Cognilytica Research
CognitiveScale
Briefing Note

Doc. ID: CGBN101

9th January, 2018

ABSTRACT

For many organizations, one of the most effective ways to achieve early ROI with artificial intelligence (AI) is to adopt technology that provides intelligent assistance to humans in their daily tasks, rather than replacing them with automated alternatives. This approach to empowering humans with smart assistants is called Augmented Intelligence, and is the primary area of focus for emerging technology and solutions firm CognitiveScale. CognitiveScale's software and services focus on the design, development, delivery, and management of AI systems for mid to large size enterprises and public sector agencies to connect existing data and knowledge with intelligent assistant capabilities.

Augmented Intelligence: A Fast Path to AI ROI

The ultimate vision of artificial intelligence (AI) for many organizations is the replacement of high cost or dangerous labor with fully autonomous agents, freeing up their existing labor to provide greater value for the organization. However, for many companies, fully substituting autonomous agents for their human counterparts is not feasible or practical. While AI technologies can fill many gaps and show promise in many areas, for the most part, the technologies are not flawless or complete enough to perform many tasks currently done by humans.

That doesn't mean, however, that AI is not applicable for these organizations. Instead of replacing humans with autonomous agents, businesses and agencies can see significant value in enhancing the capabilities of their existing staff, leveraging AI as a "force multiplier" that enables them to do more with their existing resources. This is the key idea behind the concept of Augmented Intelligence. In much the same way that robotics engineers have created exoskeletons that empower humans to perform activities that were previously impossible or required great effort or fatigue, so too can Augmented Intelligence systems provide assistance that can enable humans to perform information tasks that were previously impossible, too difficult, or require significant amounts of time and effort.

Since Augmented Intelligence requires technology that is incrementally ahead of existing enterprise capabilities, it is more easily implementable and can achieve more rapid ROI than more advanced, autonomous AI technologies that have yet to prove themselves in real operation. It's for this reason that Cognilytica often recommends that companies look at Augmented Intelligence solutions as a first or easier step for realizing the ROI of AI capabilities.

CognitiveScale Overview

CognitiveScale is focusing squarely on providing enterprises with solutions and technology to enable Augmented Intelligence capabilities. Their customer base consists primarily of financial services, healthcare, and ecommerce companies looking at gaining more insight from their existing data and empowering their employees to be more effective at their jobs. What the company founders realized early in their AI initiatives is that many companies lack the expertise, talent, and technology capabilities necessary to make Augmented Intelligence work for their organizations, and so their solution revolves around the technology and consulting services necessary to bring enterprises with zero AI-enabled capabilities today into an operational Augmented Intelligence organization.

The CognitiveScale solution comes in two major parts: The CognitiveScale Cortex Augmented Intelligence Platform, and CognitiveScale AI Accelerators built on top of Cortex that accelerate the adoption process by providing rapidly configurable solutions focused on consumer engagement (ENGAGE) and process intelligence (AMPLIFY). Each of these product components is explored in greater detail below, with an image of the overall product stack illustrated below:
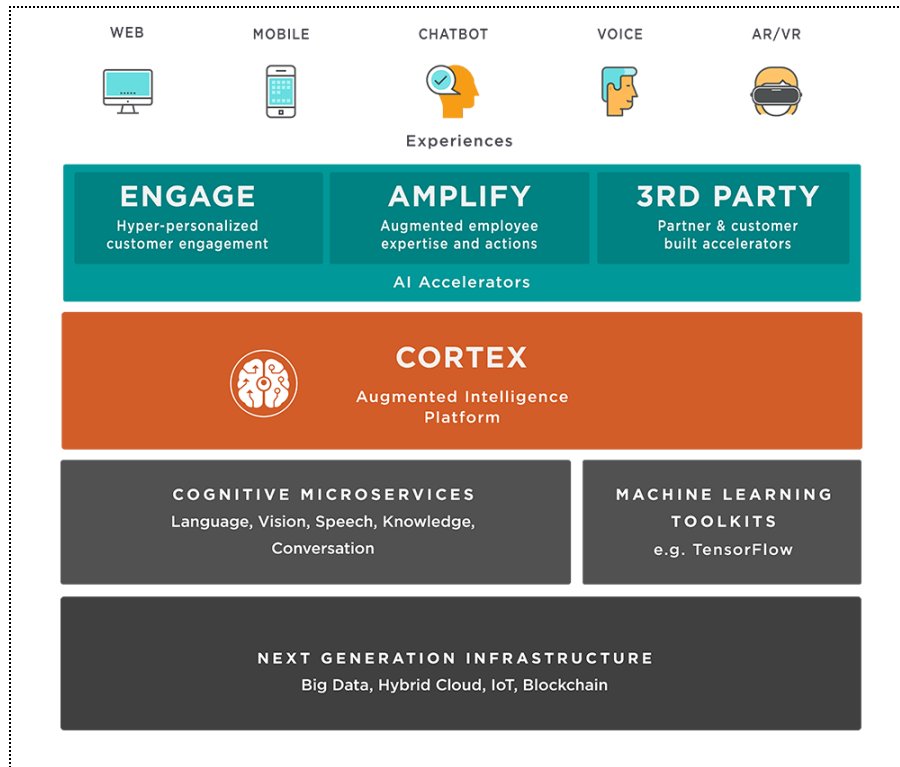
CognitiveScale Solution Overview.
Image source: CognitiveScale website

The CognitiveScale Cortex Augmented Intelligence Platform provides core AI capabilities optimized for augmented intelligence scenarios. Specifically, the system provides "human-like" cognitive abilities for memory and sequencing, perception, anticipation, problem solving, and decision making. The Cortex Platform aims to simplify the "design and composition of intelligent agents … orchestration and dynamic optimization of rich domain models and the curation of industry data that feeds into the models." Furthermore, the Cortex Platform utilizes machine learning approaches to adapt to changing data and user feedback. The company also claims a certain amount of explainability in its platform, providing explanations of decisions and actions to users.

Built on the Cortex AI platform, CognitiveScale AI Accelerators accelerate time to value by allowing companies to rapidly configure and deploy high-value, industry-specific AI processes and business models. There are two broad sets of accelerators: AI-powered personalization for consumer engagement (ENGAGE) and AI-powered employee augmentation and process intelligence (AMPLIFY).

CognitiveScale's ENGAGE AI Accelerators are focused on mass personalization for consumers, clients, and other stakeholders by leveraging machine learning to build a user-specific profile and cater to specific user requirements at a mass scale. Specifically, the ENGAGE accelerators capture knowledge into learning models and then use these models to deliver personalized recommendations, offers, and other experiences, as well as inform different communications channels and chatbots with the specific user knowledge.

The company's AMPLIFY AI Accelerators use machine learning to provide models focused on exception handling and employee decision support. Specifically, the system can "anticipate, detect, and resolve anomalous or exceptional conditions in back office activity and suggest next best actions to employees,

improve employee situational awareness leading to improved decision-making by gathering and analyzing evidence from internal and external data; and explore, understand, and highlight relationships between policies, people, and assets across multiple organizational silos to drive compliance and reduce risk-related costs."

Technology Details

CognitiveScale AI Cortex is based on technology building blocks the company has built on its own based on top of existing tool sets, such as Keras, TensorFlow, or even home-built tooling. Its building blocks abstract the lower-level technologies and compose them together to achieve the AI objectives. The building blocks consist of two types:

- Cognitive Microservices that provide computer vision, natural language processing, conversational technology, and knowledge representation
- Machine Learning toolkits based on existing available technology such as TensorFlow and others.

The AI Accelerators are based on models that have been pre-tuned for particular business process flows and specific industries. The product solution as a whole can exist in a hybrid cloud environment, so that core business data and assets can remain within the corporate data center while other AI capabilities can be leveraged in the cloud.

Customer Use Cases & Value Propositions

Financial Services Use Cases

CognitiveScale serves clients in the banking, credit, and insurance industries. Some of their clients in these industries include: **Barclays, JP Morgan Chase, Morgan Stanley**, and others. Specific use cases include:

- Providing securities traders timely, relevant, and highly personalized insights for customers using machine learning behavioral profiles based on their historical trading styles
- Scaling personalized, pro-active, hyper-individualized customer engagement and service through learned profiles and trading activity
- Applying machine-learning and intelligence to reduce compliance risk incidents and exposure while reducing operating costs

Healthcare Use Cases

CognitiveScale has clients in the healthcare and life sciences industries, with some of their clients including the **MD Anderson Cancer Network, Ascension,** and others. Specific use cases include:

- Accelerating revenue cycle processing by identifying all billing codes, automatically calculating probabilities of claim denial, and identifying pre-authorization requirements during the claims coding and submission processes.
- Improve billing and other exception handling by using machine learning to audit historical transactions alongside human feedback and improve resolution of errors, thereby reducing the cost of claims and compliance.

Ecommerce Use Cases

CognitiveScale also serves clients in the "digital commerce" space, with some of their clients including **Under Armour, Macy's, Nestle, NBC Universal,** and others**.** Specific use cases include:

- Creating hyper-personalized recommendation and feeds of relevant products and offerings through mass personalization and a so-called "self-learning Profile-of-One."
- Automatic tagging, attribution, and description of products based on learned feedback, comments, search criteria, and more to improve searchability of product set.
- Improved digital ad and content targeting through AI-driven analysis powered by computer vision and natural language processing (NLP) to process video content, images, and unstructured text.

Energy Use Cases

CognitiveScale also serves clients in the energy industry, with clients including **Exxon** and others. The company did not provide specific use cases for this industry.
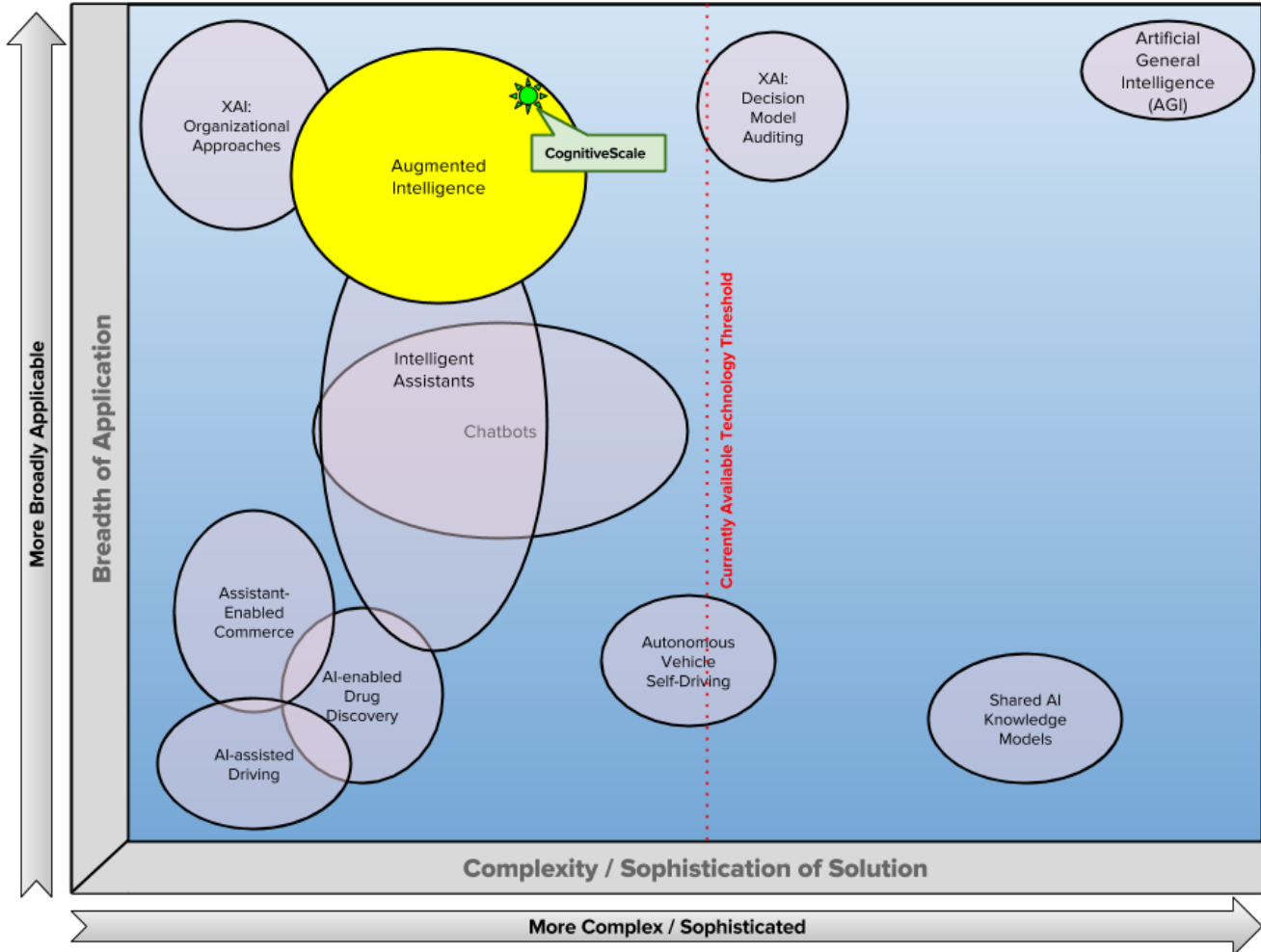
Company & Solution Profile

Company & Solution Profile (as of Jan. 2018)	
Company Name	**CognitiveScale**
Founded	**2013**
Company Stage / Funding	**Growth Stage Startup - $50 Million+ funding**. **Backers include Norwest, Intel, IBM, Microsoft, USAA.** (source: company)
CEO	**Akshay Sabhikhi**
Products	**CognitiveScale Cortex and ENGAGE & AMPLIFY AI Accelerators**
Contact information	**HQ: Austin, TX** **9500 Arboretum Blvd, L-1** **Austin, TX** **Phone: 855.505.5001** **Contact: Leigh Ann Schmidt <lschmidt@cognitivescale.com>**

Cognilytica AI Positioning Matrix™

Cognilytica AI Positioning Matrix™ - Augmented Intelligence

Revised: Jan. 9, 2018

Breadth of Application — More Broadly Applicable

- Artificial General Intelligence (AGI)
- XAI: Organizational Approaches
- Augmented Intelligence
- CognitiveScale
- XAI: Decision Model Auditing
- Intelligent Assistants
- Chatbots
- Assistant-Enabled Commerce
- AI-enabled Drug Discovery
- AI-assisted Driving
- Autonomous Vehicle Self-Driving
- Shared AI Knowledge Models

Currently Available Technology Threshold

Complexity / Sophistication of Solution — More Complex / Sophisticated

The Cognilytica Take

For many enterprises, agencies, and organizations, taking an Augmented Intelligence approach to AI as a first step makes more sense than trying to find an autonomous AI-enabled silver bullet to solve their mission-critical needs. However, the reality of the situation is that many enterprises who have the most to gain from Augmented Intelligence also have the least internal capability to put AI to use for their organization. Finding skilled AI talent is difficult, and leveraging the constantly shifting technology landscape to make augmented intelligence initiatives a reality is challenging. To be successful and show positive ROI within a short period of time, smart enterprises will leverage the experience, know-how, and capabilities of third party organizations.

The technology, experience, and management team at CognitiveScale are quite capable in this respect. Their CognitiveScale Cortex and AI Accelerator solutions have shown real-world traction and adoption in

many different industries, and the company's focus on here-and-now problems of augmented intelligence instead of more pie-in-the-sky theoretical capabilities of fully autonomous decision-making systems will no doubt help the company continue to grow. While the company has not shown much adoption (yet) at public sector agencies, their adoption in many of the largest businesses across a range of industries and at Fortune 500 companies shows that they can quickly adopt their technology for a variety of different use cases. Cogniltyica believes that companies looking at adopting augmented intelligence approaches to AI should include CognitiveScale in their product / solution evaluations and leverage the company's know-how as well as their technology to reach rapid ROI.

Related Research

➢ Augmented Intelligence Research Report (CG014)

About Cognilytica

Artificial Intelligence (AI) and related technologies will impact all industries and all corners of the world. Without insight into how AI will impact you and your business, you risk being left behind. Cognilytica is an analyst firm that provides real-world, industry and adoption focused market research, intelligence, advisory on Artificial Intelligence (AI) and related areas.

- Cutting through the Hype by Focusing on Adoption — Cognilytica cuts through the noise to identify what is really happening with adoption and implementation of AI in public, private, and academic settings. We focus on the usage of AI in the real world, not the buzzword hype.
- Industry-Leading Market Research — Market-level research on application, use cases, and comparative research on the state of AI adoption in the industry. Focusing on real-world adoption of AI technology and cutting-edge application.
- Advisory with Knowledgeable Experts — Get access to knowledgeable research analysts that spend their time immersed in the world of AI implementation and adoption.
- Research through Conversation — Cognilytica generates its research through direct conversation with industry thought-leaders, technology practitioners, and business decision-makers. We ignore the press releases and skip the hype to produce unique, original research through direct engagement.
- Deep Engagement Opportunities — Connect with peers, industry leaders, experts, and influential practitioners at subscriber-only exclusive workshops, events, and seminars aimed at advancing the state of your AI adoption.

Cognilytica analysts publish research reports, white papers, and briefing notes at regular intervals that are available to our annual subscribers as well as for one-off purchase. Cognilytica offers advisory time with analysts virtually or on-site analysts are also available for commissioned research projects, white papers for internal or external consumption, and speaking engagements at client events or public conferences. If you have an AI market intelligence or research need that can be fulfilled with our industry knowledge, body of research, methodology, and expertise, Cognilytica analysts are available to assist. Visit www.cognilytica.com for more information on opportunities you can take advantage of.