

Introduction to Artificial Intelligence in Finance and Quantitative Analysis

1142AIFQA01

MBA, IM, NTPU (M5147) (Spring 2026)

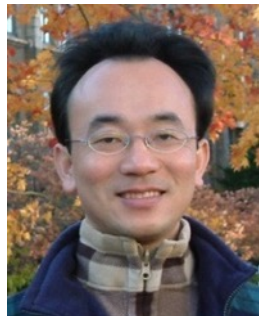
Tue 5, 6, 7 (13:10-16:00) (B3F17)



<https://meet.google.com/miy-fbif-max>

 **NVIDIA**
University Ambassador
Certified Instructor

 **aws educate** | Cloud Ambassador
2020 Cohort



Min-Yuh Day, Ph.D,
Professor

Institute of Information Management, National Taipei University

<https://web.ntpu.edu.tw/~myday>





國立臺北大學
National Taipei University



aws educate | Cloud Ambassador

2020 Cohort



Prof. Min-Yuh Day



Director, Information Management, NTPU

Director, Intelligent Financial Innovation Technology, IFIT Lab, IM, NTPU

Director, Fintech and Green Finance Center (FGFC), NTPU

Division Director, Sustainable Development, Sustainability Office, NTPU

Visiting Scholar, IIS, Academia Sinica

Ph.D., Information Management, NTU

Artificial Intelligence, Agentic AI, ESG and Green Financial Technology,
Big Data Analytics, Electronic Commerce



Course Syllabus

National Taipei University

Academic Year 114, 2nd Semester (Spring 2026)

- **Course Title: Artificial Intelligence in Finance and Quantitative Analysis**
- **Instructor: Min-Yuh Day**
- **Course Class: MBA, IM, NTPU (3 Credits, Elective)**
- **Details**
 - **EMI Course**
(3 Credits, Elective, One Semester) (M5147)
- **Time & Place: Tue, 5, 6, 7, (13:10-16:00) (B3F17)**
- **Google Meet: <https://meet.google.com/miy-fbif-max>**



<https://meet.google.com/miy-fbif-max>



Course Objectives

- 1. Understand the fundamental concepts and research issues of Artificial Intelligence in Finance and Quantitative Analysis.**
- 2. Equip with Hands-on practices of Artificial Intelligence in Finance and Quantitative Analysis.**
- 3. Conduct information systems research in the context of Artificial Intelligence in Finance and Quantitative Analysis.**

Course Outline

- This course introduces the **fundamental concepts, research issues, and hands-on practices of AI in Finance and Quantitative Analysis.**
- Topics include:
 1. Introduction to Artificial Intelligence in Finance and Quantitative Analysis
 2. AI in FinTech: Metaverse, Web3, DeFi, NFT, Generative AI and Agentic AI for Financial Innovation Applications
 3. Investing Psychology and Behavioral Finance
 4. Event Studies in Finance
 5. Finance Theory and Data-Driven Finance
 6. Financial Econometrics
 7. AI-First Finance
 8. Deep Learning in Finance; Reinforcement Learning in Finance; Generative AI and Agentic AI in Finance
 9. Algorithmic Trading; Risk Management; Trading Bot and Event-Based Backtesting
 10. Industry Practices of AI in Finance and Quantitative Analysis
 11. Case Study on AI in Finance and Quantitative Analysis

Core Competence

- **Exploring new knowledge in information technology, system development and application 80 %**
- **Internet marketing planning ability 10 %**
- **Thesis writing and independent research skills 10 %**

Four Fundamental Qualities

- **Professionalism**
 - **Creative thinking and Problem-solving 40 %**
 - **Comprehensive Integration 40 %**
- **Interpersonal Relationship**
 - **Communication and Coordination 10 %**
 - **Teamwork 5 %**
- **Ethics**
 - **Honesty and Integrity 0 %**
 - **Self-Esteem and Self-reflection 0 %**
- **International Vision**
 - **Caring for Diversity 0 %**
 - **Interdisciplinary Vision 5 %**

College Learning Goals

- **Ethics/Corporate Social Responsibility**
- **Global Knowledge/Awareness**
- **Communication**
- **Analytical and Critical Thinking**

Department Learning Goals

- **Information Technologies and System Development Capabilities**
- **Internet Marketing Management Capabilities**
- **Research capabilities**

Syllabus

Week	Date	Subject/Topics
1	2026/02/24	Introduction to Artificial Intelligence in Finance and Quantitative Analysis
2	2026/03/03	AI in FinTech: Metaverse, Web3, DeFi, NFT, Generative AI and Agentic AI for Financial Innovation Applications
3	2026/03/10	Investing Psychology and Behavioral Finance
4	2026/03/17	Event Studies in Finance
5	2026/03/24	Case Study on AI in Finance and Quantitative Analysis I
6	2026/03/31	Finance Theory and Data-Driven Finance

Syllabus

Week Date Subject/Topics

7 2026/04/07 Make-up holiday for NTPU Sports Day (No Classes)

8 2026/04/14 Midterm Project Report

9 2026/04/21 Financial Econometrics

10 2026/04/28 AI-First Finance

**11 2026/05/05 Industry Practices of AI in Finance and
Quantitative Analysis**

12 2026/05/12 Case Study on AI in Finance and Quantitative Analysis II

Syllabus

Week	Date	Subject/Topics
13	2026/05/19	Deep Learning in Finance; Reinforcement Learning in Finance; Generative AI and Agentic AI in Finance
14	2026/05/26	Algorithmic Trading; Risk Management; Trading Bot and Event-Based Backtesting
15	2026/06/02	Final Project Report I
16	2026/06/09	Final Project Report II

Teaching Methods and Activities

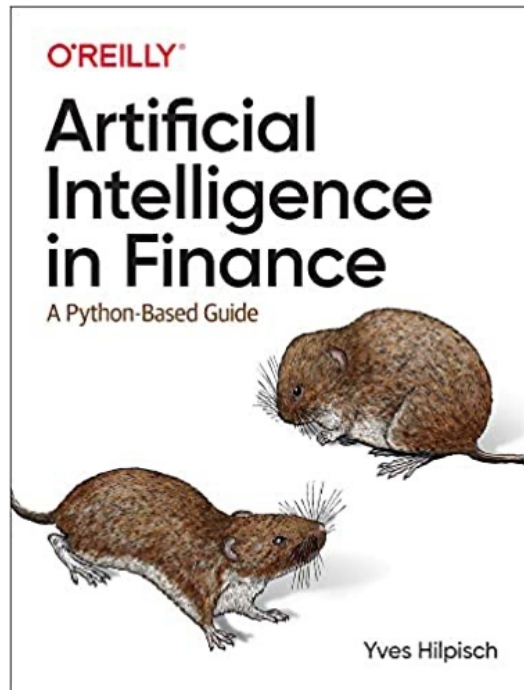
- **Lecture**
- **Discussion**
- **Practicum**

Evaluation Methods

- **Individual Presentation 60 %**
- **Group Presentation 10 %**
- **Case Report 10 %**
- **Class Participation 10 %**
- **Assignment 10 %**

Required Texts

- **Yves Hilpisch (2020),
Artificial Intelligence in Finance: A Python-Based Guide,
O'Reilly Media.**



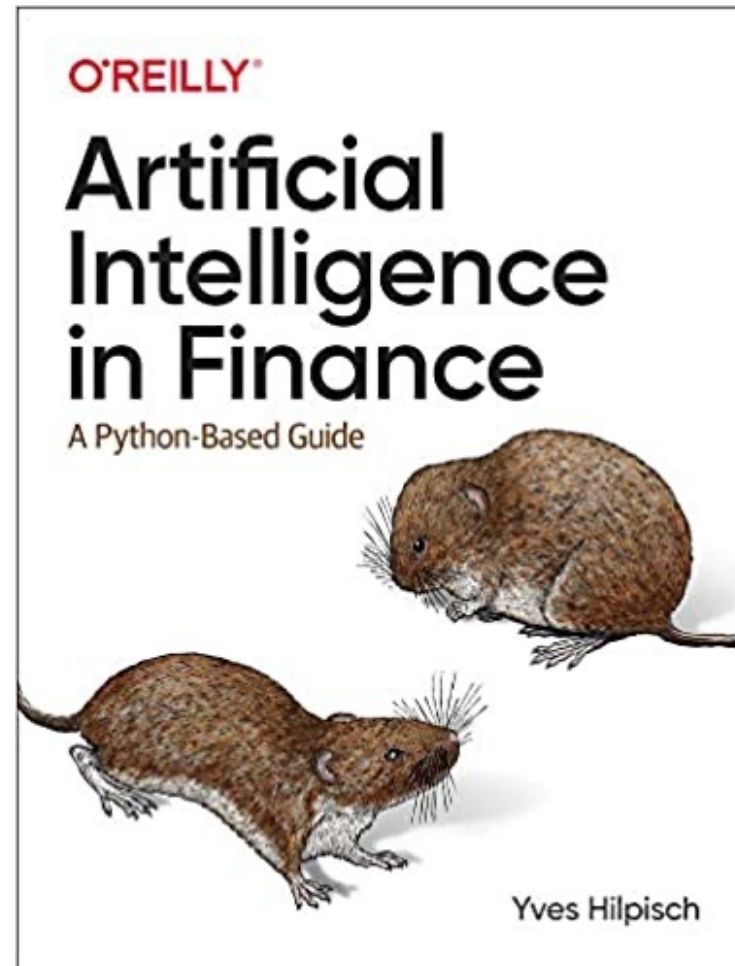
Reference Books

- **Stefan Jansen (2020), Machine Learning for Algorithmic Trading: Predictive models to extract signals from market and alternative data for systematic trading strategies with Python, 2nd Edition, Packt Publishing.**
- **Aurélien Géron (2022), Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow: Concepts, Tools, and Techniques to Build Intelligent Systems, 3rd Edition, O'Reilly Media.**
- **Hariom Tatsat, Sahil Puri, Brad Lookabaugh (2020), Machine Learning and Data Science Blueprints for Finance: From Building Trading Strategies to Robo-Advisors Using Python, O'Reilly Media**
- **Chris Kelliher (2022), Quantitative Finance With Python: A Practical Guide to Investment Management, Trading, and Financial Engineering, Chapman and Hall/CRC.**
- **Simon Thompson (2023), Green and Sustainable Finance: Principles and Practice in Banking, Investment and Insurance, 2nd Edition, Kogan Page.**
- **Cino Robin Castelli, Cyril Shmatov (2022), Quantitative Methods for ESG Finance, Wiley**
- **Abdullah Karasan (2021), Machine Learning for Financial Risk Management with Python: Algorithms for Modeling Risk, O'Reilly Media.**
- **Yves Hilpisch (2018), Python for Finance: Mastering Data-Driven Finance, 2nd Edition, O'Reilly Media.**
- **Denis Rothman (2024), Transformers for Natural Language Processing and Computer Vision - Third Edition: Explore Generative AI and Large Language Models with Hugging Face, ChatGPT, GPT-4V, and DALL-E 3, 3rd ed. Edition, Packt Publishing**
- **Thomas R. Caldwell (2025), The Agentic AI Bible: The Complete and Up-to-Date Guide to Design, Build, and Scale Goal-Driven, LLM-Powered Agents that Think, Execute and Evolve, Independently published**

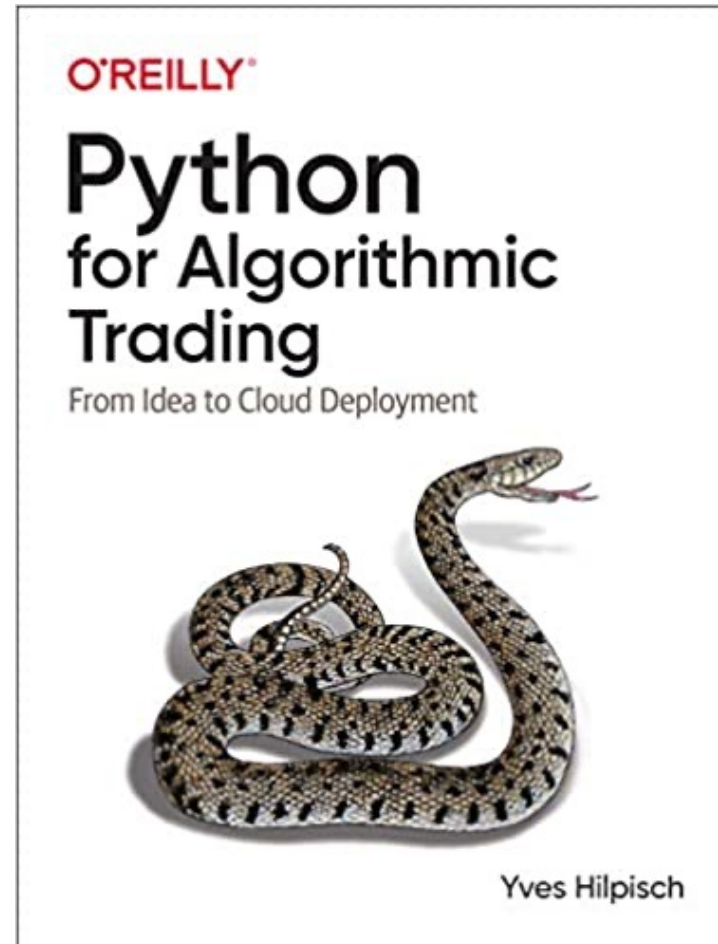
Other References

- **Paolo Sironi (2016), FinTech Innovation: From Robo-Advisors to Goal Based Investing and Gamification, Wiley.**
- **Yves Hilpisch (2020), Financial Theory with Python: A Gentle Introduction, O'Reilly Media.**
- **Yves Hilpisch (2020), Python for Algorithmic Trading: From Idea to Cloud Deployment, O'Reilly Media.**
- **Yuxing Yan (2017), Python for Finance: Apply powerful finance models and quantitative analysis with Python, Second Edition, Packt Publishing.**

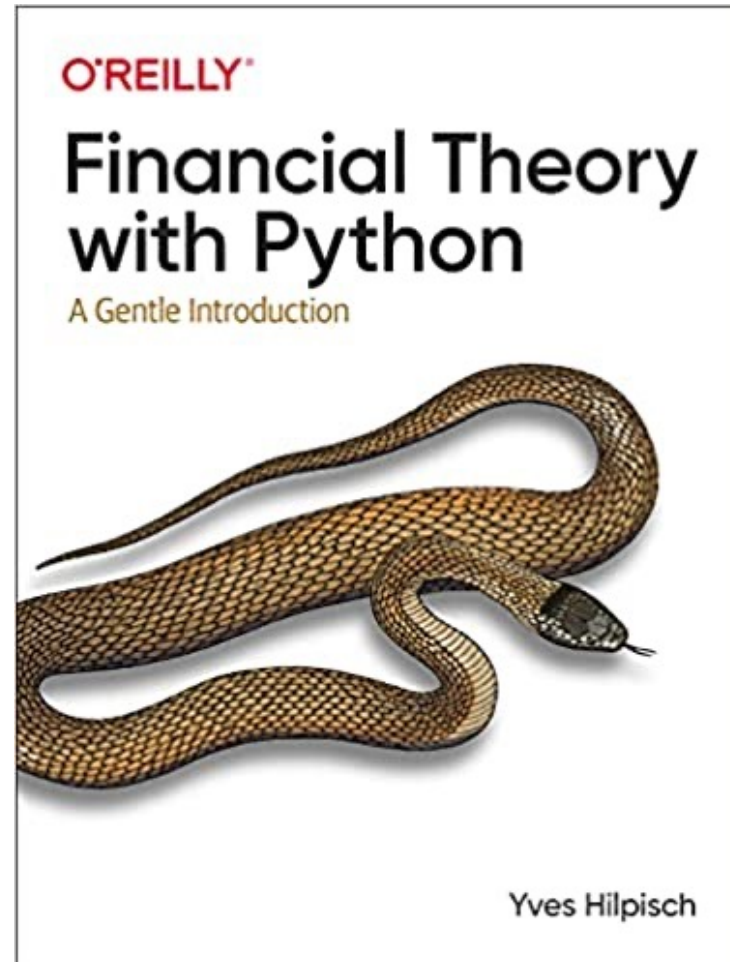
Yves Hilpisch (2020),
Artificial Intelligence in Finance:
A Python-Based Guide,
O'Reilly



Yves Hilpisch (2020),
Python for Algorithmic Trading:
From Idea to Cloud Deployment,
O'Reilly



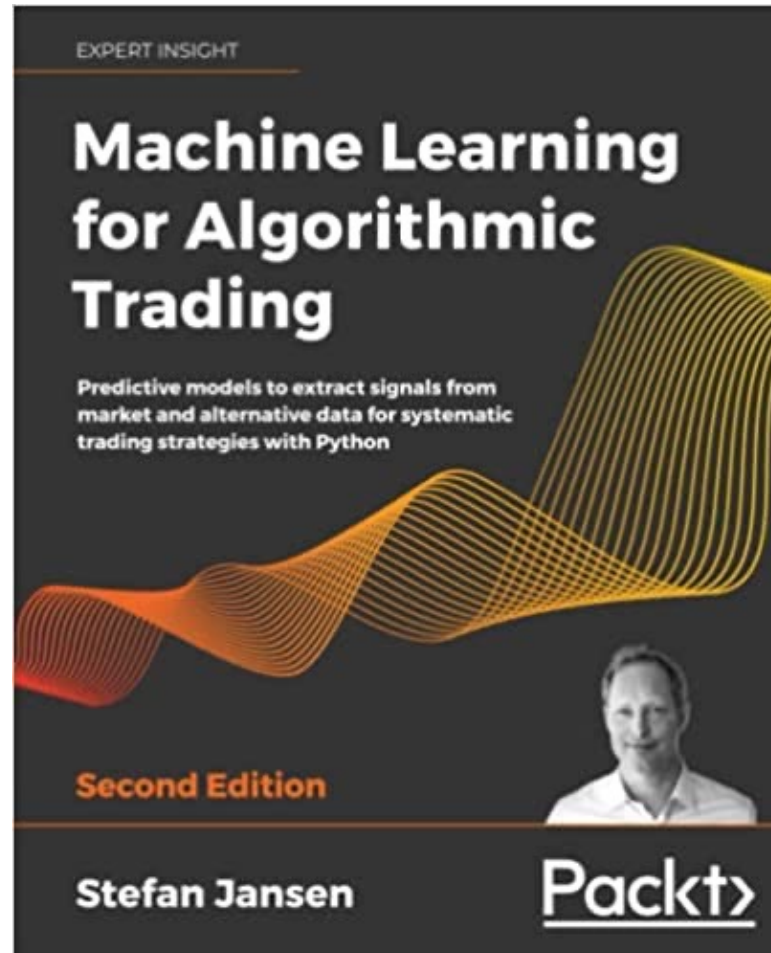
Yves Hilpisch (2021),
Financial Theory with Python:
A Gentle Introduction,
O'Reilly



Stefan Jansen (2020),

Machine Learning for Algorithmic Trading:

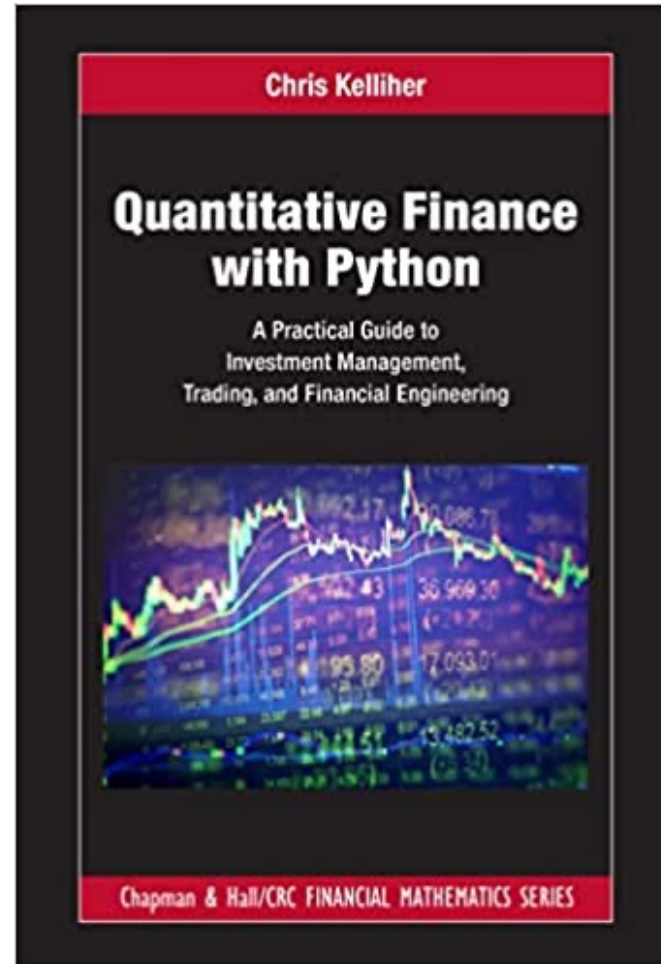
Predictive models to extract signals from market and alternative data for systematic trading strategies with Python, 2nd Edition,
Packt Publishing.



Chris Kelliher (2022),

Quantitative Finance With Python:

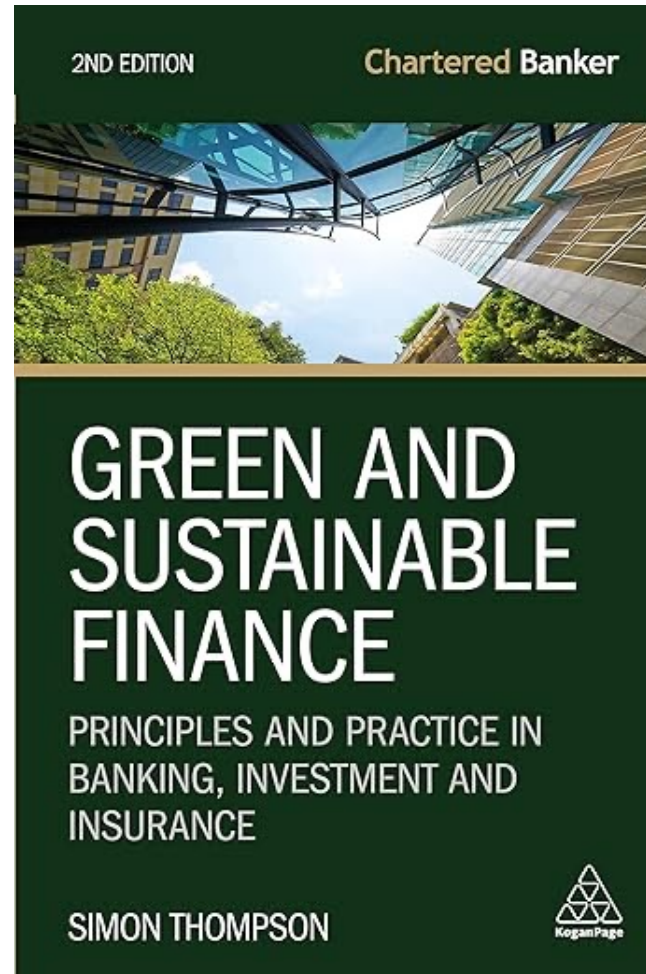
**A Practical Guide to Investment Management, Trading, and Financial Engineering,
Chapman and Hall/CRC.**



Simon Thompson (2023),

Green and Sustainable Finance:

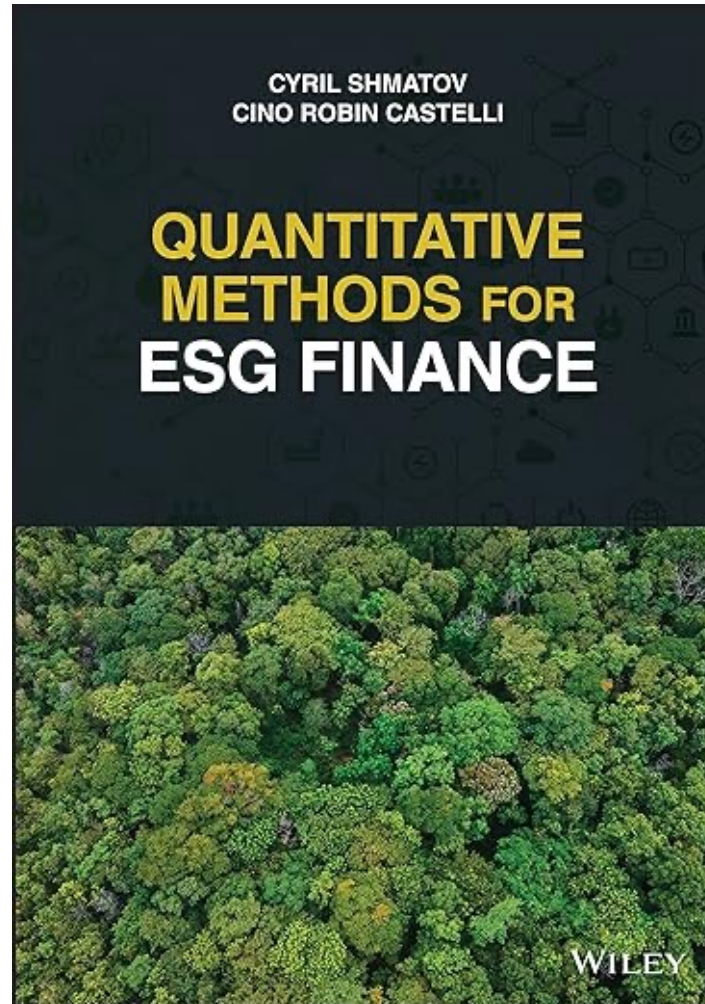
Principles and Practice in Banking, Investment and Insurance, 2nd Edition,
Kogan Page



Cino Robin Castelli, Cyril Shmatov (2022),

Quantitative Methods for ESG Finance,

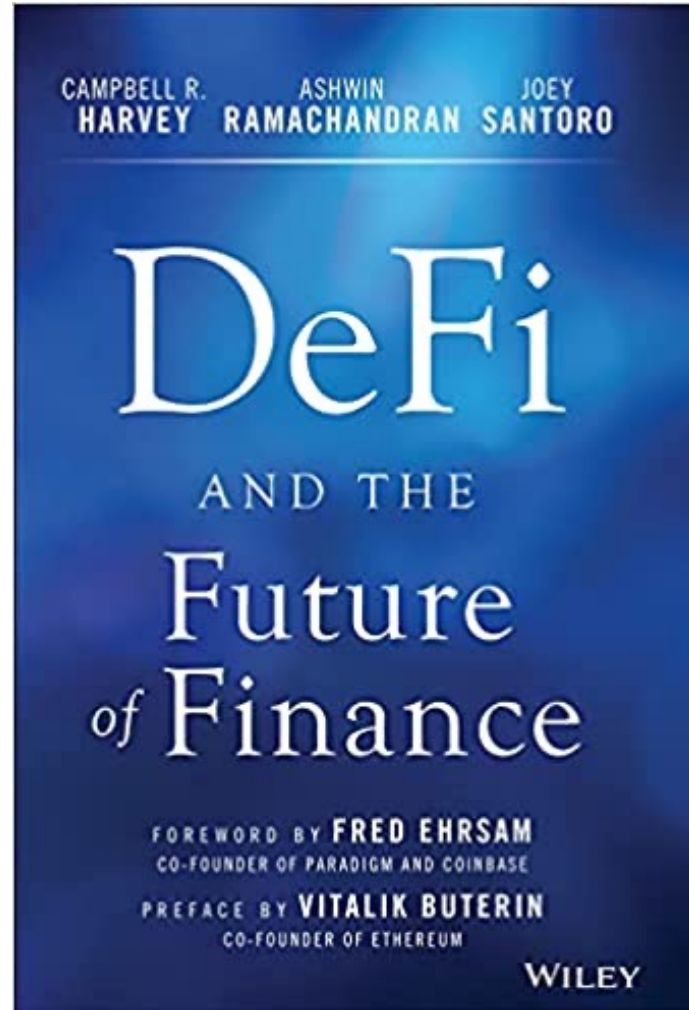
Wiley



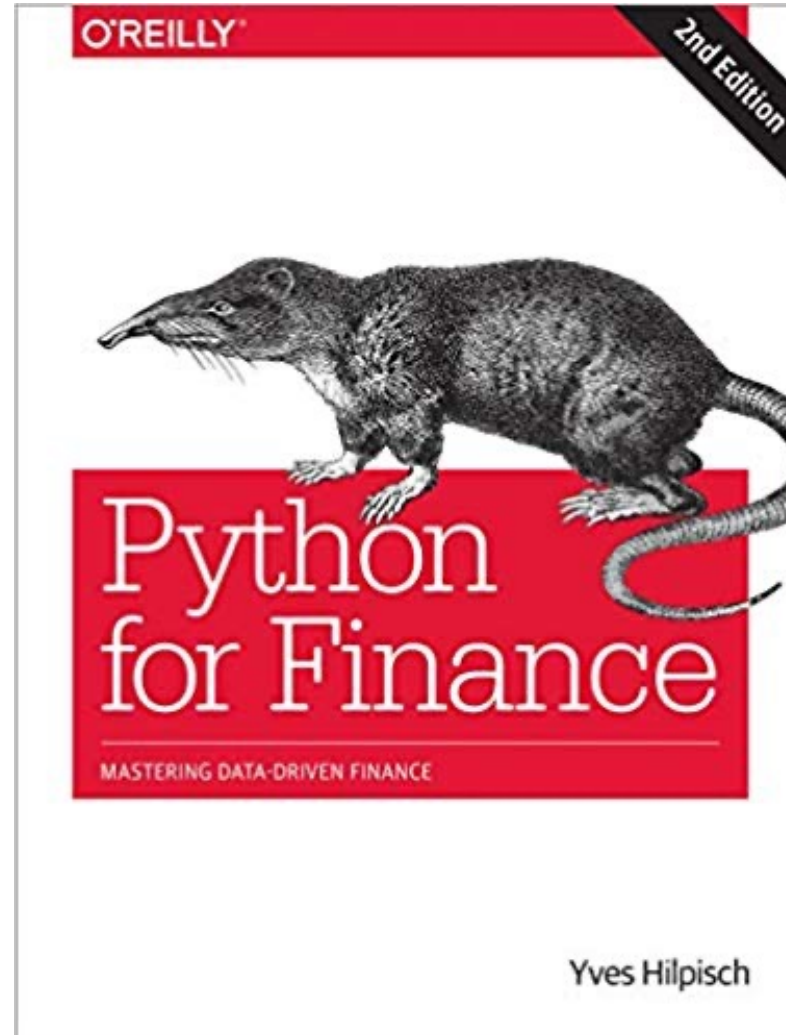
Campbell R. Harvey, Ashwin Ramachandran, Joey Santoro, Fred Ehrsam (2021),

DeFi and the Future of Finance,

Wiley



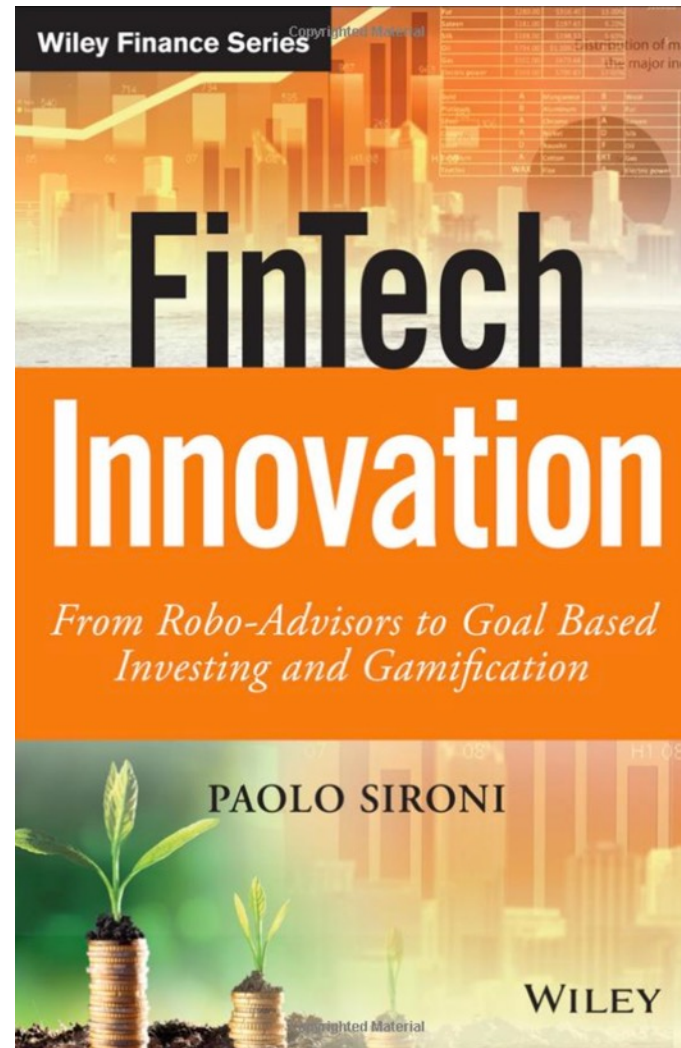
Yves Hilpisch (2018),
Python for Finance: Mastering Data-Driven Finance,
O'Reilly



Paolo Sironi (2016)

FinTech Innovation:

From Robo-Advisors to Goal Based Investing and Gamification,
Wiley



Doron Kliger and Gregory Gurevich (2014),
Event Studies for Financial Research:
A Comprehensive Guide,
Palgrave Macmillan



Yuxing Yan (2017),
**Python for Finance: Apply powerful finance models
and quantitative analysis with Python**, Second Edition,
Packt Publishing

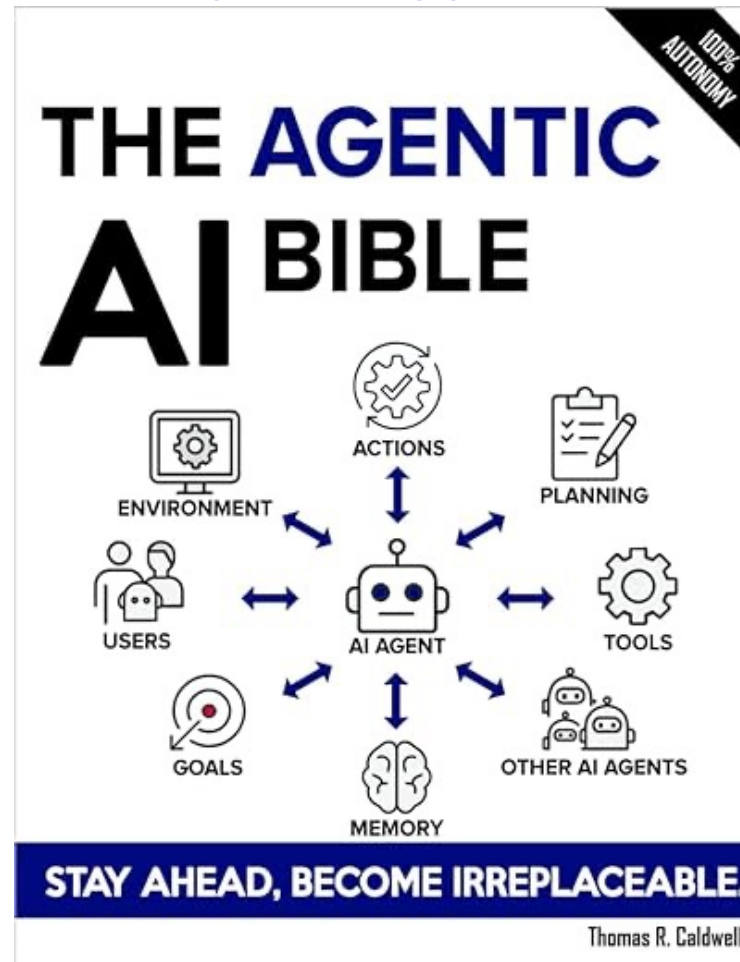


Thomas R. Caldwell (2025),

The Agentic AI Bible:

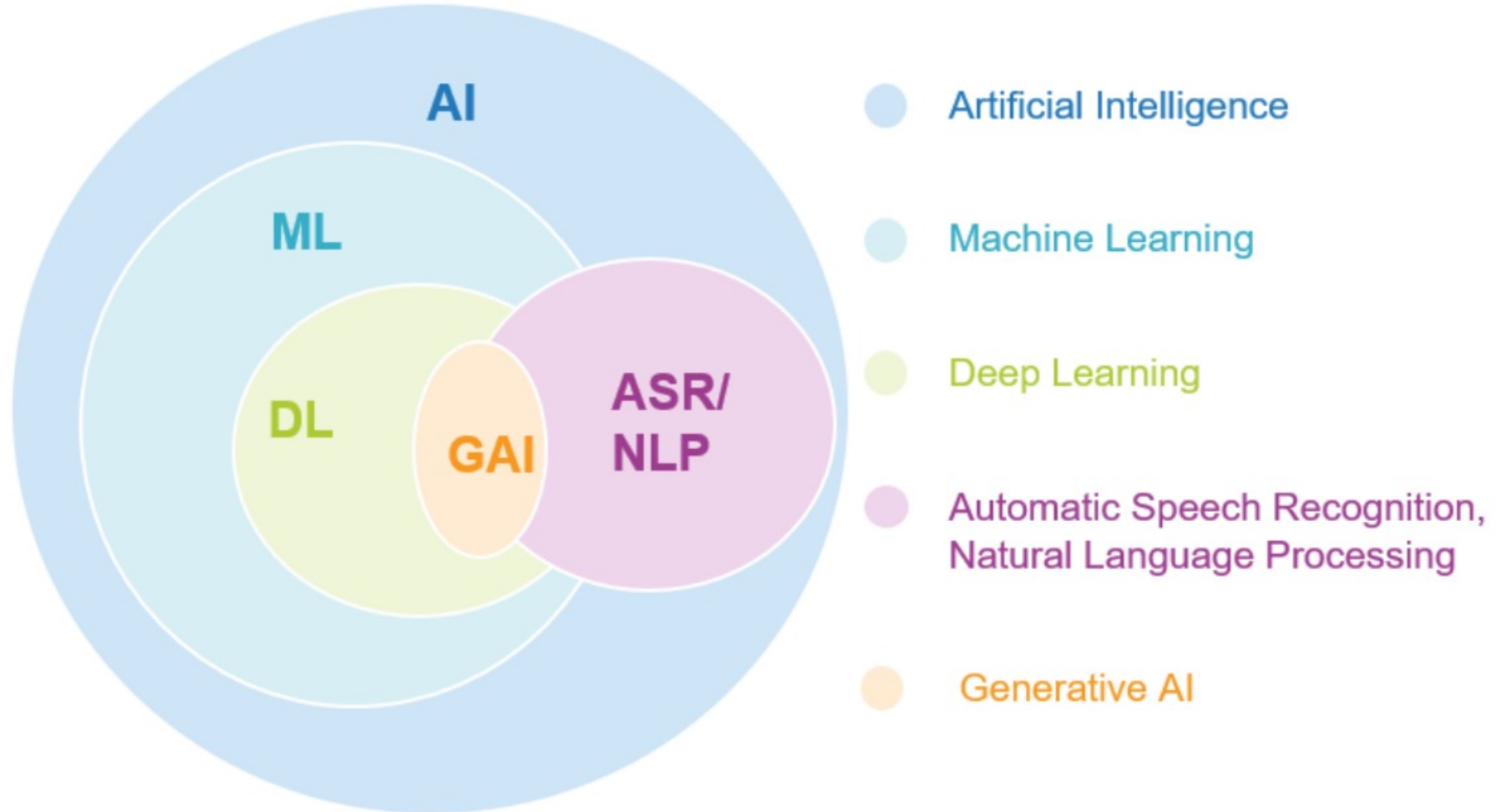
The Complete and Up-to-Date Guide to Design, Build, and Scale Goal-Driven, LLM-Powered Agents that Think, Execute and Evolve,

Independently published



Artificial Intelligence (AI)

AI, ML, DL, Generative AI



Generative AI, Agentic AI, Physical AI

Physical AI

Self-driving cars
General robotics

Agentic AI

Coding assistants
Customer service
Patient care

Generative AI

Digital marketing
Content creation

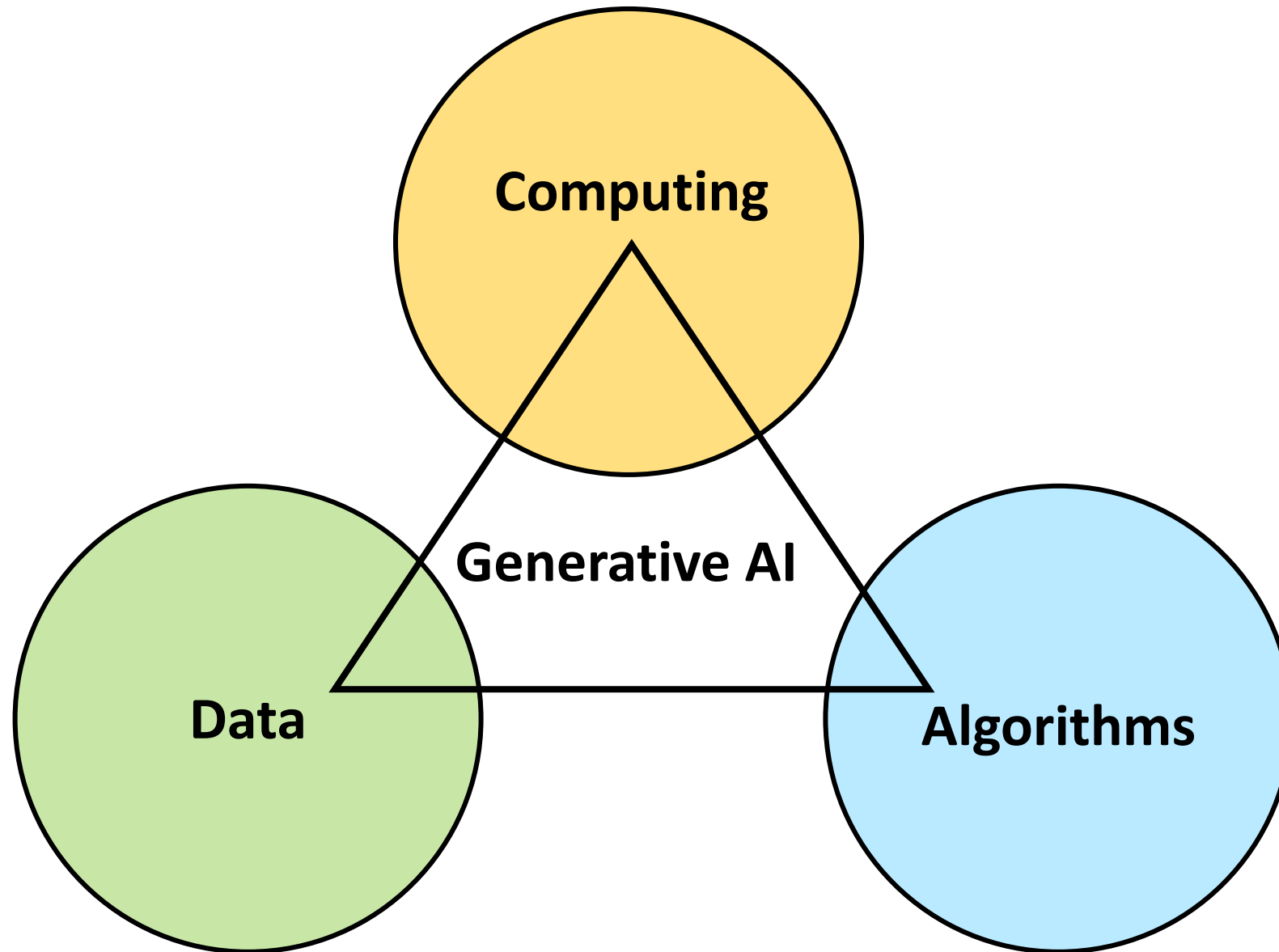
Perception AI

Speech recognition
Deep recommender systems
Medical imaging

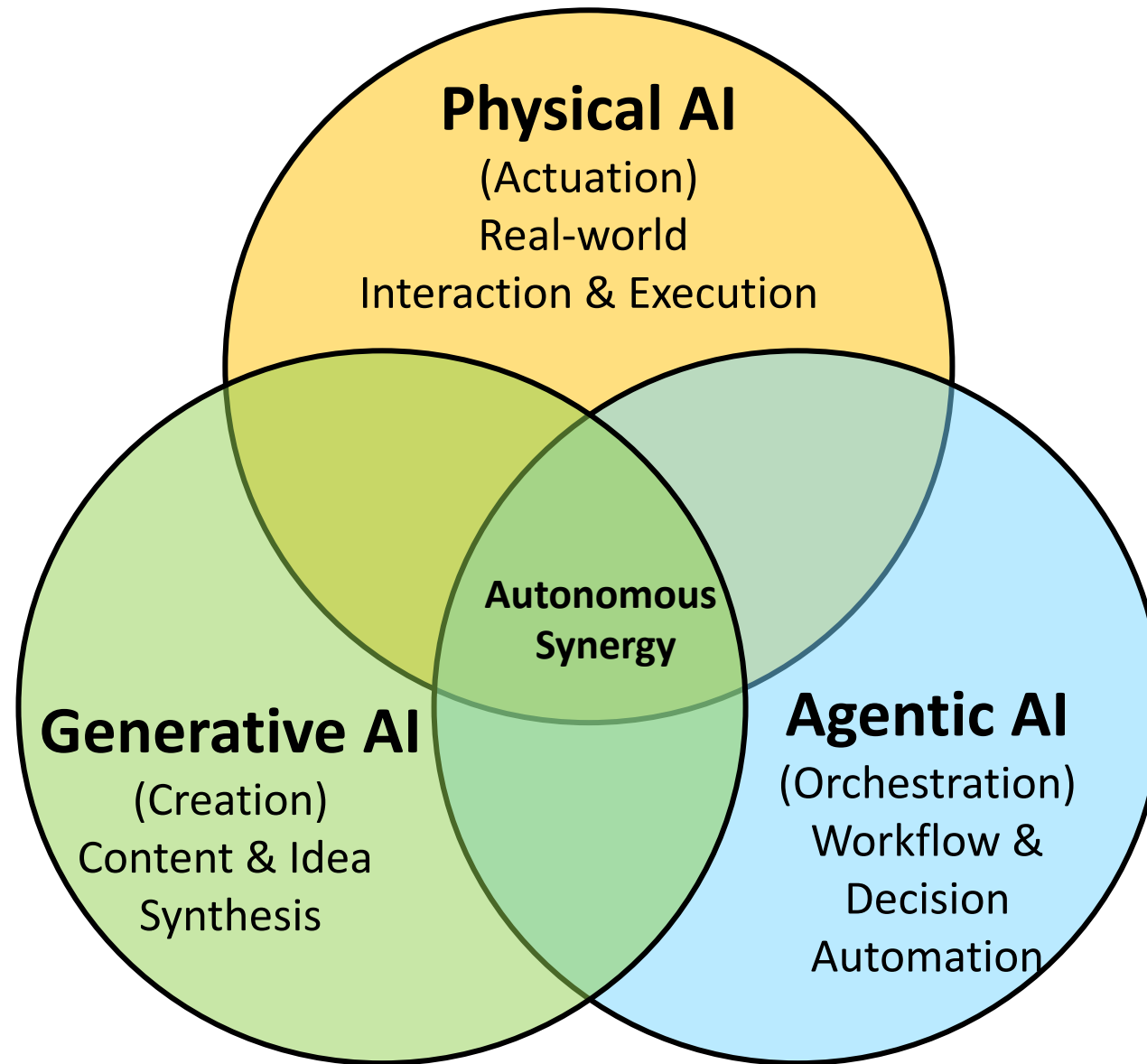
2012 AlexNet

Deep learning breakthrough

Generative AI



Generative AI, Agentic AI, Physical AI

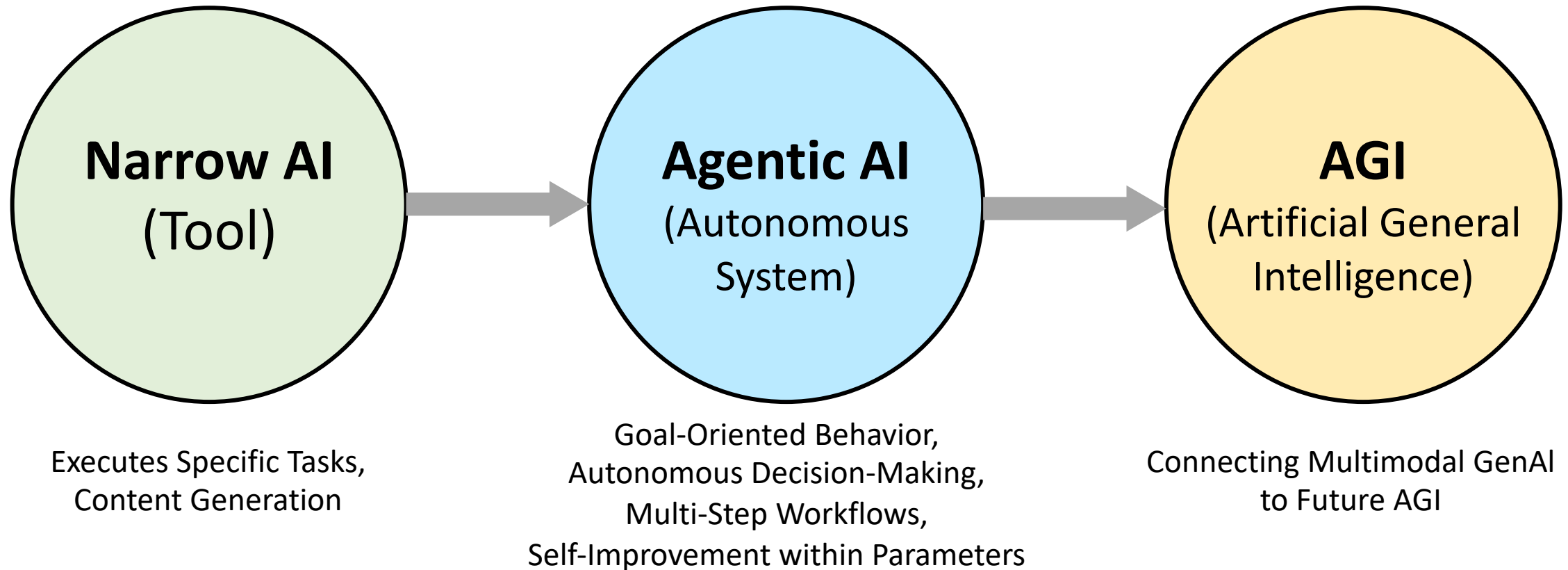


**New Economic
Paradigm Shift:
From Creation
to Execution**

The Future of AI

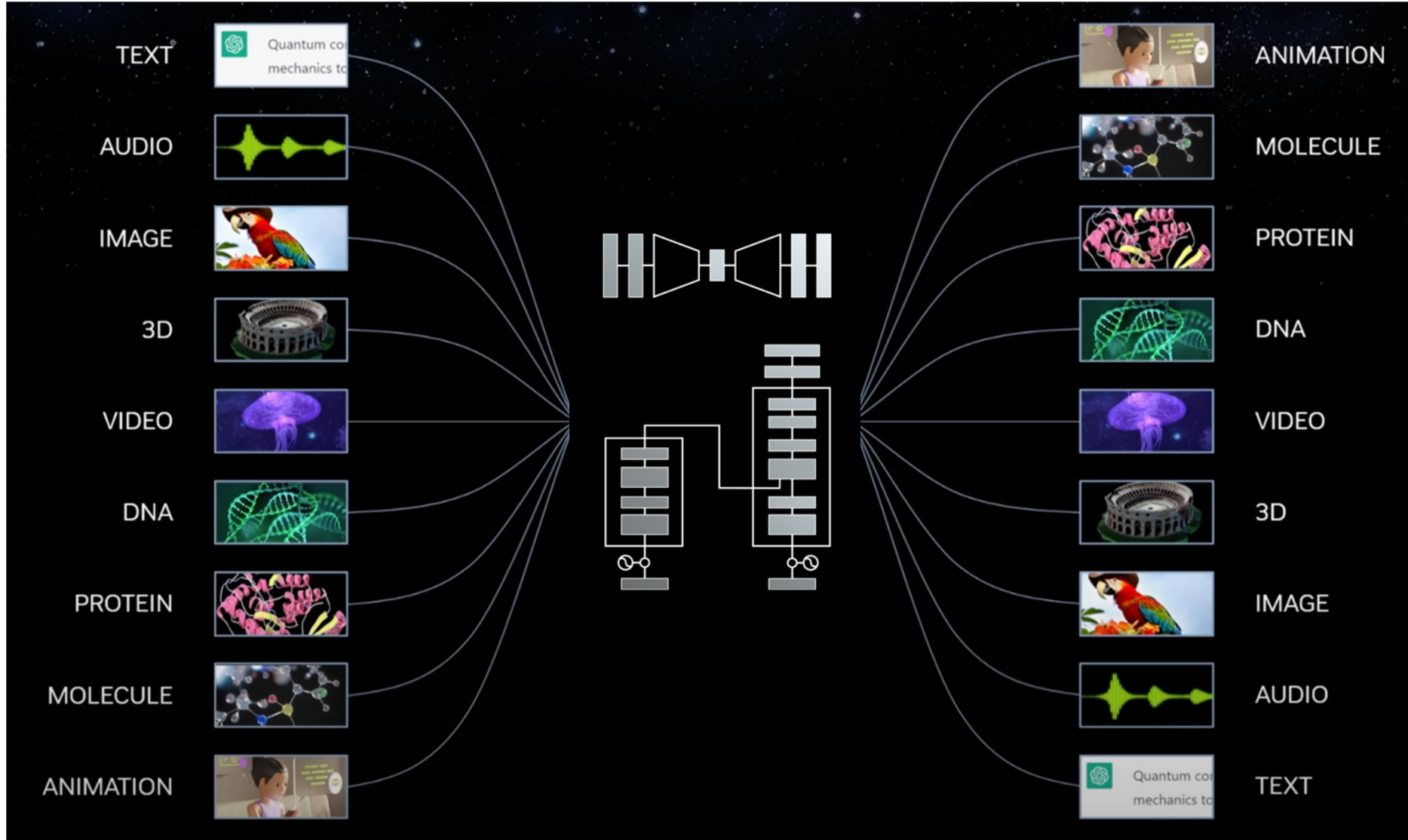
From Tools to Agents:

The Rise and Autonomy of Agentic AI

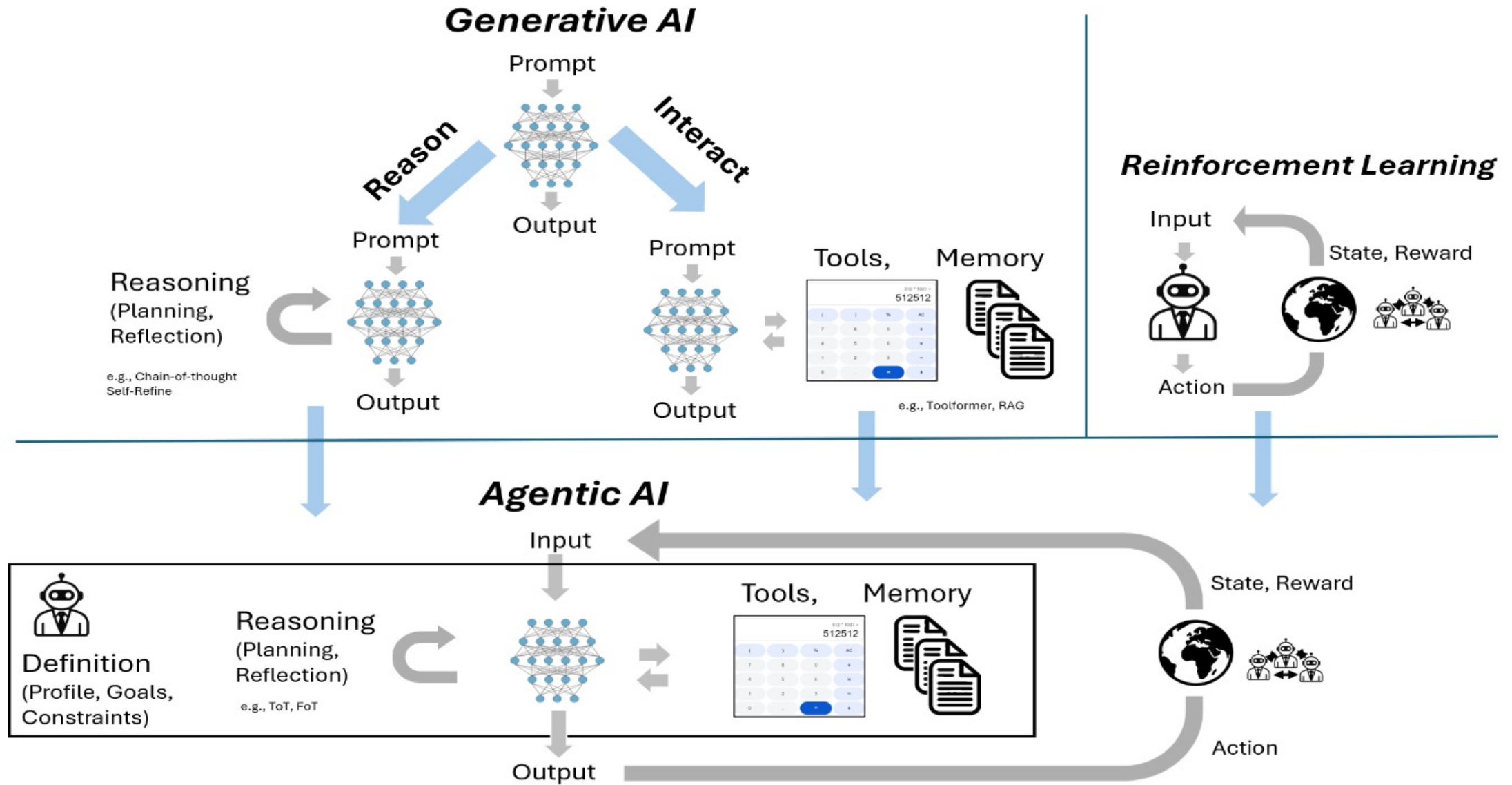


Modular Modalities

Where Can The Transformer Fit?



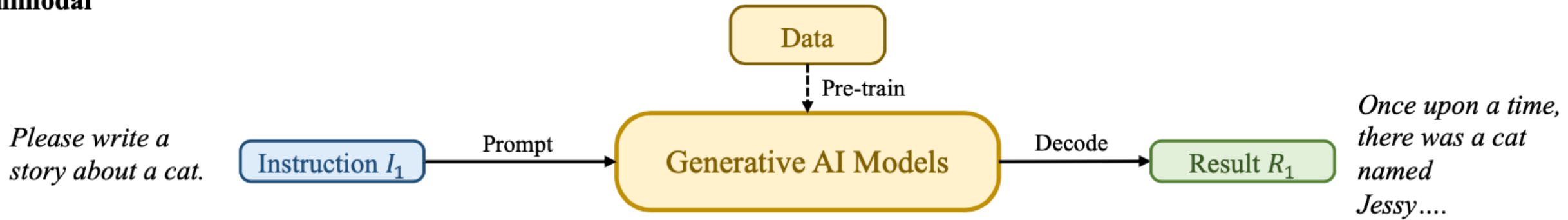
From Generative AI to Agentic AI



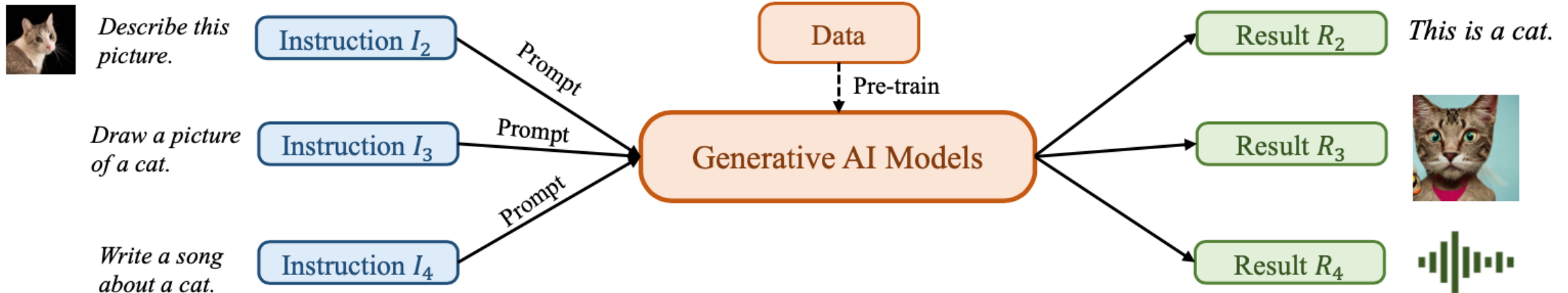
Generative AI (Gen AI)

AI Generated Content (AIGC)

Unimodal

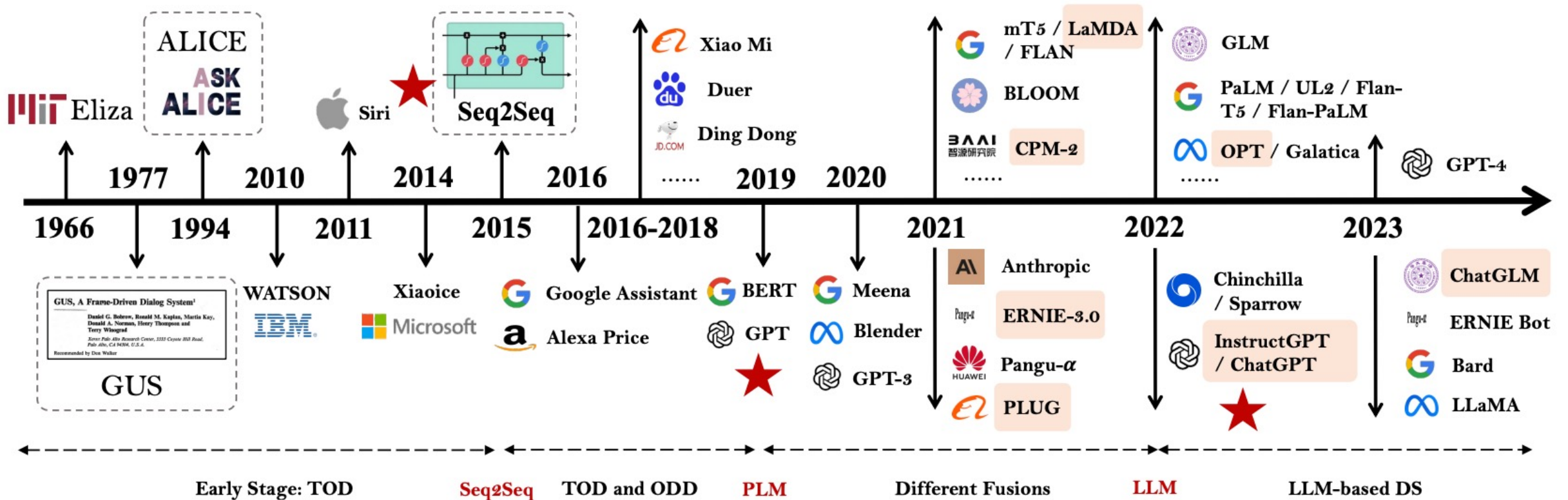


Multimodal



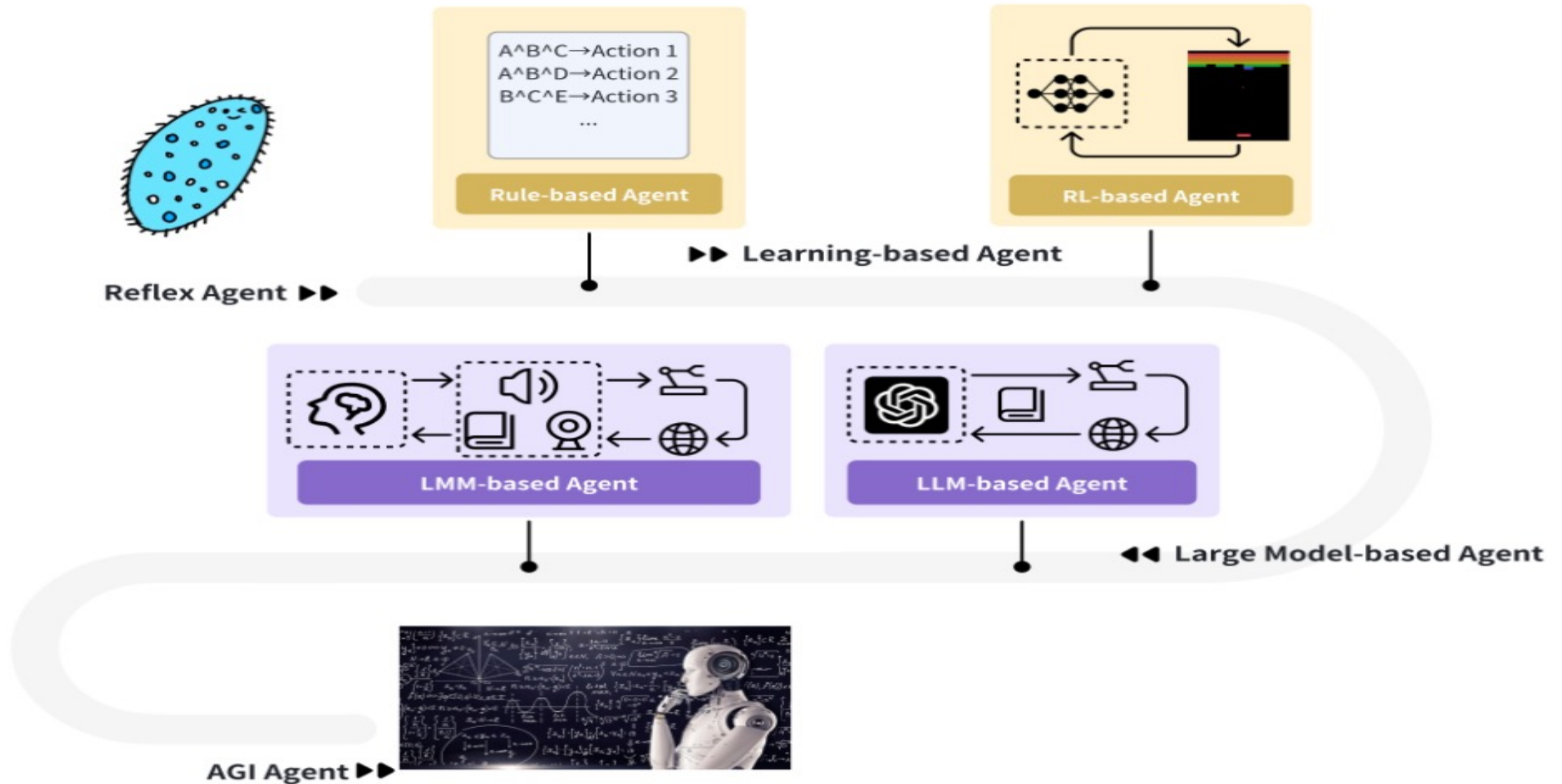
The Development of LM-based Dialogue Systems

- 1) Early Stage (1966 - 2015)
- 2) The Independent Development of TOD and ODD (2015 - 2019)
- 3) Fusions of Dialogue Systems (2019 - 2022)
- 4) LLM-based DS (2022 - Now)



Task-oriented DS (TOD), Open-domain DS (ODD)

Intelligent Agents Roadmap



AI Agents

- **Traditional AI Agents**

- **Simple reflex agents**
- **Model-based reflex agents**
- **Goal-based agents**
- **Utility-based agents**
- **Learning agents**

- **Evolution of AI Agents**

- **LLM-based Agents**
- **Multi-modal agents**
- **Embodied AI agents in virtual environments**
- **Collaborative AI agents**

Definition of Artificial Intelligence (A.I.)

Artificial Intelligence

**“... the science and
engineering
of
making
intelligent machines”**

(John McCarthy, 1955)

Artificial Intelligence

**“... technology that
thinks and acts
like humans”**

Artificial Intelligence

**“... intelligence
exhibited by machines
or software”**

4 Approaches of AI

Thinking Humanly	Thinking Rationally
Acting Humanly	Acting Rationally

4 Approaches of AI

<p>2. Thinking Humanly: The Cognitive Modeling Approach</p>	<p>3. Thinking Rationally: The “Laws of Thought” Approach</p>
<p>1. Acting Humanly: The Turing Test Approach (1950)</p>	<p>4. Acting Rationally: The Rational Agent Approach</p>

AI Acting Humanly: The Turing Test Approach

(Alan Turing, 1950)

- Knowledge Representation
- Automated Reasoning
- Machine Learning (ML)
 - Deep Learning (DL)
- Computer Vision (Image, Video)
- Natural Language Processing (NLP)
- Robotics

FinTech

Financial Technology

Financial Technology

FinTech

**“providing
financial services
by making use of
software and
modern technology”**

Financial Revolution with Fintech

A financial services revolution

Consumer Trends



1. Simplification



2. Transparency



3. Analytics



4. Reduced Friction

FinTech: Financial Services Innovation



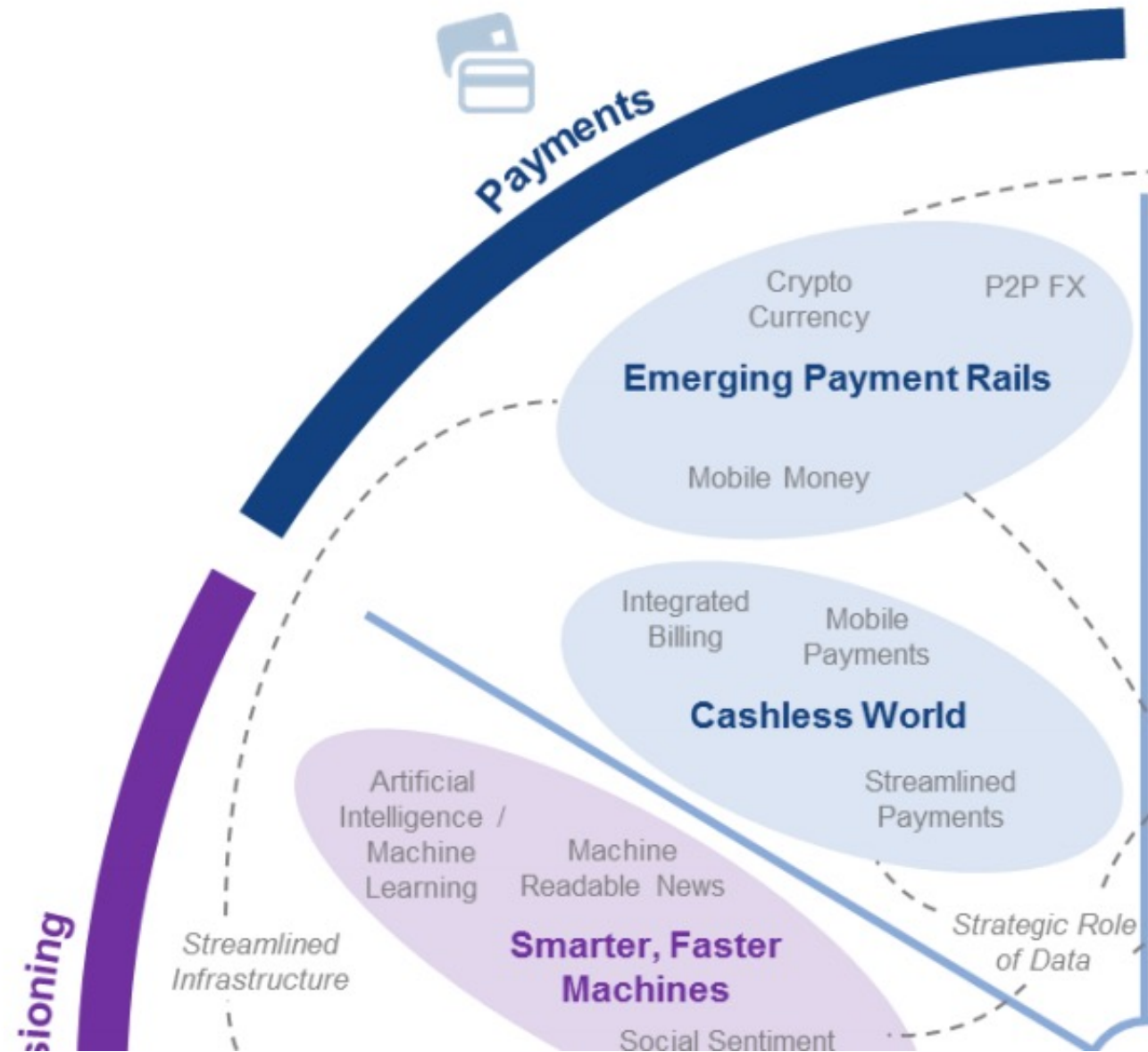
FinTech:

Financial Services Innovation

- 1. Payments**
- 2. Insurance**
- 3. Deposits & Lending**
- 4. Capital Raising**
- 5. Investment Management**
- 6. Market Provisioning**

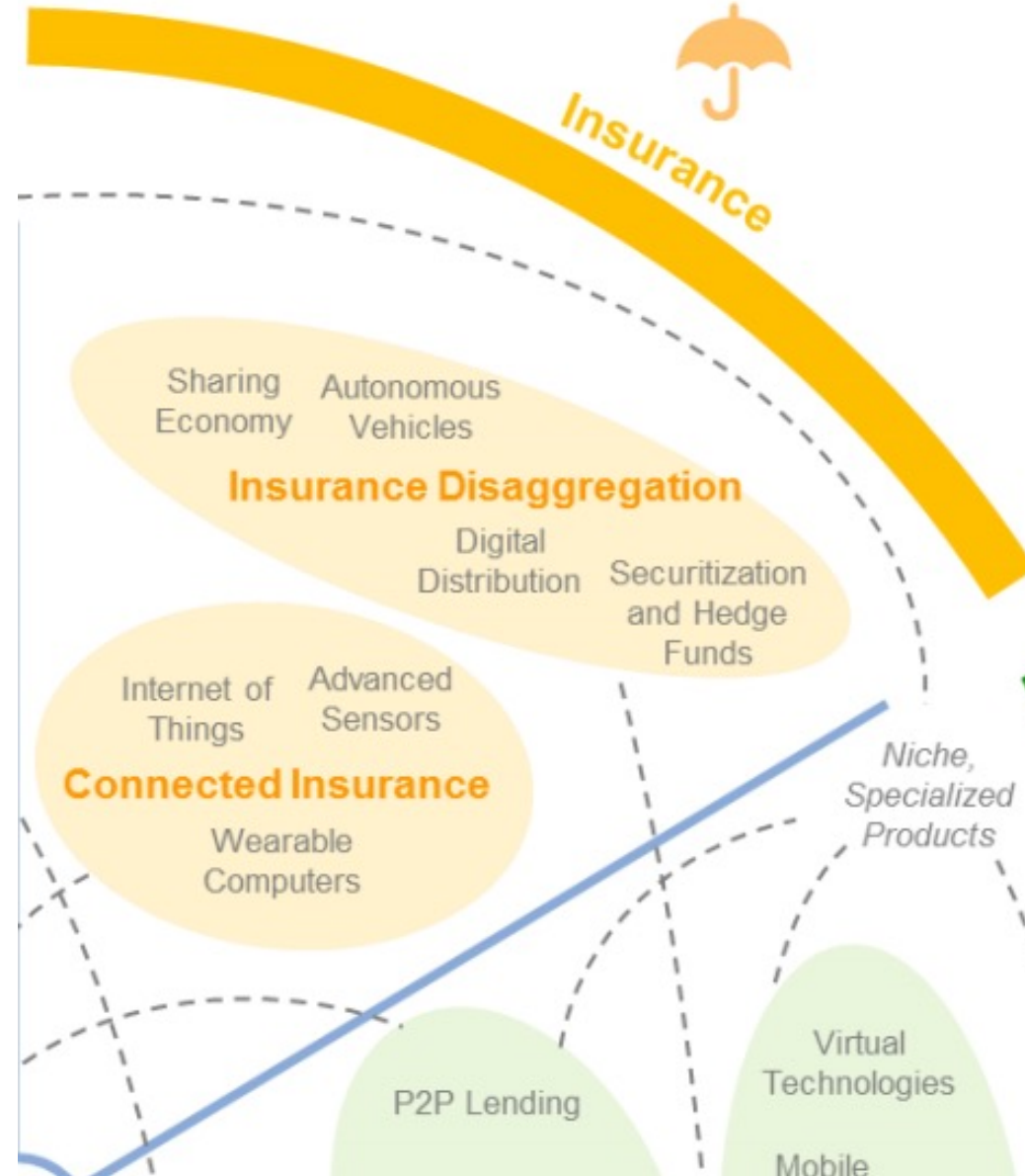
1

FinTech: Payment



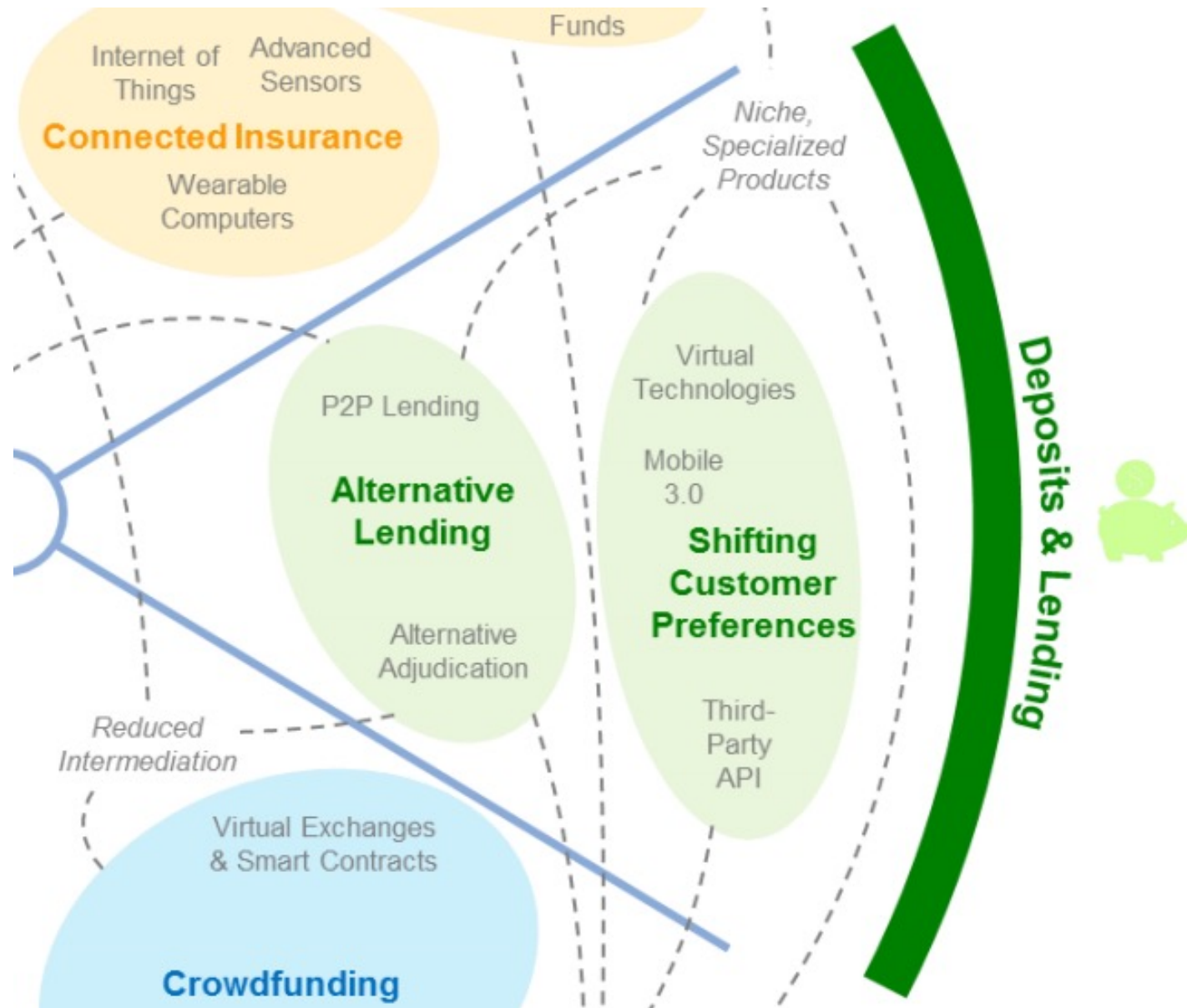
2

FinTech: Insurance



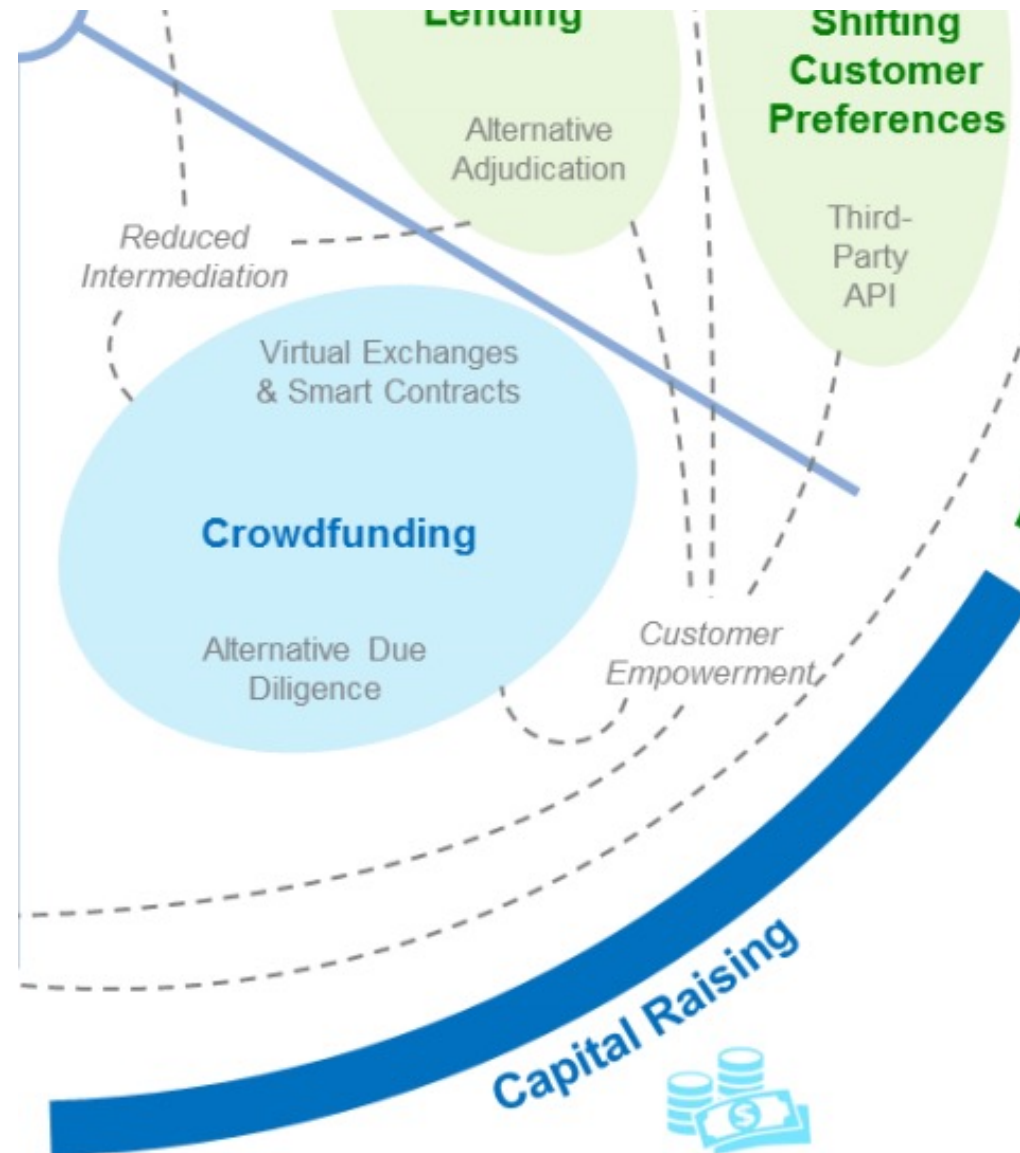
3

FinTech: Deposits & Lending

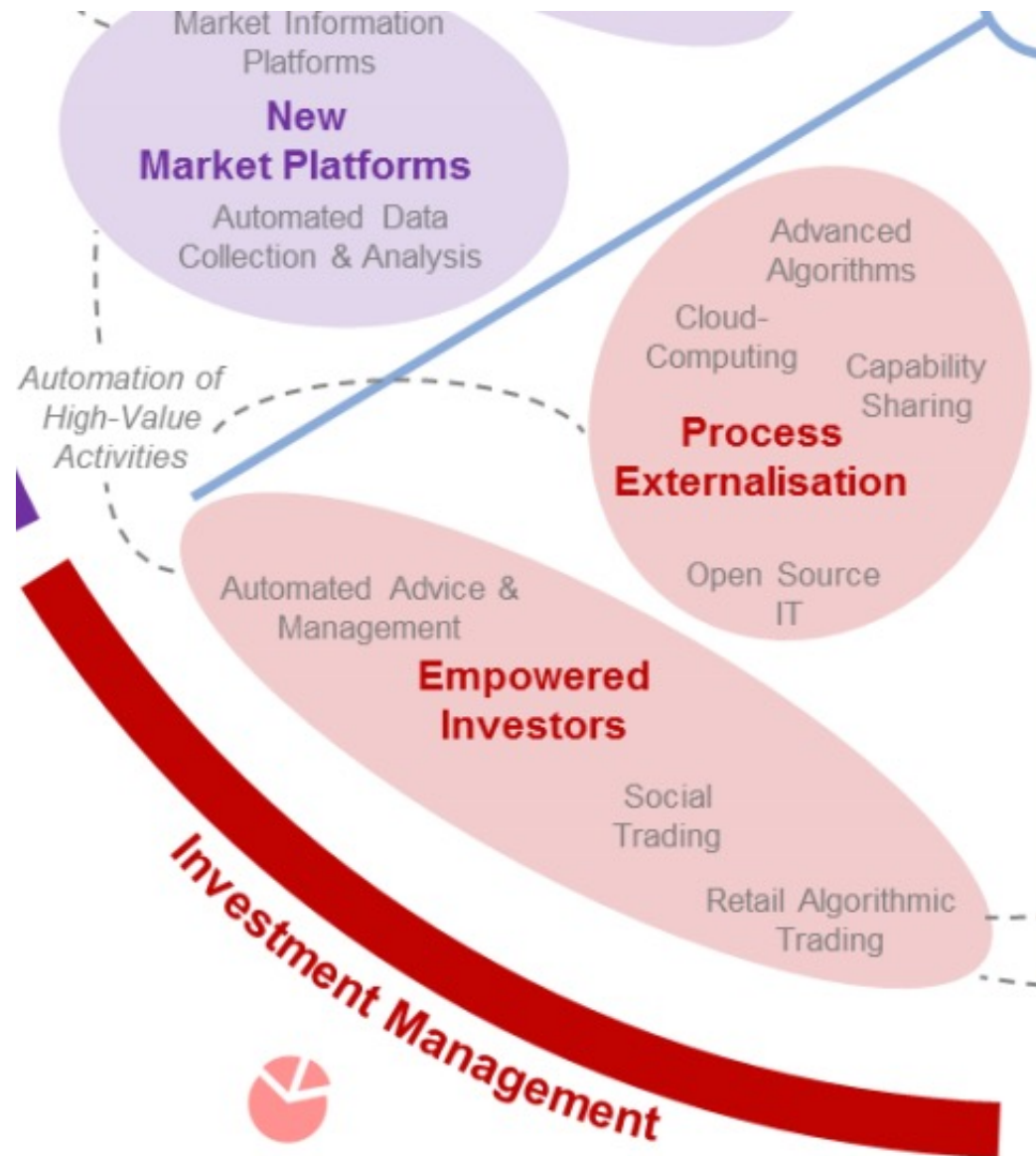


4

FinTech: Capital Raising

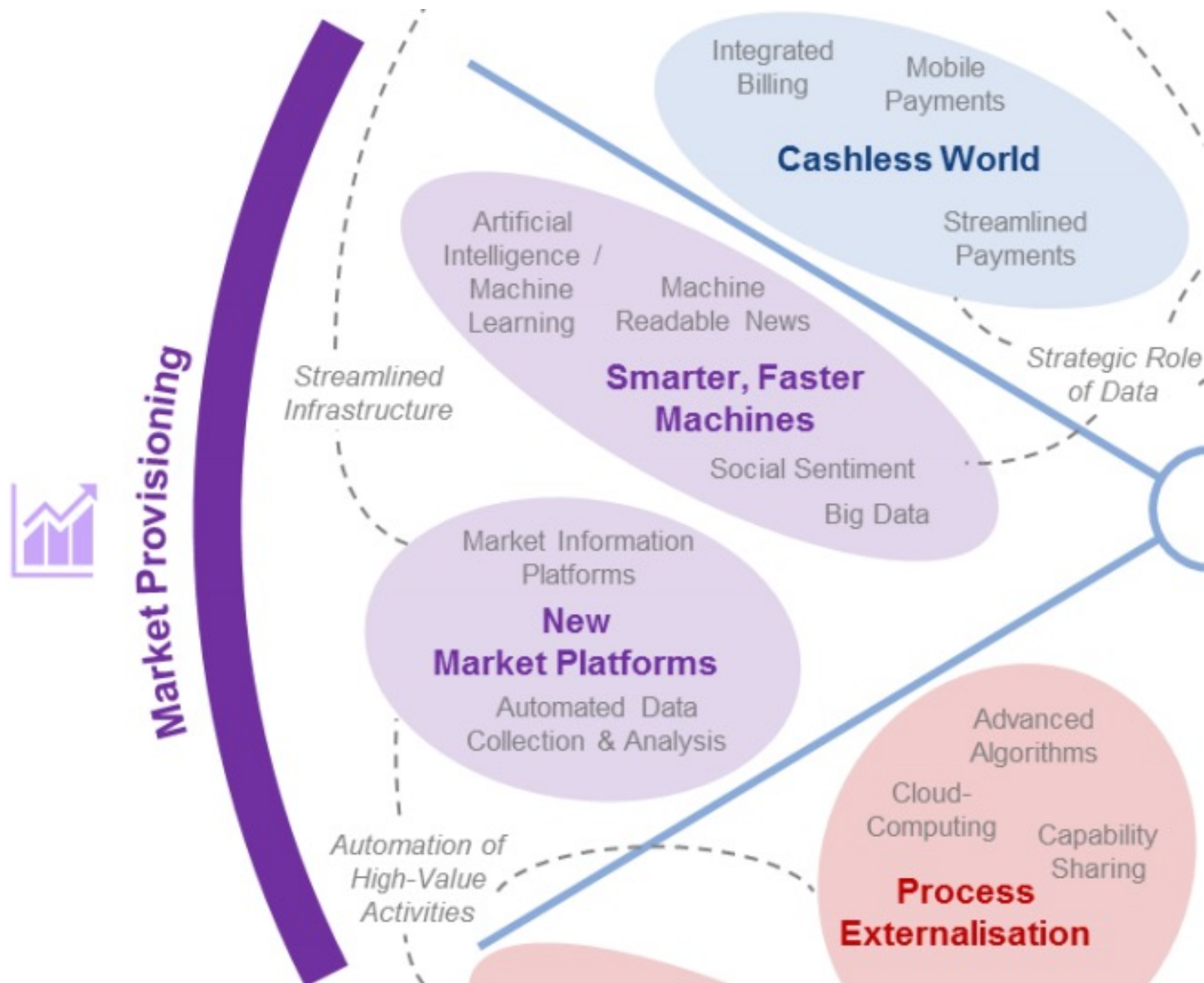


5 FinTech: Investment Management



6

FinTech: Market Provisioning



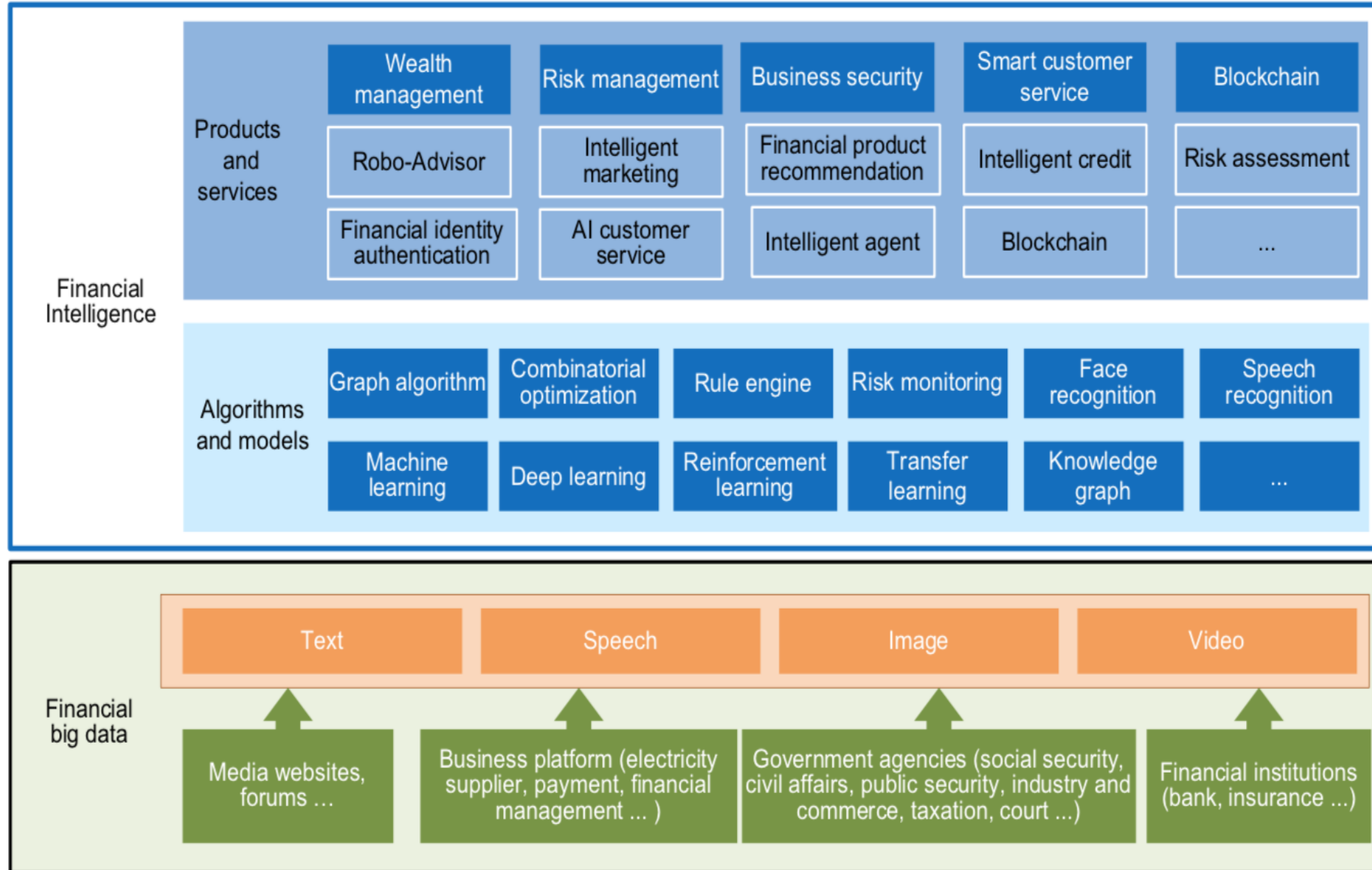
AI

in

FinTech

FinBrain: when Finance meets AI 2.0

(Zheng et al., 2019)



Source: Xiao-lin Zheng, Meng-ying Zhu, Qi-bing Li, Chao-chao Chen, and Yan-chao Tan (2019), "Finbrain: When finance meets AI 2.0." Frontiers of Information Technology & Electronic Engineering 20, no. 7, pp. 914-924

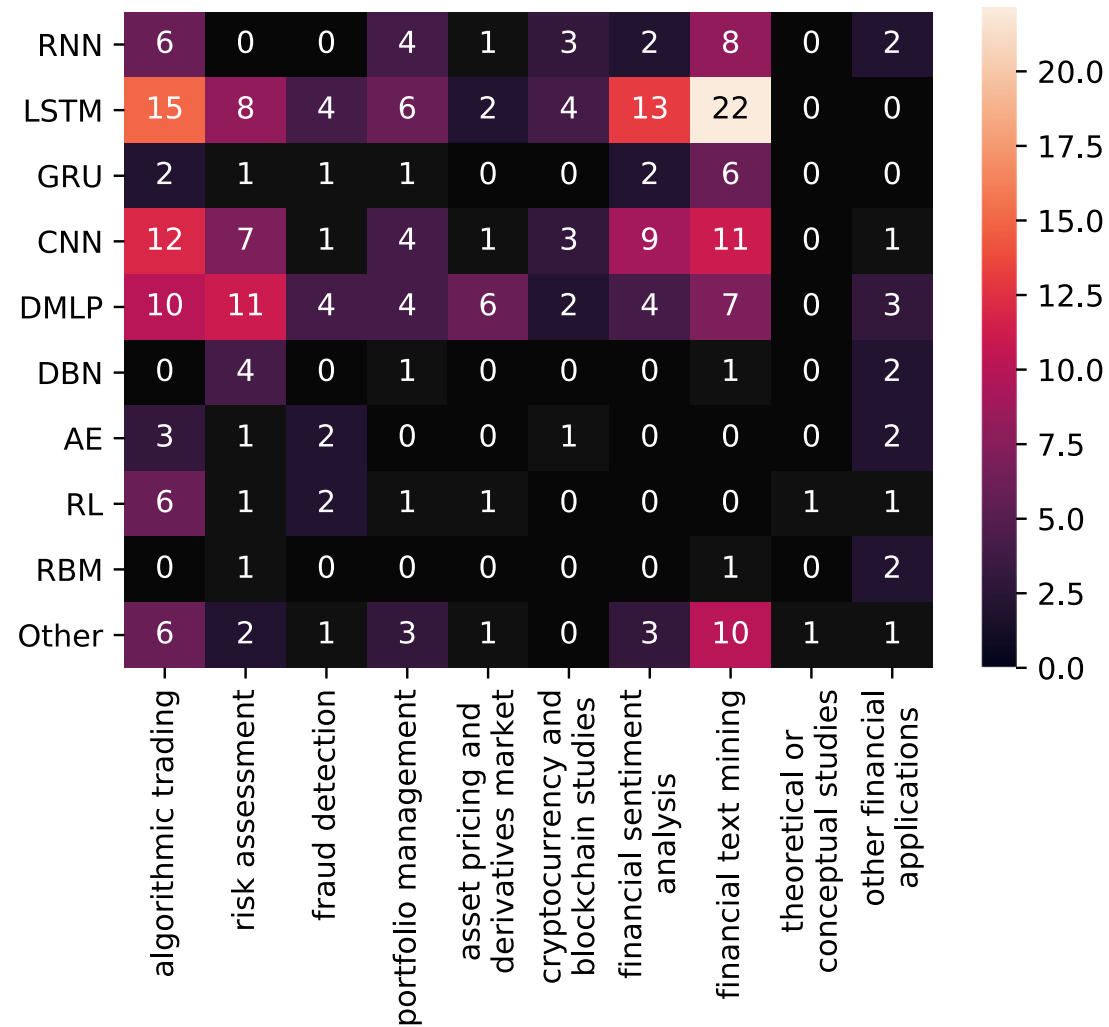
AI 2.0

**a new generation of AI
based on the
novel information environment of
major changes and
the development of
new goals.**

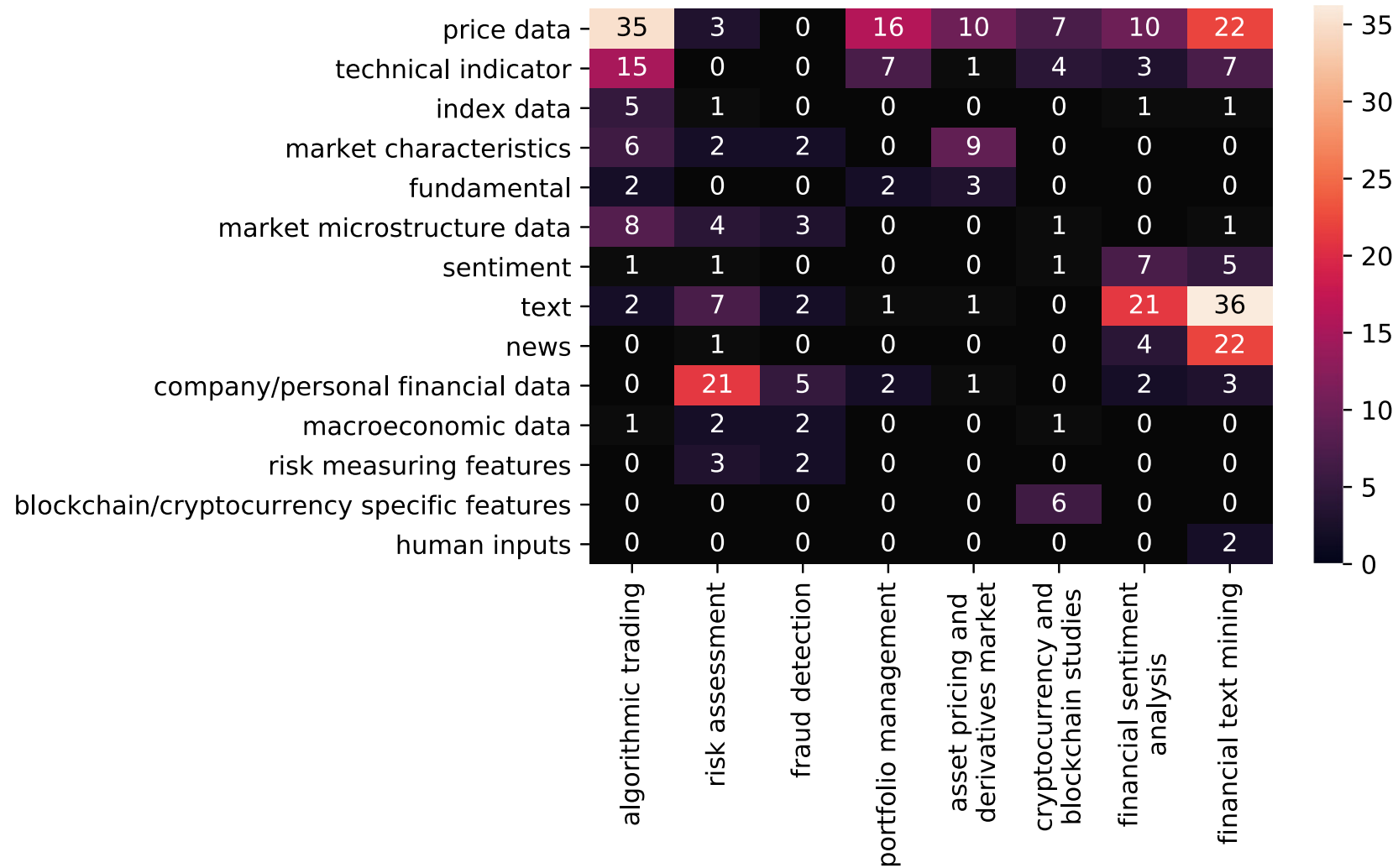
Technology-driven Financial Industry Development

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)	AI, Big Data, Cloud Computing, Blockchain	Intelligent finance	High	Deep fusion

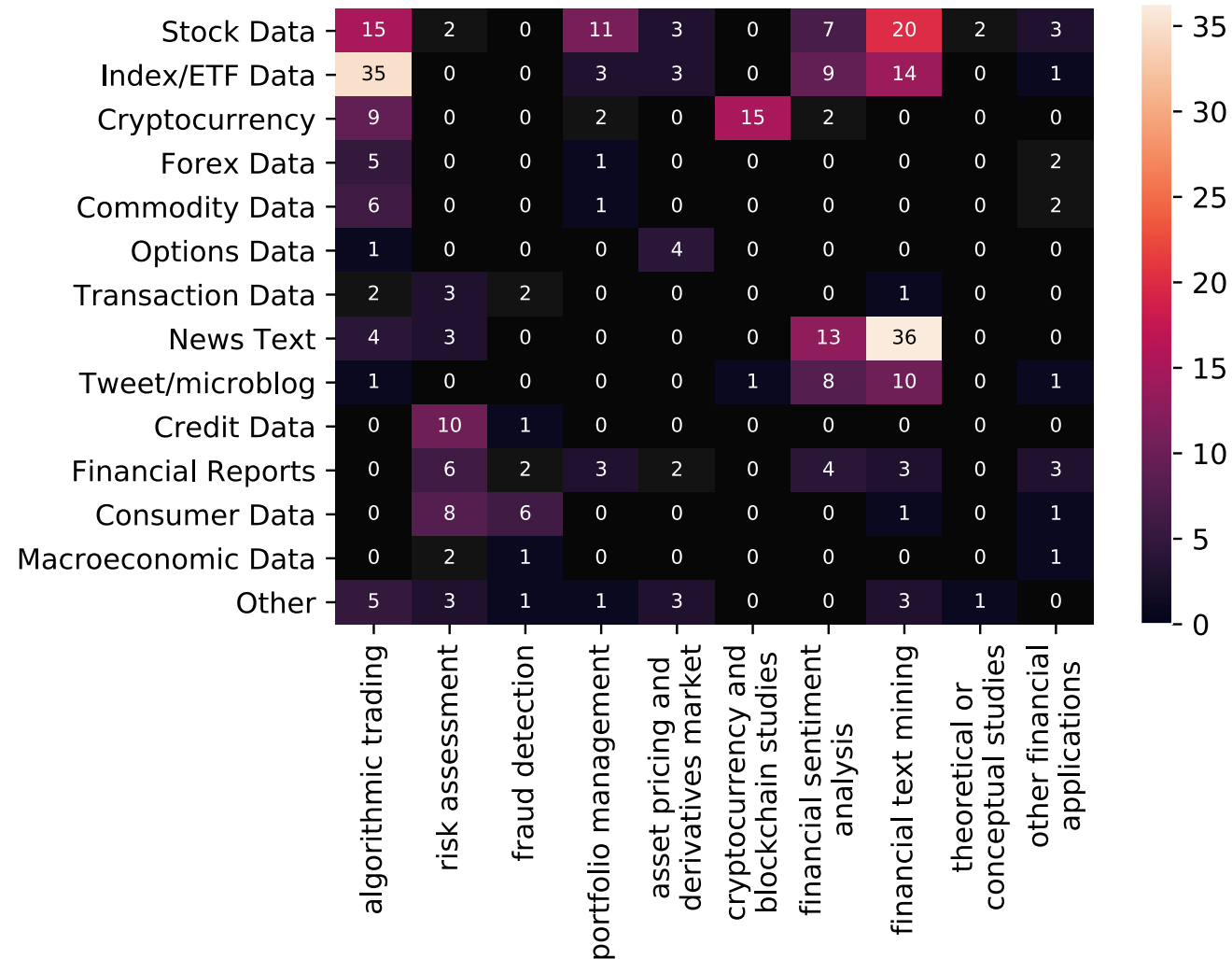
Deep learning for financial applications: Topic-Model Heatmap



Deep learning for financial applications: Topic-Feature Heatmap

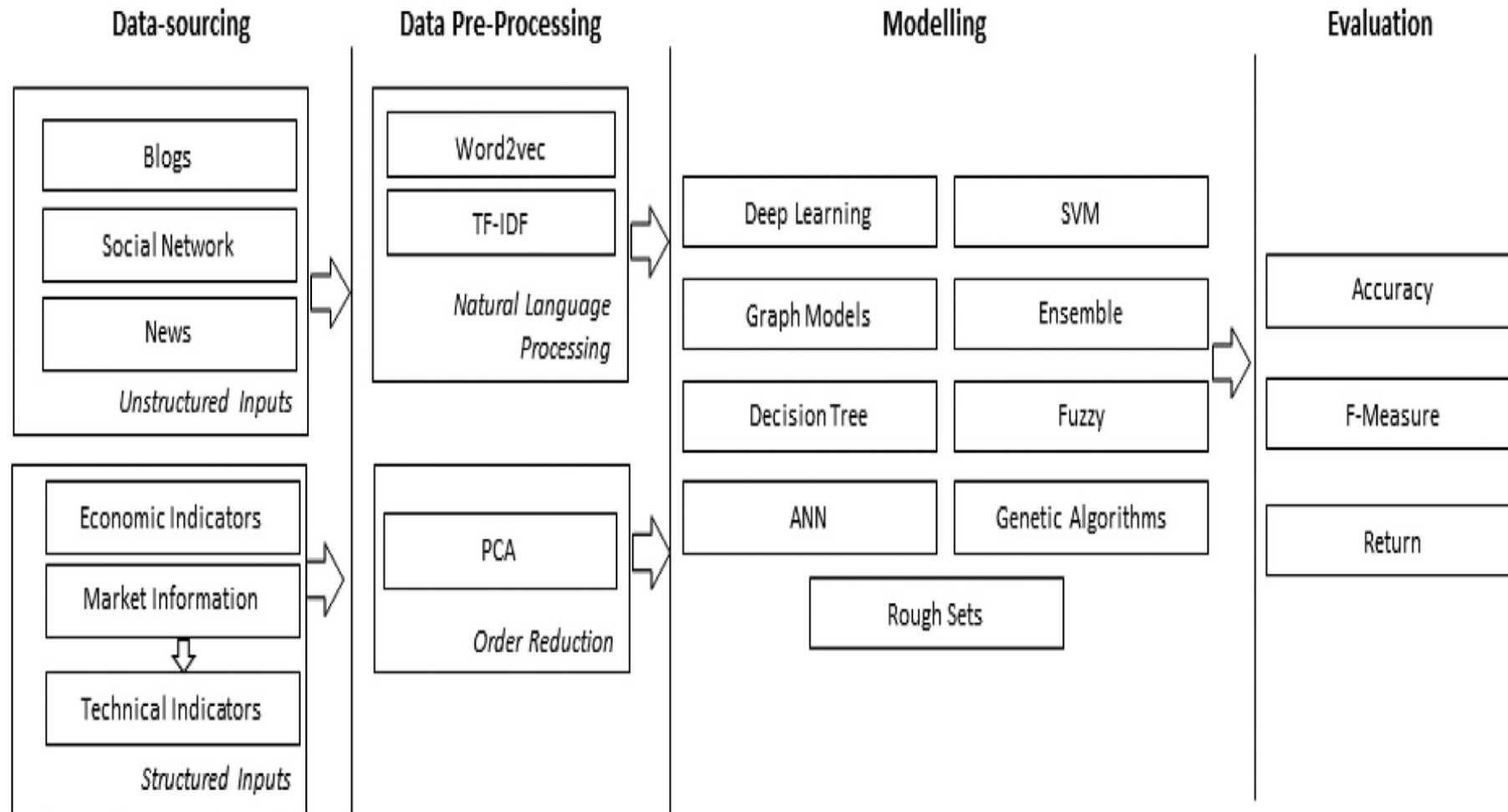


Deep learning for financial applications: Topic-Dataset Heatmap



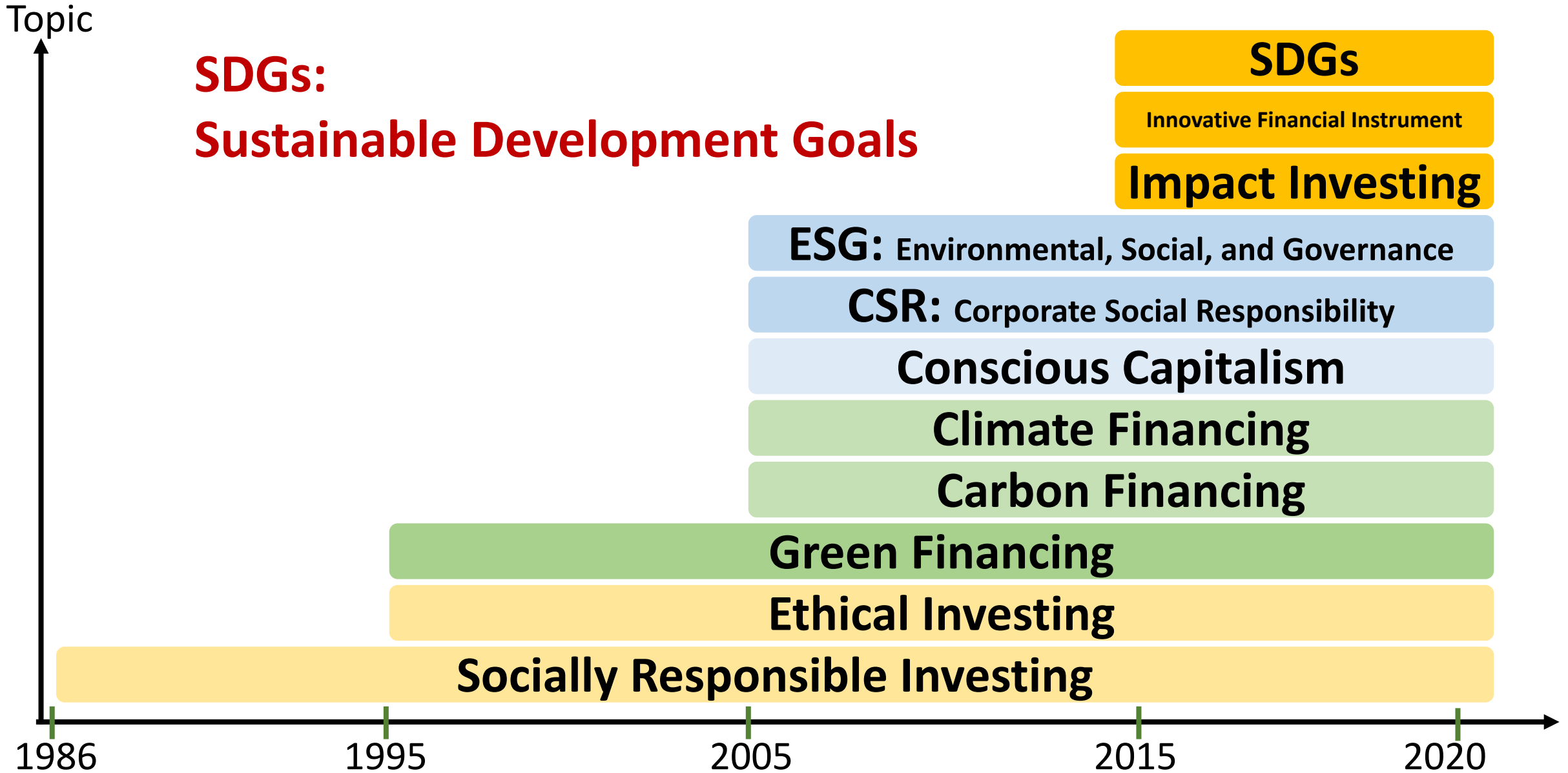
Stock Market Movement Forecast:

Phases of the stock market modeling



Green Finance and Sustainable Finance

Evolution of Sustainable Finance Research



Source: Kumar, S., Sharma, D., Rao, S., Lim, W. M., & Mangla, S. K. (2022). Past, present, and future of sustainable finance: Insights from big data analytics through machine learning of scholarly research. *Annals of Operations Research*, 1-44.

AI for Environmental, Social, and Governance (AI4ESG)

AI for Social Good (AI4SG)

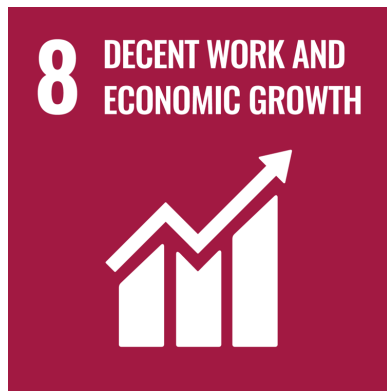
Sustainability

SDGs

CSR

ESG

Sustainable Development Goals (SDGs)



Sustainable Development Goals (SDGs) and 5P

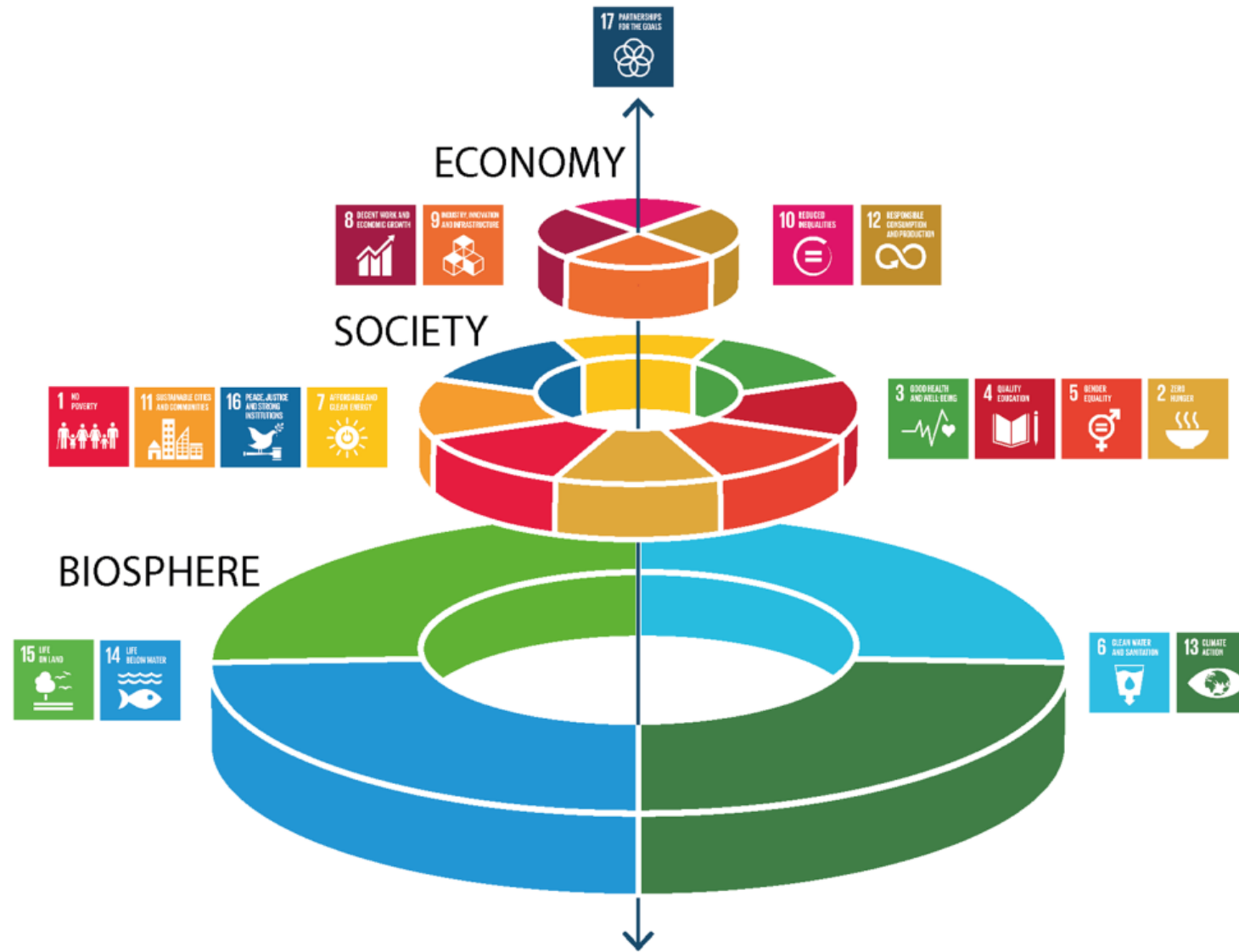
Partnership

Peace

Prosperity

People

Planet



Green Finance

Generic term

implying use or diversion

of **financial resources**

to deploy and support projects

with **long term positive impact**

on the **environment**

Sustainable Finance

Finances

**deployed in support of projects
that ensure just, sustainable and
inclusive growth
or attainment of one or more
sustainable development goals**

Carbon Finance

Financial instruments

based on

economic value of carbon emissions

which an organization cannot avoid but which it offsets by funding other compensatory projects that contribute to **carbon emissions reduction**

Climate Finance

Finances deployed
in support of low carbon and
climate resilient projects
that help in **climate change mitigation** and
adaptation efforts,
particularly in the
energy and infrastructure sectors

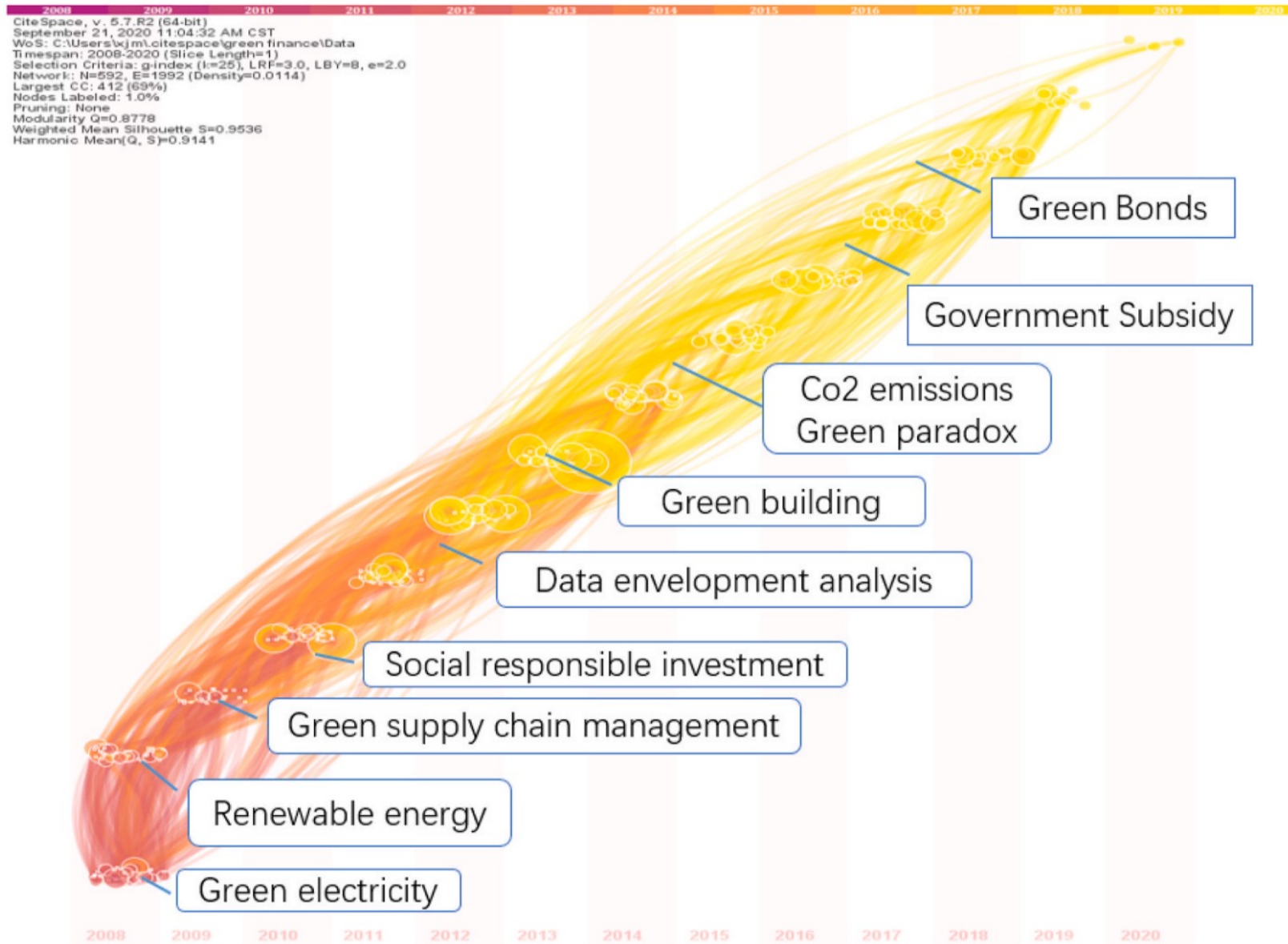
ESG Investing

Investments considering the broad range of **environmental** (e.g. climate change, pollution biodiversity loss), **social** (e.g. working conditions, human rights, salary or compensation structures) and **governance** (e.g. board composition, diversity and inclusion, taxes) characteristics of the projects or companies being invested in; **ethical and business sustainability** considerations are **integral part of financing**

Impact Investing

Investing in projects
that solve a **social or environmental problem**;
the focus is on the **positive impact**
rather than the
means used to produce that impact

Dynamic Trends of Green Finance and Energy Policy



ESG:

Environmental

Social

Governance

**CSR:
Corporate
Social
Responsibility**

ESG to 17 SDGs

ENVIRONMENT



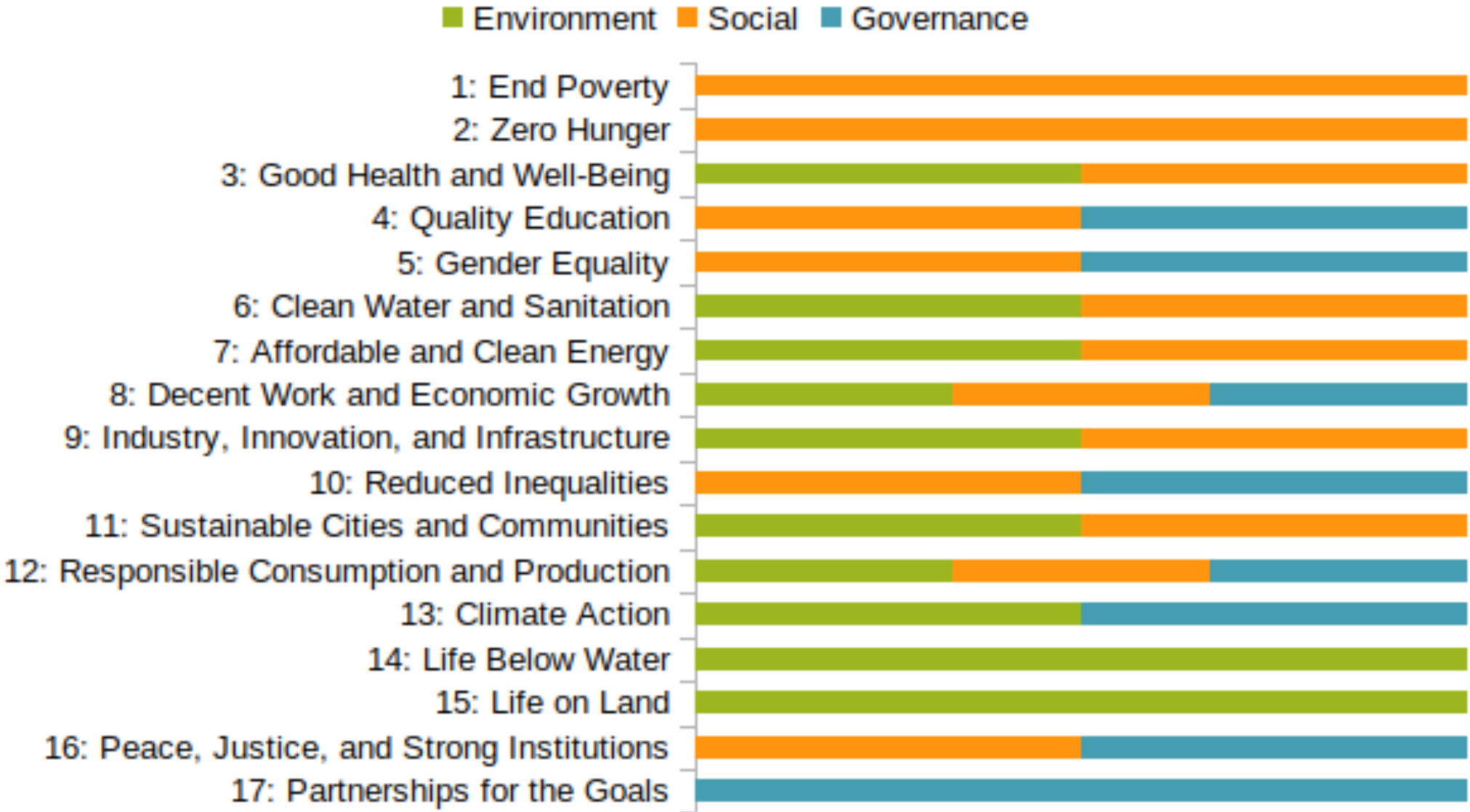
SOCIAL



GOVERNANCE



ESG to 17 SDGs



Source: <https://sustainometric.com/esg-to-sdgs-connected-paths-to-a-sustainable-future/>

Generative AI for ESG Applications

AI and Sustainability Development Goals (SDGs)

SDGs	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	No poverty	Zero hunger	Good health and well-being	Quality education	Gender equality	Clean water and sanitation	Affordable and clean energy	Decent work and economic growth	Industry, innovation and infrastructure	Reduces inequalities	Sustainable cities and communities	Responsible consumption and production	Climate action	Life below water	Life on land	Peace, justice and strong institutions	Partnerships for the goals
Economic								●	●	●	○						●
Ecological		○					○				○	○	●	●	●		
Social	●	●	●	●	●	●	●				●	●				●	
Positive impact of AI*	100%	76%	69%	10%0	56%	100%	100%	92%	100%	90%	100%	82%	80%	90%	100%	58%	26%

Note: ● adopted from Vinuesa et al. (2020), ○ added based on our analysis.

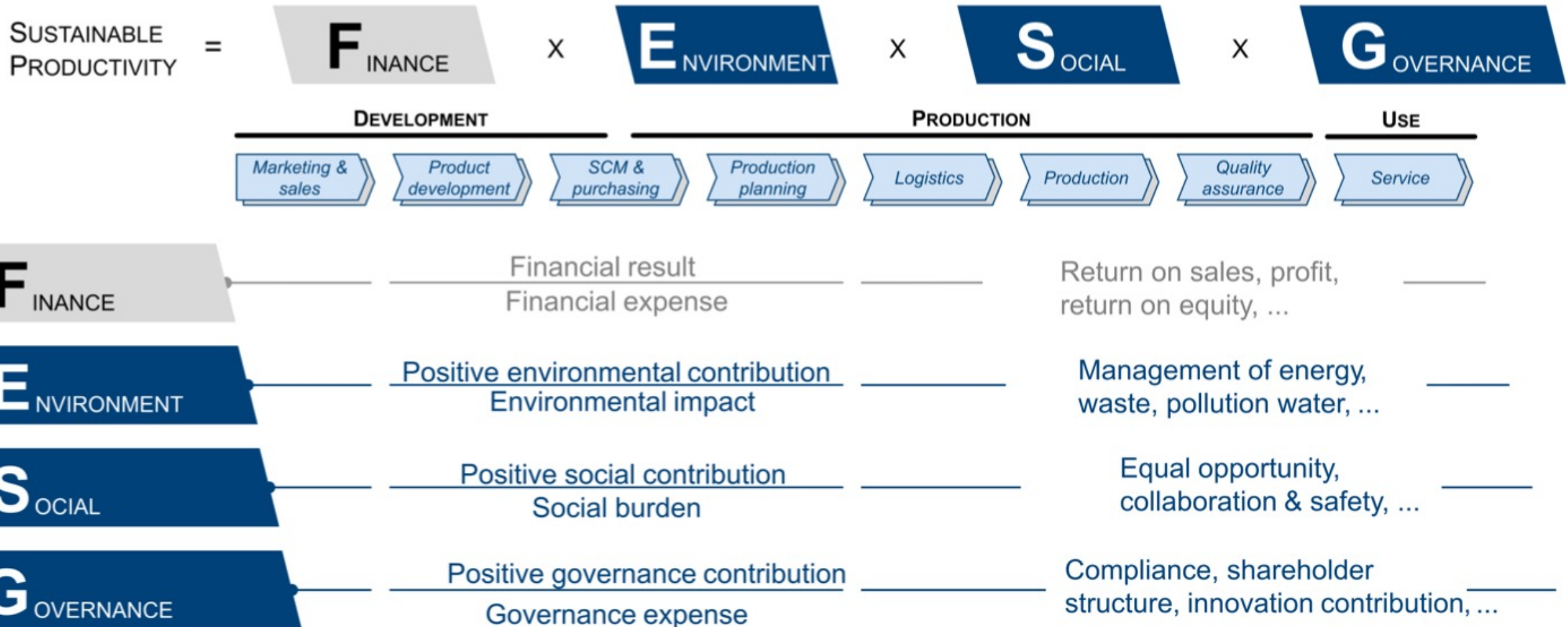
*The assessment of AI's possible positive impact is based on a consensus-based expert elicitation process (Vinuesa et al., 2020).

AI for Sustainability

Dimension	Code characteristics					
Primary objective ¹	Develop new (AI) methods (11/95)	Compare (AI) methods (39/95)	Apply (AI) methods (53/95)	Develop new system (20/95)	Other objective (4/95)	
Sustainability dimension	Economic (23/95)		Ecological (17/95)		Social (72/95)	
Sustainable Development Goals (SDGs)	SDG 1 (0/95)	SDG 2 (2/95)	SDG 3 (55/95)	SDG 4 (6/95)	SDG 5 (0/95)	SDG 6 (0/95)
	SDG 7 (9/95)	SDG 8 (7/95)	SDG 9 (8/95)	SDG 10 (1/95)	SDG 11 (9/95)	SDG 12 (8/95)
	SDG 13 (2/95)	SDG 14 (0/95)	SDG 15 (2/95)	SDG 16 (11/95)	SDG 17 (0/95)	
Data source	Reviews (12/95)	Social media/ Online forums (31/95)	Health records (21/95)	Environment/ Weather (10/95)	Energy (5/95)	
Data source plurality	Single source (50/95)		Multiple sources (44/95)		N/A (1/95)	
Data sensitivity	Publicly available data (64/95)	Internal data (16/95)		Other (11/95)		N/A (9/95)
Manual labeling	Yes (32/95)			No (63/95)		
Technology	ML (91/95)	NLP (42/95)		CV (12/95)	Other (21/95)	
Type of learning for ML approach	Supervised learning (85/95)			Unsupervised learning (23/95)		
Neural vs. non-neural	Non-neural (45/95)		Neural (50/95)		Deep learning (38/95)	
Evaluation	Technical evaluation (83/95)			Domain evaluation (25/95)		
Paradigm	DSR/ADR (30/95)			Non-DSR/ADR (64/95)		
			0-9	10-29	30-54	55-69
						70-95
Notes: Code dimensions are not mutually exclusive; one article can be classified into one or more code characteristics; ¹ 'Compare' does include 'apply'.						

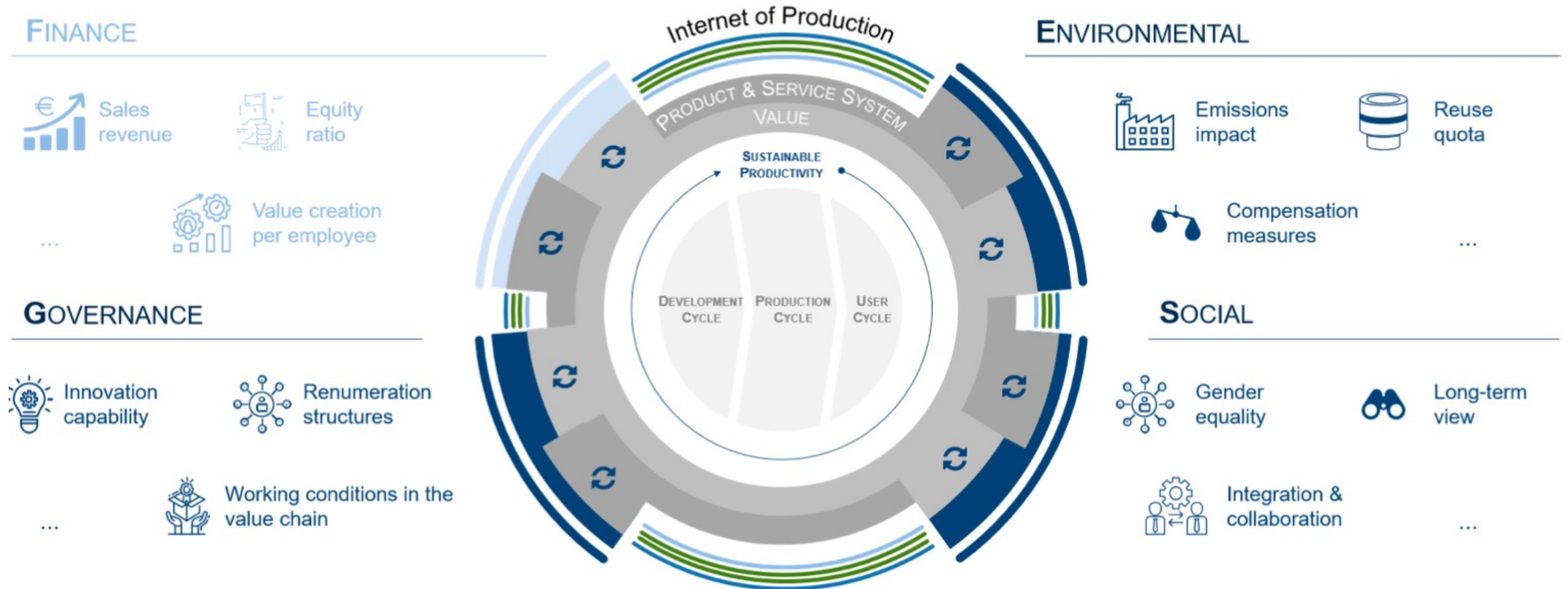
Source: Schoormann, T., Strobel, G., Möller, F., Petrik, D., & Zschech, P. (2023).

Sustainable Productivity: Finance ESG



Sustainable Resilient Manufacturing

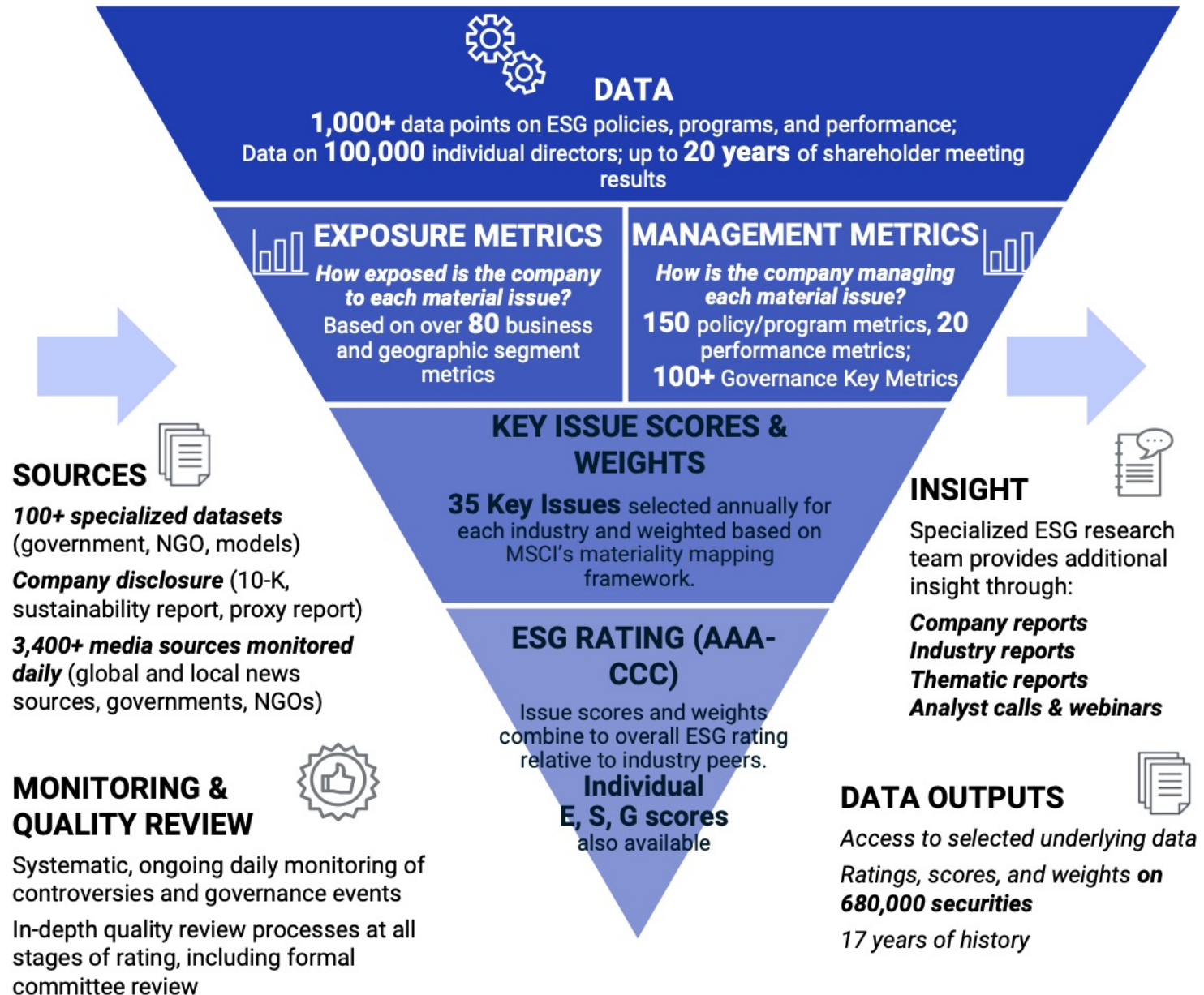
ESG



ESG Indexes

- **MSCI ESG Index**
- **Dow Jones Sustainability Indices (DJSI)**
- **FTSE ESG Index**

MSCI ESG Rating Framework

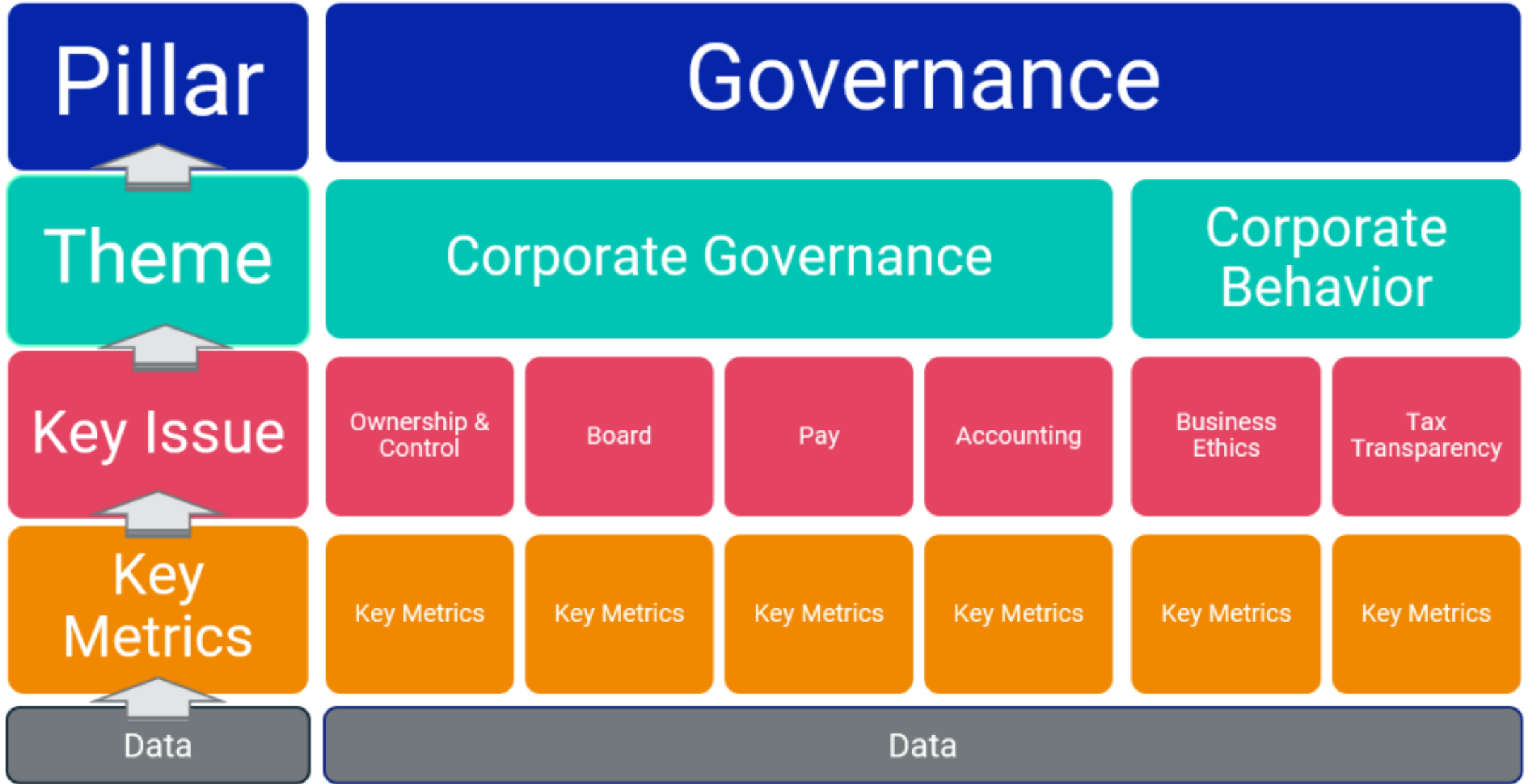


MSCI ESG Key Issue Hierarchy

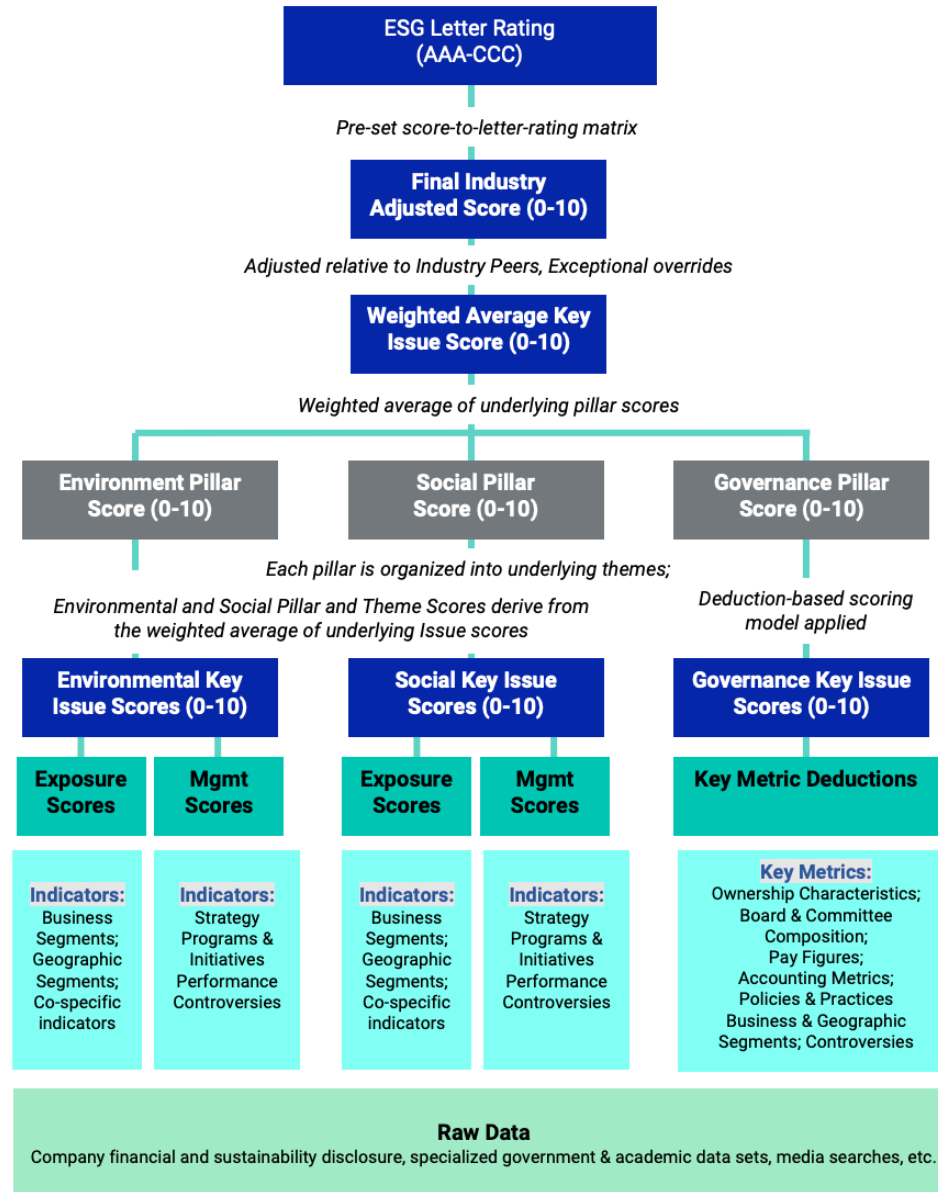
3 Pillars	10 Themes	35 ESG Key Issues	
Environment	Climate Change	Carbon Emissions Product Carbon Footprint	Financing Environmental Impact Climate Change Vulnerability
	Natural Capital	Water Stress Biodiversity & Land Use	Raw Material Sourcing
	Pollution & Waste	Toxic Emissions & Waste Packaging Material & Waste	Electronic Waste
	Environmental Opportunities	Opportunities in Clean Tech Opportunities in Green Building	Opportunities in Renewable Energy
Social	Human Capital	Labor Management Health & Safety	Human Capital Development Supply Chain Labor Standards
	Product Liability	Product Safety & Quality Chemical Safety Consumer Financial Protection	Privacy & Data Security Responsible Investment Health & Demographic Risk
	Stakeholder Opposition	Controversial Sourcing Community Relations	
	Social Opportunities	Access to Communications Access to Finance	Access to Health Care Opportunities in Nutrition & Health
Governance	Corporate Governance	Ownership & Control Board	Pay Accounting
	Corporate Behavior	Business Ethics Tax Transparency	

MSCI Governance Model Structure

Deductions from Key Metrics flow up through each level to the overall Pillar score calculation



MSCI Hierarchy of ESG Scores

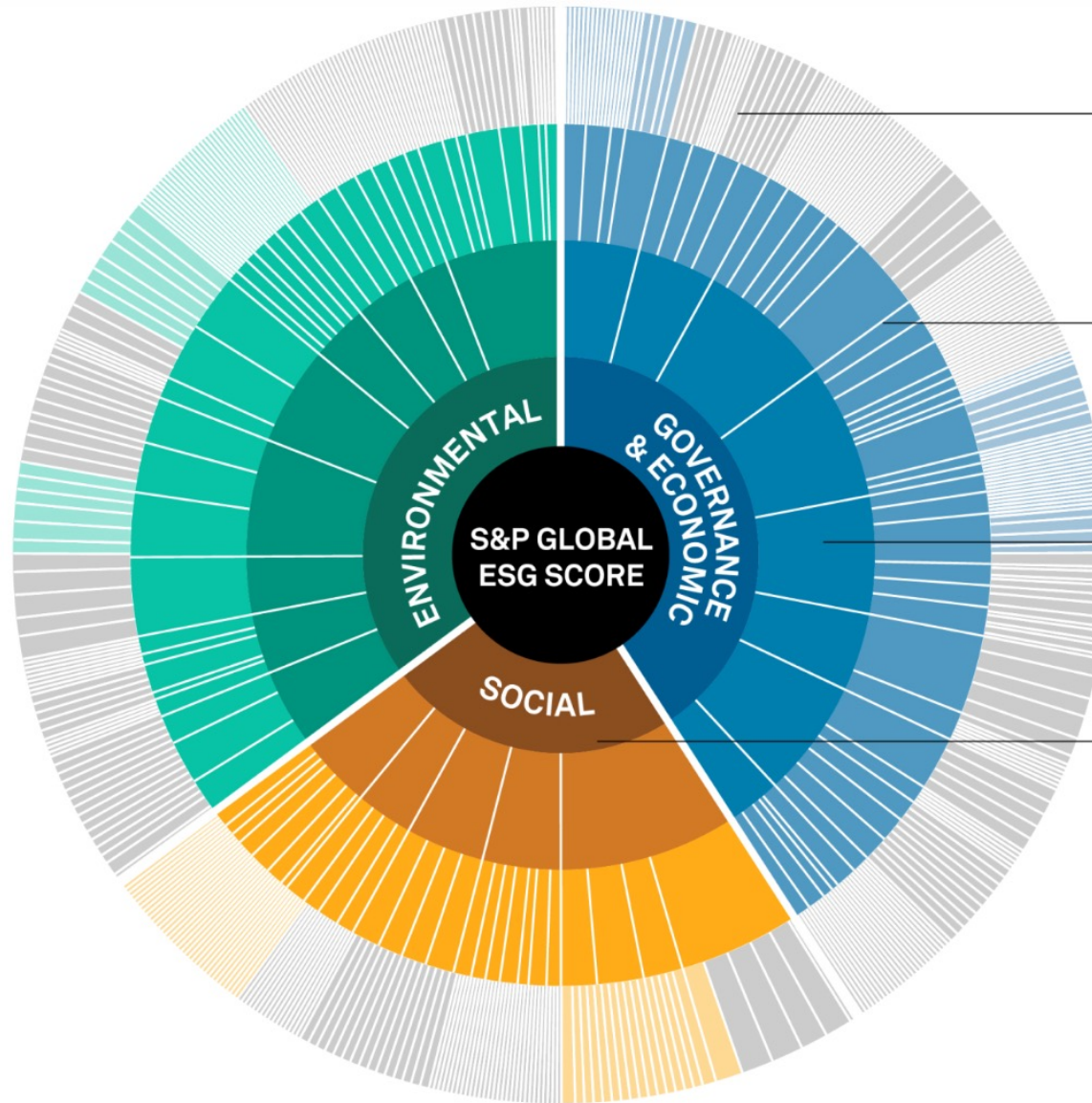


DJSI S&P Global ESG Score

8,000
Companies

90%
Global market capitalization

340,000+
Current Research Universe and Active Securities



Approx.
1,000
Datapoints

Assessed values, text, checkboxes, documents
Sources: Web-based questionnaire and company documents

130+
Questions

Weighted data point scores
Up to 50% industry-specific

Ave.
30+
Criteria scores

Weighted question scores
61 industry specific approaches, with tailored questions, criteria and related weightings

3
Dimension scores

Weighted criteria scores
Adjusted for corporate ESG controversies where applicable

1

S&P Global ESG Score

Sum of weighted dimension scores

FTSE Russell ESG Ratings

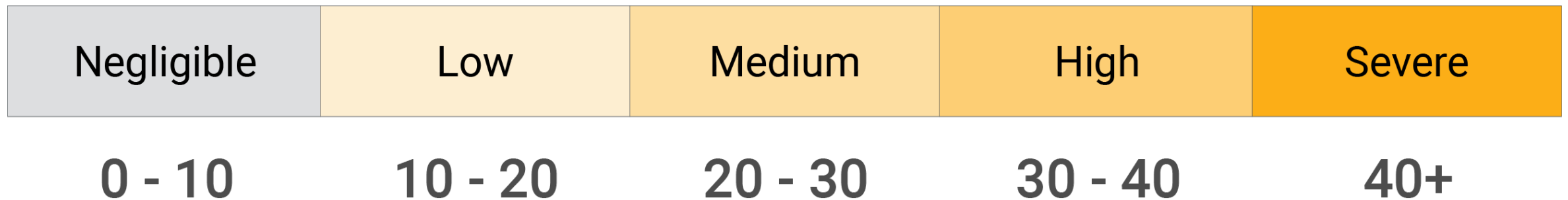


Sustainalytics

ESG Risk Ratings

Analyst-based
approach

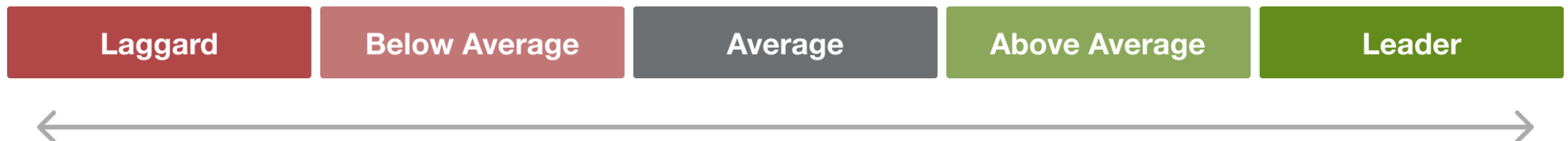
Sustainalytics' ESG Risk Ratings measure a company's exposure to industry-specific material ESG risks and how well a company is managing those risks.



Truvalue ESG Ranks

Machine-based
approach

- **Truvalue Labs** applies **AI** to analyze over **100,000 sources** and uncover **ESG risks** and opportunities hidden in **unstructured text**.
- The ESG Ranks data service produces an overall company rank based on industry percentile leveraging the **26 ESG categories** defined by the **Sustainability Accounting Standards Board (SASB)**.
- The data feed covers **20,000+** companies with more than **13 years** of history.



Analyst-driven vs. AI-driven ESG

Analyst-driven ESG research

Derives ratings in a structured data model

Sustainalytics



Analyst role at the end of the process allows subjectivity to color results

AI-driven ESG research

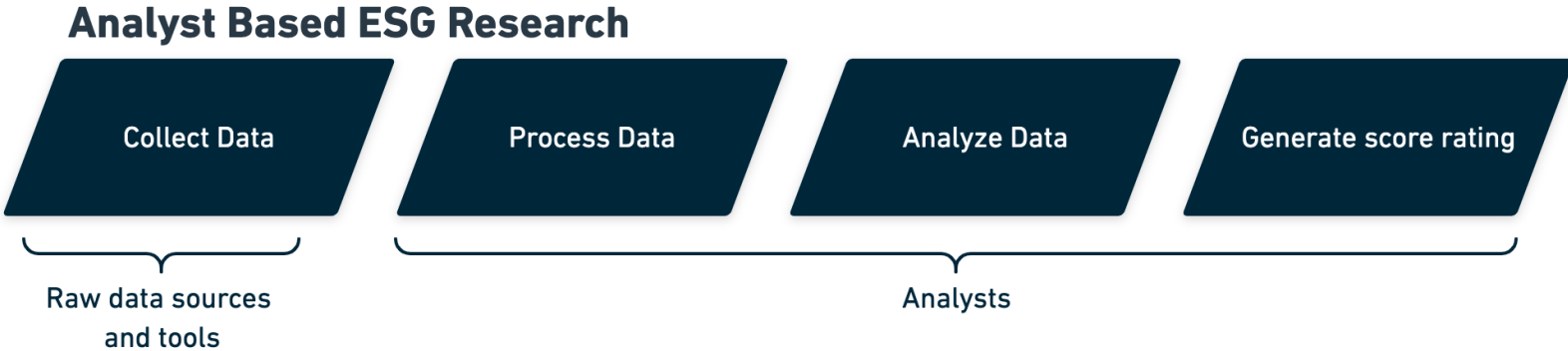
Derives signals from unstructured data

Truvalue Labs

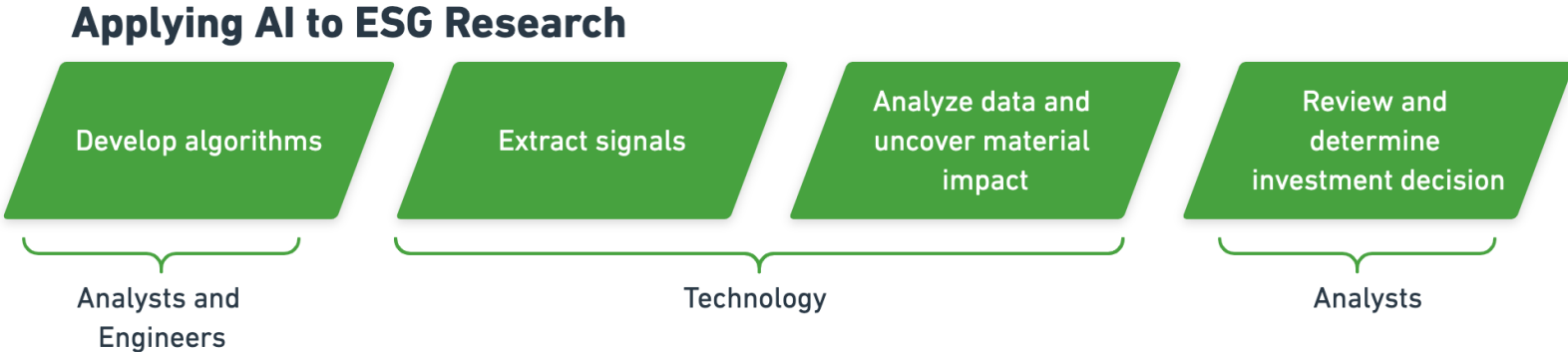


Analyst expertise at the beginning of the process produces consistent results

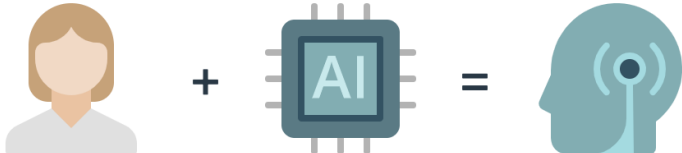
Analyst based ESG Research



AI based ESG Research

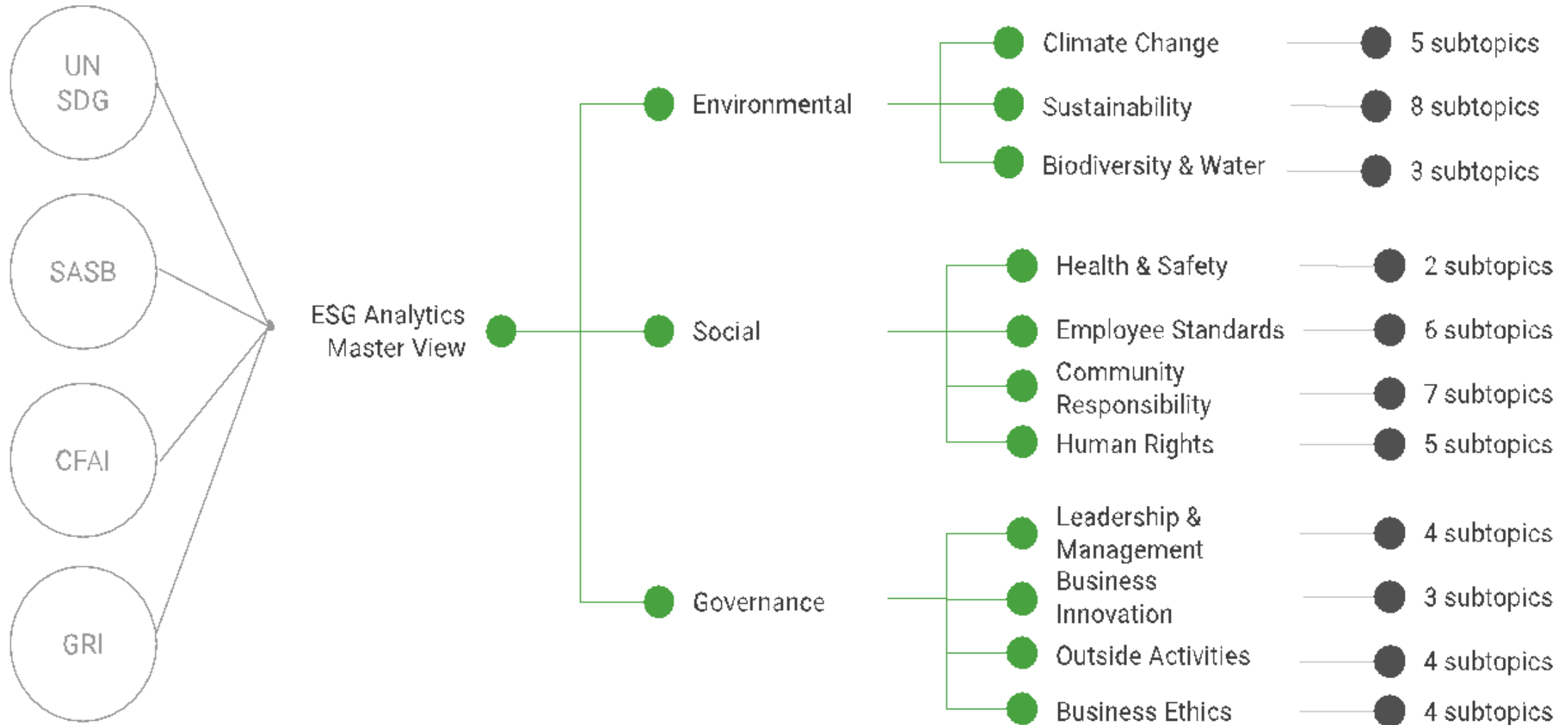


It would take an analyst over 5 years to do what our AI can in 1 week
Combining analysts with AI creates gives you the full picture



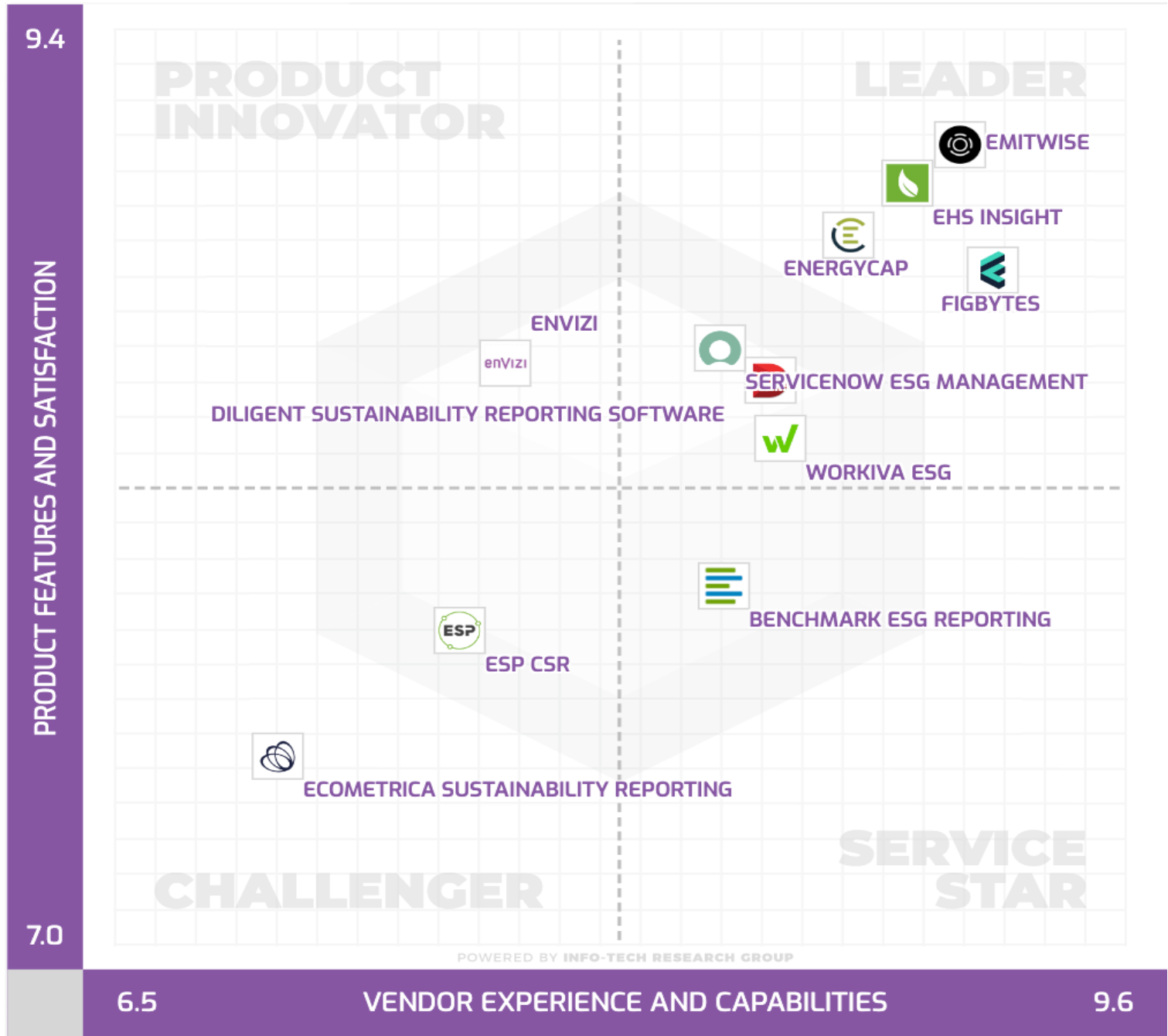
ESG ANALYTICS
Invest where it matters.

ESG Analytics: NLP Taxonomy

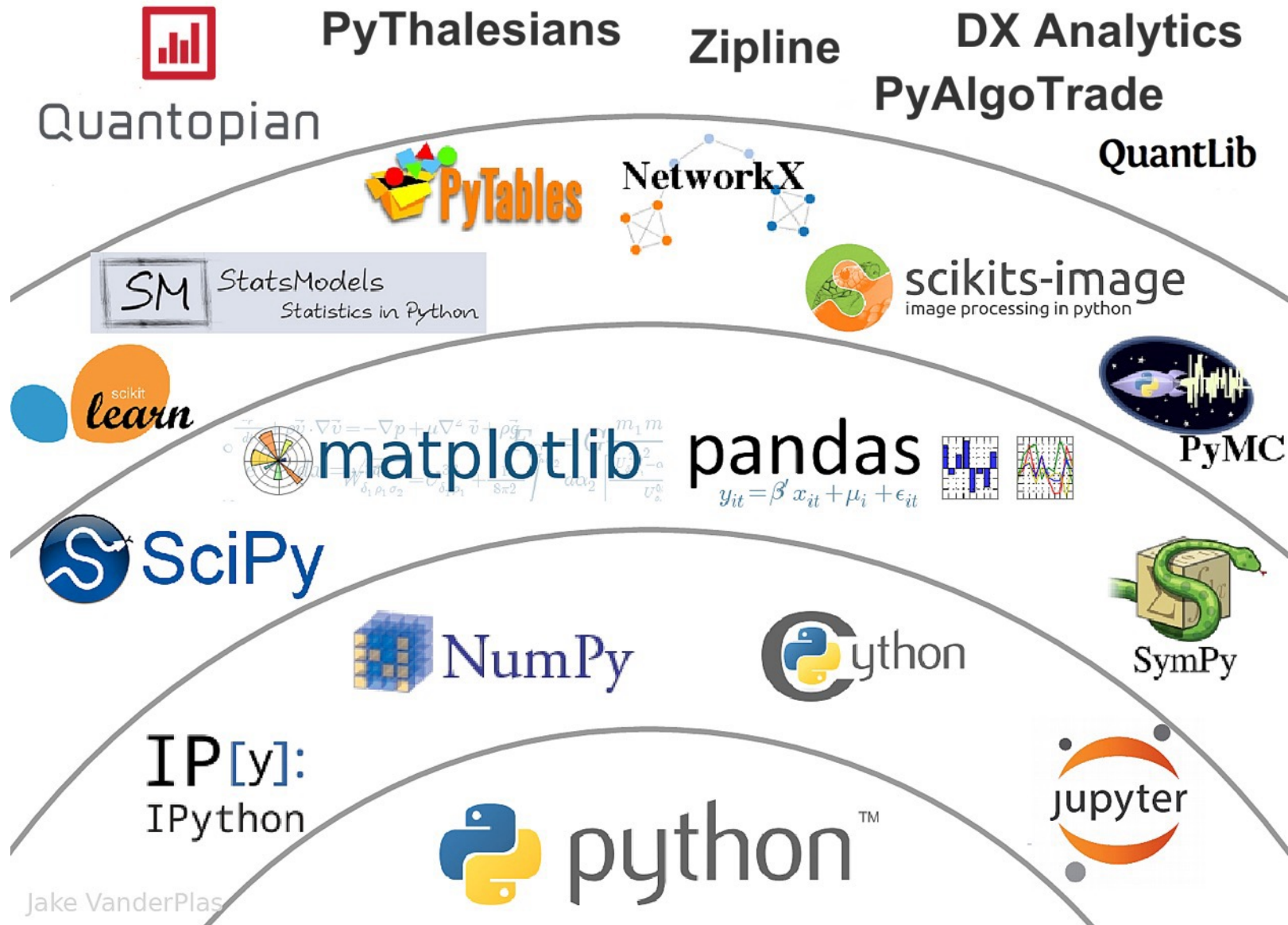


Top ESG Reporting Software

Environmental, Social and Governance (ESG) Reporting software or Sustainability software helps organizations manage their operational data, evaluate their impact on the environment and provide reporting to perform audits.



The Quant Finance PyData Stack



Jake VanderPlas

Source: http://nbviewer.jupyter.org/format/slides/github/quantopian/pyfolio/blob/master/pyfolio/examples/overview_slides.ipynb#/5

Teaching



- **Generative AI Innovative Applications**
 - Spring 2025, Spring 2026
- **Artificial Intelligence in Finance and Quantitative**
 - Fall 2021, Fall 2022, Fall 2023, Spring 2025, Spring 2026
- **Software Engineering**
 - Fall 2020, Fall, 2021, Spring 2022, Spring 2023, Spring 2024, Spring 2025, Spring 2026
- **Artificial Intelligence**
 - Spring 2021, Fall 2022, Fall 2024, Fall 2025
- **Sustainability and ESG Data Analytics**
 - Spring 2024, Fall 2024, Fall 2025
- **Big Data Analytics**
 - Fall 2020, Spring 2023, Spring 2024
- **Artificial Intelligence for Text Analytics**
 - Spring 2022, Fall 2023
- **Python for Accounting Applications**
 - Fall 2023, Fall 2024, ,Fall 2025
- **Foundation of Business Cloud Computing**
 - Spring 2021, Spring 2022, Spring 2023, Spring 2024

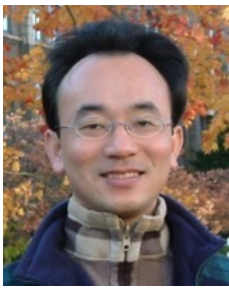
Research Projects



- 1. PI, Generative AI Multi-Agent Systems with LLM-Based RAG for ESG Reporting Automation**
 - NSTC (E4104), NSTC 114-2221-E-305-002-, 2025/08/01~2026/07/31
- 2. PI, ESG Sustainability Commitment Verification Competition and Annotation Data Collection Project (AI Cup 2026 VeriPromiseESG)**
 - Ministry of Education (MoE), AI CUP 2026 MoE National Collegiate Artificial Intelligence Professional Domain Thematic Competition Project, 2025/10/01~2026/09/30
- 3. Co-PI, Physical AI and Physical AI Robotics Curriculum Development Project, Forward-Looking AI Talent Cultivation Program (NAPAI)**
 - Ministry of Education (MoE), 2025/11/01~2027/03/31
- 4. Co-PI, Industry-Academia Alliance Program for Smart Healthcare: Smart Precision Next-Generation Preventive Medicine**
 - NSTC 114-2622-8-371-001-IE, 2025/11/01~2026/10/31
- 5. Co-PI, Digital Support, Unimpeded Communication: The Development, Support and Promotion of AI-assisted Communication Assistive Devices for Speech Impairment(3/3), Sub-project 3: Multimodal Cross-lingual Task-Oriented Dialogue System for Inclusive Communication Support**
 - NSTC (HZZ22), NSTC 114-2425-H-305-003-, 3 Years (2023/05/01-2026/04/30) Year 3: 2025/05/01~2026/04/30

Course Outline

- This course introduces the **fundamental concepts, research issues, and hands-on practices of AI in Finance and Quantitative Analysis.**
- **Topics include:**
 1. Introduction to Artificial Intelligence in Finance and Quantitative Analysis
 2. AI in FinTech: Metaverse, Web3, DeFi, NFT, Generative AI and Agentic AI for Financial Innovation Applications
 3. Investing Psychology and Behavioral Finance
 4. Event Studies in Finance
 5. Finance Theory and Data-Driven Finance
 6. Financial Econometrics
 7. AI-First Finance
 8. Deep Learning in Finance; Reinforcement Learning in Finance; Generative AI and Agentic AI in Finance
 9. Algorithmic Trading; Risk Management; Trading Bot and Event-Based Backtesting
 10. Industry Practices of AI in Finance and Quantitative Analysis
 11. Case Study on AI in Finance and Quantitative Analysis



AI in Finance and Quantitative Analysis



國立臺北大學
National Taipei University



University Ambassador

Certified Instructor



2020 Cohort

Contact Information

Min-Yuh Day, Ph.D.

Professor and Director

[Institute of Information Management, National Taipei University](#)

Tel: 02-86741111 ext. 66873

Office: B8F12

Address: 151, University Rd., San Shia District, New Taipei City, 23741 Taiwan

Email: myday@gm.ntpu.edu.tw

Web: <http://web.ntpu.edu.tw/~myday/>

