

# **VIRTUAL ASSISTANT MODEL FOR CADRES AND CIVIL SERVANTS IN THE CONTEXT OF DIGITAL TRANSFORMATION IN VIETNAM TODAY**

*TS. Nguyen Thi Thu Hoa<sup>1</sup>*

*Ms. Ly Thi My Dung<sup>2</sup>*

## **1. Introducing the "virtual assistant" model**

A virtual assistant is software built on artificial intelligence (AI)<sup>3</sup>. This is a new generation search software, responding to short answers, directly to the user's question. With data of huge knowledge store deeply integrated into the operating system by famous technology companies such as Google Assistant, Siri of Apple, Bixby of Samsung, etc, virtual assistants are to support users to perform operations, analysis and make decisions more easily.

In essence, all kinds of virtual assistants are aimed at being an intelligent advisor for users. Most of the operations of virtual assistants are programmed according to the tasks. With the goal of serving people better, faster, more accurately, virtual assistant systems can do a lot of things such as: Send up-to-date information on topics that interest you without your looking for them (e.g., new laws and regulations implemented by the government if applied to the administrative system); Weather report; Add events and meetings to the calendar of a group or an individual; Set alarms and reminders so that everything goes according to schedule; Answer general questions by voice (instead of returning a link for you to search for answers); Create and fill out a to-do list; Perform real-time translation; Immediately update on your route traffic (especially useful for

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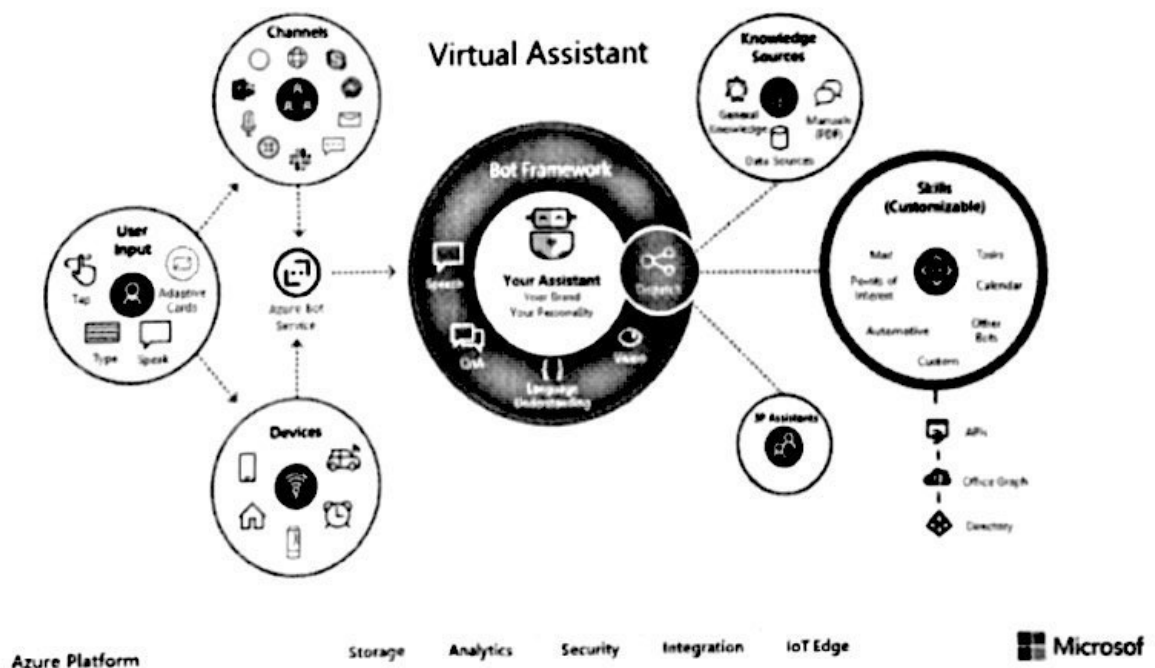
<sup>1</sup> Ho Chi Minh City National University

<sup>2</sup> Hanoi University of Culture

<sup>3</sup> Artificial Intelligence (Artificial Intelligence)

logistics operations); Track inventory in stock and automatically fill out purchasing lists with items that will be taken out; Control other devices from lights to personal computers; Read emails and other documents out loud instead of you reading them; Record spelling speech and convert it to text instead of you typing manually; Find local businesses and contractors for your current needs; etc. Therefore, it can be affirmed that the most common functions and tasks of virtual assistants include:

1. Schedule/plan analysis, management
2. Schedule arrangements
3. Data organization, email monitoring
4. Call management, social media management
5. Analysis and management of financial and accounting data
6. Survey, analysis to get opinions of potential customers and partnerships
7. Customer service analysis and management
8. Support professional analysis and decision making, etc.



*Google's virtual assistant model*

Accordingly, the technologies that come with virtual assistants include artificial intelligence (AI) platforms, including Machine Learning, Natural Language Processing and Speech Recognition, integrated with smart speaker devices. Amazon's Alexa allows users to say "Alexa" to perform an operation with the virtual assistant. Some other virtual assistants require devices or applications to be connected to the Internet to function.

Currently, virtual assistants are quite popular in the world and have been implemented in a number of different fields such as administration, office (in state agencies, business offices); education (in schools), health care, health care (mainly in hospitals), tourism, banking, and agriculture, etc.

*In the field of administration and office:* As an assistant, the software will support administrative agencies and organizations in: Organizing and keeping labor records; Regularly update the internal database of agencies and businesses (such as employees on sick leave, maternity leave, annual leave, etc.) ; Making, managing and storing documents on personnel policies and procedures; Linking with external partners such as insurance companies, hospitals to pay health insurance for employees and ensure compliance with the law; Answering employee questions about personnel-related issues; Assist the accounting department by providing relevant personnel information (e.g. number of leave days, sick days and number of working days); Analyzing, planning vacations for company employees, arrange accommodation for employees and leaders on business trips, processing related expenses; Participate in Human Resources department projects (such as supporting to hold a job fair). Like the administrative system, the virtual assistant office with Chatbot will be able to help people schedule, arrange appointments, announce new decrees, laws to them quickly with a few simple operations.<sup>4</sup>

*In the field of banking:* The introduction of virtual assistant technology promises to make it simpler and more convenient for customers to use banking and financial services today. Users can interact with Mobile Banking applications quickly, conveniently, and anywhere with only voice. Account inquiries, ATM search, exchange rate lookup or financial transactions such as: Money transfer,

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<sup>4</sup> Chatbots are software that interacts with users in natural language via audio or text messages.

phone top-up, payment of bills, etc, become faster and leaner with just a few simple commands. Virtual assistants on mobile banking application are considered a spectacular breakthrough in the banking industry because it not only helps to save the most time, enhance completely different experiences, but also helps users catch up with a new technology trend in the world.

*In the field of education:* The most useful application of Chatbot in education is to serve as a modern learning medium. Chatbots can be designed into a learning Q&A scenario, with feedback built from the lecture system. For each student with different needs, Chatbot can proactively provide learning materials, topics through text messages, photos, videos, files, etc, which helps predict the number of virtual applications when enrolling.

The education chatbot can act as a dedicated teaching assistant personalized for each student, assisting teachers in responding to students' daily tasks. Chatbots can be designed with scenarios of students' frequently asked questions such as teaching plans, school schedules, exam schedules, submission deadlines. Chatbots can track students' progress and self-study, can give comments and feedback for each student, can give personalized subject suggestions, learning materials for each student

*In the field of health:* Along with innovations in modern facilities and equipment, hospitals and healthcare centers around the world have also applied many modern technologies to the hospital operation process, in order to reduce pressure on medical staff. Chatbots quickly became "Special Assistants", helping health consultants, supporting hospitals to take good care of patients and customers. Chatbot reduces the pressure and saves time for the medical team to care for patients, so that they no longer have to handle too many simple, frequently asked questions that repeats every day, which means that doctors will have more time to focus on treating patients who really need their attention. Chatbot quickly provides a lot of information about health, 24/7, listening to customers anytime, anywhere, helping customers perform many common tasks in the simplest way, such as screening for symptoms of disease, consulting about supplementary products and proactively scheduling appointments with doctors in the most convenient way.

For a hospital or clinic, chatbots act as a symptom checker. Chatbots can raise many small questions about the health problems customers are facing. After that, chatbots can draw conclusions or advice on the next steps customers need to take, such as taking care of themselves at home, or having to go to hospitals or clinics for testing. Chatbots can be used to provide information, disseminate knowledge to people such as vaccination schedules, epidemic situation that is easily spread in many provinces and cities. Facing the complicated situation of the current Covid epidemic, the Ministry of Health has put into operation virtual assistants such as: updating the epidemic situation to the people quickly, timely and accurately.

As such, depending on the needs of agencies and businesses, virtual assistants can act as an executive assistant, administrative assistant, or personal assistant. The task of the virtual assistant is to manage calendars and emails, answer the phone. The scope of work of a Virtual Assistant can vary across industries from marketing to web design, accounting, office administration and other public administration services.

## **2. Advantages and difficulties when using "Virtual Assistant" in the context of digital transformation in Vietnam**

### *2.1. Advantages:*

*First*, we have the right perception of the role of digital transformation in the management and development of the country. With the government's guidance with a National Strategy on Digital Transformation and The Digital Economy, we have used digital technology to change the way we live, how we work and manage, change business models, provide new services, solve problems of social life in a new way. Especially, the cadres and civil servants have many changes in awareness and habits as well as dare to accept the new. From the right perceptions mentioned above, over the past time, we have invested in building quite good information and telecommunications infrastructure with wide coverage and high user density. According to Vietnam Internet Center, currently Vietnam has the highest number of registered national domain names in ASEAN. In 2016, three telecommunications companies Viettel, VinaPhone, MobiFone were licensed to set up networks to provide 4G LTE telecommunication services and have nearly 129

million subscribers. We also strengthened the safety of telecommunications infrastructure and information security for information and communication technology application activities, promoting the development of e-commerce and implement the roadmap to build e-Government quite successfully. In a world where creativity is decisive, the interaction of thousands of people, both locally and centrally, is no longer one's business, but ours: sitting thousands of kilometers apart but as if in a room; instead of working on different software, now we work together on a digital platform, therefore, resources and creativity are multiplied by many times. Many tasks that were repeated 63 times in 63 departments now only need to be done once. The use of virtual assistants should be widely applied to non-business administrative units across the country in the near future.

*Secondly*, the use of information technology in the operation of state agencies, providing public services to people and businesses are always paid attention to and synchronously developed. State management agencies are widely utilizing application software under the model of shared virtual assistant and specialized software; some public services have reached level 3 and 4. Most departments, committees, sectors, districts, towns, and cities of localities already have websites and are gradually implementing the online public service provision system. These efforts have been shown to be effective and practical in directing and processing daily professional work at agencies and units, improving productivity and quality of work, bringing many advantages to people and businesses.

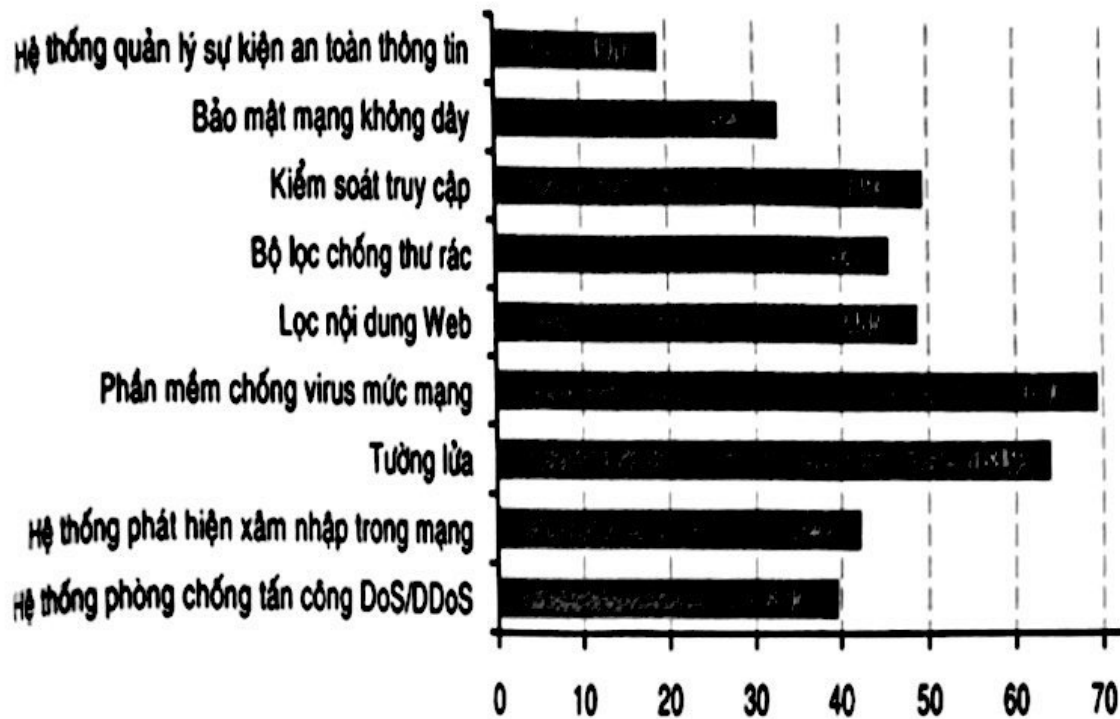
*Third*, the big advantage of using virtual assistants is that agencies and businesses can choose and pay for the specific services they need. For the private sector, such level of flexibility can save business owners millions of dollars a year while also giving them the opportunity to expand their contract as their business grows and requires more services. In today's digital age, virtual assistants are always an almost indispensable companion for every official and civil servant in the public sector. With enhanced capabilities, the Virtual Assistant will allow you to expand your operations – with fewer risks. Because growth requires capital - and Virtual Assistants are a relatively cost-effective alternative to a large number of employees.

*Fourth*, with outstanding advantages, virtual assistants give modern voice assistant applications the freedom not to rely on limited vocabulary, but to use cloud storage with millions of alternative words and phrases. In other words, machine learning makes applications listen to entire speeches, not each word separately. By that way, voice applications will analyze context and probabilities to determine what you are trying to say. For example, Google uses a digital neural network like those in human brain cells. Basically, this artificial neural network simulates the neural activity of our brain and mimics the processes that begin when we hear continuous stream of sound. Despite differences in structure, the most popular virtual assistants today like Google Assistant, Cortana and Siri are all based on deep neural network technology in the backend.

## *2.2. Difficulties:*

*Firstly*, in Vietnam users often use three main virtual assistants: Google Assistant (Android), Siri (iOS) and Bixby (Samsung). However, there are many other virtual assistants around the globe, such as Microsoft's Cortana on Windows 10 computers and Amazon's Alexa on smart devices. The fact that there are only three virtual assistant providers is now a major difficulty for administrative agencies and organizations in Vietnam because there are few options. Technical assistance will not be effective while Vietnam does not have chain connectivity and data synchronization in state agencies.

*Secondly*, the use of virtual assistants in the storage of huge data are closely related to many fields requiring the ensuring of the privacy and personal information of citizens. For financial and banking industries, there is a need to ensure information safety and security for businesses and customers. In state management, new techniques, and technologies to ensure information security for the economy and society are in the pilot stage. Recently, a series of cyber-attacks to steal information of agencies, organizations and companies have confirmed the difficulties and challenges when using virtual assistants.



*Percentage of organizations using technology and techniques to protect the network System Source: Ministry of Information and Communications*

*Third*, the difficulty from the budget for implementation. Like any government infrastructure project, virtual assistants can be implemented in several stages, and the cost of implementing the project will depend on the level of readiness of the current infrastructure, on the capabilities of suppliers and users as well as the mode of service provision. The more complex and sophisticated the services the government wants to provide, the greater the cost for them. In fact, in the e-Government Readiness Index (provided by the United Nations), Vietnam ranked 86th out of 93 countries, with an E-Gov Index score of 0.6667 (maximum score is 1, the country with the highest score is 0.927, the country with the lowest score is 0.009). In the ASEAN region, Vietnam ranks 6th out of 11 after Singapore, Malaysia, Thailand, Brunei, and the Philippines<sup>5</sup>. And to gradually transform from e-government to digital government, we need to have a sufficient budget.

*Fourth*, other obstacles from the management culture. Thanks to the virtual

<sup>5</sup> According to the E-Government Development Index (EGDI) 2020, the United Nations has published July 10, 2020



assistant model, a paperless digital administration is gradually being formed. However, the virtual assistant model when deployed will face difficulties coming from management thinking and administrative culture existing for a long time, such as: Individuals, organizations and even management agencies, many management leaders do not really believe in digital transformation in processing administrative procedures; many officials and civil servants are also conservative, keeping the view that experience is the first requirement. The habit of fragmenting data and not sharing information has not been overcome, making it difficult for chain connection and data synchronization in state agencies. Moreover, many cadres and civil servants have a worried attitude, fearing that when virtual assistants are used, their jobs will be reduced, many people will be fired and become unemployed. Many leaders with the mindset of maintaining power, thinking that the paperwork administration is the only way to influence, dominate and force citizens, organizations to obey the orders they give.

*Fifth*, the level of responsiveness: To be able to "control" their assistants, the contingent of cadres must be highly competent, have good professional qualifications, have proficient use of computers, and understand the process of using application software. However, currently, the level of access and use of modern technology, mastering science and technology in professional fields of cadres and civil servants does not meet the requirements. The skills of civil servants to access and use new technology application software for the working process are still weak. The number of technical personnel and the cadres, civil servants and public employees with the ability to apply information technology in working is still limited.

### **3. Some solutions**

Digital transformation towards digital government, digital economy, digital society is a major policy of the Party and State that needs to be focused on implementation in the coming time. On June 3, 2020, the Prime Minister issued Decision No. 749/QĐ-TTg on "Approving the National Digital Transformation Program to 2025, oriented to 2030"<sup>6</sup>, accordingly, the target to 2025 we must

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<sup>6</sup>Decision No. 749/QĐ-TTg on "Approval of national digital transformation program to 2025, oriented to 2030"

develop digital government, improve effectiveness and operational efficiency; must develop the digital economy, improve the competitiveness of the economy; move towards the development of a digital society and narrow the digital gap. Wherein, by 2025, "80% of online public services level 4, offered on a variety of means of access, including mobile devices" are achieved.<sup>7</sup> Next, the Government's Resolution No. 76/NQ-CP dated July 15, 2021 promulgating the General Program for State Administration Reform in the period 2021-2030<sup>8</sup> defined by 2030: 100% of level 4 online public services, provided on a variety of means of access, including mobile devices; 100% of work records at the ministry and provincial levels; 90% of work records at the district level and 70% of work records at commune level are processed on the network environment (excluding records of work with confidential contents); 70% of inspection activities of state management agencies are carried out through the digital environment and information systems of management agencies; At least 80% of adults have a bank transaction account; Vietnam is among the top 50 countries in e-Government (EGDI)<sup>9</sup>. Therefore, in order to promote the effectiveness of the virtual assistant model, we need to focus on implementing the following solutions:

*First*, in order to accomplish the goal towards digital government, building a government that is forceful, effective, really of the people, by the people and for the people; Improving competitiveness, creating a favorable environment for socio-economic development for Vietnam to catch up with the development rate of countries in the world, in the coming time, we need to raise the determination of the whole political system. Continue to raise awareness of leaders, civil servants and people about the inevitable role and development trend of virtual assistant models in state agencies. It should be determined that changing the habit of using paper documents as currently is necessary and the appearance of virtual assistants in each field of expertise will be the solution to help civil servants and state officials work and serve the people better. In the third quarter of 2021, it is possible to organize the evaluation and scaling up the application of virtual assistants to other units in

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<sup>7</sup> Decision No. 749/QĐ-TTg on "Approval of national digital transformation program to 2025, oriented to 2030"

<sup>8</sup> Resolution No. 76/NQ-CP dated July 15, 2021 of the Government promulgating the General Program for State Administration Reform for the period of 2021 - 2030

<sup>9</sup> Resolution No. 76/NQ-CP dated July 15, 2021 of the Government promulgating the General Program for State Administration Reform for the period of 2021 - 2030 15/07/2021

state administrative agencies. Continue the propaganda about the benefits of the virtual assistant model to receive the consensus of all participants.

*Secondly, it is necessary to study, construct and complete the institution to create a full and comprehensive legal basis and policies for the implementation of the construction and development of virtual assistant models. Laws and policies must ensure that the execution of electronic transactions and documents is easy and does not violate information security, cybersecurity, national security and must protect the personal information of citizens.*

*Third, there must be a stable technical infrastructure system. In order to protect and secure information related to citizens and businesses when using virtual assistants, the State should pay attention to two important technological components: *Safety network:* Technology to protect the network from eavesdropping and modification of transmitted information is required (Currently, the use of virtual assistants is difficult to avoid information theft, so users need to install a secure security program); *Electronic appraisal:* There must be a reliable virtual assistant model appraisal system for individuals, businesses and also civil servants and public employees. Moreover, it is necessary to increase investment in building and perfecting a centralized and unified e-Document Exchange Platform throughout the administrative system. Increase investment budget, ensure resources to build this technical infrastructure system synchronously. In the context of a country with limited resources and facing the current Covid epidemic, Vietnam needs to have a priority policy, focusing investment resources on building a digital government. There should be specific and feasible mechanisms for mobilizing, managing and using domestic and foreign resources in socializing investment for the application of information technology development to build a digital Government. It is necessary to strengthen cooperation with major technology corporations in the world to research, develop and transfer technology to build information technology infrastructure, digital infrastructure and digital platforms in Vietnam.*

*Fourth, it is necessary to resolve and remove the barriers to administrative culture that are hindering the process of building a virtual assistant model.*

Continue to implement new ways and methods of working to serve people and businesses, implement national digital transformation towards digital government, digital economy and digital society; build a virtual assistant model with close links to the administrative reform process. Quickly overcome the thoughts of the leaders and cadres, civil servants on duty when they do not want to leave the settlement of administrative procedures with papers related to enterprises and people but want to maintain the state of enterprises, people must come to themselves, avoid the supervision and control of public authorities. Eliminate the idea of corruption, group interests, local interests of an agency so do not want to share information with other agencies. Enhance the role of heads of ministries, sectors and localities in building virtual assistant models. Solve the psychological fear of losing a job, fear of being reduced when virtual assistants are "effective" than officials and civil servants themselves.

*Fifth*, focus on training and fostering a contingent of cadres, civil servants and public employees to raise awareness and capabilities in building and operating a virtual assistant model. Organizing education and training for people and businesses in exploiting and using information systems brought by modern software. It is necessary to create trust for cadres, civil servants, public employees, people, and businesses through the formation of digital culture, ensuring information security, cyber security, and protecting personal data. There should be a mechanism to encourage the attraction of high-quality human resources in technologies both at home and abroad to participate in the construction and development of digital government for Vietnam today.

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