

Spillover Prevention Accelerator

FEASIBILITY STUDY AND INITIAL
CONCEPT DESIGN – SUMMARY VERSION

APRIL 2023

Summary of findings

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The severity and frequency of new infectious disease outbreaks is increasing, driven by zoonotic spillover. And yet, most pandemic prevention efforts are focused on the response and containment of emerging infectious diseases *after* spillover occurs. Many funders and policymakers today are investing resources into pandemic preparedness with the assumption that spillover will happen. However, there are proven strategies to reduce spillover risk across different sector areas – from addressing wildlife market activity to reducing deforestation and improving animal health systems, among others. These proven strategies mean that we know enough today to act at greater scale on spillover prevention. There is also growing awareness by funders and policymakers of the importance of addressing the risk of pandemics at the source through spillover prevention strategies. We see an opportunity for a new initiative to *accelerate* efforts to address spillover risk at greater scale by (1) supporting localized solutions and (2) building evidence to shift the paradigm on pandemic prevention.

The proposed initiative described in this report – The Spillover Prevention Accelerator, or SPA – seeks to address these areas in a way that is additive to the ecosystem today. As articulated in the following report, we believe the SPA is a feasible approach to addressing some important issues holding back spillover prevention efforts today:

- An emphasis on solutions that center the contexts and needs of local communities, we believe, is essential to enabling any level of significant spillover prevention action to be sustained and effective in the long-term.
- The contribution of evidence about what works in spillover prevention, and the strategic use of this evidence to strengthen the case for investment in spillover prevention, we believe, can help build awareness and shift funder and policymaker priorities to address pandemic risk at the source

Purpose of this document

The summary document that follows provides an overview of these issues; a more detailed report is also available. This work comprises a feasibility assessment and concept design for a Spillover Prevention Accelerator – a first of its kind initiative that seeks to accelerate action and funding to reduce the risk of zoonotic spillover. The work was completed by a Dalberg Advisors team, in close collaboration with the secretariat of the Preventing Pandemics at the Source initiative, in late 2022-early 2023.



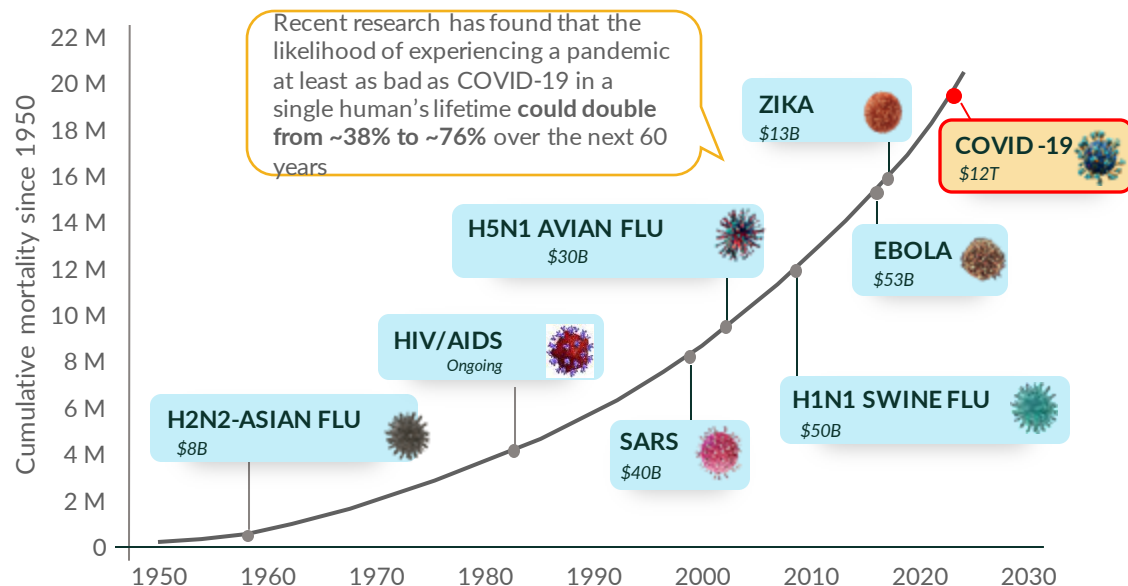
The Context

The Accelerator

The Way Forward

Pandemics of zoonotic origin are increasing in frequency, and spillover prevention is not being adequately addressed by funders and governments

Cumulative mortality from recent epidemics and pandemics, with estimated economic losses



Funding landscape

In response to COVID-19, development assistance for pandemic preparedness and response nearly tripled between 2019 and 2021 to ~\$1B. Other initiatives emerged in 2022 such as:

- The **Pandemic Fund**, hosted by the World Bank with technical support from WHO, was launched with over \$1.6B in pledges from 25 donors to fund pandemic prevention, preparedness, and response (PPR) work
- The **Coalition for Epidemic Preparedness (CEPI)**, committed \$200M for the development of next-generation coronavirus vaccines

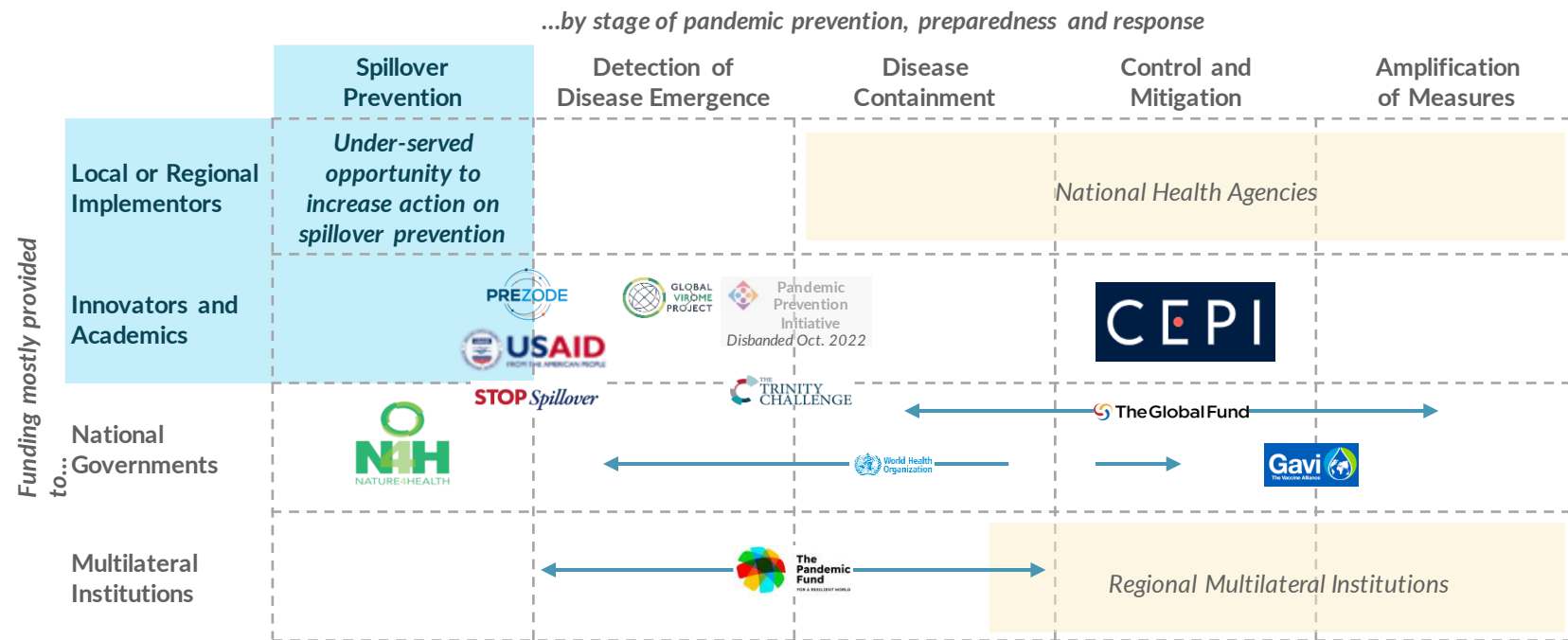
Despite these efforts, a World Bank/WHO analysis in 2022, among others, suggests **at least \$12B in unmet annual funding for pandemic PPR**.

Prevention of zoonotic spillover is even less well funded, with estimates for the funding required for a robust global spillover prevention strategy ranging from \$10B-\$30B annually.

Note: Consensus on economic loss estimates only available for select pandemics/epidemics.

Sources: Marco Marani et al., "Intensity and frequency of extreme novel epidemics," 2021; Andrew Dobson et al., "Ecology and economics for pandemic prevention", 2020; McKinsey & Co., "Not the last pandemic: Investing now to reimagine public-health systems", 2021; World Bank, "Putting Pandemics Behind Us", 2020; Aaron Bernstein et al., "The costs and benefits of primary prevention of zoonotic pandemics", 2022; UN, "World Population Prospects", 2021. Institute for Health Metrics and Evaluation, "Financing Global Health 2021: Global Health Priorities in a Time of Change", 2021; World Bank Pandemic [Fund Frequently Asked Questions](#), 2022; CEPI [Funding call to advance development of broadly protective coronavirus vaccines](#), 2021; AFD [Health in Common Initiative](#), 2020. Paper prepared by the WHO and World Bank for the G20 Joint Finance & Health Task Force, "Analysis of Pandemic Preparedness and Response (PPR) architecture, financing needs, gaps and mechanisms", March 22, 2022

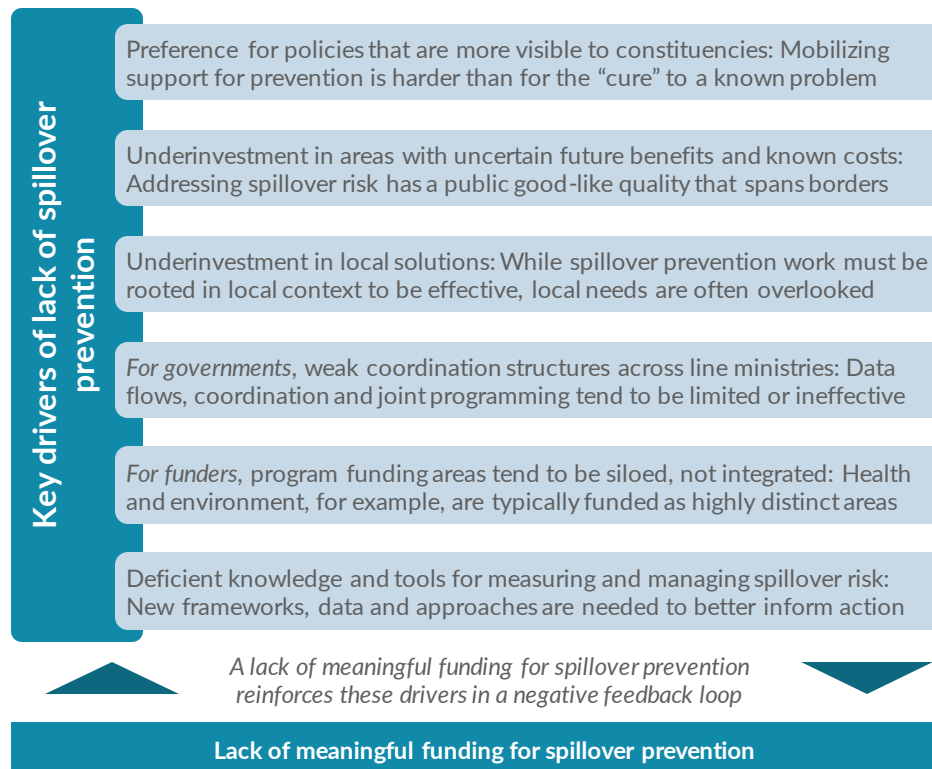
Current efforts are focused on post-outbreak containment and response, rather than prevention of pandemics at the source



Zoonotic spillover has caused 75% of new infectious diseases in humans and nearly all viral pandemics of the last century, yet reducing the risk of spillover remains heavily underinvested today

Source: Dalberg Advisors research and analysis. (*) Note that the Pandemic Fund is a nested funding vehicle of the World Bank currently with 13 approved implementing entities including regional multilateral development banks, and other pre-approved entities including CEPI, GAVI, Global Fund, and WHO. Eligible country governments can shape project opportunities, but funds must flow through one of the accredited implementing entities. Source: Dalberg research and analysis.

Underinvestment in spillover prevention is driven by several reinforcing factors



“Nations try to free-ride, not invest in prevention, and hope the pandemic origin is not in their backyard.”

- Senior multilateral development bank staff

“We are seeing again the ‘panic and forget’ cycle of moving on to other things after the acute phase of [infectious disease] risk has passed. The reality is that our priorities have changed from even one year ago.”

- One Health task team lead, development bank

“It is unclear how [pandemic prevention] funding is making changes in local systems. You have to show success locally and regionally, before you can look globally. There simply needs to be more local funding.”

- Program officer, environment-focused foundation

“A key area to address for funders is their lack of understanding of the true benefits of a One Health coordination approach to preventing spillover.”

- Senior development agency official

“Funders typically are not intersectional enough to be convinced of systems approaches or to fund upstream areas not in their programmatic focus.”

- Senior multilateral development bank staff



Yet, we know that spillover prevention is possible and cost effective

Five key action areas for spillover prevention



Curbing deforestation. Stopping the clearing and degradation of tropical and subtropical forests with a variety of pathways including policy and enforcement action, community-centered interventions, and regulatory and market standards that shift incentives for exploitation of forest resources and ecological disruption.



Enhancing human healthcare and opportunity. Improving the health and economic security of local communities living in emerging infectious disease hotspots through better healthcare, alternative livelihoods and community-designed interventions to reduce human-wildlife contact.



Improving livestock health systems. Enhancing biosecurity in animal husbandry with investments in animal health and extension services, better identification and surveillance of livestock disease, and more widespread control of vaccine-preventable diseases in domestic animals.



Regulating wildlife trade. Shutting down or regulating wildlife markets and trade through policy reform to limit and control legal wildlife trade, enforcement action to address illegal wildlife markets and trade, and holistic initiatives to address both supply side economic drivers and demand side behavior change.



Enhancing disease surveillance and data. Expanding pathogen surveillance at interfaces between humans, domestic animals, and wildlife including through better integration of information systems and the scaling up of decentralized laboratory networks to support screening of animal and human samples.

Commentary

- **Available evidence suggests that we already know enough to act.** Success cases across these action areas in different country contexts support the mobilization of resources for spillover prevention at a greater scale.
- **A meaningful investment across these strategies is a small fraction of the cost of pandemics.** Published research suggests an annual investment need on the order of ~\$20B to substantially reduce the risk of zoonotic spillover. This is a small fraction of the cost of COVID-19 and other recent epidemics and pandemics driven by spillover events.
- **Catalytic resourcing for spillover prevention can strengthen the knowledge base and crowd in greater funding.** The lack of large-scale funding historically means there are gaps in the knowledge base on spillover prevention strategies. An effort to demonstrate causal links between interventions and changes in spillover risk can improve intervention design and make the case for investment in spillover prevention.

Source: "Interventions to reduce risk for pathogen spillover and early disease spread to prevent outbreaks, epidemics, and pandemics," Neil M. Vora et al, Emerging Infectious Diseases 2023;29(3):1-9. <https://doi.org/10.3201/eid2903.221079>; "The costs and benefits of primary prevention of zoonotic pandemics," Aaron S. Bernstein et al, Science 2022; Vol 8, Issue 5. <https://doi.org/10.1126/sciadv.abl4183>.

Expert consultations surfaced two opportunity areas in spillover prevention

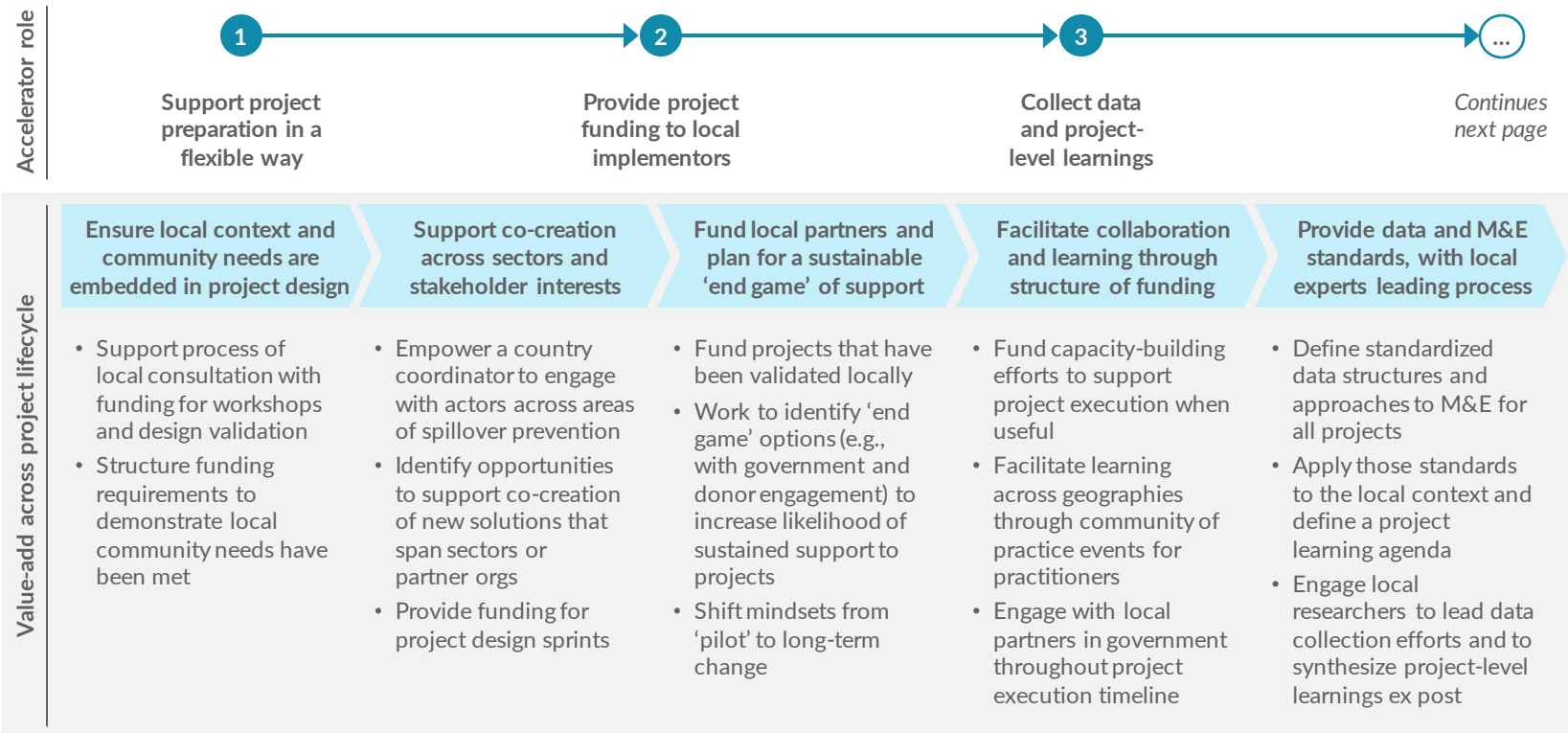
Opportunity	Description of select gaps today	Sample expert perspectives
1 Supporting Localized Solutions	<ul style="list-style-type: none"> • Local context ignored. Existing spillover prevention work does not always account for realities on the ground, both in terms of what it takes to implement a solution and in terms of community needs and practices. This leads to less effective and less durable interventions. • Intermittent action. Existing work can be “constantly stop and start” – interventions are rarely sustained due to limited funding or political will, making it difficult to achieve impact or embed long-term prevention action into local systems. 	<p>“Most of the time, my team depends on consultants to come in, but when they do this is in reaction to an outbreak, and not preventative. These consultants do not conduct trainings which would allow our health force to do the work in the long term.”</p> <p>- Senior health official in Sierra Leone</p> <p>“The discontinuation of projects makes trust building hard because the communities [feel left behind]. We need to be more consistent with the communities, not just go and enter when we have a new project.”</p> <p>- Health official in Brazil</p>
2 Building Evidence to Shift the Paradigm	<ul style="list-style-type: none"> • Fragmented evidence. The fragmented evidence base on spillover is driven by 1) few large-scale programs with evaluation, 2) no standard for measurement of spillover risk, and 3) complexity of contexts in which spillover occurs. • Incomplete knowledge. There is growing knowledge but not yet a deep evidence base across spillover prevention strategies, especially what works in different local contexts. • Lack of decision maker conviction. Many policymakers and global funders do not prioritize spillover prevention because they believe it is too difficult to achieve outcomes. 	<p>“One of the biggest challenge is that [spillover risk] is hard to measure; I simply haven't seen indicators we can use.”</p> <p>- Government official in Indonesia</p> <p>“Capacity and resources for [spillover] research are weak. As a result, there is little information to show if we want to raise spillover prevention to the executive level.”</p> <p>- Government official in Sierra Leone</p> <p>“We simply don't think it is possible to achieve prevention of spillover as we've not seen compelling enough evidence.”</p> <p>- Development bank official”</p>

We recommend an accelerator model to catalyze change in these areas

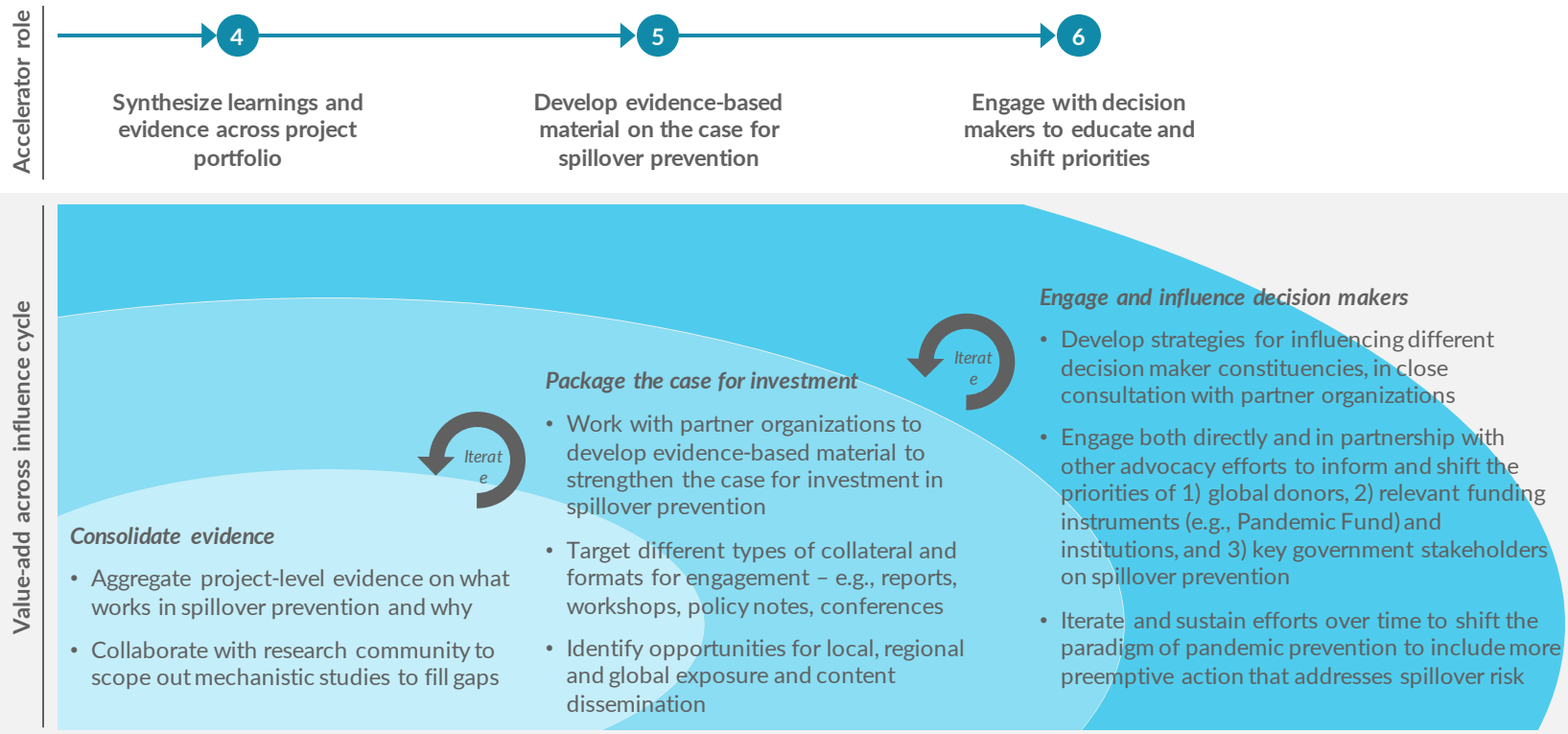
Initiative type	What would be the purpose?	What tradeoffs would exist?
1 Advocacy Organization	<ul style="list-style-type: none"> Develop a unique advocacy mandate that emphasizes local context and community-centered design Support local and regional advocates to engage in respectful dialogue with government actors in key hot-spot areas, connecting local and global advocacy efforts 	<ul style="list-style-type: none"> Several other global advocacy efforts exist today Existing advocacy work would benefit from an active collaborator in shaping project and research agendas This does not directly address the fundamental gap in the ecosystem: Limited funding for spillover interventions
2 Funding Intermediary	<ul style="list-style-type: none"> Raise a new fund focused on spillover prevention, filling gaps in the current funding landscape Support established implementors and innovate new solutions in partnership with government agencies Contribute to building spillover prevention track record 	<ul style="list-style-type: none"> Funding alone is not going to achieve outcomes: Project preparation for local solutions and strategic advocacy with better data are critical gaps in the ecosystem today Other instruments like the Pandemic Fund have just launched, so funder appetite is low for a large new fund
3 Accelerator	<ul style="list-style-type: none"> Support project preparation and provide catalytic funds in a flexible way to 'localized' spillover prevention work Help to capacitate local spillover prevention ecosystems with coordination and cross-geography learnings Use evidence to strategically influence decision makers 	<ul style="list-style-type: none"> Potential for scale is likely low compared to a multilateral-hosted instrument such as the Pandemic Fund The model is challenging in its scope of <i>both</i> adding value to local projects while engaging in evidence-based advocacy to shift the paradigm of pandemic prevention

Recommended model based on consultations with global and regional experts

An accelerator can support **localized solutions** in a variety of ways...



...while an accelerator can also **build evidence** and influence policymaker and funder priorities around pandemic prevention



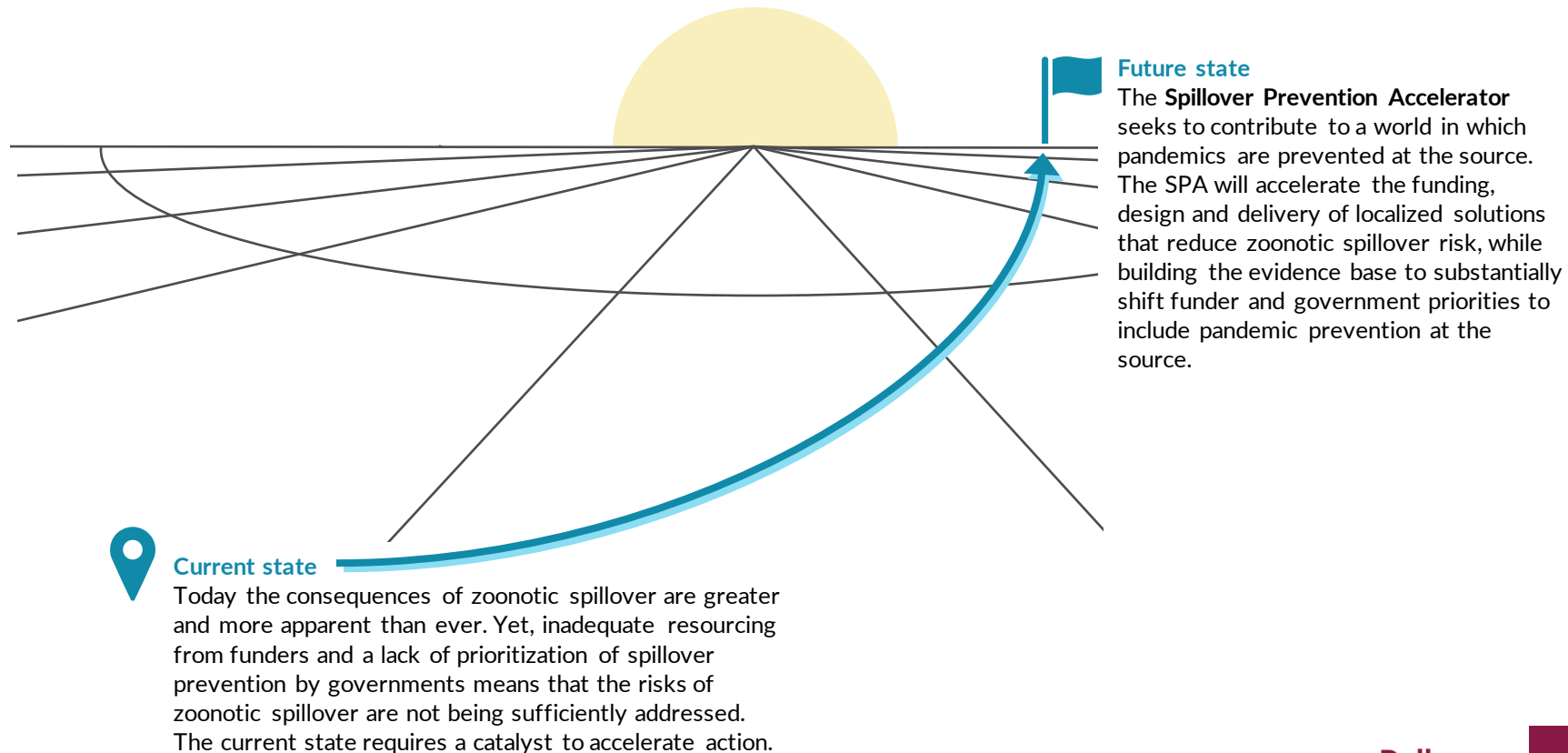


The Context

The Accelerator

The Way Forward

The Spillover Prevention Accelerator (SPA) will accelerate action on spillover prevention, addressing the risk of pandemics at the source



The SPA will work in partnership with others to achieve its mission



Vision

A world where we stop pandemics at the source.

A healthier, safer, and more sustainable future for all.



Mission

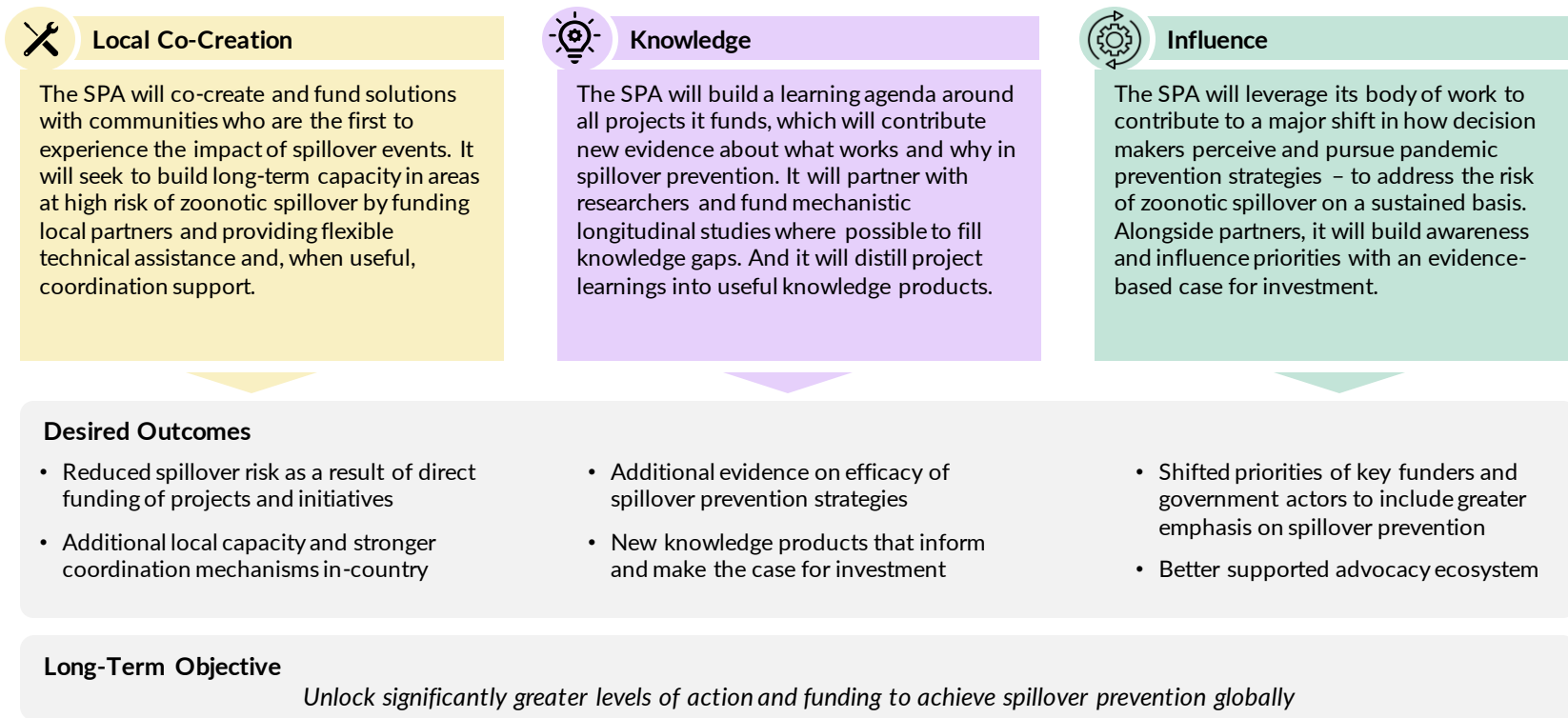
The Spillover Prevention Accelerator will co-create and fund initiatives to **prevent pandemics at the source** in high spillover risk areas across Southeast Asia, Central and West Africa and Latin America. It will support **local capacity** and leverage the results of its work to **influence priorities** of funders and policymakers.



2025 Objectives

The Spillover Prevention Accelerator will work with implementing partners across **three countries** and raise at least \$10M in its first three years, disbursing **project funding** across five spillover prevention focal areas and a **robust research agenda**. The SPA will launch an influencing campaign, building on initial results to shift priorities.






The SPA will operate across three 'pathways for action'



It will fund activities within five focal areas which have been identified as pivotal for reducing spillover risk

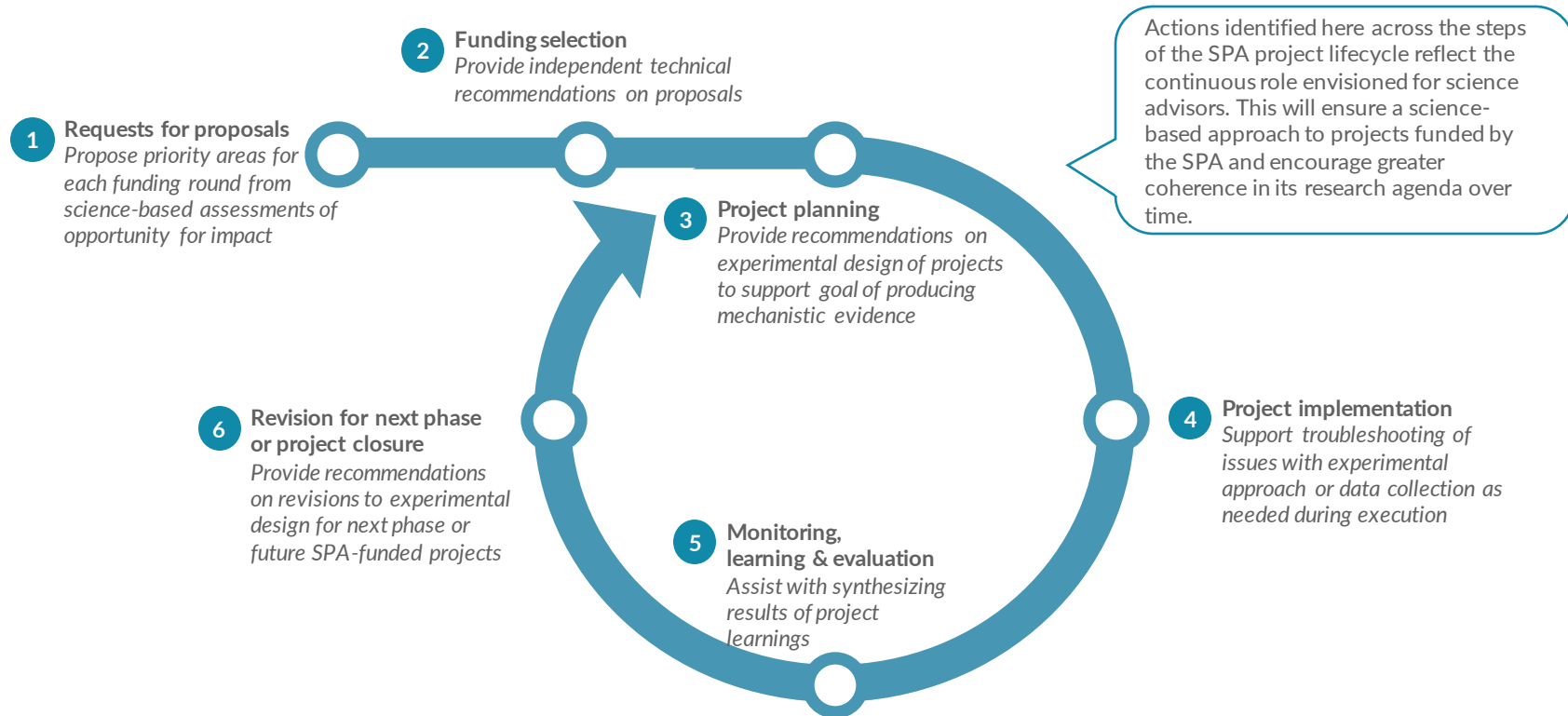


Initial projects will prioritize interim results that can provide actionable insights and evidence for decision-makers




Examples for Illustration	Brief description of illustrative SPA project		Desired project outcomes	
		Improve land demarcation regulations to prevent deforestation and enhance enforcement capacity with capacity building for litigation and enforcement training for local government in a Brazilian state over the course of two years.		Forest lands inhabited or stewarded by local indigenous communities are protected by Brazilian law with active law enforcement
		Create and test proof-of-concept vaccine and biosafety support kits for small- and medium-sized producers across 500 smallholder farms and 200 medium-sized farms in Sierra Leone for two years.		Demonstrate change in number of livestock producers implementing biosafety practices and availing local veterinarian services
		Build a proof-of-concept data integration platform to identify solutions to cross-sector data integration issues, with a data collection framework and analytical use cases used by multiple ministries in a test district in Indonesia.		Functioning and replicable multisectoral surveillance platform with metrics that track spillover risk drivers
		Provide high-quality, affordable healthcare to three Amazonian communities with high interaction with wildlife, building evidence of baseline health resilience and reducing spillover risk to prove an investment case.		Support front-line communities with health-care services and generate evidence linking health resilience to spillover risk reduction
		Address challenges with regulating wildlife trade to address market sanitation, education, training, regulation and enforcement gaps across three provinces in Indonesia, creating market standards to address gaps.		Enhance regulation and sanitation practices in wildlife trade with replicable certification standards and ISO-aligned market practices

Reductions in risk of zoonotic spillover

To ensure its work generates strong evidence, the SPA will engage science advisors during project selection, planning, and evaluation



Given its catalytic role, we recommend the SPA be organized as a timebound initiative – not a permanent institution

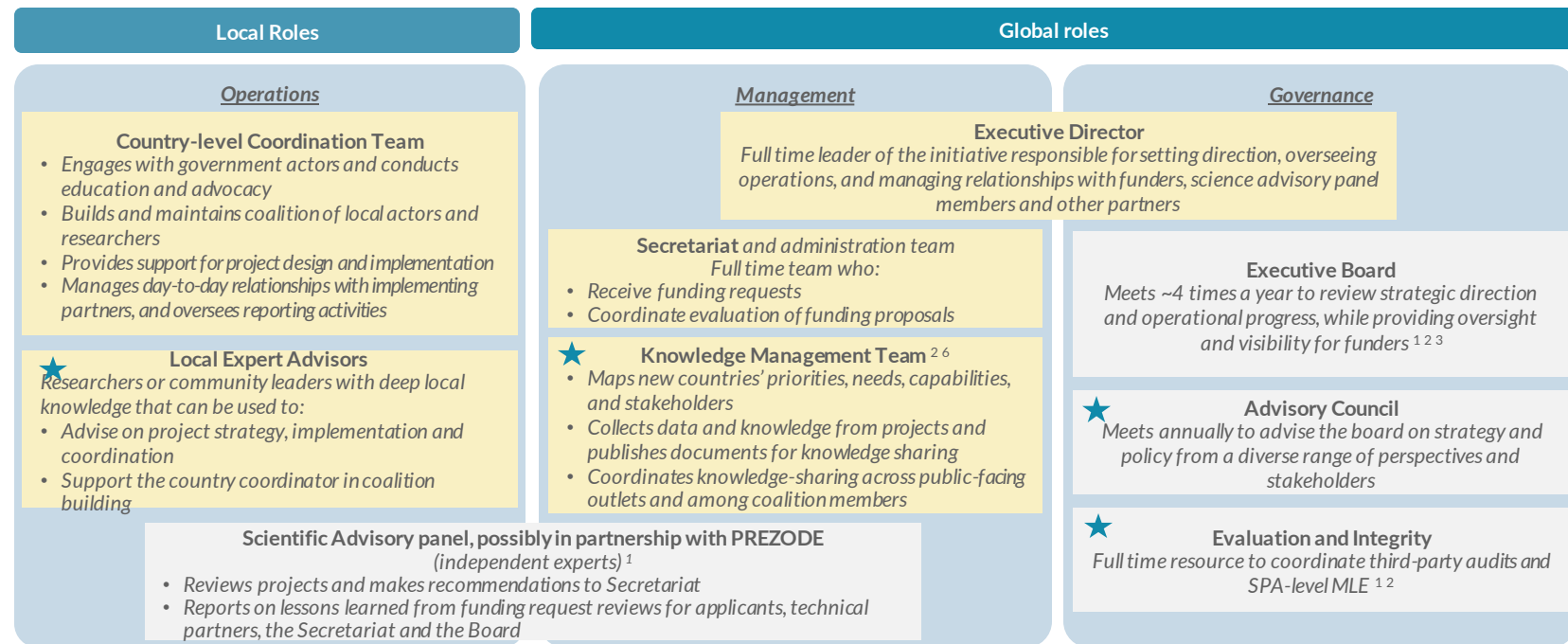
Org. Archetype	Description	This would be an appropriate endgame if...
Funding Intermediary 	<ul style="list-style-type: none"> Initiative transforms into a permanent funding intermediary, likely hosted within a larger institution Potential for expansion in instruments to provide funding to more partners, including governments 	<ul style="list-style-type: none"> ...the primary value of the SPA is intermediating funds and supporting projects with direct funding ... and if other funding instruments do not engage in a meaningful way on spillover prevention in the future
Research Institute 	<ul style="list-style-type: none"> Initiative transforms into a longer-term research effort, potentially hosted within a multilateral institution Potential for an expanded mandate covering research into a broader range of One Health-related topics 	<ul style="list-style-type: none"> ...the primary value of the SPA is generating evidence and supporting spillover prevention research ...and if other research efforts do not continue, do not effectively generate research, or evolve their focus
Timebound Initiative 	<ul style="list-style-type: none"> Initiative reaches a 'destination' or a pre-specified set of outcomes and winds down its operations Assets or other proprietary approaches can be absorbed and 'recycled' in a relevant organization 	<ul style="list-style-type: none"> ...the primary value of the SPA is as a catalyst, to accelerate other funding flows and action for spillover prevention by shifting the priorities of key decision makers including global funders and governments

Recommended option

The 'endgame' of the SPA should influence its organizational design and the capacity it builds to execute

The SPA can start 'lean' and build organizational capacities over time

- Full-time resource
- Part-time / consultants
- ★ New roles in years 3-5 and beyond



Note: See annex of full study for case studies.

Source: Dalberg Advisors analysis and additional desk research on multi-donor benchmarks (1) Global Fund; (2) IFPIM; (3) LIFT; (4) Adaptation Fund; (5) UMDF; (6) HMML.

The SPA requires at least \$10 million to get started, with a near-term goal of \$25 million enabling it to scale the pilot phase to additional geographies

Estimated investment for minimum viable SPA concept in first 3 years

Description	Annual Unit Cost (\$)	Quantity	Est. Annual Cost (\$)
Interventions			
Project funding	200,000	10	2,000,000
Staff			
Executive Director	150,000	1	150,000
Secretariat	100,000	1	100,000
Country Level Coordinator	90,000	3	270,000
Technical Review Panel (1 day/week)	15,600	3	46,800
Knowledge Management Lead	90,000	1	90,000
Other expenses (as % of interventions and staff)			
Back-office administration and overhead	~12%		315,000
Monitoring, learning and evaluation	~6%		160,000
Creative strategic communications	~5%		130,000
Travel, accommodation, conferences	~3%		75,000
Total annual spend for minimum viable SPA			~\$3,336,800

Commentary

- An initial minimum fundraise of \$10 million will allow the SPA to startup and initiate operations in one region
- This level of funding will enable the SPA to (1) start to establish a credible presence in the spillover prevention ecosystem and (2) build initial data and influencing functions centrally
- It would provide funds for ~10 projects over 3 years, which could span a range of spillover prevention focal areas and functional activities
- Meeting the \$25 million near-term funding goal would enable the SPA to scale to additional countries and test the model across additional focal areas
- The SPA's country-centered model should provide a modular and extensible way to scale operations with additional funding in the future

Source: "The costs and benefits of primary prevention of zoonotic pandemics." Sci Adv. 2022 Feb 4;8(5). doi: 10.1126/sciadv.14183; Foundation for the National Institutes of Health, Inc, "Financial Statements: Years Ended December 31, 2021 and 2020", 2021; Elemental Excelsior, "Financial Statements, Independent Auditor's Reports, and Supplementary Schedule", 2021; Dalberg analysis.



The Context

The Accelerator

The Way Forward

The research summarized in this document and the longer feasibility assessment informed the design and refinement of the SPA concept



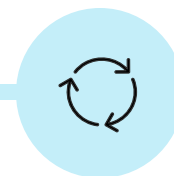
Interviews with 36 stakeholders including in-county experts in Indonesia, Brazil and Sierra Leone, and global experts on spillover prevention



Desk research on spillover prevention, One Health delivery models, pandemic prevention, preparedness and response, and case studies in org. design



Co-creation sessions with Preventing Pandemics at the Source (PPATS) Secretariat, input from the wider Dalberg network, and follow-up interviews with in-country experts and funders



Iteration of design based on feedback from PPATS coalition members and expert advisors on aspects of the SPA strategy and operating model

We believe the SPA concept is feasible to implement and additive

Rating description: ● High feasibility/alignment ○ Low feasibility/alignment

	Feasibility question	Rating	Assessment
1	Is there a need for greater funding and action on spillover prevention?	●	Stopping pandemics before they start by reducing the risk of zoonotic spillover is significantly underfunded, despite greater awareness of the costs of zoonotic spillover as a result of COVID-19. With an increasing frequency of spillover events in recent decades, the risk of another pandemic is rising. Alongside investments in pandemic preparedness and response, the world needs greater action on spillover prevention.
2	Are there solutions today to reduce spillover risk?	●	Despite limited funding, there are five action areas for spillover prevention where researchers, governments and implementing partners have demonstrated results in reducing spillover risk. There remain important areas of uncertainty around the drivers of spillover risk and how best to manage these risks in very different contexts globally. Yet, we see an opportunity to build on the fact base and contribute solutions in the future.
3	Is an accelerator the right approach for the ecosystem today?	●	Given the scale of funding required to address spillover risk globally, we believe a significantly scaled-up funding vehicle that prioritizes spillover prevention would be first-best. However, in lieu of such a vehicle, we believe there is a meaningful role for an accelerator to act as a catalyst for action: achieving results through its project portfolio and research agenda, and inspiring greater action and funding from others in the future.
4	Would such an initiative be welcomed by actors in the ecosystem?	●	Across over 35 stakeholders engaged in this process, there was broad-based support for a new initiative with catalytic funding for spillover prevention. There were some questions about how the SPA would fit into the ecosystem – i.e., how it would relate to the World Bank-hosted Pandemic Fund and to ongoing research initiatives such as PREZODE – which can be addressed through partnership and proactive communications.
5	Will the SPA be able to raise \$10M-\$25M to support a robust pilot?	●	We believe the SPA's fundraising journey to scale-up will be challenging given the historical underinvestment in spillover prevention and the perceptions and needs of funders summarized in the next section. However, we see increased awareness of the value of addressing spillover risk and we believe that mobilizing \$10M-\$25M in funding for a robust pilot of the SPA should be achievable.

To ensure a strong pilot, the SPA should cultivate committed funders and accommodate different funding modalities

Illustrative example of different pathways to funding

