The new age: artificial intelligence for human resource opportunities and functions

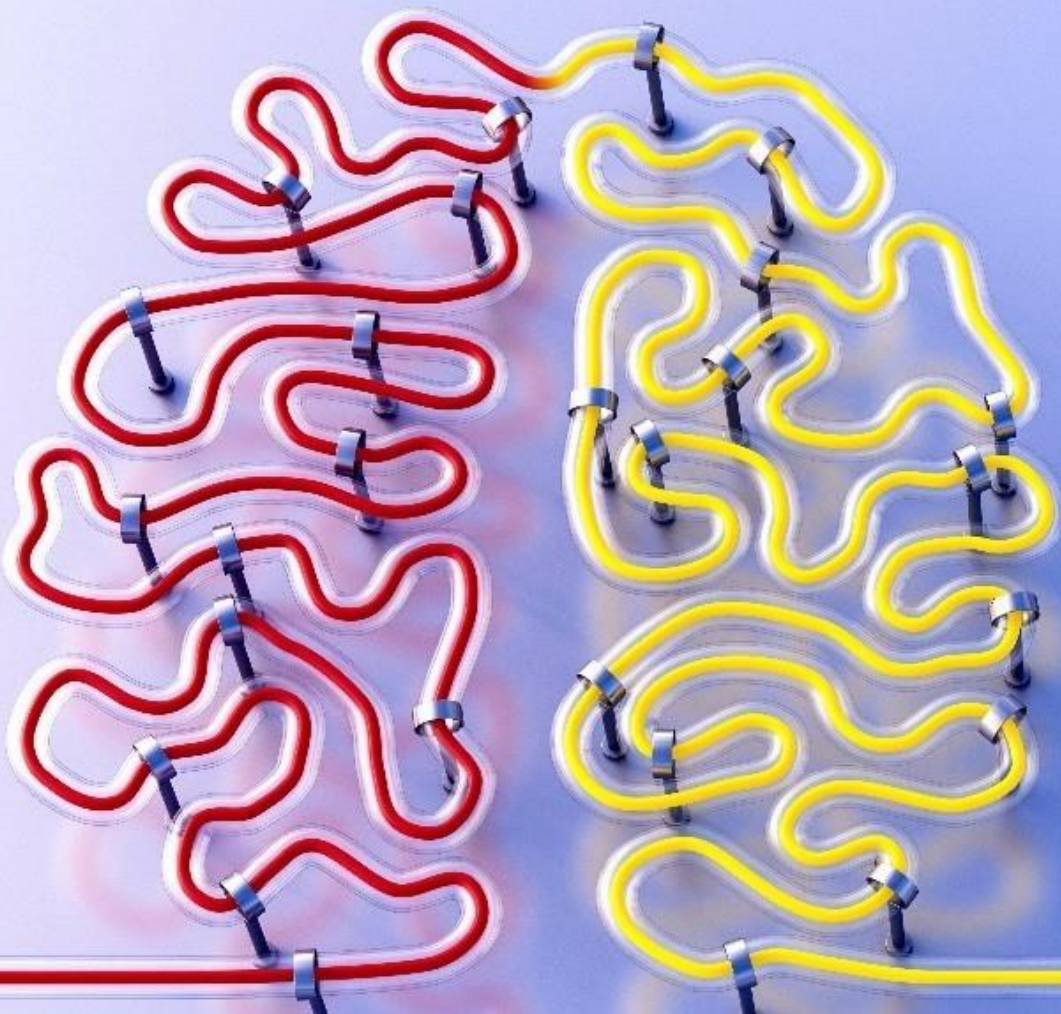# Table of contents
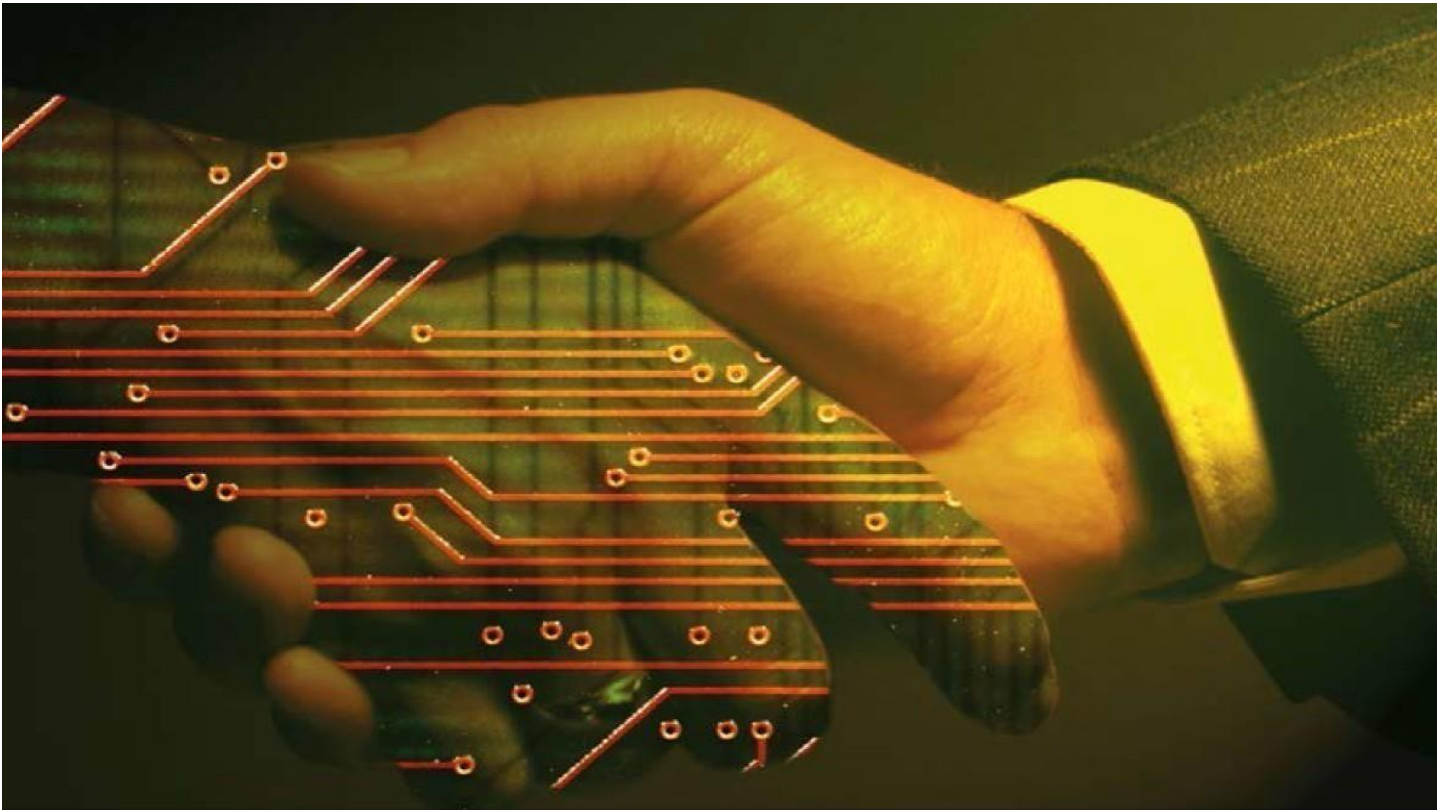
1. Introduction

What is artificial intelligence (AI)?

Artificial intelligence (AI) refers to technology used to do a task that requires some level of intelligence to accomplish – in other words, a tool trained to do what a human can do. Why is AI different than ordinary software? Three core components – high-speed computation, a huge amount of quality data and advanced algorithms differentiate AI from ordinary software. Core AI technologies provide better accuracy and stability to everyday processes using an algorithm that connects quality data with fast computation services.

AI technologies offer significant opportunities to improve HR functions, such as self-service transactions, recruiting and talent acquisition, payroll, reporting, access policies and procedures. We are living in an era in which AI capabilities are reaching new heights and have a major impact on how we operate our business. Human resources executives have faith that merging AI into HR administration functions will benefit and improve the overall employee experience. This will provide more capacity, more time and budget, and more accurate information for decisive people management.

Humans and learning machines are working together to produce an ever-increasing amount of HR data in the cloud, and the use of artificial intelligence analyses offer better insight into how to execute and operate. The success of any organization depends on how effectively it combines people, process and technology intelligently to deliver transformational value at optimized cost. AI will help to efficiently automate many back-office functions for reliable HR transactions and service delivery.

This document is focused on conversational AI capabilities for HR transactions and provides insight about intelligent automation via the technology-agnostic chatbot. Beyond the novel benefits of AI, we show how this innovative technology can be the best way to integrate and automate HR transactions in a secure manner.

2. What are the barriers to adopting AI technologies?

What is causing the slow adoption of AI in this field? Financial barriers can be blamed for the lack of wider tool implementation to assist in HR administrative tasks. Other key barriers to AI adoption include:
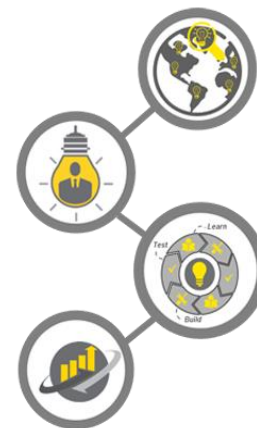
▶ **Talent gap:** it can be expensive and hard to find properly educated or skilled people.

▶ **Concern over privacy:** confidential HR data must be accessed securely and available only to the authorized person.

▶ **Ongoing maintenance:** as with other innovative technologies, AI requires deep learning and regular review and updates.

▶ **Integration capabilities:** data availability is limited, due to the HR trend toward SAAS (Software as a Service).

▶ **Limited proven applications:** many products and services are feasible based on proof of concept only.

However, the cost of using AI can be justified for the following human resource functions:

▶ Reducing the amount of time HR professionals spend on administrative tasks

▶ Reducing the burden of shared service centres and help desks by performing HR transactions and providing answers for routine queries

▶ Recruiting and retention

▶ Measuring return on investments

▶ Reducing bias in HR decision-making

If organizations wish to remain competitive in today's global economy, they will need to look at ways to incorporate conversational AI for HR transactions in their decision-making process. Organizations should rely on AI to perform administrative duties so that HR departments may become more efficient. HR professionals will be able to focus more on strategic planning on an organizational level.

AI processes data more quickly than the average human. It is also able to cast a wider net, bringing attention to people who employers might not have considered or who may not even be looking for work. Having more qualified candidates from the beginning shortens the process, enabling managers to dedicate more time to analysing HR data and improving strategic planning.

3. Personalized employee experience

Finding the right information, with lower costs, in less time and in a secure manner helps to build momentum step by step, beginning with the recruitment process. From there, AI can be effectively woven into an employee's onboarding program. New employees who may want to connect with others and get more institutional information may not know where to go. Conversational AI for the HR system will answer new employees' most pressing questions to help get them up to speed fast. For example, an AI-powered program could provide the names, locations and contact information for people they should connect with during their first week. New employees could also be advised by AI engines to check out a new-hire web page containing useful information, including training modules and business-conduct guidelines.

In addition, conversational AI transactions can help to update personal information on behalf of the employee in a secure manner. A manager could access his or her direct report's information via a chatbot and perform HR business transactions without accessing the core HR application. Chatbots authenticate an employee and provide only authorized information with which the employee can access and transact. Conversational AI for HR transactions has a strong potential to perform certain transactions routed via an approval-chain process. For example, it can allow a manager to approve vacation requests via chatbot, or it can provide a list of items in need of approval by the manager or HR. Managers or HR professionals would not have to access the core HR system to get KPIs and analytical data. The conversational AI solution uses a machine-learning capability – natural language processing (NLP) – to know exactly what information the employee, manager or HR professional is seeking. Note that conversational AI requires customization; it is not easy to standardize. You can designate certain words as positive or negative, but the application works best when it can determine the correct context and the intentions of the user.

4. Are there HR functions that are utilizing AI more effectively?

The HR cloud solution SuccessFactors (SF), with conversational AI capabilities through Recast.AI, SAP Leonardo ML Foundation, IBM Watson, ServiceNow and Microsoft Azure/Skype, demonstrated ways cognitive engines can help employees arrive at key day-to-day decisions in the workplace. Historically, HR team members, employees or managers would have had to handle these tasks.

Viewing and updating employee information

An employee can access his or her personal information, e.g., address, emergency contacts, organization details, vacation days available, approval status of vacation requests and authorized HR business data.

Team training

Team managers can plan digital training opportunities for their team based on skill-gap assessments. Conversational AI can help employees and managers track their training progress.

The hiring process

Cognitive solutions can help organizations tap into multiple data sources and reveal new insights for better candidate profiles, improving the hiring and recruiting process.

Access to HR business transaction data

Managers or HR members can access employee data per authorization, e.g., an employee's job history, team information or performance rating. Conversational AI also can bring analytical and key performance indicator information, e.g., head count, top performers and pending transaction requests – just by asking chatbots.

Automation of repetitive, low-value tasks

AI presents an opportunity for HR to automate repetitive, low-value tasks and to increase focus on more strategic work. In general HR services include a large amount of time spent on standard onboarding processes for new employees, triaging common questions and employee requests, and basic benefits management. Saving time in those areas can help HR teams do more creative and strategic work for the success of the company.

5. Smart people analytics

For years, organizations have been collecting data to gain insights to predict future behaviour. HR teams have a lot of catching up to do in leveraging these people analytics – what data to track, analyse, manage and protect. AI will play a larger role within HR to support smart people analytics in innovative ways to attract top talent. Technologies that enhance the candidate experience and meet expectations will help distinguish an organizations from all the others.
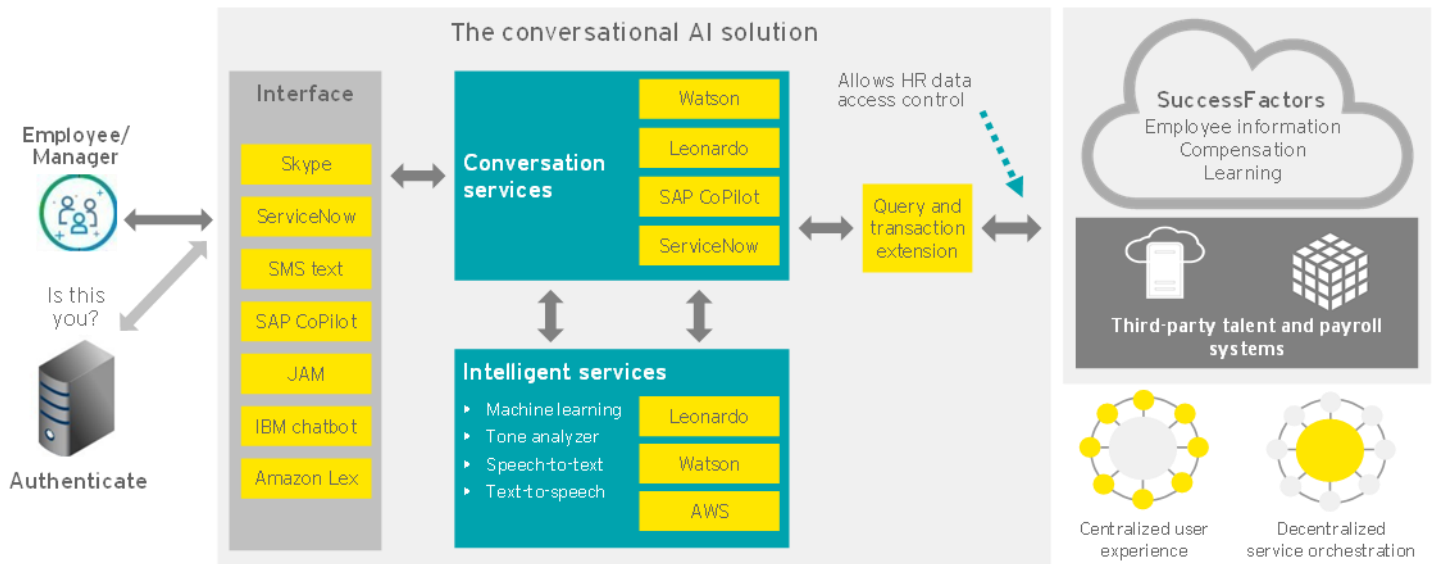
In addition, a stronger digital IQ will bring a business deeper into what is referred to as an "unconscious level" of information. By consolidating and comprehensively analysing people's statements, mood and intentions on social media, along with other public-data sources, human behaviour can be simulated by autonomously learning machines. This makes it possible to validate the employee experience on a day-to-day basis. HR performance and succession data provide information on which employees are engaged and challenged. That gives a new dimension to strategic workforce planning to reduce employee attrition. It is a helpful tool to find the right mix of man and machine in the workplace, which skills and talents are key to maintain balance, and the best-fit candidates for the internal or external hiring process.

6. The technological landscape with a chatbot-agnostic solution

The most significant achievement of transformative technology is to make key data accessible anytime, anywhere and in any medium (voice, text, conversation) with a technology-agnostic solution. A key medium of conversational AI is the chatbot. This product provides intuitive instruction and performs pattern studies to act as a smart and efficient assistant. The bot uses logic to determine user inquiries and connect with enterprise systems to get the desired results. Machine learning plays an important role, working with patterns and using cleaner sets of data.

The following are key building blocks for the AI technology landscape:

▸ **Cloud solution:** enables a pre-trained model with storage for deployment, testing, improvement and quality assurance.

▸ **Language and natural language processing:** uses a standardized programming language and tools to solve contextual and narrative issues.

▸ **Digital assistance:** supports personal queries across multiple devices, e.g., Google Assistant, Alexa.

▸ **Automated machine learning:** provides exploratory data analysis, algorithm selection and diagnostics; most useful for problem-solving with the help of quality data and advanced algorithms.

▸ **Bots:** automates back-office and enterprise operations via a common plug-in.

▸ **APIs for AI and business functionality:** supports machine learning, natural language processing and core business functions; designed to be consumed by chatbot-agnostic technology and offers a text-based conversational interface to connect with multiple messengers, e.g., Google, Skype, ServiceNow, IBM chatbot, social media messengers, SAP Jam and custom chatbots.
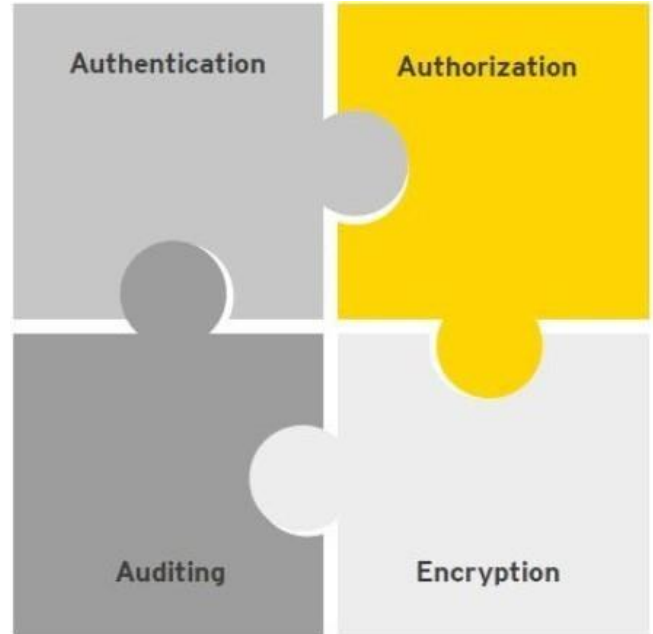

The above diagram depicts a high-level technology landscape for an HR solution. It shows how to access and maintain HR transactions, via chatbots, using conversational AI.

7. How can data privacy and security risk be mitigated?

HR data privacy poses a number of challenges for AI development. Employee data protection awareness is important, and appropriate governance guidelines need to be set up while dealing with AI. Such guidelines should address not only the overall technical and data-inputting processes but also a number of legal and ethical issues. Organizations must get proper consent to avoid additional issues due to the complexities of AI and the training data involved. In some instances it may not be apparent to individuals that their data is being collected, and this lack of transparency can mean that businesses miss out on gaining employee trust.

- ► **Provide a privacy notice** to employees explaining why their data needs to be used for the AI solution to facilitate desired results. IT security departments should have policies in place to make it clear to employees what data is permissible and not permissible to collect for the AI solution.

- ► **The chatbot solution should not store any personal identifiable information (PII) or confidential information** during the processing of an employee request. PII and confidential information should be communicated via a secure internet or intranet protocol.

- ► **Training data should be secure** for machine-learning purposes and should not have any HR PII and confidential information.

- ► There is potential for a lot of PII information to be collected. **Machine-learning solutions should have masking capabilities** so that observers can't learn specifics about other users.

- ► HR systems should only release authorized information to employees during conversational AI transactions. Companies need to make sure **they have appropriate controls in place around HR data**. If they don't, then the output delivered by the algorithm will be flawed and lead down a path of wrong decisions.
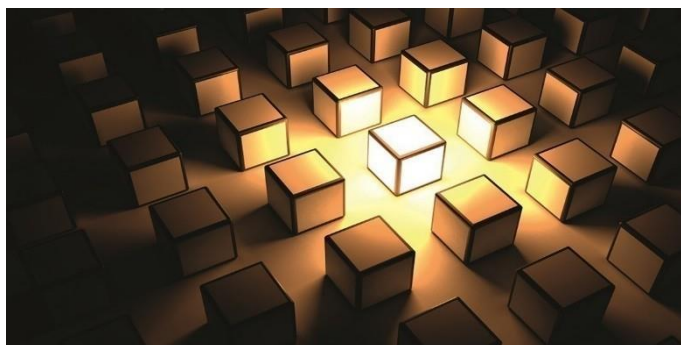
8. What are common pitfalls for businesses to consider?

The world is moving faster with new technologies, and it is easy for organizations to make missteps. We recommend exercising proper caution when deploying AI services. Proper insight is needed to manage AI systems effectively and efficiently.

▶ **Find reliable and sufficient learning data sets.** Real-life data, along with the quality and volume of data, is extremely important. This should be free from bias and representative of all possible scenarios. First, get the right set of data, then get the AI to provide the best output.

▶ **Use the right implementation approach.** The AI environment is quite different than other IT environments. Most of the time, development is about identifying data sources and then gathering content, cleansing it and curating it. Such an approach requires different skills and mindsets, as well as different methodologies.

▶ **Seek clarity.** A lack of clarity about generation insights can lead to mistakes. Businesses need to make sure the machines perform as planned, securely and efficiently. Systems should have a proper training phase to learn, detect and correct patterns, and act accordingly.

▶ **Eliminate bias.** AI applications are capable of processing speed, but they can go wrong due to biased learning input. An AI solution can be a catalyst for positive change if it has been used in the correct way.

▶ **Consider unintended consequences.** A good AI designer should be able to suggest a strategy to avoid unintended consequences by inputting as many possible scenarios, pre-learning and machine self-learning mechanisms to avoid unintended issues.

Do	Don't
Keep moderate expectations, with a scalable solution	Believe that AI is making the business decisions. It does what you want it to do.
Determine impact and measure for success	Underestimate the importance of using quality data.
Use the right tools, intelligent assistants and application program interface (API)	Consider a traditional system-implementation approach. Follow a methodology to identify correct data sources, with the help of a domain expert, then gather context and curate solutions.
Make sure to establish appropriate process for regular Content Management and ongoing Governance. Ensure to establish stability and consistency of AI solution with technology shift.	Assume that the implemented AI solution will always provide the correct response. Revisit regularly to make sure the algorithm and logic continue to be accurate to get the best results.

9. Conclusion

AI-based HR applications have strong potential to raise employee productivity and help HR professionals become knowledgeable consultants that boost employee performance. HR applications empowered by AI have an ability to analyze, predict, diagnose and become more powerful and capable resources.

Determine what you would like to see and how it can fit within your corporate culture before adopting a solution. Employees will be affected by the AI function in multiple ways, so it is important to focus on employee needs and possible outcomes.

10. Why EY for AI − HR service offerings

EY has a global AI and SuccessFactors capability with a proven record of successful implementation. Our approach has a custom accelerator integrated with chatbot-agnostic technologies. Our agile delivery methodology has helped our clients to improve HR service delivery via a range of AI solutions. Five key differentiators for our offering include:

▶ **Business value and agility** − automation to identify where real benefits can be found and to continuously improve processes

▶ **Speedy delivery** − strong industry insight and understanding of automating business processes faster

▶ **Proven method** − a robust methodology with a proven set of accelerators developed from real-life and frequently used HR transactions and data

▶ **Tools and process** − agile delivery, digital integration and assessment framework

▶ **Global support** − a highly trained team of business support that spans the globe

11. Contacts

This paper provides a few thoughts about how HR opportunities and functions need to adapt for emerging AI technologies. We look forward to continuing to help shape this initiative. To discuss any of the topics in this paper, please contact the following team members below:

Sheila L. McGovern sheila.mcgovern@ey.com	**Vinod Pandey** vinod.pandey@ey.com
Steve Gill sgill1@uk.ey.com	**Tim Aldrich** tim.aldrich@ey.com
Chad Myers chad.myres@ey.com	**Chirag Desai** chirag.desai@ey.com
Mayank Gera mayank.gera@in.ey.com	**Velraj Balasubramanian** velraj.balasubramanian@in.ey.com

EY | Assurance | Tax | Transactions | Advisory

About EY

EY is a global leader in assurance, tax, transaction and advisory services. The insights and quality services we deliver help build trust and confidence in the capital markets and in economies the world over. We develop outstanding leaders who team to deliver on our promises to all of our stakeholders. In so doing, we play a critical role in building a better working world for our people, for our clients and for our communities.

EY refers to the global organization, and may refer to one or more, of the member firms of Ernst & Young Global Limited, each of which is a separate legal entity. Ernst & Young Global Limited, a UK company limited by guarantee, does not provide services to clients. For more information about our organization, please visit ey.com.

Ernst & Young LLP is a client-serving member firm of Ernst & Young Global Limited operating in the US.

ey.com