DRAFT VERSION

Building a Global Alliance for Compute Power:

Lessons from GAVI's History, Governance Structure, and Funding Strategies

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Introduction

Global problems demand global solutions. In the 1990s, international organizations faced a critical challenge: bridging the gap in vaccine access between wealthy and poor nations to protect children in vulnerable populations through increased immunization coverage. Now, with the rapid development of AI, we are confronted with a similar challenge: narrowing the gap in AI development capacity between the Global North and Global South.

A key barrier preventing companies in the Global South from entering the AI field is the lack of affordable compute power for training AI models. This paper examines how the vaccine challenge was successfully addressed through GAVI, which has helped prevent over 17 million future deaths since 2000[1]. Moreover, it highlights how GAVI's approach can inspire and inform strategies for addressing the challenges of AI development throughout the Global South.

1.1. GAVI's History

One of the major challenges to vaccine access in low-income countries was the decline in global immunization investment and stagnating vaccine coverage rates in the late 1990s[2]. This issue was compounded by several barriers to vaccine procurement, including: (i) limited negotiating power, as many middle-income countries lacked the capacity to secure favorable prices and terms with vaccine manufacturers; (ii) supply constraints, due to a global shortage of vaccines and reliance on a small number of manufacturers; and (iii) weak procurement capabilities, as some countries had inefficient procurement processes and limited technical expertise in acquiring vaccines.

This challenge was partially addressed with the creation of the **Global Alliance for Vaccines and Immunization (GAVI),** a multi-stakeholder coalition formed by international organizations (WHO, UNICEF, World Bank), governments, philanthropic organizations, and civil society. GAVI's formation was preceded by the Children's Vaccine Initiative (CVI), established in 1990 at the World Summit for

1. https://www.theglobalfund.org/media/13174/partnership_gavi-global-fund_report_en.pdf

2. https://link.springer.com/article/10.1007/s10754-017-9229-5

Children in New York. However, CVI was unable to mobilize sufficient financial resources and faced tensions with the WHO[3].

In 1999, during a meeting in Bellagio, stakeholders decided that CVI would be replaced by a new organization, independent but governed as an alliance—GAVI. The new alliance was officially launched at the World Economic Forum in Davos in January 2000, under the leadership of Norwegian immunologist and former WHO director Tore Godal.

One of the first steps was the creation of a working group composed of representatives from WHO, UNICEF, the World Bank, the Rockefeller Foundation, and the International Federation of Pharmaceutical Manufacturers & Associations (IFPMA). **The working group's mission was to consult a broader group of stakeholders, including donor and recipient countries and civil society, and propose the objectives, structure, and functions of the new global immunization initiative.**

GAVI's working group and secretariat were formed by highly skilled, passionate individuals who set aside their institutional affiliations to focus on collaborative problem-solving. "People took off their organizational hats and focused on finding constructive solutions to a problem, with a great deal of enthusiasm... It wasn't WHO sitting at the table, UNICEF sitting at the table, or PATH sitting at the table. All the discussions were: OK, this is a problem, how do we work together to find a solution."

1.2. GAVI's Initial Structure (2000–2005)

In its first five years, GAVI operated with a small secretariat of fewer than 15 experts based in UNICEF's Geneva office. The **governing board** included high-level leaders from partner organizations, with the chair position alternating between the heads of WHO and UNICEF. The **working group**, made up of technical personnel from partner organizations, played a central role in setting the alliance's aims and objectives. Key individual leaders were crucial to GAVI's early success. Figures like Barry Bloom, Dean of Harvard School of Public Health, and Tore Godal were instrumental in driving the alliance forward through their vision and leadership.

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3. **Trust in Global Health Governance: The GAVI Experience** Desmond McNeill Kristin Ingstad Sandberg (April–June 2014), pp. 325-343.

1.3. GAVI's Current Governance Structure

Today, GAVI's board consists of 28 members: 18 representatives of various institutions and constituencies, 9 independent experts, and GAVI's CEO. The representative seats ensure that stakeholders from across the health ecosystem can provide input on GAVI's policies and operational management. The independent members bring an impartial perspective to board discussions and provide expertise in areas such as investment, auditing, and fundraising[4].

GAVI's governance structure is a model of **inclusive, multi-stakeholder cooperation**[5]. Its success stems from bringing together a diverse range of actors — governments, international organizations, civil society, and the private sector — ensuring that all voices are heard. This collaborative structure enables GAVI to address the vaccine needs of both donor and recipient countries, while benefiting from the expertise and resources of organizations like the WHO, UNICEF, and private foundations such as the Bill & Melinda Gates Foundation.

This multi-stakeholder governance model ensures that GAVI's decision-making reflects the diverse needs of stakeholders, promoting transparency and collective responsibility. Similarly, an **Alliance for Compute Power** in the age of AI could adopt an inclusive governance model that brings together governments from both developed and developing nations, alongside technology companies, research institutions, and civil society organizations. By building trust and ensuring transparent decision-making, the alliance can overcome turf wars, much as GAVI did, ensuring equitable distribution of computational resources across regions.

1.4. GAVI's Public-Private Business Model

GAVI's public-private partnership model enables it to leverage both public and private sector resources. This structure allows GAVI to support countries in building sustainable immunization programs and to increase equitable access to vaccines in low-income nations. Key elements of this model include:

Funding Model: GAVI is funded through direct contributions from donor

4. https://www.gavi.org/governance/gavi-board/composition

5. https://www.gavi.org/sites/default/files/document/corporate-policies/Gavi-Alliance-Board-and-Committee-Operating-Procedures-December-2023_with-Annexes.pdf

governments, private sector partners, and foundations, operating on five-year funding cycles with multi-year pledges from donors.

Co-financing Approach: Countries receiving GAVI support are required to co-finance part of their vaccine costs. As a country's economy grows, its share of co-financing increases until it fully funds its immunization programs.

Market Shaping: GAVI pools demand from multiple countries, creating a larger and more predictable market for vaccines. This enables GAVI to negotiate lower prices with manufacturers and ensure a stable supply while encouraging new manufacturers to enter the market.

Country Support: GAVI supports countries in five key areas: vaccine provision, health systems strengthening, cold chain equipment optimization, equity acceleration, and targeted assistance. This ensures effective vaccine distribution, enhanced health infrastructure, and equitable access to immunization, especially for the most vulnerable populations.

Strategic Planning: GAVI operates on five-year strategic cycles, enabling long-term planning and alignment with global health priorities. The Vaccine Investment Strategy (VIS) is used to assess and prioritize new vaccines for inclusion, ensuring investments yield high health and economic impact.

Partnerships: GAVI works with partners like WHO, UNICEF, the World Bank, and the Bill & Melinda Gates Foundation. These partnerships leverage each organization’s expertise in technical guidance, logistics, and financial support to enhance vaccine access and health systems globally.

Innovation: GAVI promotes innovation through initiatives like INFUSE, which scales up innovative solutions to improve vaccine delivery and access. This helps address logistical challenges and expand immunization in underserved regions.

Transition Process: As countries' economies grow, GAVI helps them transition to full self-financing of their immunization programs. This ensures long-term sustainability by gradually transferring financial

responsibility from GAVI to the countries, empowering them to independently maintain high vaccination coverage.

An Alliance for Compute Power could adopt a similar funding model that pools resources from governments, philanthropic organizations, and private companies. In GAVI's model, governments make multi-year pledges that ensure a steady flow of financial support, enabling long-term planning. Other organizations could benefit from similar multi-year funding cycles, ensuring the alliance's sustainability. Furthermore, GAVI's co-financing model could be adapted, enabling countries to gradually increase their financial responsibility as their economies and AI capacities grow.

Global Context and AI Development

As hinted above, an Alliance for Compute Power can draw significant lessons from GAVI's approach to governance and capacity building. GAVI's ability to unite a diverse group of stakeholders in a transparent and collaborative decision-making structure enabled it to achieve its global health goals. **Other organizations can build on this model by creating a similarly inclusive governance structure, where governments, tech companies, and civil society collaborate to ensure equitable access to computational power.**

2.1. Need for Computational Power in AI Development

The creation and implementation of AI systems rely on three fundamental inputs: (i) computational power; (ii) data and (iii) algorithms. Among these, computational power (or simply compute) has become increasingly crucial in recent years. The computing capacity required to train cutting-edge AI models has been growing at a remarkable rate, doubling approximately every six months. This rapid expansion underscores the critical role of computational resources in advancing AI technology[6].

6. https://ora.ox.ac.uk/objects/uuid:6306c118-58ca-49ba-b7a0-4ee7b9423d5a/files/sng451k32q

Infrastructure for machine learning and artificial intelligence is crucial for processing large volumes of data and effectively training complex models. The scalability of infrastructure is also critical, with the need for high performance in storage and networks to accommodate data growth[7].

According to OpenAI, the increase in computational capacity for artificial intelligence training has been exponential since 2012, with a doubling time of 3.4 months, in contrast to Moore's Law, which had a period of 2 years. This growth, which exceeds 300,000 times, is driven by algorithmic innovations and the willingness to invest in specialized hardware such as GPUs and TPUs[8].

2.2. Global Concentration of Computational Power

Computational power is highly concentrated. The United States and China, combined, account for 50% of world's hyperscale data centers[9]. Outside the US and China, only 15 countries have 100 GPUs, and only the US and the Netherlands possess H100 GPUs, the most powerful ones. **This distribution highlights the disparity between the "Compute North" and the rest of the world, exacerbating the technological advantage of more developed countries[10].**

None of the top 100 high-performance computing clusters in the world capable of training large AI models is located in a developing country and only one African country can be found among the top 300[11]. Currently, companies based in the Global South have to spend $70 million dollars for a 3-month training run for a large language model[12]. Moreover, the global semiconductor industry is highly concentrated in Asia, which dominates both chip manufacturing (over 75% of global capacity) and

7. https://www.techtarget.com/searchdatacenter/feature/Infrastructure-for-machine-learning-AI-requirements-examples

8. https://openai.com/index/ai-and-compute

9. https://unctad.org/page/digital-economy-report-2021

10. https://ora.ox.ac.uk/objects/uuid:6306c118-58ca-49ba-b7a0-4ee7b9423d5a/files/sng451k32q

11. https://www.un.org/sites/un2.un.org/files/governing_ai_for_humanity_final_report_en.pdf p. 14

12. https://www.un.org/sites/un2.un.org/files/governing_ai_for_humanity_final_report_en.pdf p.62

assembly and testing (about 90%). Asian companies, especially in China and Taiwan, lead in semiconductor assembly and testing processes, which increases the complexity of supply chains for companies in other regions[13].

In order to address this challenge and overcome the concentration of compute power, the international community has been proposing the creation of a Global AI Fund, which is in line with the idea of an Alliance for Compute Power.

2.3. Global AI Fund

The UN Advisory Board in AI published the report "Governing AI for Humanity" in September of 2024, in which it outlines a comprehensive plan for global AI governance. Its aim is to maximize AI's benefits while mitigating risks and recognizing AI's potential to help achieve the Sustainable Development Goals (SDGs). **One of the recommendations set by the report is to propose the creation of a fund with the purpose to address the capacity and collaboration gap for those unable to access AI enablers.** The goal would be to put a floor under the AI divide, foster collaboration on AI capacity development, mitigating geopolitical competition and promoting regulatory convergence to develop common templates for governing data, models and applications[14].

2.4. Global AI Fund Structure

As proposed by the UN Advisory Board in AI, **the fund would be managed by an independent governance structure, receive financial contribution from public and private sources, and facilitate access to AI enablers**, which would include: (i) pool for shared computing resource for model training by AI developers from low income countries, (ii) create sandboxes, benchmarks, and testing tools to mainstream best practices in safe AI models, (iii) promote governance, safety, and interoperability solutions to be applied globally, (iv) create data sets and models to be combined for SDG related projects, and (v) develop a repository of AI models and curated data sets for SDG.

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13. https://www2.deloitte.com/us/en/pages/technology-media-and-telecommunications/articles/semiconductor-industry-outlook.html

14. https://www.un.org/sites/un2.un.org/files/governing_ai_for_humanity_final_report_en.pdf p. 16

This idea is reinforced by the UN Global Digital Compact that was approved by the General Assembly during the Summit of the Future in 2024, **as it emphasizes the importance of increased investment, "particularly from the private sector and philanthropy, to scale up artificial intelligence capacity building for sustainable development"[15].**

2.5. Access to Data and training

In addition to being able to expand compute power, it's also important to guarantee access to data for training and that people are capacitated to work on the field.

Therefore, the UN Report advocates for the creation of a Global AI data framework to guarantee access to AI training data as it is also crucial to flourish local AI ecosystems. This framework would address the issues of availability, interoperability and use of AI training data, as well as supporting cultural and linguistic diversity, limiting further economic concentration[16].

The UN Global Digital Compact also argues in favor of more cooperation between countries "to support the development of representative high-quality data sets, affordable compute resources, local solutions that reflect linguistic and cultural diversity and entrepreneurial ecosystems in developing countries (SDGs 4, 9, 10 and 17)"[17]. In addition, the UN Global Digital Compact also suggests the creation of international partnerships to develop capacity building programs on AI education and training[18].

15. https://www.un.org/sites/un2.un.org/files/sotf-the-pact-for-the-future.pdf par. 63 p.54

16. https://www.un.org/sites/un2.un.org/files/governing_ai_for_humanity_final_report_en.pdf p. 17

17. https://www.un.org/sites/un2.un.org/files/sotf-the-pact-for-the-future.pdf par. 60. p.54

18. https://www.un.org/sites/un2.un.org/files/sotf-the-pact-for-the-future.pdf par. 60. p.54

Governance Lessons and Proposals

3.1. Capacity Building Through Regional AI Hubs

A key element of GAVI's success was its focus on **capacity building through strengthening health systems in low- and middle-income countries.** By empowering local actors, GAVI ensured that vaccines reached those most in need while fostering local ownership and sustainability of immunization programs. **This approach can be similarly applied in the context of an Alliance for Compute Power through the establishment of regional AI hubs.**

These hubs would provide access to the necessary compute power and technical expertise required for AI development, ensuring that AI research and innovation are not confined to powerful countries but are available to a wider range of regions. By providing training and resources, the alliance can empower underrepresented areas to build their own AI capacities. This will mirror GAVI's effort to strengthen health infrastructure while fostering sustainability beyond the initial provision of resources.

GAVI's capacity building efforts ensured that countries not only received vaccines but were also equipped to distribute them efficiently. Similarly, the Alliance for Compute Power could establish regional AI development hubs that democratize access to computational infrastructure while fostering local ownership of AI initiatives. These hubs would provide training and technical expertise, ensuring that underrepresented regions can build sustainable AI capacities that reflect local needs and cultural contexts.

3.2. Funding Innovations

One of GAVI's most impactful contributions has been its innovative approach to mobilizing resources. GAVI has drawn on contributions from governments, philanthropic organizations, and the private sector to secure substantial funding for global vaccine access. **A particularly successful mechanism has been the**

International Finance Facility for Immunisation (IFFIm), which allows GAVI to raise capital by issuing bonds backed by long-term government pledges. This financial model has given GAVI the flexibility to meet urgent needs while maintaining long-term sustainability[19].

The Alliance for Compute Power can adopt a similar approach by creating a Compute Power Fund that draws on contributions from governments, technology companies, and philanthropy. Such a fund would ensure the sustainability of its operations and allow for the equitable distribution of compute resources to underserved regions. **Additionally, the alliance could explore issuing compute bonds, which would be backed by government and corporate commitments, ensuring that it can meet immediate needs while maintaining financial flexibility.**

GAVI's co-financing model, which requires countries to take on an increasing share of vaccine costs as their economies grow, could be applied to the alliance. By encouraging countries to invest in their own AI capacities, the Alliance for Compute Power can foster a sense of shared responsibility and long-term sustainability.

3.3. Ethical Framework and Knowledge Sharing

A critical component of GAVI's success has been its commitment to ethical governance and transparent evaluation. GAVI operates under clear ethical guidelines that emphasize transparency, fairness, and accountability. **An Alliance for Compute Power can follow this model by establishing an ethical framework that governs the use of computational resources, ensuring that AI development aligns with global standards of responsible technology.**

Additionally, GAVI has fostered global knowledge sharing, allowing countries and institutions to collaborate on best practices, research, and innovations. An Alliance for Compute Power could establish a similar platform for sharing knowledge and best practices among researchers, developers, and AI institutions, ensuring that the benefits of AI development are equitably distributed and reflect diverse perspectives.

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19. https://iffim.org/

Conclusion

The global concentration of compute power poses a significant challenge to expanding AI development in underrepresented regions. GAVI's success in expanding vaccine access through collaboration, trust, and innovation offers a valuable blueprint for addressing this compute divide. **By adopting key lessons from GAVI — such as establishing a multi-stakeholder governance structure, creating regional AI hubs, and leveraging innovative funding mechanisms — an Alliance for Compute Power can help ensure that computational resources are shared more equitably across the globe.**

As GAVI was formally announced at the World Economic Forum in 2000, the Alliance for Compute Power could be launched at an international event such as the **Paris AI Safety Summit in February 2025**, signaling a new era of global collaboration in AI capacity development.

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