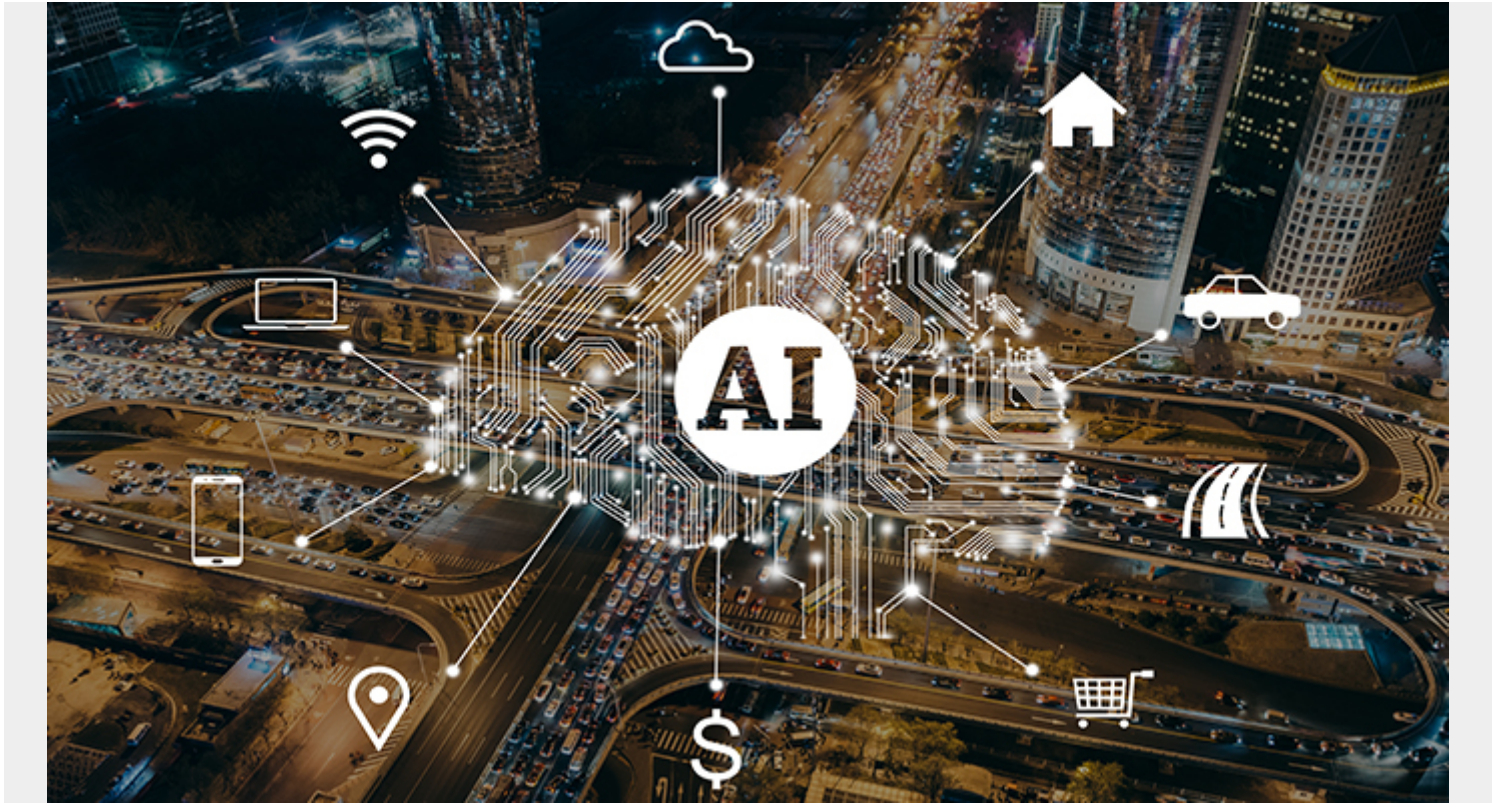# TRANSFORMING TELECOM TO ENABLE INTELLIGENT BUSINESS DECISIONS

Telecommunications companies are poised at a critical moment of transformation. As demand for their services soars, they face both tremendous opportunities for growth and key challenges in maintaining consistently high-quality service and customer satisfaction. Now more than ever, they must leverage data effectively to make optimal business and operational decisions; respond effectively to customer needs; and achieve greater efficiency and productivity. In this new era of telecommunications, artificial intelligence (AI) and machine learning (ML) are quickly becoming mission-critical capabilities.

A changing world calls for new telecommunications technologies

Always integral to the infrastructure of modern life, telecom companies have taken on heightened importance during the COVID-19 pandemic, becoming the backbone of the fight against economic and social paralysis. As businesses, schools, and much of day-to-day life shifted online, an unprecedented demand for voice and data communications—especially uninterrupted wireless and internet connectivity—followed. In response, telecom operators rapidly extended their network capacity to support remote work, virtual classrooms, online entertainment, and other connected activities.

The trends accelerated by the pandemic will only continue after it has passed. Both businesses and consumers have become accustomed to doing more things virtually and companies will

increasingly focus on engaging with customers through online channels. Large numbers of employees will also choose to continue working remotely for the long term—a model that can simultaneously reduce employer costs. In this light, many telecom providers are treating the COVID-19 pandemic not as a passing crisis to be addressed through provisional measures, but as a forcing function to accelerate their own digital transformation so they can survive and prosper in the new normal.

BMC Software's research suggests that AI/ML can play a valuable central role in the transformation of telecommunications, helping providers deliver superior performance in both the short and long term. Armed with automated insights and intelligence, "Communication Service Providers (Telecom Providers)" will be better able to cope with fluctuating demand levels, adjust to supply chain disruptions, and adapt to sharp shifts in consumer confidence and priorities.

Leveraging the benefits of AI/ML will require obtaining the support of employees—whose anxiety is mounting about the combined impact of the pandemic, economic slowdown, and technological change on their careers and lives. With this frame of mind, employees can easily see AI/ML and automation as a threat to their livelihood. In our experience, when operators elicit employee buy-in as part of the AI/ML deployment process, they come to understand AI is a productivity tool rather than a reason to worry about losing their jobs.

While many telecom companies have already started using AI /ML technologies, only those that harness the full potential of these tools will truly thrive. At BMC, we believe technology is most powerful when it empowers businesses and users. People, process, and technology must go hand-in-hand to transform enterprises and telcos. This is especially true when it comes to leveraging AI/ML innovation across the enterprise. In order to maximize the strategic value of AI/ML, it's imperative that all business domains and cross-functional users can access and use an end-to-end platform for data exploration, feature engineering, model training, and inferencing.

Democratizing AI to enable broader business transformation

In the past few years, AI/ML has become a mainstream technology that turns data into information and intelligence. With rich, virtually unlimited data resources at hand, the telecom industry is in an especially strong position to benefit from this capability. Big data stores are easily accessible to operators, while advanced algorithms and automated ML (AutoML) tools are available through open-source packages and public cloud services.

Only one obstacle stands in the way: the shortage of highly skilled data scientists to address a wide range of business demands. To overcome this hurdle, telcos and other enterprises need to democratize AI, lower barriers to entry for its use, and make AI available to the larger user community, who can use it to meet their own needs for data-driven intelligence.

Empowered with their own AI/ML capabilities, users across the organization can become vastly more effective, predictive, and proactive in their work.

- Finance business analysts can create models to adjust pricing strategies based on customer sentiment to increase revenue.
- Customer success developers can build models to predict potential customer complaints and route incoming customer calls to the most appropriate channel to increase customer satisfaction.
- Site reliability engineers (SREs) can train models to predict potential capacity or network issues

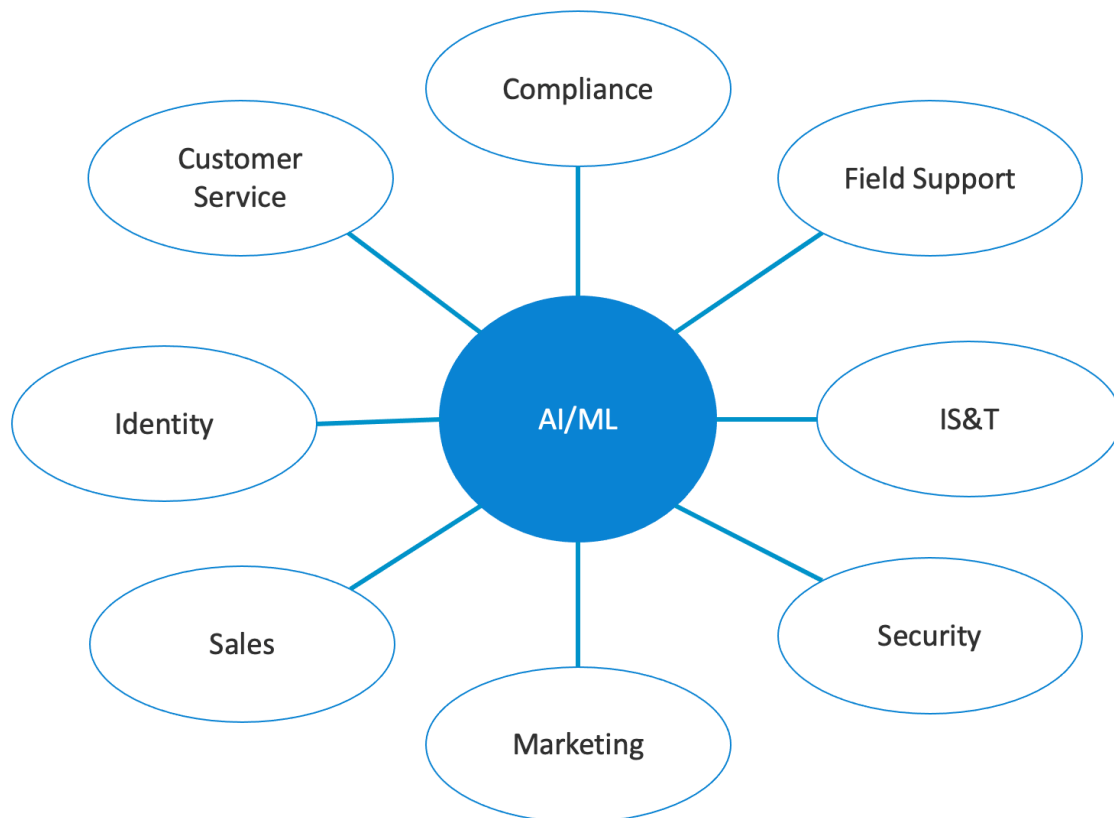and proactively correct problems before they disrupt service.

Figure 1: AI/ML use cases in telecom business domains

Taken as a whole, the collective value of use cases like these across the company can make a significant difference for a telecom provider's bottom line, market position, and growth. More broadly, companies can create a culture where everyone can innovate; every decision is AI-driven; and transformation is woven throughout daily operations.

An AI/ML platform built for broad-based transformation

The AI/ML platform built into BMC Helix allows users to develop, deploy, and maintain ML and deep learning models over time. The platform is delivered as a set of managed services that work holistically and cohesively to enable a reliable, scalable, secure, and self-service experience that meets both business and information security requirements. As shown below, the platform is built by customizing and integrating homegrown, open-source, and vendor tools and cloud services in a hybrid cloud environment.
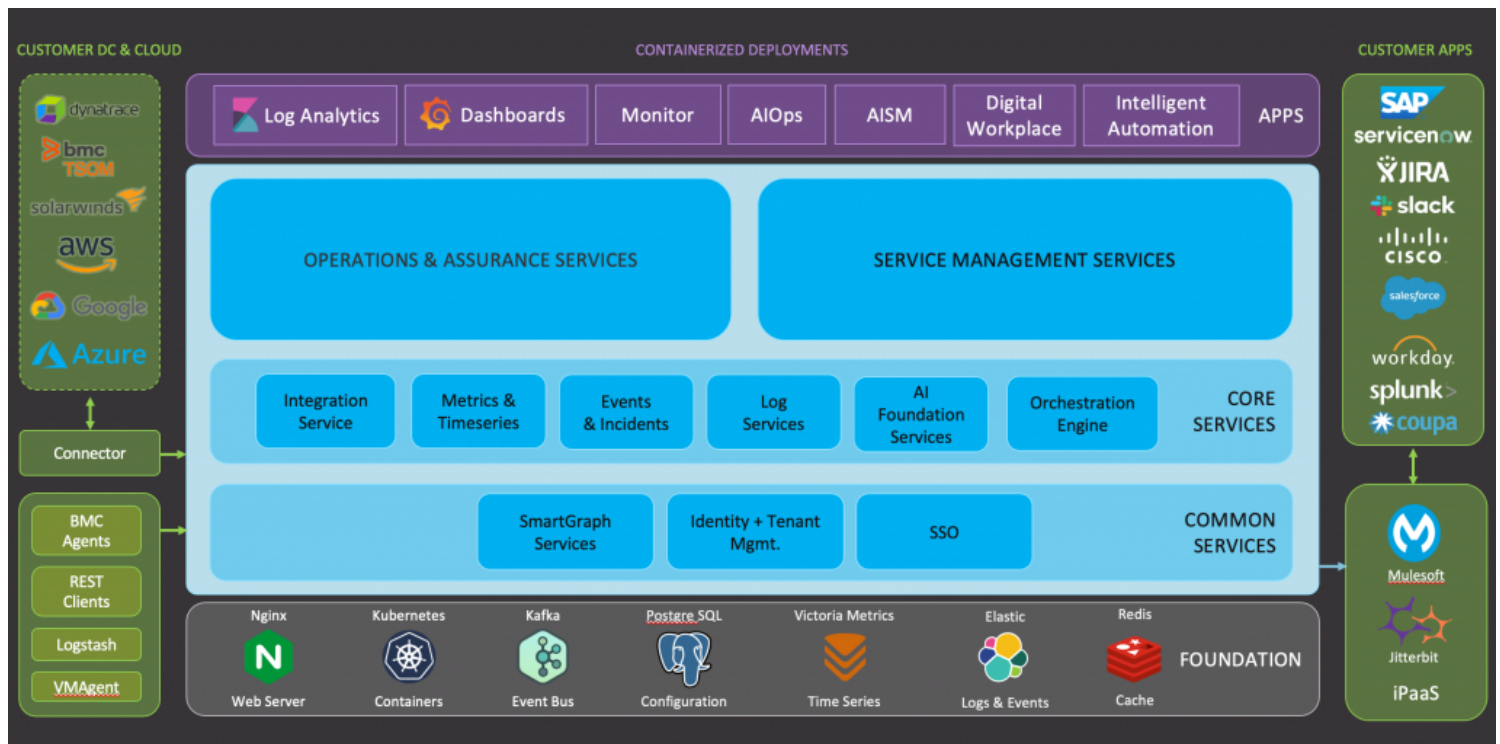
Figure 2: AI/ML platform

A self-service console simplifies day-to-day work based on each user's goals. To foster innovation across the business and reduce AI time-to-market across all business domains, the platform also makes it easy for members of the community to discover and share ML assets like data, features, and models. The BMC Helix Platform supports a number of personas, providing each with a custom experience.
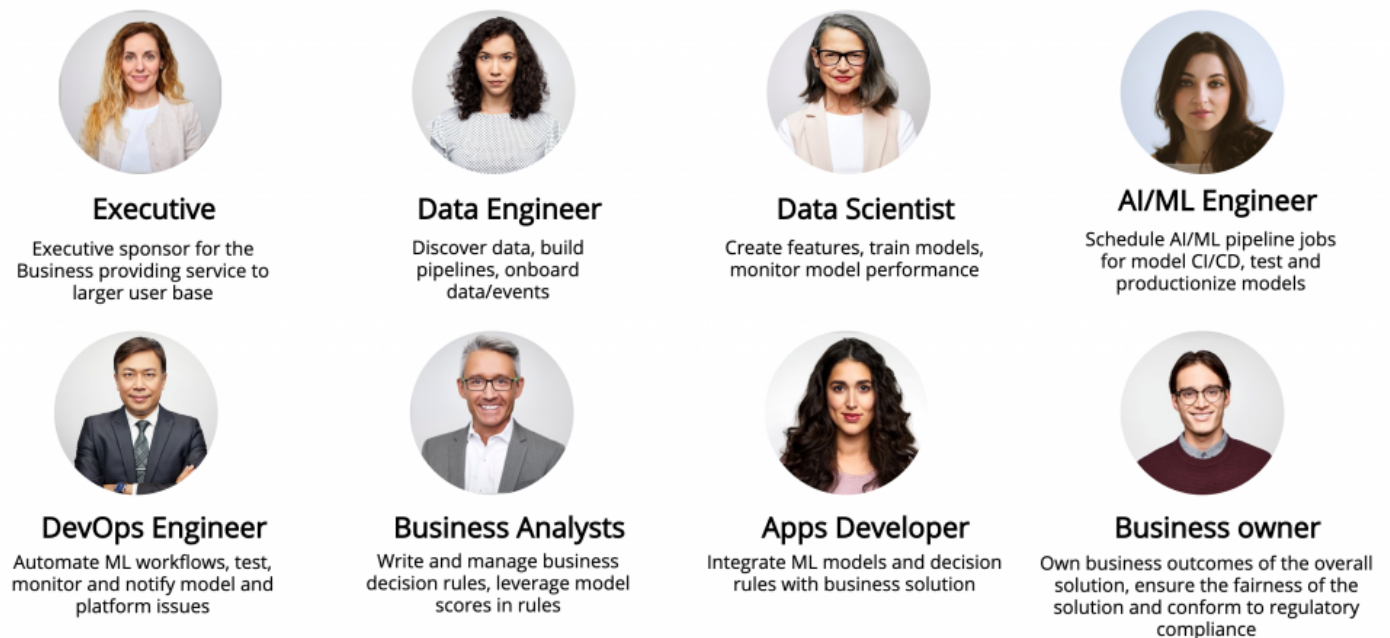

Executive
Executive sponsor for the Business providing service to larger user base

Data Engineer
Discover data, build pipelines, onboard data/events

Data Scientist
Create features, train models, monitor model performance

AI/ML Engineer
Schedule AI/ML pipeline jobs for model CI/CD, test and productionize models

DevOps Engineer
Automate ML workflows, test, monitor and notify model and platform issues

Business Analysts
Write and manage business decision rules, leverage model scores in rules

Apps Developer
Integrate ML models and decision rules with business solution

Business owner
Own business outcomes of the overall solution, ensure the fairness of the solution and conform to regulatory compliance

Figure 3: BMC Helix personas for DevOps, SRE, and AI/ML

Standardizing the ML development lifecycle to increase AI/ML agility

Although creating, testing, and executing ML models is very different from writing software code, the concept of a development lifecycle and the need for continuous integration/continuous deployment (CI/CD) rigor are no different. In fact, they may be even more stringent due to the need for reproducibility and the repetitive, experimentation-based nature of ML.

The BMC Helix platform hides these underlying complexities with a self-service portal that makes it as easy for a data scientist or developer to release their model as it is for a software engineer to release code. The goal is to simplify and streamline the end-to-end ML workflow through data analysis and model development to productization.

BMC Helix benefits

The AI/ML platform also offers extensive benefits for telecom providers, including:

- Increased productivity of all platform users
- Reduced time-to-market of AI/ML solutions
- Intelligent business decisions empowered by ML models
- Continuous value delivery and innovation at scale
- Lowered total cost of ownership (TCO)

By democratizing and integrating AI/ML into workflows and product development, the platform helps reduce barriers to critical data and algorithms, fostering innovation, important insights, and significant gains for the operator—and the business.

At a pivotal moment for telecommunications industry growth and transformation, AI/ML has tremendous potential to help telcos meet current challenges and drive key strategic and financial goals for the long term. By accelerating their AI evolution, telecom companies can emerge from the COVID-19 pandemic stronger than ever, powered by AI/ML at scale for a new era of success.