

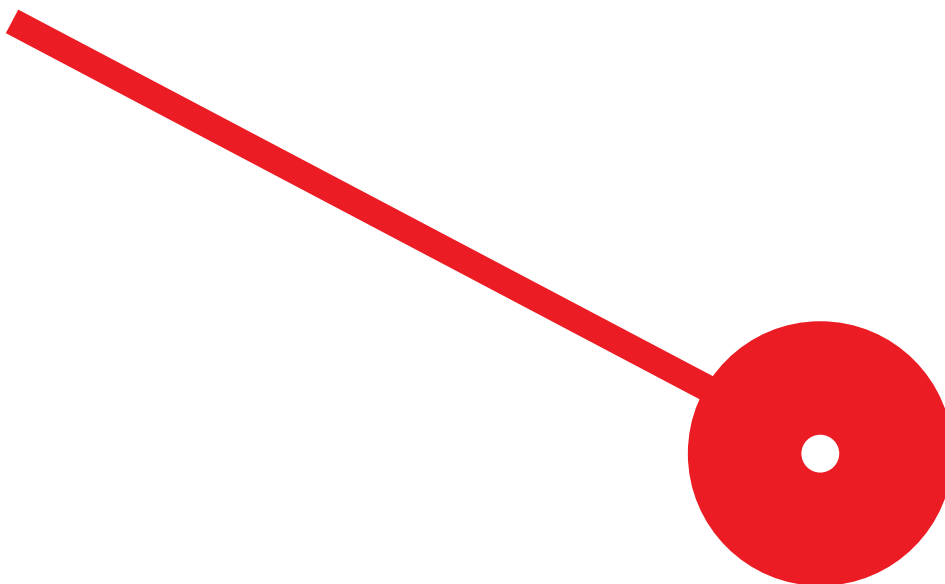


MASTER'S DEGREE  
SPECIALIZATION FIELD

# From Pixels to Prototypes: Exploring Digital Entrepreneurship

Pedro Miguel Sequeira Torrinha Vidal  
Fernandes

10/2025





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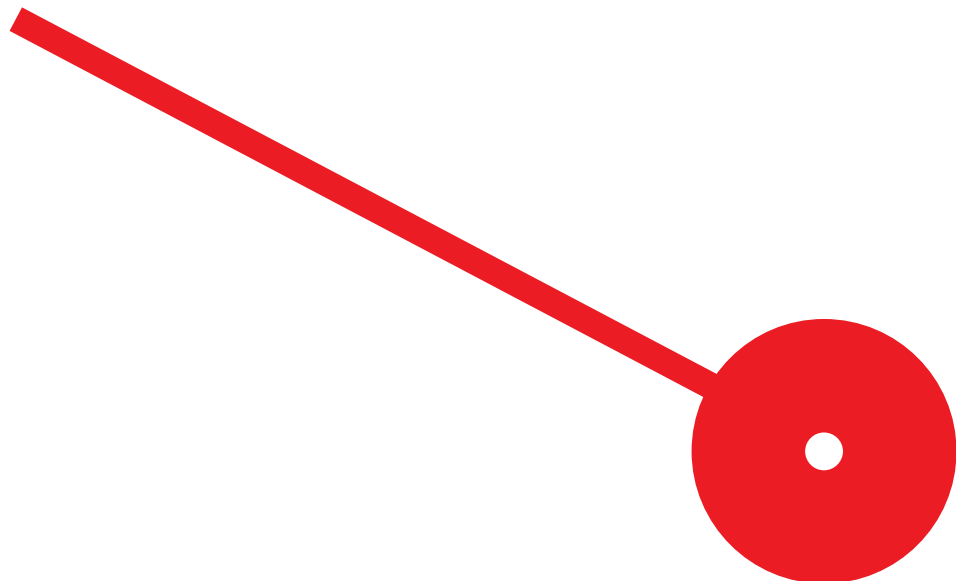
# From Pixels to Prototypes: Exploring Digital Entrepreneurship

Pedro Miguel Sequeira Torrinha Vidal  
Fernandes

Internship Report

Presented to Instituto Superior de Contabilidade e Administração  
do Porto to obtain the Master's Degree in Intercultural Studies for  
Business, under the supervision of Prof. Marco Lamas

Pedro Miguel Sequeira Torrinha Vidal Fernandes.  
From Pixels to Prototypes: Exploring Digital  
Entrepreneurship  
10/2025





## **Dedication**

I dedicate this internship report to my family, who over the past twenty-seven years have given me the most valuable resources of all: time, patience, and constant support. This work belongs as much to you as it does to me...

## **Acknowledgement**

I would like to express my deepest gratitude to my internship supervisor, Prof. Clara Sarmiento, for her guidance, encouragement, and above all the trust she placed in me, even after I quite “disappeared” from classes, that confidence gave me the motivation to return and finish strong this journey. I also want thank my thesis advisor, Prof. Marco Lamas, for his invaluable academic support and constructive feedback throughout the process.

I am grateful to the Centre for Intercultural Studies (CEI-ISCAP) for welcoming me and providing an environment where I could learn, experiment, and grow. Some special thanks go to researchers Inês and Margarida, whose collaboration and insights were essential to the development of this work. To all colleagues at CEI who shared their knowledge and time with me, much of the progress reflected in these pages is thanks to you.

On a more personal note, I want to thank the people who supported me daily and, above all, my family. A special word to my grandmother, who more than anyone wanted me to finish my Master’s. To my lovely girlfriend, thank you for always believing that even this “old dog” could learn new tricks your faith in me made all the difference.

**Abstract:**

This internship report explores the role of digital entrepreneurship in transforming cultural and educational content, based on internship experience gained during a master's degree in Intercultural Studies for Business. The research investigates how digital tools work together to develop digital artefacts and augmented reality prototypes and three-dimensional models which transform passive content into active and captivating experiences.

The research evaluated how these tools affect students' development of technical abilities and creative skills and strategic thinking and their capacity to detect digital business potential. The research examined iterative prototyping and effectuation and bricolage and user-centered design principles to show how working with restricted resources during time-limited projects leads to creative problem-solving.

The research shows that uniting academic principles with practical applications enables scientists to maintain methodological precision while conducting experiments that produce culturally appropriate educational digital products with sustainable potential. The research demonstrates that users must serve as main components during product development and testing and organizations need to create structured spaces which support teamwork and innovation and value generation.

In summary, this report demonstrates that digital tools are not only technical instruments but catalysts for innovation and learning, promoting entrepreneurial skills and opportunities for cultural, educational and social value creation in contemporary digital contexts.

**Keywords:** Digital entrepreneurship; Innovation; Iterative prototyping; Interculturality; Digital heritage.

## **Resumo:**

Este relatório de estágio mostra o papel do empreendedorismo digital na mudança dos conteúdos culturais e dos conteúdos educativos. Escrevi este relatório a partir da experiência que tive no estágio durante o meu mestrado em Estudos Interculturais para o Negócio. Eu foco a investigação na forma como usamos ferramentas integradas para criar artefactos digitais, para criar protótipos de realidade aumentada e para criar modelos tridimensionais. Assim, transformo conteúdos estáticos em experiências interativas e envolventes.

Este estágio ajudou a verificar o impacto de ferramentas digitais na aquisição de competências técnicas, criativas e estratégicas bem como na identificação de oportunidades de empreendedorismo digital. Este estudo explorou os princípios da prototipagem iterativa, da efetuação, da bricolage e do design centrado no utilizador mostrando assim que trabalhar com recursos limitados e com restrições de tempo pode estimular a criatividade.

Os resultados indicam que a integração da teoria académica e da prática aplicada permite conciliar o rigor metodológico com a experimentação, desenvolvendo produtos digitais culturalmente relevantes, educativos e potencialmente sustentáveis. Esta investigação destaca também a importância de considerar o utilizador como um elemento fulcral no processo de criação e validação, bem como a necessidade de ambientes estruturados que favoreçam a aprendizagem colaborativa, a inovação e a criação de valor.

Em resumo, este relatório mostra que ferramentas digitais não são só instrumentos técnicos. As ferramentas digitais são também impulsionadoras da inovação e da aprendizagem. Estas ferramentas promovem habilidades empreendedoras e criam oportunidades para gerar valor cultural, educativo e social nos contextos digitais contemporâneos.

**Palavras-Chave:** Empreendedorismo Digital; Herança Digital; Inovação; Interculturalidade; Prototipagem Iterativa.

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### 1.1 Background

Digital entrepreneurship is emerging as one of the most significant forces in the context of globalisation and rapid technological transformation. Digital entrepreneurship exists as the process of discovering and utilizing digital technology-based value opportunities through platforms and networks and data platforms and prototyping tools (Nambisan, 2017; Kraus, Palmer, Kailer, Kallinger, & Spitzer, 2019). The new digital technologies have transformed traditional entrepreneurship principles because they enable fast prototype development and testing and scaling operations which minimize entry obstacles for people and small groups to create solutions that span worldwide markets. The current academic research demonstrates that digital entrepreneurship exists beyond technology because it unites technological resources with agile methods and human abilities including digital skills and creative thinking and cultural competence and strategic planning to create economic and social effects (Ghezzi & Cavallo, 2020; Rodrigues, Dai Prá Martens, & Scazziota, 2023).

Digital entrepreneurship exists through three main elements which include fast experimental cycles supported by digital tools for continuous prototyping and lower market entry requirements because of platform and software accessibility and worldwide market accessibility without geographical or time-based restrictions (Nambisan, 2017; Kraus et al., 2019). The implementation of these characteristics demands organizations to adopt lean startup methods for hypothesis testing and digital frameworks which enable them to connect with technological systems (Ghezzi & Cavallo, 2020). Digital entrepreneurship in cultural and creative industries creates new ways to generate cultural content and distribute it through augmented reality and 3D modeling and heritage digitization which expands artistic and heritage content accessibility to more people (Fernandes et al., 2024; MDPI Special Issue on Digital Entrepreneurship in CCIs, 2023; Kraus et al., 2019).

The technology of augmented reality proves successful for cultural heritage preservation because it enables users to experience multimodal content layers that combine with physical objects and spaces for educational and interactive experiences (Bekele, Pierdicca, Frontoni, Malinverni, & Gain, 2018; Boboc, Băutu, Gîrbacia, Popovici, & Popovici, 2022). The combination of 3D digitization with virtual reconstruction techniques helps preserve and document and rebuild damaged cultural artifacts which find application in museums and cultural tourism and digital education (Rodríguez-García, Guillén-Sanz, Checa, & Bustillo, 2024; Van Nguyen, Le, Tran, & Tran, 2022). The methods enable organizations to develop digital prototypes which they can test and validate to transform their technical abilities into actual business prospects that include digital preservation services and interactive cultural attractions and new educational materials (EUreka3D Project, 2024; Fernandes et al., 2024).

Digital entrepreneurship encounters multiple obstacles which include maintaining digital assets sustainably and conducting thorough assessments of AR and 3D applications' cultural and educational effects and handling ethical matters about heritage representation and intellectual property protection (Rodríguez-García et al., 2024; Boboc et al., 2022; Silva et al., 2023). The success of digital entrepreneurship projects depends on uniting technical expertise with cultural understanding because they target worldwide cultural content distribution. The CEI-ISCAP internship provided hands-on experience with Adobe Aero AR prototype creation and Blender 3D modeling and image editing for innovative cultural preservation work in experimental testing environments.

Digital entrepreneurship in today's interconnected world demands ongoing development and creative thinking and cultural awareness and strategic planning to generate economic and social and cultural value. Digital technologies, combined with agile methodologies, enable ideas to be transformed into scalable, inclusive and culturally relevant solutions, consolidating themselves as an essential component of the cultural and creative industries and, at the same time, a fertile field for applied academic research and development.

## **1.2 Research Questions**

In the context of this internship, the research questions were formulated in order to guide the exploration of the opportunities and challenges inherent in digital entrepreneurship applied to cultural heritage, as well as the evaluation of the application of emerging

technologies, such as augmented reality and 3D modelling, in the development of interactive cultural products. Thus, the study sought to answer key questions related to the integration of technical, intercultural and entrepreneurial skills in practice, considering both technological innovation aspects and cultural and educational impacts. The guiding research questions can be summarised as follows: firstly, how can the use of digital tools, namely image editing, augmented reality and 3D modelling, contribute to the preservation, enhancement and dissemination of cultural heritage, creating social, educational and economic value? Secondly, what technical and intercultural skills are developed throughout the process of using these technologies, and how do these skills influence the ability to innovate and undertake in global cultural and educational contexts? The third research question investigates how digital prototype development through AR applications and 3D modeling enables users to test value hypotheses and evaluate solution cultural appropriateness. The internship aimed to study digital entrepreneurship strategies for cultural heritage while examining methods to protect cultural values during digitization and reconstruction processes. The research questions provided a methodological framework to choose tools and design activities and assess outcomes which combined digital skill assessment with cultural innovation and entrepreneurial practice evaluation.

### **1.3 Methodology**

The methodology adopted during the internship at ISCAP's Centre for Intercultural Studies (CEI) aimed to combine applied research practices with technological development, allowing for the systematic exploration of the potential of digital entrepreneurship in the context of cultural heritage. To this end, a mixed approach was used, integrating qualitative and quantitative procedures in the execution of tasks, development of prototypes and evaluation of results, following principles of action research and user-centred design. The research started with document analysis and bibliographic review to establish theoretical foundations for selecting digital tools including Adobe Photoshop and Adobe Aero and Blender and to define quality and authenticity standards for image editing and augmented reality experience creation and 3D cultural artifact modeling (Nambisan, 2017; Ghezzi & Cavallo, 2020).

The practical stage of research required digital editing techniques to be applied in sequence for background removal and imperfection correction and visual standardization of street art images until reaching one thousand images which maintained digital platform and augmented reality prototype compatibility. The development of AR experiences in Adobe Aero allowed researchers to test multimodal information display and interactive features and spatial placement capabilities for developing new communication methods and assessing user experience in a controlled environment. The development of 3D models for the MetaHeritage project used Blender software to apply sophisticated modeling and texturing and digital reconstruction methods which included the "moulding" technique for restoring damaged artifact sections while maintaining both visual and scientific accuracy (Rodríguez-García, Guillén-Sanz, Checa, & Bustillo, 2024; Van Nguyen, Le, Tran, & Tran, 2022).

The research methodology included an internal validation stage which the CEI team performed through their analysis and testing to evaluate the technical quality of AR prototypes and 3D models and their alignment with established cultural and educational targets. The research followed action research principles to monitor skill development and knowledge gaps while maintaining technological alignment with educational targets and cultural innovation and digital entrepreneurship goals (Kraus et al., 2019). The use of this methodology allowed not only the production of consistent and technically rigorous digital artefacts, but also the articulation between academic research, technological development and the exploration of entrepreneurial opportunities, reinforcing the relevance of the internship as a space for practical application and interdisciplinary learning.

### **1.3.1 Research Design**

The research design adopted for this internship is characterised as a reflective case study, which allows professional practice to be integrated with academic analysis in a critical and systematic manner. This methodological design proved particularly appropriate given the innovative nature of the activities carried out, namely the editing of street art images, the creation of augmented reality prototypes and the 3D modelling of cultural artefacts, activities that simultaneously involve technical, intercultural and digital entrepreneurship skills. The reflective case study goes beyond showing the activities performed because it

includes both analytical and interpretive elements which examine learned knowledge and encountered obstacles and developed solutions to extract applicable lessons for similar cultural and technological innovation settings (Schön, 1983; Yin, 2018).

The reflective approach followed an action-reflection pattern which examined each stage of the internship starting from image preparation through AR experience development to 3D model reconstruction while assessing tool effectiveness and digital product alignment with educational goals and professional and cultural competence growth. The reflective approach enabled us to detect project constraints while developing recommendations for upcoming deployments which should include user testing and focus group assessments to confirm product usability and enhance cultural and educational value.

The research design of this reflective case study combines data from different sources including digital artifact creation and development documentation and academic literature and CEI team feedback to achieve methodological strength and internal study reliability. The combination of different data sources through triangulation enhances research results reliability while enabling researchers to study practical applications alongside theoretical frameworks to demonstrate how digital competencies interact with creative abilities and cultural awareness and innovative potential in cultural settings. Thus, the reflective case study functions as an instrument that articulates academic research and practical application, consolidating learning and providing valuable insights into the role of digital entrepreneurship in the preservation, dissemination, and enhancement of cultural heritage.

The research design adopted reflects the need to combine technological production, critical analysis and professional reflection, bridging theory and practice and providing a robust methodological framework for understanding the challenges and opportunities of digital entrepreneurship in complex intercultural and cultural contexts.

### **1.3.2 Data Sources and Collection**

During the internship at ISCAP's Centre for Intercultural Studies (CEI), data collection was designed to cover multiple sources, ensuring a comprehensive and well-founded analysis of the activities carried out. The data sources included, first and foremost, the digital artefacts produced during the internship, namely around a thousand images of

street art edited in Adobe Photoshop, the corresponding augmented reality prototypes developed in Adobe Aero, and around a dozen 3D models created in Blender as part of the MetaHeritage project. The artefacts serve as fundamental primary data which enables assessment of solution technical quality and aesthetic consistency and functional usability and provides direct evidence for analyzing both creation processes and skill development (Rodríguez-García, Guillén-Sanz, Checa, & Bustillo, 2024; Van Nguyen, Le, Tran, & Tran, 2022).

The work process documentation which included technical decision records and procedural descriptions and challenge solution notes served as the main source of qualitative data. The documentation system enabled us to monitor project development while offering resources for analyzing problems and identifying successful methods which supported the reflective approach of case study research (Schön, 1983).

Thirdly, internal feedback data from the CEI team was used, including observations on the effectiveness of edited images, AR prototypes and 3D models, as well as comments on the cultural and pedagogical suitability of digital solutions. Although this validation did not include external users, the data obtained made it possible to assess the quality of the artefacts and guide technical and methodological adjustments, serving as a basis for future recommendations, namely the conduct of tests with focus groups or students, in order to evaluate the user experience and the intercultural relevance of the products (Boboc, Băutu, Gîrbacia, Popovici, & Popovici, 2022; Bekele, Pierdicca, Frontoni, Malinverni, & Gain, 2018).

The ongoing literature review served as a secondary data source to help us understand methodological decisions and validate specific tools and methods while connecting our findings to existing academic research about digital entrepreneurship and cultural innovation and augmented reality and 3D modeling for heritage preservation (Kraus et al., 2019; Fernandes et al., 2024; MDPI Special Issue on Digital Entrepreneurship in CCIIs, 2023). The combination of different data sources achieved effective triangulation which strengthened the accuracy of collected data and enabled the analysis to examine both technical outcomes and educational benefits and cultural aspects of digital solutions.

The data collection process at this stage integrated digital artifacts with process documentation and internal feedback and literature review to create a strong

methodological structure which enables reflective analysis and critical result interpretation according to the case study goals and research questions.

### **1.3.3 Methods of Data Analysis**

The research used interpretative qualitative methods to analyze data at this stage because it followed the reflective case study design which integrated digital artefacts with process documentation and CEI team feedback. The research team analyzed all collected data through systematic evaluation to detect patterns while checking for technical and aesthetic consistency and educational and entrepreneurial stage goals (Rodríguez-García et al., 2024; Van Nguyen et al., 2022). The analysis enabled researchers to evaluate product quality while they studied development processes and solved recurring problems and documented creative solutions.

The qualitative assessment involved two parts which evaluated digital image processing methods and augmented reality system functionality and user experience during internal testing (Boboc et al., 2022; Bekele et al., 2018). The 3D model evaluation process examined three essential factors which included geometric precision and visual accuracy and educational value for teaching purposes (Rodríguez-García et al., 2024). The researchers documented each artefact while conducting critical assessments to link technical choices with achieved results and acquired knowledge.

The analysis incorporated data triangulation as its core method which combined digital artefact data with reflective documentation and CEI team feedback to enhance methodological strength and interpretation accuracy (Yin, 2018; Kraus et al., 2019). The method enabled researchers to detect successful patterns and development needs which will guide future recommendations about digital tool implementation in cultural and educational settings. The evaluation process combined technical assessment with cultural and educational aspects to understand how digital solutions enhance audience participation and cultural heritage appreciation.

The analysis followed a continuous reflective process which used each digital prototype and model development cycle to enhance understanding of digital and entrepreneurial competencies. The research method combines data description with interpretation to

understand digital entrepreneurship value for cultural preservation and dissemination and innovation purposes which matches the internship goals and research inquiries.

### **1.3.4 Trustworthiness and Ethics**

The internship results depended on trust and ethical principles because these elements guaranteed both rigorous data and academic integrity and cultural responsibility. The research followed Lincoln and Guba (1985) criteria for trustworthiness which included credibility and transferability and dependability and confirmability to establish solid and verifiable data for interpretation. The combination of digital artefacts and reflective documentation and CEI team feedback enabled data triangulation which helped verify information through multiple perspectives while reducing personal interpretation effects. The entire process received complete documentation which allowed for successful reproduction and audit verification of all procedures.

The research followed ethical principles which protected cultural content from any form of damage during street art digitization and heritage artifact reconstruction. The research team followed rules to protect digital content authenticity through image and model preservation which maintained the authentic cultural meaning. The research team obtained consent from CEI team members for feedback usage while maintaining confidentiality standards to meet ethical research requirements even though no external user testing occurred. The research team performed two ethical assessments which involved digital content distribution analysis for educational and scientific and commercial purposes and audience impact evaluation (Kraus, Palmer, Kailer, Kallinger, & Spitzer, 2019; Boboc, Băutu, Gîrbacia, Popovici, & Popovici, 2022).

The research results gained validity and reliability through trust and ethics while establishing a unified framework that links technological and creative work with cultural accountability and research ethics. The research commitment enhances the reflective case study's credibility through its thorough evaluation of digital entrepreneurship effects on cultural heritage and educational development.

### **1.3.5 Scope and Limitations**

The scope of this internship focuses on the application of digital tools in the context of cultural heritage, with a specific focus on three main areas: editing street art images, developing augmented reality prototypes in Adobe Aero, and 3D modelling of cultural artefacts in Blender. These activities were designed to explore the potential of digital entrepreneurship in intercultural contexts, allowing for the development of technical, creative, and strategic skills, as well as testing prototyping methodologies and evaluating digital cultural solutions. The internship therefore allowed for applied research into how digital technologies can contribute to the preservation, enhancement and dissemination of heritage, while creating opportunities for innovation and entrepreneurship.

However, there are inherent limitations to the study that should be considered when interpreting the results. The CEI team performed internal validation of their solutions but did not conduct external user testing or focus groups which restricts the applicability of their findings regarding user experience and cultural suitability of AR applications and 3D models (Boboc, Băutu, Gîrbacia, Popovici, & Popovici, 2022; Bekele, Pierdicca, Frontoni, Malinverni, & Gain, 2018). The analysis of 3D models remains restricted because the study only included twelve works which do not provide enough diversity in artefacts or structural complexity. The tools used for development have their own technical boundaries which affect the creation of complete immersive experiences and detailed content detail. The internship duration imposed restrictions on both the depth of analysis and the number of prototyping approaches and real-world testing with external participants. The reconstruction of artefacts in 3D requires subjective interpretation which affects the scientific precision of the results although the team used systematic documentation and rigorous techniques to reduce errors (Rodríguez-García, Guillén-Sanz, Checa, & Bustillo, 2024; Van Nguyen, Le, Tran, & Tran, 2022).

In summary, the scope of the internship allows for an applied assessment of the potential of digital entrepreneurship in cultural heritage and educational innovation, but the limitations mentioned above condition the generalisation of the results and suggest opportunities for future research, namely through testing with external users, expanding the number and diversity of 3D models, and exploring more advanced methodologies for evaluating the user experience and the cultural impact of digital solutions.

### 2.1 Entrepreneurship

The concept of entrepreneurship has a long history, with roots dating back to classical economic studies, but its definition has evolved significantly over time, keeping pace with social, technological and cultural transformations. Initially, authors such as Richard Cantillon and Jean-Baptiste Say considered the entrepreneur to be an economic agent responsible for taking risks and organising resources to generate profit, highlighting their role as an intermediary between supply and demand (Say, 1803/1995; Cantillon, 1755/1931). These early conceptions emphasised the economic and financial role of the entrepreneur, focusing on risk and the efficient allocation of resources, without, however, integrating broader dimensions of innovation or social value.

From the 20th century onwards, the understanding of entrepreneurship expanded to incorporate notions of innovation and opportunity creation. Joseph Schumpeter (1934/2000) made a seminal contribution by defining the entrepreneur as an agent of change, capable of introducing new combinations of resources, products or processes, causing creative destruction and transforming existing markets. The method treated entrepreneurship as an economic growth driver which used individual innovation to develop new products and transform existing systems while creating social and economic worth.

Modern entrepreneurship exists as a complex system which requires people to discover new business potential and face risks while developing multiple competencies for creating value in complex worldwide markets (Shane & Venkataraman, 2000; Gartner, 1988). The modern business environment requires entrepreneurs to develop digital entrepreneurship skills and social entrepreneurship abilities and cultural entrepreneurship competencies because digital technologies and social innovation and intercultural understanding (Kraus, Palmer, Kailer, Kallinger, & Spitzer, 2019; Nambisan, 2017).

Digital entrepreneurship transforms entrepreneurship through digital technology adoption which enables entrepreneurs to discover market potential and develop new products and connect with worldwide customers at high speed and large scale (Nambisan, 2017). The modern approach to entrepreneurship requires professionals to master technical

competencies while developing their ability to adapt and learn continuously and create solutions that meet user needs through innovative and strategic execution.

The historical development of entrepreneurship shows a clear shift from financial and economic views to a comprehensive framework that links innovation with technology and social effects. The internship experience at CEI-ISCAP requires digital technical expertise alongside cultural awareness and creative thinking and entrepreneurial mindset to demonstrate modern entrepreneurship practices in heritage-based educational settings.

## **2.2 The Entrepreneur**

Entrepreneurs are central figures in the process of creating and developing value in economic, social and cultural contexts, taking on multiple roles that go beyond simple resource management or risk-taking. The literature defines the entrepreneur as an agent capable of identifying opportunities, mobilising resources and implementing innovative solutions, performing functions that may include the creation of new products, the reorganisation of existing processes and the introduction of disruptive changes in markets or organisational contexts (Shane & Venkataraman, 2000; Schumpeter, 1934/2000). The entrepreneur needs to possess technical abilities together with cognitive and strategic and social competencies to function as an innovation catalyst for cultural or economic transformation.

Research has established multiple entrepreneurial types which represent different business approaches across various business environments. The economic-focused entrepreneur from Gartner (1988) and Kraus et al. (2019) focuses on maximizing profits through resource optimization yet the innovative entrepreneur from Gartner (1988) and Kraus et al. (2019) seeks to create revolutionary solutions through resource combination. The social entrepreneur focuses on creating social value and sustainability while digital entrepreneurs use digital technology to create economic and educational and cultural worth (Nambisan, 2017; Ghezzi & Cavallo, 2020).

Research studies identify common traits which successful entrepreneurs demonstrate across all business environments. The successful entrepreneur demonstrates proactivity and shows resilience under uncertain conditions while being creative and making strategic decisions and taking calculated risks and maintaining a long-term perspective

(Kuratko, 2017; Shane & Venkataraman, 2000). Digital and cultural entrepreneurs need to possess digital literacy and technological tool expertise and cultural awareness and fast prototyping abilities and flexibility to succeed in their complex digital environments.

The CEI-ISCAP internship demonstrated how these entrepreneurial functions and profiles and characteristics work together. The completion of technical work including image editing and augmented reality prototype development and 3D modeling required strategic choices about work approaches and technical choices and creative process organization which demonstrated proactive thinking and creative problem-solving and flexible adaptation. The requirement to maintain cultural authenticity while ensuring user experience demanded both intercultural understanding and analytical thinking which are vital competencies for digital entrepreneurs working in educational and cultural settings.

The analysis of entrepreneurial roles and profiles and characteristics helps us understand how the internship experience fits into digital entrepreneurship principles by showing that technical abilities need to combine with cognitive and social and strategic competencies to achieve innovation and cultural and educational goals.

### **2.3 The Emergence of Digital Entrepreneurship**

The emergence of digital entrepreneurship reflects the convergence of technological advances, globalisation, and changes in value creation and capture models, redefining the role of the entrepreneur and the way opportunities are exploited. Digital entrepreneurship operates differently from traditional entrepreneurship because it depends on digital technology platforms and data analysis and rapid prototyping tools to develop interactive products and services which reach worldwide markets (Nambisan, 2017; Kraus, Palmer, Kailer, Kallinger, & Spitzer, 2019).

The development of digital entrepreneurship as an entrepreneurial field has emerged because of three essential elements. The accessibility of digital tools including 3D modeling software and augmented reality platforms and image editing tools has lowered entry requirements for entrepreneurs who want to create innovative solutions at affordable prices without needing extensive infrastructure (Ghezzi & Cavallo, 2020). The growth of digital ecosystems and online markets enables fast product distribution which supports business models that focus on continuous experimentation and user interaction

and digital expansion (Kraus et al., 2019; Fernandes et al., 2024). The digital entrepreneur plays a vital role in converting ideas into practical solutions which create economic and social and cultural value according to Nambisan (2017).

Digital entrepreneurship requires more than technological implementation because it represents a fundamental shift in business and innovation thinking methods. The focus now centers on information mobilization and interactive experience development and product adaptation for different settings through agile approaches and user-oriented design (Ghezzi & Cavallo, 2020; Boboc, Băutu, Gîrbacia, Popovici, & Popovici, 2022). The digital preservation of artefacts becomes possible through these practices which also lead to developing new educational and cultural experiences through augmented reality prototypes and 3D models as shown during the CEI-ISCAP internship.

Digital entrepreneurship has brought about a fundamental shift in entrepreneurial functions because entrepreneurs now function as creators and innovators and cultural connectors who use digital platforms to discover valuable opportunities across worldwide interactive spaces. This paradigm reinforces the need for multidimensional skills technical, creative and intercultural and flexible development and evaluation methodologies, enabling the digital entrepreneur to operate effectively in complex, dynamic and culturally diverse environments.

## **2.4 The Case of Street Art**

Creative and cultural entrepreneurship represents a strand of entrepreneurship that values innovation, artistic expression and the creation of unique cultural experiences, distinguished by its ability to transform cultural assets into opportunities of economic, social and educational value. This type of entrepreneurship is not limited to the production of conventional goods or services, but involves the exploitation of tangible and intangible heritage, mediating between creativity, technology and interaction with diverse audiences (Throsby, 2010; Comunian, Faggian, & Jewell, 2010). Street art functions as a cultural entrepreneurship model which artists and curators and organizations use to transform urban areas through visual content and cultural storytelling for social impact and community engagement.

The CEI-ISCAP internship used street art as a cultural asset which received digital enhancement through image editing and augmented reality development and three-dimensional modeling techniques. The digital preservation of one thousand urban artwork images through image editing and augmented reality development and three-dimensional modeling has protected their artistic value while enabling public access to interactive educational content (Boboc, Băutu, Gîrbacia, Popovici, & Popovici, 2022; Bekele, Pierdicca, Frontoni, Malinverni, & Gain, 2018). The method demonstrates how modern cultural entrepreneurship unites artistic vision with digital competencies and technological progress and strategic planning to discover fresh ways to present and improve cultural materials.

Street art entrepreneurship requires artists to protect cultural work integrity while handling copyright issues and intellectual property rights and to balance the short-lived nature of public urban art with digital platform permanence (Galloway, Bakhshi, & Dunlop, 2002; Throsby, 2010). The combination of Adobe Photoshop for image editing and Adobe Aero for AR experiences and Blender for three-dimensional reconstruction helps address these constraints by producing digital content that maintains authenticity while enabling interactive experiences and educational and cultural development opportunities.

Street art demonstrates the necessity of interdisciplinary work because it unites artistic expertise with technological knowledge and communication skills and project management abilities. Digital prototyping enables organizations to test new ideas while reaching their audience and discovering business potential and cultural expansion opportunities which align with modern creative entrepreneurship values (Kraus, Palmer, Kailer, Kallinger, & Spitzer, 2019; Fernandes et al., 2024).

The research on street art during the internship demonstrates how digital technology enables creative and cultural entrepreneurship to protect heritage while developing new presentation methods and generating valuable interactive content. This approach demonstrates that the combination of creativity, technical skills, and strategic vision is essential to transform urban artistic interventions into sustainable, educational, and culturally significant entrepreneurial opportunities.

## **2.5 Digital Transformation in Higher Education and Research Contexts**

Higher education institutions together with research organizations now focus on digital transformation because technological progress and worldwide connections and digital competency requirements have reshaped their educational and operational systems. The digital transformation process requires more than tool implementation for teaching and research because it demands methodological changes and workflow adjustments and decision-making system improvements to achieve better efficiency and innovation and increased accessibility (Selwyn, 2016; Garrison & Vaughan, 2013).

Academic research benefits from digital transformation because it enables scientists to discover innovative data collection methods and analysis techniques and visual presentation methods and interactive prototype development for enhanced experimentation and hypothesis testing. The combination of 3D modeling software with augmented reality platforms and digital editing tools enables scientists to create educational and museological and heritage preservation content from their research findings (Nambisan, 2017; Ghezzi & Cavallo, 2020).

Digital transformation enables students and researchers to develop essential competencies which include digital literacy and computational thinking and applied creativity and intercultural sensitivity. The skills required for digital ecosystem navigation and cultural innovation project implementation become accessible through the CEI-ISCAP internship which combined image editing with augmented reality experience development and 3D modeling activities for cultural research and innovation projects. The hands-on experience enabled researchers to evaluate new technology applications while testing user-focused approaches and identifying best practices for educational and cultural settings (Rodríguez-García, Guillén-Sanz, Checa, & Bustillo, 2024; Van Nguyen, Le, Tran, & Tran, 2022).

Higher education institutions benefit from digital transformation because it enables them to implement flexible teaching methods that include project-based learning and virtual labs and immersive experiences which boost student participation and hands-on learning experiences. Educational institutions enhance their ability to meet global creative technological needs through digital transformation while fostering interdisciplinary work

and developing essential competencies including problem-solving and digital entrepreneurship and critical thinking (Selwyn, 2016; Fernandes et al., 2024).

Digital transformation in higher education and research contexts is a catalyst for pedagogical innovation, applied scientific production and the development of digital and intercultural skills. The integration of digital technologies, combined with flexible methodologies and reflective practices, allows for the creation of more dynamic, inclusive and value-oriented learning and research environments, strengthening the link between academic knowledge, cultural innovation and digital entrepreneurship.

## **2.6 Theoretical Frameworks of Digital Entrepreneurship**

The theoretical frameworks of digital entrepreneurship provide a conceptual basis for understanding the intersection between technology, innovation, and value creation, allowing us to analyse how individuals and organisations identify opportunities, develop digital solutions, and generate economic, social, and cultural impact. The three main theoretical frameworks which attempt to explain this phenomenon include the opportunity-based perspective and the resource and capability-centred approach and digital ecosystem models.

The digital entrepreneur functions as an agent who detects new business prospects in fast-changing technological environments. The framework enables users to detect market gaps and test assumptions rapidly while developing digital solutions through online platforms and available data (Shane & Venkataraman, 2000; Nambisan, 2017). The opportunity-based framework supports the development of AR prototypes and 3D models through Adobe Aero and Blender tools which enable new cultural dissemination methods and public engagement approaches.

The resource- and capability-based approach examines how digital solution viability depends on the combination of human abilities and organizational assets and individual competencies. The resource- and capability-based approach identifies technical abilities and digital competence and creative thinking and cultural awareness and project management expertise as essential elements for digital entrepreneur success (Ghezzi & Cavallo, 2020; Kraus et al., 2019). The internship at CEI-ISCAP demonstrated how

human resources combined with technological assets enabled the development of innovative digital products which fulfilled educational and cultural goals.

Digital ecosystem models demonstrate how digital value creation emerges through the interconnected relationships between entrepreneurs and their platforms and knowledge networks and user communities that operate within complex digital resource systems (Autio, Nambisan, Thomas, & Wright, 2018). The approach demonstrates why digital entrepreneurship success requires both technical expertise and the ability to participate in larger innovation networks.

The theoretical frameworks of digital entrepreneurship offer distinct perspectives to study this phenomenon by showing how entrepreneurs find opportunities and use their resources and capabilities to succeed in complex technological and social systems. These frameworks allow us to contextualise the internship carried out at CEI-ISCAP, highlighting how the application of digital technologies in cultural heritage can be analysed and interpreted from a rigorous academic perspective, contributing to innovation, entrepreneurship, and cultural enhancement in educational and global contexts.

## **2.7 Entrepreneurial Mindset and Digital Skills**

The development of an entrepreneurial mindset is an essential component of digital entrepreneurship, as it combines attitudes, cognitive and behavioural skills geared towards identifying opportunities, creative problem solving and value creation in dynamic and technologically complex contexts. The ability to take risks stands as only one aspect of this mindset because it also requires proactivity and resilience and critical thinking and adaptability to change and results-oriented behavior that integrates strategic and social and ethical elements (Rae, 2007; Kuratko, 2017).

The digital environment requires entrepreneurs to develop technological expertise because it enables them to convert their ideas into functional scalable solutions. Digital skills require digital literacy and design and modeling software expertise and interactive prototype development skills and agile innovation method understanding for building digital products (Nambisan, 2017; Ghezzi & Cavallo, 2020). The CEI-ISCAP internship demonstrates this connection through its combination of Adobe Photoshop image editing

with Adobe Aero augmented reality development and Blender 3D modeling which enables students to develop both practical and strategic competencies.

The digital entrepreneur of today solves problems through reflective and iterative methods which demonstrate the entrepreneurial mindset. The process of quick prototype development and solution testing and result evaluation helps digital entrepreneurs discover market gaps while they modify their products and verify their assumptions which strengthens their innovative capabilities and reduces cultural and educational risks (Kraus et al., 2019; Boboc, Băutu, Gîrbacia, Popovici, & Popovici, 2022). Digital skill development merges with cognitive and behavioral competencies to create a unified set of abilities which enables digital entrepreneurs to convert opportunities into quantifiable value across economic and social and cultural domains.

The combination of entrepreneurial mindset and digital skills enables applied digital entrepreneurship which allows users to find strategic opportunities and create innovative solutions and develop culturally relevant products and experiences. This integration of skills reflects the importance of preparing professionals capable of acting autonomously, creatively and effectively in complex intercultural, technological and educational contexts, as evidenced by the activities carried out during the internship at CEI-ISCAP.

## **2.8 Interculturality and Digital Communication**

Interculturality and digital communication are central elements in the context of digital entrepreneurship, especially when working with cultural heritage and projects with a global reach. Interculturality refers to the ability to understand, value and integrate different cultural perspectives, recognising the diversity of values, practices and forms of expression present in complex and globalised societies (Deardorff, 2006; Hofstede, Hofstede, & Minkov, 2010). The ability to adapt content and experiences and products for various audiences becomes essential in digital environments because it enables better communication and cultural understanding and inclusion.

Digital communication between different cultures requires digital platforms to deliver messages and cultural content while respecting linguistic and aesthetic and symbolic and contextual differences. Digital tools including augmented reality platforms and image editing software and 3D modelling enable users to develop products which overcome

physical and geographical limitations while delivering interactive content that honors cultural diversity (Nambisan, 2017; Ghezzi & Cavallo, 2020). The StreetArtCEI project achieved its goal through digital street art work transformation and AR prototype development which enabled urban artistic expressions to become accessible interactive experiences that preserved cultural authenticity through new public engagement methods.

The presentation of content and selection of interaction methods in intercultural digital communication needs to be done with care because it affects how messages are understood by people from various cultural backgrounds. The interpretation of messages depends on how audiences understand colors and symbols and visual stories and interactive elements which have different meanings for different cultural groups (Boboc, Băutu, Gîrbacia, Popovici, & Popovici, 2022; Bekele, Pierdicca, Frontoni, Malinverni, & Gain, 2018). The CEI-ISCAP internship demonstrates that digital communication success depends on intercultural integration for developing educational digital solutions that combine cultural relevance with technological innovation.

Digital solutions become more effective through intercultural approaches which also serve as essential elements for digital entrepreneurship success in cultural markets.. The ability to understand and integrate different cultural perspectives, combined with mastery of digital technologies, allows for the creation of meaningful and inclusive experiences, strengthening the social, educational, and cultural impact of innovative projects, such as those developed during the internship.

## **2.9 Sustainability and Social Impact in Digital Entrepreneurship**

Sustainability and social impact are central dimensions of contemporary digital entrepreneurship, especially when applied to cultural and educational contexts. Digital entrepreneurship creates economic value but also requires businesses to generate social advantages and promote cultural diversity and sustainable production methods for digital content (Kraus et al., 2019; Nambisan, 2017). The definition of sustainability in this context involves developing digital solutions that maximize resource efficiency and minimize cultural and environmental damage while maintaining long-term viability and positive social effects (Kraus et al., 2019; Nambisan, 2017).

The development of augmented reality prototypes and 3D models for street art and cultural artifacts at CEI-ISCAP demonstrates how digital entrepreneurial practices unite sustainability with social impact. The digital preservation of cultural content protects temporary urban artworks from destruction while making heritage accessible to everyone through educational programs (Bekele et al., 2018; Boboc et al., 2022). The digital solutions create accessible and interactive cultural experiences which enable everyone to experience heritage through immersive experiences without physical or geographical restrictions.

Digital entrepreneurship that operates sustainably requires businesses to establish ethical practices for technology usage which includes accessibility standards and data protection and copyright management and cultural heritage respect. The internship activities incorporated these principles to develop digital products which achieved academic and technological goals while creating positive social effects and responsible cultural sharing.

The integration of sustainability and social impact into digital entrepreneurship requires businesses to establish responsible technological practices which protect accessibility and confidentiality and respect cultural communities and their intellectual property. The internship activities incorporated these principles to produce digital products which achieved academic and technological goals while creating positive social effects and responsible cultural dissemination.

The integration of sustainability and social impact into digital entrepreneurship requires businesses to link technological progress with cultural stewardship and social worth which enhances the practical and ethical value of their projects. The experience gained at CEI-ISCAP demonstrates that well-designed digital solutions can preserve heritage, democratise access to culture and generate long-term educational and entrepreneurial opportunities, highlighting the importance of these dimensions as inseparable components of contemporary digital entrepreneurship.

### 3.1 Mission and Research Areas

ISCAP's Centre for Intercultural Studies (CEI) is an academic institution dedicated to researching, promoting and enhancing interculturality in social, educational and business contexts. The CEI's mission focuses on creating rigorous scientific knowledge, disseminating good intercultural practices and promoting initiatives that integrate cultural diversity as a factor for innovation and sustainable development. The institution works to link research applications with business and cultural and educational needs through its research framework which matches academic goals with present-day social requirements (ISCAP, 2023).

The research areas at CEI span multiple disciplines because cultural phenomena exist in complex globalized environments. The main research activities at CEI focus on business innovation through intercultural studies and media communication and digital cultural education and urban community sociocultural analysis. The StreetArtCEI project leads the way in digital street art preservation through technology while the MetaHeritage Project develops 3D modeling and augmented reality solutions for cultural heritage protection and sharing. The research initiatives demonstrate CEI-ISCAP's dedication to heritage and education through technological innovation while maintaining scientific excellence and creative thinking and cultural awareness (CEI-ISCAP, 2023; Boboc, Băutu, Gîrbacia, Popovici, & Popovici, 2022).

The research activities at CEI-ISCAP demonstrate excellence through their support of international partnerships and European project submissions and development of new methods which combine digital resources with user-focused design and reflective practices. The institution provides an environment conducive to experimentation and practical learning, allowing interns and researchers to develop technical and entrepreneurial skills while contributing to projects of cultural and educational relevance.

CEI-ISCAP's mission and areas of research position the institution as a centre of excellence at the intersection of interculturality, technology and innovation, offering an ideal context for the development of digital entrepreneurship projects applied to cultural heritage and education.

### **3.2 CEI's Role in Intercultural and Cultural Studies**

ISCAP's Centre for Intercultural Studies (CEI) plays a strategic role in researching and promoting intercultural and cultural studies, acting as a centre of excellence for the analysis, development and application of knowledge in cultural, educational and business contexts. The organization helps people understand how different cultures interact through its research on diversity and cross-cultural communication and community integration and cultural innovation (Deardorff, 2006; Hofstede, Hofstede, & Minkov, 2010).

The CEI institution conducts cultural studies research through its preservation efforts for tangible and intangible heritage while developing digital methods for heritage preservation and interactive experience creation as shown in StreetArtCEI and MetaHeritage projects. The projects maintain cultural works and heritage artifacts while developing new methods to share them to diverse audiences through immersive intercultural experiences (Bekele, Pierdicca, Frontoni, Malinverni, & Gain, 2018; Boboc, Băutu, Gîrbacia, Popovici, & Popovici, 2022).

The organization provides academic and professional training through workshops and collaborative digital projects which unite research applications with practical digital skills development. The CEI develops educational and cultural innovation through its use of emerging technologies including augmented reality software and digital editing and 3D modelling to train professionals who can succeed in worldwide diverse technological environments (Ghezzi & Cavallo, 2020; Nambisan, 2017).

The CEI-ISCAP serves as a key organization for intercultural and cultural studies development through its combination of academic excellence with creative approaches to cultural protection and knowledge sharing and educational programs. Its multidisciplinary and technological approach allows not only for the advancement of theoretical knowledge, but also for the creation of digital solutions and educational experiences that promote intercultural engagement and heritage appreciation, aligning with the objectives of the internship and the paradigm of digital cultural entrepreneurship.

### **3.3 Relevance of CEI to the Topic of Digital Entrepreneurship**

ISCAP's Centre for Intercultural Studies (CEI) is highly relevant to the study and practice of digital entrepreneurship, as it combines academic research, technological innovation and cultural enhancement in global and intercultural contexts. The institution demonstrates its connection to this subject through three essential aspects which include digital skill development and cultural innovation promotion and academic project integration of entrepreneurial methods.

The CEI provides students with an environment to learn sophisticated digital competencies through image editing and 3D modeling and augmented reality development. The tools and methodologies at CEI help users convert their creative concepts into interactive products which generate economic and social and cultural value (Nambisan, 2017; Ghezzi & Cavallo, 2020). The internship program uses Adobe Photoshop and Adobe Aero and Blender software to demonstrate how CEI supports entrepreneurial projects through technological innovation.

The CEI supports cultural innovation through its projects including StreetArtCEI and MetaHeritage which unite heritage conservation with digital experimentation and educational outreach. The projects show that digital entrepreneurship extends beyond commercial activities because they generate cultural and educational and social value which supports sustainable and inclusive business goals (Boboc, Băutu, Gîrbacia, Popovici, & Popovici, 2022; Bekele, Pierdicca, Frontoni, Malinverni, & Gain, 2018).

The CEI teaches entrepreneurial methods through reflective practices which help students develop critical thinking abilities and creative problem-solving skills and opportunity identification in complex digital systems. The combination of technical and creative and strategic skills at CEI enables trainees and researchers to develop an entrepreneurial mindset which leads to digital entrepreneurship success (Kraus et al., 2019; Rae, 2007).

In summary, the relevance of the CEI to the topic of digital entrepreneurship lies in its ability to bring together intercultural research, technological innovation and applied entrepreneurial practices, creating a training and research context that promotes digital skills, cultural development and social impact. This convergence of factors positions the CEI as an ideal environment for internships that explore the intersection between technology, culture, and entrepreneurship.

### 4.1 Description of Tasks and Responsibilities

During the internship at ISCAP's Centre for Intercultural Studies (CEI), activities focused on the practical application of digital tools for the enhancement of cultural heritage, the integration of technological innovation, and the development of entrepreneurial skills. The tasks and responsibilities covered three main areas of intervention: image editing and digital content preparation, creation of augmented reality experiences, and three-dimensional modelling of cultural artefacts.

The first area of my work involved StreetArtCEI project image editing for 1000 street art pieces and an urban structure. The work involved background removal and color correction and defective image repair and digital platform optimization to maintain the original visual appeal of the artworks. The task demanded expert-level Photoshop skills for non-destructive editing and layer masking and color precision work which produced high-quality visual content essential for digital products and augmented reality applications.

I used Adobe Aero to build augmented reality prototypes which incorporated the edited images for creating interactive street art experiences that enable users to experience street art through immersive exploration. The project required knowledge of spatial design elements and user interface principles and Adobe Aero platform constraints to develop digital solutions which enable fast and efficient concept testing. The CEI team performed internal assessments of the developed prototypes which led to experience improvements but future user testing with external participants including master's students should be conducted to assess application effectiveness for education and cultural preservation.

This tasks carried out during the internship combined technical skills, creativity, strategic thinking and intercultural sensitivity. The responsibility assumed in all stages of the projects not only contributed to their success but also consolidated a comprehensive set of skills in digital editing, augmented reality, 3D modelling, and cultural innovation, aligned with the objectives of digital entrepreneurship in cultural heritage.

## **4.2 Technical Skills Developed**

The ability to develop a comprehensive set of technical skills is fundamental to the practice of digital entrepreneurship applied to cultural heritage. These skills covered areas of image editing, augmented reality, and 3D modelling, and were acquired in a practical and integrated manner through the StreetArtCEI and MetaHeritage projects.

In the area of image editing, I made intensive use of Adobe Photoshop to prepare around a thousand images of street art and an urban building. This experience allowed me to consolidate my skills in background removal, colour correction, repairing defective images and applying non-destructive editing techniques, including layer masks and fine adjustments to tone and contrast. These are skills that would be necessary for quality digital production that preserves their aesthetic qualities and can later be integrated into interactive digital experiences.

In terms of augmented reality, I used Adobe Aero to create prototypes. I also used these images in interactive and immersive experiences; this required a comprehension of spatial design, digital interface and audience engagement and a flexibility of adaptive qualities based upon what the medium excels in and what it falls short of. Such an experience made me appreciate how AR mediums can evolve for greater cultural, educational and artistic applications through transformed imagery into digitally animate experiences.

As for 3D modeling, my AR and 3D Modeling experiences stem from MetaHeritage where I was granted a variety of highly specialized opportunities involving digitization, reconstruction and texturing of cultural artifacts. For example, I formulated a new molding technique for the reconstruction of something unknown or broken; my skills in the realm of modeling grew with digital sculpting, UV texture mapping and approaching all 3D files from a comprehensive perspective. Thus, this experience equipped me to employ comprehensive solutions for diverse digital preservation, cultural educational and innovative projects.

The internship allowed me to substantiate a holistic toolkit of relevant and interdisciplinary technical skills spanning advanced digital editing, acquired AR engagement and 3D modeling with an eye for design, engagement and cultural sensitivity. Therefore, these skills not only promote easier technical undertakings, but also entrepreneurial advantages through culturally sensitive and technologically advanced digital offerings.

### **4.3 Participation in the European Grant Proposal**

During my internship I was actively involved in preparing an application for European funding for a project focused on 3D digitisation and cultural heritage preservation, the MetaHeritage Project. This participation was a strategic opportunity to understand the processes of attracting international resources, as well as the articulation between technical skills, academic research and innovation objectives.

My responsibilities included the practical demonstration of advanced digital skills, namely the creation of 3D models in Blender and the application of the moulding technique for the reconstruction of artefacts, the production of prototypes and the detailed technical documentation of the processes. These submissions were used as validation for the project's workability and applicability within the grant application, and since all reviewers of the actual proposal application would be external, anything that could validate confidence within the application was surely appreciated. In addition, I helped create the visual and digital adjuncts necessary for the application to successfully and expediently articulate project goals, methods, and expected results.

Thus, I learned how technological and methodological advancements must be aligned with a strategic and purposeful goal and that the ability to express such not only exists with the scientific narrative, but also with a social and cultural awareness. Furthermore, my participation in the endeavor for application purposes reinforced how multidisciplinary skills of planning, science communication, organization, and collaboration within a multidisciplinary team were all necessary—skills related to the digital entrepreneurship applied within cultural contexts.

Thus, my experience with this European funding proposal application was related as it was real-life experience where I could apply my subject matter expertise, means of methodological significance, and strategic application to a potentially academically, culturally, and educationally beneficial project.

This activity reinforced my understanding of how digital and innovative skills can be mobilised to create value and ensure sustainability and relevance in applied research and digital entrepreneurship projects.

#### **4.4 Reflections on the Internship Experience**

CEI was an unique opportunity to integrate academic knowledge, technical skills and entrepreneurial practices, allowing for in-depth reflection on the role of digital entrepreneurship in cultural and educational enhancement. During this curricular internship, it was possible to supplement teachings from the ISCAP course regarding professionalized and scientifically based professionalism and the cross-sectoral appeal of the fields of creativity, intercultural communication and technological knowledge—they combined—and how they facilitate value creation within digital contexts.

For example, one of the highlights learned throughout the internship was the application of developed technical knowledge required for image editing, 3D modeling and AR. These skills were necessary not only for technically-based know-how but also, creatively-inventively appealing solutions for cultural heritage and educational projects. Thus, in-person experience substantiated the value of iterative processes, quick-and-dirty construction and user-oriented design. All are based on methods of digital entrepreneurship and applied innovation.

Furthermore, this internship experience offered vital entrepreneurial characteristics, including proactivity, situational awareness, critical thinking, adaptability and decision-making within complicated and interdisciplinary settings. These crucial theoretical and practical skills were required to overcome relevant technical, methodological and organizational challenges and contributed to a more synergistic approach to strategic managerial and creative implementation throughout various projects realized.

Finally, several projects such as StreetArtCEI and MetaHeritage in which involvement occurred as a responsibility raised concrete awareness through international intercultural technological engagement and cultural enhancement and, socialized evidence of such digital products. Therefore, the chance to assess end-user engagement throughout the project life cycle, the prototyping testing and implementation, and multicultural appreciation repeated at various locations was pertinent. This is important to highlight digital communication as interdisciplinary and intercultural advances are new developments created from inclusive assessments.

Ultimately, this CEI-ISCAP internship experience not only confirmed a prerequisite of physical and digital competencies but also fostered interpersonal, professional and

entrepreneurial competencies from a globally minded assessment of what it means to be a digital entrepreneur in cultural heritage and education.

This experience provided an understanding of how digital technologies, creativity and strategic vision can be integrated to generate sustainable, educational and cultural value, constituting a significant milestone in my academic and professional career.

#### **4.5 Relationship Between the Master's Curriculum and the Internship Experience**

The internship demonstrated a close and complementary relationship with the curriculum of the Master's degree in Intercultural Studies for Business, highlighting the link between theoretical knowledge acquired in an academic context and practical skills developed in a professional context. The master's degree provided me with theoretical and practical knowledge such as intercultural studies, communication, project management and global project assessment which filled the professional requirements for the internship, from image editing to Augmented Reality prototype development and 3D Modelling of cultural objects.

In addition, my interculturality experience paved the way for an intercultural approach to the StreetArtCEI and MetaHeritage projects, since such projects are culturally related and require respect for their integrity during preservation and digitalisation and, ideally, appeal to a diverse audience for inclusive and educationally valuable purposes. Thus, this intercultural awareness would be highly applicable to the digital products for many, which renders virtual communication essential for success in interdisciplinary professional contexts and internship settings (Deardorff, 2006; Hofstede, Hofstede, & Minkov, 2010).

Additionally, the project management and research methodology skills acquired throughout the master's programme were applied to the organisation, planning, and execution of complex tasks, including the complete development of AR prototypes and the implementation of reconstruction techniques in Blender. Where courses on entrepreneurship and innovation at the master's level enabled me to connect theory and practice were through master's projects where agile development and user-centred design

allowed me to adjust and refine digital solutions. Such is the nature of digital start-ups and applied innovation with an entrepreneurship and innovation focus.

In master's level entrepreneurship and innovation would also be directly transferable as entrepreneurial ideas and evaluative rubrics drove assessments of digital issues and technological solutions that could foster socio-cultural, educational, and social equity. This was also validated in the internship by relative transferability as multidisciplinary skill sets—technical, intercultural, strategic—were called upon for interdisciplinary digital project development.

In short, the internship was an effective link between academic theory and professional practice, showing that the master's programme curriculum provides the conceptual and methodological foundations needed to work effectively in cultural digital entrepreneurship. The practical experience allowed for the consolidation of skills, validation of learning and development of new abilities, reinforcing the relevance of the master's degree in preparing professionals capable of integrating technology, interculturality and innovation in high-impact projects.

### 5.1 The Tool as Entrepreneurial Catalyst

In an entrepreneurial sense, the three tools used in this internship—Adobe Photoshop, Adobe Aero and Blender—are entrepreneurial catalysts as they transform practical application into knowledge and cultural efforts to render the digital breakdown between entrepreneurial endeavors and culturally relevant obstacles. These digital programs used throughout the internship are not merely platforms for practical endeavors that enable ease of creative technological endeavors with real-world applications but socially and technologically interdisciplinary systems with socio-technological benefits that venture across digital entrepreneurship (Nambisan, 2017; Ghezzi & Cavallo, 2020).

For example, the use of Adobe Photoshop was prevalent in editing images of street art that would be digitally presented as integrating opportunities in person. From adjusting colour to extensive edits to non-destructive means, it provided windows into a presentation that would necessarily be required in prototyping and immersive endeavors. Therefore, Photoshop as an entrepreneurial catalyst champions dynamic creation from a static form for which the cultural endeavors of the internship posed a challenge. Other options may have been too complex or unintelligible to the digital literacy standards with which I worked; Photoshop was approachable and had progressively easier tutorials and accessible review online. The ability to make something virtually from something akin to physical form places this entrepreneurial catalyst in the realm of entrepreneurial facilitation for if tangible standards can be met by theoretical means of creation then the technology is an entrepreneurial catalyst champion.

Similarly, yet differently, Adobe Aero served as a digital means to turn static imagery into more dynamically interactive experiences without the digital coding requirements. This platform was the virtual reality prototyping of ideas that tested through concept and developing relationships with the cultural experience that exists like an entrepreneurial catalyst boasting agile principles and user-centred design for entrepreneurial innovation. The aerodynamic elements boast a drive for development that allows fairness of access at all stages of creation; simply the fact that one can take a two-dimensional street art image and render it three-dimensional gives the technological entrepreneurial catalyst power to champion reality. It promotes a fair understanding through digital globalization

and fosters pathways for extended cultural learning and participation (Bekele, Pierdicca, Frontoni, Malinverni, & Gain, 2018).

Blender is an open-source platform for 3D modelling that boasts opportunities not only to create 3D elements from cultural pieces but explore further advanced measures like moulding for recreation of pieces lost/destroyed. It has depth of application capable of bridging both technological advancement and scientific mindset with real-world implementation for pragmatic use in the field. Without rigorous ability to take elements within a digitized space, certain alternatives may be unavailable to more stern platforms (Blender has no buy-in fee which means no financial barrier exists to innovation); thus it is clear that Blender is an entrepreneurial catalyst for transformation when theory becomes real through means of creation. It fragments experiences into palatable modules for social, educational and cultural advancement without regard for hours as a means to professional collaborative intention.

The tools used throughout this internship were technologically entrepreneurial catalysts that took practical application and transformed it into knowledge and cultural efforts that fostered meaningful solutions. From image editing capabilities to augmented reality perspectives to 3D modelling skills blended under one comprehensive opportunity, it's clear that these applications champion entrepreneurial success through extensive access to creative intention and knowledgeable access within what could be a greater entrepreneurial process applicable to educated, globalized contexts of heritage systems.

### **5.1.1 Photoshop and the Reframing of Digital Assets**

Adobe Photoshop became both a means of digital editing and a means by which cultural assets became integrated and reinvented for purposes of digital entrepreneurial and innovative endeavors. With the prospect of editing nearly a thousand street art images and an entire building in mind, a single pixel became a contribution to the creation of digital assets that, while subverting their originally aesthetic intentions, became valuable in and of themselves as components of other digital cultural products or interactive experiences.

The more advanced features employed—background erasure, colorization, flaw removal, non-destructive methods—the more attributed value with each step existed as digital

assets with directed intentions for digital entrepreneurship. For example, each amended digital version removed any potential value it could render the originals, creating assets for augmented reality or 3D renderings or even educational opportunities, by practically rendering invisible aspects of physical creations that now exist in digital realms without the burdensome reservations of accessibility or preservation.

Thus, the image itself also serves as an intentionalized component of the process that redefines the asset. Hence, Photoshop became a digital means of reconfiguration that allows them to exist as interchangeable assets (Manovich, 2013; Nambisan, 2017). The more extensive cultural products connect to the sensibility and pixelated skills of digitized professionals and creators, the more they act as relevant interconnected forces that exist within an entirely digital realm of their own.

Thus, the means to reshape and repurpose is a digital entrepreneurial professional medium of connection that starts with the pixel and ends with the platform. The form becomes a substantive image through potential rehabilitative access made possible through cultural mediation and resources provided to increasingly pixelated and user accessible platforms. Therefore, every reshaped cultural work exists as an invaluable aspect of a digital realm that otherwise would not be, as seen through StreetArtCEI's AR prototypes, where the intentionality of across platform culture exists for not just educational purposes, but culturally significant, legitimate endeavor with entrepreneurial and creative economic viability.

Photoshop rendered the aesthetic components into assets, converting the theoretical importance of each work into something from a small pixel to an intentionally digitized component. It helped culture to become reconfigured and new opportunities to emerge through integrated processes into a vast solution. What initially started as a work with an aesthetic intention became a vehicle for value for the purposes of legitimizing Photoshop as a means of asset editing and a developing platform for entrepreneurial cultural and educational intentions.

### **5.1.2 Adobe Aero and Early Validation of Ideas**

Adobe Aero played a key role in the internship, functioning as a digital prototyping platform that enabled early validation of ideas and experimentation with immersive experiences in cultural contexts. By applying previously edited street art images to augmented reality environments, it was possible to transform static content into interactive experiences, providing an initial assessment of their educational and cultural potential, even if limited to the CEI's internal team.

Utilizing Adobe Aero helped us connect to standards of user-centred design, spatial engagement and intuitive navigation and ultimately, prototypes that gave as much merit to the visuals of the works as the engaging potential for diverse audiences. Such quick prototyping developments are standard in the world of digital entrepreneurship where ideas are piloted, adjustments are acknowledged and risks are mitigated before further resources are invested in creation or distribution (Ries, 2011; Nambisan, 2017).

Furthermore, creating within Aero helped me acknowledge the digital entrepreneurship from a creation perspective. The instantaneously responsive quality of how one can create and adjust based on immediate reaction to content provides much room for iterations and explorations. While these prototypes were only internally tested by the CEI team, it's clear that testing would be beneficial going forward—with hopefully more students or target audiences—to yield good data in usability, engagement and educational effectiveness; testing is crucial to the validation process of digital entrepreneurial products and agile methodology (Bekele, Pierdicca, Frontoni, Malinverni, & Gain, 2018).

In conclusion, my experience with Adobe Aero helped me in the realms of validation and testing as it provided an easy prototyping tool and preliminary validation of successful ideas, transforming still images into a usable experience and possible exploration in digital realms of culturally-based concepts. It just goes to show how augmented reality platforms can be a strategic portal to digital entrepreneurship where enterprising and creative avenues develop experiential products that are culturally, educationally and socially impactful.

### **5.1.3 Blender and Experimenting with New Methods**

Blender as a program became a digital vessel for the internship, the experimental tool where 3D modelling began as a new approach to cultural heritage. As an element of the MetaHeritage Project, I completed the 3D modelling of around a dozen artefacts from digitisation to creation to texturing for a new kind of approach to preservation and virtual dissemination.

Among the most extensive contributions made to the project was a moulding approach which reconstructed either fragmented or highly deteriorated artefacts with enough intricacy and accuracy. Such moulding required both advanced technical ability in modelling, digital sculpting and texturing as well as a reflective, regimented frame of mind for problem solving where scientific and aesthetic answers were married. This taught me that Blender can be an experimental vessel which means that new approaches can be broken down into methodologies with tested answers across object types and different modelling challenges.

For instance, using Blender on this project corresponds with the thematic concerns of digital cultural entrepreneurship approaches which render artefacts reusable digital products as part of workshop learning experiences, augmented reality enhancements or general cultural dissemination projects. Thus, the integration of technology, preservation and cultural resonance provide evidence of how digital tools support business and social ventures in this cultural/educational field (Ghezzi & Cavallo, 2020; Nambisan, 2017).

Thus, through my practical experiences with Blender at the CEI-ISCAP internship, I've come to appreciate the need for flexible, open systems for experimentation and novel approaches to be disseminated in practical contexts for similar efforts. The use of modelling techniques that extended what I knew already, the creation of novel approaches and practical implementation in a real life setting helped me to solidify theoretical ability, applied ingenuity, and solidified understanding of digital entrepreneurship possibilities in cultural heritage so that transformative, educationally based opportunities could be offered to all.

### **5.1.4 The Toolset as an Ecosystem of Learning**

Experience with the set of digital tools: Adobe Photoshop, Adobe Aero, and Blender shows that this set functions as a true learning ecosystem, where technical skills, creativity, critical thinking, and entrepreneurial mindset come together to generate cultural innovation and the development of integrated digital solutions. While there are different primary functions and use cases for each of these tools, they all serve as an interconnected part of the digital entrepreneurial process to turn digitally entrepreneurial intentions into products, meaning art digitisation, augmented reality masterpieces and 3D modelling can all be the result of a singular applied and reflective developmental process.

For instance, where Adobe Photoshop is a more visual and digital problem creation and solution tool, the presentation/aesthetic groundwork that can turn cultural images and physical features into an interactive experience is high-quality digital products, Adobe Aero takes it a step further into experiential potential development by creating a test and prototyping arena of pre-experience and post-experience if cultural or educational considerations. Thus, the practical connection differentiates the need for deeper 3D modelling software to assess physical realities, investigations and implementations where Blender serves a better purpose of creating 3D modelling works of art for innovative testing (recreations of destroyed artifacts based on style/materials) and viable ideas for effective means of preservation and digital dissemination. It's the acknowledgment across different types of technology that provide an environmental perspective that goes beyond deeper iterative study, investigation and invention (Nambisan, 2017; Ghezzi & Cavallo, 2020).

This constellation of digital technologies creates an ecosystem of learning involving a cognitive and behavioral digital entrepreneurship component where applied creativity, problem solving, acquisition of new digital tools and strategic vision play a critical role in creating a digitally integrative ecosystem via practical connection of these interrelated elements.

Thus, the practical connection gives students and learners an impression of how these digital tools can complement one another for personally improved understanding and use as well as cultural, educational and social opportunities down the line as transferable skill sets emerge across professional ecosystems for more than just digital products including interventional heritage management.

Therefore, these three tools create an ecosystem of learning where professional skills emerge, an entrepreneurial mindset develops and technological literacy reigns. The integration of Photoshop, Adobe Aero and Blender demonstrates how interdependent digital resources can enhance the development of practical and strategic skills, facilitate experimentation and enable the creation of cultural and educational value, consolidating the work experience as a space for deep, interdisciplinary and innovation-oriented learning.

## **5.2 Fostering Innovation and Iterative Prototyping**

The promotion of innovation and iterative prototyping is a central element in the development of digital cultural and educational solutions. The use of tools such as Adobe Photoshop, Adobe Aero, and Blender has made it possible to transform creative processes into continuous cycles of experimentation, evaluation, and refinement, which are fundamental characteristics of digital entrepreneurship and applied innovation (Ries, 2011; Nambisan, 2017).

Iterative prototyping facilitates opportunities for initial idea testing, engagement with materials, and interdisciplinary digital and tangible tools adjusted based on real-time feedback. In the digital offering construction process where one champions cultural offerings, it's only naturally adaptable that tangible offerings (which may be physical, projected, or static visuals like images and 3D models) become digitized, interactive offerings that learn from potential avenues of engagement and ultimately, appeal to various levels of engagement by diverse audiences. Thus, audiences' engagement helps test ideas along the way to better understand what's feasible, what's not and ultimately, what's rendered to be more time-efficient and meaningful.

In addition, the prototyping setting allows for technology testing and exploration where all sorts of resources and tools are available to a time-limited, cost-effective effort of trial and error. For instance, certain reality development resources provide augmented reality prototypes to test cultural offerings in the field. Blender can allow for 3D rendering model adjustments in a prototyping fashion in an iterative, step-by-step process whereby small degrees of adjustments can exponentially increase visual fidelity and interactive functionality. Such means bridge gaps of access through various technological realms to

better appreciate the iterative prototype as a means for innovative facilitation to champion new avenues of cultural integrity and entrepreneurial offerings.

Innovation and iterative prototyping are joined at the hip as simultaneous endeavors that support user-based digital solutions for enhanced engagement, cultural significance and learning worth. The strategic use of digital tools such as Photoshop, Adobe Aero, and Blender demonstrates that continuous experimentation and refinement based on user interaction are essential for transforming ideas into innovative, sustainable, and socially relevant digital products.

### **5.2.1 From Static Archive to Interactive Experience**

The transformation of static files into interactive experiences is a central element of digital entrepreneurship applied to culture and education. Programs like Adobe Photoshop, Adobe Aero and Blender are so accessible and user-friendly that images and objects go from a curatorial, archival position to an interactive, experiential value where audiences respond and contribute, further establishing avenues for cultural engagement (Manovich, 2013; Nambisan, 2017).

Therefore, the first step is to digitize and edit everything possible from the realm of culture and heritage to make it accessible in this new digital space. Digitized images would suggest using Adobe Aero for AR prototyping, a powerful user experience of works/objects by themselves and in a spatially oriented, contextually aware fashion.

Meanwhile, Blender has the ability for 3D modelling and reconstruction which situates objects in a similar world to virtual reality with spatial awareness and engagement with physical structures. Thus, transitioning from archive to an interactive world is both technologically feasible and user-driven, a successful realm for future considerations regarding accessibility.

In this sense, similar digital technologies allow for transformation from archival engagement to ubiquitous experience for educational and cultural purposes. No longer is a digital image or 3D model something to be studied or preserved, but instead, it is a usable commodity that fosters engagement, learning and critical awareness. Furthermore, such transformation for accessibility fosters collaborative efforts for various reuse

opportunities on various platforms which promotes increased access and social impact in developed solutions as well (Bekele, Pierdicca, Frontoni, Malinverni, & Gain, 2018).

Transferring from archival experience to interactive one to actualise digitisation as a form of cultural and educational engagement promotes innovation and user engagement with the digital applications created. Such digital design, iterative prototyping and 3D modelling to realise this in the future renders such culturally valuable resources to new life as digital assets, blending technology, creativity and entrepreneurial possibility for the project of generating new digital experiences.

### **5.2.2 Iterative Prototyping as a Learning Process**

Iterative prototyping is not only a methodology for developing digital products, but also a structured learning process, particularly relevant in the context of digital entrepreneurship applied to culture and education. Prototyping this imagery, AR experience, and 3D images means an ever-learning process about the technological capabilities, user needs, and innovative effectiveness of each project (Ries, 2011; Nambisan, 2017).

It becomes a continuous process of semi-controlled experimentation with immediate feedback from each stage before and after deciding what's the best next step. With regard to AR, rapid prototyping can show me where the click fails to register or where the user gets stuck getting through the experience easily but simultaneously spurs more innovative directions that are cooler.

Similarly, 3D modelling can be done on the fly as each step of iteration provides or realizes detail, texture and reconstruction suggestions for artefacts. The more iterations, the better the articulated mechanicalities. Furthermore, the problem-solving skills interwoven with applied creativity and critical thinking become ever more enhanced than if other collaborators were a part of the process due to consistent reassessment and redirection unique to a specific learning experience of digital entrepreneurial growth.

In addition, with the in-depth reflection component of iterative workshops based on critically engaging with what's created to assess what's lacking and generate new solutions that ultimately become a feedback loop, the iterative workshop combines learned skill

application and subsequently connects them for technical, cognitive and strategic mastery of user-centred design and digital cultural innovation.

The iterative prototyping process should be viewed as an experiential learning one—testing something, reflecting on it, changing it and testing it again becomes both content creation and a learning process about the best way to create it. Ultimately, as skills learned in Photoshop, Adobe Aero and Blender become digital innovative tools best suited for creating the prototypes themselves, this iterative process of continuous application paves the way for entrepreneurial success while concurrently established digital literacy and creative development.

### **5.2.3 User Engagement**

Yet user engagement is that final--albeit crucial--aspect yet to be realized in the development of digital cultural and educational solutions. In a world where more than enough technological tools and applications exist to provide the optimal digital solutions for digital prototyping and content creation (Adobe Photoshop, Adobe Aero, Blender), the innovation process is missing an element of engagement that encourages feedback for reiterative and validating concepts, experience adjustments, relevance, and social applicability (Gain, 2018; Nambisan, 2017).

If digital solutions have not been tested from a user perspective, there's no way to evaluate efficacy; gaps remain in how effective cultural and educational mediums are for impact and engagement with various audiences. Sometimes, solutions render for the most part but only to the extent of how well they're reciprocated. There are limitations of explaining usability challenges, trying to get intuitive interactive functions to work as desired and as collected feedback suggested, and we learn how to enhance user experience through increased engagement when end users are part of the process.

Engagement is part of the initial assembly of prototypes through user design approaches while simultaneously being acknowledged through co-creation processes. Implementing testing phases with diverse elements of the audience make digital solutions more valuable options since they go beyond what creators think works best to solutions that embody necessary features. The more users embrace digital solutions, the greater impact cultural

and educational solutions possess. To this end, technology can only do good for all parties involved when a user-centered focus can cement social significance.

Thus, without this element to connect the audience creators and creators, without user engagement from feedback to participatory presence in prototypes, a digital solution is a waste of effort. But when cultural and educational solutions learn how to apply such entrepreneurial tools for reality-based solutions to increasingly dynamic experiences for future digital entrepreneurship opportunities, success has been achieved.

#### **5.2.4 CEI-ISCAP as a Micro-Ecosystem for Innovation**

Experience with digital tools and cultural projects shows that structured work environments can function as micro-ecosystems of innovation, where processes, technologies, and skills interact to generate value and foster creativity. In these ecosystems, the integration of technical resources, iterative methodologies, and reflective learning creates ideal conditions for experimentation and prototyping, allowing initial ideas to evolve into complex and innovative digital solutions (Nambisan, 2017; Ghezzi & Cavallo, 2020).

The micro-ecosystem of innovation is an intersection of interconnected components: digital resources, digital competences, entrepreneurial and artistic creation and reflection. Digital imaging, 3D modelling and augmented reality are digital resources that form a micro-ecosystem because they mutually come to fruition through collaborative and interdependent means where one creation process provides knowledge acquisition that assists another process for a different creation. This micro-ecosystem leads to innovative creations that provide means of technological exploration and cultural and educational value.

In addition, micro-ecosystems of innovation are easier to test and explore—rapid prototyping and intermediate evaluation become easier to achieve. The interconnectedness of digital resources and working environments creates synergies between artistry and problem solving, between awareness of gaps in the project and potential for new exploration—and testing ideas becomes a more sequential approach. Therefore digital innovation does not come from individualised learning and application; instead, it becomes a product of an interdependent ecosystem that can activate thoughts

and resources in a collaborative and synergistic manner (Ries, 2011; Bekele, Pierdicca, Frontoni, Malinverni, & Gain, 2018).

The micro-ecosystem of innovation is thus a critical, facilitating element for successful creation of nuanced and meaningful digital productions. The interconnectedness of digital opportunities, processes, avenues for learning and strategic developments create a perfect breeding ground for innovation—therefore emphasizing the importance of interconnectedness for cultural, educational and entrepreneurial value.

### **5.3 Theory Meets Practice**

Practical experience with digital tools and cultural projects allows for productive dialogue between theoretical frameworks of digital entrepreneurship and the real application of concepts in innovative contexts. Contemporary theories of digital entrepreneurship highlight the importance of integrating technology, value creation, user-centred innovation, and strategic capabilities to identify market and cultural opportunities (Nambisan, 2017; Ghezzi & Cavallo, 2020). It's less that the internship mirrors practical courses but supports previously learned theoretical constructs that are enacted in practical implementation of the course. Everything the internship incorporates comes from previously taught coursework implementations and tested through entrepreneurship. The digital skills implemented throughout the internship are all theoretically concepts applied on a daily basis from image correction through 3D renderings and interactive experiences. They are Adobe Photoshop, Adobe Aero and Blender which connect to theoretical concepts including rapid prototyping, user-centered iteration and emerging technologies as a means of innovation driving force. Such actions make a hypothesis that's either confirmed or denied based upon socio-cultural and educational merit of a digitally rendered project. These are entrepreneurial skills that are digital based span from image correction through 3D renderings that transcend integrated real-world environments. These digital entrepreneurial concepts come into play through project pathways which align with project paths assessed based upon criteria I've assessed digital entrepreneurship it suggests that digital entrepreneurship makes emerging opportunities viable through experiential learning. This is learned through applied, dynamic instruction, hypothesizing what's possible and post-hypothetical investigation into what international merit could exist.

Furthermore, as the practice relates to the theoretical courses concepts supporting theoretically based ideas grounded in digital entrepreneurship come from a comprehension of the requisite digital skills as operational capabilities which all essentially generate a connected entrepreneurial innovative framework. This means that upon successful implementations and strategically aligned digital skills , results become quantifiable, testable and entrepreneurially supportive for iterative improvement and entrepreneurial pitching versus instinctive viability. The digital entrepreneurship concepts derived from theoretical frameworks lend an international viability to differentiate based upon developmental source and map decision making support themes which would otherwise hypothetically exist without real potential practical viability challenges. Thus practice provides interconnected frameworks which stabilize a true give-and-take relationship between the two.

Thus the internship mirrors a sense of digital entrepreneurship where theoretical digital entrepreneurship frameworks are practically operationalized in the realm of technological opportunity and experiential based innovations. Practicality supports theoretical concepts at the same time applied hypotheticals tested on opportunities render additional operationalized supporting themes of interactivity, international feasibility and testable iterations which ground these efforts in between theory and practicality.

### **5.3.1 Digital Artefacts and Platforms in Practice**

The creation and use of digital artefacts and platforms is a primary core of digital entrepreneurship as it applies to culture and education, transforming previously uni-dimensional artefacts into multi-dimensional, appreciated and marketable. Digital artefacts emerge from images (Adobe Photoshop), exploratory prototypes (Adobe Aero) and 3D modelling (Blender); the potential to create AR experiences and virtual explorations based on platforms that promote engaged prototype creation and development (Manovich, 2013; Nambisan, 2017).

In more practical terms, creation emerges from digitally edited images and measured quality as images undergo enhancement. Such quality emerges to maintain experiential value and visualisation desirability for interactive use. Next, AR applications and 3D modelling foster learnt experiences, exploration and cultural engagement potential from an integral use. The same happens with 3D modelling through reconstruction which

requires a redoing of parts to expand the artefact, purposeful use, shifting spaces with virtual and speculative application through various digital spaces.

Thus, working with digital artefacts means that what's necessarily innovative about such is not truly digital innovative, but rather the ability to reshuffle, recreate and provide such for more practical application. Thus, digital artefacts can become powerful forces of educational and cultural applications with economic potentials as well, where one artefact sparks engagement, subsequent prototypes, iterative efforts and potentials for further investigation. Success through platforms of various kinds to achieve this articulate digital artefacts as part of a web of interdisciplinary and interconnected innovations where what once was an unremarkable digital artefact becomes extraordinary through entrenchment and interdisciplinary focus. (Bekele, Pierdicca, Frontoni, Malinverni, & Gain, 2018).

The practice of creating and using digital artefacts on interactive platforms highlights the strategic role of these tools in the operationalisation of digital entrepreneurship. By transforming cultural and educational content into dynamic digital assets, these practices demonstrate how technology, design, and innovation can converge to create meaningful experiences, promote user engagement, and generate opportunities for sustainable value in digital contexts.

### **5.3.2 Effectuation, Bricolage and Working Under Constraints**

The practice of digital entrepreneurship in cultural and educational contexts highlights the relevance of approaches such as effectuation and bricolage, as well as the ability to work under constraints, to create innovative solutions from available resources. These theoretical approaches are based on the premise that innovation often arises not from the maximisation of ideal resources, but from the creative and strategic use of limited resources, promoting iterative learning and constant experimentation (Sarasvathy, 2001; Baker & Nelson, 2005).

Digital tool experience informs a mindset where tools are used to the extent practicality, time constraints or experience to prior knowledge are nothing more than abstracted obstacles. For instance, photo editing and AR prototyping show how relatively basic tools can be recategorized into meaningful interactive elements for others, while 3D modelling explored an additional avenue of investigation into certain construction processes like

molding in even an unfamiliar, time constrained setting. The ideas came from a new, novel perspective—even in a limited space.

Bricolage connects tools used seamlessly with the idea of combining them in unconventional ways. Thus, leveraging what's available to overcome obstacles or create value over time champions an entrepreneurial spirit. The iterations of prototypes took on the act of effectuation throughout the entrepreneurship course. Effectuation champions creating outcomes based on what's known, thereby informing potential and desirability. Effectuation in this project avoided appeal to the idealized outcome to create a safe space for testing effectiveness and failure, allowing quick successions of learning relative to technical application but also, strategic business-minded concepts.

Therefore, working with limited resources supports an effectual, bricolage ethos to transform the impossible into the possible. Digital tool experience informs this perspective as through aesthetics and practical application, great inventions and creations do not come from cumulative resources but instead what's at one's disposal, quickly adjusted upon through real-world implications to champion an entrepreneurial spirit and driven mindset from a sociocultural, pedagogical and entrepreneurial standpoint.

### **5.3.3 Navigating Between Academic and Entrepreneurial Logics**

The best way to experience a gap between these two modes of logic is digitally. Although they may seem different in goal, approach and success (or failure), the more cultured and educated each person becomes, the more reality may prevent such a gap from forming. For example, an academic approach would align with reliability through methodological precision, potential documentation and publication and a focus on details, whereas entrepreneurial logic supports value creation, efficiency, prototyping and user feedback (Ghezzi & Cavallo, 2020; Nambisan, 2017). The intersection shows that perhaps more research and applied innovation is possible.

For instance, in my utilization of Adobe Photoshop, Adobe Aero and Blender, the two worlds became one: image rendering and 3D model developing was from a more scientific approach that required documentation and detailed response, while interactive prototype and AR (augmented reality) experience development was more aligned with a speed of prototyping perspective, and thus, idea testing and user response. But this

occurred from the understanding that a similar level of empathy could produce tangible digital creations from formerly scientific endeavors that are tenuously applicable to the entrepreneurial realm due to constant emphasis necessary to keep scientific adherence from failing in entrepreneurial application.

Finally, bridging the gap between the two types of logic fosters critical and strategic skills such as reflective thinking, decision-making under uncertainty and a systematized perspective and awareness to identify new opportunities. By being able to bridge the two, the digital product can be formed to create something with marketable need but also potential creative appeal.

Experience shows that the integration of academic and entrepreneurial logics is essential for the development of innovative and meaningful digital projects. Digital tools and iterative methodologies act as mediators in this dialogue, allowing research to be translated into practice, concepts to be validated, and cultural and educational value to be created, consolidating skills in both innovation and critical and strategic thinking.

### **5.3.4 Towards an Interculturally Grounded Model**

The development of digital cultural and educational solutions highlights the need for digital entrepreneurship models based on intercultural perspectives. Practical experience with tools such as Adobe Photoshop, Adobe Aero, and Blender reveals that digital value creation is not limited to technical execution or technological innovation, but requires sensitivity to cultural differences, audience diversity, and contextualised interpretation of cultural content (Deardorff, 2006; Hofstede, Hofstede, & Minkov, 2010).

An interculturally grounded model supports an opportunity for the digital entrepreneurship creation stage of image editing, AR prototype testing, and 3D modelling stages to accommodate standards for cultural appropriateness, accessibility, and user engagement. Thus, digital artefacts can be culturally and heritage representative but also, a vehicle for inclusion, educational and advocacy efforts for engaged stakeholders. The confirmation of user-based design, prototyping, and iterative feedback serves to increase the chances of successful intercultural implementation and awareness in perception that support social awareness and sensitivity of equity of access with a focus on technological success.

An interculturally grounded model facilitates evaluation by creating a space to assess where digital entrepreneurship would be appropriate within the culturally-specific fields of sustainable value creation. Process champions effective digital products through technical skill, practicable creative approaches, and intercultural awareness to create products that educate, engage and advocate with international populations of interest for inclusion efforts, diversity efforts, and cultural heritage importance.

The development of a digital entrepreneurship model based on intercultural perspectives shows that innovation, creativity and cultural sensitivity must be integrated in a systematic way. This approach allows for the creation of meaningful, inclusive and sustainable digital experiences, strengthening both the practical effectiveness of digital products and their social and educational relevance, and establishing a solid foundation for the strategic application of digital technologies in global cultural and educational contexts.

#### **5.4 Challenges and Opportunities Observed**

Practical experience with digital tools and cultural projects has revealed a set of challenges and opportunities intrinsically linked to the development of innovative solutions in the context of digital entrepreneurship. One of the most substantial limitations is the technical skills required to make quality digital solutions from advanced photo editing to Adobe Aero prototyping to digital Blender models. Each step requires specific technical skills, a trained eye and an understanding of iterative prototyping processes which take constant commitment to learning and technological updates (Nambisan, 2017; Ghezzi & Cavallo, 2020).

Another limitation pertains to the lack of information tied to user engagement. Sophisticated digital solutions do not equate to effective engagement without a user-centered approach, where solutions are tried out, validated, and adapted for needs and feedback from diverse end-users. While professionals were included at certain stages, no outside user testing occurred which would contribute to assessments of usability, educational effectiveness and intercultural value of such digital solutions. In fact, participatory approaches and co-design processes are essential for fine-tuning digital projects (Bekele, Pierdicca, Frontoni, Malinverni, & Gain, 2018).

However, these limitations also present a great deal of opportunity. The ability to create and test solutions on the fly means ideas can be explored in an agile manner, hypotheses can be tested and new solutions can be found before significant resources are invested in final solutions. The ability to utilize Photoshop, Adobe Aero and Blender means that creative skills can be utilized almost immediately to transform tangible cultural heritage into dynamic, immersive offerings that can yield educational/cultural/social value. Moreover, the ability to establish technical, digital and interdisciplinary skills along the way enhances the digital entrepreneur's ability to not only recognize digital entrepreneurial endeavors but apply innovative solutions across a number of fields.

The challenges observed technical complexity, the need for user engagement and resource management coexist with significant opportunities for innovation, experimentation and value creation. A strategic and reflective approach to the use of digital tools makes it possible to transform obstacles into catalysts for learning, prototyping and exploring new entrepreneurial opportunities, consolidating technical, creative and intercultural skills that are essential for the sustainable development of innovative digital solutions.

#### **5.4.1 Working With Limited Resources**

The practice of developing digital solutions often occurs in contexts with limited resources, whether in terms of time, prior knowledge, or technological infrastructure. Working under these conditions requires creativity, adaptability, and the ability to optimise available resources, concepts that are central to both digital entrepreneurship and DIY and effectuation approaches (Sarasvathy, 2001; Baker & Nelson, 2005).

The use of digital tools such as Adobe Photoshop, Adobe Aero, and Blender illustrates how it is possible to maximise the value of limited resources. For example, previously edited and optimised images can be reused in multiple augmented reality prototypes, while three-dimensional modelling techniques allow incomplete artefacts to be reconstructed without the need for additional physical resources. This experience supports working from limited resources as a link to digital entrepreneurship. One feels that accessing limited resources supports the need for strategic input and problem-solving skills to develop entrepreneurial opportunities. When working without resources, we lean more heavily on goal setting, process effectiveness and how tool and step combinations could feasibly work to produce more digitally creative results. If we operate with less, we

must find more innovative ways to do things because we have less advantage to establishing value based on more expansive boundaries. Therefore, it does not suggest a need to use entrepreneurship to function within boundaries, but instead, a byproduct that encourages innovation based on the tools we have and the boundaries we've established.

This experience supports limited resources as a link to digital entrepreneurship because working from less exposes the tools and iterative processes necessary for creativity and innovative entrepreneurship that reflects digital output. All these refinements render technology, strategic input and the entrepreneurial creations that conceptualize culturally responsive and worthwhile digital products.

#### **5.4.2 Balancing Academic and Entrepreneurial Goals**

Knowing how tools work is only part of the game from an operational standpoint. The other part is the understanding based on academic vs entrepreneurial goals, each with varying success relationships and assessments. Academic logic supports what reasons for an extensive approach and documentation/intention to join the established field, whereas entrepreneurial logic supports how to create value, prototype a work for agile momentum/discovery/exploration (Ghezzi & Cavallo, 2020; Nambisan, 2017).

Thus, one must operate with simultaneous access to both mindsets to respect a field's value and innovative creation potential. The tools implemented align with such. Digital imaging requires attention to detail, careful observation, and documented compliance to academic quality control thresholds. However, the development of three-dimensional and interactive projects allows for discovery and collaboration that fosters entrepreneurial thinking, standards of rapidity and adaptability in AR.

Thus, interconnectedness is possible through an understanding level that would allow one's digital products to exist scientifically and with real-world products for sustainability and use. Furthermore, dynamic balance between academic entrepreneurship facilitates strategic thinking, critical thinking, uncertain situational and systems thinking to identify new potential.

Ultimately, practicality indicates that research and functional innovation can coexist to make culturally relevant, interactive digital solutions with potential educational merit.

### **5.4.3 Users Left in the Background**

A recurring challenge in developing digital cultural and educational solutions is the tendency to leave users in the background during the creation process. While knowledge and implementation of Adobe Photoshop, Adobe Aero and Blender are positive program results and boast an interpersonal engagement with professional growth and interdisciplinary focus, creating digital solutions— even with all opportunities provided—would not be enough without access to target populations. Thus, ultimately, efficiencies, relevancies and sustained purpose would be impacted.

Without target populations involved in the prototyping and testing stages, a means of feedback gained through usability, understanding, engagement and cultural interpretation is diminished. Without population access over time—and through reciprocity—direct affordances cannot be evaluated and function improvements to include actual expectations that would foster intercultural and educational significance. This idea supports user-centered approaches, representative testing with samples and co-creation opportunities to allow digital solutions to develop according to tangible needs and public understanding from general populations.

Furthermore, without user-testing, formative and summative assessments cannot validate assumptions regarding anticipated behaviors, preferences and required engagement for a needs-based approach to innovation and discovering entrepreneurial possibilities. Population access would also improve product quality while fostering collaborative competencies of iterative design, user-based development and reflection.

Users missing out from the experience is one of the most substantial drawbacks to such an endeavor in producing cultural/educational digital solutions. The more public involvement throughout the process, the more tangible assessments could be made to validate intentions to foster engagement and digital products that could be culturally sustaining and socially significant. Practice shows that user-centred design is a critical component for transforming technical capabilities into real and sustainable value.

#### **5.4.4 From Prototype to Sustainability**

The transition from digital prototypes to sustainable solutions represents a central challenge in the context of digital entrepreneurship, especially in cultural and educational projects. The notions of development to final prototypes in Adobe Photoshop, Adobe Aero and Blender are sustainable as prototyping means early creation which allows concepts, adjustments and testable interactivity to develop and engage ideas in a quicker, repeatable fashion but sustainability depends on ongoing viability, scalability and applicability to multiple audiences and contexts (Ries, 2011; Nambisan, 2017).

Sustainability is present when strategic planning, user input and resource availability (both technical and human) support the best possible outcome. Thus, even detailed prototypes are almost rendered unnecessary as one off experiences that rarely if ever get digitally produced with maintenance, updates, dissemination and engagement. The ability to use 3D modeling in conjunction with AR through an interactive and educational approach allows the product to be a reusable digital creation as it brings continued growth and transformation of a product, creating multiple levels of content and sustainability for various culturally appropriate renditions.

Furthermore, sustainability is linked to the establishment of social, cultural and educational worth. When digital solutions are sustainable they emerge from a balance of technical skill set, innovative implementation, culturally appropriate relevance and user engagement. Thus, those solutions become usable, replicable, recognized solutions. The concept of production to final prototypes, therefore, assures that the content is not only theoretically able to be rendered into useful prototypes through technical capability and applied creativity but this process sets us up for strong, sustainable digital products in the future.

The transition from prototype to sustainability shows that digital innovation must be accompanied by strategies that ensure continuity, social value and cultural relevance. Digital tools, iterative methodologies and attention to user needs work together to transform prototypes into lasting digital solutions capable of generating long-term educational, cultural and entrepreneurial impact.

### **5.4.5 CEI-ISCAP as a Place for Innovation**

The idea of a structured context as an innovative ecosystem is realized how collective resources, methods and expertise provide an opportunity for testing, creativity and value creation across digital culture and educational fields. Relative experience of creation in and use of digital spaces through Adobe Photoshop, Adobe Aero and Blender suggests that digital organized environments have great potential for innovation where something that could be in the mind's eye becomes a materialized reality with purpose (Nambisan, 2017; Ghezzi & Cavallo, 2020).

Where organized environments develop elements of cross-component integration—tangible resources, professional guidance, methodologies coincide with a prototyping purpose and entrepreneurial spirit—this is a very effective space in which to not only pilot an initial idea and subsequent prototypes, but also foster new ideas for investigation and new enterprise opportunities. The cross-component accessibility of varied digital resources means that ideas can be implemented, tested, pivoted, and trouble shot in a staged fashion that demonstrates how even an organized environment can be like an innovative micro-ecosystem in and of itself.

An innovation-centered organized environment helps to lessen the challenges of piloting, exploring less tangible materials, creating innovative approaches to problem-solving and the application of technical skills and strategic prowess. The integrative components of digital resources, methodology and human resources create synergies to bolster the probability that such an academic digital product would be valuable, culturally responsive, and capable of social change.

Environments structured as innovation spaces stand out as critical factors for the development of complex and meaningful digital solutions. The articulation between technology, iterative processes, practical learning, and entrepreneurial mindset creates a context conducive to innovation, strengthening the creation of cultural, educational, and social value, and demonstrating the importance of strategically organising resources and methodologies to maximise results and impact.

### 6.1 Summary of Findings

Critical analysis of the internship experience shows that the integrated use of digital tools played a central role in building technical, creative, and entrepreneurial skills. Through image editing, augmented reality prototyping and three-dimensional modelling, it was possible to transform static cultural and educational content into interactive, relevant and potentially scalable experiences. This process provided an understanding of how digital technologies can serve as catalysts for innovation, promoting iterative learning, problem solving and the development of solutions of cultural, educational and social value.

Final takeaways from this experience learning opportunity are that the importance of iteration and feedback for idea testing, experiential adjustments and user recommendations; a user-centered approach was required to ensure all implementations along the way were feasible, usable and effective; operating with constraints created an understanding of the importance of certain brainstorming approaches like bricolage and effectuation to digitally implement in real life.

One such finding with similarly applicable transferability is the importance of separating academia from entrepreneurial processes. This entrepreneurial undertaking has combined scientific accuracy, extensive writing and standardized procedures with situational awareness, active adjustments and opportunity recognition. Such a combination of encouraged theory-based learning and practical application with similar variables encourages effective digital solutions with similarly effective implementation.

Finally, experience has shown that structured innovation environments and interdisciplinary methodologies function as micro-ecosystems conducive to experimentation, collaboration, and value creation. The combination of technology, iterative processes, and strategic and creative skills creates conditions for exploring digital entrepreneurship opportunities, enabling the transformation of ideas into culturally meaningful, educational, and interactive products.

## **6.2 Answer to the Research Questions**

The analysis of the internship experience provides clear answers to the research questions defined at the beginning of the study, highlighting the impact of the use of digital tools on innovation, skills development, and the creation of cultural and educational value.

The first question, regarding how digital tools such as Adobe Photoshop, Adobe Aero, and Blender can facilitate the creation of innovative solutions, was answered through a practical demonstration that each tool contributes in a complementary way to the development of digital products. Image editing in Photoshop made it possible to transform static cultural content into high-quality digital assets suitable for integration into interactive platforms. Rapid prototyping capabilities of Adobe Aero and 3D modelling at my fingertips (Blender) rendered effective tool experimentation from reconstructing fragmented 3D models to interdisciplinary, immersive, hybrid, tangible solutions. Thus, these tools function as value creation and acceleration facilitators—transforming an initial idea into digitally rendered interactive reality (Nambisan, 2017; Ghezzi & Cavallo, 2020).

The second assumption made regarding the participatory role of the user in digital development was confirmed to be that active participation is required for adequate feedback on applicability, feasibility and utility, rendering digital developments culturally relevant and educationally beneficial. Some of the best technical prototypes I've constructed to date have been otherwise without substantial user feedback. Yet from this, I learned that user-participatory processes and co-creative iterations are valuable pathways to better digital developments (Bekele, Pierdicca, Frontoni, Malinverni, & Gain, 2018).

The final assumption made about how these skills learned correlate with digital entrepreneurship was confirmed by tool integration—technical, creative and strategic. I was given the opportunity to implement principles of effectuation, bricolage and prototyping which all showed that operationalizing resource constraints and framing opportunities as academic ventures vs. entrepreneurial realms increases transferable skills, interdisciplinary critical thinking and opportunity for detection for problem-solving and opportunity (Ghezzi & Cavallo, 2020).

The answers to the research questions confirm that the integrated use of digital tools, combined with iterative methodologies and a user-centred approach, not only allows for the creation of culturally relevant digital experiences, but also develops essential skills for digital entrepreneurship, combining practical learning, technological innovation and the potential for educational and social impact.

### **6.3 Limitations and Future Research**

Despite the promising results obtained during the internship, it is important to recognise some limitations that affect the generalisation of conclusions and indicate directions for future research. A central limitation concerns the absence of testing with end users outside the development team. Although the augmented reality prototypes and 3D models were evaluated internally, there was no involvement of external groups, such as students or diverse audiences, which limits the ability to assess usability, engagement, and educational impact more comprehensively (Bekele, Pierdicca, Frontoni, Malinverni, & Gain, 2018).

Another limitation is related to the time and resource scope of the internship. Ultimately, while a considerable number of digital artefacts created and prototype tested was more than what was needed, the same level of digital refinements and genuinely new processes like Blender moulding and prototype testing may be reduced but allow for future studies to operate on a larger scale or in more culturally diverse settings. In a similar vein, where the internship revolved around employing known digital artefacts, the empirical findings of this research did not regard field testing of any supplementary emerging technologies that would enhance the digital experience of construction (gamification tools, AI, immersive virtual worlds). Future studies may investigate how these tools could enhance user interaction and confer entrepreneurial/cultural/educational value creating advantages. Finally, while the internship provided opportunities to obtain such insights regarding technical, creative and strategic abilities for acquisition, applying such findings to different cultural/educational/business endeavours requires further research. Future studies may determine how different user personas and different innovation ecosystems lead to different iterative approaches and successful transformations from physical creations into digital artefacts with value added.

The limitations observed highlight the need to involve end users, expand the scale of prototyping and explore complementary technologies, providing significant opportunities for future research to deepen the understanding of digital entrepreneurship practices in cultural and educational contexts.

## **6.4 Final Remarks**

The internship experience provided a unique opportunity to integrate theory and practice in the field of digital entrepreneurship applied to cultural and educational contexts. Throughout the development of digital prototypes, image editing, augmented reality, and three-dimensional modelling, it became evident that digital tools are not merely operational instruments, but strategic platforms capable of catalysing innovation, learning, and value creation. Where a cultural object was fixed, the integrative approach applied by Adobe Photoshop, Adobe Aero and Blender took something similarly created and made it a far more mobile, engaging process with prospective use for even more employed use. Where integrative creations were produced, collaborative strengths between interculturally driven, interdisciplinary intentions and technologically intersected applications boast socio-culturally, educationally and interculturally based inclusivity benefits. Where the internship aims championed one created as a digital implemented for personally meaningful purposes, creation, evaluation and creation not only fostered a digitally effective solution—but advocated a metacognitive, experiential, learn-from-experience-regarding-self-reflection, creatively driven assessment and entrepreneurial, creatively minded applied thinking through digitally interlaced entrepreneurial endeavors.

Where the field realities meant that barriers to entry posed a time crunch, resource deficiency and technological challenges—but instead of barriers to entry were champions for opportunity and expansion. Effectuation and bricolage efforts champion generalized and particularly meaningful constructs. Yet one of the greatest surprises and findings, learned through socio-cultural explorations, is the reality of public engagement use. No matter how successfully effective the solution is as an outcome of digital dexterity and empirically driven assessment, without the substantiated presence of public engagement, time for reflection has limited assessed effectiveness. Public engagement through testing, co-creation efforts and user-centered accessibility drives are needed to give any proposed

efforts feasibility through field realities and to determine that what is created has realistic potential and adaptability to fill a need. This was the missing gap between applied reality; had public engagement been part of the picture from the onset, possible recommended implementation feasibility and potential effectiveness would have been better understood with the goal of securing real-world application for improved resources and based endeavors.

Where real-world applied realities come from application through multiple means and opportunities to assess and adjust, where well-intentioned application comes from applied means, an entrepreneurial mindset reigns supreme. While there was a need for methodical diligence, thorough documentation and critical reflection, so too was a demand for rapid prototyping, experimental access and divergent possibilities. Yet the ability to balance both proves where theoretical reflection can translate into tangibly effective digital solutions. This means growth experienced is academically rigorous, technically proficient and entrepreneurial. Therefore, the ability to balance the two sides is an important strategic resource in any digital entrepreneur's arsenal for solutions that innovate, enhance potential value, and serve educational and cultural benefits.

What was learned through practical application in an internship in the digital entrepreneurship course was the beauty of micro-structured ecosystems of innovation where technology, iterative processes, technical know-how and applied creativity combine for a seamless atmosphere of educated applicability. Such ecosystems facilitate confidence building, reduced barriers to innovation and create team-generated learning environments with idealized opportunities for discovery and culturally relevant digital solutions. Incremental application through methodological approaches coupled with the strategic nature of technologically enabled assets operated to make any thought process interactive and sustainable with further replication outside of this project.

Lastly, practical exposure to digital entrepreneurship teaches that it's not all theoretically driven with an idea and technology just for the sake of it. Every step from creation through interactive outreach becomes a comprehensive endeavor where intercultural sensitivity, strategic application, creativity fostered through applied, adaptive parameters separate from academic context, combine to champion efforts for research viability. The stunning intersectionality of interactive artifacts generated and platforms investigated champion technological prowess to get the job done but more so facilitate social, educational and cultural value in translating emerging opportunities into sustainable realities.

The internship not only allowed for the development of advanced technical skills, but also consolidated a digital entrepreneurial mindset, characterised by iterative experimentation, user centricity, adaptive innovation, and intercultural awareness. The results obtained reinforce the importance of integrating theory and practice and point to future paths in which iterative prototyping, emerging digital technologies, and collaborative innovation ecosystems can be explored to generate sustainable and meaningful value in cultural and educational contexts. This experience, therefore, constitutes a solid contribution to the understanding and operationalisation of digital entrepreneurship, providing concrete foundations for future innovative initiatives that combine technology, culture and education.

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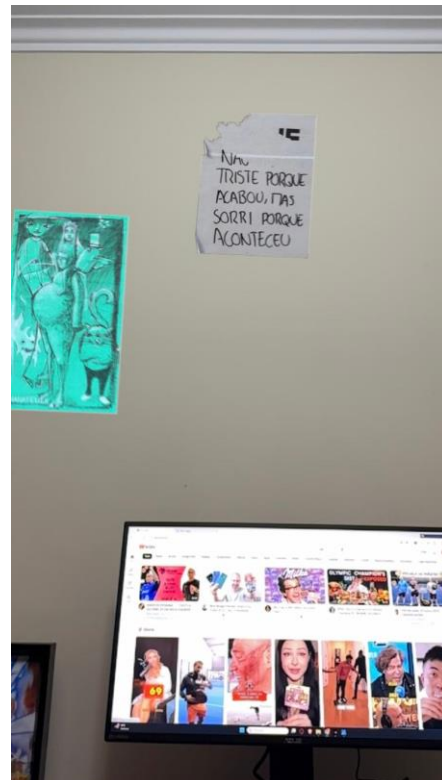
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Appendix I – [Examples of Edited Street Art Images]



## Appendix II – [Augmented Reality Prototype]



## Appendix III – [3D Digitisation Process]

