Article

Speculative Blockchain Futures of Food and Dining in Malta: co-creating concepts using the Imagineering approach
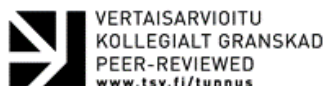
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Abstract: This paper presents an annotated portfolio of concepts that seek to understand and communicate the potential for food and dining experience transformation with the creation of non-fungible tokens (NFTs). The Imagineering design approach and its principles were applied to develop these concepts and to relate blockchains to a range of local food topics, including supply chain, sustainable farming, tradition and history authenticity, food experience, and social innovation, through engaging the public, exploring ideas, and speculating on possible futures. Based on this annotated portfolio we draw out lessons and insights for the design of blockchain systems, generating questions around multi-stakeholder value generation, experience design, and transformation with new technologies. This paints a comprehensive picture of how Imagineering can shape understanding of the future and potential uses of complex technologies.

Keywords: non-fungible tokens (NFTs), Blockchain, transformational experiences, Imagineering design approach, food and dining experience, Malta.

1. Introduction

In 2022, a collaboration between the Basque Culinary Center and partners in Malta, including the Centre for Distributed Ledger Technology of the University of Malta, and the Master Imagineering program from Breda University of Applied Sciences in The Netherlands developed a project called "NFTs, Tokens and Edible "Assets": Speculative Blockchain Futures of Food and Dining in Malta". This project turned into a design assignment for the Master Imagineering students, which performed a field study in Malta over a period of fourteen days to actively research the subject and co-create ideas and concepts connecting food and dining to the NFTs in the context of Malta, for gastronomic and economic development with numerous stakeholders. The Imagineering approach that the learners practiced during the program incorporates the ABCDEF design cycle (Appreciating, Breathing, Creating, Developing, Enabling, and Flourishing) (Nijs, 2019) and it aims at stimulating the innovation process with a multistakeholder engagement. Thirteen MBA students worked 'in the wild' by pre-scheduling visits and creative sessions with certain stakeholders, and used the snowball effect to allow space for

spontaneous interactions with a diverse range of participants. The purpose was to connect the "right" stakeholders and co-create with them in order to achieve the above-mentioned gastronomic and economic development goals.

Due to the interesting results achieved by the MBA students during the generative creative design process with the use of the Imagineering approach in the Maltese challenge described above, and with the first signs of a ripple effect following the end of the field trip, there was the motivation to look into this process with more critical eyes and dig out lessons that can be further applied. We believe that these learnings not only show the possibilities for new business models and experiences there are for Malta and the entrepreneurs in the respective fields, but also show what makes these businesses and experiences innovative and potentially transformative for the consumers and overall system of stakeholders. In other words, the insights obtained in this project suggest what might be the future of these new technologies. This paper aims to describe concepts related to creating a more sustainable and exciting consumer food experience, more specifically with the intent of exploring the potential of blockchain and NFTs in these processes, which emerged from the Imagineering design assignment. For this paper, this is the central question:

- How can we enhance the value (experience-focused, economical, sustainable) generated by the food and dining industry, by using Blockchain technologies and involving a variety of stakeholders?

During the field trip, students conducted discussions and creative sessions, and company visits with stakeholders in the Maltese food industry and related fields, which resulted in mind maps, participant observations, ideas, and concepts to answer the challenge. These were the base for our thematic annotations, which are presented in the final sections of this paper. Firstly, we selected three out of the many interventions facilitated by the MBA learners during the field study, the ones we concluded were the most insightful and describe the themes that emerged, and were leading to the development of the final concepts. Secondly, we present the three final concepts developed by the master students in co-creation with the stakeholders in response to the challenge "NFTs, Tokens and Edible "Assets": Speculative Blockchain Futures of Food and Dining in Malta". Finally, from a post-analysis of these concepts, we drew up annotations that provide insights related to transformative organizations and experiences in the food and dining industry, followed by a final discussion and recommendations.

This paper does not intend to describe in detail the creative design approach of the field trip done by the students in Malta, or dive into the context of the challenge, but to present reflections and annotations on the learning experience and outcomes of the different interventions. Also, we do not aim at creating generally applicable data, but to present the creative concepts and ideas that work in that specific context with those specific stakeholders, which could serve as inspiration for future follow-up projects.

2. Introducing blockchain and NFTs in the food and dining industries

To set the scene for the annotated portfolio, we will introduce a few key terms and features regarding blockchain technologies and non-fungible tokens as well as their promising applications. We discuss the intuition that there are particularly interesting opportunities in the food industry and gastronomic tourism sector, which are dominated by complex supply chains with the need

to create a valuable and safe consumer experience at their end-point. Specifically, the use of blockchain for the creation of NFTs creates the promise of interesting new commercial concepts, and possibly even societal impact. But: which concepts, what kind of impact, and how can these NFTs be developed?

2.1 Expanding on the challenges of the food industy and experience in Malta

Driven by an expanding tourism sector and socio-economic challenges, the Malta Tourism Strategy 2021-2030 Report (Ministry for Tourism and Consumer Protection - Malta Tourism Authority, 2021) focuses on developing a gastronomical tourism experience. However, this case becomes very complex due to Malta's many challenges in food and agriculture, such as water scarcity, lack of productive land spaces, and labour and logistic costs. Moreover, "the combination of a large number of individual holdings, small farm sizes and an ageing sector demographic have created major barriers to the willingness of farmers to adopt new technologies, improve management practices and their receptiveness to new innovations" (D'agostino et al.,2019, p. 14).

Because of global agriculture, food supply chains became more complex and harder to manage and affecting both our personal health and the health of the planet. How we eat, and how we source our food are, and will continue to become, more and more important. We will care more to know that if a food product is labelled as coming from a sustainable source, we can believe in what we are reading (Mccafferty, 2019). In this scenario, movements such as "farm to fork" (Morath, 2016) and "slow food" (Chrzan, 2004) emerged aiming at a better, more secure, more sustainable food supply chain with an improved food experience as a result. Although these movements exist and have been researched for decades already, challenges related to food and agriculture continue to exist, as experienced more recently with the disruption of supply chains due to Covid and/or the Ukraine war, which keeps on stressing the need to shorten/simplify supply chains to make them more secure and reliable.

It is the intuition that blockchain could be an answer to some of our food supply problems, while NFTs can revolutionize the way we think when consuming food. With the potential to affirm authenticity, these digital assets bring possibilities for new business models in the food and dining industry (Tonon, 2021). In this context, Malta is a great case. Its government has been investing in the island's status as a blockchain hub for Europe (Kwok & Koh, 2019; Ćirić & Ivanišević, 2018). Therefore, Malta presents a fertile context for the implementation of blockchain in the form of challenges in the development of its food and dining sectors. Here we find the connection between the two worlds: food and dining, and the use of Blockchain in NFTs, not only for creating an innovative experience but for potentially a more sustainable food industry.

2.2 Blockchain and the NFT hype

Blockchain is a digital distributed ledger that was presented to the world in 2008 and was initially used to offer a new type of currency system, the most well-known of which is Bitcoin. The biggest promise of Blockchain is that it decentralizes power and facilitates a self-regulated system for sharing information and digital assets, which would potentially set in motion huge transformations in business and society alike (Mccafferty, 2019). This explains how blockchain can "simultaneously appeal to deeply libertarian ideals of independence from state governance, as well as more socialist envisioning of equitably shared commons" (Murray-Rust et al, 2021, p. 5). More than a decade

of experiments later, new features have led to more promises and possibilities in diverse industries. Besides currency applications, distributed ledger technologies also stimulated the creation of "token economies" such as Non-Fungible Tokens, or NFTs, which is a crypto asset. These have transformed what digital collecting can become (Chang, 2022) and can present different rules and values; they can be "seamlessly and transparently sold, leased, and transferred, which creates a vibrant ecosystem of trading, a virtual economy" (Bedingfield, 2022). However, the exploration of other potential uses for this technology has been hard to find in the current literature. To this day, Blockchain seems to still be in its embryonic phase, and according to Murray-Rust et al (2021), there is still much to understand about how they might be designed and experienced by end-users and the implications of their widespread adoption in everyday life. A lot of what has been explored still serves individuals and industries in a deeply 'financialized', rational, and self-interest manner.

Nonetheless, in the food industry, discussions have emerged regarding the use of Blockchains to go beyond this 'financialized' self-interest, and instead improve transparency and trust in the food supply chain (Mccafferty, 2019; Rejeb et al, 2020), which can contribute to a more sustainable industry. The study by Rejeb et al (2020), shows that Blockchain technology improves "food traceability, enhanced collaboration, operational efficiencies, and streamlined food trading processes". Regarding the food trading process, Mccafferty (2019) reflects on the concept of "farm to fork" and shows how it minimizes the complexity of the food supply chain; instead, he argues the supply chain not only starts way before the farm but also has broader environmental impact than the 'farm to fork' concept allows to anticipate. He argues, therefore, that if farmers are connected to the blockchain, more data can be created to help improve performance in the sector. This shows the potential of this trust-based system to end food fraud and food contamination, and the associated health and commercial problems. However, none of these explorations of the topic considers more in-depth the social impact of food production and consumption and leaves the topic to further discoveries.

If Blockchain allows for greater transparency on aspects related to food production, NFTs, on the other hand, could be an answer to the realm of consumer experience and overall social impact. NFTs have embodied what digital collecting can become because they resemble real objects (art, music, and recipes) in that they cannot be replaced, but they are bought and sold only online. They exist on the blockchain and utilize the same technology as a cryptocurrency (Chang, 2022). Because they are unique, it creates scarcity in the digital realm, increasing demand and therefore value (Tonon, 2021). In the dining industry, these assets promise to transform the way we consume food. With the development of virtual spaces, Cha (2022) advises that restaurant companies start strategizing to reach their consumers in virtual realms (e.g. the Metaverse developed by Meta, Facebook's parent company). These strategies are mostly concerned with internet publicity (Murray-Rust et al, 2021) and exquisite brand experience, which can be reached through collaborations with artists, content creators, and influencers (Chang, 2022), which create more profit, with added utility (Bedingfield, 2022). Even though these digital assets can create value for companies and individuals, they are still mostly focused on commercial opportunities, luxury goods, and exclusivity.

With Blockchain the expectation of a trust-base-system economy and a vision of equitably shared commons has been eclipsed by the promise of fast money-

making via NFTs. According to Chang (2022), $2.7 billion worth of Ethereum (a cryptocurrency) has already been generated on leading NFT marketplaces. Although this is quite an attractive opportunity to generate more profit, these products seem rather exclusive, and publications that explore different types of potential value generation from digital assets are still missing. This makes us wonder: what else can we do with blockchain and NFTs?

3. Approach

According to Nijs (2019), Imagineering, differently from traditional process design, approaches innovation in complex issues through the lens of complexity and social constructionism. The complexity of the food supply chain in this case, and the various wants and needs of the stakeholders, required a social constructionist approach in creating a shared motivation to collaborate in this innovation process. Imagineering aims to design a Creative Tension Engine (CTE) that is an immaterial innovation (a slogan, symbol, story, game, object, etc.), co-created bottom-up, which stimulates everyone in the system to take part in the innovation process using a narrative approach. This CTE is based on a collective vision and aims to ignite change, in an emergent, uncontrollable and evolutionary way. The ABCDEF cycle is not a prescribed design approach, but an interactive and appreciative experience that shows what it is that brings "life" to their collaboration and creates commitment between participants. A CTE is not meant to be a solution to a specific problem, but a catalyst for co-creation and collaboration between stakeholders.

The three concepts that we will describe below, emerged from a series of collaborations with partners and organizations from both industry and academia, including experts in computer science and cryptography, as well as business and start-up development, food supply-chain, sustainable farming, and gastronomy. These collaborations were facilitated by Master Imagineering students from Breda University of Applied Sciences. The central theme of these projects was the connection between NFTs and Food and Dining in Malta for gastronomic, tourism, and overall economic development. They first focused on understanding how blockchain technologies work and how these technologies will manifest and be experienced in the food and dining industry, how stakeholders view these sectors in Malta, and how they see the future for them, engaging with storytelling, imagination, and creativity.

During the period of the field trip, the interactions with and between stakeholders happened in diverse formats: semi-structured interviews, site and company visits, workshops, and creative sessions. The insights, ideas, and assumptions that emerged were shared with the stakeholders to gather more feedback and promote co-creation. Shared ownership amongst all participants lies at the core of the Imagineering approach; therefore, prototypes and social experiments were used not only to check if the ideas were in the right direction but as well to create engagement and commitment. These feedback loops helped in finding the "golden nuggets" that led to the emergence of a Creative Tension Engine for each project. To accommodate this interactive process of active research, students played three different roles: researcher, designer, and facilitator. By the end of the 14-day field trip, the students pitched their concepts to a panel composed of some of the main stakeholders in the project. As mentioned before, the co-creative process involved a variety of stakeholders in one or more parts of the design of the three concepts presented by the Imagineering students. Here is the list of participants involved in the Maltese challenge during the field trip:

    a. Centre for Distributed Ledger Technology of the University of Malta
    b. Basque Culinary Center
    c. Institute of Tourism Studies
    d. Faculty of Economics, Management, and Accounting, University of Malta
    e. The Renewable Energy Sources Laboratory
    f. JAYE Junior Achievement Young Entrepreneurs Malta
    g. Faculty of ICT of the University of Malta with Prof. Alexiei Dingli, former mayor of the municipality of Valletta
    h. Malta Enterprise
    i. The Edward de Bono Institute for the Design and Development of Thinking at the University of Malta.
    j. Esplora Interactive Science Centre, Malta
    k. Marsaxlokk street market merchants
    l. Valletta entrepreneurs
    m. The National Association of Arts and Culture - the Maltese experience, in Malta - Mdina
    n. Cryptonights event attendants
    o. Culinary Academy of Malta
    p. Soup Kitchen
    q. Farmers and Residents of Malta

The authors of this paper participated actively in this field trip in Malta, one as a coach and the other as a student, and to learn more in-depth about the process and the outcome of the application of the Imagineering approach in this context, decided to develop an annotated portfolio using insights and ideas that were collected during and post field trip. These insights and ideas came from two different sources:

- Notes from observations, interviews, presentations, interventions, and workshops in the field made by the authors and informed by students involved in the process. From these experiences, several themes emerged, which are linked to the concepts.
- The 3 final concepts that were pitched for a selection of stakeholders by the master students in response to the challenge. These concepts were focused more on the operationalization of the themes, to make them tangible. However, the resultant concepts are not definitive but are intended to inspire other stakeholders in follow-up projects.

The analysis process was as follows. Firstly, we reflected on the first set of insights and ideas that emerged from the 3 chosen interventions, together with some of the students involved in the field trip. Then, we described the common themes that emerged from the process, which was focused on understanding the stakeholders' knowledge and vision. Secondly, we looked into the ideas and concepts designed by the three groups of students in response to the challenge. Based on this, we developed an annotated portfolio that can be used in future assignments that will use the Imagineering design approach. This is important because these projects are usually more free-flowing, focusing on generating an effect, or impact, and less concerned with making insights explicit. Now, with this annotated portfolio, we have a more solid foundation for follow-up projects.

To present the annotated portfolio, we first present the themes that emerged from the process that gave input to the development of the three proposals of

concepts. Then, we describe the context and objectives of each concept. Based on these findings, we will present the final discussion and key points.

4. Outcomes: Understanding the potential to connect Blockchain technology with experience in food and dining in Malta

As a starting point in our process to create this annotated portfolio, we selected three important events that occurred during the field trip at which insights were gathered. We looked back at the material that was gathered, in photos of the process (of notes, mind maps, and any other evidence), but mostly from the reports of each concept created, which contained explanations of the design process and data gathering of each group. From these several themes emerged, and we present them by event.

4.1 The selected events

Event 1: Workshop on Storytelling. It aimed at exploring the Maltese Food and Dining experience, from the perspective of the young entrepreneurs of JAYE Malta. The workshop tapped into their experiences using storytelling, on and focused on first understanding the food culture and the Maltese cuisine that appeals to them. We learned that Maltese gastronomy tells a lot about Maltese history and diverse heritage, and these stories are passed on within the families. The discussion showed that Maltese cuisine is an exciting and diverse blend of Mediterranean and Middle Eastern flavours that reflect the island's rich cultural history. With its emphasis on fresh, locally-grown ingredients and traditional cooking techniques, there is a growing interest in traditional Maltese cooking techniques.

Creativity and authenticity were found to be important themes since new dining experiences and trends embody "re-interpretations" of ancient recipes, and as such appeal to the younger generation. This generation of young entrepreneurs is also more concerned about social issues such as health, which is connected to improved and clean agricultural practices, and therefore want to know more about the quality and provenance of the ingredients in their food. This desire suggests that there is a potential benefit in the increased supply chain transparency that blockchain can offer.

Event 2: Creative session using the World Café method. In this creative session, students of the Master Imagineering and students of the Master Blockchain and Distributed Ledger Technologies worked together to discover possibilities of the use of blockchain technologies and connect them to local challenges. Topics related to sustainability and climate change were prominent in these discussions. For instance, in recent years, there has been a trend towards healthier eating in Malta, with an emphasis on fresh, locally-grown produce. This has led to the proliferation of farmers' markets and organic farms on the island. Many Maltese restaurants now feature locally-sourced ingredients in their dishes. The insight is that blockchain technology could offer opportunities to tackle issues related to traceability, transparency, and quality in the food industry. However, other issues emerged, such as ethical dilemmas and organizational challenges for the use of these technologies, that still leave some questions unanswered.

What became clear here was the growing concern about how sustainable the food industry and agriculture are going to be in a few years in Malta, since the country does not have a lot of viable agricultural land, and the construction

sector is growing consistently. Another issue is the limited production of drinking water, which also affects agricultural practices.

Event 3: Intervention at "Cryptonights" event using Appreciative interviewing. Cryptonights is a weekly event in Malta, which unites NFT professionals and enthusiasts at a local bar for learning and networking. The key theme that emerged during this event was the importance of Community in the business of NFT. Although the process of making and trading NFTs is highly automated, there is also a great need for people to share and validate others in the system. Other themes that were addressed included Collaboration and Co-creation since through these practices, the value and the benefit of NFTs can increase. As well as in the first two events, traceability is a recurring theme.

Tokenization was mentioned as an alternative to many experiences in branding in the virtual realms, as many big brands are starting to use it as a hook with a sense of gamification. This also suggests possibilities for the Maltese food industry to appeal to tourists and locals alike, by using NFTs to enhance the gastronomic experience.

4.1 Insights from the three interventions

One of the main ways that blockchain can be used in the food industry is to improve supply chain traceability. By using blockchain to record and track the movement of food products from farm to fork, companies can improve the transparency and efficiency of their supply chains. This can help to reduce food waste and improve experiences around food and wine, by the certification of the authenticity of products. It can also be used to promote sustainability in the food industry. For example, some companies could use blockchain technology to track the carbon footprint of their products and verify the sustainability of their supply chains.

Blockchain technology opens the door to direct sales of food products by farmers to consumers. By using blockchain to facilitate these transactions, companies can bypass traditional distribution channels and reduce costs for both farmers and consumers.

Overall, the use of blockchain in the food industry has the potential to improve traceability, increase efficiency, and promote sustainability. As the technology continues to mature, we will likely see even more innovative applications of blockchain in the food industry. In the next chapter, we will present a few more elaborate ideas or concepts.

As the field trip progressed, through workshops, interviews and conversations, it became clear to the students, that the ambition of the stakeholders was heavily connected to creating a more sustainable food industry and, at the same time, rescuing and valuing Malta's gastronomical heritage for tourists as well as locals. The economic value that the NFTs could generate was not that present in the debate, although it was not ignored the potential for branding, marketing, and growth of local businesses.

The importance of having a multidisciplinary group collaborating on this challenge was shown during all interventions. In each intervention, the creativity of ideas was increased because of the different kinds of knowledge and experiences that every individual brought to the table. Malta is also a multicultural island, and this diversity enriched the discussion with the sharing of best practices in different countries. The impact of these practices of co-

creating and collaboration strengthens the network and creates many opportunities that generate value across the system.

5. Speculative Blockchain Futures of Food and Dining in Malta

As a result of the field trip, each group of Imagineering students was able to present a Creative Tension Engine (CTE). As explained before, a CTE is a concept that aims to create engagement and participation evolutionarily, starting from a "simple idea" that can potentially transform the system into the direction that stakeholders envisioned. In this chapter, the three concepts are described, as well as how the concept relates to the above-described themes.

Concept No. 1: "The Rooftop Revolution". (Students from Master of Imagineering: Marc van Kaam, Peter Plas, Naomi Zijderveld, Diana Janssen and Ruben Been.)

The "Rooftop Revolution" concept was created to tackle two challenges in Malta: the lack of agricultural land, and the rising numbers of homeless and stateless people. The concept involves greening the bare rooftops of buildings with vegetable gardens. For the development of vegetable gardens, people in vulnerable situations are invited to be workers under fair payment, and at the same time that they can learn about sustainable farming practices. Data about the rooftop gardens is recorded and shared through blockchain technology, which guarantees the gardens' production is traceable and transparent. They are collectively owned by multiple investors, as recorded in the blockchain, and managed by local entrepreneurial farmers. Owners have access to exclusive produce from the rooftop gardens, which can also be sold to the general population. The more investors there are, the more the gardens will increase in value.

Rooftop gardens can increase the amount of locally grown food available in an area, potentially reducing the need to import food from elsewhere and increasing food security. They can support new jobs in the areas of construction, maintenance, and management. At the same time, they can reduce the cost of food for the individuals or organizations maintaining them, and can also reduce heating and cooling costs for the building by providing insulation.

Rooftop gardens also have the potential to foster a sense of community and promote social connections among the individuals involved in maintaining them. Recall that in Event 3 (section 4.1) Community, Collaboration and Co-creation were key themes. Meeting this need, rooftop gardens can have a positive economic impact on society by increasing food security, creating jobs, improving property values, and providing cost savings, among other benefits.

This concept aims to generate more than economic value, tapping into the ecological and social domains as well. Greening the rooftops will have a positive effect on the Maltese landscape as viewed from above, and at the same time helps rid the air of pollution. These farms can also incentivize citizens and tourists to value their locally-produced food more. Moreover, this idea creates opportunities for homeless and stateless people to receive fair pay for labour and reintegrate into society.

Concept No. 2: "Collectible Stories – Mapping Malta's Treasures". (Students from Master of Imagineering: Jeffrey Vogel, Laura Mendez and Cas Derksen.)

This project was noteworthy for the creativity in the idea of geo-NFTs

unlocking stories as part of a final recipe or dining experience while engaging with local products and experiences. The prototype that was presented was like an NFT-based tourist guide or puzzle that people unlock by not only buying the NFT but also physically visiting and experiencing a "food treasure hunt". The project combined elements of gamification with NFT interaction in rural tourism services into a map with different NFT quests introducing local stories and products that led to the final personalized recipe or dining experience.

The most broadly familiar NFTs are digital artwork, but in this case, NFTs consist of a local food experience map that tells the story related to the process of a specific Maltese ingredient, including not only the physical aspects (what and how they are produced), but also social (who) and cultural (why). Collecting those NFTs can lead to special Maltese recipes created by a Maltese chef, or to a special dinner, that uses the ingredients explored by the collectors. This concept intends to bring food experiences such as wine tasting and olive picking to the attention of tourists and locals and ultimately create vibrant local gastronomical communities.

In this sense, gamification can be a powerful tool for enhancing tourism and leisure experiences. By adding elements of game design, such as points, badges, and challenges, to non-game contexts, gamification can increase engagement and motivation. This way, gamification techniques can be used to create interactive tourism experiences that encourage exploration, create a sense of accomplishment, and foster a sense of community among visitors. They can be effective in increasing satisfaction and loyalty among tourists, as well as in promoting positive social and environmental outcomes.

Concept No. 3: "GROW: the movement towards local sustainable food in Malta". (Students from Master of Imagineering: Gabrielle Le-Chevallier, Luisa Cardenas, Diana Bagdasaryan, Midyan Abd Ulbaki, and Sterre Wagemakers. For more information on this project visit growmalta.imacommunity.com)

One of the issues that hold back agriculture from developing further in Malta is water shortages. With this in mind, the group of students involved in this project created an NFT that works as a crowdfunding-type investment in a sustainable irrigation system: the Rainmaker technology. This is a proven climate-friendly solution that harvests water from the air. In this case, NFTs provide the opportunity for citizens to directly engage with the farmers and local agriculture.

Blockchain technology has the potential to revolutionize the way that crowdfunding is conducted, particularly in new and emerging industries. One of the key benefits of using blockchain for crowdfunding is that it allows for the creation of smart contracts, which are self-executing contracts with the terms of the agreement between buyer and seller being directly written into lines of code. This can help to improve the transparency and accountability of crowdfunding campaigns, as the terms of the agreement are clear and automated.

Another advantage of using blockchain for crowdfunding is that it can facilitate the creation of tokens, which can represent ownership in a project or company. These tokens can be bought and sold on cryptocurrency exchanges, providing an additional avenue for raising funds. The use of blockchain technology in crowdfunding has the potential to create more efficient and transparent

fundraising processes, particularly in new and emerging industries where traditional forms of financing may be more limited.

The idea is that a digital asset is attached to a physical "Rainmaker", which is installed on the farms connected to the GROW movement. NFT collectors can observe closely the "fruit" of their investment. The intention is to support sustainable agricultural development with a social business model, where profit is reinvested back in more eco-friendly solutions. Whereas 90% of the revenue generated by NFTs will finance more and more rainmakers, 10% of the revenue will be considered the investors' reward for supporting this initiative. With the profit made, one can directly support local initiatives, start one's own initiative or buy NFTs and grow the movement. In a future stage, GROW intends to attach NFTs to seeds, crops, and trees connected in the blockchain.

6. Conclusion

The results from the Maltese projects showed that NFTs and blockchain technology can be powerful instruments to create transformative experiences deepening into new levels of meaning for customers and communities. They have the potential to start movements, change mindsets, and set the direction for a desired future. This can be of great benefit in addressing the challenges currently facing the food and dining industry in Malta, and possibly with other issues.

This paper shows how it is possible to create more value in the food and dining sectors in Malta, and possibly serve as inspiration to be applied in other contexts. Initially, we discovered the potential of blockchain to improve production and tackle issues related to the food supply chain, and make it more sustainable. Recording supply chain information can also impact the end-consumer, therefore it is interesting in the restaurant/dining sectors. This technology can help attest to the authenticity of the special foods that are consumed, as well as provide information about the origin and practices, which reinforces the trend of personalization and localization.

Meanwhile, the challenge of NFTs, which are intangible, connected to something very tangible such as food proved to potentially add more value to a food and dining experience. NFT can provide information about an exclusive dish you get in a restaurant, in an interactive, experience-focused way, using storytelling and gamification. Stories related to dishes or ingredients can tell the history of Malta or can be invented for entertainment, or even to provoke insights and important life lessons for the consumers.

From this Imagineering field trip, it is possible to believe in the potential of NFTs and blockchain technology to become part of a transformative economy, as we observe from the three different perspectives in the projects mentioned before. However, concepts can be delivered, but the complexity of the challenge requires committed stakeholders, therefore the value and the benefits need to be clear and reachable to them all. The findings on the projects suggest that the participation of all stakeholders and community engagement are also crucial for emergence.

In the context of Malta, Imagineering principles were applied to create transformative experiences, reinforcing the importance of engaging and co-creating those experiences with diverse stakeholders. The collaboration between them generates value across the system. Also, the merging of the different industries involved in this design process, reveals further applications

to engage people on complex issues such as sustainability or the local economy. Moreover, when dealing with complex issues and technologies, simplicity can be brought by storytelling and elements of game and playfulness; these create an inviting space for dialogue and cooperation.

The approach does not provide for quantitative measurement of results because great importance is placed on the stories and insights that respondents are willing to share. After the implementation of some of these concepts, follow-up quantitative research is definitely possible. Options are to investigate the measurable impact of the concepts as discussed in this paper, e.g. in increased economical product value, improved consumer satisfaction, and improved sustainability metrics along the supply chain.

We will add a final critical note. Recall from section 2.2 that Cha (2022) suggested taking the food experience into the virtual realm. One of the results of our process was that it is very difficult for the stakeholders to conceive of this. Either the stakeholders are still struggling with understanding the potential of food experience in virtual realms, or they simply deny its relevance in favour of the authenticity of the traditional (non-virtual) food experience. The conditions under which stakeholders can choose one or the other (virtual or traditional, or hybrid) can be the focus of a follow-up project.

References

Bedingfield, H. (2022). Veteran restaurateur Rodolitz teams with iconic Vaynerchuk to launch an NFT dining venture. In *Total food services*. https://totalfood.com/restaurateur-rodolitz-teams-with-vaynerchuk-to-launch-nft-dining-venture/

Cha, S. S. (2022). Metaverse and the Evolution of Food and Retail Industry. *The Korean Journal of Food & Health Convergence, 8*(2), 1-6. https://doi.org/10.13106/kjfhc.2022.vol8.no2.1.

Chang, J. Non-Fungible Tokens: A Digital Weapon for Hospitality?.

Chrzan, J. (2004). Slow food: What, why, and to where?. *Food, Culture & Society, 7*(2), 117-132. https://doi.org/10.2752/155280104786577798

Ćirić, Z., & Ivanišević, S. (2018). Blockchain and tourism development: Case of Malta. Modern management tools and economy of tourism sector in present era, 565. https://doi.org/10.31410/tmt.2018.565

Kwok, A. O., & Koh, S. G. (2019). Is blockchain technology a watershed for tourism development?. *Current Issues in Tourism, 22*(20), 2447-2452. https://doi.org/10.1080/13683500.2018.1513460

Mccafferty, H. (2019, January 30). Beyond farm to fork: how blockchain will change the way we eat. https://www.finedininglovers.com/article/beyond-farm-fork-how-blockchain-will-change-way-we-eat

Ministry for Tourism and Consumer Protection – Malta Tourism Authority (2021). Malta Tourism Strategy 2021-2030 – Recover, Rethink, Revitalise. https://meae.gov.mt/en/Public_Consultations/MTCP/Pages/Consultations/MaltaTourismStrategy20212030RecoverRethinkRevitalise.aspx

Morath, S. (2016). From Farm to Fork. The University of Akron Press.

Murray-Rust, D., Elsden, C., Nissen, B., Tallyn, E., Pschetz, L., & Speed, C. (2021). Blockchain and Beyond: Understanding Blockchains through Prototypes and Public Engagement. *ACM Transactions on Computer-Human Interaction.*

Nijs, DELW. (Ed.) (2019). Advanced Imagineering : designing innovation as collective creation. Edward Elgar Publishing Limited. https://doi.org/10.4337/9781788976244

Rejeb, A., Keogh, J. G., Zailani, S., Treiblmaier, H., & Rejeb, K. (2020). Blockchain technology in the food industry: A review of potentials, challenges, and future research directions. *Logistics, 4*(4), 27. https://doi.org/10.3390/logistics4040027

Tonon, R. (2021, August 04). Digital Dining: can NFTs Revolutionise restaurants? Fine dining lovers. https://www.finedininglovers.com/article/nft-restaurants-digital-dining

institutions. John Wiley & Sons.