

Digital Transformation for the Development of the Global Economy (Technique RPA in the cloud)

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Abstract:

The Corona pandemic has shown the great importance of digital technology, and it is expected that most countries of the world will resort to digitising and cryptocurrency reserve during the next ten years 'in order to ensure continuity in the work sectors and the workforce, and that it will bring many advantages if it is exploited well, especially if it increases organizations' interest and desire for digitisation This will lead to a significant increase in production levels and thus the economy as a whole.

The main objective of this study is to encourage digitisation for the sake of developing the economy, reviewing the necessary support and incentive systems and working with a perspective based on increasing digital competencies at all levels of education.

To do this, the researcher relied on a descriptive analytical approach to study the role of digital transformation in order to develop the economy using RPA technology on the cloud, and to identify the aspects that can be benefited from.

The results indicate that the digitisation process will bring many advantages if it is exploited well. Therefore, it is necessary to study the requirements related to digital transformation correctly and to know the capabilities of humans and commercial.

Keywords: Digital transformation; global economy; Artificial intelligence; RPA platform.

Jel Classification Codes: C88, 033, 014.

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1. INTRODUCTION

The influence of these significant changes on the way the economy operates has been a key concern for economists and policymakers in the period of the Fourth Industrial Revolution, Artificial Intelligence, and Digital Transformation. These changes are specifically anticipated to impact the rate of economic development, employment rate, and labor productivity, among other things. Some people's lives can be made easier by digital change, while others may find it more difficult. It has the potential to accelerate economic progress, but it also has the potential to impede it if the proper structure for its integration is not real. The effects are still unknown and will vary depending on a number of variables, such as the degree of development, the number of people living in the country, the rate of unemployment, and the standard of human and material capital.

This research looks at the advantages of digital transformation, as well as its obstacles and chances for success.

The effect of the digital revolution on the world economy in COVID-19 is investigated in this study.

The results showed that the process of digitisation will bring many advantages if it is exploited well. Therefore, it is necessary that the requirements related to digital transformation are properly studied and the capabilities of human and commercial resources are well known. While the digital revolution is a global phenomenon, huge disparities remain among countries in terms of the penetration, affordability, and performance of

digital services. This persistent digital divide is likely to further exacerbate inequalities and create a new layer of “digital poverty”.

The paper is divided into three sections besides the introduction and conclusion.

Section 1 introduces digital capability: definition, elements, and framework.

Section 2 describes digitalisation and its impact on the economy.

Section 3 presents the RPA technology in the cloud.

Problematic:

What is the role of digital transformation in promoting global economic development?

How important is cloud RPA for digitising businesses?

Sub-Question:

What is meant by digital capabilities?

What is the importance of adopting a digital economy?

What is RPA technology in the cloud?

Has the economy benefited from the development of digitisation and the transition to artificial intelligence?

Study Hypotheses:

1. The "link" that connects the five pillars of the digital economy—digital entrepreneurship, digital platforms, digital infrastructure, digital financial services, and digital skills—is represented by digital capabilities.

2. Using digital solutions increases the likelihood that business continuity will be maintained in times of disaster, like the coronavirus outbreak that is currently plaguing the world.

3. The term "cloud automation" describes the use of robotic process automation and artificial intelligence (RPA++) software that is web-based and cloud-based to automate commercial activities;

4. Yes, but not at the expense of the current traditional industry form's ability to satisfy consumer demands.

Objective of the study:

This study aims to learn about the benefits of digital transformation for

Affects the entire organisation - from IT, Sales, HR and beyond. Explore challenges and uncover opportunities to ensure digital transformation success.

Study Methodology:

The researcher relied on the descriptive analytical approach to study the role of digital transformation in order to develop the economy using RPA technology on the cloud and to identify the aspects that can be benefited from.

2. Digital capability: Definition, elements, and framework

2-1 Definition:

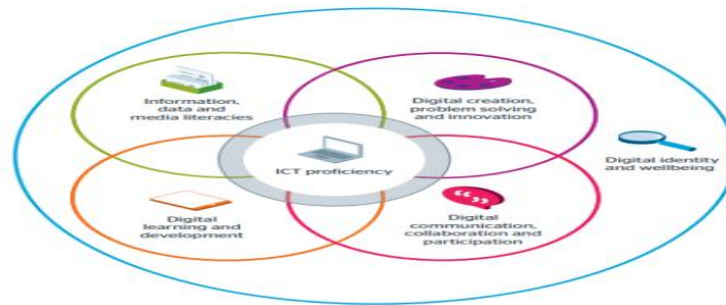
Digital capabilities are an essential component of today's corporate environment, enabling organizations to revolutionize their business models, operational procedures, and consumer experiences. The majority of businesses discover that in order to manage digital transformation, they need to create new units or employ additional capabilities, even if many CIOs and current IT departments are qualified to lead some digital efforts. The ability to work with specialized technologies like social media and mobile in addition to basic IT knowledge, as well as the analytical abilities needed to extract value from large data.

Digital Capability is an important part of the digital business. Many companies are transforming into digital-first organisations. This requires a comprehensive strategy that starts with the company's culture and encompasses people, organisational structures, processes, and tools. (Westerman, 2012)

2-2Elements of digital capabilities:

The discovery tool provided by Jisc provides individuals with the opportunity to understand and build their digital capabilities through a series of questions. The tool will help all staff explore digital capabilities and assess what they can do to build their skills and experience across the **six digital capabilities** (see diagram) to suit their own needs. After answering the questions in the tool, the user is provided with a diagram that reflects their current level of digital capability, which they can compare with others.

Fig(1): Digital capabilities: The six elements



Source:Beetham H (2015). Building digital capability: the six elements defined. Retrieved from http://repository.jisc.ac.uk/6239/1/Digital_capabilities_six_elements.pdf

The competencies that workers in a wide range of academic, administrative, and professional roles require to succeed in a digital environment are outlined in the Six Digital Capabilities Framework (Beetham, 2015):

✓ **Proficient in ICT (functional skills):**

- ICT proficiency: the ability to use gadgets, software, applications, and services based on ICT.
- ICT productivity is the application of ICT-based tools to tasks in an efficient, quality-conscious, and productive manner.

✓ **Critical use of information, data, and media literacy:**

- The ability to locate, assess, handle, select, arrange, and distribute digital information is known as information literacy.
- The ability to gather, organize, access, and utilize digital data is known as data literacy.
- The ability to evaluate and react to messages in a variety of digital media, including text, graphics, video, animation, and audio, is known as media literacy.

✓ **Innovation, problem-solving, and digital creation (Creative production) :**

- The ability to design and/or produce new digital materials and artifacts is known as "digital creation."
- The ability to employ digital evidence to address issues and provide answers in the areas of problem solving and digital research
- Digital innovation refers to the ability to create and implement novel methods utilizing digital technology in various contexts.

✓ **Digital cooperation, communication, and involvement (Participation):**

- The ability to effectively communicate in digital media and spaces is known as digital communication.
- Digital cooperation: The ability to take part in online groups and teams

- Digital participation: the ability to create, support, and engage in digital networks

✓ **Digital learning:** The ability to take advantage of and engage in digital learning activities

✓ **Digital teaching:** Able to assist and nurture others in environments rich in digital resources.

✓ **Well-being and digital identity (self-actualization):**

- Digital reputation management and identity development: Ability to create and present a positive online persona

- The ability to manage one's relationships, work-life balance, safety, and personal health in digital environments is known as digital wellbeing.

2-3 Framework:

The framework's purpose is to provide a jumping off point for continuing discussions about current digital practices. It is also meant to serve as a point of reference for these practices' future development. The framework will assist individuals, disciplines, and organizational units in matching their scholarly and professional goals with their comprehension of digital practices. Over time, each of these groups is expected to increase their level of proficiency in these areas. The framework presents digital capabilities as practices integrated into professional, teaching, and learning activities, and it articulates indicative capabilities. Employees will be urged to modify Digital Capabilities Framework competencies and methods to suit their functional and disciplinary requirements. (Burke, 2020)

- The six digital capability elements serve as the foundation for the digital capabilities framework.
- a staff framework that includes a subset of skills for training staff.
- a structure for learners.
- illustrations of qualities and abilities.
- Dependency on shared accountability for fostering digital literacy.

3- Digitalization and its Impact on the economy:

In 1995, Don Tapscott coined the phrase "digital economy" and explained its meaning to economists, stating that it refers to an economy that is built around the utilization of digital technologies. An alternative definition of the digital economy is a global network of social and economic activities carried out via mobile and touch networks, the Internet, and other platforms. Researchers looking into how digitization affects prosperity have discovered quantifiable stand-ins for each of these six characteristics. As a result, any nation's degree of digitalization can be determined.

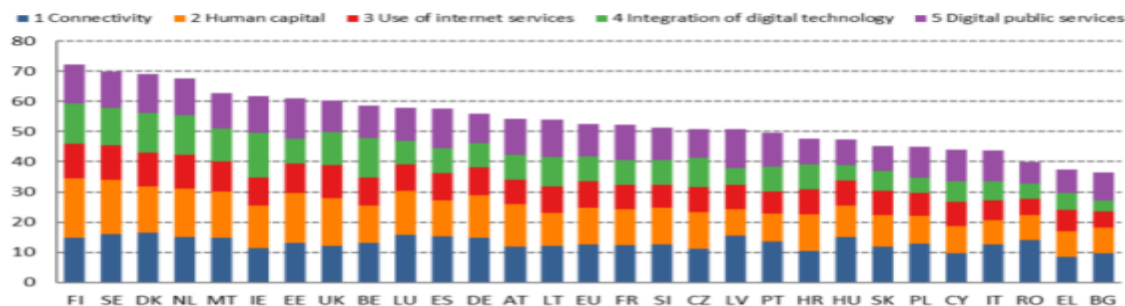
The development of the digital economy is an inevitable process and will become increasingly global in the future. Today, this type of economy is developing rapidly in the leading countries of the world, which actively support the processes of digitalisation and form new national programmes for the digitalisation of society. According to analytical studies conducted by the World Bank, the International Bank for Reconstruction and Development, and other companies, depending on valuation methods, the size of the digital economy is currently estimated at 4.5%–15.5% of world GDP. In the future, this share will increase.

The special attention of regulators around the world to the development of the digital economy and active support for the introduction of new technologies in the economic sphere is directly related to the significant opportunities of the digital world and its ability to

improve the quality of life and increase financial capacity. In this regard, the Digital Economy and Society Index (DESI) was developed to assess the level of technological development and the degree of introduction of innovative technologies in society, including in the economic sphere. (PIVAKOVSKYY, 2021)

Fig. 2 provides information on the components of this index (communications, human capital, Internet use, integration of digital technologies and digital public services) and its significance for developed countries.

Fig(2): Digital Economy and Society Index



Source: Digital Economy and Society Index (DESI) (2020).

<https://ec.europa.eu/digital-single-market/desi>

The development of the digital economy is directly related to the development and implementation of new information innovations in individual business structures. In our country, the processes of digitalisation have not become significant but have arisen and developed locally within separate economic entities. To accelerate the outlined processes, intensify the development of new information products, and import of already formed technologies, it is an objective necessity to create appropriate institutional support for the development of enterprises in the digitalisation of society. (European, 2020)

3-1 Main advantages of functioning in a digital economy:

Use of computer technology, software , and hardware

- introduction of innovations in business processes;
- operation of large arrays of information data;
- Ensuring information protection;
- inflow of new investments;
- increase labour productivity;
- customer focus;
- Speed and efficiency of all functions.

3-2 The economy benefits from the development of digitalisation and artificial intelligence

The global workforce is undergoing a massive technological shift that many call the “fourth industrial revolution.” According to a recent **World Economic Forum report**, nearly a third of the most important skillsets in 2025 will comprise technology skills not yet considered imperative to the job today.

Artificial intelligence (AI) and machine learning (ML) are being embraced by a greater number of individuals, businesses, and governments as rising efficiency and productivity permit exponential growth in certain sectors of the global economy. However, the gap in efficiency and productivity between those sectors and businesses benefitting from AI and

ML versus those that have not is also growing exponentially. This risk leaves those at the bottom further and further behind with less and less chance of catching up with the leaders.

Most countries have only just begun to seriously think about their own AI future, with the majority of the world's larger economies having only announced their own AI initiatives in 2017 and 2018.

The others must contemplate a future in which technological, economic, and military supremacy becomes the domain of those few countries with the deepest pockets, the best AI-oriented talent, and a magnitude of state resources that can be directed towards achieving AI supremacy. (Wagner, 2018)

3-3 Digital Solutions during COVID-19

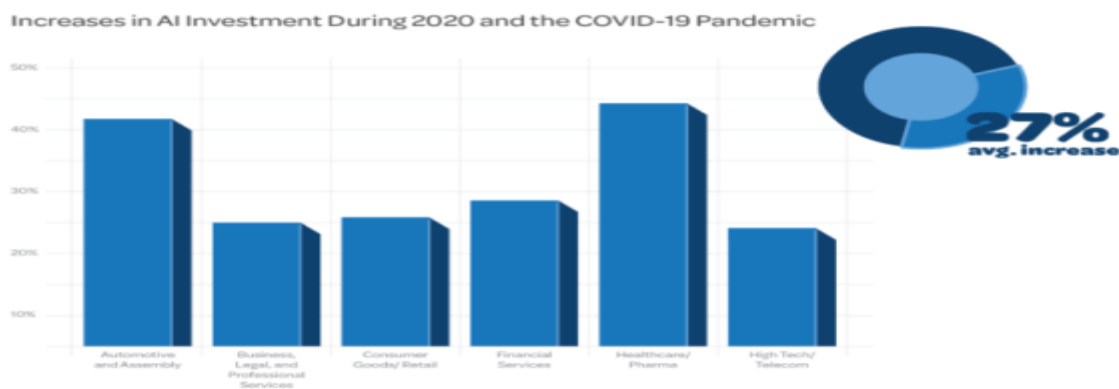
Organizations that embrace digital solutions have greater resiliency despite adversity and a leg up on the competition that will enable them to recover faster and pivot from playing defence to chasing growth.

Under COVID-19, the world has become isolated by necessity. Social distancing is currently the most effective way to slow the spread of the virus until a vaccine can be developed to protect the population. As a result, anything that relies on human-to-human contact—which is to say, most aspects of our lives—must be amended to account for the dangers of the virus.

Digitization has stepped in to bridge the gaps left by mandated shutdowns and social distancing measures. Without digital tools and technologies, we would have no way to work, shop, go to school, and so on.

COVID-19 has severely impacted businesses across the globe. But one thing has become clear: it has accelerated digital transformation, which should change all our lives for the better. Organizations that embrace digital solutions have greater resiliency despite adversity and a leg up on the competition that will enable them to recover faster and pivot from playing defence to chasing growth.

Fig(3): Increases in AI investment during 2020 and the COVID19 pandemic



Source: McKinsey & Company, 2020.

Even during the COVID-19 pandemic, where most industries reduced their total expenses to stay afloat, many companies actually increased their AI investments in 2020.

4- RPA technology in the cloud

A growing number of organisations are moving to the cloud. For robotic process automation (RPA), this raises the fundamental question of whether to deploy RPA as a service (cloud) or on-premises. Businesses often include RPA as a part of their strategy to

lower costs, increase efficiency and productivity, reduce errors, and provide enhanced customer experience.

4-1 Definition

RPA is an application of technology, governed by business logic and structured inputs, aimed at automating business processes. Using RPA tools, a company can configure software, or a “robot,” to capture and interpret applications for processing a transaction, manipulating data, triggering responses, and communicating with other digital systems. RPA scenarios range from something as simple as generating an automatic response to an email to deploying thousands of bots, each programmed to automate jobs in an ERP system. (Boulton, 2018)

4-2 Benefits Businesses Can Enjoy Through Cloud RPA:

Cloud RPA offers a wide range of key benefits to businesses, and some of the most common benefits are discussed below: (Team, 2021)

✓ **Low Infrastructure Costs:** One of the noticeable benefits of Cloud RPA is the massive price or cost reductions. The technology infrastructure required for installing and maintaining the cloud is considerably low compared to other on-premise enterprise tools or solutions.

The requirement for IT support is zero or minimal when integrating cloud computing and RPA. This will in turn result in massive cost reductions regarding the upfront cost of technical infrastructure. TCO or total cost of ownership will also be relatively less.

✓ **Ease of Implementation:** Another impressive benefit of Cloud RPA is the quick deployment of the technology and ease of installation. Several businesses are a bit hesitant regarding adopting automation throughout their enterprise. Cloud RPA does an impressive job of removing the barriers to adopting automation by managing and hosting everything in the cloud. As a result, the installation of optimised and pre-built cloud services will be extremely fast and easy.

- **Ease of Use:** Another important aspect of cloud RPA is that it is incredibly easy to use. In most cases, you will not have to give any kind of special training to use it. All you need to do is simply select a business task or process that needs to be automated. Businesses that already have a robust RPA will be easily able to migrate to the cloud.

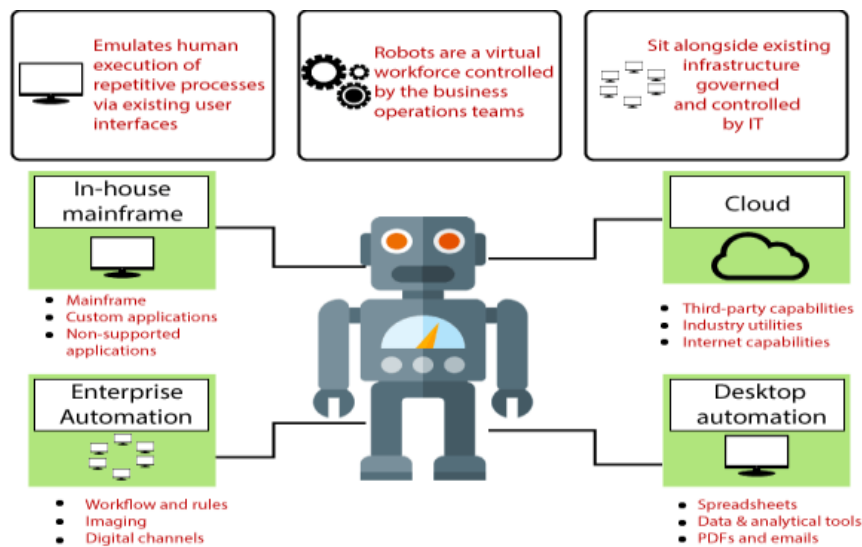
Cloud RPA features an intuitive interface that is optimised across different business functions and verticals to help users. Features such as drag-and-drop AI features, specific design views for separate departments, and built-in product learning ensure an interactive experience for users.

- **Remote Accessibility:** One of the major advantages of integrating RPA with cloud computing is remote accessibility, as you will not have to download and instal software systems on local devices. Email is an excellent example of cloud computing.

Just as you will be able to access an email from any device and anywhere, you will be able to gain access to business automation workflows. Since there is no barrier to location, team collaboration will surely become seamless and effective, which is good for all businesses.

- **Scalability:** Cloud RPA is a very scalable business application; however, it allows businesses to start by automating a few tasks in the beginning. That said, businesses will be able to gradually scale up as their automation requirements evolve.

Most cloud RPA tools are regularly updated. In fact, they are updated once every month or four weeks. This means that businesses will have access to the latest software system with automatic and regular updates, which offers them the bandwidth to deploy new products and work on innovative solutions at an unprecedented pace.



4-3 Recent applications of artificial intelligence in production

A sample of recent uses of AI in production illustrates the breadth of the industries and processes involved: (Nolan, 2020)

In pharmaceuticals, AI is set to become the “primary drug-discovery tool” by 2027, according to **Leo Barella**, Global Head of Enterprise Architecture at AstraZeneca. AI in the preclinical stages of drug discovery has many applications. They range from compound identification and genomic data management to drug safety data analysis and enhancement of in silico modelling .

In aerospace, Airbus deployed AI to identify patterns in production problems when building its new A350 aircraft. A worker might encounter a difficulty that has not been seen before, but the AI, by analysing a mass of contextual information, might recognise a similar problem from other shifts or processes. Because the AI immediately recommends how to solve production problems, the time required to address disruptions has been reduced by one-third.

In semiconductors, an AI system can assemble circuitry for computer chips, atom by atom . Landing.ai has developed machine-vision instruments to identify defects in manufactured products, such as electronic components, at scales that are invisible to the unaided eye.

In the oil industry, General Electric's camera-carrying robots inspect the interior of oil pipelines, looking for microscopic fissures. If laid side by side, this imagery would cover 1 000 square kilometres every year. AI inspects this photographic landscape and alerts human operators when it detects potential faults .

In mining, AI is used to explore mineral deposits and optimise the use of explosives at the mine face (even considering the cost of milling larger chunks of unexploded material). It is also used to operate autonomous drills, ore sorters, loaders, and haulage trucks. In July 2017, BHP switched to completely autonomous trucks at a mine in Western Australia .

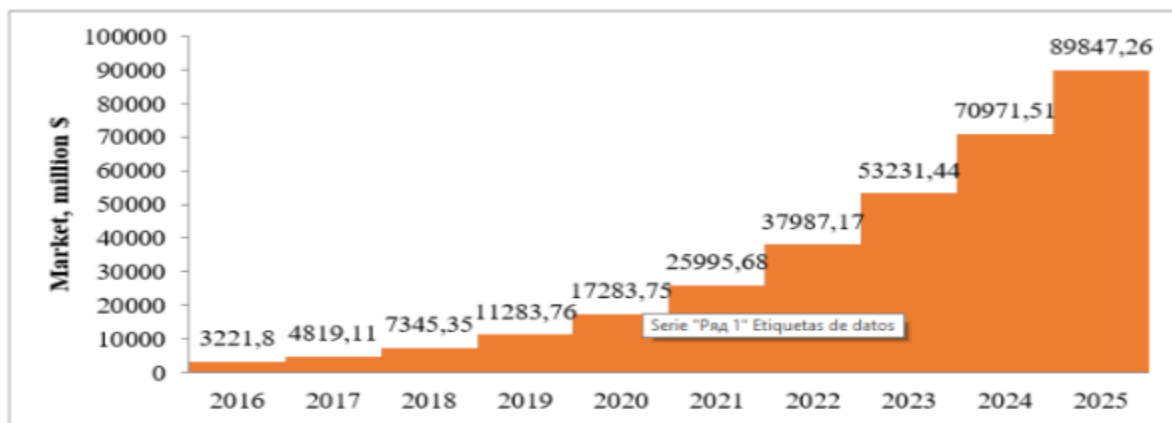
In construction, generative software uses AI to explore every permutation of a design blueprint. It suggests optimal building shapes and layouts, including the routing of plumbing and electrical wiring. Furthermore, it can link scheduling information to each building component.

AI is exploring decades of experimental data to radically shorten the time required to discover new industrial materials, sometimes from years to days .

AI enables robots to take plain-speech instructions from human operators, including commands unforeseen in the robot's original programming.

Finally, AI makes otherwise unmanageable volumes of Internet of Things (IoT) data actionable. For example, General Electric operates a virtual factory permanently connected to machine data to simulate and improve even highly optimised production processes. To permit predictive maintenance, AI can process combined audio, video, and sensor data, and even text on maintenance history. This can greatly surpass the performance of traditional maintenance practices.

Fig(4): Revenues from the global market of AI from 2016 to 2025, million \$



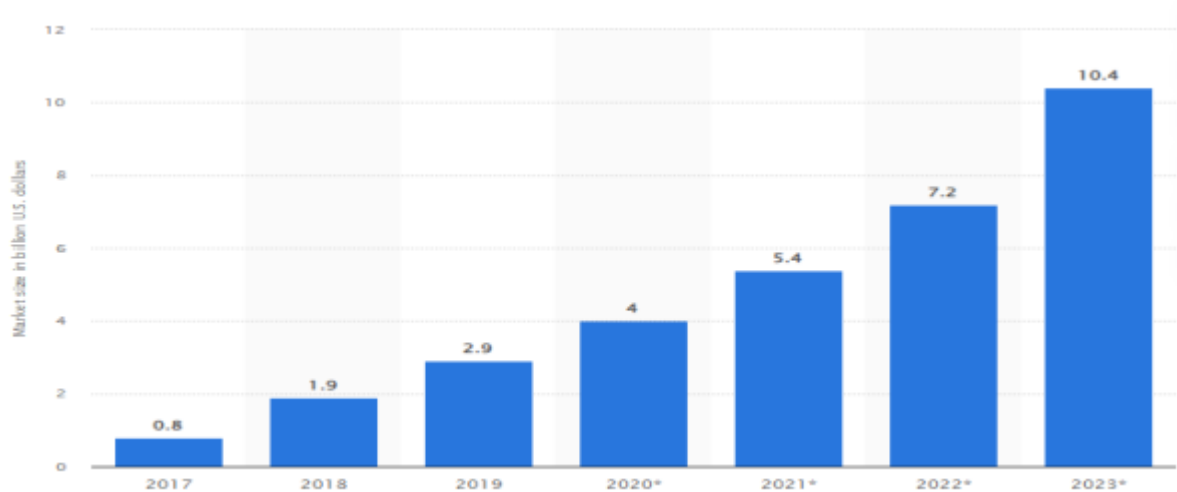
Source: Sergey V. Novikov , Andrey A. Sazonov, Claudia Cristina Ortíz Paez ; 2021; Artificial intelligence as a focus of digital economy development: Theoretical and practical aspects; Economics Journal; V2442; Issue 1.

The impact of AI on world GDP is due to increased labour productivitypersonalisation reduced time consumption, and improved quality of products, work, and services. Global labour productivity growth is expected to account for 55% of the cumulative impact of AI on global GDP from 2017 to 2030.

Nowadays, RPA is mostly applied to sectors such as e-commerce, finance/taxation, banking, manufacturing, new retail, insurance, logistics, government, and public security.

RPA tools use multiple interactive user interface (UI) description technologies to simulate the “manual” paths used by employees to complete their tasks. A wide range of solutions are available for trial use. Multiple RPA tools can be run on a single desktop computer or enterprise server.

Fig(5): Robotic process automation (RPA) market revenues worldwide from 2017 to 2023(in billion U.S. dollars)



Source : Statista 2022

Robotic process automation market revenues will eclipse four billion U.S. dollars worldwide in 2020. Forecasts predict continued growth in the coming years, with market value set to reach more than ten billion by 2023.

RPA is an IT solution that allows organisations to automate many of their tasks by using specialised software programmes. Many business executives believe that RPA can bring many benefits, saving their company time on repetitive tasks and increasing the quality of work that their company produces. **Blueprism**, **NICE**, and **UiPath** are some of the biggest names in the industry, each with a significant share of the overall market.

4-4 Mainstream RPA Vendors: Cloud (2019)

- ✓ **Blue Prism (BP)** : is the pioneer of the RPA field and the first company to propose the concept of RPA. BP is a multinational software company founded in the UK in 2001 and has over 200 customers worldwide. An American IT research and consulting company. BP has upgraded its RPA products to Version 6 and continuously integrates RPA products with the remaining AI products.
- ✓ **UiPath** is a global software company founded in 2005 that is committed to developing the RPA platform. It is a unicorn in the RPA field. UiPath has cooperated with companies such as SAP, EY, J.P. Morgan, Deloitte, Accenture, Capgemini, and BBC. UiPath provides the following three RPA products: UiPath Studio, UiPath Robots, and UiPath Orchestrator.
- ✓ **Automation Anywhere(AA)**: currently the most powerful RPA vendor with the largest range of users. It provides powerful and user-friendly RPA tools that can process complex tasks. AA has cooperated with companies such as EMC2, KPMG, Deloitte, Accenture, Genpact, and Infosys. In July 2017, IBM and AA announced a joint initiative to help enterprises simplify their operations and deliver IBM RPA and BPM.
- ✓ **NICE**: is a leading RPA solution provider and has created some influential success storeys. Its official website offers many white papers and high-quality RPA-related blogs, allowing you to learn more about NICE's RPA services and use cases.
- ✓ **WorkFusion** : is a software company dedicated to the development of AI software to transform our work patterns. Headquartered on Wall Street, WorkFusion has branches in

India, the United States, and Europe. Its main businesses include RPA, AI, and cognitive automation.

✓ **i-Search** : Established in 2011 and headquartered in Shanghai, i-Search is a software manufacturer that offers i-Search Robotic Process Automation (iS-RPA) products, User and Entity Behavior Analytics (UEBA), and Counter Service Monitor (CSM) solutions. It provides customers with services such as cross-platform integration of enterprise internal data, cloud security management, big data security analysis, user behaviour collection and analysis, auditing of application operation screen recording, visual quality inspection of customer service behaviour and monitoring and analysis of bank counter transactions.

✓ **Alibaba Cloud RPA**: Developed in 2011 on the basis of the Alibaba Group Taobao platform, Alibaba Cloud RPA empowers the internal functional modules of Alibaba Group, such as Tmall, Taobao, Fliggy, Cainiao, Ant Financial, and the financial department. It received the Taobao Innovation Award and the Special Contribution Award of the Alibaba Group. Since its official launch in 2016, Alibaba Cloud RPA has provided industry solutions in multiple fields, including e-commerce, finance, manufacturing, and government, improving efficiency by 500% on average. It has its own unique advantages in office-related controls.

Fig(6): Magic quadrant for robotic process automation



Source: Gartner (July 2021)

In the new 2021 Gartner® Magic Quadrant™ for Robotic Process Automation, UiPath is once again placed highest (For the third consecutive year) among all evaluated vendors for execution ability.

Robotic process automation (RPA) is a hot topic, particularly how it can help organisations automate repetitive work by creating a “digital workforce” and enabling them to digitise business operations.

Digitizing business operations requires looking beyond RPA at a broader automation strategy for operations that enables the tailoring of automation approaches to the different types of tasks in an organisation. One individual product is not going to everything. Organizations must create a platform of capabilities that address different aspects of work automation while working seamlessly together.

5. CONCLUSION

RPA is a technology that is best able to help evolve digital transformation for companies across all industries and functions. Through its automation capabilities, RPA allows organisations to tackle operational challenges, such as executing large numbers of back-office activities. Furthermore, with the Big Data analytical capacities provided by RPA, companies can gain knowledge about their business patterns and workflow performance. Companies can then leverage this information to adopt digital strategies that help them adapt their processes to be more efficient.

In addition, not only does RPA support digital transformation, it also makes achieving this transformation quick and straightforward.

RPA software robots are taught to mimic the actions of employees, ranging from simple clicks and copy-paste tasks to more complex workflows and activities such as invoicing. By completing tasks in the same manner as a human employee RPA can work with legacy systems, ERP, and external systems without the need to restructure or reengineer existing platforms, allowing implementation to occur within a matter of days or weeks.

By removing the burden of the back office, employees can instead emphasise higher value tasks such as sales, marketing, and customer engagement. Doing so brings the focus to the front office to improve the customer experience, and more satisfied customers mean higher customer retention. In these ways, RPA can help improve business performance and outcomes—in other words, digital transformation.

We can already envision the reality of a future that not long ago, might have seemed rather SciFi. With respect to business, this future seems to have two defining characteristics: business operations undergoing digital transformation and cloud-based business platforms. It is easy to see that RPA for cloud applications is by definition an integration of the two, which has tremendous potential to keep your company moving forward.

Artificial intelligence, rapid technological advances, and digital transformation hold massive benefits for developing countries. However, to reap those benefits, significant challenges should be addressed effectively by policymakers in these countries. These challenges include the distributional impacts of AI, the need to create a new generation able to adapt and work with machine intelligence, allocating the right amount of funds to the right technical intensive sectors, and finally, generating the appropriate environment for digital market makers.

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