Forbes / Tech / #BigData

JUL 29, 2017 @ 09:33 AM   **13,599** 👁

6 Hot AI Automation Technologies Destroying And Creating Jobs
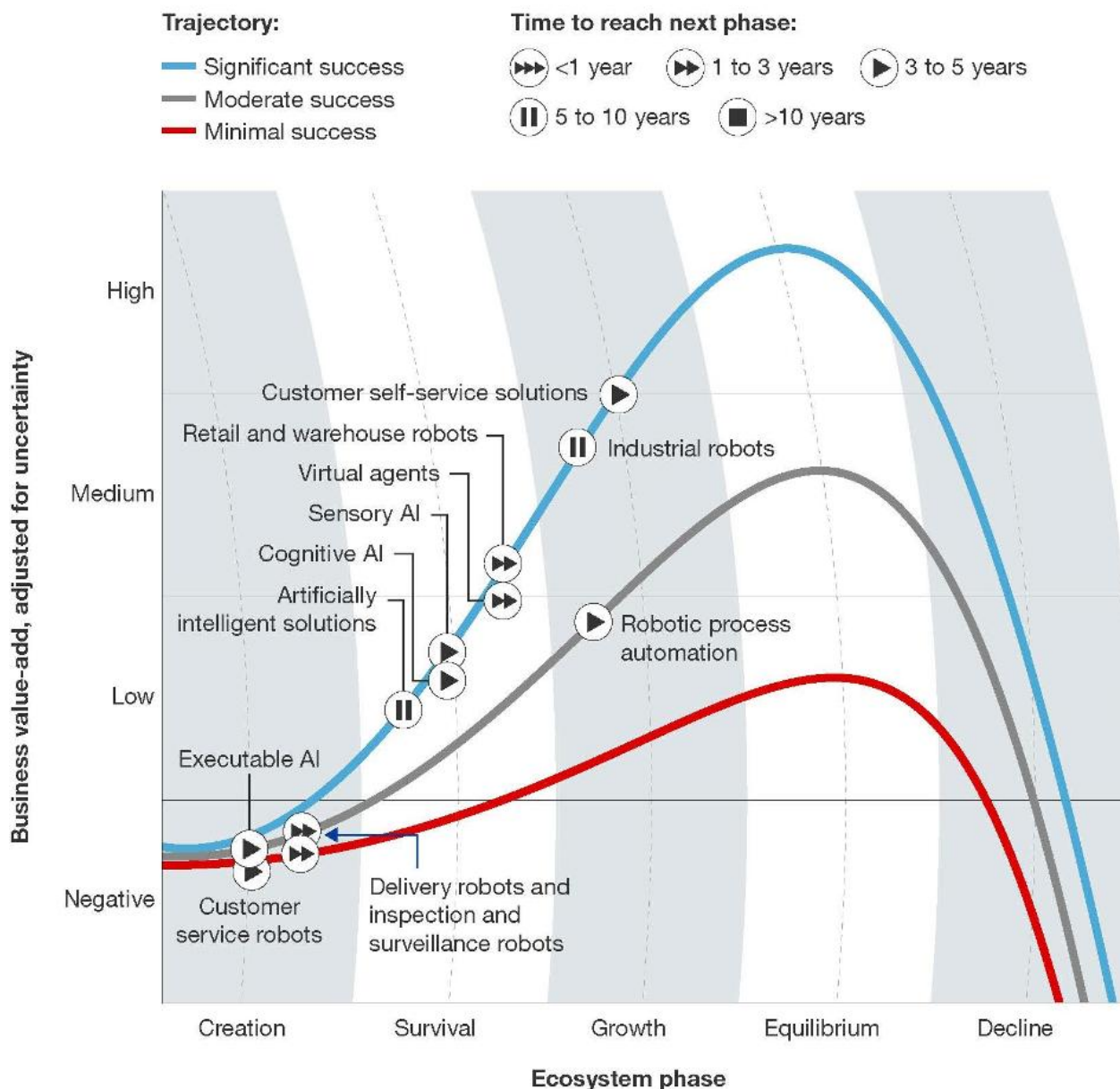
Gil Press, CONTRIBUTOR

I write about technology, entrepreneurs and innovation. **FULL BIO** ⌄

Opinions expressed by Forbes Contributors are their own.

FORRESTER® RESEARCH

TechRadar™: Automation Technologies, Robotics, And AI In The Workforce, Q2 '17

TechRadar™: Automation Technologies, Robotics, And AI In The Workforce, Q2 2017

Physical and software robots rise

Nothing gets the Silicon Valley-obsessed media more excited than watching the online mud-wrestling of two tech titans, especially when the fight is over the hottest topic of the day: Will AI destroy our jobs or will it be a force for good?

It all started with Elon Musk declaring that "robots will be able to do everything better than us," creating the "biggest risk that we face as a civilization." To which Mark Zuckerberg responded that the "naysayers" drumming up "doomsday scenarios" are "pretty irresponsible." Musk retorted on Twitter (where else?) "I've talked to Mark about this. His understanding of the subject is limited," and Zuckerberg blogged on Facebook (where else?) that he is "excited about all the progress [in AI] and it's [*sic*] potential to make the world better."

And so it goes. I don't agree with the notion that only people who are actually doing AI can comment on AI and I'm sure both Musk's and Zuckerberg's understanding of AI is not limited. Like the rest of us, however, they inject into the debate their own biases, perspectives, and ambitions. It may help anyone interested in the question of what AI will do or not do to our jobs and civilization to study its history (you may want to start here), to look for evidence refuting what we believe in, and to assessments of the current and future impact of AI technologies that are based on relevant data analyzed with minimal assumptions.

Surveys, interviews and conversations with the people that actually make decisions about creating or eliminating jobs are an example of the latter category and they often serve as the basis for market landscape descriptions and better-informed speculations from industry analysts. A recent case in point—and recommended reading—is "Automation technologies, Robotics, and AI in the Workplace, Q2 2017" from Forrester's J.P. Gownder (his blog post on the report is here).

Gownder and his Forrester colleagues discuss in detail (33 dense pages instead of 140 characters) a dozen "automation technologies"—all based on what we now generally refer to as "artificial intelligence"—that were selected because they play a role in either eliminating or augmenting jobs, require long-term planning for maximum impact, and (most importantly, in my opinion), generate questions from Forrester's clients. In addition to assessing the developmental stage and long-term impact on jobs and businesses, Forrester provides definitions of the AI technologies/categories they discuss, valuable simply because definitions are often sorely missing from discussions of "artificial intelligence."

Here is my summary of the 6 AI technologies that will have the most impact on jobs —positive and negative—in the near future:

1. Customer Self-Service: Customer-facing physical solutions such as kiosks, interactive digital signage, and self-checkout. Improved by recent innovations (better touchscreens, faster processors, improved connectivity and sensors), it is also entering new markets and applications—a prime example being the experimental Amazon Go convenience store. Example vendors: ECRS, Four

Winds Interactive, Fujitsu, Kiosks Information Systems, NCR, Olea Kiosks, Panasonic, Protouch Manufacturing, Samsung, and Stratacache.

2. AI-Assisted Robotic Process Automation: Automating organizational workflows and processes using software bots. Analyzing 160 AI-related Deloitte consulting projects, Tom Davenport found it to be one of the fastest growing AI applications, an observation confirmed by Forrester. Example vendors: Automation Anywhere, Blue Prism, Contextor, EdgeVerve Systems, Kofax, Kryon Systems, NICE, Pegasystems, Redwood Software, Softomotive, Symphony Ventures, UiPath, and WorkFusion.

3. Industrial Robots: Physical robots that execute tasks in manufacturing, agriculture, construction, and similar verticals with heavy, industrial-scale workloads. The Internet of Things, improved software and algorithms, data analytics, and advanced electronics have contributed to a wider array of form factors, ability to perform in semi- and unstructured environments, and the "intelligence" to learn and operate autonomously. A rising sub-category is collaborative robots (cobots), working safely alongside humans. Example vendors: ABB, Aethon, Blue River Technology (agriculture), Clearpath Robotics (autonomous, multiterrain), Denso, FANUC (traditional robots and cobots), Kawasaki, Kuka, Mitsubishi, Nachi Robotics, OptoFidelity, RB3D (cobots), Rethink Robotics (cobots), and Yaskawa.

4. Retail and Warehouse Robots: Physical robots with autonomous movement capabilities used in retailing and/or warehousing. Picking up objects is still the biggest challenge, but retailers such as Hudson's Bay and JD.com, and of course Amazon, are investing in potential solutions. Example vendors: Amazon Kiva Systems (structured environments), Fetch Robotics (unstructured), Locus Robotics (unstructured), and Simbe Robotics (retail scanning robots for product restocking).

5. Virtual Assistants: Personal digital concierges that know users and their data and are discerning enough to interpret their needs and make decisions on their behalf. Developed for the consumer market just a few years ago, these assistants can be used by companies in a business-to-consumer setting (e.g., answer questions at home or augment the work of call center employees) or inside the business organization (e.g., serve as subject matter experts or support business processes). Example vendors: Amazon Alexa, Apple Siri, Dynatrace for ITSM, Google Now and Google Assistant, IBM Watson conversational interface, IBM Watson Virtual Agent, IPsoft Amelia, Microsoft Cortana, Nuance Communications Nina, and Samsung Bixby.

6. Sensory AI: Improving computers ability to identify, "understand," and even express human sensory faculties and emotions via image and video analysis, facial recognition, speech analytics, and/or text analytics. Example vendors: Affectiva, Amazon Lex, Amazon Rekognition, Aurora Computer Services, Caffe, Clarifai, Deepomatic, Ditto, Equals 3 Lucy, FaceFirst, Google Cloud Platform APIs, HyperVerge, IBM Watson Developer Cloud, KeyLemon, Linkface, Microsoft Cognitive Services, Microsoft Cortana Intelligence Suite, ModiFace, Nuance Communications, OpenText, Revuze, Talkwalker, and Verint Systems.

The first 4 categories have been around for a while (Forrester calls them "mature") but have recently become energized by hardware and software innovations. It is interesting to note that the key reason for the recent excitement about and fear of AI —the rapid advancement in a number of narrow AI tasks (e.g. object identification) due to improvements in deep learning techniques—has not contributed greatly to the newly-found sexiness of these 4 categories. But deep learning has been a key contributor to the nascent success of the other 2 hot categories—virtual assistants and sensory AI. My general conclusion from these observations is that the excitement (and fear) generated by specific "triumphs" of AI technologies can obscure for us a very fundamental fact of technology adoption throughout history, including recent history—it takes a very long time. This has important implications for our assumptions and projections regarding the question *when* will AI eliminate (lots of) jobs.