

# EMERGING TRENDS 2022

3D'S  
OF  
DISRUPTION



## EXEC SUMMARY

The Digital era brought disruption but not the way it ignited in the year 2020/21 where the Pandemic transformed the world around us and influenced us in many ways. We as individuals and for our stakeholders in the larger ecosystem must hope to welcome disruption for it will be the new norm and also be open to changes, new opportunities, new ways in being inclusive and continue our efforts for a better and a green future.

We all, now demand seamless experiences, resilient assurance and in rightly pledging our duties towards ESG values. It is imperative to foresee 2022 with the new lens of technology transformation and refocus business strategies to capitalize on new opportunities using sustainable innovation.

**Datacenters** are taking the paradigm shift because of the 3rd gen Processors more cores like Intel Xeon Scalable (Ice lake), AMD EPYC Milan processors and NVIDIA's Grace (2023) CPUs while using state of the art robotics and automation for data center monitoring and maintenance. The data center industry is in a unique position to accelerate the adoption of sustainable practices in measuring Carbon footprint for all Service model in IaaS/PaaS/SaaS/BPaaS and ensuring renewable energy to reduce climate change at a global level.

**Cloud** powered with technologies like Dataplex (intelligent data fabric for advanced analytics) and Web App & API Protection (WAAP) is changing the whole wave of accessing applications from External Network. Innovation like Vertex AI (scalable ML models), Distributed Application Runtime (DAPR), Kubernetes event-based Autoscaler (KEDA) and Chaos Studio (safely simulate outage) is helping to visualize the new era of development over cloud platforms, and to note some of these offering will mature for next gen On Prem/Hybrid Cloud.

**Data Storage** industry is swiftly adopting breakthrough non-volatile memory express (NVMe) and Project Silica first-ever storage technology designed for the cloud leveraging ultrafast laser optics to store data in quartz glass by using femtosecond lasers

In the area of **Enterprise Databases** and middleware will also gone thru a vigorous transformation providing technologies & platforms like GraphQL (graphical DB representation), ksqlDB (embraces endless changes in the data flow), Time series DB (track and index fast data queries) to offer better versatility and consistency.

Data mesh (distributed architecture- data management), Data Engines (ETL and Datalake integration) and Reverse ETL (copying DW data to operational systems) have led the way by introducing analytics products for their customers. We need to watch out for Cloud enabled **Data-warehouse** Platform like Snowflake which provides autoscaling, BI, Security and AI Analytics.

Next-gen **Networks** will have open-seamless-optimized and built on cloud are transformed by network innovative technologies like fastpass (efficient packet routing), optical wireless technology (use optical light waves, rather than radio waves) and radio access network (RAN). Network innovations like secure access and secure edge (SASE) WAN and cloud access security broker (CASB) is enabling Zero Trust network security architecture.

**Workplace** services will see changes in new chips like Pluton (embedded Security Processor) handling Bitlocker, Windows Hello and System Guard to keep the Workstation safe and secure. The Pluton like HW delivers greater protection via Hardware and Internal Software than the Trusted Platform Module (TPM), hence providing greater capabilities with Zero Trust OS and Future Always Network on with 5G/6G.

**Web Engine** Services will see enhancements in search engine optimizations (SEO), Zero-Click Search and high-quality backlinks. Multi-depth and Bidirectional Encoder transformation algorithms will power the frequency and content delivery of search words. And in App Areas, backend Frameworks App transformation and new frameworks like strapi (headless content management system), koa (web framework) and Meteor (platform for web, mobile, and desktop) will shape the new application transformation world.



## We also introduce the 3D's of Smart Disruption: Design – Diffusion – Data

We need to channelize our energy to both sustaining and disrupting technologies. Technology Sustainability depends on the incremental innovation always and applying for existing technologies and keeping our eyes on disruptive technology. Metaverse, Blockchain, Quantum computing, new AI spectrum's, Satellite infrastructure, Mesh security etc are some of the disruptive technologies which will significantly influence the future. Disruption needs to align the feasible theme of our technology ecosystem requirements of **Design**, **Diffusion** and **Data** to align to “the new normal”.

# DESIGN – NOVEL ASPECTS

Digital world has grasped new heights by pushing to integrate, connect and re-engineer data and Cloud platforms leveraging both human and machine abilities. It is very evident that the design requirements will always be the essence of any architectural decision thus making all of us to incline towards - **rise of API economy** appreciating and next gen Architecture leading way to:

- Decentralized Infrastructure
- Future Accessibility

## Decentralized Infrastructure

Decentralized autonomous infrastructure focus on design/develop web3 architecture using immutable, consensus, tokenized principles of blockchain technologies. The secure digital network infrastructure design promises new aspects for future keys, certificates and self-sovereign identity management.

### Time to action

The whole action can be managed in administering our enterprise computing use cases with the help of smart Contracts which aids to web3 design of regulated governance, security, undisputed audits, insightful transparency and application transformation leading toward modular infrastructure powered by vertical/Hyperscalers Cloud solutions.

## Future Accessibility

Innovation offers far-fetched opportunities to admire the promises of full-fledged access to technology which enables us to create an inclusive design of the ecosystem. Improvements in design architectures of cognitive situations, visual/physical impairments, e-accessibility can be managed well with the new design options.

### Time to action

The end-user total experience use-cases as per the design patterns of futuristic smart wearables, next gen AR/VR, Assistive Robotics & Accessibility guidelines (like WCAG) etc., must be explored to balance the advanced design requirements. Sustainability and Eco-design will play a critical role in reducing the environmental and economic effect of the data we create in any Software development, App design, or IS architecture. We need to fortify more Green Architecture, Green Tooling, Green coding and Green project management & sourcing which has lately gained popularity due to its environmental goals.

# DIFFUSION – DISTRIBUTED FUTURE

Remote collaboration and communication are dramatically transformed with the necessity of the new normalization. Users are looking for freedom to work from anywhere, autonomous identity but no compromise in the overall experience bundled with trust and security in a distributed network. The response is within the technological transformations of thematic codes of:

- Ubiquitous Operational EX
- Pervasive Trust

## Ubiquitous Operational EX

New Experience is interfaced at every level of stakeholders from customer to employee to contractors, and gone are the days when the experience was limited only to the customer's delight. People centricity is the vital characteristic of diffusing the experience from end-user to employees.

### Time to action

The end user computing use-cases are must sought related to Virtual workplace experience and Maintenance, Conversational AI, Humanoids, End user self-service experience platforms minimizing the dependencies of centralized operation teams.



## Pervasive Trust

Trust becomes the most essential ask when we transform and adapt new technologies with managed services and operation. It looks for wholesome secure experience beyond the Firewalls. Discovery, Access, Authentication of users and machines with Pervasive trust is increasingly sought for modernized, transformed, and distributed application experience with more confidence.

### Time to action

Pervasive trust can be brought by leveraging full potential of Cyber AI, Cybersecurity mesh for Privacy & Security, Quantum security - QKD, Homomorphic encryption for Cloud, Blockchain digital self-sovereign identities - SSI.

# DATA – FUTURE COINAGE

The traditional approach of working on big data platforms with loads of historical data is not performing as intended and requires the transition into the next orbit of intelligence. Smaller data sets with wide access are the need of the hour for data transformations through:

- Cognitive Acumen
- Synthetic Metaverse

## Cognitive Acumen

Today technology is making our tools, applications, and bots to talk, listen, and even feel the emotions of a human. Cognitive acumen needs to imitate the rationality of the human behavior of learning, reason, problem-solving and ultimately making intelligent decisions.

### Time to action

We need to borrow the integrated innovations from data science to design, model, train, implement, monitor, and to build cognitive intelligent solutions, dive in for more data insights and fine tune the existing process to redefine the Cognitive acumen. Also, we need to bring in regular NLP, machine learning, assistive robotics, deep learning and neural networks for operations, network, platforms, cloud- analytics use cases and also make full use of the upcoming capabilities of Graph Technologies which gives the next level of Analytics and Data management.

## Synthetic Metaverse

The integration of the digital, real-world and human perception has given the rise of synthetic realities for 3D spaces, distributed experiences and Xtreme realities with the rise of head-mounted devices to access and experience the virtual world. This leads to the metaverse world where the persona of ‘live’ and ‘experience’ is predominantly powered by the internet.

### Time to action

We can be early adopters in riding the Metaverse bandwagon with the use cases of providing virtual office space with digital avatars powered by virtual reality and mixed reality environments. This will make remote work experience more productive and delightful by customization the solutions for training, office spaces, meetings, events and symposiums.



# CONCLUSION

## We – As Inno Torch Bearers

Now we need to think as responsible contributors towards sustainable innovation based on stakeholder needs and new standards. State of the art - The 3 D's of Disruption can present the Virtuous dynamics between strategic CSR and Innovation, this transformation will provide a rational response to the current dynamics of external and internal ecosystems. It will directly influence all personas from business leaders, Exco's, employees, stakeholders, and our society as a whole.

We need to watch out for Metaverse, Practical Blockchain use cases, Quantum computing, New AI spectrum's, Sat infra, Mesh-security, Distributed fabric, Cloud transformations etc. Now we need to look out for the right signal to develop the Disruptive, Meta and Immersive IT into reality to provide the 'umbrella effect' and nurture the proposed - 3 D's of disruption in overarching manner.

We need to abate the existing norms, work around threats, intensify innovation & sustainability and welcome the new realms of digital disruption in our daily chores.



*Bobby John*

**Global Head -  
GTS TSI Inno & CSR**

[bobby.john@socgen.com](mailto:bobby.john@socgen.com)