MinCiencia

NATIONAL DATA CENTERS PLAN

2024 - 2030

The administration of **President Gabriel Boric Font** is committed to establishing Chile as a benchmark for digital infrastructure, consolidating the country as a hub for the data center industry in Latin America. **The National Data Centers Plan (PDATA)** reaffirms our vision of technological development that drives economic growth while being grounded in principles of sustainability, equity, and territorial collaboration.

This Plan represents an opportunity to build a robust infrastructure that not only boosts the economy but also supports the development of innovative technologies such as artificial intelligence, thereby strengthening research and development in Chile. We are committed to a growth model that harnesses renewable energy, respects natural resources, and prioritizes collaboration with local communities, integrating their needs and aspirations. Through these efforts, Chile will position itself at the forefront of the digital era while addressing the environmental and productive challenges facing the nation.

This is a pivotal moment for our society. Digital transformation must promote innovative economic development while addressing the pressing environmental and social challenges we face. I invite all stakeholders—public and private sectors, academia, and civil society—to join this collective effort to make Chile an example of sustainable and responsible digital development. Together, we can build a digital infrastructure that serves the country and contributes to a fairer, more prosperous, and more connected future for all.

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Executive Summary

The Government seeks to position Chile as an attractive destination for investment in the data center industry, fostering the growth of a data-driven economy where new technologies are developed to process and utilize large volumes of information. At the same time, these efforts aim to support a transition toward a more sustainable, green, and connected society. To achieve this, the Plan has been designed as a strategic instrument to position the country as a hub for technological investments, aligned with the challenges of digitalization and sustainability.

The National Data Centers Plan (PDATA) outlines a series of actions aimed at promoting the sustainable growth of the data center industry in Chile. It establishes a favorable environment for investment while ensuring that technological development aligns with territorial needs and the well-being of citizens. The Plan seeks to optimize the use of natural resources by facilitating the identification of strategic areas for infrastructure deployment and promoting a clear and efficient regulatory framework. It also prioritizes the decentralization of growth by encouraging the establishment of new infrastructure in regions with access to renewable energy, creating local jobs, and ensuring responsible water management. Through coordination among public and private stakeholders, the Plan aims to balance the necessary growth of the industry with sustainability, ensuring coexistence with the environment, local communities, and citizens who will benefit from this development.

The National Data Centers Plan is the result of a collective effort led by the Ministry of Science, Technology, Knowledge, and Innovation, in coordination with the Ministry of Finance, the Ministry of Economy, Development, and Tourism, the Ministry of Health, the Ministry of Housing and Urban Planning, the Ministry of Transport and Telecommunications, the Ministry of National Assets, the Ministry of Energy, the Ministry of Environment, the Undersecretariat of Telecommunications, the Digital Government Secretariat, the Environmental Assessment Service, the National Electricity Coordinator, InvestChile, and the Sustainability and Climate Change Agency.

Each of these institutions plays a critical role in ensuring the effective implementation of the Plan's measures. Additionally, the Plan's development process included active participation from civil society, the private sector, academics, and international experts, reflecting a collaborative approach to building a future-oriented and sustainable technological framework for Chile.


WORLD CONNECTION

Introduction

Data Centers: An economy driven by data and technology

> *"A Data Center is a physical facility designed to house and operate servers, storage systems, networks, and the distribution of large volumes of data. These infrastructures are essential to ensure the continuous operation of digital services, ranging from business applications to mass-consumer platforms such as streaming services, social media, online banking, and e-commerce. Data Centers provide the necessary infrastructure for companies to manage their daily operations, from transaction processing to handling large databases. Furthermore, they support emerging technologies like artificial intelligence, which require rapid and large-scale data processing".*
>
> *(The Green Grid & Uptime Institute, 2024)*

The processes of digital transformation have established Data Centers as a cornerstone of technological infrastructure on a global scale. Within this ecosystem, it is essential to differentiate between companies operating as colocation providers and/or cloud service providers. Colocation providers offer space, power, cooling, and connectivity to various clients, allowing them to install and manage their own hardware under a business model based on leasing these services. In contrast, cloud service providers operate facilities managed by technology companies that deliver cloud computing, storage, and networking services via the internet to a vast number of end-users in Chile and globally.

In recent years, the growing demand for cloud services to meet data processing and storage needs, both in the public and private sectors, has enhanced flexibility and alignment with the digital needs of the territory. This has become an increasingly important factor in economic growth and productivity in the country. Today, the adoption of public cloud computing is already having a substantial impact across Chile's economy, with estimates indicating that by 2023 it supported 695,000 jobs and accounted for 6.2% of the national GDP[1]. Similarly, the demand for cloud services from the business sector has introduced a new productivity paradigm, with cloud computing and digital platforms now utilized by 82% of companies nationwide[2].

1 FTI Consulting (2023) Economic Impact of Cloud Adoption in Chile.

2 Inter-American Development Bank (2023). Latin America on the Move: Competencies and Skills for the Fourth Industrial Revolution in the Post-Pandemic Context.

Challenges

Data Centers are fundamental infrastructures for the digital economy, supporting the execution of critical services that depend on the massive processing and storage of data, such as financial applications, e-commerce platforms, and cloud services. However, their operation demands significant resources, particularly in terms of energy and water consumption, necessary for cooling and continuous system operations. These externalities pose challenges related to sustainability and the efficient management of natural resources.

Currently, the Data Center industry accounts for approximately 2% of global electricity consumption, and this figure is expected to more than double by 2026, fueled by the deployment of artificial intelligence (AI) and quantum computing—technologies requiring intensive data processing[3]. Despite ongoing efforts to improve **energy performance**, the increased workload of these centers has led to significant growth in energy consumption, with annual rates ranging between 20% and 40%. In 2023, the global average Power Usage Effectiveness (PUE) of a Data Center was approximately 1.55. The industry strives to lower PUE values closer to 1.0, which would indicate that all energy consumed is used exclusively by IT systems, with minimal losses in other operations.

Simultaneously, the **intensive use of water for cooling, humidification, and maintenance systems in Data Centers** has emerged as a critical issue. The average Water Usage Effectiveness (WUE)[4] of a Data Center utilizing constant evaporative cooling systems is 1.8 liters of water per kWh of total energy consumption[5]. This means that large-scale Data Centers could use between 1 and 3 million liters of water daily. Given this scenario, it is imperative to rethink cooling models and advance toward technological solutions that optimize water usage. Notably, some Data Centers in Chile have achieved WUE levels of 0.2 L/kWh, meaning they use less than a cup of water per kilowatt-hour consumed.

There are currently a wide range of alternative technologies to evaporative systems that are more efficient in water consumption. These include free cooling, which uses external air to reduce mechanical cooling needs; closed-circuit liquid cooling, which continuously recirculates coolant without requiring large amounts of water; and adiabatic cooling, which minimizes water use by activating only when necessary, making it ideal for hot and dry climates. Additionally, technologies such as immersive cooling systems, where components are submerged in dielectric fluids to dissipate heat efficiently, and the application of artificial intelligence to optimize real-time cooling, are leading the way in ensuring more sustainable and efficient operation[6].

3 International Energy Agency (2024) Data Centres and Data Transmission Networks.

4 The Green Grid introduced the WUE and PUE metrics. WUE is used to measure the sustainability of Data Centers in terms of water usage and its relationship to the energy consumption of IT equipment. PUE, on the other hand, has been established as a standard for evaluating how efficiently a Data Center uses energy, specifically how much of the total energy is allocated to operating IT equipment compared to auxiliary systems such as cooling and lighting.

5 The cooling systems in Data Centers that consume the most water are those that rely directly on evaporation to dissipate heat. Among these, cooling towers and direct evaporative cooling systems are the highest consumers (Zhang, 2024).

6 Digital Realty (2024) The Future of Data Center Cooling: Innovations for Sustainability.

Chile as a destination for the Data Center industry?

Chile possesses numerous attributes that position the country as a hub for the establishment of Data Centers: abundant and low-cost renewable energy, 62,000 kilometers of fiber optic infrastructure, 3.8 million devices connected to the 5G network, access to a 69,000-kilometer network of submarine cables, political and economic stability, a temperate climate, and favorable operational conditions. In the last quarter of 2023 alone, the country increased its data infrastructure capacity by 20%.

Currently, most medium- and large-scale Data Centers are concentrated in the Santiago-Valparaíso area, where 22 facilities are operational. This has strengthened Chile's reputation as a digital hub in Latin America, attracting numerous foreign technology companies that provide local digital services and export cloud services internationally.

Over the past decade, Chile's installed Data Center capacity has experienced rapid growth. In 2013, the total capacity of Data Centers in the country did not exceed 35 MW, but within five years, this figure had risen to 82.3 MW. Today, installed capacity stands at 198 MW, representing nearly a fivefold increase over ten years. Looking ahead, 30 new projects in various stages of development have been identified through 2028. Of these, 14 projects (47%) are in early stages with a potential investment of USD 1.2 billion, while the remaining 16 projects (53%) are in execution, with an estimated investment of USD 2.9 billion.

The industry is projected to triple in size over the next five years, presenting significant challenges. It is essential to align this growth with the needs of local territories and communities by creating spaces for dialogue that support balanced and sustainable development. This approach aims to address local concerns, ensure fair distribution of the benefits across society, and reduce negative impacts.

Origin of the Plan

The **National Data Centers Plan (PDATA)** is an institutional initiative led by the **Pro-Growth and Employment Cabinet of the Government of Chile**. This Cabinet was established to enhance investment processes in the country, facilitating the identification and execution of strategic projects in key sectors, including Data Centers. The PDATA aligns with the Chilean Government's objectives to promote economic recovery in a decentralized manner, empowering investment in technological infrastructure, essential elements for social development and the strengthening of the nation's digital capacities.

The PDATA aims to establish the necessary conditions for the sustainable growth of the Data Center industry in Chile, positioning the country as a regional leader in technological infrastructure. Its primary focus is to develop an industry supported by renewable energy and the adoption of the highest standards of operational efficiency and socio-environmental responsibility. In this way, the Plan seeks to integrate the development of this infrastructure with the needs and expectations of local territories, while also enhancing research and development (R&D) conducted in Chile, ensuring a positive impact on both the digital economy and communities.

Launch of the National Data Centers Plan at the 7th International Forum on Foreign Investment (May, 2024)

National Data Centers Plan (2024 - 2030)

Objectives

The National Data Centers Plan is a nationwide initiative designed to stimulate economic growth, led by public institutions. It outlines strategic guidelines and measures to foster a favourable environment to accelerate Data Center investments, with the goal of positioning Chile as a leading technological hub in Latin America. At the same time, it aims to ensure that the development of Data Centers is sustainable, minimizing environmental and social impacts while incorporating the perspectives and needs of citizens. The Plan is structured around the following objectives:

- **Encourage the growth of the Data Center industry through investment support**

This objective focuses on creating better conditions for investment by clarifying existing regulations and organizing relevant information. It seeks to provide certainty to investors about the requirements for building Data Centers in Chile while also making this information available to citizens and researchers. This approach aims to make Chile an attractive and reliable destination for digital infrastructure investment while maintaining high environmental standards.

- **Build a decentralized Data Center industry with low environmental impact, powered by renewable energy**

To ensure sustainable growth, the Plan prioritizes the transition to decentralized models that leverage the regional capabilities and opportunities within the country. This objective emphasizes reducing the energy and water consumption of the Data Center industry, enhancing its resilience to climate challenges through the use of renewable energy. By doing so, it stimulates balanced economic growth that minimizes environmental impact and benefits all regions equitably.

- **Strengthen research and development (R&D) to support the growth of data technologies**

Chile's role as a regional leader in the digital economy depends on developing strong technical skills, research, and innovation. This objective focuses on promoting R&D, training specialized workers, and introducing new technologies. By strengthening collaboration between the public sector, academia, and the industry, the Plan aims to strengthen innovation that supports the country's economy and benefits its people.

Measures

1. **Digital platform for strategic and sustainable industry growth:** The State, through its Geospatial Data Infrastructure (IDE Chile), will develop a digital platform integrating information on energy availability, suitable land use[7], connectivity, and socio-environmental variables nationwide. This measure will facilitate short- and long-term planning, promoting an orderly and sustainable growth of the Data Center industry by optimizing resource use and minimizing environmental impact.

2. **Critical permits Guide for Data Center construction:** A publicly available reference guide will detail the necessary permits and regulatory processes required for the construction and operation of Data Centers in Chile. This guide, available in digital format and periodically updated, will simplify regulatory compliance and streamline investments in the country.

3. **Environmental evaluation criteria for projects:** A guide with standardized technical criteria will be made publicly available to optimize the environmental evaluation process of Data Center projects under the Environmental Impact Assessment System (SEIA). This will provide greater certainty to the industry and the public regarding regulatory requirements and standards. Workshops will be conducted to share this knowledge with stakeholders from both the public and private sectors.

4. **Promotion of Clean Production Agreements (APL) for climate change:** An agreement will be established between the State and the Data Center industry to improve resource efficiency and reduce the environmental impact of these infrastructures. These agreements will enhance water and energy sustainability and reduce the carbon footprint of the sector, encouraging the use of efficient technologies and supporting collaboration between the State, industry, and communities.

5. **Shared multi-cloud state service:** The creation of a shared multi-cloud state service will strengthen the technological capacities of the public sector, facilitating the secure and efficient management of cloud services in line with the standards of digital governance and the Digital Transformation Law 21.180. A coordinating unit will centralize service procurement and management, provide technical support, and ensure operational resilience through multi-cloud hosting.

6. **Building strategic skills for the Data Center industry:** This measure proposes a comprehensive public-private approach to encourage talent development and strengthen technical capabilities in both the private sector and public institutions overseeing projects. Training programs, international partnerships, and specific capacity-building initiatives will ensure that the workforce aligns with the industry's current and future demands, boosting sustainable and competitive sector growth.

7. **Installation of AI campuses:** The planning and implementation of regional technology campuses specialized in AI training and computing will be prioritized. These campuses will be located in regions with abundant renewable energy, robust connectivity, and suitable land, promoted by the State to encourage private investment and expand technological infrastructure.

8. **Computing capacity for AI R&D in Chile:** Access to advanced computing infrastructure for AI research and development will be ensured through agreements between the State and international companies operating in Chile. These initiatives will connect universities, research centers, technical institutions, and public and private sectors in Chile and Latin America, supporting collaboration and technological innovation.

7 Suitable Land Use: Land designated for activities within urban areas, as defined by the corresponding Communal or Metropolitan Planning Instrument.

9. **Multi-stakeholder committee for Plan monitoring:** A strategic committee led by the State, including local governments, the Data Center industry, experts, and communities will be established to monitor and evaluate the industry's progress, aligned with the objectives of the National Data Centers Plan. This committee will centralize information, assess impacts, identify investment opportunities, and ensure sustainable and inclusive growth.

Digital platform for strategic and sustainable industry growth

Development of a state-led platform that integrates information on energy availability, suitable land use, fiber optic connectivity, and socio-environmental variables across the country to support decision-making processes in the expansion of Data Center infrastructure in Chile.

1. Description

From an urban planning perspective and to ensure the sustainable growth of the Data Center industry in Chile, it is essential to develop **tools that identify key areas for Data Center installations based on energy availability, adequate connectivity, suitable land use, and compatibility with socio-environmental variables**. The creation of an energy availability, connectivity, and territorial expansion platform will enable the visualization of information related to electrical substations, fiber optic networks, and land use distribution for Data Center installations. This platform will serve as a guide to streamline decision-making processes for new infrastructure installations in the Metropolitan Region in the short term and in regions with access to renewable energies—particularly solar and wind—in the medium and long term.

Additionally, the platform will incorporate precise territorial information, such as the presence of communities, protected areas, or other environmental factors, to identify the most suitable locations and facilitate an orderly and decongested growth of the industry across the country. The platform will be continuously updated with data on the expansion of energy networks, renewable energy availability, and new fiber optic connections.

2. stages

2025 - 2027

- Collection of data on energy consumption, availability of electrical substations, suitable and available land, fiber optic networks, and socio-environmental variables related to Data Centers.
- Creation of an initial map focused on planning new infrastructure in areas with low saturation and available electrical connectivity.
- Implementation of a comprehensive industry planning approach that integrates technical, economic, social, and environmental factors to provide recommendations for the industry's growth and development nationwide.
- Promotion of projects and investment initiatives in regions previously identified as favorable, prioritizing those with access to renewable energy, robust fiber optic connectivity, and lower socio-environmental impacts.

Goal: Generate prioritized recommendations for industry expansion on a biannual basis.

Indicator: Number of recommendation reports generated using the platform.

2028 - 2030

- Integration of data on energy projects under development and collaboration with ministries to identify growth hubs in other regions.

Goal: Consolidate a national infrastructure framework that ensures the orderly development of Data Centers by aligning investment needs with territorial capabilities and regional development opportunities.

Indicator: Biannual updates to the platform's data.

3. Responsible Ministries and Agencies:

Ministry of National Assets through its Geospatial Data Infrastructure (IDE Chile).

4. Collaborating Ministries and Agencies:

Ministry of Energy, Undersecretary of Telecommunications, Ministry of the Environment, Ministry of Housing and Urban Development, and the National Electric Coordinator.

Critical permits Guide for Data Center construction

Development of a technical reference guide outlining the required permits and processes for the construction and operation of Data Centers in Chile. This guide, based on a comprehensive approach and aligned with international best practices, aims to streamline regulatory compliance and accelerate investments in the country.

1. Description

To ensure the agile and efficient development of these projects, it is essential that stakeholders have access to a Critical Permits Reference Guide, detailing the key regulatory requirements and necessary procedures for implementing Data Centers in the country.

Inspired by international models, this guide will include specific information on the relevant permits required for such projects. It will be available in digital format, in both Spanish and English, to facilitate access for international investors and local stakeholders. The guide will be periodically updated to reflect changes in national regulations and to ensure its continued relevance in an evolving regulatory environment.

2. Stages

2025 - 2027

- Development of the Critical Permits Guide in collaboration with the ministries leading the Plan.
- Publication of the guide in a digital format, available in both Spanish and English, for use by companies and public agencies.
- Adjust and update the guide based on practical outcomes from the first projects that use it.
- Incorporation of new regulatory requirements from legislative changes or advancements in the regulation of critical infrastructure in the country.

Goal: Publish and distribute a reference guide that integrates key regulatory requirements and processes for the implementation of new projects.

Indicator: Guide published on the official website.

2028 - 2030

- Expansion of the guide's scope to include specialized permits, such as those related to the installation of AI infrastructure and other advanced technological services.
- Consolidation of the guide as a central reference for all Data Center projects in Chile, ensuring its long-term utility in the strategic planning of the industry.

Goal: Expand the scope of the reference guide to include specialized permits, ensuring its constant updates to address regulatory and technological changes.

Indicator: Number of revisions and updates made to the guide in response to regulatory and technological changes.

3. Responsible Ministries and Agencies:

Ministry of Economy, Development, and Tourism.

4. Collaborating Ministries and Agencies:

Ministry of Health, Ministry of Environment, and Ministry of Housing and Urban Development.

Environmental evaluation criteria for projects

Development of standardized technical criteria to optimize the environmental evaluation process of Data Center projects within the Environmental Impact Assessment System (SEIA). These criteria aim to provide greater certainty to the industry and citizens regarding existing regulatory requirements, evaluation criteria, and obligations in the system.

1. Description

The design of technical guidelines for the description and environmental evaluation of projects aims to clarify the evaluation process for Data Centers within the Environmental Impact Assessment System (SEIA). The objective is to ensure that all stakeholders—industry, the State, and civil society—have access to standardized technical mechanisms that align criteria and requirements for these projects, providing greater certainty for all parties involved.

This initiative includes internships and training workshops for the Data Center industry, fostering exchanges with other countries to explain applicable environmental evaluation criteria. Awareness sessions will also be held, allowing industry actors to share updated technical information on the nature and operation of Data Centers with the Environmental Assessment Service (SEA) and other Competent Environmental Authorities (OAECA). Such collaboration aims to improve understanding and communication between the industry and institutions involved in environmental evaluations. Additionally, joint seminars will be organized to share best practices and promote an integrated approach to project evaluations.

Lastly, the importance of strengthening SEA's human capital is emphasized, with the recruitment of specialists in relevant fields. This will ensure an effective counterpart capable of enhancing the environmental evaluation process and improving the technical development of guidelines for describing and evaluating Data Centers.

2. Stages

2025 - 2027

- Organize sessions in collaboration with the Data Center industry to share updated technical information on the characteristics and operations of Data Centers with SEA and OAECA, leveraging exchanges with other countries for additional insights.
- Collaborate with sector experts to establish clear environmental evaluation criteria for Data Center projects.
- Conduct workshops to explain current environmental evaluation criteria to industry stakeholders, ensuring comprehensive understanding and compliance.
- Integrate technical guidelines into SEIA processes, followed by a monitoring phase to assess their effectiveness and adaptability.
- Host seminars with the Data Center industry to review practical case studies and share best practices in project evaluation.
- Expand the adoption of these technical guidelines in other industrial sectors seeking clarity and consistency in environmental evaluations.

Goal: Publication of a document with standardized technical criteria to ensure clearer and more effective environmental assessments for Data Center projects.

Indicator: Guide published on the official website.

2028 - 2030

- Ongoing updates of technical guidelines based on accumulated experience and technological advancements in the Data Center industry.
- Measurement of the guidelines' impact on reducing uncertainty for investment in Data Centers and other technological industries.

Goal: Establish the technical guidelines as a key reference for the environmental assessment of Data Center projects, with continuous updates to reflect technological advancements and new regulations.

Indicator: Number of revisions and updates made to the document in response to regulatory and technological changes.

3. Responsible Ministries and Agencies:

Environmental Assessment Service (SEA) and the Ministry of Science, Technology, Knowledge, and Innovation.

4. Collaborating Ministries and Agencies:

Ministry of the Environment and Ministry of Economy, Development, and Tourism.

Promotion of Clean Production Agreements (APL) for climate change

Establishment of a Clean Production Agreement between the State and the Data Center industry to promote water sustainability, energy efficiency, and carbon footprint reduction within the sector. The Agreement will align with the objectives of the **National Data Centers Plan** and include clear goals and indicators to monitor its progress and compliance.

1. Description

A Clean Production Agreement (APL) is a voluntary agreement between the productive sector and the State that sets specific sustainability goals to reduce the environmental impact of industrial activities. These agreements include clear commitments in areas such as energy efficiency, water resource management, and emissions reduction, tailored to the characteristics of each sector. APLs are designed to enhance the competitiveness and sustainability of businesses while contributing to the country's climate and environmental objectives.

The **Clean Production Agreement for Climate Change** is a State-led initiative in collaboration with the Data Center industry, aiming to establish targets for reducing water consumption in cooling systems used by Data Centers in Chile, promoting more efficient energy systems supported by renewable sources, and implementing practices to lower carbon emissions. Additionally, the agreement will foster the creation of permanent engagement platforms between the industry and the State, where progress toward agreed goals will be discussed, best practices shared, and innovative solutions for sustainable management in Data Centers explored.

2. Stages

2025 - 2027

- Initial commitment of collaboration between the State and the Data Center industry to define preliminary objectives.
- Development of a baseline assessment of the Data Center industry and the design of an initial proposal for the APL.
- Definition of sustainability targets for water management, energy efficiency, and emissions reduction through joint discussions.
- Formalization of the agreement and company commitments to the defined targets.
- Execution of water, energy, and emissions sustainability targets outlined in the APL.

Goal: Implementation of the Clean Production Agreement (APL) on climate change by signing companies.

Indicator: Number of companies signing and beginning to implement the commitments outlined in the APL.

2028 - 2030

- Conduct periodic assessments to verify compliance with established goals and measure the APL's contribution to enhancing sustainability within Data Centers.
- Award certifications to Data Centers that achieve the defined sustainability targets, recognizing their commitment to responsible operations.
- Develop and integrate new objectives that reflect technological and regulatory progress, maintaining a strong focus on water efficiency, energy optimization, and sustainable operational practices.

Goal: Establishment of a sustainability and territorial relevance standard for the Data Center industry operating in Chile.

Indicator: Percentage of companies certified against the total number of companies operating in Chile.

3. Responsible Ministries and Agencies:

Sustainability and Climate Change Agency.

4. Collaborating Ministries and Agencies:

Ministry of Economy, Development, and Tourism; Ministry of the Environment; Ministry of Science, Technology, Knowledge, and Innovation; and Ministry of Housing and Urban Development.

Shared multi-cloud state service

Development of a state multi-cloud strategy to enable the public sector to securely and efficiently manage cloud services, aligning with the requirements of Law 21.180 on Digital Transformation and national digital governance standards. This approach will be guided by a centralized coordinating unit responsible for streamlining procurement, optimizing resource use, and providing technical assistance, ensuring robust and resilient cloud infrastructure for public institutions.

1. Description

Establishing a shared **state multi-cloud** service is essential to enhance the technological capabilities of the public sector, facilitating the acquisition, management, and security of cloud services needed to meet the digital governance standards and objectives outlined in **Law 21.180 on Digital Transformation**. Currently, many public institutions face technical and managerial limitations in accessing and operating cloud services, which increases cybersecurity risks, administrative costs, and the likelihood of failures in digital transformation projects.

To address these challenges, the State proposes the creation of a shared multi-cloud service managed by a centralized **coordinating unit**. This unit would act as the main contractor and administrator of cloud services, providing technical and operational support to public institutions. Additionally, this model could allow digital services to be hosted across multiple clouds, enhancing the resilience of the public sector. The coordinating unit would ensure access to a reliable and flexible digital infrastructure, enabling institutions, regardless of their internal capacities, to adopt cloud services efficiently and securely.

This unit could operate as a public enterprise or as part of a public-private alliance to streamline technology acquisition processes. The Digital Government Secretariat could serve as the intermediary between this coordinating unit and the public agencies requiring cloud services.

2. Stages

2025 - 2027

- Design of an operational multi-cloud service, along with a diagnosis of strengths, weaknesses, and specific recommendations.
- Establishment of a coordinating unit to centralize the management of cloud services with providers and oversee the digital infrastructure across the public sector.
- Gradual implementation of the shared multi-cloud service within key institutions, ensuring continuous monitoring of results and making necessary adjustments.

Goal: Development of a state multi-cloud model (design phase) that ensures secure and efficient access to cloud services for public institutions.

Indicator: Number of agreements established with cloud service providers to design and structure the state multi-cloud model.

2028 - 2030

- Expansion of the model to all State institutions, consolidating the multi-cloud system for public services.
- Establishment of continuous improvement processes and long-term monitoring to ensure the resilience, flexibility, and sustainability of cloud infrastructure.

Goal: Implementation of the multi-cloud model in public institutions.

Indicator: Percentage of state institutions integrated into the multi-cloud service with continuous operational monitoring, relative to the total number of institutions nationwide.

3. Responsible Ministries and Agencies:

Ministry of Finance, through the Digital Government Secretariat.

4. Collaborating Ministries and Agencies:

Ministry of Science, Technology, Knowledge, and Innovation.

Building strategic skills for the Data Center industry

This measure aims to implement a comprehensive public-private approach to promote talent development and strengthen technical capacities both in the private sector and in public institutions responsible for supervising and evaluating projects. Through training programs, international partnerships, and targeted capacity-building initiatives, the workforce will be aligned with the industry's demands and the country's strategic needs, fostering sustainable and competitive growth in this sector.

1. Description

The development of the Data Center industry in Chile faces a critical challenge: the lack of specialized human capital. This industry's dynamic nature, shaped by rapid technological advancements, demands a skilled workforce capable of meeting operational and developmental requirements. Currently, both private sector companies and government counterparts lack the necessary expertise to fully understand the challenges and opportunities presented by this industry.

This measure proposes the establishment of a comprehensive approach, coordinated between the public and private sectors, to support talent development and capacity building within the Data Center sector. This includes implementing specialized technical and professional training programs for industry workers and public officials tasked with evaluating and overseeing projects. Additionally, efforts will be made to collaborate with universities, technical training centers, and international stakeholders, ensuring that the human capital developed aligns with the current and future demands of the industry.

2. Stages

2025 - 2027

- Analysis of human capital requirements in partnership with the Data Center industry and relevant public institutions participating in the **National Data Centers Plan**.
- Collaboration agreements established with universities, technical institutes, and industry associations to design training programs focusing on key areas such as cybersecurity, energy management, Data Center operations, and environmental compliance.
- Implementation of workshops and training sessions for public officials to enhance their abilities in project supervision and evaluation.

Goal: Develop two training programs in collaboration with public, private, and academic institutions.

Indicator: Number of training programs developed jointly with public institutions, the private sector, and academia.

2028 - 2030

- Launch of specialized technical and professional training programs for industry workers, prioritizing regions identified as key areas for Data Center expansion.
- Development of partnerships with international stakeholders to integrate best practices and emerging technologies into training programs, ensuring alignment with global industry standards.

Goal: Address at least 10% of the labor gap in the IT industry, based on the latest measurement from the National Training and Employment Service (SENCE).

Indicator: Number of workers trained through sector-specific training programs.

3. Responsible Ministries and Agencies:

Ministry of Science, Technology, Knowledge, and Innovation.

4. Collaborating Ministries and Agencies:

Ministry of Finance and InvestChile.

Installation of AI campuses

Planning, promotion, and implementation of regional technological campuses specialized in infrastructure for artificial intelligence training and computing, located in regions with high availability of renewable energy and robust connectivity.

1. Description

The development of AI campuses is based on identifying strategic regions in Chile with high availability of renewable energy sources and storage, such as solar, wind, pumped storage, geothermal, and concentrated solar power, to establish data centers dedicated to AI training. Utilizing the energy and connectivity availability platform, regions with adequate electrical capacity, robust connectivity infrastructure, and suitable land for data center construction will be evaluated.

Through this measure, the State aims to facilitate the necessary conditions for establishing these campuses, ensuring preferential access to appropriately zoned land and robust connectivity, while collaborating on infrastructure planning with a priority on renewable energy. Additionally, strategies will be defined to promote private investment and strengthen the creation of favorable environments for implementing AI infrastructure, positioning Chile as a leader in the adoption of advanced technologies and ensuring these campuses become regional benchmarks for the technology industry.

2. Stages

Corto plazo 2025 - 2027

- Identification of regions with abundant renewable energy resources and robust connectivity using the energy availability platform to support the establishment of AI data centers.
- Support for dialogue and investment agreements with industry leaders and energy infrastructure operators, highlighting the renewable energy potential of prioritized regions.
- Development of preliminary strategies to guide investment in AI-related infrastructure within these regions.
- Conceptualization and detailed planning of regional AI campuses tailored to the identified locations.

Goal: Secure public-private investment agreements to set up AI campuses, focusing on key regions identified by the Plan's digital platform.

Indicator: Number of agreements and total investment value (in USD) committed by private and public sectors.

2028 - 2030

- Carrying out investment projects within the regional AI campuses.
- Expansion of infrastructure and promotion of new investment agreements to enable the growth of technological campuses in additional regions with access to renewable energy.

- Assessment of the impact of AI campuses on advanced human capital development and collaboration between industry and academia.

Goal: Build and launch at least one AI campus in selected regions, connected to renewable energy and serving as a regional tech hub.

Indicator: Number of completed projects.

3. Responsible Ministries and Agencies:

Ministry of Science, Technology, Knowledge, and Innovation.

4. Collaborating Ministries and Agencies:

Ministry of National Assets, Ministry of Economy, Development, and Tourism, Ministry of Finance, Ministry of Energy, Undersecretariat of Telecommunications, National Electrical Coordinator, and InvestChile.

Computing capacity for AI R&D in Chile

Access to advanced computing infrastructure for artificial intelligence research and development, ensuring collaboration between international companies operating in Chile and universities, research centers, technical institutes, science-based technology companies, the public sector, and institutions across Latin America.

1. Description

The development and training of advanced artificial intelligence models require high-performance computing infrastructure, which is currently unavailable in Chile's academic and research institutions. To address this gap and align with the **establishment of AI campuses in Chile**, it is crucial to advance agreements that leverage foreign investments in AI and high-performance computing infrastructure. These agreements will enable universities, research centers, technical institutes, and the public sector to access these technological platforms, enhancing their research and development (R&D) capabilities.

The State, in collaboration with data storage and processing technology companies operating in the country, will establish agreements to allocate a percentage of these infrastructures' capacity for use in R&D projects led by Chilean institutions. This reserved access will be guaranteed for high-quality projects, evaluated under rigorous scientific criteria, and may include collaboration with researchers from Latin America. Such initiatives aim to foster knowledge transfer and strengthen Chile's competitiveness in artificial intelligence.

2. Stages

2025 - 2027

- Signing of agreements with international companies to ensure a share of AI computing capacity for Chilean institutions.
- Establishment of competitive and collaborative criteria for the allocation of computing time.
- Expansion of agreements to include new companies investing in AI infrastructure in Chile, integrating additional stakeholders from the global and local ecosystem.
- Promotion of partnerships with multiple entities, including technology companies, international research organizations, governments, academic institutions, and technological innovation centers.

Goal: Secure at least one agreement with international companies to guarantee priority access to AI computing infrastructure for Chilean institutions, establishing clear allocation criteria and strengthening global collaborations.

Indicator: Number of agreements established with international companies

2028 - 2030

- Promotion of joint projects between international companies and universities, focused on developing technological solutions tailored to the national context.

Goal: Develop at least two projects between international companies and national higher education institutions utilizing AI computing infrastructure available in the country.

Indicator: Number of collaborative technological and R&D projects initiated.

3. Responsible Ministries and Agencies:

Ministry of Science, Technology, Knowledge, and Innovation.

4. Collaborating Ministries and Agencies:

Ministry of Economy, Development, and Tourism, and InvestChile.

Multi-stakeholder committee for Plan monitoring:

Creation of a strategic committee led by the State, involving local governments, the data center industry, experts, and communities, to monitor and evaluate the industry's development in alignment with the objectives of the **National Data Centers Plan**.

1. Description

The expansion of the Data Center industry in Chile requires strong and coordinated governance to ensure strategic planning, risk and opportunity identification, and continuous monitoring of the progress of the **National Data Centers Plan**. To achieve this, a Strategic Committee for Monitoring and Plan Updates will be established, led by the Ministry of Science, Technology, Knowledge, and Innovation, in collaboration with other relevant ministries, associated services, the private sector, and civil society.

This committee will serve as the central entity for gathering, analyzing, and prioritizing strategic information on the industry, including updated data on investments, energy and water consumption, and the environmental impact of Data Centers in the country. It will also be a key platform for addressing challenges related to project investments and other strategic issues facing the industry.

Additionally, the committee will function as a formal space for dialogue and collaboration between the **Data Center industry, experts, and communities**. During biannual meetings, progress on the Plan will be evaluated, best practices will be shared, and strategies will be refined to ensure the achievement of the objectives outlined. Finally, the committee will be responsible for monitoring and evaluating the implementation of the Plan's measures and goals, providing a transparent and accountable framework for all stakeholders.

2. Stages

(2025 - 2027)

- Include relevant ministries, associated services, Data Center industry representatives, local governments, experts, and civil society organizations.
- Assign clear tasks to each ministry and stakeholder involved.
- Designate the committee as the central platform for industry information, delivering regular updates on the state of the sector and its progress in meeting the objectives of the **National Data Centers Plan**.
- Keep track of the Plan's objectives and ensure the committee serves as a platform for strategic adjustments when necessary.

Goal: Establish a permanent monitoring framework for the Plan through the Committee.

Indicator: Semi-annual publication of progress reports on the Plan.

(2028 - 2030)

- Ongoing updates of data and analysis on the Data Centers industry, integrating international best practices and lessons learned.

Goal: Maintain the Committee's activities while incorporating advanced tools to analyze and monitor socio-environmental, energy, and economic aspects of the Data Centers industry in Chile.

Indicator: Semi-annual publication of progress reports, including a dedicated section on proposed improvements for the Plan.

3. Responsible Ministries and Agencies:

Ministry of Science, Technology, Knowledge, and Innovation; Ministry of Finance; Ministry of Economy, Development, and Tourism.

4. Collaborating Ministries and Agencies:

Ministry of Health, Ministry of Housing and Urban Development, Ministry of Transport and Telecommunications, Ministry of National Assets, Ministry of Energy, Ministry of the Environment, Undersecretary of Telecommunications, Digital Government Secretariat, Environmental Assessment Service, National Electric Coordinator, InvestChile, and the Sustainability and Climate Change Agency.

Conclusion

Insights from a collaborative journey

Data Centers are the backbone of the modern digital economy, enabling technological services that drive innovation, economic growth, and social transformation. In an increasingly interconnected world, Chile has positioned itself as a digital hub and now has the opportunity to establish itself as the leading digital exponent in Latin America. With its abundance of renewable energy, robust connectivity, and institutional stability, the country is well-equipped to strategically and sustainably lead the growth of this industry with a long-term vision.

Ensuring that the development of this infrastructure aligns with communities and the environment is essential. This involves not only minimizing environmental and social impacts but also engaging all relevant stakeholders in the planning and execution of projects. Measures to boost the efficient use of resources such as water and energy, along with reducing carbon footprints, are key priorities to achieve responsible growth aligned with global climate change challenges.

One of Chile's greatest strengths lies in its ability to decentralize the development of this infrastructure by leveraging regional energy potential and capabilities. Identifying strategic areas for the establishment of data centers ensures an equitable distribution of economic benefits while fostering local employment and technical specialization. This regional approach connects Chile comprehensively, promoting a digital transformation that reaches every corner of the country.

The planned infrastructure also unlocks new opportunities in artificial intelligence. Creating specialized technological centers for AI will strengthen research and development capabilities, positioning Chile as a regional leader in this field. By guaranteeing access to advanced infrastructure, the country not only promotes innovation but also ensures that the knowledge generated directly benefits national development.

Governance plays a crucial role in this process. Involving public, private, and community stakeholders assures decisions are informed, inclusive, and responsive to local realities. Tools like feasibility platforms for energy and connectivity, along with environmental criteria and permitting guides, provide clarity for investors and ensure that growth is orderly and sustainable.

Chile has the opportunity to lead the region's digital transformation by laying the groundwork for development that is innovative, inclusive, and sustainable. This effort requires the collective commitment of all sectors of society, working together toward a future where digital infrastructure serves not only as a foundation for economic growth but also as a catalyst for building a more just, connected, and resilient society.


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