



Foresight as Strategic Instrument for Ideation and Use Case Identification for Hotel Business

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Abstract

Foresight describes a structured scientific process which serves to analyze complex, potential future developments. It enables decision makers to reduce uncertainty and increase resilience. This paper explores an applied research use case driven foresight methodology aiming at solving practical problems and creating innovative solutions that can be directly applied in hotel businesses. This methodology includes the development of future projections, creative use case ideation, and detailed use case development in a collaborative manner with industry experts and the broader public. It was tested in a research project called 'FutureHotel Innovation Network' between 2023 and 2025. The paper presents the 'FutureHotel Synergy Hub' as an exemplary future projection for rural holiday destinations in 2035 as well as a selection of four potential use cases derived from this particular projection. The paper identifies the process's flexibility and modular outcomes as success factors for applicability in the hotel industry.

Introduction: What does the Future Hold?

The answer to this question has always been of interest for people and societies. How an answer is approached varies from one discipline to another. Novels such as Jules Verne's 'From the Earth to the Moon' (1865) or Konstantin Tsiolkovsky's 'Outside the Earth' (1920) can be seen as attempts to sketch a distant future (Steinmüller, 2010) and the scenarios they contain spark curiosity. To go one step further, it is proven that futuristic visions presented in pop culture (e.g., Star Trek) shape and guide actions today (Allgaier, 2017). Therefore, apart from the entertainment factor, they can be considered highly relevant for society and businesses. But these impressive examples cover solely imaginative future scenarios which lack a scientific foundation, one that sets objectivity, reliability and validity as quality criteria (Gerhold, 2015) over creativity.

The "structured [science-based] examination of complex futures" (Cuhls, 2024) began in the United States after World War II and had a military focus (Seefried, 2015). In the 1950s and 1960s, the attention shifted to cybernetics and the associated technological optimism (Seefried, 2015). In the 1970s, when the Club of Rome's 'The Limits of Growth' was published, the focus shifted towards sustainability (e. g., waste of resources, population growth, environmental pollution) as the most significant future challenge for humanity (Seefried, 2015; Steinmüller, 2013). The following decade put the private sector in the spotlight of future research when large companies were increasingly interested in the development of future markets, technologies, and their own organizational structure (Steinmüller, 2013). As a result of the acceleration and fragmentation associated with globalization, the demand for strategic advice based on scientific principles increased. A benefit of foresight in

this context is its ability to perceive weak signals at an early stage, combine and systematize them to find answers to both unspecific and specific questions. In this way, it enables decision-makers to think beyond what individuals have experienced before and therefore helps reduce uncertainty. Foresight also supports decision-makers to strengthen their own resilience to events that have not yet occurred. This is managed by identifying future scenarios which are outside the short-term forecasting horizon. The relevance of foresight lies in its ability to identify and structure both alternatives and blind spots. Thus, in scenarios the previously unthinkable suddenly becomes visible – and addressable. Today, foresight covers all areas of life and helps a wide range of stakeholders to actively shape their future in a world whose dynamics are constantly increasing (Rosa, 2013).

To fulfill its goal, foresight uses a wide range of proven research methods – qualitative and quantitative – which are combined in the foresight process. The combination makes it possible to look at a problem from different perspectives and allows a broad spectrum of investigation while ensuring that a targeted approach remains possible (Cuhls 2014; Olsen 2004). The most important methods of foresight include statistical, causal and trend analyses, expert surveys, scenarios, matrix models, simulation models, and roadmapping (Cuhls, 2024). In addition to the various foresight methods, creative techniques can be used depending on the problem. In principle, there are no methodological limits within the foresight process, as long as the scientific quality criteria are met (Gerhold, 2015).

Futurology standards include the clarity of the objective and the framework (Cuhls, 2015) as well as the existence of a comprehensible process with sufficient theoretical and methodological foundation. In addition, it must be ensured that scientific diligence has been observed (Weßner & Schüll 2015). What sets futurology apart from other sciences is non-factuality and contingency (Neuhaus & Steinmüller, 2015). Foresight does not claim to be able to predict the future as no foresight process can escape the factual unpredictability of the future. Since, due to their specific subject area, statements about the future can neither be verified nor falsified, they must be open to reflection and criticism (Neuhaus & Steinmüller, 2015). At the time they were made, they must have corresponded to the current state of knowledge in the respective disciplines involved (Neuhaus & Steinmüller, 2015). The process must be transparent, and the future projections must be able to withstand critical scrutiny (Grundwald, 2015). Lastly, the findings must match the knowledge interests of the clients and the addressees (Göll, 2015a). They must also be of practical relevance and useful (Göll, 2015b).

To summarize, as an academic discipline, future research defines itself as “the scientific study of possible, desirable and probable future developments and the options for shaping them, as well as their prerequisites in the past and present” (Kreibich, 2006).

Foresight with Application in Mind

As outlined above, science has developed proven processes consisting of manifold different methods to create future scenarios for different stakeholders and interest groups on various levels from global to local, from societal to individual (Wollenberg et al., 2000). Holistic future scenarios can be considered great scientific outcomes which can be visualized and transported well to target groups. But are extensive processes in today’s fast paced world with quickening life cycles truly customer friendly? What is useful and of practical relevance for businesses? With these questions in mind, the scientific paper at hand focusses specifically on the foresight quality standards mentioned by Göll (2015a, 2015b) and in this context puts applied research into the spotlight. Applied research aims at solving practical problems and creating innovative solutions that can be directly applied in industry and society. It involves close collaboration between science and industry to generate added value and enable industries to compete successfully in international markets with forward-looking solutions (Fraunhofer ENAS, 2020). Across this backdrop, ‘useful for business’ means directly applicable solutions to existing problems on the business’s operative level. In addition, increasing market shares, profit, or local resilience are within the strategic scope of such solutions.

The presented research favors an application-oriented foresight process which first focusses on cooperatively developing future projections. The early and iterative involvement of experts as well as hotel users in this process enables the design and continuous development of target group-oriented applications. In a second step, the process centers around ideation – collaboratively developing creative ideas with a clear objective (Jain, 2023). This objective is the use case development in areas such as products and services, processes and design elements for

the hotel industry. The use case driven foresight process is therefore a pragmatic approach revolutionizing traditional roadmapping by creating a clear list of actionable use cases that can be incrementally integrated into existing hotels, resulting in a more practical and manageable execution strategy. The list of use cases is peer reviewed by experts to ensure that the identified use cases are consistent with the overall projection and realistic in terms of timeline.

The third step involves the actual use case development based on the created list. The goal is to give businesses the chance to specifically develop and test solutions in the present, create knowledge, make decisions accordingly and therefore actively shape their future based on foresight results. Modularity, defined as the degree to which the components of a system can be separated and recombined, plays a crucial role in this context. It allows for flexibility and adaptability according to the interests, status, and specific needs of the business (Krause & Gebhardt, 2017). This methodology allows stakeholders to 'pick the cherries', i.e. to choose the most appropriate and beneficial options available. Business experts and applied researchers collaborate for the detailed description of how a user interacts with a product or service (Bittner & Spance, 2004). Use case development considers both the goals and prerequisites of an interaction as well as the regular and alternative processes (Bittner & Spance, 2004). In this process, potential users, employees, or developers are consulted and the development process scientifically accompanied by applied research.

A Practice Example from FutureHotel Research: Use Case Development for Hotel Businesses

The use case driven foresight methodology is tested with the FutureHotel Innovation Network between 2023 and 2025. As part of FutureHotel, Fraunhofer IAO is working with project partners from the hotel industry to continuously explore what the hotel of the future might look like. In an ever-changing environment, it is crucial to understand the key issues and develop concepts and solutions that address both the needs of guests and the challenges facing the industry.

The process is kicked off in a workshop in which the project partners collaboratively found strategic answers to potential future threats that might challenge existing hotel concepts and business models until the year 2035. Considered developments include the impact of climate change, artificial intelligence, automation, labor market as well as regulatory challenges. The outcome are three strategies addressing rural holiday destinations, business hotels and urban community-centered hotels. In an iterative process with hotel experts and the broad public the three approaches are developed further and enriched, encompassing

- underlying assumptions and context for each approach,
- an overview of the current types of hotels that may be affected by the new approaches,
- a definition of the overarching innovation in each approach,
- hotel user stories (guest and employee),
- a list of concrete use case ideas for new products and services.

Finally, the future projections with all their elements are evaluated in an expert peer-review process. To give an example, the following paragraphs briefly outline one of the three developed future projections as well as a selection of four use case ideas derived in the course of the applied use case driven foresight methodology.

The FutureHotel Synergy Hub projection describes a transformative vision for rural leisure destinations in 2035 with declining and aging populations that struggle to attract employees due to a lack of public services and a vibrant service ecosystem. The accommodation landscape in such areas is typically balanced but highly fragmented. Thus, the projection is particularly relevant for smaller family-run businesses such as guesthouses, apartments or independent hotels, which often have strong local ties and prioritize personalized service. In the FutureHotel Synergy Hub projection accommodation businesses of all kinds profit from increased resource efficiency by making use of synergies. A spatially centralized service hub in the destination connects local communities and services to meet the needs of guests, employees, and residents. The goal is to create a sustainable service ecosystem that enhances the destination's appeal to tourists while improving the quality of life for locals. Creating a dynamic and desirable tourist destination while improving the well-being of all stakeholders and fostering community and socialization is the key to this projection. The business model approach is defined as Community-as-a-Service (CaaS), where the hotel becomes the economic and social engine of the region, creating a perpetual revenue stream by becoming indispensable to local life.

A first use case example derived from this future projection is a revenue sharing model amongst participating businesses in the destination. Partners benefit from shared branding and collective revenues, ensuring economic sustainability for the fragmented business structure within the destination. Necessary technological developments to raise the projection's full synergetic potential include – amongst others – enterprise-wide customer relationship management (CRM), interconnectivity between partner systems and overarching feedback loops.

A second use case idea is a blockchain-based reputation and compensation system which lets hotel guests, employees, local businesses and freelancers participate in creating attractive experiences and valuable services to the broader community within the rural leisure destination from yoga classes to language courses, from naming a newborn lamb on a local farm to childcare. The compensation for contributing to the local community is given in form of unique experiences, vouchers, or access to specific services. Smart contracts are the key to automation, quality and transparency in this context.

CO₂-neutral holiday experiences present a third use case idea. These increase the connectedness of guests, locals and hotel employees with the destination, encourage the returning of visitors to revisit places with the aim of seeing development as well as reliving memories. Specifically leaving something positive behind as a temporary visitor to a destination is the goal of such services. Cooperatively modernizing structures that are worth preserving, e.g., historic buildings or hiking paths, could be one example. Another idea is zero-waste experience gastronomy. How to develop CO₂-neutral experiences by default would be one question to consider in the further use case development.

Lastly, a follow-me pod for bicycle riders to increase the number of transport rides compared to leisure bike rides is another use case idea derived from the FutureHotel Synergy Hub projection. If luggage, hiking gear, or even family members such as children don't need to be transported in or on a bike, this increases ease of traveling with the bicycle and could enable a reduction of car-bound transportation within the destination.

Summary, Conclusion & Outlook

This paper examines the evolution and significance of scientific foresight with respect to the hotel industry. The presented pragmatic use case driven foresight process aims at bridging the gap between scientific insights and industry applicability. In this context, foresight is used as an instrument for use case identification for hotel businesses. The exemplary results demonstrate how innovative solutions for the hotel industry can be derived from future projections. In the tested foresight process an emphasis was put on modularity and flexibility besides iterative and collaborative elements. In this way, traditional, rigid roadmapping can be replaced. The tested approach has proven applicable to the hotel industry. The results provide a sound basis for innovators and decision makers in the hotel industry to reflect on the changing role of hotels over time and make strategic decisions regarding new hotel products and services.

Foresight research should continue to explore innovative applications across industries. The integration of emerging technologies and collaborative methodologies will be essential to address future challenges and ensure adaptability and resilience in an ever-evolving global landscape.

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