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SHAPING THE NEW DIGITAL BORDER AGENCY

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Every year, the Accenture Technology Vision pinpoints the emerging IT developments that will have the greatest impact on people, business, government agencies and other organizations over the coming three years. This year's Technology Vision[1] builds on the 'People First' theme introduced in 2016, and details the powerful business potential that government agencies can realize by using technology as a catalyst across their business. For border agencies, doing this successfully is all about using technology to augment and enhance our human skills – enabling us to listen more closely to businesses, citizens, residents, and travellers, connect to them on their own terms, and partner with them to achieve their own specific goals.

THE PEOPLE FIRST APPROACH TO BUSINESS AND TECHNOLOGY

Taking a People First approach to business and technology requires deep intelligence throughout the enterprise, from strategy to operations. Every decision about technology implementation, ecosystem relationships, workforce enablement, customer-centric design, and facilitating industry growth must be made with people in mind – both at an individual and societal level. As technology advances continue to accelerate, organizations can use this approach to reshape themselves and enable their stakeholders to do more. As a result, organizations can gain the power, influence and responsibility to bring the future to life in a human fashion, using technology for people.

TREATING THE BORDER AS A NATIONAL ASSET

So, what are the implications of this vision of the future for those working in the border services ecosystem – including immigration, transportation, borders, and customs? And how will it help them transform into the NEW digital border agency? The starting-point for this transformation is the realization that the "border" is a national asset that can drive a lot of value for a nation. As our vision—based around five key trends—becomes reality, everything else flows from there.

As you browse the various sections of the Technology Vision 2017, here are some implications for border agencies that will arise from each of the five trends.

AI IS THE NEW UI

Artificial Intelligence (AI) is the next breakthrough technology for the border services ecosystem. AI technologies are progressing from their former role as back-end systems to take prime position in digital enterprises – and are now doing the same in digital public services. By creating new data ecosystems and combining these with more intelligent systems, border agencies will be able to react faster to the changing nature of travel and trade, detect illicit behaviors earlier, and facilitate travel and trade in a more automated way. This is why AI is the new user interface (UI).

The key differentiator

As border agencies develop these capabilities, AI will act as the critical differentiator by enabling them to make every interaction simple and smart. For example, AI tools can be used to perform automated and live translations, whether involving interacting with passengers globally or submitting or receiving declarations. By using AI to automate tasks that are repetitive, dangerous or complex for humans to undertake, we can better equip the agency and its staff for the future. Indeed, progress is already underway, with AI being used as the first point of contact for online digital customer service interactions in response to queries, thus enabling staff to focus on higher-priority tasks and activities that add more value. AI robots also have the capacity to be trained and used to perform inspections of goods deemed too hazardous for human officers, such as chemical or potentially radioactive materials.

AI will also equip border agencies to react more quickly to a vast array of events, ranging from changes in the geopolitical environment such as Brexit, to more fluid immigration policies, to the emergence of new types of risks. AI tools and techniques can be used not only to model but also to quickly apply the effects of changes made in legislation or trade agreements, such as updating tariff data. Border agency staff can also take advantage of the superior decision-making capabilities provided by AI technologies, which can be trained in advance to handle all types of scenarios. Even using AI technologies to make simple suggestions on the "next best action", based on a combination of an analysis of historical cases and staff experience, will make case workers more effective and efficient.

Benefits extending beyond customs to visa and immigration

As well as delivering major benefits in customs, AI can also be a significant contributor in the visa and immigration domain. Today much of the cost and effort in this area goes into collecting documentation from applicants and carrying out manual assessments. Using intelligent automation-driven AI, the entire consular services process can be made faster, cheaper and more efficient. Similarly, AI can help enable better data collection directly from passengers and automate the processes of assessing risk and determining entry eligibility, thereby creating faster flows through borders on arrivals and departures.

A further use for AI technologies in the border services ecosystem is handling complex yet repetitive tasks, such as directing autonomous vehicles in ports or automated monitoring of containers and warehouses. AI tools can be trained to detect risk more effectively in conjunction with other tools, ranging from biometric face recognition for identifying risky travelers to visual analytics for predicting anomalies in x-ray scans during container inspections. Another example might be a customs officer looking to find and seize unauthorized cargo. In the future, an analytics-driven, AI-enabled risk assessment app on their tablet might notify the officer that they should inspect a container at the docks, use geolocation to guide them to the specific container, and then use learnings from similar searches elsewhere in the world to tell them the likeliest hiding-place for contraband.

Ultimately, using AI technologies—embedded with a new level of predictive intelligence—will not only enhance overall border integrity and security, but also create better experiences for all stakeholders, from employees to customers and more.

This trend in action:
AI IS THE NEW UI

There are many AI innovations under way today with clear implications for border services. IFM[2] is a data analytics company that is using machine learning, computer vision and robotics—including flying robots—to automate indoor data capture. Amazon is using thousands of AI-enabled drones and robots created by Kiva Systems to help track and ship inventory in its warehouses[3], generating annual savings worth hundreds of millions of dollars. And the use of inbuilt rules and intelligence engines to enabling decision-making within automated processes—also known as robotic process automation (RPA)—is playing an increasingly important role in speeding up the processing of asylum claims across the world.[4]

ECOSYSTEMS AS MACROCOSMS

Border agencies are beginning to appreciate the value that flows from developing ecosystems. The first step is data ecosystems, in which myriad public and private data sources can be combined with advanced analytics to assess risk, create more efficient processes, and develop seamless customer experiences that help the agency connect better with its customers and end users. But data ecosystems are just the start. Moving beyond sharing data, ecosystems can be established where there are shared responsibilities across processes, people and technologies.

To create ecosystems like these, agencies must first focus their energies on building an integrated digital platform, in which a variety of stakeholders—including passengers, other agencies (e.g. port authorities), other governments, subject matter experts (e.g. freight forwarders, logistics specialists), and even third-party developers—can connect with the border agency. Using this platform, they would build products and value added services on top of it, and co-create value. This platform will also help enable governments to share data with other governments, enabling better collaboration in areas like watch lists.

Collaboration and innovation create competitive edge

Border agencies that enable deeper collaboration and integration with the wider ecosystem, and create an environment that fosters and encourages innovation, will have a substantial competitive advantage. An example is Singapore, which has enabled its TradeXchange platform as a centre of B2B commerce, enabling traders, logistics providers, and other tertiary businesses to use the platform for mutual benefit. By empowering the B2B ecosystem, Singapore Customs is creating an environment where innovation is seeded

and where both the agency and participants in trade flows benefit from shared data and co-created value-added services (see information panel).

By being at the heart of the border services ecosystem, and providing a platform where the digital value chain can reside, agencies can foster better partnerships, develop new relationships, and take collaborative and innovative approaches to tackling common challenges faced within the ecosystem.

This trend in action: ECOSYSTEMS AS MACROCOSMS

The Singapore TradeXchange platform[5] provides an environment where both B2B and business-to-government (B2G) interactions and data can be used to create new value-added services both for the border agency and the private-sector businesses in the ecosystem. And in the UK, the Gov.UK[6] service has been built to provide a single digital platform that combines many different services from numerous agencies.

WORKFORCE MARKETPLACE

As the digital economy grows, and digital enterprises—including digital public services—evolve with it, a noticeable change is already underway in the workforce. Catalyzed by the rapid innovation and changing organizational models now emerging in the private sector, border agencies must look at themselves and ask key questions such as, "How do we stay relevant using our current workforce?", "How do we leverage the digital revolution to evolve" and "How do we attract and retain the people we need, in an environment defined by open talent marketplaces?" As organizations consider these questions and more, legacy workforce models, hierarchies, and practices are slowly being dissolved amid a widespread move towards more competency-based talent models.

Creating a versatile knowledge workforce

This shift is highly relevant to border agencies. It's clear that the border agency of the future will be operated by a highly versatile knowledge workforce. They will need to have a flexible and competitive talent pool that is not only able to work in fluid operational environments, but can also learn faster and adapt new technologies at pace into their day-to-day activities. Whether upskilling the current workforce, or hiring with a "digital first" mind-set for new staff, agencies that enable immersive integration between digital technology and staff in modern, dynamic environments will be able to realize the benefits of both actions by creating a more versatile workforce. As agencies enter the digital era, leadership will be key – and agency leaders will need to think hard about how to bring about a change of culture that will help enable their employees to unleash the full potential of digital enablement. Both leaders themselves and their workforces will need to undertake this journey together.

To navigate this journey successfully, border agencies must be able to exploit digital technologies to help enable innovative workforce transformation. This will include creating competency-based talent marketplaces allowing free movement of staff, evolving skills requirements, adapting training, and updating recruitment practices to align them with the needs of the digital border agency of the future.

This trend in action: WORKFORCE MARKETPLACE

Uber is an example of an organization that is looking to reskill and train a non-traditional workforce structure using digital communication and tools. Across the Asia-Pacific region, Uber has more than half a million drivers working for it, using 12 different languages. These people range from full-time Uber drivers to commuters who use it to make some money on the side. To help ensure a consistent customer experience across all its interactions in every country, Uber has created digital training materials that drivers can consume on their devices, explaining the company's values and culture in simple terms using engaging characters and stories. These include videos designed to help Uber drivers understand how to behave in various situations that might arise in their daily work.[7]

DESIGN FOR HUMANS

Border agencies are realizing the value of having great customer service, and are increasingly acknowledging the value of going beyond the role of a basic facilitator for travel and trade. By re-designing their core business models with the customer at the heart, while also maintaining their focus on compliance and expanding their service offerings to include the wider ecosystem, border agencies will reap the benefits flowing from building strong trust-based relationships with their customers and other stakeholders. For the ecosystem to deliver to its full potential, individuals need to trust the agency and the agency needs to be able to trust individuals. Once this trust is established and combined with personalized digital experiences, it becomes possible to evolve the traditional transactional agency/customer relationship into something far more valuable; a true mutually beneficial partnership.

Reaping the benefits of a personalized border experience...

A partnership of this type can have a dramatic impact by enabling far closer and more productive cooperation between the agency and its customers. For example, the relationship can become much more open, supported by guaranteed levels of service and personalized border experience, if the customer is willing to share personal data – and is informed in return about what data is being collected, by whom, for how long, and for what purpose, as well as how it will be shared and what redress options are available for remediation of errors. Depending on the amount of data shared by the customer, agencies can provide better, more streamlined experiences at

the border, for example providing access to better trusted trader/traveler benefits with minimal or no formalities. Examples of this include an EU member state who implemented a smart borders entry/exit pilot, under which passengers filled in a consent form before going through the pilot process, which enabled faster handling of passengers and quicker testing of the technology. Similarly, many countries are now looking at re-designing their border processes keeping the travelers and trade people at the heart of the process. For example, Finland has implemented an innovative immigration process called "EnterFinland" (see information panel on the next page).

...by putting people at the heart of what border agencies do

As such developments continue, here's a scenario to illustrate what the future might look like. Imagine a tourist arriving in the airport of the future at their holiday destination. From the moment they bought their ticket, the border system has been tracking their social media activity and personal tastes, building up positive ID information about who they are. One result is that they get your favorite meal on the flight. Another is that as they walk through the immigration hall—there's no longer a line of desks—they don't even need to get their passport out. The border system knows who they are and that they're compliant, and facial recognition software positively IDs them. As they stroll through the arrivals hall, they do see one person being quietly taken aside for a chat. But the vast majority of travelers just head straight on out of the airport to their hotel taxis. This is just one example of how the convergence of people and technology will enable customs and border management services to finally put people at the heart of what they do.

This trend in action: DESIGN FOR HUMANS

EnterFinland is the online service offered by the Finnish Immigration Service (Migri), which helps enable people looking to enter Finland to carry out all the related operations online, thereby reducing the workload of applications processing by up to 35%. With Accenture's help, Migri[8] has also developed an asylum optimization system that has helped the country handle the upsurge in asylum applicants in the past two years.

THE UNCHARTED

With access to a wider range of data, pervasive adoption of digital technologies, and open collaboration with a broader array of stakeholders in the trade ecosystem, border agencies can play a role at the forefront of shaping new innovations and standards, and even whole new industries. By doing this, they can create value in new ways while continuing to deliver their core mandate. We're already seeing new digital business models with interesting value propositions emerge in the private sector, with examples such as Flexe (see information panel), widely known as the Airbnb for warehouse space.

New ways to solve current problems

Using collaborative methods and innovation models such as hackathons, some border agencies are already beginning to find new ways to solve current problems. For example, the Finnish Border Agency Migri uses hackathons to identify better ways to deal with its immigration issues, while Dutch Customs is using hackathons in collaboration with the logistics industry to innovate around new solutions, for example by finding use cases for new technologies such as blockchain and evolving the concept of a digital passport for containers.

As such case studies underline, border agencies that are forward-thinking and develop the ability to proactively navigate and predict "the uncharted" can help shape the digital future of borders and trade.

This trend in action: THE UNCHARTED

Examples of stakeholders in the border ecosystem navigating the "uncharted" waters of the future of trade include Fleet[9], an online logistics marketplace, and FLEXE[10], a marketplace that connects businesses that need warehousing and fulfilment services with organizations that offer these. Another digitally-enabled business model in the trade domain is Flexport[11], a full-service air and ocean freight forwarder that provides visibility and control over the entire supply chain through software. We're also seeing the emergence of connected smartships[12], for example through a collaboration between Accenture and Hyundai Heavy Industries, designing ships that measure their progress and optimize the efficiency of cargo-handling.

THE FIRST STEP:
ADOPT A 'PEOPLE FIRST' MINDSET

Border agencies seeking to harness the five main trends in our Technology Vision 2017 must first embrace the 'People First' mindset at every level of their organization. This will open the way for the leading agencies not only to adopt new technologies, but also to use them to empower their staff and customers, and partner with participants across the border services ecosystem. This will positon them both to create the next generation of products, services, and business models, and also to catalyze and shape new industries and standards.

ABOUT THE TECHNOLOGY VISION RESEARCH

As we highlighted at the start of this paper, Accenture's annual *Technology Vision* pinpoints the emerging IT developments that will have the greatest impact on people, business, government agencies and other organizations over the coming three years. The study is developed and produced every year through a collaborative partnership between the dedicated Technology Vision team and Accenture Research.

The research process begins with the gathering of ideas and input from the Technology Vision External Advisory Board, a group comprised of more than two dozen experienced individuals from the public and private sectors, academia, the venture capital community and entrepreneurial companies. In addition, the Technology Vision team conducts interviews with technology luminaries and industry experts, as well as nearly 100 Accenture business leaders from across the organization.

The team also taps into the vast pool of knowledge and innovative ideas from professionals across Accenture, using Accenture's collaboration technologies and a crowdsourcing approach to uncover the most interesting emerging technology themes. This 'trend-spotting' campaign encourages global participation from individuals at every level and throughout every segment of Accenture. For the 2017 report, nearly 3,000 participants engaged actively in the campaign—a 19% increase over the previous year—all contributing valuable ideas and voting on others' inputs.

As a shortlist of themes emerges from the research process, the Technology Vision team reconvenes its advisory board for a workshop involving a series of 'deep-dive' sessions with Accenture leadership and external subject-matter experts. During this exercise, the board validates and further refines the themes.

Throughout the process of developing the Technology Vision, the themes identified are weighted for their relevance to real-world business challenges. Specifically, the Technology Vision team seeks ideas that transcend the well-known drivers of technological change, concentrating instead on those that will soon start to appear on the C-level agendas of most enterprises.

Themes are prioritized based on the following criteria:

• Actionable today

• Highly relevant to an organization's transformation within three years

• Having a significant impact beyond any one industry 'silo'

• Disruptive beyond a straightforward one-for-one replacement of an existing solution

• Transcending any one vendor or discrete product technology.

These tests produce a handful of robust hypotheses that are synthesized into the five overarching trends presented in the final report.

If you would like to know more about the Accenture Technology Vision, please visit **www.accenture.com/technologyvision** or join the conversation *#techvision2017*

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Accenture Labs incubate and prototype new concepts through applied R&D projects that are expected to have a significant near-term impact on clients' businesses. Our dedicated team of technologists and researchers work with leaders across the company to invest in, incubate and deliver breakthrough ideas and solutions that help our clients create new sources of business advantage. Accenture Labs is located in seven key research hubs around the world: Bangalore, India; Beijing, China; Dublin, Ireland; Silicon Valley, California; Sophia Antipolis, France; Washington D.C.; and Israel.

ABOUT ACCENTURE RESEARCH

Accenture Research shapes trends and creates data-driven insights about the most pressing issues global organisations face. Combining the power of innovative research techniques with a deep understanding of our clients' industries, our team of 250 researchers and analysts spans 23 countries and publishes hundreds of reports, articles and points of view every year. Our thought-provoking research—supported by proprietary data and partnerships with leading organisations such as MIT and Singularity—guides our innovations and allows us to transform theories and fresh ideas into real-world solutions for our clients.

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