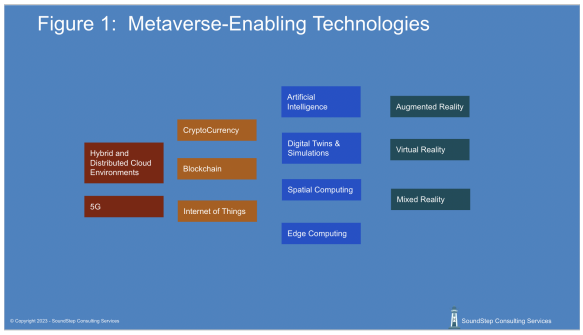
Leveraging Metaverse-Enabling Technologies

Metaverse-Enabling Technologies

As mentioned in one of the articles in the series called “Insurance in Metaverse: A Universe of Possibilities”, one approach insurers should consider is to use the Metaverse-enabling technologies that exist to achieve their goals in both the physical and virtual worlds. It’s important to first provide simple descriptions of these enabling technologies in order to help insurers identify where they can be leveraged to achieve their goals in both the physical and virtual worlds.

Figure 1 below illustrates these Metaverse-enabling technologies.

Figure 1: Metaverse-Enabling Technologies



Internet of Things, 3D Modeling, Spatial Computing, & Digital Twins

Sensors and devices, also known as Internet of Things (IoT) will continue to be more powerful, miniaturized, capable of higher levels of sensitivity, include built-in intelligence, support easier adaptability and connectivity. IoTs in combination with today’s three dimensional modeling (3D) technologies and services, high speed telecommunications and networks, and spatial computing provide new ways for addressing risk management and insurance challenges that have persisted for many years.

These challenges include initial risk assessment, on-going underwriting audits, risk quantification, rating and pricing, claims assessment and adjustment, claims fraud prevention and detection, cyber risks assessments, policyholder training for prevention and protection, and several others.

The time and effort required to conduct an initial risk assessment can vary depending on the location, type and size of the structure(s), type and age of the construction materials, ease or difficulty in access, and several other factors. IoTs, 3D Modeling, and spatial computing can facilitate initial risk assessments especially in large factories, remote processing facilities (e.g. oil rigs), large and complex cities requiring assessments of their exposures to hurricanes, wind storms, and climate-related risks. More importantly the assessment data collected will be larger in volume, more accurate, faster to process, and easier to convert into visual

representations (2D or 3D modeling), and tracked.

Spatial computing, a term which can be difficult to grasp at first, is best defined as a) digitization (that is, conversion of information into digital data that can be processed by computers) of the location and activities/movements of objects, machines, people, other items of interest in a given environment(s).

The GPS capabilities that are now common in automobiles and mobile phones are examples of spatial computing.

These technologies can be leveraged so that underwriting audits can be conducted with minimum to zero need for humans - a tremendous benefit especially if risk assessments and audits involve going to remote and/or hazardous places.

In addition, these technologies can assist in claims verifications, adjustments, and as a means of determining, via pattern analysis, whether claims fraud is involved.

Note well that there are major insurance companies that are utilizing these technologies today. These companies are in a strong position to leverage an even more powerful technology which is digital twins.

The ability to take large amount of data from IoTs, translate them into visual 3D representations, utilize spatial computing, and conduct simulations using digital twins will provide the ability for underwriters, actuaries, and other risk managers to identify existing as well as predict new risks, create in real-time, risk models, adjust risk rating parameters, and price risks iteratively.

Simulations can also be conducted offline by specifying when real-time data will be gathered and transferred for offline simulations.

Digital Twin is another term that requires a simple definition - it is a virtual representation or model of a physical world object, human, system, building, etc. The ability to create a digital counterpart serves many practical purposes including simulation of the physical object's attributes and behavior, or simulation of a processing system's performance, or its interactions with other systems; or simulations of risks human employees can be exposed to as they conduct their work in a factory or manufacturing plant.

Sensors can be embedded in employees' clothing and protective gear, and their movements can be tracked via spatial computing and visually rendered in 3D which can help monitor their safety as they go about their work. Simulations can be conducted to improve working conditions and most especially to identify/predict new risks, whether they are related to the work environment or the behavior of the employees. Revisions to safety procedures can be created and imparted to employees faster.

Facilitates Entry into Metaverse

The aforementioned technologies when combined with Augmented Reality, Virtual Reality, and Mixed Reality enables a direct path into Metaverse.

Augmented Reality (AR) is a technology that allows the overlaying of digital information or pictures into a real-world object or environment. It's already being utilized across many industries. Some of the basic implementations include the use of AR for selecting products by overlaying how they would look and fit in one's home, or how eyeglasses and clothes would look on a buyer. It's come a long way from in relatively short time (from its basic use and from its impressive application in the Pokemon Go game. Today, it's used to train future surgeons, to assist in medical diagnosis, to push architecture and design to new heights.

Virtual Reality is a computer-generated simulation of a physical object and/or its environment that can be interacted with by a person so that the experience is seemingly real. The most common equipment to experience virtual reality is by utilizing headsets or helmets equipped with head-mounted displays (HMD). The virtual experience is made powerful because the simulation of objects and/or environments are three dimensional (3D modeled) and can be explored in 360 degrees. Companies that create VR headsets are continuing to seek ways to make the headsets smaller, more practical and easy to use, and affordable. Newer models that look more like regular eyeglasses or sunglasses are being developed.

Mixed Reality (MR) technologies provide an even richer experience by enabling interaction between physical and digital elements of the physical and virtual worlds, respectively. Examples may be found in the gaming industry - a simple one being a simulation or 3D model of a real cat or dog that is placed in a virtual environment, and allows a person who is accessing the virtual environment to pet the 3D model, take it for a walk, ask it to perform tricks, etc. The interaction with the simulated dog provides a rich, almost real experience of being in both the physical and virtual worlds. The technologies that drive this capability continue to advance and are making inroads in the healthcare industry. The capability to create and interact with holographic images holds tremendous promise for training future doctors and surgeons.

Artificial Intelligence (AI)

Artificial Intelligence is a wide branch of computer science that encompasses the creation of computers, machines, systems, devices, and other technologies that simulate human intelligence, and perform tasks that typically require human intelligence, experience, and decision-making. AI technologies are predominant in the powering of Metaverse. AI is utilized in the infrastructure, human interface, decentralization, spatial computing, creator economy, discovery, and experience areas or groupings of types of technologies in Metaverse. Since Metaverse is still evolving it's too early to tell whether these groupings (commonly referred to by technologists as layers or levels) will need to be expanded or even remain valid as new types of technologies are developed.

AI used in support of IT Operations (aka AIOps) is crucial to managing the infrastructure systems, telecommunications and networking services, equipment,

hardware, and software that power Metaverse. AI is used to generate the virtual environments, objects, avatars, and 3D animation that are used to create Metaverse, and deliver the immersive experience of being in an alternate world or universe.

The amount of data that must be captured and processed in real-time to support AR, VR, and MR, simulations and digital twins are powered by AI. Image recognition, behavior analysis, pattern recognition, natural language processing, machine learning, and other applications of the science and technology of AI will continue to shape Metaverse, and how people work, play, live, attend events, access entertainment, socialize, etc.

Insurers have begun to include AI in they're digital transformation and modernization efforts. Machine learning, robotics process automation (RPA), AI for case management, and artificial neural networks & learning systems are being used by insurers in their underwriting, policy administration, claims management, customer service, financial accounting & reporting processes and workflows, and in their day to day IT operations. Insurers are well-positioned to leverage new AI technologies especially for their client-facing, product management, marketing, sales and distribution activities.

Blockchain

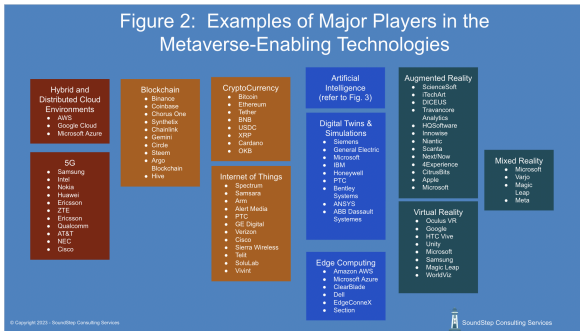
Blockchain is a distributed and shared, immutable public ledger that is used to track assets in both the physical and virtual worlds, and to facilitate transactions relating to these assets. One of the most important uses of blockchain is provenance, that is, proof of ownership of assets. Examples of assets in the physical world are houses, cars, buildings, land, intellectual property, brands, trademarks, patents, copyrights, and many more. Examples of assets in Metaverse are virtual houses, cars, buildings, land, intellectual property, works of art, non-fungible tokens, crypto currencies, central bank digital currencies (CBDC), and many more - all categorized as digital assets and virtual assets.

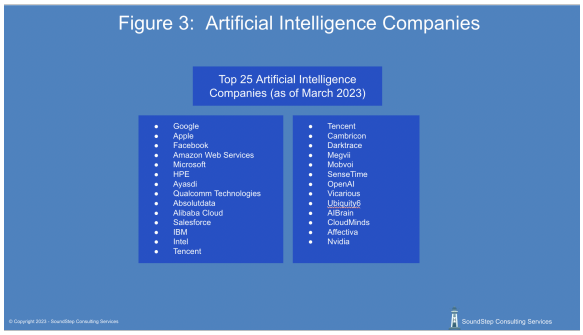
Blockchain is not new to insurers. Several of the major insurers have leveraged this technology for specific applications including tracking of insurance policies and early experiments in the world of cryptocurrency-related transactions. Companies like Lemonade and Etherisc utilize blockchain. Fifteen of the top global insurers and reinsurers created a consortium called B3i and pursued several projects. However, following unsuccessful funding rounds, B3i went into insolvency and ceased to exist.

One of the reasons cited for its failure is that based on the projects that were completed, the founders did not see the volume of demand necessary to make the Blockchain platform viable. There wasn't enough volume of transactions among disparate parties, nor enough need to share information among disparate parties to warrant the use of Blockchain in the traditional insurance context. However, insurance in Metaverse will highly likely require the use of Blockchain because of the higher volumes of transactions and information exchange required to support transactions involving digital and virtual assets, and a greater need to protect these assets and prove provenance.

Companies Creating Metaverse-Enabling Technologies

The major companies that are creating Metaverse-enabling technologies Continued funding and investments are provided in Figure 2 and Figure 3.





There are many other companies of all sizes that have compelling technologies, tools, and offerings and were not included in the figure above - it would have required at least four pages to include them all.

Nevertheless, the intent in providing the list is to encourage insurers to include these companies in their strategy planning. These companies have technologies that insurers can leverage to address the challenges they are facing today in the physical world, as well as, to position them for providing insurance products and services in Metaverse.

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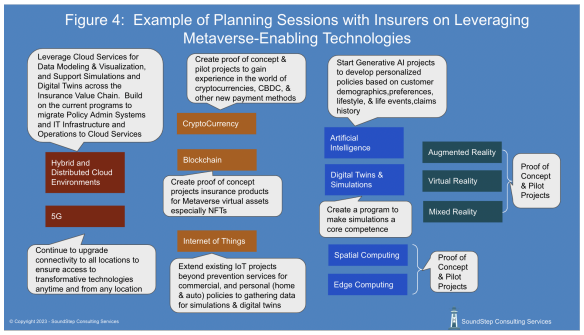
Figure 4 below provides an example of one of the outputs from the strategy formulation sessions with insurers that was conducted by the SoundStep Consulting Services consultants and advisors.



The common sentiment among the insurers before these sessions commenced was that they are tied-up with their current digital transformation & cloud migration programs - and their preference is to fully complete them before taking on additional projects.

However, the common outcome after the sessions is that each insurer gained an understanding that they are in a position to take on proof of concept and pilot projects that are indeed an extension of their current programs. And to launch data management programs that will position their businesses in the near and longer terms. They were able to view their current programs as stepping stones toward a higher, more powerful use of technologies that will benefit them today and position them for the virtual world.

Focused Ideation

Insurers have the opportunity to engage companies that are creating Metaverse-enabling technologies for joint

ideation sessions. The following areas are strong candidates for focused, joint ideation:

- Given that insurers are migrating their IT infrastructure services to Cloud Providers, what is required to also include creating dedicated cloud services for data management, analytics, visualization, and simulation?
- What *Data as a Service on Cloud* technologies will provide one common company-wide data management practice which can still support variations based on the nature of the work each business unit and service unit has?
- What benefits (and when can they be realized) will AIOps bring to IT and the insurance value chain?
- What is required to create simulations and digital twins for optimizing internal insurance processes and workflows end-to-end?
- What is required to create simulations and digital twins from the data gathered by the IoT companies that insurers are working with?
- What is required to create proof of concepts for using digital twins for risk modeling, visualization, simulations with the objective of enhancing the risk quantification, classification, rating and pricing activities? And extending this to claims simulations?
- What is required to leverage simulations and digital twins for cybersecurity policies (from the initial risk assessment, underwriting, audits, pricing, and claims perspectives)?
- What technologies will improve payments processing from today's payment companies?
- What is required to process payments made with cryptocurrencies, CBDC, in-game currencies, and other methods used in the virtual world?
- What is required to create avatars using today's AI technologies and leverage them for customer service, customer and internal training?
- How can Generative AI be leveraged to create better and more consistent policy wording?
- How can Generative AI be leveraged to create more personalized policies and services for customers?
- How can Generative AI be leveraged for claims fraud detection?
- How can Generative AI be used to enhance insurer - broker interactions?
- What is required to create pilot insurance policies for NFTs?
- What is required to provide custody services for digital assets and for virtual assets in Metaverse?
- What are some of the methods utilized today for the valuation of NFTs and other virtual assets?
- What types of insurance coverage are being sought by individuals in Metaverse? By businesses in Metaverse?
- What liability risk coverages are being sought by businesses and individuals in Metaverse?
- What technology and/or Metaverse forums should insurers be active in (by insurance line of business)?
- What are the time horizons for the various Metaverse-enabling technologies (which ones are in beta, which ones were recently launched, which ones have a proven track record)?
- What major transformation, modernization, and migration programs that insurers have underway should be

re-visited, or re-scoped based on the developing technologies' time horizons?
- What new business models are likely to succeed in the next five years? And in Metaverse?

Insurance in Metaverse: A Universe of Possibilities

In concluding this series of articles on *Insurance in Metaverse and the Universe of Possibilities,* the key take-aways are:

- Insurance has, and always will have, a role as a provider of prevention and protection services, and as a critical enabler for growth and innovation.
- There are existing insurance products that can be adapted to or transformed for use in Metaverse.
- Digital Assets and Virtual Assets continue to be created and increase in number, and the companies and individuals creating them, and selling and buying them require insurance to protect against the risks which are. similar to the risks in the physical world.
- The major companies that are creating Metaverse-enabling technologies are familiar to insurers since most of them are clients, and/or their IT partners or vendors.
- Three approaches insurers can take with respect to new technologies, and the Metaverse-enabling technologies, specifically are, 1) Wait and see, 2) Enter into strategic partnerships with active Metaverse players and companies in adjacent industries as a means of gaining entry into the Metaverse ecosystem, and 3) Have focused ideation sessions with companies creating the Metaverse-enabling technologies and launch small proof of concept and pilot projects.
- Whatever *form* Metaverse evolves and transforms into in the next five to ten years is not as important as being able to leverage the new, more powerful, and more transformative technologies that are being developed and made available for many applications along the way.