

Initiating a Smart Tourism Ecosystem: A Public Actor Perspective

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Abstract

Smart tourism ecosystems are an emerging phenomenon; however, how these ecosystems are initiated by city actors is under-explored in the existing literature. In this paper, we conduct a qualitative case study to investigate the initiation of a de novo smart tourism ecosystem in the City of Gothenburg—the European capital of smart tourism 2020. Göteborg & Co, as a public organization, is initiating a digital Destination Data Platform (DDP) as the core of its tourism ecosystem and is working on involving non-focal actors to shape the surrounding ecosystem. Our findings extend the existing research on innovation ecosystems by highlighting a hybrid public-private focal actor in the smart tourism ecosystem. We also underline how a public focal actor leverages its unique public position and legal obligations to involve non-focal actors and orchestrating the ecosystem. Finally, we suggest a conceptual model for a smart tourism ecosystem focusing on the place and purpose of control points.

1. Introduction

In recent years, digital platforms have changed many industries [2][28][15][36]. A digital platform is defined as “a set of shared assets, standards, and interfaces that underpins an activity system surrounding it” [5: 466]. It is at the core of an innovation ecosystem, i.e., a collaborative environment of interconnected firms combining their assets to offer a coherent, customer-facing solution [1][30].

Innovation ecosystems are mostly initiated by a focal firm investing in offering a digital platform and encouraging loosely coupled actors to join to create complementary products and services toward a shared vision [19]. The focal firm orchestrates the evolution of the ecosystem through resourcing and controlling the non-focal actors in creating value while keeping the ecosystem focused on the vision [11]. However, when the ecosystem is *de novo* and not yet operational, the value creation and/or capture is not certain for either the focal or non-focal actors. For the ecosystem to thrive,

the focal actor needs to attract non-focal actors and create positive network effects [29]; otherwise, it faces the loss of investment [5]. On the other hand, the non-focal actors may not find the motivation to join the ecosystem when there is uncertainty regarding value creation.

A recent initiative in terms of digital ecosystems is smart tourism. Smart tourism has become a buzzword for diverse tourism initiatives [12]. It is an emerging phenomenon describing how tourism connects the physical and digital worlds [14][13][12][17][34]. Smart tourism leverages the capabilities of digital platforms in creating collaborative efforts among various actors in the tourism industry through sharing data and developing new services [4]. It encompasses three main components: smart destinations, smart experiences, and smart businesses [14]. City-run organizations have a significant role in initiating smart tourism ecosystems through offering infrastructure and facilitating collaboration among diverse types of public and private actors.

Existing research on smart tourism initiatives illustrates the factors that make tourism smart [14][17][34][24][13], the pivotal role of tourists as a data source [31], and the idea that smart tourism is built on top of smart destinations and their technical infrastructure [3][20]. Existing research also describes the components and the importance of public-private collaborative arrangements in smart tourism ecosystems and the challenges involved [4][13][9].

However, although smart tourism is firmly grounded in technology, it remains under-researched in information systems (IS) research [13][5]. Particularly, initiating smart tourism ecosystems entails few contextual attributes that differentiate it from commercial ecosystems by tech-savvy companies, which have received the main attention of IS research (e.g., [1][2][5][28][10][33]). In smart tourism ecosystems, the focal actor is a non-technological and public organization (usually a city) that seeks to create value for the public and society rather than for commercial purposes [13][27]. On the other hand, non-focal actors are also mostly local tourism/city actors not

fully set with the technological knowledge and value they may capture from joining the ecosystem. The non-focal actors may not have the expertise or even see the possibility of capturing commercial value from the ecosystem, at least not immediately. These issues can challenge the focal actor in both establishing the ecosystem core and attracting the non-focal actors to the ecosystem in initial stages.

Against this backdrop, we answer the research question of “*How can a publicly controlled organization work to initiate a smart tourism ecosystem?*”

To answer this research question, we designed an exploratory case study focusing on how Göteborg & Co—a public organization run by the City of Gothenburg—initiates a smart tourism ecosystem around a digital platform. The City of Gothenburg was selected as the European Capital of Smart Tourism in 2020 due to its success in developing tourism initiatives in smart, innovative, and inclusive ways. The initiatives include launching a digital Destination Data Platform (DDP) to create a proactive, data-driven culture for tourism services in Gothenburg. We collected primary and secondary data from various sources concerning Göteborg & Co and the collaborative organizations and companies. We then analyzed our data, given Dattée et al.’s [5] conceptual model for creating *de novo* ecosystems.

The remainder of the paper is structured as follows. In the next section, we present our literature review. We then introduce the research setting and describe the research method. In the fourth section, we present the findings and continue to section five to discuss their implications, given the existing literature. Finally, we present the limitations and avenues for future research.

2. Theoretical background

2.1. Smart tourism

Smart tourism is defined as “efforts at a destination to collect and aggregate/harness data deriving from physical infrastructure, social connections, government/organizational structures, and human bodies/minds. Combining these aspects with ICTs, smart tourism transforms that data into on-site experiences and business value propositions with a focus on efficiency, sustainability, and experience enrichment” [5: 181]. Smart tourism differs from e-tourism in that e-tourism concerns digital connections between businesses and customers, while smart tourism is about connecting the physical and digital world and is firmly grounded in smart technologies [13]. Smart technologies involve a range of smart applications integrating hardware, software, and network

technologies to offer real-time awareness to support people in making more intelligent decisions [34].

Smart tourism comprises three components: smart destinations, smart experiences, and smart businesses [14]. Smart destinations refer to cities that utilize smart technologies and data to support mobility, resource availability and allocation, and sustainability to increase the quality of tourism. Elements such as open and big data, sensors embedded in physical infrastructures (such as public transport, buildings), free Wi-Fi, and mobile connectivity are central in any smart destination.

Smart experiences happen due to the convergence of information and communications technologies (ICTs) with tourism experience [18]. They emphasize technology-mediated tourism experiences and their enhancement through personalization, context-awareness, and real-time monitoring [4]. Tourists actively contribute data by using their smart devices (e.g., sharing content on social media, movement tracking, and transactions, or using the information infrastructure provided at the destination) [5]. Thus, tourists are pivotal actors in creating smart experiences, which would require special attention to the issue of privacy [12].

Smart businesses refer to the complex business ecosystem that creates and supports the exchange of touristic resources and tourism experiences [14]. A pivotal aspect in smart tourism ecosystems is the extensive and somewhat unusual collaborations between public-private actors, where governments are open and focused on providing technology infrastructure and data [5].

The goal of smart tourism is to create public value for society. Public value is “the value created by governments through services, laws, regulation and other actions” [21: 4]. It consists of three components: 1) services as the delivery function of value, trust, legitimacy, 2) the confidence to protect and sustain the value, and 3) the outcome to guide the direction of the value since the outcome of a service and its purpose can differ between public and private actors [26].

2.2. Innovation ecosystems and platforms

A digital ecosystem shapes around a digital platform that enables complex value propositions and provides associated structures of governance and interactions within the ecosystem [1][8][19]. The platform is maintained and governed by a *focal actor*. The focal actor envisions the value proposition (i.e., what, how and for whom value is created). It also provides associated structures of governance and interactions (i.e., who does what, who controls what, and how the ecosystem actors benefit from that value [1][8][19][30][33]). It offers resources to support the

non-focal actors in their work and also controls the platform through boundary resources. Boundary resources are “the software tools and regulations that serve as the interface for the arm’s-length relationship between the platform owner and the application developer” [11: 177]. They are vital in assigning design capabilities to the ecosystem actors [16], who generate complementary assets to the ecosystem [11][32].

The focal actor can create and capture value if it creates a mechanism with reinforcing network effects to grow the ecosystem [5][33]. Network effect is the phenomenon where the value of a good or service increases when the number of actors using that good or service grows [7]. Therefore, the sustainability of the ecosystem depends on how successful it is in terms of creating positive network effects among its participants. Yet, the creation of network effect is uncertain both for the focal and non-focal actors in new ecosystems where the value creation is still not operationalized. Committing resources to initiate an ecosystem is a complicated issue for the focal actor [5]. To reduce uncertainty, the focal firm creates a compelling blueprint that defines a vision for the value propositions and associated structures of governance and interactions [1][8][19]. However, envisioning a compelling blueprint *ex-ante* is not always possible under uncertainty, particularly in digital contexts [25].

To tackle this challenge, Dattée et al. [5] suggest that the focal firm should follow a discovery approach through a three-step process accompanied by dynamic controlling of the ecosystem: 1) Establish Protovision, 2) Envisioned Blueprint, and 3) Enact Resonance. In protovision, the focal actor envisions an alternative future and enabling technology and compels others that the alternative future will be realized only through that technology. In the envisioned blueprint, the focal firm envisions the interdependencies of the actors and the control points for governing the ecosystem to capture value. To enact resonance, the focal actor creates internal and external momentums. Internal momentum is formed when the focal actor creates the necessary organizational requirements to facilitate its engagement in the ecosystem, such as developing agreement among stakeholders, changing organizational operations for increased proactiveness, and demonstrating the need for the ecosystem. The focal actor simultaneously creates external momentum through activities such as collaborating with selected partners, engaging with a few selected customers to test the vision, and demonstrating its solution as the enabler for attracting the potential non-focal actors. To steer the emerging ecosystem toward the alternative future and envisioned blueprint, the focal firm applies dynamic control through influencing, monitoring, and updating the control points.

3. Research setting and methodology

3.1. Case context

Göteborg & Co is owned by the City of Gothenburg. Göteborg & Co’s mission—as a public actor—is to encourage people to choose Gothenburg as a tourism destination. It works toward this mission by coordinating the local tourism industry and as the parent company to multiple companies active in the industries related to tourism, culture, and events in Gothenburg.

In August 2019, Gothenburg, together with Malaga, won the contest to be the European Capital of Smart Tourism 2020. Göteborg & Co was appointed for their work toward developing the tourism services in smart, innovative, and including ways. They wanted to develop a digital platform—named the Destination Data Platform (DDP)—to create collaboration among the tourism actors, the City of Gothenburg, and the citizens [37]. DDP was projected to provide the possibility to 1) gather data from multiple sources in the tourism industry; 2) create insights from the gathered data; 3) create new tools for analyzing and monitoring the tourism industry to replace outdated metrics; and 4) package and distribute open data through a knowledge hub. Göteborg & Co initiated the smart tourism ecosystem with the DDP at its core.

3.2. Data collection

Given the exploratory nature of our research and the unique nature of each ecosystem, we conducted a qualitative case study. It allowed us to gain a profound insight into the case through studying it in its real-life context [35].

We collected the data through semi-structured interviews during February–May 2021. We interviewed ten informants from six organizations involved in developing the DDP and the ecosystem. Due to the Covid-19 pandemic situation, the first and second authors conducted the interviews virtually. The interviews were recorded and transcribed, and field notes were taken. We illustrate more details on the informants and their respected organizations in Table 1.

Table 1. Interview details

Cod e	Position	Company	# of interv iews
A	Project manager of the DDP	Göteborg & Co	3
B	Chief of Staff	Göteborg & Co	1
C	Consultant	IMCG	1
D	Consultant	HiQ	1

E	Chief Digital Officer	City of Gothenburg	1
F	Development leader digital services	City of Gothenburg	1
G	Vice president of global strategy & business development, travel and entertainment Industry	Mastercard	1
H	Business development manager Sweden	Telia	1

We complemented our primary data with additional data from internal documents, news posts/press releases, and relevant webinars by Göteborg & Co. In Table 2, we present more details about our data sources.

Table 2. Data sources

Data source	Number	Volume
Interviews	10	7 h 27 min
Webinars	6	4 h 33 min
News posts/press releases	27	13 pages
Internal documents	2	43 pages

3.2. Data analysis

We applied an iterative thematic analysis to identify, analyze, and document themes and patterns of the collected data [23]. As the first step, we read the transcriptions, field notes, and other data sources to better understand the case. In the next step, we deductively coded the data following the main thematic categories derived from Dattée et al. [5]. We used a multiple coder approach on our data by initially coding the data independently before bracketing the results to examine commonalities and discrepancies [23]. We hold frequent meetings among the authors to reach consensus on our analysis and enrichment of findings. In Table 3, we illustrate examples of our coding.

Table 3. Example coding

Main category [5]	Sub-category [5]	Illustrative quote
Protovision	Alternative future	“we want to make our solutions available to all business sizes”
	Enabling technology	“the Truata platform allows us to track and understand movements and behaviors”
Envisioned blueprint	Envisioned control points	“Göteborg & Co has a unique position in Gothenburg”

	Envisioned interdependencies	“we need more extensive collaboration between the public and the private sector”
Enacted resonance	Internal momentum	“the DDP is an advanced strategic investment”
	External momentum	“start of in an attainable scale to attract and focus on a few big actors”
Dynamic control	Influencing	“it is in some way up to Göteborg & Co to align expectations”
	Monitoring	“we share a lot of knowledge and best practice with our international colleagues”
	Updating	“we need more agility and proactiveness”

4. Findings

4.1. Establish the protovision

Establishing the protovision consists of envisioning an alternative future and the technology that enables that future [23].

Göteborg & Co recognizes a shift in the tourism industry toward becoming more digitalized and proactive in offering unique experiences to visitors. Being chosen as the European Capital of Smart Tourism 2020 and the need for fast recovery after the Covid-19 pandemic are the main factors that encourage the creation of an alternative future for the tourism industry in Gothenburg.

So far, the tourism industry has been slow to adapt but there is a paradigm shift happening [...] We need to be at the forefront of this transformation [...] we are only measuring hotel nights [when visitors come to the city] [...] To be proactive, we need to change that. (Informant A, Göteborg & Co)

The envisioned alternative future is an established, data-driven infrastructure and culture that can provide better insights and support for decision-making for the tourism service providers in the city. It not only improves decisions regarding investment and resource allocation, but it also proactively offers seamless and even virtual experiences for visitors. The enabling technology is the DDP. Multiple and diverse sources provide data to the platform, and the data can be further aggregated, synthesized, and utilized by the city, businesses, visitors, citizens, scientists, etc.

A proactive tourism industry is only achievable by combining data from diverse data sources [...] the tourism actors also need to participate. (Informant C, IMCG)

I have a future vision where every actor, big or small, can use the DDP to better understand and plan their activities [...] Like an interactive calendar where you can see what is happening and plan accordingly. (Informant A, Göteborg & Co)

4.2. Envision the blueprint

The envisioned blueprint includes the interdependencies and control points [23]. Göteborg & Co considers interdependencies with three types of actors: 1) *Premium collaborators*, contributing with technical capabilities; 2) *Members*, providing data to the DDP; and 3) *Customers*, providing a potential revenue stream for the ecosystem and future value to the city.

Premium collaborators are pivotal in developing and running the DDP since Göteborg & Co does not possess the required technological capabilities and access to data. As a public actor, Göteborg & Co needs to respond to the citizens about its acts and investment decisions and cannot take much financial risk in using citizens' taxes. However, developing and maintaining a digital platform entails uncertainties due to radical technological and market changes.

We are financed with tax money, we cannot invest in different projects just to test them out [...] there is accountability [...] every taxpayer must feel that what we do is something that will benefit them. (Informant A, Göteborg & Co)

To overcome this challenge, Göteborg & Co has partnered with Mastercard in a joint venture to develop the DDP. Mastercard already has a Truata platform backed by IBM and has sufficient expertise in the field. The agreed-upon DDP platform with Göteborg & Co serves four purposes: 1) create and develop the platform with anonymized and aggregated data, 2) deliver insights about the tourism in the city, 3) enable informed decision-making about tourism offers and investments, and 4) create the potential for research, development, and innovation in the tourism and hospitality business. [37]

We have Truata together with IBM [...] Any type of data can be integrated and aggregated through it, in compliance with GDPR [...] It has those functionalities that Göteborg & Co is after. (Informant G, Mastercard)

Through partnering with Mastercard, Göteborg & Co also gains access to the visitors' financial transaction

data as they use their bank cards. In return, Mastercard commercially benefits from the joint venture, as the Truata platform is among its main line of business.

Many would probably think of us as a credit card company, we are not [...] Data aggregation and exploring the potential with data is our main line of business. (Informant G, Mastercard)

Göteborg & Co complements the data with the visitors' movement data acquired from its second premium collaborator, Telia (a public telecommunication company and mobile network operator present in Nordic and Baltic countries). The interdependency with Telia is through a commercial contract in buying and selling aggregated and anonymous mobile data about the movement of visitors.

Using Mastercard's capabilities and data would help us develop even better insights regarding customer behavior [...] Combining their data with Telia's would provide us with knowledge of both visitors' movement and purchase patterns [...] It is a cornerstone for a seamless tourism experience [...] (Informant A, Göteborg & Co)

We sell our 'crowd insight' data to Göteborg & Co, which has great value for us. (Informant H, Telia)

Members are the second type of envisioned interdependent actors. Göteborg & Co considers all the actors in the City of Gothenburg as members and categorizes them in three segments: 1) activities (e.g., tourist attractions, restaurants, shopping), 2) living (e.g., hotels and other accommodations) and 3) transportation (e.g., public transport, car rentals, flights). Members are expected to provide data to the DDP. The donation of data by members is crucial for scaling the DDP and its sustainable growth; hence, there is a need to actively engage them. In return, the members can access the insights gained from the aggregated data.

I believe we need to showcase why they, especially small businesses, should collaborate and how to consolidate their interest in this to make an impact. (Informant F, City of Gothenburg)

A lot of tourism actors have a short-sighted mindset focused on quick return of investments, which I understand [...]. We need to help them realize the potential with data sharing and the returns they can expect from it. (Informant A, Göteborg & Co)

The third type of the envisioned interdependencies are the customers. They are the private or public actors that want access to the resources connected to the DDP. The difference between customers and members is that customers only utilize the data and do not donate it.

Customers are actors outside the tourism sector [...] It could be researchers or app developers. By selling data or granting access, we would get revenue that can be reinvested in the hub, or it could be something that would benefit the city further down the line. (Informant A, Göteborg & Co)

Göteborg & Co has envisioned several control points for the sustainable growth of the ecosystem. The position of the Göteborg & Co in the local environment creates an advantaged control point for them—which is challenging to circumvent. It has local knowledge and an in-depth understanding of the local tourism sector. Its strong role as a public actor helps to create legitimacy for the platform and its emerging ecosystem among the non-focal actors.

Göteborg & Co is a public actor that can legitimize the platform because they are perceived as neutral with loyalty toward the city and the taxpayers, as well as working toward increasing the business environment for the municipality of Gothenburg. (Informant D, HiQ)

Besides its strong position in the industry, Göteborg & Co considers the control of the platform as another means to sustain its position in the emerging ecosystem, especially against the technological incumbents that may take over. The cruciality of the DDP in sustaining control over local tourism requires a secure way to maintain and scale it as the main digital platform for tourism. Göteborg & Co involves Mastercard as a partner in a joint venture. The joint venture secures the DDP alignment with the latest technological and market changes due to Mastercard's expertise. Thus, Göteborg & Co can focus on utilizing the platform rather than worrying about technological uncertainties, challenges, and competition.

We want to create the DDP together with Mastercard [...] they have certain capabilities and in-depth knowledge when it comes to aggregate data and offer insights. (Informant A, Göteborg & Co)

It is expensive to scale a project like this [...] Combining our capabilities [with Göteborg & Co] could, however, support the growth (Informant G, Mastercard)

On the other hand, with Telia, the relationship is of an arm's-length contract. Both companies benefit from having a commercial relationship. However, Göteborg & Co is establishing contacts with other international companies that offer similar services, if the commercial relationship ceases.

Of course, it would be disappointing if they [Telia] decided to stop selling data to us, but we are also talking to some international competitors [to replace them in case this happens. (Informant A, Göteborg & Co)

As long as someone pays for our data, I see no reason why we wouldn't deliver [...] We are happy if our data can be useful and used in a legal manner. (Informant H, Telia)

The next envisioned control points are designed for relationships with Members and Customers. Being a public actor, Göteborg & Co needs to be transparent in its actions. Swedish legislation—regarding the principle of public access to official documents—is an external force that pressures Göteborg & Co in all its activities and arrangements, more so than it would on a private company. Thus, Göteborg & Co should, as much as possible, make the data accessible to the public.

We need transparency and collaboration on all levels to achieve a sustainable ecosystem [...] There cannot be any secret contracts or hidden agendas. We need to do this on equal terms. (Informant F, City of Gothenburg)

However, despite the requirement for transparency, as the DDP collects personal data, the privacy of the platform users is critical and must follow the General Data Protection Regulation (GDPR). Thus, Göteborg & Co set a rule for data treatment referred to as The Golden Rule, i.e., “share data to get data”.

They should have the opportunity to choose how much data they want to share [...] If you choose to share the least minimum, you get the least minimum in return [...] if you choose to share a lot of data, you should get much more back. (Informant E, City of Gothenburg)

Under this rule, both members and customers need to reveal how they will use the received data from the platform. Also, members will be informed of who the customers are and how they will use the members' donated data. The control mechanisms are designed through creating arm's-length contracts and technical boundary resources with Customers and Members.

The intention is to offer APIs, SDKs, and data regulations toward both members and customers [...] this is how new services can be made and to create a sustainable ecosystem (Informant C, IMGC).

4.3. Enact resonance and dynamic control

Enacting resonance consists of creating internal and external momentum [5]. The internal momentum is first created through documenting the envisioned alternative future through the Proof of Concept (PoC) for the DDP. The PoC includes three objectives: 1) a smart tourism ecosystem in place by 2030, 2) an established national and international collaboration with other smart destinations, and 3) a data-driven city and tourism thanks to a sustainable DDP.

For us, the DDP is an advanced strategic investment [to create the future]. (Informant B, Göteborg & Co)

The co-occurrence of the Covid-19 pandemic and being the capital of smart tourism are other aspects that drive the internal momentum for envisioning the future. The pandemic has created challenges in creating business cases regarding the actual implementation and utilization of the DDP by industry actors. However, it has also highlighted the critical need for digital transformation of the tourism industry to compensate for the damages that the pandemic has caused. When data is collected on the platform, it offers potential for additional commercial benefits through offering innovative services for tourism actors.

To me, the biggest challenge for the DDP is the pandemic [...] the pandemic also forced us to push the DDP and act much faster. (Informant C, IMCG)

With a solution like the DDP, we can translate insights into market opportunities [for tourism actors]. (Informant G, Mastercard)

Göteborg & Co relies on three strategies to create external momentum for the quick evolution of the ecosystem. The first strategy is to take advantage of its public position and communicate the message that its decisions are in line with public policies, and that it supports local tourism and aims to create a data-driven city with services beneficial for the entire society.

We make our decisions based on political policies and agendas [...] however, the decisions are influenced by the needs of the external stakeholders. (Informant A, Göteborg & Co)

The DDP can create values that the whole city can take part of, not only the tourism industry [...] our stakeholders must understand that we need to progress into being more data-driven. (Informant E, City of Gothenburg)

The second strategy is to attract a few big industry and city actors to the platform by leveraging Göteborg & Co's strong local position. The big actors can utilize

what the DDP offers and make new services. Through a positive network effect, this can motivate the smaller actors to join the platform and scale the ecosystem.

By getting big actors to join [...] they can make use of the value from the DDP and build upon it. (Informant D, HiQ)

A way we can keep actors from leaving the DDP is by continuously adding partners, destinations, and value. (Informant G, Mastercard)

The third strategy focuses on attracting the small actors to the platforms by providing a *Knowledge Hub* that offers resources and information for utilizing the DDP. This is a key component of the ecosystem, since local tourism actors are not knowledgeable and prepared for a data-driven approach and utilizing real-time data. The Knowledge Hub helps them to share and retrieve data.

We are still early in the innovation process [...] a majority of the actors are not ready to act data-driven. (Informant C, IMCG)

We need to think about what tools for analysis can be added on top of the platform [in the Knowledge Hub] [...] maybe we can have dashboards that actors can integrate with their BI tools. (Informant C, IMCG)

Although the ecosystem is in its early stage, Göteborg & Co foresees three ways for dynamic controlling of the ecosystem. First, it *influences* the future of Gothenburg tourism through its powerful local position in policy making.

The board sets the agenda [...] Making us a strong enabler for the development of Gothenburg as a destination [...] It is in our DNA to create a better environment for everyone in the city. (Informant A, Göteborg & Co)

Second, Göteborg & Co keeps *monitoring* the latest developments and tourism needs at international and local levels. Being part of a larger community of the European Union, Göteborg & Co can be updated with the latest developments in other smart tourism destinations. Also, it has established close communication with visitors, citizens, and local businesses in Gothenburg to understand their emerging needs and demands.

We share a lot of knowledge and best practice with our international colleagues [...] Being the Smart Tourism Capital together with Malaga has given us a lot of insights regarding what other destinations are doing and have done in the past. (Informant A, Göteborg & Co)

We conduct a lot of 'on the ground' surveys where we ask visitors and citizens what they want to see in the city [...] we have continuous communication and collaboration with the businesses to see what we can do for them. (Informant B, Göteborg & Co)

Finally, Göteborg & Co benefits from a culture of constantly improving and *updating* their operations (including their control points) to keep up with the latest developments and changes to adapt.

Previously our business cycles were too long [...] We also need the capability to change and reinvent ourselves [...] We need more agility and proactiveness. (Informant B, Göteborg & Co)

5. Discussion and implications

In this study, we focus on initiating a *de novo* smart tourism ecosystem around a digital platform by a public organization in the City of Gothenburg.

Our study offers three contributions. First, we contribute to the literature on digital ecosystems. Existing IS research on digital ecosystems has considered the initiation of an ecosystem by a technologically capable firm as the focal actor (e.g., [11][6][5]). We extend the existing research by investigating a case where the focal actor does not possess the technological capability and resources in initiating the ecosystem and/or maintaining the platform under digital uncertainties as the ecosystem evolves [25]. To overcome this barrier, the public organization defines its most pivotal interdependency through partnering with a private and originally non-focal technological company (i.e., Mastercard). This partnership in the form of a joint venture establishes a hybrid public-private focal actor in the smart tourism ecosystem.

The creation of a hybrid-focal actor extends the work of Selander et al. [30] by showing that a focal actor can create a partnership with a non-focal actor in search and redeem of capability. This is possible through having non-conflicting goals between the two. For the public actor, the intention is to offer value proposition mechanisms for diverse types of non-focal tourism actors and to capture and create public value in the city [26][27]. For the private actor, the intention is to capture value through a scalable solution, serving their data platform business. The existing literature on public-private collaborations identifies tensions due to misalignments between objectives, risk behavior, expectations, etc. [31]. However, at this initial point, both the public and private focal actors mutually agree on the division of responsibilities to complement each other's capabilities. The public actor focuses on connecting to the market and encouraging non-focal actors to get onboard. The private actor focuses on

platform technology and how to offer new insights through data. This hybrid public-private focal actor contests previous research on ecosystem creation in which a single focal firm initiates an ecosystem and tries to control it to capture most of the value [1][5][30][33].

Our second contribution is to the literature on maneuvering in uncertainty in *de novo* ecosystems. Dattée et al. [5] argue that when facing uncertainty, the focal actor takes a discovery—rather than planned—approach in defining the alternative future and delays resource commitment until getting a better vision toward the success of the ecosystem. Our study shows that in smart tourism, having a public organization in the focal hybrid offers advantages for envisioning a certain future for the ecosystem. First, as a public actor with a strong local and international position in representing the tourism industry, the focal actor is affected by both the country's and European policies, all in favor of creating a digital and smart tourism industry. Therefore, the public actor is certain in taking actions and committing resources. This differs from a private company that is naturally more prone to competition and fear that competitors might overtake its initial investment if failure occurs [5]. The focal actor invests in communicating this almost-certain alternative future to the non-focal actors and the society at large via various channels (workshops, press releases, surveys, etc.). Second, the ecosystem thrives only when non-focal actors join, and a positive network effect is created [22]. The strong position of the public actor as a main player in the local tourism industry facilitates connections to the city actors and the international actors in other smart destinations. This helps in mitigating the problems identified by Dattée et al. [5] regarding actors not knowing each other in the initial stages of the ecosystem. The public actor has enough publicity, policy setting, and networking capability to connect to the non-focal tourism actors (small and large). Additionally, it provides the Knowledge Hub as a complementary service on top of the platform to support the integration of the non-focal actors into the platform. This is important in the smart ecosystem, where actors are more traditional and less tech-savvy (as in tourism). Finally, the public actor needs to follow the Swedish legislation regarding transparency. This, plus the public nature of the platform, supports public value by offering legitimacy and trust for actors when they connect and use the platform [26]. The public actor also envisions the boundary resources to regulate the non-focal actor's *code of conduct* regarding the platform and data [11][30][33].

Our third contribution is a conceptual model of a smart tourism ecosystem (Figure 1). To the best of our knowledge, this model is the first that illustrates how a publicly controlled organization can initiate a smart

tourism ecosystem. The left side of the model represents the existing non-smart tourism actors (i.e., accommodation, activities, transportation). To initiate a smart tourism ecosystem, the public actor must provide a digital platform, control the public-private partnership at the core, and integrate additional resources (i.e., data and insights from data) from traditional actors—i.e., members in the envisioned smart ecosystem—and new *non-traditional actors*. Non-traditional actors include non-focal actors such as individuals (e.g., citizens and visitors), premium partners and enterprises (e.g., telecom companies for visitors' movement), and researchers and developers. The non-traditional actors interact with the Knowledge Hub and/or the platform through adding and extracting resources (i.e., data, insight, API, SDK, documents, reports). On the other hand, Members share their data with the platform and can extract the available resources from the Knowledge Hub dashboard. The Knowledge Hub is meant to be used by the actors in the ecosystem, as they are not traditionally prepared for a digitally based data culture.

Existing research [5][11] highlights the importance of control points, so the focal actor can capture value and steer the emerging ecosystem. However, the place of the control points remains unanswered. In our model, we identify the control points that a public actor should include in a smart tourism ecosystem. Given public value and the obligations for transparency and public responsibility related to GDPR, the focal public actor needs to implement the control points wherever there is an *input* or *output* of data in the ecosystem. By doing so, the public actor controls the Premium collaborators (in the hybrid-focal and outside), Customers (who buy data), and the traditional actors of tourism (i.e. Members who donate and extract data and insight). The existence of a Knowledge Hub in connection to the digital platform is a crucial boundary resource for the public actor in creating the intended public value “outcome” by educating them about the value and use of the resources [26][27].

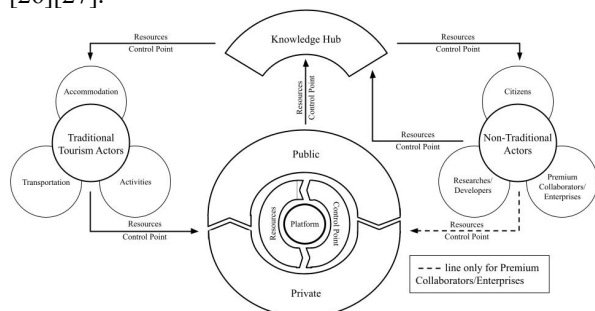


Figure 1. A conceptual model: smart tourism ecosystem

6. Limitations and future research

First, the study is an exploratory single case study in Gothenburg, Sweden. Thus, the outcome of our study might not fully apply to other destinations. Further research can include a more comprehensive approach using a comparative multiple case study. Second, the variety of our informants is low and all informants are closely connected to the DDP's development, which might portray a slightly biased view in our findings. Further research can comprise a more extensive scope by including the tourism actors, potential customers, and national and international collaborating destinations. Third, the DDP was not materialized or tested at the point of our study. While we shed light on how Göteborg & Co is initiating the ecosystem, a longitudinal study can investigate the evolution of the ecosystem and how the public actors work further in facilitating its thriving.

7. References

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