

科技部人文社會科學研究中心
補助科技部跨領域研究計畫之前置規劃案結案報告

後人類時代科技、法律與產業之跨域與共生：
以人工智慧技術分析法律文本及其在資本市場之風險控管應用

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壹. 中英文摘要及關鍵詞 (keywords) :

本研究案將著手於人工智慧(Artificial Intelligence, AI)技術之應用，不僅將此尖端領域應用於法律文本之分析，亦將擴及於資本市場風險控管機制之建構。AI之發展標榜著「人」、「機器」、「賽柏格(人機共體)」(cyborg)的共存，其漸漸模糊了人與機器之邊界，各形各色的AI技術也成為當代人類在意象上的「義肢」，使得人類必須依靠機器而共生的景象不斷地被深化。除了於人文領域中已描述此現象為「後人類時代」(post-human era)的來臨，而社會科學領域亦感受到AI浪潮下的政經結構重組，誠如已故劍橋大學物理學大師史蒂芬·霍金教授對AI之精闢見解：「AI可能是人類史上最好的或最壞的事」，身處於此劇變的AI技術革命浪潮，讓吾人更加反思各種人類生活型態與產業模式的解構與重生。

回顧歷史之洪流，人類在西方啟蒙時代與工業革命後逐漸形成以市場經濟與民主政治發展的體制，在此之下，資本主義所形成的各類金融、貿易、貨幣等制度，透過二次大戰後的國際組織重建及發展，讓各國採取相對穩定且和平的政策，維繫國際秩序不墜。而將時間拉回到現代，當AI技術不斷且迅速地穿透與嵌入各層面的同時，使得各國之資本市場不得不進入下一波產業革新(如工業4.0)與法律秩序之調控(如科技監理)。而其中受到顯著影響之領域即為金融科技(Fintech)，此一詞之興起乃標識著區塊鏈、虛擬貨幣、大數據分析等已漸成為金融產業發展不可或缺的元素，而AI之應用更帶動了Fintech的蓬勃發展。本前置規劃案係基於跨域研究之目的，將研究面向依成員之專業區分為「法律群組」、「資訊科技群組」、「金融產業群組」三大核心領域，並將總體計畫依歸於AI之發展對人文與社會科學之跨域與共生，同時以法律、資訊科技、金融產業三領域作為本研究之骨幹。

本案在計畫之安排中，除了配合近年政府所關注之AI技術應用為主題，更以總計畫即子計畫一搭配其他四項子計畫作為本案設計之方向，藉由本前置規畫案中所進行整合或收斂之過程，實際計畫內容將可循序漸進地進入實行之階段；而在實質層面，本案係結合法律領域(判決文本分析、法律風險控管、金融監理、糾紛處理、高齡投資等)、資訊科技領域(基礎平台之程式設計、AI深度學習、專家諮詢系統機器人建立、自然語言學習等)、金融產業領域(群眾募資、新型態金融科技產業發展、區塊鏈、虛擬貨幣等)中所具前瞻性之議題，進行跨域研究及深度對話，同時希冀能在未來建立專家諮詢機器人智識庫系統，以滿足政府制定政策與產業實務之需求，並提供兼顧學術理論與實務發展之建議與解決方案。

This research project will apply the artificial intelligence (AI) technology, not only use this frontier technology into analyzing legal texts but also extend to construct a risks control mechanism for the capital market. The development of AI indicates the coexistence of “Human”, “Machine” and “Cyborg”. It gradually blurred the boundaries between Human and Machine. Various AI technologies also become as a “prosthesis” for modern human in aspect of imagination. This imagination was consistently deepened as a scenario that human must depend on machines for living. In addition to this phenomenon was described as an arriving of the post-human era in the areas of humanities, social science areas were also affected by reconstruction of politics and economics structure in the waves of AI generation. Exactly as said by the deceased Master of physics at the University of Cambridge, Professor Stephen Hawking, “The emergence of AI could be the worst or best event in the history of Human civilization”. We will be even more rethinking the reconstruction and rebirth of various lifestyles and industry models of humankind on engaging in the drastic changes of AI technology revolution.

In reviewing the tides of history, humankind is formed progressively under the system of Market Economy and Democracy after the age of western Enlightenment and Industrial Revolution. Under this circumstances, various systems including financial, trades, currencies formed by the Capitalism induce Countries willing to adopt relatively stable and peaceful policies to maintain world orders through the reconstructions and developments of international organizations after WWII. Back to the modern time, Countries' capital market cannot but enter into next wave of industry revolution (e.g., Industry 4.0) and the control of legal order (e.g., Regtech) when AI technology constantly and quickly penetrate and embed in every aspect. Fintech is one of the area significant affected by this circumstance. The rise of

Fintech indicates that Blockchain, Virtual Currencies, Big Data Analysis have gradually become as necessary elements for the development of financial industry. And the applications of AI technology accelerate the Fintech industry more vigorously. This research project is based on the purpose of interdisciplinary research in separating members from the research team by their own professional area including Law, Information Technology and Financial Industry. We will run this research through these three pillars as the main structure and synthesize their contexts into our main topic which is the interdisciplinary and symbiosis of the Humanities and Social Sciences under the development of AI.

This project was designed not only to operate in coordination with the topic of AI which have been concerning by the government in the recent years, but also as an interplay structure with each subproject. The contexts of the project will enter into the practical phase step by step through the process of continuously integration and convergence in this research project. In the substantial aspects, this project is combined with prospective topics in Law area (including Legal Cases Analyzing, Legal Risks Control Mechanism, Financial Supervision, Dispute Resolution, Elder Investors, etc.), Information Technology area (Programming for Basic Platforms, AI Deep Learning, the Construction of Expert Consulting Robot System, Natural Languages Learning, etc.), Financial Industry area (Crowd Funding, the Developments of New Patterns of Fintech Industry, BlockChain, Virtual Currencies, etc.) We are working on the interdisciplinary studies and deep conversations with each subproject. Hope we can establish the expert consulting robot think-tank system to fulfill the demands from government for making policies and to the development of industries, and provide advices and solutions for the academic studies and industry developments in the near future.