

Making Sense of the AI Landscape

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▶ **To cite this version:**

Margherita Pagani, Renaud Champion. Making Sense of the AI Landscape. Harvard business review, 2020. hal-03188248

HAL Id: hal-03188248
https://hal.science/hal-03188248

Submitted on 1 Apr 2021

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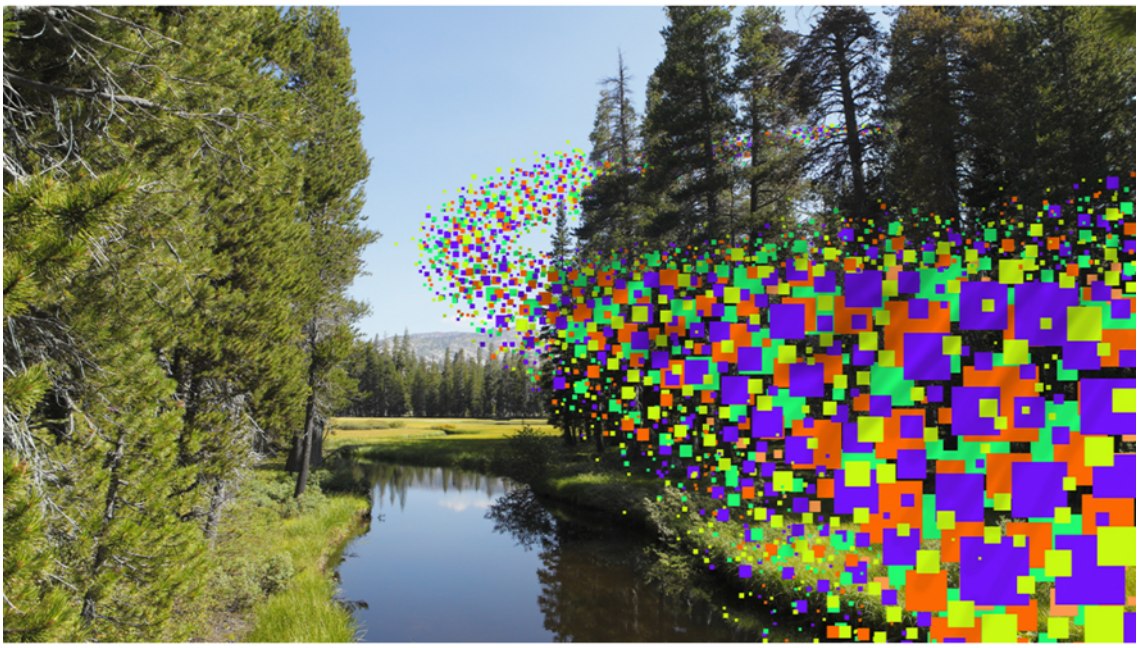
Harvard
Business
Review

Technology

Making Sense of the AI Landscape

by Margherita Pagani and Renaud Champion

November 17, 2020



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Summary. As more and more companies incorporate AI tools into their operations, business leaders need to find ways to adapt. But the term “AI” in fact covers a huge spectrum of different things. How can leaders start to make sense of this vast array of new systems? The authors analyzed over 800 different AI... **more**

As AI tools become more commonplace, many businesses find themselves playing catch up when it comes to incorporating these new systems into their existing infrastructure. And that’s more than understandable — these tools are highly varied, often poorly-

understood, and they're constantly evolving. To start making sense of the AI landscape and determine how your business will need to adapt, the first thing to understand is that the term "AI" in fact covers a huge spectrum of different things.

In a study presented in the forthcoming book *Artificial Intelligence for Sustainable Value Creation*, we mapped out how more than 800 different AI systems were being used across 14 industries. Based on our analysis, we found that these systems fell into four distinct categories: systems that complete rote tasks with limited ethical implications, systems that complete rote tasks that *do* have an ethical component, systems that complete creative tasks with limited ethical implications, and systems that require both creativity and ethical decision-making.

As you go about integrating these tools into your organization, understanding the differences between these different types of AI-supported tasks can help you determine the best tool for each job, figure out how best to support that tool with human employees, and ultimately optimize collaboration between human and machine.

4 Types of AI-Supported Tasks

	Routine tasks	**Creative tasks**
Limited ethical implications	Rote tasks with limited ethical implications. *Examples: Robotic arms, AGVs, autonomous forklifts.*	Creative tasks with limited ethical implications. *Examples: Financial tools, surgical robots.*
	Tasks that are relatively simple but require ethical	Tasks that require both creativity and ethical decision-making.

1. Rote Tasks

The first category we identified was AI systems designed to complete repetitive, rote tasks. These systems, including robotic arms for manufacturing, automated guided vehicles (AGVs) for handling products, or autonomous forklifts, are used for simple mechanical tasks in industrial settings such as factories and warehouses. In these cases, the role of the human is simply to supervise the AI tool.

While these tools will make many traditional assembly jobs obsolete, they will still require humans to oversee the completion of these tasks in new, more managerially focused roles. To prepare for this transition, businesses should consider how best to retrain employees and maintain engagement and motivation among teams faced with taking on these new responsibilities.

2. Simple Tasks that Require Ethical Decision-Making

Some tasks that are highly repetitive nevertheless require a high level of ethical awareness, making human support of these AI systems particularly important. For example, when working with robots that help disabled people with the mechanics of eating (such as Kinova's robotic arm), support elders or people with disabilities with standing or walking (such as exoskeleton products from Ekso Bionics or ReWalk), or manage medications and provide cognitive stimulation (such as Nao for Autism or Paro for Alzheimer's), it is vital that humans provide the ethical and empathetic components that a robot alone cannot offer.

When businesses implement these sort of AI systems, they should be sure to consider the ethical implications of any automated tasks, and make sure that the automated tools are accompanied by human employees equipped to make difficult ethical calls when needed. For instance, if a robot is providing medications, it's important to think about the best way to automate the process of informing patients and acquiring consent (and potentially include a human fail-safe to supplement any automated communications).

In addition, these sorts of tasks also often benefit from a human touch even when those humans aren't actually doing anything differently than the machine would. If you've got a robot providing elder care in

a nursing home, it's probably worth having a human employee accompany it on its rounds, if for no other reason than to improve the experience for the people it's helping.

3. Creative Tasks with Limited Ethical Components

This category of AI systems refers to applications in which AI is leveraged for tasks that require a high level of creativity and complexity, but don't require much ethical awareness. For example, AI finance tools tasked with predicting market changes have to make complex calculations to develop actionable results, but those processes generally don't have much of an ethical angle. Similarly, surgical robots can execute highly complex tasks that sometimes require some creative problem-solving, but they don't generally involve significant ethical considerations.

When implementing one of these systems, there is generally less potential for ethical issues, but businesses should be aware of the limitations of their AI tools when it comes to creativity and innovation. It may be helpful to build mechanisms for human employees to maintain oversight over how the tasks are being completed and provide input when they have ideas for more effective or innovative solutions.

4. Tasks with Both Creative and Ethical Components

The final category we identified was AI systems that are used for tasks requiring a high level of both creativity and ethical decision-making. In these cases, we're asking a machine to interact with its surroundings and accomplish a complex, ethically-charged task with minimal to no human involvement. For instance, fully autonomous vehicles (like Tesla or Google's self-driving car projects, which have potential for both commercial and consumer applications) need to execute complicated, creative tasks while automating high-stakes ethical decisions, such as how to prioritize conflicting safety concerns. Similarly, search and rescue robots used to find and evacuate people from natural disaster sites must leverage both creative and ethical capabilities in order to safely perform their tasks.

These systems have great potential to improve lives, but they also require the greatest amount of oversight. While we have made major strides in developing automated tools that can execute complex, ethically charged tasks, it is vital to ensure that human employees leverage both their creative and ethical capabilities to support these systems. If nothing else, it's important to be aware of the multiple dimensions of complexity that these systems are tackling, so that you can keep an eye out for areas where the AI tool might not make the same decision you would (whether it's an ethical issue or creative one).

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There's no easy answer when it comes to implementing AI in your business — and it's only going to get more complicated as these systems continue to evolve and expand. But armed with this simple framework, you can start to get a handle on the human capabilities you'll need to develop in your team to make the most of the vast array of AI tools at your disposal.



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