of the fifteen pillars of the analysis will be performed on a one to five scale, five representing the maximum score of an idea for any of the given criteria. The overall score will range between 15 and 75 points. The minimum score possible of 15 points ( $15 \text{ criteria} \times 1 \text{ point} = 15$ ) will be given to ideas that are not in any regards relevant to the competition or have a very low degree of coherence and thus make their evaluation problematic. The ideas considered to be relevant in terms of a specific criterion are the ones evaluated with ranks above 4, with 3 points representing an average value. An example of the categorization and grading process is provided in Table 2. The overall level of quality will be quantified as the total of all the fifteen marks with a maximum score of 75 ( $15 \text{ criteria} \times 5 \text{ points} = 75$ ).



points), quantified in the 'Idea Quality' variable, and a relevant minimum score of 60 (15 criteria\*4 points=60 points) for ideas that were considered to have a high level of overall quality. Thus, the ideas ranking between 60 and 75 points will be considered to be of high quality.

**Table 1. Idea Quality Dimensions and Criteria**

Novelty		Feasibility	Relevance	Elaboration
N1. Novelty		F1. Technical Feasibility	R1. Customer Benefit	E1. Accuracy
N2. Uniqueness		F2. Economic Feasibility	R2. Market Potential	E2. Maturity
N3. Surprise		F3. Image	R3. Strategic Advantage	E3. Communication
N4. Revolutionary				
N5. Radicality				
N6. Trendiness				

Variables for the four main dimensions will be introduced in order to provide a simplified overview of the influence of each segment on the level of idea quality. The variables will be computed as the mean values of their constituent criteria (Average Novelty, Average Feasibility, Average Relevance and Average Elaboration) and thus also ranging on a one to five scale. In this evaluation, the six touchstones of the Novelty dimension will be considered as the main indication of the level of creativity of each idea, as supported by the research cited in this paper.

Title of the Idea	Idea Description	Theme	N1. Novelty	N2. Uniqueness	N3. Surprise	Revolution	N5. Radicality	N6. Trendiness	Average Novelty
Glass tubes to make crossin	idea: [b] [i]	Stadtbild & Grünra	4	3	4	5	4	4	4
Wibi	[b] what makes vienna zu	Erreichbarkeit & M	1	1	1	1	1	2	1
A rotating tower restaurant	[b] In Tampere, Finland, we ha	Sightseeing	1	1	1	1	1	3	1
Municipality Staff exchange	exchange of municipality employees between Vienna	Kongresse & Mes	4	4	5	4	4	2	4
See the sights on a Segway	[b] what makes vienna zu	Erreichbarkeit & M	1	1	2	2	1	3	2
Past is here and now	[b] what makes vienna zu	Sightseeing	4	5	5	3	4	5	4
Vienna is the most attractive	Europe? [b] A multi-cultural	Sightseeing	2	1	2	1	1	3	2
Vienna and 20th Century Th	[b] what makes vienna zu	Kultur & Events	3	4	3	3	2	3	3
More discounts for public tra	idea: [b] Building on the green bonus	Erreichbarkeit & M	3	1	2	3	3	5	3
Tourist mini spies	idea: [b]	Orientierung & Inf	4	4	5	4	3	2	4
I will always return to Vienna	[b] what makes vienna zu	Sightseeing	1	2	1	1	1	1	1
The Peoples' Festival of the	idea: [b] Vienna is known for	Kultur & Events	3	2	2	2	3	3	3
Mozart's Statue in the Park	idea: [b] I would love some	Sightseeing	3	3	4	2	2	3	3

**Table 2. Data analysis method (the grading process)**

## 4.2 Research Analysis

The influence of the six levels of 'Novelty' on the overall quality will be analyzed through frequency computations. The 'Average Novelty' scores will turn be compared to the demographic data available to determine any possible correlations between the country of origin, gender or age and the level of creativity as well as the overall quality ranking. Similar computations will be performed for the remaining three dimensions.

Due to the nature of the quantifiable data in ranks and thus lack of outliers, the correlation between the six criteria and the overall level of quality will be further analyzed through Pearson correlations. In addition, correlations between the average rate of Novelty and the demographic data will be investigated for any possible correlations as well as the connection between the overall level of idea quality and the themes to which the ideas belong to. A separate linear regression analysis will be then performed for the Average Novelty factor, as it is considered to be a general indicator for creativity in this process.

### **4.3 Research Limitations**

By attempting to measure the quality of the contributions and more specifically their level of creativity, the analysis will provide essential insight for the Research Question, particularly regarding the requirements for effective and creative ideas as well as their influence on the overall product development process. However, limitations to the measurement of the input can appear due to the subjective evaluation and the limited number of evaluators (only one). In addition, possible obstructions of the outcome of the analysis might result due to the confinement on the ideas submitted in English, potentially leading to an omission of relevant ideas and demographic data.

## 5 Results

### 5.1 Sample Description

The respondent's ages vary between 24 and 86 years old, with an interesting indication of only 24.4% of respondents being under 40 years old. A gender ratio of 55.4% male and 35.6% female was indicated, whilst 9% of the respondents did not specify any demographic information. 35.6% of the participants originated in Austria, indicating a strong domestic interest in the project and the development of the city. Foreign countries such as Germany (15.8%), Serbia (5.1%), Canada (4%) or Great Britain (4%) also had high participant numbers (for detailed list please see Appendix A). However, as the sample includes only the ideas submitted in English, relevant demographic information in regards to the country of origin might be omitted.

From the 17 themes included in the contest, the most popular topic was 'Culture and Events' with 29.9% of the ideas pertaining to this label, followed by the 'Sightseeing' (20%) and 'Orientation and Information' categories (14.1%). The remaining categories had frequencies lower than 5%.

### 5.2 Idea Quality

#### 5.2.1 Idea Quality and the Novelty Criteria

Overall, only 6.3% of the ideas that were expressed in English had an overall score of over 60 and thus a high rank of idea quality. The six Novelty criteria described by Blohm et al. also did not present high scores among the evaluated ideas, with only 15.3% of the ideas being rated as Novel, 11.9% as Unique, 12.4% Surprising, 9.6% Revolutionary, 7.9% Radical and 26.6% of the ideas scoring high in terms of Trendiness. When studying the relationship between the 'Average Novelty' variable and the overall level of idea quality the results indicate that only 1.7% of the ideas scored high in the degree of both Novelty and Quality. Nonetheless, as the p-value of this computation is higher than 5% (.285), no significant conclusions can be drawn.

### **5.2.2 Idea Quality and the Feasibility, Relevance and Elaboration Dimensions**

The ideas had a constant proportion of high rankings throughout all of the components of each of the three remaining dimensions, with an average of 5% of ideas ranking high in terms of each criterion. 4% of the ideas scored high in terms of Technical Feasibility, 4.6% in Economic Feasibility and 5.1% had good evaluations in regards to the extent in which they improve the city's Image. When considering Relevance, 5.1% of the ideas scored high in Customer Benefit and Market Potential while 4% were considered to be creating a Strategic Advantage for Vienna. The Elaboration component also had low evaluations, with 5.1% of the content being regarded as Accurate and competent in terms of Communication while 4.6% scored high in regards to the Maturity of the ideas. All computations had significant results (p-value=.000).

### **5.2.3 Idea Quality and Demographics**

Considering the country of origin, none of the ideas generated by Austrians, which is also the strongest country of origin, were ranked high in the overall level of quality. The other main countries of origin had more relevant but still relatively low results: Germany (3.6%), Serbia (11.11%), Great Britain (14.2%), Russia (16.6%), and Canada (28.6%). In regards to the level of creativity of the input described by the average rank of the Novelty Dimension (N1-N6), only 11.1% of Austrians had relevant ideas, with higher scores among the Russian participants (33.3%), Canadians (28.6%) and English (14.2%). However, the p-value for the test was significantly higher than 5% (0.719) thus indicating the inability to draw any significant conclusions from the analysis. In addition, as the sample of Austrian participants was relatively higher than the other countries of origin and the success rate of all the ideas in terms of the six Novelty criteria was 13.1%, the data cannot be interpreted as relevant.

The correlation between the Gender and Idea Quality variables indicated a positive trend for the female respondents, with 9.5% of the participants showing a positive overall quality ranking and 15.9% scoring high values in terms of the Novelty dimension whilst male respondents only had 3% of the ideas ranking in the high quality category and 11.2% in the Novelty dimension. However, the p-value

indicated a score higher than 5% ( $p\text{-value}=0.272$ ) and thus no significant association can be proven between the gender of the respondents and the quality of their ideas.

The relationship between the age of the subjects and the quality of their ideas was also analyzed. 44.4% of the quality-relevant ideas belonged to the under 40 age group, with one of them ranking as the second highest, while the remaining 55.6% of the ideas ranking a score of over 60 resided in over 40 years old age group. However, the results in this analysis might be biased due to the lack of focus or unwillingness of the respondents when indicating their accurate age as well as an automatic suggestion system provided by the software (the sample indicates that a large proportion of the respondents were 69 years old, which would be the indication of the year of birth 1945 – a common automatic suggestion when indicating demographic data in contests or interviews).

#### **5.2.4 Idea Quality and the associated themes**

An analysis of the themes proposed in the competition and their connection to the quality of the ideas submitted was performed, indicating positive significance results ( $p\text{-value}=0.038$ ). Among the themes introduced by the contest designers, the ones that had the highest quality rankings among their ideas were Sightseeing (10.8%) and Dining and Shopping (14.3%), with all other themes ranking below 5%. The topics that had the best results in terms of high rankings among the overall level of Novelty of the ideas were Cityscape and Green Spaces (19%), Sightseeing (16.2%), Orientation and Information (13%) and Mobility and Accessibility (9.5%). (Please refer to Appendix B for detailed results)

### **5.3 Correlations**

To best analyze the level of creativity of the ideas and the influence it has on the overall quality of the input, all the criteria belonging to the Novelty segment were correlated to the variable 'Idea Quality' individually. The Pearson correlation performed denotes significant results (all  $p\text{-values}$  equal to .000) with high levels of correlation between the total level of quality and all its constituent Novelty parameters, with the highest correlation rank of 83.7% for the Trendiness criteria, followed by 77.7% for Novelty, 68% Uniqueness, 66.1% Revolutionary, 63.5% Radicality and 63.1% for the Surprise variable. The six factors that define the Novelty

dimension all showed relevant correlations between each other (all significance levels being again equal to .000), with the lowest correlation percentage of 43.4% between the Uniqueness and Trendiness variables, indicating significant and strong relationships between all the variables as well as the overall quality score. However, these strong indicators might also imply a level of causality between the factors that might exert a significant influence over the Idea Quality ranking (see Appendix C for analysis).

Correlations were also computed between the average values of each dimension (Average Novelty, Average Feasibility, Average Relevance and Average Elaboration). The Elaboration dimension is strongly correlated to the Feasibility and Relevance elements with values of 75.3% and 69.8% and appropriate significance level (p value was .000 for both). This indicates a possible relationship between the accuracy in communicating the idea and its perceived usefulness and potential. The Average Relevance and Average Feasibility criteria also indicated a strong correlation of 82.1% (p-value = .000). Interestingly, the Average Novelty criteria did not present strong correlations with any of the other elements, with correlations of 28% with Feasibility, 22.1% with Relevance and 24.4% with Accuracy. (For complete results please refer to Appendix D)

The Average Novelty criterion and the demographic variables were also checked for correlations. The computation between age and the average score of the Novelty elements indicated a weak negative relationship between the two, with -22.8% and a p-value of .004. No correlation can be proven between the gender of the respondents and the level of Novelty of the inputs, as the computation was not significant (p-value=.303 with a correlation of 7%). The same situation applied to the country of origin of the sample.

The Pearson correlation indicated a weak negative correlation of 11% between the themes that the ideas were categorized to and the average level of Novelty. However, the results cannot be interpreted as significant due to the high p-value of 88.6% (p-value=.886).

As a main constituent of creativity, the individual Novelty criterion (N1) was analysed separately from its five related factors in regards to its correlation to the

level of Idea Quality. The Pearson correlation analysis indicates that there is a positive correlation between the level of novelty of an idea and its overall performance with a correlation indicator of 77.7% (see Appendix E) and a significance level of .000.

## 5.4 Regression

In order to further investigate the relationship between creativity and idea quality, the average score of the Novelty Dimension and the overall score of the ideas were computed through a Linear Regression Model. The results indicate a moderate correlation of  $p\text{-value}=.345$  between the two variables and a proportion of 11.9% of the variations in idea quality that could be explained by the Novelty dimension ( $R\text{ Square}=.119$ ). The ANOVA test indicates that the regression model predicts the overall level of idea quality significantly well, with a statistical significance level of .000. It can thus be concluded that there is a moderate positive correlation between the Novelty element and Idea Quality, as demonstrated in Figure 3. (Please see Appendix F for complete analysis)

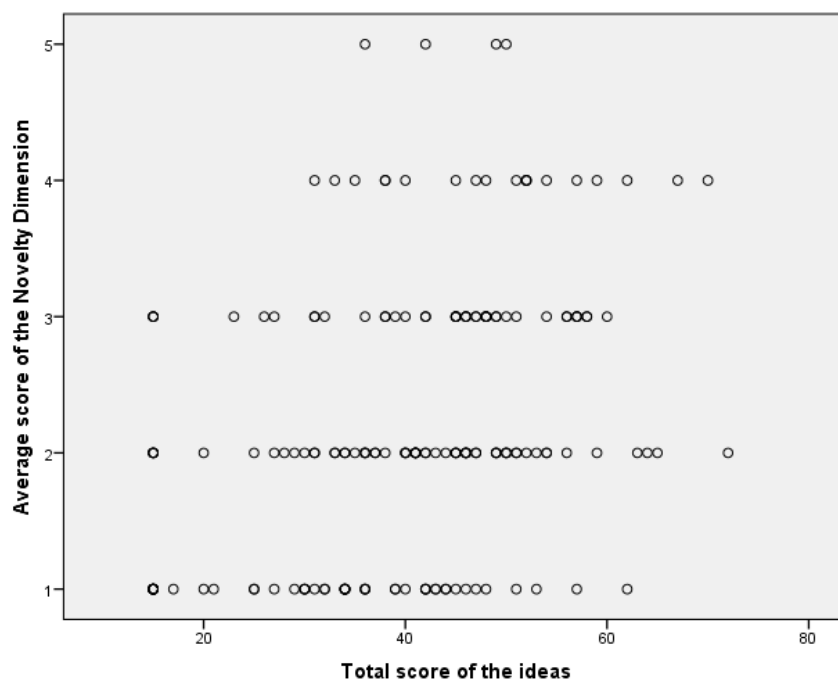


Figure 3. Scatterplot – the relationship between Average Novelty and Idea Quality



## 6 Final Remarks

The process of using customer creativity in developing products is becoming increasingly popular in the business world. However, knowledge in regards to the methods of its implementation and the role of such processes in the long term are still up for debate. The current paper investigates the effectiveness of integrating consumer creativity through idea contests by putting a special focus on the tourism industry and emphasize the importance of user innovation in harnessing novel ideas and products. Through the analysis of the Vienna2020 idea contest and the ideas generated through the initiative, the paper will act as a support for previous research on the subject of creativity and its efficiency in product development.

In order to provide a competent overview of the effectiveness of integrating creativity in the tourism industry through idea contests, three main points were addressed: the nature of consumer creativity and innovation, the methods of measuring creativity and the role of creative processes in product development stages. The literature cited gives a comprehensive overview of creativity as a method of overruling existing procedures with the aim of transforming them through innovative processes and outputs created for the benefit of the individual or the organization. The importance of these actions was emphasized by underlining their key role organizational improvement and competitive success. By implementing the framework proposed by Blohm et al. (2011) in the analysis of the outcomes of the Vienna2020 competition, the degree of creativity was measured in view of its main constituent components as well as in connection with the quality of the results.

Within the stages of data analysis, the ideas generated by users were evaluated in terms of fifteen criteria pertaining to four main categories: Novelty, Feasibility, Relevance and Elaboration. The six criteria encompassed in the Novelty dimension (Novelty, Uniqueness, Surprise, Revolutionary, Radicality and Trendiness) were considered to be the main indicators for the level of creativity of an idea. 177 ideas were evaluated according to these components on a one to five scale adding up to an overall rank that described the general level of quality of each input. The data was then analyzed through quantitative methods.

The relationship between the novelty of ideas, their overall quality and demographic information was investigated. The analysis showed no significant correlation between the gender of the respondents and their level of creativity or any influence on the quality rank. Similar results were found for the country of origin of the participants. However, when analyzing the age of the respondents, the results showed that the ideas that scored higher in terms of novelty pertained to the lower age group. The themes to which the ideas belonged to were also analyzed with results showing high rankings in quality in the Sightseeing and Dining and Shopping categories. However, no significant relationship could be proven between the level of creativity of the ideas and the themes associated with them.

The main focus of the analysis was the influence that the Novelty dimension, as a main representative factor for creativity, had on the overall level of Idea Quality. The results indicate significant positive correlations between the elements of a novel idea and its overall performance, indicating a high level of importance of harnessing creativity in the process of developing competent ideas. The remaining three dimensions encompassed in the evaluation structure (Feasibility, Elaboration and Relevance) also exerted a strong influence on the final evaluation. The three dimensions proved high correlations between each other, particularly between the Relevance and Feasibility elements. In addition, the results showed that the Novelty dimension was interestingly not strongly correlated to any of the other main constituents. This is particularly relevant when considering the connection between the novelty of the ideas and the accuracy of expressing the message.

Through this analysis, the paper provides a basis for investigation for the effectiveness of integrating consumer creativity through innovative processes such as idea contests. Although some of the tests could not be used as proof due to their lack of significance, the results suggest the presence of a correlation between creativity and quality innovative actions and emphasize the importance of using innovative processes as part of product development activities.

## **7 Limitations and Recommendations**

The analysis performed indicates a high level of relevance of creativity as a constituent for the overall level of idea quality. However, due to limitations in sample size (only 177 ideas analyzed), no definite conclusion can be drawn. In addition, no relationship could be established between the expert evaluation of the ideas and the evaluation performed in this research. It has been established that ten of the 177 evaluated ideas were winners of the competition. However, it is not clear in which stage the respective participants won; consequently, no conclusion in regards to the similarities between judge and crowd evaluations in comparison to the present quality evaluations can be made.

The limited number of evaluators can also be considered a drawback in the analysis of the sample and also due to the possibility of subjective evaluations being executed, as the evaluating criteria could have multiple meanings depending on the individual. An analysis performed by multiple evaluators could prove more relevant in determining the outcome of the inputs in terms of their quality. In addition it was not possible to establish which ideas were created individually and which resulted from a collective effort.

Overall, a more complete analysis of the data would be recommended, by including all the 546 ideas selected in the first stage of the competition. Furthermore their development process as an individual or collective effort and the results of the expert analysis performed during the contest should be correlated with an independent evaluation of the nature of the content and its perceived quality. The ideas considered irrelevant or faulty should also be removed from the sample for more relevant results. Nevertheless, the research acts as a guideline for further investigation of the cited crowdsourcing effort and other such innovative processes that use consumer creativity as a main resource.

## 8 Bibliography

- Adamczyk, Sabrina, Bullinger, C. Angelika and Moeslein, M. Kathrin (2012) *Innovation Contests: A review, classification and outlook*. Creativity and Innovation Management, Volume 21, Number 4
- Baer, John and McKool, S., Sharon (2009) *Assessing Creativity Using the Consensual Assessment Technique*. IGI Global, Ch. 4.
- Blohm, I.; Bretschneider, U. Leimeister, J.M. & Krcmar, H. (2011) *Does Collaboration Among participants lead to better ideas in IT-based idea competitions? An empirical investigation*. International Journal of Networking and Virtual Organisations, Number 2, Vol. 9, 106-122
- Bourdreau, J. Kevin and Lakhani, R. Karim (2013) *Using the Crowds as an Innovation Partner*. Harvard Business Review
- Briskman, Larry (1980) *Creative Product and Creative Process in Science and Art*, Inquiry: An Interdisciplinary Journal of Philosophy, Volume 23, Issue 1, p. 83-106.
- Bullinger, C. A. and Moeslein, Kathrin (2010) *Innovation Contests – Where are we?* AMCIS Proceedings. Paper 28
- Chesbrough, H. W., (2003) *Open innovation: The new imperative for creating and profiting from technology*. Harvard Business School Press.
- Chambliss, D. F., & Schutt, R. K. (2012). *Making sense of the social world: Methods of investigation*. Sage.
- Economic Commission for Europe to the United Nations (UNECE) (2000) *Glossary of Terms on Statistical Data Editing*, Conference of European Statisticians, Geneva.
- Ebner, W., Leimeister, J. M., Bretschneider, U. & Krcmar, H. (2008) *Leveraging the Wisdom of Crowds: Designing an IT-supported Ideas Competition for an ERP Software Company*. Proceedings of the 41<sup>st</sup> Hawaii International Conference on System Sciences, Manoa, USA, p. 1-10.

- Hausman, C.R. (1987) *Philosophical perspectives on the study of creativity*. Frontiers of Creativity Research: beyond the basics. Buffalo, NY: Bearly Ltd.
- Howe, J. (2006) *The Rise of Crowdsourcing*. Wired Magazine, 14(6), p. 1-4.
- Howe, J. (2009) *Crowdsourcing: Why the power of the crowd is driving the future of business*. Crown Publishing, New York
- Hutter et al. (2011) *Communitation: The tension between competition and collaboration in community-based design contests*. Creativity and innovation Management, Volume 20, No. 1.
- Katila, Riita and Gautam Ahuja (2002) *Something old, something new: A longitudinal study of search behaviour and new product introduction*. Academy of Management Journal, 45(6), 1183-1194.
- Kaufman, C. James and Baer, J. (2012) *Beyond New and Appropriate: Who Decides What is Creative?* Creativity Research Journal, Learning Research Institute, California State University at San Bernardino.
- Kaufmann, Geir (2003) *What to Measure? A new look at the concept of creativity*. Scandinavian Journal of Education Research, Vol. 47, No. 3.
- Laursen, Keld and Salter, Ammon (2006) *Open for innovation: the role of openness in explaining innovation performance among U.K. manufacturing firms*. Strategic Management Journal, 27: 131-150.
- Lilien, Gary L., Pamela D. Morrison, Kathleen Searls, Mary Sonnack, and Eric von Hippel (2002) *Performance assessment of the lead user idea-generation process for new product development*. Management Science 48(8), 1042-1059.
- Piller, T. Frank and Walcher, Dominik (2006) *Toolkits for idea competitions: a novel method to integrate users in new product development*. R&D Management 36, 3.
- Poetz, K., Marion & Schreier, Martin. (2012) *The value of crowdsourcing: Can users really compete with professionals in generating new product*

*ideas?* Journal of Product Innovation Management.

- Sawhney, M., Verona, G. and Prandelli, E. (2005) *Collaborating To Create: The Internet as a Platform for Customer Engagement in Product Innovation*. Journal of Interactive Marketing, 19(4).
- Schulze, T., Indulska, M., Geiger, D. & Korthaus, A. (2012) *Idea Assessment in Open Innovation: A State of Practice*. ECIS 2012 Proceedings, Paper 149.
- Schoonhoven, C. B.; Eisenhardt, K. M.; Lyman, K. (1990) *Speeding products to market: Waiting time to first product introduction in new firms*. Administrative Science Quarterly, 35 (1), pp. 177-207.
- Thompson, Victor A. (1965) *Bureaucracy and Innovation*. Administrative Science Quarterly, Vol. 10, No. 1.
- Vienna Tourism Board (2014) *Vienna Tourism Strategy 2020*
- Von Hippel, Eric (2005) *Democratizing Innovation*. Cambridge: MIT Press.
- Walter, P. Thomas and Back, Andrea (2013) *A text mining approach to evaluate submissions to crowdsourcing contests*. 46<sup>th</sup> Hawaii International Conference on System Sciences.
- Walter, Thomas Pierre and Back, Andrea (2011) *Towards Measuring Crowdsourcing Success: An Empirical Study on Effects of External Factors in Online Idea Contest*. MCIS 2011 Proceedings, Paper 63.
- West, Michael A.; Anderson, Neil R. (1996) *Innovation in top management teams*. Journal of Applied Psychology, Vol. 81(6), p. 680-693.

## 9 Appendix

### Appendix A – Frequency: Country of Origin of Respondents

Origin				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	14	7.9	7.9	7.9
99	3	1.7	1.7	9.6
AR	1	.6	.6	10.2
AT	63	35.6	35.6	45.8
AU	4	2.3	2.3	48.0
CA	7	4.0	4.0	52.0
CH	2	1.1	1.1	53.1
CZ	3	1.7	1.7	54.8
DE	28	15.8	15.8	70.6
DK	1	.6	.6	71.2
Es	1	.6	.6	71.8
ES	1	.6	.6	72.3
FI	2	1.1	1.1	73.4
FR	1	.6	.6	74.0
GB	7	4.0	4.0	78.0
GR	3	1.7	1.7	79.7
HR	1	.6	.6	80.2
HU	1	.6	.6	80.8
ID	1	.6	.6	81.4
IN	3	1.7	1.7	83.1
IT	2	1.1	1.1	84.2
JP	1	.6	.6	84.7
NZ	1	.6	.6	85.3
RO	4	2.3	2.3	87.6
RS	9	5.1	5.1	92.7
RU	6	3.4	3.4	96.0
SE	1	.6	.6	96.6
SY	1	.6	.6	97.2
US	5	2.8	2.8	100.0
Total	177	100.0	100.0	

## Appendix B - Frequency: Idea Quality and Contest Themes, Average Novelty and Contest Themes

Crosstab

Count		Theme								Total
		Erreichbarkeit & Mobilität	Gastronomie & Shopping	Hotellerie	Kongresse & Messen	Kultur & Events	Orientierung & Information	Sightseeing	Stadtbild & Grünraum	
Total score of the ideas	15	3	1	0	0	6	2	2	1	15
	17	0	0	0	0	1	0	0	0	1
	20	0	1	0	0	0	0	1	0	2
	21	0	0	0	0	1	0	0	0	1
	23	0	0	0	0	0	0	1	0	1
	25	0	0	1	0	1	0	0	1	3
	26	0	0	0	0	0	1	0	0	1
	27	0	0	0	0	2	1	0	0	3
	28	1	0	0	0	0	0	0	0	1
	29	0	0	0	0	2	0	0	0	2
	30	1	0	0	0	0	1	1	1	4
	31	1	1	0	1	1	0	2	0	6
	32	0	0	0	0	1	0	1	1	3
	33	0	1	0	0	0	0	0	2	3
	34	0	0	0	0	2	1	2	3	8
	35	1	0	0	1	0	0	0	0	2
	36	1	1	0	0	1	1	3	1	8
	37	0	0	0	0	1	0	1	0	2
	38	0	0	0	0	1	3	1	0	5
	39	0	1	0	0	2	0	0	0	3
	40	1	0	0	1	3	0	1	0	6
	41	1	0	0	0	1	0	1	2	5
	42	0	0	0	0	5	2	1	0	8
	43	1	0	0	0	2	0	0	0	3
	44	0	1	0	0	2	0	0	0	3
	45	1	0	0	0	3	0	4	1	9
	46	1	0	0	0	2	2	1	2	8
	47	1	1	0	0	3	0	0	1	6
	48	0	0	0	0	1	2	3	0	6
	49	0	0	0	0	2	2	1	1	6
	50	1	1	0	0	1	2	0	0	5
	51	0	2	0	0	2	0	1	0	5
	52	1	1	0	0	1	0	0	1	4
	53	1	0	0	0	0	0	0	1	2
	54	1	0	0	0	1	1	1	0	4
	56	0	0	2	0	0	1	0	0	3
	57	1	0	0	0	1	0	1	2	5
	58	1	0	0	0	0	0	1	0	2
	59	0	0	0	0	0	0	2	0	2
	60	0	1	0	0	0	0	0	0	1
	62	1	0	0	0	0	1	0	0	2
	63	0	0	0	0	0	0	1	0	1
	64	0	0	0	0	1	0	0	0	1
	65	0	0	0	0	0	0	1	0	1
	67	0	0	0	0	0	0	1	0	1
	70	0	0	0	0	0	0	1	0	1
	72	0	1	0	0	0	0	0	0	1
Total		21	14	3	3	53	23	37	21	175

Crosstab

Count		Theme								Total
		Erreichbarkeit & Mobilität	Gastronomie & Shopping	Hotellerie	Kongresse & Messen	Kultur & Events	Orientierung & Information	Sightseeing	Stadtbild & Grünraum	
Average score of the Novelty Dimension	1	5	5	1	0	18	3	9	7	48
	2	8	5	1	0	20	7	13	8	62
	3	6	3	1	0	11	10	9	2	42
	4	2	0	0	3	3	2	6	3	19
	5	0	1	0	0	1	1	0	1	4
Total		21	14	3	3	53	23	37	21	175



### Appendix C – Novelty Dimension Criteria (N1.Novelty, N2.Uniqueness, N3.Surprise, N4.Revolutionary, N5.Radicality, N6.Trendiness) and Idea Quality

Correlations

		N1.Novelty	N2.Uniqueness	N3.Surprise	N4.Revolutionary	N5.Radicality	N6.Trendiness	Idea_Quality
N1.Novelty	Pearson Correlation	1	.794**	.765**	.808**	.723**	.613**	.777**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	175	175	175	175	175	175	175
N2.Uniqueness	Pearson Correlation	.794**	1	.745**	.686**	.642**	.434**	.680**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	175	175	175	175	175	175	175
N3.Surprise	Pearson Correlation	.765**	.745**	1	.779**	.715**	.476**	.631**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	175	175	175	175	175	175	175
N4.Revolutionary	Pearson Correlation	.808**	.686**	.779**	1	.823**	.535**	.661**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	175	175	175	175	175	175	175
N5.Radicality	Pearson Correlation	.723**	.642**	.715**	.823**	1	.561**	.635**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	175	175	175	175	175	175	175
N6.Trendiness	Pearson Correlation	.613**	.434**	.476**	.535**	.561**	1	.837**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	175	175	175	175	175	175	175
Idea_Quality	Pearson Correlation	.777**	.680**	.631**	.661**	.635**	.837**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	175	175	175	175	175	175	175

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Correlations

		Average score of the Novelty Dimension	Average score of the Feasibility Dimension	Average score of the Relevance Dimension	Average score of the Accuracy Dimension
Average score of the Novelty Dimension	Pearson Correlation	1	.280**	.221**	.244**
	Sig. (2-tailed)		.000	.003	.001
	N	175	175	175	175
Average score of the Feasibility Dimension	Pearson Correlation	.280**	1	.821**	.753**
	Sig. (2-tailed)	.000		.000	.000
	N	175	175	175	175
Average score of the Relevance Dimension	Pearson Correlation	.221**	.821**	1	.689**
	Sig. (2-tailed)	.003	.000		.000
	N	175	175	175	175
Average score of the Accuracy Dimension	Pearson Correlation	.244**	.753**	.689**	1
	Sig. (2-tailed)	.001	.000	.000	
	N	175	175	175	175

\*\* . Correlation is significant at the 0.01 level (2-tailed).

## Appendix E – Pearson Correlation: N1.Novelty and Idea Quality

**Correlations**

		N1.Novelty	Idea_Quality
N1.Novelty	Pearson Correlation	1	.777**
	Sig. (2-tailed)		.000
	N	175	175
Idea_Quality	Pearson Correlation	.777**	1
	Sig. (2-tailed)	.000	
	N	175	175

\*\* . Correlation is significant at the 0.01 level (2-tailed).

## Appendix F – Linear Regression: Average Novelty and Idea Quality

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.345 <sup>a</sup>	.119	.114	12.095

a. Predictors: (Constant), Average score of the Novelty Dimension

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3418.149	1	3418.149	23.364	.000 <sup>b</sup>
	Residual	25309.485	173	146.298		
	Total	28727.634	174			

a. Dependent Variable: Total score of the ideas

b. Predictors: (Constant), Average score of the Novelty Dimension

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	31.000	2.173		14.269	.000
	Average score of the Novelty Dimension	4.231	.875	.345	4.834	.000

a. Dependent Variable: Total score of the ideas