# The DNA of Disruption: How Latent Needs Reshape IT

My IT career began in 1992 at GP Cotton and Oil company Limited as a Data Entry Operator cum Programmer. The technological landscape of that era was vastly different from today's – the internet was absent, desktop PCs had limited RAM, and we relied on 5.2-inch floppy disks to bootstrap the system with MSDOS and use the Windows 3.1 GUI. Our daily tools included WordStar for document management, Lotus 123 for spreadsheets, dot matrix printer for hard copies, and dBase III+ and FoxBase are most famous databases. Our primary programming languages were Cobol, Fortran 77, Pascal, and GW Basic.

Just five to six years later, in 1997, the IT world had already begun a significant shift. While still in its early stages for many, the internet was gaining momentum. Creating a Google email account required a referral, and multiple search engines were competing for prominence. Client-server architecture was the prevailing model, and the concept of a powerful handheld computer remained a futuristic notion.

Looking back over the subsequent 30 plus years, the transformation has been truly revolutionary. For those of us in IT, our careers have been a constant process of adapting to disruptive forces and adopting the innovative tools and technologies that have arisen.

This article aims to explore the major IT disruptions we've experienced since the 1990s. Beyond simply cataloging these changes, it will also delve into the latent needs that drove them - the fundamental human desires and business imperatives that spurred these technological leaps and the innovative tools and technologies that have not only tackled these challenges but have also ushered in entirely new ways of working.

## Disruption #1 - Dotcom boom:

The late 1990s and early 2000s were marked by the dawn of the internet era and the dot-com disruption. The rapid proliferation of web-based companies and the promise of a new digital economy fueled unprecedented investment and excitement. Businesses rushed to establish an online presence, leading to the development of early e-commerce platforms and a growing demand for high-speed internet infrastructure. However, the speculative bubble burst dramatically, serving as a crucial lesson in the viability of online business models and the importance of sustainable growth. This disruption, while painful for many, laid the groundwork for the internet as a fundamental platform for commerce, communication, and information sharing, driving the evolution of more robust and scalable online technologies.

* Latent Needs:
  + Increased Efficiency: Businesses sought faster and more efficient ways to conduct transactions, reach customers, and manage operations.
  + Expanded Reach: Companies desired to expand their market reach beyond geographical limitations.
  + Information Access: Users wanted easier and faster access to information.

## Disruption #2 – Mobile Revolution:

The mid-2000s ushered in the mobile revolution, a disruption that fundamentally changed how we interact with technology. The advent of smartphones and later, tablets, moved computing from the desktop to our hands. This shift impacted everything from how we access information and communicate to how businesses reach their customers. The demand for mobile applications and seamless mobile internet experiences spurred the development of powerful mobile operating systems like iOS and Android. Mobile app development became a critical skill, and the need for websites to adapt to different screen sizes led to the evolution of responsive web design.

* Latent Needs:
  + Convenience and Portability: Users wanted access to information and communication tools on the go.
  + Ubiquitous Connectivity: The desire to be connected anytime, anywhere.
  + Personalized Experiences: Users sought devices and services tailored to their individual needs and preferences.

## Disruption #3 – Social Media Revolution:

Around the same time (mid-2000s), the social media phenomenon emerged, connecting billions of people worldwide. Platforms like Facebook, Twitter, and LinkedIn disrupted traditional forms of communication, marketing, and even social interactions. Businesses had to adapt their strategies to engage with customers on these new platforms, leading to the development of social media management tools and a growing focus on data analytics for social insights to understand audience behavior and campaign effectiveness. Traditional media outlets also faced disruption as news and information consumption shifted online.

* Latent Needs:
  + Connection and Community: People have a fundamental desire to connect with others and build communities.
  + Self-Expression and Sharing: Users want platforms to express themselves and share their experiences.
  + Information and Discovery: The need to stay informed, discover new things, and engage in conversations.

## Disruption #4 – Cloud Computing:

The late 2000s witnessed the rise of cloud computing, a paradigm-shift in how IT resources are delivered and consumed. The idea of accessing computing power, storage, and software over the internet disrupted the traditional model of owning and managing on-premises infrastructure. Cloud service providers like AWS, Azure, and GCP built massive data centers to offer scalable and on-demand services, providing businesses with flexibility, cost-effectiveness, and increased agility. Virtualization technologies and sophisticated cloud management platforms became essential for managing these complex cloud environments.

* Latent Needs:
  + Scalability and Flexibility: Businesses needed IT resources that could easily scale up or down to meet changing demands.
  + Cost-Effectiveness: Organizations sought to reduce the capital expenditures and operational costs associated with IT infrastructure.
  + Accessibility and Reliability: The need for reliable access to data and applications from anywhere with an internet connection.

### Disruption #5 – Big Data:

As our digital footprint grew, so did the volume of data. The early 2010s marked the arrival of the age of big data. The sheer scale and velocity of data generated by online activities, sensors, and connected devices presented both challenges and opportunities. Traditional data processing methods were no longer sufficient, leading to the development of big data processing frameworks like Hadoop and Spark, as well as advanced data warehousing solutions and business intelligence tools to extract meaningful insights from these vast datasets.

* Latent Needs:
  + Insight and Knowledge: Businesses needed to extract valuable insights from massive amounts of data to make better decisions.
  + Pattern Recognition: The desire to identify trends, patterns, and anomalies in data.
  + Predictive Capabilities: The need to forecast future outcomes and behaviors based on data analysis.

## Disruption #6 – Artificial Intelligence (AI):

The mid-2010s saw a significant resurgence in artificial intelligence (AI) and machine learning (ML). Advances in computing power and the availability of large datasets enabled breakthroughs in areas like image recognition, natural language processing (NLP), and predictive analytics. AI and ML began to disrupt various industries through automation, personalized experiences, and improved decision-making. This era saw the evolution of powerful AI and ML platforms and tools like TensorFlow and PyTorch, making these technologies more accessible to developers and businesses.

* Latent Needs:
  + Automation and Efficiency: The need to automate repetitive tasks and improve operational efficiency.
  + Enhanced Decision-Making: The desire to make more informed and accurate decisions based on data analysis.
  + Personalization and Customization: The demand for personalized products, services, and experiences.

## Disruption #7 – Internet Of Things (IoT):

The Internet of Things (IoT) also gained momentum in the mid-2010s, with everyday objects becoming increasingly connected. This proliferation of connected devices generated even more data and opened-up new possibilities for automation, remote monitoring, and data-driven services across industries like manufacturing, healthcare, and smart homes. The management and analysis of data from this vast network of devices led to the development of specialized IoT platforms and the increasing importance of edge computing to process data closer to its source.

* Latent Needs:
  + Connectivity and Automation: The need to connect devices and systems to automate processes and improve efficiency.
  + Data-Driven Insights: The desire to collect and analyze data from connected devices to gain insights and optimize operations.
  + Remote Monitoring and Control: The ability to monitor and control devices and systems remotely.

## Disruption #8 – Blockchain & Crypto:

While initially known for its role in cryptocurrencies, blockchain technology, which gained mainstream attention in the 2010s, presented a fundamentally different approach to data security and trust. Its decentralized and transparent nature has the potential to disrupt various industries beyond finance, including supply chain management, digital identity, and voting systems. The evolution of various blockchain platforms, smart contracts, and decentralized applications (dApps) continues to explore these possibilities.

* Latent Needs:
  + Security and Trust: The need for secure and transparent ways to conduct transactions and manage data.
  + Decentralization and Control: The desire for systems that are not controlled by a single entity.
  + Efficiency and Transparency: The need for more efficient and transparent processes, particularly in areas like finance and supply chain management.

## Disruption #9 – COVID-19:

The remote work transformation, dramatically accelerated by the COVID-19 pandemic in 2020, represented a significant disruption to traditional workplace norms. Companies had to rapidly adapt their IT infrastructure and security protocols to support a distributed workforce. This led to the widespread adoption of collaboration and communication tools like Zoom, Microsoft Teams, and Slack, as well as the reinforcement of VPNs and enhanced cybersecurity solutions to ensure secure remote access and data protection.

* Latent Needs:
  + Flexibility and Adaptability: The need for flexible work arrangements and the ability to adapt to changing circumstances.
  + Connectivity and Collaboration: The desire to stay connected and collaborate effectively, regardless of location.
  + Business Continuity: The need for organizations to maintain operations and productivity during disruptions.

## Disruption #10 – Gen-AI:

Most recently, the early 2020s have witnessed the rapid advancement of generative AI. The ability of AI models to create realistic text, images, code, and other media is evolving at an astonishing pace, promising to disrupt creative industries, software development, and content creation. The development of large language models, diffusion models, and user-friendly AI art generators highlights this transformative potential.

* Latent Needs:
  + Creativity and Automation: The desire to augment human creativity and automate content creation.
  + Efficiency and Productivity: The need to streamline workflows and increase productivity in various industries.
  + Personalization and Customization: The demand for highly personalized and customized content and experiences.

## Conclusion:

Looking back at the disruptions across the last three decades, a clear pattern emerges: each was driven by fundamental, often unarticulated, human needs. The dot-com boom reflected a need for efficiency and expanded reach; the mobile revolution, a need for convenience and ubiquitous connectivity; and so on. This constant push to fulfill these latent needs has been the engine of IT's evolution. As we move forward, this focus on underlying human needs will undoubtedly continue to shape the trajectory of technological advancement, demanding that we in IT remain adaptable and innovative to meet the challenges and opportunities of the future.

As we look to the future, it's certain that new disruptions will emerge, and our ability to adapt, learn, and embrace new technologies will be crucial for navigating the ever-evolving IT landscape. The resilience and innovative spirit of the IT industry, demonstrated time and again since 1990s, will undoubtedly continue to drive us forward in this exciting and transformative journey.