



Considering AI

Preparing for the irreversible momentum of AI

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With the ever-expanding growth of Artificial Intelligence (AI) solutions, it can be difficult to navigate the advanced technological landscape, much less identify the best application for your organization. Further complicating the issue can be uncertainty surrounding the level of access an AI has to a system, or simply not knowing the problems an AI is suited to solve.

As an overarching primer, this guide is meant to provide you with the foundational knowledge you will need to evaluate AI as a solution for the problems and challenges your company faces. Therefore, we will start by level-setting on expectations of what an AI can do, what it cannot do and what it may do in the future.

"This is the space race of the 21st Century. Whether we want to admit it or not, we're in a competitive space to own this technology."

— Chris Miller on AI technology, Executive Director of SPAWAR Atlantic¹



Narrow Operational AI vs. General AI

Separating science fiction from grounded reality

Science fiction and modern media have done a great deal to fuel enthusiasm and further development of AI applications. At times, this has also created false expectations and a greatly exaggerated sense of current AI technology.

For instance, you may think of an AI being able to fully exhibit human thought, creativity, innovation and self-will. This would be an example of a **General AI**; one that fully mirrors the ability and complexity of the human brain. However, we are nowhere near realizing this level of technology.

The real world applicable type is known as **Narrow, or Operational AI**, and is the overwhelming majority of AI instances in the world today. For the purposes of this guide, we will be using the term 'AI' to refer specifically to Operational AI.

To take the above statement further, an AI only has access to the systems and tools you define. You can think of an AI operating in a sandbox-type environment, one that has clear boundaries and defined limitations. In other words, AI is a tool to be used in the way you want and the way you design.

While this type of AI is highly prevalent across a wide range of industries, they can vary greatly in complexity and purpose. Still, an instance of Operational AI performs a limited set of functions learned through its training and cannot learn new processes by itself.

In one example, an automated telephone system uses an AI to hear a human's voice and progress to the next stage in the phone tree. The AI is programmed to know and understand a limited and defined set of commands by a human voice. Based on the response given, the AI then makes an action.

In a more advanced example, AI is being used as a first line of defense to detect potential signs of cancerous cells². The AI is first trained in the same way you would train a doctor to recognize cancer in computed tomography (CT) scans of patients. A baseline is created by showing the AI CT scans of known cancer cells, after which the AI is programmed to identify and detect those patterns in any CT scan it is shown. Despite this AI being much more advanced than an automated phone tree, it still only performs the functions it was designed to do and fully within the limitations its users dictate.

The simple truth is that a modern AI does *exactly and only* what you tell it to do.

Having the Right Expectations

AI as the best solution and not just a solution

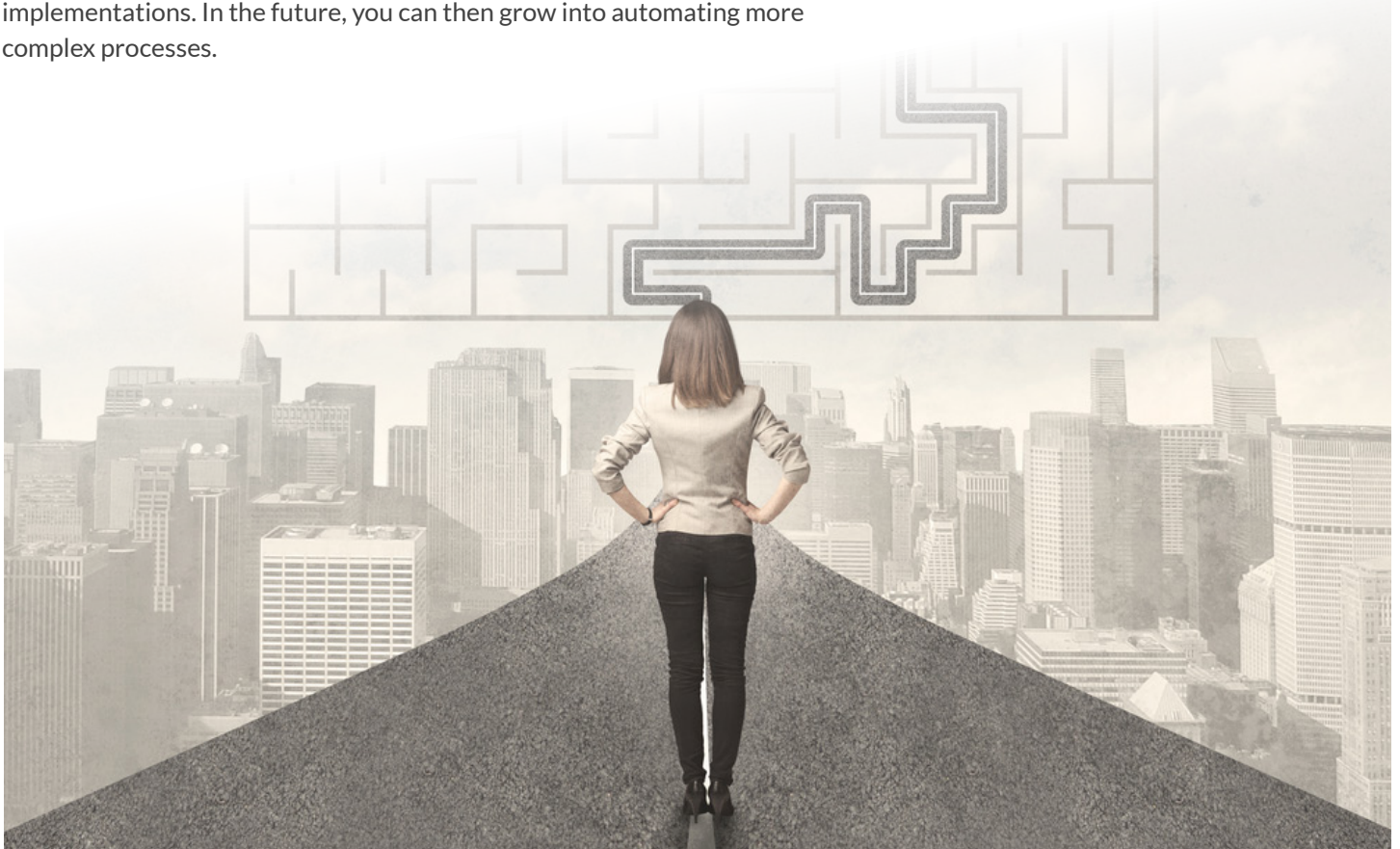
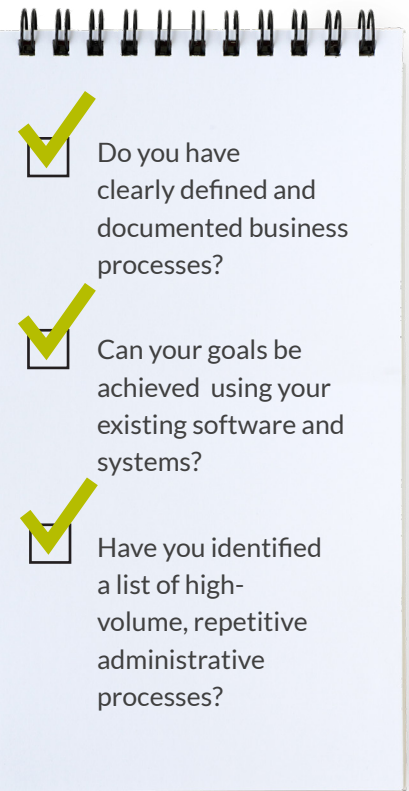
On one hand, the positive momentum surrounding AI is continuing to drive innovation and new applications. In recent years, there has been an explosion of growth with AI implementations and they are now being found in almost every industry.

However, as the breadth of AI has increased, so too has the confusion around when AI is the best solution or what problems an AI is best suited to solve. With this in mind, there are several best practice questions you can use to determine when and where an AI is an ideal solution.

- Do you have clearly defined and documented business processes?
- Can your goals be achieved using your existing software and systems?
- Have you identified a list of high-volume, repetitive administrative processes?

By using the questions above to drive your own internal discovery, you can gain a better understanding of how and where an AI solution will have the most impact. As a best practice when you are considering an AI solution, you should identify small and simple functions to automate first. This will allow you and your teams to get familiar with how an AI functions within your system.

A small-in-scope project also serves as a way to capture and resolve potential issues without severe impacts that may be found with larger AI implementations. In the future, you can then grow into automating more complex processes.



Measuring the True Impact of AI

You are gaining a digital colleague, not replacing a person

When looking at the benefits of implementing an AI, it is a natural inclination to think of the human work hours you will save as a result. While the efficiency gained through an AI is often a quantifiable success metric, it is not the only return on investment feature you should be focused on. In fact, there should be other benefits that rank higher on your priority list.

Before we review other ways to measure impact, we should be clear that an AI is not a replacement for a person or team. Rather, an AI should be thought of as an addition to an organization that can automate repetitive, high-volume tasks by working with the systems and tools you already have in place. When you offload these administrative tasks to an AI, you free up your human personnel so they can focus on more complex problems that require human creativity and innovation.

Introducing an AI to take on administrative processes certainly saves a human counterpart the time needed to complete them, however, higher value should be placed on other advantages. For instance, an AI never gets bored or distracted, meaning the level of accuracy in finding errors can be much higher than a human completing the same tasks³.

Not only does this create a higher confidence level in your own workflow, but it also translates to better adherence with compliance or regulatory guidelines. Going one step further, you gain access to a full and detailed record of any errors found and corrected for auditing purposes. By continuing to iterate on your AI implementation, you can then improve the confidence level and accuracy over time.

Another added benefit is the security aspect AI can bring to your organization. As your new virtual teammate, your AI solution can be designed with all necessary security compliances built-in, such as HIPAA, STIG, Hitech, etc.

Lastly, an AI implementation sends a message of commitment to innovation, both to your competitors and customers. By touting your AI processes, you can show that your organization is readily adopting and making the most of advanced technology. The gains and benefits from your AI can then be table stakes when seeking a competitive edge in your field.

One of the best benefits of Operational AI is that it frees up human capital.

Navigate to Your First AI

Setting clear goals and removing barriers to success

In the previous section we discussed a few positive outcomes by implementing an AI solution. To ensure those success metrics are achieved, you first need to have a plan in place to get there. The next few sections will outline the people, processes and key points you need to focus on for a successful AI launch. We'll begin by taking a closer look at two topics that go hand-in-hand: having clearly defined goals and identifying system knowledge gaps.

Since we know AI solutions can range from the simple to the overly complex, and can be found in nearly every arena, this also means an AI can be used to solve a myriad of problems. Therefore, establishing your priority set of goals can be easier said than done. If you are unsure where to implement an AI first, it is best to go back to your checklist that we outlined earlier and look at your high-volume, repetitive administrative tasks.

From there, take a close look at the system in which these processes operate. To help guide you, ask yourself these questions:

- Are the actions within the system defined and predictable?
- Is there a limited set of variables in the system?
- Is there a limited number of external stimuli into the system?

If your answer is 'Yes' to the above questions, this is an ideal placement for an AI solution. If you answered 'No' to any of them, or you are unsure of the answer, this does not rule out an AI, it just means there will need to be a deeper discovery session to weigh the opportunity cost.

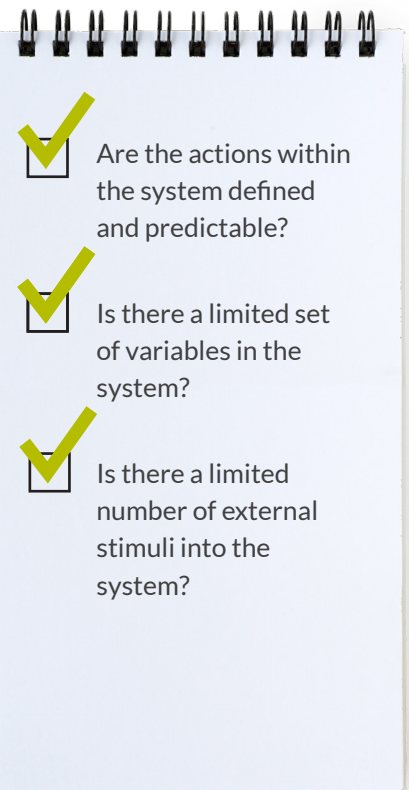
Moving on to system rules, it may be tempting to think you can insert an AI into any process-heavy task and gain a measure of efficiency. However, without clearly defined rules in place, your AI won't be able to discern the best outcome. Similar to a human employee, an AI needs you to define the guidelines for success, and label potential problem areas and how to solve for them.

A common on-the-ground example would be an AI that is tasked with setting up new employees with access to company systems, such as an internal email network. What happens in the case where you have a new employee with the same email name format as an existing employee, such as

j.smith@companyname?

A person can make a judgment call on the spot and decide to distinguish the email by creating a **j.smith2@companyname**. But if you don't have that rule in place in your system, your AI won't know how to handle the difference. What is considered tribal knowledge or siloed information needs to be extracted and defined so your AI can act accordingly when an anomaly occurs.

Again, an AI only does what you tell it to do and knows as much as you dictate. For your AI to deliver a high ROI, you have to define success so your AI solution can take action.



Collaborate with a Trusted Partner

Experience is one thing, relevance is what matters

Although we have spent a fair amount of time reviewing the landscape of modern AI, we have barely scratched the surface in terms of detailed information. Due to the various nuances of how an AI is built, structured, and designed to interact with proprietary systems, an expert in the field is absolutely necessary for a successful implementation.

By now, you are well aware that AI is a widely used term to describe many different types of robotic process automation. As you move into exploring your own AI solution, this also means that completing the due diligence on AI implementation partners is paramount. Considering that the field of Operational AI is still relatively new, you will not be able to rely on a standout company.

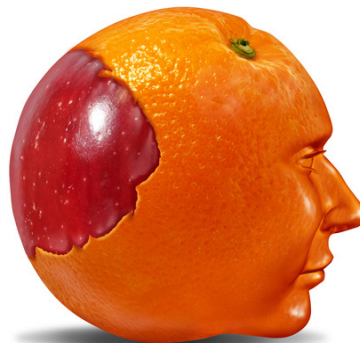
While you cannot point to a single company with a long timeline dedicated to AI solutions, there are a number of other criteria that are important to consider. For instance, you will want to know if your AI partner has experience in your industry. **Not all AIs are created equal**—one AI in the retail space will not serve the same demands of the technology sector.

Just as you know the challenges your company faces, your AI implementation partner should also be aware of them. This allows you to make the most of your planning time to figure out solutions to existing problems, instead of spending time first educating a partner on the problems themselves.

Another point to watch out for is a one-size fits all approach. If it was not made clear yet, an AI works extremely well when following clear business processes in an environment with defined boundaries. An AI partner should not be advocating to introduce an AI solution just anywhere, simply because they think you will benefit from one. Expert advice surrounding clarity of goals, timelines and desired outcomes should be an expectation you have of your AI partner.

You can also ask for other case examples where an AI was used to solve challenges similar to your own. Your AI partner should be able to cite instances where an AI benefitted similar organizations, even if it was not their own project. Lastly, do not be afraid to ask questions and challenge their expertise — AI may be a new path for your company and you should feel completely confident in your AI partner's ability.

The simple fact is that no one company has decades of AI history to tout yet.



Not all AIs are created equal.

Innovate on the Path Forward

A successful launch is just the beginning

Considering the typical lifecycle of technical software implementations, you might be inclined to think that an AI requires months, if not years, of planning to launch into production. Granted, an incredibly complex AI would most likely require a long runway, however, our own AI projects typically take just eight weeks to implement.

While this may seem quick to some, it is important to remember that you should introduce your AI into a high-volume, repetitive task first. By starting with a simple process that has a limited number of variables and clear goals, it is entirely feasible to be up and running in a short amount of time — results can be seen in weeks, not years.

Right out of the gate, your AI should be fairly close to performing at the levels of a human working the same tasks, if not already exceeding them. From here, your AI partner should be focusing on improving confidence intervals, levels of accuracy and resolving any issues that have been identified. Updates to your AI will happen in short sprints (typically a short period of weeks), otherwise known as an iterative or agile approach to technology. This allows your AI to continue working on your tasks even while it is improving in the areas you deem high priorities.

Once your AI is operating at peak performance, you can move into the next stage of AI growth. This could be introducing new variables to your existing AI, so it can handle more complex tasks or processes in the same system where it has already been implemented. You could also choose a new area or system to implement an AI to focus on completing an entirely different set of tasks.

Wherever you decide to introduce your first AI, you will quickly see the benefits once it is launched. Going forward, you will wonder why you did not do it sooner and start to see why so many companies are excited about the possibilities of Operational AI.

Let your AI focus on high-volume targets first, get really good at them, and then get even better.

“We’re already in this competition whether we like it or not, we better get ready for it. And better yet, we better be prepared to dominate it.”

— Bob Work, Former Deputy Secretary of Defense⁴



About the Author

Brad Mascho serves as NCI's chief artificial intelligence officer. In this role, he is responsible for leading a new corporate division focused around artificial intelligence (AI) initiatives and strategy to accelerate, automate and augment repeatable processes for NCI's customers - quickly turning data into actionable intelligence.

Before joining NCI, Brad co-founded CrossChx, Inc., the industry leader in building meaningful AI that empowers and scales humans. Backed by nearly \$50 million in venture capital and under his direction as president, CrossChx quickly expanded to a nationwide customer base with more than 100 employees. During this time, the Ohio-based company made Columbus Business First's list of Best Places to Work for three consecutive years. Prior to this, Brad served as an advisor to several fast-growing technology startups. He also spent a decade advising members of Congress and was an executive at a leading insurance association. Brad earned a reputation as a "change agent" after tackling significant challenges in healthcare such as the opioid crisis and global identity resolution. He earned a B.A. and M.A. from Miami University in Oxford, Ohio.

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