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## Deep Learning Tools are Shaping Corporate Real Estate Today

What Are You Doing About It in Your Organization?

By Abhinav Somani, Chief Revenue Officer, LEVERTON Corporation

*"One machine can do the work of fifty ordinary men. No machine can do the work of one extraordinary man."* – Elbert Hubbard

Whether we realize it or not, with Siri, Alexa, Google, and Facebook, we have already started to become contributors to the great consumer focused Artificial Intelligence (AI) disruption. Enterprises, on the other hand, have been slow to figure out the vast AI landscape and how to pragmatically adopt the disruptive technology in order to make efficient use of the three key factors that fuel their engines: time, money, and data.

### UNDERSTANDING AI VS. DEEP LEARNING

AI are machines that imitate or mimic human capabilities and behavior, such as driving cars, reading books, or playing chess. Machine Learning is a subfield of AI, where computers can learn without being explicitly programmed – i.e., we don't write rules for the program, the program writes its own rules.

#### Rules Based Programming

It's impossible to think of every single situation in a rule based world!

1. Do not touch hot Macaroni & Cheese.
2. Do not touch stoves.
3. Do not touch fires.
4. ...

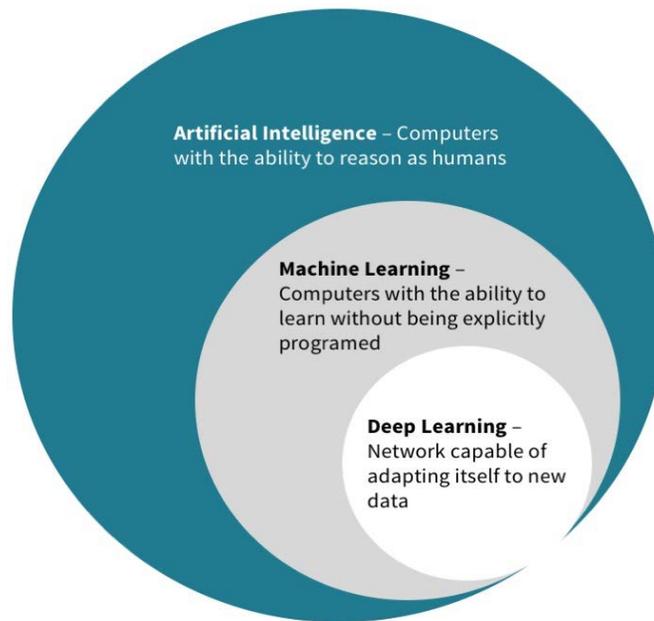
VS

#### Machine & Deep Learning

Learn by examples

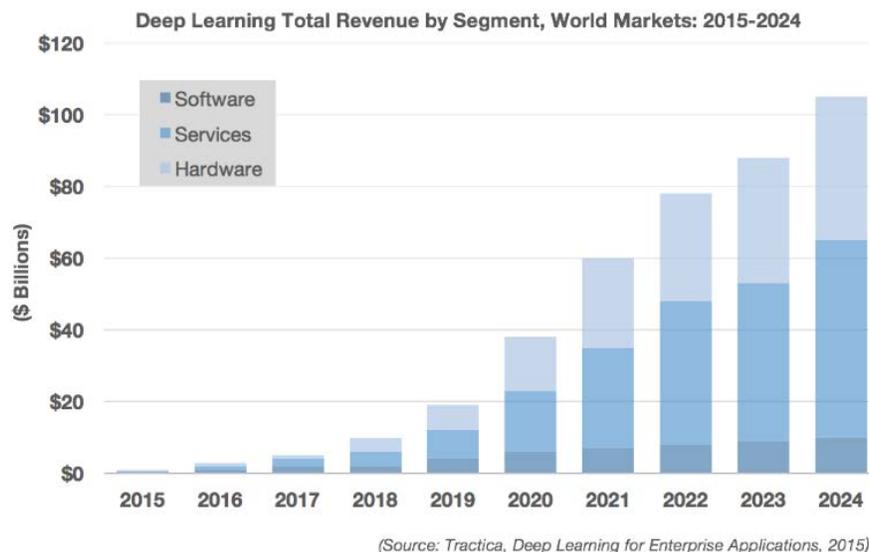
- Macaroni & Cheese is hot. Understand that one should not touch hot things.
- Hot stove is not touched
- Hot fire is not touched

Deep Learning is a class of Machine Learning algorithms programmed to imitate functions of the human brain, or "artificial neural networks", with the aim of solving complex problems the way human brains do. Deep Learning is seen by many experts as our most realistic progress towards "true AI".



## THE MARKET FOR DEEP LEARNING WILL GROW TO OVER \$100 BILLION

The relevant market for Deep Learning technologies is expected to grow dramatically even though it is still early days. A recently published research report estimates that by 2024 the total market for Deep Learning software, services, and hardware will exceed \$100 billion in annual revenue. The software for enterprise applications of Deep Learning alone is expected to rise from \$109 million in 2015 to \$10.4 billion in annual revenue in 2024.



While certain industries have started recognizing the importance of AI, Corporate Real Estate has been rather slow to figure out ways in which to adopt and utilize AI. Nevertheless, industry experts and thought leaders are confident that adopting AI technologies is the next step which will disrupt global businesses, as AI has the potential to increase economic growth rates by a weighted average of 1.7 percentage points by 2035 across

several major industries<sup>1</sup>.

## THE APPLICATION OF DEEP LEARNING IN CRE TO SAVE TIME AND MONEY

There are various AI based assistance and virtual tools being developed for use in real estate i.e., think chat bots supporting brokers, property search, and evaluation tools. One of the largest use cases of where Deep Learning can fully exhibit its capabilities has been seen in the automation of “data extraction”.

Deep Learning can be used to train algorithms to identify and understand text. The learning happens through repeated exposure of the computational model to a term and terminology until it learns to recognize those words through natural language processing. A computational model can thus be trained to read and understand corporate documents, such as real estate contracts, mortgage agreements, and certificates of insurance. Anyone who has ever reviewed a complex real estate lease understands the complexity and nuances that these documents have in them. The value in being able to automate all or parts of the comprehension of these documents can be substantial.

Large organizations such as Jones Lang LaSalle (JLL), a leading professional services and investment management company that specializes in real estate services, are already adapting an AI-powered platform to accurately and efficiently extract key data from thousands of contracts and leases. This process is currently managed in a mundane, time consuming, and costly manner by many organizations in CRE, accounting, and law.

The following real-life case study shows us how this technology is impacting CRE today:

### THE PROBLEM

JLL is required to evaluate and analyze thousands of lease contracts every year on behalf of their clients, brokers, and research institutions. Lease abstractors search and find the most relevant data within these documents and manually feed it into ERP, Visualization, and Analytics solutions. Additionally, every time a lease gets amended or when a customer wants to know where a certain piece of information is contained within the document, the whole contract is screened again. This process is tedious, repetitive, costly, and time consuming.

### THE OBJECTIVE:

JLL aimed to simplify their lease abstraction process, creating actionable and structured data for their portfolios. Technology should be leveraged to increase efficiency, diminish costs, and enable better transparency instead of manual abstraction and archaic searches for certain data points.

### THE SOLUTION:

The use of a Deep Learning technology was an ideal solution. The AI software accelerated the process of data extraction, and provided JLL with a platform with a workflow that structured the process from data extraction to the transfer of the data into their target systems - accounting system or a visualization and analytics tool.

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<sup>1</sup> Accenture and Frontier Economics, “AI RESEARCH HOW 10 AI BOOSTS INDUSTRY PROFITS AND INNOVATION”, By Mark Purdy and Paul Daugherty

JLL's team adapted this software, which also created an underlying hyperlink to connect each data point to the source in the document. This enabled details like rent, area, renewal options, or terms of the contract to be easily understood with only one click. The structured data was now easily accessible for future use from anywhere at anytime via tablet or mobile viewing.

## THE RESULT:

In 2016, JLL signed a global contract to implement LEVERTON's Deep Learning technology, making data accessible from all over the world and creating a base for *substantial big data analytics*. Utilizing LEVERTON and JLL APIs, the data was easily transferred into their real estate management system reducing the margin of human error, time, and costs. JLL now has an end-to-end solution in place that turns unstructured data hidden in thousands of documents into easily accessible structured and actionable data.

## STRUCTURED DATA IS THE NEW OIL

Corporations generate and have access to vast amounts of data, but much of it is unstructured in the form of decades of contracts, leases, emails, files, etc. Without a smart platform for gathering, processing and reviewing the data, organizations will fail to make real data driven decisions out of the abundant farms of data they are sitting on. Competitiveness, as already displayed by some of the largest corporations in the world, will be driven by the smartest people in the room utilizing the smartest data in the world.

Natural Language Processing utilizing AI is extremely powerful because it not only finds text, but it interprets the language to help make better business decisions. This is where Deep Learning can help businesses to scale faster and more efficiently. With less need for manual data aggregation and document reviewing, more time can be spent on processing, analyzing, and acting upon the data. Already, C-suites across the world are creating digital and analytic dashboards that are giving them greater insights into their business and the ability to see what will happen next through scenario analysis.

Deep Learning is converging with other data analytics systems enabling organizations to be able to understand different patterns, run comparisons, understand differences across not a few, but millions of multilingual documents within a few clicks. Additionally, the technology enables accurate and up-to-date data, which helps to significantly simplify and accelerate organizational processes such as annual reviews or due diligence periods.

AI tools can save corporations significant time and effort in manual labor hours enabling them to use big data for impact evaluations. Cornelia Thaler, a partner at Clifford Chance, a multinational law firm headquartered in London, said that "Traditionally a lawyer needs three to five hours to examine one lease file. With deep learning tools for data extraction, only 20 to 45 minutes are needed." Imagine the difference that could be made if *within a few clicks one could figure out which objects within a global portfolio will trigger a renewal option within the next 12 months* instead of spending hours sifting through 500 lease contracts to collect the relevant data.

Finally, according to Rob Parker, Senior Portfolio Manager, Global Occupier Services at Cushman & Wakefield, "Future AI technologies could be used for accurate, detailed and up-to-date logging of documentation especially

with the increased reporting requirements under the upcoming US GAAP ASC 842 / IFRS 16 regulations”<sup>2</sup>. Some organizations, at the forefront of adapting new technologies, have already started using AI tools to simplify their transitions to the new lease accounting guidelines.

## CONCLUSION

So AI isn’t just for making our homes smarter or having our cars drive themselves or ordering a pizza by thinking about it. AI can generate significant time and cost savings in enterprises too. Structured data is an intangible asset, which is crucial for competitive advantage, precise reporting, and future forecasting and big data analytics. The question is – has your company figured out its AI strategy before your competitors do?

## ABOUT THE AUTHOR

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Abhinav (Abe) is an experienced investment, financial, technology, business development, and operations strategist. He is currently the Chief Revenue Officer for LEVERTON, residing in New York City. Abe has worked with many law firms and institutions over the years and has a deep understanding of the real estate technology / CREtech / PropTech space. With LEVERTON, Abe is revolutionizing how corporations use artificial intelligence based machine and deep learning algorithms for data extraction.

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<sup>2</sup> “Artificial Intelligence and Machine Learning in Real Estate” by Rob Parker MRICS.

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