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Introduction

The COVID-19 pandemic has accelerated the rate of digital transformation in the United Kingdom, changing consumer behaviour and business practices. The new opportunities in e-commerce and digital platforms emerged due to the increased use of online shopping, online payments, and remote services. But to transform it successfully, more than technology was needed; it had to be based on the knowledge of customer needs and constant innovation. Design thinking offered a people-focused methodology as it enhanced empathy, creativity, teamwork, trial, and error (Blank, 2020). This report will critically examine innovation opportunities and

customers' pain points and explore market gaps using a complementary innovation framework.

Task 1: Using a Design Thinking Lens to Identify and Justify Key Opportunity Areas in the UK Market

1.1 Understanding Design Thinking as an Innovation Framework

The COVID-19 crisis radically accelerated the digital transformation of the UK economy and introduced entrepreneurial opportunities in the fields of e-commerce, logistics, digital payments, and business support technologies. It also demonstrated that the innovation could only be successful after the creation of technology and understanding of how the needs of the users were changing (Bragge *et al.*, 2024). Design thinking is a human-centred innovation approach that helps organisations to name and understand problems, gather the needs of users, and create innovative, evidence-based solutions by conducting a series of experiments and providing constant feedback. Using empathy, ideation, prototyping, and testing to develop innovative and commercially viable digital solutions, the framework assists in this process. The design thinking is a key component of the proposed Smart E-commerce Hub UK in this report since it will aid in customer-centric innovation and continuous improvement (Coco *et al.*, 2024).

1.2 Critical Analysis of the UK Digital Transformation Context

The COVID-19 crisis further increased the pace of digital transformation in the UK, allowing companies to embrace e-commerce, cloud computing, artificial intelligence, and digital payment solutions at a faster rate. Even though larger organisations swiftly adjusted to the situation, some small and medium-sized companies (SMEs) continued to feel the pressure since they lacked financial resources, disorganised digital systems, and digital skills. This constraint reduced the operating level and

compromised customer experience and long-term competitive strength (Dell'Era *et al.*, 2020).

1.3 Key Opportunity Area One: Intelligent Last-Mile Delivery Solutions

One of the major opportunities of innovation was the field of intelligent last-mile delivery optimisation. The increasing demand of e-commerce increased the costs of delivery, lack of drivers, and customer needs. Design thinking can help address these by understanding what the providers of the logistics, the retailers, the delivery drivers, and customers require and then coming up with efficient and convenient solutions.

User Pain Points: The problems for stakeholders in the last-mile delivery performance are intertwined. Consumers may experience slow deliveries, minimal tracking, and inflexible delivery services, whereas drivers are faced with inefficient routes and overworking. Retailers are experiencing high logistics costs, product returns, and complaints. These issues imply that the customer-centric, tech-driven solutions should be more efficient, transparent, and satisfactory (Dell'Era *et al.*, 2020).

Market Gap: Current last-mile delivery solutions are mostly geared toward operational efficiency as opposed to customer experience. Not many cost-effective platforms combine AI-based scheduling, predictive analytics, real-time communication, and sustainability into one platform. This creates the opportunities to create logistics solutions that are both affordable and scalable to enable SMEs to compete more favourably with the larger retailers (Egodawele *et al.*, 2022).

Technological Enablers: Smart last-mile delivery is technologically supported by artificial intelligence, machine learning, Internet of Things and cloud computing. These technologies facilitate predictive optimisation of routes, real-time tracking of parcels, smooth integration of systems, and scalable digital platforms. The combination allows the delivery accuracy to be improved, as well as the efficiency, customer satisfaction, and decision-making based on data in logistics networks.

Scalability: The AI-driven logistics system is very scalable regarding a low marginal cost Software-as-a-Service (SaaS) model. Once adopted by an SMEs, it can propagate across the nation with high-quality analytics, inventory forecasts, API integration, and sustainability reporting. The ever-growing number of users promotes the work of AI, which ensures sustainability in the competitiveness and commercial growth in the long run (Ghezzi and Cavallo, 2020).

Sustainability: The use of AI in route optimisation can aid sustainability by minimising fuel usage, emissions, and repetitive deliveries, which are part of the UK Net Zero goals. To enhance SMEs adoption and offer long-term commercial and environmental sustainability, it is required to be low cost, easy to implement, and easy to train employees.

1.4 Key Opportunity Area Two: Integrated Digital Commerce Platforms for SME

The development of integrated digital commerce to UK SMEs is one of the opportunities in innovation. Most companies are still relying on unconnected systems that are inefficient and contribute to the administrative overhead (McKinsey & Company, 2023). Through design thinking, an entrepreneur can develop low-cost, easy-to-use platforms that can make operations easier, decision-making easier, and solve the real-life problems of SME owners.

User Pain Points: The digital activities of UK SMEs are in a disorganised form due to the lack of interconnection between systems: inventory, payments, CRM, and accounting. Inadequate digital capabilities, insufficient funds, and redundancy of management reduce the level of operational efficiency and strategic decision-making. These mutually sustaining problems restrict business growth; hence, the necessity to have a one-stop, user-friendly platform that facilitates e-business and enhances efficiency.

Market Gap: The existing solutions, like Shopify, WooCommerce, and Square, offer strong features and capabilities as single services but require costly third-party applications to manage the business fully. Such fragmentation contributes to

complexity and ownership costs (European Commission, 2023). A significant market opportunity exists for an affordable AI-enabled platform that integrates commerce, operations, and analytics into a single, easily accessible ecosystem that is user-friendly and specifically designed for UK SMEs.

Technological Enablers: Ultra-small infrastructure requirements can be used to scale digital commerce ecosystems with artificial intelligence, machine learning, cloud computing, and Application Programming Interface (API)-based integration. AI helps in demand forecasting and customised recommendations, and APIs bridge payment gateways, logistics, and accounting systems. The innovation can be also promoted by implementing development platforms, which enable developing the application with the assistance of visual tools with minimal programming and make it cheaper to implement and more affordable to resource-constrained SME that require wholesome digital transformation.

Scalability: The Software as a Service (SaaS) model is based on cloud computing, which enables it to grow fast in the market because of low marginal costs and recurring revenue via subscriptions. The site can be applied in hospitality, healthcare, and professional services outside of the retail sector. The constantly increasing datasets improve the performance of AI, create a network effect on the use of data, increase customer knowledge, and ensure a sustainable competitive advantage in different industries (Gonzalez-Varona *et al.*, 2024).

Sustainability: The platform promotes sustainable economic and environmental operations by reducing inventory waste using AI forecasting, optimising resource use, and strengthening SMEs. Nonetheless, its adoption is subject to taking care of cybersecurity threats, digital ability gaps, and investment anxieties.

1.5 Key Opportunity Area Three: AI-Driven Digital Marketing Services

The growth of artificial intelligence (AI) in digital marketing is a big opportunity. The UK SMEs can use to boost customer acquisition and customer engagement. The AI-driven marketing solutions can be applied to automate the content generation,

personalise customer experience, optimise advertising campaigns, and generate data-driven insights at a lower cost. These abilities can assist resource-constrained SMEs to become more competitive relative to bigger organisations in more digital and competitive markets (Khurana *et al.*, 2022).

User Pain Points: SMEs tend to have serious digital marketing problems, including lack of strategic skills, poor content development, inefficient ad spending, poor customer classification, ineffective search engine optimisation (SEO) performance, and inability to read customer analytics (Dell'Era *et al.*, 2020). These limitations decrease marketing efficacy, interfere with evidence-based choices, reduce the number of customers, and curtail sustainable corporation development in the progressively competitive online markets. Applying AI to marketing will enable the automation of content, optimisation of advertising, and improved customer segmentation, as well as increased SEO and generation of actionable insights to make superior decisions.

Market Gap: Existing solutions such as Meta Ads and Google Ads provide powerful marketing platforms, yet they require professional skills, and professional marketing agencies remain unaffordable to a vast number of the SMEs. To this end, AI-based platforms featuring automated suggestions and personalised campaigns and smart optimisation have immense market potential to democratise advanced marketing functions within businesses with limited resources (Kraus *et al.*, 2020).

Technological Enablers: The latest developments in Generative Artificial Intelligence (AI), Natural Language Processing (NLP), predictive analytics, and machine learning facilitate intelligent marketing automation by means of personalised content creation, customer segmentation, predictive behaviour, campaign optimisation and dynamic pricing. Continuous learning of algorithms enhances the precision of the decisions, communication with customers, and the promotion of SMEs based on evidence (Magistretti, Pham and Dell'Era, 2021).

Scalability: Cloud AI marketing services boast amazing scalability since they support thousands of SMEs with Software-as-a-Service (SaaS) at low marginal costs. International expansion, the possibility to conduct the campaigns in different

languages, industry-specific campaign templates, CRM integration, loyalty analytics, and ever-enhancing AI models generate network effects that strengthen the competitive advantage and provide sustainability in commercial value in the long term (Malodia *et al.*, 2023).

Sustainability: The use of responsible AI governance, explicit customer consent, and compliance with the provisions of the UK GDPR and algorithmic fairness is essential to ensure trust, which would result in long-term sustainability. The AI is not to substitute human creativity but to complement strategic marketing decisions with human-centred design principles.

1.6 Comparative Critical Evaluation of the Opportunity Areas

Design thinking application proves that the opportunities of innovation cannot be rated only based on the level of technological sophistication but also on the interrelated aspects of desirability and feasibility. viability, scalability, and sustainability. Among them, the best entrepreneurial opportunity is the integrated digital commerce platform, as it can solve several user pain points of thousands of SMEs at the same time using existing cloud technologies and scalable business models on the SaaS (OECD, 2021).

Evaluation of the Opportunity Areas

Opportunity	Desirability	Feasibility	Viability	Scalability	Sustainability
AI Last-Mile Delivery	Very High	Very High	Very High	Excellent	Excellent
Integrated SME Platform	Very High	High	Very High	Excellent	Very Good
AI Digital Marketing	High	Very High	High	Excellent	Good

Rural Community Marketplace	High	Medium- High	High	High	Excellent
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1.7 Design Thinking Compared with Traditional Innovation Approaches

Uncertainty and complexity management is one of the major differences between design thinking and traditional innovation practices. Traditional business planning assumes that products, markets, and customer needs can be accurately ascertained through the forecasting process (Osterwalder et al, 2020). Design thinking can assist organisations overcome these issues through the application of empathy, iterative prototyping, and constant experimentation to develop solutions with user feedback and reduce the risk of innovation. However, the customer-centred design itself will not necessarily be a commercial success. Blank (2020) encourages idea testing using Lean Startup and Minimum Viable Products (MVPs) but also the sustainability of business models. Combining these models with agile development promotes flexibility, business sustainability, strategic solidity and a sustainable competitive edge.

Task 2: Applying Design Thinking to Develop a New Venture Concept

2.1 Empathise: Understanding Users' Needs

Design thinking has its foundation on empathise stage because it focuses on the experience of the users and not on the presumptions of organisations. Kumar et al. (2025) opine that empathy assists organisations to find explicit customer needs besides unidentified needs that customers may find it challenging to express. Also, Liedtka (2021) dwells upon the reality that empathy reduces the failure of innovations

through product development based on real-life behaviours. In Smart Commerce Hub UK, the most important stakeholders will be the owners of the SMEs, the customers and delivery partners, whose specific needs will guide the design of the platform, which will be user-centred, and the innovation strategy through facilitating cyclical growth, feature enhancement, and continuous enhancement so that the platform can provide both viable and sustainable value.

Primary Users: SMEs Owners

The primary issue of SMEs owners is digital limitation caused by the management of a range of systems that are not interconnected. Carlgren et al. (2022) indicate that spending too much time switching software, cannot predict the customer demand, and are incurring an increasing cost in technology subscriptions. They realise the importance of digital transformation and believe that the existing solutions are overly complex and do not provide an adequate solution to compete with the larger retailers. This leads to their being overwhelmed, financially constrained, and uncertain about investments in technology.

Secondary Users: Consumers

The demands of the consumers have gone high, and the customers demand real-time inventory positioning, accurate delivery predictions, payment facilities, customised shopping experience, and customer-centric customer service. However, many independent retailers cannot fulfil these expectations due to lack of coordinated digital systems that will decrease the efficiency of operations and uniformity of services. These challenges must be addressed by coming up with solutions that are integrated and customer-focused to enhance the convenience, transparency, and overall shopping experiences.

Third Users: Delivery Partners

Common challenges that delivery partners face are inadequate route planning, last-minute schedule restructuring, effective communication, workloads, and customer dissatisfaction during circumstances beyond their control. These business issues lower efficiency of delivery and quality of services. Increased information sharing and coordination among retailers, customers, and the logistics providers results in a more

connected service ecosystem, enhancing operational performance, customer satisfaction, and supply chain reliability in general (Rauch, Linder and Dallasega, 2022).

2.2 Define: Establishing the Core Problem

During the Define stage, smart Commerce Hub UK will assemble the expertise of the SMEs owners, consumers and delivery partners to identify the key issue as disconnected digital operations. This clear problem will be utilised to develop a particular solution with a built-in AI-powered solution driven by the Double Diamond Model (Design Council, 2021).

Problem Statement: The consequence of disconnected inventory, customer engagement, payment processing, and delivery systems is that UK SMEs are operationally inefficient and less competitive since this complexity in their administration makes them less effective in customer experience and limits their business expansion. Such an approach to a customer-centric problem statement is grounded on the underlying causes of difficulties faced by SMEs and does not rely on their symptoms, which is an obvious point to start designing thinking and developing new innovative user-focused solutions (Habicher *et al.*, 2022).

Root Cause: The disconnect of software, absence of digital potential, the high cost of implementation, poor systems integration, data silos, limited access to AI, and the absence of real-time insights all contributed to the inefficiency of the activities of SMEs. These issues decreased productivity, complicated the administration, and minimised the possibilities to make informed decisions, preventing the situation where SMEs might respond to the changing needs of the customers and the market conditions (Liedtka, 2020).

2.3 Ideate: Generating Innovative Solutions

Once the problem has been defined, the ideation phase is dedicated to brainstorming and researching various alternative solutions and choosing the most effective idea. Different creativity techniques were used, such as brainstorming, SCAMPER, mind mapping, and Six hats technique. This divergent-convergent strategy promotes

creative thinking, and at the same time, the end solution is responsive to the needs identified by the users.

Innovative solution ideas:

Idea 1: AI Inventory Forecasting Software

The idea involves a special AI-powered software that predicts client demand and assists in optimising inventory to SMEs.

Advantages: Reduces stockouts and improves the quality of demand predictions with AI insights.

Disadvantages: Resolves a single operational issue but does not solve more general SMEs issues such as customer management, payments, or delivery coordination.

Idea 2: Digital Marketplace for Local Businesses

This concept leads to the creation of an online market where the local SMEs can advertise and sell their products to more customers.

Advantages: Grows local businesses, increases the digital presence and small businesses have access to more customers.

Disadvantages: Internal operational inefficiencies, such as fragmented systems, inventory management, and business process integration.

Idea 3: Integrated smart Commerce Hub UK (selected)

The concept implies a comprehensive AI-based solution that will consolidate inventory control, customer relationship management, online payments, automated marketing, logistics coordination, and business metrics into one cloud solution.

Advantages: Offers a holistic approach to a variety of interrelated SMEs issues via AI demand forecasting, inventory management, CRM, digital payments, marketing automation, delivery management, business analytics, mobile applications, and customer loyalty management.

Disadvantages: Deploys adequately, measures to adopt users, and invests in digital infrastructure in such a way that scalability is achieved and value is created in the long term.

Why smart Commerce Hub UK Was Selected

The smart Commerce Hub UK concept is rated highly in the three criteria of design thinking. It is desirable as it does not complicate business management to its users. Its realisation is possible due to the existing cloud, API, and AI technologies that can be successfully integrated. It is also sustainable due to its SaaS model, which is based on subscriptions that make recurrent revenue and are affordable for SMEs (Oliveira, Zancul and Salerno, 2024).

2.4 Prototype: Developing the Minimum Viable Product (MVP)

The prototype stage is a translating step that converts ideas into viable solutions using a Minimum Viable Product (MVP), which is used to test assumptions and reduce costs and the risk of innovation. smart Commerce Hub UK developed a cloud-based mobile app and a web platform with the required features to address the key issues of the SMEs. Following the Lean Startup principles, the rapid user testing and customer feedback were the basis of the subsequent improvement in the iterative process, the enhancement of the product-market fit, and the reduction of uncertainty on the investment without the development of the product to the full size (Meinel and Leifer, 2022).

Proposed MVP Features

Core Function	User Value
AI-powered inventory forecasting	Predicts inventory needs according to previous sales and seasonal patterns with minimum inventory shortages and waste.

Integrated inventory management	Keeps inventory up to date in brick-and-mortar locations and online platforms (Rajagopal, Hettiarachchi and Zurn, 2024).
Digital payment integration	Supports payment through Stripe, PayPal, and massive UK payment gateways.
Customer Relationship Management (CRM)	Keeps details of customers, purchase history, and loyalty programme.

The advanced functionality, such as AI-based marketing campaigns, predictive pricing, and supplier optimisation is also part of the MVP. These features will get added once the demand and utility of these features are validated, thus saving additional expenditure on creating features that are not required (Kraus *et al.*, 2020). In the view of design thinking, the prototype is not a product but a learning process. The prototype will be deployed to the users who will be asked to interact with the prototype and indicate any usability issues and suggest how to enhance it before commercial scaling (Roth *et al.*, 2020).

2.5 Validating and Refining the Solution

The last phase of design thinking is testing, and it must not be taken to mean that the innovation process is over. Instead, design thinking promotes a continuous process of experimentation with feedback on the product informing the next stage in the product development (Panchal *et al.*, 2024). The testing, therefore, creates a feedback loop of amplifying the desirability of the customers and reducing the commercial uncertainty.

Pilot Implementation: The pilot project would involve approximately 30 to 50 SMEs in the East of England region, and this would include independent retailers and rural producers, as well as service-based businesses. It would bring about a wide range of evidence on which to gauge the performance of the platforms by choosing businesses with varying sizes and varying levels of digital maturity. The MVP would be used over three months, where researchers would gather both quantitative and qualitative data (Wrigley *et al.*, 2022).

Evaluation Measures: The measurement framework measured system effectiveness based on usability, business performance, and customer experience. Among the most important indicators, which were utilised, were task completion, response time, accuracy of inventory, sales growth, customer retention, and reliability of delivery. Customer satisfaction was measured using CSAT, NPS, CES, and qualitative feedback that ensured that the overall performance regarding operational, technical, and user-centred performance was sufficiently rated (Malodia et al., 2023).

Iterative Refinement: Feedback acquired during the testing was employed to enhance what was done during the last development cycle in Agile. Upgrades involved a simplification of interfaces and AI predictions, enhanced delivery integrations, and enlarged analytics capabilities. Design thinking viewed user feedback as a source of change, enabling the process of continuous change, testing the assumptions, and staying in touch with the evolving needs of the customers (Gonzalez-Varona et al., 2024).

2.6 Critical Assessment of Desirability, Feasibility and Viability

A combination of three dimensions, desirability, feasibility, and viability, is one of the most significant aspects of design thinking. When these dimensions are met at the same time, sustainable innovation takes place (Sony and Naik, 2020).

Desirability: Smart Commerce Hub UK exhibited high desirability in the sense that it fulfilled the need of SMEs to have an all-purpose, low-priced, and user-friendly digital management system. Simplicity, efficiency, and seamless customer experiences were identified as the priorities in empathy research. The innovations and feedback on the customers needed to be constant as well to respond to the evolving demands in the market and guarantee long-term customer satisfaction (Liedtka, 2020).

Feasibility: The project was highly practical because it took into consideration the known technologies such as cloud computing, artificial intelligence, APIs, and online payment systems to be integrated into one platform. However, the areas of cybersecurity, system reliability, interoperability, and regulatory compliance were also very critical to ensure successful implementation to ensure secure operations, customer trust, and long-term technical performance (Ghezzi and Cavallo, 2020).

Viability: Smart Commerce Hub UK showed a high degree of commercial feasibility with the help of the SaaS model with subscription and premium analytics, API integration, and AI marketing services. Nevertheless, the success in the long term would hinge on customer adoption, cost recovery, and successful differentiation from the competitors through the provision of better user experience, built-in functionality, and sustainable value (European Commission, 2023).

2.7 Potential Risks and Mitigation Strategies

The venture has a lot of strategic risks that ought to be addressed despite the enormous potential exhibited by the venture. Risk management increases the resilience of a venture and investor trust and helps to achieve long-term sustainability (Verganti, Dell'Era and Swan, 2021).

Potential Risks and Mitigation Strategies

Risk	Potential Impact	Mitigation Strategy
SME resistance to digital adoption	Low customer acquisition	Error-free trial and onboarding, tutorials, and special support.
Cybersecurity threats	Loss of customer trust and legal penalties	End-to-end encryption, multi-factor authentication, regular penetration testing, and UK GDPR compliance.
Strong market competition	Reduced market share	Segment by cost, integration of AI and SME-friendly design.

Conclusion

On concluding notes, the COVID-19 pandemic has fundamentally accelerated the digital transformation in the UK economy and created entrepreneurial opportunities in e-commerce, logistics, digital payments, and business support technologies. This report has shown that effective innovation was reliant on the level of technology as well as awareness of the changing customer requirements. Using design thinking, the Double Diamond Model and Lean Startup methodology, the research found the challenge of fragmented digital operations to be a major problem faced by UK SMEs. Smart Commerce Hub UK was proposed as an artificial intelligence-based integrated business that was more efficient. The business proved to be desirable, viable, and commercially viable. The long-term competitiveness was supported by the sustained user feedback, which was evidence-based and refined through several iterations, and allowed sustainable digital transformation across the UK SMEs.

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