

Future of Work 2020: 5 ways AI is disrupting businesses and creating growth opportunities



AI is disrupting business models and value chains across the world. At YourStory's Future of Work event, a panel discussed the rapid adoption of AI and its impact on long-term and sustained financial growth.

No conversation around technology today is complete without a reference to **artificial intelligence (AI)**. While the term AI has been around for decades, in recent times, **its application across industries**, from mining to healthcare, education and finance, among others, **is changing the way we live**, both at work and at home.

The increasing ubiquity of AI can be attributed to **greater processing power** and the **declining cost of achieving these tasks at increased speeds**. The adoption of AI has been so rapid that technology leaders across industries can no longer ignore it **for long-term and sustained financial growth**.

At the third edition of **YourStory's Future of Work** event in Bengaluru on Saturday, AI was the focus of a panel discussion, which drew attention to **"How AI is disrupting business models and value chains** and unleashing transformative and innovative growth opportunities".

The session was moderated by **Sameer Dhanrajani**, CEO and Co-founder, **AIQRATE**, and the panelists were **Rajan Sethuraman**, CEO, LatentView Analytics; **Soumendra Mohanty**, EVP Analytics and COO, Tredence; **Prithvijit Roy**, CEO and Co-founder, BRIDGEi2i; and **Iqbal Kaur**, Co-Founder, Zylotech. The discussion yielded many insights on the top trends around the technology.



An assimilation of AI strategy, transformation, consulting trends and topical themes

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AIQRATE
A Bespoke AI Advisory & Consulting Firm

1. Experiments at scale are the need of the hour

It is clear that we are at a stage where we need to experiment at scale.

“In India, AI is still at the evangelising stage. There’s a lot of interest and most organisations realise that it is not a case where their first forays into AI are going to give phenomenal returns,” Rajan said.

He added that companies needed to run a lot of experiments. “From a team perspective, I would say how do you figure out how to run multiple prototypes, channels, and experiments.”

2. Every company today is a technology company

CXOs today are concerned with the outcome that they can deliver. “Today, businesses have realised that they are all into technology, regardless of the vertical they operate in,” Iqbal said.

All companies, whether startups or established businesses, are realising that they will no longer remain relevant or in the running without AI.

Prithvijit added, “As consumers, we are primarily operating from our mobile devices and have come to expect the same level of experience, whether it is ordering food, booking a cab, or any other service. So, a CXO has no other option but to rethink the way the business operates if s/he wants to remain in business. That’s where data, automation, and AI will be the game-changers.”

3. Disruption is the new normal

The business landscape today is evolving constantly.

“Strategic business models are changing and the things we learned in business school like Porter’s 5 Forces model are no longer relevant today. But is AI a Trojan horse in Transformation at Scale?” Sameer asked.

Giving the example of Niramai. Ai, Rajan said the Healthtech startup was using thermal sensors instead of X-rays to create images that would then be analysed using AI to make more accurate predictions and diagnoses of breast cancer.

“This allows for faster and more accurate treatment. Disruption is possible in several places, and companies and industries are still understanding use cases where AI can be used.”

4. Understanding the AI ‘playbook’

Companies further along their digital transformation journey are better poised to leverage AI.

“If a company’s core processes are not digitised, then there is not enough data, and AI is a monster that needs to be fed a lot of data. One of the reasons many of our clients did not do well in their AI journey was that a lot of their processes were not digitised. So, we took a step back in the value chain and created that data,” Iqbal said.

Soumendra said it was important for companies to have absolute clarity on the problems they were trying to solve.

“Secondly, we often treat AI as a toy, an experiment, or an innovation. We forget who the main consumer of whatever we are creating is and whom we are disrupting for. If we keep the consumer in mind and have clarity on the problems we are trying to solve, that’s where the magic happens.”

5. Humans and AI will solve problems together

Prithvijit said we were already on the journey where this collaboration is happening.

“AI is like a genie that is already out of the bottle, and we can’t put it back in. I think there will be certain repetitive jobs that will be done by AI. But that’s not the bigger thing. That will be an augmentation of human abilities, where AI will do things that the human brain cannot do,” he said.

When leveraged correctly, AI will bring about positive advances that will disrupt value chains across the economy. However, companies will have to guard against misinformation and manipulated and false data that can corrupt output, and AI developers need to be suitably prepared.

YOURSTORY & AIQRATE jointly unveiled a seminal report on Data Engineering 4.0



YOURSTORY & AIQRATE curated and unveiled a seminal report on “**Data Engineering 4.0: Evolution, Emergence & Possibilities in the next decade.**”

A first in the area, the report covers a broad spectrum on key drivers of growth for Data Engineering 4.0 and highlights the incremental impact of data engineering in the time to come due to **emergence of 5G, Quantum Computing & Cloud Infrastructure**. The report also covers a comprehensive section on applications across industry segments of smart cities, autonomous vehicles, smart factories and the ensuing adoption of data engineering capabilities in these segments.

Further, it dwells on the significance of incubating data engineering capabilities for deep tech startups for gaining competitive edge and enumerates salient examples of **data driven companies in India** that are leveraging data engineering prowess. The report also touches upon the data legislation and privacy aspects by proposing certain regulations and suggesting revised ones to ensure end to end protection of individual rights, security & safety of the ecosystem.

Data Engineering 4.0 will be an overall trojan horse in the exponential technology landscape and much of the adoption acceleration that AI needs to drive; will be dependent on the advancements in data engineering area.

AIQRATE at AI Summit & Expo 2020 organized by CII



AIQRATE was at the **AI Summit & Expo** organized by CII (**Confederation of Indian Industry**) on 11-12 February 2020 in Bengaluru. “AI Applications & Digi-Tech” being the main theme transcends wide array of applications and adoptions by multiple industry segments leveraging AI.

Keynote session by **Sameer Dhanrajani, CEO at AIQRATE**, was part of the CII Steering Committee and delivered keynote session focused on AI becoming new normal in business transformation and driving strategic imperatives in the enterprises.

Sameer also moderated an engaging panel discussion on “**AI in Public Services**”. In this discussion, panelists touched upon several applications of AI across public services domains including governance, utilities, education and legal.



In a separate panel discussion on “AI in Retail & e-Commerce”, **Rohan Nag, Chief Client Officer at AIQRATE**, explained multiple disruptive implementations of AI enabled solutions in retail domain.

Key Strategic Imperatives for GCCs to drive AI CoE: The new model (GCC CXO'S Primer)



Global Capability Centers(GCC's) are at an inflection point as the pace at which AI is changing every aspect is exponential and at high velocity. The rapid transformation and innovation of GCC's today is driven largely by ability for them to position AI strategic imperative for their parent organizations. AI is seen to the Trojan horse to catapult GCC's to the next level on innovation & transformation. In recent times; GCC story is in a changing era of value and transformative arbitrage. Most of the GCCs are aiming towards deploying suite of AI led strategies to position themselves up as the model template of AI center of Excellence . It is widely predicted that AI will disrupt and transform capability centers in the coming decades. How are Global Capability Centers in India looking at positioning themselves as model template for developing AI center of competence? How have the strategies of GCCs transformed with reference to parent organization? whilst delivering tangible business outcomes , innovation & transformation for parent organizations?

Strategic imperatives for GCC's to consider to move incrementally in the value chain & become premier AI center of excellence

AI transformation

Artificial Intelligence has become the main focus areas for GCCs in India. The increasing digital penetration in GCCs across business verticals has made it imperative to focus on AI. Hence, GCCs are upping their innovation agenda by building bespoke AI CoEs. Accelerated AI adoption has transcended industry verticals, with organizations exploring different use cases and application areas. GCCs in India are strategically leveraging one of the following approaches to drive the AI penetration ahead –

Federated Approach: Different teams within GCCs drive AI initiatives

Centralized Approach: Focus is to build a central team with top talent and niche skills that would cater to the parent organization requirements

Partner ecosystem: Paves a new channel for GCCs by partnering with research institutes , start-ups , accelerators

Hybrid Approach: A mix of any two or more above mentioned approaches, and can be leveraged according to GCC's needs and constraints.

Ecosystem creation: Startups /research institutes/Accelerators

One of the crucial ways that GCCs can boost their innovation agenda is by collaborating with start-ups, research institutes , accelerators. Hence, GCCs are employing a variety of strategies to build the ecosystem. These collaborations are a combination of build, buy, and partner models:

Platform Evangelization: GCCs offer access to their AI platforms to start-ups

License or Vendor Agreement: GCCs and start-ups enter into a license agreement to create solutions

Co-innovate: Start-ups and GCCs collaborate to co-create new solutions & capabilities

Acqui-hire: GCCs acquire start-ups for the talent & capability

Research centers: GCCs collaborate with academic institutes for joint IP creation, open research, customized programs

Joint Accelerator program: GCCs & Accelerators build joint program for customized startups cohort.

To drive these ecosystem creation models, GCCs can leverage different approaches. Further, successful collaboration programs have a high degree of customization, with clearly defined objectives and talent allocation to drive tangible and impact driven business outcomes.

AI Center of Competence/ Capability

GCCs are increasingly shifting to competency, capability creation models to reduce time-to-market. In this model, the AI Center of Competence teams are aligned to capability lines of businesses where AI center of competence are responsible for creating AI capabilities, roadmaps and new value offerings, in collaboration with parent organization's business teams. This alignment and specific roles have clear visibility of the business user requirement. Further, capability creation combined with parent organization's alignment helps in tangible value outcomes. In several cases, AI teams are building new range of innovation around AI based capabilities and solutions to showcase ensuing GCC as model template for innovation & transformation. GCCs need to conceptualize a bespoke strategy for building and sustaining AI Center of Competence and keep it up on the value chain with mature and measured transformation & innovation led matrices.

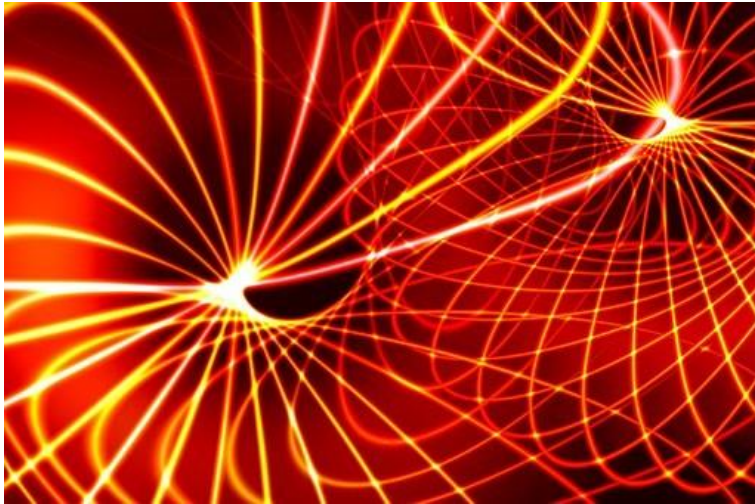
Talent Mapping Strategy

With the evolution of analytics, data sciences to AI, the lines between different skills are blurring. GCCs are witnessing a convergence of skills required across verticals. The strategic shift of GCCs towards AI center of capability model has led to the creation of AI, data engineering & design roles. To build skills in AI & data engineering, GCCs are adopting a hybrid approach. The skill development roadmap for AI is a combination of build and buy strategies. The decision to acquire talent from the ecosystem or internally build capabilities is a function of

three parameters – Maturity of GCC 's existing AI capabilities in the desired or adjacent areas, Tactical nature of skill requirement & Availability and accessibility of talent in the ecosystem. There's always a heavy Inclination towards building skills in-house within GCCs and a majority of GCCs have stressed upon that the bulk of the future deployment in AI areas will be through in-house skill-building and reskilling initiatives. However, talent mapping strategy for building AI capability is a measured approach else can result in being a Achilles heel for GCC and HR leaders.

GCCs in India are uniquely positioned to drive the next wave of growth with building high impact AI center of competence , there are slew of innovative & transformative models that they are working upon to up the ante and trigger new customer experience , products & services and unleash business transformation for the parent organizations. This will not only set the existing GCCs on the path to cutting-edge innovation but also pave the way for other global organizations contemplating global center setup in India.AI is becoming front runner to drive innovation & transformation for GCCs.

Experience the Algorithm Economy: Accentuating strategic value for the enterprises (CXOs Primer)



Algorithms will not only drive scores of business processes, but also build other self-intuitive algorithms, much as robots can build other robots. And rather than using apps, future users' lives will revolve personalized algorithms to drive individual choices and behaviors.

Enterprises will license, trade, sell and even give away non-lynch pin algorithms and single-function software snippets that provide new opportunities for innovation by other enterprises. Enterprises will also partner with cloud-based, automated suppliers with the industry expertise to advice on ways to avoid future risk and adapt to technology trends.

Imaginative thinking ! but it's no surprise that future value will come from increased density of interactions, relationships and sharing between people, businesses and things—or what I call “ Algorithm Economy “ .The greater the maturity of algorithms, the greater potential value you can reap.

We've seen interconnection coming of age for a while now and have invested heavily in a platform to empower enterprises with fast, direct and secure interconnections with business partners and network and cloud service providers.

Redefining Business Architecture with Algorithms

The term “algorithm economy” is relatively new, but the practical use of algorithms is already well established in many industries. In my opinion , CXOs must begin designing their algorithmic business models, both to capitalize on their potential for business differentiation, and to mitigate the possible risks involved.

Established businesses need to adopt a “bi modal strategy” and build what I called an algorithmic platform, completely separate from legacy systems, that harnesses repository of algorithms, interconnections, the cloud and the Internet of Things (IoT) to innovate, share value, increase revenues and manage risk.

New platforms based on this bimodal model should be far simpler, more cloud-based and more flexible than in the past, with the ability to add and remove capabilities “like Velcro” to support new short- and long-term projects. At the same time, IT should start divesting itself of older systems and functions that are outliving their usefulness or could be better done by other methods. The significant development and growth of smart machines is a major factor in the way algorithms have emerged from the shadows, and become more easily accessible to every organization. We can already see their impact in today's world, but there is much work ahead to harness the opportunities and manage the challenges of algorithmic business.

CXOs should examine how algorithms and intelligent machines are already used by competitors and even other enterprises to determine if there is relevance to their own needs. The retail sector has long been at the leading edge of using smart algorithms to improve business outcomes.

Today, many retail analysts believe that the algorithms that automate pricing and merchandising may soon become the most valuable asset that a retailer can possess. In HR function, algorithms are already transforming talent acquisition as they are able to

rapidly evaluate the suitability of candidates for the suitability of candidates for specific roles, but the same technology could easily be applied within an enterprise to allocate workloads to the right talent. In healthcare, the open availability of advanced clinical algorithms is transforming the efficiency of healthcare delivery organizations and their ability to deliver care. The practice of sharing and co-developing algorithms between enterprises with mutual interests could be relevant to most enterprises.

The Challenges of Algorithm Economy

The advances and benefits of algorithm economy will come hand in hand with obstacles to navigate. Whether the problems are anticipated or unexpected, as quantum computing becomes more pervasive, the implications have the potential to make or break organizations. For example, an extreme point of view is that any beneficial effects of algorithms on humanity may be nullified by algorithmically driven systems that are antithetical to human interests. Or, while an algorithmic business model may be deployed with good intentions, it could be manipulated by malicious humans to achieve undesirable outcomes. Undesirable, at least, from the point of the view of the person or organization that owns or controls the algorithm. Algorithms rely on the data they are fed, and their decisions are only as good as the data they are based on. Moreover, tricky ethical problems that do not necessarily have a “correct” answer will be inevitable, as a greater complexity of decision making is left in the hands of automated systems.

The scale of change that is made possible by smart machines and algorithm economy warrants considerable planning and testing. Enterprises that fail to prepare risk being left behind or facing unexpected outcomes with negative implications.

The Transformation required in Algorithm Economy

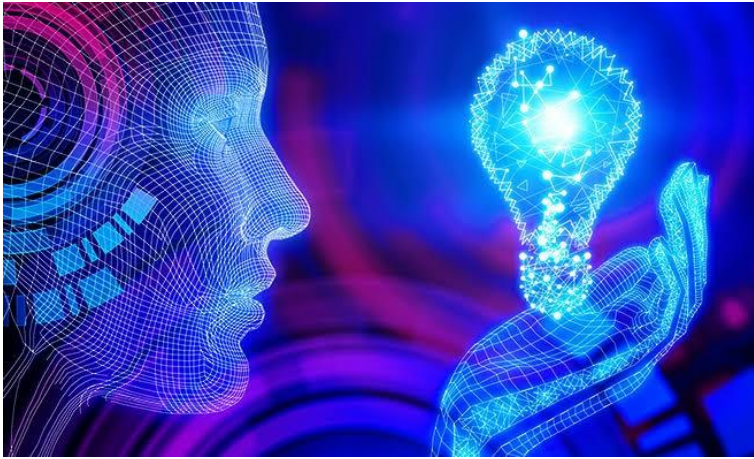
Making sense of all the data about how customers behave, and what connected things tell an organization, will require algorithms to define business processes and create a differentiated customer experience. Algorithms

will evaluate suppliers, define how our cars operate, and even determine the right mix of drugs for a patient. In the purely digital world, agents will act independently based on our algorithms, in the cloud. In the 2020s, we’ll move away from using apps to rely on virtual assistants – basically, algorithms in the cloud – to guide us through our daily tasks. People will trust personal algorithms that thinks and acts for them. Take this to another level and the algorithms themselves will eventually become smart by learning from experience and producing results their creators never expected.

The Final Frontier

Therefore, we have to get the architecture of algorithms robust and steady to derive meaningful objectives. In essence, algorithms spot the business moments, meaningful connections, and predict ill behaviors and threats. CXOs need to be the strategic voice on the use of information, to build the right set of intelligent insights. Experience the Algorithm Economy and the ensuing strategic value for your enterprise. Are you geared up?

How AI shaping the new life in Life Sciences and Pharmaceuticals industry



PUBLISHED IN **YOURSTORY**

There's a massive opportunity for AI to transform the life sciences and pharmaceutical industry. Here's why.

The pharma and life sciences industry is faced with increasing regulatory oversight, decreasing R&D productivity, challenges to growth and profitability, and the impact of artificial intelligence (AI) in the value chain.

The regulatory changes led by the far-reaching Patient Protection and Affordable Care Act (PPACA) in the US are forcing the pharma and life sciences industry to change its status quo.

Besides the increasing cost of regulatory compliance, the industry is facing rising R&D costs, even though the health outcomes are deteriorating and new epidemics are emerging. Led by the regulatory changes, the customer demographics are also changing. The growth is being driven by emerging geographies of APAC and Latin American region.

As a result, the pharma and life sciences industry is compelled to focus on these relatively nascent and evolving markets. Infusion of AI in life sciences industry are enabling them to rationalize internal costs, and focus on better profiling and targeting of clients and medical practitioners

Disruption in life sciences

Pharmaceutical organizations can leverage AI in a big way to drive insightful decisions on all aspects of their business, from product planning, design to manufacturing and clinical trials to enhance collaboration in the ecosystem, information sharing, process efficiency, cost optimization, and to drive competitive advantage.

AI enables data mining, engineering, and real time- and algorithmic-driven decision-making solutions, which help in responding to the following key business value chain disruptions in the pharmaceutical industry:

AI-driven drug discovery – Enables scientists to source scientific findings and insights from external labs or internal knowledge to jump start discovery which will in turn help reduce cycle time for product development aiding faster go-to-market

Reduce cycle times for clinical trials– Through better insights driven by improved accuracy of machine-based ensemble algorithms

Supply chain transformation – Building predictive algorithms using a combination of internal and external data would help reduce unforeseen shortages in availability of drugs impacting customer service levels and lost sales revenues

Product failure prediction – Via root cause analysis and predictive algorithms of product failures (vendor data)

Risk management – For evaluation of potential risks posed by elemental impurities in a formulated drug product

Real-time medical device analysis and visualization– Leveraging interconnecting data from implanted devices and personal care devices

Behavioural sciences – To more fully understand customer perceptions about their products which helps in proactively fixing product issues or managing communication better

Enhance reporting systems– To meet the changing regulatory compliance needs more effectively

Intelligent insights – Renew focus on understanding the underlying business data and generating insights using latest insights and intelligence frameworks

The human microbiome

Though genomics currently hogs the spotlight, there are plenty of other biotechnology fields wrestling with AI. In fact, when it comes to human microbes – the bacteria, fungi, and viruses that live on or inside us – we are talking about astronomical amounts of data. Scientists with the NIH’s Human Microbiome Project have counted more than 100 trillion microbes in the human body.

To determine which microbes are most important to our well-being, researchers at the Harvard Public School of Health used unique computational methods to identify around 350 of the most important organisms in their microbial communities. With the help of DNA sequencing, they sorted through 3.5 terabytes of genomic data and pinpointed genetic “name tags” – sequences specific to those key bacteria. They could then identify where and how often these markers occurred throughout a healthy population.

This gave them the opportunity to catalogue over 100 opportunistic pathogens and understand where in the microbiome these organisms occur normally. Like genomics, there are also plenty of startups – Libra Biosciences, Vedanta Biosciences, Seres Health, Onsel – looking to leverage on new discoveries.

Perhaps the **biggest data challenge for biotechnologists is synthesis**. How can scientists integrate large quantities and diverse sets of data – genomic, proteomic, phenotypic, clinical, semantic, social etc. – into a coherent whole?

Many AI researchers are occupied to provide plausible responses:

Cambridge Semantics has a developed semantic web technologies that help pharmaceutical companies sort and select which businesses to acquire and which drug compounds to license.

Data scientists at the Broad Institute of MIT and Harvard have developed the Integrative Genomics Viewer (IGV), open source software that allows for the interactive exploration of large, integrated genomic datasets.

GNS Healthcare is using proprietary causal Bayesian network modeling and simulation software to analyze diverse sets of data and create predictive models and biomarker signatures.

Genomics

Numbers-wise, each human genome is composed of 20,000-25,000 genes composed of three billion base pairs. That’s around three gigabytes of data. Genomics and the role of AI in personalizing the healthcare experience:

- Sequencing millions of human genomes would add up to hundreds of petabytes of data.
- Analysis of gene interactions multiplies this data even further.

In addition to sequencing, massive amounts of information on structure/function annotations, disease correlations, population variations – the list goes on – are being entered into databanks. Software companies are furiously developing tools and products to analyze this treasure trove.

For example, using Google frameworks as a starting point, the AI team at NextBio have created a platform that allows biotechnologists to search life-science information, share data, and collaborate with other researchers. The computing resources needed to handle genome data will soon exceed those of Twitter and YouTube, says a team of biologists and computer scientists who are worried that their discipline is not geared to cope with the coming genomics flood.

By 2025, between 100 million and 2 billion human genomes could have been sequenced, which is published in the journal PLoS Biology. The data-storage demands for this alone could run to as much as 2–40 exabytes (1 exabyte is 1,018 bytes), because the number of data that must be stored for a

single genome are 30 times larger than the size of the genome itself, to make up for errors incurred during sequencing and preliminary analysis.

Robust algorithms with massive data engineering capabilities

The extensive data generation in pharma, genome, and microbiome serves as a clarion call that these fields are going to pose some severe challenges. Astronomers and high-energy physicists process much of their raw data soon after collection and then discard them, which simplifies later steps such as distribution and analysis. But fields like genomics do not yet have standards for converting raw sequence data into processed data.

The variety of analysis that biologists want to perform in genomics is also uniquely large, the authors write, and current methods for performing these analyses will not necessarily translate well as the volume of such data rises. For instance, comparing two genomes requires comparing two sets of genetic variants. If you have a million genomes, you're talking about a million-squared pairwise comparisons.

The algorithms for doing that will be able to deliver this will be required with strong data engineering capabilities.

There's a massive opportunity of AI transforming life sciences and pharmaceutical industry. The above mentioned disruptions in business value chains have already started making inroads and the CXOs in life sciences industry have realized the virtues of innovation and transformation regime led by AI. Brace up for more interventions in life sciences industry leveraged by AI.



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