

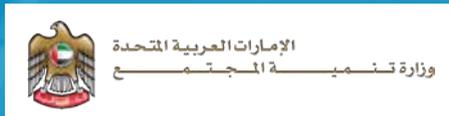
Innovative Social Welfare In the Digital Era

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WORLD GOVERNMENT SUMMIT 2019

in partnership with



Answering Tomorrow's Questions Today

The World Government Summit is a global platform dedicated to shaping the future of governments worldwide. Each year, the Summit sets the agenda for the next generation of governments with a focus on how they can harness innovation and technology to solve universal challenges facing humanity.

The World Government Summit is a knowledge exchange center at the intersection of government, futurism, technology, and innovation. It functions as a thought leadership platform and networking hub for policymakers, experts and pioneers in human development.

The Summit is a gateway to the future as it functions as the stage for analysis of future trends, concerns, and opportunities facing humanity. It is also an arena to showcase innovations, best practice, and smart solutions to inspire creativity to tackle these future challenges.





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Most people talk;
we do things. They
plan; we achieve.
They hesitate; we
move ahead. We
are living proof
that when human
beings have the
courage and
commitment to
transform a dream
into reality, there
is nothing that
can stop them.

His Highness Sheikh
Mohammed Bin Rashid Al Maktoum



Her Excellency Hessa Bint Essa Buhumaid, Minister of Community Development was handed over her duties confidently to transit from community care to sustainable development. She managed to accomplish four policies in one year: National Family Policy, National Policy for People of Determination, Executive-By laws of Child Rights Law “Wadima” and National Policy for Senior Emiratis. Through her chairmanship to the Community & International Games Heritage Committee and as part of the “host town program”, Her Excellency attained remarkable achievements in the Special Olympics MENA Regional Games 2018 in preparation of the Special Olympics-Abu Dhabi 2019 to host participating delegations and expand volunteering field.

Her Excellency Hessa Bint Essa Buhumaid accomplished new policies and legislations to empower women and raise her ambitions towards the future, enhanced ambitions of the youth generations through “Eddad” and “Begin a new family” programs to encourage a happy and a sustainable marriage. She also supported marriage grants with more flexible and positive procedures and other successful initiatives to support stable, productive and coherent families.



Her Excellency Hessa Bint Essa Buhumaid,
Minister of Community Development

Emirati Family will be the main focus on the Ministry of Development Community in the Future

Executive Summary

Improving Social Development in UAE & following UAE vision 2021

Delivering against expectations in a complex environment

The world is constantly changing. Economic and social developments are closely linked, and global economic fluctuations have a significant impact on the entire social protection system. At the same time, increasing levels of unemployment, aging populations, disability and labor accidents, child neglect and abuse, and rising healthcare costs are driving up demand for social benefits. Citizens' expectations are rising, too. Citizens want high-quality services, multichannel access, and fast, fair, and correct decisions about their eligibility for and entitlement to social programs.

Today, Digital Technology offers the potential of moving from the traditional automation of existing processes and organizational structures of Social agencies to transformation, i.e. aligning processes, organizational structures, and new technologies along the goals of social policies. This Digital integration in social welfare and protection is driven by the demand for more accurate and efficient service, from within social agencies as well as from the public. It automates and improves data management, reducing workloads and enabling managers to make more informed decisions. Digital technology can also provide convenience and faster citizen-centered service as well as better security for beneficiaries and the public.

The Ministry of Community Development (MOCD), is seeking to improve the social development in Emirates by achieving the objectives of national agenda for the UAE Vision 2021, strengthening the society and family coherence and finding a society which participates effectively in the building and development by adopting a long term strategic plans derived from the vision of wise leadership of government aiming at bringing happiness to the society and consolidating the position of country as a place of happiness.

Focusing on Society and strengthen the stability of Families

The Ministry's programs and initiatives are focusing on all concerned categories of society in relation to the activation of children rights, enabling of the entrepreneurial family and merging the people of determination in the society. They are also focusing on the development of social security policy, enabling the weak categories to be merged in the society, strengthening the stability of Emirati families and reinforcing the relations among the members of society by the permanent innovation for the purpose of providing the services in accordance with the highest world standards of quality, efficiency and transparency

Throughout the years the ministry has led a number of initiatives that supports its objectives, for example Early on January, 2018, The ministry launched 'Masaai Al Khair' initiative which aligns with the UAE government's directives to enhance the quality of life for the country's citizens and residents. It also aims to embed social responsibility as a core social value in the UAE, underpinned by harmonious and cohesive communities envisioned by the National Agenda of the UAE Vision 2021.

Additionally, in November 2018, the ministry, initiated "Form an Emirati Family", as part of the ministry's efforts to achieve the vision of the federal government 2021 through continuous and comprehensive support for the youth categories who wish to get married; such initiatives enhance transition from community care to community development. The initiative sponsors all individual weddings for UAE nationals who are not eligible for the marriage grant and covers all the financial costs of the wedding ceremony by the association as per the agreed amount with the wedding organizer company under Sheikh Khalifa Bin Zayed For Humanitarian Foundation.

Helping governments improve citizens' Life

At SAP, our vision is to help the world run better and provide solutions that help governments to improve the quality of citizens' lives.

SAP has a long association with social protection & development agencies around the world. We work with organizations servicing the needs of people across the full range of social programs. We recognize that social policy – the way society addresses social risks and provides a safety net for people in economically and socially vulnerable situations – is one of most dominant features of national identity.

To be able to do this, agencies need integrated digital technology solutions that can support the complex, end-to-end processes of programs and services. And this is why we've developed solutions that provide a cohesive foundation for doing more with fewer resources. The SAP Institute for Digital Government (SIDG) was also established as a think tank that aims to create value for government by leveraging digital capability to meet the needs of citizens and consumers of government services. SIDG has five foundation partners: National Disability Insurance Agency (NDIA), European Social Network (ESN), International Social Security Association (ISSA), Australian National University (ANU), Australian Catholic University (ACU). The paper will discuss how digitization can help social innovation in the UAE.

Digital Technologies and Value Creation in the Public Sector

The objectives of governments remained largely unchanged over centuries. Their mandate is to provide a framework for businesses and individuals to prosper, ensure a protected society and provide a large range of services to those in need. Yet, while the mandate remains in place, governments are facing a number of challenges in recent times:

- Resources are increasingly constrained – doing more with the same is a common theme
- Millions of people are moving around the globe, on their way to a better living and to a better future, they are trying to escape from terror and unstable systems that make the thread pattern more unpredictable globally
- In mature democracies citizens are better informed than ever with governments, not keeping up with the citizen engagements may result in a significant decrease of public trust. ‘Nothing is a constant as change’ that has been true for ages, but what has dramatically changed is the frequencies of events as well as their amplitudes and impacts forcing governments to respond more agile and cohesive

Fresh thinking is required if we are to take advantage of new technologies. We have a lot to learn from digital natives, such as Uber, Google, and Airbnb. Below are some considerations for Governments as they begin reimagining their business processes and, ultimately, their business model.

Customer experience drives strategy

Customer experience across every touch point should drive a company’s overall strategy. Reimagining that experience through a design thinking approach is becoming a key competitive advantage.

Smart business starts with smart decisions

Executing business transactions flawlessly and consistently is no longer sufficient. Governments need to optimize the decisions that drive transactions. Ultimately, the decision and the transaction need to work hand in hand.

Data is the new center of gravity

Digital innovation will be data driven. In the past, business applications were the “kings,” and data was the servant. That relationship is now reversed.

Speed matters

New enterprise architecture should be focused on simplification across all technology layers and more focus on innovation, leveraging micro-services and agile development. “Good is enough” should drive most decisions to enable speed to service and customer.

Digital Technologies Are Driving An Unprecedented Wave Of Innovation

Not only are technologies such as in-memory computing, AI, and IoT now highly viable, they are also affordable. The return on investment (ROI) on these technologies is very attractive. The key question today is how we apply these technologies to drive business value, manage complexity trend we have seen over the last decade. It all comes down to business leaders’ ability to unleash the power of innovation.



In-memory computing

Bringing transactions and analytics together on a single platform, businesses can run in real time and optimize processes.



Mobility

A key enabler for an always-on business, mobility drives anytime, anywhere access to information and workflows to serve an always-on customer.



Cloud

With standardized solutions, such as business networks, businesses can innovate faster and efficiently manage master data complexity.

Digital Technologies and Value Creation in the Public Sector

Everything should be measured in cycle time

Ultimately, every business process needs to run in near real time. When the cycle time from insight to execution is close to zero, enormous efficiencies can be achieved. This cycle time also includes transactions and sharing of data with business partners and government agencies

Trust in the new currency

Data is powerful in helping Governments run better and faster. Managing data privacy and implementing robust cybersecurity tools and processes are becoming paramount. Your citizens need to trust you with their data, and you need to trust the data to run your business.

While the above seems obvious, Many Governments have too many processes and procedures that slow progress and innovation when compared to more agile digital natives. The older the organization is, the more cholesterol it has accumulated. But there is hope – the value created by these technologies is so significant, it justifies more risk taking and more investment in business innovation.

The digital economy offers new approaches for addressing the barriers of adequacy, coverage, and affordability. We are entering a new era of dynamic social, protection and development where digital technology enables new levels of policy and service-delivery agility to keep pace with the rapid changes in the labor market. Dynamic social protection heralds a new wave of innovation in deep cross-program policy analysis, through to Artificial intelligences, and predictive service interventions, and real-time program, evaluations based on digitalized data.

Digital Technologies Are Driving An Unprecedented Wave Of Innovation



Internet of Things

brings the intelligence of the external world to business, enabling it to create new value and/or enhance value from within the countless connections all around.



Artificial intelligence

allow businesses to employ autonomous machines on top of the data, making processes smarter and transactions faster, freeing up resources for more strategic activities.



Blockchain

is revolutionizing the movement and storage of value by creating a chain of unaltered transactional data.



Augmented reality

is the integration of digital information with the user’s environment in real time. It differs from virtual reality, which creates a totally artificial environment.

The Business Value Is Too Great To Ignore

Technology is only as good as the value it delivers, from helping Governments grow revenue, to managing risk, and improving productivity and return on assets. If all of these value dimensions can be impacted in a significant way, embracing new technologies becomes more than just a choice. Executives have the responsibility to learn more about new capabilities, identify the best fit for their company, and dedicate resources to the exploitation of the new capabilities.

The chart below shows that early adopters of new technologies and the paradigm shift associated with these technologies are changing the game across industries and delivering higher value. Most Governments are at a very early stage of adoption. Of the organizations surveyed, less than 30% leverage digital technologies and capabilities that improve processes, engage talent across the organization and drive new value generating business models.⁵



Source: McKinsey; derived from SAP customer experience⁶

BURNING PLATFORM



THE DIGITAL ECONOMY OFFERS INFINITE NEW OPPORTUNITIES, YET THERE ARE BARRIERS TO OVERCOME

This section will shed the light on two key perspectives: Barriers of adapting Digital technology that supports the administrative and operational processes of MOCD and how digital technology can drive institutional development towards business process re-engineering and new business models that can advance social development in the UAE

Social Development Barriers, Drivers and opportunities

To achieve digital economy and citizen welfare, digital technology plays a major role to transform to an information society, where knowledge and information become their own agent of transformation, new and intelligent approaches to solving problems are called for. A key question remains, "What are the opportunities and barriers of using digital technology for the delivery of social programs and services?"

Service Accessibility

Providing basic economic and social security to citizens has long been acknowledged as a fundamental responsibility of government. Today, across a broad portfolio – from child welfare and income security to disability services and youth development – the need to adopt a business-like, results-oriented approach to the delivery of human and social services is quickly moving up the public sector agenda, especially here in the UAE.

However, the delivery of services has become increasingly complex in recent years in the face of these financial challenges and resource limitation. Today, a growing number of public sector leaders are seeking new approaches and models for service delivery. In part, this is due to a growing realization of the interconnectedness of social services and economic growth. But other external forces are also playing a role such as technological innovation, shifting demographics, urbanization, and aging populations are all creating new pressures as well as opportunities for public sector service delivery.

Complex nature of Social Services delivery

Social agencies such as MOCD faces additional challenges to deliver its government services, it is clear that there is a growing acknowledgment of the needs of disabled people within society. On the one hand, modern science has resulted in better diagnosis and treatment for a range of disabilities, which in turn, has placed increased pressure on government services. At the same time, governments are starting to recognize the benefits, both economic and social, of providing services that help the disabled to achieve greater participation within society. For governments, this has resulted in increased demand for services as the number of known disabilities grows. It also means that public sector organizations will need to develop and implement a set of new services that properly reflects the range of disabilities now affecting their populations

Interoperability

Interoperability is a key issue in UAE which requires integration of and access to databases across different departments, ministries, and between emirates. Such process requires coordination and sharing of data among and between ministries and/or departments.

Capacity Building

While technology offers a huge potential for improved operational agency performance and social development program delivery, it is human beings who take relevant decisions, define processes, build organizational environments, and operate the technology. Much of the success depends on qualified staff at levels. Therefore, capacity building should be a continuous process throughout all social development processes. Different ways and methods may be used to invest in this process and develop and retain knowledgeable agency staff with appropriate skills. Capacity at all agency levels includes management, staff who works with the ICT system, and technical staff representing the automation unit.

Need for New Organizational Models & New Processes

The adoption of innovative Digital Technology is likely to be part of an organizational process rather than used discretely as stand-alone units. For example, payments may be distributed to beneficiaries with the use of mobile devices, but that requires a back-end process to generate numbers and pass the necessary data to banks or mobile network operators. More disruptive use of Digital Technology involves a change of entire systems and substituting new way for existing practices.

For example, separately defined services and their respective databases can be integrated, so that benefits can be simultaneously calculated and delivered. This may improve the accuracy and timeliness of payments and provide beneficiaries with a "one-stop shop" web portal to check their status. These changes are disruptive in the sense that they call for parallel changes in organizational and administrative structures and staffing requirements, which need to be managed with foresight.

Citizen Focus

Public sector agencies in the UAE process large volumes of information and routine transactions which may be moved online to a single electronic self-service channel. In this way, citizens do not have to wait anymore in line during working hours in crowded public agencies

Complexity is an Obstacle to Digitization

Complexity Alert

Complexity is one of the most intractable issues of our time, an epidemic of wide-ranging proportions, affecting our lives, our work, and even our health. Internal complexity leads to unsatisfactory results

Public Sector on all levels are facing similar issues: High debt burden, inefficient and service unfriendly processes due to slow analog processes, high costs through custom build legacy systems, boundaries within government, red-taped data and an aging workforce.

Citizens and businesses are experiencing this complexity every time they interact – how often do you need to queue for a simple service or answer? Why can governments agencies predict and solve rather than (re-)question and react?

For 20+ years public sector invested in standardizing business processes and implementing productivity tools to address this complexity. For 10 years online services have been on the rise – with different approaches and results. The outcomes in Public Sector were remarkable – significant business value was achieved in the financial, social and political ROI (Public Value).

But still, complexity exists in governments. In order to deliver on the vision of frictionless government, governments need to move from standardization to simplification and innovation.

The Answer is "Simple"

To get the most out of this new world of digital business, Public Sector needs to run "simple".

Finding ways to run simple matters more than ever in order to drive innovation and improve livability. Running simple is when you reimagine service delivery based on real insights, not trends. It's when you can serve citizens and businesses seamlessly with no channel constraints, not your process. It's when technology works for you, instead of the other way around. This needs to be added to the governmental agenda.

When you run simple, you can unify the end user experience across channels; you can predict and solve rather than question and report, weave together a seamless partner and supplier network; empower and engage your workforce, and make business processes work together. For this you need an innovative technology that caters for IT complications and acts as the foundation of digital business to be a flexible, secure, offers real-time innovation platform that makes all this possible.

Highlight Numbers

81%

believe simplification is important for their organization and 88% admit IT investment is important to achieve simplification
Source: SAP Benchmarking

150%

Improvement to brush inspection efficiencies performed by field team with Capriza iPad app on SAP.
– Ari Bose, CIO, Brocade
Los Angeles Fire Department

72%

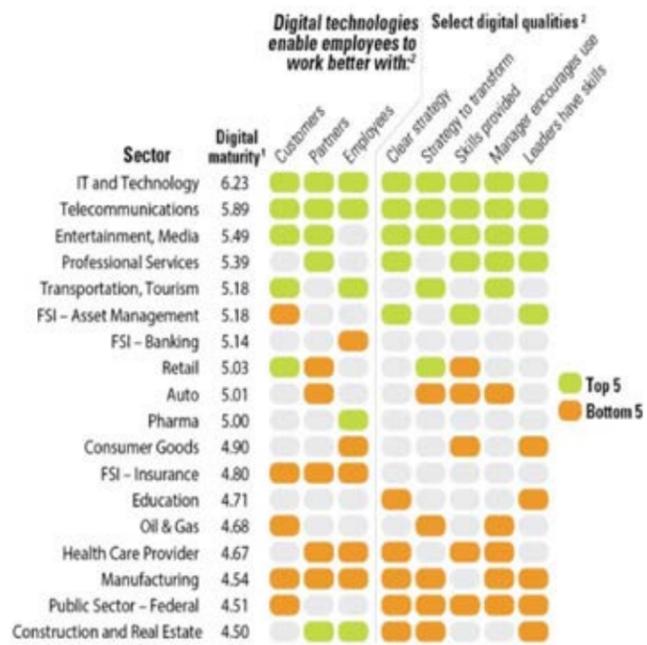
of IT budgets in governments are utilized in keeping the lights on
Source: Forrester IT Survey 2013

Great Opportunities Ahead

This is a great opportunity for the society to embark on the journey to a citizen-centric, predictive and growing future. However, governments did come a long way having started with singular e-government projects driving cost and efficiency to service delivery improvements by providing services online, as an example. Digital leaders in government are now developing holistic digitization strategies, looking also into models of success from the private sector. They use mobile, social media and predictive technologies to improve maintenance of public infrastructure improve service delivery by making them available self-managed and insightful and use digital technologies to create new jobs, enhance skills levels and thereby increase economic prosperity. To deliver on "Frictionless Government" they fundamentally reimagine the relationship with citizens and business, government processes and service delivery and how governments work as such:

- Shift the boundaries of government service delivery based on new and emerging business models and service level agreements
- A collaborative service ecosystem with engaged citizens and businesses, to harness the mass, creativity and expertise of the civil society
- Predictive, insightful and open processes combining physical and digital worlds across all organizations and reducing the administrative burden.
- Government work will be performed by a digital savvy and performance-driven workforce and stakeholders.

Reimagining government through the power of digitization has the potential to positively shape the future of every person and business on our planet – namely growing economic prosperity, increasing social inclusion, addressing the urban century and creating a safer, more resilient world. The digital dividend is something we all should be invested in. Our children, our families, and future generations depend upon it.



1. Digital maturity is calculated as the average maturity of responses from a given sector. Respondents were asked to rate their organization's digital maturity on a 10-point scale with 1 being least mature and 10 being most mature.
 2. Correspond to specific survey questions in the study. Percentage of respondents who agree/strongly agree their organization has the relevant digital skills or capabilities.

Graphic: MIT Sloan Management Review/Deloitte University Press | DUPress.com

REIMAGINE Business Models with Citizens and Business



A collaboration with citizens and business, harnessing the mass, creativity and expertise of the civil society. Governments adopt where appropriate the role of an economic and societal enabler.

REIMAGINE Government Processes



Frictionless, integrated, and real-time processes transition away from closed, top-down, bureaucratic, and paper-based transactional models, combine physical and digital worlds across all organizations and communities.

REIMAGINE Working in Government



Work will be digital and autonomous by default, for the digital century. You need employees who will be committed to your vision and mission. Use digital tools to identify, recruit, retain, educate, and promote the most engaged staff.

The government has a unique position to serve and shape a digital society so we can all benefit from greater economic prosperity, increasing resilience and public safety, healthier and greater wellbeing as well as smarter cities that improve livability.

REIMAGINE Business Models with Citizens and Business

Governments improve existing business models and adopt new models for success from the private sector to leverage the strengths of a civil society.

Government made for me

Citizens and business receive tailored services at the right time. They are empowered to do so through self-managed services such as digital social care or taxation.

Surge Capacity

Building additional capacity and capability through digital communities and networks, massive increase in short term resources to be better able to respond to and recover from unforeseen extreme events. For example businesses, communities and governments providing disaster relief.

Government as Enabler

The most successful governments build platforms such as learning or city platforms, to connect all stakeholders in one eco-system. They hold partners accountable for targeted outcomes, open up services to choice and manage crowdsourced campaigns.

REIMAGINE Government Processes

Frictionless, integrated, and real-time processes transition away from closed, top-down, bureaucratic, and paper-based transactional models, combine physical and digital worlds across all organizations and reduce the administrative burden.

Whole of Government 3rd Gen

Platforms leverage and share government infrastructure, resources, services and systems to operate in a frictionless holistic way. They realize savings and take care of identification and authorization of all actors within the eco-system.

Becoming digital by default-

Like for products there will be a digital layer wrapped around the government services. It has to ready to translate Private Sectors best practices into Public Sectors context and also offer digitized Services to stay relevant. Known streams of revenue generation (taxation) have to be reasonably adapted to new digital business models, such as the Shared Economy.

A data-driven government

achieves dramatic improvements in:

- Social and economy impact measurement of governmental activities
- Optimization and orchestration of resource utilization even in realtime, using also predictions
- Data as asset for revenue generation (or self-sustained)
- Administrative Burden reduction via Sensor self-regulation and control steering automatisms

REIMAGINE Working in Government

Government attracts and requires a specific workforce that is passionate and committed to its mission. Digital tools will help identify, recruit, retain, educate, and promote the most engaged staff,

- **Social Collectives:** Create adaptive platforms for actors to share, collaborate and build new citizen, community and cross agency relationships

- **Improve individual and team cognitive performance** through real-time wearable integrated technologies coupled with contextually aware and anticipatory data.

- **Use interactive technology** to improve user experience, including voice recognition, visualization and immersive technologies.

- **Maintain lifelong career, talent & learning pathways** Disruptive innovations require constant adoption and learning for the workforce

- **Predictive Decision Making & Artificial Intelligence** will help focus on the outcomes by supporting with relevant and personalized content.

- The **ubiquity** of IoT-connected assets and mobile-connected officials, businesses and citizens allows simplified process execution down to a single step.

DELIVERING ON THE CITIZEN PROMISE & UAE 2021

THE JOURNEY TO THE
DIGITAL GOVERNMENT
BEGINS WITH A CAPABILITY
ANALYSIS THAT RESULTS
IN THE TRANSFORMATION
AGENDA

Digitization of Social Development

5

Digital capabilities for business process innovation

As we studied how value is created, we identified five capabilities that have been applied to business processes. These capabilities are not exclusive, and Governments may use them in a variety of combinations to achieve value.

Improving Governance Effectiveness and the Rule of Law is on the UAE's 2021 objectives and represents a key pillar its agenda. The aim of this pillar is to enhance the effectiveness of governance and the rule of law, improve the efficiency of government agencies, increase coordination among them, and enhance citizens' confidence by creating an institutional framework that enacts laws and practices for defining the links and interactions between the concerned parties and for helping the creation of an effective and transparent accountability system.



1 Citizen Experience



Delivering on the citizen promise

Citizen Experience

Delight Citizens at every touch point of their journey from registration to service request to delivery



Digital technology has changed the game, but citizens changed the rules. Business models are being redefined by the customer experience, and it is changing the way Governments and Governments design products, deliver services, and protect and grow. The customer experience benchmark, regardless of industry, is set by digital leaders such as Amazon and Google. It is efficient, personalized, driven by transparency, and totally secure. CEOs across all industries are rethinking the customer experience and asking the following questions:

- How do I develop digitally enabled products and services to enter new markets or better serve citizens?
- Do I need to disrupt my current business model to stay relevant (e.g., pay for an outcome, digitize products and services, etc.)?
- Is my technology infrastructure sufficiently agile to satisfy ever-changing customer needs?
- How do I redefine my brand to stay relevant in a digital economy?
- Is my culture centered around customer experience and digital innovation?

Auckland Council

Auckland Council is a new model of local government for New Zealand, designed to strengthen regional leadership while providing effective local and community democracy. The governing body will focus on the big picture and on region-wide strategic decisions. Auckland Council uses SAP to deliver services through the council organization and council-controlled organizations

Hampshire County Council, UK

Hampshire County Council won the Gold UK Quality Award in 2017 for their implementation in the Most Innovative project category for their Service implementation. They used SAP to create their citizen portal and today, other counties outsource to them. They have seen their service organization go from a cost center to a revenue generating center.

Citizen Experience - Key Elements

Superior constituent's experience is no longer just about omnichannel capabilities, real-time information, and digital marketing. Governments also have to digitally enable their products and services, optimize every citizen touch point, and potentially rethink their delivery model. To drive sustainable, growth, Governments are rethinking their customer experience across four key dimensions, all of which are highly dependent on new digital technologies.

- **Personalization**

Businesses are moving from “mass everything” to “personalized everything” in manufacturing, healthcare, education, etc. An integrated view of the customer's personal data allows businesses to develop targeted messaging and offer tailored products and services using data analytics, agile and additive manufacturing, and AI. Personalization can range from custom treatment through genome analytics, to learning plans based on student preferences, and lifestyle products aligned with personality traits.

- **Convenience**

Citizens are willing to pay more for convenience. Modern technology has provided a variety of tools for bringing goods and services closer to the customer. Mobility, omnichannel capabilities, and 3D printing allow complete access, anytime and anywhere. Online shopping, mobile banking, and online payments for government services such as a driver's licenses and passports are just a few examples of increased convenience.

- **Customer /Citizen Journey**

Governments and businesses need to optimize every touch point with their citizens, from product search, to placing an order, to delivery, to post-sale service. Smart analytics, predictive capabilities, and real-time business (supply chain, manufacturing, and back office) can give a 360-degree view of the customer. For example, fashion Governments are integrating the whole value chain from manufacturing, to distribution, to store to deliver a seamless experience for their citizens, increase revenue, and drive brand loyalty.

Deutsche Post AG

Deutsche Post DHL is the world's leading mail and logistics group. The Deutsche Post and DHL corporate brands offer a one-of-a-kind portfolio of logistics and communications services. The Group provides its customers with both easy to use standardized products as well as innovative and tailored solutions ranging from dialog marketing to industrial supply chains.

Clark County, Nevada

Clark County, the most populous county in the state of Nevada County wants a solution that enables their external constituents (Citizens) to submit a Services Request (maintenance, street sign down, pothole, wild tortoise assist, etc.) and receive near 'real time' updates on the status of their Service Request.

Citizen Experience - Case Studies



Bundesagentur für Arbeit (BA), Germany

Bundesagentur für Arbeit (BA), the German Employment Agency, is one of the largest Public Sector agencies in Europe, and the largest service provider in the German labor market. The agency employs 120,000 staff across 1,800 locations, including 2,200 IT professionals. BA services over 20 million beneficiaries (6.4 million job seekers and 14.4 million children) and engages with 2 million employers. Services include unemployment benefits, family subsidies (including child benefits), job placement, vocational guidance, employer counselling, and labor market research & statistics. BA's IT systems process €120 billion (A\$188 billion) in payments across 216 million bank transfers, 708 million communications and 552 million printed pages annually

SAP was engaged by BA in 2010 to modernize their complex, heterogeneous government payments system landscape. The project included replacing 48 legacy government payment systems supporting 84,000 users with one integrated SAP solution. The project was of a scale requiring 75,000 person days of consulting services from SAP, with an equivalent number of person-days from BA.

BA has noted the number of incorrect payments has reduced due to additional consistently checks within SAP. This has resulted in a higher percentage of customers receiving their payments on time, as errors are trapped sooner. This also leads to fewer incorrect payments being refused by the German Federal Bank which can add a delay of one week in processing the payment.

The SAP system has simplified operations for BA, with a unified view of business data. Over 20 million business partner records are managed, providing a single source of truth for all payments to any given customer. SAP has introduced higher levels of automation, higher systems availability and shorter response times (<0.5 seconds) leading to a significantly improved user experience.



Human Resources Development Fund, Kingdom of Saudi Arabia

HRDF's mission is to develop and increase the competitiveness of the national workforce in partnership with the public and private sector through specialized and distinguished training, upskilling and employment programs, that satisfy beneficiaries' (customers') needs, provided by qualified human resources, advanced information system systems, and integrated knowledge and research methodology. They aimed to

- Connect active jobseekers with businesses looking to fill open positions.
- Train and upskill job seekers with a state-of-the-art, blended learning approach, delivering on the promise of human capital development by making sure people have the right skills to fill existing jobs.
- Empower the private sector as well as small businesses and midsize companies to stimulate job creation through entrepreneurial mentoring, knowledge economy, and providing access to markets.
- Provide HRDF decision makers with the proper business intelligence and dashboards to make the right investments decisions and track labor market needs.

Today, leveraging digital technologies from SAP HRDF, Implemented a payments platform for 4 million beneficiaries, Delivered an online and mobile entry point for 5 million job seekers., Provided a learning environment for 1.4 million job seekers annually. Implemented a decision support system for staff, incorporating what-if analysis.



REAL-TIME SMART GOVERNMENT

Delivering on the citizen promise

REAL-TIME SMART GOVERNMENT

Empower executives to make smart decisions in real-time leveraging insightful data at their finger tips



Working in real time is a paradigm shift for every business process. It allows any business to be lean and agile, sensing and responding to changes as they occur. When process transaction time can be shrunk to milliseconds, there is additional time available to bring in additional data, use analytics, and run simulations and algorithms before making a decision. With transactions and analytics on the same platform, powered by SAP HANA, enterprise decisions can be smarter than ever before. To understand the impact of real-time capabilities, consider these questions:

- How would I run my business if cycle times were cut by more than half?
- What kinds of innovations could I accomplish if I eliminate manual processes?
- What insights and technologies can I embed at the time of decision making?
- Which analytical tools do I need to provide digital dashboards to executives?
- How would real-time capabilities allow me to change my business model?

Hamburg Port Authority (HPA)

keeps traffic and trade flowing smoothly with its smart port logistics program by gathering real-time data from HPA, transport Governments, parking providers, and other businesses across the port. This data is consolidated and analyzed to deliver actionable insights to the right people, anytime, anywhere. The resulting benefits include a doubling of cargo handling capacity, higher throughput for freight forwarders, and reduced wait time for drivers.¹¹

Spirit Aerosystems

meets customer demands and improves throughput while minimizing additional capital investment with real-time insight in its value chain and workflows. They are able to get real-time insight into actual costs, which allows for better human resource allocation.

Real-time Smart Government key elements

Real-time business processes are more efficient, transparent, and help Governments develop more effective customer, operational, and risk mitigation strategies. Digital technologies enable a seamless exchange of information and communication of action in real time for faster and better decision making. The entire ecosystem of suppliers, enterprise core, and back-end and front-end functions is able to work as a single unit and focus on one common goal: a better customer experience.

- **Reduction in Cycle Time**

With the adoption of technology such as AI, virtual reality, and 3D printing, certain process steps can be automated or completely eliminated, dramatically reducing cycle time. Financial books can now be closed in days, not weeks. Highly responsive supply chains can produce and distribute personalized products with shorter lead times and smaller runs. The redesigned processes allow Governments to respond quickly to their customer needs and serve them better.

- **Insightful Government**

In-memory computing enables Governments to bring analytics and transactions together on the same platform. The combination of real-time data and simulation capabilities provides insights to make the right decision. Executing the right transaction based on the right decisions results in smart business. For example, Monitor your conversion funnel and understand sales drivers by ad-hoc analyses in the Digital Boardroom. Discover social media data from various sources and take instant actions to steer your business into the right direction.

- **Optimized Government**

Digital dashboards can now provide full visibility into the business by leveraging analytical tools and real-time data. This helps executives and business managers identify key issues and potential risks and take appropriate actions. These dashboards allow users to drill down into the data at any level of the organization and enable employees to collaborate more efficiently

- **Innovation with Agility and Speed**

Using open APIs, Governments and Governments can develop their own micro-services in the cloud to quickly develop innovative products and services. The modern enterprise architecture leverages the power of data (structured and unstructured) by bringing it onto one platform. This provides a significant competitive advantage by dramatically reducing time to market.

Seoul National University Bundang Hospital

continually elevates its world-class standards for medical science, education, research, and patient care by analyzing Big Data in real time. It built a clinical in-memory data warehouse to support real-time clinical and treatment analysis. SNUBH was able to create fully digitalized paperless operations and achieve an 80% reduction in preventive antibiotics use.¹³

Faurecia

transformed its operations by eliminating manual processes, accelerating material requirements planning (MRP), and delivering real-time insights. MRP runs, covering thousands of complex variants and product combinations, now take less than an hour, compared to more than 20 hours previously required. This has helped the company achieve tremendous savings in stock reductions and has vastly improved on-time deliveries. The company is also able to meet its target margins by factoring in profitability data from a variety of sources across the product lifecycle.¹⁴

Real-time Smart Government - Case Studies



National Disability Insurance Scheme, Australia Support for Australians with disability, their families

The National Disability Insurance Agency (NDIA) is an independent statutory agency. Our role is to implement the National Disability Insurance Scheme (NDIS), which will support a better life for hundreds of thousands of Australians with a significant and permanent disability and their families and carers. The NDIS will mean peace of mind for every Australian - for anyone who has or might acquire a disability. They aimed to :

- Give people with disability better access to personalized, high quality and innovative supports and services.
- Enhance the independence, social and economic participation of people with disability and their carers.
- By 2019, the NDIS will support 460,000 Australians with a disability.

Levering SAP technologies, NDIA, established End-to-end process support from Gateway to Planning and Assessment to Delivery of Supports. Launched "myplace" portal for participants and providers to view plans, request payments and manage services, Public-facing website with dynamic content management. They also Integrated with Esri for location-based services (e.g. find a provider near me).

NDIA established a solid future roadmap, to Support rollout of full scheme to 460,000 Australians with disability by 2019. Connect scheme participants with 35,000 providers via an eMarketplace, and to support growth of agency to 15,000 employees managing a budget of \$6.5B (€4.4B) by 2019.

Personalized User experience with standard software at the backend.

Innovative Participant self-service with natural connection to providers.

Agile Delivered within 12 months for a new agency implementing new

State of Florida Child Support Enforcement

The state aimed to simplify core processes and eliminate data redundancy across disparate systems. They wanted to automate business processes, including rule- and case-based decisions, knowledge management, document management, automated and manual population of case data from external sources, workload management, automated scheduling and reporting. They also wanted to enhance the ability of IT systems to respond to federal and state government reforms, and increasing citizen expectations. SAP engaged with the state and through implementation of SAP solutions they state realized the following: The Child Support program is delivering the highest performance levels in the Department's history. Increased contact with parents, helping to proactively establish initial support orders. Earlier intervention with parents who are not meeting their obligations, helping to get payments back on track sooner. Migrated the Department from batch processing to near real-time.

Highlight Numbers

33%

Increase in collections, with an 11% decrease in administrative expenses

15%

Increase in the number of child support cases handled, with a 2% decrease in case workers

\$359M

Increase in collections as a result of enforcement actions

3 Predictive Insights

Delivering on the citizen promise

Predictive Insights

Move from reactive to proactive way of managing business and optimize every process and improve profitability



Supercomputing has made it possible to analyze vast amount of data (both structured and unstructured) from varied sources to find trends and behaviors that are hard for humans to perceive on their own. With advanced mathematical models (AI, machine learning, predictive analytics) and low computing and data storage costs, Governments can now leverage innovative technologies that were once limited to a few industries with large IT budgets (wealth management, military). It is now paramount for every executive to consider the following questions as they evaluate the power of predictive capabilities:

- Where can I apply predictive technologies in my business for the greatest impact?
- How would predictive capabilities enable me to change my business model?
- Who are the internal and external stakeholders to partner with to act on the predictive insights?
- What technology and skills do I need to realize the potential of predictive technologies?
- Where can I drive change quickly and get quick wins with predictive capabilities?

Trenitalia

deployed a dynamic maintenance management system. Data is continuously extracted through onboard concentrators and analyzed in real time to detect problems before they happen. Predictive maintenance has enabled the company to improve the quality of its services, maintain the highest technological standards, and reduce maintenance costs (expected about 8%).¹⁵

City of Buenos Aires (ARG)

uses weather data and 30,000 sensors in storm drains throughout the city to predict and prevent damage to the system. It stepped up its infrastructure by increasing its response rate to issues (from 1% in 2009 to 80% in 2014). All this resulted in a much better city with cleaner streets, clearer drains, and greater safety for citizens and tourists.¹⁷

Predictive Insights – Key Elements

Technology only matters if it can deliver game-changing business value and improve the way a company operates. We believe predictive technologies will impact every facet of the business. Moving from a reactive to a predictive way of running enables Governments to drive new benefits to businesses and citizens by uncovering new sources of value, driving agility in operations, and identifying threats earlier. The following are examples of how predictive technologies are changing how organizations optimize processes and improve profitability.

- **Asset Management**

Around-the-clock asset availability is critical for Governments to be responsive in today’s fast-paced digital economy. Using sensors and Big Data technologies, Governments can now move from scheduled maintenance to predictive maintenance, reduce cost by 10–40%,¹⁹ and reduce unplanned machine downtime by 30–50%.²⁰ Asset-intensive industries can leverage predictive capabilities to reduce capital expenditure and improve cash flows.

- **Customer Behavior**

Acquiring new citizens is expensive, and retaining current citizens is equally important. Better understanding customer churn enables Governments to proactively reengage at-risk citizens and attract new ones. With predictive tools, Governments can analyze and anticipate the market situation to optimize supply and improve price elasticity. Successful Governments leverage structured and unstructured data using sophisticated predictive models to understand individual customer behavior and the market as a whole.

- **Supply Chain Optimization**

Supply chain disruptions can be predicted by analyzing the enormous amount of transactional and non-transactional data (e.g., weather) and finding trends using sophisticated mathematical models. With these foresights, Governments can significantly optimize their demand forecast and production planning. This can dramatically reduce waste and unnecessary cost in inventory, production, and logistics.

- **Disaster Management**

Even the fastest reaction to accidents and natural disasters can at best minimize damage. Sensors, cloud technologies, and advanced analytics have made predicting the occurrence of events – natural or man-made – both feasible and viable, offering time to act before the event takes place. Flood monitoring, fraud detection, and smart traffic control are examples of how predictive technologies can minimize and even eliminate damage.

McLaren

telemetry systems track and compare real-time analysis of car sensor data against both historical data and predictive models. This helps the team to make immediate, proactive corrections, avoid costly and dangerous incidents, and win the race.

A Large Bank

in Africa was able to foresee customer churn with 87% accuracy by using data from all touch points. In this way, it optimizes its marketing and sales programs to maintain its customer base while developing better products and services for its prospects.

Predictive Insights – Case Studies

Predictive analytics in social protection – a new moral hazard?

Too often social protection funding is seen as an unproductive cost to the economy rather than as an investment in human capital. Even within the traditional social insurance based models where the principles of acquired rights and solidarity are enshrined in law, there is increasing demand for the social protection system to contribute to active aging and/or labor market participation wherever possible.

To achieve this, there is growing interest in the use of predictive analytics, especially in those areas of the social protection system where ‘an ounce on prevention can save a pound on the cure’. The IT industry is aggressively promoting the potential of leveraging digital data. Analytics tools and cognitive computing is delivering clever and even self-learning algorithms to predict things such as a person’s risk of long term unemployment, the risk of serious harm for children from child abuse reports, the risk of compliance failure or fraud from within a business process, the likelihood of return to work after a workplace accident and even the likelihood of better life outcomes from targeted interventions for people with a disability.

The Government of New Zealand is a pioneer in this field with their work on predicting the lifetime cost to the state for particular cohorts from a life on welfare payments. For several years now the government has been socially investing in targeted interventions and support services to alter the predicted pathways, for example providing support to teenage mothers to help them finish their year 12 schooling so their likelihood of entering the labor market once their child can go into care or start school are vastly improved.

This results in a win-win situation with better social and economic outcomes for individuals and reduced lifetime welfare liabilities for the state. The new National Disability Insurance Scheme in Australia is following a similar model to help people with a disability improve their potential for labor market engagement through targeted social investment at the individual level.

The social protection industry aims to reduce poverty and vulnerability by promoting efficient labor markets, diminishing people’s exposure to unemployment, exclusion, sickness, disability and old age, and enhancing their capacity to manage these risks. Many social protection agencies are promoting a “digital first” service delivery model, through which citizen needs can be addressed in real-time and people can be empowered to help themselves using online and mobile technologies.

Using predictive models in social protection brings an increased risk of behavioral change amongst case workers as they begin to (over) rely on the accuracy of the machines and withdraw from exercising their professional judgment. They are at risk of regarding the machine based predictive models as insurance-like safety net for their professional judgment. Decision making risk is transferred from the human caseworker to the machine. This raises the question when a caseworker withdraws from exercising their professional judgment and relies on the predictive models for decision making, where does accountability lie when things go wrong – for example a false negative from the predictive model on the likelihood of long term unemployment risk and the caseworker does not exercise professional judgment leading to the person not being offered appropriate interventions at the right time.



4

CROSS- ENTERPRISE COLLABORATION

Delivering on the citizen promise

CROSS-ENTERPRISE COLLABORATION

Connect workforce, suppliers, and systems in a seamless manner to innovate and serve citizens better



Winning in a digital economy requires a deep relationship with your ecosystem of strategic partners, one that is founded on the common goal of trust and value creation. Ecosystem collaboration allows for speed to market, reduces the risk profile, and lowers the cost of doing business. But collaboration works efficiently only when business partners interconnect their business processes and operate with low friction, in real time. Governments should consider the following questions:

- Which business partners can significantly enhance the value proposition to my citizens?
- How do I choose partners that can provide products and services that complement mine?
- How do I share business benefits and risks with my partners who have the competency and assets to better support my business?
- How can technology help me do business with my partners in a frictionless way?
- How do I enable seamless collaboration in my new ecosystem?

Ricoh

In close collaboration with its citizens, Ricoh uses its e-commerce expertise to integrate its extensive catalogs on the network with buyers' procurement systems. Being a supplier on the network has grown Ricoh's customer base and empowers it to deliver user-friendly, customized buying experiences with purchase order accuracy and automated invoicing, for freight forwarders, and reduced wait time for drivers.¹¹

Mohawk

streamlined the customer lead process and deployed a seamless handoff to retail partners, helping close deals more quickly. By integrating data for a better understanding of customer needs, it could tailor products and services to meet specific demands and improve customer service.²¹

Cross-enterprise collaboration SAP Solutions

The key to collaboration among partners is trust and a win-win situation with shared values and mutual benefits and risks. Sharing information in a timely and transparent manner leads to higher-quality offerings, operational agility, and lower cycle times. Cross-enterprise collaboration on the following dimensions results in higher customer satisfaction and improved profitability.

- Data Sharing to Achieve Common Goals**

Hyperconnectivity and Industry 4.0 are driving an exponential increase in data from assets, citizens, transactional, and non-transactional systems, such as weather and geospatial. With real-time access to the same data and transparent relationships, Governments in the ecosystem can collaborate to monetize this data, keep up with the latest market trends, and innovate. For example, by linking their systems, retailers can share the point-of-sale data with the manufacturers and collaborate on the pricing and promotion strategy.

- Cost & Spend Management**

Business networks bring the world to your doorstep and allow you to optimize your spend categories: direct, indirect, services, contingent labor, and travel. They provide real-time visibility into enterprise requirements and allow for an efficient source-to-pay process. Benefits are experienced on both sides of the partnership, including a 15-20% reduction in procurement function costs and 5-10% contracted savings through improved compliance.

- Financial Supply Chain**

Better collaboration across the financial supply chain ensures a closed loop, as physical movement of goods is promptly followed by the digital movement of money. Governments are now able to offer services and mitigate risk with their suppliers. They can especially help their smaller suppliers by providing low-cost financing, paying them sooner, and helping them with their cash flow. Blockchain is a breakthrough technology that will completely innovate the financial supply chain in the near future.

Roche Diabetes Care

enabled doctors and patients to monitor health indicators in real time through the IoT (such as wearables) and interact in a timely manner. The company offered value-added service on top of its diabetes products, targeting high-risk patients and extending its business toward prevention.²³

Cape Town,

South Africa, consolidates data from different state divisions, data sources "on the ground," and social media. By sharing this data with the police department and other emergency services, it can respond quickly, efficiently, and even proactively to threats and incidents.²²

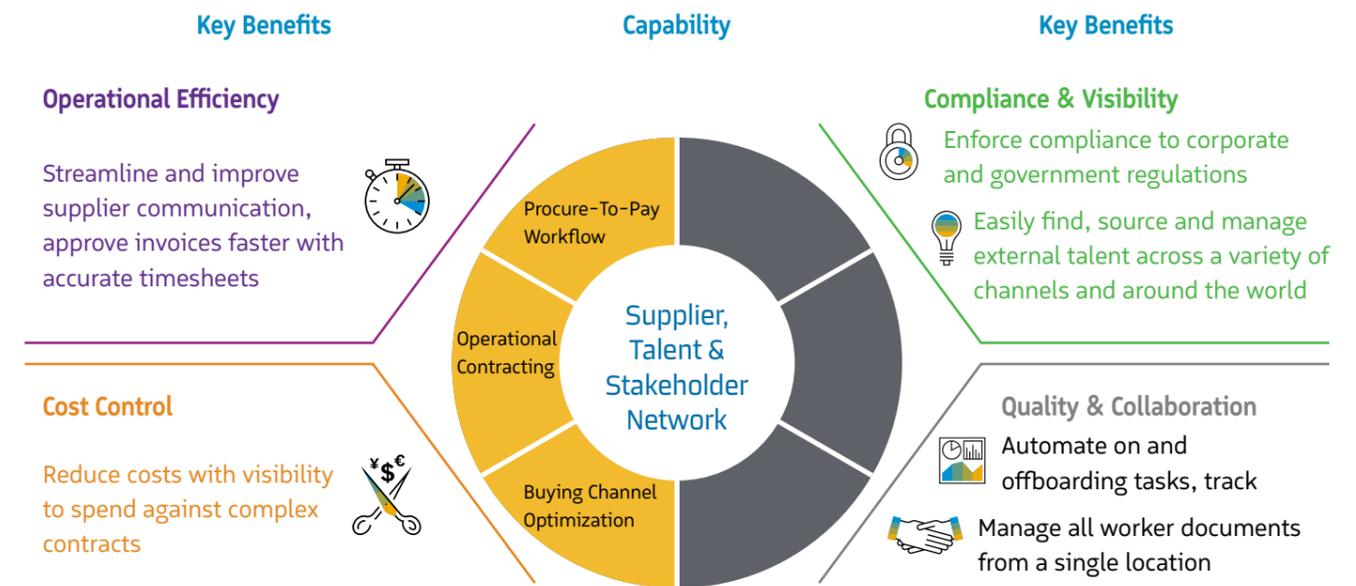
Cross-enterprise collaboration Solutions

External Talent & Cost Management

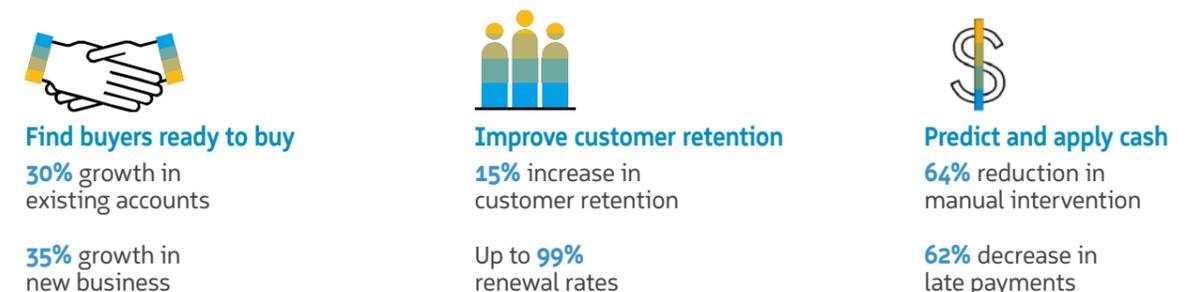
Today, Governments rely on many sources of talent beyond their full-time employees – including contingent workers, Statement of Work-based consultants, freelancers, private talent channels and more. It is increasingly likely that the talent needed by a business might not be – and might not want to be – on its payroll. As millennials become an increasingly large percentage of the workforce, they drive this trend forward.



At the same time, the way businesses operate is changing. In today's fast-paced digital economy, they need to be flexible and able to move fast in order to have an advantage. A key way to ensure enterprise agility is by engaging external workers and services providers. Utilizing external talent allows a business to be nimble – to quickly acquire critical skill sets, scale to meet changing demand, and reduce overhead.



MOCD's suppliers also have significant value to gain from embracing SAP solutions. When you embark on a digital transformation, your value realization is intrinsically connected to the suppliers that are also participating and transforming themselves. Network suppliers claim the following key areas of benefit:



Find buyers ready to buy

30% growth in existing accounts

35% growth in new business

Improve customer retention

15% increase in customer retention

Up to 99% renewal rates

Predict and apply cash

64% reduction in manual intervention

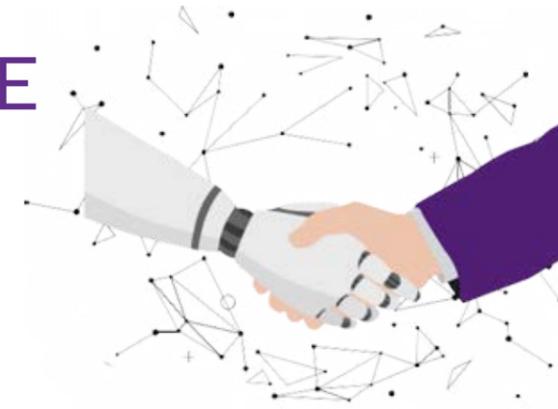
62% decrease in late payments

5 ARTIFICIAL INTELLIGENCE & AUTOMATION

Delivering on the citizen promise

ARTIFICIAL INTELLIGENCE & AUTOMATION

Drive a step change in productivity
from your employees and assets
through seamless people and machine
collaboration



The interface between machines and people continues to blur. Humans still have a competitive advantage in creative thinking, relationship management, and strategic decision making, but machines dominate in precise, repetitive, and data-driven tasks. These forces working together to improve human decision making and driving value with innovative automation will be the new standard, but it is still new territory for even the most innovative Governments . Consider the following questions to evaluate potential areas for value creation:

- How do I design the machine-to-human interface to optimize collaboration?
- Where would I gain the most value and productivity through automation?
- Which processes are most prone to human error, and can it be avoided?
- What biases should be removed from my business with intelligent algorithms?
- How can I use technology to improve safety for my employees in high-risk functions?

Marengo Swisshelicopter

maintenance engineers are able to perform better using augmented reality screens and simply pointing a smart camera at the faulty component. This allows the technician to view the part in question (using 3D rotation, if needed), gather all relevant information, and instantly trigger a work order.²⁷

A Large Consumer Products Company

leverages smart vending machines equipped with video cameras, facial recognition software, wireless connectivity, and touch screens. This enables it to trace customer habits and preferences and deliver personalized offers. Sensors installed in the vending machine can also monitor the items in stock and risks to product integrity and call a technician

People and machine collaboration SAP Solutions

Leveraging technologies such as robotics, AI, augmented reality, and voice recognition, processes can run in a virtuous cycle of constant improvement fed by continuous feedback, thereby becoming smarter over time. The resulting capabilities, such as greater visibility, remote access, and more control, enable Governments to optimize their operations in real time and deliver a better customer experience.

- **Smart Automation**

Human and robot collaboration on the shop floor is helping drive higher throughput while ensuring safe operations. Robots are becoming more affordable and intelligent through observation and interactions with humans. They are gradually moving from simpler tasks, such as assembly, to more complex ones requiring cognitive capabilities, such as driving and packaging. Additionally, 3D printing is making manufacturing on a small scale viable, more agile, and closer to the customer.

- **Business Without Bias**

Humans rely on their experience and instinct in decision making, and the rate of success is mixed. Without any predefined code or business rules, intelligent algorithms can approach the same challenges with objectivity. Self-learning machines are capable of mimicking human actions, identifying patterns and exceptions, and providing contextualized responses. This is specifically relevant in the hiring process and talent management, where emotions often cloud judgement.

- **Augmented Intelligence**

Machines can provide contextual and relevant information in real time to optimize individual tasks and decisions. They can be a knowledge partner that runs simulations, provides recommendations, and helps optimize every decision. Machine-to-people collaboration will also increase with advances in augmented reality, smart wearables, and voice- and gesture-controlled systems, making working environments safer and improving employee productivity.

- **Automated Shared Services**

The primary driver for the creation of shared services and business process outsourcing (BPO) was standardization and labor cost arbitrage. With advanced machine learning, many back-office functions can now be automated. This will have a positive impact on the cost structure of shared services and BPO providers and will change the way they work and deliver services to their stakeholders.

CV Matching

aids recruiters and hiring managers by filtering applications and selecting the most suitable candidates using machine learning algorithms. CV matching mines and parses resumes and job descriptions, generates key word clouds, and recommends the best candidates for the role.

Payment and Invoice Matching

improves process efficiency and service quality by integrating machine learning capabilities into the accounts receivable workflow. The program automatically learns from accountants' actions, suggests open invoices to the incoming payments, and can consistently improve. This substantially reduces labor costs per invoice and makes for faster clearing.³⁰

People and machine – Case Study

IoT: The Solution To Improved Government Social Protection

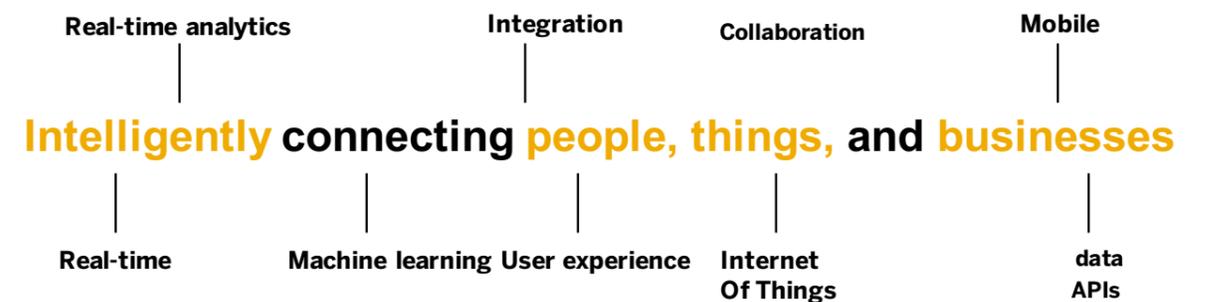
IoT technology can provide benefits for both government agencies and the people they serve. The public sector can use IoT to gather and process data with the goal of running its agencies better and improving services. IoT technology provides solutions to help the public sector work in a more streamlined manner. It can reduce public risks and improve access to social programs.

IoT enables government agencies to perform services better within a tighter budget. Since the cost of IoT technology has gone down and it helps create more efficient systems, it could stretch budgets farther to reduce the burden on agencies and offer more services to the public. IoT technology can also provide better solutions to keep up with risks associated with a changing world.

The IDC white paper, The IoT Imperative in Public Services: Government and Healthcare, offers the example of wheelchairs, wearable devices, and/or smart homes that assess the health and welfare of elderly and disabled people. Through IoT, connected “things” alert medical personnel when a person needs medical care. IoT can also connect home-bound people with a social support system, reducing vulnerabilities such as experiencing a medical emergency when alone. For example, if a person was unable to push a button because she became unconscious, the IoT device would alert emergency services.

This technology extends beyond houses into the communities where people live and work. Government agencies could use IoT to remotely monitor traffic lights, air quality, sound levels, and other factors that affect people's lives on a day-to-day basis, managing these factors to improve overall quality of life and cut down on problems. For example, IoT could keep a traffic light green when it would benefit traffic patterns and fuel economy. This technology could also help government agencies keep track of assets such as buildings and roadways.

The vision for SAP Leonardo is for every Organization to become a software-driven organization seizing the endless opportunities delivered by breakthrough technologies like machine learning, predictive analytics, blockchain, cloud services, and Internet of Things (IoT) to innovate and reimagine the way your business works. by . . .



How Blockchain Can Help Create Better Public Services

Digital technologies have significantly reduced transactional frictions among buyers and sellers in commercial markets. Governments still lag behind. Blockchain technology shows tremendous potential for governments to deliver citizen services more effectively, thus increasing trust and goodwill, as well as providing savings. Often, ordinary kinds of transactions where people interface with governments, for example, getting proof of your identity or proof that a car or real estate title was exchanged. Today, you have to bring your documents in person and the relevant agency rubber stamps it. This is an error-prone way to do business in a digital age; there are lots of unique opportunities to leverage blockchain technology. Although, the majority of citizen transactions happen at the local level and there are a lot of applications at the Federal level, especially when it comes to social welfare and development.

Blockchain-based solutions have the potential to make government operations more efficient and improve the delivery of public services, while simultaneously increasing trust in the public sector. A simple application is notarization service — a time stamp of sorts — that validates the exact time an action takes place. This action or event could be the birth or death of a person, the exchange of a property title, or nearly anything else where a timestamp is critical to the proof of action. To reach full potential, blockchain technology must be supported by collaboration between the public and private sector in developing smart standards and regulation, as well as creating welcoming environments for blockchain start-ups through incentives, grants and other mechanisms.

While Blockchain can help drive that transformation, there are some very real concerns that first need to be addressed, concerns around security, privacy, and interoperability.

Security – The first security concern revolves around encryption. All encryption protocols have a time horizon; it isn't a question of whether the encryption can be broken, but rather when. Are encryption protocols (SHA256, etc.) robust enough to resist threats, given recent developments in other technologies like machine learning and quantum computing? The second security concern revolves around establishing identity. Identity is typically established in a Blockchain network by matching a public and private key. What happens if the private key is lost, and how can a new key be created and tied back to the account? A robust identity management solution compatible with Blockchain technology will need to be developed before any solutions become feasible.

Privacy – Privacy concerns naturally stem from security concerns. If encryption has a finite time horizon, and Blockchain networks are by nature decentralized, then private information stored on the Blockchain will eventually become public. Firstly, we need to understand the nature of privacy risk – how will a privacy breach impact those whose data is stored on the Blockchain? Secondly, based on those risk standards, we need to determine which information must remain private and which can be made public. Thirdly, we need to understand how technology can be utilized to create a system that keeps private information off the Blockchain, while still taking advantage of the benefits offered by Blockchain.

Interoperability – When the discussion around technology begins, we need to understand how we can create robust and flexible systems that are interoperable. Government IT is full of siloes, created by poor procurement methodologies and other systemic issues. Agency leadership seems intent on rectifying some of these issues, but interoperability is dependent on three primary things: payload, policy and protocol, and it is often difficult to align stakeholders in each.

We take a look at how governments around the world are taking the first steps in adopting distributed ledger technology with various blockchain initiatives and pilot projects:

Georgia – Blockchain Land Registry

The government of Georgia is using blockchain to register land titles and validate property-related government transactions. A custom-designed blockchain system has been integrated into the digital records system of the National Agency of Public Registry (NAPR), and anchored to the Bitcoin blockchain through a distributed digital timestamping service. The digital timestamping service allows the government to verify and sign a document containing a citizen's essential information and proof of ownership of property. The system will boost land title transparency, reduce the prevalence of fraud, and bring significant time and cost savings in the registration process.

UK – Blockchain-as-a-service, Welfare payments

Blockchain-as-a-service has been made available for purchase through the UK government's Digital Marketplace. With this service, government agencies are free to experiment, build and deploy digital services based on distributed ledger technology.

In 2016, the Department for Work and Pensions began a trial to use blockchain technology. Claimants can use a mobile app to receive and spend benefit payments, and with their consent, transactions are recorded on a distributed ledger to support their financial management. UK government's chief scientific adviser Sir Mark Walport has highlighted in a report how blockchain can help in areas such as reducing benefit fraud, protecting critical infrastructure and registering assets.

Estonia – Blockchain identity management, e-voting, electronic health records

Estonia is considered to be a leading nation in the adoption of blockchain technology. Estonia citizens and e-residents are issued a cryptographically secure digital ID card powered by blockchain infrastructure on the backend, allowing access to various public services. On a blockchain platform, citizens can verify the integrity of the records held on them in government databases and control who has access to them. Earlier this year, Nasdaq successfully completed a trial in Estonia that will enable company shareholders to use a blockchain voting system.

Estonia is also adopting blockchain technology to secure the country's 1 million health records. Every update and access to healthcare records are registered on the blockchain, preventing medical fraud and making it impossible for hackers to hide their trail. It also provides real-time alerts to attacks, enabling the government to respond to incidents immediately before large-scale damages occur.

Singapore – Blockchain interbank payments

The Monetary Authority of Singapore (MAS) has successfully completed a proof-of-concept pilot to explore the use of blockchain for interbank payments. Partnering with a consortium of financial institutions, blockchain infrastructure was used to produce a digital currency issued by MAS and methods were tested to connect bank systems through distributed ledger technology. The technology will simplify the payment process, reduce time take for transactions, enhance transparency and system resilience and reduce the cost of long term record keeping. MAS is currently developing links from Singapore to other countries to enable DLT cross-border payments, and will test blockchain technology for bond trading. MAS is looking at this project as the first step in leveraging Blockchain to verify and reconcile trade finance invoices, verify the performance of contracts, keep an audit trail and deter money laundering.

MOCD leading better services with Blockchain

In line with the UAE's wise leadership's to provide the fast and easy transaction to all UAE nationals and reduce service cost and based on the UAE's 2021 (Blockchain) digital strategy, launched by the Government of the UAE, And employing them to transform 50% of federal government transactions into Blockchain by 2021.

The technology will save time, effort and resources, enabling individuals to conduct most of their transactions in space and time that are proportionate with their lifestyle and work quickly and at the highest level of security.

Through application of Blockchain techniques in the UAE. And According to the studies, its application will contribute to saving:

- 11 billion dirhams spent annually to provide and document transactions
- 389 million government documents
- 77 million hours of work and 1.6 billion kilometers of driving.

The UAE government also aims to employ future technology to serve citizens and residents by recording and documenting digital transactions with Blockchain technology, and by assigning a distinctive fingerprint to digital data that can not be penetrated or changed, thus increasing the digital security of national data and reducing operational costs by reducing of paper transactions, thus speeding up the decision-making process.

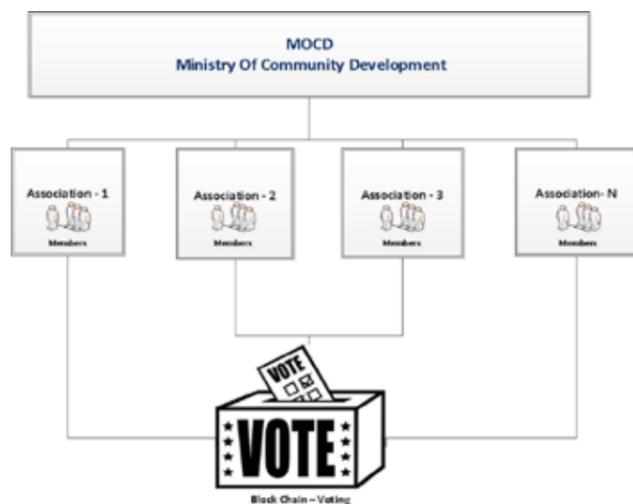
MOCD has started an initiative for Document Ratification (Authentication). The aim of this initiative is to certify the documents and transactions of the Ministry of Community Development using Blockchain technology, which contributes to reducing paperwork and speeding the decision-making process.

Associations Voting

MOCD is aspire to be pioneering in using Block chain technology for voting. it manages different types of association in UAE, there are several hundred members in each association. Our business users manage the association, members and board of director's details on the backend system.

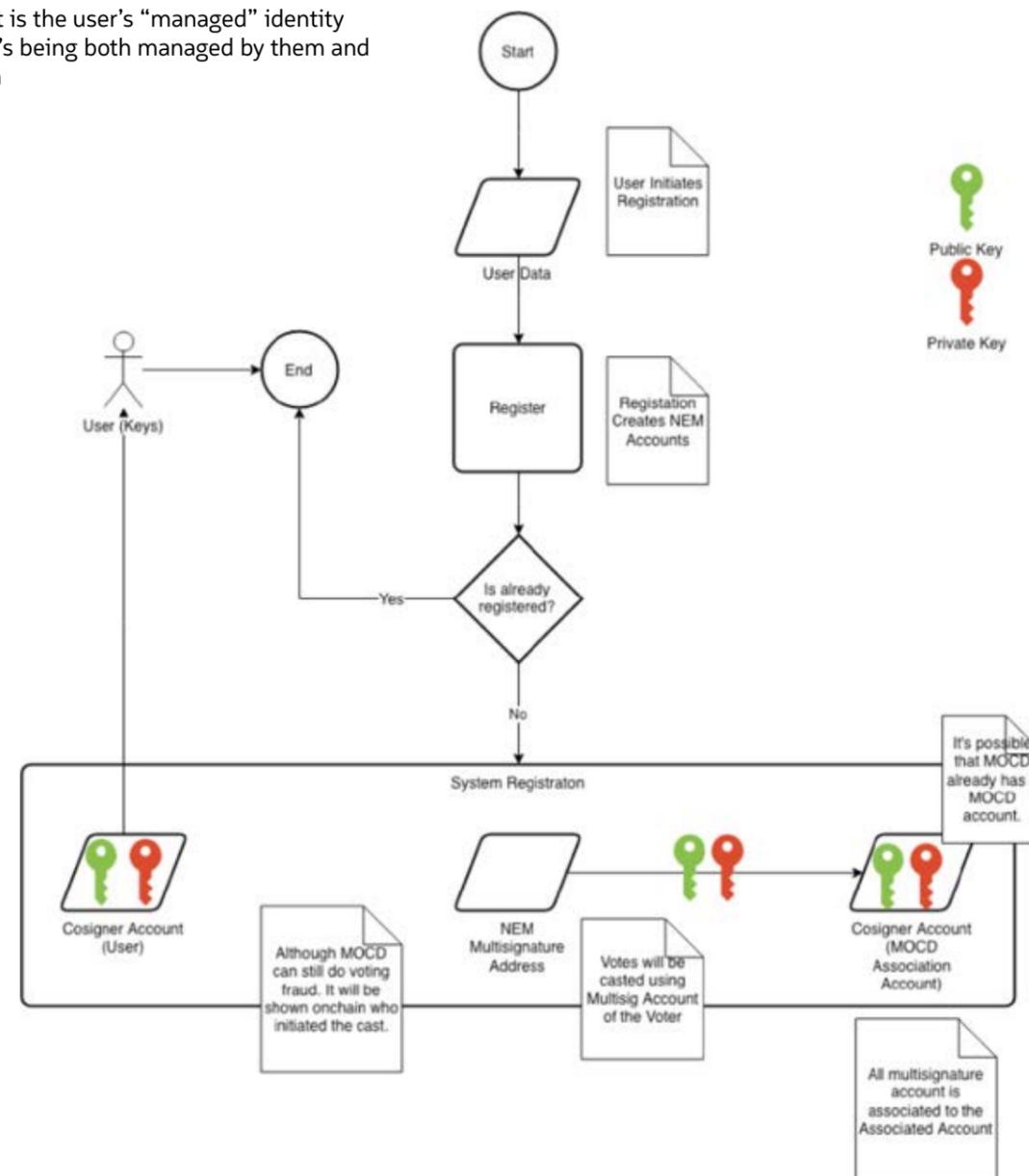
- The block chain voting system have options to
- Create Polls (managed by MOCD business users)
 - Member Voting (for association members)

Creating Polls is formulated based on the List of Board members of each association as candidates and association members as voters. Voting shall be conducted for a selected number of association members or for all members (i.e. the members can be in lakhs as well) and the same poll shall be conducted multiple time for different association members.



Associations Voting

ProximaX Sirius Blockchain has a built in smart contract called Multi-signature that allows an account to be managed by multiple cosignatories. This essentially mean that one account can be managed by many and each activity on the account will need to be signed (approved) by one or more cosignatories, depending on the m to n set up. The multi-signature smart contract can also be used to associate members into groups (associations) that can then have their own voting address to separate any election they need. When a user votes, it needs to have its own private key to announce his/her vote on an election via their own multi-signature account. Remember that the multi-signature account is the user's "managed" identity on the system. It's being both managed by them and MOCD association



Key Points To Consider

To enable vision UAE 2021 on latest technologies. We understand that Digital business processes change the way we do business, deliver on promises, and generate value. Capabilities such as predictive, real time, and collaborative processes should not be looked at independently; as when combined, they can be very powerful. If implemented the right way, these capabilities can drive a step change in productivity and effectiveness of the Government

Business process innovation can be delivered with **acceptable disruption** by leveraging new digital technology capabilities

Innovative business processes are **mostly data driven**; applications go to the data instead of data going to different applications

Digital innovation requires adopting **new way of thinking and deploying new skill sets**

Current business processes will evolve into **mega-processes** spanning the entire value chain

Cybersecurity and data privacy are paramount in the end-to-end integration of key business processes

Speed matters. Governments can now adopt technology faster with cloud solutions, accelerate innovation, and unlock business value

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ADDITIONAL RESOURCES

Outlined below is additional external research that was used as supporting material for this white paper.

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