

MACHINE LEARNING AND AI – FROM EASY-ACCESS SERVICES TO COMPREHENSIVE INTEGRATION

by Lev Kiwi

IN SHORT

- With machine learning (ML) and artificial intelligence (AI), companies accelerate innovation, create new experiences and rethink existing processes.
- Individual AI/ML components can easily be implemented in a company's applications.
- With the help of data science managers, companies can comprehensively integrate AI/ML into the business strategy and benefit from them in the long run.



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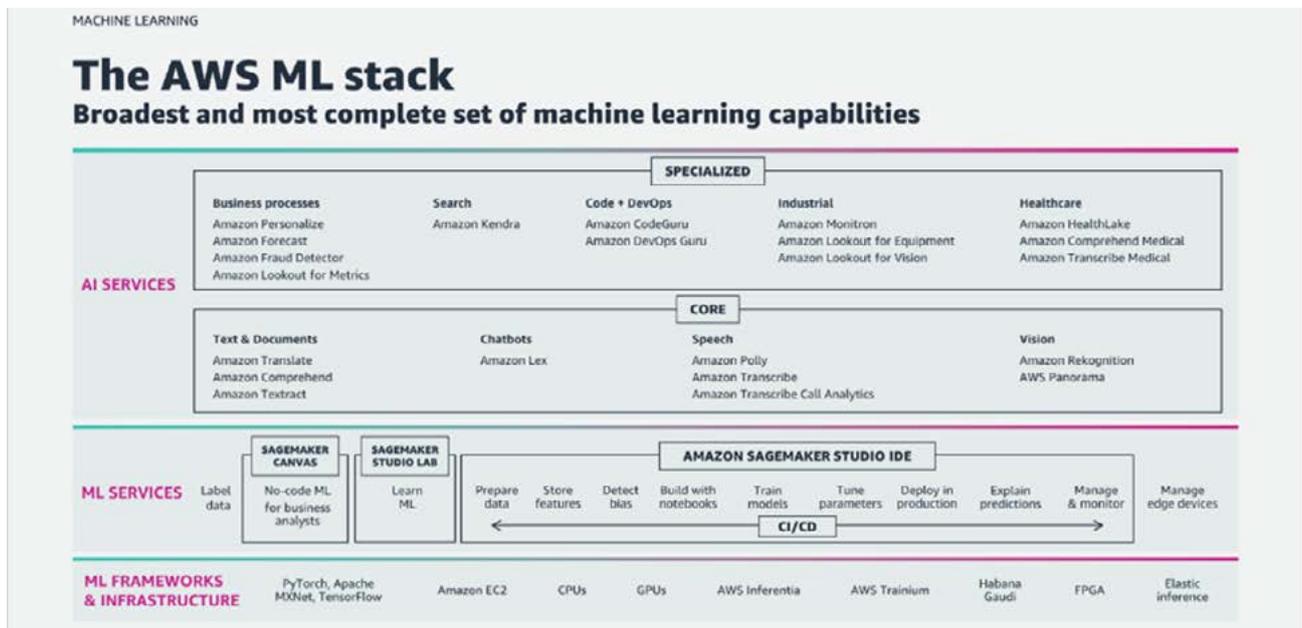
Machine learning (ML) is one of the most disruptive technologies of our generation. It helps accelerate innovation, create new experiences and rethink existing processes. No wonder businesses are increasingly interested in the potential of ML and – by extension – artificial intelligence (AI): According to a survey¹ conducted by the Digital Association bitkom in 2021, every fourth company in Germany plans on investing in AI.

In fact, specific AI/ML services can be easily integrated in a company's existing applications. However, in order to comprehensively use AI and ML and make them part of the company's long-term business strategy, Research and Development teams should consult data science managers.

¹ <https://www.bitkom.org/EN/List-and-detailpages/Press/AI-uptake-for-companies-is-progressing>

WHAT SPECIFIC AI/ML SERVICES ARE READILY AVAILABLE?

To simplify the use of ML, companies like Amazon Web Services (AWS) offer ready-made AI and ML services² that are available for users to take and adapt to their purpose. AWS divides their AI and ML services into three levels:



Source: AWS

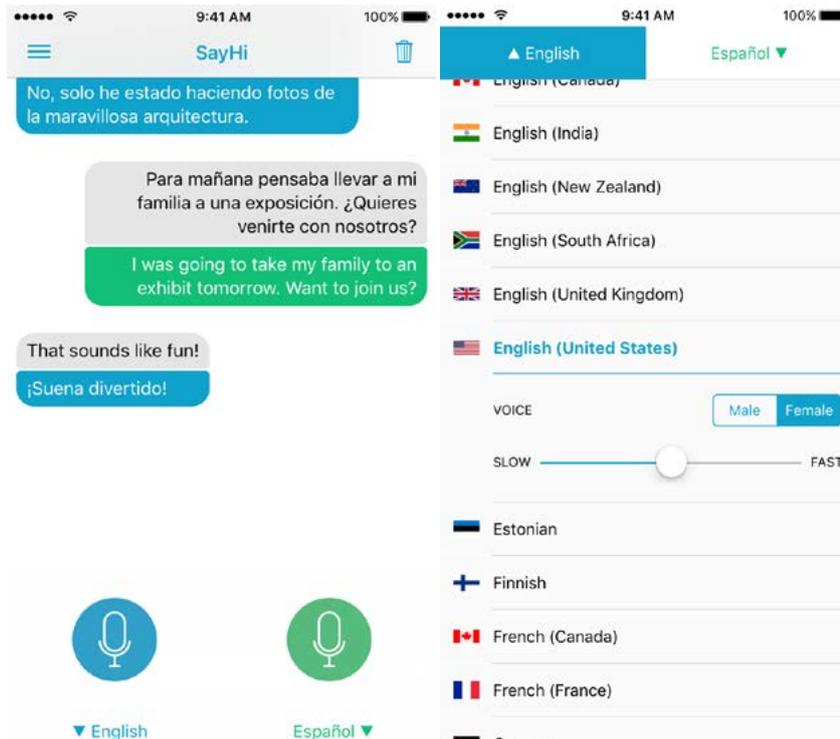
- **ML Frameworks and Infrastructure:** At the lowest level, AWS provides experts in ML with computing power on-demand. Thus, they can build and train their own models using machine learning frameworks and tools such as TensorFlow.
- **ML Services:** For developers who want to use ML, but not build their own ML environment with all the complex and time-consuming steps, AWS offers a managed ML service. Amazon SageMaker, for example, allows any developer or data scientist to build, train, and deploy scalable machine learning models.
- **AI Services:** These enable developers and users to integrate AI into applications without building their own algorithms and without specific AI and ML knowledge. In particular, these services mimic human behavior such as object or speech recognition.

An example for a service made from different AI/ML components is the Amazon sayhi App. It allows conversations in different languages without comprehension problems. What is spoken or written is translated directly into the selected language and the response of the other person is translated back in real time.

² https://aws.amazon.com/machine-learning/?nc1=h_ls

A company wanting to integrate this functionality into their own application can use the following three top-level AWS Machine Learning services:

- 1 Amazon Lex, a service with advanced natural language models to design, build, test and deploy conversational interfaces in applications,
- 2 Amazon Polly, which turns text into realistic speech, and
- 3 Amazon Translate, a neural machine translation service.



Source: AWS

As demonstrated, such readily accessible AI/ML components can be useful, if a company already has an explicit idea of how and for what purpose they want to use AI/ML services, e.g., if they specifically want to integrate a translation system.

However, if a company does not yet have a clear vision of how AI and ML could help them do business more beneficially in the long run, or if they want to go beyond integrating individual services for small use cases, it is advisable to choose another approach: take advantage of the knowledge and experience of a data science manager.

HOW CAN YOU MAKE AI/ML PART OF A LONG-TERM BUSINESS PLAN?

Heads of Research and Development who aim at implementing artificial intelligence and machine learning into their company face challenges that go beyond just having access to individual AI/ML

services. To make AI and ML part of the company's long-term business strategy,

- they need to know the real potential of the new technology for their own business, including specific benefits and risks,
- they need input for a specific AI/ML strategy, e.g. which methodology and technology would be the best fit, and
- they need to be able to explain the importance of AI/ML to business executives.

This is where experienced data science managers come in: they not only have the technical understanding of how to implement a customized AI/ML solution, but also the vision of how AI and ML can benefit a company's specific purpose in accordance with their business strategy and long-term goals. Specifically, data science managers assist Research and Development teams in the following aspects:

RELEVANCE OF AI/ML FOR THE COMPANY

Data science managers can help when it comes to showing the concrete relevance of AI/ML for a company, e.g. with regard to product, growth and engagement. Their holistic evaluation enables Research and Development teams to explain to executives why the topic is important beyond the realms of technology and to motivate them to engage with it.

EXAMPLES FOR AI/ML SOLUTIONS

Experienced data science managers provides real examples for AI/ML solutions: How and where can AI/ML even be integrated? What solutions have already been realized in other companies? This way, they help Research and Development teams generate ideas for their own applications. Moreover, they empower the team to independently talk about AI and ML and when they would be beneficial to use.

MANAGING EXPECTATIONS

Due to their visionary abilities, data science managers support Research and Development teams in managing the various expectations regarding what opportunities AI and ML services provide. Based on their experience with other projects, they can clearly point out what is possible in terms of AI and ML for a specific company and thus establish realistic expectations within the wider company context.

SPECIFIC PATH TO INTEGRATE AND USE AI/ML

Last but not least, data science managers can outline individual paths to use AI and ML methods meaningfully. For this purpose, they rely on a well-established methodologies³ like the CRISP-ML (2021) (CRoss Industry Standard Process for Machine Learning). It consists of different phases in which they are in close consultation with a company's Research and Development team as well as with the business side.

Offers⁴ like those of Trivadis – Part of Accenture allow companies to benefit from the vision, experience and knowhow of data science managers and learn more specifically about the potential of AI/ML for their own business.⁵

CONCLUSION

- Companies are increasingly interested in ML/AI services helping them accelerate innovation, create new experiences and rethink existing processes.
- Amazon Web Services (AWS) provides individual AI/ML components which companies can use for their own applications.
- If a company wants to comprehensively integrate AI/ML into their business strategy and benefit from them in the long run, data science managers help find the right path.
- Data science managers help Research and Development teams show executives the importance of AI/ML for their specific company, generate ideas for their own AI/ML applications on the basis of real examples, manage expectations, and lay out a path for companies' individual AI/ML projects.

³ Studer, S et al. (2021). Towards CRISP-ML (Q): a machine learning process model with quality assurance methodology. *Machine Learning and Knowledge Extraction*, 3(2), 392-413.

⁴ <https://www.trivadis.com/en/offers/business-analytics>

⁵ Your Trivadis – Part of Accenture contact will be happy to inform you further about the individual offers in the realm of AI and ML, e.g. the upcoming AI/ML orientation workshop.

ABOUT THE AUTHOR

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