Vietnam's breakthrough strategy for AI economy

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Prime Minister Nguyen Xuan Phuc aspires to utilize Artificial Intelligence (AI) to build a prosperous Vietnam. The AI initiative would be comprehensive, a model for other nations to emulate. At the Prime Minister's direction, the Minister of Planning and Investment, Nguyen Chi Dung, took a delegation of MPI leaders to the United States. On April 23, 2018, the delegation met with the Michael Dukakis Institute (MDI) and the Boston Global Forum (BGF) to discuss having MDI assist in developing an artificial intelligence economic strategy for Vietnam. The delegation met with Professor Jason Furman of Harvard University; Mr. Nguyen Anh Tuan, Chief Executive Officer of the Michael Dukakis Institute; Governor Michael Dukakis, President of the Michael Dukakis Institute; Professor Thomas Patterson of Harvard University; Professor Nazli Choucri of the Massachusetts Institute of Technology (MIT); and Professor David Silbersweig of Harvard University. Subsequent to the meetings, MDI prepared a report authored by Professor Furman, who chaired President Obama's Economic Advisory Council and chaired the committee that drafted the AI Strategy for the U.S. government.

This document seeks to provide the Prime Minister and the Ministry of Planning and Investment a breakthrough strategy for Vietnam that will enable it to compete with advanced countries in terms of Artificial Intelligence.

Current situation:
- ❖ *Vietnam's Advantages:*
- A single party political system and centralized political system
- Vietnam's thirty years of experience with economic innovation
- The desire of the Vietnamese people to create a prosperous and peaceful country
- Vietnam's well-educated young population
- Prime Minister Nguyen Xuan Phuc's commitment to developing a prosperous, secure, and peaceful country and his openness to the voice of the people and the advice of intellectuals
- The eagerness of the Vietnamese to learn and innovate – vital traits in the AI Age

- ❖ *Major disadvantages curbing the development:*
- Vietnam's lack of leading AI experts and AI economic strategists.

- Vietnam's weak business environment
- The unequal access of the Vietnamese people to resources and opportunities.
- The low efficiency of State-owned enterprises that have a disproportionate share of national resources
- Vietnam's complicated and slow decision-making mechanism, inadequate level of personal accountability, etc.
- The tendency of most AI people in Vietnam to think as narrow technologists; few of them are strategic thinkers and most are not skilled at or interested in cooperating with others.
- Vietnam's cautious relations with the United States and Western countries and use of security procedures to control these relations.

In light of the above strengths and weaknesses, the following recommendations are provided Vietnam's leaders. We recognize, given current realities, the difficulties that some of the recommendations pose but, if Vietnam is to become an advanced AI nation, the difficulties must be overcome.

1. Goals:

❖ *Become an advanced country in the AI Age:*
- Be advanced in AI applications in national governance, and create a new paradigm for other nations of the world.
- Be advanced in cooperating with AI international experts and obtaining international AI resources.
- Be advanced in developing a culture suited to the Age of AI; such a culture recognizes tradition but also accounts for the changes resulting from the application of AI.

❖ *Become an AI leader in Southeast Asia:*
- Be a pioneer in developing a centralized smart decision-making system.
- Be a pioneer in the application of AI in public services, the economy, and society.
- Be a pioneer in the application of AI to state management and corporate governance.
  in the corporate governance, and state management AI application to corporates, tax management.
- Be a pioneer in AI products, promoting them worldwide.
- Be a pioneer in educating the public about AI and getting the public to embrace and appreciate AI.

AI in Vietnam lags behind that of advanced countries. To achieve its goals, Vietnam needs to have a distinctive breakthrough strategy. The main features of such a strategy are:

Developing a comprehensive AI application in the administration, management and development of the country and creating a model for the use of AI for peace, security and prosperity, thereby setting up norms for an artificial intelligence society. Already, as a result of the principles of AI-Government developed for Vietnam by MDI in June, 2018, Vietnam has a pioneering vision of AI-Government and AI Age Culture.

Is it feasible?

Vietnam starts at a low point for AI, with a difficult environment and challenging conditions, minimal investment, weak technology sector, and lack of human resources. Nevertheless, three considerations indicate that it is feasible:

1. Vietnam's experience in the 1994-1997 period in developing Teltic, an Informatics Center, and VietNet, an Information Highway in Khanh Hoa Post Office. These projects showed that Vietnam can successfully pursue large innovation projects.

2. Vietnam's working relationship with BGF and MDI. They can provide access to ideas and leading AI thinkers.

3. Estonia's success is developing e-government and the lessons that can be learned from it. Estonia is a small country and, in the 1990s, was technologically backward. It developed e-government, which advanced it quickly. Estonia is now as advanced as other European countries and it's e-government model is being widely copied.

2.1.   The breakthrough strategies:
Selecting strategic breakthrough products**:** the **AI-Government** and the **AI Age Culture.**

❖ **Breakthrough strategy in selecting elite leaders:**
Selecting the people who have visionary ideas; the capacity to operate, lead, and create; the ability to attract intellectual resources from Vietnam's top universities and corporations.

❖ **Breakthrough strategy in terms of mechanism:**
The development of a centralized decision-making mechanism is essential; the data and analysis stemming from it will allow assessments to be based on actual results and goals met by objective standards.

❖ **Breakthrough strategy for attracting leading intellectuals:**

Establish the Vietnam AI Guidance Council including strategists, policy makers, business leaders, and leading AI innovators; attracting the world's leading AI thinkers, especially those from Boston, Silicon Valley, etc. along with leading figures of AI in Vietnam.

❖ **Breakthrough strategy for mobilizing society's resources:**

Involve private businesses fully. Develop AI projects in those instances where there are appropriate solutions, ideas, intellectual resources and experts. Assess companies and organizations through their intellectual resources rather than only through their financial capital and properties.

What is an intellectual resource?

An intellectual resource for AI is a creative individual, team, value, or idea that envisions or applies AI to solve problems or improve efficiency and standards. Vietnam has such resources but also needs to seek the world's leading AI innovators and experts, especially those from the G7 and OECD countries.

2.2. Elements of the strategy:

- Developing the AI-Government. Vietnam can develop a pioneering AI-government to make rapid advances in the private and public sectors.
    - Develop the National Decision-Making and Data Center.
    - Build AI universities, AI schools.
    - Build AI hospitals.
    - Develop AI legal services and public services.
    - Optimize public transport with AI
    - Create a breakthrough for the product quality, develop the brand for Vietnam's "clean and high-quality" agricultural and aquaculture products with AI.
    - Create a breakthrough for Vietnam's tourism with AI.
- Developing the AI Age Culture, which respects human values and encourages and honors creativity as the highest value in society.
- Attracting elite intellectual resources from Boston-area leading universities such as Harvard, MIT, Brown, Tufts, etc., to assist in developing the AI-Government and the AI Age Culture. More than 50% of the resulting products would be owned by Vietnam.
- Mobilizing global financial resources for AI-Government and AI Age Culture projects from entities such as the World Bank and major U.S. corporations.
- Educating the Vietnamese people to aspire to build the AI-Government and the AI Age Culture, which other countries will emulate.
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- Developing an inclusive smart learning society that is accessible and knowledgeable, capable of fast problem solving and creativity, etc. Effort must include involvement of people in remote areas through the Internet and smartphone.

3. Solutions and implementation:

3.1. Solutions:

❖ **The AI-government development:**

Establish the AI-Government Special Group under the direct guidance of Prime Minister Nguyen Xuan Phuc. This is the Special Group in charge of implementing the AI-Government Project. The Group will have the authority to take the initiative without being restricted by unnecessary administrative obstacles. The group's leader is responsible for the results, transparently disclosing all activities and outcomes. This group will direct the construction of the AI Innovation Zone. It will promulgate strict regulations on the protection of intellectual property rights and the penalties for those who steal ideas, products and technology.

❖ **The AI Age Culture:**

Create an AI Age Cultural Area and AI Times Square to acknowledge the world elites who pioneered the political, cultural and technological development of the AI Age and their achievements.

Build AI Age Cultural Areas in Vietnam's special cities such as Nha Trang, Hoi An, Da Lat and Ha Long, etc.

❖ **Solution to attract the world's elite intellectual resources:**

The Government of Vietnam calls for the support and help of the Michael Dukakis Institute for Leadership and Innovation (MDI) to attract intellectual elites from Boston (in terms of politics, culture, AI technology, AI economy). The Government of Vietnam creates a supportive environment for them to share with Vietnam creative ideas and advanced technology.

MDI will be a bridge between Boston and Vietnam: MDI will support and select two major AI events in Boston, namely the AI Conference and Expo held annually in early December and the AIWS Festival held annually in April for Vietnam. Vietnam representatives will participate and connect these events to ones held in Vietnam's AI Age Cultural Areas.

❖ **Financial solution, calling for funding:**

Organize a group under the direction of Prime Minister Nguyen Xuan Phuc to call for funding from organizations such as the World Bank and major U.S. corporations.

❖ **Solution to develop strategic products**:

- Select a private company or joint stock company with the capacity to assist in the implementation of the AI-Government project. Its initial effort would be development of the **National Decision-Making Data Center**, which is the "brain" that supports AI decision-making and administration of the country. The Data Center will be the signature aspect of the AI-Government Project. Globally, it will be emulated and, domestically, it will be the foundation for AI-government, AI schools, AI hospitals, etc..
- Formula for the development of products and services: Vietnam will be the Employer and will hire a creative director, a chief engineer, and algorithm experts from Boston. The aim will be the development of products and services that contribute to Vietnam's advance but also can be marketed as global brands.
- New approach: Smart Data, smart Algorithms, idea learning - based on the Probability Theory and Mathematical Statistics to reduce the massive data requirements. Create a close relationship with leading AI algorithm experts from MIT and Boston area to apply the most advanced AI algorithm methods to the development of the AI-government.
- This system should be developed with the blockchain technology and other advanced technologies to ensure the security of the National Decision-Making Data Center.

❖ **Solution to take advantage of being China's neighbor and ASEAN's Leader**

Vietnam is a link to accessing the market in 15 Chinese provinces from Yangtze River, Shanghai to the South with about 850 million people and is a link to accessing the Southeast Asian market. Therefore, Vietnam needs to negotiate with China to open the market for Vietnamese goods and services. Viet Nam proactively enhances its position as a link for advanced countries to access the Chinese and ASEAN markets by creating a conducive environment for American, Japanese, German, British, Canadian and Australian companies to pilot and create AI products and services in Vietnam.

Specific implementation measures

Develop a Special AI Innovation Zone in Vietnam to address the problems faced by the AI-Government (the foundation of which is the National Decision-Making and Data Center (NDMD) that is a breakthrough product and is also the place for designing and developing the AI Age Culture, thereby creating the AI Cultural Area, AI Times Square.

Specific measures to attract the world's elites and seek support from the World Bank and large US corporations:

❖ **Human resources**
- Need a nucleus that is talented enough and virtuous enough to attract intellectual elites from around the globe.
- What's required to create this nucleus?
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- *Priority 1*: Select a leader who has knowledge and prestige in AI and is committed to the goals of AI-government. The leader will seek to convince universities such as Harvard, MIT, Stanford, Carnegie Mellon, Cambridge and Oxford to open AI research centers at the special AI Innovation Zone of Vietnam.
- *Temporary measure*: In the absence of such a leader, MDI will take the lead on attracting intellectual elites to participate in the Zone.

❖ **Design and Location of the AI Innovation Zone**

The AI Innovation Zone would be a university-like area located in a setting with beautiful natural scenery that inspires creativity and human values. It would have a strong Internet telecommunications infrastructure and be located near a transportation hub, providing easy access for global intellectual elites. Nha Trang meets these criteria, as would Hoi An and Da Lat. A proper setting is important in encouraging global elites and talented Vietnamese to come to the Zone.

❖ **Create a global AI brand for Vietnam**

MDI will assist in creating media events and other activities aimed at enhancing the prestige of the AI Innovation Zone and making it a global brand.

MDI will support, and the special group on the AI-Government will direct, the creation of special AI programs by VTV and Tuoi Tre Newspaper and the development of an AI Age portal by Vietnam Report (the portal was officially posted online at the address ThoiDaiAI.Net on June 12, 2018).

- **Position Vietnam to own and market AI goods and service**

The Vietnamese Government and people will own more than 50% of AI products and services developed through the initiative, with the remaining percentage owned by contributors (firms, intellectuals, etc.) involved in their development.

How will the intellectual resources be attracted to participate with Vietnam?

MDI and BGF will contribute to this part, assisted by Vietnam's Government.

Satellite of AI Innovation Zone: The Zone will be located in Vietnam (Nha Trang, Hoi An, or Da Lat) with a satellite office in Boston, which will be dedicated to attracting the participation of intellectual elites. The products and services will be created and tested at the Zone.

Develop the AI Cultural Area of the AI Innovation Zone:
- Build the AI Times Square in the AI Innovation Zone, considering it a nucleus to build and establish the AI Age Culture.

- Design new ideas for the AI Age Culture based on the AIWS's AI Age philosophy and thinking.
- Build the AI Age Museum: The museum would honor AI leaders and pioneers and house AI breakthrough creations and artifacts.
- Architecture in the AI Age: Create new architectural styles that meld traditional architecture with features of the AI Age.
- Arts in the AI Age: Organize exhibitions of the AI arts movement.

4. Implementation of the AI Innovation Zone

Select the AI Innovation Zone's Executive Board of Directors. The chair would be Vietnamese and the members would be intellectual elites.

The leader: The leader must be knowledgeable of AI, creative and strategic in thinking, and capable of gaining the respect of the intellectual elites on the Board.

Members: The members will be Vietnam's AI elites and will become world elites when the project succeeds. In addition to their technological expertise and creative talent, they must possess personal values consistent with AI Age ideals, and be able to speak English so that they can directly work with the world elites.

The AI Innovation Zone's Executive Board of Directors work under the direct guidance of the Prime Minister. The Board will:

Be allowed to make independent decisions and focus on goals and results.

Be an entity that is independent of any company, although it can partner with firms.

Provide a training experience that can enable Vietnam's AI elites to become world AI leaders.

Some specific measures to attract the world intellectual elites:

Organize talks with Vietnamese (and possibly global) AI elites in a beautiful location such as Nha Trang, Hoi An, or Da Lat where the Prime Minister can discuss his vision (like the development of the Friday Group of Prime Minister Vo Van Kiet in which Prime Minister Vo Van Kiet met the elites in a friendly, attentive and respectful manner). Virtual meetings of this type will be held in Boston with the Prime Minister and Vietnam's policy and AI elites participating via Skype. Mr. Nguyen Anh Tuan will organize the Boston sessions. Interested global AI elites will be invited to Vietnam for face-to-face sessions.

The deployment phases of the AI Innovation Zone:
- ❖ **The first phase:**

  - *Develop the National Decision-Making and Data Center for the direction and administration of the Government at all levels.*
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This data center will collect and analyze data to make and guide decisions on economic and social development. Develop secondary data centers for sectors and localities, creating links among them.

- *Build AI education*

Applying AI to education, automating knowledge, encouraging students to live up to the value standards issued by UNESCO. Will include spreading knowledge by applying AI technology as a form of game to enhance engagement and learning. Will involve special attention to remote areas, rural areas, mountainous areas, border, island, etc. AI schools will be a pioneering education system that combines artificial intelligence, the Internet and mobile phones. Create a minimum AI knowledge requirement for citizens. Create a new learning model for the Vietnamese people that is based on creativity and problem solving.

Develop AI universities that can serve as a new model for the world. : thinkers, professors from Harvard, MIT and Vietnam's technology engineers, as well as teaching programs with robotics or AI. Professors at Harvard, such as Thomas Patterson, are ready to advise on the construction of AI schools.

Cooperate with Google to create a good, effective and widely-used English and Vietnamese automatic translation program. This will be a breakthrough, removing the language barrier for the Vietnamese. After completing the English-Vietnamese automatic translation, it is recommended to develop the Vietnamese-Chinese automatic translation.

- *Develop AI hospitals and AI public health: Professors at Harvard Medical School such as Prof. David Silbersweig are ready to be an advisor.*

- *Public information service, connection with AI support: Faculty at MIT such as Professor. Nazli Choucri and Professor John Savage from Brown University are ready to be advisors.*

- *Develop the AI system for tourism development.*

Apply AI to improve the quality and develop the branding for Vietnam's tourism. Every citizen is responsible for marketing tourism, using AI technology to promote, introduce and attract tourists to Vietnam, creating a special image of Vietnam in the AI Age. Create content (books, articles, videos, games, etc.) that promote Vietnam's history, culture, and cuisine, distribute through AI to strengthen Vietnam's global brand.

- *Build the Urban Transport Coordination Assistance System with support of AI*

*   *Develop a breakthrough AI system for agriculture.*

Create AI applications to support processing, forecasting, marketing, and resource allocation. Develop Vietnam's clean and high-quality agriculture products as prestigious global brands. Professors such as Brown University's Thomas Creely are ready to be advisors.

*   *Establish the AI public service system.*

Create incentives to maximize the application of AI to state management and public policy, by using data to inform every step. Eliminate regulations that impede the application of information technology. Develop pioneering ideas, such as citizen management and transactions using ID blockchain. Every citizen has an ID blockchain and the ID is used for transactions such as ID card, passport, and other documents. Businesses are also managed and registered with an ID blockchain.

*   *Electricity, water supply services with the support of AI.*

*   *Develop the corporate governance system by AI.*

Develop the Artificial Intelligence Information Portal, ThoiDaiAI, run by VLAB with the support of the Michael Dukakis Institute.

Incentivize the application of AI to corporate governance by removing regulations that impede the application of AI, eliminating interference by public authorities, and encouraging corporate management by using ID blockchain. A firm's transactions are conducted and recorded using its ID blockchain.

*   *Develop AI Legal Assistance.*

Enable citizens to understand their legal rights, obligations and responsibilities with a smart Q&A automatic system.

*   *Build the AI administrative management system in which all basic transactions are online.*

Notary services are no longer necessary when all use ID blockchain to ensure authenticity. Large savings would result in terms of citizens' time, administrative costs, and transportation.

*   *Make Vietnam a world center for cultural innovation in the AI Age.*

The AI Innovation Zone will be a place for cultural innovation in the AI Age, such as the World Classical Music Center.

Expand the AI Innovation Zone through online access. Enable firms and innovators from around the world to participate in the Zone, protected in their entrepreneurship by the

Vietnamese state. Access to the Vietnamese market would accompany such partnerships, as would a yet-to-be determined form of goods and services ownership sharing.

Bring Vietnam and the world to the AI Innovation Zone.
- *Organize a special communication system based in the AI Zone for the sharing of ideas and innovations, while honoring those of high achievement.*
- Orientate the communication to change thinking so that creativity for the purpose of improving the material and spiritual life of human beings is the highest value.
- Create incentives to support innovators and creative thinkers.
- Apply the communication system to promote the Vietnamese AI brand globally.
- Encourage people to become skilled in data analysis and processing.
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- ❖ **The second phase:**

From the success of the first phase, deploy the second phase, which would include:
- Extending the activities of the first phase with emphasis on full implementation of AI-government in Vietnam; AI product development; AI goods and services marketing domestically and globally; enlarging Vietnam's global AI brand.
- Creation of smart robots and human-like robots, emphasizing robots in areas where Vietnam can be a pioneer, such as cultural, entertainment, and administrative robots.
- Substantial expansion into Chinese markets, coupled with creating media content that will educate the Chinese about Vietnam's history, culture, and people. Use AI to analyze, evaluate, and forecast the Chinese market; and assess the consumption psychology and demand of Chinese consumers in order to align the production of AI goods and services to their tendencies.

Summary

The elements described above are the main features of the breakthrough AI strategy for Vietnam: ***Becoming a pioneer in building AI Government and AI Age Culture owned by the Government of Vietnam; attracting intellectual elites in the Boston area; attracting funding from World Bank and U.S. firms: establishing Vietnam as the leader in automatic governance by Artificial Intelligence; building an AI Innovation Zone which has the ability to provide advanced products and services for Vietnam and international markets, helping Vietnam to become one of the most advanced and prestigious countries in Artificial Intelligence.***

We have outlined strategies, breakthrough solutions, and measures that can be implemented quickly. We believe that this presentation is more practical and useful to Vietnam than an academic report with figures, diagrams, charts, etc. It is hoped that the Government of Vietnam

will find our suggestions and recommendations meritorious. They will position Vietnam to be a global leader in the field of AI.