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### ADVERTISING AND PUBLIC RELATIONS

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## VR-mediated storytelling of experience in destination branding: hybrid 4D transformations


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**Abstract.** In COVID-19 era, destination branding faces the challenge of digitalization and virtual reality (VR) in particular. The fundamentals of VR-mediated storytelling in destination branding are in the process of being developed. There is a lack of research on immersive VR-mediated storytelling, scenarios, and messages in destination branding, especially realised with technologies of more complex – hybrid – immersivity (4D). The shift from 2D, 3D to 4D hybrid multisensory VR technologies is not only among the main technology developments – it provokes new research problems with VR-mediated destination branding and storytelling. The authors present the results of theoretical and empirical research of VR-mediated destination storytelling of a brand driven by the newest 4D hybrid multisensory technological approaches on the case of Switzerland. In Switzerland, VR-mediated projects in destination branding are developing actively last years but VR-mediated storytelling research in this field was not provided yet. In this regard, it was chosen 100 destination brand VR projects, presented in 2016–2022, to compare the parameters of VR-mediated storytelling of a brand. VR has to be included into brand storytelling paradigm, which must be rethought for this specific sphere. It was proved that it is more effective to combine different types of experience, virtual and physical both and make the VR-mediated brand storytelling hybrid. In terms of theoretical implications, this paper opened a specific research area by bridging theoretical and empirical ideas of destination branding, VR-mediated storytelling and digital media, technical and social communication.

**Keywords:** scenario, brand message, brand narrative paradox challenge, hyper-storytelling concept, hybrid-sensory VR modalities, Swiss VR

**Conflicts of interest.** The authors declare that there is no conflict of interest.

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## VR-сторителлинг в брендинге территории: гибридные 4D-трансформации

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**Аннотация.** Во времена COVID-19 для брендинга территорий появляются новые вызовы цифровизации, в частности виртуальная реальность (VR). В брендинге территории VR-сторителлинг находится в процессе становления. Изучение иммерсивных VR-историй, сценариев и сообщений, особенно реализованных с помощью технологий более сложной гибридной иммерсивности (4D), весьма востребовано в геобрендинге. Переход от 2D и 3D к гибридным мультисенсорным VR-технологиям 4D фиксирует не только технологические трансформации в геобрендинге, но и провоцирует новые исследовательские проблемы. Представлены результаты теоретического и эмпирического исследования VR-сторителлинга в геобрендинге с использованием новейших гибридных мультисенсорных технологических подходов 4D на примере Швейцарии. В Швейцарии VR-проекты в геобрендинге активно развиваются в последние годы, но VR-сторителлинг прежде не изучался. Сравнение параметров ста VR-историй брендов (2016–2022) показало, что требуется создание особых параметров VR для геобрендинга. Доказано, что наиболее эффективной является гибридная история бренда. С точки зрения теории, данная работа открывает особую исследовательскую область, соединяя теоретические и эмпирические идеи брендинга территории, VR-сторителлинга и цифровых медиа, технической и социальной коммуникации.

**Ключевые слова:** сценарий, сообщение бренда, парадокс повествования бренда, концепция гиперповествования, гибридно-сенсорные модальности, швейцарский VR

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### Introduction

Contemporary branding itself, and destination branding in particular, is grounded on customer loyalty (Rubio, Yagüe, 2019). In economy of impression, the strength of the brand and quality of brand-to-customer relationship depends on customers

emotional responses, their “love and passion” (Gómez-Suárez et al., 2016), interactivity and immersion (Flavián et al., 2021). In destination branding, a more intense consumer involvement means more significant engagement with the territory. In other words, a higher destination branding impact is generated by a higher quality of customer presence and involvement, not only physical, but virtual digital-driven, especially at times of pandemic restrictions (Neidhardt, Wörndl, 2020).

In COVID-19 era, destination branding faces the challenge of digitalization and virtual reality (VR) in particular (Neidhardt, Wörndl, 2020). Firstly, virtual reality as a source of social communication, was used as a video games tool in the 1980s. In the 2015s, it became a widespread technology in promotion (Ahmed, 2018). In the 2020s, VR technologies in destination branding are not novel but VR as a practice of a brand – and a field of scientific research is still on its infancy (Beck et al., 2019).

Despite the absence of commonly appropriated definition and theoretical fundamentals of VR in destination branding (and social sciences itself), from the technological point of view it is an interface/technical system which enhance the perception of being there in that environment (Slater, 2009). First, VR is caused by such multisensory factors as visual (i.e., field of view, animated elements, stereoscopy, etc.), audial (spatialized sound, etc.), tactile/sensor, etc. To define VR beyond its technological features, at the next – social communication (i.e., destination branding) – level, researchers tried to explain the VR with the dichotomic categories of “immersion” and “presence” – technological and social both. Immersion as a core characteristic of VR means the degree to which the sensory information provided by a certain display technology responds to user actions in a way that resembles that of the physical world (Slater, Sánchez-Vives, 2016). Presence relates to the various psychological effects of immersion (Vettehen et al., 2019).

It is proved, that VR as a professional communication tool provides consumer with a new virtual experience of the brand which is closer to or even richer than a non-virtual one because it engages all human senses, involves customers multisensory – and intensifies their emotions (Beck, Egger, 2018). The VR experience depends on the level of user’s technology acceptance, from virtual to hybrid (in case of 4D) (Stienmetz et al., 2022). VR improves customer experience along all its customer journey (Hollebeek et al., 2020). It is used in-situ, before, during and after the travel – or even except of it. As a result, VR experience creates awareness to the brand and influenced on a more positive attitude towards a destination (Verma et al., 2022).

Thus, VR as a mediated experience in destination branding can be defined as a digital-driven interactive real or simulated virtual or hybrid environment in which target audience get immersed and perceive presence to reach brand awareness and improve loyalty.

Experts emphasised, that implementation of VR could play a critical role in brand’s performance and considered VR the future of professional communication (Van Kerrebroeck et al., 2017). And vice versa, negatively perceived VR could diminish the brand relationship (Pratisto et al., 2022).

How to get target audiences immersed for brand purposes? To realise a positively perceived VR project for destination brand promotion, professional stories –

with scenarios, brand messages, main characters, etc. – are needed. The aim of VR story/scenario in brand promotion is to reach a high level of audience engagement due to “believable”, interactive and immersive presence to give target audience a new and unique experience of communication with a brand – and to improve brand loyalty. Brand message presents the main idea of the brand promotion project/campaign (Verma et al., 2022). In destination branding, VR-mediated storytelling – grounded on professional scenario – can be defined as a technology of creating and managing target audience experience of VR-mediated communication with a destination brand to reach the goals of the brand promotion project/campaign.

*Research problem, design and method of the research.* Provided analysis of current relevant research literature (up to 2023) and practice of VR and VR-mediated storytelling in destination branding (2016–2023) opens several limitations. There is a lack of research on immersive VR-mediated storytelling, scenarios and messages in destination branding, especially realised with technologies of more complex – hybrid – immersivity (4D). The shift from 2D, 3D to 4D hybrid multisensory VR technologies is not only among the main technology developments – it provokes new research problems with VR-mediated destination branding and storytelling.

The purpose of the study is to answer some important questions about the essence of current VR-mediated destination storytelling of a brand driven by the newest 4D hybrid multisensory technological approaches.

The following hypothesis designed for this research indicates the necessity of investigating the newest parameters of VR as a source of destination branding realised in VR-storytelling of experience.

H1: As every new sensory input increase brand effectiveness – because it takes the user off the traditional cognitive track (Krishna, 2012), – it is more effective to combine different types of experience, virtual and physical both and makes the VR-mediated brand storytelling hybrid as well.

RQ1a: What are the main features of VR-mediated storytelling of experience in destination branding?

RQ1b: How is VR-mediated storytelling of experience in destination branding improved by immersive virtual and hybrid technologies?

To answer these questions the relevant theoretical background will be found – and a theoretical framework for the analysis will be built. To check the parameters of VR-mediated storytelling of experience, the analysis of empirical data of VR-mediated stories/VR cases ( $n = 100$ , 2016–2022) in destination branding in Switzerland will be made. Then, for identifying the parameters of different types of VR-mediated brand stories – virtual (2D, 3D) and hybrid (4D) – a comparative analysis of the VR-mediated storytelling of different destination brand projects of the same territory will be provided.

## **Results and discussion**

### ***VR-mediated storytelling: mapping the research field***

In branding, storytelling is understood as a technology of management of target audience attention due to presenting the ideas of brand promotion project/campaign for brand loyalty improving (Miller, 2019).

What are the main features of VR-mediated storytelling of experience in destination branding? Provided analysis of relevant literature demonstrates the research interest to the topic in creative industries but lack of research in branding itself and destination branding, in particular. There is a need to conceptualise this new field in the growing industry and research area. We are mapping the main directions of the VR-mediated storytelling for destination branding in accordance with the basic points of view on the concept in branding and media.

Types of VR technologies a priori enrich the types of brand stories. Traditional story/scenario for digital 1D brand story (digital film, television or animated brand story, offline film story, etc.) is focused on viewer from target audience as a passive object.

Digital storytelling – and VR in particular – puts in the user as an active actor who is tailoring its own story and specific experience (Shilina, Wirth, 2021).

VR-mediated stories/scenarios get a viewer involved, and the level of interactivity and immersivity differs due to technologies. Most of the current practices and research rely on the use of 360°-video as 2D technology. In 3D format, 360°-video gives the user the impression of being physically located within the environment where the events take place. A 4D presentation of content combines different types of experience, virtual and physical both.

The scientific – and empirical – questions and problems in the field of VR-mediated storytelling of a destination brand are under discussion (Barreda-Ángeles et al., 2021). There is no common point of view on all the concepts in VR storytelling. For instance, from one hand, researchers describe the genesis of VR stories in connection with the western narrative tradition – from ancient Greece to mainstream contemporary theatre, film and television stories. They argue that VR-mediated narratives are similar to the very first experiences of filmmakers of 19<sup>th</sup> century. From the other hand, digital interactive and computer-mediated VR story is a specific narrative medium (Meyer, 1995) – and must have its own methodology, model of communication, etc.

The content issues are under the discussion as well, among them the balance between VR-mediated stories and computer-generated images and environment (CGI, CGE). In several studies with 360°-video (Dooley, 2017) high level of immersion impaired memory for the information, other studies with 360°-video did not find significant effects of immersive stories on recognition (Vettehen et al., 2019).

Discussion on content presents an arousing content as the most effective one. It activates the motivational systems that allocate cognitive resources, increasing available resources and improving information recall (Fisher et al., 2018). On the other hand, arousing messages also demand more resources to be processed than calm ones, contributing to depleting available resources (Lang, 2017).

Despite the fact, that the basics of VR-mediated storytelling is in the process of being developed, a few limitations are approved. For instance, the average length of VR story is around 10 minutes or less. The time limit relates to viewer comfort because wearing a head mounted display (HMD) is not feasible for long periods of time.

The author of VR-mediated story must consider some another limitation, i.e., health effect as a problem caused by a VR – when a user's health degrades (eye strain, headache, disease, etc.).

To reach more interactivity and immersivity – and effectiveness, in VR-mediated storytelling, the conceptual gamification framework for VR applications is used by mixing game elements into 360°-video storytelling: after presenting the 360°-video to convey information, the user gets a quiz and a motivational factor (Argyriou et al., 2017). This approach could benefit from replayability value, but usually the game is played once.

VR-mediated brand projects face many other challenges, the most provoking of them take place when users not only missing finding the triggers, but the brand message or other important information. Among the problems is a less focused attention and recognition of brand information. VR-mediated storytelling provokes the so-called narrative paradox challenge, defined by the struggle between paying attention to the main storyline and the freedom of choice resulting from the interactive scenarios (Huang et al., 2013). The narrative paradox challenge can be solved by using emergent narratives based on the immersive user-to-machine communication model, for instance in 4D applications. The hyper-storytelling (Louchart, Aylett, 2003) is attracting the target audience through the qualitative storytelling as well. It means, that a brand must use scenario with all the classic storytelling components and brand message (Jerald, 2015). Thus, the solution for the narrative paradox is the motivation. In other words, well-tailored and 4D immersive VR-mediated brand story could improve brand promotion effectively.

#### ***VR-mediated storytelling of experience: analysing Swiss cases***

In Switzerland, VR-mediated projects in destination branding are developing rather actively last years<sup>1</sup> but VR-mediated storytelling research in this field was not provided yet.

In this regard, it was chosen 100 destination brand VR projects, presented in 2016–2022, to compare the parameters of VR-mediated storytelling of a brand (scenario and brand message).

*Ist stage. Method and results.* All the projects were divided into several groups in accordance with proposed in this research mixed multi levelled classification. At the first stage, projects were analysed on technical dimensions. All the formats – 360° photos, 360° video emulation, 360° videos, directional motion, VR with interactivity and haptic landscapes – were divided under the concept of immersion (Ma, 2020) as non-immersive (2D) and semi-immersive (3D). We propose to define as “fully immersive” hybrid projects as the most complex. In fact, the level of immersivity depends on factors related to human-to-machine interaction (Felton, Jackson, 2022) proposed by C. Flavián, S. Ibáñez-Sánchez and C. Orús (2021): a technological factor (embodiment), a human dimension (presence), and a behavioural factor (interactivity).

The Swiss destination brand projects were presented in all the categories and immersive VR-mediated projects were dominated. The majority of VR-stories – both non-immersive and immersive – are not multisensory – only sight and hear-

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<sup>1</sup> SECO. (2020). *Message sur la promotion économique pour les années 2020 à 2023*. Retrieved December 10, 2022, from [https://www.seco.admin.ch/seco/fr/home/Standortfoerderung/botschaft\\_standortfoerderung/Botschaft\\_zur\\_Standortfoerderung2020-2023.html](https://www.seco.admin.ch/seco/fr/home/Standortfoerderung/botschaft_standortfoerderung/Botschaft_zur_Standortfoerderung2020-2023.html)

ing are used in them. There are only a few projects presenting a multisensory experience, where touching is not reduced only to interaction with a keyboard or the HMD. Hybrid 4D stories (“fully immersive”) look like multi sensitive due a wider spectrum of sensations.

Then a technological factor was analysed, and in 2D stories embodiment was low, and higher in 3D and 4D ones. The analysis of a human dimension shows presence the mi-middle level in 2D stories, a higher in 3D and the highest in 4D. Comparing a behavioural factor, we found that interactivity in 2D stories is low, middle in 3D and the highest in 4D.

The narrative paradox challenge was not found because of absence of professional brand scenarios and messages in all the cases. In fact, all the VR projects were not structured as brand stories. In other words, it means that without professional brand scenarios and messages they are semi-effective – because they work only in traditional for such project’s human-to-machine interaction paradigm and not as a professional brand tool.

*2nd stage. Method and result.* We did not find professional VR-mediated storytelling cases of destination branding at the 1st stage of our research. However, it was decided to compare three VR projects about Matterhorn made by one brand (Red Bull) in three different categories of VR. Three VR-projects about Matterhorn are: (1) non-immersive 360° desktop video (2D virtual story on external devices), (2) immersive 360° video on internal devices panorama (HMD, 3D virtual story) and (3) immersive hybrid 4D story with haptic devices.

Despite the absence of professional brand scenario and brand messages in the three VR brand cases, the provided analysis of basic factors – a technological factor (embodiment), a human dimension (presence), and a behavioural factor (interactivity) – shows that immersive hybrid 4D story with haptic devices is the most effective one (Table).

**Comparative analysis of Matterhorn VR cases respectfully to the type of storytelling**

	Project name	Product type	Level		
			Technological embodiment	Interactivity	Presence
<i>Category 1. Non-immersive on external devices</i>					
1.	Matterhorn: Panorama 360°	360° desktop video, 2D virtual story	Low	Low	Middle
<i>Category 2. Immersive on internal devices</i>					
1.	Matterhorn: Panorama 360°	HMD 360° video 3D virtual story	High	Middle	Middle
<i>Category 3. Immersive with haptic devices</i>					
1.	Red Bull The Edge (Matterhorn)	Immersive with haptic devices 4D story	High	High	High

Source: performed by the authors.

### Conclusion

VR-mediated projects in destination branding are on demand. The initial stage of development and its possible theoretical insights and concepts need to be addressed the more complex stage of analysis. The scientific – and empirical – questions and problems in the field of VR-mediated storytelling of a destination brand are under discussion. The concept of VR-mediated storytelling is in the pro-

cess of being developed. The parameters of VR-mediated storytelling in destination branding, accordingly with traditional brand story structure or its new specific, are not conceptualised yet, and did not find empirically. The main features of VR-mediated storytelling of experience in destination branding were conceptualised in accordance with the basic points of view on the concept in branding and media.

The parameters of VR-projects, used by majority of destination brands in Switzerland, shows presence of classic modalities of VR: technological (embodiment), a human dimension (presence), and a behavioural factor (interactivity). Despite of the clear theoretical parameters of effectiveness, many projects are not multisensory and immersive. The research clarified the highest effectiveness of hybrid 4D projects in comparison with 3D and 2D ones.

The VR projects were not structured as brand stories, they work only in traditional human-to-machine interaction paradigm and not as a professional brand tool. The narrative paradox challenge in VR-stories was not found because of absence of professional brand scenarios and messages. Research of VR-mediated storytelling of experience in destination branding shows the need to be included into brand storytelling paradigm, which must be rethought for this specific sphere.

The hypothesis was proved because it was proved that it is more effective to combine different types of experience, virtual and physical both and make the VR-mediated brand storytelling hybrid.

In terms of theoretical implications, this study opened a specific research area by bridging theoretical and empirical ideas of destination branding, VR-mediated storytelling and digital media, technical and social communication.

The results highlighting the various limits of VR in destination branding, connected with multidisciplinary approaches – in branding, brand storytelling, media studies, linguistics, etc. Further limitations of our research are related to the choices made for the use of quantitative and qualitative, psychophysiological methods. For further research there is a need to apply relevant objective and subjective measurement techniques, such as personal observations or interviews to verify the results and to gain further insights.

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