A Reimagined Future of Possibilities:

GenAI's Role in Banking, Financial Services and Insurance
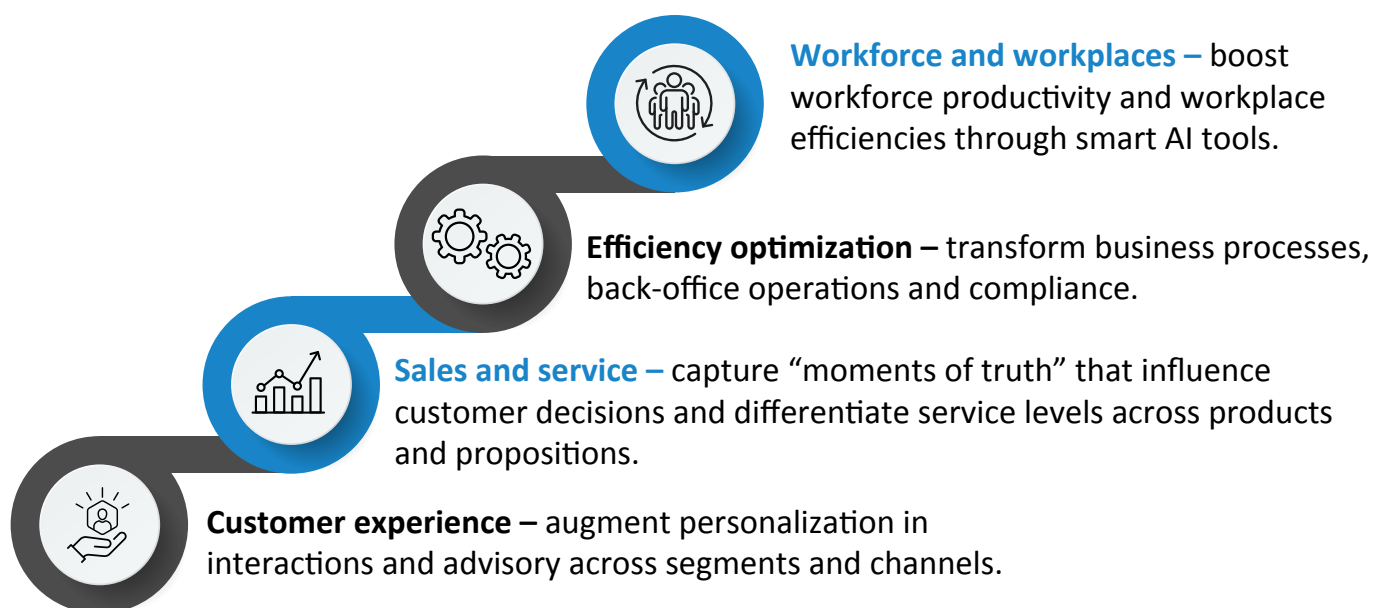
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Key takeaways

- The advent of GenAI has expanded the capabilities of AI with the potential for further differentiation to banking, financial services, and insurance value chains, driving significant efficiencies and experiences for firms.

- All AI-driven decisions and recommendations must have an appropriate level of validation and transparency, with regulatory, compliance, and data privacy requirements factored in at the earliest stages of development.

- Built on the principles of an industry-led, data-fueled and ecosystem-enabled foundation, we offer an "enterprise-wise" AI approach designed to make AI consumable for an enterprise-grade transformation.

The transformative potential of AI

Many banking, financial services, and insurance (BFSI) organizations are already extensively experimenting with AI technologies. In the TCS 2023 Global Cloud Study, an astonishing 82% of BFSI respondents said they increased investments in artificial intelligence / machine learning (AI/ML) in the past one to two years. An even more astonishing 87% said they planned to invest in AI/ML in the next one to two years.[1]

Since the moment generative artificial intelligence (GenAI) went mainstream, organizations have grappled with the best way to realize its vast potential. BFSI firms have traditionally embraced analytics while being heavily guardrailed by compliance and regulations, and the effect is visible in the way AI has been used thus far.

Over the last four to five years, predictive AI with its expressive modelling capabilities has been leveraged as an alternative to traditional analytical models. The advent of GenAI has further expanded the capabilities of AI with the potential for transformational impact. For BFSI firms, the opportunities are tremendous, including:

Workforce and workplaces – boost workforce productivity and workplace efficiencies through smart AI tools.

Efficiency optimization – transform business processes, back-office operations and compliance.

Sales and service – capture "moments of truth" that influence customer decisions and differentiate service levels across products and propositions.

Customer experience – augment personalization in interactions and advisory across segments and channels.

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[1] Tata Consultancy Services (TCS) conducted a global cloud study from 6 January to 14 February 2023 on the theme of cloud-enabled innovation. TCS surveyed 972 C-suite and IT senior executives and decision makers from companies with +$1 billion in annual revenue, across UK & Ireland, Continental Europe, North America, and APAC (India, Japan, Australia, NZ). The C-suite and IT senior executives and decision makers included 107 respondents in BFSI.

AI-driven transformation across the BFSI value chains

We studied GenAI initiatives across BFSI firms to understand adoption maturity and business potential. While the implementations are either in the pilot or planning phase, the objectives can be classified into two broad categories—enhancing customer experience and improving operational efficiency.

Areas such as virtual assistance, process streamlining and personalized service saw the highest number of pilot or planned initiatives followed by decision accuracy, fraud detection, automated financial advisory, and compliance. Most of the implementations are at an experimental stage with varying degrees of adoption maturity. Significant business potential is seen in process streamlining, personalized service, automated financial advisory, and compliance monitoring.

We further evaluated the value chains across the banking, capital markets and insurance lines of business (LoBs) to identify granular impact areas *(see Table 1)*. For every LoB, both predictive and generative AI will have varying degrees of influence on business outcomes − from initial engagement to onboarding and servicing, and from bonding to growing and governing. The impact could be change, simplification, or complete reimagination.

Value Chain/LoB	Engage	Onboard	Service	Bond	Grow	Govern
Banking	Targeted campaigns Multi modal product presentation Try before buying agent	Simplified document processing Non-intrusive KYC Customized product development	Intelligent notification Tailored communication Customer centric transparency	Need analysis Customized product development Early warning	Referral nudges Family/ecosystem banking Beyond Banking Services	Credit decisioning Transaction monitoring Automated compliance check
Capital Markets	Product brochures Digital marketing Self-service product discovery	Knowledge management Legal entity mapping Self-service product discovery	Assistance for advisors Next generation digital assistant Data quality and missing data	Early Signal for fraud detection Tailored investment advice Predict settlement fails	Financial data analysis Investment strategies Data monetization	Regulatory compliance assistance Descriptive report generation Simulation & early warning
Insurance	Targeted campaigns Sales collateral generation Product, quote comparison	Risk information synthesis Risk modelling and classification Quote generation	Risk monitoring and prevention First notice of loss (FNOL) assistance Damage assessment	Holistic wellness Intelligent communication Arrest lapse and surrender	Cross sell and upsell New product design On-demand insurance	Product filing Regulatory compliance Fraud detection

Table 1: AI impact across the BFSI value chain

The banking value chain lends itself to the transformational impact by AI. With increasing GenAI adoption, financial institutions will be able to go beyond standalone interventions and intersperse AI into the larger banking value streams and customer journeys. AI-infused capabilities like hyper-personalized campaigns, non-intrusive KYC, advanced needs analysis, and so on, can significantly enrich customer experience and engagement.

In capital markets, a combination of AI and GenAI will bring in new capabilities such as knowledge management, content mining, summarization, content generation, and synthetic data creation. These capabilities can be leveraged to enhance customer experience and transform business models.

Digital progress is steadily transforming business processes and client interactions in insurance. AI adoption will further accelerate the transformational impact. Large language models (LLMs) have the potential to transform the insurance value chain from helping agents and brokers to underwriters and claim handlers. Process transformation is one of the biggest benefits for carriers.

It is important to note that in all of the impact areas, intelligent technologies are augmenting humans, not a replacement. AI will augment humans in their day-to-day work, empowering them to make consistently better decisions and truly innovate in a way that transforms the entire organization.

AI: From then to now

Initially, AI focused on recognition tasks, like identifying objects in images. Its next iteration involved reasoning, analyzing what is happening, why it is happening, what the likely outcomes are, what we should do about it, and decision-making based on that understanding.

The most transformative shift happened with the advent of generative or operative capabilities, exemplified by Large Language Models (LLMs) like GPT, LaMBDA and LLaMA. These models leverage predictions made during the reasoning stage and can make decisions and propose actions. For tasks with fewer data parameters such as domain-specific processes, emerging Small Language Models (SLMs) are rapidly increasing in development.

AI and language models have the potential to extract insights from such unstructured content. Foundational models, such as GPT, LLaMA and open-source alternatives, are 'world-wise,' able to integrate common knowledge that may exist offline, such as in books or paintings. By combining such models with 'enterprise-wise' ones and traditional AI/ML techniques, BFSI organizations can create a knowledge superstructure, increasing the speed and effectiveness of decisions and actions.

Our AI vision

Strategic investments in cloud, advanced data management infrastructures and specialized AI applications over the last decade have paved the way for the next wave of transformation for BFSI organizations. But they must now go further to turn the full potential of predictive and generative AI into sustained performance.

Built on the principles of an industry-led, data-fueled and ecosystem-enabled foundation, we offer an "enterprise-wise" AI approach designed to make AI consumable for an enterprise-grade transformation *(see Figure 1)*.
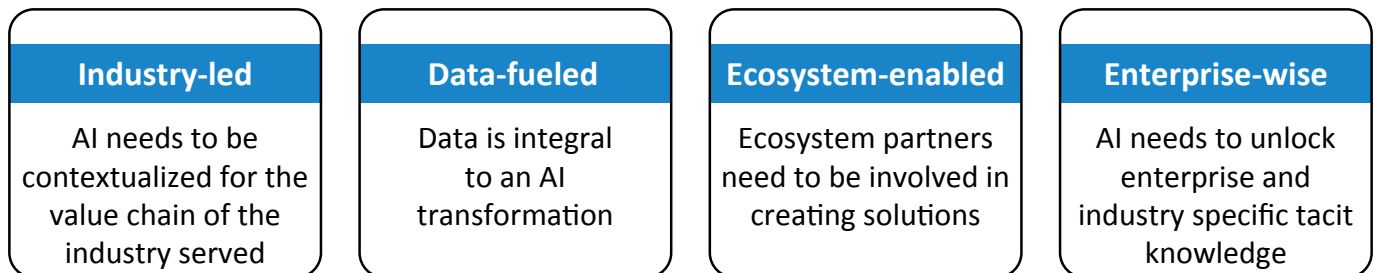
Industry-led	Data-fueled	Ecosystem-enabled	Enterprise-wise
AI needs to be contextualized for the value chain of the industry served	Data is integral to an AI transformation	Ecosystem partners need to be involved in creating solutions	AI needs to unlock enterprise and industry specific tacit knowledge

Figure 1: "Enterprise-wise" AI adoption approach

These four principles underpin our approach to converting AI potential to performance–a continuum that builds upon and reinforces each stage: assist, augment, transform *(see Figures 2 and 3)*.

TRANSFORM

AUGMENT

ASSIST

Machines boost human capabilities
Knowledge discovery and summarization

Supplement tacit knowledge with contextual knowledge to boost work effectiveness

Humans and machines collaborate
Activity optimization

Accelerate performance through collaborative intelligence, where humans and machines complement and magnify each other's talents

Machines elevate, humans ideate
Value-chain redefinition

Leap from systems of record to a knowledge-driven superstructure with fast, consistent, high-quality decision output to deliver new ways of working and the full realization of "enterprise-wise" AI

Compare products & quotes

Agent call center assistance

Aid in better compliance & monitoring

Predict settlement fails

Beyond banking services

Investment research insights

Early warning

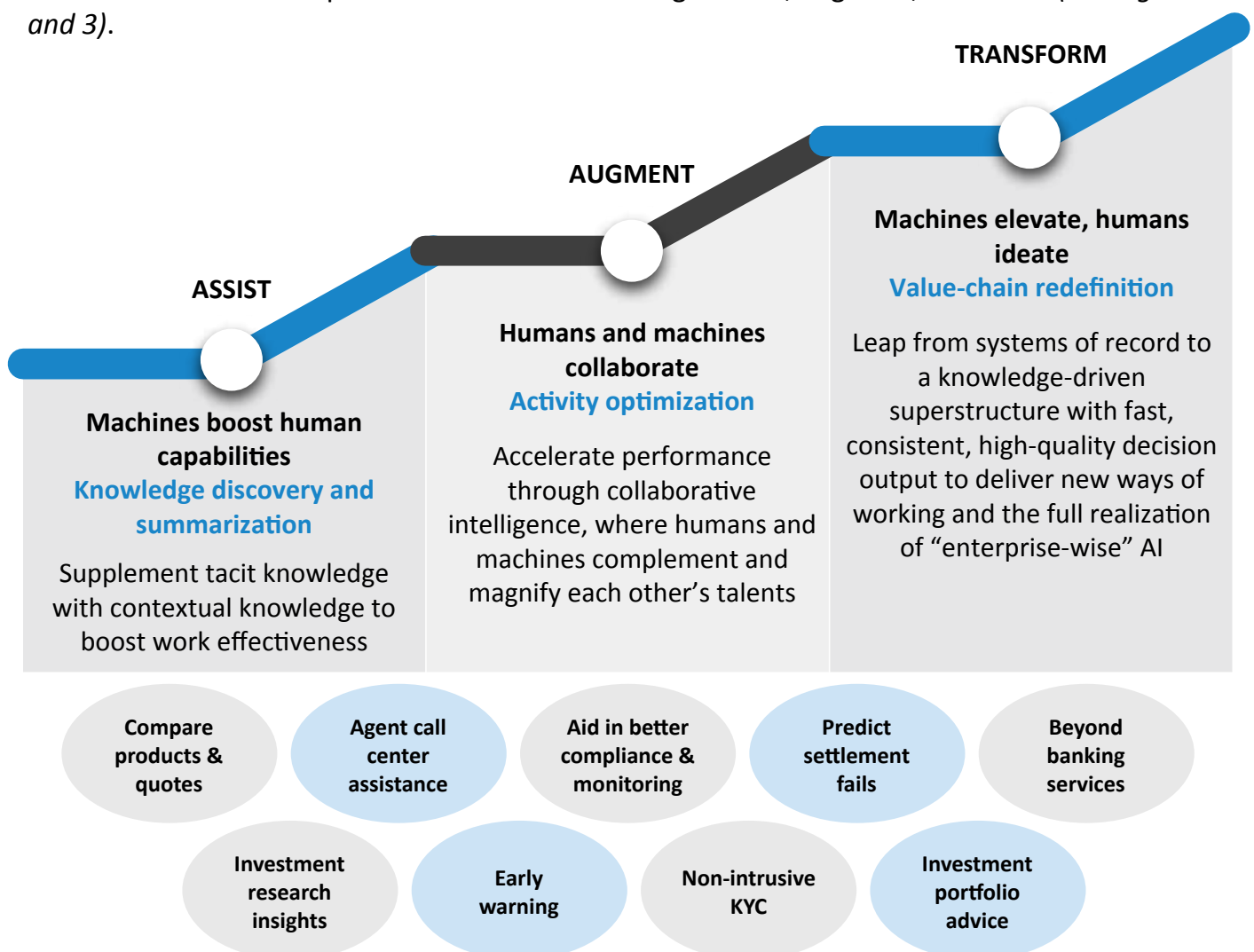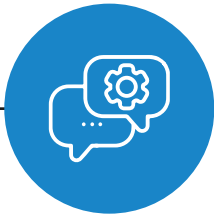Non-intrusive KYC

Investment portfolio advice

Figure 2: TCS AI Continuum – Banking, Financial Services & Insurance

An AI evolution in action

Assist

A customer calls with a question regarding regulatory changes to an existing product. As the organization's top expert, the agent assisting the customer has vast tacit knowledge gained from years of experience. The specialist can accelerate the time to resolution through the ability to augment their knowledge with a continually updated enterprise knowledge base regarding recent changes and likely impacts.
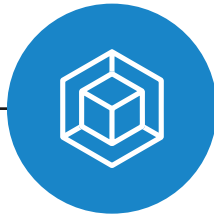
Augment

An AI-enabled model detects and alerts an agent that a customer calling is part of a segment impacted by a recent regulatory change. Supported by a vast ecosystem of collective analysis, the agent doesn't need to be the company's top expert to identify the optimal course of action. Intelligent guided assistance allows the agent to deliver consistently high performance by eliminating variability in complex problem solving.
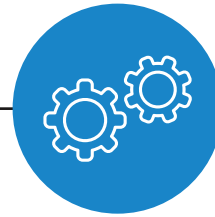
Transform

Upcoming regulatory changes to a product are automatically flagged and a notification sent to each customer impacted along with a recommendation. Human specialists analyze the product impact, along with AI-generated market analysis and the likelihood of additional regulatory changes. They brainstorm opportunities for the customers, resulting in a new product with better returns.

Figure 3: An AI evolution in action

Navigating the complexity:
A multi-layered architecture

How do BFSI firms actually prepare themselves for an AI revolution? Above all, a fundamental tenet of BFSI firms and their customers is trust. All AI-driven decisions and recommendations must have an appropriate level of validation and transparency. In addition, BFSI organizations have unique regulatory, compliance and data privacy requirements across different geographies which must be factored in during the initial stages of developing an AI model.

Finally, it can be challenging to develop a robust business case when it's difficult to quantify the business benefits and costs of AI. Any AI solution must start with a value-augmentation opportunity for business; prioritizing top-down structures, rather than starting with technology adoption.

We believe BFSI firms must recalibrate their enterprise architecture for AI considerations *(see Figure 4):*

- Infuse AI-led assist and augment capabilities into business processes and customer journeys
- Adopt data- and integration-intensive polyglot architecture for building AI applications
- Incorporate fit-for-purpose predictive AI capabilities into the business core
- Adopt 'human-in-the-loop' oriented process design for verification and validation
- Set up enterprise-wide guardrails in alignment with ethical guidelines
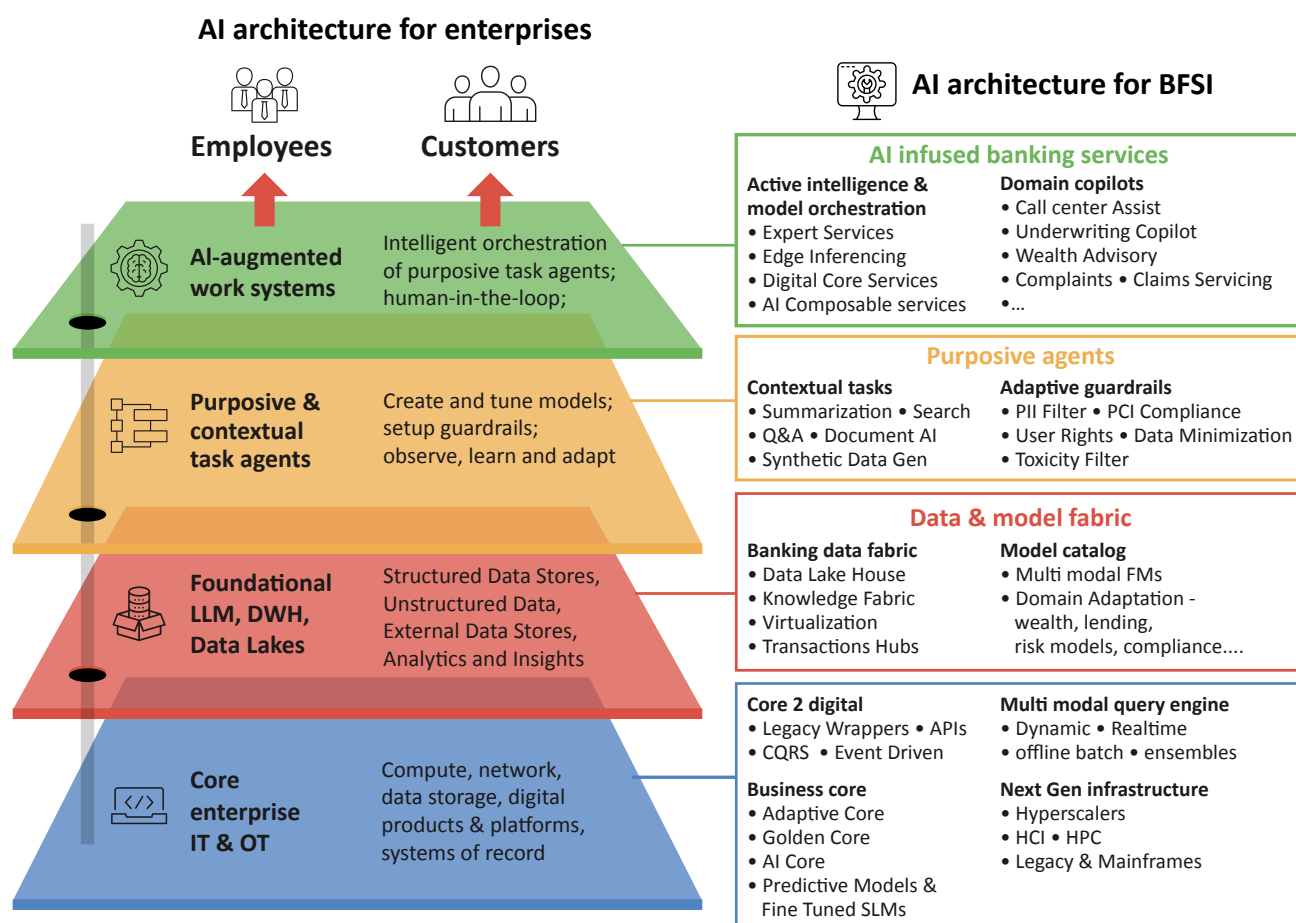

Figure 4: AI architecture for BFSI firms

Using the existing enterprise IT systems as a foundation, the architecture adds layers including foundational LLMs, data lakes and external data stores. Purposive and contextual AI task agents sit on top of this layer, and the final layer adds AI-augmented work systems working in partnership with human employees.

Transforming end-to-end value chains

AI is set to become mainstream in the BFSI industry, especially given GenAI's potential to add complementary value. Fueled by data, the AI enterprise of the future is an operative intelligence that partners with humans to go beyond productivity improvements. The scope for transformative business value creation through knowledge driven decisionmaking, elite performance, and greater innovation, is immense once adoption scales.

Reimagining ways of working and augmenting humans with advanced knowledge capabilities can transform tacit knowledge into elite decision making and high-performing innovation superstructures. We believe that a medium- to long-term strategy that considers structure, business models, ecosystem partnerships, and ways of engagement with adequate emphasis on explainability, ethics, and governance will be key to large scale AI adoption in the BFSI industry.

The TCS advantage

Deep domain and contextual expertise
TCS has well-established product and enterprise knowledge and technological expertise across the BFSI value chain enable robust AI applications and ongoing support.

Cross-industry experience
Working with customers across industries such as travel and transportation, retail and manufacturing brings an end-to-end holistic view of enterprise business functions and knowhow.

Research and innovation focus
We collaborate with leading academia in India and globally across AI research areas such as advanced NLP, behaviour modelling and quantum computing. We also collaborate on BFSI-centric impact areas like enterprise digital twin, portfolio optimization and automated regulatory compliance. We leverage our hyperscaler partnerships, extensive TCS COIN™ network, and co-innovation facilities such as TCS Pace Port™ to accelerate the path to value.

Enterprise AI at scale
Our 3P strategy - patents, products, and platforms - and more than 150,000 trained associates help us enable enterprise AI at scale.

Evolving areas of capabilities
TCS is infusing predictive and GenAI interventions to assist and augment existing value streams.

- **Smart Contact Center:** Transform contact center customer experience through a GenAI-enabled agent copilot for real-time call guidance and monitoring

- **Smart Financial Analysis:** Deliver AI-powered conversational agents to generate smart insights in business vernacular that drive intelligent business decisions

- **Intelligent Claims Process:** Enable frictionless claims and reporting processes across the E2E claims journey by deploying AI-powered conversational agents

- **Complaints Management:** Classify, route and swiftly resolve complaints through AI-driven complaints management

- **Advanced Quant Analytics:** Transform underwriting and portfolio management through a suite of solutions that combine deep business domain expertise with advanced analytics, design thinking and NextGen tools and frameworks

- **Advisory offerings:** Enhance revenue generation and improve efficiency through a range of AI-led offerings tailored to a complete spectrum of stakeholders across BFSI organizations

Executive champions

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