數位孿生技術：透視全方位的災害衝擊
Digital Twin Technology： A Comprehensive View of Disaster Impact

執行單位：國家災害防救科技中心

數位孿生技術應用在建置智慧城市的趨勢日益明確，成為推動城市轉型的重要引擎。近年來發展的智慧城市，更可讓民眾以 3D 的方式檢視整個城市的人口成長、新建設和其他主要活動的發展與成長，逐步突顯虛擬城市的概念。數位孿生技術可模擬災害情境，包括天氣、交通事故等，協助災害應變人員更快速理解災害情境，進而優化災害應對的效率。近年來隨著空拍技術、模擬技術及電腦運算資源的發展，國家災害防救科技中心利用先進的科技和技術，打造山區洪水溢淹模式系統，提高對災害的預警與衝擊分析，並透過全方位視角監看易致災聚落，運用動態模式、虛實整合等視覺元素呈現告警資訊及災害衝擊，有助於災害的情資研判。

The application of digital twin technology in building smart cities is becoming increasingly clear, serving as a crucial engine for driving urban transformation. In the development of smart cities in recent years, citizens can view the growth and development of the entire city, including population growth, new construction, and other major activities, in a 3D format, gradually emphasizing the concept of a virtual city. Digital twin technology can simulate disaster scenarios, including weather events and traffic accidents, assisting disaster response personnel in rapidly understanding the situation and optimizing the efficiency of disaster response. In recent years, with the advancement of aerial photography, simulation technology, and computing resources, The National Science and Technology Center for Disaster Reduction has leveraged advanced technology to create a mountainous flood inundation model system. This system enhances disaster warning and impact analysis, providing a

comprehensive view of vulnerable settlements. It utilizes dynamic models and virtual-real integration, presenting alert information and disaster impacts through visual elements, contributing to informed decision-making in disaster situations.

數位孿生技術