

**CORPORATE ARTIFICIAL INTELLIGENCE ADOPTION  
STRATEGIES AND IMPLEMENTATION  
2018**





# FOREWORD



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Dtec and startAD are pleased to reveal their collaborative project “Corporate Artificial Intelligence Adoption.” This report focuses on assessing and detailing the journey of MENA corporates during the implementation of their Artificial Intelligence (AI) solutions. The study will look into challenges faced during implementation, while also examining the benefits reaped.

AI is currently positioned as a game-changing technology heading the fourth industrial revolution. According to a 2017 PwC report, AI will contribute approximately \$15.7 trillion to the global economy by 2030. As AI transforms national productivity rates and influences global GDP, countries endeavor to adopt and implement AI policies in industry verticals such as transport, health, space, renewable energy, and education.

The United Arab Emirates (UAE) is one of the leading nations globally implementing AI at a nationwide scale. A 2018 PwC study assessed that the UAE’s adoption of AI technologies will increase the GDP by \$96 billion by 2030 (a contribution of up to 13.6% of the GDP). While, consulting firm Accenture anticipates that the largest verticals to boast the biggest growth from AI solutions in the UAE are finance (\$37 billion), healthcare (\$22 billion), and transport and storage (\$19 billion).

The UAE government’s pioneering country level AI strategy is paving the way to a Smart Government era, as AI enhances government performance and efficiency. The UAE anticipates that AI will contribute to annual government cost savings of 50% through the elimination of 250 million paper transactions, 190 million of manual labor hours, and 1,000 million kilometers for conducting government related transactions. Thus, regional adoption of AI is no longer a far-fetched reality; it is today’s actuality. AI solutions are imperative for remaining relevant in an ever-evolving fast-paced competitive landscape.

This report aims to investigate the AI evolution of enterprises working towards a tech-enhanced future. It is designed for government leaders, AI partners, AI startups, and organizations looking to keep their finger on the pulse of corporate AI strategies. The report would not be feasible without the support and cooperation of the various organizations who put aside time to share with us their valuable insights and experiences. We hope you enjoy this report as much as we enjoyed the process of producing it.

# ABOUT US



The heart of the regional startup ecosystem, Dubai Technology Entrepreneur Campus provides technology startups with the ultimate work environment from which to start and scale. Strategically located in the region's premier freezone, Dubai Silicon Oasis, Dtec is an international community. The 10,000 sqm space, spanning two creatively designed locations, features hot desk, dedicated desk and small office options along with license and visa services, providing a one-stop shop for setting up your UAE business.

Designed for convenience, Dtec's facilities include 24-hour access, high speed wifi, meeting spaces, cafés and games areas. More than just a space, Dtec also offers a program of events, trainings, mentorship and networking opportunities along with an in house VC, the only Intel® Internet of Things Ignition lab in the MENA region, the Intelak Aviation & Travel Tech incubator and the Dubai Smart City Accelerator, managed by Startupbootcamp and created in partnership with du, Smart Dubai, Dubai Chamber, VISA, RIT University and Orange Business Services.

The Dtec community is supported by a large network of entrepreneurs, mentors, investors, support services and multinational companies including Microsoft, IBM, Volkswagen, Thomson Reuters and Alibaba Cloud and supports Islamic Economy initiatives through events, trainings, knowledge development and discounted services.



startAD is an Abu Dhabi-based global accelerator steering seed-stage technology startups to launch, develop, and scale their ventures. Anchored at NYU Abu Dhabi and powered by Tamkeen, an Abu Dhabi government owned company, the accelerator equips startups to pilot solutions with industry leaders, while enabling corporates to innovate with startups disrupting their core businesses.

startAD has the unique domain expertise and state-of-the-art facilities to develop startups with a focus on hardware and AI, as well as other solutions in priority industries including aviation, energy, sustainability, construction, and security. Enrolled startups benefit from startAD's extensive range of programs and global network of investors, mentors, and experts, in addition to access to startAD's seed fund for local startups. Since startAD's launch in 2016, participating startups have raised \$8 million in investment, secured numerous pilot projects, and have been recognized with global design and product awards.

# REPORT CONTRIBUTORS



**ALRIFAI**



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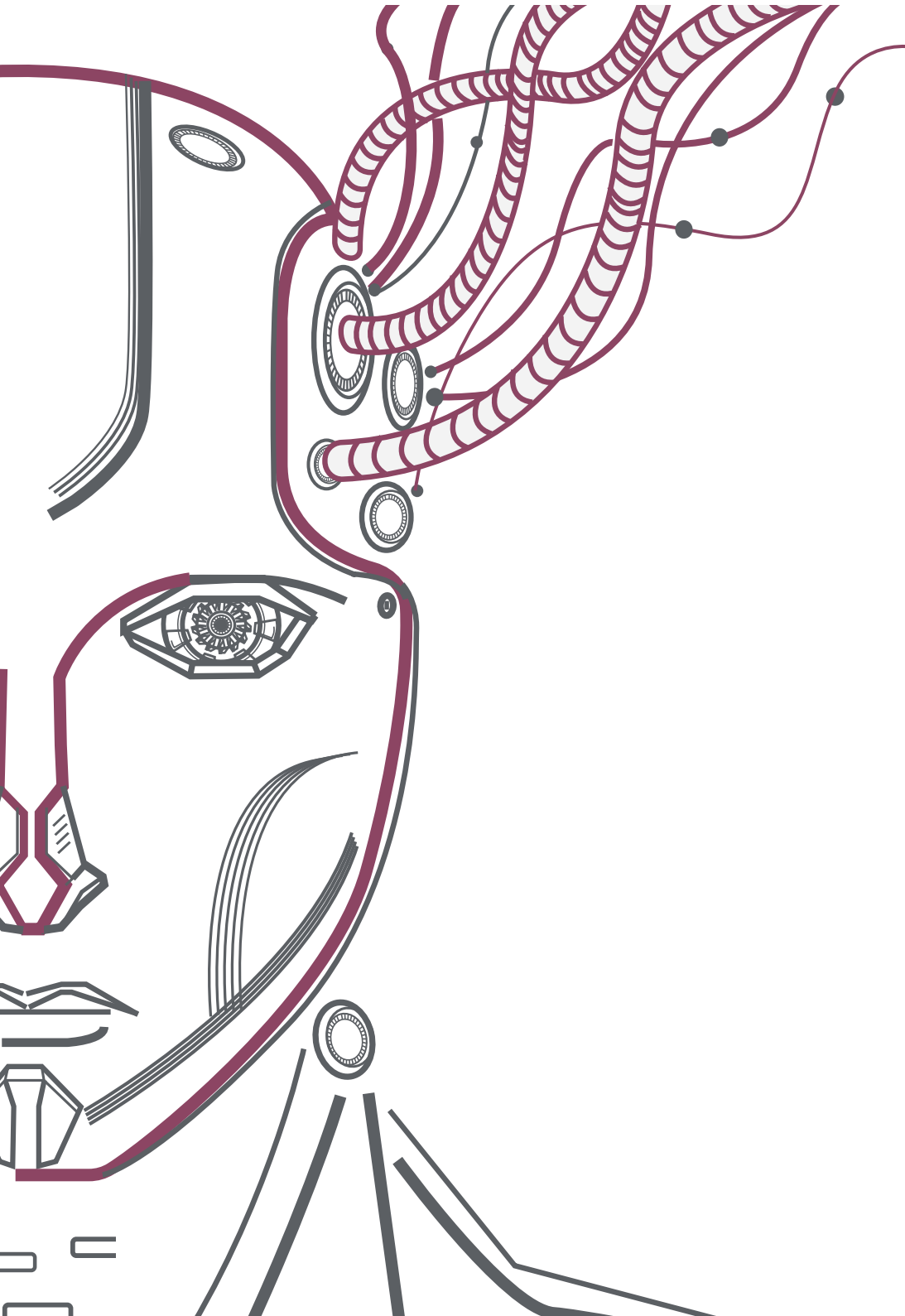
## OBJECTIVES AND METHODOLOGY



# OBJECTIVES AND METHODOLOGY

There are obstacles and benefits associated with every technology. AI is no exception. Many corporates are relying on the strategic advantages of AI solutions and the benefits reaped from AI integration into their organizational infrastructure and daily business operations. Thus, it is crucial for corporations to identify the benefits of seizing the full potential of machine learning and automation while mitigating any associated risks. The objective of this research is to assess the challenges faced by corporations when implementing AI technologies through the review of their AI strategies and solutions.

This research will analyze the AI experiences of corporations within the lens of both internal driven factors and externally driven realities. The research uses a qualitative approach through one-on-one in-depth interviews with ten corporate senior-level managers working in either the marketing or the technology departments.



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## INTRODUCTION

# INTRODUCTION

## TYPES OF AI

AI is categorized into three types. There is weak or narrow AI, strong AI or artificial general intelligence (AGI), and super AI or artificial super intelligence (ASI).

**Narrow AI** is an AI system developed and trained to perform a single task. This type of AI is more competent in detecting data patterns than humans. Examples of narrow AI include predictive search terms, virtual assistants (such as Siri or Alexa), online customer support/chatbots, purchase prediction, smart cars/self-driving cars, fraud detection, etc. Narrow AI cannot take tasks beyond its programmed context, thus for example, chatbots cannot perform purchase predictions.

**Strong AI (AGI)** is an AI system that possesses the ability to think, to make decisions regardless of any previous learning, training, or programming. AGI can find solutions to problems beyond one context specifically when faced with unfamiliar tasks, distinguishing it from narrow AI. AGI still does not exist.

**Super AI (ASI)** is a system that is capable of transcending human intelligence. ASI is the assumption that AI will eventually model the expansive knowledge and cognitive ability of an adult human and surpass it. Thus, when AI transforms into a system that is much smarter than the human brain, including creative scientific thinking and social skills, then ASI has been attained (think of the HBO series Westworld).

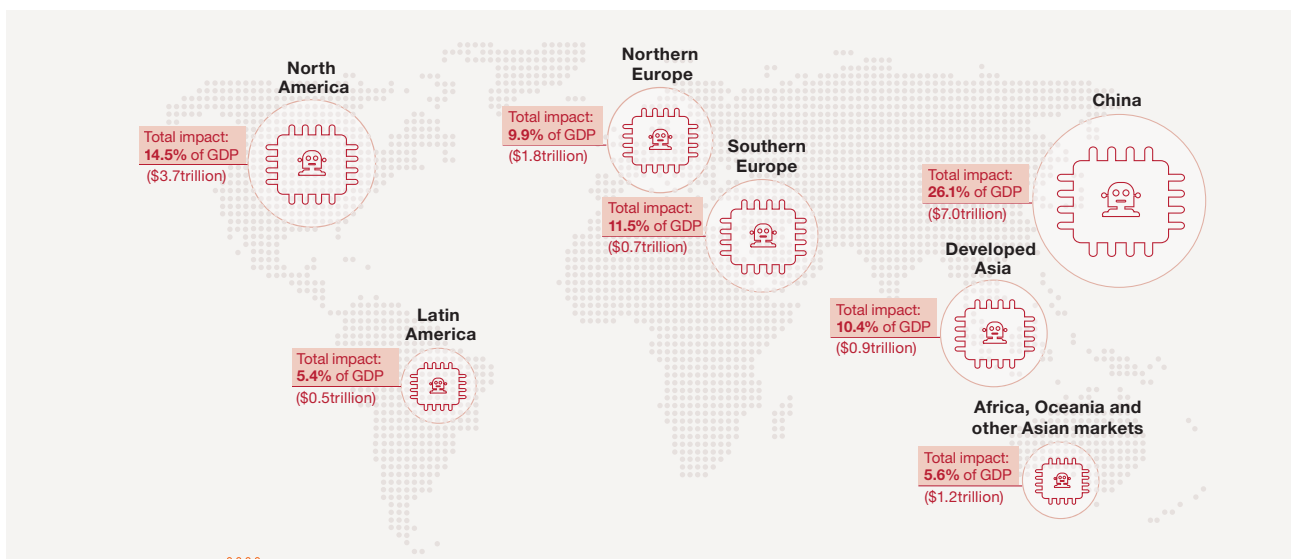
The corporate AI systems presented in this report all fall under the umbrella of narrow AI.

# GLOBAL AI ADOPTION

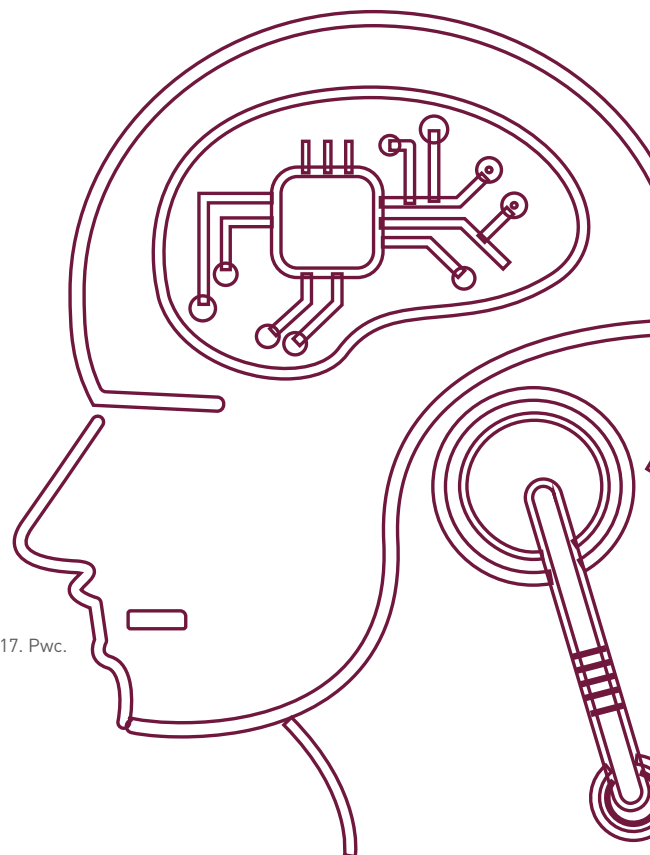
AI is a topic dominating government and corporate rhetoric worldwide. Based on the International Data Corporation's (IDC) intel, the adoption of narrow AI systems will drive global revenues to more than \$47 billion in 2020. Early corporate AI adopters are mature organizations with high levels of C-level support, where business decision-makers are the principal drivers of AI adoption<sup>1</sup>.

A key aspect of AI adoption is the potential effect on global GDP. In the short term, GDP gains will transpire through a boost in labor productivity as corporations strive for increased efficiencies and automation. PwC predicts that by 2030 45% of total economic gains will be centered on AI corporate adoption. Increased productivity will contribute \$6.6 trillion economic gain while benefits to consumers will contribute \$9.1 trillion. The two countries that will realize the biggest economic gains from AI are China and North America<sup>2</sup>.

## Which regions will gain the most from AI?



Source: Sizing the Prize: What's the Real Value of AI for Your Business and How Can You Capitalize? 2017. PwC.



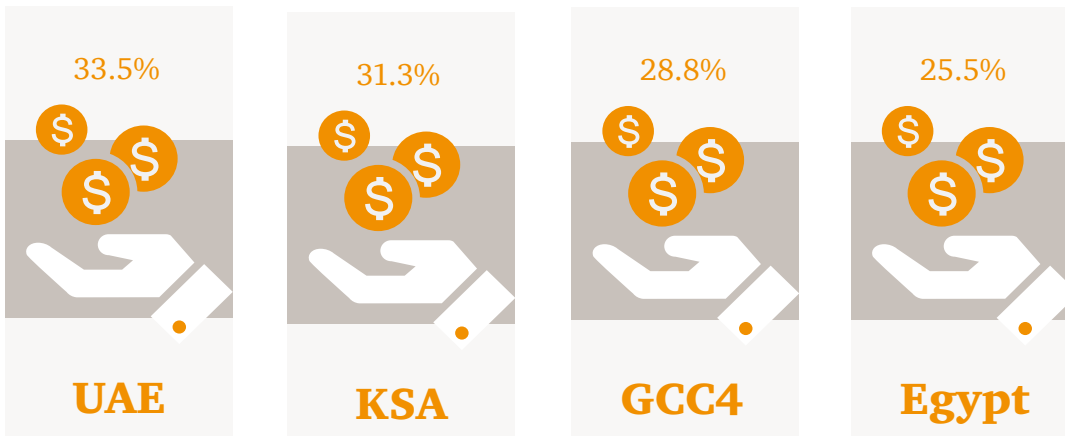
<sup>1</sup>Beyond the AI Hype: AI is here and now, and adoption is rising. 2018. MarTech Today.

<sup>2</sup>Sizing the Prize: What's the Real Value of AI for Your Business and How Can You Capitalize? 2017. PwC.

# REGIONAL AI ADOPTION

PwC predicts that the MENA region will potentially amass 2%, equivalent to \$320 billion, of the total global economic benefits of AI in 2030. The average annual growth rate (AAGR) of AI in the region is anticipated to range between 20% to 34% per year.<sup>3</sup>

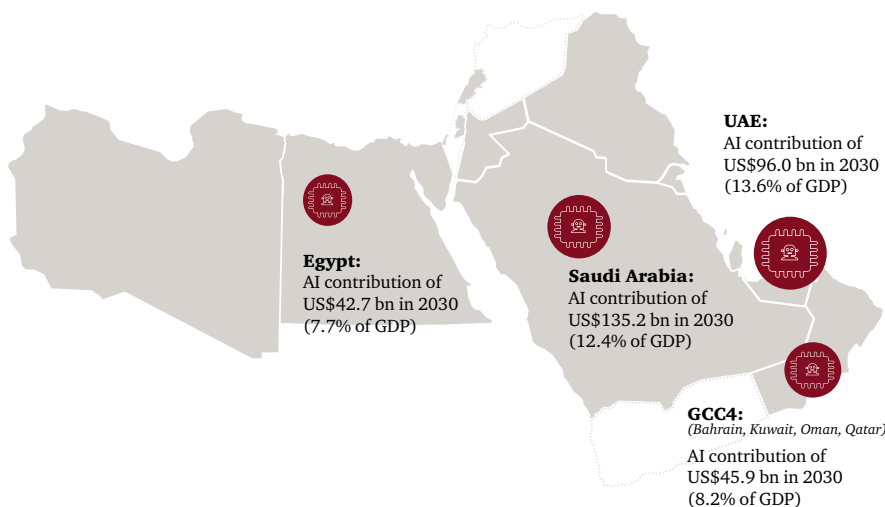
## The average annual growth in the contribution of AI by region between 2018-2030<sup>4</sup>



Source: US\$320 billion by 2030? The potential impact of AI in the Middle East. 2018. PwC.

The fastest growth will be observed in the UAE followed by Saudi Arabia. This does not come as a surprise, as both markets are ranked among the top 50 countries worldwide in terms of innovation according to 2017's Global Innovation Index. Although, Saudi Arabia is predicted to amass the biggest monetary gains in 2030 (a contribution of over \$135.2 billion equivalent to 12.4% of GDP), the UAE, however, will witness the largest impact of 14%.

## Which regions will gain the most from AI?<sup>5</sup>



Source: US\$320 billion by 2030? The potential impact of AI in the Middle East. 2018. PwC.

<sup>3</sup>US\$320 billion by 2030? The potential impact of AI in the Middle East. 2018. PwC.

<sup>4</sup>GCC4: (Bahrain, Kuwait, Oman, and Qatar)

<sup>5</sup>US\$320 billion by 2030? The potential impact of AI in the Middle East. 2018. PwC.

# 06

## **INTERNALLY INFLUENCED MOTIVATORS**

# INTERNALLY INFLUENCED MOTIVATORS

## AI STRATEGY

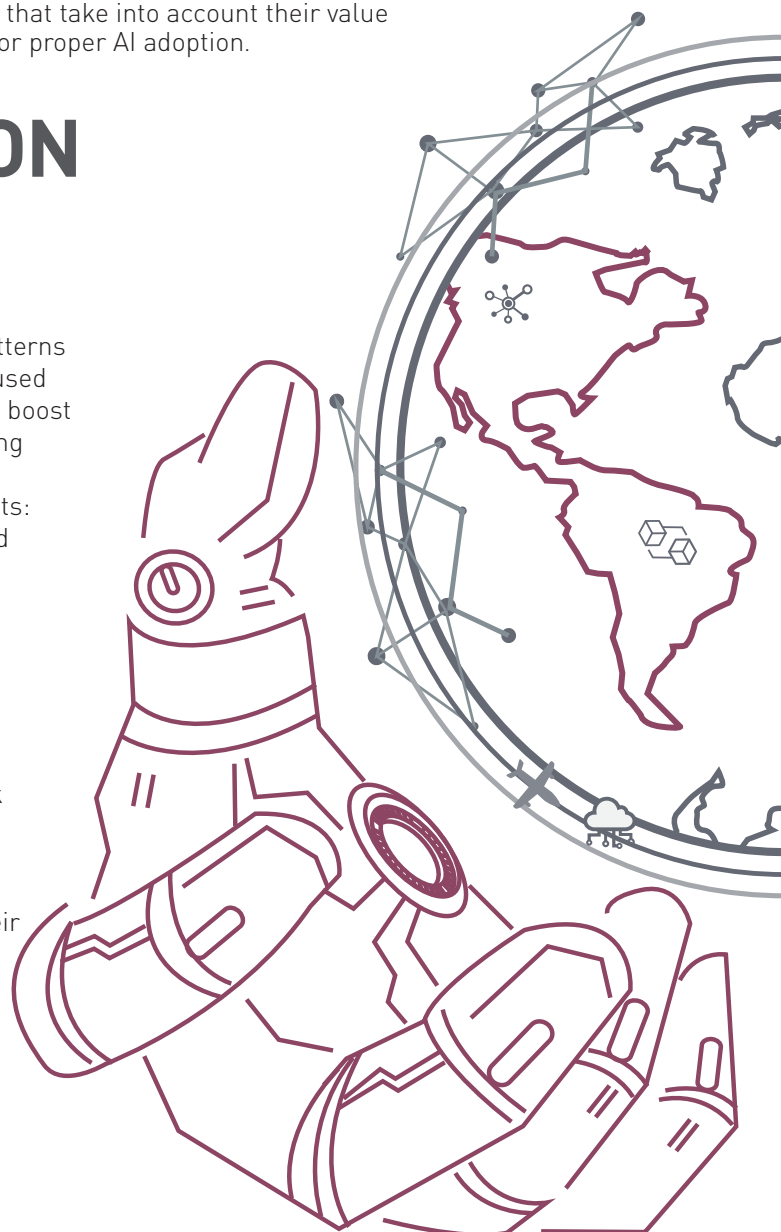
The ten organizations interviewed for this report cover several industries (financial, automotive, telecom, food and beverage, etc.). This gives the report a more diverse perspective on the corporate adoption of AI solutions. The first topic the research looks into is whether companies have adopted any formal AI strategies before implementing their solutions.

The majority of the companies interviewed have a formalized AI strategy. Organizations who have yet to deploy a formal AI strategy fall into two categories. First, companies that do not have a formal strategy yet are implementing AI and second, companies that are implementing AI solutions while simultaneously working on developing a formal strategy. Organizations with non-formalized AI strategies are on a journey to understanding companywide AI needs, drivers, and priorities. Their AI journey will need to factor in many variables. First, assessing the risk and the ROI of AI adoption through a cost-benefit analysis. Second, creating clear direction and guidelines that take into account their value proposition. Finally, ensuring that a budget is set aside for proper AI adoption.

## AI IMPLEMENTATION DRIVERS

Deep diving into the drivers of AI implementation two patterns emerge: internally focused drivers versus externally focused drivers. Internally focused drivers are drivers that aim to boost business operations by enhancing productivity, decreasing manual labor, and increasing efficiencies. On the other hand, externally focused drivers fall into two main buckets: first, augmenting customer retention and acquisition and second, augmenting corporate growth strategies. Thus, a comprehensive list of corporate AI solutions emerges falling under the three aforementioned drivers: AI to boost operations, AI to augment customer solutions, and AI to strengthen growth strategies.

The most important discourse when it comes to understanding AI adoption within a corporate framework is the underlying objectives. The overwhelming majority (eight of ten) of the interviewed organizations concur that both customer retention/acquisition and boosting business operations are the main factors influencing their AI strategies, followed by corporate growth strategies (four of ten).



# Business operations

When it comes to improving business operations, main organizational objectives include increasing efficiencies and optimizing operations. The following testimonials support in highlighting the interviewees' views.

**“We follow the high cost areas and look to refine decision-making and automate.”** – six of ten participants shared similar sentiments.

**“Optimizing operations offers the largest immediate gains.”** – six of ten participants shared similar sentiments.

There are several AI applications that corporations utilize to achieve their operational goals. Below is an overview of those tools.

## Robotic process automation (RPA)

1. It is a business process automation tool.
2. It eliminates tedious tasks allowing employees to focus on higher value work.

## Business process re-engineering (BPR)

1. It is a business management strategy.
2. It focuses on the analysis and design of workflows and business processes within an organization.
3. Its aim is to rethink and restructure workflow to improve customer service and decrease operational expenditures.

## Blockchain

1. It optimizes operations by cutting out the intermediary.
2. It centralizes data storage.



# Customer retention/acquisition

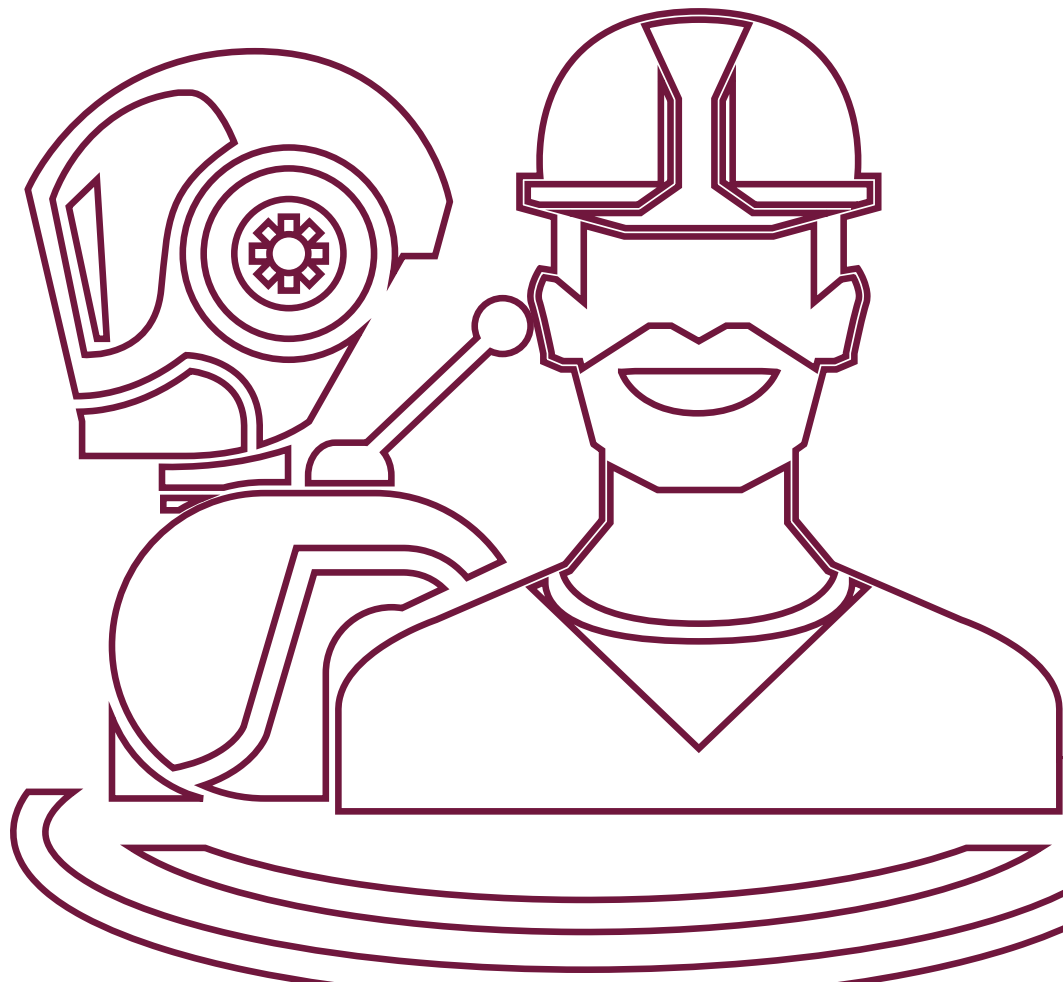
When it comes to augmenting customer retention and acquisition, main objectives organizations are aiming for are customer centricity, targeted marketing, media, and sales campaigns, predictive analysis, and behavioral analysis. The below testimonials provide a snapshot of the interviewees' thoughts.

**“Becoming more a customer-centric company. At the end of the day, it’s all about what added-value we can give to our consumers and the only way to give that added-value is by really understanding what their needs, their behaviors are and to be able to address those.”** – two of ten participants shared similar sentiments.

**“Understanding our clients to increase revenue generation.”** – four of ten participants shared similar sentiments.

**“Increasing conversion rates. Main objective is to use data for marketing purposes and consumer targeting.”**- three of ten participants shared similar sentiments.

**“Predictive analytics to understand future behavior, to customize marketing efforts, to adjust marketing budget allocation.”** – four of ten participants shared similar sentiments.



There are several AI applications that corporations utilize to achieve their consumer retention and acquisition goals. Below is an overview of those tools.

## Data analytics

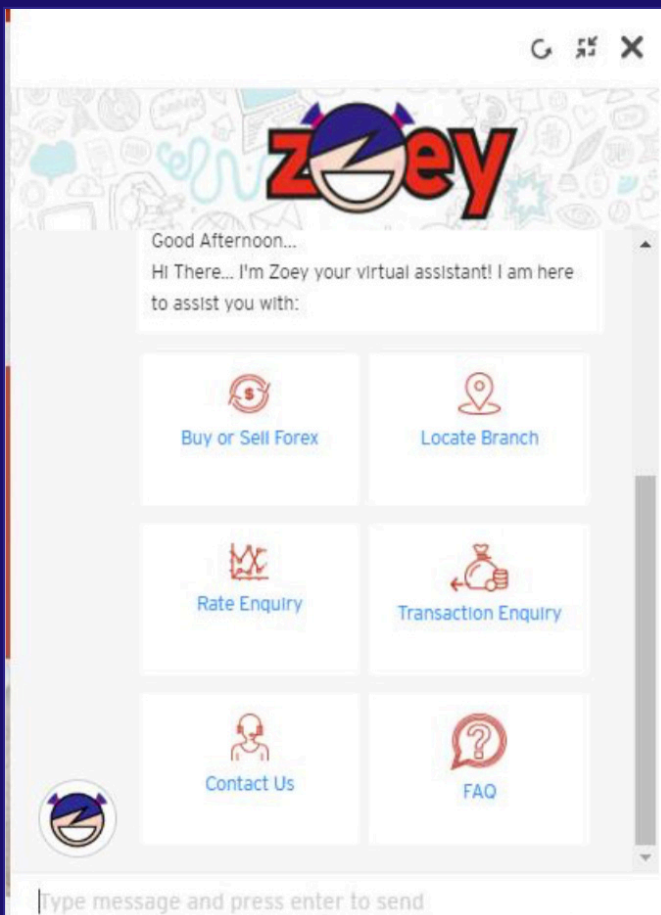
1. Customer segmentation dashboard
  - a. It identifies the different customer segments/cohorts through data analytics.
  - b. It caters to the various customer segments more meaningfully through targeted services and products.
  - c. It predicts behavioral intentions.
2. Market mix modeling (MMM)
  - a. It is a technique for measuring the impact of several marketing inputs.
  - b. It is an ROI tool for understanding how much each marketing input contributed to specific key indicators (sales, market share, etc.).
  - c. It recommends spending expenditures for each marketing input.
3. Data management platform (DMP)
  - a. It is for collecting and managing digital marketing data.
  - b. It targets different consumer segments when running online advertising campaigns.
  - c. It uses big data sets to automate the bidding process of media buying and selling.
4. Customer relationship marketing (CRM)
  - a. It is a business process for optimizing consumer interactions, customer loyalty, and brand value.
  - b. It develops marketing and advertising initiatives that allow companies to forge long-term relationships with established and new customers while helping streamline corporate performance.

## Chatbot

1. It uses natural language processing (NLP) technology. NLP is the application of data analysis techniques to process and synthesize natural language and speech.
2. It is now at an advanced stage that it can detect various dialects of a specific language and interact with consumers appropriately.
3. It is used for answering customer queries.
4. It encourages repeat visits and purchases by utilizing customer engagement techniques.
5. It is a real-time service providing consumers with live assistance.
6. Its ultimate goal is to become intuitive by combining NLP and machine learning, thus creating the ability to contextualize conversations.

# CASE STUDY: UAE EXCHANGE

## VISION AND JOURNEY TOWARDS REALIZATION OF THE VISION

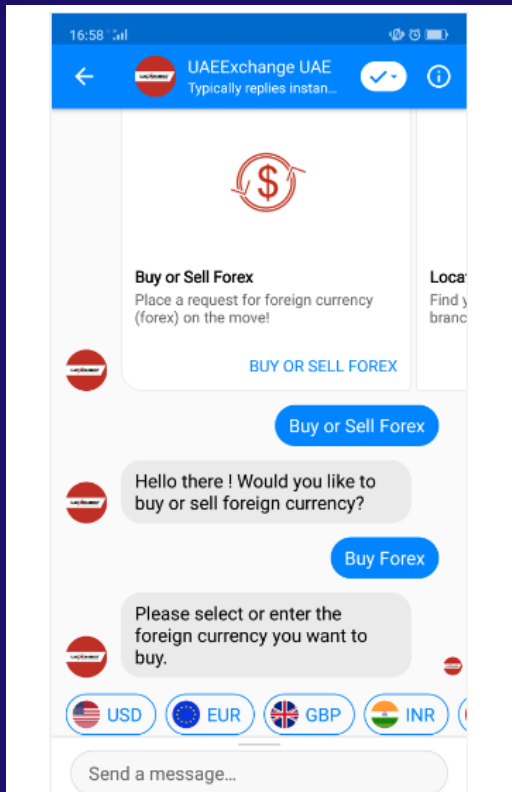


**“To become an AI-powered digital engagement platform capable of resolving customer queries and facilitating end-to-end transactions over chat and voice, across Group companies, across geographies on compatible channels “**

Zoey was conceptualized as a Virtual Assistant capable of resolving customer queries. Zoey was launched in Sept '17 on UAE Exchange Website and Facebook Messenger. The chat-based solution was given the personality of a lady in her late twenties. The tonality of responses and the name Zoey was modeled to resonate globally. With 80,000+ active users and over 85k interactions across 12 geographies, Zoey has used AI to transition from a Virtual Assistant to facilitate Digital engagement with customers

## ROI metrics

1. Number of inquiries has risen by almost 1.7 times after the implementation of Zoey. This indicates that Zoey has created a channel where customers are more open to engagement and interaction than traditional means.
2. 30.25% of the queries have been responded to by Zoey on a real-time basis without manual intervention. This has allowed customer care representatives more efficient use of their time in areas requiring their expertise and discretion.



## CURRENT STATUS

Users have posed queries pertaining to rates, bank transfers, cash payouts, payments, cards, store locations, and other allied products offered by the Group. 30.25% of these queries have been responded to by Zoey on a real-time basis, without manual intervention. To increase this percentage, NLP and ML are being extensively used to identify user intent and give suitable responses. Zoey is also increasingly being used to engage with the digitally-savvy customer base by allowing them to express their interest for booking foreign exchange (with rates being blocked for a certain time-frame) and request a call for details on multi-currency travel cards. Going forward, the Group is also evaluating voice-based capabilities and introducing multilingual support, in addition to enriching the proposition with newer features.

## OTHER FOCUS AREAS FOR AI FOR UAE EXCHANGE

### Robotic process automation

The Shared Services team of the UAE Exchange Group runs almost 800 processes, many of which are being piloted for RPA. The main purpose is to realize cost efficiencies and allocate the time of resources that has been freed up, more fruitfully

### AI-based data analytics

UAE Exchange has a customer base of nearly 15 million and has been taking steps towards engaging with customers in line with their preferences and catering to segment-specific needs. An AI-based approach has enabled the Group to shape customer cohorts, identify and segment customers based on their demographics, nationality, estimated income levels, transaction patterns, etc. and drive the focus from transactions to engagement by making each interaction (in-store, over email, SMS, social media) more tailored and meaningful.

# Growth strategies

When it comes to augmenting business growth strategies, main objective is product development. The below testimonials provide a snapshot of the interviewees' thoughts.

**“New revenue streams by providing new services”**- four of ten participants shared similar sentiments.

There are several AI applications that corporations utilize to augment their growth strategies. The below highlights the systems used in this process

## Big data analytics

1. It involves the complex process of examining large, varied, and unstructured data sets from multiple sources.
2. It aims to uncover hidden patterns, unknown correlations, market trends, and customer preferences.
3. Its purpose is to help companies make more informed business decisions.

## Search technologies for creating platforms

1. It designs platforms that are user centric and friendly.
2. It uses machine learning and algorithms to structure various data sets.
3. It maps data into meaningful patterns for each individual platform user.
  - a. Solution stack
    - i. It is a set (stack) of software components, which complete a particular task.
    - ii. The stacks create a complete user platform.
    - iii. The components of a technology stack include both software (such as Apache) and various algorithms to facilitate the process of creating a platform.
  - b. Support vector machine (SVM)
    - i. It operates using supervised learning algorithms for classification purposes by creating affinity networks to reduce dimensions between two entities.
  - c. Morphology graph
    - i. It is a solution capable of recognizing correlations between two concepts such as two key words.
  - d. Latent semantic indexing
    - i. It is a mathematical technique used to improve the accuracy of information retrieval.
    - ii. It scans unstructured data within documents and identifies relationships between data sets.
  - e. Frequent pattern mining
    - i. It is a data-mining algorithm, which detects patterns among large transactional databases.

# AI OBJECTIVES AND ALIGNMENT

The issue of stakeholder alignment over AI implementation objectives appears to be an upper management decision that eventually permeates into overall corporate culture.

**“Top management has been involved from a very early stage, and all the senior management officials have been encouraging exposure to new technologies. Encouraging it as part of corporate culture.”**

Historically, for most organizations, automation and digitization used to fall under the jurisdiction of the IT department. This is no longer the case. The automation revolution brought with it a need for a wider scope and vision where it was no longer enough to have one department exclusively handling processes that involved overall business operations and objectives. Thus, AI adoption was no longer a process exclusive to one department, the IT department, but an organization wide project. Several different departments are now involved in the AI implementation and adoption. The various departments involved include the IT department, the innovation department, the digital transformation department, the customer experience department, the marketing department, and even the sales department.

**“So, it used to be just very much an IT led thing, now IT is becoming much more and more integrated within the business. Now they’re getting more and more integrated together where there’s not one party (IT or marketing or operations or business development) that’s owning the technology side of things, but it’s more of a collaboration.”**

# CORPORATE ADOPTION FEARS

Initially, when AI implementation permeated organizations, some companies faced internal resistance. Resistance to AI adoption mainly stemmed from fear of the unknown and feelings of uncertainty. These fears were assuaged with time through awareness of how AI would improve workflow, internal processes, operations, etc. Additionally, company-led educational initiatives focused on informing all employees and stakeholders of the benefits of integration; the operational concept of AI solutions; and finally, how every team has a role to play in the process by encouraging company wide contributions and suggestions.

**“So it’s not actually going to eat up anybody’s job, but it’s only going to give the person more meaningful work to do. So we’ve tried to drive that awareness that will prevent that threat, AI is something that can help you with your work, something that can help you contribute further.”**

On the flip side, some companies face fear of involving different teams. Few companies are undaunted by having different teams at different levels of the organization have access to company data. While others fear security and data breaches.

**“There are security fear breaches. No, not all of them (employees) have access. It depends on what’s their position and what’s their role and...actually, we weigh the risk...who has access or not. And usually the data is fire walled. People who have full access to sensitive information are mainly top managerial level...managers of certain departments.”**

# FUTURE AI INVESTMENTS

Forward-looking AI investments mainly seek to improve and augment current AI technologies. Below are snapshots of what the different organizations assert.

**“It’s actually continuously improving and developing (AI) capabilities: we’re using (AI) in our business, we’re using it in HR, we’re using it in development, we’re using it in sales, we’re using it in R&D, we’re using it in our internal processes, wherever we can improve the processes through prediction, we will use AI to do that.”**

**“Contextualizing (chatbot) conversations with customers. Less transaction-based interactions with customers and more engagement-based interactions. There is a core engagement which we haven’t started yet, but that involves contextual conversations with customers so that we can actually have more meaningful engagement and not just a transaction-based engagement.”**



Continuous investment in AI technologies involving consumer understanding. Actionable data, behavioral data, online behavioral info, such as who and when are people logging in, social media, pixels, and analytics. Identifying best solutions for customer targeting, focusing on marketing-oriented AI solutions, and e-commerce optimization.”



**“I need to invest in more in-house developers. Increase speed to delivery because I rely on partners; I want to keep some of those functions in-house to have faster market delivery.”**

**07**

**EXTERNALLY  
INFLUENCED  
MOTIVATORS**





# SAFETY MEASURES

When collaborating with a third-party provider, an organization may face the need to share some amount of information. Organizations have specific safety procedures set in place to circumvent any security or data breaches. First mode of protection requires involving the organization's legal department. Any engagement will initiate with a non-disclosure agreement (NDA). In some instances, it is a mutual NDA, since the provider is also sharing proprietary information regarding service/product. In other instances, the legal team even has jurisdiction in dictating what type and amount of data is permissible to share with an external party. Second mode of protection entails "hiding" the data from a third-party vendor or a platform. One-way encrypted data is an example of ensuring privacy and security of information. This limits partners' visibility of organizational information. Other organizations share data with external parties but maintain very high restrictions allowing access to relevant information only. While one company only shares 'test data' with external entities.

One organization stresses on the stringent company policies set in place to prevent any data sharing with external providers:

**"When we come and talk about GDPR and all of that, you have to make sure that you're not sharing private consumer data with any third-party. Yeah...again we do not share data. This is our policy; there is no sharing of data with vendors."**

Another company explains that some amount of risk would always be involved, whether dealing with internal or external parties.

**"There will always be some kind of risk, whether involving internal members or external parties. Look I feel that this risk is omnipresent...you can have a very rogue employee internally who can use your data in any way he wants."**

# REGULATORY OBSTACLES

When it comes to dealing with security and data regulations, majority of the companies do not seem to face any regulatory obstacles. Most companies though have teams dedicated to handling government policies and procedures to ensure organizational compliance. In addition, as organizations expand regionally and internationally that is when regulatory complexities increase.

**"The creation of a 'data privacy team' within the legal department. There are certain regulations like the GDPR that have kicked in the UK. So, within the legal team we formed a separate unit called the data privacy team."**

One company has taken preemptive measures to ensure future compliance.

“

Even though GDPR is still not applicable in our part of the world, sooner or later it will be. So, what we're doing is that we're preparing ourselves for the future by making sure that all our systems are basically compliant when it comes to regulations relating to consumer data.

”

08

THE  
FUTURE  
OF AI

# THE FUTURE OF AI

The AI journey unfolding inside companies is an exciting, transformative, and ever evolving one. Although this is an exciting time for corporate transformation, it is not a static journey. It is packed with trial and error, iterative stages, and continuous and ongoing improvements. When the interviewed companies were asked to share any AI-linked case studies, the overwhelming answer was that their AI journey was still too nascent for any case studies. However, a big thank you goes out to UAE Exchange for their support on this report and for their willingness to share their success story.











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