A.I. IMPACT
ON S2C & P2P

Towards the end of a significant part of Procurement tasks

CKS

A glimpse into the future of Procurement

Over the years, the role of procurement evolved from recording supplier information to influencing business decisions.

With the rise of A.I.-powered solutions, Procurement professionals have become intrigued and perhaps scared regarding this so-called revolution. How will the future look like? What should Purchasing Departments do to start their A.I. transformation? How to avoid making mistakes in this new technological journey?

Artificial intelligence will shape our future more powerfully than any other innovation this century. Anyone who does not grasp it may soon find herself or himself missing the trA.I.n of future procurement.

CKS has conducted a study to analyze the full impact of A.I. on both S2C & P2P tasks. With the help of our network within the Procurement world, we managed to gather many opinions from different industries leaders. Our A.I.m is to highlight the potential time saved per task and guide Purchasing Departments in their automation and A.I. journey. Indeed, we envision a future in which Procurement professionals have a better control of their environment and time, allowing them to focus on added-value tasks.

A.I. promises to boost Procurement productivity exponentially, as well as, enhancing overall performance of the organization. As the world becomes more data-driven, organizations are trying to mitigate the risk of being left behind in this data race. In 2025, we believe that 35% of Procurement related tasks will be automated or made pointless by technology. The only question left is: will you be ready to turn this information into an asset.
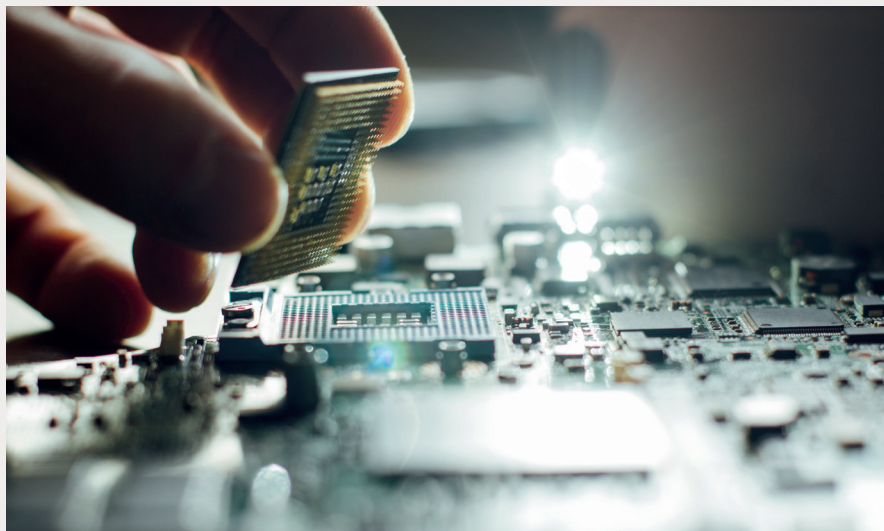
Understand A.I.

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Before getting into Procurement tasks, we must understand a bit more on what is A.I. in the context of Procurement.
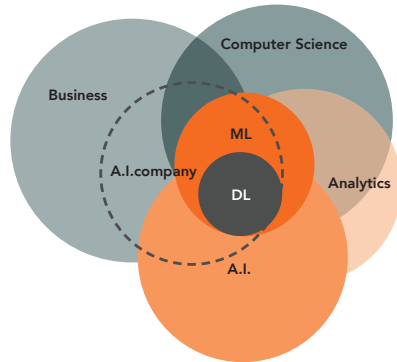
(1)

A.I. IS NOT MAGIC!

Artificial Intelligence is basically any intelligence demonstrated by a machine that leads it to an optimal or suboptimal solution given a problem. In more complex and precise words, we should say that A.I. is a branch of computer science dealing with the simulation of intelligent behavior in computers.
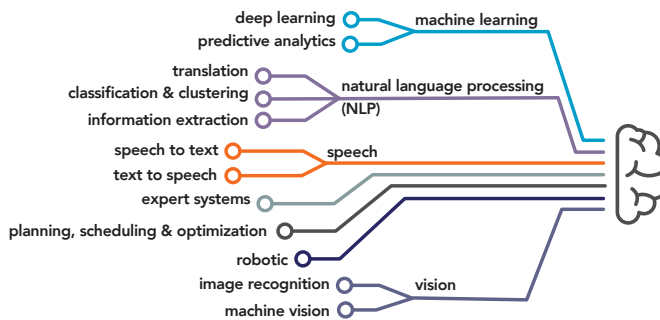

(2)

A.I. HAS DIFFERENT FIELDS.

The term A.I. covers several different fields. The most famous one is called Machine Learning (ML). It is the study of algorithms and statistical models that computer systems use to perform a specific task without using explicit instructions, relying on models and inference instead. Other worth mentioning fields are Natural Language Processing (NLP), Robotics, Computer Vision and Speech.

42%

Procurement leaders declaring that they intend to integrate within the next 3 years
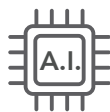
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BASICS OF A.I.

1. A.I. needs data... a lot of it! In order to predict the outcome of a possible action, an A.I. must learn from data. The more the data, the more it learns.
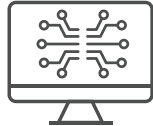
2. A.I. often revolves around the use of algorithms. An algorithm is a set of unambiguous instructions that a mechanical computer can execute.

3. Most A.I. is Supervised Learning, where the examples for trA.I.ning are given to A.I. along with labels, a description or transcription of each example.

40%

Procurement leaders declaring that they intend to integrate AI in their purchasing processes within the next 3 years

Another issue is information, Procurement professionals are surrounded with data and as a consequence, it has become a challenge to find the exact piece of information needed in a relative fast way. It is hard to believe that despite the ever-growing number of tech devices around us, most of the research process is still performed manually. The other side of the coin would be information analysis. Indeed, Procurement professionals need to go through an important amount of data to determine if a document can be used. All these not only consume a larger time of workforce but are also prone to human error.

A.I. will help us automate most tasks and focus more on value-added elements.

Procurement Director from the construction industry

A.I. Application in Procurement

A.I. has started to impact Procurement in many ways through Natural Language Processing, Machine Learning and Deep Learning.

Machine Learning (ML) is perhaps the most famous A.I. field, with the rise of big data, machine learning has become a key technique for solving problems in many areas. In Procurement, ML can already predict contract consumption and compliance, produce predictive analytics for stock, recommend the best ways to process the purchase request, turn data into information, make sure suppliers are financially viable and stable, etc.

Indeed, Procurement professionals can apply machine learning to determine the most competitive rate to negotiate, and also discover the best contract terms that will help the partnership become more successful through as-promised delivery and on-time payment. If you ever start your A.I. transformation, you will certA.I.nly begin with Machine Learning.

Deep Learning (DL) is part of a broad family of methods used for machine learning that are based on learning representations of data. Deep learning is a specific approach used for building and trA.I.ning neural networks, which are considered highly promising decision- making nodes. It is an advanced form of A.I.. Procurement professionals will probably not rely a lot on this technology in the upcoming years. Indeed, only a few research papers exist about this topic.

Natural Language Processing (NLP) is the A.I. field related to language comprehension. It helps computers understand, interpret and manipulate human language. The development of voice-based virtual digital assistants is a direct consequence of recent developments in this field. Procurement professionals are using it to extract, compare and classify data. Just imagine having to analyze several contracts written in different languages... Well an A.I. with NLP technologies can do it faster and highlight mistakes for you.

Procurement Leaders top expectations with A.I.

End repetitive tasks — 62%

Find Patterns — 20%[1]

Make predictions — 10%

Create Strategy — 8%
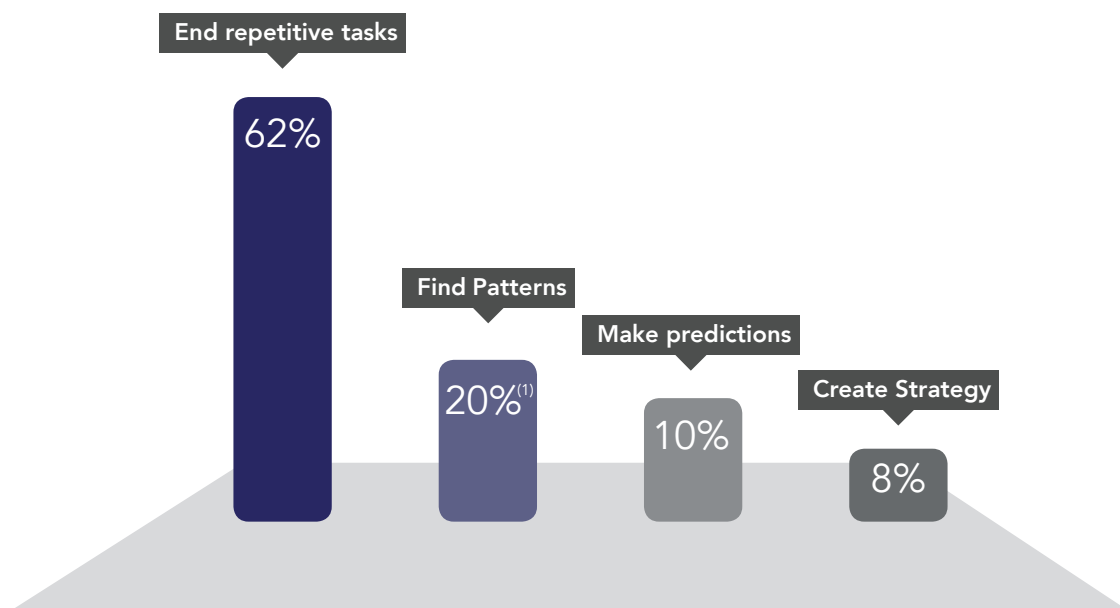
(1) « Find Patterns is about identifying similarities in raw data in order to make decisions. »

S2C & A.I.

Covering all the core procurement activities from opportunity assessment, through strategy planning, sourcing and negotiations, and contract origination, S2C is perhaps a bit easier for strategic decisions A.I. development. The following chart presents all the existing tasks in the S2C process, the weight it represents on the buyer workload it represents for each of them and the estimated time that may be saved thanks to A.I..

TASKS	BUYER'S CURRENT WORKDAY[1]	POTENTIAL TIME SAVINGS WITH A.I.
Programming and monitoring the activities	2%	48%
Defining the purchasing strategy	6%	16%
Sourcing qualified vendors	6%	32%
Drafting the endering documents	20%	32%
Conducting the tendering process, analyzing the offers	25%	24%
Negotiating the offers	10%	8%
Contracting with vendors	8%	24%
Implementing the contract and dealing with administrative tasks	10%	32%
Measuring the performance, assessing supplier compliance and risks	8%	48%
Monitoring the execution of the contract	5%	40%

28%   Total Potential Time Savings on S2C process by 2021

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(1) « Average amongst several industries combined. »

P2P & A.I. | • | • | • | • |

The Procure-to-Pay (P2P) side of procurement is also significantly impacted by A.I.. Today, P2P involves processes which are heavy in volume, highly transactional in nature and that need a significant investment of both time and resources. The following chart presents all the existing steps in the P2P process, the the weight it represents on the buyer workload it represents for each of them and the estimated time that may be saved thanks to A.I..

TASKS	BUYER'S CURRENT WORKDAY[1]	POTENTIAL TIME SAVINGS WITH A.I.
Managing vendors offers/catalogs (Articles, Prices,...)	15%	52%
Submitting and approving Purchase Requests	20%	40%
Creating and issuing purchase orders	15%	24%
Receiving goods and services	10%	8%
Reconciling invoices with POs and receipts	15%	16%
Paying vendors	5%	8%
Analyzing spend and budget implementation	20%	32%

29%   **Total Potential Time Savings on P2P process by 2021**

HOW DID WE ESTIMATE THE A.I. IMPACT?

The positive impact of A.I. on productivity has been proven and largely covered by many experts (incl: Rodney Brooks). With the help of data scientists and procurement professionals, we have calculated the time impact percentage on each task, taking into consideration all A.I. fields and where technology will be in 2021. Over the years and through numerous missions, CKS has gathered a lot of data related to the amount of time procurement professionals spend on each task. Recently, CKS started to gather even more data through their tool called OPC that can manage the workload of buyers.

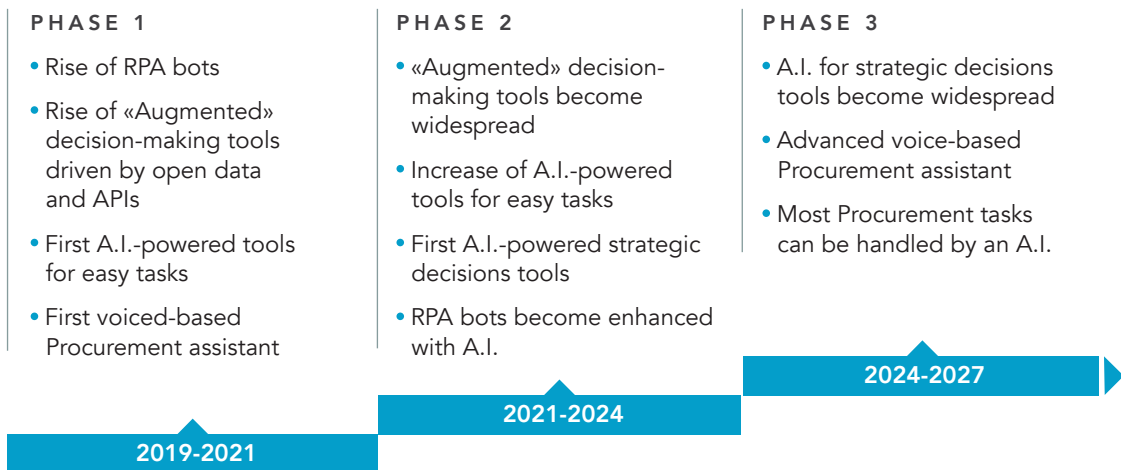(1) « Average amongst several industries combined. »

New Procurement

Based on our analysis, we predict that S2C will become more predictive and intuitive than today. Several tasks can be immediately impacted by A.I. tools. Open data culture and APIs will further accelerate the development of solutions for sourcing, costs, prices and value analysies. Procurement Professionals in the Procure to Pay (P2P) area will see their work routine become more routinized and require less human intervention.

In general, leveraging better data (both internal and external) from the S2C and P2P processes, advanced analytics, and better data visualization, Procurement can provide better evidence-based options for decision making and improve the accuracy of strategic decisions.

The real challenge of "augmented tools" would be to give access to new data and analyze them with existing ones to generate exclusive information, while combining A.I.-powered solutions to also automate several tasks. For organizations, today's maturing and emerging solutions tend to be much quicker and easier to deploy. Some of these solutions use Software as a Service (SaaS) models and do not need significant preparation of data or systems. The new procurement age can start today!

Timeline of main technological events

PHASE 1

- Rise of RPA bots
- Rise of «Augmented» decision-making tools driven by open data and APIs
- First A.I.-powered tools for easy tasks
- First voiced-based Procurement assistant

2019-2021

PHASE 2

- «Augmented» decision-making tools become widespread
- Increase of A.I.-powered tools for easy tasks
- First A.I.-powered strategic decisions tools
- RPA bots become enhanced with A.I.

2021-2024

PHASE 3

- A.I. for strategic decisions tools become widespread
- Advanced voice-based Procurement assistant
- Most Procurement tasks can be handled by an A.I.
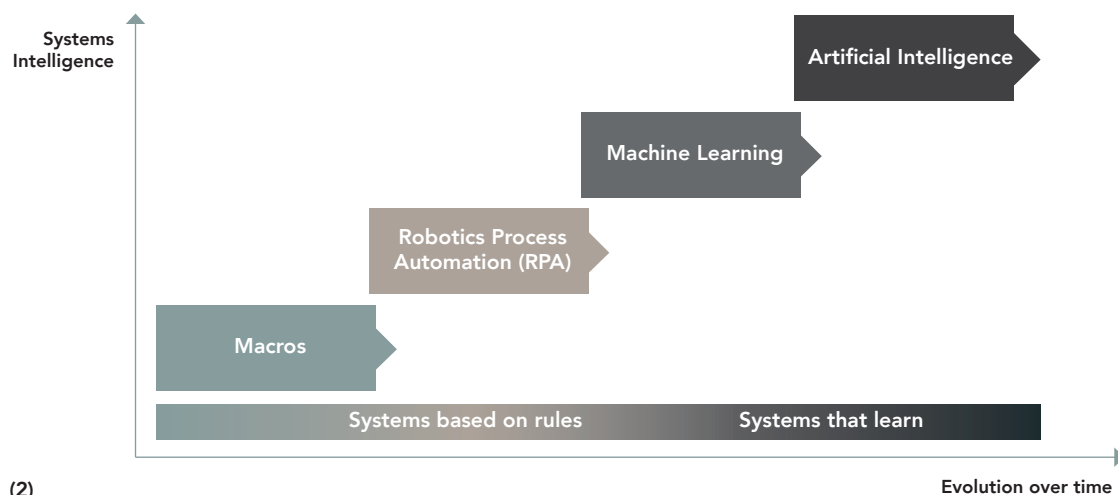
2024-2027

A.I. Integration

The A.I. transformation of your organization requires a certA.I.n experience with data management and certA.I.nly a shift in your Procurement processes. Most organizations have decided to start with small, incremental and cautious A.I. integration while a few have decided to begin a radical and yet promising full A.I. strategy.

36%

of Procurement leaders think A.I. will be difficult to integrate[1]

We noticed that many decisions makers have chosen the first solution, the cautious one. In other words, they are slowly preparing to transition from outdated tools to more "advanced procurement solutions" powered by augmented analytics and data visualization. Furthermore, many decision makers declared that they would prefer to first adopt more RPA (Robotic Process Automation) based solutions (bots) and later A.I.- powered alternatives. From a technological point of view, this is a rational choice. Indeed, A.I. is a natural evolution of RPA.

37% of Procurement leaders interviewed declared that they want A.I. solutions that can seamlessly integrate with their existing tools. 46% declared that they do not have a solid data culture to support an A.I. adoption without external help. The perfect and safe strategy is to identify one work practice and begin the automation process with it. It will help save time for organizations, while at the same time, enable them to start learning on how to work alongside A.I..

Systems Intelligence

Artificial Intelligence

Machine Learning

Robotics Process Automation (RPA)

Macros

Systems based on rules   Systems that learn

(2)   **Evolution over time**

Towards Advanced Procurement

The future of procurement looks like a healthy combination of automation, analytics and human workforce whose synergy will take the procurement function to the next step.

Buying and selling has always been a social function driven by people. New technologies will just make business more personal, contextual, intelligent and efficient in the years ahead. In the process, procurement will become less tactical and more strategic.

> **A.I. will strengthen Procurement department importance within every organization.**
>
> **Procurement Director from the luxury industry**

CKS Predictions   « PURCHASING CONTROLLING »

1 Some Procurement tasks will dissapear, other will appear. The « Category Management » and « Purchasing Controlling » functions will significanty become more important.

2 The rise of Open data and APIs will further accelerate the adoption of A.I. Procurement solutions and pave the way to « augmented « decision-making tools.

3 Procurement decision-makers will rather integrate A.I. solutions to their existing solutions rahter than abandoning their existing solutions.

Sources

1. https://rodneybrooks.com/the-productivity-gA.I.n-where-is-it-coming-from-and-where- is-it-going-to/

2. https://www.forbes.com/sites/forbestechcouncil/2018/03/22/A.I.-can-help- procurement-reach-the-high-hanging-fruit/

3. http://www.gbsroadmap.com/will-machine-learning-save-procurement-millions-a-year

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