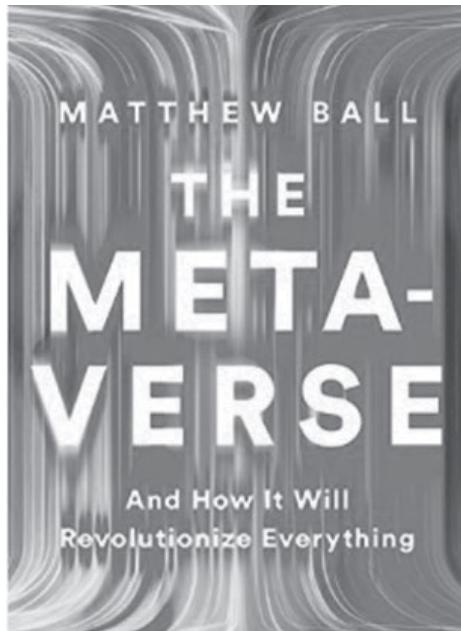


The Metaverse- And How IT Will Revolutionise Everything: Matthew Ball

Reviewed by C.P. Ravindranathan, XIME, Bangalore



The leitmotif of this book is that the Metaverse is the wave of the future for the internet. While that may well be so, the book begins by addressing the question of the as yet indeterminate nature of the Metaverse itself. So its narrative runs on two rail lines : what the genetic code of the Metaverse will reveal itself in its present and future unfolding in the ecosystem of the internet and how that process , in its effects and ramifications, will change very many things around us. In fact, the subtitle of the book heralds that Metaverse will revolutionise everything.

In barebones, 3D is the kernel of the Metaverse and the essential substance of the virtual world that it generates. And there is something like a historical inevitability about the humans seeking out virtual, digital models of their world: richness of detail, mix of audio and video and the sense

of being “live” rather than static or outdated. For another, there is a mutuality at work here: as our online experiences become more real, evolving through Web 3.0, not only our lives, but human culture itself becomes more affected by the online world. These inexorable trends would seem to point in the direction of a 3D internet which is what the Metaverse is all about.

Matthew Ball, the author of “The Metaverse”, is at pains to explain that much as the Metaverse should be understood as a 3D experience, it would have not just 2D games, but a vast range of devices and networks currently existing and using proprietary tools as part of it and enabled by it. Hence the extraordinary technical challenges that the Metaverse poses. Against this backdrop, Matthew Ball comes up with a comprehensive definition of the Metaverse: “a massively scaled and interoperable

network of real-time rendered 3D virtual worlds that can be experienced synchronously and persistently by an effectively unlimited number of users with an individual sense of presence and with continuity of data, such as identity, history, entitlements, objects, communications and payments". Intricately worded, yes, but spot-on. Borrowing the words of the renowned economist David Marshall, one might say that this definition is like the archetypal city state that leaves hardly anything of what should belong to it outside its walls.

Notably, Matthew Ball makes crystal clear both the rapport and the dissonance between the Metaverse and Web 3.0, a point often obscured in publicists' writings on the subject. The two are "successor states "to the internet. But they also stand apart as pathways to what lies in the blue yonder. Web 3.0 does not directly require any 3D, real-time rendered or synchronous experiences, whereas the Metaverse for its part does not require decentralization, distributed databases or blockchains or a relative shift of online power or value from platforms to users. There is one important respect in which the two are bound to work themselves out conjointly towards transformational changes on the internet scene, especially through a rise of new companies and an erosion of the concentration that characterises the current mobile generation of the internet and computing. Specifically, a rise in blockchain technology is presaged by the symbiotic development of Web 3.0 and the Metaverse. One thing is certain: the Metaverse will require the development of new standards and creation of new infrastructure, overhauls to the long-standing Internet Protocol Suite and adoption of novel devices and hardware. It might even alter

the balance of power between technology giants, independent developers and end users, without however replacing or fundamentally altering the internet's underlying architecture or protocol suite. One of the central arguments of the book is that the enormity of the transformation arising from these ineluctable trends explains why companies are now repositioning themselves in expectation of the Metaverse even though its arrival remains far off and its effects largely unclear. The pioneers of the Metaverse are the video gaming industry. The virtual reality as well as the software solutions that are best at real time 3D rendering come from gaming and so, the concept, history and future of the Metaverse are all intimately tied to gaming. Matthew Ball explains at length the role that games have in the scheme of things of the Metaverse, Microsoft's flight simulator being a decisive pace-setter. The Metaverse will involve hundreds of thousands of players participating in a shared simulation; the availability and limitations of computing power will shape which Metaverse experiences are possible, for whom and when and where. According to a spokesman of Intel quoted in the book, the next major problem in computing after the World Wide Web and mobile may be the Metaverse. Its insatiable need for more processing power has pointed to different directions, notably to blockchains having within its bounds both the technological mechanism for decentralized computing as well as economic power. As for proliferation of segments within the emerging Metaverse, it is not only games and game engines that are showing vigorous growth; there are other important categories with their own rendering and simulation software for numerous applications in fields

like engineering, filmmaking and computer aided design, as famously evidenced by the Hong Kong airport designing a “digital twin” that could be connected to myriad sensors and cameras throughout the airport to track and evaluate all operations in real time. The fastest -growing category of virtual software appears to be that which scans the real world. The possibility of one company gaining control of the Metaverse being an unthinkable prospect, the prime task today is to find a way to interoperate among the Metaverse platforms. The author describes at length the complex problems of interoperability among gaming platforms and their player networks as a prime example and argues how economic solutions to them are already emerging. Beside 3D objects, conventions are also moving along parallel lines to enable 3D collaboration through standardisation. So also interchange as shown by Nintendo’s Omniverse making possible for companies to build and collaborate in shared virtual simulations built upon a diversity of 3D assets and environments. When such 3D collaboration grows, standards will naturally emerge based on the shared benefits of interoperability, according to the author.

Inevitably, new devices that might be developed to access, render and operate the Metaverse figure prominently in the book. So also indeed the competition of their makers, actual and prospective, which is bound to dominate the Metaverse milieu. The ARs and VRs of technology incumbents such as Microsoft, Google, Apple , Amazon and Facebook are described in terms of their competitive line- up. Mark Zuckerberg’s view about the hardest technology challenge of our time may be fitting a supercomputer into the frame of normal -looking glasses is invoked

by Matthew Ball in his analysis of these sci-fi lineaments of the Metaverse. And indeed there will be new players emerging in this critical domain which may be grouped into three categories of primary, secondary and tertiary computing devices, the last including smartwatch or tracking camera.

The reviewer happened to see for himself recently in the US a notable moment of this competitive rivalry- between Apple and Google through Apple’s latest offering, the hi-tech goggles, Vision Pro , which blends the real world with virtual reality, speculation being that the product could launch the company into the forefront of the XR market, a term for extended reality, similar to virtual reality.

The book dwells with facility on other operational aspects of the Metaverse, in particular payment systems providing its sinews, with competitors already jousting to be the dominant payment rail, and blockchains which have given rise to a debate whether they are structurally required for the Metaverse to become a reality or not. The author spells out five basic points about the blockchains which are quite sobering: that they represent wasteful technology; that they are inferior to most alternative data bases; that they will become key to many experiences, applications and business models; that that they are also key to disrupting today’s platform paradigms because of their crucial attributes and that, finally, they represent a superset of everything that exists in computing.

Posing the question as to when the Metaverse will arrive, the author quotes a formidable bevy of technology and industrial leaders to the effect that it has already set in and going to change the

world profoundly. Matthew Ball predicts that the chief growth drivers of the Metaverse might be regulatory action against platform companies resulting in the unbundling of their operating systems, software stores, payment solutions and reduced services, the possibility of an AR or VR opening up the possibility of swarms of consumers and developers, blockchain-based decentralised computing and the establishment of a common and widely accepted standard for 3D objects.

In the context of the recent slowdown in the onward movement of the Metaverse, where industry leaders are speaking more of the application of the Metaverse technology variously in enterprise management, HR management, product development and the like, Matthew Ball sets out future scenarios for Metaverse in education, entertainment and diverse contexts like sex and sex work, fashion and advertising and industry. There will be winners and losers in this "quasi-successor state" to the present mobile and cloud era of computing and networking. New companies, products and services will arise; some of them can displace today's leaders, as had happened with AOL and Yahoo! . Some displaced giants can also, like Microsoft and IBM, derive strength from the digital economy and acquire a new lease of life. Facebook, while successfully navigating the transition through significant earlier acquisitions and its incomparable asset of three billion subscribers, faces complex future strategic challenges like from hardware-based platforms. Setbacks from wrong reading of technology trends could buffet companies, as happened with Microsoft in its earlier bid to maintain its

attachments to its own stacks and suites instead of supporting what the customers preferred. Much as Microsoft was overtaken by Google, the latter's Metaverse role and the way it is forging ahead towards that role is not clear. Meanwhile, new disruptors in the shape of companies such as Epic Games, Unity and Roblox Corporation are in the ascendant in the emerging Metaverse through their networks and virtuality resources. According to Ball, if Facebook is the most aggressive investor in the Metaverse and Google the most poorly positioned, Amazon through its dominance in the cloud infrastructure sits somewhere in the middle. And Apple with its hardware, operating system and app platforms is bound to be a considerable beneficiary of the Metaverse. Ball finds studied suppleness in the current Microsoft growth strategy of evolving into a platform agnostic player supporting as many platforms as possible. Alongside other noteworthy incumbents, the redoubtable processing and chip making company Nvidia and Sony, the largest gaming company in the world by revenue but requiring considerable innovation and strategic intent to move outside of its own integrated ecosystem, are other companies figuring variously in Matthew Ball's future projections of the trillion dollar opportunity that the Metaverse provides. The prospect he sets out is of a handful of vertically and horizontally integrated platforms collecting a significant share of total time, content, data and revenues . The growth of the Metaverse, however, benefits from both decentralisation and centralisation just like the real world, he argues. The major platforms are investing billions to make it easier, cheaper and faster to build better and more profitable virtual goods, spaces and worlds. But

as trust matters more than ever in the world of the Metaverse, they are also showing through the recent examples of Microsoft and Facebook a renewed interest in proving that they could be partners to developers, not just publishers or platforms. So it may not be fanciful to imagine “a race to trust “for the Metaverse even as one may wager on its centralisation or decentralisation in Web 3.0, observes the author.

Matthew Ball argues that with more of our lives, labour, leisure, wealth and relationships existing online, the disruptive potential of the Metaverse is such that it is impossible to know what problems will emerge and how to solve those which already exist. Among examples of the unsolved socio- technological challenges requiring innovative responses are further redefinition of the nature of work and labour markets, more intrusion into privacy, novel forms of harassment, election tampering and complex data sharing problems. But on the positive side, leisure can enjoy a shift to social, interactive and more engaged entertainment.

Addressing the issue of lack of governing bodies for the Metaverse beyond virtual world platform operators and service providers, the author suggests that the starting point might be to dismantle the hegemony of Apple and Google and bring about increased developer margins and reduced consumer prices by forcing them through regulators to unbundle identity, software distribution, APIs and entitlements from their hardware and operating systems. Unbundling would force platform companies compete more clearly on the merits of their individual offerings. A good place to start would be enacting policies on how and to what extent

IVWPs should be required to support developers who want to export their own virtual goods such as environments, assets and experiences they have created.

The author explains at length his own view that governments have both the obligation to regulate and an opportunity to shape the standards of the Metaverse. Besides regulating the major platforms, there would need to be laws and policy changes to make possible a wholesome Metaverse. The regulations would require platforms and major blockchain- based games to validate the identity and legal status of customers while providing requisite filings to governments, tax bodies and security agencies. Above all, a far more serious approach to data collection, usage, rights and penalties as these are at the core of the operations of the Metaverse- focused platforms. Across the world, much the same way as the internet has become increasingly regionalised, the Metaverse is also likely to witness the same phenomenon with significant regional players and different Metaverses, the cause of such fragmentation being nation-specific regulations.

A future increasingly centred around real-time rendered 3D virtual worlds is the prediction on which Matthew Ball ends his book. Arriving by the end of this decade, the Metaverse will be worth many trillions of dollars. Its overall structure is likely to be one of a handful of horizontally and vertically integrated companies controlling a substantial share of the digital economy, some of whom to emerge as we go along while some will be active survivors from the present as part of a perennial churn. For the

foreseeable future, however, “Metaverse apps” will be stuck in the early stage of development . But slowly, says the author in the concluding part of the book, we will reinvent everything we do and the Metaverse will be “less like a fantastical vision and more like a practical reality”. Matthew Ball’s point of departure, as said before, is that the Metaverse is one of the two successor states to the internet. In exploring its various aspects and gauging its dimensions with imagination and rigour, his book serves as an instructive guide and as a stimulating analysis of the future directions of this resourceful medium . In the Indian context the author’s masterly survey must resonate well since there is already significant, if early, movement in such areas related to the Metaverse as trading in Non-Fungible Tokens (NFTs), budding development of the system’s ecosystem including platforms and hardware, extended reality solutions by leading technology players and adoption of Metaverse techniques in marketing and the whole range of consumer connect. Along with artificial intelligence, the Metaverse bids fair to being the next momentous phase in digitalisation.