CHAPTER 4

INNOVATION IN CEP INDUSTRY AMIDST UNCERTAIN TIMES

4.1 Introduction

This chapter focuses on the innovations adopted by the CEP sector in response to the disruptive events. The COVID-19 pandemic accelerated the shift to a digital-first world, forcing organizations to find new ways to manage and support their workforce during this transformation (World Economic Forum, 2021). By adopting new technologies and innovative methods, CEP services can better address logistical challenges, especially in areas with difficult terrain and limited infrastructure, such as Northeast India. Understanding the role of innovation helps identify ways to improve customer satisfaction and trust, thereby boosting the overall effectiveness and adaptability during disruptions. This is established through the relationship between innovation and business performance. The explanation of innovation in the CEP industry has been incorporated in this chapter.

4.2 Product-process-service innovation in the CEP industry

The worldwide pandemic outbreak posed multiple challenges, including mobility limitations, supply chain interruptions, and increased health and safety concerns. CEP companies have to reevaluate their current processes and adopt innovative techniques, motivated by both necessity and opportunity. These modifications have facilitated the industry's navigation through a phase of significant disruption while establishing a foundation for more robust, customer-focused, and sustainable operations moving forward. The growth of e-commerce, along with these operational enhancements, indicates that the CEP industry will remain pivotal in influencing the logistics landscape in the post-pandemic age. These innovations are summarized in five groups (Figure 4.1) and discussed as follows:

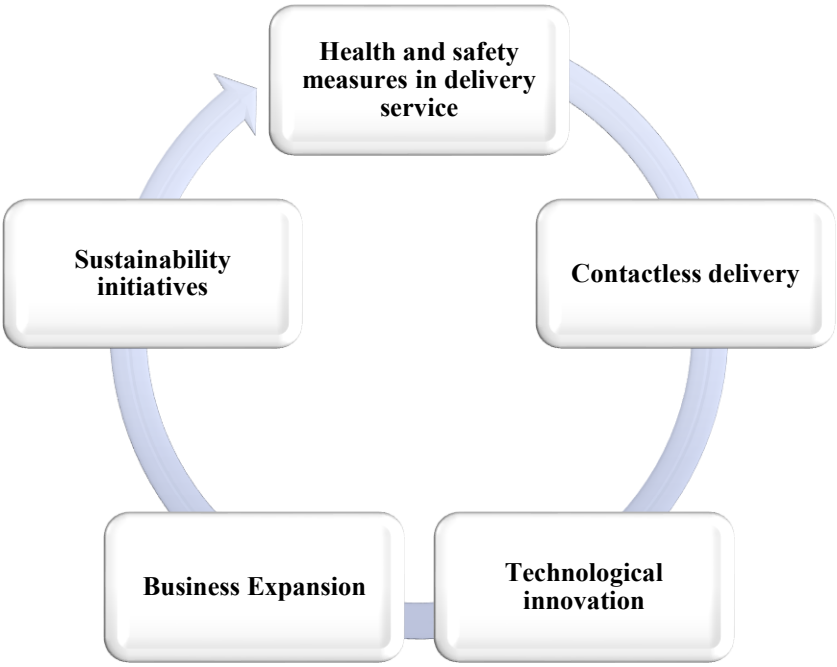

Figure 4.1 Product-process-service innovation in CEP industry

4.2.1 Health and safety measures in delivery service:

As global disruptive events, including pandemics, persist, the necessity of upholding stringent health and safety norms within the CEP industry has become critical. Strict compliance with safety regulations at recipient counters and throughout delivery is essential to mitigate potential health hazards. Furthermore, regular health assessments for delivery staff can confirm their symptom-free status and general health, thereby safeguarding both employees and consumers. The use of protocols to disinfect shipments before handling and delivery is essential to reduce the transmission of infectious diseases. The execution of these extensive health and safety protocols not only protects the welfare of participants in the delivery process but also fosters confidence and trust within the general public. Recent studies have emphasized the potential for alternative methods of delivery that rely less on human labor and more on automation, which might reduce physical strain on workers and enhance workplace safety (Boysen et al., 2020; Maheswari, 2023). However, the interaction between the delivery personnel and the customer is a crucial element of the customer experience, highlighting the necessity for a reliable, rapid, and professional delivery service (Olsson et al., 2023).

4.2.2 Contactless delivery

Contactless delivery enables carriers to deposit packages at a recipient's doorstep, documenting the delivery with photographs or confirmations from a secure distance, rather than necessitating a physical exchange. This strategy proved crucial during the pandemic to reduce the danger of virus transmission. To augment security, numerous CEP providers have substituted physical signatures with OTP (One-Time Password) verification solutions. This method entails dispatching an OTP to the customer's mobile device, used to verify successful delivery. This guarantees that only approved recipients can obtain the package without physical contact. Digital or online payments have proven essential in minimizing in-person interactions. Companies in the CEP sector promote contactless payments via mobile applications, web platforms, or third-party payment services (e.g, Gpay). This action reduces the necessity for cash transactions or point-of-sale equipment, which conventionally demanded in-person engagement. India Post, which manages extensive postal operations, also implemented digital payment options for its delivery services during the pandemic. In regions subject to stringent containment standards, CEP suppliers have utilized alternative delivery techniques, including pickup stations or package lockers. These advances facilitate the continuation of delivery services while complying with safety procedures in areas with movement restrictions. DHL implemented delivery to local access points or lockers, enabling consumers to get their items without direct interaction with delivery people.

4.2.3 Technological innovation

Technological innovation in the CEP business has focused on developing and refining mobile applications to enhance customer experience and engagement. These applications enable enterprises to offer real-time tracking, seamless access to delivery updates, and a range of specialized services, hence improving convenience and transparency. For instance, MyDHL+ application by DHL express enables users to schedule deliveries, monitor parcels in real-time, estimate shipping expenses, and conveniently arrange pickups. FedEx mobile application enables customers to manage deliveries, redirect shipments, and receive push notifications, enhancing user convenience. Mobile applications have incorporated functionalities such as contact lists, secure payment systems, and delivery alerts, markedly diminishing customer effort and facilitating a flawless delivery experience.

A significant innovation involves transitioning customer support systems to an online platform, facilitating prompt and effective resolution of complaints. Numerous CEP firms currently provide online platforms that facilitate consumer interaction with support teams, diminishing dependence on call centers and allowing for expedited responses. Amazon's application enables users to report delivery difficulties, such as missing or damaged items, and to address complaints via automated chatbots or customer support agents. UPS offers a comprehensive online support platform via its website and application, enabling consumers to submit claims, report problems, or obtain assistance with AI-driven chatbots such as the Virtual Assistant. DHL implemented automated AI-powered chat platforms enabling users to submit complaints, obtain updates, and resolve issues through the app or website without enduring call lineups. This online engagement diminishes the necessity for in-person or telephonic connections, enabling clients to resolve issues instantaneously. FedEx launched its SenseAware ID technology, enabling customers to monitor their goods via real-time sensor data and engage with help through the FedEx app in case of concerns. This innovation allows the organization to deliver prompt resolutions to complaints, enhancing customer satisfaction. These advances have revolutionized customer engagement for CEP firms, emphasizing simplicity, real-time communication, and issue resolution.

4.2.4 Business Expansion

The surge in internet purchasing, especially during and subsequent to the epidemic, has resulted in heightened demand for last-mile delivery services. In response to this increase, some CEP companies have established strategic alliances with e-commerce platforms. India Post has collaborated with prominent e-commerce platforms such as Amazon, Flipkart, and local vendors to oversee their delivery logistics. These partnerships enable e-commerce firms to utilize India Post's extensive network, particularly in rural regions. FedEx's collaboration with Shopify exemplifies a smooth integration of delivery services within the Shopify platform for e-commerce retailers. These agreements enhance e-commerce platforms by delivering effective last-mile services while simultaneously benefiting CEP companies by growing their customer base.

Throughout the COVID-19 pandemic, CEP firms were instrumental in the delivery of needed goods, including pharmaceuticals, medical supplies, and other critical materials. Numerous organizations broadened their services to address this need, establishing a new

sector of corporate expansion. India Post leveraged its vast delivery network to guarantee the distribution of essential medications and equipment to the most isolated areas. This encompassed the provision of life-saving pharmaceuticals, ventilators, and personal protective equipment (PPE) throughout the pandemic, thereby reinforcing its position as a logistical provider for critical commodities. Other giant companies such as DHL and FedEx concentrated on vaccine distribution, utilizing their cold-chain logistics and international networks to guarantee prompt delivery to healthcare facilities in diverse places. The expansion into the delivery of vital commodities, such as pharmaceuticals and medical supplies, remains a growing sector for the CEP business as companies respond to the rising need for healthcare logistics. These developments exemplify the business expansion techniques employed by CEP companies, enabling them to remain pertinent and address the changing demands of the market while promoting sustainable growth opportunities.

4.2.5 Sustainability initiatives

In response to heightened emphasis on environmental accountability, CEP companies have implemented various sustainability efforts to mitigate their ecological footprint. Numerous CEP companies are transitioning to sustainable packaging to mitigate their environmental impact. Numerous industries are substituting plastic with paper-based or biodegradable packaging materials. By optimizing the dimensions and quantity of packaging utilized for deliveries, organizations minimize superfluous material. Reusable packaging alternatives are being investigated for large-scale or B2B delivery. DHL launched GoGreen Solutions, which advocates for carbon-neutral shipping. This initiative promotes the utilization of sustainable products and diminishes plastic usage across the supply chain. UPS has also launched environmentally sustainable, recyclable envelopes for its clients, substantially reducing waste. CEP companies are progressively using hybrid and electric vehicles to reduce carbon emissions from their delivery fleets. These automobiles not only diminish greenhouse gas emissions but also decrease fuel expenses. FedEx has pledged to achieve carbon neutrality for its entire delivery fleet by 2040 and has already implemented thousands of electric delivery trucks across multiple countries. Amazon, as part of its Climate Pledge, is deploying electric cars with the objective of acquiring 100,000 electric delivery vans by 2030. DHL has integrated electric bicycles for urban delivery, thereby diminishing carbon emissions in crowded cities.

CEP companies are allocating resources towards energy-efficient systems for their warehouses and distribution centers. This includes the utilization of renewable energy sources and energy conservation methods. Warehouses and distribution centers are progressively equipped with solar panels to produce sustainable energy. Numerous logistics hubs are implementing energy-efficient lighting, such as LED systems, and climate control strategies to decrease energy use. DHL has invested substantially in solar energy at its distribution hubs worldwide. It also implemented intelligent lighting systems and energy-efficient heating and cooling technologies to decrease its energy consumption. UPS prioritizes solar energy projects at various worldwide hubs, enhancing its sustainability initiatives.

CEP service users have also identified some innovations as presented in Figure 4.2. Private CEP organizational users consistently have experienced most features, while postal individual users exhibit the least.

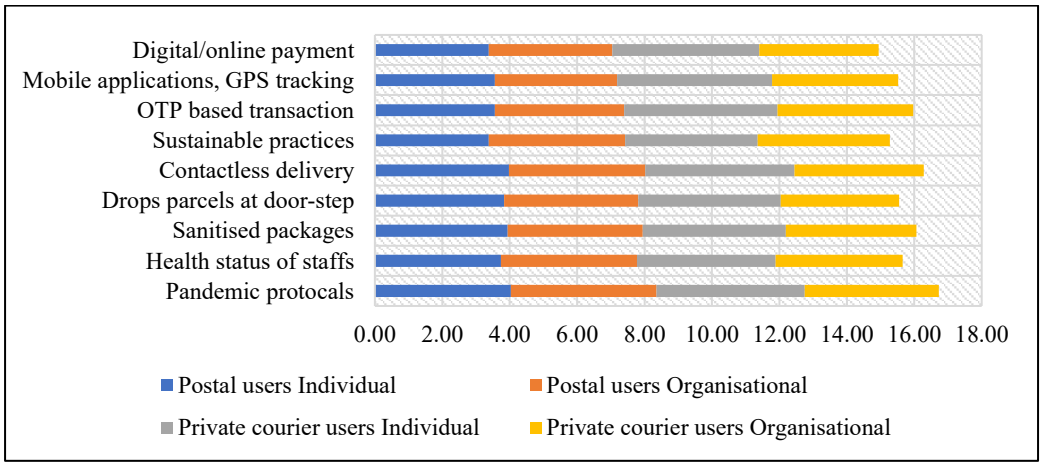

Figure 4.2 Product-process-service innovation identified by users

4.3 Relationship between innovation and business performance

Table 4.1 Regression results of innovation parameters and business performance

Business performance	Beta coefficients	R squared	Adjusted R Square
Technological advancement	0.687	0.472	0.460
Novel delivery solutions or services	0.555	0.308	0.293
Adapted operational processes	0.726	0.527	0.517
Advancement in organizational process	0.745	0.554	0.545

The operational meaning of the innovation parameters measured for this study is mentioned as follows:

- Technological advancement means the use of mobile applications, digital platforms, and automated systems that enhance operational efficiency and customer experience.
- Novel delivery solutions like contactless delivery, OTP-based verification, and alternate delivery methods during containment helped in improving customer safety and trust.
- Adapted operational processes, such as streamlined logistics, automated workflow, faster delivery, and shorter lead time, improve the firm's performance.
- Advancement in organizational processes, such as better communication systems, team restructuring, agile workflows, and sustainable initiatives, improves efficiency and service delivery.

The results mentioned in Table 4.1 indicate that advancement in organizational processes and adaptation of operational processes have the most substantial impact on firm performance, with beta coefficients of 0.745 and 0.726, respectively. These two factors explain over 50% of the variance in firm performance, emphasizing the importance of internal optimization and strategic restructuring. On the other hand, technological advancements also play a crucial role, with a beta coefficient of 0.687, explaining nearly 47% of firm performance variance. While novel delivery solutions (beta of 0.555) positively influence performance, their impact is relatively less compared to the other factors, explaining 30.8% of the variance. This suggests that while new delivery methods are important, they complement rather than drive the primary gains in business performance. Figure 4.3 is the framework for the interaction between innovation and business performance parameters. In conclusion, CEP service providers that focus on organizational and operational process improvements, supported by technological advancements, are likely to see the most significant improvements in their overall performance.

Table 4.2 Regression results of innovation and business performance parameters

Innovation	Beta coefficients	R squared	Adjusted R Square
Sales Growth	0.683	0.466	0.455
Market Reach	0.623	0.388	0.374
Profitability	0.752	0.566	0.556
Customer satisfaction	0.715	0.512	0.501

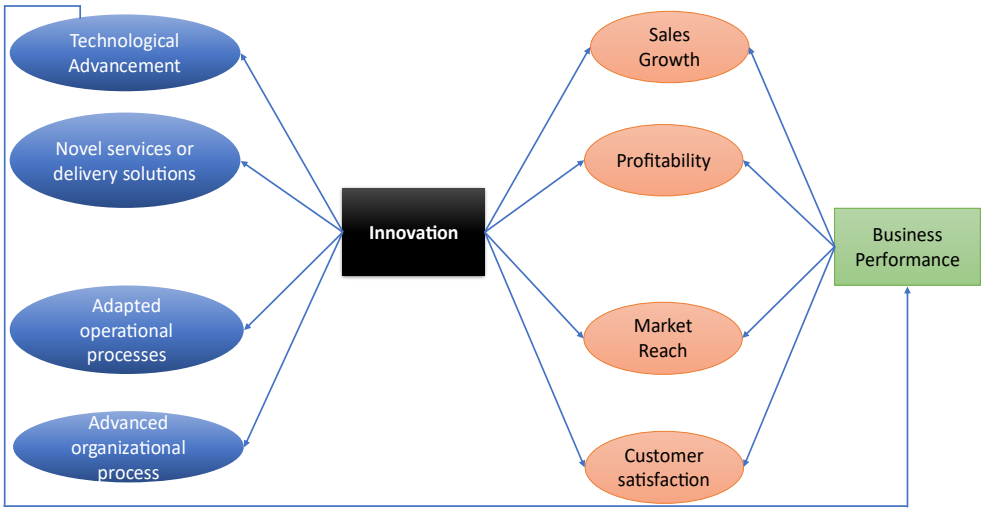

Figure 4.3 Interaction between innovation and business perfromance

The analysis results presented in Table 4.2 show that innovation is a critical driver of firm performance across multiple parameters. Profitability (β = 0.752) is the most impacted, with more than half of its variance explained by innovation. customer satisfaction (β = 0.715) follows closely, reflecting the ability of innovation to enhance the customer experience. sales growth (β = 0.783) and market reach (β = 0.623) are also positively influenced, though to a slightly lesser extent. The high values across the board suggest that innovation is a central strategy for firms looking to improve key performance metrics and sustain competitive advantage.

4.4 Summary

This chapter includes the identification of innovative approaches adopted by the CEP service providers in response to the disruptive events. To achieve these objectives, information from CEP service providers and users has been evaluated. The COVID-19 pandemic brought unprecedented challenges for businesses globally, compelling industries such as travel, hospitality, retail, and entertainment to rapidly adapt. Amid this chaos, the CEP sector has emerged as a vital lifeline for communities worldwide. In this digital age, CEP service providers embrace innovation to meet the rising demands and expectations placed upon them. There are many innovations as observed, such as contactless delivery is one of the newly added features to the delivery system in response to COVID-19. Then, a relationship between innovation and business performance is established through regression analysis.