



Map of the potential, socio-economic effects and key players of the real and digital business ecosystem of the fortifications





D.2.1.1 Development of Socio Economic Study.

Map of the potential, socio-economic effects and key players of the real and digital business ecosystem of the fortifications



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The FORTIC project in a nutshell

Project FORTIC addresses common challenges across Adriatic cross-border territories, focusing on enhancing sustainable tourism through digital solutions and innovative social models. Key challenges include the lack of digital tools for developing joint sustainable tourism products, seasonal dependency of tourism activities, and the need for green and digital technologies in cultural heritage preservation. The project aims to strengthen the role of cultural heritage, particularly fortifications, in promoting sustainable tourism. This involves recognising and implementing business models that integrate innovative digital solutions and inclusive social models tailored to the needs of vulnerable groups and heritage communities. By achieving these objectives, FORTIC seeks to establish strategic and sustainable tourism management practices across the Adriatic region, emphasising natural heritage conservation and reducing territorial vulnerability. FORTIC will deliver pilot actions to test digital and physical solutions that improve access to cultural heritage for diverse user groups. Projects aims to enhance cooperation and position the Adriatic cross-border area as technologically advanced and sustainable, promoting its attractiveness for tourism while preserving cultural and natural heritage.

Goal of the Report

To explore best practices in the reuse of fortifications, particularly focusing on the AdriFort project and its three reuse paradigms. The study aims to:

- Evaluate the socio-economic impacts of fortifications in the Italy–Croatia (ITA–CRO) area;
- Investigate the real and digital business ecosystems (BE) of selected fortifications by mapping companies and stakeholders involved in their use, both inside and outside the fort sites;
- Produce a final outcome: a map of current and potential target groups to be engaged in fortification reuse, as a foundation for building a sustainable business ecosystem.

In order to undertake such an analysis, it is necessary to employ a range of tools and data in order to facilitate an understanding of the process of building cultural capital on heritage resources. It is therefore vital that the identification and valorisation of the cultural heritage is given due consideration in this process of developing an integrated regional planning that enhances the cohesion within an enlarged European Union. The primary contribution of this report is the mapping of the spatial expressions and effects of heritage assets and the indications of territorial coherence (existing or potential) at the territorial and local scale



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1. Business Ecosystem and CH development

1.1 Business Ecosystem theory: definitions and evolution

Over the past three decades, the concept of the business ecosystem has emerged as a central analytical lens for understanding the complex interplay between competition and cooperation in interconnected markets. First introduced by Moore (1993), the term extends the metaphor of natural ecosystems to the business domain, framing firms as interdependent members of a broader, adaptive system rather than isolated competitors operating within fixed industry boundaries. In this perspective, business ecosystems are composed of heterogeneous actors—such as focal firms, suppliers, complementors, customers, competitors, regulators, and institutional stakeholders—whose interactions generate collective value that no single participant could produce independently, while also co-evolving in response to environmental and technological changes. The distinctive characteristic of such systems lies in their co-evolutionary dynamics: strategic or technological changes initiated by one actor frequently trigger adaptive responses from others, giving rise to emergent patterns of innovation, collaboration, and rivalry. The health and sustainability of a business ecosystem therefore depend not only on the individual performance of its members but also on the stability, diversity, and adaptability of the network as a whole.

The theoretical underpinnings of business ecosystems draw on complexity theory, network economics, and evolutionary perspectives in strategic management. Moore (1996) conceptualizes ecosystems as progressing through life-cycle stages—birth, expansion, leadership, and self-renewal or decline—each defined by distinct coordination challenges. Unlike traditional industry models, which tend to focus on competition within bounded markets, the ecosystem framework emphasizes mutual dependence, cross-sector linkages, and systemic value creation. At the center of this approach is the concept of co-evolution, whereby the strategies, capabilities, and relationships of participating firms evolve in tandem with environmental shifts, technological developments, and the strategic actions of other actors. This continuous adaptation generates feedback loops, network effects, and path dependencies that shape the ecosystem's long-term trajectory. Consequently, as individual participants innovate, adjust strategies, or respond to changes, others within the system react in ways that may reinforce or destabilize existing configurations. Over time, these reciprocal adjustments give rise to new interaction patterns, shifts in competitive dynamics, and transformations in models of value creation (Jacobides et al., 2018).

Within this evolving structure, firms occupy different functional roles that contribute to, and depend upon, the system's health. Lansiti and Levien (2004a, 2004b) identify keystone players as actors occupying a central and stabilizing position, often providing critical platforms, technological



standards, or governance structures that support the activities of other participants. Keystones enhance the productivity of the ecosystem by lowering transaction costs, facilitating interoperability, and creating fertile conditions for complementary innovation, while also maintaining robustness by fostering trust and stability. Their strategic orientation is toward sustaining the vitality and growth of the ecosystem rather than dominating all niches directly. In contrast, niche players concentrate on specialized products, services, or market segments that complement the keystone's core platform. They bring diversity and adaptability to the system, often driving innovation in targeted domains while relying on the keystone for infrastructure, scale, and market access. This interdependence between keystones and niche players is mutually reinforcing, as each benefits from the other's contributions to the overall value proposition.

A third archetype, the dominator, adopts a value-extractive approach aimed at internalizing functions and capturing a disproportionate share of ecosystem returns. Such strategies may involve vertical integration, aggressive acquisition, or exclusionary practices that displace other participants. While dominance can yield immediate competitive gains, it often undermines long-term ecosystem health by reducing diversity, inhibiting niche creation, and eroding trust. Ecosystems dominated in this way are more vulnerable to technological or market disruptions because their adaptive capacity is diminished.

In many cases, business ecosystems exhibit a hub-and-spoke structure in which the keystone serves as the central hub coordinating an array of niche contributors. This arrangement can enable rapid innovation and efficient coordination, but it also generates systemic dependencies, such that the health of the entire system becomes highly sensitive to the hub's strategic choices and resilience. In digital contexts, however, ecosystems may take on more modular or distributed forms, especially when open standards and interoperability enable looser coordination and shared governance across multiple hubs (Jacobides et al., 2018).

The assessment of ecosystem health has been addressed extensively in the literature, with Iansiti and Levien (2004a) proposing three primary indicators: productivity, which captures the efficiency of transforming inputs into valuable outputs; robustness, the capacity to withstand shocks and maintain core functionality; and niche creation, the system's ability to sustain a variety of specialized roles that foster innovation and adaptability. A healthy ecosystem performs well across all three dimensions, ensuring that participants not only prosper individually but also collectively contribute to long-term sustainability.

From a strategic management perspective, the ecosystem view reframes competitive advantage as emerging from collaborative value creation, platform leadership, and strategic interdependence, rather than solely from firm-specific resources. For keystones, success depends on maintaining openness, encouraging innovation among complementors, and ensuring a fair distribution of value



to sustain participation. For niche players, the challenge lies in aligning with the keystone's strategic trajectory while preserving distinctive capabilities and flexibility. Both must engage in governance structures that balance coordination with autonomy, and that enable the free flow of knowledge and resources necessary for innovation.

Innovation in business ecosystems often emerges at the intersections of diverse competencies and knowledge bases. Research on platform leadership (Gawer & Cusumano, 2014), modularity (Baldwin & Clark, 2000), and network effects (Katz & Shapiro, 1994) underscores the importance of architectures and governance mechanisms that promote interoperability, reduce barriers to entry, and encourage collaborative experimentation. Conversely, restrictive governance or excessive centralization can inhibit innovation, reduce diversity, and ultimately threaten the ecosystem's viability. The business ecosystem framework thus offers a powerful tool for analyzing how value is created, distributed, and sustained in environments where the fortunes of individual actors are inextricably linked to the collective health of the system. By revealing the dynamic balance between cooperation and competition, stability and adaptation, and central coordination and peripheral diversity, it provides both scholars and practitioners with a nuanced understanding of the strategic and organizational principles that underpin long-term success in interdependent, technology-driven markets.

The rapid diffusion of digital technologies has profoundly reshaped these dynamics, giving rise to what scholars describe as digital business ecosystems. While grounded in the same principles of interdependence, co-evolution, and role differentiation, the digital variant introduces novel mechanisms of value creation and orchestration, enabled by digital platforms, data-driven interactions, and network effects operating at unprecedented scale and speed. In digital ecosystems, the keystone role is frequently assumed by a platform owner or orchestrator whose digital infrastructure underpins transactions, innovation, and collaboration among diverse complementors. These platforms—ranging from e-commerce marketplaces to app stores, cloud computing services, and social media networks—function simultaneously as technical foundations, market intermediaries, and governance entities, mediating economic exchanges and facilitating flows of data, knowledge, and user engagement.

Digital ecosystems differ from traditional ones in their scalability and reduced geographical constraints, as their core assets are intangible and their value creation processes can be replicated at near-zero marginal cost. This scalability amplifies competitive dynamics through direct network effects (where the value of participation increases with the number of users) and indirect network effects (where increased participation of one group enhances value for another), which can rapidly lead to market concentration around dominant platforms. While such concentration can reinforce the influence of keystone actors, it also increases the risks of platform lock-in and reduced diversity, particularly when governance models are restrictive (Schöbel & Leimeister, 2023).



Within these ecosystems, niche players often manifest as specialized application developers, content creators, service providers, or analytics firms whose offerings complement the platform's core value proposition. Their success depends heavily on the openness of the platform's architecture, access to APIs, interoperability standards, and equitable revenue-sharing arrangements. Although digital ecosystems lower barriers to entry and facilitate rapid global scaling for niche innovators, they also create dependencies on platform governance, algorithmic visibility, and access to user data, which can generate significant asymmetries of power (Jacobides et al., 2018). Dominators in digital ecosystems may engage in platform envelopment or exploit data monopolies to expand into adjacent markets, marginalizing competitors and extracting disproportionate value. Such practices risk stifling innovation by limiting interoperability, imposing restrictive conditions, or appropriating niche innovations through imitation or acquisition (Schöbel & Leimeister, 2023).

A central distinguishing feature of digital business ecosystems is the role of data as both a strategic resource and a governance instrument. Continuous streams of user interactions, sensor outputs, and transactional records enable real-time monitoring, personalization, and predictive analytics, enhancing the orchestrator's ability to adapt and coordinate activities across the network. As a result, ecosystem health metrics expand beyond productivity, robustness, and niche creation to encompass data diversity, interoperability, cybersecurity resilience, and algorithmic transparency. Governance in this context requires balancing innovation and scalability with privacy, security, and fairness in competition.

While the co-evolutionary logic remains intact, its tempo is accelerated by the fluidity of digital infrastructures and the rapid pace of technological change. Digital keystones must adapt governance models to maintain complementor engagement while navigating regulatory pressures, shifting user expectations, and the integration of emerging technologies such as artificial intelligence, blockchain, and the Internet of Things. Niche players, in turn, must cultivate agility and resilience, often diversifying dependencies across multiple platforms or engaging in multi-homing strategies to reduce lock-in risks. These adaptive strategies collectively shape whether a digital business ecosystem sustains a virtuous cycle of innovation, diversity, and shared value creation or degenerates into a concentrated, brittle structure vulnerable to disruption.

Extending business ecosystem theory into the digital domain thus provides a robust framework for examining not only the economic and technological foundations of platform-based markets but also their sociopolitical and ethical dimensions. It reveals how the roles of keystone, niche player, and dominator are reconfigured when infrastructures are virtual, interactions are mediated by data, and industry boundaries are increasingly porous. This integrated perspective offers critical insights into



the strategic, organizational, and governance challenges that define competitiveness and resilience in the digital age.

Emerging technologies such as the metaverse present a further evolution of digital business ecosystems, providing immersive, persistent virtual environments where economic, social, and collaborative activities can occur at scale. Within the metaverse, keystone platforms may offer virtual infrastructures—digital land, avatars, marketplaces, and interoperability protocols—that enable a wide array of niche participants, including virtual goods creators, service providers, event organizers, and AI-driven agents, to co-create value. Network effects are amplified as user engagement in one part of the virtual environment can create complementary opportunities across multiple sectors, from entertainment and education to retail and professional services. Moreover, the metaverse allows for highly customizable and experiential interactions, integrating augmented reality, virtual reality, and blockchain-enabled assets, which expand the possibilities for differentiation, multi-homing strategies, and new forms of monetization. This makes the metaverse a unique and highly scalable platform for fostering digital business ecosystems while also introducing new governance and data challenges related to interoperability, privacy, and virtual property rights (Schöbel & Leimeister, 2023).

1.2 Potential application of Business Ecosystem theory to Cultural Heritage management

The business ecosystem framework offers a powerful analytical lens for rethinking the management and promotion of cultural heritage, which increasingly requires innovative models to ensure relevance, sustainability, and broad stakeholder engagement (Moore, 1993; Adner, 2017). Cultural heritage organizations—museums, archives, archaeological sites, and heritage landscapes—face persistent challenges: limited funding, fragmented governance, insufficient digital integration, and difficulty connecting with diverse and global audiences (Harrison, 2013; Stylianou-Lambert et al., 2014; Borowiecki & Prieto-Rodriguez, 2015). By adopting an ecosystem perspective, these institutions can evolve from operating as isolated entities into central nodes of dynamic, interconnected networks that co-create cultural, social, and economic value (Jacobides et al., 2018; Parker et al., 2016).

Within such ecosystems, major cultural institutions may act as orchestrators, setting governance standards, providing platforms, and ensuring infrastructural resources and value proposition (figure 1) that enable smaller actors to contribute meaningfully (Iansiti & Levien, 2004; Wareham et al., 2014). Mirroring digital business ecosystems, these keystone actors sustain productivity, resilience, and attractiveness by ensuring that innovation from niche players complements rather than fragments the collective mission (Gawer & Cusumano, 2014). This may involve creating



interoperability standards for digital archives, shared marketing infrastructures, or equitable access to cultural data (Bentkowska-Kafel et al., 2012; Parry, 2013).

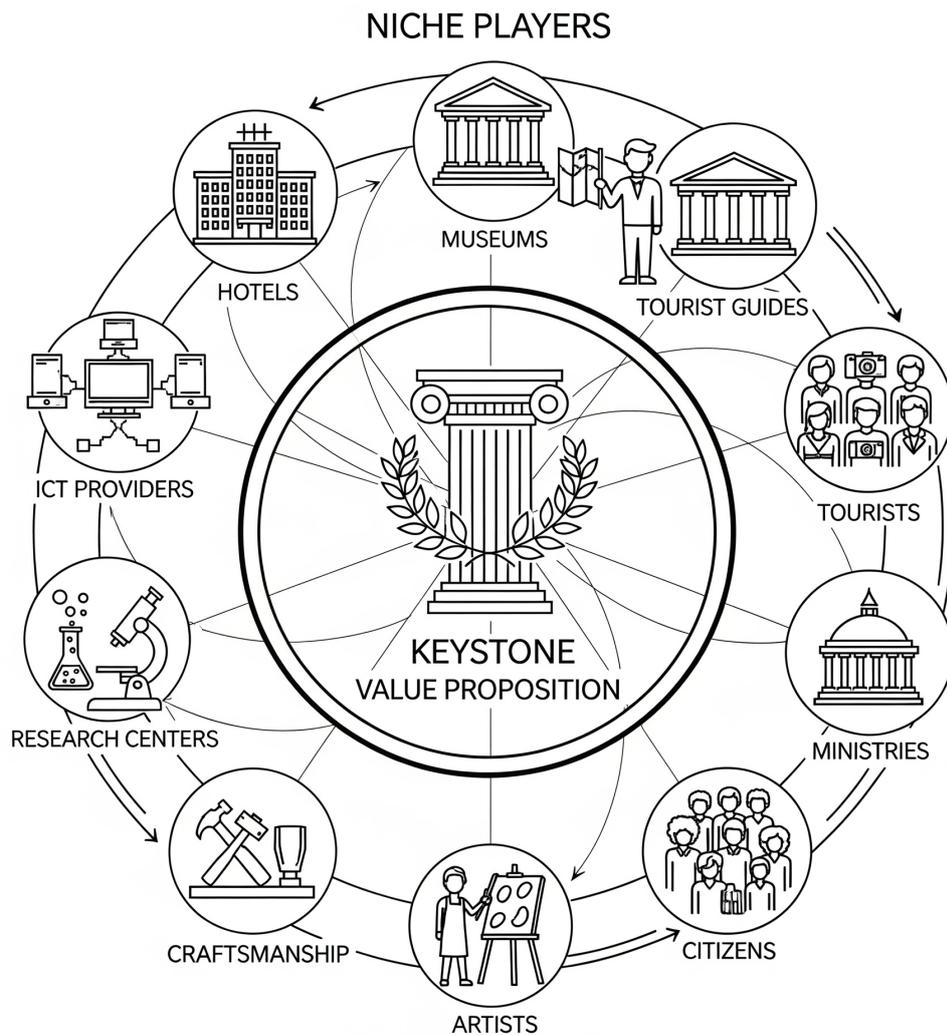


Figure 1 Fig.1 Potential cultural heritage business ecosystem

Digital infrastructures are particularly significant in this transition. Platforms can enable the digitization of high-quality content, immersive virtual exhibitions, AI-based discovery tools, and integrated ticketing systems (Tiwana et al., 2010; Champion, 2015; Jung & Tom Dieck, 2017). Such



infrastructures expand cultural reach at marginal costs while generating indirect network effects: for example, educational participation enriches tourism offerings, and tourism demand in turn supports research and educational programming (Eisenmann et al., 2006; Sigala, 2018).

To monitor and guide these developments, ecosystem health metrics could be adapted for cultural heritage (Iansiti & Levien, 2004). Conventional measures such as productivity, robustness, and niche creation would need to be complemented by heritage-specific indicators: cultural reach (extent of engagement across demographics and geographies), conservation impact (measurable improvements in preservation outcomes), interpretive innovation (diversity of narratives and formats), and stakeholder inclusiveness (representation and collaboration across community groups, scholars, and private partners) (Hooper-Greenhill, 2007; Simon, 2010; Waterton & Smith, 2010). These adapted measures would allow evaluation of whether ecosystems are enhancing both economic sustainability and the sector's cultural and educational mission (Throsby, 2001; Klamer, 2004).

Strategic collaboration emerges as a cornerstone of this model (Chesbrough, 2003; Austin & Seitanidi, 2012). Heritage stakeholders—tourism agencies, creative industries, local communities, technology providers, and policymakers—must align goals, share resources, and co-develop initiatives (von Hippel, 2005). For instance, a museum might partner with an augmented reality startup and a regional tourism board to create immersive experiences that foster cultural education while driving economic activity. Such collaborations enhance ecosystem resilience, diversify revenue streams, and increase institutional adaptability to technological and social change (Folke, 2006; Walker et al., 2004). An ecosystem approach could also help overcome limitations in managing individual cultural resources and in coordinating their integrated valorization at the territorial level. Monumental scale generates restoration and operational costs that exceed single organizations' capacity, making collaborative financing strategies indispensable. Smaller institutions like community archives, local museums, niche collections, while possessing significant cultural value, typically lack the critical mass, physical infrastructure, and resource capacity required to act as effective orchestrators, positioning themselves instead as participants (Janes & Sandell, 2019; Black, 2012). Moreover, the multiplicity of stakeholders—heritage authorities, governments, investors, cultural industries, tourism operators, educational institutions, and community groups—creates complex coordination needs that require participatory governance and strategic alignment to ensure that diverse contributions reinforce one another (Austin & Seitanidi, 2012; Fusco Girard & Nijkamp, 2009).

Despite these opportunities, significant knowledge gaps remain in systematically applying business ecosystem theory to cultural heritage. While extensive research exists on individual aspects—heritage management, tourism development, and business ecosystem design—there is limited scholarship integrating these strands into cohesive frameworks for cultural heritage ecosystems (Ashworth & Tunbridge, 2017; Timothy, 2011). Current studies rarely address practical questions of who initiates orchestration, around which projects strategic alignment is achievable, and how



obstacles specific to cultural heritage can be systematically addressed (Plevoets & Van Cleempoel, 2019).

This absence of integrative models leaves practitioners without operational guidance, particularly regarding large, multifunctional, and symbolically central heritage resources that inherently demand ecosystem approaches. Addressing these gaps is therefore crucial not only for advancing theory but also for supporting sustainable cultural management in practice.

In this light, this report focuses on fortified cultural heritage by exploring how corporate ecosystem theory can be adapted and developed within a distinct heritage category that embodies both the opportunities and obstacles of ecosystem building.

1.3 Fortified Heritage as a key resource in cultural ecosystems

Fortified cultural heritage sites—castles, citadels, walled towns, and military complexes—combine architectural monumentality, deep historical significance, and spatial adaptability, positioning them as keystone resources within cultural ecosystems (Gravagnuolo et al., 2019; Nocca, 2017; Plevoets & Van Cleempoel, 2019). Designed historically as integrated urban systems that blended defensive, residential, administrative, religious, and commercial functions, these ensembles offer multifunctional spatial matrices that can support concurrent uses today—heritage interpretation, cultural tourism, creative production, educational programming, and civic events—without sacrificing authenticity when guided by sound conservation practice (Creighton, 2005; Johnson, 2002; Fouseki & Cassar, 2014; Ashworth & Tunbridge, 2017; Timothy, 2011). In contrast to intangible heritage, which lacks durable physical anchors for sustained collaboration and revenue generation, fortified assets provide robust material infrastructures; and unlike natural heritage, they are generally less constrained by environmental regulation in ways that limit programmatic intensity (Blake, 2009; Kurin, 2004; Aplin, 2002).

The symbolic centrality of fortified sites in regional and national narratives further enhances their orchestration capacity. As widely recognized territorial landmarks, they attract multi-level governance attention and diverse stakeholder engagement, strengthening legitimacy for collaborative initiatives in place branding and tourism development (Ashworth & Graham, 2005; Hospers, 2009; Kavaratzis & Ashworth, 2015; Smith, 2006). Their historic siting along trade routes and frontiers provides conceptual and practical foundations for cross-border and macro-regional cooperation, enabling ecosystem strategies that transcend administrative boundaries and weave together heterogeneous territorial actors (Council of Europe, 2017; Pounds, 1990).



Notwithstanding these advantages, ecosystem construction around fortified heritage faces formidable challenges. Monumental scale entails high restoration, maintenance, and operating costs that typically exceed the capacity of single organizations, calling for blended financing models and entrepreneurial reuse strategies (Fusco Girard & Nijkamp, 2009). Regulatory complexity—overlapping heritage, planning, tourism, and safety regimes—requires design solutions that reconcile authenticity with contemporary functionality, accessibility, and commercial viability (Feilden & Jokilehto, 1998). Governance is further complicated by heterogeneous interests across heritage agencies, local administrations, investors, cultural and creative enterprises, tourism operators, educational institutions, and community groups, demanding participatory coordination mechanisms and clear role delineation between keystone and niche actors (Austin & Seitanidi, 2012; Gawer & Cusumano, 2014).

Technology integration opens additional levers for ecosystem effectiveness. Digital platforms can coordinate stakeholders and services; immersive and AI-enabled experiences can expand engagement and revenue; and interoperable data infrastructures can support discovery, ticketing, and performance monitoring while enabling multi-site itineraries that knit fortified assets into coherent cross-border offerings (De Reuver et al., 2018; Champion, 2015; Jung & Tom Dieck, 2017). Yet here, too, evidence is thin: more research is needed on which platform designs, governance rules, and partnership models best fit fortified contexts and how digital complementarities catalyze sustained collaboration.

A salient gap concerns how to initiate and sustain business ecosystems tailored to fortified heritage. Open questions include who should trigger orchestration and under what design principles; which reuse projects—tourism-led, production-oriented in culture and creativity, or socially inclusive and citizenship-focused—best serve as catalysts for strategic alignment; and how priority-setting can be organized so that ecosystem logics channel attention and resources toward initiatives with the highest collaborative feasibility, naturally excluding incompatible or less viable options. In mature settings, new reuse projects may emerge organically from existing ecosystems as regenerative solutions that secure the survival and mutual value generation of participating actors (Plevoets & Van Cleempoel, 2019).

Addressing these gaps calls for comparative, cross-border inquiry. Fortified assets often share typological features, governance challenges, and stakeholder constellations across national contexts; therefore, systematic comparison can reveal transferable orchestration models, partnership structures, and adaptive reuse pathways that account for institutional and cultural variation. In this study's macro-regional focus on six fortified sites in the Italy–Croatia cooperation area, the analysis examines the specific contributions fortified assets can make to an ecosystem (tourism, productive activities linked to culture and creativity, and preservation of intangible values), identifies keystone



and niche actors and their roles, probes the function of digital infrastructures and the presence of a digital ecosystem, and considers which reuse projects can anchor strategic alignment and long-term ecosystem growth. The study also proposes governance and management guidelines for activation and scaling, together with heritage-specific performance frameworks to assess ecosystem health and stakeholder value creation, thereby complementing conventional conservation metrics with measures of reach, innovation, and inclusiveness (Iansiti & Levien, 2004; Hooper-Greenhill, 2007; Throsby, 2001).



2 The Potential of Fortified Cultural Heritage (FCH) and stakeholders involved

2.1 Types of fortified cultural heritage

European history is replete with wars and territorial changes. Consequently, fortifications have come to define the landscape and borders of numerous cities across the globe. A select number of these have been designated as UNESCO World Heritage Sites, a testament to their global significance and cultural importance¹. A variety of fortifications from different historical periods have been inherited from the past, including those used for the defence and protection of people, their homes, cities, and local infrastructure, as well as entire regions. This military heritage stands as an extraordinary testament to history, especially in Europe, which has often been neglected and forgotten.

This is why the concept of ‘fortified cultural heritage’ has emerged to encompass a variety of structures and sites designed for defence, ranging from ancient earthworks to modern fortifications. These include castles, fortified towns, citadels, and specific types of architecture such as bastions and ramparts. Moreover, the concept of fortified heritage encompasses a wide array of defensive structures from various historical periods, including those constructed during World War I and II, as well as the Cold War era. Fortresses constitute a substantial and perceptible component of a nation’s cultural heritage and a significant developmental asset that can be pivotal to trigger sustainable urban regeneration as demonstrated by the launch by ICOMOS of the International Scientific Committee on Fortifications and Military Heritage (ICOFORT, 2021) and the European Framework for Action on Cultural Heritage (European Commission: Directorate-General for Education, Youth, Sport and Culture, 2019). As a matter of fact, according to the European Network for Fortified Cities, Forts and Defence Lines (EFFORTS, 2025), FCH offer a range of opportunities to a variety of stakeholders. Fortifications have the potential to function as nexuses for ecological innovation and cultural exchange, or alternatively, to serve as conduits for local tourism. In contrast to their traditional role in defence, these figures now serve as symbols of our shared history and collective challenges, fostering unity across Europe rather than dividing it.

2.2 Potential for valorisation and reuse

The historical roles of FCH as barriers, protection, command, depth, flanking and deterrence to defend cities and their hinterland, have evolved into unique physical elements within the contemporary territory. Due to their distinctive locations and physical forms, they play a crucial role as key components in the spatial organisation, connectivity and development of the territory

¹ On a global scale, of the more than 830 objects listed, only 33 are defensive architecture objects (from various eras—from antiquity to the turn of the nineteenth and twentieth centuries). Of these 33 objects, only 10 were built over the past 500 years (Ebejer et al., 2023: 42).



(ICOMOS, 2020). FCH are consequently distinguished by the coexistence of unique characteristics such as historical, tangible, and intangible values, good localisation – very often close to natural and unbuilt areas easily reachable from the major logistic arteries –, and architectural structures equipped with large internal spaces and workshops able to accommodate the most diverse economic activities. These specific characteristics can thus enable various possibilities of reuse. These are relevant opportunities for reuse, which are at the crossroad of multiple disciplines (i.e. archeology, architecture, ecology, economy, history, mobility, and urban planning) and may contribute to sustainable economic growth, public tourism-related infrastructure, and cultural attraction.

In order to facilitate successful reuse, it is essential to establish enablers that are based on a long-term scenario and proceed through successive steps. These steps include the creation of public awareness, the promotion of knowledge of the past, and the involvement of local communities. It is also crucial to safeguard the cultural and historical values associated with the fortresses, integrate reuse within intergovernmental policies, develop a financial plan, and formulate a widely accepted transformation plan (Verschuure-Stuip, 2020). The prevailing body of literature likewise highlights the necessity of incorporating less predictable factors into the formulation of a transformation plan. These factors pertain to the relationship between fortress landscapes and the delicate equilibrium of vegetation presence, which plays a pivotal role in the prevention and facilitation of the reuse of fortresses (Pardela et al.). Recent literature has demonstrated an escalation in military heritage tourism (Venter, 2017), although further development of this phenomenon is required. Additionally, opportunities exist for the creation of new economies based on greenery solutions for enhancing recreational areas (Pardela et al., 2022). These assumptions suggest that fortresses may be viable locations for a range of new uses, rather than being converted into single-function assets.

The preservation and appropriate utilisation of FCH can be a pivotal resource for local sustainable development (European Union, 2020). Nevertheless, FCH face a number of challenges to implement this potential. Among them, ones of the most recognised are the limited financial resources for maintenance and conservation, difficulties among stakeholders in collaborating with private actors, and insufficient emphasis on the role of civil and local society in micro-projects for heritage conservation (Pashaei & Teba, 2025). This inefficiency frequently gives rise to underuse, abandonment or decay. Consequently, the identification of new strategies to reuse these assets and integrate them into urban agendas is a priority (Drozd & Kowalik, 2025). Adaptive reuse can be a feasible solution recognised as the process of repurposing a heritage building, which involves preserving its physical characteristics and historic value, while simultaneously assigning it a new function that ensures its sustained maintenance over an extended period (Bullen & Love, 2011). This practice tries to create a bound between the emergence of conservation and the provision of new activities to satisfy the needs of the local community, thus generating economic, environmental, social and cultural benefits (Gravagnuolo et al., 2021). Ebejer (2025) posits that the values associated



with the adaptive reuse of FCH should be accorded the highest priority in reuse projects according to intrinsic and extrinsic values that need to be accurately identified as part of the reuse process. On the one hand, three are the intrinsic values (history, memory and identity; scientific and technical; and territorial and architectural) especially relevant to a single FCH irrespective of the uses and interventions being proposed. Extrinsic values – encompassing landscape and aesthetic, environmental sustainability, social and cultural, and economic values– assume more relevance in the cases in which there is not only a single building, but a landscape of FCH (such as the Venetian Works of Defence between the 16th and 17th centuries and the fortified Renaissance ideal city of Palmanova).

2.2.1 Reuse paradigms for FCH

The reuse of FCH cannot apply a universal ‘one-fit-all’ solution, as the local context is identified as a critical factor in the success of utilising cultural assets as a tool for local development. However, cultural heritage such as FCH should be regarded not merely as an accumulation of tangible assets to be conserved (and mapped), but also as a contributing factor to the formation of not just a local but a territorial identity and the territory’s dynamism is informed by three prevailing paradigms (attraction, dissemination and territorial) that can result in different development scenario in the reuse of FCH. According to Pflieger & Noya (2005), cultural heritage influences local development in three ways, as there are different channels through which cultural products impact local development: the ‘attraction paradigm’ (the one where culture contributes to a territory’s development by attracting visitors and tourists), the ‘dissemination paradigm’ (the one where culture contributes to the creation of products that will be exported and normally consumed outside the territory itself) and the ‘territorial culture paradigm’ (the one where culture influences the behaviour of a territory’s actors). All of them can help in fostering economic growth and social cohesion through cultural activities, but with different roles and scenarios for the FCH reuse. This has been demonstrated also by the analysis of Russo, Priestley & Romagosa Casals (2006) in the realm of cultural heritage and, more recently, by Camatti et al. (2025) in the specific case of Venice’s fortresses.

2.2.2 Tourist-oriented reuse

The tourist-oriented reuse corresponds to the Attraction scenario and it regards the transformation of cultural sites into desirable destinations for both national and international visitors and tourists due to its potential as a resource for tourism products not for export, but for importing tourists. The idea underlined by this scenario is to manage the reuse of cultural heritage by optimising its appeal to the tourism sector. This scenario focuses on implementing reuse measures for cultural heritage, ensuring appropriate services and infrastructure to accommodate and attract new tourist flows. The focus of the new activities is specifically on improving tourist services and promoting entrepreneurial



ventures related to catering, rather than prioritising cultural, naturalistic, sports and recreational tourism.

Cultural heritage comprises an appealing atmosphere for both tourists and residents. On the one hand, interventions to repurpose fortresses would provide proper services and infrastructures for hosting (and attracting new) tourism flows. On the other hand, reuse activities may be geared at tourist accommodation and for developing entrepreneurship tied to catering rather than cultural, naturalistic, sports and leisure tourism. This would imply relevant ramifications in other economic sectors, such as crafts and supply of traditional local products.

2.2.3 Business-oriented reuse

The business-oriented reuse corresponds to the Dissemination scenario and it consists of turning cultural sites into places where new businesses can be set up to produce goods and services. The idea is that the presence of cultural heritage engenders a favourable climate for the creation of new cultural goods and services, and even empowers the forces to explore new cultural goods that can be 'sold' outside the territory. This is associated with capacity building in terms of transmitting local expertise and transitioning from production to marketing.

Cultural heritage assets, in particular, combine aesthetic dimensions and utilitarian functionality, which can be leveraged for the production of products. In this scenario, the objective of reuse interventions is to establish conditions conducive to the creation of new cultural products and services that have the potential for export and dissemination beyond the local territory, with a view to attracting new businesses. These interventions therefore provide both hard infrastructure (i.e. spaces, equipment and technologies) and soft infrastructure (i.e. organisation and management). FCH as cultural heritage assets combine aesthetic dimensions and utilitarian functionality that may be a leverage for manufacturing products. In this scenario, reuse interventions are designed to provide favourable conditions for creating new cultural products and services to export and disseminate out of the local territory and attracting new businesses. These interventions therefore provide both hard (i.e. spaces, facilities and technologies) and soft infrastructure (i.e. for organization and management).

2.2.4 Preservation-oriented reuse

The preservation-oriented reuse corresponds to the territorial scenario and it consists of enhancing cultural sites as repositories of memory and custodians of local values. Cultural heritage here is intended capable to act as a disseminator of values and a place for the social vitality of local communities. In this context, reuse interventions aim to conserve and protect the cultural heritage to enhance its historical-cultural values and encourage its use as a place of memory and social integration and, above all, as business opportunities.



Cultural heritage may work as both a source and a propagator of values and points of reference. This scenario shapes cultural heritage as a “social capital” capable of promoting social integration as well as business synergies. Values and benchmarks can encourage individual or community actors to plan future prospects of local development, overcome intercultural conflicts, formulate new projects, and coordinate their responses to unforeseen problems and risks. Relevant factors enabling this scenario are supposed to be found in the spatial concentration of cultural heritage elements and the capacity to produce and disseminate values and reference points. In this context, reuse interventions aim at conserving and protecting the cultural heritage to enhance its historical and cultural values and favor its use as a place of memory and social integration.

2.3 Stakeholders involved and possible synergies

The management of former military fortresses is a matter that involves a wide array of stakeholders, including government entities, cultural, educational and environmental organisations, local communities, and private sector actors. These stakeholders possess a wide range of interests and play pivotal roles in the preservation, restoration, and potential reuse of these historical sites. Effective management of FCH requires collaboration and communication between them and, as demonstrated by various cases (Platform, 2023), successful projects often involve participatory planning processes, where diverse perspectives are considered, and solutions are developed through consensus-building.

Among the governing agencies and poles, we can recognize:

- National and regional authorities, whose role encompasses the formulation of policies, the allocation of financial resources, and the establishment of legal frameworks for the management of cultural heritage. Furthermore, they may be charged with the responsibility of overseeing the disposal of military land and buildings
- Local municipalities play a vital role in the provision of essential services and the promotion of community well-being. They are a key component of the local governance infrastructure and perform a primary role in the realm of land-use planning, community engagement, and the integration of the fortress into the urban fabric.
- Military authority holds the ownership or control over certain fortresses can have a substantial impact on the efficacy of reuse initiatives.
- There are a variety of bodies within cultural, educational and environmental organisations that can play a role in the management of FCH:
- Heritage preservation bodies are responsible for protecting and restoring the historical and architectural value of the FCH;



- Museums and historical societies are well-positioned to assume responsibility for the interpretation of FCH history and the delivery of educational programmes;
- Archaeological institutions are permitted to conduct research and manage any archaeological aspects of the site;
- Environmental organisations are concerned with the ecological impact of FCH reuse development and the protection of natural habitats that are tied to the assets;
- Educational institutions can collaborate on research, educational programmes and the integration of the fortress into educational initiatives.
- In terms of local communities and residents, three parties can be considered as key stakeholders:
 - Community associations, including grassroots associations, represent the interests of the community and can play an active role in the decision-making process regarding reuse scenarios.
 - Local businesses stand to benefit from tourism and commercial activities associated with the FCH;
 - Local residents are directly impacted by the reuse of resources, and as such, they are in a position to provide valuable input on the matter.
- Within the private sector, the four main categories are as follows:
 - Developers may be interested in transforming the fortress for residential, commercial, or recreational purposes;
 - Investors can provide funding for restoration and development projects;
 - Tourism operators can benefit from attracting visitors to the fortress;
 - Event organisers may use the fortress for cultural events, concerts, or other activities.

2.4 Lessons learned from other European projects

The transformation of FCH into spaces dedicated to business, culture, education and recreation represents a significant aspect of the broader trend of European strategies for the regeneration of military heritage (DeSilvey & Harrison, 2020). Such interventions of this nature have been demonstrated to serve a dual function: firstly, they serve to restore the functional value of historical objects; secondly, they become a carrier of local identity and an instrument of social activation. The extant literature on the subject emphasises that effective revitalisation of military heritage is based on the use of diversified sources of financing, as well as integration with city and regional policies (Murzyn-Kupisz & Działek, 2013). This approach is consistent with the UNESCO and ICOMOS guidelines on the protection of cultural heritage. These guidelines emphasise the importance of social participation, sustainable use, and the integration of conservation and development functions (UNESCO, 2011). The specificity of FCH has pushed for sharing expertise, promoting cooperation and emphasising the significance of fortified heritage to both build a common European history and



redevelop these sites for new social, economic and spatial development (Navarro Palazón & García-Pulido, 2020). Particular attention deserves the identification of new opportunities for the reuse to be placed at the centre of the cities' agendas and the generation and management of new cultural activities that can enable the spreading of knowledge and preservation of fortresses.

Among the lessons learned internationally, there have been multiple attempts to propose management solutions of maintenance, reuse, and exchanges of good practices employing:

- EU-funded programs (i.e. Central Europe and Interreg), such as the 2004-2006 ASCEND “Achieving the Socio-Economic Reuse of Former Military Land and Heritage – Fortifications, Arsenal, Dockyards”, the 2011-2014 FORTE CULTURA “European Culture Route and World of Experience Fortified Monuments”, the 2012-2014 ATFORT “Atelier European Fortresses”, the 2012-2015 ADRIFORT “Adriatic Fortresses and Military areas”, and the 2019-2023 RFC “Recapture the Fortress Cities”²;
- International networks of fortified cities, fortresses, and defense lines, such as EFFORTS since 2017 (European federation of fortified sites), International Fortress Council since 2007 and ICOFORT since 2005 (the ICOMOS international scientific committee on fortifications and military heritage), and even private cultural foundations, such as the Catalan “*Les forteses catalanes*” (2014);
- Debates emerging from international conferences such as the recent 2020 “Defensive Architecture of the Mediterranean” (Navarro Palazón et al., 2020) and the 2021 events ICOFORT “Military landscapes and natural environment” (ICOFORT, 2021) and “The regeneration of former military sites. Perspectives, debates and redevelopments in Italy, Spain and abroad” (Camerin and Gastaldi, 2021).

² <https://keep.eu/projects/21538/Recapture-the-Fortress-Citi-EN/>



3. An empirical analysis: ITA-CRO case studies data

3.1 Case studies objectives and questionnaire structure

The objective of this questionnaire is to function as a point of reference for extracting lessons learned, opportunities and challenges for the management of FCH for policymakers, urban planners and community leaders primarily belonging to the Adriatic cross border region (Italy and Croatia) but also abroad.

The questionnaire also serves as a means to seek inspiration and practical guidance in the pursuit of sustainable and thriving urban environments based on the reuse of FCH. In fact, the FORTIC project has been developed to provide a vision for the future in which the practices under discussion will inspire and inform revitalisation efforts across the Adriatic cross border region cultural heritage by recognizing fortification business models to promote sustainable tourism and leverage digital solutions to support vulnerable groups and the heritage community. This will ultimately contribute to the creation of more sustainable, resilient, and prosperous mid-sized cities.

The questionnaire has been set up by Ca' Foscari University of Venice team (Nicola Camatti with the help of the external collaborator Federico Camerin) and has been delivered to the FORTIC project partners (Municipality of Vieste, Public cultural Institution Fortress of Culture Šibenik, Juraj Dobrila University of Pula, City of Korčula, Municipality of Cervia) to understand the potential of reuse that a specific fortress shows. The questionnaire comprises a total of 22 questions, of which 17 questions required all the stakeholders interested in the management of a fortress to assess the potential, socio-economic effects and key players of the real and digital business ecosystems according to each of the three hypothesis of reuse scenario. The instruction to answer the questions was to assign a rate from 0 to 5 according to which the value of 0 is null, 1 is poor, 2 is neutral, 3 is good 4 is very good and 5 is maximum. This first part of the questionnaire was combined by specific quantitative data released mainly by the fortress' owner and specific stakeholders involved in their management (businesses installed within the site) (second part of the questionnaire).

The targeting case studies were 9 distributed in 4 cities (2 in Italy and 2 in Croatia):

- Cervia: quadrilateral-shaped fortified city of salt "Cervia Nuova" (S. Michele tower, Salt warehouses and Salt Museum), and the WWII bunker defence system comprising various bunkers (BDS);
- Pola: Casoni Vecchi, Fort Verudela, and Kaštel;
- Šibenik: St. Michael's Fortress, Barone Fortress, and St. John's Fortress; and
- Vieste: Torre San Felice.



- The questionnaire was prepared with the involvement of FORTIC project partners (Municipality of Vieste, Public cultural Institution Fortress of Culture Šibenik, Juraj Dobrila University of Pula, City of Korčula, Municipality of Cervia) that answered directly due to their status as legal entity managing the site or through the specific entities that are entrusted with the management of each site (the Druga za zaštitu i oživljavanje utvrde Casoni Vecchi in the case of Casoni Vecchi Fort and Aquarium Pula d.o.o in the case of Fort Verudela).

3.2 Questionnaire description and administration

The work involving the drafting, sending, answering and elaboration of the material received took ...
The questionnaire comprises three main areas.

3.3 Main findings

3.3.1 Mapping of FCH potential

This subsection elaborates the answers given to questions from 1 to 6 and question 17.

Question 1 regards stating the availability of external services for the assets (cultural, commercial, recreational, tertiary and general) in terms of attraction, dissemination, and territorial scenario. The sites present different situations. Cervia, Pola's Kaštel, and Šibenik answered with the highest values for the three scenario (all of them are between 4 and 5), while Casoni Vecchi scores are medium (3), Fort Verudela shows asymmetry and Vieste poor scores.

Cervia's sites are located within the urban environment and present a wide variety of functions. In terms of attraction, Cervia Nuova is not the typical fortification, rather a fortified city whose walls are the former saltworkers houses. Inside it and in its immediate vicinity, there are a fair number of restaurants, bars, shops, B&B, hotels. San Michele Tower hosts the Tourism Information office and the Darsena Salt storehouse hosts today a restaurant, spa, bar, exhibition and shows space, radio/music production space. Likely, the main bunker defense system is located along Milano Marittima seaside promenade where hotels, seaside resorts, bars, shops are abundant. In terms of Dissemination, the salt warehouses were transformed into the salt Museum (MUSA), complemented with a multipurpose space devoted to conferences, arts exhibitions and events (*Magazzino Totte*) and in a multifunctional building hosting a restaurant and area for exhibition, events, shows, and a bar (*Magazzino Darsena*). As regards BDS, they were recently restored, therefore they represent an open air path along the promenade. The most important bunker Regelbau has been set up as museum whose access is possible only during guided tours. In terms of Territorial, MUSA represents an identity element for the whole city, it is managed by a salt workers association according with a specific convention with the local authority and is one of the Ecoumseum of Salt and Sea of Cervia's



antennas. The latter are the poles of the Ecomuseum which gathers multiple citizens and cultural associations volunteering to keep alive the city's memory, traditions, and identity.

Pola's Cassoni Vecchi fortress shows less availability of external services, although it is located in a residential area with easy access to commercial and general services, including accommodation, restaurants, parking, and public transportation. Nearby amenities, such as beaches, promenades, and sports facilities, further enhance its appeal. The location has not been systematically developed as a platform for new cultural products, entrepreneurship, or the creative industries. There is a lack of specific infrastructure for such activities (e.g., coworking spaces, workshops), although opportunities exist through projects and partnerships. In territorial terms, the Fort collaborates with the local community, schools, and organizations through educational programs and public events. These activities contribute to the preservation of local values and identity, supporting the site's role as a space for community engagement and social integration.

Pula's Fort Verudela present high values for attraction and territorial scenario, while less relevance is paid to dissemination. This site is home to the Pula Aquarium and is situated in an attractive tourist area with easy access to commercial and general services, including accommodation, restaurants, parking, and public transportation. Through its content and operations, the aquarium attracts a large number of domestic and international visitors, aligning closely with the attractiveness scenario. Nearby amenities, including beaches, promenades, and sports facilities, further enhance its appeal. Regarding the dissemination scenario, the site has not been systematically developed as a platform for new cultural products, entrepreneurship, or the creative industries. There is a lack of specific infrastructure for such activities (e.g., coworking spaces, workshops), although opportunities exist through projects and partnerships. In territorial terms, the aquarium engages with the local community, schools, and organisations through educational programs and public events. These activities contribute to the preservation of local values and identity, supporting the site's role as a space for community engagement and social integration.

St. Michael's Fortress, Barone Fortress, and St. John's Fortress in Šibenik benefit from a well-developed network of external services that support all three scenarios: attraction, dissemination, and territorial. In the Attraction scenario, the forts are within walking distance of the city center, offering easy access to a wide range of commercial and hospitality services, such as hotels, restaurants, cafés, and tourist information centers. These services support high visitor traffic and enhance the overall tourism experience. Public transportation and parking areas are also available nearby. For the Dissemination scenario, the surrounding area includes cultural institutions (e.g. museums, galleries, libraries) and educational facilities that foster collaboration with creative professionals. There is also growing support infrastructure for small cultural businesses, including co-working spaces, event production services, and technical suppliers, especially relevant for hosting



exhibitions or digital content development. In terms of the Territorial scenario, the forts are closely integrated into the daily life of the local community. Nearby schools, civic centers, and local associations often partner with the Fortress of Culture on community programs. General and tertiary services, such as healthcare, accessibility infrastructure, and public utilities are well established, supporting social inclusion and heritage education.

As far as Vieste's Torre San Felice, there are poor values according to the three scenario. The site is located in an isolated area 8 km far from Vieste. The fortress has been restored thanks to European and regional funding (COHEN project) and now is managed as a touristic attraction and cultural center. At the moment there is a low availability of external services, only temporary exhibitions are organized here³. Torre San Felice provides also space for exhibitions due to various collaborations with independent art galleries or other cultural institutions. In addition, the tower is immersed in a stunning environment (beaches and coastline).

Question 2 indicates the proximity of these services to the fort in terms of attraction, dissemination, and territorial scenario. The cases of Cervia, Kaštel and Šibenik registered the highest values in all three scenarios, Fort Verudela shows high values for Attraction and Territorial and low level for Dissemination, Casoni Vecchi Fort present medium values, while Torre San Felice the lowest ones. As the Cervia sites are well integrated in the urban context (Cervia Nuova) and the seaside (BDS), all the services related to Attractiveness, Dissemination and Territorial are very close to fortified sites (within 5-to-10 minutes walking).

In the context of attractiveness, the Pola's Casoni Vecchi Fort is located within a residential neighborhood, close to hotels, apartments, restaurants, promenades, beaches, and public transportation. All necessary commercial and tourist services are within a 5–10-minute walking distance, making the location highly accessible and appealing to visitors. In term of dissemination, services that support the development of cultural and creative industries are not readily available near the Fort. There is a lack of incubators, studios, workshops, and similar spaces for innovative and entrepreneurial activities related to the cultural sector. The nearest such facilities are located in the wider urban area, several kilometers far from the site. As for the territorial scenario, the Fort is well connected to the local community. Kindergartens, primary schools, and a secondary school are located nearby, facilitating local engagement and continuous social interaction, supported by the physical accessibility of the site.

In the case of Fort Verudela, the values assigned to the three scenarios are identical with respect to question 1. In the context of attractiveness, Fort Verudela is situated within a well-developed tourist

³ <https://www.arte.it/calendario-arte/foggia/mostra-jeff-koons-a-vieste-101718>



area, near hotels, apartments, restaurants, promenades, beaches, and public transportation. All necessary commercial and tourist services are within a 5–10-minute walk, making the location highly accessible and appealing to visitors. In the dissemination scenario, services that support the development of cultural and creative industries are not readily available near the fortress. There is a lack of incubators, studios, workshops, and similar spaces for innovative and entrepreneurial activities related to the cultural sector. The nearest such facilities are located in the wider urban area, several kilometres away. Regarding the territorial scenario, the fort is well-connected to the local community. Kindergartens and primary schools are located nearby, facilitating local engagement and ongoing social interaction, which is supported by the site's physical accessibility.

All three Šibenik fortresses St. Michael's, Barone, and St. John's are located in or near the historic city center and benefit from the close proximity of external services that support their function across the attraction, dissemination, and territorial scenarios. For the Attraction scenario, services such as hotels, restaurants, souvenir shops, and guided tour agencies are concentrated within a short walking distance from each fortress. Public transport hubs, pedestrian routes, and parking areas also provide easy access for tourists. The proximity of the sea promenade and the city's historic sites further enhances the visitor experience. In the Dissemination scenario, institutions like the Šibenik City Museum, libraries, co-working spaces, and cultural associations are nearby, enabling frequent collaboration. Regarding the Territorial scenario, local schools, NGOs, and community centers are located in neighborhood and often engage in educational and inclusive programs with the forts. Public health, accessibility services, and general utilities are well-developed and located within a 1–2 km radius, ensuring strong community integration and participation.

In the case of Vieste, the tower is isolated from any urban settlements, so there are no external services in its proximity, although the only existing cultural services are held inside the tower. Notwithstanding this, the location of the tower is favourable to attraction scenario as near it there are several famous beaches that attract national and international tourists.

Question 3 indicates the proximity of negative externalities to the sites (e.g. pollution, noise, legal constraints) in terms of attraction, dissemination, and territorial scenarios. Vieste and Casoni Vecchi Fort are the cases that present the most relevant negative externalities, while the other sites are slightly affected by them in their nearby zone.

The case of Cervia presents a low level of externalities as the possible concerns deriving from traffic (noise and pollution) is mitigated by the presence of a parking square (Piazza Andrea Costa) in the fortified city of salt's surroundings, while the bunkers are surrounded by a pedestrian seaside promenade.



The case of Cassoni Vecchi Fort presents various negative externalities. In terms of attractiveness, its closeness to residential buildings constitutes an obstacle to organizing concerts and festivals (such as the Monteparadiso Punk Festival, held from 1992 to 2001), for which this fortress was once renowned both in Europe and globally. In the context of the dissemination scenario, there are certain legal restrictions related to cultural heritage preservation, which can complicate the implementation of infrastructural or production-related projects within the fortress. As for the territorial scenario, the fortress is part of a protected cultural zone with a clear regulatory framework for the preservation of the environment and its heritage. This limits potentially harmful activities. However, negative impacts are minimal, and the legal restrictions generally have a positive effect, ensuring the long-term protection of the site and the local community.

Fort Verudela is poorly affected by negative externalities. In terms of attractiveness, the area surrounding the site is generally quiet and immersed in nature, enhancing the overall visitor experience at the aquarium. Adverse impacts, such as noise and pollution, are minimal, as the fortress is situated outside the dense city centre and away from major traffic routes. Occasional noise may occur during the tourist season or events, but it is not significant. Regarding the dissemination scenario, there are certain legal restrictions related to the preservation of cultural heritage, which can complicate the implementation of infrastructural or production-related projects within the fort. Regarding the territorial scenario, the fort is part of a protected cultural zone with a clear regulatory framework in place for preserving both the environment and its heritage. This limits potentially harmful activities. The negative impacts are minimal, and legal restrictions essentially have a positive effect, ensuring the long-term protection of the site and the local community.

In the case of Šibenik, St. Michael's, Barone, and St. John's Fortresses are not significantly affected by major negative externalities, though certain minor challenges do exist across all scenarios. In the Attraction scenario, the biggest issue is seasonal noise, particularly at St. Michael's Fortress, which functions as an open-air concert venue. While popular with tourists, performances can generate sound that affects nearby residents. However, the city has implemented scheduling and technical measures to manage sound levels. Traffic congestion during peak tourist season may also affect accessibility, though only temporarily. For the Dissemination scenario, legal and conservation constraints related to the historic nature of the fortresses can limit certain types of infrastructure development or adaptive reuse. These are managed in collaboration with heritage authorities such as Conservation department of City of Šibenik but require time and resources, which can affect agility in launching new cultural initiatives.

In the Territorial scenario, there are minimal negative impacts. All three sites are integrated into green or low-traffic zones, reducing exposure to pollution or disruptive urban infrastructure.



In the case of Vieste, no particular source of negative externalities, although in 2023 the area was hit by a severe fire that caused a loss in the environmental heritage. Moreover, the tower is alongside the coast and it is adjacent to the road, but here the traffic is relatively low.

Question 4 relates the current state of the internal characteristics of the sites (e.g., size; presence of green areas; cultural, historical, natural and social values; availability of electricity and sewage systems, etc.) according to the three scenarios. The partners affirm that the current state of the case studies is quite good according to the scenarios, although Fort Verudela and Torre San Felice show the lowest level in terms of dissemination.

The current state of the sites is quite adequate in relation to the three scenarios in Cervia. Here, the various assets present a large variety of characteristics, such as the private salt workers houses that need renovation (the local authority can just speed up authorization procedures); the presence of green spaces nearby Cervia Nuova assets consists of various flowerbeds on a year basis due to the annual Cervia Città Giardino event⁴; the seaside promenade surrounding the bunkers has been recently renewed; the recent EU-funded refurbishment of the salt warehouses with possible new uses to establish in their outdoor spaces; and the pedestrian areas inside the Cervia Nuova assets are often used for the organization of cultural events due to the rich presence of local cultural association.

As for Pula Casoni Vecchi, the Fort has 30 rooms of 16 m² each, of which only 16 are currently in use. The rest cannot be used due to their poor condition. The values given to the three scenario is medium as the characteristics of the site are not completely adequate for its full use. The Fort is historically significant, offering high cultural, educational, and tourist value and is equipped with basic infrastructure (electricity, water, and sewage), which supports its core functioning. It is also surrounded by green spaces and natural landscapes, enhancing its appeal and social acceptance. However, the spatial layout, physical limitations of the historic structure, and conservation regulations can pose challenges for various activities. There is a lack of modular spaces, advanced technological infrastructure, and logistical support for entrepreneurial initiatives. Despite this, from a territorial perspective, the fortress holds significant symbolic and social value, making it well-suited for activities related to local identity and community engagement.

Fort Verudela has high values in terms of attraction and territorial, but small values according to dissemination, especially due to the fact that well-preserved internal spatial characteristics are mainly suitable for both attractiveness and territorial revitalisation scenarios. The building is spacious, complex, and historically significant, offering high cultural, educational, and tourist value. The

⁴ <https://www.cerviacittagiardino.it/>



aquarium effectively utilises most interior spaces for exhibitions, academic programs, administration, breeding, and quarantine units, and is primarily designed with visitor accessibility in mind. The fortress is equipped with essential infrastructure (electricity, water, and sewage), which supports its basic operation. It is also surrounded by green areas and natural landscapes, enhancing its appeal and social acceptance. On the other hand, for the dissemination scenario, the spatial layout, physical limitations of the historic structure, and conservation regulations may pose challenges to flexible reuse for creative industries or small-scale production. There is a lack of modular spaces, advanced technological infrastructure, and logistical support for entrepreneurial activities. In territorial terms, the fortress holds substantial symbolic and social value, making it well-suited for activities connected to local identity and community engagement.

In Šibenik, the current internal characteristics of all three fortresses are largely adequate and well-aligned with the needs of the attraction, dissemination, and territorial scenarios. St. Michael's Fortress has undergone complete restoration and features modern infrastructure, including an open-air stage, seating, lighting, electricity, and sanitation systems. It is well-suited to the attraction scenario, hosting large-scale cultural events and accommodating high visitor numbers. Barone Fortress is smaller but equipped with interactive digital content, a café, kids corner and panoramic viewpoints. Its infrastructure supports both the attraction and dissemination scenarios by blending tourism with educational and cultural programming. St. John's Fortress, most recently revitalized, includes extensive walking areas, and public amenities. It also includes a campus, which has become an essential educational hub, providing the people with diverse activities: workshops, conferences, educational programmes organized for diverse range of population (students, children, seniors). All three sites have access to water, electricity, sewage, and digital infrastructure. While green areas are limited due to the fortresses' stone architecture, nearby public green spaces complement the experience.

In Vieste, the origins of Torre San Felice gives it relevant characteristics. It was built in the 16th century as a coastal watchtower to protect the Gargano coast from invasions, being part of a system of watchtowers spread throughout the area, some of them well preserved, others not. In this site, the recent restoration has brought all basic services to the tower (electricity, toilets, sewage), which is also surrounded by various beaches and coastline with abundance of vegetation and view of the sea.

Question 5 regards the presence of plans or planning ideas for the reuse of the sites (e.g. planning schemes, public-private partnerships, feasibility studies, etc.). The values are different for all the sites, with all the cases that present uniformity in relation to the three scenarios, and only one site present poor presence of plans/planning ideas (Torre San Felice). It appears that the reuse is usually supported by existing plans/planning.



The case of Cervia presents a strong cooperation between the local authority and the regional authority to create an integrate cultural system at the city level to reduce the management fragmentation, an improved use and the reorganization of the various assets to improve the territorial attractiveness. Two specific plans are the following. First, the local authority is currently considering the feasibility of purchasing and renovating an ancient salt workers' house with the aim of adding an antenna and a section of the museum on salt civilisation to the existing Camillone saltworks. Secondly, regarding bunkers, the FORTIC project is set to restore a bunker located in proximity to the promenade, which currently lacks proper use. Eventually, the local authority is looking forward to create new virtual content is essential to optimise knowledge of bunkers and ensure accessibility, especially given the limitations of the available space.

The Casoni Vecchi Fort presents a threefold plan for the use of the site, particularly aimed to arts and crafts, science and innovation, and sports and culture, so more geared towards Dissemination and Territorial scenarios than Attractiveness. Despite the presence of basic infrastructure, the current state of the site makes it difficult the implementation of such plan.

Fort **Verudela NON SO COSA SCRIVERE**

In Šibenik, the Public cultural Institution Fortress of Culture Šibenik actively developing schemes and plans for all scenarios to enhance visitor experience through both internal planning and coordination with local governing bodies. This includes ongoing strategic planning for future improvements as well as larger-scale infrastructure investments. A current example is the planned LED lighting installation, which is being developed in close consultation with local municipal authorities to ensure it meets both heritage preservation standards and modern visitor needs. Additionally, the comprehensive benchmark study on Fortress of Culture Šibenik that is currently being conducted by an external institute will provide definitive direction for future reuse possibilities across all fortress sites. These findings will directly inform the institution's strategic planning for the following years.

In Vieste, Torre San Felice presents poor (attraction and territorial) and inexistent (Dissemination) plans. The tower is owned by the local authority, which promotes touristic visits and art exhibitions, although the planning of the activities performed here does not currently follow a specific study/plan. For instance, in summer 2025, it hosts an exhibition developed in collaboration with private companies and associations of Jeff Koons, which attract local inhabitants and especially national and international tourists.

Question 6 considers whether the existence of local and/or regional plans for the use or reuse of the assets is align with each of the three reuse scenarios. The most relevant scenario attached to the local and regional plans appears to be Attraction, with values ranging from 3 to 5 in all the cases,



followed by Territorial and Dissemination. Casoni Vecchi Fort stands out as present the lowest values (1) for all the scenarios, while Torre San Felice shows the largest gap between the values associated to Attraction and Territorial (4) and Dissemination (1).

In the case of Cervia the aforementioned plans (question 5) confirms that existing local and regional plans align quite well with each of the three reuse scenarios, meanwhile Casoni Vecchi Fort does not present any plans.

For the case of Fort Verudela, local and regional development plans are primarily aligned with the attractiveness scenario, as the fortress is located in a well-developed tourist area of the City of Pula and the Istrian County. Tourism and cultural heritage strategies recognise the importance of repurposing Austro-Hungarian fortifications for public use and valorisation through cultural and educational content, which has been partially achieved through Aquarium Pula. The dissemination scenario is currently not strongly supported by local or regional plans. While broader strategic documents promote creative industries and innovation, there are no specific initiatives focused on developing the fortress as an incubator for new cultural production or distribution. In the context of the territorial scenario, plans for preserving cultural and natural heritage, as well as the inclusion of the community in the management of these resources, are clearly outlined in county and city documents. Some institutional frameworks and partnerships support educational, social, and environmental activities within the fortress, thereby strengthening its social role and local relevance. All planned improvements at Fortress of Culture Šibenik are designed to comprehensively address the attraction, dissemination, and territorial scenarios as interconnected priorities. The planning process ensures that every initiative, from infrastructure upgrades to cultural programming, simultaneously enhances visitor experiences, fosters creative production, and strengthens community engagement. The planned LED lighting installation exemplifies this approach. While primarily improving evening visitation and safety (attraction), it also enables extended hours for local cultural events (dissemination) and creates new opportunities for community gatherings (territorial). This multidimensional planning occurs through constant dialogue between our institution, municipal authorities, and local stakeholders. The fortresses serve as Šibenik's cultural catalysts precisely because tourism appeal, creative innovation, and social values are perceived as supporting rather than competing goals.

In Vieste, the local and regional plans for the use are mostly tied to attraction and territorial scenario aimed at promoting mostly tourism involving also other assets. In fact, the local authority intends to take the ownership of the Castle located in the center of Vieste and to revitalize some of the other fortifications of the municipal area (Torre di Porticello and Torre dell'Aglio towers) by using Regional and European funds.



Question 17 regards the opinion of the partners about future investments that would be desirable to activate within the case studies, indicating to what extent it would be desirable to have them in relation to each of the three scenarios of reuse, attraction, diffusion and territorial. The future investments appears equally distributed for each sites, with Vieste and Cervia presenting the most different values between the scenarios. In the first case, Attraction (4) is followed by Territorial (2) and Dissemination (0), while in the second case the highest values attributed to Territorial and Dissemination (5) is in contrast with the Attraction (2).

In the case of Cervia, there is neutral attention paid to the Attraction, while high inclination to the Dissemination and Territorial because the local administration intention is to purchase a salt worker house located in Cervia Nuova to set up an additional section and antenna about the civic history connected to salt production. Moreover, it is under definition the re-planning of the internal spaces of MUSA in order to make it more accessible, inclusive and more respondent to nowadays visitors. Casoni Vecchi Fort show a large need for investment in the three scenarios. For the attraction scenario, future investments are desirable to improve and modernize facilities and upgrade infrastructure. This primarily includes the renovation of the main staircase, which would allow us to use all rooms on the upper floor. In the dissemination scenario, significant investments are also needed to foster the development of creative and cultural activities within the fortress. Funding for workshop spaces, multimedia production, co-working zones, or areas for local producers would help create new products and services, strengthening the potential for dissemination. As for the territorial scenario, although currently a lower priority, investments are recommended to strengthen social inclusion programs and community engagement. Funding spaces for social activities, educational workshops, and heritage preservation projects would contribute to increasing the social capital of the fortress.

In the case of Fort Verudela, Aquarium Pula considers that future investments are highly desirable to enhance the tourist offer, modernise facilities, and improve infrastructure in terms of attractiveness. This includes developing interactive educational installations, constructing a shark tunnel, expanding catering capacities, and digitalising visitor experiences, all of which would further boost the fortress's appeal as a destination. In the dissemination scenario, significant investments are also needed to encourage the development of creative and cultural activities within the fortress. Funding spaces for workshops, multimedia production, coworking zones, or areas for local producers would help create new products and services, thereby strengthening the dissemination potential. Regarding the territorial scenario, although currently a lower priority, investments are recommended to strengthen social inclusion programs and local community engagement. Funding for social activity spaces, educational workshops, and heritage preservation projects would contribute to enhancing the fortress's social capital.



Šibenik demonstrates high scores for the three scenarios. For the Attractiveness Scenario, future investments include implementing digital technologies like augmented reality guides and AI-enhanced visitor management systems to modernize the tourism experience. Infrastructure upgrades targeting accessibility improvements, such as tactile pathways and adaptive digital interfaces, would make the site more inclusive while elevating its appeal as a cultural destination. Under the Dissemination Scenario, capacity-building programs for staff in digital tools and adaptive business models will prepare the institution for AI-driven changes in cultural tourism. Upgrading the services co-created with vulnerable groups and amplifying disability-inclusive workshops will generate innovative and exportable community-led initiatives. The Territorial Scenario will benefit from investments in inclusive programming, like sensory-friendly tours and community heritage projects, reinforcing the fortress's role as a hub for social cohesion. Upgrading facilities to support local artisans and social enterprises would further embed the site within Šibenik's cultural ecosystem. In Vieste, the development strategies aim at promoting tourism and, according to the local authority, a desirable activity tied to dissemination would be catering along with a bar and a restaurant, but in the area there is insufficient space to set up these activities. Despite this, another idea more tied to attraction and territorial scenario, would be the implementation of a coastal trek connecting the various fortifications of the area and the beaches. This could give a strong impulse to the local touristic economy, reducing the seasonality of the touristic flows as trekking is suggested in mid seasons and not during summertime.

3.3.2 Socioeconomic effects and spillovers: three reuse paradigms

This subsection relates the results of the questions from 7 to 12.

Question 7 presents to what extent the attraction, dissemination and territorial scenarios do the current visitors and users at the fort belong to. Visitors and users are usually equally distributed between the three scenarios, apart in the case of Torre San Felice and Fort Verudela, with the Dissemination scenario presenting respectively a null and poor value.

There is a balance between the visitors and users of the assets in Cervia in relation to the attraction, dissemination and territorial scenarios in all cases, with the bunkers that usually constitute an unexpected presence by their users as they are strategically located in the seaside promenade.

Casoni Vecchi's most current visitors fit within the attraction and dissemination scenario. Also, within the territorial scenario, there is a certain level of local engagement, especially through educational programs for schools, collaboration with associations, and the involvement of the local community in public events. Although these users represent a significant part of the overall audience, there is potential to expand this dimension through additional social and cultural programs in partnership.



Fort Verudela current visitors fit mostly within the attractiveness scenario, as Aquarium Pula attracts a large number of domestic and international tourists. Visitors primarily come to explore marine life, enjoy educational content, and experience the unique atmosphere of the historic fortress. The aquarium is one of the most popular attractions in Pula and the surrounding region, especially during the summer season, which clearly places it in this context. In the dissemination scenario, the user share is very low. The aquarium and fortress do not offer spaces or programs for cultural production, creative entrepreneurship, or the creation of new cultural and commercial products. Activities are mainly focused on nature interpretation rather than creative dissemination. Within the territorial scenario, there is a certain level of local involvement, particularly through educational programs for schools, collaboration with associations, and engaging the local community in public events. Although these users represent a smaller yet significant portion of the overall audience, there is potential to expand this dimension through additional social and cultural programs in partnership with local stakeholders.

In Šibenik Current, the visitors and users of St. Michael's, Barone, and St. John's Fortresses primarily belong to the attraction scenario. The majority are tourists and cultural consumers attracted by events, concerts, exhibitions, and guided tours designed to showcase the cultural and historical significance of the sites. These visitors contribute significantly to the local tourism economy and engage with fortresses as desirable destinations. A smaller but growing group of users aligns with the dissemination scenario. These include artists, cultural entrepreneurs, researchers, and educational groups who participate in workshops, creative programs, and digital initiatives hosted at the sites. Their engagement is often project-based and focused on producing cultural content or innovative products that can be shared regionally or internationally. The territorial scenario is mostly represented by local residents, schools, and community groups who use the fortresses for educational programs, social events, and heritage preservation activities. This group values the fortresses as places of memory and social integration, strengthening local identity and fostering community cohesion.

In Vieste, most of the users are the tourists that visit the tower and its exhibitions during summertime, with the attempt to offer cultural alternatives to beach tourism. In addition the tower has an emerging social value for the local community, as it is part of the heritage of the area and it has been recently restored.

Question 8 indicates from which scenario (attraction, dissemination and territorial) the overall annual turnover is produced. This aspect presents the largest gap in the case of Fort Verudela, where the Attraction (5) is most important than Dissemination (1) and Territorial (2), with just one case in which the total income is poor (Torre San Felice) and is generated mostly by Attraction and Territorial, with no turnover produced by Dissemination activities.



The overall annual turnover is produced differently between the various scenario in Cervia. In terms of attraction, there are hotels, restaurants, bars, shops, while the dissemination counts on the tourism information office. In terms of Dissemination, the main annual turnover is given by the Tourism information office located inside San Michele Tower, managed by the CerviaIn Foundation responsible for the promotion and marketing of the city, and which organizes guided tours⁵ to Cervia Nuova, bunkers, and other location across the municipality. In terms of Territorial scenario, the turnover is lower as the Salt Museum (MUSA) collects money through the entrance tickets, donations and salt selling, but the entrance cost is maintained cheap as political choice of the local administration. All cultural services in Cervia are for free or for a very low price in order to allow everybody to enjoy the heritage as inclusion policy.

In contrast, the only sources of income for Casoni Vecchi Fort are donations and membership fees equally produced in the three scenarios.

In the case of Fort Veredula, the annual revenue of Aquarium Pula is almost entirely generated from the attractiveness scenario. The primary income sources are visitor ticket sales, which peak during the summer tourist season, as well as additional services such as the gift shop, guided tours, and catering. Visitors are predominantly tourists, clearly confirming that the financial sustainability of the institution is directly linked to the tourist appeal of the location and its offerings. The dissemination scenario is currently undeveloped as a revenue source. There are no cultural or creative industry products or services commercialised beyond the site itself, nor are there established models for knowledge transfer, franchising, or branded products generating additional income. The territorial scenario contributes to revenue to a lesser extent, for example, through projects, educational workshops, and occasional public funding. However, these revenues are secondary compared to tourism-related income and mainly support the aquarium's social role rather than serve as a primary financial foundation.

The overall annual turnover of Fortress of Culture Šibenik is primarily generated through the attraction scenario. This includes revenue from ticket sales, venue rentals, guided tours, concerts and cultural events, and souvenir sales across its main sites—St. Michael's Fortress, Barone Fortress, and St. John's Fortress. These activities are largely visitor-driven and tourism-oriented and represent the institution's strongest and most consistent income stream. The dissemination scenario contributes to turnover through project-based funding, especially from EU-funded cultural and innovation

⁵ The cost of guided tours to bunkers partially covers the costs of the CBR 360° cultural Association which has a convention with the Municipality and whose volunteers cooperated with the Municipality for the refurbishment and museumisation of the WWII artifacts during the works of renovation of the pedestrian promenade of Milano Marittima. This cost is used to cover costs for the maintenance of the artifacts.



programs, as well as partnerships for developing new cultural products and content. However, this scenario provides less predictable income and is typically tied to specific initiatives, not daily operations. The territorial scenario, focused on community value and social inclusion, contributes the least in direct financial terms. Activities such as educational programs, local outreach, and inclusive events are often offered free of charge or at reduced cost, and are mostly supported by public funding, including the City of Šibenik's annual contribution (which makes up about 30% of the institution's budget). To sum up, while all three scenarios play important roles, the attraction scenario remains the dominant source of annual turnover for the institution.

In Vieste, the turnover is very low at the moment. The incomes are generated by the tickets of the exhibitions but are destined to the companies or associations that organise the activities. At the moment the tower uses are conceived as a sort of investment in the cultural heritage sector of the area by the local authority.

Question 9 indicates the kinds of activities/programs/events currently organized at the sites in relation to the attraction, dissemination and territorial scenarios. The cases of Cervia, Fort Verudela and Vieste are the most imbalanced ones, with poor or less attention paid to Dissemination in the cases of Fort Verudela (1) and Vieste (0) and Cervia in terms of Attraction (2 instead of the values of 5 and 4 to Dissemination and Territorial).

There are various activities/programs/events currently organized at the Cervia sites in relation to the attraction, dissemination and territorial scenarios. First, the less activities pertains to the attraction scenario as here just private businesses located nearby the fortified heritage organise some small program like music and entertaining evenings for tourists (Attraction). Second, Dissemination shows the strongest value as pedestrian areas are the set of a busy annual program of events, shows, music, cultural events and exhibitions organized also in cooperation with the local cultural associations and volunteers (). Third, territorial scenario is also consistent in this domain, as The Ecomuseum of Salt and Sea and Cervialn organize thematic heritage walks in the city, while MUSA promotes many cultural learning events, guided visits, workshops especially addressed to families, kids, and schools. At Casoni Vecchi Fort, regular activities at the fort include: science, innovation, and knowledge dissemination; music rehearsals; sports gym; painting studio; historical research; and library. Within the territorial context, the fort cooperates with local schools, associations, and institutions through educational workshops and awareness-raising activities focusing on environmental protection and cultural heritage. These initiatives strengthen the connection between the fort and the local community, although there is still potential for more participatory and socially-oriented programs.

In addition to regular activities, we also organize cultural, musical, and educational events.



In the case of Fort Veredula, within the attractiveness scenario, Aquarium Pula regularly organises a wide range of visitor-focused activities: permanent and thematic exhibitions, guided tours, and educational presentations about marine life and cultural heritage. These programs are primarily designed to attract a broad audience, especially tourists, directly enhancing the fortress's appeal as a destination. Dissemination activities are minimal. There are no regular programs involving the production of cultural, creative, or technological content. Currently, the fortress does not serve as a space for innovation or the dissemination of knowledge and products beyond its site. Within the territorial context, the aquarium collaborates with local schools, associations, and institutions through educational workshops and awareness-raising activities that focus on environmental protection and cultural heritage. These initiatives strengthen the connection between the fortress and the local community, although there remains potential for more participatory and social programs.

Šibenik's fortresses host a wide range of activities that reflect all three development scenarios: attraction, dissemination, and territorial. In the attraction scenario, the fortresses, especially St. Michael's, are known for large-scale cultural and entertainment events. These include concerts, open-air cinema screenings, music festivals, and seasonal tourist programs that draw thousands of local and international visitors annually. The panoramic locations and high-quality infrastructure make them popular cultural tourism destinations. In the dissemination scenario, Barone Fortress in particular supports creative industries, offering interactive exhibitions, educational children workshops, and digital storytelling experiences. These programs promote cultural innovation and the development of new cultural products, including those created in collaboration with artists, historians, and digital media professionals. For the territorial scenario, all three fortresses organize community-oriented events, such as public conferences, school visits, inclusive educational programs, and local heritage initiatives. These initiatives foster social cohesion and promote cultural identity at the local level. St. John's Fortress provides a new unique feature in the region: an all-year-round open educational campus dedicated to developing and offering various courses, workshops, classes, seminars, and lectures for pupils, students, and a wide variety of stakeholders in CCI, history, art, culture, archaeology in the future – and adding along the possibility of accommodation in the fortress itself.

In the case of Vieste, art exhibitions are the main activities carried out as stated in question 1, along with specific visits regarding the architectural and historical value of the site, while no activities embedded in the Dissemination scenario are performed.

Question 10 is about the main sources of revenue (e.g. tickets for entrance and/or events organized at the site; sponsorships; venue rent; EU-funded projects; and donations) in relation to the attraction, dissemination and territorial scenarios. The main sources of revenue are medium and low for the



cases of Cervia (values between 2 and 3), Casoni Vecchi Fort (3 for all scenarios), and Vieste (values from 0 to 2), with Fort Verudela presenting the most significant income coming from Attraction with respect to Dissemination (1) and Territorial (2).

Cervia experienced and is experiencing mainly two sources of revenue. Firstly, EU and regional funds have been recently the main source used by the local administration to implement projects of renovation and restoration of the sites, such as:

- Magazzino Darsena was co-financed by ERDF funds for an amount of over 2.5 Mil euro ERDF, allowing the reopening of the building in 2022 after decades of closure;
- Magazzino Torre was renovated thanks to 300.000 co-financing EAFRD Funds allowing to conduct important structural refurbishment of the building
- Milano Marittima seaside promenade benefited of important regional funds addressing tourism attractiveness, which allowed the recovery of the 2nd world war defense artifacts
- cooperation projects implemented thanks to ETC Programs rather than regional funds were done in the past and present programming period to implement “soft” enhancement actions

Secondly, less-important incomes are represented by rental of spaces (e.g. San Michele tower top room, and Magazzino Torre exhibition area) and tickets and salt sales. It is relevant to highlight that workshops and events promoted by the Municipality are generally for free or for a very low cost just to cover the organization expenditures.

For the case of Casoni Vecchi Fort, the main sources of revenue are the donations and membership fees, with an equal distribution among the three scenarios.

In the case of Fort Verudela, the primary source of revenue for Aquarium Pula comes from the attractiveness scenario, primarily through ticket sales to visitors. During the tourist season, ticket sales represent the largest share of the total annual income. Additionally, revenue is generated through the gift shop and hospitality services, further strengthening its role as a tourist attraction. Within the dissemination scenario, revenues are very limited or nonexistent. There are no earnings from cultural production, knowledge commercialisation, or creative industries. The fortress space is currently not organised to disseminate products or knowledge to a broader network of users or markets. Territorial sources of income include occasional EU projects, donations, and participation in local or national initiatives focused on environmental protection and cultural heritage. However, these constitute a smaller portion of the overall budget. Such funds mainly support scientific, educational, and social activities rather than operational expenses.



In Šibenik, the main sources of revenue for the fortresses are closely tied to the attraction scenario. Approximately 70% of the institution's total annual budget comes from its own income, which includes ticket sales, venue rentals, sponsorships, donations, souvenir sales, and funding from national and EU programs. The remaining 30% is covered by the City of Šibenik. The attraction scenario is the strongest revenue driver, particularly through ticket sales for site visits and cultural events, and venue rentals at St. Michael's open-air stage. These commercial and tourism-focused activities are essential to the institution's financial sustainability. In the dissemination scenario, income is generated through cultural partnerships, co-productions, and occasionally through EU-funded projects that support cultural innovation and business development. For the territorial scenario, revenue is more limited, as activities are often community-focused and non-commercial, but may be supported through public funds, grants, or sponsorships tied to social value and education.

In Vieste, only the tickets for entrance of the exhibitions hosted in summer 2025 generate incomes for the art gallery managing the event, coming mostly from national and international tourists visiting the area.

Question 11 is about the employees that work at the sites in relation to the attraction, dissemination and territorial scenarios. People involved as employees are in the majority of cases well distributed between the three scenarios, although Fort Verudela is more geared towards Attraction (5) with respect to Dissemination (1) and Territorial (3) and Vieste presents few employees (values between 1 and 0).

Cervia's heritage assets have different management structures working under the coordination umbrella of the Municipality which is the main owner of the sites. The cultural service of the Municipality deals with these structures and counts with 1 dedicated person along with other 8 dealing also with events and tourism: MUSA is managed by approximately 30 volunteers of the saltworkers cultural association (which are entrusted also with the Camillone saltpan, whose last handcrafted saltpan still operate thanks to the work of volunteers); San Michele Tower hosts the Tourism Information office and tourism promotion and marketing Foundation Cervialn (owned by the Municipality) where about 8 employees work; and the Darsena salt warehouse is managed by a private company which employs approximately 50 people under municipality concession.

Casoni Vecchi Fort does not have any employees, as the Association for the Protection and Revitalization of the Casoni Vecchi Fortress has no employees but operates exclusively on a voluntary basis through its members, supporters, benefactors, and volunteers equally distributed in the three scenarios, as well as in cooperation with other associations.



As regards Fort Verudela, most employees at Aquarium Pula are directly linked to the attractiveness scenario. This includes marine biologists, educators, technical staff, administration, and personnel working at the ticket desk, gift shop, and hospitality services. Their primary roles involve ensuring a high-quality visitor experience, maintaining exhibits, caring for animals, and providing tourist and educational content—key elements of the fortress's attractiveness management model. Employees related to the dissemination scenario (such as cultural production experts, designers, creative industry professionals, or digital marketing specialists) are largely absent, as the fortress is not used as a centre for developing or distributing cultural or innovative products. Within the territorial scenario, some staff members participate in educational programs, community projects, and collaborations with local schools. These employees support the fortress's social role and its integration into the local community. In most cases, they are the same staff working on attractiveness, but with an expanded job description.

The Fortress of Culture Šibenik currently employs 65+ staff members organized into 10 departments, each contributing in different ways to the attraction, dissemination, and territorial scenarios across sites including St. Michael's, Barone, and St. John's Fortresses. In the attraction scenario, the Departments for Tourism and Sales, Marketing and Public Relations, and Operational Affairs play a key role. These teams manage visitor experience, promote events and heritage tourism, and coordinate daily site operations, all essential for drawing large audiences and generating income. In the dissemination scenario, the Departments for Program Production, International Cooperation and Projects, and Research and Interpretation of Heritage are central. They design and implement cultural programs, exhibitions, educational initiatives, and international partnerships that support cultural innovation and knowledge exchange. For the territorial scenario, departments such as General Affairs and Procurement, Technical Affairs, Maintenance and Protection, and the Croatian Coral Center Zlarin contribute by ensuring site upkeep, community engagement, and inclusive programming that reinforces local identity and social cohesion. This multidisciplinary team structure allows the institution to operate flexibly across all three scenarios, ensuring both professional management and meaningful cultural and community impact.

In Vieste, no employee belonging to the local authority currently works permanently at the site, although several people are involved in the organization of cultural activities and its maintenance.

Question 12 regards the possible presence of temporary contract workers employed in relation to the attraction, dissemination and territorial scenarios. In the case of Cervia, Pula's Casoni Vecchi Fortress, and Torre San Felice there are no temporary contract workers, with Fort Verudela presenting most of the temporary workers geared to Attraction scenario (5) and poor (1) in Dissemination and Territorial.



In the case of Fort Verudela, most temporary workers at Aquarium Pula are engaged within the attractiveness scenario, especially during the tourist season. This includes staff in the gift shop, hospitality services, and ticket control, ensuring a high level of service for visitors. In the dissemination scenario, the presence of temporary workers is minimal. However, external collaborators are occasionally hired for specific tasks such as producing educational installations, exhibition elements, or digital content. Although these engagements are not regular, they contribute to the development of content with dissemination potential. Within the territorial scenario, external experts are occasionally involved for research purposes and the promotion of local heritage. Their involvement and numbers depend on the availability of funding and partnerships in various projects.

At Fortress of Culture Šibenik, temporary contract workers are primarily employed on a seasonal basis, mainly during the high tourist season. Their roles are most directly connected to the attraction scenario, as they primarily work as cashiers at the entrance points of the fortresses—St. Michael's, Barone, and St. John's. These positions are essential for managing increased visitor flow, providing customer service, and supporting ticket sales during peak periods when tourism activity is at its highest. While their involvement in the dissemination and territorial scenarios is more limited, seasonal staff indirectly support these dimensions by enabling the smooth operation of the sites, which in turn supports broader programming and public access. By ensuring a welcoming and organized first point of contact for visitors, they contribute to the overall visitor experience, helping maintain the Institution's reputation for quality service and efficient site management.

In the case of Vieste, there are currently no temporary contract workers belonging to the local authority but just workers involved in the management and implementation of the exhibition contracted by the art gallery.

3.3.3 Key players in real fortification business ecosystems

This subsection presents the results of the questions 13, 15, 16, and from question 18 to 22.

Question 13 leads to understanding the marketing strategies currently elaborated/under elaboration and also comprehend to which kind of target audience they belong in relation to the attraction, dissemination and territorial scenarios. Most of the cases show the choice to focus on the three scenarios, but Fort Verudela's marketing strategies are more tied to Attraction (5) than Dissemination and Territorial (with both values of 1) as well as it happens in the case of Vieste (3 to Attraction, 0 to Dissemination and 1 to Territorial).

In the case of Cervia, the local authority promotes marketing strategies aimed at improving local cultural and identity values through Cervialn Foundation, with special emphasis to schools, families,



and elderly. These campaigns are mainly devoted to the main tourism attractor of Cervia (i.e. the seaside tourism), as well as culture and environment to gradually steer interest from the main attractor toward other aspects of the local territory. Ecomuseum and MUSA also deliver marketing strategies along with CerviaIn through their websites and specific campaigns.

In the case of Casoni Vecchi Fort, the marketing strategies are weak in the three scenarios and are aimed at a broad visitor audience, including primarily social media, posters before cultural events, and collaboration with tourist boards. In terms of Attraction, the target audience includes both domestic and international visitors of all age groups. In the dissemination scenario, marketing efforts are minimal and still under development. Occasionally, educational programs and special projects are promoted through professional channels and local networks, but there are no structured campaigns for the development of creative or cultural products. In the territorial scenario, marketing is limited and targeted at the local community and schools but the promotion through social media has proven to be very effective.

In the case of Fort Verudela, within the attractiveness scenario, there are well-developed and active marketing strategies targeting a broad audience of tourists and visitors. This includes digital marketing (website, social media), collaboration with tourism boards and facilities, and promotion through tourist guides. The target audience comprises both domestic and international tourists of all age groups. In the dissemination scenario, marketing efforts are minimal and still in the development stage. There are occasional attempts to promote educational programs and special projects through professional channels and local networks, but no structured campaigns exist for developing creative or cultural products. In the territorial scenario, marketing is limited and focused on the local community and schools. Promotion mainly occurs through cooperation with local institutions and organising public events, without formalised marketing campaigns.

In Šibenik, in the attraction scenario, marketing focuses on tourists and cultural consumers, both domestic and international. Strategies include digital advertising, social media campaigns, collaborations with travel platforms, and promotional videos highlighting events and heritage experiences. Seasonal campaigns are launched to promote concerts, festivals, and exhibitions, especially at St. Michael's and Barone Fortresses, positioning them as top cultural destinations. For the dissemination scenario, marketing targets creative professionals, cultural entrepreneurs, and institutions. This includes participation in EU project networks, professional conferences, and cultural exchange platforms. Communication highlights innovation, digital technologies, and opportunities for collaboration, particularly relevant for partners in heritage interpretation, creative industries, and digital content development. Within the territorial scenario, the focus is on local communities, schools, civil society organizations, and regional cultural stakeholders. Strategies involve community



outreach, educational partnerships, and inclusive event programming. Channels include local media, newsletters, and public events aimed at fostering a sense of ownership and pride in local heritage. In the case of Vieste, the general marketing strategy focuses on the touristic strategy of the local authority trying to move the focus from the beach and nature tourism to the one based on cultural, architectural and historical heritage. The target of the activities, and therefore of marketing and communication, are mainly national and international tourists.

Question 15 indicates whether there are bottom-up initiatives in relation to the attraction, dissemination and territorial scenarios. Only the case of Šibenik shows a high presence of bottom-up initiatives, with Cervia mostly focused on Territorial scenario (5) with respect to Attraction and Dissemination (with both values of 2). Fort Verudela presents poor bottom-up initiatives in terms of Attraction, while Vieste null values as there no bottom-up actions have been developed. A more balanced situation is observed in Pola's Fort Verudela and Kaštel.

Cervia experiences poor initiatives in the Attraction and Dissemination scenarios and most of them can be related to the Territorial scenario as there are various types of lively civic participation on voluntary basis in the field of culture:

- the cultural association of salt workers is responsible for passing on the memory and traditions of salt harvesting to future generations (via convention with the local authority)
- the facilitators cultural Association cooperate with the local authority to keep alive the Ecomuseum of Salt and Sea
- the CRB 360° cultural association deals with second world war heritage (i.e. the BDS) and is responsible for the maintenance of the artifacts in Cervia (via convention with the local authority)
-

Within Casoni Vecchi Fort, the Association Fort Casoni Vecchi holds the decision to plan and decide which programs and activities will be performed, although local community, associations, or other external actors usually promote bottom-up initiatives regarding the organization of events or content in accordance to the Association's goals. In the attraction scenario, community or stakeholder participation through initiatives is enabled, but the Association retains full control over content and activities. For the dissemination and territorial scenarios, there are no bottom-up initiatives, as management and decision-making are centralized, without the inclusion of external participants or the local community.

Within Fort Verudela, all programs and activities are thoroughly planned and decided by the company Aquarium Pula. There are no bottom-up initiatives from the local community, associations, or other external actors regarding the organisation of events or content. All programs are designed to achieve the company's goals and promote tourism. In the attractiveness scenario, community or other



stakeholder participation through initiatives is very limited, as Aquarium Pula retains complete control over content and activities. For both the dissemination and territorial scenarios, there are no bottom-up initiatives since management and decision-making are centralised, without involving external stakeholders or the local community.

In Šibenik, the values are high for the three scenarios. Attractiveness Scenario is exemplified by Adventura, Croatia's unique plastic-free Advent fair organized since 2017 across Šibenik's city center. Featuring 50+ musical/stage programs, Arsenturica children's workshops (40+ educational activities), Freetulada fritter-making competitions, and local entrepreneur showcases, it has positioned Šibenik as a premier winter destination while promoting sustainable tourism infrastructure. For the Dissemination Scenario, initiatives such as Night of the Fortress Goes Green demonstrate how cultural heritage inspires creative and sustainable activities by engaging local stakeholders, NGOs, artists, and educators to organize workshops, performances, and heritage celebrations and promoting eco-friendly practices and community-led cultural expression. The Territorial Scenario is strengthened through these events' focus on social cohesion. Adventura and Night of the Fortress activate the fortresses spaces of shared identity, with children's workshops, intergenerational participation, and free guided tours reinforcing local heritage values and sustainable living.

In the case of Vieste, the initiatives are top-down as the decisions are taken by the local authority itself.

Question 16 indicates whether there are any project involving cooperation with local stakeholders/EU funded project under the programming period 2021-2027 in relation to the attraction, dissemination and territorial scenarios. The cases of Šibenik and Pola's Kaštel are currently the most geared cases in terms of such projects (value of 5 for the three scenarios), with Cervia giving more importance to Territorial (4) with respect to Attraction and Dissemination (both values are 2). On the contrary, the most imbalanced cases are Fort Verudela, which focus mostly on Attraction (value of 4, while Dissemination is 1 and Territorial is 0) and Torre San Felice, mostly tied to Territorial (3) and Attraction (2) instead of Dissemination (0)

In Cervia, there is actually poor presence of projects according to the attraction and dissemination scenarios, but a high level of projects tied to the Territorial scenarios:

- The Network of Ecomuseums promoted by the Emilia-Romagna Region develops activities and projects at regional level to enhance and promote the regional identities and heritage
- There are the already-mentioned cooperation with the local cultural associations as described in question 15
- The cooperation with the Parco della Salina company to manage the salt production and saltpan environmental maintenance, but disconnected with FCH; and



- The FORTIC project is the only initiative tied to the programming period 2021-2027

The values for Casoni Vecchi Fort are quite low as only the event *Night of Fortresses / Noć tvrđava / "Night of Fortresses Goes Green"* is planned for 2026.

In the case of Fort Verudela, within the attractiveness scenario, Aquarium Pula actively participates in projects that involve collaboration with local stakeholders, including tourist boards, educational institutions, and cultural associations. Additionally, support has been secured through EU funds for the 2021-2027 programming period to enhance tourist infrastructure, educational content, and destination promotion, further strengthening the fortresses and the wider area's attractiveness. In the dissemination scenario, there is minimal but initial cooperation through smaller projects or EU grant applications that may involve the development of cultural or educational products; however, these projects are still in early stages or planning phases. For the territorial scenario, currently, there are no projects involving local stakeholders or EU funding, as the focus of activities is not directed towards social integration or local community engagement.

Fortress of Culture Šibenik is actively involved in several EU-funded projects within the 2021–2027 programming period that strengthen cooperation with local stakeholders and contribute meaningfully to the attraction, dissemination, and territorial scenarios. Under the attraction scenario, the FORTIC project (Interreg Italy–Croatia) focuses on revitalizing Adriatic fortifications to enhance their touristic appeal. The project supports integration of digital solutions and the development of inclusive tourism models. These efforts aim to increase visitor engagement at sites like St. Michael's, Barone, and St. John's Fortresses, while fostering sustainable tourism tailored to diverse and vulnerable audiences. In the dissemination scenario, the 2024-2027 GIFTSnet (Interreg Croatia-Bosnia and Herzegovina- Montenegro)⁶ strengthens sustainable and inclusive cultural tourism across several locations, including Šibenik. The project promotes green, nature-based investments and helps develop locally rooted, socially inclusive tourism offerings. It also builds the capacities of cross-border stakeholders to drive environmentally responsible and innovative cultural tourism. By encouraging collaboration among public institutions, civil society, and entrepreneurs, GIFTSnet supports the creation of new cultural products and experiences that extend beyond local markets. The territorial scenario is supported by the Sustainable Fortifications for Seniors Learning Hub⁷, which enhances lifelong learning, social inclusion and environmental consciousness. It promotes fortified sites as learning and civic spaces, especially for seniors, fostering awareness about sustainability, heritage reuse, and community participation through partnerships with local NGOs and educational institutions

⁶ <https://interreg-hr-ba-me.eu/project/project-library/giftsnet/>

⁷ <https://tvrđjava-kulture.hr/en/news/eniors-learning-hub/>



Additionally, the institution runs educational programs in cooperation with schools and cultural organizations, with active involvement of the Society for the Preservation of Šibenik's Heritage. These efforts collectively enhance strategic cultural management, capacity building, and community integration aligned with EU priorities.

In Vieste, San Felice Tower was restored by the public investment coming from European and regional funding (COHEN project - COastal HEritage Network - Interreg Greece Italy 2014/2020) and the current project FORTIC constitute the next step to improve the local cultural heritage of Vieste.

Question 18 pinpoints whether among the companies currently operating within the sites, there is one that plays a particularly central or strategic role—perhaps one that supports, promotes, or generates activity for the others.

In the case of Cervia, Cervialn Foundation plays a key role for the city, considering the high economic dependence to the tourism sector. Despite this, there is not another company at the same level of Cervialn Foundation, so in the case of a sudden absence or problem, this would highly affect the economy of the companies related to it.

The main association located in Casoni Vecchi Fort is *Udruga Casoni Vecchi* and is the main organizer and driving force behind all activities within the site.

Within Fort Verudela, Aquarium Pula plays a central and strategic role. Operating in the fields of education, tourism, and cultural heritage, it is the main organiser and driving force behind all activities within the fortress. As the primary attraction, it draws a significant number of visitors, which directly benefits other businesses in the service sector, such as the souvenir shop and catering facilities. Aquarium Pula coordinates and promotes events, educational programs, and extraordinary manifestations, creating opportunities for the development of additional content and business activities. It also provides essential services and infrastructure needed for the operation of other enterprises within the fortress, including security, maintenance, and technical support. In this way, Aquarium Pula acts as the “engine” that drives and sustains the overall activity and economic development of Fort Verudela.

In the case of Šibenik, the Institution Fortress of Culture Šibenik, as a public cultural organization, plays the central strategic role in coordinating and generating activity for all others operating within the fortresses. Despite not being a private company, Fortress of Culture acts as the main driving force behind the economic and cultural ecosystem within the sites. Operating in the cultural and creative industries sector, the Institution organizes and promotes a wide range of events, concerts,



exhibitions, and educational programs, which serve as the primary attraction for both local and international visitors. By creating a high-quality cultural offer and investing in infrastructure, promotion, and digital innovation, Fortress of Culture directly supports smaller external vendors and collaborators such as artists and hospitality partners who rely on the visitor flow and visibility generated by the Institution's programming. In this way, Fortress of Culture Šibenik acts as the anchor institution, setting standards, attracting audiences, and creating the conditions necessary for the sustainable development of cultural tourism and associated businesses within and around the fortresses.

In the case of Vieste, the local authority is the main actor playing a strategic role due to the condition of ownership of the site and manager of the general activities performed at the tower. It generates activities for other people and companies to manage within the site.

Question 19 refers to the possibility of listing the smaller companies that benefit from and align themselves with the presence of the leading company.

In the case of Cervia, CerviaIn deals with incoming and territory promotion, but no strong and marked interdependence with other smaller companies is detected. Rather, the case of Cervia shows a system made up of a series of both public and private elements.

Casoni Vecchi Fort's present 5 smaller companies in comparison with Udruga Casoni Vecchi that works on various sectors and use the premises for a minimal fee since they are non-profit: Miodrag Dedaić (innovations and education), Association Sunčana ura (promotion of science and art), Goran Šaponja (historian), Igor Papić (painter), Toni Abramović (fitness).

In the case of Fort Verudela, there are smaller businesses primarily acting as suppliers of products sold inside the aquarium. These suppliers operate in various sectors, including the food industry, souvenirs, and educational materials. They benefit from their collaboration with the aquarium as it provides them with a sales channel and access to a large number of visitors. This way, the suppliers' products enrich the aquarium's offering while also generating additional revenue for these smaller companies. However, there are currently no independent catering facilities, shops, or other services within the fortress that could further capitalise on the presence of Aquarium Pula as the main attraction.

The cases of Šibenik present several smaller companies and local stakeholders benefit from and align themselves with the presence and programming of Fortress of Culture Šibenik. These include



- Local hospitality businesses (restaurants, bars, cafés, accommodations). With increased visitor traffic generated by fortress events, these businesses enjoy higher occupancy and customer turnover, especially during summer and festival seasons;
- Souvenir and craft vendors. Often located near fortress entrances or in the city center, these artisans benefit from the cultural tourism promoted by the Institution, particularly during thematic events or exhibitions;
- Guided tour operators and cultural interpreters. These SMEs integrate the fortresses into their routes, offering enriched historical and interpretive experiences to tourists.

In Vieste, the other enterprises working in Torre San Felice are three: Galleria Deodato Arte (Deodato Gallery Spa for the management of art exhibitions, Giuseppe Benvenuto as art curator, and Collateral Maris as local touristic guides association organizing visits and events.

Question 20 goes deeper in the last theme as it asks how the companies located within a site interact with one another, whether there is a third-party company or organization that facilitates collaboration and coordination among them and if there a technological platform or system that supports this coordination.

In the case of Cervia, the local authority coordinates events and tourism promotion to some extent, but there is no platform, apart from tourism promotion websites, where information on all events and services. Instead, there is a fragmentation of thematic websites because every business has its own (e.g., MUSA, Ecomuseum, and saltpan visitor center). This is actually an element of current discussion also in the local political arena.

In the case of Casoni Vecchi Fort, the users communicate directly with each other. Should any issue arise, the Casoni association has the ultimate authority.

As for Fort Verudela, the current interaction between Aquarium Pula and its suppliers is primarily business-oriented, focused on the provision of products sold within the aquarium itself. Suppliers do not engage in direct collaboration with each other or joint activities, as their primary focus is on delivering goods and services to the aquarium, their primary client. There is no third party or organisation actively facilitating coordination or cooperation among suppliers or between suppliers and the aquarium. Relationship management and communication occur directly between Aquarium Pula and each of its suppliers. Additionally, there is no specific technological platform or system in place to support coordination among all involved parties. Communication and orders are primarily conducted through traditional channels, including email, phone, and personal contacts. In the future, implementing a digital platform for supply chain management and communication could improve efficiency and enable better coordination between the aquarium and its suppliers.



In the case of Šibenik, the companies connected to Fortress of Culture Šibenik mostly interact through everyday collaboration on cultural events, tourism services, and maintenance activities. These relationships are shaped by long-term partnerships, regular contracts, and shared goals. The Institution itself acts as the main coordinator, ensuring smooth communication and helping businesses align with its programming and values. There is no separate company that manages these relationships—instead, Fortress of Culture plays that role naturally, especially when it comes to organizing large-scale events or projects where multiple service providers need to work together. This helps maintain a clear structure and keeps everyone on the same page. While there is not a single digital platform that connects all involved businesses, coordination happens through common tools like email, phone calls, and platforms such as Google Workspace. For bigger projects, simple project management tools are used, but much of the collaboration relies on direct communication and mutual trust built over time.

In Vieste, the interaction is managed by the local authority. Currently, there is no particular technological platform used for the coordination but with traditional tools (e.g., email and phone call and messages).

Question 21 regards the type of company that according to the partner is currently missing from this ecosystem (i.e., the one that could bring added value to the group of businesses already present within the site).

Cervia local authority recognizes that CerviaIn should be more integrated in the assets located within its territory and could be the entity that truly systematizes the entire offering through the definition of new proposals and solutions, bringing innovation and effectiveness in terms of communication and promotion. Therefore, what is at stake is not the absence of a specific company, but an evolution/upgrade process in terms of tourism promotion and marketing company.

According to Casoni Vecchi Fort maybe only a company that prepares project applications. However, in the case of Fort Verudela, based on the current ecosystem of companies installed within the site, Aquarium Pula recognizes the notable lack of a hospitality and event management company which could bring significant added value. While Aquarium Pula serves as the main attraction, suppliers primarily provide products for souvenir and retail sales. However, there is a lack of independent hospitality services, such as cafes, restaurants, or event venues, that could enhance the visitor experience and extend the time visitors spend at the site. An independent hospitality business could offer diverse food and beverage options, host special events, and collaborate with Aquarium Pula to create integrated visitor packages. This would not only increase visitor satisfaction but also generate additional revenue streams for the entire fort ecosystem. Furthermore, an event management company specialising in cultural, educational, and corporate events could leverage the historical and



natural setting of Fort Verudela, activate unused spaces and attract new audiences beyond typical aquarium visitors. This company could also foster partnerships with local artists, educators, and creative professionals, supporting the development of an innovative and social dimension within the fort.

In the case of Šibenik, the companies that could provide greater value to Fortress of Culture's operations are those specializing in IT services and digital technology maintenance. Currently, there is a shortage of in-house staff with the necessary expertise to manage the institution's expanding digital infrastructure, including various platforms and online assets. While Fortress of Culture actively collaborates with external providers to support its digital initiatives, the increasing volume of digital projects requires continuous technical maintenance. Strengthening partnerships with IT professionals would ensure the sustainability and further development of these digital resources, which would consequently enhance the institution's flexibility and scope of action.

In Vieste, the most important missing services are catering and restaurant, as nor the tower present the proper characteristics to host them or its surroundings. By having these kind of services it would increase the attractiveness of the tower.

Question 22 expands the consideration on the businesses by considering the surrounding territory of the municipalities in which the assets are located and the companies operating outside the site. The specific question regards the recognition of potential companies located outside the sites that plays a key role in activating or sustaining economic activities within it.

In the cases of Cervia, Casoni Vecchi Fort, and Vieste, no potential companies are recognized in the surroundings of the sites, with the case of Vieste characterized by its isolation from urban environments as the main cause. Instead, in the case of Fort Verudela, Aquarium Pula pinpoints the role of the Arena Hospitality Group, located near Fort Verudela, in supporting economic activities within the fort. Guests staying at their hotels often visit Aquarium Pula and Fort Verudela, contributing to a steady flow of visitors to the site. Although Arena Hospitality Group does not formally include the fort in their tour programs, their presence nearby and the large number of guests they attract help increase visits to the fort. They also occasionally participate in organising events at the fort, further encouraging the use of the space. In this way, Arena Hospitality Group acts as a valuable external partner that indirectly activates and sustains economic activity within Fort Verudela.

In Šibenik, several major attractions and the surrounding county significantly contribute to the fortresses' vitality by drawing visitors to the region. The most prominent is Krka National Park, a natural heritage site that attracts hundreds of thousands of tourists annually. While the park itself is



the primary destination, its popularity creates a ripple effect - many visitors extend their stay to explore Šibenik's cultural offerings, including the fortresses. Similarly, the UNESCO-listed Cathedral of St. James serves as a powerful architectural marvel that brings cultural tourists to Šibenik. As visitors come to admire this Renaissance masterpiece, they frequently include the historic fortresses in their itineraries, creating natural synergies between the city's different heritage sites. These key attractions function as complementary draws that introduce new audiences to our fortifications. While not directly operating within the fortresses, their presence in the regional tourism ecosystem sustains visitor flows and economic activity that indirectly support our operations. This interconnected tourism landscape allows the fortresses to benefit from Šibenik's broader appeal as a destination blending natural beauty and cultural heritage, while maintaining our distinct identity as venues for contemporary cultural programming and community engagement.

3.3.4 Key players in digital fortification business ecosystems

This subsection coincides with question 14.

Question 14 regards the currently implemented/used digital technologies (e.g., AR; VR; 3D, 4D, 4D mapping; multimedia exhibitions, etc.) in the sites in relation to the attraction, dissemination and territorial scenarios. The use of digital technologies is currently poorly and even non implemented respectively in the cases of Casoni Vecchi Fort (1) Torre San Felice (0), with Fort Verudela that applies them in the Attraction scenario, with poor implementation in Dissemination (1) and null in Territorial (0). Instead, Cervia is more advanced, especially in terms of Territorial, while Kaštel present a very good implementation (4 to all scenarios) and Šibenik is the most advanced case (with the value of 5 for the three scenarios).

In Cervia, the Attraction scenario is the lowest target, with more importance given to Dissemination and Territorial. The development of the ETC Programs by the local authority regards an outdoor storytelling application called Immagina Cervia, which gathers stories, memories, interviews of local characters about the traditions of the city. Furthermore, a VR platform has been implemented allowing to virtually visit the main attraction of the city including the FCH. MUSA is important in the use of digital technologies as it hosts several multimedia tools

In the case of Casoni Vecchi Fort, none are currently implemented, while in Fort Verudela, within the attractiveness scenario, Aquarium Pula utilises basic digital technologies, including multimedia presentations, educational videos, and digital information displays, to engage visitors. These technologies enhance the visitor experience and support education about marine life. However, more advanced technologies, such as AR or VR, have not yet been implemented, although there is potential for their future integration. In the dissemination scenario, the use of digital tools is minimal, mainly consisting of digital materials for internal educational purposes or presentations to



collaborators and experts. There are no developed technologies for broad content distribution or interactive platforms. For the territorial scenario, digital technologies are not currently implemented, as activities focused on the local community and social integration do not yet incorporate such technological elements.

More developed is the case of Šibenik. Here, the Fortress of Culture Šibenik integrates advanced digital technologies across its sites, including St. Michael's, Barone, and St. John's Fortresses, enhancing visitor experience and heritage management in line with the attraction, dissemination, and territorial scenarios.

In the attraction scenario, technologies such as 3D mapping projections, augmented reality (AR), and virtual reality (VR) create immersive and engaging experiences for visitors. These digital tools bring history to life, allowing tourists to explore cultural heritage in innovative ways that increase site appeal and visitor satisfaction. Within the dissemination scenario, interactive exhibitions and multimedia guides support educational and creative programs. These digital solutions facilitate the production and sharing of new cultural content, helping to expand the reach of local heritage beyond the physical sites and encouraging collaboration among cultural professionals and entrepreneurs. For the territorial scenario, digitization enhances accessibility and inclusiveness by providing alternative ways for local communities and schools to engage with their heritage. Digital preservation efforts also support sustainable heritage management and environmentally conscious practices. In the case of Vieste, there is currently no particular digital technology in use in the tower.



4. Designing a real and digital BE for fortifications

4.1 Factors Shaping the Multifunctional Potential of Fortified Heritage

The mapping exercise demonstrates that the potential of fortified cultural heritage sites is highly heterogeneous, determined not only by their physical characteristics and location but also by governance capacity, planning frameworks, and investment priorities. While attraction-oriented reuse remains the dominant pathway across all cases, dissemination and territorial integration—both crucial for transforming fortifications into living cultural ecosystems—are systematically underdeveloped. The experiences of Cervia and Šibenik, however, illustrate that when local authorities and cultural institutions pursue integrated planning, fortified sites can successfully evolve into multifunctional assets that simultaneously support tourism, innovation, and community cohesion. In contrast, sites with weaker governance structures or isolated locations risk being confined to narrowly defined tourism functions or remaining underutilized.

A comparative analysis of the studied fortified heritage sites highlights differentiated trajectories, reflecting a complex interplay of physical conditions, urban integration, governance capacity, and planning coherence. Examining the three reuse scenarios—attractiveness, dissemination, and territorial integration—reveals uneven manifestations of these dimensions, confirming the heterogeneous potential that characterizes this category of cultural assets.

A first differentiating factor concerns the availability and proximity of external services. Cervia, the Šibenik fortresses, the Kaštel of Pula, and Fort Verudela display clear integration with established urban and tourism networks, which provide hospitality infrastructure, cultural institutions, and civic services that support both visitation and multifunctional use. This condition translates into a higher capacity to attract visitors and a stronger foundation for cultural and entrepreneurial initiatives. By contrast, Casoni Vecchi, despite being located within a residential area with nearby services, lacks spaces and infrastructure specifically designed for creative and innovative activities. The San Felice Tower in Vieste is even more disadvantaged, as its isolated location limits access to services and drastically reduces dissemination potential, rendering attractiveness almost exclusively dependent on the surrounding natural landscape. This comparison underscores how urban integration and proximity to tourism clusters are critical enablers of multifunctional reuse, whereas isolated sites face structural barriers that require targeted infrastructural investments and planning policies to overcome.

A second aspect concerns the presence of negative externalities, such as traffic, pollution, noise, or legal restrictions. In the observed cases, these externalities are generally limited but vary in configuration. Cervia benefits from infrastructural interventions that mitigate traffic and noise, while



Fort Verudela's peripheral, natural setting enhances its experiential quality. The Šibenik fortresses experience no significant structural impacts, aside from seasonal issues related to concerts or temporary visitor peaks. Casoni Vecchi faces stringent environmental and legal constraints due to its proximity to residential areas and rigid heritage protection regulations, which simultaneously preserve the site's integrity and limit flexible reuse and large-scale events. In Vieste, anthropogenic externalities are minimal, yet environmental vulnerability proved critical during the 2023 fire, which significantly damaged the surrounding natural heritage. This comparison illustrates the ambivalent role of regulatory frameworks: they ensure long-term sustainability and authenticity while imposing significant constraints on functional adaptability, whereas environmental risks necessitate resilience-oriented management approaches.

Internal site characteristics also constitute a critical differentiating variable. Cervia and Šibenik stand out for adequate infrastructure and recent restoration interventions, which provide flexible spaces suitable for diverse uses. In Šibenik, the Fortress of Culture has particularly transformed fortifications into multifunctional devices: St. Michael's hosts concerts, Barone supports educational experiences, and St. John's facilitates community and training activities. Fort Verudela maintains robust internal conditions, but its focus on the aquarium limits flexibility for creative and entrepreneurial uses. Casoni Vecchi remains constrained by the physical state of its structures, with only a portion of spaces usable, while the San Felice Tower, though restored and equipped with essential services, is limited by its small size and low adaptability. These cases confirm that restoration and infrastructure upgrading are necessary but not sufficient conditions; what proves decisive is the design of flexible spaces capable of hosting heterogeneous cultural and entrepreneurial activities.

Planning frameworks and governance capacity emerge as perhaps the most relevant factors explaining divergent reuse trajectories. Cervia and Šibenik illustrate that integrated governance, capable of coordinating multiple institutional levels and cultural, tourism, and social policies, produces tangible outcomes in terms of multifunctional valorization. Fort Verudela benefits primarily from strategies oriented toward tourist attractiveness, whereas dissemination remains insufficiently supported. Casoni Vecchi possesses project ideas, but implementation is hampered by physical constraints and fragmented institutional contexts. Vieste represents the weakest case, where planning is episodic and dependent on ad hoc initiatives. This confirms a positive correlation between coherent planning capacity and multifunctional site development, whereas weak governance structures lead to partial or stagnant trajectories.

Investment orientations also reflect path dependency. Šibenik and Cervia aim to balance attractiveness, dissemination, and territorial integration through initiatives in digital innovation, social inclusion, and community cooperation. Fort Verudela prioritizes tourism expansion, with investments in the aquarium and multimedia installations, while Casoni Vecchi displays widespread



and urgent needs ranging from physical rehabilitation to the creation of infrastructure for cultural and creative industries. Vieste focuses on attractiveness and territorial integration, with dissemination not prioritized.

Collectively, these findings suggest that the reuse potential of fortified sites is not solely determined by material conditions or historical significance but emerges from the interaction between urban integration, governance capacity, and planning coherence. Attraction appears as the most readily supported dimension, fueled by both market dynamics and established institutional strategies. Conversely, dissemination remains consistently underdeveloped, revealing a structural deficit in transforming fortified sites into living cultural ecosystems capable of fostering innovation and entrepreneurship. Within this framework, regulatory and heritage protection frameworks operate ambivalently, simultaneously safeguarding sustainability and constraining flexibility, while local community engagement acts as a multiplier of legitimacy and territorial integration. The contrast between sites governed by strong strategies, such as Cervia and Šibenik, and those with weak or absent governance, such as Vieste and Casoni Vecchi, confirms that institutional capacity and planning coherence are central enabling variables for successful multifunctional valorization.

4.2 Key Players and Dynamics in Fortification Business Ecosystems

The analysis of stakeholder participation, project engagement, and the role of keystone actors across the surveyed fortification sites reveals significant variations in the structure and functioning of these emerging business ecosystems. Marketing strategies also demonstrate differentiated approaches across sites. While some locations, such as Šibenik, adopt a balanced focus across attraction, dissemination, and territorial scenarios, others show a more targeted orientation. Fort Verudela and Vieste, for instance, emphasize attractiveness for tourists, with limited attention to dissemination or territorial engagement. Cervia illustrates a hybrid strategy, where the local authority promotes cultural and identity-based marketing primarily targeting schools, families, and the elderly, seeking to gradually redirect interest from mainstream seaside tourism toward heritage and territorial assets. Conversely, Casoni Vecchi Fort exhibits weak marketing activity across all scenarios, primarily leveraging social media and event-based promotions without structured campaigns.

Bottom-up initiatives further differentiate these ecosystems. Šibenik exhibits a high presence of community-driven initiatives in all scenarios, exemplified by cultural festivals such as *Adventura* and *Night of the Fortress Goes Green*, which engage local NGOs, schools, and cultural stakeholders in sustainable and inclusive practices. Cervia demonstrates strong civic participation mainly in the territorial scenario, with cultural associations preserving heritage practices such as salt production and World War II artifacts. In contrast, Fort Verudela and Vieste show limited or absent bottom-up initiatives, with activities largely driven by central actors—Aquarium Pula in Fort Verudela and the



local authority in Vieste. Casoni Vecchi Fort represents an intermediate case, where the Association Fort Casoni Vecchi retains centralized control, although local stakeholders occasionally contribute to events in line with the association's objectives.

Cooperation with local stakeholders and participation in EU-funded projects also highlight disparities. Šibenik and Pola's Kaštel demonstrate robust engagement across attraction, dissemination, and territorial scenarios, leveraging EU programs such as FORTIC and GIFTSnet to enhance tourism, cultural product development, and community participation. Cervia's engagement is stronger in territorial projects, reflecting its focus on local heritage networks and cultural associations. Fort Verudela prioritizes attractiveness through EU-supported initiatives, while dissemination and territorial projects remain nascent. Vieste shows project engagement mainly through regional and European funding programs aimed at cultural restoration and heritage promotion.

The role of keystone actors emerges as central to understanding these ecosystems. Keystone organizations function as anchors, coordinating and generating activity that supports other operators. In Fort Verudela, Aquarium Pula drives tourism, education, and cultural programming, sustaining the commercial activity of smaller suppliers, although independent service businesses within the fortress remain limited. Similarly, Fortress of Culture Šibenik operates as a public cultural institution, orchestrating events, exhibitions, and educational programs that catalyze economic and cultural activity for local businesses, including hospitality, craft vendors, and tour operators. Cervia Foundation serves a comparable function in Cervia, although with a less pronounced network of dependent businesses, while Casoni Vecchi Fort and Vieste rely on single key organizations or public authorities to organize site activities and facilitate engagement with smaller stakeholders.

Successful fortification business ecosystems are characterized by a combination of strategic keystone actors, inclusive bottom-up initiatives, multi-scenario marketing strategies, and active participation in collaborative projects. Sites where these elements converge—most notably Šibenik—demonstrate a dynamic ecosystem capable of sustaining cultural tourism, fostering local entrepreneurship, and promoting social cohesion. Conversely, ecosystems dominated by top-down management or limited stakeholder engagement, such as Fort Verudela and Vieste, show constrained diversification and lower integration between cultural, territorial, and economic functions. These findings underscore the critical role of keystone actors and collaborative governance structures in shaping the resilience and sustainability of fortified heritage business ecosystems.

4.3 Interactions, Missing Actors, and Territorial Linkages in Fortification Ecosystems

The analysis of interactions among companies within fortification sites, the identification of missing actors, and the influence of surrounding territorial entities provides a comprehensive view of the



dynamics of these heritage business ecosystems. In Cervia, interactions between companies are largely decentralized. While the local authority coordinates events and tourism promotion to some extent, no integrated digital platform exists to systematize information on all activities. Each business, including MUSA, the Ecomuseum, and the saltpan visitor center, maintains its own thematic website, resulting in fragmented communication—a challenge that has become a topic of local political discussion. Similarly, at Casoni Vecchi Fort, companies communicate directly with one another, with the Casoni Association retaining ultimate authority in case of conflicts or operational issues.

At Fort Verudela, the interaction between Aquarium Pula and its suppliers is primarily transactional, focused on providing products for the aquarium's retail operations. Suppliers do not collaborate with each other or engage in joint initiatives, and no third-party facilitator or technological platform supports ecosystem-wide coordination. Communication relies largely on traditional methods, including phone, email, and personal contacts. By contrast, Šibenik exhibits more cohesive interactions, where companies connected to Fortress of Culture Šibenik maintain long-term, trust-based partnerships and regularly collaborate on cultural events, tourism services, and maintenance activities. The institution itself acts as the central coordinator, ensuring alignment of businesses with its programming, though no dedicated digital platform exists; coordination occurs through standard communication tools and occasional project management software for larger initiatives. In Vieste, interactions are similarly managed by the local authority using conventional communication channels, without a formal technological system for coordination.

The analysis also highlights the types of companies perceived as missing within each ecosystem and the potential added value they could provide. In Cervia, the need is not for a specific new business, but for an evolution in tourism promotion: Cervia could assume a more central role in systematizing offerings, developing innovative proposals, and enhancing communication and marketing effectiveness. At Casoni Vecchi Fort, a company capable of preparing project applications could facilitate development. Fort Verudela's ecosystem would benefit from independent hospitality and event management companies, which could expand visitor services, create integrated packages with Aquarium Pula, and activate underutilized spaces for cultural and educational events. In Šibenik, strengthening partnerships with IT and digital service providers would address the growing technical demands of the Fortress of Culture's expanding digital infrastructure. In Vieste, the absence of catering and restaurant services limits the tower's attractiveness, suggesting that such enterprises could significantly enhance the visitor experience.

The surrounding territorial context also plays a critical role in sustaining economic activity within the sites. In Cervia, Casoni Vecchi Fort, and Vieste, no external entities were identified as significantly contributing to site-based activities, with Vieste's relative isolation cited as a primary factor.



Conversely, Fort Verudela benefits from the nearby presence of Arena Hospitality Group, whose hotels attract visitors who frequently include the fort in their itineraries and occasionally participate in events, indirectly supporting the site's activities. In Šibenik, broader regional tourism assets significantly reinforce the fortresses' vitality: Krka National Park and the UNESCO-listed Cathedral of St. James generate substantial visitor flows, creating natural synergies that bring tourists into the city and indirectly support the fortresses. These external actors, while not directly integrated into the fort ecosystems, sustain economic activity and enhance the viability of heritage-based tourism.

The comparative analysis underscores that robust fortification ecosystems rely not only on key internal actors and intra-site collaboration but also on the strategic integration of missing enterprises and the leveraging of external territorial assets. Sites with centralized coordination and well-established partnerships, such as Šibenik, exhibit more cohesive interactions, greater capacity for innovation, and stronger connections to regional tourism flows. In contrast, ecosystems characterized by fragmented coordination, transactional relationships, or limited external engagement face constraints in operational efficiency, visitor experience, and overall resilience. These findings suggest that facilitating collaboration, introducing value-adding enterprises, and integrating surrounding territorial assets are key levers for strengthening fortified heritage business ecosystems.

4.4 Key Players in Digital Fortification Business Ecosystems

The analysis of digital technologies implemented across fortification sites reveals a strong variability in adoption and sophistication, reflecting differences in institutional capacity, strategic priorities, and resource availability. In Cervia, digital integration is relatively advanced, particularly in the dissemination and territorial scenarios. While the attraction scenario remains less developed, the local authority has promoted innovative initiatives such as the "Immagina Cervia" outdoor storytelling application, which aggregates stories, memories, and interviews from local characters to highlight the city's traditions. In addition, a VR platform allows virtual visits to key attractions, including the FCH, providing remote accessibility and enhancing visitor engagement. The Museum of Salt (MUSA) plays a central role in employing multimedia tools to support education and interpretation, further strengthening the site's digital capacity.

By contrast, Casoni Vecchi Fort and Vieste currently show negligible or no implementation of digital technologies. No AR, VR, 3D mapping, or multimedia tools are in use, reflecting both limited resources and the smaller scale of visitor engagement. Fort Verudela demonstrates a partial adoption of digital technologies in the attraction scenario, where Aquarium Pula employs multimedia presentations, educational videos, and digital displays to enhance visitor experiences and support learning about marine life. However, the use of digital tools in dissemination is minimal, primarily confined to



internal educational purposes, and the territorial scenario lacks any technological integration, limiting community engagement and broader outreach. Opportunities remain for implementing more advanced solutions such as AR, VR, and interactive platforms, which could significantly enhance visitor engagement and strengthen ecosystem coordination.

Šibenik represents the most digitally advanced ecosystem among the surveyed sites. The Fortress of Culture Šibenik integrates state-of-the-art technologies across St. Michael's, Barone, and St. John's Fortresses, addressing all three strategic scenarios: attraction, dissemination, and territorial engagement. In the attraction scenario, immersive tools such as 3D mapping projections, AR, and VR create compelling experiences, allowing visitors to explore history interactively and increasing overall site appeal. For dissemination, interactive exhibitions and multimedia guides facilitate educational programs, creative projects, and content sharing, enhancing collaboration among cultural professionals and local entrepreneurs. In the territorial scenario, digital solutions improve accessibility and inclusiveness, providing new opportunities for schools and local communities to engage with heritage, while digital preservation initiatives support sustainable management and environmentally conscious practices.

These findings underscore a broader pattern: sites with higher institutional capacity and strategic vision, such as Šibenik and Cervia, leverage digital technologies to enhance visitor experience, disseminate cultural knowledge, and foster community engagement. In contrast, smaller or more isolated sites, such as Casoni Vecchi Fort and Vieste, face challenges in implementing technological innovations, limiting the potential for integrated digital ecosystems. Fort Verudela represents an intermediary case, where partial technological adoption in attraction-related activities indicates an awareness of digital opportunities, though further investment and integration are required to fully exploit their potential.

The adoption of digital technologies is closely linked to the capacity of key actors to coordinate, innovate, and integrate ecosystem stakeholders. Advanced digital implementation not only enhances the attractiveness of the fortifications but also contributes to ecosystem resilience by expanding collaborative opportunities, enabling wider dissemination of cultural content, and reinforcing territorial connections. The presence or absence of these technologies, therefore, constitutes a critical factor in understanding the current state and future development potential of fortification business ecosystems.



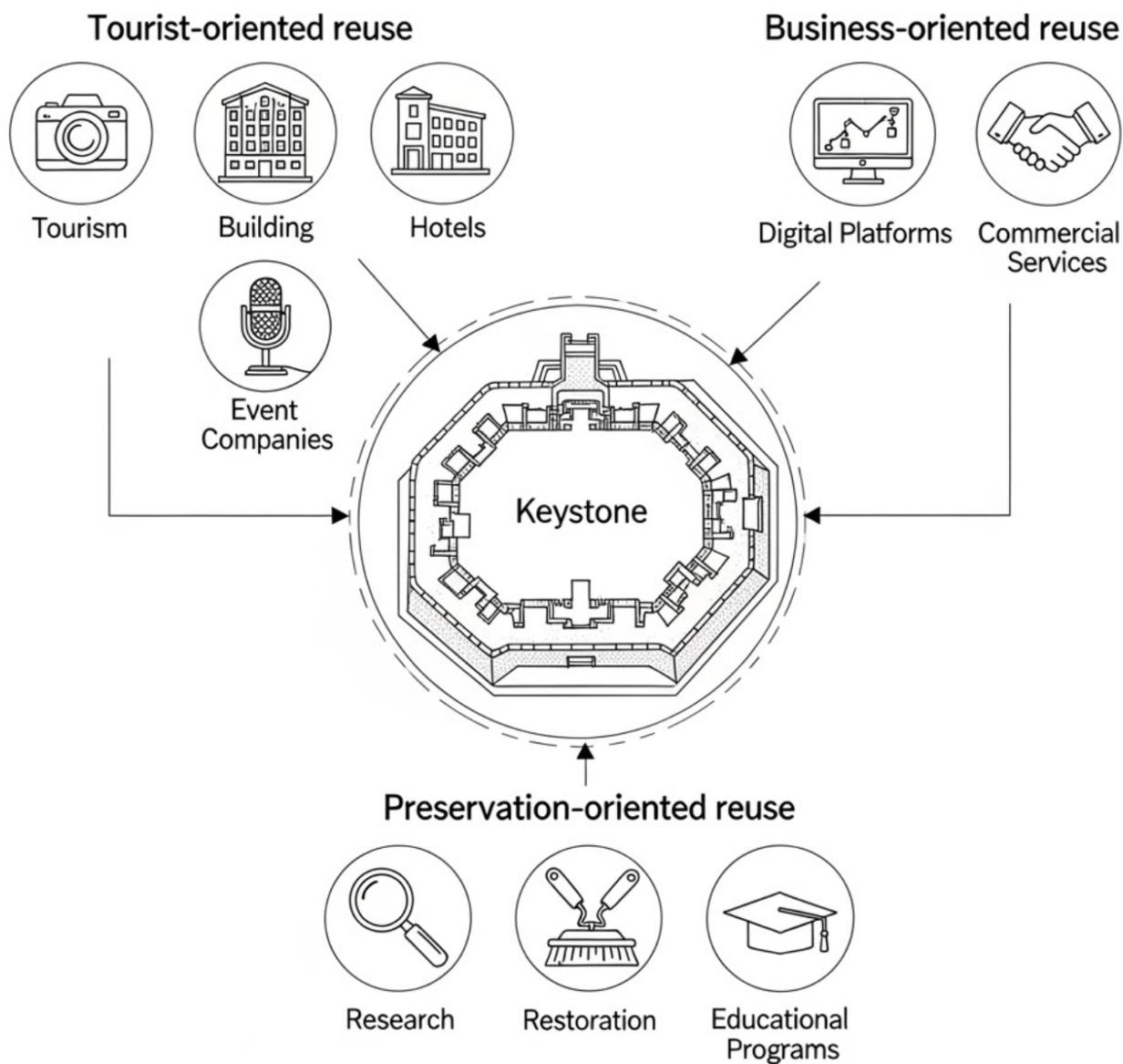


Figure 2 Uses



5. Summary findings for FORTIC project purposes

5.1 Summary of findings

Reusing FCH may have multiple benefits such as turning around the tendency of cities to provide them with mono-functional trends towards culture and tourism to provide a new image with which city dwellers can form coherent identities. The city may benefit economically and socially from these redevelopments by providing new and differentiated functions that may create employment, commercial development and leisure opportunities whilst regenerating a neglected and derelict part of the territory. The complex transformations of former fortresses to new civilian life are often based on a financial approach for the owner, although there is an expectation that the disposal of publicly owned land should result in public social, economic and environmental benefits. These outcomes will not necessarily occur if the land is valued in solely financial terms and is disposed of by the MoD. In this context, however, the methodology provided exposes the opportunities between the heritage and regeneration that lies at the heart of much sustainable development.

5.2 Implications for heritage management and local development

The analysis of the case studies contained within FORTIC provides valuable lessons for other cities with FCH. Firstly, it is imperative to emphasise the necessity of interdisciplinary coordination. Urban planners, conservation officers, NGOs and local governments must engage in collaborative efforts from the project's inception. Secondly, the facilitation of early community participation has been demonstrated to engender the establishment of long-term social support networks, thereby mitigating the occurrence of conflicts and enhancing the pertinence of newly introduced functions. Thirdly, it is recommended that cities develop local revitalisation standards that integrate cultural heritage with sustainability goals, based on the three-paradigm model.

From a policy perspective, national authorities should provide technical and legal assistance to municipalities with less capacity, including model procedures and training. The establishment of national or EU-level guidelines for the adaptive reuse of military heritage would provide further support for consistent implementation. In conclusion, financial instruments ought to offer remuneration to projects that combine heritage protection with climate objectives and social inclusion. The adoption of these recommendations by urban authorities has the potential to effect a transformation of neglected historical sites into inclusive, sustainable public assets, thereby supporting both cultural continuity and local development.



5.3 Recommendations for fostering business ecosystems around FCH

Fortified heritage offers an analytically rich and operationally promising context for applying business ecosystem theory to cultural heritage. Its physical robustness, multifunctional adaptability, symbolic resonance, and cross-border connectivity align with the structural requirements of orchestration, while its governance and financing complexities pose precisely the design problems that ecosystem approaches are equipped to solve. Further empirical work—especially comparative and macro-regional—can translate these theoretical advantages into actionable models for sustainable, collaborative, and innovation-driven reuse.

Building a thriving business ecosystem around fortified heritage sites requires a strategic approach that goes beyond preserving historical structures or promoting tourism. Such ecosystems emerge when a network of actors—including local authorities, cultural institutions, entrepreneurs, and community groups—work together to transform these sites into multifunctional hubs that integrate cultural, social, and economic value.

The first step in constructing this ecosystem is identifying and empowering keystone actors. These are central organizations capable of coordinating activity, mobilizing resources, and catalyzing collaboration among smaller stakeholders. Examples include public cultural institutions like the Fortress of Culture in Šibenik, Aquarium Pula at Fort Verudela, or foundations such as CerviaIn. These keystone actors anchor the ecosystem, ensuring that tourism, cultural programming, and entrepreneurial initiatives reinforce one another rather than operate in isolation.

Stakeholders in such ecosystems are diverse. They include local businesses—restaurants, hospitality services, and creative enterprises—that provide services to visitors; community groups and cultural associations that offer grassroots engagement and preserve local traditions; government agencies that create enabling policies and funding frameworks; and educational institutions that contribute knowledge, research, and innovative projects. In a robust ecosystem, these stakeholders interact through formal and informal networks, share information, and co-develop initiatives that extend the use of the site beyond simple sightseeing.

Activating the ecosystem involves several layers of action. First, there must be infrastructure and spatial flexibility. Fortified sites need spaces capable of hosting diverse activities—cultural events, workshops, exhibitions, and entrepreneurial ventures. Restoration and adaptive reuse should aim for flexibility rather than rigid preservation, enabling the site to accommodate evolving needs. Next, digital platforms and communication tools help coordinate activities, market offerings, and engage both residents and tourists. For example, immersive technologies like AR and VR can enhance visitor experiences while also supporting education and local creative projects. Finally, active community engagement is essential. Bottom-up initiatives, such as cultural festivals or local storytelling projects,



amplify the ecosystem's reach and legitimacy, encouraging residents to participate and co-create value.

Despite its potential, several barriers and obstacles can impede ecosystem development. Physical and geographical limitations, such as isolation from urban centers or lack of nearby services, restrict both visitation and multifunctional use. Legal and regulatory frameworks—while critical for heritage protection—can constrain adaptability, limiting the scale or type of activities that can be hosted. Fragmented governance, where multiple authorities and institutions lack coordination, often leads to underutilization and missed opportunities for collaboration. Financial constraints and path-dependent investment priorities also shape what is feasible; sites that have historically focused solely on tourism may lack resources for innovation or educational programs. Environmental vulnerabilities, such as fire risks or pollution, further complicate long-term planning and require resilience-oriented management.

When these challenges are addressed, however, the benefits of a well-functioning fortified site ecosystem are substantial. Stakeholders gain from increased economic activity, diversified revenue streams, and opportunities for entrepreneurship. Communities benefit through strengthened social cohesion, preservation of local culture, and improved access to educational and recreational activities. The surrounding territory can experience spillover effects, with tourism, hospitality, and creative sectors flourishing alongside the heritage site. Digital integration amplifies these benefits by enabling broader dissemination of cultural knowledge, enhancing visitor experiences, and fostering connections beyond the immediate region.

The creation of a fortified heritage business ecosystem is not simply a matter of restoring old walls or attracting tourists. It is a deliberate process of coordination, collaboration, and innovation, anchored by keystone actors, supported by flexible infrastructure and technology, and activated through engagement with the full spectrum of stakeholders. Success depends on recognizing and addressing structural barriers, leveraging territorial assets, and fostering a culture of cooperation that transforms heritage sites into vibrant, multifunctional cultural ecosystems.



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6. Annexes

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ANNEX 1 The questionnaire

The identification of new opportunities for the **reuse of fortresses** should be placed at the centre of the national, regional and local agendas due to their **intrinsic characteristics and their values as cultural heritage**. According to established literature, the generation and management of new activities can be oriented towards three main scenarios (Camatti et al., 2025; Pflieger & Noya, 2005; Russo et al., 2004):

- **Attractiveness scenario**. It regards the transformation of cultural sites into desirable destinations for both national and international visitors and tourists. The objective is to enrich cultural heritage by optimising its appeal to the **tourism sector**. This scenario focuses on implementing rehabilitation measures for cultural heritage, ensuring appropriate services and infrastructure to accommodate and attract new tourist flows. The focus of the new activities is specifically on **improving tourist services and promoting entrepreneurial ventures related to catering and hospitality (i.e. accommodations, hotel etc.)**, rather than prioritising cultural, naturalistic, sports, and recreational tourism.

- **Dissemination scenario**. It consists of turning cultural sites into places where **new businesses** can be set up to produce goods and services. In particular, cultural heritage assets combine aesthetic dimensions and utilitarian functionality that can be a lever for the production of products. In this scenario, reuse interventions are designed to create favourable conditions for the creation of **new cultural products and services** that can be exported and disseminated outside the local territory, in order to attract new businesses. These interventions therefore provide both hard infrastructure (i.e. spaces, equipment and technologies) and soft infrastructure (i.e. organisation and management).

- **Territorial scenario**. It consists of enhancing cultural sites as repositories of memory and custodians of local values. Cultural heritage has the capacity to act as a disseminator of values and a place for the social vitality of local communities. In this scenario, cultural heritage is configured as a “social capital” capable of promoting social integration. In this context, reuse interventions aim to **conserve and protect the cultural heritage to enhance its historical-cultural values** and encourage its use as a place of memory and social integration.



The questionnaire aims to understand the potential of reuse that a specific fortress shows on the basis of the stakeholders' qualitative opinions on certain themes according to their rating (from 0 to 5) (first part of the questionnaire). This is combined by specific quantitative data released mainly by the fortress' owner and specific stakeholders involved in their management (businesses installed within the site) (second part of the questionnaire).

The questionnaire comprises 18 questions, which requires all the stakeholders interested in the management of a fort to assess the potential, socio-economic effects and key players of the real and digital business ecosystems according to each of the three hypothesis of reuse scenario.

The instruction to answer the questions is to assign a rate from 0 to 5 according to which the value of 0 is null, 1 is poor, 2 is neutral, 3 is good 4 is very good and 5 is maximum. If necessary, the stakeholders can deepen their choice by a written answer of no more than 200 words. The final questions (17 to 22) are more descriptive.

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The survey is not anonymous; please fill up your contact data before start:

1. Name of the fort:
2. Name of the legal entity managing fortified heritage site:
3. Country:
4. Contact e-mail:

Questions (1 to 16)

1. State the **availability of external services** for the fort (cultural, commercial, recreational, tertiary and general) in terms of attraction, dissemination, and territorial scenario. If necessary, write up to 200 words to clarify your answer.

Attraction	Dissemination	Territorial
0 to 5	0 to 5	0 to 5

200 words:

.....

2. If they exist, indicate the **proximity of these services** to the fort in terms of attraction, dissemination, and territorial scenario. If necessary, write up to 200 words to specify the answer.

Attraction	Dissemination	Territorial
0 to 5	0 to 5	0 to 5

200 words:

.....

3. Indicate the **proximity of negative externalities** to the fort (e.g. pollution, noise, legal constraints) in terms of attraction, dissemination, and territorial scenarios. If necessary, write up to 200 words to specify the answer.

Attraction	Dissemination	Territorial
0 to 5	0 to 5	0 to 5

200 words:

.....

4. Describe whether the **current state of the internal characteristics** of the fort (size; presence of green areas; cultural, historical, natural and social values; availability of electricity and



sewage systems, etc.) are adequate in relation to the attraction, dissemination and territorial scenarios. If necessary, write up to 200 words to specify the answer.

Attraction	Dissemination	Territorial
0 to 5	0 to 5	0 to 5

200 words:

.....

5. Indicate whether there are any plans/planning for the reuse of the fort (e.g. planning schemes, public-private partnerships, feasibility studies, etc.) in relation to the attraction, dissemination and territorial scenarios. If necessary, write up to 200 words to specify the answer.

Attraction	Dissemination	Territorial
0 to 5	0 to 5	0 to 5

200 words:

.....

6. Considering the local and regional plans for the use or reuse of your fort, to what extent do they align with each of the three reuse scenarios (i.e., attraction, dissemination, and territorial)?

Attraction	Dissemination	Territorial
0 to 5	0 to 5	0 to 5

200 words:

.....

7. To what extent do the attraction, dissemination and territorial scenarios do the current visitors and users at the fort belong to? If necessary, write up to 200 words to specify the answer.

Attraction	Dissemination	Territorial
0 to 5	0 to 5	0 to 5

200 words:

.....

8. Indicate from which scenario (attraction, dissemination and territorial) the overall annual turnover is produced. If necessary, write up to 200 words to specify the answer.

Attraction	Dissemination	Territorial
0 to 5	0 to 5	0 to 5

200 words:





9. Indicate the **kinds of activities/programs/events** currently organized at the fort in relation to the attraction, dissemination and territorial scenarios. If necessary, write up to 200 words to specify the answer.

Attraction	Dissemination	Territorial
0 to 5	0 to 5	0 to 5

200 words:

10. Which is the **main source of revenue** at the fort (e.g. tickets for entrance and/or events organized at the site; sponsorships; venue rent; EU-funded projects; donations, etc.) in relation to the attraction, dissemination and territorial scenarios. If necessary, write up to 200 words to specify the answer.

Attraction	Dissemination	Territorial
0 to 5	0 to 5	0 to 5

200 words:

11. Indicate the **employees** that work at the site in relation to the attraction, dissemination and territorial scenarios. If necessary, write up to 200 words to specify the answer.

Attraction	Dissemination	Territorial
0 to 5	0 to 5	0 to 5

200 words:

12. Indicate the **temporary contract workers** that work at the site in relation to the attraction, dissemination and territorial scenarios. If necessary, write up to 200 words to specify the answer.

Attraction	Dissemination	Territorial
0 to 5	0 to 5	0 to 5

200 words:

13. Indicate the marketing strategies currently elaborated/under elaboration and **to which kind of target audience** in relation to the attraction, dissemination and territorial scenarios. If necessary, write up to 200 words to specify the answer.



Attraction	Dissemination	Territorial
0 to 5	0 to 5	0 to 5

200 words:

.....

14. Indicate the digital technologies currently implemented/used (e.g., AR; VR; 3D, 4D, 4D mapping; multimedia exhibitions, etc.) in the fort in relation to the attraction, dissemination and territorial scenarios. If necessary, write up to 200 words to specify the answer.

Attraction	Dissemination	Territorial
0 to 5	0 to 5	0 to 5

200 words:

.....

15. Indicate whether there are bottom-up initiatives in relation to the attraction, dissemination and territorial scenarios. If necessary, write up to 200 words to specify the answer.

Attraction	Dissemination	Territorial
0 to 5	0 to 5	0 to 5

200 words:

.....

16. Indicate whether there are any project involving cooperation with local stakeholders/EU funded project under the programming period 2021-2027 in relation to the attraction, dissemination and territorial scenarios. If necessary, write up to 200 words to specify the answer.

Attraction	Dissemination	Territorial
0 to 5	0 to 5	0 to 5

200 words:

.....

17. Thinking about future investments that would be desirable to activate within your fortified site, indicate to what extent it would be desirable to have them in relation to each of the three scenarios of reuse, attraction, diffusion and territorial.

Attraction	Dissemination	Territorial
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0 to 5	0 to 5	0 to 5
--------	--------	--------

200 words:

.....

18. Among the companies currently operating within your fort, is there one that plays a particularly central or strategic role—perhaps one that supports, promotes, or generates activity for the others? If so, please identify this company, specify its economic sector, and explain the type of advantages it creates for the other businesses.

For instance, it could be a company that coordinates or promotes events, offers essential services to other companies, or acts as the main attraction (such as a museum or a restaurant), drawing visitors on which other businesses—like shops, or bars—depend

Use the space below for your answer up to a maximum of 200 words

.....

19. Additionally, could you list the smaller companies that benefit from and align themselves with the presence of this leading company?

Please include their respective economic sectors and describe the benefits they derive.

Use the space below for your answer up to a maximum of 200 words

.....

20. How do these companies interact with one another? Is there a third-party company or organization that facilitates collaboration and coordination among them?

Is there a technological platform or system that supports this coordination?

Use the space below for your answer up to a maximum of 200 words

.....

21. In your opinion, what type of company is currently missing from this ecosystem—one that could bring added value to the group of businesses already present within the fort?

Use the space below for your answer up to a maximum of 200 words

.....

22. Now consider the surrounding territory and the companies operating outside the fort. Do you recognize any company based outside the fort that plays a key role in activating or sustaining economic activities within it?



For example, this could be a tour agency that operates citywide but brings visitors into the fort, or another nearby cultural or tourist attraction that draws a steady flow of visitors who then extend their visit to the fort. It could also include companies in other sectors—such as construction, event management, or concert organizers—that, while located outside the fort, use it as a key venue or operational site for their services.

If so, please identify these companies, describe their sector, and explain how their presence and activities contribute to the vitality of the fort.

Use the space below for your answer up to a maximum of 200 words

.....

ANNEX 2 Map of FCH potential, stakeholders and reuse scenarios DATABASE EXCEL

Case study and questionnaire	Iuova fortress, and bunker defence system			Casoni Vecchi (Pola)			Fort Verudela (Pola)			Kaštel (Pola)			Fortress, Barone Fortress, and St. John's Fort			Torre San Felice (Vieste)		
	Attraction	Disseminatio	Territorial	Attraction	Disseminatio	Territorial	Attraction	Disseminatio	Territorial	Attraction	Disseminatio	Territorial	Attraction	Disseminatio	Territorial	Attraction	Disseminatio	Territorial
1: Availability of external services	4	4	5	3	3	3	5	2	4	5	4	5	4	5	5	2	0	1
2: Proximity of external services	5	5	5	3	3	3	5	2	4	5	5	5	4	5	5	2	0	0
3: Proximity of negative externalities	2	0	0	3	3	3	1	2	1	0	0	2	4	4	4	3	3	3
4: Current state of the internal characteri	3	3	3	3	3	3	4	2	4	5	5	5	5	4	5	4	1	4
5: Plans/planning for the reuse	3	4	4	3	3	3	4	2	4	5	3	5	5	4	4	2	0	2
6: Local and regional plans for the reuse	3	3	3	1	1	1	4	2	4	5	3	5	5	4	4	4	1	4
7: Current visitors and users	3	4	4	3	3	3	5	1	3	5	3	5	5	5	5	3	0	1
8: Overall annual turnover	4	3	2	3	3	3	5	1	2	5	4	5	5	4	4	2	0	1
9: Kinds of activities/programs/events	2	5	4	3	3	3	5	1	3	4	4	4	5	5	5	4	0	1
10: Main source of revenue	2	2	3	3	3	3	5	1	2	5	3	4	5	5	4	3	0	1
11: Employees	3	3	3	3	3	3	5	1	3	3	3	4	5	5	5	1	0	1
12: Temporary contract workers	/	/	/	3	3	3	5	1	1	4	3	4	5	4	4	0	0	0
13: Current marketing strategies and targ	3	4	3	3	3	3	5	1	1	5	3	4	5	5	5	3	0	1
14: Digital technologies currently implem	2	3	4	1	1	1	3	1	0	4	4	4	5	5	5	0	0	0
15: Bottom-up initiatives	2	2	5	3	3	3	1	0	0	3	3	3	5	5	5	0	0	0
16: Current EU- and/or national-funded p	2	2	4	3	3	3	4	1	0	5	5	5	5	5	5	2	0	3
17: Future investment	2	5	5	3	3	3	5	4	3	4	4	4	5	5	5	4	0	2



