

**INTERSESSIONAL PANEL OF THE UNITED NATIONS COMMISSION
ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT (CSTD)**

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Contribution by ECLAC

to the CSTD 2020-2021 priority theme on “Using science, technology and innovation to close the gap on Sustainable Development Goal 3 on good health and well-being”

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PRIORITY THEME 2: Using science, technology and innovation to close the gap on SDG 3, good health and well-being

United Nations Commission on Science and Technology for Development (CSTD)

Dear UN regional commission and regional group,

The CSTD 23rd annual session selected “Using science, technology and innovation to close the gap on SDG 3, good health and well-being” as one of the priority themes for its 24th session (2020-21 period).

Science, technology, and innovation (STI) can play an important role in strengthening the capacity of all countries, in particular developing countries for early warning, risk reduction and management of national and global health risks as described in SDG 3D. Data science, biomedical science and engineering and other technologies can broadly transform health and medicine and specifically support countries and regions in their responses to emerging health crises as well as in their preparedness for future threats. Beyond specific technological innovations, STI policy advice, diplomacy, and international cooperation also play a prominent role in current and future infectious disease preparedness and response. The theme will explore experiences about using STI to strengthen health outcomes as well as approaches to regional and global STI cooperation in this field.

The CSTD secretariat is in the process of drafting an issues paper on the theme to be presented at the CSTD inter-sessional panel meeting. In this context, we would like to solicit inputs from UN regional commissions and regional groups on this theme. We would be grateful if you could kindly answer the following questions based on your organization’s work at the regional levels.

1. Can you give examples of projects/policies in your region aimed at using science, technology, and innovation for early warning, risk reduction and management of national risks? What are the main challenges confronted while trying to implement these projects/policies?

Colombia: "SegCovid19" is a web application that records the health monitoring of people living in Colombia in the COVID-19 pandemic. The web application allows the recording of information on the health status of people with confirmed diagnosis, discarded or possible cases of COVID-19, with or without risk factors, who are residents of Colombia and the monitoring of home or hospital isolation.

Chile: Epivigila is a computer system implemented by the Minsal for the surveillance of notifiable communicable diseases. The tool has been in use since 2018 with the aim of modernising and securing health information, allowing immediate access to it. National implementation was made right before the pandemic. All doctors and health centres in the country must report cases of COVID-19 in the Epivigila system. In April 2020, it was detected that the system had omitted, repeated, and unreported cases. In May, 20% of the reported cases were not in Epivigila, indicating that there were serious problems in making decisions based on Epivigila.

Argentina: As an integral part of the public health care and prevention strategies in the face of the Covid-19 pandemic, the national government developed the “Cuidar” application. The application Cuidar - Covid 19 enables self-diagnosis of symptoms, provides assistance and recommendations in the case of compatibility with coronavirus and provides tools for contacting those cases to health authorities. The application is linked to a broader system that articulates the information that the application collects with the health areas responsible for emergency care, both national and provincial governments.

2. Could you share specific examples, projects or initiatives that have used frontier technologies (e.g., AI, drones, blockchain, 3D printing, etc.) or other forms of innovation in general in addressing the Covid-19 pandemic?

Most countries in Latin America and the Caribbean have had calls for proposals aimed at using science, technology and innovation in the context of Covid-19 pandemic. These calls have led to involve universities and entrepreneurs in the innovation process. ECLAC is creating a database of such calls and its results that will be available by the end of the year.

Several private firms and universities have readapted their capabilities to support health systems, by, for example, 3D printing facial protection, using copper to improve protection, among other innovations¹.

Innovation for the pandemic has also included the use of big data and predictive models to help authorities make better decisions on certain measures. An important example of this is in Mexico, specifically in Mexico City. The National Agency of Public Innovation (Agencia Digital de Innovación Pública (ADIP)) developed a compartmentalised epidemiological model² based on deterministic differential equations, based on a SEIR (Susceptible, Exposed, Infected and Recovered) model with additional adjustments was used to model both hospitalizations without ventilation and intubations. This model was intended as an additional input to assist in decision-making by the Mexico City Mayor's Office and the members of the Metropolitan Health Committee, in order to strengthen the response to the SARS-CoV-2 pandemic, which caused the COVID-19 disease.

3. Can you provide examples of policies/projects/initiatives aimed at strengthening regional health innovation systems? For example, how does your organization support the building of innovative capabilities through investments in R&D and human capital? What projects are in place to stimulate healthcare innovation and effectively address safety, ethical and other concerns?

The Conference on Science, Innovation and Information and Communications Technologies (a subsidiary body of ECLAC) approved a regional cooperation proposal, which includes measures to develop the health-care industry at the national and regional levels, as well as fostering regional R&D networks. The idea is for it to work on the development of mission-oriented industrial and technological policies, the promotion of strategic partnerships for regional integration, the creation and strengthening of a regional market through recognition of regulatory bodies and coordination of public procurement, and the creation and expansion of capabilities at the regional level. The proposal is attached in Spanish for your consideration. In this context, different actions and proposals have been drafted and will be explained next.

Currently, ECLAC is working on different projects on the matter. A first approach was taken at the Thirty-eighth session of ECLAC, held between the 26-28 October 2020. At this meeting, the main document presented by ECLAC was called "Building a New Future: Transformative Recovery with Equality and Sustainability"³, where health industries were studied as a relevant sector that drives sustainable development. In this context, several policy recommendations were presented to member countries, such as "(i) substantially increase the public contribution to research and development, (ii) increase the size and time horizon of projects to be implemented, (iii) strengthen public, university or private centres of excellence, (iv) promote connections between actors in the health industry innovation system, (v) improve product and process patenting, registration and approval processes and (vi) monitor procurement processes in the health industry innovation process" (page 168). At the

¹ ECLAC (2020), Sectors and businesses facing COVID-19: Emergency and reactivation https://repositorio.cepal.org/bitstream/handle/11362/45736/5/S2000437_en.pdf

² MODELO EPIDEMIOLÓGICO COVID-19 DEL GOBIERNO DE LA CIUDAD DE MÉXICO, <https://modelo.covid19.cdmx.gob.mx/modelo-epidemico>

³ ECLAC (2020), Building a New Future: Transformative Recovery with Equality and Sustainability (LC/SES.38/3-P/Rev.1) <https://repositorio.cepal.org/handle/11362/46228>

same time, some proposals were made to strengthen regional collaboration, such as “(i) develop mission-oriented innovation programmes implemented by regional multinational consortia, (ii) foster the integration of training and exchanges of students and researchers, (iii) extend and formalize mutual recognition of drug registration, (iv) complement installed capacity in the countries with a regional clinical trials platform designed to consolidate common and recognized regulatory standards, (v) regulate procurement strategies by creating a base of suppliers that offer guarantees of compliance with standards of high-quality, safe and timely supply at reasonable prices and (vi) strengthen regional mechanisms for joint procurement of medicines and medical devices in health emergencies” (idem).

Second, and together with the Pan American Health Organization (PAHO), creating a space for public and private actors to discuss the future of health industries and systems. This meeting is planned to take place in December and will include authorities from ECLAC, PAHO, ministries of health and STI, as well as representatives from pharmaceutical firms in the region.

4. Could you share case studies of regional cooperation that have strengthened health capacities, particularly in developing countries? Can you provide success stories involving regional cooperation in academic research networks, STI diplomacy, or initiatives to make healthcare innovations accessible for all?

In the context of the Conference on Science, Innovation and Information and Communications Technologies, ECLAC has carried out a studies and seminars on the matter in different countries in Latin America and the Caribbean. First, two studies in Argentina regarding the promotion of the medical devices industry and industrial policies in the pharma industry.

At present, studies are being carried out regarding capabilities and innovation in health industries (pharma and medical devices) in Argentina, Brazil, Chile, Colombia, Costa Rica and Mexico. These studies will be used to develop an action plan based on the previously mentioned regional cooperation proposal aimed at strengthening health systems and sanitary autonomy in the region.

In Argentina, Brazil and Mexico, studies are being carried out to determine the production capacities of critical inputs and equipment in the health industry, based on a sectoral analysis and survey of technological and productive capacities, considering the insertion in global value chains, as well as the possibilities of regional integration and health autonomy of this industry. In Chile and Colombia, a study on the challenges of scientific and technological innovation that have emerged in the context of COVID-19 in the cases of Chile and Colombia, and propose guidelines for productive development and innovation policy to meet the emerging post-pandemic challenges.

A success story was seen in the collaboration between Argentina, Mexico, AstraZeneca and the Carlos Slim Foundation: “On 12 August 2020, the Anglo-Swedish transnational AstraZeneca and the Carlos Slim Foundation signed an agreement to contribute to the production in those two countries and the distribution in Latin America of the potential vaccine called AZD1222. This project of the University of Oxford and AstraZeneca is considered one of the most advanced in the world and is in phase 3 of development. The final stage of the vaccine trials, in which 50,000 people in Brazil, South Africa, the United Kingdom and the United States will participate, is due to be completed in late 2020. Once all stages have concluded, the Argentine biotechnology company mAbxience of the InsudPharma group is to produce the vaccine reagent while the Mexican laboratory Liomont completes the stabilization, manufacturing and packaging process for distribution in the region. Manufacturing is expected to start in early 2021 so that the vaccine will be ready during the first quarter of that year. If this were achieved,

it would mean an advance of between 9 and 12 months on the timeframe envisaged for access to the vaccine in the region”⁴.

5. Could you suggest some contact persons responsible for projects/policies, related technologies and regional collaboration in this context as well as any experts dealing with projects in this area? We might contact them directly for further inputs or invite some of them as speakers for the CSTD inter-sessional panel and annual session.

- Mario Castillo, Director, International Trade and Integration Division, ECLAC (mario.castillo@cepal.org)
- Nicolo Gligo, Economic Affairs Officer, Division of Production, Productivity and Management, ECLAC (nicolo.gligo@cepal.org)
- Paola Vega, Minister of Science, Technology and Telecommunications, Costa Rica and President of the Conference on Science, Innovation and Information and Communications Technologies (Eliana.ulate@micitt.go.cr)

6. Do you have any documentation, references, or reports on the specific examples on the priority theme in your organization?

- **Attached:** “Propuesta de cooperación regional en ciencia, innovación y TIC: Respuesta a la crisis de la pandemia del COVID-19 desde la ciencia, la tecnología y la innovación”
- Building a New Future: Transformative Recovery with Equality and Sustainability (LC/SES.38/3-P/Rev.1) <https://repositorio.cepal.org/handle/11362/46228>
- Universalizar el acceso a las tecnologías digitales para enfrentar los efectos del COVID-19 <https://www.cepal.org/es/publicaciones/45938-universalizar-acceso-tecnologias-digitales-enfrentar-efectos-covid-19>
- Sectors and businesses facing COVID-19: emergency and reactivation, https://repositorio.cepal.org/bitstream/handle/11362/45736/5/S2000437_en.pdf

Please send your responses and any further inputs on the theme to the CSTD secretariat (stdev@unctad.org) by 7 October 2020. We look forward to receiving your valuable inputs.

Sincere Regards,

CSTD secretariat

⁴ ECLAC (2020), Building a New Future: Transformative Recovery with Equality and Sustainability (LC/SES.38/3-P/Rev.1) (page 169) <https://repositorio.cepal.org/handle/11362/46228>



NACIONES UNIDAS

CEPAL

Conferencia de Ciencia, Innovación y Tecnologías de la Información y las Comunicaciones de la Comisión Económica para América Latina y el Caribe



MINISTERIO DE CIENCIA, TECNOLOGÍA Y TELECOMUNICACIONES

Propuesta de cooperación regional en ciencia, innovación y TIC

1

Respuesta a la crisis de la pandemia del COVID-19 desde la ciencia, la tecnología y la innovación

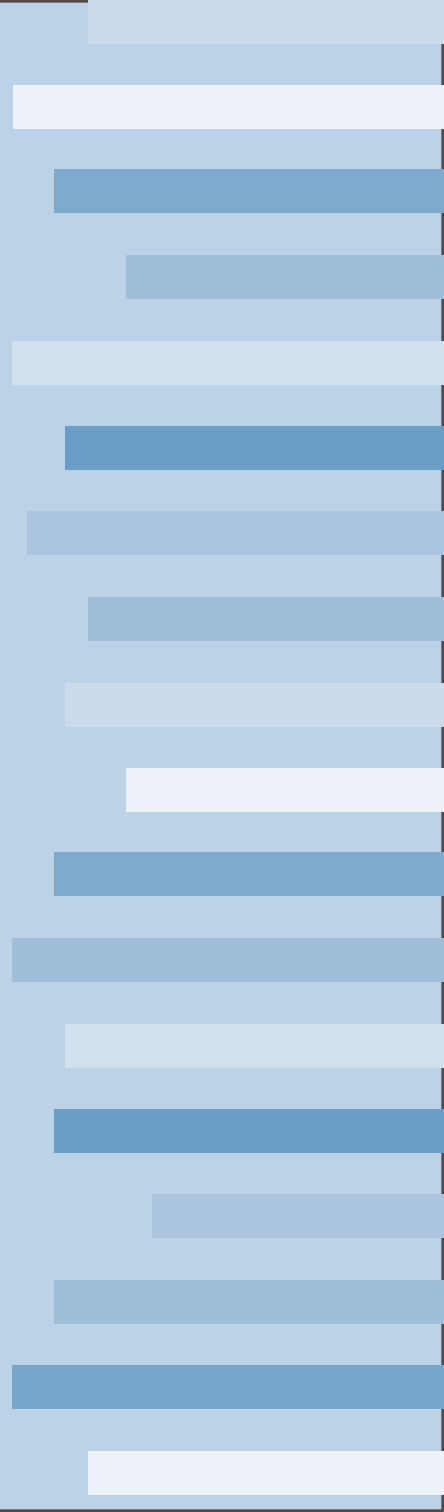
Con el apoyo de



Índice

- Escenarios económicos y sociales en tiempos de COVID-19
- Brechas tecnológicas, digitales y productivas, y sus principales desafíos
- Áreas de trabajo y programa de actividades
- Plan de acción 2020

Escenarios económicos y sociales en tiempos de COVID-19



América Latina y el Caribe en tiempos de COVID-19

Estimaciones a junio 2020

- El COVID-19 impacta en un momento de lento crecimiento económico
- Se produce una paralización económica que resultará en una fuerte recesión de al menos -5,3%
- El comercio se desploma por lo menos en -15% en el valor de las exportaciones
- El desempleo aumenta al menos un 3,4% con 12 millones de desempleados adicionales y un aumento de la pobreza en 30 millones de personas
- Efectos económicos en América Latina y el Caribe
 - Efectos directos: la capacidad de reacción de los sistemas de salud
 - Efectos indirectos: la contracción de la demanda global y las cadenas de suministro
 - Efectos internos: medidas de contención e impactos en el empleo
- Respuestas en la región: medidas de salud, sociales, fiscales y monetarias

El mundo post COVID-19 nos exige más integración regional

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- Pensar el futuro de la región en la nueva geografía económica para depender menos de manufacturas importadas e imaginar cadenas de valor regionales.
- Se requieren políticas industriales y tecnológicas que permitan a la región fortalecer capacidades productivas y generar nuevos sectores estratégicos.
- Para incidir en la nueva economía mundial, la región debe avanzar hacia una mayor innovación, integración productiva, comercial y tecnológica.
- Un mercado integrado de 650 millones de habitantes constituiría un importante seguro frente a perturbaciones generadas fuera de la región.
- Permitiría alcanzar la escala requerida para viabilizar nuevas industrias y promover redes de producción e investigación tecnológica compartida entre países y subregiones.
- Fortalecer el desarrollo de un Mercado digital regional con énfasis en la inclusión social

El papel de la ciencia, innovación y TICs

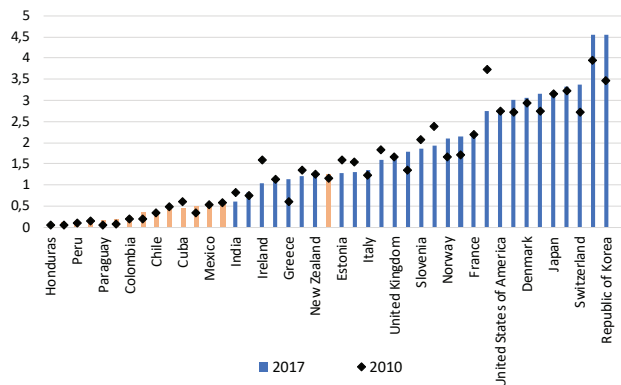
- La ciencia, innovación y TICs son clave para enfrentar los desafíos en la industria de la salud y la recuperación económica.
- Las restricciones al comercio dificultan el abastecimiento de productos esenciales para el combate del COVID-19.
- El ecosistema digital, particularmente las industrias digitales y la infraestructura, se encuentra rezagado y con importantes brechas de acceso en comparación a otras regiones.
- El desarrollo y adopción de soluciones digitales debe considerar los elementos estructurales de los países y los factores habilitantes.
- Se debe fortalecer la integración regional, las capacidades en la industria de la salud, y la economía digital.

**Brechas
tecnológicas,
digitales y productivas,
y sus principales
desafíos**



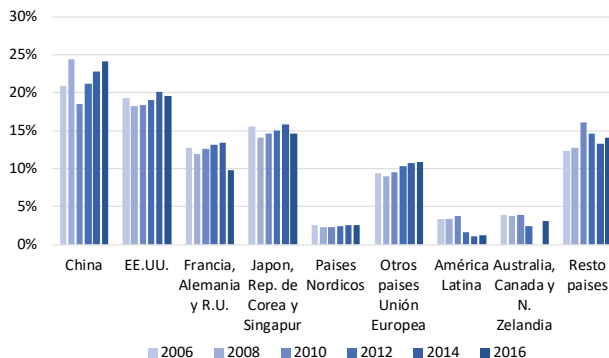
La baja inversión en I+D (0,7% del PIB) y bajo porcentaje de investigadores (3%) demanda una urgente gestión estratégica

8



Países seleccionados: inversión en investigación y desarrollo (i+d) con respecto al pib, alrededor de 2010 y de 2017
(En porcentajes del pib)

Distribución mundial de investigadores dedicados i+d, según grupo de países, 2006 a 2016

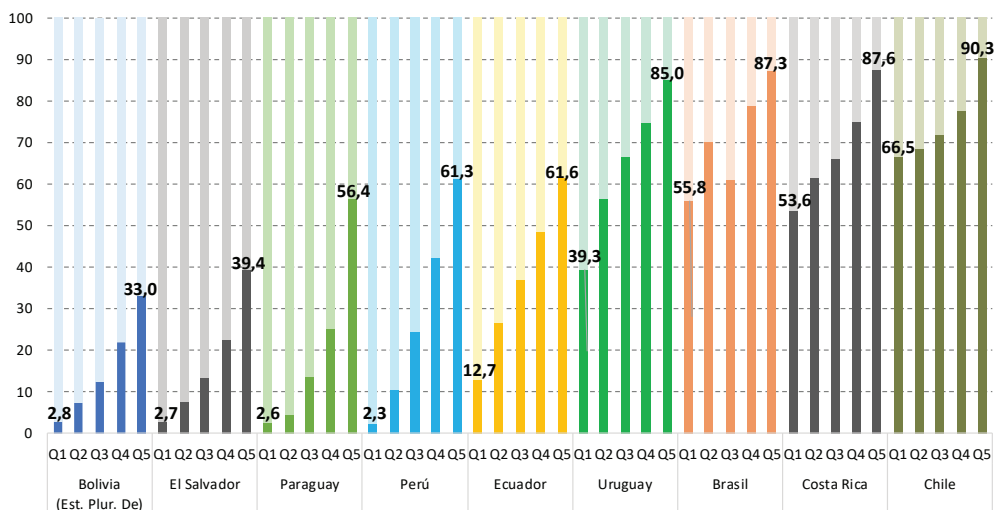


Los países de América Latina tienen una baja propensión a invertir en I+D, con excepción del Brasil. Le siguen en importancia la Argentina, Costa Rica y México, que, sin embargo, no alcanzan el nivel de innovación de los países más avanzados. Al mismo tiempo, los datos muestran la gran heterogeneidad de las economías de la región en este aspecto.

Alta desigualdad en la conectividad digital

Porcentaje de hogares conectados y no conectados por quintil de ingreso

(Tono oscuro: hogares conectados)



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Fuente: Observatorio Regional de Banda Ancha (ORBA) de la CEPAL con base en las encuestas de hogares del Banco de Datos de Encuestas de Hogares (BADEHOG).

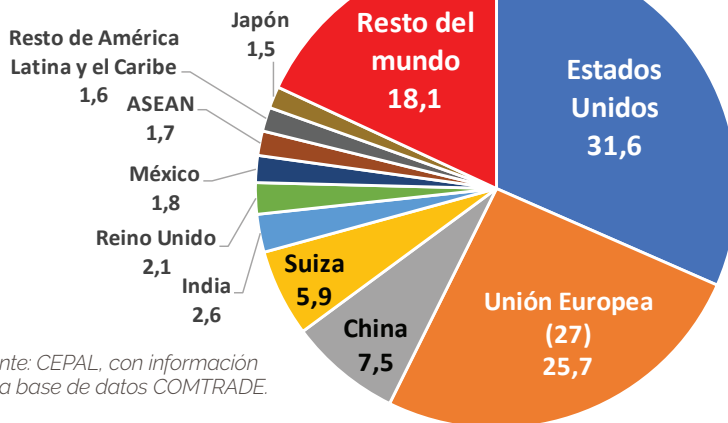
- La condición económica, edad y ubicación geográfica limitan el acceso a la conectividad.
- Las brechas de acceso entre los hogares de más altos y bajos ingresos son significativas.
- El acceso a plataformas digitales -por ejemplo, el teletrabajo- no son asequibles para toda la población.

Las restricciones al comercio internacional han puesto de manifiesto la fragilidad del abastecimiento de insumos y equipos médicos en la región

América Latina y el Caribe (20 países): distribución por origen de las importaciones de productos esenciales para el combate al COVID-19, 2018

(En porcentajes)

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Fuente: CEPAL, con información de la base de datos COMTRADE.

- La producción de medicamentos e insumos médicos y sanitarios se encuentra altamente concentrada en los países industrializados. Menos del 4% de las compras regionales proviene de la región.
- Los Estados Unidos son el principal proveedor de productos esenciales para el combate al COVID-19, seguido por la UE y China.
- Mayores restricciones al comercio de productos esenciales expone la fragilidad de la región.
- La vulnerabilidad es preocupante con los respiradores N95 y similares; mascarillas quirúrgicas desechables y ventiladores mecánicos
- Es preciso aunar esfuerzos de los sectores público, empresarial y académico en una política industrial con sentido de misión

Desafíos de la ciencia, innovación y TICs frente a la pandemia del COVID-19

Investigación y gestión en salud	
Curar o prevenir	<ul style="list-style-type: none"> • I+D en vacunas y medicamentos • Ensayos clínicos • Producción y distribución
Evitar propagación	<ul style="list-style-type: none"> • Distanciamiento social • Testeo masivo • Protección personal
Proveer insumos críticos	<ul style="list-style-type: none"> • Test de diagnóstico • Equipos de protección • Ventiladores mecánicos
Gestionar sistema salud	<ul style="list-style-type: none"> • Infraestructura hospitalaria y RRHH • Seguridad personal sanitario • Disponibilidad insumos y equipamiento

Plataformas digitales para la inclusión social	
Protección de trabajo	<ul style="list-style-type: none"> • Disponibilidad de plataformas • Infraestructura de conectividad • Marcos regulatorios
Continuidad de la educación	<ul style="list-style-type: none"> • Accesibilidad a plataformas • Infraestructura de conectividad • Habilidades digitales
Acceso a salud	<ul style="list-style-type: none"> • Canales de telesalud • Infraestructura digital • Habilidades digitales
Facilitar el cuidado	<ul style="list-style-type: none"> • Plataformas de abastecimiento • Plataformas de cuidado • Violencia de género

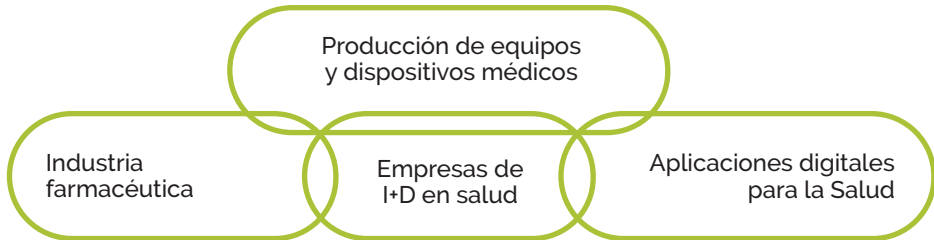
Industria farmacéutica, insumos y equipos médicos	
Reanudar actividad productiva	<ul style="list-style-type: none"> • Modelos híbridos de gestión y operación • Protocolos sanitarios en trabajo y transporte • Readeacuación a nuevas condiciones de mercado
Ajuste y creación de empresas	<ul style="list-style-type: none"> • Nuevos modelos de negocios • Emprendimiento • Innovación y desarrollo de productos
Producir insumos y equipos críticos	<ul style="list-style-type: none"> • Reconversión de fábricas • Desarrollo de capacidades locales • Atracción de inversión extranjera
Desarrollo productivo y tecnológico	<ul style="list-style-type: none"> • Recomponer cadenas de suministro • Integración regional • Sectores estratégicos

Áreas de trabajo y programa de actividades de la Conferencia



Objetivo estratégico

Fortalecer la integración regional de la industria de la salud y los ecosistemas digitales



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Fuente: Elaboración propia en base a UK Life Sciences Industry Strategy, 2017



Fuente: Telecom Advisory Services, Hacia la transformación digital de América Latina y el Caribe: el Observatorio CAF del Ecosistema Digital

Áreas de trabajo

I+D

Articular los esfuerzos de Investigación y Desarrollo entre los países de la región

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Plataformas digitales

Fortalecer los ecosistemas digitales para la inclusión social

Industria de la salud

Fortalecer la industria de la salud a nivel nacional y regional

Propuesta de actividades de integración regional

Articular los esfuerzos de I+D entre los países de la región

- Articulación de centros de excelencia de I+D en ciencias de la vida en América Latina y el Caribe
- Facilitar el intercambio entre investigadores y proyectos estratégicos
- Avanzar hacia una Plataforma regional de ensayos clínicos

Reducción de brechas de acceso y uso en plataformas críticas para la inclusión social

Fortalecer la industria de la salud a nivel nacional y regional

Propuesta de actividades de integración regional

Articular los esfuerzos de I+D entre los países de la región

Reducción de brechas de acceso y uso en plataformas críticas para la inclusión social

- Teletrabajo: Regulación y promoción del trabajo a distancia
- Teleeducación: Acceso, plataformas y desarrollo de capacidades
- Telesalud: Acceso, privacidad, interoperabilidad y plataformas
- Economía de encargo (*gig economy*): empleos emergentes

Fortalecer la industria de la salud a nivel nacional y regional

Propuesta de actividades de integración regional

Articular los esfuerzos de I+D entre los países de la región

Reducción de brechas de acceso y uso en plataformas críticas para la inclusión social

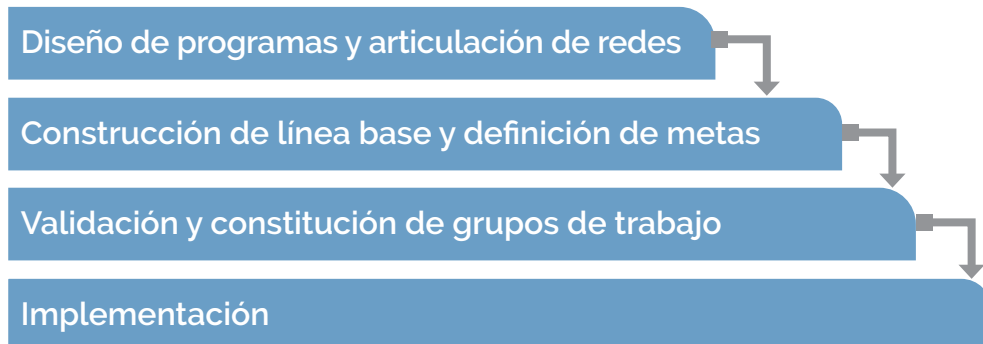
Fortalecer la industria de la salud a nivel nacional y regional

- Política industrial y tecnológica: orientada por misión hacia la autonomía sanitaria
- Promover alianzas estratégicas de integración regional en segmentos prioritarios: industria farmacéutica, biotecnológica y de insumos y equipos médicos
- Medidas para un mercado regional: reconocimiento mutuo de entidades regulatorias y coordinación de compras públicas
- Creación y expansión de capacidades: readecuación de programas de fomento, líneas de financiamiento, programa de emprendimiento y atracción de inversión extranjera directa

Plan de acción 2020



Plan de acción 2020



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Organización del trabajo

