


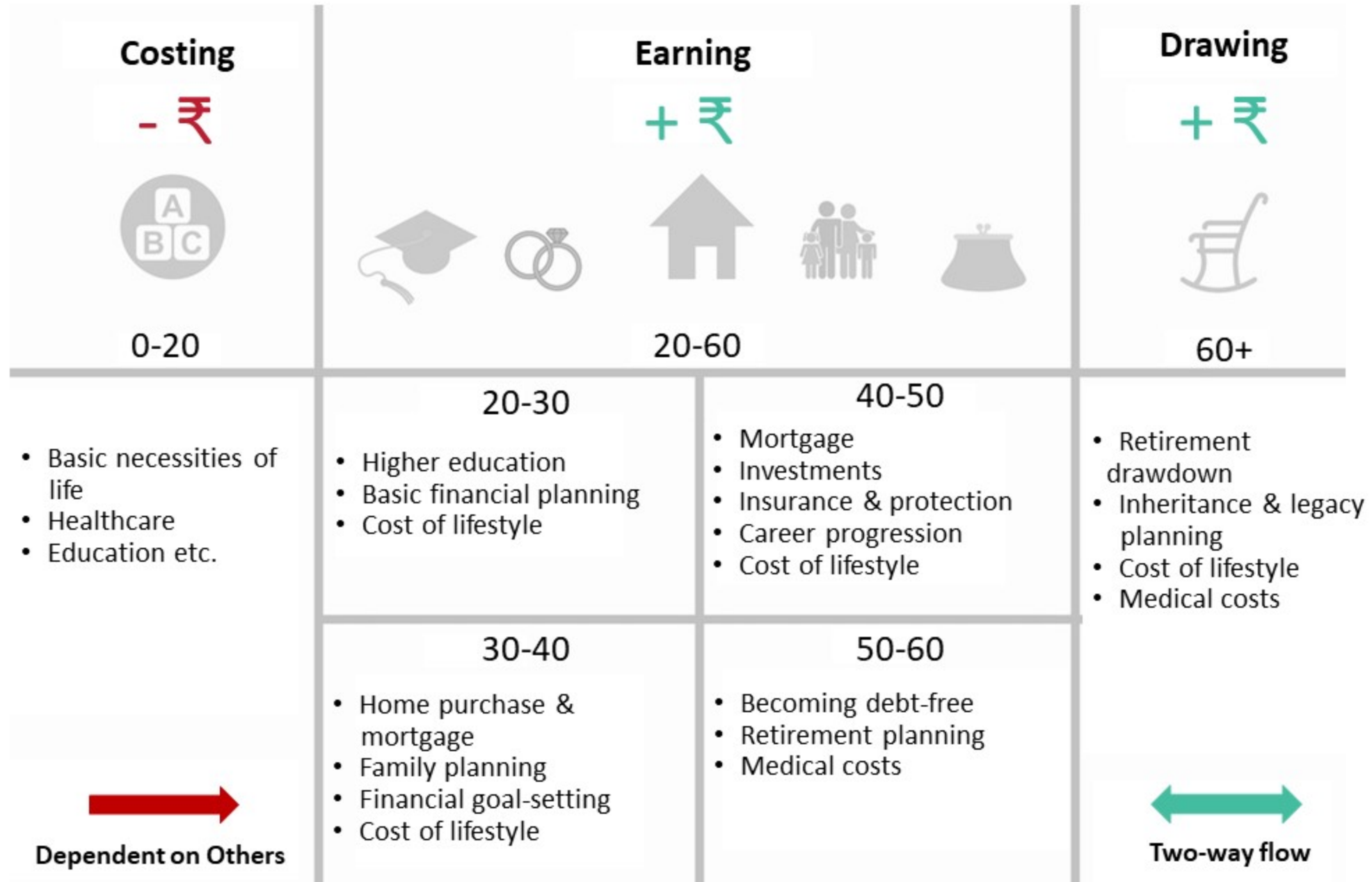
Finance 101 : Savings, Wealth Creation, Preservation, Time Value & Role of Borrowings

A nighttime photograph of a modern, multi-level building with a prominent staircase and a fountain in the foreground. The building is illuminated from within, and the sky is dark with stars. The scene is set in a landscaped area with trees and walkways.

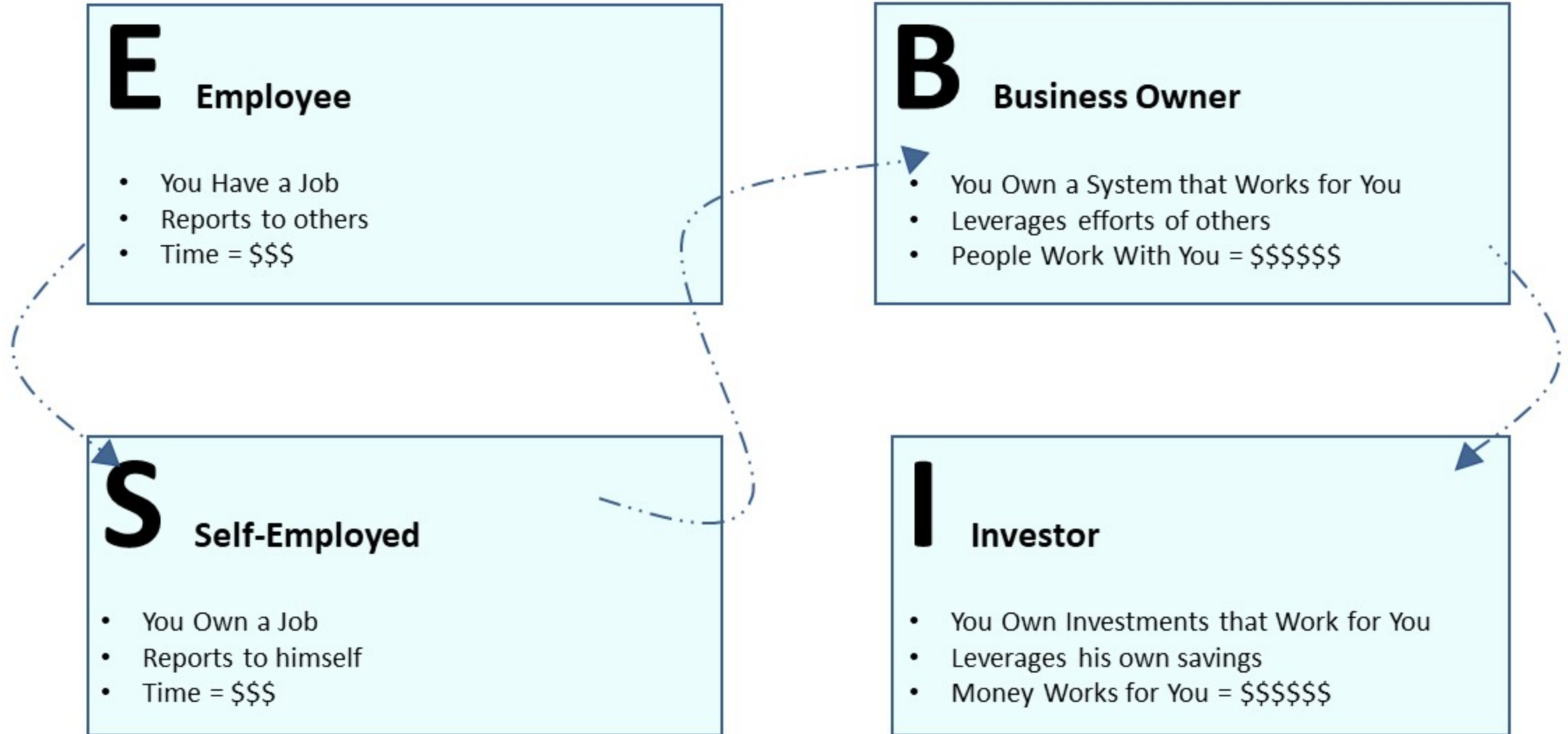
"An investment in knowledge pays the best interest." — Benjamin Franklin

Kuntal Shah
February 2021
Webinar @
FLAME University

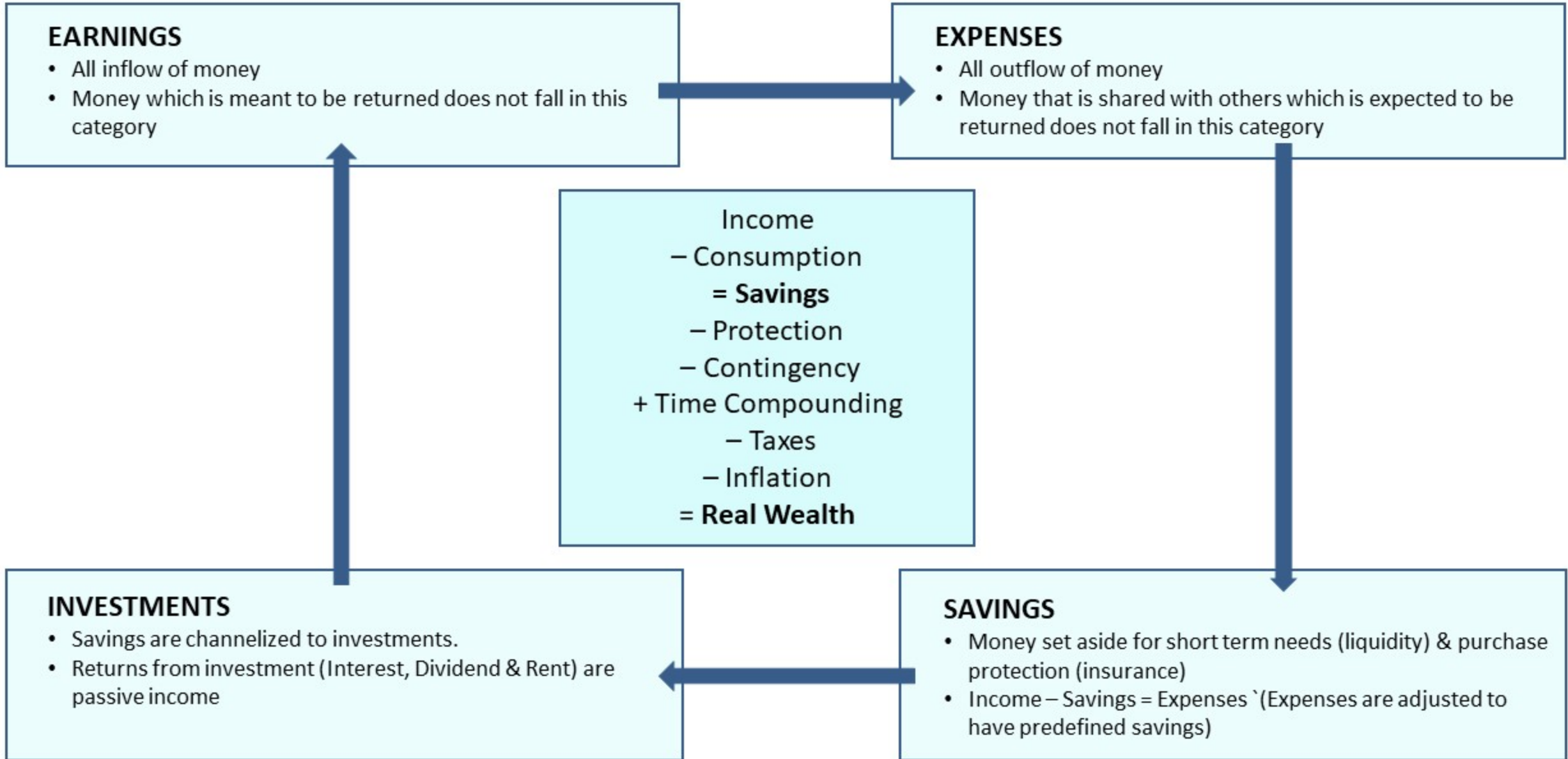
Typical Financial Lifecycle : Rome Was Not Built in a Day



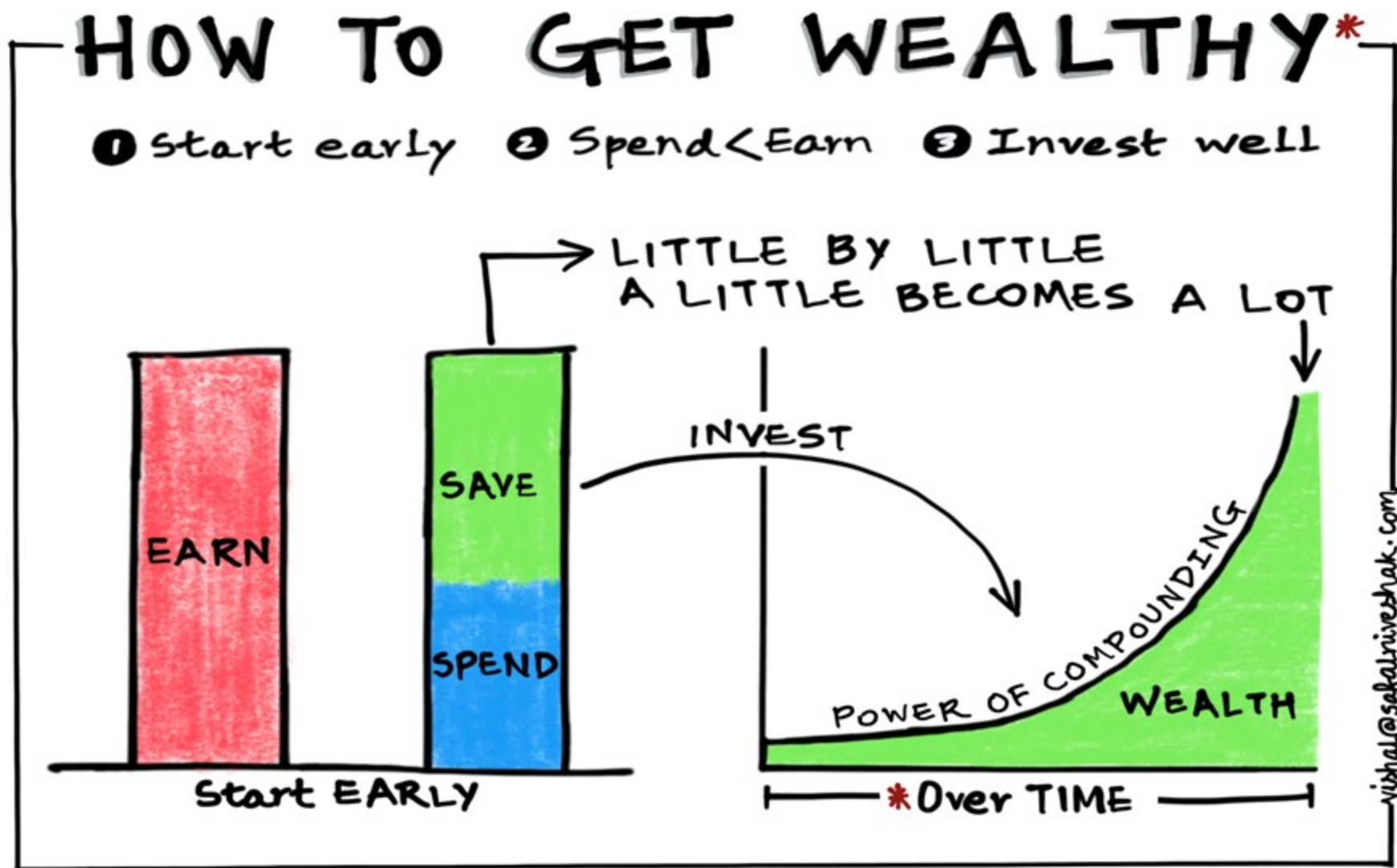
Career is 60 % of Lifetime...Choose Wisely : What You Enjoy & What You can Win at



“In the long run, it’s not just how much money you make that will determine your future prosperity. It’s how much of that money you put to work by saving it & investing it.” – Peter Lynch

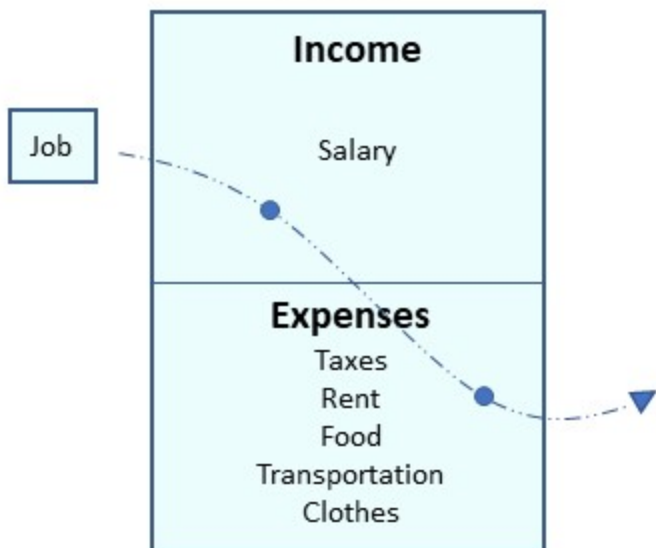


Spending Habits Matter : The Best Way to Climb the Wealth Ladder is by Spending Money According to Your Level



Wealth is a Factor of Your Earnings, Consumption & Saving Habits

POOR

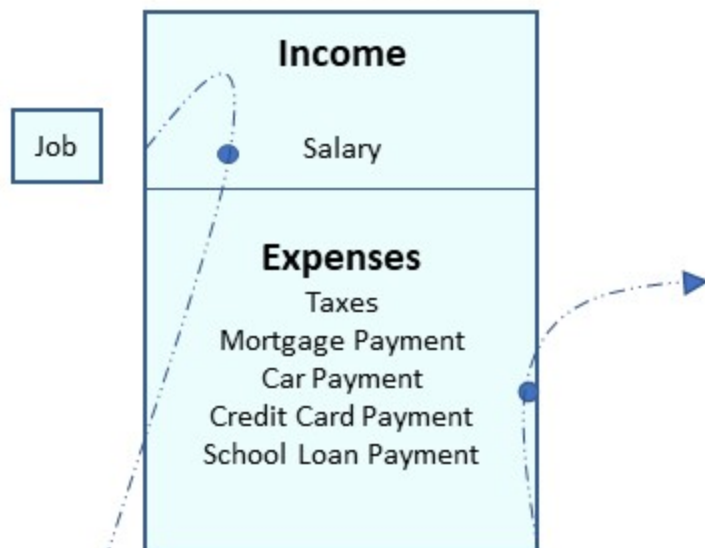


$\text{Income} = \text{Expenses}$

Assets	Liabilities

Living Within Means

MIDDLE CLASS



$\text{Income} + \text{Borrowing Cost} = \text{Expenses}$

Assets	<	Liabilities
Home Car		Mortgage Car Loan Credit Card Debt Consumer Loan School Loan

Preponed Consumption

RICH



$\text{Income} - \text{Savings} = \text{Expenses}$

Assets	>	Liabilities
Real Estate Stocks Bonds Notes Intellectual Property		Mortgage

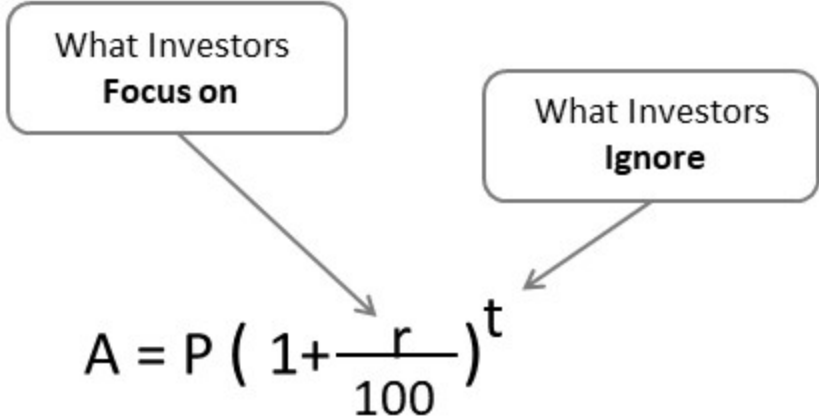
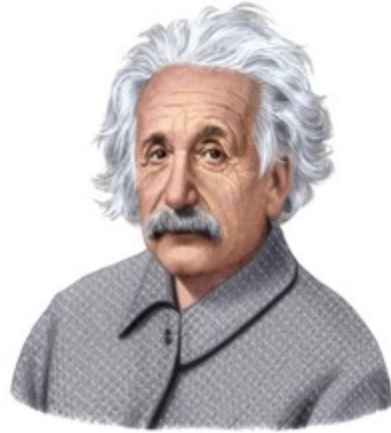
Delayed Gratification

Value of Time

“The longer you can extend your time horizon, the less competitive the game becomes, because most of the world is engaged over a very short time frame.” - William Browne

Longevity Matters as Compounding is Backloaded

“Compound Interest is the Eighth Wonder of the World. He who Understands it, Earns it ...He who Doesn't ...Pays it.” – **Albert Einstein**



The

Power

Of

Compounding

Long Term Compounding is Not Trivial



Francis(I) paid around \$20,000 for Leonardo da Vinci's Mona Lisa. If he could invest at 6% p.a. for 480 years would be \$28,044,346,395,713,300 or roughly 320 times the World GDP



The Manhattan Indians sold the island to Peter Minuit for \$24. The current estimated value of the island is \$1.5 trillion. If the Manhattan Indians managed to compound \$24 at 7% the value would be \$9 trillion, a little over 3 times India's GDP.

Long-Term Compounding is Not Trivial



Compounding for Long Term

If Cost of voyage, Isabella underwrote were to be \$30,000 compounded at 4% p.a. for 528 years would be \$29,561,359,601,145 Or \$29.5 trillion, little less than 1.5 times USA's GDP

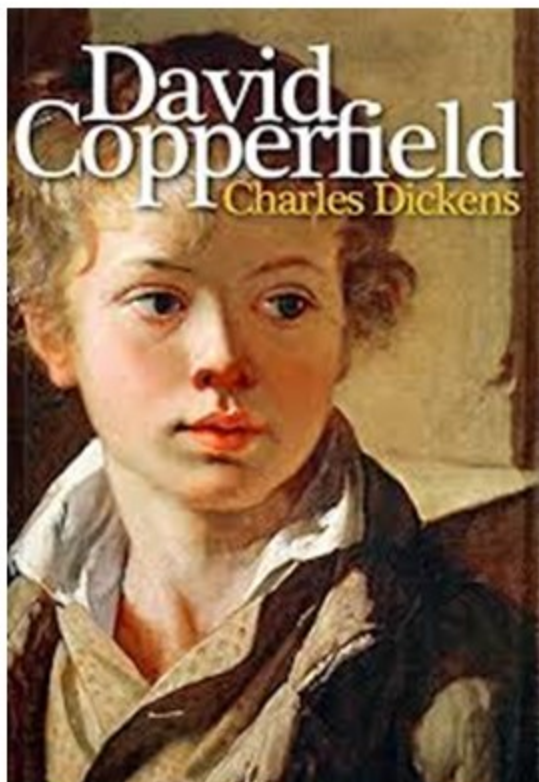
Source: masters invest



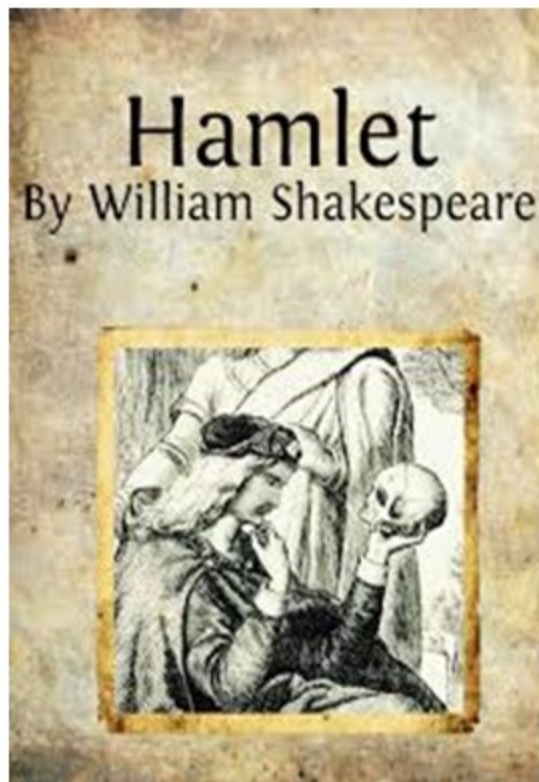
Compounding at 100%

One grain in the first square & double for the next & so on till the 64th square –
 $1 \cdot (2^{64}) = 18,500,000,000,000,000$
Or 18.5 million trillion grains or roughly 770 times the current amount of rice produced globally

Simplicity has Stood the Test of Time

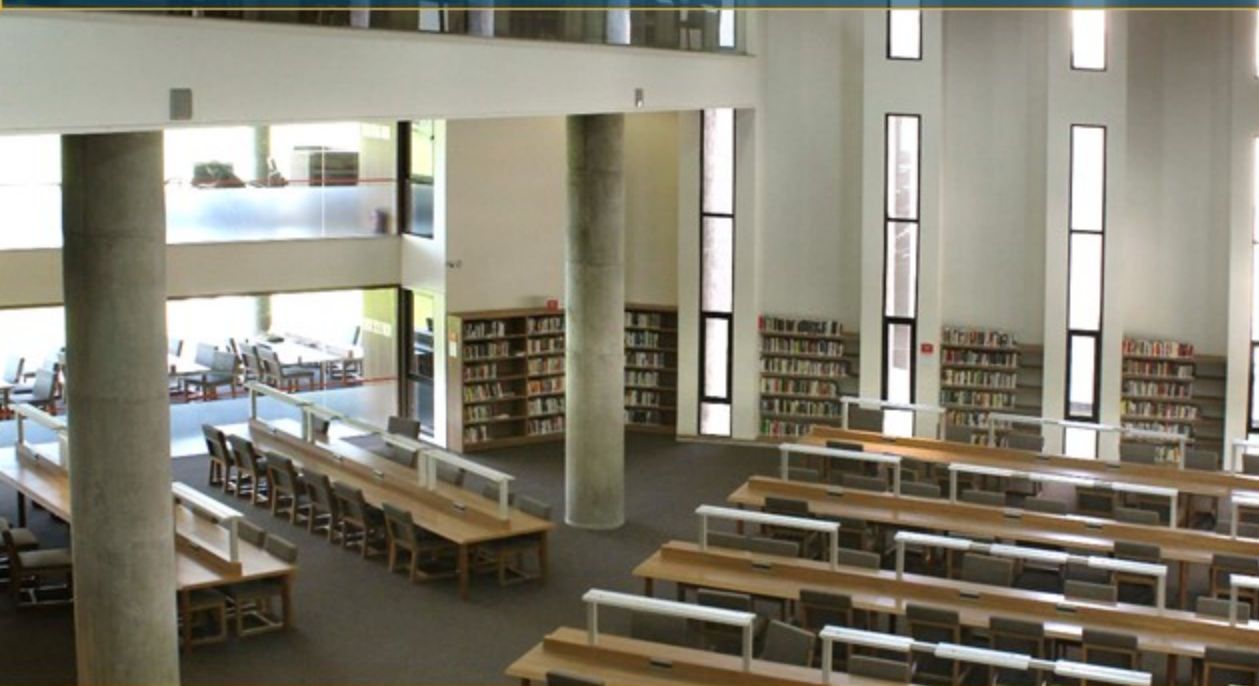


“Annual income twenty pounds, annual expenditure nineteen six, result happiness. Annual income twenty pounds, annual expenditure twenty-pound ought & six, result misery.” 1849 Charles Dickens’ classic, David Copperfield



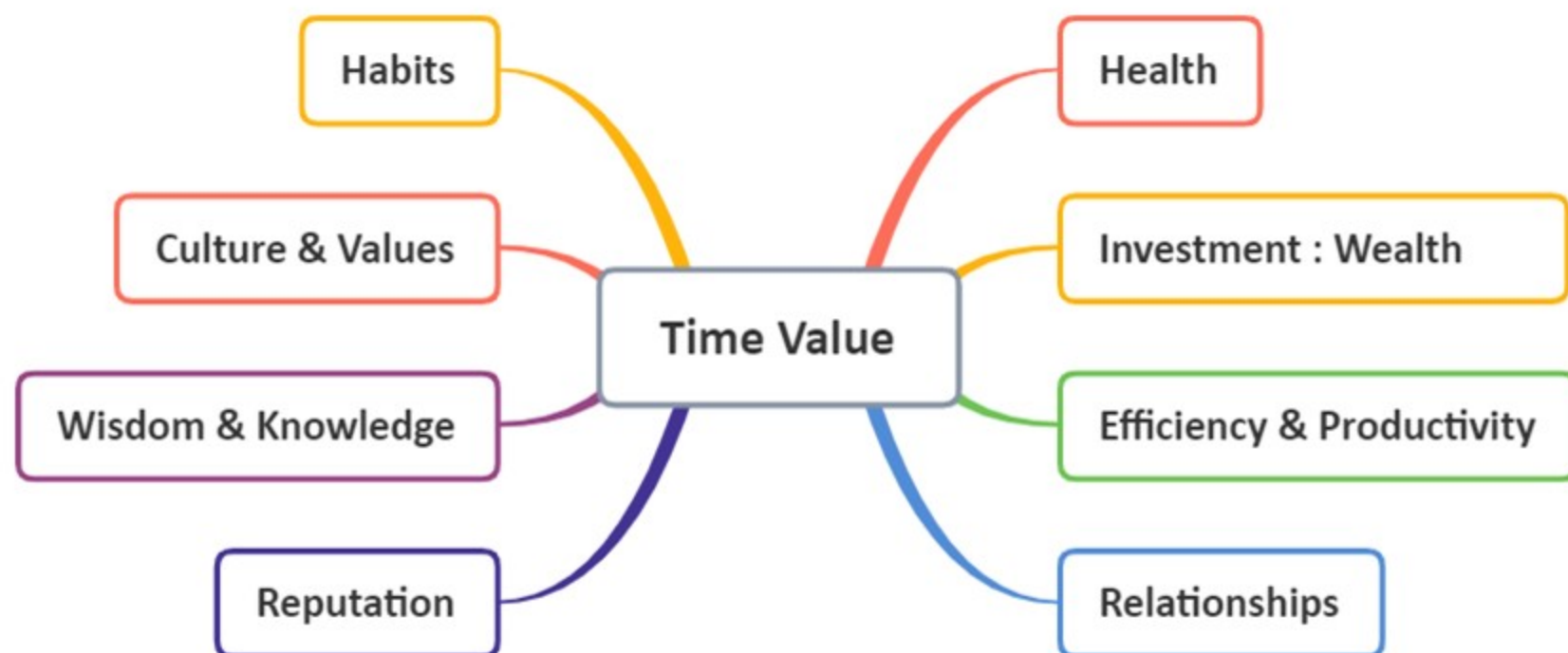
Neither a borrower nor a lender be ; for loan doth oft lose both itself & friend. And borrowing dulls the edge of husbandry.” Shakespeare, Hamlet

Time is what Cooks Businesses, Friendships, Character
& Culture, Asset Prices Too



<https://www.libraryofmistakes.com/>

All the Valuable Things in Life are an Outcome of Compounding Effect



$$1.01^{365} = 37.8$$

$$0.99^{365} = 0.03$$

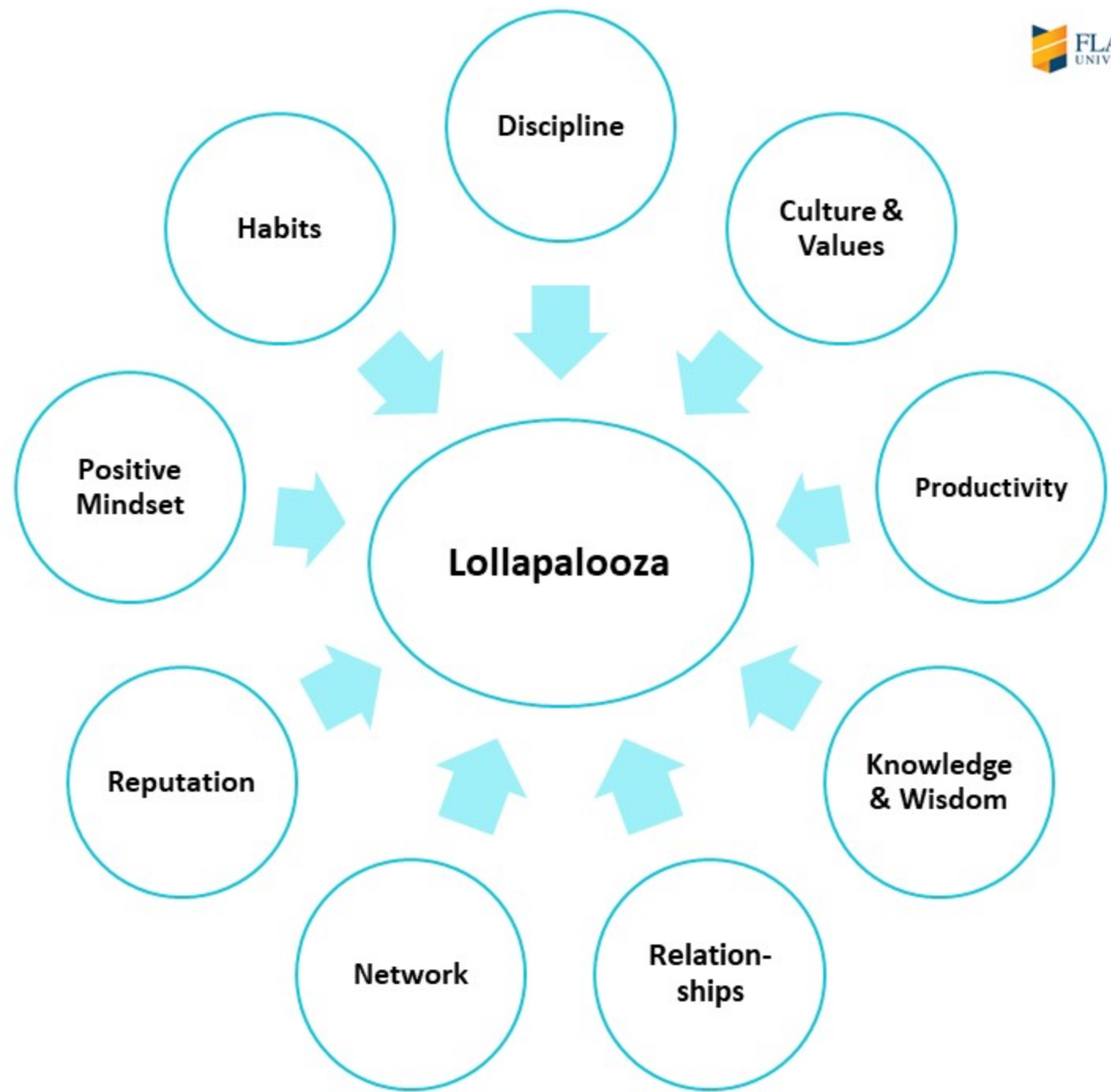
$$1.02^{365} = 1377.4$$

$$0.98^{365} = 0.0006$$

“Small, smart choices + Consistency + Time = Radical Difference”

Lollapalooza Effect : Every Choice has Consequences & Then There are Consequences of Consequences

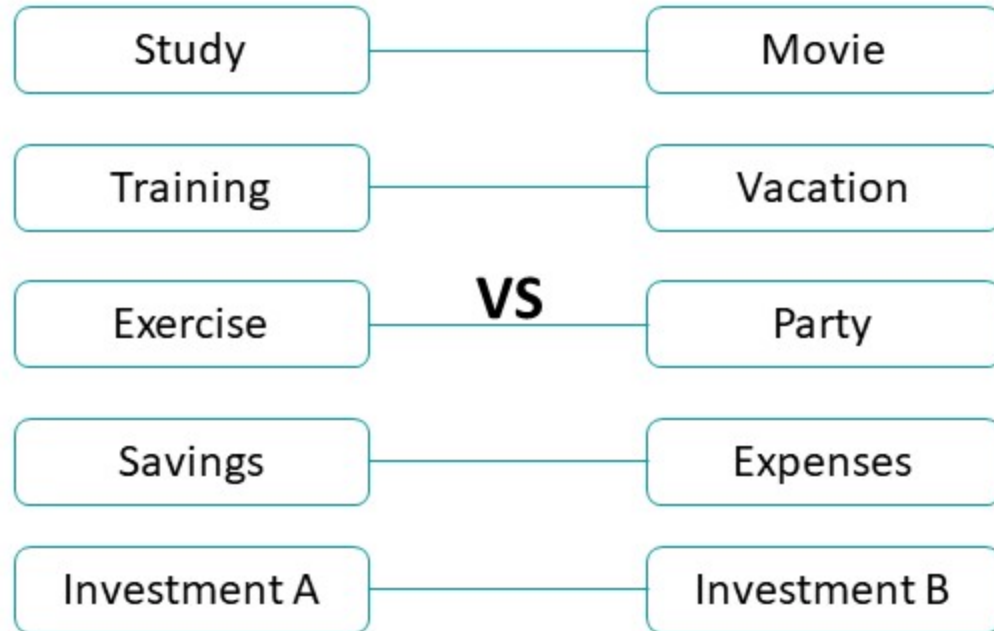
- When several models combine, you get lollapalooza effects ; this is when two, three or four forces are all operating in the same direction.
- Sometimes the forces just add like ordinary quantities & sometimes they combine on a breakpoint or critical-mass basis.



Life is a Whole Series of Opportunity Costs

Opportunity Cost

$$\text{Opportunity Cost} = \frac{\text{What One Sacrifices}}{\text{What One Gains}}$$



Fungibility of Time & Money



“A man who dares to waste an hour of time has not discovered the value of his life.” – **Charles Darwin**

Anything Multiplied by Zero is Zero



“It takes a lot of compounding to turn a mistake into a disaster. So, it's the compounding you must prevent, not the mistakes.”
- **Aaron Brown**

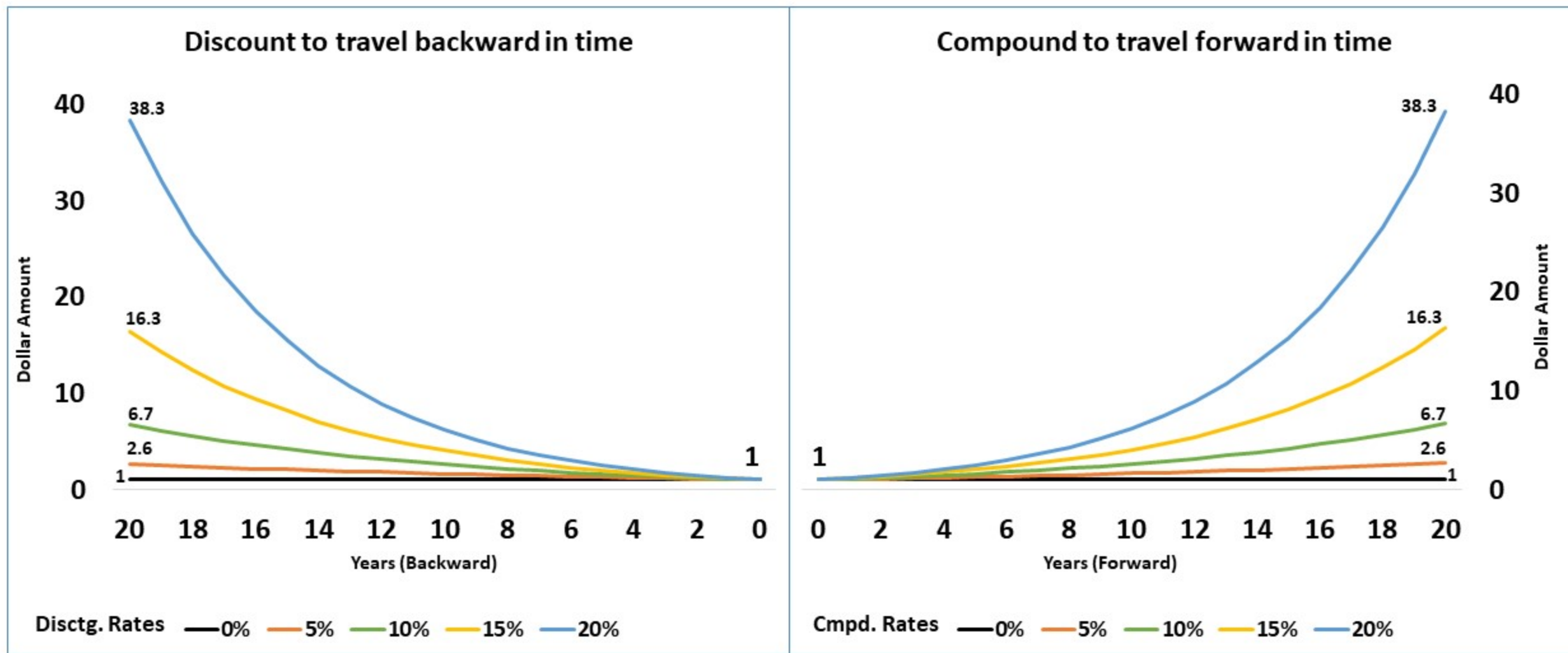


“A misconception about “life pieces” is that they are additive, such that if one of them is missing, so what , the rest all add up to a big number. Not so, they are multiplicative, meaning if any single important life reality ever becomes zero- failed health, failed family, - the product of the whole string becomes a zero.”
- **Peter Kaufman**

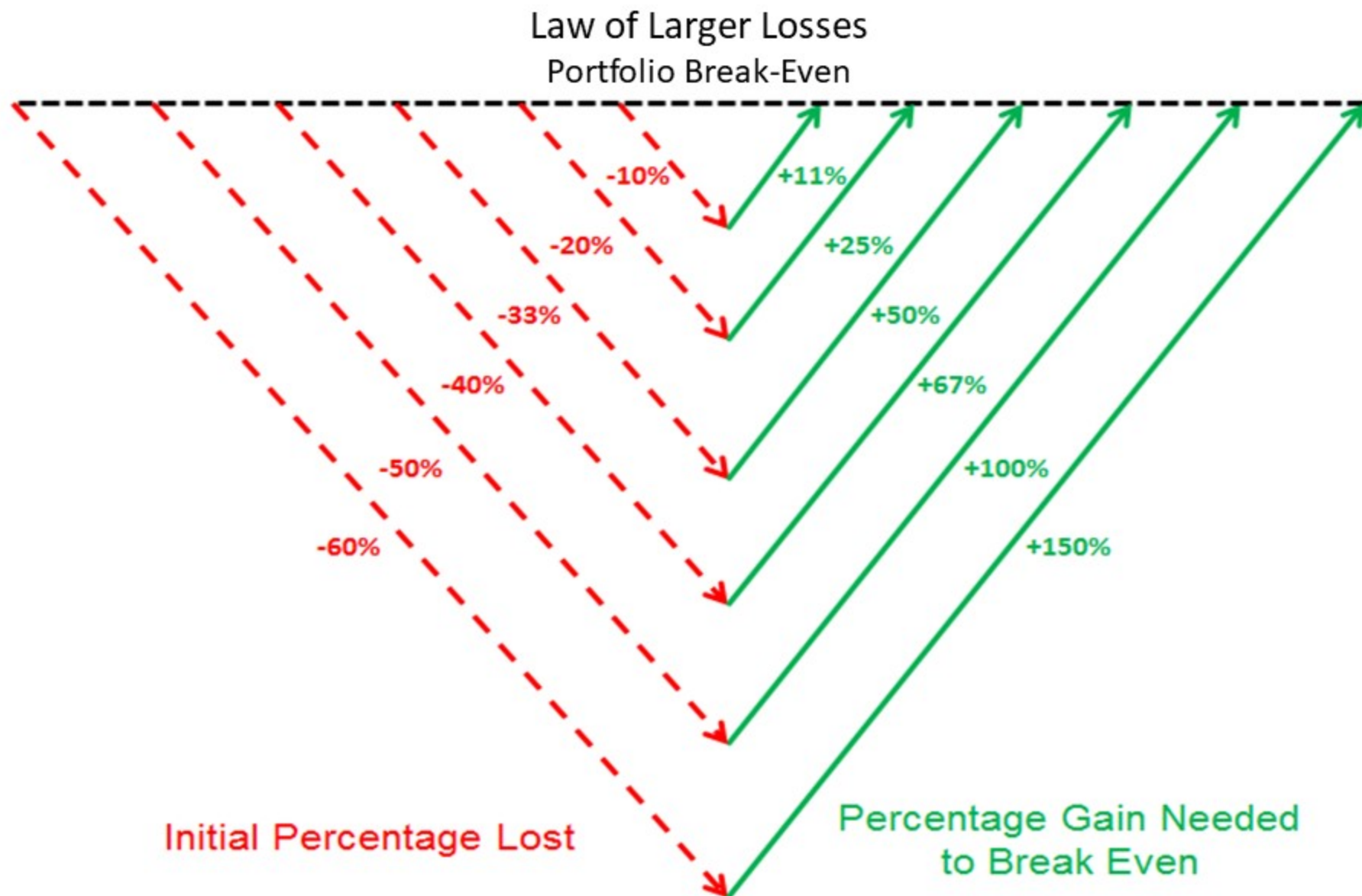
**Money is a By-Product of Ones Ability to
Think & Work Hard Towards it**

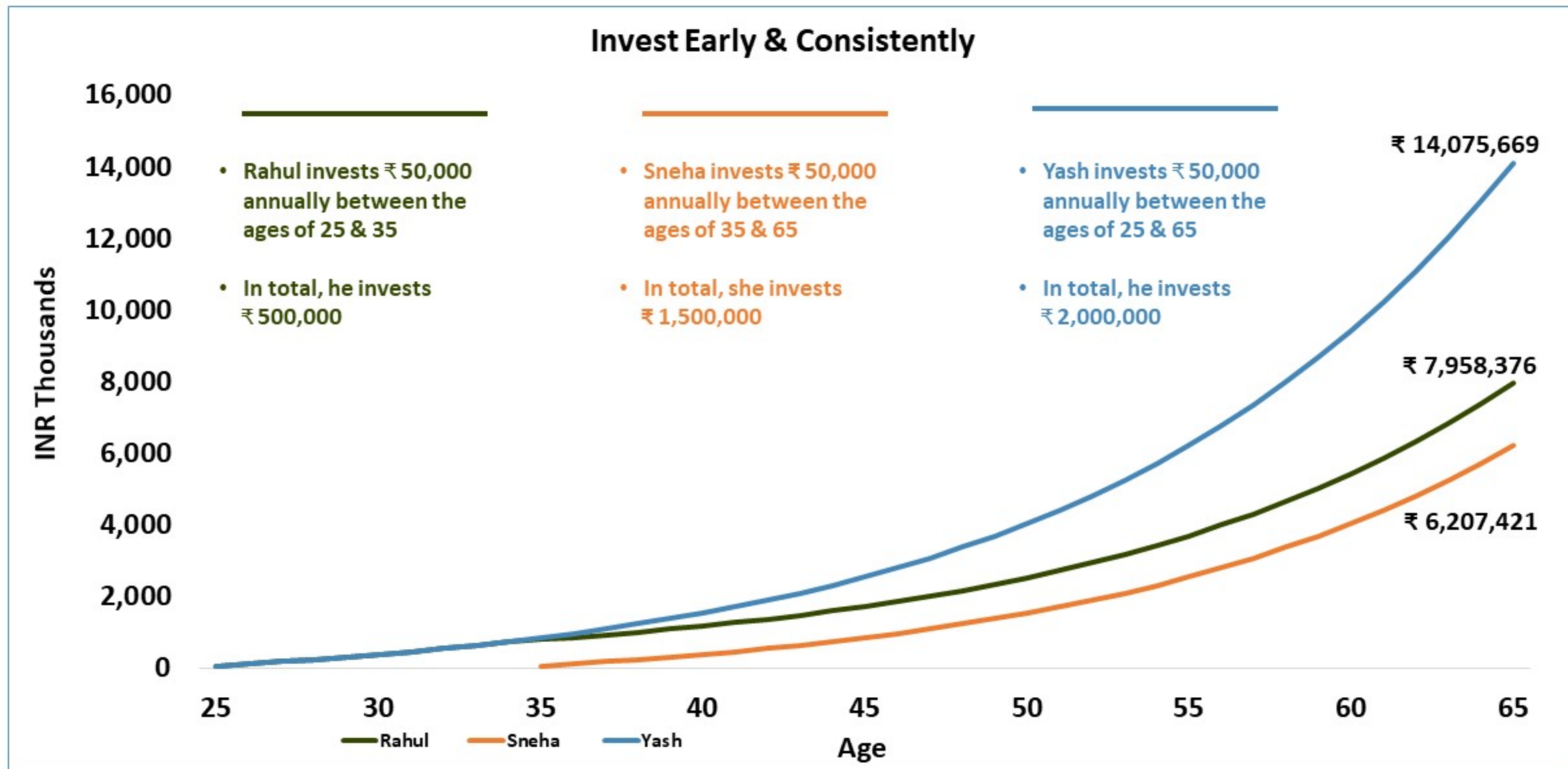
“The game of life is the game of everlasting learning.” — Charlie Munger

Compounding Inverted is Discounting



Don't Risk What you Have & Need, for Something you Don't Have & Don't Need





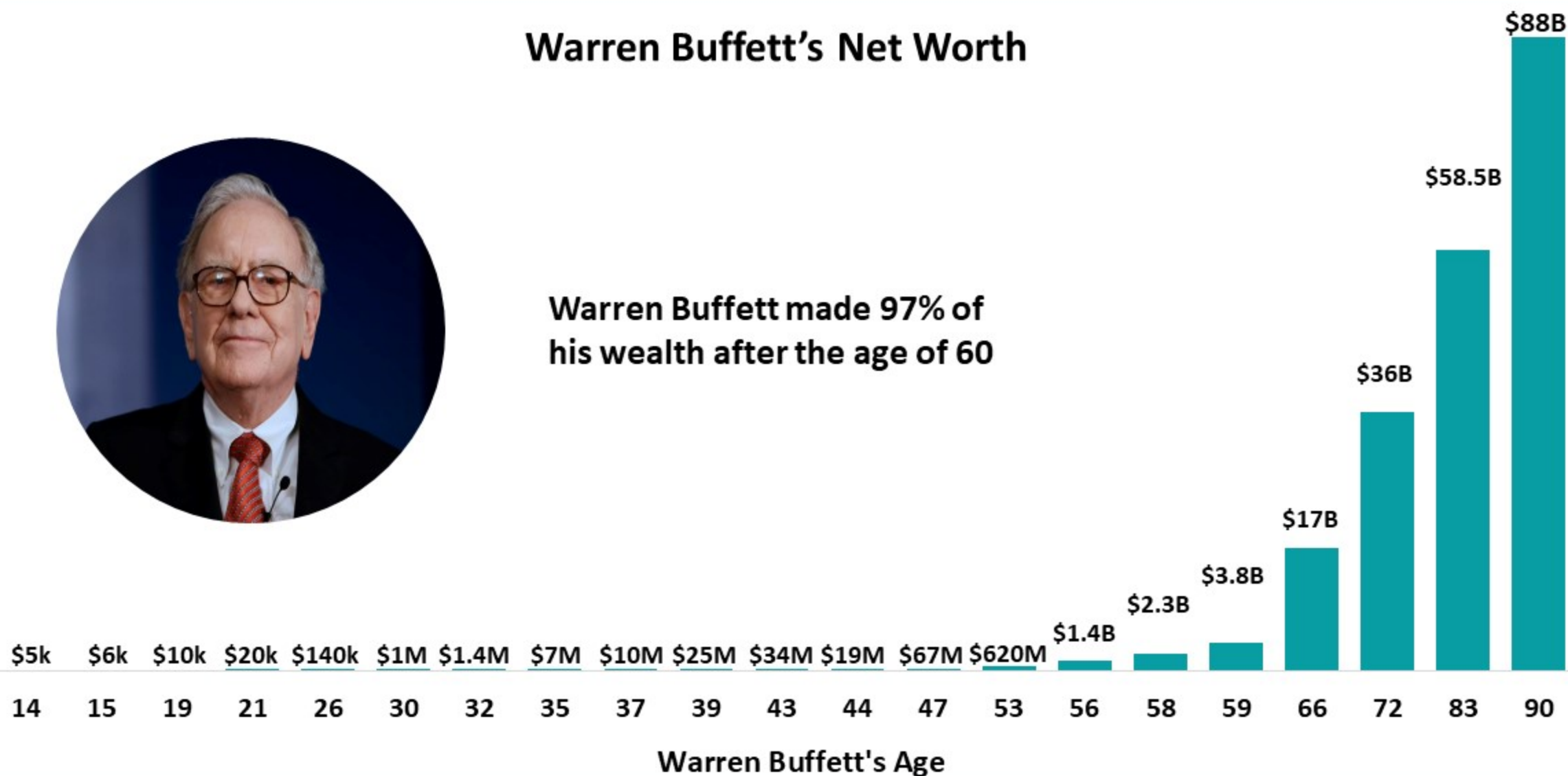
You Need To First Finish, In Order to Finish First

Compounding is Backloaded - Longevity Matters

Warren Buffett's Net Worth

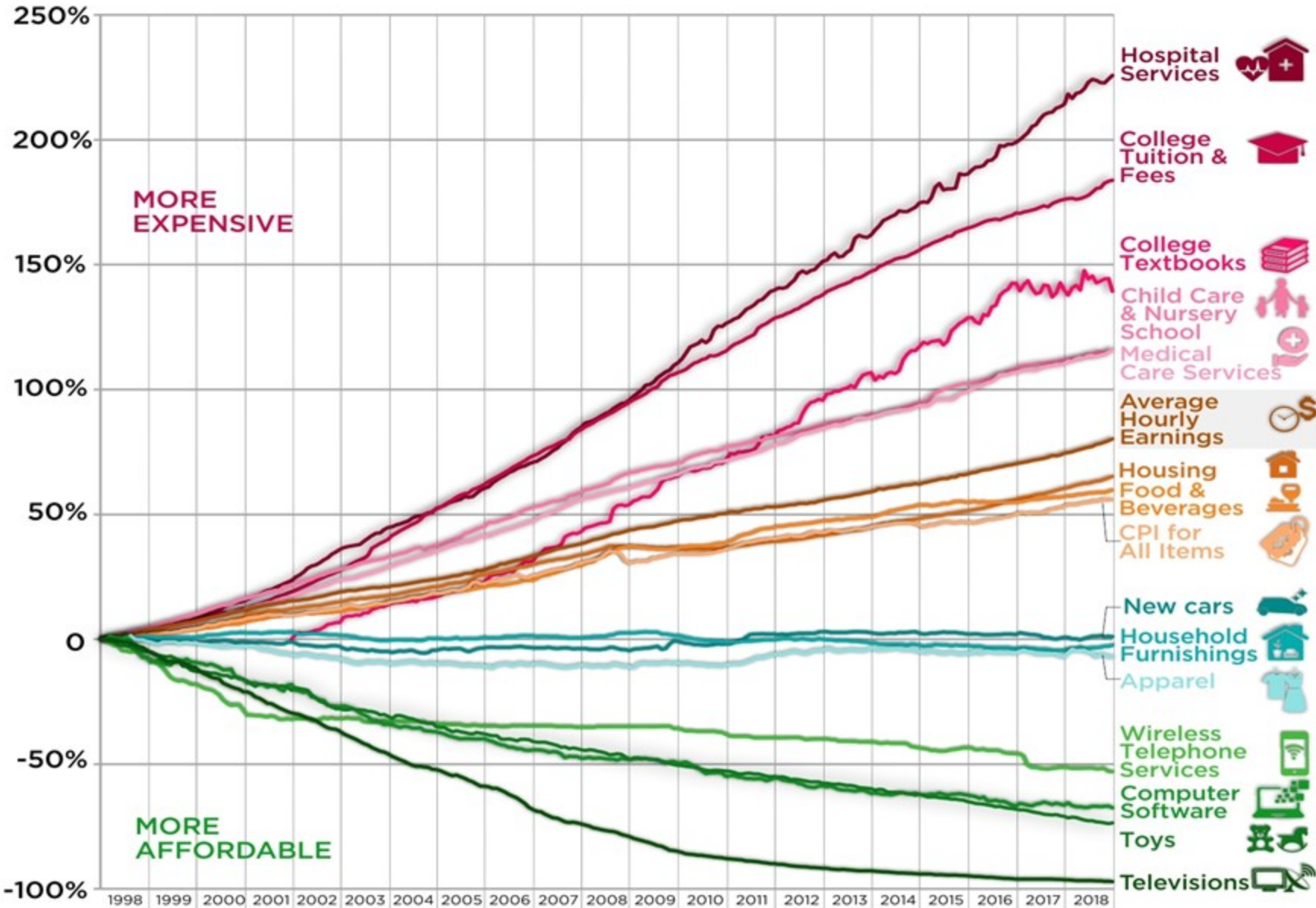


Warren Buffett made 97% of his wealth after the age of 60



Impact of Inflation on Purchasing Power

20 Years of Price Changes in the United States (Jan 1998 to Dec 2018)



What INR 1000 Could Buy?

2000



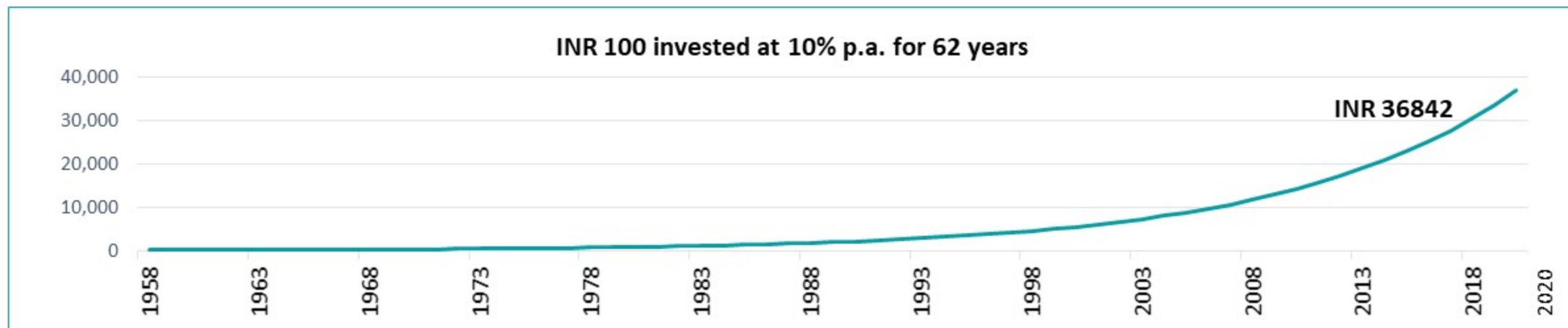
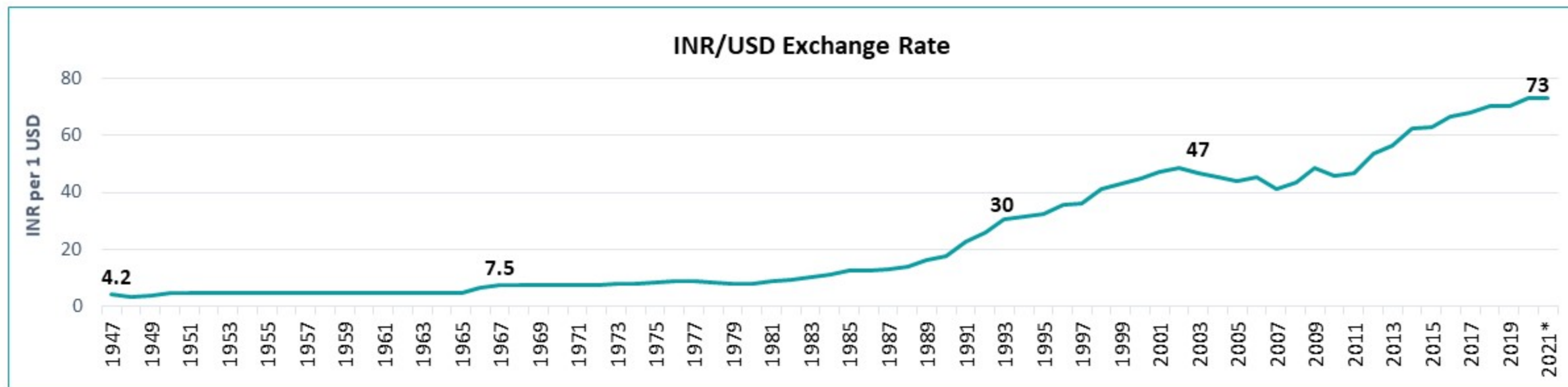
2010



2020



Impact of Exchange Rate on Purchasing Power



Financial Habits

“How did you go bankrupt?”
Two ways. Gradually, then suddenly.” - Ernest Hemingway

Simplicity Wins Over Complexity



- Start Early
- Anything * 0 = 0
- Power of delayed gratification
- Give More Time to Compounding
- Understand the power of exponential functions



“I saw that it was the artificial needs of life that made me a slave ; the real needs of life were few.”

— **William James Dawson**

“In theory there is no difference between theory & practice – in practice there is.”

- Yogi Berra

How to Succeed at Investing



- ✓ Spend less money than you make
- ✓ Save the difference
- ✓ Buy a diverse portfolio of companies / assets
- ✓ Be Patient

How Investing is Taught



Assessment of Confidence Limits of Selected Values of Complex-Valued Models

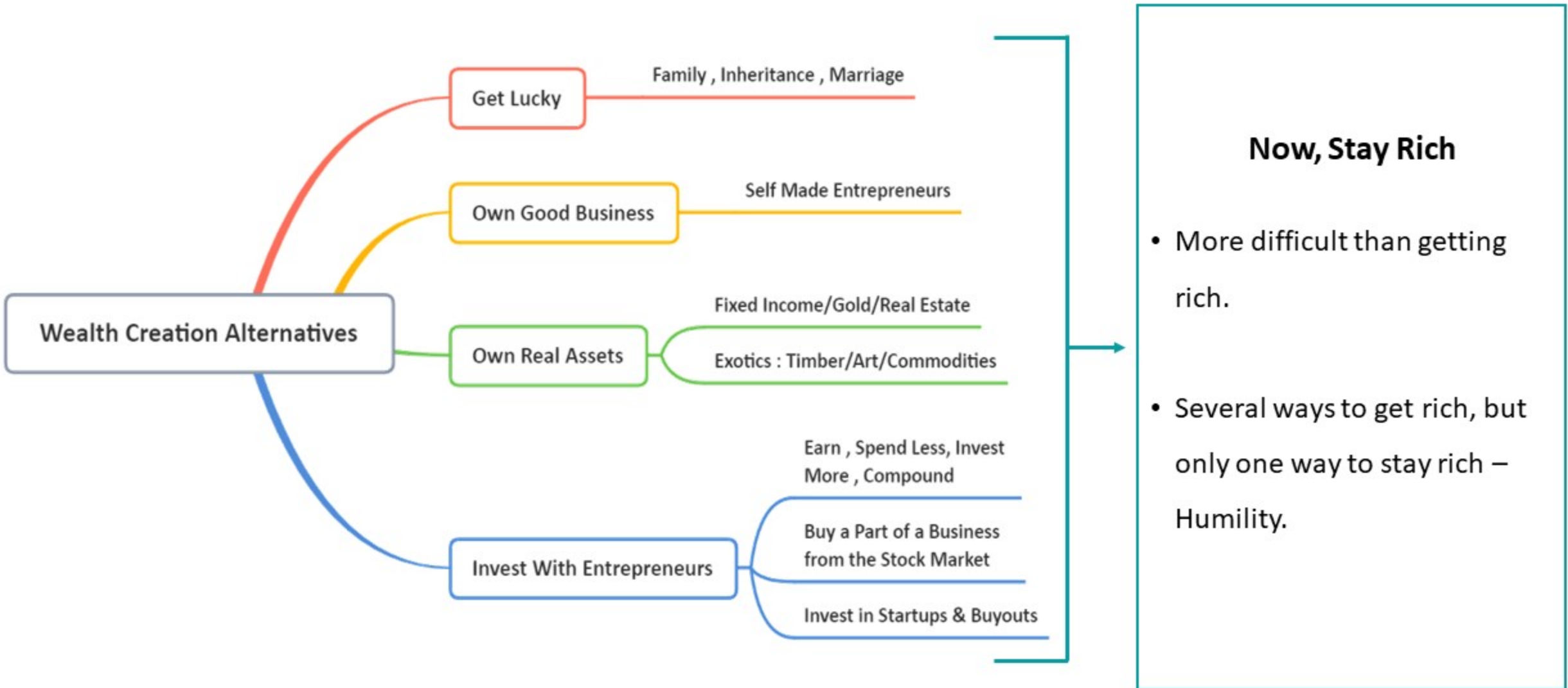
$$\begin{aligned} p(\mathbf{k}, t + \Delta t) = & \sum_{i=1}^n [(\Lambda_i \Delta t + \alpha(\Delta t)) p(\mathbf{k}_i^-, t) I(\mathbf{k}_i > 0) + (\mu_i \Delta t + \alpha(\Delta t)) p(\mathbf{k}_i^+, t) \\ & + (d_i r_i \Delta t + \alpha(\Delta t)) p(\mathbf{k}_i^+, t) \\ & + \sum_{j=1}^n \{ (p^+(i, j) r_j \Delta t + \alpha(\Delta t)) p(\mathbf{k}_{ij}^+, t) I(k_j > 0) \\ & + (p^-(i, j) r_j \Delta t + \alpha(\Delta t)) p(\mathbf{k}_{ij}^{++}, t) \\ & + (p^-(i, j) r_j \Delta t + \alpha(\Delta t)) p(\mathbf{k}_i^+, t) I(k_j = 0) \\ & + \sum_{l=1}^n ((Q(i, j, l) r_l \Delta t + \alpha(\Delta t)) p(\mathbf{k}_{ijl}^{+++}, t) \\ & + (Q(j, i, l) r_j \Delta t + \alpha(\Delta t)) p(\mathbf{k}_{ijl}^{+++}, t) I(k_i > 0) \} \\ & + (1 - \Lambda_i \Delta t - \mu_i \Delta t - r_i \Delta t + \alpha(\Delta t)) p(\mathbf{k}, t) I(k_i > 0)] \end{aligned}$$

Importance of Budgeting & Planning

“Wealth, in fact, is what you don’t see. It’s the cars not purchased. The diamonds not bought. The renovations postponed, the clothes forgone & the first-class upgrade declined. It’s assets in the bank that haven’t yet been converted into the stuff you see.”

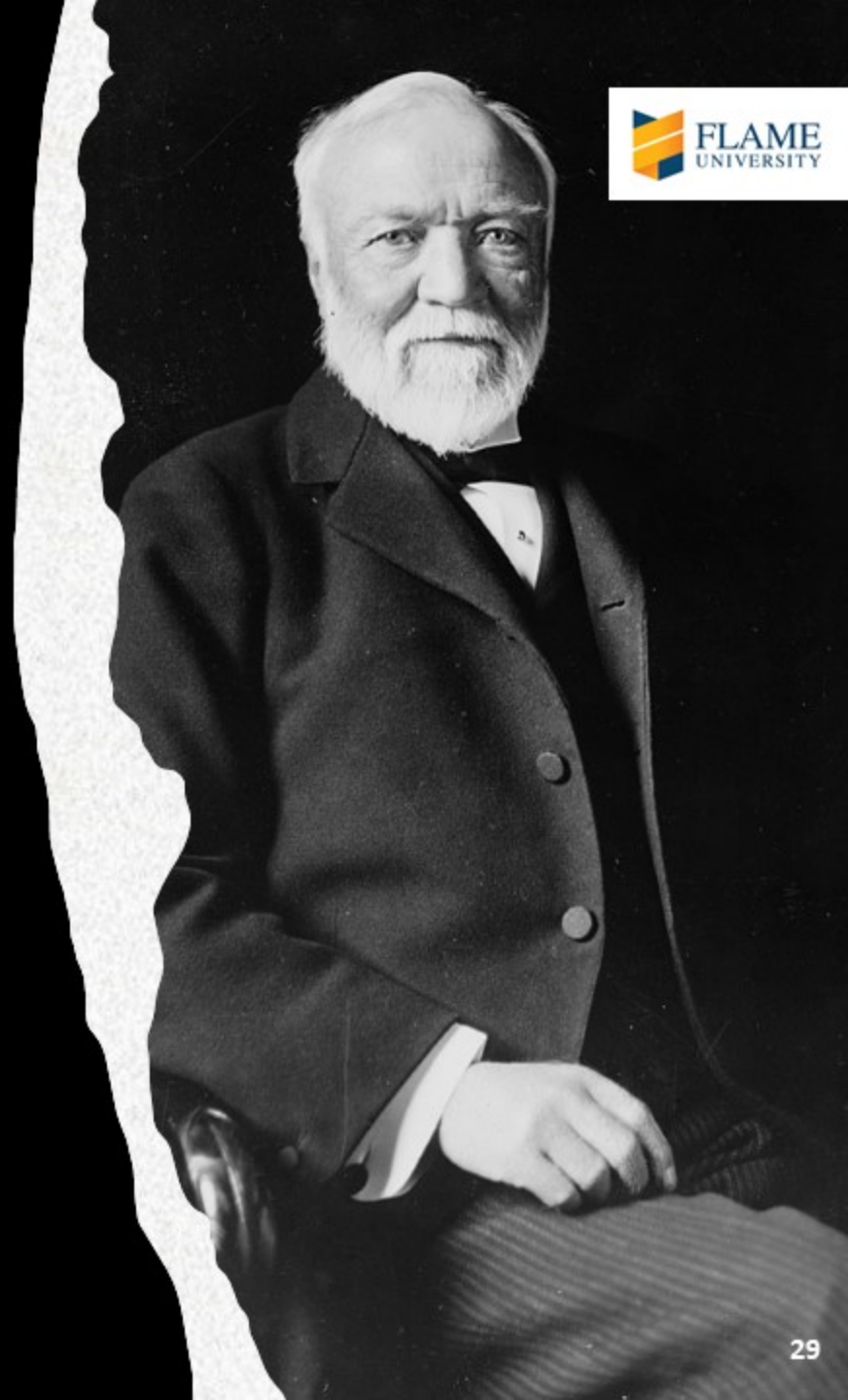
— Morgan Housel

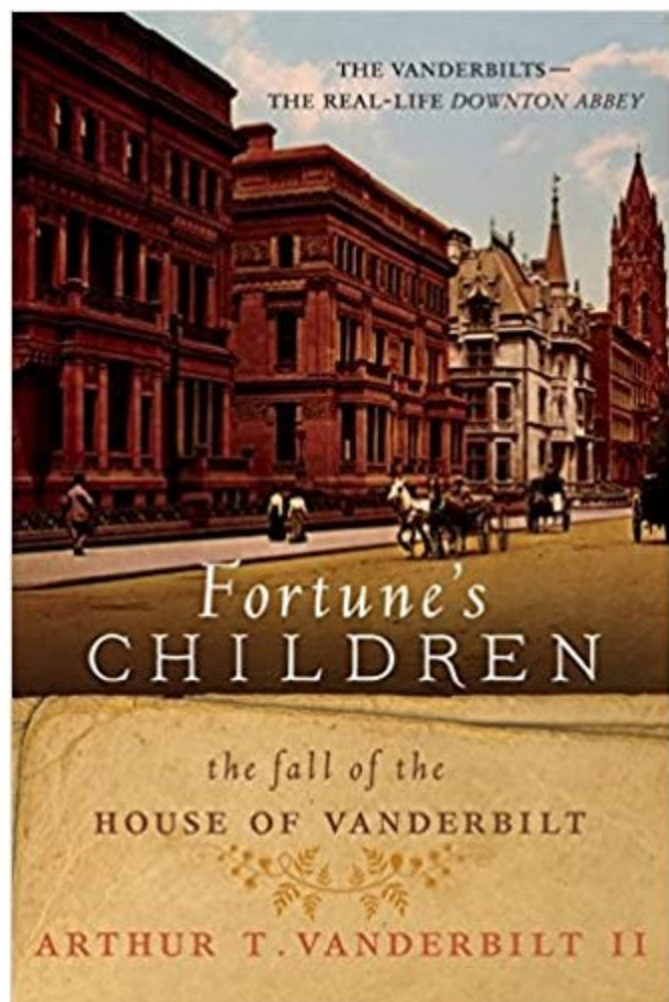
Starting Balance:	10
# of Months in the Semester:	
(in INR '000)	Total
FUNDING / INCOME	
Employment	20
From Parents	400
From Student Loans	0
From Scholarships & Grants	150
Other	20
Total FUNDING / INCOME	590
EXPENSES	
Tuition	250
Fees (class, parking, lab, clubs, etc)	75
School Supplies	50
Cost of living	40
Credit Card Payments	0
Computer and Other Equipment	50
Utility Bills	4
Transportation	20
Entertainment	20
Unhealthy Habits	40
Health Insurance (if not under parent's)	5
Medicine	0
Other	0
Total EXPENSES	554
NET (Income - Expenses)	36
Projected End Balance	46



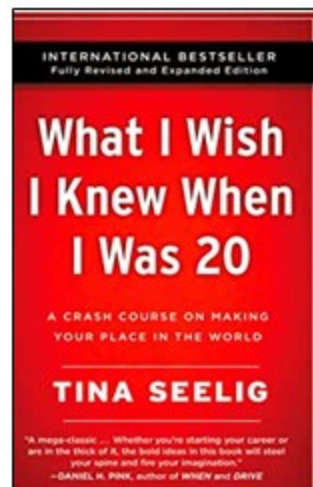
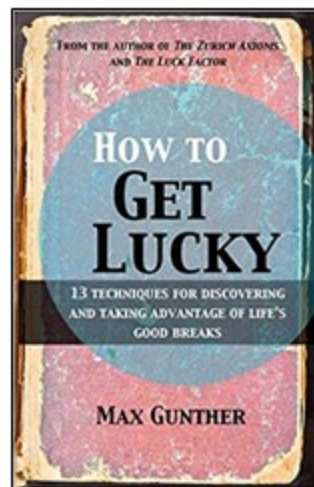
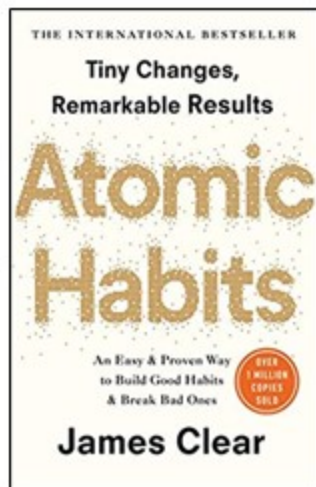
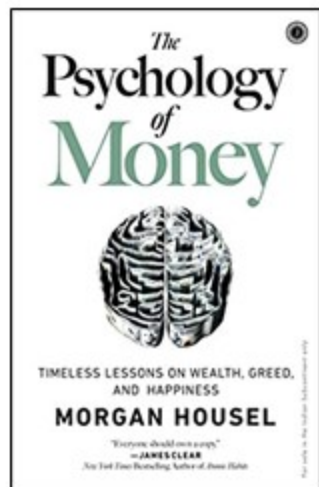


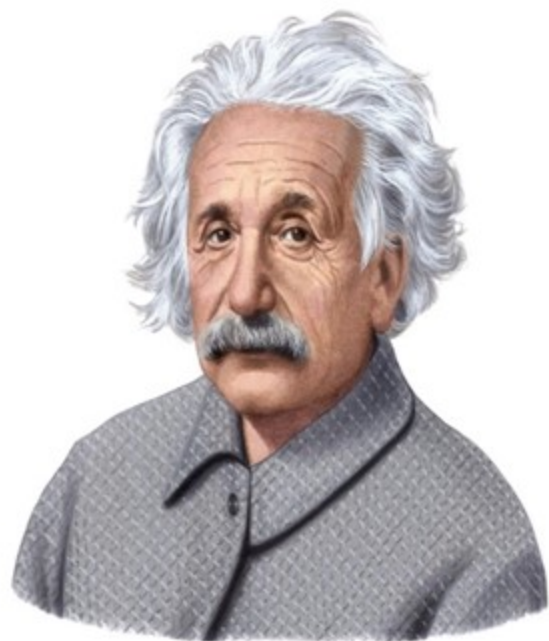
Life is not what
happens, It is
how you take &
make it...choices
matter !!!





“When I was young, I read *The Richest Man in Babylon*, which said to underspend your income & invest the difference (emphasis added). Lo and behold, I did this, & it worked.”
— Charlie Munger





“If I had an hour to solve a problem, I would spend the first 55 minutes determining the proper question to ask. For once I know the proper question, I could solve the problem in less than 5 minutes.”

- **Albert Einstein**

“The man who asks a question is a fool for a minute, the man who does not ask is a fool for life.”

- **Confucius**

Thank You



Kaldas



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