

# THE DIGITAL TRANSFORMATION OF MONEY

A PRIMER ON WHY **BITCOIN** MATTERS AND HOW IT WORKS



78

REDZA ARBEE

  
MARSDEN

  
PERDANA  
LEADERSHIP  
FOUNDATION  
YAYASAN  
KEPIMPINAN  
PERDANA



14/10/2025  
TDAI  
Foc

# THE DIGITAL TRANSFORMATION OF MONEY

**A Primer on Why Bitcoin Matters  
and How it Works**

**Redza Arbee**

With forewords by:

**Datuk Dr. Mohamed Arif bin Nun**

**&**

**Roshan Thiran**



Published by :  
**MARSDEN ADVISORY RESOURCES**  
B3-1-5, Block B3, PUBLIKA,  
Solaris Dutamas,  
No 1, Jalan Dutamas 1,  
50480 Kuala Lumpur,  
Malaysia.  
Tel: 03-6205 4391  
Fax: 03-6205 4392  
Email: marsdenlawbook@gmail.com

Website: [www.marsdenlawbook.com](http://www.marsdenlawbook.com)

© Copyright (2023) by Mahmud Redza Arbee - All rights reserved.

It is not legal to reproduce, duplicate, or transmit any part of this document in either electronic means or printed format. Recording of this publication is strictly prohibited.

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means or stored in any retrieval system of any nature without prior written permission, except for permitted fair dealing under the Copyright Act 1987. Application for permission for other use of copyright material including permission to reproduce extracts in other published works shall be made to the publisher. Full acknowledgement of the author, publisher and sources must be given.

The author has asserted his moral rights under the Copyright Act 1987, to be identified as the author of this publication.

The Publisher, authors, contributors, and endorsers of this publication each excludes liability for loss suffered by any person in any way from the use of, or reliance on this publication.

**ISBN 978-629-98751-0-9**

Printed in Malaysia by

Perniagaan E.B.K.

No.20, Taman Mas Satu,  
Batu 9 Cheras,  
43200 Kajang,  
Selangor.

*Truth is completely devoid of all deceit.*



PERDANA  
LEADERSHIP  
FOUNDATION  
YATASAN  
KEIMPINAN  
PERDANA



**For Raqib, Nabil, and Aleya.  
May you gain wisdom, find joy, and achieve success in everything you do.**

**#Bitcoin #ForTheKids #FTMFTW**

## Author's Preface

In "The Digital Transformation of Money," we will explore complex concepts behind Bitcoin's consensus mechanism, its use cases, and how it all fits into the global monetary system; all while making them accessible to both average individuals and senior decision-makers alike. Drawing from hundreds of hours of research, I have distilled this knowledge into meaningful and impactful essentials that will empower readers to navigate the ongoing digital transformation of money and become aware of new perspectives in protecting their wealth.

In a world of accelerating economic uncertainty, where the stability of traditional currencies and financial systems is increasingly in question, it's more important than ever to have a good understanding of how money works and what options are available to protect your wealth. The challenges we will see in this decade will affect all of us across all industries and countries to an extent that it will even impact our very concept of money. In facing the banking crisis, debt crisis, high inflation, and the looming recession, our financial wellbeing in itself is in jeopardy. It is therefore crucial for us to have greater visibility and perspective on all of the risks and opportunities on the horizon. Cryptocurrencies, central bank digital currencies, stablecoins, non-fungible tokens, blockchain, distributed ledger technology, none of these terms would be widely spoken today without the genesis of Bitcoin. Understanding this will afford us with another tool to protect ourselves and to better navigate through the oncoming onslaught.

As someone who has been involved in digital transformation for over 17 years, helping business leaders and policy makers navigate their technology strategies and challenges, I know firsthand the importance of staying informed and prepared. That's why I wrote "The Digital Transformation of Money: A Primer on Why Bitcoin Matters and How it Works." Whether you're a senior decision maker, business leader, or an individual, this book provides a fundamental perspective on Bitcoin, its use cases, how it works, and why it can protect your wealth. With my experience working in a sovereign wealth fund, a leading global IT advisory firm, and being involved in national IT projects and research projects influencing national strategies, I bring a unique perspective to the table.

Understanding Bitcoin can be challenging, as it involves complex abstract concepts with numerous technological and financial jargon. It also requires an appreciation of finance, macroeconomics, the global monetary system, information systems, computer networks, and digital transformation. Hence, I empathize with this challenge and have taken great care to break down these concepts in straightforward and practical ways that anyone can grasp. My goal is to provide a foundational perspective on money as a way to understand Bitcoin, its use cases, and how it works that will be useful for organizations and individuals in general.

Blockchain as a technology is not going away, and that means Bitcoin is here to stay. If that's the case then what does it mean for Bitcoin's long-term prospects in the current global financial and monetary systems, and how will you position yourself at this critical time within a rapidly evolving macro environment? This book is not meant to promote Bitcoin as a panacea, but rather seeks to provide a meaningful perspective on the current state of money as a way to better understand Bitcoin and its use cases. Having this perspective will give you a more complete picture of the overall landscape.

In "The Digital Transformation of Money," we'll dive into the key concepts of Bitcoin, how it works, and why it has the potential to protect your wealth in a way that traditional currencies cannot. We'll explore its role as a decentralized crypto asset, its resilience to inflation and manipulation, and its potential to empower individuals, organizations, and even countries in new and innovative ways. As an important point to note before we begin, this book is not intended to be taken as financial advice. Instead, it is meant to provide perspectives into why Bitcoin matters especially through its use cases and to help anyone have a foundational understanding of how its blockchain network functions. By the end of this book, you'll have an appreciation of Bitcoin's potential, as well as a clearer picture of how money works in the modern world. This will ultimately enable you to make more informed decisions that can potentially protect yourself, your organization, and your country in these unprecedented and challenging times.

Redza Arbee

Kuala Lumpur, Malaysia



# Foreword

by Datuk Dr. Mohamed Arif bin Nun

Individuals, policymakers, and corporate leaders face an increasingly challenging task of navigating through perilous financial, macroeconomic, and monetary headwinds that is further intensified by complex technological disruptions including innovations like Bitcoin and its blockchain. Many may struggle with allocating sufficient time and resources to arm themselves with actionable knowledge at the intersection of these disruptions as it requires deep commitment to cross multiple fields of study.

*In “The Digital Transformation of Money,” Redza Arbee helps readers cut through many of the domain jargon and focuses on key insights that can immediately add value to any reader across all areas.*

In the world that we now live, it is not sufficient and potentially harmful to view things only from a single perspective, regardless of the depth of knowledge in that one field. For example, with Bitcoin and blockchain, it is necessary to have clarity across multiple aspects that it touches including monetary and financial, investments, risk, its underlying technology, and its potential use cases, just to name a few. This reality is evident as stakeholders across the public and private sectors are increasingly looking at leaders and senior decision-makers for vision, direction, and wisdom. As the path forward is unclear and fast changing, individuals are further challenged to take ownership of how they intend to move forward.

*Collectively, the whole spectrum of stakeholders, individuals, corporate and business sectors, and together with government and public bodies, need to identify the bold and competent ‘pathfinders’ to light the flares and illuminate the potential paths in front of us.*

The way ahead is littered with seemingly insurmountable obstacles, namely the global debt burden, potential runaway inflation, war, famine, coup d’états, the banking and monetary crisis, et al. This means individuals, corporate leaders, economists, and policymakers in general are faced with an unenviable task: to lead and succeed in a time of profound and unprecedented change that is now happening globally. This change is not only bigger in terms of scale and complexity than what we experienced in the past, but also deeper fundamentally as it will challenge our very concept of money as we know it.

This fundamental monetary shift, or as Redza has put it, “The Digital Transformation of Money,” is in no uncertain terms due to the genesis and the subsequent rapid development of Bitcoin and its blockchain network.

For most of us, we find that no matter how fast we try to run, we seem to continue falling further behind. This very notion seems to be the prevailing sentiment across the masses as their labour continues to afford them with less and less as time progresses. Unfortunately, this issue is not unique to any particular geography or industry, it is global. The question, it seems, is why?

*As a response to the above question, Redza’s book takes us through a brief journey of what money is from a historical perspective to the debt-based fiat currency today, and then helps shine light on important considerations as to how we should approach the digitalisation of money.*

Although typical resources on this topic may be a complex web that is rife with finance and tech industry jargon, Redza has managed to successfully illustrate important concepts that capture and highlight opportunities and pitfalls; he provides the right foundations to help us gain perspective on how our concept of money will evolve with the continued development of Bitcoin and its blockchain network.

Redza further elaborated this understanding with an interesting *thought experiment* that can help any decision maker gain an appreciation of the complexities that surrounds our thinking and intent to basically safeguard our purchasing power. It is necessary for all of us, as global citizens, to understand the different risks involved in our financial decision making, as well as to have an open mind and curiosity when it comes to exploiting the opportunities of a radically new financial instrument available to us today.

*The dilemma facing us in this new reality is whether we continue to build our civilisation on the value of something that is potentially infinite (e.g., the US Dollar) or we build it based on the value of something where its scarcity has been mathematically defined.*

Money as we know it plays many crucial roles that accelerate commerce and progress of our civilisation. At the same time, we need to be aware that money, when poorly governed, can also lead to potential disaster. In the digital age and with the advent of Bitcoin, our concept of money has to be redefined through proper governance especially in a decentralised and transparent way. This revolutionary new financial instrument, aka digitally

programmed money, is fundamentally challenging how we grasp the value of something potentially unlimited with the concept of algorithmic scarcity.

New use cases can now be realised through technology that can transform industry as we currently see it. *Leaders need to understand and incorporate this new thinking as part of their strategy; failing to do this will introduce unprecedented risks into their organisations.* In contrast, understanding of the technology and smart leveraging can achieve new levels of corporate performance and personal financial security to the individual. Opportunities and risks abound but the challenge is to have a fundamental understanding of this new technology, have perspective on how we should think about it, as well as how and why it fits into the global monetary and financial landscape.

To complete this picture, Redza provides a solid foundation that can help us visualise the way this technology works in a way that immediately clarifies why this is a revolutionary technology that can positively help impact countless lives. The author describes this in a way that is the most meaningful, effective, and creates an impact to “think out of the box” from conventional thinking.

To summarise, Redza Arbee’s “The Digital Transformation of Money” is an excellent and clear introduction of how Bitcoin works and why it matters. This is key as the argument on what we will end up with to use as money is currently a work-in-progress as, globally, different narratives are still being passionately argued. *After going through Redza’s book, one key question has surfaced for me that is more important than what everyone else may be talking about; that question is: Should someone control the money or should no one?*

Carpe diem et sapere aude!

Datuk Dr. Mohamed Arif bin Nun

Former CEO of Multimedia Development Corporation (MDC)

Former Director of SilTerra (M) Semiconductors

12 September 2023



# Foreword

## by Roshan Thiran

In a world where the pace of change seems almost dizzying, it's a gift to find a lucid guide like Redza Arbee who can illuminate the transformative journey of money, especially in this digital age. And mind you, this isn't about just financial tips or codes written by tech wizards; it's a synthesis of both worlds, taking the reader on a meaningful ride through the evolution of money—yesterday, today, and beyond.

### Why Blockchain & Bitcoin Is More Than Just Tech or Finance

Once upon a time, humanity relied on the barter system, trading goats for grain. We then moved on to metallic coins, and then paper money. Fast forward to our era, and now we have Bitcoin—a monetary evolution that demands a dual-lens view. Redza does an excellent job explaining that Bitcoin isn't just a fancy piece of technology, nor is it merely a financial instrument. Drawing from empirical studies, Redza provides us with a primer that explains why Bitcoin matters. Think of it as a fusion cuisine dish where tech meets finance, and if you separate the two, the dish loses its essence.

Firstly, let's talk about the magic of blockchain, shall we? This revolutionary technology is akin to the invention of the wheel in the digital domain. If you think about the wheel, it didn't just make things more convenient; it redefined transportation and, by extension, civilization itself. Blockchain, in a similar vein, offers the gift of decentralization, transparency, and indelible security. According to a 2019 Deloitte survey, 53% of senior executives identified blockchain as a critical priority for their organizations. This isn't a fad; it's the future.

To illustrate this, think about the legendary Library of Alexandria, an irreplaceable trove of ancient knowledge. If that library had been built on a blockchain infrastructure, each scroll would be a block of data, distributed and immutable. Even when calamity struck—the library's fateful burning in our case, or data loss and fraud in the digital realm—the distributed nature of blockchain would mean that the precious scrolls (or your priceless data) would still exist elsewhere, unharmed and intact. A marvelous safety net, isn't it?

Now, what about Bitcoin? If blockchain is the wheel, then Bitcoin is the first car that showed us what wheels could do. The genie is out, folks, and it's teaching us new magic tricks! Think of it as the invention of the internet. Do you remember a world without it? Me neither! As adoption grows, the potential for value growth is astronomical. According to a study by the Cambridge Centre for Alternative Finance, the number of verified cryptocurrency users nearly doubled in 2018, reaching 35 million. This isn't just a phase; it's a movement. And if you're an early adopter, you're not just catching a wave; you're riding a tsunami of transformative potential!

Now, consider this: Bitcoin is limited to 21 million coins. It's like owning a limited edition, autographed copy of a great manuscript or book. It's not just a book; it's an asset whose value appreciates over time. In economics, scarcity often drives value, and Bitcoin is built on this principle. In economics, a limited supply can create its own kind of miracle—a dependable store of value over the long term.

*Businesses should take note. Incorporating blockchain and Bitcoin understanding into your long-term strategy is like accurately forecasting the rain—it's not a matter of if, but when, bad weather will come. Companies exploring blockchain tech today are building the arks of tomorrow.* A Gartner report suggests that blockchain will generate an annual business value of more than \$3 trillion by 2030. It's the seed investment for a harvest of future opportunities.

In essence, understanding blockchain and Bitcoin is akin to holding the keys to a treasure chest that opens doors in myriad dimensions—finance, technology, and innovation. If you're not in this game, you're not just missing out; you're willingly staying behind while the world moves forward. Isn't this an electrifying time to be alive?

## **Bitcoin as a Mirror to Global Finance**

*Reading this book is like holding up a mirror to our existing financial landscape. Redza walks us through the very foundation of global finance, juxtaposed with Bitcoin's remarkable use-cases and the revolutionary blockchain technology behind it.* Remember the financial crisis of 2008? The lack of transparency led to chaos. This book poses vital questions that would help prevent future fiascos. As the saying goes, "Plans fail for lack of counsel, but with many advisers, they succeed." Are you a decision-maker wondering

how to ride the waves of digital monetary transformation? Your ship has come in! This book offers foundational knowledge for you to sail through this change. With its expansive scope, you'll walk away equipped to tackle the challenges of this decade.

*The days of wishful thinking are over. Bitcoin and blockchain have leapt out of the tech bottle and are here to stay. If Aladdin had access to this book, he wouldn't need to waste a wish to understand these concepts better!* So, here's your chance—educate yourself now or risk being left in the sand.

## **Are You Ready for the Revolution?**

Our grandparents never thought they'd see the day money would turn digital. Imagine if our grandparents, who believed in the power of cold, hard cash, could see us now—swiping away on our phones to make digital transactions! It's like they were living in black-and-white, and we've just added colour, 4K resolution, and even VR to the picture of money. Yet, here we are, at the crossroads of another significant transformation. Bitcoin and its blockchain are not just disruptors; they're paradigm-shifters. A study by Deutsche Bank predicts that by 2030, digital currencies could overtake fiat currencies.

Consider this: the same report suggests that the forces driving the move towards digital currencies include demands for financial privacy and the lowering of remittance and transaction fees. It's not just about flashy tech; it's about meeting real, pressing human needs more effectively. That's like moving from sending letters by carrier pigeon to instant messaging. You're not just faster; you're more secure, more private, and let's face it, more convenient.

And if you're still sitting on the fence about this digital transformation, think about the accelerating pace of technological change. Research from the World Economic Forum posits that by 2025, 10% of global GDP could be stored on blockchain platforms. That's right, 10%! It's like witnessing the birth of the internet all over again but on steroids.

So, when it comes to blockchain and Bitcoin, ignoring them isn't just a case of missing out on the latest trend; it's like refusing to adopt the wheel while everyone else is zooming by in sports cars. You're not just left behind; you're becoming a relic of the past.

So, ignore it at your own peril!

## A New Frame for an Old Picture

*Redza's book comes alive with relatable illustrations, bringing complex ideas down to earth. Like the parables of great teachers of the past that communicated profound truths in simple language, Redza makes sure no reader is left behind, regardless of their technical or financial literacy.*

I met Redza a few years ago, and boy, did he clarify the haze around digital currency for me! His career has been a cocktail of experiences—from leading digital initiatives at Khazanah Nasional to setting the digital agenda for the United Nations in Malaysia. With a resume that combines strategy, policy, and on-the-ground work, Redza is the person you want as your guide through this labyrinth of change. I have personally witnessed Redza's tireless research for his book, ensuring that every message he conveys is crucial for his readers to comprehend and implement.

The 21st century is akin to a fast-moving train; we're all passengers, and the landscape keeps changing. Redza Arbee is like that wise co-passenger who not only enjoys the journey but also enriches it for everyone else. From this book, you'll derive value akin to the "pearl of great price," making it a treasured addition to your collection.

*In a time when the world grapples with economic uncertainties and mounting risks, books like Redza's "The Digital Transformation of Money" is not just timely—it is timeless. Happy reading and may you be as enlightened as I was!*

Roshan Thiran

Founder

Leaderonomics Group of Companies

06 September 2023



# Table of Contents

Author’s Preface .....	vi
Foreword by Datuk Dr. Mohamed Arif bin Nun .....	ix
Foreword by Roshan Thiran .....	xiii
<b>PART I: What is “Money?” .....</b>	<b>1</b>
Chapter One: Unit of Account.....	5
Chapter Two: Medium of Exchange.....	9
Chapter Three: Store of Value.....	13
Chapter Four: Our Debt Based System.....	17
Chapter Five: Thought Experiment .....	29
<b>PART II: Bitcoin’s Key Concepts and Use Cases .....</b>	<b>35</b>
Chapter Six: Key Concepts .....	39
Chapter Seven: Settlements.....	49
Chapter Eight: Censorship Resistant & Money as Free Speech .....	55
Chapter Nine: It’s All About Risk .....	61
Chapter Ten: A Market That Doesn’t Close .....	69
Chapter Eleven: Remittances .....	79
Chapter Twelve: Programmable Money .....	83
Chapter Thirteen: Mining Bitcoin with Sustainable Energy .....	95
Chapter Fourteen: Personal Property Rights and Non- Sovereign Store of Value .....	105
<b>PART III: A Chain of Blocks – How Bitcoin Works.....</b>	<b>117</b>
Chapter Fifteen: The Bitcoin Network .....	119

Chapter Sixteen: Seed Phrase and Security.....	123
Chapter Seventeen: Hash Functions .....	129
Chapter Eighteen: Transactions.....	133
Chapter Nineteen: What’s in a Block?.....	139
Chapter Twenty: Proof of Work.....	145
Chapter Twenty-One: Visualizing a Bitcoin Transaction .	151
Conclusion .....	163
Bibliography .....	167
Acknowledgments.....	179
About the Author .....	183
Author’s Note .....	185

Are you ready for the unstoppable wave of change that is transforming the global monetary and financial landscape? The Digital Transformation of Money is here and it is reshaping our lives, economies, and the very concept of money itself. But what does this revolution mean for you, and why is it crucial to your future?

In "The Digital Transformation of Money: A Primer on Why Bitcoin Matters and How it Works," readers will uncover the profound meaning of money and value in the digital age, unravel the essential concepts behind Bitcoin, and explore its diverse range of real-world use cases.

Gain a foundational understanding of the building blocks at the intersection of our global monetary system and the digitalization of money. Then arm yourself with critical information, actionable insights, and a fresh perspective that will help you position yourself effectively and safeguard your wealth in the era of The Digital Transformation of Money.

Don't be a mere observer of this transformation and step boldly into this new world. Secure your copy of this book today and embark on this journey fully armed and empowered to navigate The Digital Transformation of Money with confidence.

---

"Leaders need to understand and incorporate this new thinking as part of their strategy; failing to do this will introduce unprecedented risks into their organisations."

"...Redza Arbee's "The Digital Transformation of Money" is an excellent and clear introduction of how Bitcoin works and why it matters."

- From the Foreword by **Datuk Dr. Mohamed Arif bin Nun, Former CEO of Multimedia Development Corporation (MDC) and Former Director of SilTerra (M) Semiconductors**

"Redza's book comes alive with relatable illustrations, bringing complex ideas down to earth. Like the parables of great teachers of the past that communicated profound truths in simple language, Redza makes sure no reader is left behind, regardless of their technical or financial literacy."

"In a time when the world grapples with economic uncertainties and mounting risks, books like Redza's "The Digital Transformation of Money" is not just timely—it is timeless."

- From the Foreword by **Roshan Thiran, Founder, Leaderonomics Group of Companies**

"In 2017, cryptocurrencies exploded into the mainstream led by the dramatic rise in the "value" attached to Bitcoin. At the same time thousands of Altcoins magically appeared to ride the Bitcoin wave. Fast forward to today and the digitalisation of money is very real.

This book gives you the right foundation to better understand its potential impacts and how Bitcoin's blockchain actually works. Read this book and gain insights into what the future may hold, and while no one can predict what will happen, you will have a better idea on what can happen."

- **Tan Tze Meng, Technologist and Industry Observer**

"Bitcoin critics argue that it is a speculative financial instrument. However, it's rapid adoption globally and across industries has increased confidence in its ability to digitally transform money. Additionally, Bitcoin has come to be the saviour of individuals looking to preserve their wealth and purchasing ability. It's back-bone blockchain technology has sparked innovations such as smart contracts and digital immutable transactions; paving the way for greater demand of renewable sources of energy to enable it.

This book is written to spark your thinking in how it may benefit citizens, societies, and nations. It is well written and easily digestible for those who are new to the world of cryptocurrency."

- **Anand Panchalingam, Business-Tech Leader**



## ABOUT THE AUTHOR

Redza Arbee is a digital transformation professional with over 17 years of experience and industry exposure across finance, technology, and the public sector. He is the author of "The Digital Transformation of Money: A Primer on Why Bitcoin Matters and How it Works." Throughout his career, Redza has led various digital transformation initiatives from strategy development, policy recommendations, to digitalization projects.

He has served at Khazanah Nasional (Malaysia's sovereign wealth fund), United Nations (UNTIL), a leading global IT research and advisory firm, and Multimedia Development Corporation (MDEC, Malaysia's quasi-government agency tasked with industry development).

ISBN 978-629-98751-0-9

