

Xiao-lin ZHENG, Meng-ying ZHU, Qi-bing LI, Chao-chao CHEN, Yan-chao TAN,
2019. FinBrain: when finance meets AI 2.0. *Frontiers of Information Technology & Electronic Engineering*, 20(7):914-924. <https://doi.org/10.1631/FITEE.1700822>

FinBrain: when finance meets AI 2.0

Key words: Artificial intelligence; Financial intelligence

Corresponding author: Xiao-lin ZHENG

E-mail: xlzheng@zju.edu.cn



ORCID: <http://orcid.org/0000-0001-5483-0366>

Financial intelligence

1. Financial intelligence has fast and accurate machine learning capability to achieve the intellectualization, standardization, and automation of large-scale business transactions.

Table 1 Main stages of technology-driven financial industry development

Development stage	Driving technology	Main landscape	Inclusive finance	Relationship between technology and finance
Fintech 1.0 (financial IT)	Computer	Credit card, ATM, and CRMS	Low	Technology as a tool
Fintech 2.0 (Internet finance)	Mobile Internet	Marketplace lending, third-party payment, crowdfunding, and Internet insurance	Medium	Technology-driven change
Fintech 3.0 (financial intelligence)	Big data, blockchain, cloud computing, AI, etc.	Intelligent finance	High	Deep fusion

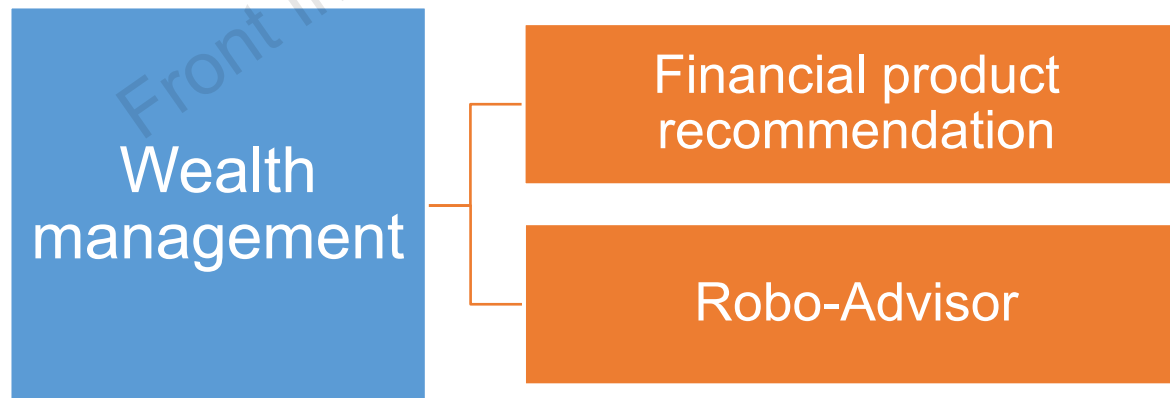
Financial intelligence

2. Three important characteristics:

- (1) Rich usage scenarios. Many financial applications, such as investment, lending, credit, security, insurance, and customer service, need the support of AI technology
- (2) Highly structural business data. The financial service industry produces large amounts of structural data and will benefit from AI technology.
- (3) Meeting the requirements of inclusive finance. Traditional financial services often have a high threshold, which can be significantly reduced by credit assessment technology. Hence, everyone can enjoy a fair opportunity to achieve inclusive finance.

Research and applications

1. Key applications: wealth management, risk management, financial security, financial consulting, and blockchain.
2. Wealth management can help maintain good customer experience while mitigating risks and improving individuals' decision-making capabilities.



Research and applications

3. Risk management includes the identification, measurement, and control of financial risks.



4. Financial identity authentication through recognition, image recognition, voice print recognition, and OCR technology would significantly reduce checking costs and improve user experience.

Research and applications

5. Smart financial consulting: chatbot systems can analyze customers' goals and are highly responsive to customers with personalized advice or tailored answers, such as investment policies and portfolio strategies.
6. Blockchain, which underpins bitcoin, is a digital currency supported by cryptographic methods. It is a distributed, publicly available, and immutable ledger.

Research framework

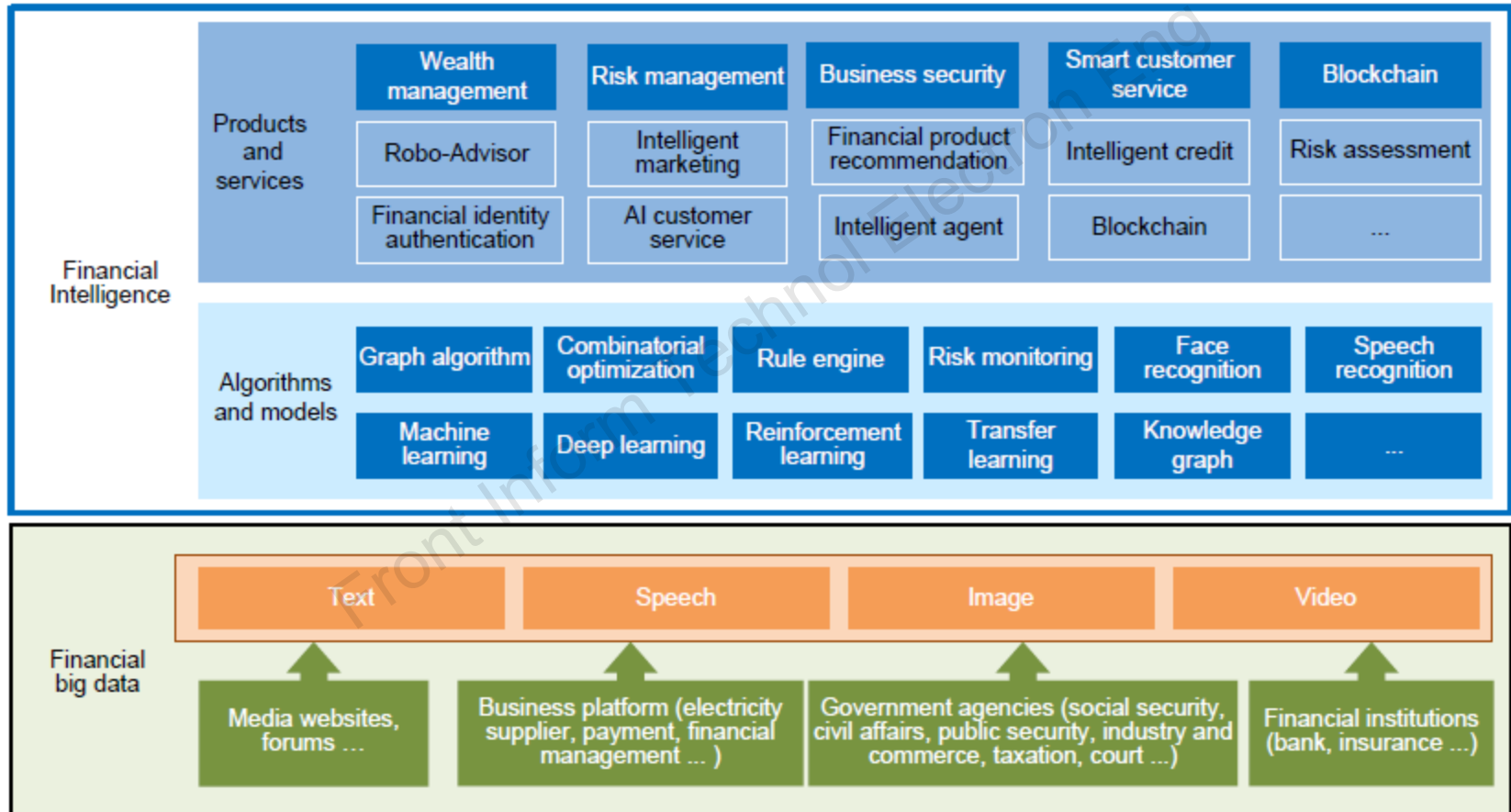


Fig. 1 FinBrain framework of the overall research structure

Open issues

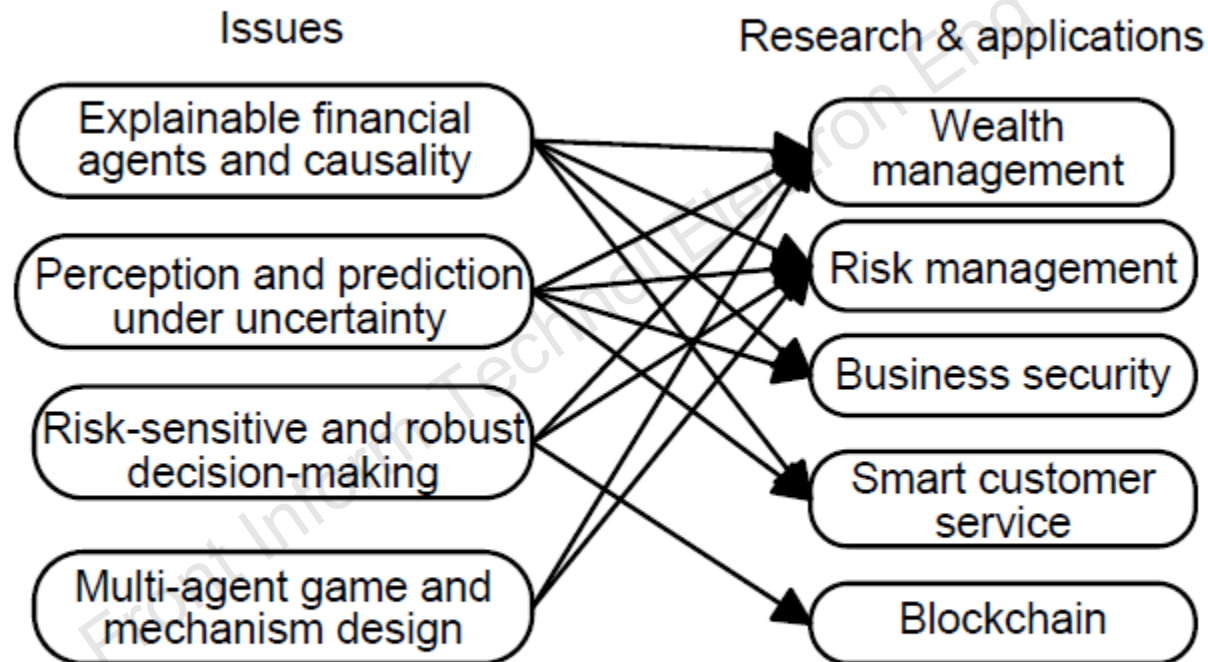


Fig. 2 A mapping from issues to applications and research topics

Conclusions

1. With the aid of AI techniques, the financial industry has changed in all directions, such as diverse sources of information collection, intellectualization of risk pricing models, standardization of the investment decision-making process, automation of customer interaction services, and other financial core fields.
2. These changes are based on two paths: one is to improve efficiency and the other is to reduce costs.
3. AI 2.0 is bound to move financial services toward the direction of high efficiency and intelligence.