

Enhancement of Government Services through Implementation of Robotic Process Automation- A Case Study in Dubai

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Abstract- In recent year, industries across various sectors are driven by latest technologies, digitization and automation of services, artificial intelligence and blockchain. axs, which is an operational entity of TECOM Group in Dubai started its digital journey end of 2014 with the main focus on employing advanced technologies in upgrading its service level to its partners. In this paper, an advanced method of automation was applied namely Robotic process automation was deployed late last year to assist the back office in processing government services such as entry visa, employment and their dependents as well as students visas. The achieved results exhibited major improvements in terms of shorter duration of the services delivered to the partners, elimination of process errors in the back office and above all achievement an improvement of 30% in the employee engagement in the department. Definitely, this would pave the way for the organization to adapt to a more strategic approach in decision making such as artificial intelligence and big data.

Index Terms- *Artificial Intelligence, Customer Engagement, Optical Character Recognition, Robotic Process Automation.*

I. INTRODUCTION

As our world becomes more and more fast-paced and globalized, the speed and convenience of service rendered to customers will have to evolve and improve to keep up with customer's demand and expectation, and to enable and sustain business growth and efficiency. This shift has led to the emergence of concepts such as the single-window system that offers all relevant services in one place, maximising the convenience in obtaining permits and licenses. These developments prove that the government authorities are serious about providing the highest levels of services in tune with the needs of their clientele, particularly small and medium enterprises that are considered the backbone of any economy.

Over the past years, the United Arab Emirates (UAE) have been recognized across several international rankings for its business-friendly ecosystem. In the Global Competitiveness Report 2017-2018, issued by the World Economic Forum (WEF) in September 2017, the UAE was ranked first among Arab countries and 17th worldwide, including it among the world's top 20 competitive economies for the fifth consecutive year[1]. More recently, in the World Bank's report on Doing Business 2018, the UAE climbed five places in the overall international ranking to the 21st position, dominating the Arab countries covered in the report for the fifth year in a row [2].

In the global competitiveness ranking of the World Economic Forum, the UAE was ranked 17th in the world but continued to take the leading position the Arab World. According to the report rose one spot to 16th in 2016-17 [3]. The country assumed 13th position in the business sophistication pillar, 24th on technological readiness pillar and 25th on innovation pillar. On the same innovation pillar, the country assumed the 1st and 5th positions on the Government's procurement of advanced technology and availability of scientists and engineers, respectively. It is worth noting that these high standings of the country are mainly attributed to visionary leaders and policy makers to proactively advance the service levels among all sectors to the highest position. Moreover, embracing latest technological advancements in

the government transactions and processes aimed at enhancing customer's experience was the key factor in assuming these leading positions.

II. DUBAI'S DIGITAL JOURNEY

Over the past years, the United Arab Emirates (UAE) have been investing heavily and adopting to Information and Communication Technology (ICT) in its government and private sectors. The Global Information Technology Report 2010-2011 indicates that the UAE leads the MENA region in leveraging on

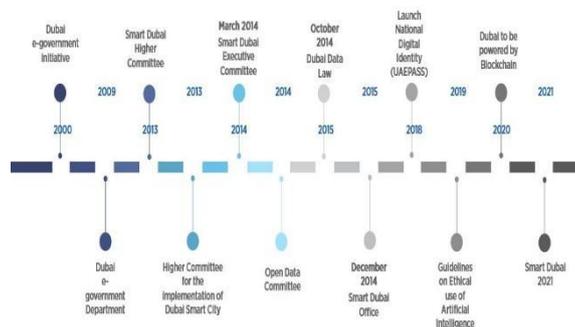


Fig. 1 Dubai digital transformation milestone

ICT for increased economic diversification and competitiveness [4]. In its "Global Information Technology Report 2016", the UAE 26th out of 139 countries on its networked readiness index, making it the top performer among Arab countries, with an overall score of 5.3 out of 7. The country was also well positioned in terms of government usage, social impacts, environment for business and innovation, and individual usage [5]. Moving forward, the UAE will contribute \$8 billion Dollars in ICT sector as it scales up for its UAE Vision 2021 and the Expo 2020 [6].

Dubai, which is one of the 7 emirates in the UAE and a regional trade and commercial hub has one of the most advanced telecoms and IT markets in the Middle East. Dubai started its first digital journey in the year 2000 with the launch of Dubai e-government as shown in Fig. 1. The name changed to Dubai Smart Government Department in June 2013 in line with government initiative to transform the city to an era of smart government and to transform Dubai into the world's smartest and happiest city. The office have initiated major initiatives such as paperless government with 100 % of internal and customer transactions will be digitized from 2021, Blockchain where Dubai will be the first city fully powered by Blockchain by 2020 and Artificial Intelligence to drive Dubai to excel in the development and use of AI in ways that both boost innovation and deliver human benefit and happiness [7].

III. AXS AND TECOM GROUP

TECOM Group was established in 1999 as part of a large conglomerate venture in the Emirate of Dubai aiming to diversify city's economy and make it home of SME's and multinational companies such as Microsoft, Oracle, HP, CNN, Pfizer among others. Company's journey of automation and digitization of services rendered to its communities started late in 2014 through exploring the possibilities of creating digital echo system. This drive led to creation of axs, which is considered a digital backbone operation of TECOM's Group. Currently, axs renders its services to over 5600 SMEs, large and multinational companies hosting around 100,000 workforce, their dependant and students across TECOM Group communities - including Dubai Internet City, Dubai Outsource City, Dubai Knowledge Park, Academic City, Media City, Dubai Design District and Industrial City. So far, axs has completed over 1.1 million transactions to date. At this point of time, there are over 200 offered services related to licensing and registration, lease management, government services with regards to visa and immigration and customer care as shown in Fig.2.

Annually, axs processes over 300,000 transactions, including student working permit visa processing, which launched at the beginning of this year. Through its strategic partnerships with government entities including Dubai Department of Economic Development, Emirates Identity Authority, Dubai Health Authority, General Directorate of Residency and Foreigners Affairs, Dubai Customs and Emirates Post Group, axs offers seamless governmental services required by companies and professionals.

Since its inception, axs has won 4 awards, one of which is the International Business Quality Award for Government Services, and recently, axs received the Gulf Customer Experience Awards Gulf Award for Government Services, as well

as the Best Call Center Award and Smart Technology Solution Providers Excellence Award' at the 23rd GCC Smart Government and Smart Cities Conference. In this paper, the context of the problem of routine and repetitive processes are detected, which sometimes results in human errors and the process of RPA implementation is laid out to enhance the experience for the end to end cycle of the Visa process by providing reliable business visa services.



Fig. 2 axS digital platform

IV. ROBOTIC PROCESS AUTOMATION

Customer experience solutions should enable the service providers to know their customers, anticipate their needs and desires, and intelligently respond to them when and how they prefer. But if their current customer experience reality involves limited channels, incoherent customer information and technology boundaries that impact business operations or degrade customer experiences, it's likely time for a change [8]. Integration with the customer relationship management (CRM) is considered of utmost important aspect of any business operation, such requirement was one of the key points that uplifted the service level of the call center in order to obtain a full historic view of the customers' and requirements.

An RPA tool operates by mapping a process in the RPA tool language for the software robot to follow, with runtime allocated to execute the script by a control dashboard [9]. Hence, RPA tools aim to reduce the burden of repetitive, simple tasks on employees [10]. Now adopting to new technology such as robotics technology to automate repetitive tasks drives and enables us to empower our employees to oversee this technology and to optimize the customer experience and to focus on the overall success of our business operations. axS looks at RPA, which is considered a transformational technology, from the business strategy perspective. RPA is the opportunity to critically re-consider a subset of core business processes such as our government services.

V. TECHNOLOGY EMPLEMENTATION

The key reasons that led axS to adopt RPA technology were customer's feedback received over past few years expressing their challenges to get served timely, internal stakeholder's feedback about the inefficiencies in processes and systems and aligning with the directives of the government of having a digital eco system. Now prior to technology implementation, we de-risk and structure any high-volume activities, which is subject to demand peaks and troughs. We first see that these can be controlled and turned into credible routines and then we design to augment our human workforce with these very smart, productive bots. axS has only gone live with the automation January, 2019. The key metrics that axS will adopt to measure the success of the RPA are the true online experience of our customer portal, with 24/7 execution of the bots, the consistency of service and how well we are managing through the peaks of services such as when students admissions are requested in bulk during July to September. Apart from the technology, the rigor that RPA instils allows the operations to manage by exceptions, digitally tracking cases in a manner where we learn from the process and where resolutions are repeatable. On the down side, one should be very careful. RPA agents mimicking people can start making incorrect decisions because of contextual changes. This may remain unnoticed for some time, leading to disastrous situations. There are also ethical and security risks when RPA agents impersonate people [11].

After careful considerations, Blue Prism was selected as a result of delivering world-class RPA implementations for nearly two decades. That hands-on experience has given us real drilled-down, practical knowledge of the RPA delivery process. They have created the Robotic Operation Model to give every Blue Prism user a clear methodology for their automation delivery [12]. During the implementation phase, it was carefully assessed that 3 bots would be deployed as a pilot project in processing government services to the customers. Furthermore, it should be noted that the model could become further enhanced with the inclusion of Optical Character Recognition (OCR), which solves the problems of human data entry. In general, RPA and OCR are complementary technologies, and they create the sort of efficiency that forward-thinkers will turn into competitive advantage. However, it's worth emphasizing the importance of selecting the right OCR to support the RPA process to excel rather than failing it since the forms to extract the data might differ [13].

Therefore, it would be wise to many automated solutions that aren't built with the ability to distinguish the relevant data from such a wide variety of sources and formats, and this is the reason why flexible OCR solutions are gaining momentum [14].

Now when it comes to strategic planning for the RPA implementation shown in Fig.3, the Implementation Partner, which was 10XDS from India, and they were selected based on their knowledge, experience, process domain and having the right approach. In the Process Maturity phase, it is important to exhibit that the RPA process is impactful, accurately measured and the customer journey is properly mapped. In the RPA Technology, we have to ensure it is complete, done in a structured manner and ease of supervision. The most crucial stage would be



Fig. 3 Strategic Planning of RPA Technology

discovering automation points in the entire customer journey, designing the right process and demonstrating its effectiveness and delivering at well-defined tasks and orchestrating them to reach stabilized stage.

To ensure the continuity of the RPA system in axis, the RPA Center of excellence (CoE) to be established as depicted in Fig. 4, it's important to ensure 2 key priorities namely lean and efficient governance and business-oriented automation. For the business Owner, which enables representatives (i.e. Process Owner) to communicate their automation needs to the RPA CoE. RPA Core Unit Member, manages and clarifies business expectations with the Process Owner and coordinates implementation with the dedicated IT team. The development team operates in agile mode; IT and business may report to the same unit. Core RPA units follow the overall axis guiding principles and risk and compliance policies, and ensure monitoring and strict adherence.

VI. RESULTS AND DISCUSSION

Since the implementation of the RPA initiative, major improvements have been acknowledged and recorded across various areas such as headcounts optimization, employees' and customers' engagements, speed of service delivery, customer's data reporting and data visibility among others. Below are the main findings of the achieved results:

- The government related processes were further enhanced and expedited reducing the timeframe of each transaction to be reduced by 50%. On the employees' performance, the employee engagement have improved by 30% as a result of reassignment of the back office employees to different tasks and projects rather than working on routine tasks such as processing employees visas, which were handled by bots through the RPA implementation show in Fig. 5. In theory, the system is set in a way such that each bot is equivalent to 3 employees processing the requested transactions.



Fig. 4 Establishment of RPA Center of Excellence

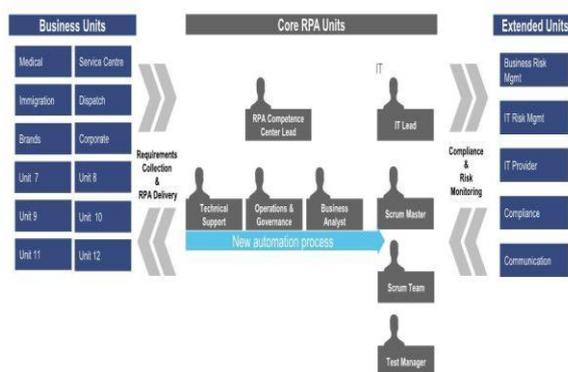


Fig. 5 outcome of RPA/OCR on Government Services

- More rapid responses achieved through errors free scanning and digitization of all requested documents fed into axs platform in support of OCR technology. The documents are processed and archived in the salesforce where they could be retrieved instantly.
- Similarly, customer’s engagement exhibited a significant improvement over the past two years by more than 6% as a result of automation of government services and making easily accessible to all companies operating in TECOM’s economic zones with utilization rate of the axs platform of 100% is achieved, automating over 80 services relate to employees’ affairs such as salary certificate, no objection certificates among others. Moreover, customers started to view their own dashboards where they could track their employees’ residency status, obtain detail demographics of their employees and their dependents among other indicators.

Since the strategy of axs is strongly aligned with government’s vision and direction, more efforts will be exerted on new technologies such as blockchain where all local government transactions will be hooked to blockchain technology by 2020 through which it will lead to a more transparent, safe and secure processes and drastically eliminate any manipulation in the conducted transactions [15]. Moreover, all the processed transactions will be carried out are going to be part of government’s vision of having paperless transactions and cutting the number of paper transactions by almost 100 million a year. Finally, leveraging on artificial intelligence (AI) to obtain data that can help axs to arrive getting a more concrete evidence and to enable making strategic decisions, understand crucial market trends and monitor growth across sectors. This data will assist axs in identifying the strengths and weaknesses of prospective business partners, as well as in attracting companies from vital sectors poised for growth, and advising companies specializing in niche sectors.

As part of the entire digital transformation roadmap, it is of a vital importance to embrace Customer Centricity through the deployment of AI in the daily government operation. Experts at Gartner Customer Experience Summit by Gartner Summits predicts that 25% of customer service operations will use virtual customer assistance by 2020 and forecasted that the future of the service industry will be dominated by artificial intelligence. With AI’s capabilities to provide an intelligent, convenient and informed customer experience, we will see a boost in efficiency with leaner organizations and the resources to invest in other areas of growth [16]. Research shows that government institutions can save resources, create efficiencies, and save around 50% of finances by deploying artificial intelligence (AI) to perform the task. Private investors are heavily investing in AI that it is estimated between \$4 billion to \$5 billion in AI in 2016, and private equity firms invested \$1 billion to \$3 billion. That is more than three times as much as in 2013. Moreover, it is predicted that by 2025, the investment in AI might reach up to \$126 billion [17].

CONCLUSION

axs, an operational entity of TECOM Group in Dubai started its digital journey in 2014 with the main focus on employing advanced technologies in upgrading its service level to its partners located in 11 economic zones under the group. In this paper, an advanced method of automation was applied aimed at enhancing its services levels rendered to its partners and to enhance its operational and financial efficiencies. Robotic process automation was deployed early this year to assist the back office in processing government services such as entry visa, employment and their dependents as well as students visas. The achieved results demonstrated a significant improvement in customer’s engagement, employee engagement, and speed of service delivery and elimination of all human errors that could be committed during processing customer’s request. It’s worth noting that the RPA initiative would open a new frontier for

organizations to have a more sophisticated approach in delivering customized services at a higher level such as implementation of AI for decision making as well as learning to make better decisions, usage of big data to gain insights and implementation of blockchain technology where the information is open, immutable and shared among everyone to see and use.

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REFERENCES

- [1.] World Economic Forum. "Global Competitiveness Report 2017-2018". 2017
- [2.] World Bank Group. "Doing Business Global Ranking (2018). World Bank Group, available at: <http://www.doingbusiness.org/content/dam/doingBusiness/mcedia/Annual-Reports/English/DB2018-Full-Report.pdf>". Accessed Oct. 15, 2018.
- [3.] World Economic Forum. Global Competitiveness Report 2016-2017. 2016
- [4.] "The Global Information Technology Report 2010-2011"(PDF). World Economic Forum.
- [5.] World Economic Forum. The Global Information Technology Report 2016. July 6th, 2016.
- [6.] Naushad K. Cherrayil. Digital transformation will drive Mideast IT spending this year. Gulfnews, TECH section. January 24, 2019. <https://www.smartdubai.ae/initiatives>
- [7.] J. Dieken. "Gain Insight from the 2017 Gartner Magic Quadrant for Contact Center Infrastructure". Worldwide Report. May, 23rd, 2017
- [8.] C. Tornbohm C. "Gartner market guide for robotic process automation software". Gartner Report G00319864. 2017
- [9.] S. Aguirre, A. Rodriguez. " Automation of a business process using robotic process automation (RPA): a case study". Appl. Comput Sci. Eng. Commun. Comput Inf. Sci. https://doi.org/10.1007/978-3-319-66963-2_7. 2017
- [10.] M.P. Wil, M. B. Van der Aalst and A. Heinzl, "Robotic Process Automation". Business & Information Systems Eng., Vol. 60, Issue 4, pp 269-272. August 2018
- [11.] L. Willcocks, J. Hindle and M. Lacity. "Keys to RPA success, how blue prism clients are gaining superior long-term business value". Knowledge capital partners. March, 2019
- [12.] S. Anagnoste, Robotic Automation Process - The operating system for the digital enterprisepp. pp. 54-69, Proceedings of the 12th International Conference on Business Excellence 2018. <https://www.docdigitizer.com/>
- [13.] Gulfnews. "Dubai's smart transformations presented on world stage- Dubai's paperless and Blockchain strategies presented at World Bank Group head quarters".<https://gulfnews.Com /uae/government/dubai-smart-transformations -presented-on-world-stage-1.62608752>. March 12, 2019.
- [14.] M. Davis. "Artificial intelligence will transform the customer experience through deeper understanding of customer behavior. Data and analytics leaders should engage with CX leaders to identify high-value use cases to drive innovation. How to Use AI to Improve the Customer Experience". Gartner Report. 11 April 2018.
- [15.] J. Bughin, E. Hazan, S. Ramaswamy, M. Chui,T. Allas, P. Dahlström, N. Henke and M. Trench. "Artificial intelligence the next digital frontier?". McKinsey Global Institute. McKinsey & Company. Discussion paper. June, 2017.