



Digital Transformation Strategy: The Bicentennial of Costa Rica

2018-2022



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1. INNOVATIONS 2. INFORMATION'S TECHNOLOGY 3.
DEVELOPMENT STRATEGY 4. TECHNOLOGICAL POLITICS
5. TELECOMUNICATIONS

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Remarks by the President of the Republic



Bicentennial Costa Rica is a vision and a construction that leverages the best of our natural, productive, institutional and ethical legacy to integrate us with the advances of knowledge and design a new era of development for our population.

Our country is the product of the convergence of knowledge and identities that support the Costa Rican way of living, the pura vida. Understanding and managing the balance between sustainability, growth and equity are our daily drivers. This keeps us open to the world, to new ideas, to new technologies. In other words, it opens us to transformations in favor of the common good.

Therefore, the presentation of the Digital Transformation Strategy: The Bicentennial of Costa Rica 4.0 is an invitation to all institutions and sectors of Costa Rican society to come together in an effort to make the most of the opportunities of Industry 4.0, and take a historic leap to meet our destiny.

We have set a goal to position the country as a leader in the use of digital technologies in the Concert of Nations. Technologies have become a keystone of public policies, by means of which social

organizations, academia and the productive fabric of our nation develop innovative solutions to meet the challenges of a sustainable future. That is why we see disruptive technologies as a toolbox to build a more cohesive society, and to redesign the State as a more efficient and transparent one.

Digital transformation is called upon to be a force that will enhance the exercising of rights and responsibilities of citizens. Hence, this Strategy is one of the priorities in our development agenda, and in the daily work of public institutions. Most importantly, it must operate as a concrete experience for the innovation of social dynamics upon which communities, companies, families and individuals build, amongst themselves, the development path and life projects they so choose.

Thinking and delimiting the Bicentennial Costa Rica is a task that cannot be delegated, and neither can the challenges of facing economic growth and unemployment, strengthening the environmental sustainability and resilience to climate change, or driving social equity and inclusion.

Hence, the Digital Transformation Strategy: The Bicentennial of Costa Rica 4.0 is called upon to be a turning point in the confluence of human development and technology, of which the final impact depends on all of us.

Take this as my most sincere invitation to join us in the execution of this Strategy, and to make our work the greatest evidence of our hope.

Carlos Alvarado Quesada
President of the Republic of Costa Rica

Remarks by the Ministry of Science, Technology and Telecommunications



The Government of the Bicentennial has undertaken the challenge of changing Costa Rica's course to one that enhances the opportunities and reaps the benefits of Industry 4.0 and the knowledge society. Today, more than ever, digital technologies have become catalysts in the transformation of nations, and the Ministry of Science, Technology and Telecommunications, under the guidance and leadership of the President of the Republic, Mr. Carlos Alvarado Quesada, has undertaken the task of presenting the Digital Transformation Strategy: The Bicentennial of Costa Rica 4.0.

This document is the product of a consultation and co-creation exercise that involved multiple stakeholders of Costa Rican society. It includes the short, medium and long term visions, strategic focal points and lines of action that are to be developed in the coming years to achieve the transformation of Costa Rica into a digitally inclusive, more technologically connected, and more productively innovative state.

Our country has a wide margin to grow in terms of digitalization and innovation; hence, inter-institutional and political coordination and technical standardization require the highest level of political support. Hence, the Alvarado Quesada Administration has entrusted the MICITT [Ministry of Science, Technology and Telecommunications, in Spanish] with the consolidation of a digital transformation strategy that will help identify initiatives and proposals of disruptive technologies that will enable the creation of a national digital ecosystem which fosters greater equity and benefits for citizens, companies and the Costa Rican state.

I am deeply grateful to the President of the Republic for his vision and leadership, the Inter-American Development Bank, for the support during this process, Mrs. Paola Vega Castillo, Vice-Minister of Science and Technology, and Mr. Edwin Estrada Hernández, Vice-Minister of Telecommunications, as well as with the staff of MICITT and those who have contributed to this strategy with conviction and dedication.

Luis Adrián Salazar Solís
Minister of Science, Technology and Telecommunica-

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1.

Background

1. Background

The President of the Republic of Costa Rica, Carlos Alvarado Quesada, is strongly committed to accelerating the nation's development and creating the digital Costa Rica of the bicentennial. Therefore, acknowledging the opportunities posed by the widespread use of information and communication technologies (ICT) and worldwide interconnection, the Government seeks to bring about significant digital transformations in the institutions of the public sector and the society, with the aim of driving the socioeconomic development of the country, and guaranteeing a better quality of life for all inhabitants, in a more inclusive manner.

Guaranteeing the development and wellbeing of the population through the opportunities brought by Industry 4.0 and the knowledge society are two of the main objectives of the Government of the Bicentennial.

As evidence of such commitment, and in order to foster the conditions for the development of the Digital Transformation Strategy: The Bicentennial of Costa Rica, the Government issued Executive Decree N°41248. This Decree establishes the creation of a High Level Commission of the Digital Government of the Bicentennial that will act as an advisory body for the development of the national strategy aimed at the implementation of the digital government public policy. In addition, the Government issued Directive N°019, which sets out guidelines for institutions of the public sector for the development of the Digital Government of the Bicentennial.

In addition to the instruments promoting progress in areas such as government digitalization, the National Science and Technology Plan raises the need to include a Digital Agenda that identifies a strategy to use ICTs to develop tools that promote a rapprochement between public institutions and their respective users, thereby facilitating communication and interactions, as well as the processing of services. This Digital Transformation Strategy: The Bicentennial of Costa Rica is a response to the demands of the National Science and Technology Plan, the National Development of Telecommunications Plan, and defines the actions to achieve the provisions and objectives of the National Development Plan.

As a member of the international community, and as a regional model in Latin America, Costa Rica is pursuing the strategic use of technologies to accomplish the comprehensive transformation of its

people and country, guided by the basic principles of the 2030 Agenda for Sustainable Development. Furthermore, it adheres to the commitments of the Digital Agenda for Latin America and the Caribbean (eLAC 2020), including the development of digital infrastructure, the promotion of digital transformation and of digital economy, the regional digital market, the digital government, culture, inclusion and development of digital abilities, and the use of emerging technologies for sustainable development. In addition, the Government's efforts are aligned with the Ibero-American Charter of Electronic Government, which promotes the use of ICTs to improve the information and services offered to citizens, to guide the effectiveness and efficiency of public administration, and to stop the repeated submission by citizens and companies of documents with information already on file in the public administration.

As a result of the mentioned efforts, important milestones have been achieved in terms of digital government. For example, digital signatures are available and digital documents are legally recognized; the Sole Digital Health Record [EDUS, in Spanish] was implemented; and a one-stop foreign trade solution is used, among other relevant solutions. These efforts have given Costa Rica a high e-government development rating (0.7004), as well as a high public services provision online rating (0.6736), placing Costa Rica among the 10 most advanced countries in terms of digital government in America, according to the results of the United Nations E-Government Survey 2018.

All actions taken in relation to the use of digital technologies and all efforts executed in terms of Digital Government have laid a solid foundation to develop the next stage, one that deepens and scales the use of digital services. Accordingly, new challenges arise in ensuring that the majority of the Costa Rican people and companies benefit from the consumption and provision of digital services and products, as well as in ensuring that they enhance national development and improve the quality of life of the inhabitants.

Therefore, to define actions aimed at improving the efficiency of the government, to better serve the population, and to reach economic and social development it is necessary to build the required capabilities in the State, society and companies by leveraging the tools provided by Industry 4.0 and the knowledge society. This Strategy defines the actions to achieve these objectives.

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2.

Methodology

2. Methodology

Preparing the Digital Transformation Strategy: the Bicentennial of Costa Rica 4.0 involved the following activities:

- Analysis of the regulatory and legal framework: Documents on public policies, regulations and laws underpinning the development and adoption of the ICTs in the country were assessed. The foundations provided by the current National Science and Technology Plan, the National Telecommunications Development Plan, the National Knowledge Society and Economy Plan, and National Development Plan, were analyzed, among other documents. This analysis is explained partially in the Background section.
- Studying international good practices: Countries at the forefront of digital transformation were identified, and their agendas as well as their implementation approaches were studied. Some of the agendas considered were those of Uruguay, Estonia, Korea, and Denmark, as well as Industry 4.0 and knowledge societies approaches (see Section 3).
- Assessment of the current state of affairs: MICITT director and officers, in consultation with different areas of the state, identified existing solutions and conducted a SWOT analysis. This assessment is detailed partially in Section 4.
- Establishing a governance model: According to the fundamental regulation of the Executive Branch and current regulations, the governance model and responsibilities of the Digital Transformation Strategy were defined, as well as its design and action guiding principles (see Section 5).
- Strategic alignment: With the purpose of guaranteeing strategic consistency with the national and sector planning instruments, the Transformation Strategy was aligned with each of the current instruments (see Section 6).
- Guiding principles summarized: based on the analysis, the MICITT team defined four guiding principles for defining and implementing the Strategy. They are explained in Section 7.
- Defining the vision: From the political guidelines and leadership of President Carlos Alvarado Quesada, as well as the ideas proposed by the Minister of Science, Technology and Telecommunications, Luis Adrián Salazar Solís, and his team, a construction process was conducted to define the Strategy vision (see Section 8).
- Co-creating the lines of action: A participative workshop was held for the co-creation of lines of action. Several government officers contributed.
- Validating the lines of action: Focus groups, interviews and meetings were held with directors from government areas in charge of implementing the Strategy, as well as with relevant actors and allies. This process served to validate and socialize the defined lines contained in Section 9.



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3.

Industry 4.0 and knowledge societies

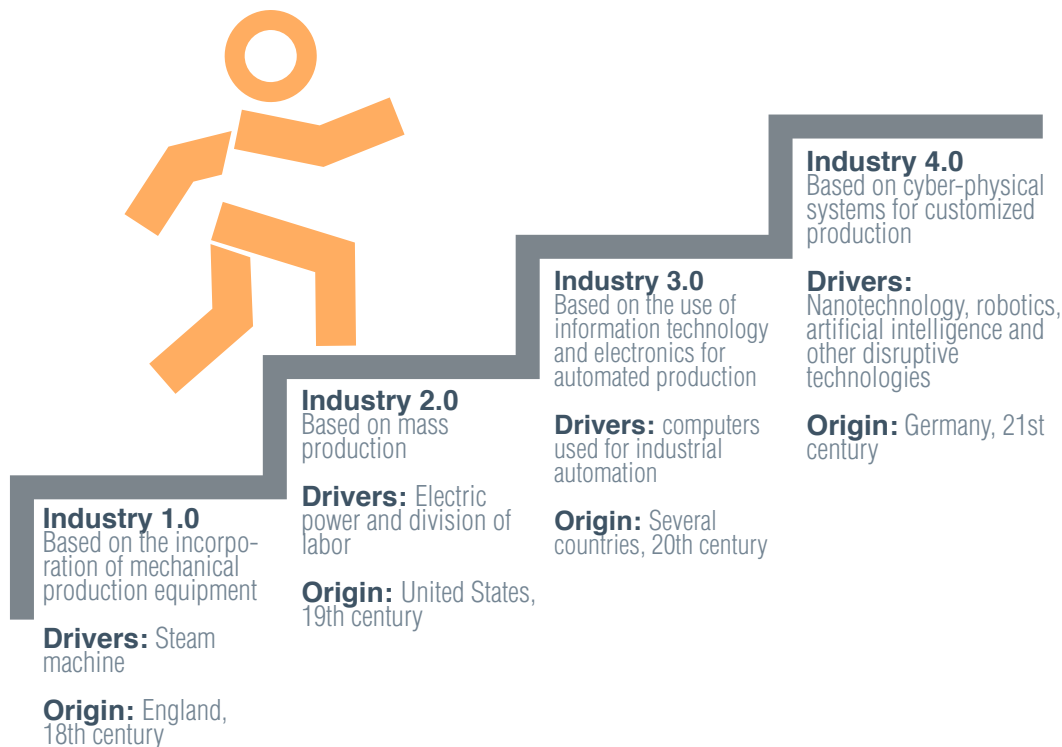
3. Industry 4.0 and knowledge societies

This Strategy intends that Costa Rica build and benefit from two major developments shaping productive processes and the quality of life of persons: the fourth industrial revolution and knowledge societies.

3.1 Fourth Industrial Revolution

The fourth industrial revolution refers to profound changes driven by advances in technology, such as robotics, artificial intelligence, nanotechnology and biotechnology, among other changes that industries and society will experience by 2020. These are disruptive changes in the creation, production and distribution of products, especially in the way companies create, distribute and appropriate value. It focuses on the growing smart digitalization and cooperative coordination across all productive units of the economy, which are leading to new economic and production models. Industry 4.0 is based on customized production, tailored to the client's preferences and on horizontal and digital integration of systems, processes and stakeholders involved in supply chains.

Industry 4.0 is a new approach for organizing production processes. It involves transforming these processes to be performed by cyberphysical systems in a set of smart factories. These systems are based on integrated activities coordinating the production of products that are thought of, designed and built in line with each customer's needs and preferences. This new approach to production is based on a massive and efficient digitalization of production activities, interinstitutional coordination of business processes, and the co-existence and collaborative work between people and robots. The collaborative work between people and robots is known as "co-botization" and is one of the core elements of smart factories. Consequently, the finished product is more than just a tangible object, as it is also linked to data, sensors, and intelligence that allows it to connect to other products through the internet of things, which provides better functions and changes the users' everyday lives significantly. Reflecting on the monumental changes generated throughout the history of production processes shows that the world is currently at the dawn of a new era. It is thus necessary to equip society and Costa Rican companies to be lead actors in these new stages.

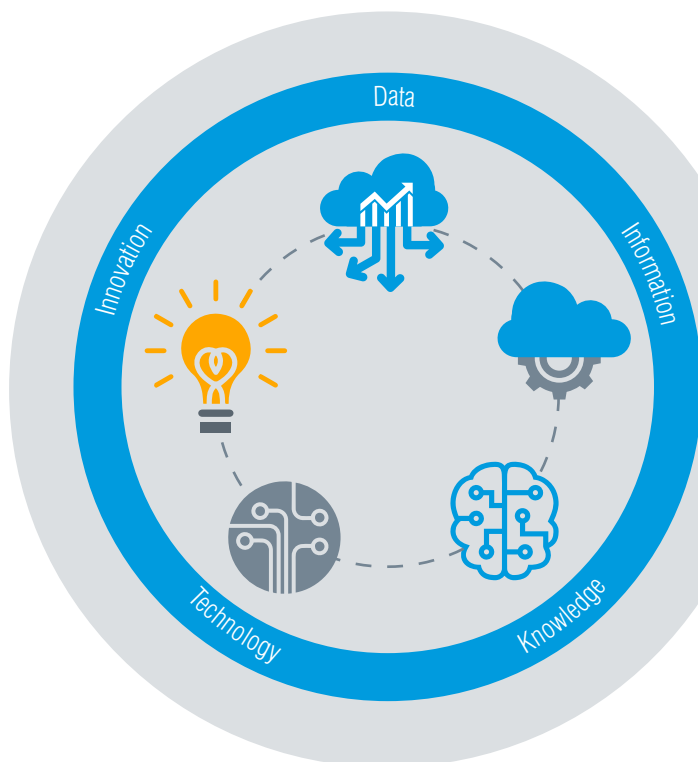


3. Industry 4.0 and knowledge societies

3.2 Knowledge societies

UNESCO defines knowledge societies as those based on the creation, dissemination and use of information and knowledge. Furthermore, they are defined as organizations structured by persons, based on contemporary knowledge, and representing new systems of quality of life. In these societies, the conditions to generate and process information and knowledge have been modified and enhanced by a technological revolution that is centered in the processing of and access to information and in applying new information and communication technologies to generate knowledge. In their economies, knowledge is acquired, disseminated and applied to improve the economic and social development. For its part, the Organisation for Economic Cooperation and Development (OECD) talks about “knowledge-driven economies” when it addresses the complex, global change that leads to the rise of Knowledge Societies and Economies.

In these societies, the driving force that moves people and their activities forward is knowledge, which is created, shared and used to better their quality of life and thrive. For this purpose, the ICTs play a major role in the production and management of data, information and knowledge. In ecosystems where these elements are combined, namely production of data, information, technology and knowledge, innovations generally arise. These innovations are not limited only to the production sector, but rather must be understood as social processes developed in collaboration with different actors, including the government, academy, corporations and citizens. Both knowledge and innovation are requirements necessary and indispensable for promoting growth and driving the economies of countries around the world.



As stated by UNESCO, no single model exists for knowledge societies, as each has its own unique advantages, strengths, and culture. Therefore, Costa Ricans ought to find ways to connect and strengthen the communities' different kinds of knowledge, including traditional knowledge, and the new ways to develop, acquire and disseminate knowledge, evaluated by the knowledge society and economy models and supported by the use and appropriation of ICTs.







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4.

Strengths and opportunities

4. Strengths and opportunities

Costa Rica has great strengths for the use and adoption of digital products and services, such as the strengths of citizens, companies, or the State, and the access to technology that these actors have. These strengths, in turn, provide the country with unbeatable opportunities that must be taken advantage of by the country.

	 Strengths	 Opportunities
 Citizens	<ul style="list-style-type: none"> ▪ Appropriate level of literacy ▪ Well-developed social benefits 	<ul style="list-style-type: none"> ▪ Provision of digital technologies for continuing education ▪ Availability of digital channels for interaction with the government and other actors.
 Companies	<ul style="list-style-type: none"> ▪ Strong and sustained economic growth since 2010 ▪ Expansion of products and services exports in recent years 	<ul style="list-style-type: none"> ▪ Development of Industry 4.0 ▪ Growing market for digital services
 State	<ul style="list-style-type: none"> ▪ Political will for digital transformation ▪ Being a leader and benchmark in Latin America 	<ul style="list-style-type: none"> ▪ Competitive advantage in the region ▪ Access to technologies that improve the efficiency of the government and of governance
 Technology	<ul style="list-style-type: none"> ▪ Broad penetration of mobile telephony ▪ Competitive connectivity prices 	<ul style="list-style-type: none"> ▪ Development of 5G ▪ Availability of new technologies, such as artificial intelligence, data analytics, large data volumes, for the development of innovative services.

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5.

Digital transformation strategy governance

5. Digital transformation strategy governance

5.1 Governance

The Digital Transformation Strategy: the Bicentennial of Costa Rica 4.0 is underpinned by the vision of the country's authorities, guided by the President of the Republic and with the commitment to articulate, coordinate and follow up by the Ministry of MICITT as the authority in science, technology, telecommunications and digital governance. Aware of the need to reach consensus and receive support from institutions, government authorities prepared an instrument containing the country's vision and the efforts needed to drive Costa Rican society's digital transformation towards Industry 4.0 and the new challenges of knowledge economies, to make a better use of digital technologies at the service of citizens, companies and public administration.

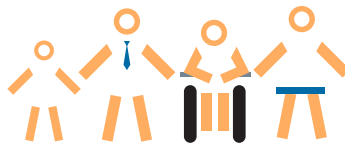
This involves, among other efforts, the need to improve how services are planned, requested by and provided to citizens and companies digitally; the acquisition and development of technological tools in the state; development of training programs and leveraging of the new digital skills of different sectors in society; and citizen transparency, accountability and participation in state proceedings and services. As a result, in addition to catalyzing efforts from national institutions, it is necessary to coordinate with the Ministry of the Presidency, as head of the State's political course, and with the Ministry of Communication as head of the development of the Open Government.

5.2 Strategy Principles

The Digital Transformation Strategy: the Bicentennial of Costa Rica 4.0 is guided by the following principles, in its design and actions:



Underpinned by transparency



Socially inclusive



Guided by the principle of purposeful value co-creation



Dynamic and flexible to adapt to the country's needs and technological advances



Aimed at economic development with environmental sustainability

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6.

Strategic alignment

6. Strategic alignment

The Digital Transformation Strategy is strategically aligned with each of the public policy and national planning instruments below: National Knowledge Society and Economy Plan (PNSEBC), National Science, Technology and Innovation (PNCTI), National Development and Public Investment Plan (PNDIP 2019-2022) and the Government's priorities for MICITT.

Upon publication, the focal points of each instrument will be added, and the new Digital Transformation focal point, with its respective intersector projects will be included in the PNCTI. The following diagram shows the strategic alignment of the Digital Transformation Strategy.

Sustainable development goals	National Knowledge Society and Economy Plan	National Science, Technology and Innovation Plan 2015-2021	National Development and Public Investment Plan 2109-2022	Costa Rica Bicentennial Government	MICITT
<ul style="list-style-type: none"> • Decent work and economic growth • Industry, innovation, infrastructure • Peace, justice and strong institutions • Partnerships for objectives 	<ul style="list-style-type: none"> • Fifth pillar Digital technology • Promotion of digital technologies as catalysts of knowledge • Line of action 14 	<p>Digital Transformation focal point added to intersector projects (2.1.3)</p>	<p>Strategic area: Innovation and competitiveness National goal: Real GDP</p>	<ul style="list-style-type: none"> • Make innovation, science and technology state policy for development • Update the National Science and Technology Plan and Telecommunications Development Plan • Design and execute an e-government model by generating protocols and recommendations for process digitalization and software acquisition, following good technical practices • Strengthen broadband and internet access 	<p>4. Optimize the use of available scientific technological and innovation resources and the mechanisms to obtain new ones, through the development of sector public policies to foster domestic initiatives</p>



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7

Guiding principles

7. Guiding principles



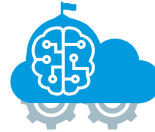
Industry 4.0 and the Knowledge Society Technologies

The new advancements and penetration of artificial intelligence techniques, data science, nanotechnology, biotechnology and bioengineering, and developments such as the Internet of Things, blockchain, 5G, geographic information systems and large volumes of data, among others, are driving major transformations in productive processes and in the way people access information and services. This Strategy deems the appropriation of these technologies by companies, citizens and public institutions as central and essential for the development of the country.



Inclusive, integrated and safe digital services

In order to promote inclusive growth, public institutions are expected to provide digital services that are accessible and affordable for the entire population. At the same time, services must be integrated, provided that the different government organizations work jointly exchanging information, to avoid, when starting a new process, requesting information from citizens and companies that they already possess. In addition, digital services, and all information on citizens and companies held by the government must be safely stored and protected under strict security standards.



Digitally smart government

In an effort to promote efficiency and the use of the tools available in the market, the Government will adopt the latest technological advances that will allow it to use data intelligently in making decisions and defining public policies. With these tools, the government will promote the development of personalized digital services that better satisfy the needs of citizens and companies, as well as citizen participation, and will install in public institutions a culture of accountability in meeting defined goals.



Human talent and financial resources

The implementation of the Strategy, as well as the correct appropriation of solutions developed and driven by it, will require human talent. Talent is required in all scopes: public, private, and civil society. Human resources that possess knowledge, skills and expertise to develop new digital products and services are needed, as well as citizens that can consume and benefit from the use thereof. The development of human, organizational and institutional capacities requires financial resources. The Government will seek mechanisms to allocate the resources necessary to implement the Strategy.

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8.

Vision

8. Vision

A digitally transformed Costa Rica that accelerates its productivity, competitiveness, and socioeconomic development, taking advantage of Industry 4.0 and knowledge societies to attain the wellbeing of all its inhabitants in an inclusive manner and to drive the country's sustainable development.

With the objective of serving citizens and companies in complying with their priorities, the vision of the Strategy is to accelerate the productivity and competitiveness of companies, seeking inclusive and sustainable socioeconomic development from the momentum provided by digital transformation in citizens, companies and public entities. The final objective of these transformations is to improve the quality of life of inhabitants, to guarantee the corporate restructuring required by Industry 4.0 and to improve the government citizen relationship. The transformations

driven are possible due to the availability of new tools, such as 5G connectivity, Internet of Things, cloud computing, artificial intelligence, data mining, blockchain, large volumes of data, 3D printing, data analytics, machine learning, sensors and actuators, and geographic information systems, among others. These transformations focus on strategic areas such as education, health, social development, security, economics and commerce, innovation, transportation, digital government, the environment and cities and territories.

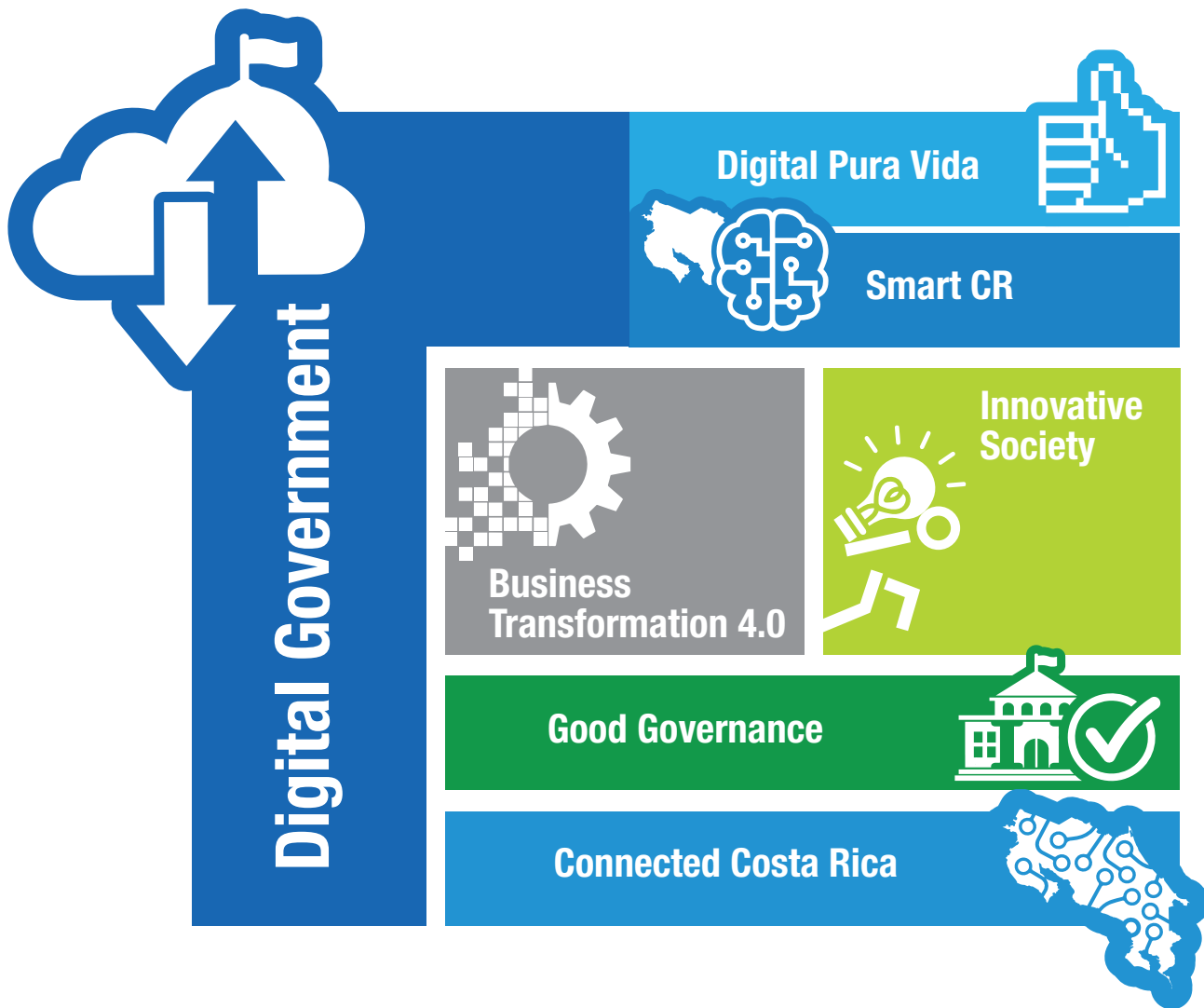


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9

Strategic focal points and lines of action

9. Strategic focal points and lines of action

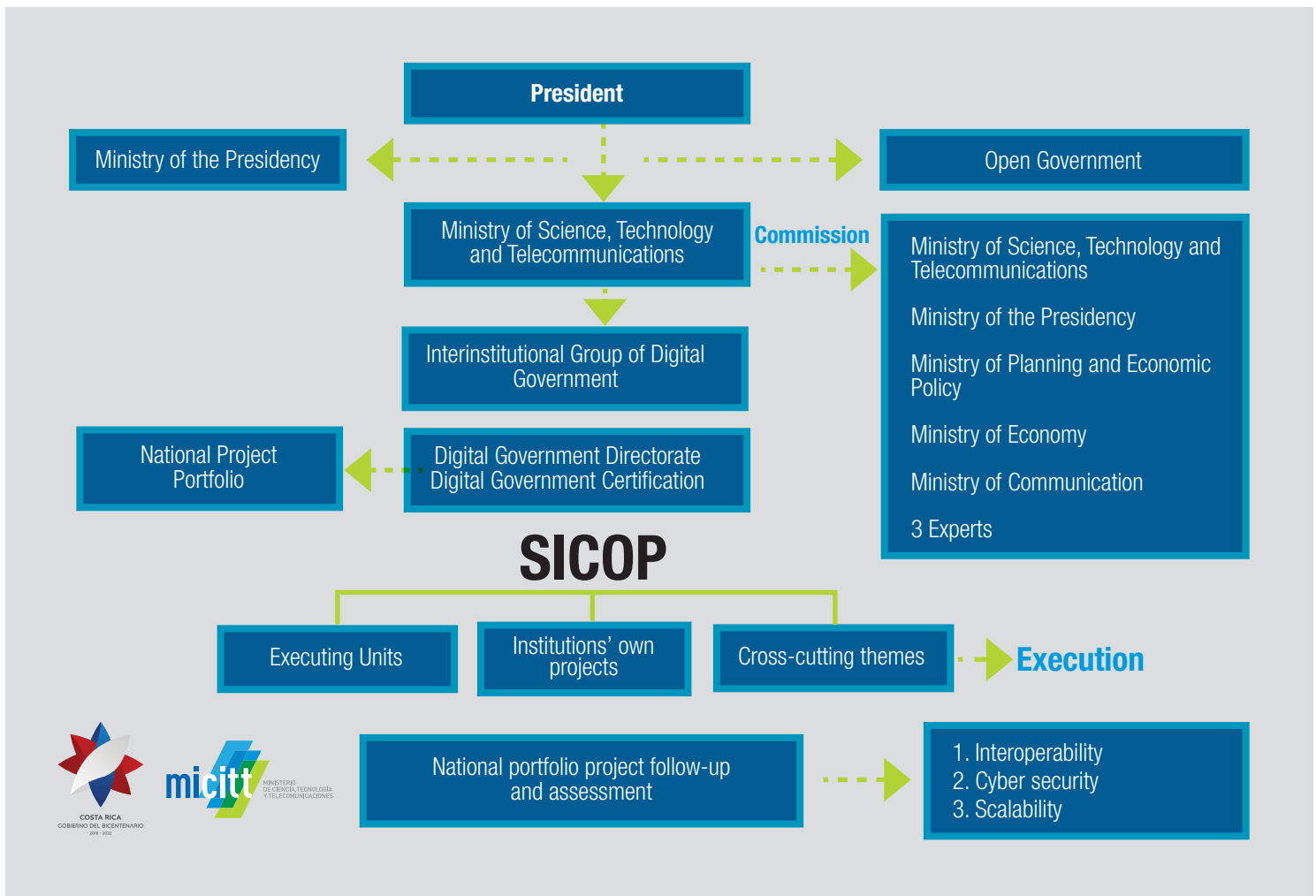


9. Strategic focal points and lines of action

9.1. Digital Government

In the Strategic Focal Points outline, two specific focal points are identified, which together represent the strategic aim of developing what in the Digital Government of the Bicentennial has been named: “Digital Pura Vida” and “Smart CR”. Accordingly, the general objective of developing the digital government of the bicentennial is to foster the strategic use of digital technologies in government institutions in Costa Rica, while efficiently, transparently and inclusively meeting the needs of all inhabitants.

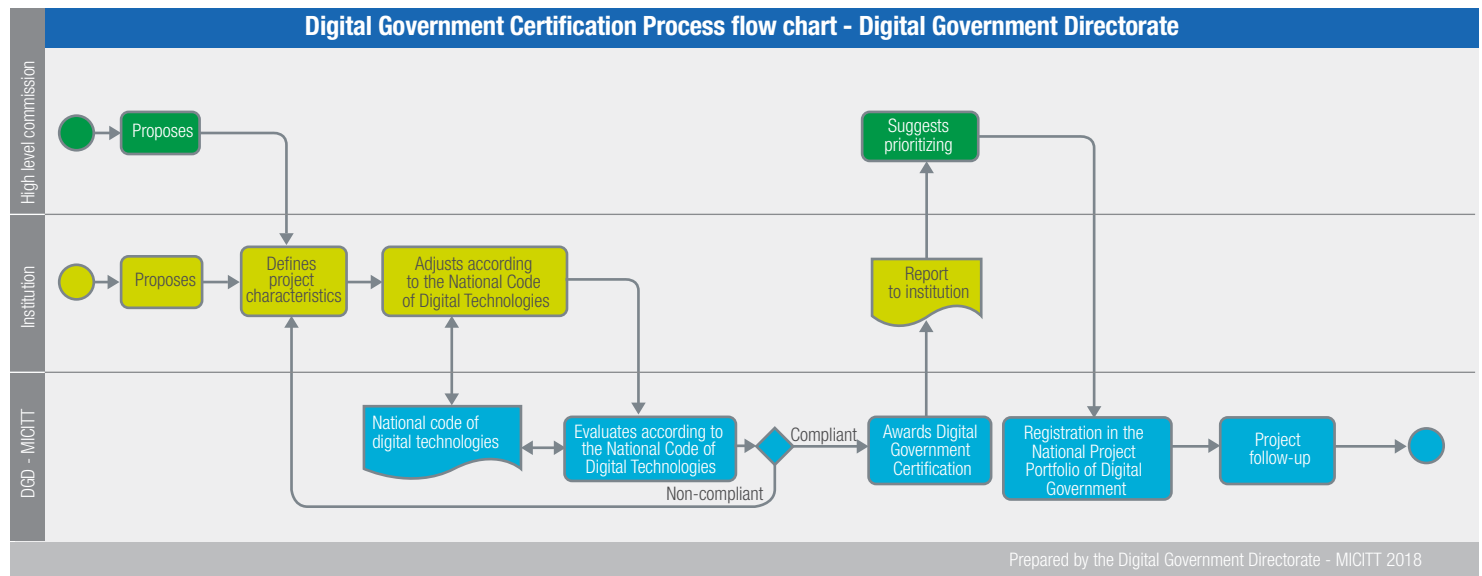
Actions from the digital government will be guided by the following management model, in accordance with the current national regulation, particularly with Executive Decree 41248. This Decree establishes the High Level Commission of the Digital Government of the Bicentennial as the MICITT advisory body for identifying, proposing and validating projects of nationwide scope, which will be followed up through the MICITT Digital Government Directorate.



9. Strategic focal points and lines of action

9.1.2 Digital Government Certification Process.

Each project deemed to have a nationwide scope must follow the validation flow chart below:



1. The High Level Commission of Digital Government (CANGD) or the interested institution, propose a digital government initiative of national scope.
2. The institution reviews the initiative and constructs the proposed digital government project.
3. The institution defines all the technical characteristics of the project as established in the National Code of Digital Technologies (CNTD).
4. The Digital Governance Directorate (DGD) of the Ministry of Science, Technology and Telecommunications (MICITT) evaluates the project proposal according to the provisions of the CNTD.
5. In case of compliance with the desirable of the CNTD, the DGD grants the Digital Government Seal to the project proposal, and the result is reported to the interested institution.
6. The CANGD reviews the sealed project proposal, and suggests its prioritization according to the other projects that make up the National Project Portfolio in Digital Government.
7. The DGD registers the project in the Portfolio.
8. The institution carries out the execution of the project.
9. Once the project has been completed and implemented, in the case of digital services to the citizen, the DGD registers it in the national digital government portal.

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Digital Government

Digital Pura Vida



Objective:

“Deliver digital, integrated, safe and high-quality public services to improve the well-being of inhabitants”

Lines of action

1. Proactive, comprehensive and digital services for citizen health
2. Smart national public transportation system
3. National digital government portal
4. Online municipal services platforms

Digital Pura Vida

Lines of action

1. Proactive, comprehensive and digital services for citizen health



Sectors:

Health /Social Development / Education

Digital transformation

A national health system that has the platforms and technological means necessary to guarantee a closer relation with citizens, and proper and prompt care to their health needs.



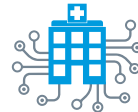
Sole digital health record



Electronic appointments and reminders



Interoperability of health data



Digital hospitals



Digital schools

Where are we headed?



Improved online and integrated management of health services



Improved quality of life and caring of the insured



Improved efficiency in communicating risk situations



Improved interaction of the insured with institutions



Facilitated digital access to State social services



Increased coverage and quality of the national education system

Strategic allies

Costa Rican Social Security Administration (CCSS)
Ministry of Health
Ministry of Public Safety
Joint Social Aid Institute (IMAS)
Ministry of Public Education (MEP)

Digital Pura Vida

2. Smart national public transportation system



Sectors:

Transportation / Security / cities and territories

Digital transformation

Development of technological tools that enable a more adequate and efficient use of the services offered in Costa Rican public transportation, within and outside the Great Metropolitan Area.



Electronic payment
in rail transport.



Urban mobility system
upgrade



Improved user experience through
public transport data intelligence

Where are we headed?



Decreased boarding time



Reduced use of cash,
resulting in improved user
security.



Improved access to
information for service
users.



Improved quality of information
available for transportation related
decision making.



Improved sustainability and
urban spaces equipped for
mobility

Strategic allies

- Office of the First Lady
- Ministry of Public Works and Transport (MOPT)
- Costa Rican Railway Institute (INCOFER)
- National Financial System
- Ministry of Housing and Human Settlements (MIVAH)
- Federated Association of Engineers and Architects (CFIA)
- Costa Rican Electricity Institute (ICE)
- Private sector

Digital Pura Vida

3. National digital government portal



Sectors:

Social Development / Digital Government/ Economy and trade

Digital transformation

A digital one-stop shop to access all proceedings and services, as well as a space to manage citizen information and the certificates and records generated by the State.



Online portal - unique catalog of services and transactions of the digital government.



Digital certifications and records with digital signatures and electronic seals



Interoperability of information - single point of a citizen's public information



"One-time" principle - one time presentation of requirements for public proceedings



Integration of one-stop shops

Where are we headed?



Easier access to the digital services provided by public institutions



Reduced use, transfer and conservation of paper



Encouragement to comply with Act N°8220



Improved citizen experience when interacting with institutions



Reduced administrative costs of managing proceedings



Reduced time and costs incurred by citizens when conducting proceedings

Strategic allies

Ministry of the Presidency
Ministry of Economy, Industry and Trade
Costa Rican Electricity Institute (ICE)
Ministry of Communication
Private sector

Pura Vida Digital

4. Online municipal services platforms



Sectors:
Citizens and territories

Digital transformation

An ecosystem of digital solutions that enhance the availability of municipal procedures and services, as well as their interaction with users by means of electronic channels.



Online municipal services and proceedings



Interoperability of services in local governments



Big data tools for municipal decisions



Digital territorial information



Integration of digital municipal services

Where are we headed?



Improved access to information for municipality users



More agile processes and improved efficiency of services provided to citizens



Promotion of transparency in municipal proceedings



Improved interaction of citizens with municipalities



Fostering of municipal technological solution exchange and interoperability

Strategic allies

Municipal Promotion and Advice Institute (IFAM)
Municipalities.

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Digital Government



Smart CR

Objective:

“Transform public institutions for collaborative and efficient work, applying new technologies for smart decision making.”

Lines of action

1. National code of digital technologies
2. Citizen identity in digital environments
3. Shared digital services platform
4. Development of the keystones of the National Cyber Security Strategy

Smart CR

Lines of action

1. National code of digital technologies



Sectors:
Digital Government

Digital transformation

Summary of public policies that establish the requirements and the desirable minimums to acquire, develop and manage technologies and digital services of the Costa Rican public sector.



National interoperability model



Standardization of services



User experience



Business continuity policies that guarantee system operation during unforeseen events



Accessibility

Where are we headed?



Fostering of efficient use of State capacities and data for easier rendering of citizen services



Improved quality of proceedings and services of the digital government



Improved resilience of digital services in the face of technological risks



Improved management of the processes used by the state to acquire technologies



Facilitated user access to and interaction with standardized and well-designed services

Strategic allies

Universities
Costa Rican Electricity Institute (ICE)
Ministry of Finance
Private sector

Smart CR

2. Citizen identity in digital environments



Sectors:
Digital Government / Security

Digital transformation

Establish an ecosystem of solutions for the management of citizen identity by using technological tools and leveraging multiple digital channels.



Digital identity document of citizens



Use of biometric mechanisms for identification purposes.



Authentication with certified digital signature.



Integration of identity devices.



Children's Digital File of the Bicentennial



Digital migration

Where are we headed?



Reduced waiting times in face-to-face citizen authentication



Improved citizen interaction with digital services and proceedings



Facilitated citizen experience through the integration of public information



Decreased cost of managing traditional identity documents



Promoted use of safe technological tools by citizens



Improved control and storage of information on minors admitted in institutions



Improved immigration proceedings

Strategic allies

- Supreme Court of Elections (TSE)
- Central Bank of Costa Rica (BCCR)
- National Child Welfare Agency (PANI)
- General Directorate of Immigration and Aliens

Smart CR

3. Shared digital services platform



Sectors:

Digital Government / Health/Social development / Economy and trade

Digital transformation

Offer a national catalog of digital services that are indispensable for many institutions of the Costa Rican public sector and that can be engaged with and shared in a unique and centralized and more efficient manner.



Acquisition of software licenses.



Efficient use of State data centers



Fostering of contact centers articulation and development



Data operation and exchange in social and health systems, as in the case of the Sole Digital Health Record (Edus) and the National State-Beneficiary Information and Registration System (SINIRUBE)

Where are we headed?



Reduced public spending on technology through economies of scale



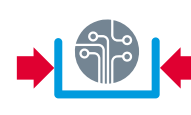
Increased efficiency of public procurement services to acquire technologies



Improved decision making based on data for acquiring technological services in the public sector



Improved transparency of public technological investment



Reduced technological divide and enhanced technological neutrality



Improved and extended use of social and health systems as tools for decision making and poverty reduction

Strategic allies

Ministry of Finance
Costa Rican Electricity Institute (ICE)
Joint Social Aid Institute (IMAS)
Costa Rican Social Security Administration (CCSS)
Private sector

Smart CR

4. Development of the keystones of the National Cyber Security Strategy



Sectors:
Security / Digital Government

Digital transformation

Development of the actions that drive the keystones of the National Cyber Security Strategies and that foster conditions to increase the levels of information security in the country.



National campaign of literacy in information security



Strengthening the operation of the Cyber Security Incident Response Centers [CSIRT-CR, in Spanish]



Establishment of policies to protect critical mission infrastructure



Strengthening the network of institutional cyber security links



Implementation of the Cyber Security Incident Management Protocol



Generation of cybersecurity risk management capabilities in public institutions

Where are we headed?



Reduced the population's risks and vulnerability to cyber crimes



Improved national capacity to surveil and respond to information security incidents



Improved information security of essential public services



Improved institutional communication and coordinated work on cyber security

Strategic allies

Public Ministry
Ministry of Public Safety
Bureau of Judicial Investigation (OIJ)
Costa Rican Electricity Institute (ICE)
Intelligence and Security Directorate (DIS)
Agency for the Protection of Citizen Data (PRODHAB)
Private sector

**Digital Transformation Strategy:
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Business Transformation 4.0

Objective:

“Facilitate the mechanisms required to increase the productivity and competitiveness of companies in the context of Industry 4.0”

Lines of action

1. Development of capacities and digital culture for Industry 4.0
2. Driving the transformation of the agricultural sector in Costa Rica
3. Digital technologies for sustainable institutional development
4. Strengthening of the digital ventures

Business Transformation 4.0

Lines of action

1. Development of capacities and digital culture for Industry 4.0



Sectors:

Economy and Commerce / Social Development / Environment

Digital transformation

Mechanisms that promote the adoption of technologies related to Industry 4.0 and that facilitate coordinating the national training offer for the productive sector.



Sole digital business record



Training program articulation and generation of new online courses and training



Prospection of capacities in disruptive technologies



Strengthened development of e-commerce platforms



Fostering of telecommuting



Technological innovation in the energy industry

Where are we headed?



Growth in the added value of Costa Rican talent



Greater employability of workers in the industry



Growth in the diversification and sophistication of the economy



Greater digital transformation of small and medium-sized enterprises



Increased commercial opportunities for the production sector through digital technologies



Improved labor conditions and traffic decongestion through telecommuting programs



Examination of new technologies for improved energy production, distribution and expansion

Strategic allies

Ministry of Economy, Industry and Trade (MEIC)
National Learning Institute (INA)
Ministry of Foreign Trade (COMEX)
Costa Rica Foreign Trade Promoter (Procomer)
Ministry of Labor and Social Security
Costa Rican Electricity Institute (ICE)
Ministry of Environment and Energy (MINAE)
Private sector

Business Transformation 4.0

2. Driving the transformation of the agricultural sector in Costa Rica



Sectors:
Innovation / Environment

Digital transformation

Development of mechanisms that enhance the institutional character of this sector and that facilitate the inclusion of new technologies in Costa Rican agriculture and stockbreeding.



Digital mapping of national production



Digital repository of information on the agricultural sector



Integration of the sector's institutional platforms



Development of capacities for the use of disruptive technology in agriculture

Where are we headed?



Growing productivity in the Costa Rican agricultural sector



Improved producer access to information



Increased producer capacities for the use of technologies



Improved quality of the information available for decision making in the agricultural sector



Leveraging of technologies such as drones and genetic engineering to foster agricultural productivity

Strategic allies

Ministry of Agriculture and Livestock (MAG)
Universities
National Learning Institute (INA)

Business Transformation 4.0

3. Digital technologies for sustainable institutional development



Sectors:

Environment / Digital Government / Economy and trade

Digital transformation

Use of digital technologies to minimize environmental impact and maximize efficiency and opportunities of sustainable development in the public, academic and productive sector.



Digital technologies at the service of national tourism development



Promotion of Costa Rica as a green and digital tourist destination.



Reduced use, transfer and conservation of paper



Management of digital documents signed digitally



Management of digital documents signed digitally



Bioeconomy, biotechnology and bioinformatics for decarbonization and productivity

Where are we headed?



Improved tourist inflow and digital tools for domestic tourism



Reduced use, transfer and conservation of paper



Reduced environmental impact of public and corporate duties.



Facilitated communication and formalization of acts in the public sector



Improved interaction in digital channels between the academy public administration and companies

Strategic allies

- Costa Rican Tourism Institute (ICT)
- Costa Rican Electricity Institute (ICE)
- Ministry of Environment and Energy (MINAE)
- General Directorate of the National Archive
- Universities
- Private sector

Business Transformation 4.0

4. Strengthening of the digital ventures



Sectors:
Economy and Commerce / Innovation

Digital transformation

Coordinate the use of funds to support entrepreneurial ventures and corporate capabilities, for the development of digital initiatives and training of competitive human resources with a gender perspective.



Development of digital clusters



Support to digitally based entrepreneurial projects and ideas



Support to innovation of digitally based SMES



Fostering of patents and intellectual property development in digital technologies

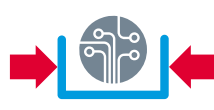
Where are we headed?



Improved digital commerce opportunities for Costa Rican companies



Improved access to public resources to foster innovation



Reduced technological and gender gap in national entrepreneurial ventures



Increased visibility of available competitive funds



Facilitated offering of value added services in the productive sector



Improved protection of the national technological intellectual property"

Strategic allies

Ministry of Economy, Industry and Trade (MEIC)
National Registry
National Learning Institute (INA)

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Innovative Society

Objective:

“Promote social innovation through the use of new technologies and the empowerment of the actors of society”

Lines of action

1. Strengthening the institutional character of the national innovation ecosystem
2. Enhance digital literacy in Costa Rican society
3. Development of capabilities for the jobs and companies of the future

Innovative Society

Lines of action

1. Strengthening the institutional character of the national innovation ecosystem



Sectors:

Economy and Commerce / Innovation

Digital transformation

Coordinate and draw attention to the different actors and mechanisms that promote the development of innovation for the different sectors of society.



Design of the institutional nature for promoting and fostering domestic innovation



Promoted use of disruptive technologies to improve the offering of business services



Prospection of capacities in disruptive technologies



Foster the development of digital entrepreneurial ventures and technological innovation

Where are we headed?



Improved innovation capacity in the productive sector



Improved offering of continuing education in innovation for the productive sector



Facilitated public investment and opportunities to support businesses



Enhanced productive linkages of SMES in new technologies

Strategic allies

Ministry of Economy, Industry and Trade
National Learning Institute (INA)
Universities

Innovative Society

2. Enhance digital literacy in Costa Rican society



Sectors:
Social Development / Innovation

Digital transformation

Develop continuing education programs and maximize the use of the installed base of public citizen centers to strengthen the adoption of digital technologies at the service of society.



Development of social innovation centers



Strengthened National Innovation Agents Network



Promotion of gender equity in the use of digital technologies to create added value



Promotion of the building of capacities and use of digital technologies to develop art and culture

Where are we headed?



Improved offering of digital literacy trainings



Enhanced use of digital technologies by the entire population



Maximized use of public citizen centers for the development of capabilities



Reduced digital divide in the most vulnerable sectors of society



Improved dissemination of opportunities and new technological knowledge



Bridging the gender gap in the use of digital technologies



Fostering the knowledge and adoption of technologies to create new artistic expression in the country

Strategic allies

- Municipalities
- National Learning Institute (INA)
- Joint Social Aid Institute (IMAS)
- National Women's Institute (INAMU)
- National Municipal Promotion Institute (IFAM)
- National Directorate of Community Development (DINADECO)
- Universities
- Superintendency of Telecommunications (SUTEL)
- Ministry of Culture and Youth (MCJ)

Innovative Society

3. Development of capabilities for the jobs and companies of the future



Sectors:
Education / Innovation

Digital transformation

Transformation of the national educational offering and generation of capabilities to better prepare workers for the changes in production, in the midst of Industry 4.0, by coordinating STEM (science, technology, engineering, and mathematics) education development opportunities.



Transformation of academic high schools into technical high schools



Innovation and entrepreneurship labs



Promotion of STEAM methodologies in teaching



Promotion of a national qualifications framework



Continuing education programs

Where are we headed?



Improved capabilities of Costa Rican human resources



Improved capabilities and resilience of Costa Rican human resources



The country's enhanced appeal for companies based on the knowledge industry



Enhanced early adoption of digital technologies

Strategic allies

Ministry of Public Education (MEP)
National Learning Institute (INA)
Ministry of Economy, Industry and Trade (MEIC)
Universities

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Good Governance

Objective:

“Guarantee good governance through citizen participation and transparency of public management, thereby driving accountability”

Lines of action

1. Promote data science for decision making and risk management
2. Open State for digital citizen participation
3. National Policy for Data and Information Preservation
4. Adaptation of the national regulatory framework to new technologies

Good Governance

Lines of action

1. Promote data science for decision making and risk management

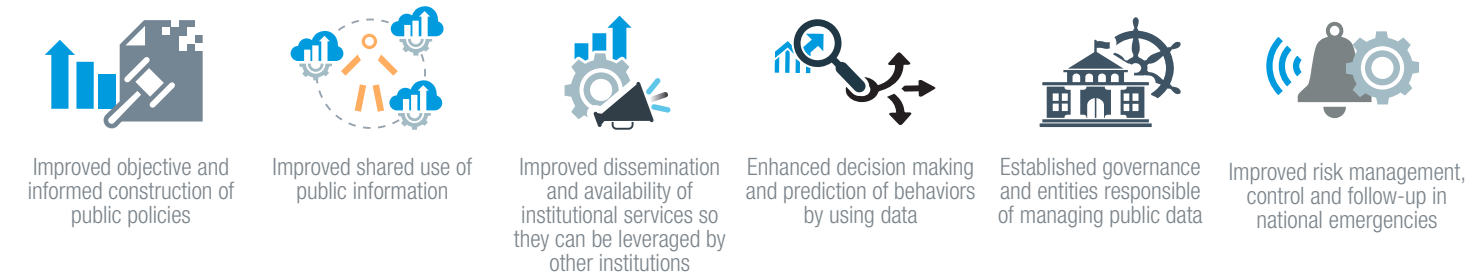


Digital transformation

Develop the mechanisms that will allow for the generation, interoperation, analysis, summarizing and production of knowledge that is valuable for decision making and risk management based on the data and public information in the hands of institutions of the Costa Rican public sector.



Where are we headed?



Strategic allies

Presidential Office
Costa Rican Electricity Institute (ICE)
Agency for the Protection of Citizen Data (PRODHAB)
National Emergency Commission (CNE)
Private sector

Good Governance

2. Open State for digital citizen participation



Sectors:
Economy and trade / Innovation

Digital transformation

Make the most of the opportunities provided by the Open State in terms of transparency, collaboration and digital citizen participation.



Open State: national policy of open data and policy to exchange and disseminate data



Single digital mailbox for petitions, complaints and claims



Digital assessment of public services and proceedings



Digital processing of citizen legislative initiatives

Where are we headed?



Fostered transparency and accountability of government institutions



Improved interaction between citizens and government in multi channel environments



Improved mechanism to follow up citizen concerns and queries

Strategic allies

- Ministry of Planning and Economic Policy (MIDEPLAN)
- Ministry of Communication
- Legislative Assembly
- Ministry of Economy, Industry and Trade (MEIC)

Good Governance

3. National Policy for Data and Information Preservation



Sectors:
Digital Government

Digital transformation

Establish guidelines for defining how public institutions should record and preserve data and information that are valuable for decision making or for the construction of the country's historic and cultural memoir.



Policies for managing electronically filed documents



Data publication and conservation guidelines



To enhance the work of information access officers



Policies on the preservation of digital information and data

Where are we headed?



Improved national capacity to preserve the historic and cultural memoir through the use of electronic publications



Improved regulations that establish the criteria to classify and store public information



Provision of means to leverage and consult information that is electronically stored

Strategic allies

Ministry of Communication
Agency for the Protection of Citizen Data (PRODHAB)
General Directorate of the National Archive

Good Governance

4. Adaptation of the national regulatory framework to new technologies



Sectors:
Digital Government

Digital transformation

Promote substantive changes in the current national regulations to allow the use of disruptive digital technologies in the work of different sectors of Costa Rican society.



Regulations for the management of citizen information (habeas data, privacy)



Observatory of regulations



Promote the use of new technologies for the mapping of current regulations



Search and identification systems of current regulations with disruptive technologies

Where are we headed?



Improve legal security in the relationships between users and digital government services.



Increase citizen oversight and discussion of current regulations.



Improve the ability to consult and take advantage of regulatory instruments through digital platforms.

Strategic allies

Attorney General's Office
Legislative Assembly
Bureau of Judicial Investigation (OIJ)
Agency for the Protection of Citizen Data (PRODHAB)

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Connected Costa Rica

Objective:

“Promote the development of telecommunications infrastructure to foster connectivity with an inclusive and solidarity approach”

Lines of action

1. Strengthening and execution of connectivity policies throughout the entire national territory
2. Development of 5G networks
3. Development of smart areas and regions
4. Broadband for Costa Rican education

Connected Costa Rica

Lines of action

1. Strengthening and execution of connectivity policies throughout the entire national territory



Sectors:

Social Development / Cities and Territories / Economy and trade

Digital transformation

Achieve connectivity for all inhabitants and the productive sector, regardless of where they are located and/or their vulnerability conditions, by deploying robust, scalable, and necessary telecommunications networks.



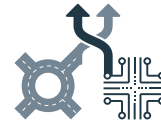
Execution of the telecommunications infrastructure action plan



Radioelectric spectrum management



Coordination of the work by institutions that are part of the Infrastructure Commission and of the Broadband Commission to improve connectivity conditions



Development of road infrastructure hand in hand with the development of telecommunications

Where are we headed?



Increased coverage of telecommunications services in the country



Efficient use of the radioelectric spectrum



Greater leveraging of the investment made in road infrastructure projects



More agile company-State relationships in the telecommunications sector



Efficient use of the State's physical infrastructure resources

Strategic allies

Superintendency of Telecommunications (SUTEL)
Telecommunications Operators

Connected Costa Rica

2. Development of 5G networks



Sectors:
Cities and Territories / Innovation

Digital transformation

Provide the population with access to new generation networks with greater speeds, thus allowing for a greater leverage of ICTs.



Deployment of the 5G network.



Public policies to provide incentives for the development of the 5G network



Analog switch-off



Efficient management of the radioelectric spectrum.

Where are we headed?



Greater bandwidths at the population's disposal



Improved connectivity services for SMES



Enhanced usage and leveraging of technology to improve the quality of life of the population

Strategic allies

Superintendency of Telecommunications (SUTEL)
Telecommunications Operators

Connected Costa Rica

3. Development of smart areas and regions



Sectors:

Social Development / Digital Government

Digital transformation

Generate a geographical area or region with a community model based on the maximum use and leveraging of information and communication technologies, for the benefit of its social, economic, political, and administrative development.



Establishment of smart cities index



Establishment and implementation of smart cities model



Interinstitutional coordination, measuring of results and definition of framework



Interinstitutional articulation, measurement of results and definition of work framework



Availability of funds to develop smart cities



Implementation of smart cities model

Where are we headed?



Improved quality of life of the population



Improved access to municipal and government services



Improved interaction between inhabitants and government entities



Strengthened accountability processes



Improved citizen participation

Strategic allies

Municipal Promotion and Advice Institute (IFAM)
Municipalities

Connected Costa Rica

4. Broadband for Costa Rican education



Sectors:
Education

Digital transformation

Establish conditions for connecting the country's education centers to a broadband network, with the objective of executing an educational model that uses digital technologies to boost student's capabilities.



Education centers
connected to the
broadband network



Interinstitutional coordination
to create a modern educational
model



Take advantage of the capacities of the
RedCLARA network to drive the use of
available digital technologies



Execute the FONATEL
infrastructure projects



Alternative network
for emergency
telecommunications

Where are we headed?



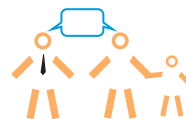
Increased knowledge level and
leveraging of digital technologies
by students



Improved control of contents
accessed by students.



Improved communication of
processes between teachers and
the Ministry of Public
Education



Improved communication
between parents
and teachers



Improved connection speeds in
education centers

Strategic allies

Ministry of Education (MEP)
Superintendency of Telecommunications (SUTEL)
Universities

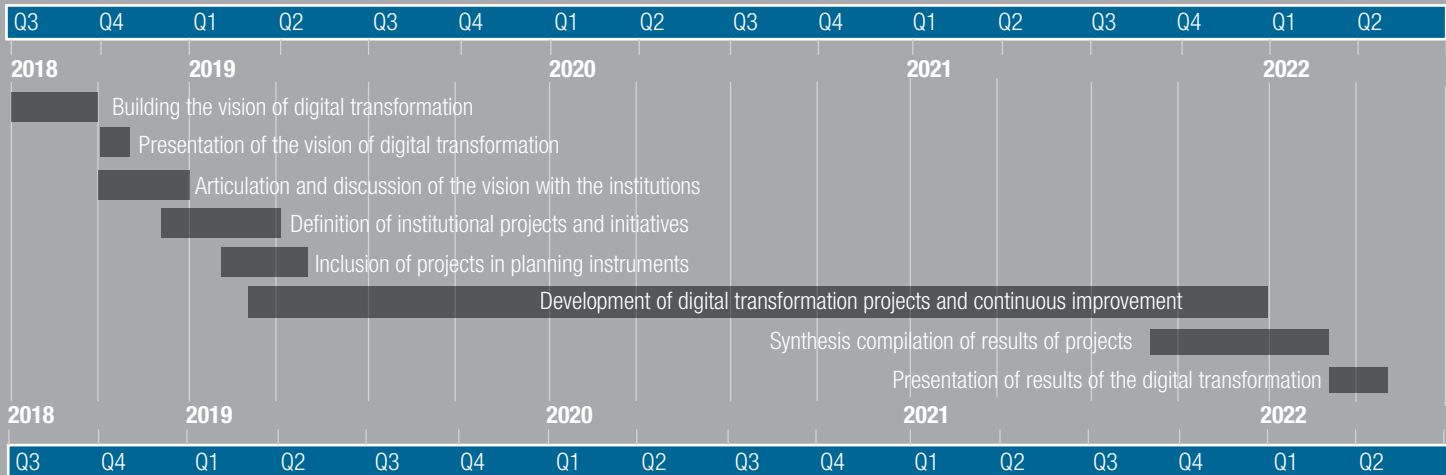
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10.

Road map

Road map

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