

Evaluation of the Gavi Supply and Procurement Strategy

Gavi, the Vaccine Alliance

25 November 2020



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Contents

APPENDIX A	BIBLIOGRAPHY	1
APPENDIX B	CONSULTATIONS LIST.....	6
APPENDIX C	INTERVIEW GUIDES	10
APPENDIX D	RESULTS ANALYSIS OF STRATEGIC GOAL INDICATORS	13
APPENDIX E	COUNTRY SELECTION FOR KEY INFORMANT INTERVIEWS	15
APPENDIX F	THEORY OF CHANGE FOR THE SUPPLY AND PROCUREMENT STRATEGY 2016-2020.....	19
APPENDIX G	ROBUSTNESS RATINGS FOR KEY FINDINGS	22
APPENDIX H	SUMMARY OF ISSUES HIGHLIGHTED THROUGH HMF ASSESSMENTS BY MARKET.....	29
APPENDIX I	ANALYSIS OF MISALIGNMENT IN HMF ASSESSMENTS.....	31

Appendix A **BIBLIOGRAPHY**

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Appendix B CONSULTATIONS LIST

Table B.1 sets out the consultations that were conducted during the inception phase of the evaluation.

Table B.1: Stakeholder consultations conducted during the inception phase

Stakeholder group	Organisation/ Department	Name	Position
Gavi	Vaccines & Sustainability	Aurelia Nguyen	Managing Director, Vaccines & Sustainability
		Derrick Sim	Director, Vaccine Supply & Demand
	Policy	Wilson Mok	Head, Policy
		Deepali Patel	Senior Manager, Policy
	Market Shaping	Dominic Hein	Head, Market Shaping
		Edward Baker	Senior Specialist, Strategy Development and Tenders
		Marion Menozzi-Arnaud	Senior Projects Specialist
		Alice Ma	Senior Analyst
Partners	UNICEF	Heather Deehan	Chief, Vaccine Centre, Supply Division
		Anthony Bellon	Regional Monitoring and Evaluation Specialist
	Bill & Melinda Gates Foundation	Greg Widmyer	Director, New Vaccine Introduction
		Robyn Iqbal	Senior Program Officer, Vaccine Delivery - Market Dynamics

Table B.2 contains a consultation list for consultations undertaken during the core phase of the evaluation.¹

Table B.2: Core phase stakeholder consultations

Stakeholder group	Organisation/ Department	Name	Position
Gavi Secretariat	Vaccines & Sustainability	Aurelia Nguyen	Managing Director, Vaccines & Sustainability
		Derrick Sim	Director, Vaccine Supply & Demand
		Santiago Cornejo	Director, Immunisation Financing & Sustainability
		Matthew Blakley	Head, Vaccine Forecasting & Grant Operations
		Dominic Hein	Head, Market Shaping team
		Edward Baker	Senior Specialist, Strategy Development & Tenders, Market Shaping team
		Marion Menozzi-Arnaud	Senior Projects Specialist Market Shaping team
		Anna Osborne	Senior Manager, Strategy Development & Tenders, Market Shaping team

¹ It was not possible to undertake consultations with PAHO and USAID.

		Elie Akiki	Senior Manager, Strategy Development & Tenders, Market Shaping team
		Karuna Luthra	Senior Manager, Strategy Development & Tenders, Market Shaping team
		Margarita Xydia-Charmant	Senior Manager, Strategy Development & Tenders, Market Shaping team
		Alice Ma	Senior Analyst, Market Shaping team
		Wilson Mok	Head, Policy
		Deepali Patel	Senior Manager, Policy
	Vaccine Implementation	Zeenat Patel	Head of Vaccine Implementation
		Annisa Sidibe	Senior Programme Manager, Vaccine Implementation
		Veronica Denti	Senior Programme Manager, Vaccine Implementation
		Yann Folly	Senior Programme Manager, Vaccine Implementation
		Adam Soble	Programme Manager, Vaccine and Implementation
	Country programmes department	Karan Sagar	Head, HSIS Anglophone Africa & Asia Pacific Regions Supply Chain
		Alex de Jonquières	Director, HSIS
	Legal department	Helene Gaudin de Villaine	Associate Legal Counsel
	Former employees	Melissa Malhame	Former Head of Market Shaping team
Alliance members	UNICEF	Gian Gandhi	Chief, Market Shaping and Supplier Financing
		Philipp Kalpaxis	Market Research Manager, Market Shaping and Supplier Financing
		Kristoffer Gandrup-Marino	Chief of Innovation
		Ann Ottoson	Contracts Manager, UNICEF SD
		Yalda Momeni	Contracts Manager, EPI Routine Vaccines
		Hans Christianson	Contracts Specialist
		Abraham Kofi Ntow	Contracts Manager, UNICEF SD
		Thomas Sorensen	Senior Manager CCEOP, UNICEF SD
		Jan Komrska	Contract Manager, UNICEF SD
	Bill & Melinda Gates Foundation	Greg Widmyer	Director, New Vaccine Introduction
		Helen Matzger	Deputy Director, Vaccines and Disease Control Programs, Health Products, Programs and Markets, Global Delivery Program
		Robyn Iqbal	Senior Program Officer, Vaccine Delivery, Market Dynamics
		James Platts	Senior Advisor, Vaccine Delivery, Market Dynamics

		Vivian Hsu	Deputy Director, Strategy Planning and Management
	WHO	Johanna Fihman	Senior Health Specialist
		Birgitte Giersing	Technical Officer and focal point for vaccine TPPs
Technical experts, partners & donors	PATH	Deborah Atherly	Global Head, Policy Access and Introduction
		Debbie Kristensen	Director of Vaccine Technology Strategy and Policy
	CHAI	Soleine Scotney	Vaccines Team, Senior Manager, Immunisation Systems
	DFID	Sophie Bracken	Senior Health Advisor
		Ayesha Ragunathan	Senior Health Advisor
		Colette Whigham	Senior Health Advisor
		Sarah Dabbaj	Senior Health Advisor
	Independent	Michael Clark	Independent Consultant
		Michael Zaffran	Independent Consultant, Chair of Penta IPV PRG
	JSI	Alexis Heaton	Lead on Market Shaping for the JSI-led CCEOP evaluation
Industry stakeholders	IFPMA	Laeticia Bigger	IFPMA Secretariat
	Pfizer	Alvin Liu	Senior Director, Vaccines Partnerships and Alliances
	Merck & Co	Joan Benson	Executive Director, Strategic Partnerships & Stakeholder Engagement
		Brendan Cooley	Associate Director, Public Health Partnerships, Global Vaccine Public Policy & Partnerships
		David Evans	Executive Director, Global Marketing HPV
		Anupama Tantri	Executive Director, Policy Development, Global Vaccine Public Policy & Partnerships
		Alec McCurdy	Account Director, Global Operations & Tender Management
	Sanofi	Lamia Badrous	Head, Global Vaccines Public Affairs
	Innovax	Wendy Huang	General Manager
	Biological E Limited	Lakshiminarayana Neti	Chief Operating Officer
	Bharat Biotech	Sai Prasad	President, Quality Operations
		Vankat Raman	Commercial Director
	EuBiologics	Rachel Park	General Manager
	LG Chem	Soo-hee Yoon	Manager, Vaccine Sales Team
	DCVMN	Sonia Pagliusi	Executive Secretary
	SII	Suresh Jadhav	Executive Director
		Parag Deshmukh	Deputy Director, Global Strategic Business Development

	Bmedical Systems	Jesal Doshi	Deputy CEO
	Dulas	Ruth Chapman	Managing Director
	GSK	Ariane McCabe	Director, Director of Vaccines and Global Affairs, Global Health Vaccines
Comparable Organisations	Unitaid	Janet Ginnard	Director of Strategy, Unitaid
	Global Fund	Lin Li (Roger)	Senior Manager, Strategic Sourcing Supply Operations
		Robert Addison	Sourcing Specialist, Strategic Sourcing Supply Operations
Country interviewees (SCMs and country stakeholders)	Bangladesh	Sam Mueller	Gavi Senior Country Manager
		Jucy Merina	UNICEF Bangladesh
	Bolivia	Danielle Rosset	Gavi Senior Country Manager
		Edson Humerez	Coordinator of Gavi support to Bolivia, PAHO
	Cote d'Ivoire	Pascal Rigaldies	Gavi Senior Country Manager
		Epa Kouakou	EPI Focal Point, UNICEF
		Joachim Ndwin Lubiba	Dalberg Adviser
	Ethiopia	Tito Rwamushaija	Gavi Senior Country Manager
		Mulat Nigus	EPI Manager, MoH
		Gulilat Tefera	EPI logistics officer, MoH
	Ghana	Cyril Nogier	Gavi Senior Country Manager
		Peter Baffoe	UNICEF Health Specialist
		Emmanuel Otoo	UNICEF Programme Officer
	India	Homero Hernandez	Gavi Senior Country Manager
		Jayantha Liyanage	WHO Regional Officer, SEARO
		Rija Andriamihantanirina	UNICEF Country Specialist
		Bhrigu Kapuria	Immunisation specialist
	Indonesia	Sam Mueller	Gavi Senior Country Manager
		Ruhul Amin	UNICEF Indonesia
	Nigeria	Onome Dibosa Osadolor	Health Specialist, UNICEF
	Tanzania	Jonna Jeurlink	Gavi Senior Country Manager
		Alex Mphuru	Focal Person For Immunisation Services, UNICEF

Appendix C **INTERVIEW GUIDES**

This appendix presents the interview questions for consultations with stakeholders. To ensure we discussed the most relevant topics with different stakeholders, we developed separate interview guides for the following stakeholder groups:

- Gavi Secretariat and Alliance partners;
- Industry stakeholders; and
- Country stakeholders.

The specific questions for each stakeholder group are provided below.

C.1. GAVI SECRETARIAT, ALLIANCE PARTNERS AND GLOBAL STAKEHOLDERS

Not all questions included below have been asked of all stakeholders, particularly those who have had less involvement in the design and the implementation of the Strategy. CEPA tailored this core list of interview questions to each interviewee.

C.1.1.Design and relevance

- 1) To what extent is the Healthy Markets Framework (HMF) a comprehensive, relevant and well-designed framework for market health?
- 2) To what extent were considerations regarding the long-term view of markets and countries incorporated appropriately into the design of the Strategy?
- 3) To what extent is the Strategy's overall approach to innovation relevant and well-designed? Has the approach to identifying short-term incremental innovations as well as the VIPS set-up been sensible and well thought out?
- 4) Overall, do you believe that the design of the strategy was appropriate in terms of its structure, focus areas and intended ambition? Looking at the Strategy more broadly, what are your views on: (i) lessons from the experience of other similar organisations such as the Global Fund; (ii) extent of cognisance of country needs and requirements; and (iii) alignment with the broader policy landscape?

C.1.2.Implementation

- 5) What has been the utility of the HMF in practice in terms of supporting market shaping decision making processes (including specifically tender processes but also overall monitoring and targeted activities) as well as enabling a shared understanding of Gavi's approach to market shaping across stakeholders?
- 6) Have relevant and useful tools/ strategies been developed in support of country capacity building in relation to market aspects (including forecasting, product selection, in-country procurement processes, national regulatory approval, etc.) and to what extent has there been an observed improvement in country capacity building in this regard?
- 7) To what extent has the Strategy been effective in identifying and monitoring externalities related to market shaping? What additional activities would you have like to have seen implemented during the Strategic period and how could the monitoring of market shaping externalities be taken forward by Gavi?
- 8) What has been the experience in the implementation of the innovation strategic pillar in terms of what aspects have worked well and less well? (considering both the implementation of incremental innovations as well as the VIPS set-up)
- 9) To what extent have the "strategic enablers" been well delivered under the strategy period – namely: (i) has there been strengthening in data collection and analytics including collection of new useful data? (ii) has there been better timeliness and transparency in information across the board and particularly with regards to procurement and product profiles? (iii) has there been improved coordination between Alliance partners, industries and countries?

C.1.3.Results and sustainability

- 10) What have been the key successes with regards to achieving market health across the different markets Gavi supports? To what extent did the market shaping activities of the Alliance contribute to the achievement of these outcomes, relative to the contribution of other factors (such as wider market development, or activities outside of Gavi's market shaping work)? What challenges have been experienced in achieving market health in different markets, and for what were the reasons for these challenges being realised?
- 11) To what extent can any of the markets supported by the Alliance be defined as having reached a sufficient level of health that they no longer require active market shaping support (beyond active procurement of products by the Alliance)?
- 12) Which product innovations (including CCE) do you regard as being the most significant during the Gavi 4.0 period? To what extent can the introduction of these products on the market be attributable to the Alliance's activities?
- 13) To what extent has VIPS been able to achieve its intended results and what are key lessons learnt? To what extent has the work of Gavi been attributable to the prioritisation of such innovations? In retrospect, do you believe that the work undertaken as part of VIPS was appropriate in terms of the intended results that it wished to achieve by the end of the Strategy?
- 14) To what extent has Gavi achieved its market shaping objectives and to what extent has the strategy contributed to Gavi's overall objectives (including the Vaccine, Health Systems and Sustainability Goals)? What are the key success factors at the global and country levels driving achievements?

C.1.4.Lessons learnt and recommendations

- 15) What main lessons can be drawn from the design (including the design of the HMF), implementation and results of the 2016-20 Supply and Procurement Strategy and applied to Gavi 5.0 to strengthen its market shaping goals? What would be your top 3-4 recommendations for the next strategic period, also noting the evolving external environment and country capacities?

C.2. INDUSTRY STAKEHOLDERS

Questions were further tailored based on the vaccine portfolio of different manufacturers.

- 1) In your view what have been the most significant market changes/ developments across different vaccine markets over the past five years (including both positive and negative developments) and to what extent would you attribute these developments to the work of the Gavi Alliance? What specific aspects, if any, of the Alliance's work do you think have contributed to this?
- 2) With regards to tendering processes and awards as well as wider engagement of Gavi with industry, to what extent do you believe that the Gavi Alliance has sufficiently considered trade-offs between price and other aspects (including supply security, obtaining buffer capacity, long-term competition, product innovation and country preferences)? Has this differed between markets?
- 3) How has the Gavi Alliance and industry worked together to enable new products to be available? How important was the Alliance's support in enabling such innovations to come to market (either direct support or indirect support through the signals it has provided to the market)? Would such innovations have been developed in the absence of these activities and market signals?
- 4) Do you believe that Gavi prioritised the most relevant incremental product innovations across different vaccine markets over the past five years? Were there any critical gaps in innovations that you believe were not prioritised?
- 5) How, if at all, have you been engaged in the Vaccine Innovation Prioritisation Strategy (VIPS)? How effective has engagement as part of this programme been in terms of garnering views from industry stakeholders? Has the programme been sufficiently ambitious in its objectives for prioritising innovations? Do you believe that VIPS has been effective in identifying the most appropriate innovations?

- 6) Has transparency on objectives, processes and decisions regarding tendering activities improved between the Alliance and industry over the past five years? What, if any, improvements with regards to information sharing and transparency would you like to have seen?
- 7) To what extent do you believe the activities of the Alliance has resulted in positive or negative externalities for countries (including Gavi-supported and non-Gavi supported countries) and vaccine markets not supported by Gavi over the past five years (including in product development, supply security and prices)? What clear evidence is there that this has taken place?
- 8) What would be your top 3-4 recommendations for the Gavi Alliance regarding its approach to procurement and supporting market development over the next strategic period, also noting the evolving external environment and country capacities?

C.3. SCMs AND COUNTRY-BASED STAKEHOLDERS

Questions were tailored for specific stakeholders.

- 1) What do you believe to have been the most important vaccine and cold chain equipment market developments over the past five years that have affected your country (including both positive and negative developments) and to what extent can these developments be attributable to the Gavi Alliance? What specific aspects, if any, of the Alliance work do you believe have contributed to this?
- 2) Long-term view and sustainability - To what extent does Gavi's work related to the procurement and supply of vaccines consider country long-term priorities and sustainability concerns? How could aspects related to your country's long-term priorities be captured more effectively in Gavi's work?
- 3) Communication:
 - a. To what extent have the views of countries been taken into account in the Gavi Alliance's work in shaping markets for vaccines and other key products (including cold chain equipment)? How were country views on the prioritisation of innovations in vaccine products considered?
 - b. To what extent has Gavi been effective in communicating its objectives and intentions to countries with regards to its market shaping work? To what extent has this improved over time? What gaps remain in this regard and how do you think these could be addressed?
- 4) Tools, policies and strategies - What tools, policies and strategies developed by the Gavi Alliance (including the Gavi Secretariat, UNICEF, the Gates Foundation and WHO) do you regard as most important for helping support countries successfully undertake relevant activities related to market shaping (including forecasting, product selection, in-country procurement processes, national regulatory approval, etc.)? To what extent have these tools contributed to country capacity building? In what areas would you like to see additional capacity building support?
- 5) Coordination - To what extent do you believe that the Gavi Alliance partners have improved coordination, both between themselves and their approach to engaging with countries with regards to market shaping related work? How, if at all, has this changed over time?
- 6) Recommendations - What would be your top 3-4 recommendations for the Gavi Alliance regarding its approach to procurement and supporting market development over the next strategic period, also noting the evolving external environment and country capacities?

Appendix D RESULTS ANALYSIS OF STRATEGIC GOAL INDICATORS

This appendix provides an overview of the Gavi's progress against its Strategic Goal 4 on market shaping. There are four Strategic Goal indicators for marketing shaping which are outlined in detail in Gavi's Strategic Goal Indicators methodology document.² Table 1.1. below provides an overview of the strength and weaknesses of the indicators, the performance against the envisioned targets and details on the key markets that helped or hinder the achievement. The analysis is based on internal data provided by Gavi.

Table D.1: Overview of progress against the market-shaping strategic goals 2016-20

Indicator & Definition	Strength & Weaknesses	Year	Target ³	Performance ⁴	Details
SG4.1. Sufficient and uninterrupted supply <i>Number of Gavi vaccine markets meeting the criteria for sufficient and uninterrupted supply of appropriate vaccines</i>	Strength: This represents one of Gavi's key market shaping objectives. Weakness: Number of doses requested by Gavi in UNICEF tenders could be revised downward to what is possible, because supply limitations are known in advance.	2016	8	9	Above target: Cholera ; Below target: IPV (insufficient supply) & YF (insufficient supply and interrupted supply)
		2017	10	8	Above target: Cholera ; Below target: IPV (interrupted and insufficient supply), HPV (insufficient supply) and rota (interrupted supply)
		2018	10	8	
		2019	11	8	Below target: Cholera & IPV (interrupted supply) and HPV (insufficient supply)
		2020	11	TBD	<i>Currently not on track at least in the HPV market and potentially the Cholera market</i>
SG4.2. Cost of fully vaccinating a child with pentavalent, pneumococcal and rotavirus vaccines <i>Change in the weighted average vaccine price per child to fully vaccinate with Penta, rota and PCV</i>	Strength: it is a direct measure of Gavi's ability to shape vaccine markets. Weakness: (i) does not capture other costs, including the cost of vaccine delivery to countries; (ii) only captures a subset of Gavi's portfolio.	2016	*	5% (US\$ 19.00)	Penta prices decreased by 53% between 2015- 2019, mostly driven by a price drop of 45% in 2017 during two-stage UNICEF tender.
		2017	*	17% (US\$ 16.63)	
		2018	*	21% (US\$ 15.90)	PCV prices declined by 12.3% between 2015-2018 with no further change in 2019. PCV represented around half of the vaccine costs due to its higher price and, thus, impacts the composite score more strongly than Penta or rota. Rota prices declined by 16.1% between 2015-2019
		2019	*	22% (US\$ 15.57)	

² Gavi (2015). 2016-2020 Strategy Indicators definition

³ Fields marked with * to indicate that no target was published due to the confidentiality reasons

⁴ Performance marked by CEPA. Legend: Green – meeting or surpassing target; Orange – slightly behind target; Red - substantially behind target

Indicator & Definition	Strength & Weaknesses	Year	Target	Performance	Details
SG4.3. Innovation <i>Number of vaccines with improved characteristics procured by Gavi as compared to the baseline year</i>	Strength: directly tracks the number of concrete innovations in vaccine products of immediate relevance to the Alliance and its overall strategy for 2016-2020. Weakness: (i) does not include innovation in non-vaccine products; (ii) all innovations are treated equally independent of impact.	2016	2	4	A total of 15 target products for innovation were identified by Gavi prior to the start of the strategy. Successful innovations relate to the following vaccines (3x PCV , 3x OCV , 1x rota , 1x HPV , 1x Penta , 1x MR) and technologies (3x improved container, 3x temperature stability, 2x low multi-dose vials, 1x lower cold chain volume and 1x extended shelf-life). Unsuccessful innovations include HPV for a 9-valent vaccine and low multi-dose vials, OCV for improved containers, IPV for a Sabin vaccine and MenA for a low multi-dose vial.
		2017	4	5	
		2018	7	7	
		2019	8	10	
		2020	10	TBD	
SG.4.4 Healthy Market Dynamics <i>Number of Gavi vaccine markets with moderate or high healthy market dynamics</i>	Strength: provides a holistic view of a market's health, based on a composite of metrics. Weakness: primary limitation is that the notion of a healthy market is somewhat subjective.	2016	1	2	Moderate health: Penta ; above target: PCV
		2017	1	3	On target: Penta ; above target: PCV and YF
		2018	2	3	On target: Penta ; above target: PCV and YF ; below target: MR
		2019	4	3	On target: Penta & YF ; above: target PCV ; below: MR & IPV
		2020	6	TBD	Target markets: Penta, PCV, YF, MR, HPV & IPV

Appendix E COUNTRY SELECTION FOR KEY INFORMANT INTERVIEWS

This section outlines the list of countries consulted as part of the evaluation. It was developed based on feedback from the Gavi Secretariat as well as CEPA's own analysis of countries that could provide valuable insights for different aspects of the evaluation. Table E.1 below provides a summary of the countries that were selected, as well as the criteria for selection.

Table E.1: Shortlist of countries for key informant interviews

Country name	Transition status 2019	Year of Gavi vaccine introduction	WHO region	DTP3 coverage	Birth cohort ⁵	GNI per capita (US\$)	Rationale for inclusion/exclusion
Selected countries							
Bangladesh	Preparatory transition phase	Penta: 2009; Measles: 2012; MR: 2014; IPV: 2015; Pneumo: 2015; HPV: 2016; IPV: 2017	SEARO	98	3 million	1,940	Future transitioning country with strong EPI programme.
Bolivia	Fully self-financing	Penta: 2000; Rota: 2008; HPV: 2017; IPV: 2016; Pneumo: 2014	PAHO	83	255,000	3,530	Self-financing country, higher income country and PAHO representation.
Côte d'Ivoire	Preparatory transition phase	Penta: 2009; YF: 2011; MENA: 2014; Pneumo: 2014; HPV: 2015; IPV: 2015; Rota: 2017; MENA: 2018; MR: 2018	AFRO	82	935,000	2,290	Regional representation and good vaccine coverage.
Ethiopia	Initial self-financing	Penta: 2007; Pneumo: 2011; Rota: 2013; Measles: 2013; MENA: 2013; MENA: 2014; MENA: 2015; HPV: 2015; IPV: 2015; Measles: 2017; HPV: 2018; Measles: 2019	AFRO	72	3.4 million	850	Large birth cohort and regional political leadership. Also example of country where country decision making has faced challenges.

⁵ Cohort size has been rounded.

Country name	Transition status 2019	Year of Gavi vaccine introduction	WHO region	DTP3 coverage	Birth cohort ⁵	GNI per capita (US\$)	Rationale for inclusion/exclusion
Ghana	Preparatory transition phase	Penta: 2002; YF: 2002; YF: 2011; MENA: 2012; Pneumo: 2012; Rota: 2012; Measles: 2012; YF: 2012; HPV: 2013; MR: 2013; MENA: 2016; YF: 2018; IPV: 2018; MR: 2018	AFRO	97	892,000	2,220	Large vaccine portfolio and relatively higher income country.
India	Accelerated transition phase	Penta: 2011; IPV: 2015; Rota: 2016; MR: 2017; Pneumo: 2017; Rota: 2018; MR: 2018	SEARO	92	25 million	2,130	Large birth cohort, coverage of vaccines and has locally-based manufacturers.
Indonesia	Transition completed since 2017. Fully self-financing	Penta: 2013; IPV: 2016; MR: 2017; HPV: 2017; JE: 2018	WPRO	85	4.8 million	4,050	Regional representation, large birth cohort, transitioned country with vaccine producing manufacturers based in the country, self-procurement and self-financing.
Nigeria	Accelerated transition phase	YF: 2005; MENA: 2011; MENA: 2012; Penta: 2012; Measles: 2013; MENA: 2013; YF: 2013; Pneumo: 2014; MENA: 2014; IPV: 2015; Measles: 2015; Pneumo: 2016; Measles: 2016; Measles: 2017; Measles: 2018; YF: 2018	AFRO	57	7.6 million	2,030	Large birth cohort, vaccine portfolio, relatively low DTP3 coverage, relatively high income per capita and accelerated transition country.
Tanzania	Initial self-financing	Penta: 2009; Pneumo: 2012; Rota: 2012; HPV: 2014; MR: 2014; Measles: 2014; MR: 2015; HPV: 2018; IPV: 2018	AFRO	98	2.3 million	1,080	Large birth cohort, vaccine portfolio and regional representation.
Shortlisted countries not selected							

Country name	Transition status 2019	Year of Gavi vaccine introduction	WHO region	DTP3 coverage	Birth cohort ⁵	GNI per capita (US\$)	Rationale for inclusion/exclusion
Armenia	Fully self-financing	Penta: 2009; Rota: 2012; Pneumo: 2014; IPV: 2016; HPV: 2017	EURO	96	35,236	4,680	Difficulty reaching relevant stakeholders who participated in market shaping activities or are able to provide insight.
Burkina Faso	Initial self-financing	Penta: 2006; YF: 2008; MENA: 2010; Rota: 2013; Pneumo: 2013; Measles: 2014; MR: 2014; HPV: 2015; MR: 2015; MENA: 2016; MENA: 2017; IPV: 2018	AFRO	91	774,878	790	Regional representation captured by other countries with larger birth cohort.
Cambodia	Preparatory transition phase	Penta: 2010; Measles: 2012; MR: 2013; Pneumo: 2015; IPV: 2015; JE: 2016; MR: 2016; HPV: 2017; MR: 2017	WPRO	92	359,000	1,480	Regional representation captured by other countries with larger birth cohort.
Cameroon	Preparatory transition phase	YF: 2004; YF: 2009; Penta: 2009; Pneumo: 2011; MENA: 2011; MENA: 2012; Rota: 2014; HPV: 2014; MR: 2015; IPV: 2015; MR: 2016	AFRO	79	890,733	1,500	Regional representation captured by other countries with larger birth cohort.
DRC	Initial self-financing	YF: 2004; Penta: 2009; Pneumo: 2011; Measles: 2013; IPV: 2015; Measles: 2016; Measles: 2016; Measles: 2017	AFRO	81	3.5 million	520	Regional representation captured by other countries in sample.
Mali	Initial self-financing	YF: 2001; Penta: 2005; YF: 2008; MENA: 2010; Pneumo: 2011; MENA: 2011; Rota: 2014; HPV: 2015; IPV: 2016; MENA: 2017; Measles: 2019	AFRO	71	824,525	880	Regional representation captured by other countries with larger birth cohort. Also significant instability in country could mean that it will not be practical to gain detailed insights from stakeholders.

Country name	Transition status 2019	Year of Gavi vaccine introduction	WHO region	DTP3 coverage	Birth cohort ⁵	GNI per capita (US\$)	Rationale for inclusion/exclusion
Myanmar	Preparatory transition phase	Measles: 2012; Penta: 2012; MR: 2015; IPV: 2015; Pneumo: 2016; JE: 2017; JE: 2018	SEARO	91	939,000	1,390	Regional representation captured by other countries with larger birth cohort.
Nepal	Initial self-financing	Penta: 2009; MR: 2012; MR: 2013; IPV: 2014; Pneumo: 2015; Measles: 2015; HPV: 2016; JE: 2016	SEARO	91	569,165	1,090	Regional representation captured by other countries with larger birth cohort.
São Tomé	Accelerated transition phase	YF: 2003; Penta: 2009; Pneumo: 2012; Measles: 2013; MR: 2016; IPV: 2016; Rota: 2016; MR: 2016; HPV: 2017; IPV: 2017	AFRO	95	7,012	1,960	Very small birth cohort.
Senegal	Initial self-financing	Penta: 2005; YF: 2007; MENA: 2012; MR: 2013; Pneumo: 2013; HPV: 2014; MR: 2014; Rota: 2014; Measles: 2014; IPV: 2015; MR: 2017; HPV: 2018; IPV: 2018	AFRO	81	572,177	1,450	Regional representation captured by other countries with more relevant vaccine experience suggested for assignment.
Togo	Initial self-financing	YF: 2003; YF: 2007; Penta: 2008; Rota: 2014; MENA: 2014; Pneumo: 2014; HPV: 2015; MR: 2018; IPV: 2018; MR: 2019	AFRO	88	270,698	690	Lower GNI and birth cohort than other countries represented in the region.
Uzbekistan	Accelerated transition phase	Penta: 2009; Rota: 2014; Pneumo: 2015; IPV: 2018	EURO	98	627,000	1,800	Regional representation captured by other countries which could provide more insight.
Vietnam	Fully self-financing	Measles: 2007; Penta: 2010; MR: 2014; MR: 2015; IPV: 2018; MR: 2019	WPRO	78	1.5 million	2,540	Regional representation, large birth cohort, transitioned country with vaccine producing manufacturers based in the country.

Appendix F **THEORY OF CHANGE FOR THE SUPPLY AND PROCUREMENT STRATEGY 2016-2020**

At the request of Gavi, the evaluation team developed the Theory of Change (TOC) as part of the Inception Phase.

The development of a ToC under this evaluation is not an end in itself; rather, a methodological approach to aid the evaluation process and assessment. While the ToC described below may serve as a strategic or descriptive tool for Gavi's market shaping work, its main objective here is to aid the evaluation and has been designed with this objective. As such, there is a clear linkage between the ToC and our evaluation framework, in terms of the areas that we are exploring for detailed review. Our evaluation framework pillars and questions are mapped against the elements described below.

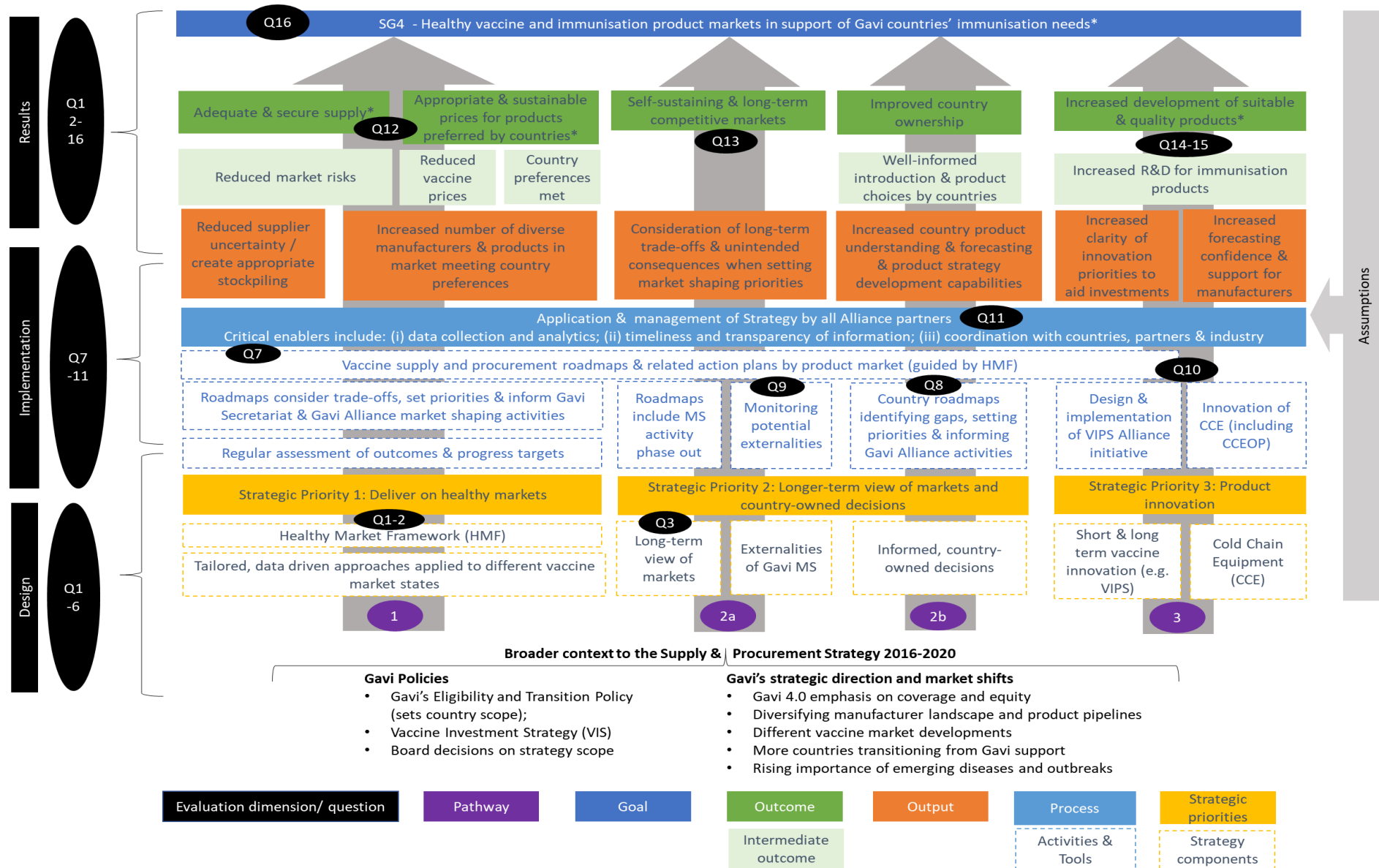
The TOC has supported an understanding of the expected aims and outcomes of the Strategy and informed and guided the analysis around which factors have contributed to the achievement and non-achievement of the Strategy.

The ToC has been developed based on a detailed review of the Supply and Procurement Strategy document, alongside consultations and feedback processes with the Gavi Secretariat Market Shaping and Evaluation teams. The ToC has been developed based almost exclusively on what is included in the Strategy and Gavi's strategic priorities, but where particularly relevant aspects were not described in the Strategy, these have also been included (e.g. VIPS).

Figure F.1 includes the ToC. Using colour coding to show different elements, the figure illustrates how the Strategy aims to guide the application of Gavi's market shaping work from inputs towards key identified outcomes at the country and global levels, and Gavi's Strategic Goals. The ToC comprises the following elements:

- **Broader contextual factors:** these are key contextual factors for the Strategy design and implementation, including aspects such as Gavi policies (e.g. Eligibility and Transition Policy which determines which countries are eligible for Gavi support, Vaccine Investment Strategy which determines which vaccines are made available to countries through Gavi's vaccine support programmes, etc.) and Gavi strategic direction and market shifts (e.g. Gavi 4.0 emphasis on coverage and equity, different vaccine market developments, more countries transitioning from Gavi support, rising importance of emerging diseases and outbreaks, etc.).
- **Strategic priorities and components:** these are based on the three strategic priorities outlined in the strategy (healthy markets, long term view and innovation) and the key components within these.
- **Processes and activities and tools:** this includes overarching processes such as the application and management of the Strategy by all Alliance Partners and critical enablers including (i) data collection and analytics; (ii) timeliness and transparency of information; (iii) coordination with countries, partners and industry. It also includes specific activities and tools for each of the strategy components.
- **Outputs:** the products which results from the processes, activity and tools.
- **Outcomes and intermediate outcomes:** representing the likely or achieved short and medium term change and effects of intervention outputs.
- **Goal:** this refers to the ultimate aim of the strategic components which is in line with Gavi's SG4 on market shaping of healthy vaccine and immunisation product markets in support of country immunisation needs.
- **Assumptions:** which refers to certain aspects that need to hold true for the strategy components to translate into results such as Gavi market share being substantial enough to impact manufacturer decision making, no very significant market or global disruption, Alliance partners working together towards similar objectives, general timeliness in implementation of Strategy activities.
- **Pathways:** In line with the three strategic priorities of the Strategy, these demonstrate the underlying linkages between the elements described above from strategic components to the goal. The pathways are numbered and should be read from bottom to top and are described in more detail after the figure.

Figure F.1: ToC for the Supply and Procurement Strategy



* Results that are fully or partially measured by Gavi's Strategic Goals

Pathway 1 describes the pathway linked to strategic priority 1, delivering on healthy markets. This focuses on two strategy components: (i) the HMF and (ii) tailored data driven approaches applied to different vaccine market states. This is the largest of the strategic priorities and as such there are a number of activities and tools undertaken within these. These include (i) development of vaccine roadmaps which consider trade-offs that may exist between different components of market health, set priorities and inform Gavi Secretariat and Alliance market shaping activities and (ii) regular assessment of outcomes and progress targets developed through the HMF. One of the aims of these activities is to reduce supplier uncertainty and create appropriate stockpiling which reduces the market risks and aims to ensure there is adequate and secure supply of products overall. The other aim of these activities is to increase the number of diverse manufacturers and products in the market in order to better meet country preferences and reduce vaccine prices. In turn this aims to achieve appropriate and sustainable prices for products which countries prefer.

Pathways 2a and 2b stem from strategic priority 2 of longer-term view of markets and country-owned decisions. Pathway 2a describes the pathways linked to (i) the long-term view of markets and (ii) externalities of Gavi's market shaping activities. The main activity for the long-term view of markets strategic priority is the roadmaps which consider phasing out of market shaping activities through identifying point at which a product market is deemed sufficiently healthy and self-sustaining to no longer require market-shaping interventions from Gavi, beyond active procurement. While not a specific activity under Pathway 2a, monitoring of the long-term health of markets is carried out as part of activities under Pathway 1, namely the implementation of the HMF, demonstrating the complementarity of activities under each Pathway. With regards to the externalities of Gavi's market shaping work, the primary activities include monitoring of potential positive and negative externalities of Gavi's market shaping activities on the market place. Through the roadmaps and monitoring of potential externalities, the long-term trade-offs and potentially unintended consequences are considered, with the aim of supporting self-sustaining and long-term competitive markets. Pathway 2b outlines the link between supporting informed, country-owned decisions through associated activities such as country roadmaps and identifying gaps, setting priorities and informing Alliance activities in order to then increase product understanding at the country level as well as support capabilities for forecasting and product strategy development. The aim of this is to aid countries to make well-informed introduction and product choices which in turn aims to increase country ownership over these decisions.

Pathway 3 relates to the strategic priority of product innovation. This firstly includes short and long term vaccine innovation. The notable activity within this is the VIPS Alliance initiative which includes activities to (i) develop common principles across the Alliance to make the assumptions underpinning the value proposition for innovations explicit, (ii) convene a platform to enable articulation of a clear and aligned perspective on how and what to prioritise in long-term innovation with a view to ultimately accessing the Gavi market, and communicate these priorities (iii) to better understand country needs by leveraging countries' and technical partners' field experience to consider financial and non-financial impact of innovations (e.g. safety, efficacy, equity & coverage). Together these aim to increase clarity regarding innovation priorities in order to aid investments by manufacturers. It also includes innovation for the shorter term, guided by roadmaps, focusing on improving product suitability for Gavi-supported antigens (e.g. different cold chain or presentation needs/ preferences). This strategic priority also includes innovation related to CCE (including the CCEOP). Together the activities undertaken aim to increase forecasting confidence and support for manufacturers which in turn is expected to increase research and development for immunisation products and ultimately increase the development of suitable and quality products.

Appendix G ROBUSTNESS RATINGS FOR KEY FINDINGS

This appendix summarises the key findings and the respective robustness ratings attached to those findings.

Table G.1: Findings and associated robustness ratings

Finding	Robustness rating	Explanation
Question 1: Does the HMF encompass all the key attributes to support market shaping decision making?		
The HMF is a well-developed and much needed framework for assessing market health and support decision-making. That said, the review highlighted the following areas where improvement would be welcomed: i) limited formalised representation of demand; ii) loose definitions of some attributes that left certain aspects more open to interpretation; iii) lack of clarity of Total Systems Effectiveness (TSE) aspects and the application of this attribute; and iv) less clarity on how innovation is included in the HMF; v) limited applicability of the HMF in its current form to some markets, particularly CCE vi) current approach to scoring attributes masking significant variability between markets.	Strong	Unanimous view across consultations and supported by CEPA's document, data and vaccine markets review.
Question 2: To what extent were considerations regarding the long-term view of markets and countries incorporated appropriately into the design of the Strategy?		
While incorporation of this objective is a step in the right direction, its framing and operationalisation in the Strategy has been inadequate and represents an area for improvement for the next strategy.	Good	Clear finding from a review of the Strategy document, and supported by Secretariat feedback.
Question 3: What, if any, additional activities should have been undertaken to support product innovation?		
Innovation objectives in the Strategy are well supported by stakeholders but would benefit from further clarity especially regarding: (i) the "end goal" for the different markets; and (ii) how to address the tension between the five-year strategic period and innovations, which can take a longer time period to develop.	Good	Supported by majority of stakeholder consultations.
The choice of innovations were generally considered to be appropriate, as well as the activities needed to progress this work, although further consideration regarding take up at the start would have been beneficial.	Limited	Supported by a minority of consultations (as was not a focus) and CEPA's assessment.
The inclusion of CCE in the Strategy aimed to support activities to encourage take up of existing and emerging products rather than prioritising stimulating innovation. The tool selected for driving innovation is a set of TPPs which were noted to be appropriate for the baseline for CCEOP innovation.	Limited	Supported by minority of consultations and some documentation.
The objectives for VIPS were sufficiently ambitious. However, specifics regarding the objectives as set out in the Strategy itself and especially how the activities would reach the objectives, lacked clarity.	Good	Supported by majority of consultations, with relevant consultee base for specific issues at hand.

Finding	Robustness rating	Explanation
Questions 4: What might be key lessons from the market shaping work of other relevant organisations for Gavi?		
<p>Consultations with the range of stakeholders have emphasised that the Strategy is “ahead of the game”, with work on framing the HMF in particular being “exemplar”. That said, both the Global Fund and Unitaid have interesting lessons to offer Gavi from their own experience of market shaping.</p> <ul style="list-style-type: none"> • Lessons from the Global Fund include: i) What steps to take to ensure market shaping results can continue to be beneficial to transitioning countries; ii) Providing guidance to countries on how to conduct cost-effectiveness analysis of their product choices; iii) expanding and improvement M&E indicators linked to market shaping, including the development of counterfactuals; and iv) ensuring an institution-wide approach to market shaping is adopted (i.e. market shaping is not considered the remit of one team, but is aligned and coordinated across the work of the different functions of the organisation); v) establishing market shaping as its own strategic objective, while in the Global Fund it was including within a resource mobilisation objective that was not considered helpful; ii) • Lessons from Unitaid include: i) considering how different aspects of market shaping work are linked to the wider ecosystem in which its operates; ii) considering interventions through both a demand and supply-side lens; iii) maintaining a long-term vision for innovation with a clear linkage to the practicality of delivery from the outset; and iv) taking a long-term and holistic approach when considering interventions in markets; v) focusing of impact on ultimate scale-up and uptake of products. <p>More generally, consultations noted that an important step for global health organisations going forward was a need to coordinate and collaborate collectively on cross-cutting issues related to shaping health markets.</p>	Good	Finding supported by high-level desk review and one consultation per organisation, but is deemed relevant in relation to the scope of this question within the review.
Question 5: How did these activities impact on health outcomes?		
The extent to which the Strategy took into account context and feedback from countries directly was relatively limited. More broadly, Gavi has recognised the need for country perspectives to be taken into account to a greater degree in its market shaping work.	Strong	Finding supported by large number of global and country consultations.
Question 6: To what extent has the Strategy aligned with, and was prepared within, the broader policy landscape, including normative standards and guidelines governing vaccines markets?		
The Strategy was well-aligned with wider policy and normative guidance supporting vaccine markets, and shows the importance of partnership between WHO and Gavi in ensuring that market shaping goals can be met.	Strong	Finding supported by detailed review of Strategy and WHO documentation.

Finding	Robustness rating	Explanation
Question 7: Has the HMF enabled a shared understanding of Gavi's approach to market shaping and supported market shaping decision making processes? Has it been useful in helping Gavi measure progress in market health, as per the healthy market SG4 indicator?		
While there have been some aspects of market health that have clearly been missing from the HMF, the general view is that the HMF has contributed to aligning views more than what was happening previously.	Strong	Finding supported by consultations with multiple individuals across main Alliance partners.
The HMF has been a positive addition for communicating Alliance objectives with donors and wider global partners. However, industry still believe in practice the focus has been on price over other aspects of market health. Engagement with countries on what the Alliance is trying to achieve on market health is more limited, given the less direct engagements these stakeholders have had with the HMF.	Good	Findings supported by consultations with global and industry stakeholders, and some country consultations.
The analysis of key markets has demonstrated that the HMF has been able to identify most of the key issues that markets have experienced. That said, key aspects that the HMF was unable to identify in markets included: i) capturing issues and challenges linked to demand aspects; ii) varying production complexities between markets and how these could impact market health; and iii) extent to which non-Gavi markets could affect Gavi market health.	Strong	Findings supported by detailed review of key vaccine markets, plus consultations with key Alliance stakeholders.
Some interventions have been more relevant for certain markets (e.g. procurement driven results for pentavalent) and others have not borne fruit per se (e.g. TSE related targeted interventions). But across the piece, the HMF has helped create greater clarity and transparency on market shaping activities and aligning partner views on interventions. There appears to be greater scope for further collaboration and coordination on planned interventions with non-core market shaping teams within the Secretariat and partner organisations.	Strong	Findings supported by detailed review of key vaccine markets, plus consultations with key Alliance stakeholders.
The Alliance has considered trade-offs between the price of vaccines and the different HMF attributes, albeit that the focus on price reductions has differed between markets depending on their overall health. While in some markets there may have been a greater focus on price reductions (e.g. pentavalent) than others, this experience provides lessons for how the Alliance may wish to approach other markets when they reach higher levels of market health.	Good	Findings supported by detailed review of key vaccine markets, plus consultations with key Alliance and external stakeholders, although there has been clear disagreement on the balance of trade-offs.
The HMF has been seen as a useful tool for monitoring overall market health, but there have inevitably been instances where partners have not been fully aligned on their views of monitoring markets, which highlight some of the challenges related to its design	Strong	Clear finding supported by detailed review of HMF monitoring data and consultations with Alliance stakeholders.
Question 8: To what extent did the Gavi Alliance strengthen country capacity (market developments, tools, strategies, policies) to influence the vaccine market and contribute to healthier markets?		

Finding	Robustness rating	Explanation
The planned workstream to support country capacity building on making informed/ owned procurement decisions has had limited progress mainly on account of lack of ownership of this work. More generally, country capacity building with regards to procurement, vaccine and non-vaccine decision making, etc. is a recognised area of weakness. There is also a need for better information sharing on Gavi's market shaping work and key market developments.	Strong	Findings supported by global and country consultations.
Question 9: To what extent has the Strategy been effective in identifying and monitoring externalities related to market shaping?		
The inclusion of monitoring externalities within Gavi's market shaping strategy has been viewed as best practice and the work done to date has been well received, although going forward more work is needed to better integrate how Gavi has identified and monitored externalities into its wider activities in market shaping.	Strong	Based on global and industry stakeholder consultations and the review of the documents from the externality project.
Question 10: To what extent were Alliance partners, manufacturers and countries able to effectively identify and communicate innovation needs?		
The VIPs process, has been managed extremely well. The process to obtain consensus has been very well received especially by Alliance Partners. In addition, the degree of involvement from manufacturers was appropriate given potential conflicts of interest. Perspectives were also obtained from the most relevant country stakeholders to guide product prioritisation and this process has been commended.	Good	Supported by majority of consultations, with relevant consultee base for specific issues at hand, although views on manufacturer involvement were not consistent.
Engagement and coordination on incremental innovations has largely been viewed positively, though there are examples outside of the prioritised innovations, where communication of demand could have been better done.	Good	Supported by a range of consultations
Question 11: To what extent did the Strategy enablers contribute to performance (or underperformance) on its market shaping objectives? In particular, has there been improved coordination and harmonisation of the activities between different Alliance partners?		
Data collection and analytics under the HMF, roadmap and UNICEF market notes has worked well but the results were more mixed with regard to the identified new analytical tools under the Strategy such as the tool for TSE. Roadmaps have been noted as useful documents, but some challenges include: (i) high burden to produce; (ii) quickly outdated; and (iii) need for more details on the long-term version in the market.	Good	Based on global stakeholder consultations and review of documents, data and tools.
There has been an improvement in vaccine and CCE market information availability and transparency over the years as a result of the greater visibility and coordination brought about under the Strategy.	Good	Based on global and industry stakeholder consultations and review of key documents.
Coordination with countries improved in the last few years but requires further improvements and a more systematic approach going forward. This also applies to the internal coordination in the Gavi Secretariat office with regard to linking country-level / demand aspects with the	Good/Strong	Based on majority of views in the global stakeholder consultations and review of key documents.

Finding	Robustness rating	Explanation
existing market shaping work. There has been strong coordination between Gavi Secretariat, UNICEF SD and the Foundation considered to be a cornerstone of the achievements of the Strategy. Coordination with other Alliance Partners has also been good especially with regard to PATH and GPEI. Coordination with industry has been strengthened especially through direct engagement with manufacturers but could be further improved by being more systematic.		
Question 12: To what extent were the outcomes of the healthy market approach achieved at the global and national level and what were factors explaining these results, including both successes and limitations?		
Gavi is expected to miss its overall target of achieving moderate to high health across six markets, largely because of the challenges seen in the HPV and IPV markets. Though the target for overall markets may not be achieved, some markets have seen some particularly strong improvements over Gavi 4.0 (particularly PCV and rotavirus).	Good	Finding based on review of monitoring data to 2019, while assessment for 2020 based on review of alignment documentation, market analyses and consultations
<ul style="list-style-type: none"> Many of the factors explaining the success in certain markets have been driven by long-term efforts of the Alliance, as opposed to being specific outcomes of the Strategy. That said, the Strategy ensured a continued effort to achieving these long-term objectives. Challenges faced in key markets have often been a result of wider developments affecting the supply-side of the market, as well as conditions at the country level. While the Alliance partners market shaping efforts may have not been able to drastically influence these outcomes in the short-term, the experiences offer lessons for how market shaping should be considered in more detail going forward. The experience of different vaccine markets during the strategic period has provided important lessons in terms of Gavi's strategy going forward, such as the need to better consider demand issues, taking a holistic view of suppliers and considering factors beyond Gavi-supported markets. 	Strong	Findings based documentation, quantitative data and consultations
Question 13: To what extent have markets reached a state of sufficient health and self-sustainability to no longer require market shaping interventions from Gavi?		
<ul style="list-style-type: none"> The pentavalent market has shown signs in recent years that active interventions such as push funding and/or pull mechanisms may no longer be required. But this may not always be the case, and the Alliance will need to ensure that it actively monitors trends in this and related markets to determine whether active market shaping is needed in the future. For some other vaccine markets, while they may not exhibit the full range of desired criteria for a healthy market, they are in a "steady state" by virtue of their unique context. These 	Strong	Finding based on extensive review of quantitative and qualitative evidence, as well as consultations with a wide range of stakeholders.

Finding	Robustness rating	Explanation
<p>markets would also require ongoing monitoring and assessment of their health, particularly those where there is a limited amount of supplier diversity.</p> <ul style="list-style-type: none"> • There continue to be a number of vaccine markets where active market shaping interventions are required to support improved health and sustainability over time. • CCE will require market shaping interventions for an extended period of time before reaching a position of market sustainability. 		
Question 14: To what extent has the Strategy contributed to the increased development and uptake of suitable and quality vaccine and related products?		
There has been progress with regard to product innovations most clearly demonstrated in the PCV and OCV markets. The uptake and use of product innovations in other markets has been less pronounced.	Strong	Based on quantitative data and stakeholder feedback.
There has been an increase in the number of CCE products available and a number of innovative products have come to market ahead of schedule.	Strong	Based on quantitative data and stakeholder feedback.
Uptake of CCE products has been strong due to the funds made available through CCEOP. However uptake has been predominantly limited to three main suppliers.	Strong	Based on quantitative data and stakeholder feedback.
Question 15: : Is the VIPS on track to achieve its results and what are lessons learnt?		
VIPS has achieved its aims for this strategic period. There have been key value adds from the VIPS process, especially creating alignment enabling partners to work on the innovations in a strategic way. A number of lessons and good practices can be applied to other work in the Alliance.	Strong	Supported by majority of stakeholder consultations and documentation.
VIPS is considered to be on track for the next stage of implementation.	Good	Supported by stakeholders with knowledge of key issues at hand.
Question 16: To what extent has Gavi achieved its market shaping objectives and to what extent has the strategy contributed to Gavi's overall objectives? What are the key success factors at the global and country levels driving achievements?		
Gavi is unlikely to meet its targets for SG4.1 (supply security) and SG4.4 (healthy markets), but is expected to reach its target on SG4.3 related to innovations. While no specific target was set, the Alliance have achieved considerable price reductions for key vaccines, particularly pentavalent.	Strong	Quantitative assessment based on indicators, with 2020 data based on consultations with Secretariat.
While the SG4 indicators are critical, high-profile and provide a good snapshot overview of the key objectives of Gavi market shaping, M&E for the Supply and Procurement Strategy in specific presents several areas for improvement, including in the scope of indicators,	Good	Evidence based on assessment of documentation and monitoring framework.

Finding	Robustness rating	Explanation
capturing all aspects of the Strategy in the framework and ensuring the framework is reviewed to ensure targets align with evolving market dynamics.		
There have been some significant supply-related achievements over 2016-2020, and in general, the Alliance's market shaping work under the Strategy has contributed to the Alliance's long-term support for markets. This includes supporting new manufacturers and products come to market, as well as encouraging a strong pipeline of products across a range of key vaccine markets.	Strong	Findings based on a broad range of evidence sources including vaccine market analysis, document review and quantitative analysis and consultations with stakeholders.
Some good progress has been made towards the CCE objectives especially given the fact that the CCE market has been relatively static for many years However there is still a need for further improvement in a number of areas, especially regarding demand predictability.	Good	Assessment based on document review and stakeholder opinion.
The work conducted by under the Supply and Procurement Strategy has been critical for achieving Gavi's wider objectives of i) equitable coverage; ii) improving health systems; and iii) long-term sustainability.	Limited	Assessment largely based on teams assessment of linkages to wider goals and evidence market analyses.

Appendix H SUMMARY OF ISSUES HIGHLIGHTED THROUGH HMF ASSESSMENTS BY MARKET.

Based on our review of roadmaps developed during the initial years of 4.0, Table H.1 presents the key areas of the HMF that were highlighted as not being met and requiring particular attention. (note that this table aims to highlight key points only and is not comprehensive on issues).⁶ The table highlights that the HMF assessments were able to capture most of the issues pertinent in these markets.

Table H.1: Relevant issues highlighted through initial HMF assessments in roadmaps

Market (year of roadmap)	Market health	Key HMF attribute highlighted as unmet	Description
Pentavalent (2016)	Moderate	N/A	The pentavalent market was regarded as having reached a moderate state of market health at the time of the roadmap development. While some attributes were regarded as being partially met (individual supplier risk, NRA risk, TSE, long-term competition and innovation), the roadmap noted that attaining these attributes would come at a cost/price trade-off during the implementation of the UNICEF tenders.
PCV (2017)	Moderate	N/A	The PCV market was assessed to be characterised as having moderate market health in 2017. For the elements that were not fully met (buffer capacity, TSE, long-term competition and innovation), the Alliance were anticipating that new entrants would contribute to them being met in future years.
Rotavirus (2016)	Low	Meet country preferences	Supply of preferred product was not sufficient to meet country demand from Gavi-supported countries, but total market capacity was sufficient to meet demand.
		Buffer capacity	Because of issue outlined above, buffer capacity was not sufficient.
MR (2018)	Low	Individual supplier risk	UNICEF market was entirely reliant on one supplier from India, and as a result the market supply was dependent on the ability of this supplier to meet demand.
		NRA risk	Given the risk associated with an Indian manufacturer, NRA was determined to be high, since the market could not be supplied if India's NRA lost its WHO functional status.
		Long-term competition	Potential competition was expected, but compared to other markets this was considered as low.
Yellow fever (2017)	Inadequate supply	Supply meets demand	An increase in forecasted demand due to the implementation of the Eliminate Yellow Fever (EYE) Strategy meant that Alliance expected demand to be in excess of supply available.

⁶ This analysis is restricted to the individual vaccine market analysis conducted under this review and does not cover all Gavi markets.

		Buffer capacity	Buffer capacity was not expected to be sufficient until 2026, due to the planned campaigns that were in place.
HPV (2017)	Inadequate supply	Supply meets demand	The low health of the HPV market was driven by the inability of the main manufacturer in this market to scale-up the supply to meet the demand expansion (both global and Gavi) that took place due to changes in the Gavi Policy (and WHO recommendations) with regard to HPV use.
		Meet country preferences	The lack of supply meant that countries had to delay the introductions for countries looking to introduce this product. In addition, while the other manufacturer operating in this market was able to meet demand at the time, it was unable to meet the demands of new countries looking to introduce its vaccine.
		Buffer capacity	The lack of supply outlined above meant that there was not sufficient buffer capacity to meet unconstrained demand.
		Long-term competition	One supplier was expected to dominate the market until 2021, and even with introductions that were in the pipeline there were concerns that the bivalent and quadrivalent products being developed would not be preferred over the potential entry of the 9-valent product that could be offered by the incumbent manufacturer in the long-term.
		TSE	TSE was unmet due to i) relatively high cost of a fully course of vaccination; ii) 1 and 2-doses requiring high cold chain storage space; iii) need for higher genotype coverage.
IPV (2017)	Inadequate supply	Supply meets demand	All countries were not able to access the level of supply they needed, which were largely linked to the wider routine introduction of IPV.
		Meet country preferences	Because of the above supply issues, country preferences of having one full dose at the appropriate vial sizes were noted as not being met.
		Individual supplier risk	Individual supplier risk was highlighted as an issue due to loss of any individual supplier would add to supply challenges outlined above.
		Buffer capacity	Due to the supply shortages, any issues with an individual supplier was highlighted as a risk because there was no buffer capacity.
		TSE	The cost of IPV vaccines in general was highlighted as a key issue for the Alliance. In addition, the roadmap highlighted that there were some pressing challenges with delivering and using intradermal fractional IPV (fIPV) that acted as a barrier to introduction.

Source: CEPA analysis based on Gavi Supply and Procurement Roadmaps.

Appendix I ANALYSIS OF MISALIGNMENT IN HMF ASSESSMENTS

Building on the analysis outlined in Section 4.1.3 in the main report, this appendix provides further details regarding the markets where Alliance partners had disagreements on their overall health, and what was driving these disagreements.

Markets where there have been more regular disagreements included:

- **Meningitis A**, where partners disagreed on whether to score this market as having low or moderate health every year to date. This is primary because while the market only has one supplier, supply has met demand, country preferences are met and the capacity of this one supplier is sufficient to enable it to supply the market. What partners have disagreed on is whether a market with just one supplier can ever be scored moderate, even when there is adequate buffer capacity, low NRA risk for that individual supplier's regulatory authority and the risk of facing supply-side challenges with that individual supplier is low.
- **MR**, where HMD scores were not aligned in every year except 2016. This was largely for similar reasons to why the meningitis A market has resulted in disagreements, since this market has also historically been characterised as having only one supplier, although as noted in Section 5 a new manufacturer did receive WHO PQ in 2019. However, since the manufacturer was not actively supplying the UNICEF market in 2019, it was decided that this market would be considered low health at the time of the assessment.
- **Japanese Encephalitis (JE)**, where in 2018 and 2019 years there was disagreements on whether this should be scored low or moderate, for similar reasons to the above markets.
- **Yellow fever**, where the Alliance disagreed in 2017 and 2019 on whether to score this low or moderate health. Unlike the above markets where there have been disagreements regarding how to treat markets with just one UNICEF supplier, the yellow fever market has been supplied by four different manufacturers to varying degrees over time. Despite this, the 2017 assessment noted that supply issues in this market has meant that it has not always had considerable buffer capacity. For example, one supplier has experienced technical production and quality issues limiting its ability to supply. In addition, one supplier has sometimes prioritised its domestic market over the UNICEF market, which has limited the supply available to Gavi countries. Having said that, Alliance partners noted that the supply situation had improved in recent years in particular due to increased capacity from the other two manufacturers in the market, hence justifying the final moderate score given. In addition, in 2019 yellow fever campaigns needed to be staggered in countries to meet demand with the given supply, causing one partner to question the extent to which this market could be considered as having moderate health. More generally, stakeholders have noted that partners tend to disagree on the size of shocks that the market would be able to absorb in the yellow fever market, which has made it more difficult to characterise the overall level of market health. As such, while on both occasions HMD for yellow fever was considered moderate, it shows that the definitions used for certain HMF attributes can be interpreted differently.

For other markets, the only markets where there was agreement on the overall HMD score were pentavalent and IPV. For all markets and across all years, there were consistent disagreements between scoring of individual market attributes, which while not significant in terms of overall Gavi monitoring, does highlight the difficulties in monitoring each HMF attribute consistent across markets where dynamics are complex and can differ significantly between one market to the next.