

HI, MI And AI From Theory To Execution

Islamic Banking and Finance

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AI Malaysia President

GIFF 2025

GLOBAL ISLAMIC
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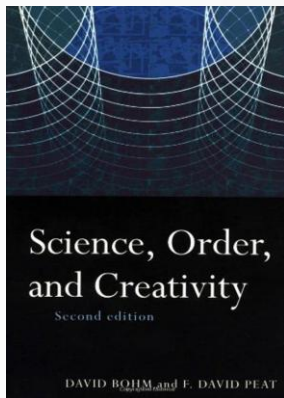
**BRIDGING TRADITION
AND TOMORROW**

ADVANCING BUSINESS, EMPOWERING COMMUNITIES

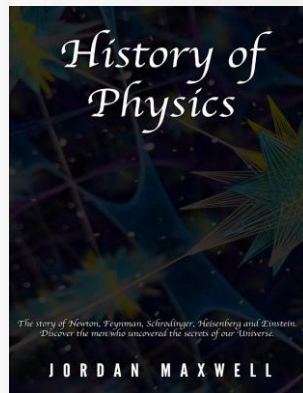


Human Intelligence (HI – Cognition – Reasoning – Learning / Process – Content ++)

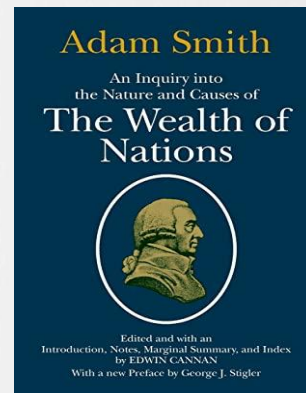
All successes by human beings are Reinforcement Processes, yet our education, experience and even the whole knowledge base are mostly silos, with **a lot of words**, instead of categorical (loosely speaking Reinforcement Processes). Reinforcement Processes cover 360 degree view. Open AI deals with less than 15% of documented knowledge, yet it requires millions of Nvidia high powered chips. The books below cover more than 100% of our knowledge (for mathematics and some intuitive works can be predictive). I highlighted this in IBM in 1987. Along the way, I called it mathematical intelligence (MI). Mathematics extends, and examples of extensions are books below. Books 4,5,6, 7 completely describe AI.



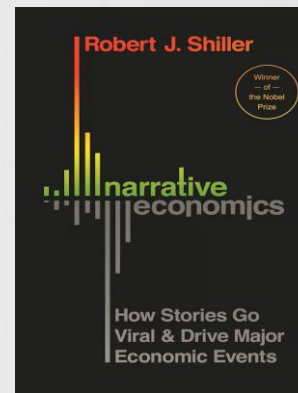
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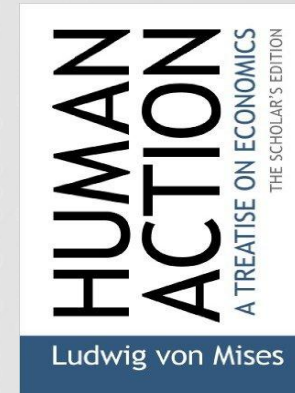
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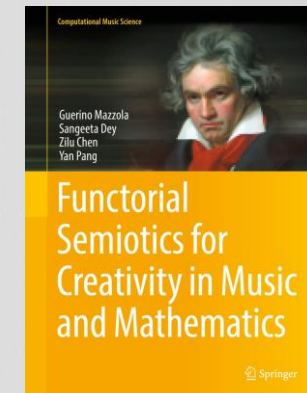
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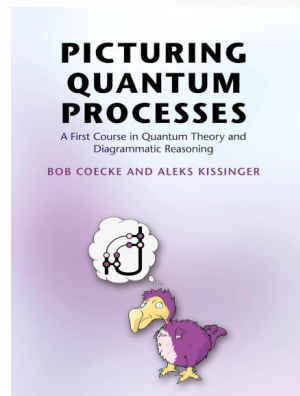
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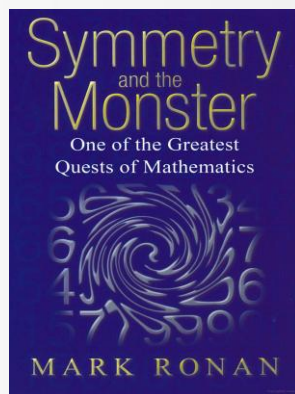
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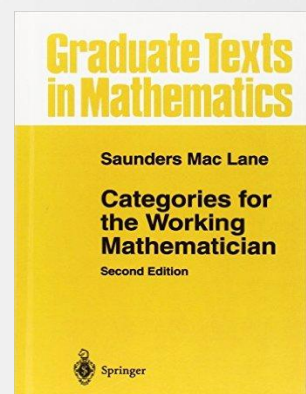
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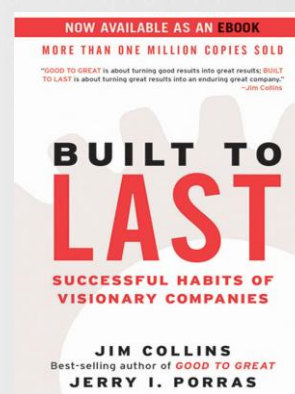
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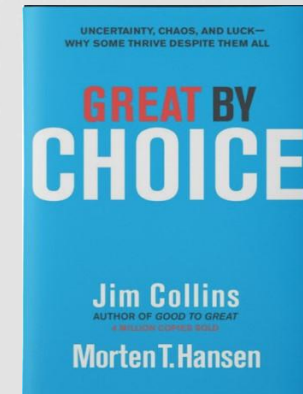
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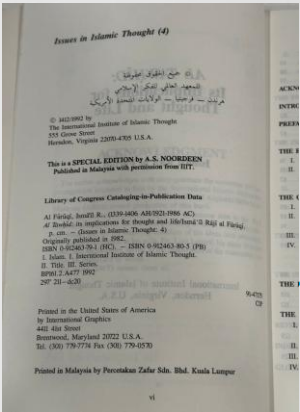
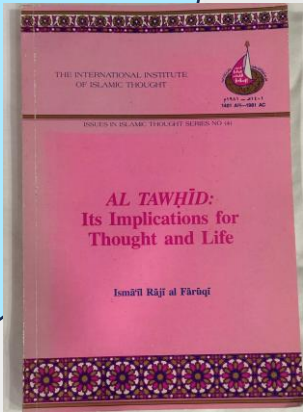
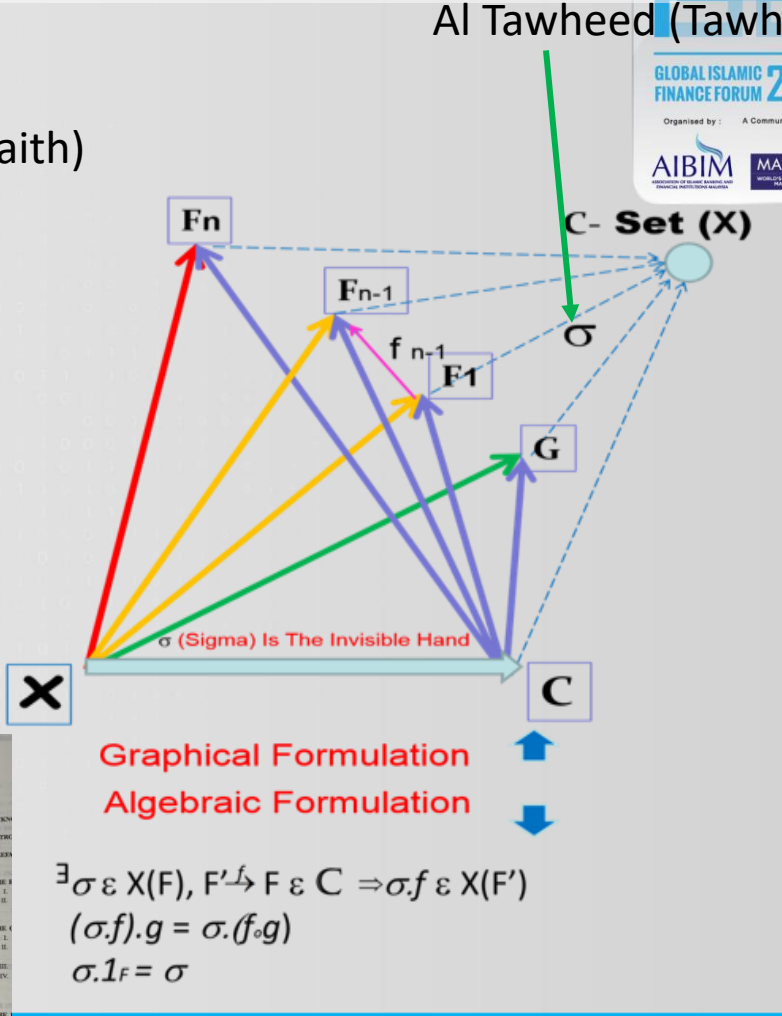
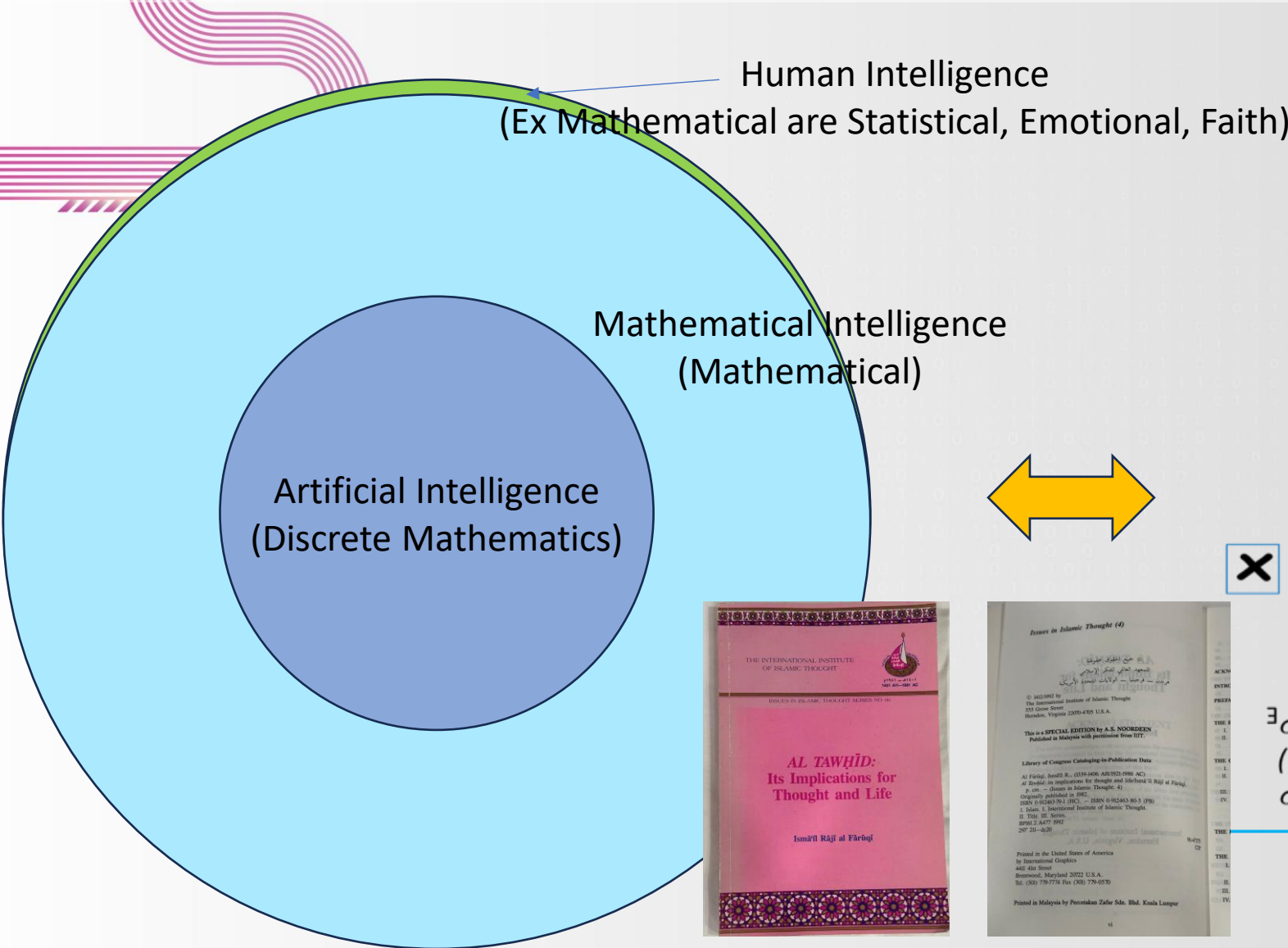
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Whether it is Human Intelligence (HI), Mathematical Intelligence (MI) or Artificial Intelligence (AI), they are all **Holistic, or 360 degree**.

For Narrative purposes, all of them can be reduced to **Choice and Build (Built)**

Human Intelligence, Mathematical Intelligence And Artificial Intelligence

How It Relates To Islamic Banking And Finance



Generic Category Diagram

Human Action: Cross Section Of Generic Category Tube

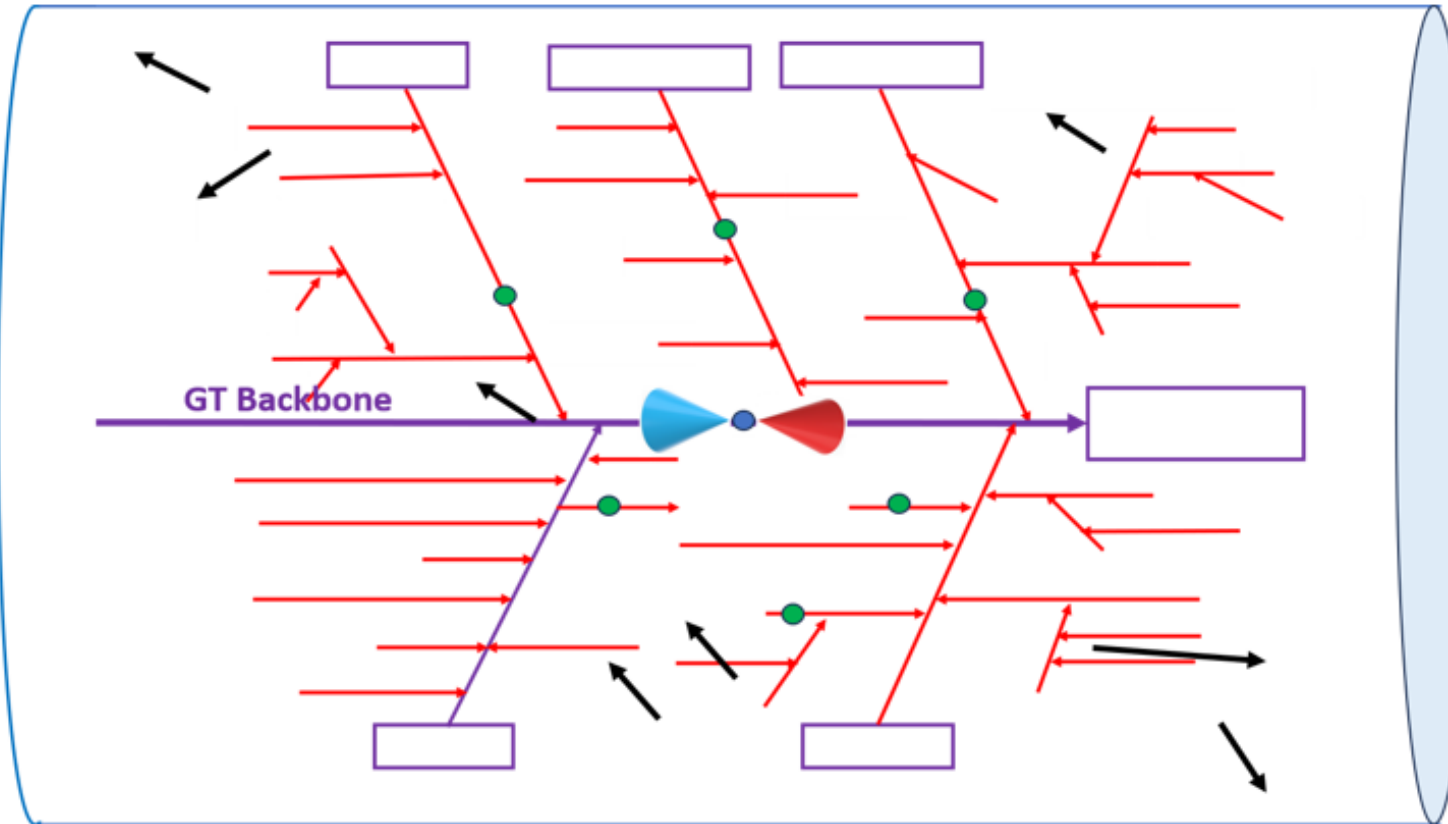
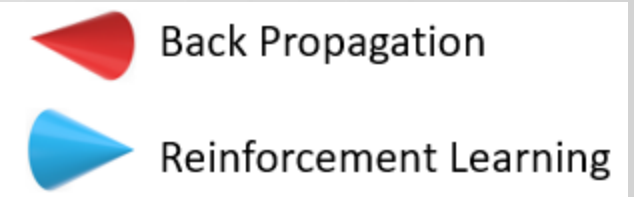
Choice And Build (Built – States – Build)

GT Backbone

As the rule of conservation goes,
all meaningful events move along

Group Theoretic Backbone

- Transitional States. Important for GDP and even wealth, but not final in sciences
- Invariant States which are either Burnside, Feit Thompson or Fischer (Book 5). These theorems are the basis of AI Models, explains why Trilemma in Economics, why BP hallucinates, and why RL is going to be main stream of AI in future. I know Professor Richard Sutton well. He came for my AI Malaysia launch.



MI Reinforcement Framework

Choice

Diagrammatic Mathematics

(Algebraic Topology/Algebraic Geometry and
Category Theory)

Yoneda/Cayley Pathways

Basis of
Build

Finite Simple Group

Islamic Reinforcement Framework

- Mudharabah
- Murabahah
- Ijarah
- Tawarruq
- Musyarakah
- Ar Rahn
- Takaful

- Zakat
- Fidyah
- Tabung Haji
- Quad
- Wadiah
- Istina
- Bai Salam

Pathways

Shariah Principles &
Muamalat

Mathematical History Of Islamic Banking

Reinforcement Learning
(RL) Or 'Evolution'



Islamic Reinforcement Framework

Diagrammatic
MI Processes



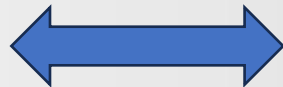
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Pathways

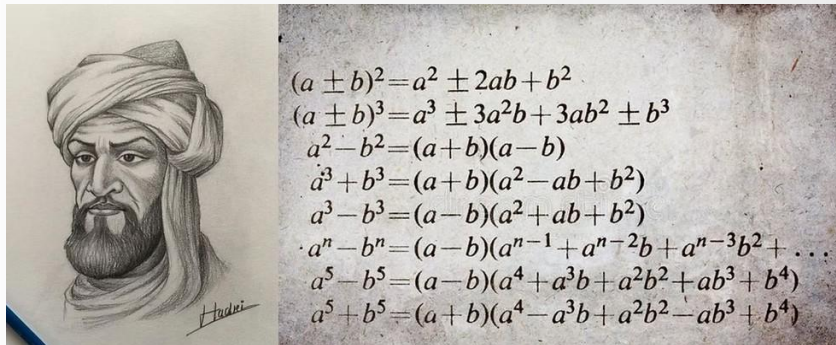
Shariah Principles &
Muamalat

Finite Simple
Group
Structures



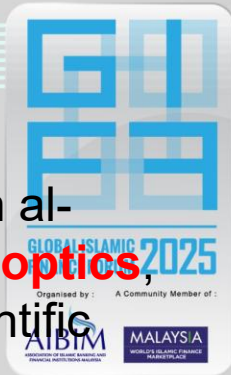
Algebra and Geometry 600-800 AD

Today : Algebraic Geometry/Category Theory



$$\begin{aligned}(a \pm b)^2 &= a^2 \pm 2ab + b^2 \\ (a \pm b)^3 &= a^3 \pm 3a^2b + 3ab^2 \pm b^3 \\ a^2 - b^2 &= (a+b)(a-b) \\ a^3 + b^3 &= (a+b)(a^2 - ab + b^2) \\ a^3 - b^3 &= (a-b)(a^2 + ab + b^2) \\ a^n - b^n &= (a-b)(a^{n-1} + a^{n-2}b + a^{n-3}b^2 + \dots) \\ a^5 - b^5 &= (a-b)(a^4 + a^3b + a^2b^2 + ab^3 + b^4) \\ a^5 + b^5 &= (a+b)(a^4 - a^3b + a^2b^2 - ab^3 + b^4)\end{aligned}$$

Mathematical Intelligence and Islamic Thought

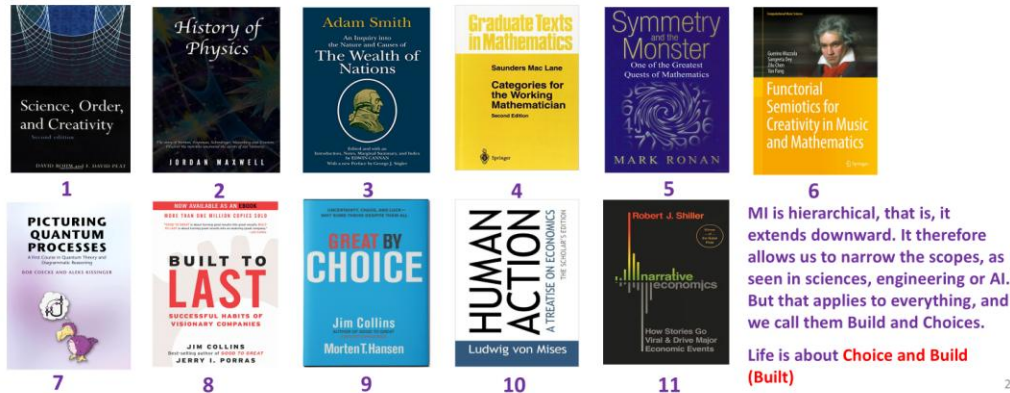


1. Scholars such as al-Khwārizmī, al-Bīrūnī and Ibn al-Haytham innovated **algebra, trigonometry and optics**, thereby transforming the global trajectory of scientific knowledge.
2. Islamic civilization's artistic heritage is deeply mathematical, **with geometric designs**, tessellations and proportions symbolizing divine unity
3. Islamic philosophers regarded mathematics as an essential **bridge between logic and metaphysics**.
4. Thinkers like al-Fārābī and Ibn Sīnā used **mathematical reasoning** to explore ontology, cosmology and epistemology.
5. Al-Fārābī emphasized in Iḥṣā' al-'Ulūm that mathematics disciplines the mind for higher metaphysical truths: "The study of **mathematical sciences trains the soul** to grasp intelligibles with certainty."

The concept of “Categorical” (Reinforcement Process) from Shariah Perspective

Intelligence – Cognition – Reason – Learning / Process – Content

All successes by human beings are Reinforcement Processes, yet our education, experience and even the whole knowledge base are mostly silos, with a **lot of words**, instead of categorical (loosely speaking Reinforcement Processes). Reinforcement Processes cover 360 degree view. Open AI deals with less than 15% of documented knowledge, yet it requires millions of Nvidia high powered chips. The books below cover more than 100% of our knowledge (for mathematics and some intuitive works can be predictive). I highlighted this in IBM in 1987. Along the way, I called it mathematical intelligence (MI). Mathematics extends, and examples of extensions are books below. Books 4,5,6, 7 completely describe AI.



Shariah sources of knowledge:

1. Primary (Quran and Sunnah)
2. Secondary (Ijma', Qiyas, Ijtihad, Maslahah, Urf etc.)

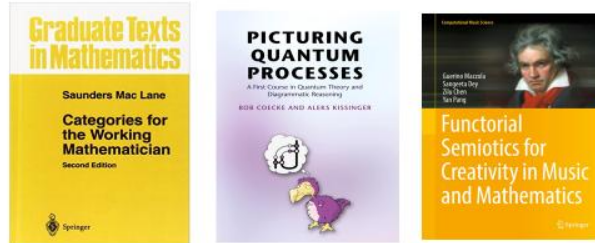
1. Shariah categorizes **all human actions (360 degree)** into five types:

- i. **Obligatory (Wajib)**
- ii. **Recommended (Mandub)**
- iii. **Permitted (Mubah)**
- iv. **Discouraged (Makruh)**
- v. **Forbidden (Haram)**

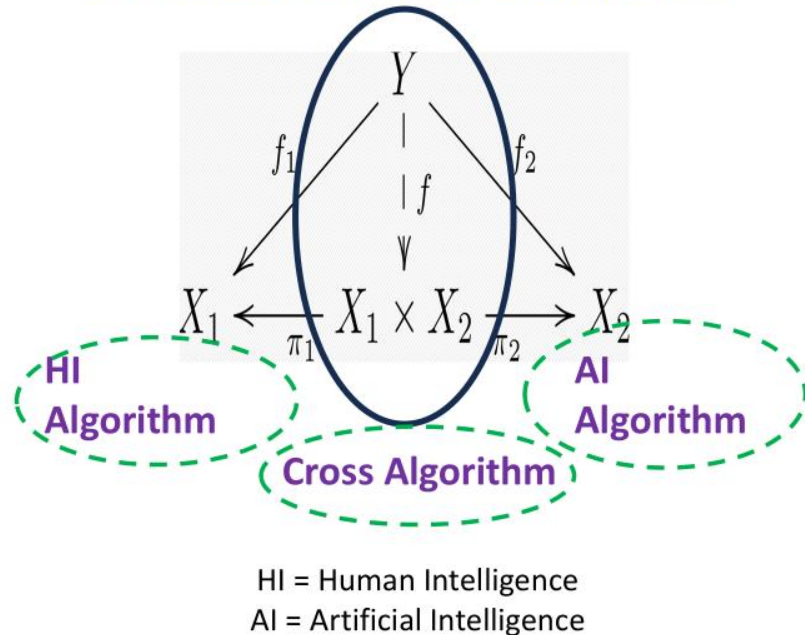
2. The primary reinforcement mechanism in Shariah is the inner spiritual state of an individual, known as *taqwa* (God-consciousness)
3. Encouraging right, inhibiting wrong where doing the right thing is easy and encouraged, while wrongdoing is discouraged and made difficult (penalty and reward systems)
4. Another example of categorical application in Shariah is the Maqasid al Shariah (Protections of Religion, Life, Intellect, Wealth and Lineage)

“Choice & Build” from the perspective of Islamic Finance Philosophy

Everything Is About Choice & Build & (Built)



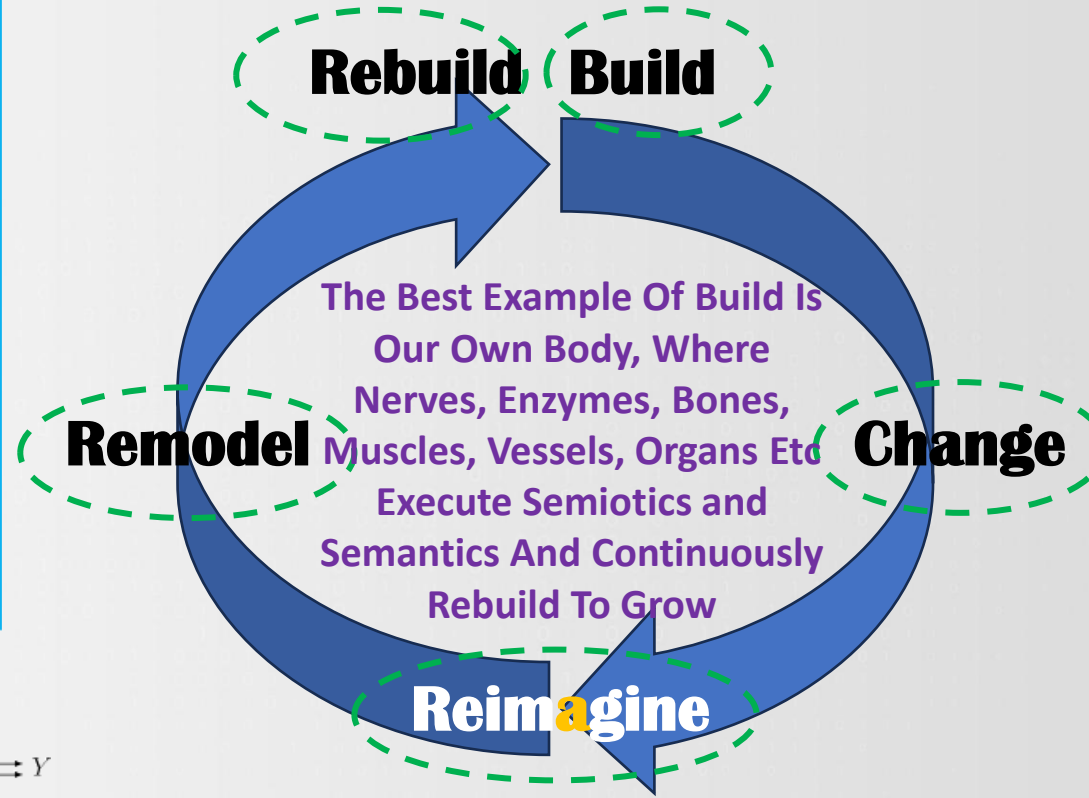
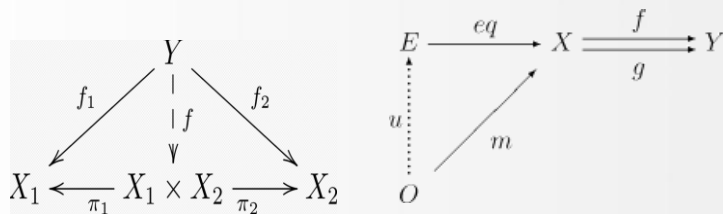
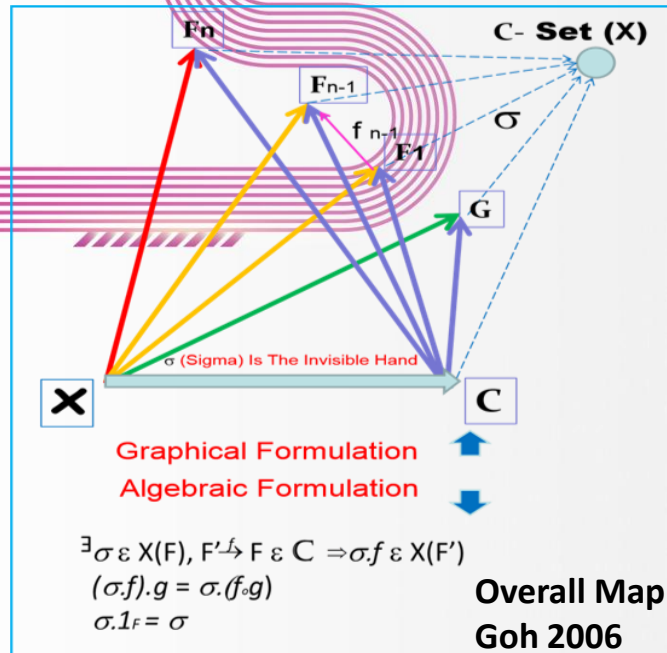
Very difficult books, but easy Category Diagram



1. **Shariah is dynamic** in nature, remain relevant across time and responsive to societal changes and developments
2. Shariah provides stability through specific rulings and **flexibility through general rulings**
3. For Islamic Finance (Muamalat matters), most of the rulings come in the form of general principles and therefore make them dynamic, suitable to be applied anytime and anywhere
4. The **original rule of Muamalat is permissibility** meaning everything is permissible except for a few prohibitions (Riba, Gharar, Injustice/Harmful and Forbidden Activities)
5. In some circumstances and based on valid reasons, Shariah is dynamic enough to offer a **gradual solution** for certain issues

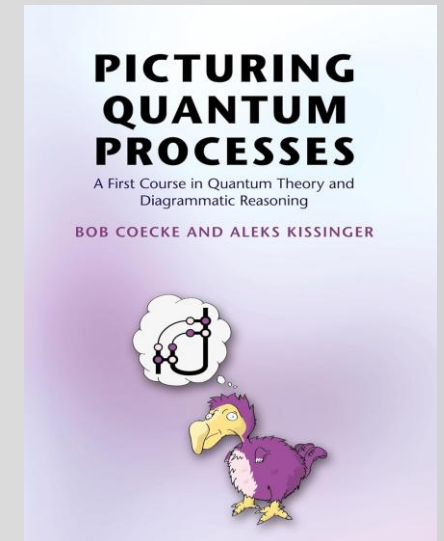
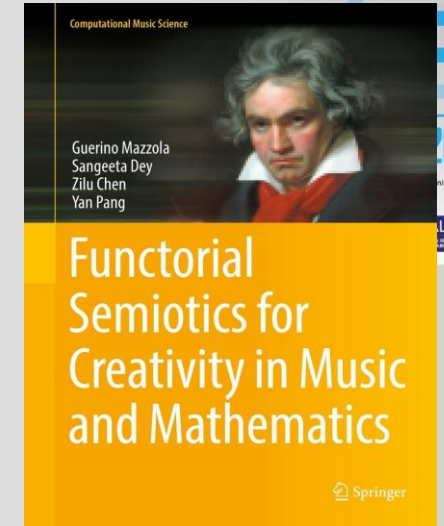
Gradual Solution: The Flywheel Effect (significant momentum through a series of consistent, aligned efforts rather than a single breakthrough), a concept from Jim Collins' book *Good to Great*

Both MI and Islamic Finance Are About Reinforcement Framework Build Is A Perpetual Cycle Or Symmetry At Work



Symmetry At Work Cycle

Functorial Semiotics-
Functorial Semantics Cycle



Silverlake MI Reinforcement Framework

MI Reinforcement Framework

Artificial Intelligence

LLM

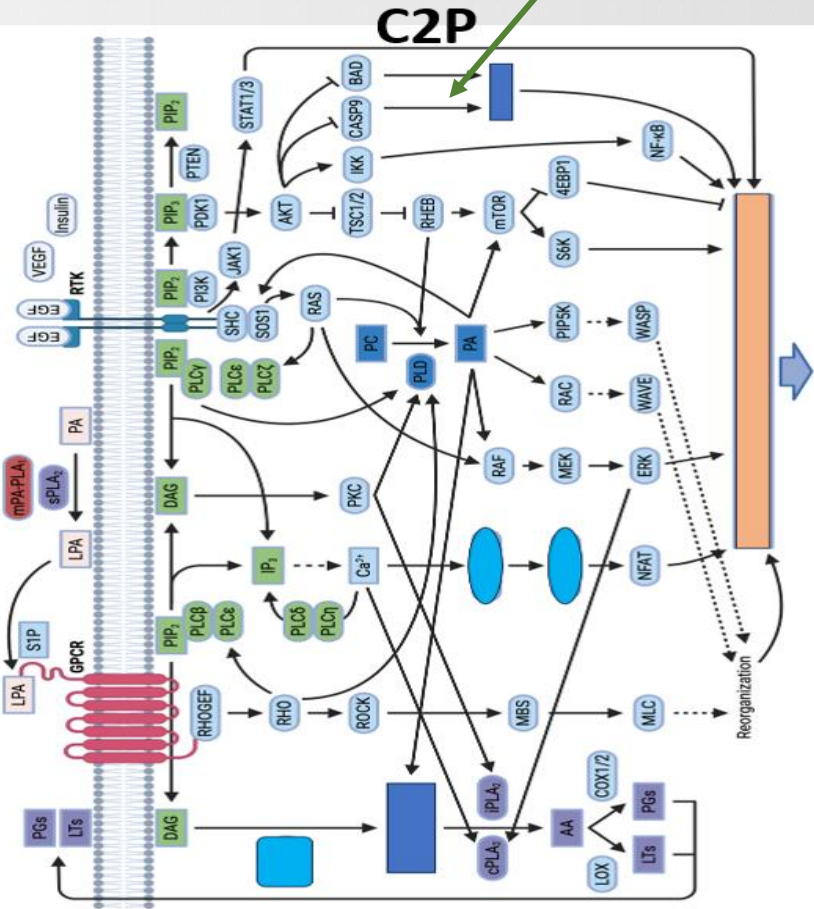
C2C

Large Language Model

Transformers

Examples: vLLM, Rule Base, MCP, Etc

Yoneda/Cayley Pathways



This is the pathways of a simple living cell (as an example)

Compliances, Business, Strategy Area

Models

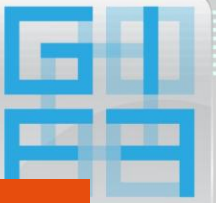
Category Theory (Future)

Sheaf Theory (Mobius)

Group Theory (SIBS)



AI Taxonomy : AI Is Right From The Start, Federation And Collaboration Through Yoneda/Cayley Pathways, and LLM is just the AI Display



WIC
UM 2025

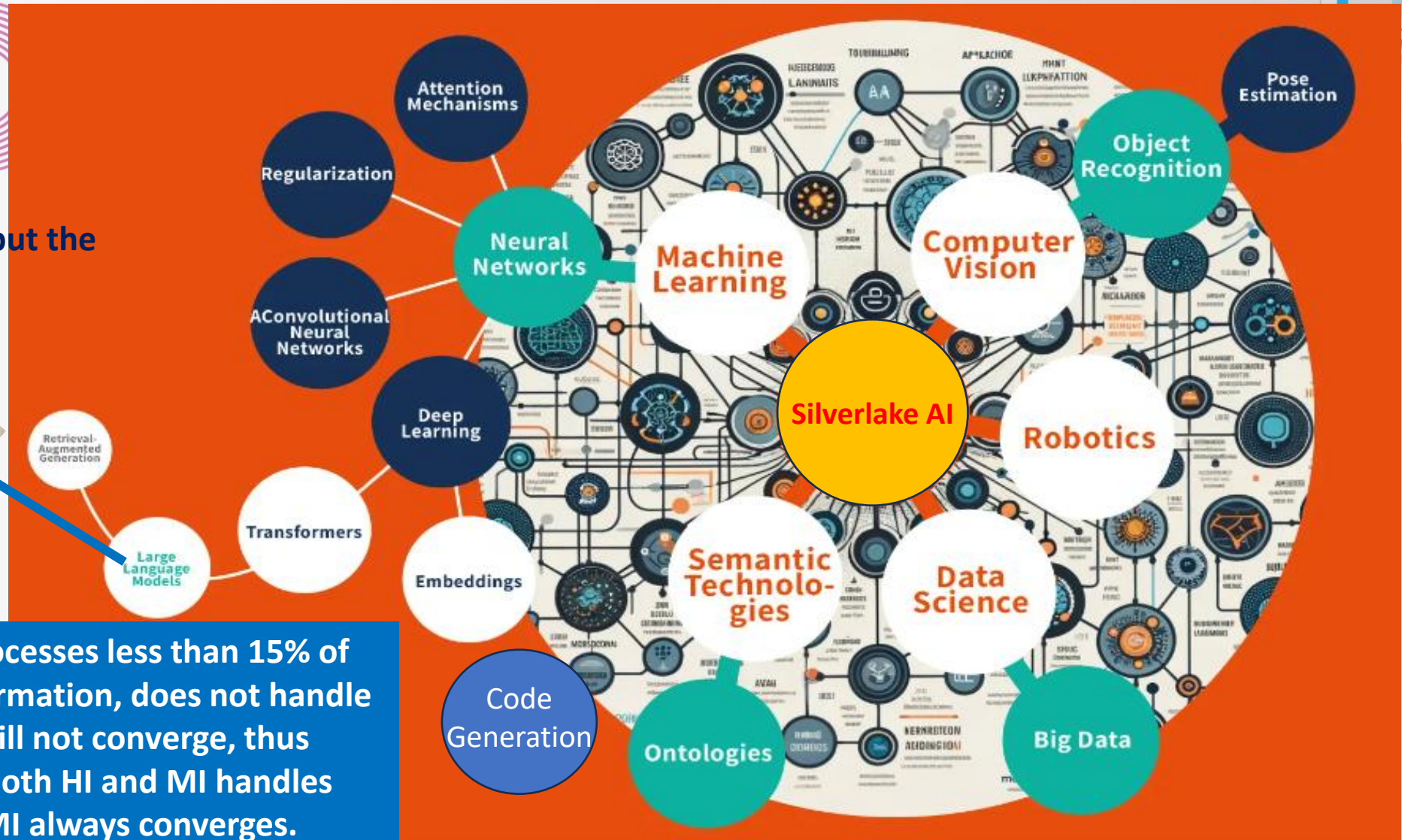
A Community Member of :

MALAYSIA

WORKING GROUP

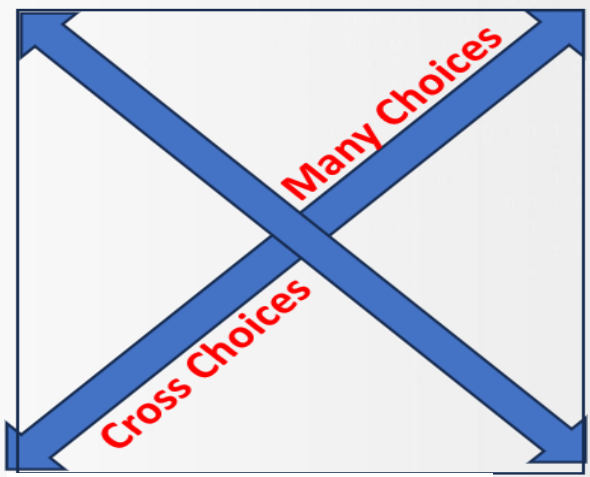
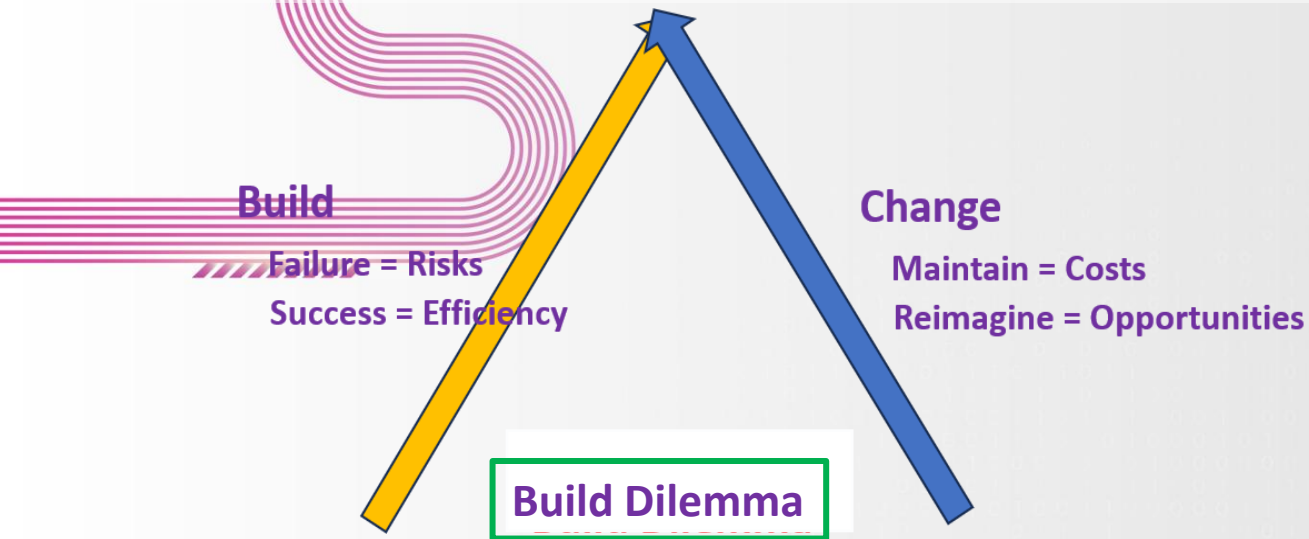


LLM Is just but the
AI Display



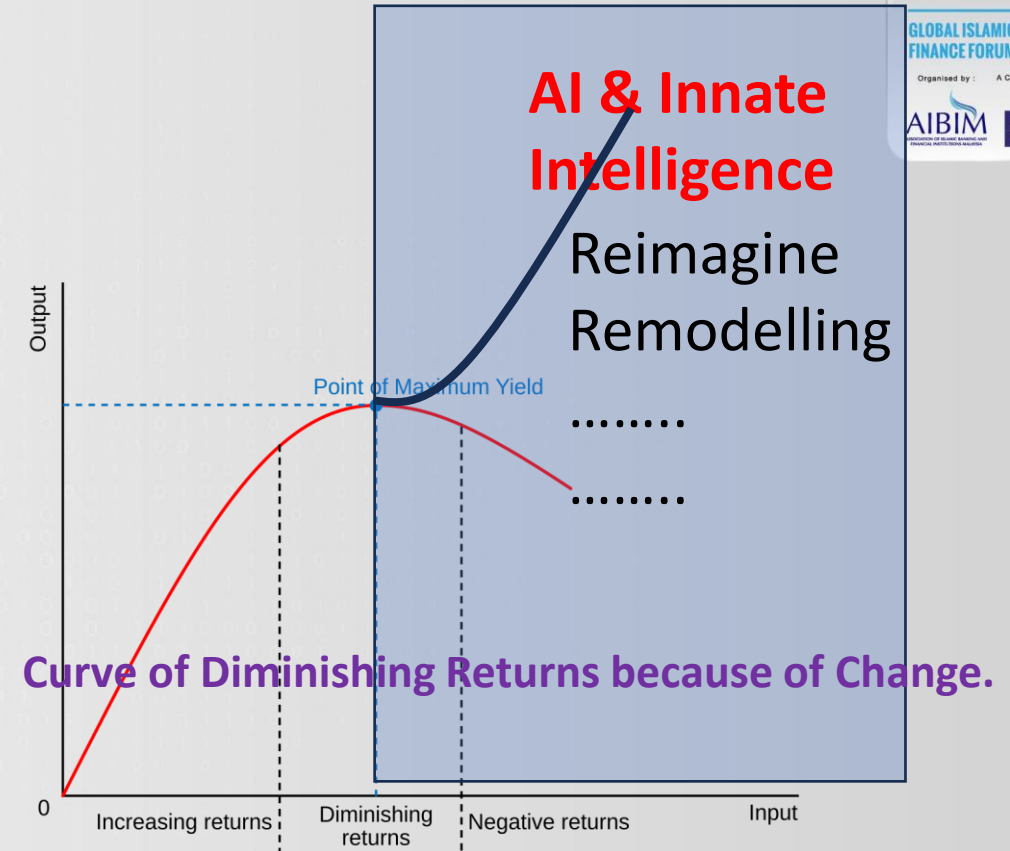
Open AI only processes less than 15% of known world information, does not handle future, also will not converge, thus hallucination. Both HI and MI handles future, and MI always converges.

Problem To Overcome In Solutioning : Curve of Diminishing Returns Because Of **Change** and **Choice**



Tyranny of Choice

Too Many Cooks, Spoils The Soups



A hint and lesson from mathematics:
Least Common Factors and Basis don't
change.

Silverlake MAI (Mathematical Artificial Intelligence) FSA (Financial Services Architecture)

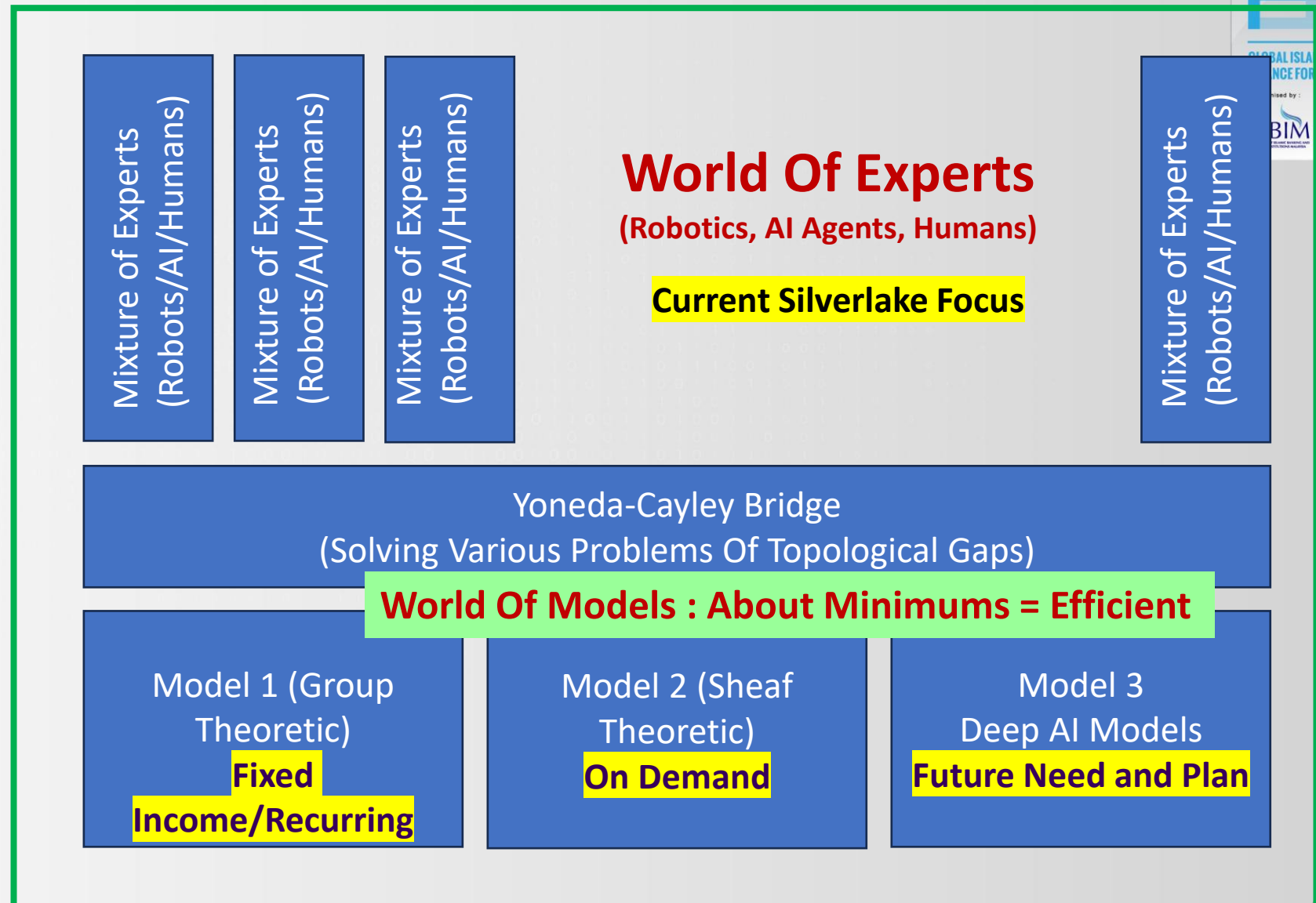


Reinforcement Framework For Build

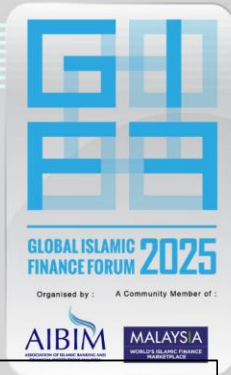
Choice To Choice (C2C or AI)

There is no way to understand what is C to C without using mathematics. AI in last 85 years was very much Trials and Errors. Only very recently, two books on mathematics of AI were published (book 6 and 7). Of course, I have been talking about MI even from IBM days.

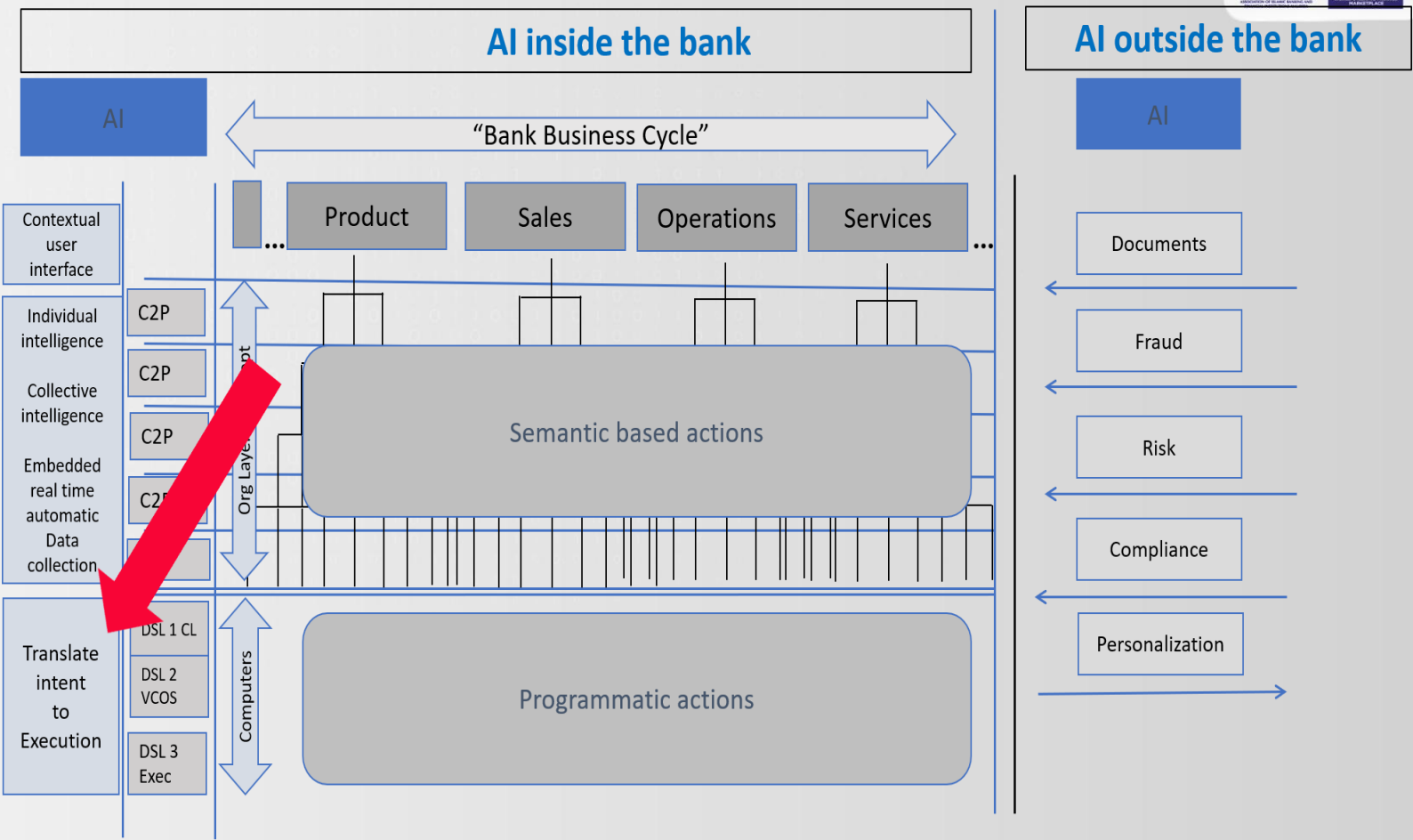
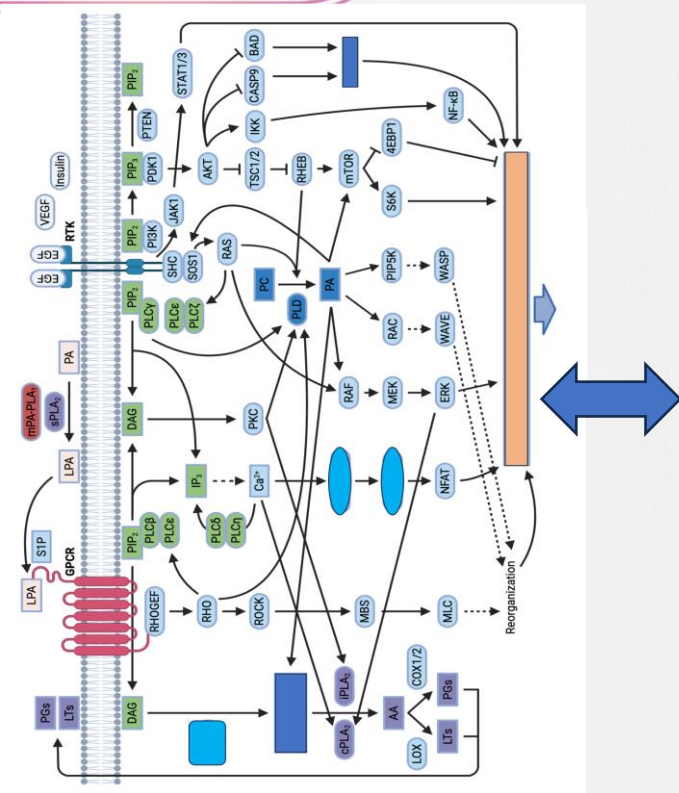
Choice To Purpose (C2P)



Silverlake Yoneda/Cayley Pathways : Silverlake CgW

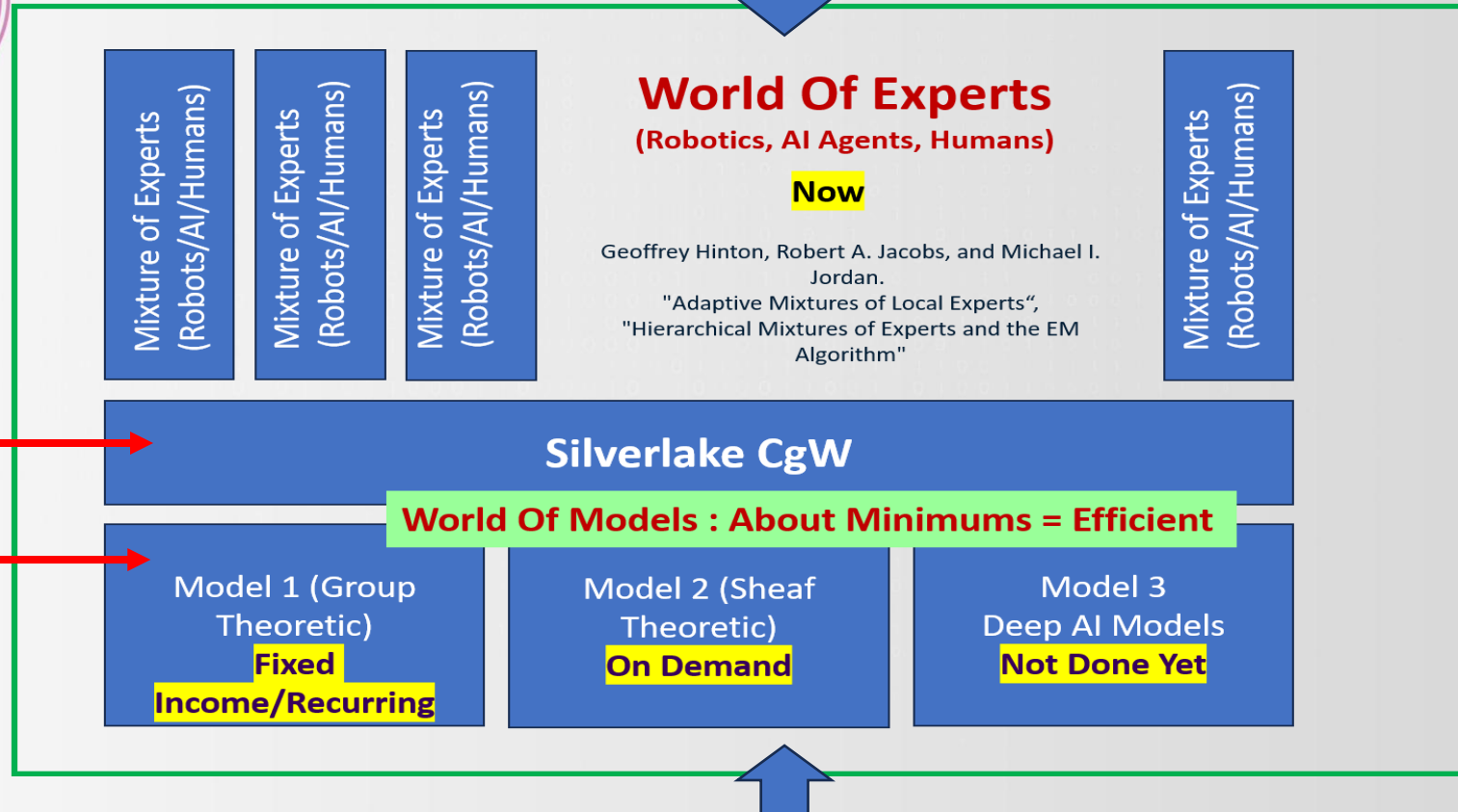


Silverlake CgW



Massive AI Collaboration

Reinforcement Framework



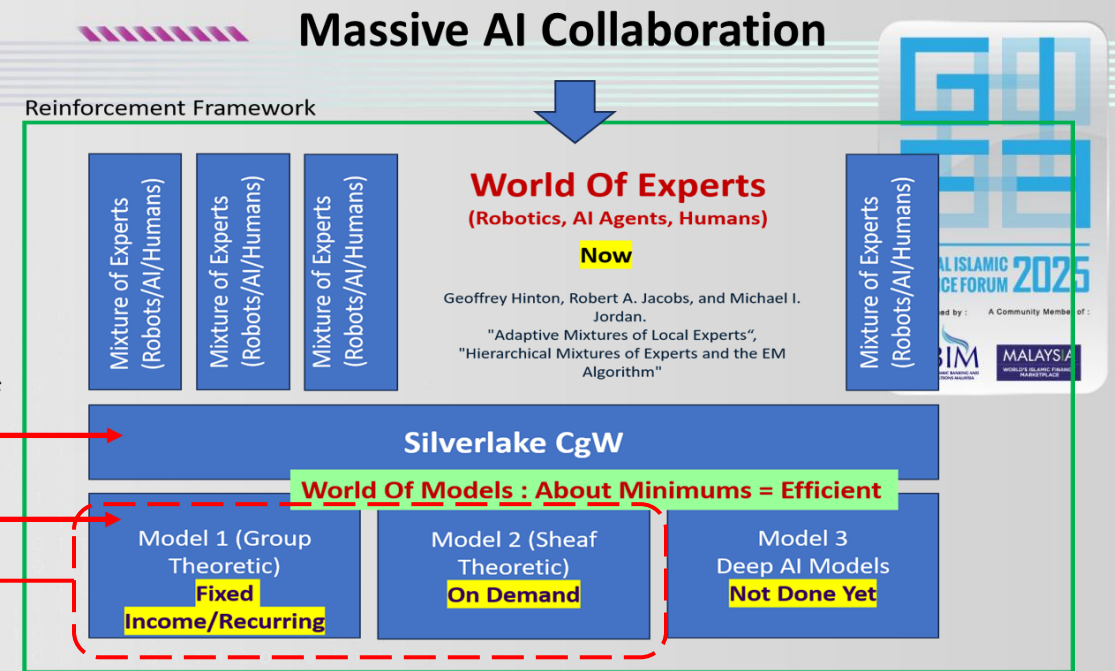
Silverlake Group is one of very few companies that have their own "Models" and "Yoneda/Cayley" Implementations.

Silverlake 100% Success Rate

Implementation – Islamic Finance

Shariah Compliance requirements are managed at the “**Compliance, Business and Strategy**” Layer of the Reinforcement Framework

Silverlake Group is one of very few companies that have their own “Models” and “Yoneda/Cayley” Implementations.



Shariah Compliance in accordance to the Islamic Principles

Sources of Funds

- Savings A/c
- Current A/c
- Time Deposit A/c

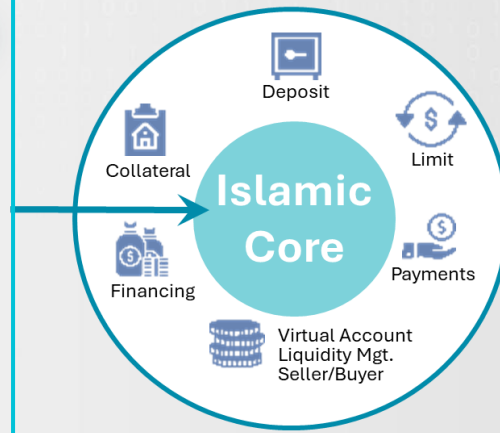
Profit Distribution

Application of Funds

- Financing
- Term Financing
- Trade Financing
- Investment

Based Shariah Concept/Contract

- | | |
|-----------------------|---------------------|
| ▪ Wadiah Yad Dhamanah | ▪ Murabahah |
| ▪ Mudharabah | ▪ Bai Bithaman Ajil |
| ▪ Wakalah | ▪ Ijarah |
| ▪ Etc. | ▪ Musyarakah |
| | ▪ Mudharabah |
| | ▪ Etc. |



Shariah fundamental of Islamic Finance embedded within Silverlake Group Own “Models” (SIBS and Mobius)