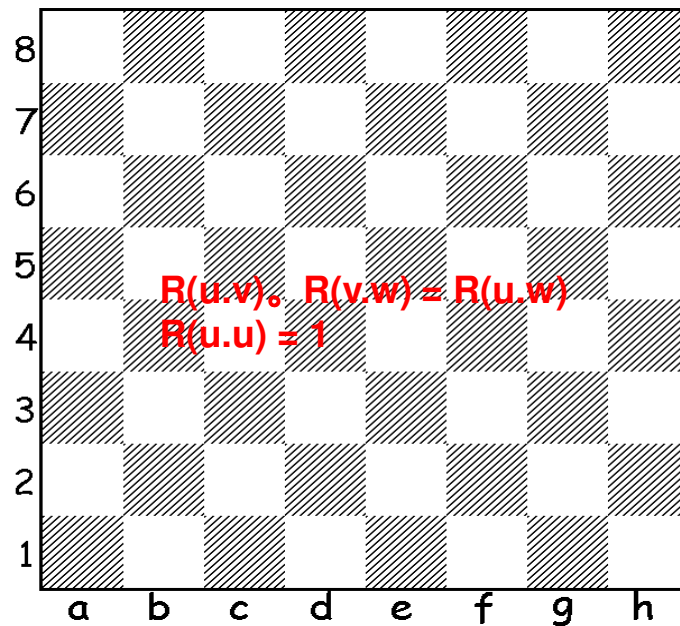


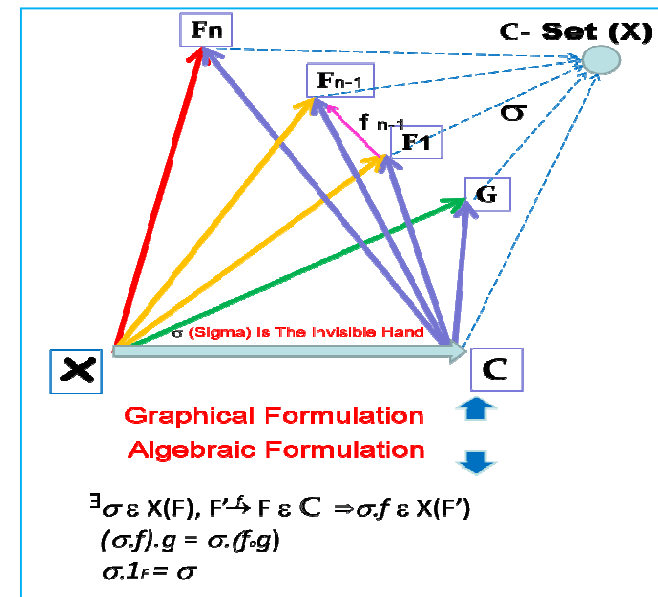
Moving Towards Fintech World : A New Approach To Economy And Technology

Goh Peng Ooi
23rd Jan 2017

This is how I see the world



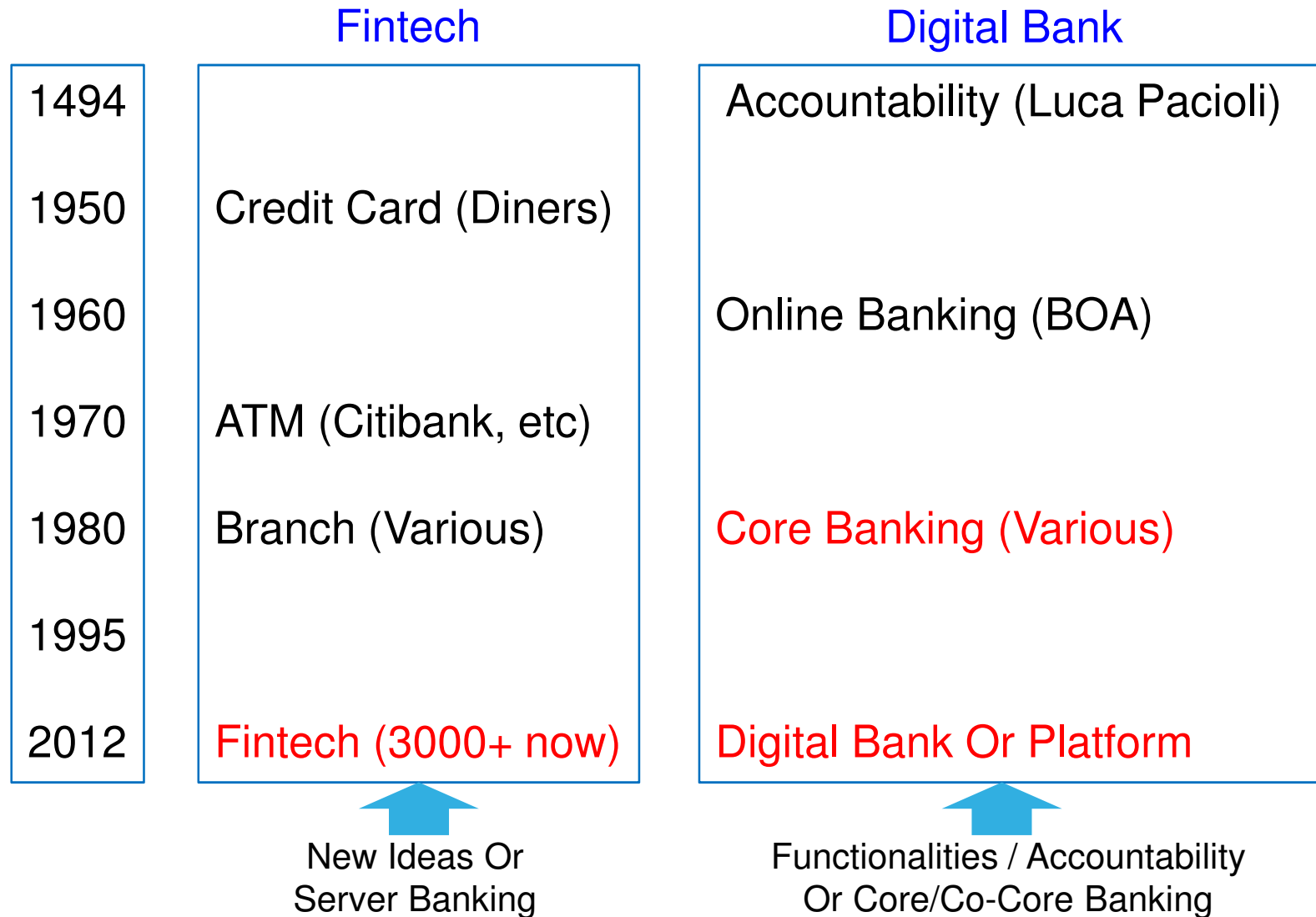
Restrictions On Knowledge



Goh Mathematical Social Economic Theory

I predicted in 1988 that Core Banking is Group Theory, and in 1998 that something resembling Category Theory will appear in this world, which we now called Fintech, and finally, in 2002, Digital Banking Platform is 1-Sheaf of the said Group. In 2003, I listed the first business in Singapore Stock Exchange and the peak value was 3 billion US\$. The 2nd, 3rd and 4th listings are on the way.

The Evolution Of Economy Is Shockingly 'Physical'



Is This Physics Or Mathematics?

I Asked This Question While I Was In University Of Tokyo



$$F = ma \quad \text{OR}$$

$$M[\mathbf{r}(t), \dot{\mathbf{r}}(t), \ddot{\mathbf{r}}(t), t] = 0$$

Mechanics

First Industrial Revolution

1740

$$\begin{aligned} (a.b).c &= a.(b.c) \\ a^*.a &= a.a^* = 1 \\ a.1 &= 1.a = a \\ \text{Closure on } a.b \end{aligned}$$

Quantum Lie Group

Material Revolution

1920

$$\begin{aligned} (h.g).f &= h.(g.f) \\ f.1_a &= f, \quad 1_b.f = f \end{aligned}$$

Category Theory

Mathematical Revolution

1941

$$\nabla \cdot \mathbf{E} = \frac{\rho}{\epsilon_0}$$

$$\nabla \cdot \mathbf{B} = 0$$

$$\nabla \times \mathbf{E} = -\frac{\partial \mathbf{B}}{\partial t}$$

$$\nabla \times \mathbf{B} = \mu_0 \mathbf{J} + \mu_0 \epsilon_0 \frac{\partial \mathbf{E}}{\partial t}$$

Electromagnetism

Second Industrial Revolution

1860

Turing-Church Thesis

Theory Of Computability

Computing Revolution

1936

Millions of years of human endeavours cannot match a simple Newtonian equation in 1687 Principia Mathematica. The last 350 years of economy were all about mathematics, and before that it was all about nature.

If It Is Mathematics, What Is Wrong With Economists



“It was only with the closing of World War II that economic theory entered a phase of intensive mathematisation that profoundly transformed the profession.”

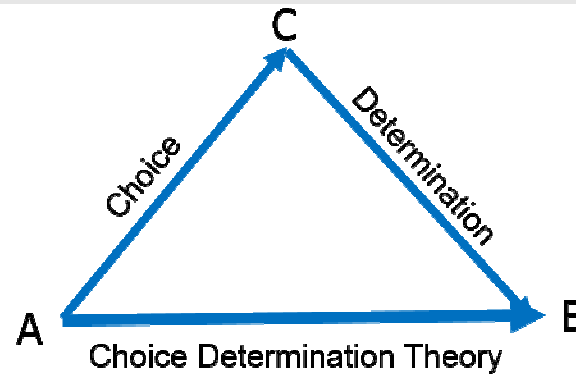
Gerard Debreu, 1991
Economics Noble Prize Winner

1940 Only 3% of economists used mathematics
1990 40% of economists used mathematics

Silverlake was founded in 1990 by applying Group Theory to Core Banking

Why is economy mathematical?
In fact it is not just economy that is mathematical.

Is It Statistics Or Choice/Deterministic?



Before 1900

Experience/Statistic



Choice Deterministic



Choice Deterministic



Choice Deterministic



Choice Deterministic



Choice Deterministic

**Can be confusing
and paradoxical, but
it is a new world we
must face.**

New Approach

Choice Deterministic



Choice Deterministic



Choice Deterministic



Choice Deterministic



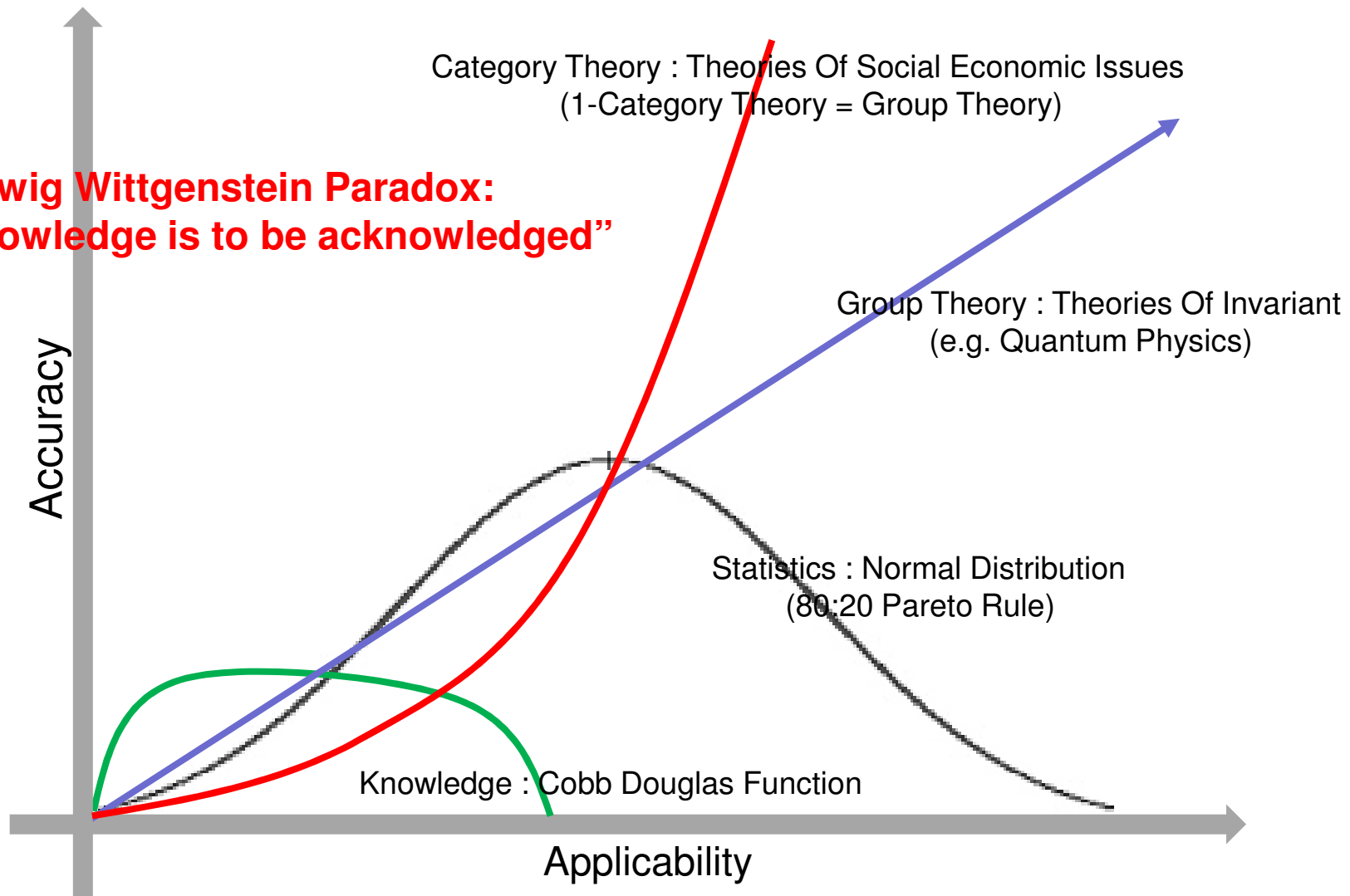
Choice Deterministic

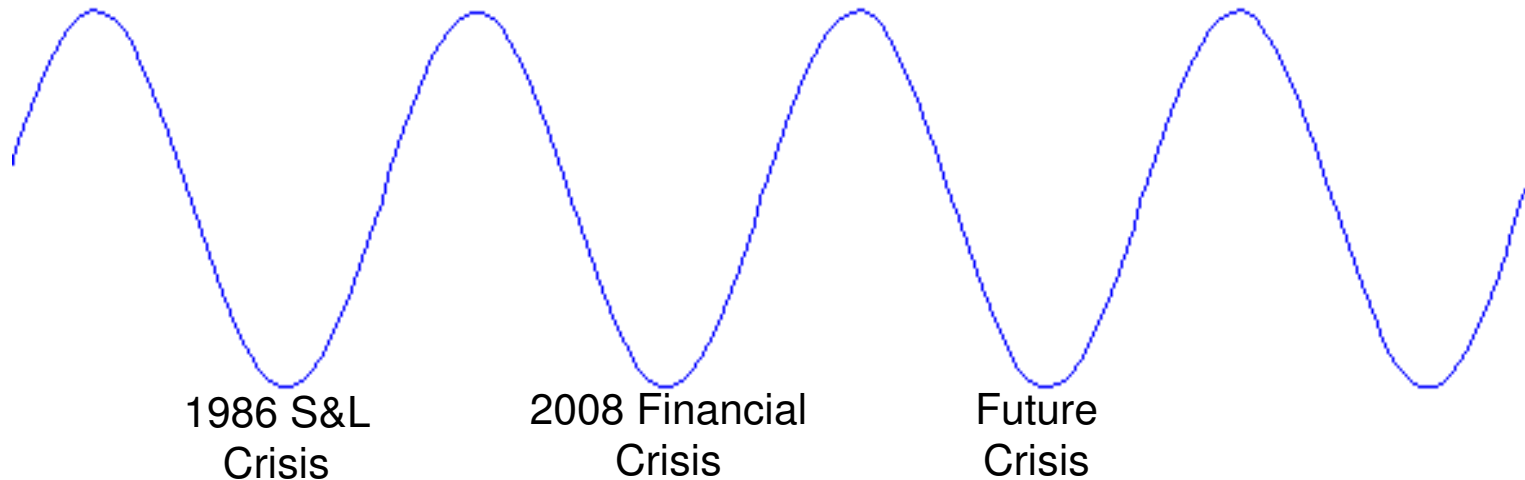


Choice Deterministic

Simplicity, Accuracy, Applicability And Predictability

**Ludwig Wittgenstein Paradox:
“Knowledge is to be acknowledged”**





Nature is by our understanding 'Choice/Deterministic', creating a conceptual and physical phenomena called 'Entanglement'.

But Determinism Or Invariant Is Still The Hidden Driving Force Of Our Lives.

Examples Of 'Valid' Responses Are Aggregation, Value Creation, Etc. Trump's Style Can Be Called 'Developerism'.

The World Tomorrow: Values Drive Market

The Elements of Value Pyramid

Products and services deliver fundamental elements of value that address four kinds of needs: functional, emotional, life changing, and social impact. In general, the more elements provided, the greater customers' loyalty and the higher the company's sustained revenue growth.

SOCIAL IMPACT



Self-transcendence

LIFE CHANGING



Provides hope



Self-actualization



Motivation



Heirloom



Affiliation/belonging

EMOTIONAL



Reduces anxiety



Rewards me



Nostalgia



Design/aesthetics



Badge value



Wellness



Therapeutic value



Fun/entertainment



Attractiveness



Provides access

FUNCTIONAL



Saves time



Simplifies



Makes money



Reduces risk



Organizes



Integrates



Connects



Reduces effort



Avoids hassles



Reduces cost



Quality



Variety



Sensory appeal



Informs

Even Trumpism
is about value.

Values
↓
Drive
Demand

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FROM "THE ELEMENTS OF VALUE," SEPTEMBER 2016

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Credit:
Harvard Business Review
Sept 2016
Eric Almquist, John Senior and
Nicholas Bloch

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How I Apply It To 'Fintech'?

Group Theory

Banking Evolution Since 1494

**Banks Trying To Be
Fintech**

Nash Non Cooperative
Game Theory

Market
(Demand For Financial Products)

**Fintech trying to
be banks**

Category Theory &
Opp Category Theory

Financial ICT Technology
Since 1960

There are now
more than 3000
Fintechs in this
world.

Silverlake Core (1988) And Co-core Digital Bank Platform (2002)



Challenges To Core:

Reference And Accountability are very difficult and even 'quantumic' concepts, as compared to functionality and technology. In fact, most people learned them through mistakes.

Group Theory
Predicted 1988
↓
Core Solution

This Is For
Digital Banks

Simplicity Is The Greatest Economy



1-Sheaf (of the group)

Predicted 2002

Co-core Digital Bank Platform

Challenge To Co-Core:

Without referencing to Core, it is nearly impossible to visualize Co-Core.

Mathematically, their relationship is called Sheaf.

C-Set Technology

CIL 6
Enabling & Realization

C-Set
Predicted

Overall Fintech World

CIL 5
Fintech Technologies

CIL 4
BusinessTech Layer

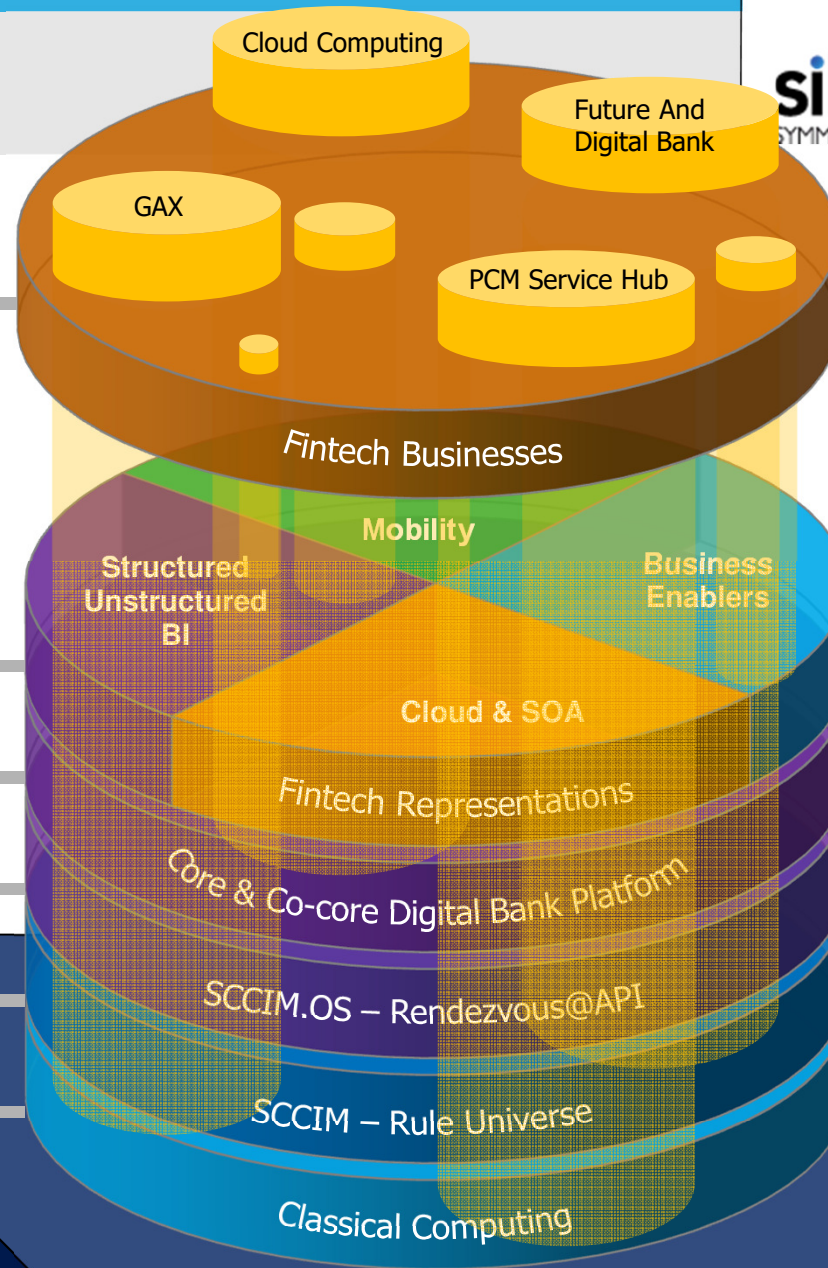
CIL 3
Infrastructure Technology

CIL 2
Sheaf Universe

CIL 1
Boolean Transformation

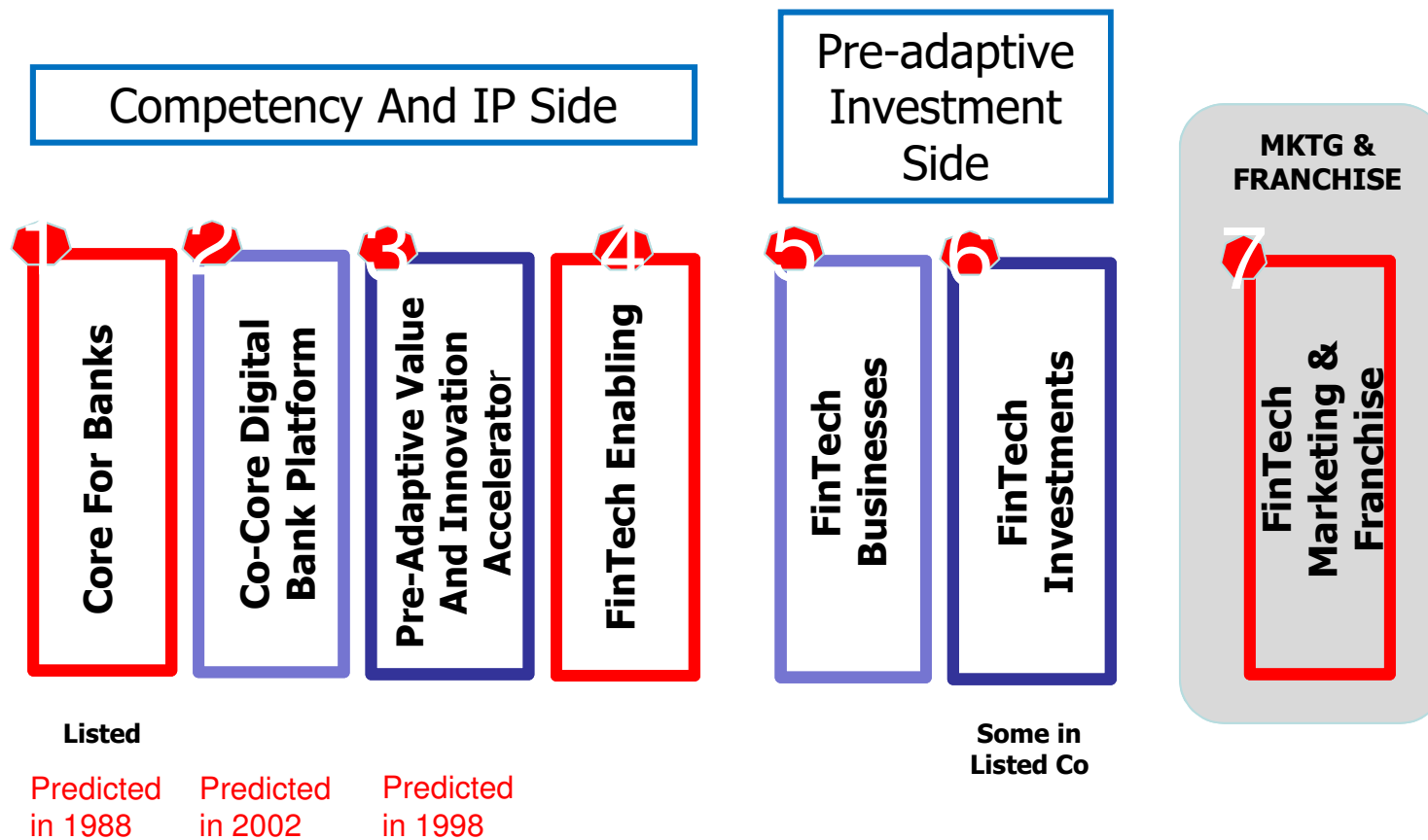
Native/Natural (σ) Transformation
(Non Human or Natural Forces/Enablers)

Sigma Transformation



Sigma Transformation

Simplicity Is Great Economy, But It Took Me 28 Years To Build.



Go To Markets By Industry

**Government
Banking
Insurance
Investment Banks
Retail
Logistics
Airlines
Health Care
Education
Logistics
Crowd Computing**

Go To Markets By Location

**ASEAN
Northern Asia
South Asia
Middle East
Oceania
Africa
Eastern Europe
Europe
North America
South America
Etc**

Fintech Investments

**Remittance
Payments
Small Loans
E-commerce
Medi-Claims
Auto-Claims
Man-less Branch
Media
Life Style
Medical
Etc**

Proven Beyond Doubt (1)



ASIA PACIFIC



AUSTRALIA

1. Harvey Norman Holding
2. Royal Automobile Club of Victoria
3. UOB
4. Westpac Banking Corporation



BANGLADESH

1. BRAC Bank
2. ICB Islamic Bank
3. National Bank
4. National Credit & Commerce Bank
5. Prime Bank
6. South East Bank



BRUNEI DARUSSALAM

1. Bank Islam Brunei Darussalam
2. Maybank
3. Perbadanan Tabung Amanah Islam Brunei
4. Tabung Amanah Pekerja (TAP)
5. UOB



CAMBODIA

1. Canada Bank Private Limited
2. Cathay United Bank Private Limited
3. CIMB Bank
4. OSK Indochina Bank



CHINA

1. AEON China
2. Bank of Qingdao
3. China Industrial Bank
4. China Minsheng Bank
5. HNA Group
6. OCBC Bank (China)
7. RSA
8. UOB



HONG KONG

1. RSA
2. Tokio Marine Insurance
3. UOB



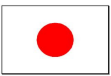
INDONESIA

1. Adira Insurance
2. Asuransi Raksa
3. Bank Bukopin
4. Bank Bumiputra
5. Bank CIMB Niaga
6. Bank Mandiri
7. Bank Maybank Indocorp
8. Bank Mega Syariah
9. Bank OCBC NISP
10. Bank Permata
11. Bank Rakyat Indonesia
12. Bank Tabungan Negara
13. Bank UOB Buana
14. Bintang
15. Canopus
16. Harta General Insurance
17. Kurnia
18. PT Auransi Multi Arttha Guna
19. PT Sampo Japan Insurance
20. PT Pan Pacific Insurance
21. RSA



INDIA

1. ICICI Bank
2. UOB



JAPAN

1. SBI Holdings
2. Shinsei Bank
3. UOB



LAOS

1. Phongsavan Bank



MALAYSIA

1. AEON
2. Affin Bank
3. Agrobank
4. Alliance Bank
5. AmBank



6. ACE insurance
7. AIA Insurance
8. Allianz Insurance
9. Asia Insurance
10. Am Insurance
11. Aviva
12. AXA insurance
13. Bank Islam
14. Bank Negara Malaysia
15. Bank Rakyat
16. Berjaya Sampo Insurance
17. BH Insurance
18. CIMB AVIVA Insurance
19. Commerce Assurance
20. CIMB Group
21. KWSP (EPF)
22. Etiqa Insurance Takaful
23. Great Eastern
24. Hong Leong Bank
25. HNA Insurance
26. Jerneh Insurance
27. Lompac Insurance
28. MAA Assurance
29. Maybank Assurance
30. MCIS Zurich Insurance
31. Multi Purpose Insurance
32. Mitsui Sumitomo Insurance
33. Marks & Spencer
34. Maybank
35. Manage Pay Resources
36. OCBC Bank
37. OSK Investment Bank
38. Oriental Capital Insurance
39. Prudential
40. Pan Global Insurance
41. Robinsons
42. SOCSO
43. RHB Insurance
44. Tahan Insurance



45. Takaful Ikhlas
46. Takaful Malaysia
47. The MUI Group
48. Tokio Marine Insurance
49. Uni Asia
50. UOB



MONGOLIA

1. Golomt Bank of Mongolia



MALDIVES

1. Bank of Maldives



PHILIPPINES

1. Bank of Philippines Island
2. Bank of Commerce
3. BPI Insurance Corporation
4. Land Bank of Philippines
5. Marks & Spencer
6. Maybank
7. Philippines Bank of Communication
8. Premier Development Bank
9. Robinson Bank
10. United Coconut Planters Bank



PAKISTAN

1. Faysal Bank
2. MCB Bank
3. United Bank
4. Silk Bank
5. JS Bank
6. Askari Commercial Bank
7. Bank Alfalah

Proven Beyond Doubt (2)

ASIA PACIFIC



PAPUA NEW GUINEA

1. Westpac Banking Corporation



NEW ZEALAND

1. Asplundh
2. ANZ Bank
3. Craig's Investment Partners
4. CSG Finance
5. Contact Energy
6. European Financial Services
7. First Credit Union
8. Fletcher Construction
9. Heartland Bank
10. Inland Revenue
11. JAE
12. Kiwi Bank
13. Local Government New Zealand
14. Land Information New Zealand
15. Lion Corporation
16. Motor Trade Finances
17. Medical Assurance Society
18. Nelson Building Society
19. New Zealand Customs
20. New Zealand Society of Local Government Mangers
21. New Zealand Blood
22. OCS
23. Police & Family Credit Union
24. Quotable Value Limited
25. Southern Cross Health Society
26. Sovereign
27. Thorn Rentals
28. Unitech Institute of Technology
29. Waste Management
30. Westpac Banking Corp



SINGAPORE

1. Allianz Insurance
2. Bank Mandiri
3. CIMB Bank
4. Canopus
5. Chartis
6. Etiqa Insurance & Takaful
7. Fat Face
8. Great Eastern
9. Hong Leong Bank
10. John Little
11. Marks & Spencer
12. Maybank
13. OCBC Bank
14. River Island
15. Robinsons
16. RSA
17. Singapura Finance Ltd
18. Tokio Marine Insurance
19. UOB



SOUTH KOREA

1. UOB



SRI LANKA

1. DFCC Bank
2. DFCC Vardhana Bank
3. MFC Bank
4. People's Bank



TIMOR LESTE

1. Bank Mandiri



TAIWAN

1. UOB



THAILAND

1. ACAP Advisory PCL
2. Bangkok Capital Alliance
3. CIMB Bank
4. Islamic Bank of Thailand
5. Krungthai Bank
6. Land and Houses Retail Bank
7. Marks & Spencer
8. Phethai Asset Management Co.
9. Siam City Bank
10. Thai Credit Retail Bank
11. Thanachart Bank
12. UOB



VIETNAM

1. Bank for Investment and Development of Vietnam
2. Bac-A-Bank
3. Bank for Housing Development
4. Hong Leong Bank
5. JACCS Co Ltd
6. Joint Stock Commercial Bank for Foreign Trade of Vietnam
7. Kien Long Commercial Joint-Stock Bank
8. Saigon Thuong Tin Commercial Joint-Stock Bank
9. Société Générale
10. Vietnam International Bank
11. Vietnam Joint Stock Commercial Bank for Industry and Trade (Vietinbank)
12. Vietnam Maritime Commercial Stock Bank
13. Saigon Bank for Industry and Trade
14. UOB

Proven Beyond Doubt (3)



CZECH REPUBLIC

1. Ceska Sportelna
2. Marks & Spencer



EGYPT

1. Arab Banking Corp



HUNGARY

1. EBH Hungary



JORDAN

1. Jordan Kuwait Bank
2. Arab Banking Group



LATVIA

1. AS SEB Banca
2. SEB Banka



MALTA

1. Marks & Spencer



SPAIN

1. Marks & Spencer



SAUDI ARABIA

1. Amlak International
2. Marks & Spencer



SLOVAKIA

1. Slovenska sporitel'na (SLSP)



UNITED ARAB EMIRATES

1. Abu Dhabi Islamic Bank
2. Commercial Bank International
3. Marks & Spencer



UNITED KINGDOM

1. Crown Agents Bank Limited
2. Westpac Banking Corporation
3. UOB



BAHRAIN

1. Ahli United Bank BSC
2. Arab Banking Corporation (B.S.C)



UNITED STATES OF AMERICA

1. UOB
2. Westpac Banking Corporation



CANADA

1. UOB



GHANA

1. EPF



KENYA

1. Kenya Post Office & Savings Bank



SOUTH SUDAN

1. Bank of South Sudan
2. The Charter One Bank



TUNISIA

1. Arab Banking Corp

CUSTOMER REFERENCES



Silverlake Symmetri Customers



A Partial Customer Footprint



Southeast Asia

28% of FY14 revenue



Middle East & Africa

20% of FY14 revenue



Indian Subcontinent & Pakistan

21% of FY14 revenue



Europe

29% of FY14 revenue



A leading software as a service provider of Insurance Claims Management and Underwriting platform in the Asia-Pacific region

with **more than 15 years** of Insurance Ecosystem experience since 2000



 **Customer** base comprising ...

 **115**

Insurers and
Takaful
Operators

 **4,800**

Repairers and
Motor
Franchisers

 **25**

Major
Automobile
Brands

 **470**

Loss Adjusters
and
Law firms

 **1950**

Insurance
Intermediaries

Merimen's Established Base in Malaysia & Singapore



*Used by **All General Insurance Companies** in
Malaysia & Singapore*

