DIGITALIZATION OF KVARKEN

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Two countries, a world of contrasts

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BA   Botnia-Atlantica Programme

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1. Digitalization of Kvarken

Digitalization is a megatrend that has rapidly and greatly changed our environment and society within all areas and sectors. The terms *Digitization, digitalization* and *digital transformation* are often used interchangeably as synonyms, even though their meaning differ significantly. Therefore, the purpose of this paper is to explain the differences of these terms and to define and delimit digitalization for the tourism sector, especially for the destination and area of Kvarken.

1.1. Definition of Digitization

Digitization is a relatively older term compared to *digitalization.* It can be defined as "...the transformation from analog to digital or digital representation of a physical item with the goal to digitize and automate processes or workflows." (I-Scoop 2016, see also De Mauro, Greco & Grimaldi 2015: 98-99). To exemplify, it is an act of digitization when a physical paper document is converted into a digital bit-sized copy of the same document. The digital document is then possible to be operated within a digital environment, e.g. computer, and thus providing the potential for automating different processes within an organization. Moreover, digitization helps in preserving physical things and artifacts in digital format and providing a wider access to these in case of loss or if a future examination is required (Gray & Rumpe 2015: 1319).

1.2. Definition of Digitalization

Digitalization is the next step and continuation after the process of digitization. It is a broader integration of several digitized systems and technologies forming a change from a manual and physical model, environment or society into an automated and digital one for a certain purpose that creates value (Gray & Rumpe 2015: 1319, see also Hagberg, Sundstrom & Egels-Zandén 2016: 696). Digitalization, within business, can be defined as "...the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business." (Gartner 2015). It is possible digitalize several different areas of business activities and operations in order to move closer into digital business. One area of example is the change from traditional marketing into digital marketing which requires the use of digitized data and digital technologies.

1.3. Definition of Digital transformation

Digital transformation can be argued to be the next stage after digitalization providing a more holistic view of digital business that comprehends the entire enterprise, all its activities and the ecosystem around it. It can be defined as "...the profound and accelerating transformation of business activities, processes, competencies and models to fully leverage the changes and opportunities of digital technologies and their impact across society in a strategic and prioritized way." (I-Scoop 2016). Digital transformation can be a disruptive force that changes the core business model and ecosystem entirely to the digital side, for example the change from a physical video rental store such as Blockbuster to the digital video streaming service of Netflix.

1.4. Delimitation of digitalization within the context of Destination Kvarken

A delimitation of the term digitalization for Destination Kvarken must be set before beginning to investigate suitable opportunities for the digitalization of Kvarken as a destination and the companies operating within the tourism sector in the area. The delimitation will be done according to the main areas of the tourism sector. Areas of

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digitalization within tourism can be divided into four main sectors that are; transportation, accommodation, attractions and hospitality. Digitalization within these areas should provide a way for the destination and its companies to automate and enhance their offered services in order to smoothen the processes and create new value for both the companies and its customers.

Transportation

Transportation encompasses the different methods of transportation that the traveler takes to the destination, within the destination and from the destination back home. Digitalization within transportation should make the transactions seamless, the journey enjoyable and the service and routes convenient and available for the tourists. Possible digital technologies to use within transportation could include IoT, block chain, big data, digital maps and smart sensors.

Accommodation

Accommodation involves the types of lodging and food services that are available for the visitors during the stay at the destination. Digitalization can contribute in making the booking and transaction convenient and the stay and service pleasant for the visitor. In addition, digitalization can provide ways for hotels and restaurants to gain visibility and obtain critical input and opinions from their customers. Appropriate digital technologies to use within the accommodation sector could involve the use of block chain, big data, social media, cloud computing and IoT.

Attractions

Attractions embodies all the activities, places of interests and sightseeing that the destination has to offer. Digitalization should support the information delivery and enhance the enjoyment and experience of the attractions in the destination. This also contributes in acquiring valuable data from the visitors pre-, during- and post-travel. Potential digital technologies to utilize for attractions could consist of augmented reality, virtual reality, 360 videos, social media, IoT and big data.

Hospitality

Hospitality comprises of the way the destination, its services and the people meet and greet the tourists that visit the location. Digitalization can provide new ways of communicating with the visitors and ensuring that their needs are met and that their stay is friendly and pleasant. Applicable digital technologies to take advantage of are for example social media, big data, wireless Internet and IoT.

As it has been stated, digitalization is a very broad term that can comprehend all aspects of business activities, models and operations. In order to further specify which digitalization maneuvers are appropriate to focus on for Destination Kvarken, it is required to have a full list of all the companies and USPs collaborating with the project. This way it is possible to examine what kind of need and demand there is and what is realistic and possible to implement within a 3 years' time.

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2. A digital twin for destination development and management

Imagine that you, as a destination marketing manager, have a crystal ball where you can see where the visitors have been, where they are at the moment and where they are going. What a tool for planning and development - transportation optimization, overtourism mitigation, safety and security issues and tourist experiences facilitation - we are talking about a digital twin.

## 2.1. Definition of digital twin

A digital twin is a digital replica, a virtual representation of a physical object or a process, a digital aid companies can use for product development and test, and to monitor their products' performance in real time. In comparison to CAD and blended spaces (Ayan & Benyone, 2013), the digital twin has, at least, two benefits. First, the digital twin represents a one-to-one connection between the real and the virtual reality. Second, it is dynamic and generates real time data using sensors and automated information sharing processes. Being an extension and consequence of the Industry 4.0 discourse, the digital twin offers business value by being the tool managers can use to reduce time to market for a new product, predict and detect quality defects, and improve on-time maintenance services (Tao, Cheng, Qi, Zhang, Zhang & Sui, 2018).

2.2. Digital Twin Kvarken

In comparison to the development of digital twins for the manufacturing industry, the discussion of dynamic virtual representations of services and destinations is emerging. The three-year tourism development and research project "Destination Kvarken" that Hanken and the Department of Marketing are involved in, started in August 2018, with one of the sub-goals to develop a digital platform for the Kvarken region, including Vasa (and neighbor communities) in Finland, and Umeå (and neighbor communities) in Sweden, and the transportation in between the two countries (today operated by Wasaline). This provides a reason to draft an architecture for a "Digital Twin Kvarken", being painfully aware of the fact that there is a huge discrepancy between theory (what we would like the virtual representation to be) and practice (what it will be), especially in business settings dominated by small and micro firms (with limited resources). However, the concept on a destination level is still very novel and innovative idea that deserves some attention and discussion.

With a focus on tourist experience, applying an end-user perspective, there are four main components, or resource areas, which must be in place, on a destination. In our digital twin architecture, these components are separate but integrated experience areas and information networks, encircled by processes, which create, communicate, aggregate and analyze digital data (Figure 1).

Figure 1 - Digital Twin Kvarken (DTK) Architecture.
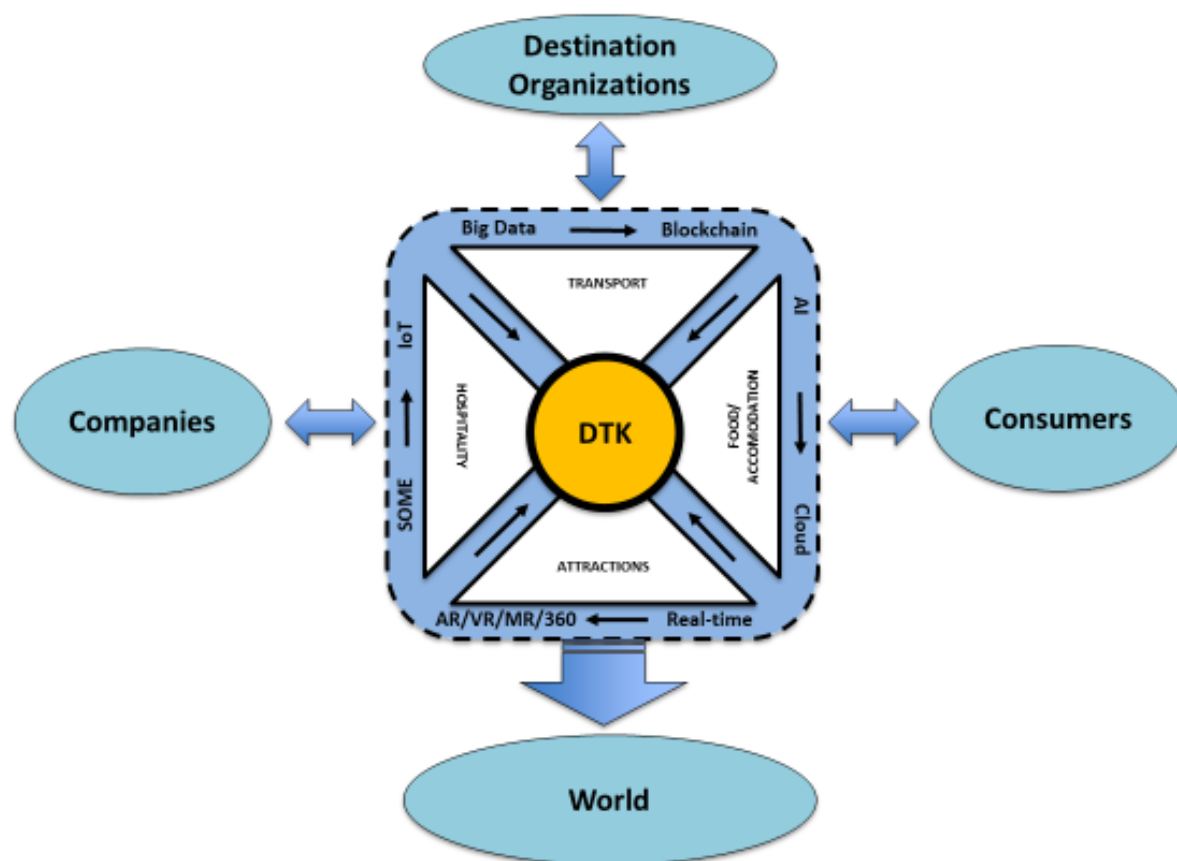
Tourists need a "reason to go" which can be defined as *attractions*. Furthermore, *transportation* to and within the destination must be planned and managed. For overnight guests, people need *accommodations and restaurant services*. Finally, *hospitality* based on a welcoming attitude, in the society at large, must be cultivated.

Based on existing digital maps, GPS technologies, blended spaces, and available information from the "Visit" organizations of Vaasa and Umeå, a silhouette of a "Digital Twin Kvarken" can be discerned. One can, as a platform for the development, identify a M2M2P (machine-to-machine-to-people) structure geared by big data. However, more real-time information (big data) is needed at the moment, and the two critical questions are: what information is needed, and how to get it? But not only that, it can also be assumed that different stakeholder groups (companies and destination organizations, and other, we call them the "World") want the digital twin to appear differently to fit their particular needs, to be useful. Consequently, an unanswered research question is also the visual presentation. How should the Digital Twin Kvarken present itself?

When all is set and done, how can a digital twin be used for destination development and management? With analytics of different types (descriptive, diagnostic, discovery, predictive and prescriptive) creating hindsight, insight and foresight, DMOs, for example, can continuously plan for and monitor transportation and safety issues on a destination. Let us assume that for a particular weekend several big events are taking place, in the city of Vaasa. This can be simulated, and to attain the best visitor experience all kind of congestions are to be avoided, and different types of traffic arrangements coordinated and planned for.

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References

Ayan, S. & Benyon, D. (2013): Designing Blended Spaces: Historical Echoes, Testing a Framework for Digital Tourism. The International Journal of Architectonic, Spatial and Environmental Design, Vol. 7, No. 2, pp. 1–18.

De Mauro, A., Greco, M. & Grimaldi, M. (2015). What is big data? A consensual definition and a review of key research topics. AIP Conference Proceedings. 1644: 97-104. Available on: http://dx.doi.org/10.1063/1.4907823. Accessed 29.10.2018.

Gartner (2015). Digitalization. Available on: https://www.gartner.com/it-glossary/digitalization/. Accessed 25.10.2018.

Gray, J. & Rumpe, B. (2015). Models for digitalization. Software & Systems Modeling. 14: 1319-1320. Available at: https://doi.org/10.1007/s10270-015-0494-9. Accessed 25.10.2018.

Hagberg, J., Sundstrom, M. & Egels-Zandén, N. (2016). "The digitalization of retailing: an exploratory framework". International Journal of Retail & Distribution Management. 44: (7) 694-712. Availabel on: https://doi.org/10.1108/IJRDM-09-2015-0140. Accessed 29.10.2018.

Industry 4.0 and the digital twin. Manufacturing meets its match. Deloitte University Press. https://www2.deloitte.com/content/dam/insights/us/articles/3833_Industry4-0_digital-twin-technology/DUP_Industry-4.0_digital-twin-technology.pdf

Industry 4.0 – Opportunities and Challenges of the Industrial Internet. https://www.pwc.nl/en/assets/documents/pwc-industrie-4-0.pdf

I-scoop (2016). Digitization, digitalization and digital transformation: the differences. Available on: https://www.i-scoop.eu/digitization-digitalization-digital-transformation-disruption/. Accessed 25.10.2018.

Tao, F., Cheng, J., Qi, Q., Zhang, M., Zhang, H. & Sui, F. (2018): Digital twin-driven product design, manufacturing and service with big data. International Journal of Advanced Manufacturing Technology, Vol. 94, No. 9–12, pp. 3563–3576.

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The Destination Kvarken project will help small and medium enterprises with focus on hospitality industry to reach out to new and bigger markets for more growth and competitiveness.
The purpose is to increase the amount of visitors in the region.
The project shall promote growth, not just through internationalisation but also through a conscious focus on digitalisation, research and development, and the opportunities this offers for improving the competitiveness of the tourism industry in this region. Hanken School of Economics will provide this competence in the project.
Read more: kvarken.org/destinationkvarken

Projekt Destination Kvarken ska hjälpa exportmogna små och medelstora företag med fokus på besöksnäring att nå ut till nya marknader för ökad tillväxt och konkurrenskraft.
Syftet är att öka antalet besökare i regionen.
Projektet har genom Hanken Svenska handelshögskolans medverkan starkt fokus på digitalisering, forskning och utveckling inom besöksnäring i regionen.
Läs mer: kvarken.org/destinationkvarken

Hankkeessa Destination Kvarken autetaan matkailuelinkeinon parissa toimivia vientikelpoisia pk-yrityksiä saavuttamaan uusia, yrityksen kasvuun johtavia ja sen kilpailukykyä parantavia markkinoita.
Tavoitteena on lisätä alueen kävijämääriä.
Hankkeessa painotetaan Hanken Svenska handelshögskolanin osallistumisen myötä voimakkaasti alueen matkailualan digitalisaatiota, tutkimusta ja kehittämistä.
Lue lisää: kvarken.org/destinationkvarken

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