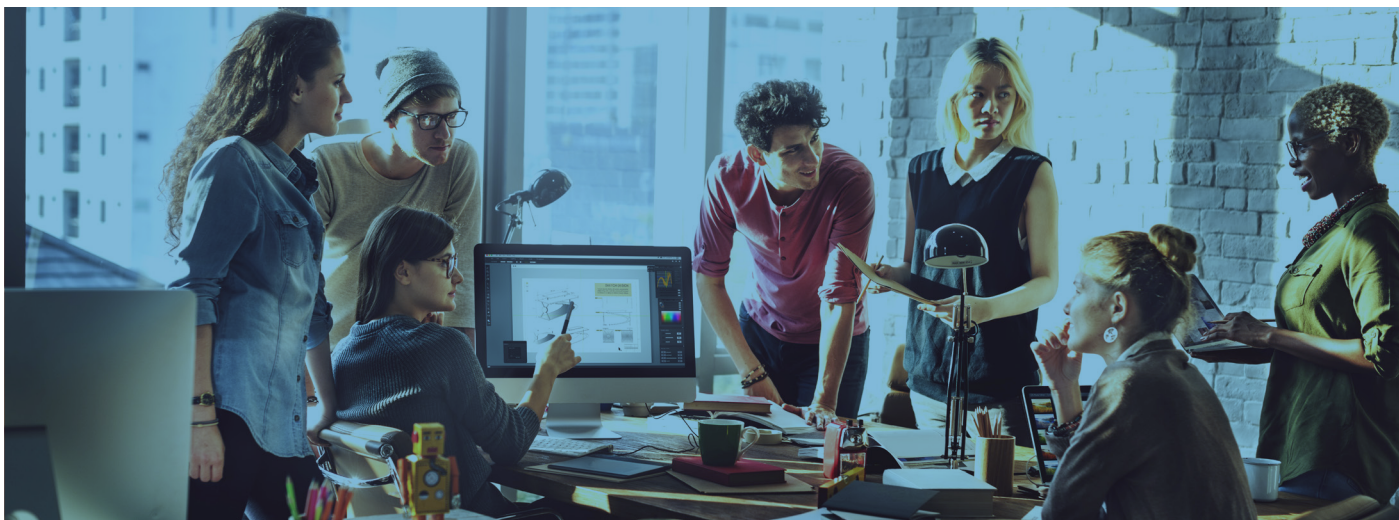# Why and How Modern IT Departments Use AI

Deliver IT Services Faster, Cheaper, and Better Through the Exploitation of Artificial Intelligence

There has been much talk of, and writing on, Artificial Intelligence (AI) in the last couple of years. It's definitely one of the hottest technology trends right now but, more importantly, how will AI help your business? With the emphasis firmly on the how.

This paper will help you to better understand what AI is (including some of the terms frequently used in the context of AI), what it is capable of, and how it is currently applicable to IT Operations Management and IT Service Management opportunities and challenges in particular.

◥ Please read on for helpful information on:

- The IT Operations Management and IT Service Management issues currently faced by IT departments

- What AI is and how it can help – The generic benefits for organizations

- The generic AI use cases

- Specific IT Operations Management and IT Service Management AI use case examples

- How to negate some of the potential barriers to AI adoption

- Statistics on how AI adoption will take off

- Nine steps for preparing for AI adoption

The Current State of IT Operations and the Rise of AI

IT Operations Management practices have evolved greatly over the last forty-plus years:

- The IT industry has "taken its own medicine", in the form of using technology to support corporate IT departments. We've seen more and more IT-management systems and automation utilized to develop, implement, manage, and optimize firstly IT domains, then IT services, and now the end-user experience; with AI the latest technological advance available for IT operations' improvements.

- IT Service Management best practices and technologies have been employed due to the continued acceptance of the need for, and benefits of, a more formalized approach to IT service delivery and support. Driven, in part at least, by the popular IT Service Management best practice frameworks, most notably ITIL, ISO/EC 20000, and COBIT.

- Technology (and IT service) delivery models, and thus the IT Operations Management and IT Service Management practices required, have morphed – especially in recent years – through various on-premises models and now the continued adoption of public, private, or hybrid cloud.

- New approaches to IT service delivery and support continue to be added to the IT Operations Management and IT Service Management mix, for instance, DevOps, IT4IT, enterprise service management,[i] and service integration and management (SIAM); with more, such as VeriSM and the next ITIL version.

Such changes, along with others not listed, have continue to make, the lives of IT operations professionals easier and the outcomes of their efforts better. However, such change has not happend in a vacuum; and many would argue that the real driver for the IT operations change is the ever-greater business dependence on IT and other factors related to the increasing need for IT departments to "deliver more with less." Effectively, there has been an irresistible necessity imposed by IT customers.

However, IT Departments are still under pressure

At a simple level of abstraction, the "delivering more with less" mantra mentioned above can be viewed as a variation of "faster, cheaper, better– pick any two"[ii]:

Faster (and with greater flexibility)
Delivering new capabilities, making informed decisions, resolving issues, or delivering IT service and/or operational improvements more quickly.

Cheaper (but with a focus on value over cost)
Reducing operational costs and realizing efficiencies while upping business value wherever possible.

Better
Improving IT service quality, including availability, and increasingly, importantly, better meeting the end-user expectations of IT services, support, and customer service.

The challenge here, of course, is that all of these aspects are important to the success of modern-day IT departments, and the parent organizations they are part of. So, it isn't practical (or even possible) to abandon any one aspect in favor of the other two.

Fortunately, for the IT industry and its customers, it no longer needs to be a case of "pick any two," because AI and automation can facilitate IT departments in becoming faster, cheaper, AND better.

What AI is and how it can help IT Operations

The term "AI" covers a wide spectrum of things, and it would take a paper in itself to define and describe its various flavors. Instead, this paper focuses on an IT Operations Management and IT Service Management use-case perspective, with a number of key definitions helpful in providing a common basis for the potential use cases offered here in[iii]:

Term	Definition
Artificial intelligence	"…intelligence exhibited by machines, rather than humans or other animals (natural intelligence, NI). In computer science, the field of AI research defines itself as the study of 'intelligent agents': any device that perceives its environment and takes actions that maximize its chance of success at some goal. Colloquially, the term 'artificial intelligence' is applied when a machine mimics 'cognitive' functions that humans associate with other human minds, such as 'learning' and 'problem solving'"
Machine learning	"…the subfield of computer science that gives 'computers the ability to learn without being explicitly programmed' "…evolved from the study of pattern recognition and computational learning theory in artificial intelligence, machine learning explores the study and construction of algorithms that can learn from and make predictions on data."
Chatbot	"…a computer program which conducts a conversation via auditory or textual methods. Such programs are often designed to convincingly simulate how a human would behave as a conversational partner, thereby passing the Turing test.[iv] Chatbots are typically used in dialog systems for various practical purposes including customer service or information acquisition."

Robotic process automation (RPA)	"...an emerging form of clerical process automation technology based on the notion of software robots or artificial intelligence workers"
Natural language processing (NLP)	"...a field of computer science, artificial intelligence and computational linguistics concerned with the interactions between computers and human (natural) languages, and, in particular, concerned with programming computers to fruitfully process large natural language corpora (samples)"

▶ The Generic Benefits and Risks of AI

At the generic level, AI has the potential to be that much-needed IT Operations Management and IT Service Management "silver bullet" that can deliver our dreams of better service without the usual overheads of more staff, expensive technology, and the need to wait for solutions to arrive. Despite how many media articles talk about this emerging technology, AI is already here and helping different business functions, in various industry verticals, to replace or augment existing manual operations – adding "heavy thinking" capabilities along with the "heavy lifting" help already offered by more traditional automation.

AI can of course help with "heavy lifting and, as such, the generic benefits include those of traditional automation, for instance:

Improved customer experience.
The benefits listed below collectively contribute to deliver better IT service delivery, support, and customer service.

Increased speed of execution.
Automation works more quickly than people, and 24x7 without the need for breaks or planned and unplanned absences.

Cost reductions.

Automation is cheaper than human labor, and the augmentation of human labor with automation (and AI) will often deliver the optimal balance of positive outcomes and costs.

Reduced "human error.

They say that "to err is human" with such errors costing in terms of quality, speed, business reputation, or the financial cost of rework or even lost business.

Reduced human intervention.

It's an overlap of the above three bullets, possibly to different extents based on the automation use-case scenario.

Increased task or process adaptability.

It's easier to change automation elements than the day-to-day practices of people who have done exactly the same thing for the last few years.

More specifically, IT departments (and this is likely to be most of them over the next few years) are seeing, and will see, better and more relevant solutions to their needs delivered faster and more cheaply. Using IT support as an opening example of AI-delivered benefits (there are many more offered later), there will be less need for issues to be rectified, with AI identifying potential issues and applying the right action before end users, customers, and IT staff even notice:

- For end users and customers, there's a better service and support level which comes from both a better response when they have issues or requests, and from not even having those type of issues or outstanding needs anymore.

- For the IT departments, there's greater reliability and consistency for services and operational processes, and at a lower cost.

- For IT staff, as with all the previous stages of technological innovation, AI offers them a release from boring and repetitive tasks, allowing them to focus more on the innovative and challenging elements of their roles.

But AI is not without its concerns

As with all things in life, the AI benefits also bring some element of risk. In the broader world, we hear big and wild fears about AI from the media, including threats to humanity's continued existence. But in IT Operations Management and IT Service Management, for the most part, the real risks are just the latest variations of the traditional risks that new technology has brought with it over the years.

These include:

- **Industry hype and hyperbole.** While the eventual expectations of AI may indeed be realized, some early technology adoptions will inevitably fall behind the initial promises. Thus, some degree of realism, moderated, targets, and pragmatism are required.

- **That AI will not totally replace human involvement.** AI capabilities are already impressive but still, if the technology is not set up and used correctly, with parameters and measures incorrectly matched to customer needs, AI is as capable as any technology of delivering outputs not matched to the real business needs. Thus, it will still be possible to deliver the wrong things well (with AI), unless the business vision for AI is properly understood and communicated.

- **That there will be increased expectations once new AI solutions are implemented.** As with any well-publicized technological innovation, there are heightened expectations and the extra pressures. As with cloud during the last decade, some AI vendors will market broadly, targeting IT's customers directly and expanding their expectations – possibly beyond a reasonable and realizable level.

The Possibilities of AI for IT Operations Management and IT Service Management

With a clear understanding that AI has already arrived, and how it's already helping organizations with external customer support in particular, IT departments should fully expect AI to be just as valuable not only to themselves but also elsewhere within the organization.

It's therefore worthwhile considering many of the existing external customer support successes, where it's no surprise that technological innovation finds some of its first uses in improving customer engagement channels and outcomes, and thus revenues.

Learning from B2C Customer Support AI Successes

New initiatives for IT are not necessarily new to the business as a whole, and when the application of AI to the IT Operations Management and IT Service Management space is considered, there's already much that can be learned from consumer-world, business-to-consumer (B2C) customer support scenarios. Where IT's customer-service peers are already dipping their toes in the AI-opportunities water, with useful lessons-learned available that can be passed on and exploited in an internal support context.

Generic IT Support Examples

Such B2C, or even business-to-business (B2B), customer service/support lessons show that AI can help IT support, to deliver:

- **A better customer experience and increased customer satisfaction.** Through the faster and more effective resolution of issues, information assistance, and provisioning; especially reduced waiting times.

- **Increased customer service satisfaction levels by agent.** By taking the routine issues and tasks away from agents, and letting AI deal with them, what's left becomes more interesting, and it's easier to spend more time relating to callers and ensuring they get what they need.

- **Reduced end user/customer attrition.** Happy customers, often are the ones who get the help and answers they need quickly and don't go looking for alternatives elsewhere. They are also more likely to recommend IT's services to colleagues.

- **Better insight and decision making.** This might relate to IT operations, service quality, or something else. With AI capable of undertaking "heavy thinking" as well as the "heavy lifting" usually associated with traditional IT automation, from the capacity to handle and analyze large data sets through to the creation of intelligent dashboards.

- **Reduced customer effort.** For instance, a help facility that's easy to find, and immediately available, such as live chat on a portal or website can be much easier to engage with than seeking telephone contact. Especially if the latter involves committing significant time to waiting (and listening to holding music and recorded messages). Plus, AI-enabled chat is typically available 24x7.

- **Reduced cost per ticket.** Once established, AI is consistent, faster, and cheaper than people-based alternatives. Plus, costs are still reduced when AI-augmented people are involved in IT operations or IT support.

- **Reduced costs of service operations.** If automation and AI wasn't cheaper, many companies wouldn't be using it (or considering its use).

- **The ability to scale quickly.** Not only does automation and AI scale more easily, change can be enacted quickly.

- **Reduced staff on-boarding time.** There may or may not be fewer staff, but there's definitely less learning, on how to deal with all the routine issues and tasks that AI can deal with, required. AI can also help with new staff learning curves.

- **Increased revenue and improved business outcomes.** AI, by delivering all of the above and more, delivers against the pervasive IT department needs for faster, cheaper, and better.

Specific IT Support Examples

These general trends in AI are used for external customer, and then internal IT support, give a flavor of what's possible. More specific examples, as described below, flesh out that flavor with a little more substance:

- Website and social-media chatbots are already asking customers routine questions, and delivering the requisite answers to us, every day (possibly even without us knowing). They might not be passing the Turing test yet, but it demonstrates that people are perfectly okay conversing with machines, and trusting the answers they give, when it is done well. Such access to an immediate answer, without waiting for an agent to be free, is seen as a game changing benefit by many customers.

- As well as learning for itself, the AI works in harmony with human support agents by recognizing and capturing new issues and resolutions through the analysis of tickets logged and solved by their human colleagues. This is one aspect of how AI is revolutionizing knowledge management in terms of its range and usefulness.

- The collaboration between AI and natural intelligence is booming in workplace scenarios just as it is socially, where Alexa, Siri, and others make our lives easier at home. Such intelligent, or virtual, personal assistants can also help us at work, speeding up access to the information, services, and technology that in this case, IT Operations Management and IT Service Management staff need.

Specific IT Operations Management and IT Service Management AI Use Cases

Digging deeper, many of the generic benefits that AI offers (as with the intelligent, or virtual, personal assistants) will bring advantages to IT Operations Management and IT Service Management. And just because these are familiar benefits, that are hopefully widely enjoyed, IT departments shouldn't overlook the added value they can bring to both IT and other lines of business (through enterprise service management). So, with these benefits safely "pocketed," it's worth looking more closely at a few examples of the use cases and benefits more specific to IT Operations Management and IT Service Management:

- **Providing a 24x7, low-cost and high-speed, first contact chat experience.**
  Chatbots, backed by effective knowledge management, can be utilized to handle level 0 and 1 contacts, this might be using the more traditional text-based chat or NLP-enabled voice UIs. The AI technology can either assist the end user directly by solving their issue or processing their service request. Or the chatbot can take the conversation so far, quickly gathering the required information from the end user before handing the end user over to a human to finish the engagement who is assisted by contextual data and knowledge, and automated provisioning capabilities. This lowers cost for the IT department (and organization as a whole) and quickens, with a better experience, for the end use or customer.

- **Improved event management and predictive issue identification.**
  It's the equivalent to the progress seen in automotive technology. In the car we've gone from unreliable human abilities to feel vibrations and to hear strange noises, to the constant monitoring of all moving parts, notifications, and even automated resolution or compensations. In fact, modern cars are great exemplars for both automation and AI. There four-wheel drive, traction control, single-wheel braking, and much more that's invoked by the technology without the need for human approval or even possibly intervention. Plus, the industry is well on the way to driverless cars too. In IT Operations Management and IT Service Management terms this translates to evermore comprehensive event management and self-learning analysis, using more data than a human could ever contemplate processing. AI can not only be trusted to monitor the IT estate but also to take appropriate action, and to learn new actions to take, based on what can be observed or deduced. Just as with cars, issues are averted before they happen, and it might only sound like proactive problem management on steroids, but this would be totally underselling the AI opportunity here.

- **Improved resource demand planning and supply chain management.**
  AI can offer a far more reliable vision of an IT department's, or business', future needs. How much, when it should be ordered, from whom, when and where it should be delivered, and more. Using AI to study the increasingly vast amount of historical data available, and understanding it, offers the chance for smarter resource planning and ordering saving time, money, space, and stress while delivering exceptional services and meeting business and customer demands. It's "just in time" management taken to the max and there's more on optimal staff utilization below.

- **Automated work routing, processing, and exception handling.**
  Making the best use of scarce resources, AI, human, and otherwise, is a massive source of savings and efficiencies for many IT departments and their parent organizations.

For instance, keeping track of all the available resources and skills is difficult, and offers potential for efficiency savings when work is dealt with faster and more effectively. AI can know when a given situation requires human support or not, and who needs to be involved. AI will get this right much more reliably than human workers can and some of the issues associated with AI, related to the fact that they aren't human, are actually positives. For instance, AI is not affected by modesty, an inflated ego, or over-assumed personal skill levels.

- **Staffing optimization.**
  Teasing out more from the previous bullet, AI knows more about your people than the people do. For instance, who should do what? Addressing the most logical use of staff resources isn't easy, and perhaps something most human minds are not best suited to. This isn't just applying people resources to what has been asked for, it's being sure that ALL the considerations are taken into account, fed by the two previous applications of AI perhaps. From identifying the best new people to recruit, to accurately matching the right numbers of people, and the associated knowledge and skills, needed for different tasks at various times throughout the month.

- **Reducing the manual overheads of, and time taken for, repetitive IT Operations Management and IT Service Management tasks.**
  This not only includes the aforementioned improved event management and predictive issue identification, and automated work routing, processing, and exception handling. But also user account management, server administration, disk and storage management, network management, OS and software management, and other common IT Operations Management activities. RPA, along with more traditional automation capabilities, will ultimately free scarce IT people resource up to concentrate on more complex and higher-value-adding tasks and projects.

- **Improving the end-user (and other human stakeholder) experience.**
  This can cover many things, from the overall experience to specific techniques, such as personalization to delivering better support based on improved speed, customer support, and choice of access and communication channels. For instance, using AI to match the right channel, or even interface, to the involved person, to maximize the ease of interaction and understanding, has more potential than IT Service Management has ever been able to address to date. The support of multiple UIs, matching them to needs, or even to an individual's particular mood at any given time, is only going to be viable through the speed and monitoring of responses that AI can offer. For instance, let AI-enabled sentiment analysis capabilities understand that the end user is subconsciously stating: "Be nice to me, I've had a bad day" without the support agent even needing to ask. It's a step-change in service quality that's waiting to be exploited.

Negating Some of the Potential Barriers to AI Adoption

Earlier in this paper, some of the possible risks that AI might bring were mentioned. It's good to mention these up-front, seasoning the good news with a little salutary caution. But such concerns can be avoided with sensible care.

As an IT professional, you are probably experienced in the specification and acquisition of goods and services, and especially major software tools. That experience needs to be brought to the adoption of AI, and appropriate staff, with appropriate knowledge and skills should be involved as early as possible.

Then viewing AI as an alternative or,worse–only as a replacement for people will be a mistake. For AI to work, it needs to be seen as a complement to human work, an enabler and supporter to the human workforce which is not going away. Existing staff may well feel threatened by AI, seeing it as a threat to their employment and, therefore, organizations should:

- Involve staff in exploring the options, opportunities, and preferences for using AI.

- Emphasize the benefits of AI to staff, especially their liberation from boring, repetitive tasks, and the consequential opportunity to work on more interesting "exception cases that will still require human perception to succeed.

- Try to treat it as just one more IT tool to be used, for the benefit of business, staff, and customers in many ways it's similar to the introduction of self-service and the benefits that it offers.

- Admit up-front any expected staff reductions denying it only makes things worse when they happen. But remind staff that if there are fewer jobs, it will be because the remaining work will be more attractive.

There's also the opportunity to use your organization's agile capabilities and experience. Don't see AI as one big project. Instead, start small, with something of use and value – think "Minimum Viable AI Use Case."

Lastly, be sure to get a realistic message out to your senior managers and business leaders, before they start to believe the marketing hype they will no doubt be subjected to. Try hard to get them involved by ensuring that they understand the benefits to the organization and to them, personally.

Don't just talk about it, Do something soon

AI adoption for IT Operations Management and IT Service Management, and in particular IT support, has taken off; and will soon become a "must have" for under pressure and quality-focused IT departments. As already mentioned, organizations need to start soon, if not now. Potentially starting small, setting precedents, and demonstrating the usefulness and value of different AI use case scenarios before then building on them.

AI will be:

- **A way of saving time and money, while delivery a better quality of service.**
  Lessons learned from 50 years of automation apply as much with AI as they have always done here. There's so much precedent on how important it was to keep up with current IT-evolution trends in optimizing business operations and outcomes, and this applies to AI adoption as well.

- **Needed to meet consumer-world-driven expectations of IT service delivery and support.**
  Staff, customers, end-users, and just about all other stakeholders are becoming used to being supported by AI in their everyday lives – from dealing with utility companies to playing games on their personal technology. They'll expect the same in their work environment and to keep customers and to attract and keep good staff, there's a need begin the exploitation of AI capabilities now to reflect the desired situation.

- **A competitive advantage for the business as a whole.**
  AI isn't a new toy for IT, it's an essential step into the 21st Century for the whole organization. This will require organizationally-wide understanding and support of AI possibilities and of the impact to the current ways of working.

Helpful AI Statistics and Information

The Internet is awash with AI statistics and information; some of these are free to access, some are hidden behind paywalls. Then some come with a particular pedigree and are based on statistically sound research, while some are merely the opinions of the authors that are either spruced up to be "fact" or shared so many times that its origin (and validity) has been lost. Then there's the issue of information age. Because the evolution of AI is moving at such a rapid pace that what was predicted in late 2016 might no longer be valid. And don't be duped by the current articles that are using statistics and quotes from 2016 or even earlier. The bottom line is to be careful when believing, using, and sharing AI-related statistics and information.

Some good data points to include in your decision making or selling of AI business stakeholders include:

- "Business leaders believe AI is going to be fundamental in the future. In fact, 72% term it a 'business advantage.'" ~ PwC[v]

- "By 2020, artificial intelligence will create more jobs than it eliminates." ~ Gartner[vi]

- "AI will reshape analytic and business innovation: A quarter of firms will supplement point-and-click analytics with conversational user interfaces, and AI will make decisions and provide real-time instructions at 20 percent of firms." ~ Forrester[vii]

- "By 2022, one in five workers engaged in mostly nonroutine tasks will rely on AI to do their jobs." ~ Gartner[viii]

- "By 2019, IT service desks utilizing machine learning enhanced technologies will free up to 30% of support capacity." ~ Gartner[ix]

Key Steps in Preparing for AI Adoption

This paper has so far introduced to the "art of the AI possible." But, as AI exploitation has taken off, your organization needs to be doing more than just thinking about using AI. However, it's not a case of using AI just because you can, i.e. being technology-led, instead AI needs to be assessed for, trialed, and then deployed in IT Operations Management and IT Service Management use case scenarios that deliver real business value.

To help ensure that your organization takes the right steps towards AI exploitation, consider using the following nine steps:

- **Conduct research into the AI possible.**
  What are other organizations already doing? What's possible, or about to become possible? What isn't possible, despite the potential marketing and media hyperbole? Who isn't using it, and why not?

- **Talk to suppliers about their AI capabilities and roadmaps.**
  Not necessarily to buy yet, although you might see immediate opportunities, but definitely to learn more about what other customers are achieving through AI adoption. And don't be embarrassed about asking for suppliers to spend time educating you – they will appreciate that it needs to be done until more customer successes are in the public domain and, in the long run, it's their interest too.

- **Get you staff on board and interested.**
  Run workshops, spend time, and make effort to make it clear you care about what they care. Be clear about the benefits and risks, and honest about the potential for changes to existing ways of working. Use organizational change management tools and techniques to help manage what is going to be a considerable people change.

- **Create an initial AI strategy that will evolve over time.**
  This might start very much as a loose statement of intent – "We will proactively exploit AI when, and only when, it helps to deliver better business outcomes" – and become far more detailed as successes are had and communicated.

- **Pick a pilot for AI.**
  Start small (this has already been stated but it can't be reinforced too much). Weigh the pros and cons of focusing on an area that will make a visible difference at a business level versus and area that will allow mistakes to be made in private. Let your organizational culture determine which will be best for your pilot.

- **Measure the things that you intend to change.**
  Things such ticket-related targets, user and customer satisfaction, or costs. Remember to record the baseline before starting to allow for accurate comparison of the impact of AI.

- **Implement your chosen first step, measure again, frequently, and adjust accordingly (again, think agile).**
  If AI isn't delivering the expected benefits in a chosen pilot area, don't just stop – seek to understand why. Was it a poor choice, a poor implementation, under resourced, or something else?

- **Communicate your success.**
  Do this quickly and comprehensively, and to the right business stakeholders. Remember that your pilots are not only for the sake of IT Operations Management and IT Service Management improvement, what's being learned will help drive AI exploitation throughout the organization.

- **Repeat steps 5-8.**
  Continue to test the AI waters, evolving your AI strategy as you go.

---

[i]Enterprise service management is the use of IT Service Management thinking, principles, best practices, and enabling technology in other lines of business such as human resources (HR) and facilities

[ii]https://en.wikipedia.org/wiki/Project_management_triangle

[iii]All four definitions are taken from Wikipedia, https://en.wikipedia.org

[iv]"The Turing test, developed by Alan Turing in 1950, is a test of a machine's ability to exhibit intelligent behavior equivalent to, or indistinguishable from, that of a human." Source: https://en.wikipedia.org/wiki/Turing_test

[v]http://pwcartificialintelligence.com/

[vi]https://www.gartner.com/newsroom/id/3837763

[vii]http://www.zdnet.com/article/rethink-ai-in-2018-or-risk-failing/

[viii]https://blogs.gartner.com/craig-roth/2017/12/05/489/

[ix]Gartner, "Apply Machine Learning and Big Data at the IT Service Desk to Support the Digital Workplace," Colin Fletcher, Katherine Lord, 29 February 2016

SYMPHONY SUMMITAI

To know how you can use AI to embark on a journey of enhanced productivity with Symphony Summit, request a demo or contact us:

SUMMIT Software Inc.,
4 Main St Suite 100,
Los Altos, CA 94022, USA

SUMMIT IT Solutions Pvt. Ltd.
Tower 3, 5th Floor, SJR I Park,
Whitefield, KR Puram Hobli,
Bengaluru, Karnataka 560066

(866) 209-2066 (Toll Free)

India: +91-9590786648 (SUMMIT)

summit.sales@symphonysummit.com

www.symphonysummit.com

https://www.linkedin.com/company/symphony-summit

https://twitter.com/SymphonySummit