Landscape Review:

Measurement and Evaluation in Human-centered Design and Adolescent Sexual and Reproductive Health

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HCD EXCHANGE

विहारा VIHARA
INNOVATION NETWORK

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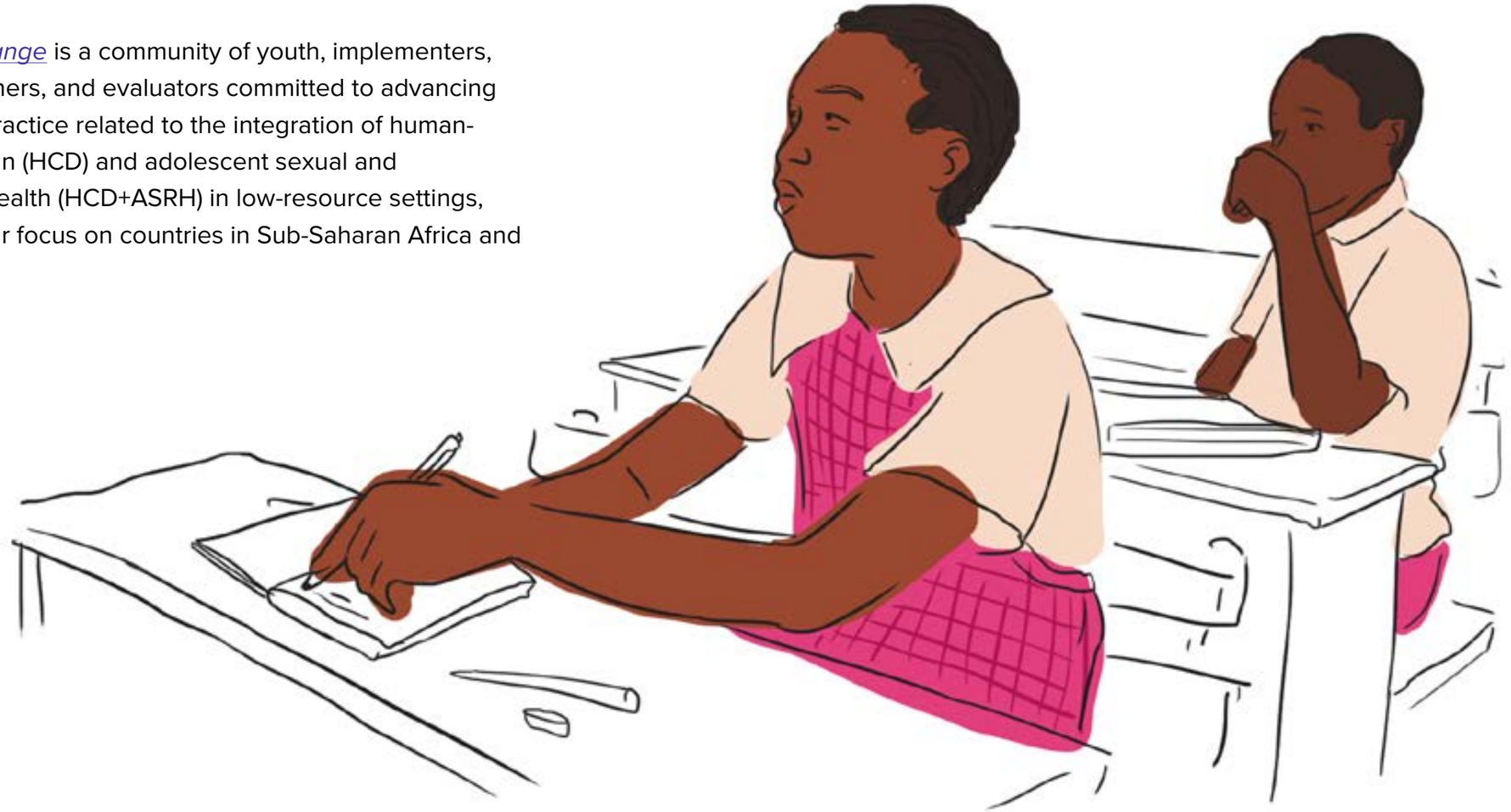
Foreword

The *HCDExchange* is a community of youth, implementers, funders, designers, and evaluators committed to advancing learning and practice related to the integration of human-centered design (HCD) and adolescent sexual and reproductive health (HCD+ASRH) in low-resource settings, with a particular focus on countries in Sub-Saharan Africa and South Asia.



Acknowledgments

We are grateful for the collaboration with the HCDExchange team and Measurement and Evaluation Working Group members in developing this report. This report is the result of a participatory process of generous input and feedback, supported by the HCDExchange team and members of the monitoring, learning, and evaluation (MLE) working group and supported by John Snow, Inc. (JSI).

The report's focus and contents were developed through a rigorous review of documents and resources curated, shared, and/or referred by the HCDExchange team, working group members, and Vihara's researchers. Also, a series of expert consultations and in-depth discussions with practitioners working in HCD+ASRH helped bridge gaps in analyzing and identifying other potential areas of learning.

Thank you Stephanie Wallach, Chris Larkin, Jordan Levine, Ipsa Agnani, Rimjhim Surana, Tasha Raman, Meghan Cutherell, Claire Cole, Reshma Trasi, Mohamad Brooks, Cecelia Angelone, Steve Kretschmer, Parinita Bhattacharjee, Marissa Becker, Shajy K Isac, Mary Philips, and Dhaval Kothari for taking time out to e-meet and share experiential insights from your respective fields.

Thank you, Monika Malviya, Suzanne Slattery, and Sue Carrington, for proofreading and copy-editing the draft of this report and bringing it to its final shape.

Our hope is that the learnings presented in this landscape review are useful for practitioners looking to invest in and undertake programs in the HCD+ASRH space.

Structure of the document

This report is organized into three parts:

Part 1 introduces HCDExchange and its rationale for focusing on measurement, learning, and evaluation (MLE) within HCD+ASRH programming. It then presents key learning questions and the methodology (illustrated through a process map) adopted for the rapid review and landscape review.

Part 2 provides a broad lay of the land, describing patterns observed across projects and MLE approaches adopted. Table 1 provides a brief overview of all eight projects reviewed, including MLE stakeholders, timelines, aims, and approaches. This is followed by case summaries of five selected projects, which include a brief introduction to the project; details on the purpose of MLE; approaches, frameworks, and tools employed; challenges encountered in specific phases and throughout the project; and reflections and learnings that emerged from documentation and interviews with project staff.

Part 3 discusses common challenges observed in applying measurement to HCD+ASRH programming and presents reflections and learnings from the small set of projects for which documentation and learning could be gathered.

Executive Summary

Introduction

Over the last five years, interest and investments have grown in applying human-centered design (HCD) approaches to adolescent sexual and reproductive health (ASRH) programming. As an approach, HCD puts users, their needs, desires, sensibilities, lived experiences, contexts, and preferences at the heart of the intervention development process (including insight discovery, analysis, ideation, iterative prototyping, and refinement) to build solutions that have a high likelihood of user engagement, acceptance, uptake, and impact for the user. Practitioners and experts deem that HCD has the potential to build empathy by bringing patient voice, user perspective, and innovation to construct and repair pieces of the intervention or health system to make it work in alignment with and in response to people's needs to achieve better health outcomes.[1, 2]

Despite the increased integration of HCD into ASRH, there is limited experience or documentation on the use of measurement in the design process to ground it in empirical evidence. Practitioners who have tried to introduce measurement have experienced challenges related to the qualitative, experimental, and iterative nature of HCD and expectations of methodological rigor that are common to public health programming.
There is a need to apply advanced measurement to effectively assess and evaluate HCD+ASRH programs, measure the design process, evaluate HCD's influence on program impact,

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and generate learning that can help assess and optimize the role of design in achieving health system and health status outcomes.

The *HCDExchange* community of practice is committed to advancing learning and practice related to integrating HCD and ASRH in low-resource settings, with a particular focus on countries in Sub-Saharan Africa and South Asia. In 2020, HCDExchange and the broader community of stakeholders identified and prioritized measurement and evaluation as one of four thematic learning domains[3] in HCD+ASRH programming. With growing interest in this field, HCDExchange focuses on advancing learning in two areas of measurement: 1) using measurement in the context of HCD+ASRH programming and 2) measuring the influence and impact of design. HCDExchange partnered with *Vihara Innovation Network* to conduct the first landscape review on measurement and evaluation as applied in HCD+ASRH programming. The main purpose of this report is to review and present existing literature in this emerging field and learn from the nature of experiences, challenges, and practitioners; extract themes; and identify critical gaps and unanswered questions to guide the direction of future learning inquiries.

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Learning objectives

Specific objectives of the landscape review of the measurement learning are to identify:

1. Examples of integrating measurement for HCD+ASRH
2. Evaluation approaches and frameworks/tools used for measurement, evaluation, and iterative learning for HCD+ASRH programs
3. Key metrics used for HCD+ASRH programs (inputs, outputs, outcomes)
4. Key challenges in applying measurement and evaluation strategies to HCD+ASRH programs
5. Critical gaps, challenges, and questions that remain unanswered so as to guide future areas of inquiry

Learning questions

The two overarching learning questions that guided the landscape review are as follows:

1. How have measurement and evaluation been integrated into HCD in the context of ASRH programming?

2. How have design and its value been measured and assessed in HCD+ASRH programming?

Methods

The team conducted this landscape review over three months, applying qualitative research methods to gather evidence on MLE in HCD+ASRH from experts and publicly available literature.

Steps taken included:

- A rapid review of publicly available literature, technical briefs and program documents, representing eight selected programs to inform the analysis.
- Categorization and synthesis of literature on the basis of learning questions and sub-questions.
- A rapid review of shortlisted documents following the HCDExchange *Practical Guidance for Rapid Review.*
- *Phased expert interviews with 17 experts with experience in HCD+ASRH MLE to supplement information from the secondary data.*
- *A thematic analysis and case summary analysis to distil challenges, reflections, and key findings.*

Limitations and mitigation

Measurement of HCD+ASRH is an emerging field. Documentation and literature from which to draw on when conducting a landscape analysis are sparse. Eight projects were fully analyzed, as they presented important learnings at the intersection of HCD, ASRH, and MLE. Literature in the public domain was also limited. In addition, the terms and concepts used by implementers, evaluations, and HCD specialists in this work were inconsistent, requiring researchers to compare, triangulate, and reconcile inputs during analysis. The analysis relied on a small number of cases that were available and drew from multiple rounds of expert and program manager consultations to synthesize findings and learnings.

Lay of the land

The rapid review identified three categories of projects in the HCD+ASRH space, including:

1. projects that used HCD for ASRH programming and completed MLE, including published endline,[4, 5, 6, 7, 8]
2. projects that employed HCD for ASRH programming that had ongoing MLE with no published endline,[9, 10, 11] and
3. projects (pilots or design challenges) that undertook ASRH programming with high levels of youth integration, adopting some principles of HCD without the explicit adoption of the HCD approach and undertook a mix of traditional or atypical MLE.[12] Other ASRH projects identified for the review adopted HCD approaches but did not incorporate or budget for MLE.[13, 14, 15]

Most of the projects applied process assessments to measure HCD+ASRH project outputs and outcomes where HCD was embedded within the implementation strategy (in some cases, other disciplines were also a core part of the implementation strategy).[16] Only one project intended to document and explore whether and how design works; its feasibility, potential, and limitations; and factors impacting its successful use.[17] No project explicitly applied measurement or evaluation with the intention of assessing the influence of design and its pathway to outcomes. None of the projects used measurement to gather data that would be fed back to strengthen early design decisions with a view of strengthening the design process and decision-making. All projects were evaluated to understand the effectiveness of

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the final solution or outcome, the impact generated, and the process of the intervention itself. Most of the evaluations assessed the impact of the intervention on the target community.[18] One of these evaluations went a step further to assess how the intervention had changed the target populations' intention of using contraceptives, in one instance. A few projects that documented the results of the evaluation highlighted only the overall benefits of the intervention or the ways in which youth found the program beneficial because of the added layer of design and its ability to make programs relevant, interesting, and exciting to youth and adolescents.

In sum, the landscape observed that most projects applied mixed-methods measurement and evaluation strategies and adopted HCD-inspired frameworks and tools within MLE. Adolescents360 (A360) adopted continuous measurement across the program cycle using techniques such as participatory action research (PAR), report cards, user journey frameworks, and sounding workshops[19] alongside more traditional MLE approaches.

A360[20, 21] used a user journey framework to structure its evaluation and explore implementation. Cross-sectional survey designs were blended with a one-stage or two-stage cluster sampling design along with secondary analysis that consisted of dose-response and secular trends analysis.[22] In Itad and Hewlett's evaluation of Future Fab and Diva Centres project, mixed methods, such as key informant interviews (KII), were used along with country visits that incorporated field interviews, focus groups discussions (FGD) with beneficiaries, journey mapping, and force field workshops.[23] The (re)solve project applied mixed methods using cluster randomized trials with blended quantitative and qualitative techniques in the baseline and endline.[24] Interventional critical trials fed back into the scale-up and the piloting period of implementation.

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Challenges in measurement in HCD+ASRH

Analysis revealed six challenges as the most fundamental and common related to applying measurement and evaluation in the context of HCD+ASRH:

Challenge #1:
Lack of frameworks to define the influence of design in ASRH programming (for instance, the absence of a mutually agreed theory of change).

Challenge #2:
Lack of metrics to track the influence of HCD (the inability to systematically track influence of HCD processes, such as empathy building and user-centric solution development), leading to poor understanding of the role of HCD in ASRH programming.

Challenge #3:
Limited documentation of HCD processes and decision-making in the program cycle, which has been attributed primarily to HCD's inherently fast-paced and iterative nature.

Challenge #4:
Lack of standard measurement to inform the early phases of design decision-making. This has been signaled in the lack of instances of the use of MLE in the design phase to inform the evolution of prototypes and related decisions that would support implementation and scale-up.

Challenge #5:
Methodological challenges ranging from a) integrating traditional impact evaluation into HCD-led projects, b) evaluating the influence of specific approaches in cross-disciplinary projects, c) observing research fatigue among study participants due to repetitive solicitation of experiences through multiple teams, and d) lacking the time and space to discuss, reflect, and incorporate monitoring and evaluation (M&E) findings into the subsequent phases, leading to limited uptake of findings.

Challenge #6: Integration of design and measurement, which relates to challenges around the effective use of MLE in HCD+ASRH programming.

Discussion and key lessons learned

When HCD approaches are applied to public health, they change the fundamental nature of programming and measurement, presenting challenges and opportunities for the field. Evidence shows the need for the field of measurement to build a set of evolved and integrated approaches to measure design-led programs that are often creative, experimental, and iterative, which have hitherto challenged traditional measurement.

HCD's influence on a program's impact needs to be understood through measurement, which can in turn inform its application within global health to attain desired health outcomes. Evidence points to gaps in design practice, specifically in its ability to link design priorities and indicators with traditional public health indicators and account for these in its approaches. It would be ideal to develop a symbiotic relationship between design and measurement, i.e., by improving design practice and outputs through continuous integration of measurement learnings. This can also be accomplished by using design inquiries to flow feedback to enhance measurement indicators (attune them closely to user priorities), along with incorporating new user-centered techniques of learning into measurement practices. Making space for resourcing and grant flexibility toward continuous integration of design and measurement are critical to achieving better outcomes and establishing impact pathways.

Given the nascency of the field and paucity of literature on measurement and evaluation of HCD+ASRH, it is too early to make definitive recommendations or define best practices. Analysis of a small set of program experiences in this landscape review yielded a set of early reflections, learnings, and some steps to mitigate

challenges to advance measurement and evaluation in the context of HCD+ASRH programming.
These include:

1. Planning for integration of design and MLE across all programmatic stages
2. Considering intermediate outcomes indicators that emerge from HCD processes
3. Managing cross-disciplinary approaches, methodologies, and indicators
4. Using adaptive M&E approaches
5. Framing the value of design before undertaking assessments
6. Integrating practices

Future areas of learning

This analysis proposes the following areas for future research for this learning domain:

- Investigate the linkages between design priorities and indicators and public health measurement indicators. In particular, consider how metrics from each discipline might strengthen the overall approach to MLE.

- Explore opportunities to create hybridized practices across MLE+HCD+ASRH. Specifically, build on learnings at the nexus of these disciplines and apply them to future programs.

- Study design and measurement within the context of adaptive implementation.

- Address the question, what kinds of processes can bring together youth integration, measurement, and HCD to encourage more accountable power shifting and effective programming?

Acronyms

A360 - Adolescents 360

ADAP - adolescent development and participation

ASRH - adolescent sexual and reproductive health

AYSRH - adolescent and youth sexual and reproductive health

CEA - cost effectiveness analysis

CTM - creative tension memo

D/R - decision/reflection

FGD - focus group discussion

FP - family planning

GEE - generalized estimating equations

HCD - human-centered design

HCD+ASRH - human-centered design and adolescent sexual and reproductive health

IDI - in-depth interview

JSI - John Snow, Inc.

KII - key Informant Interview

M&E - monitoring and evaluation

mCPR - modern contraceptive prevalence rate

MEL - monitoring, evaluation, and learning

MLE - measurement, learning, and evaluation

MSK - Marie Stopes Kenya

MTR - mid-term review

NGO - non-governmental organization

OE - outcome evaluation

PAR - participatory action research

PE - process evaluation

PEER - participatory ethnographic evaluation and research

PPAZ - Planned Parenthood Association of Zambia

PSI - Population Services International

RH - reproductive health

SRH - sexual and reproductive health

SS - Smart Start Program

SVA - School of Visual Arts

ToC - theory of change

UNDP - United Nations Development Program

UNICEF - United Nations Children's Fund

USA - United States of America

Glossary of Terms

Adolescents[25]
Any person between the ages of 10 and 19.

Co-design
A process of creating solutions along with the users you're trying to affect. Activities can be used to define a complete solution or just to gather input and feedback on small features of products or services. *Related terms: Co-creation, participatory design.*

Design
The process of developing informed, sensitive, inclusive, purposeful, and innovative solutions that embody functional and aesthetic demands based on the needs of the intended users and their ecosystem. Design is applied in the development of goods, services, processes, messages, and environments. *Related term: Human-centered design.*

Design thinking
An approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success. Design thinking, skills, and practices should be thought of as being appropriate to all disciplines, including design.

Insights
Ideas or anecdotes expressed as succinct statements that serve to interpret patterns in research findings. Insights offer a new perspective, even if they are not new discoveries. They are inspiring and relevant to the design challenge. *Related term: Sensemaking, synthesis.*

Human-Centered Design (HCD)
The process of integrating human perspectives in all steps of the problem-solving process. The aim is to better understand an issue from the human perspective and focus on how it looks and feels to users and stakeholders within their environment and context.

Prototype
A model or artifact built to test a concept with users to learn from them. A prototype helps designers understand, explore, and communicate what it feels like to engage with a solution in real working conditions rather than theoretical conditions. Prototypes can be used to test and refine concepts.

Participatory design
An approach that invites stakeholders such as clients, users, and community members into the design process to ensure that a design meets the needs of those it is serving. It is a type of social research in which the people being studied have significant control over participation, collaboration, and agency to increase buy-in.

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User journey

A journey map that focuses specifically on representing the experience of the user. It is shown as a series of touchpoints along a scenario in which a user interacts with the product/service/program/systems being designed. User journeys demonstrate the way users are currently interacting with, or could interact with, the solution. *Related term: journey map.*

Youth

People between the ages of 10 and 24.

Youth Integration

Practice of involving young people (ages 10–24) in designing and implementing HCD and adolescent sexual and reproductive health (ASRH).

Introduction

Over the last decade, interest and investment have grown in applying human-centered design (HCD) to address adolescent sexual and reproductive health (ASRH) and other global health challenges. Yet learning on applying measurement and evidence related to HCD+ASRH programs is limited and remains an underdeveloped area of study, theory, and practice.

HCDExchange as a community of practice is committed to advancing learning and practice related to the integration of HCD and ASRH in low-resource settings, with a particular focus on countries in Sub-Saharan Africa and South Asia. In 2020, HCDExchange and the broader community of stakeholders identified and prioritized measurement and evaluation as one of four thematic learning domains[26] in HCD+ASRH programming. In line with the *Framing of the Learning Agenda in HCD+ASRH*, developed by HCDExchange in collaboration with the community, this learning domain seeks to answer the following framing question:

How to integrate measurement effectively in HCD+ASRH for documentation, informing HCD+ASRH processes, and assessing influence and impact?

It therefore focuses on two main topics:

- The use of data in HCD+ASRH
- Measurement strategies for documenting and evaluating HCD+ASRH

Learning for this domain will ensure that the evidence gathered informs future design processes, program approaches and adaptation, accountability, and reporting in HCD+ASRH projects. Learnings from the larger domain could be used in the future to guide measurement strategies, including use of metrics for routine progress monitoring in HCD+ASRH and for linking HCD+ASRH interventions to ASRH outcomes.

Hence, HCDExchange partnered with *Vihara Innovation Network* to conduct a first landscape review on measurement and evaluation as applied in HCD+ASRH programming, with the key purpose of reviewing and presenting existing literature in this emerging field, learning from the nature of experiences and learnings experts have had, extracting themes, and identifying critical gaps and unanswered questions to guide the direction of future learning inquiries. Findings from this landscape review are outlined in this report.

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Learning Objectives

The specific objectives of the landscape review of measurement and evaluation in the context of HCD+ASRH programing are to identify:

1. Examples of integrating measurement in HCD+ASRH programming
2. Evaluation approaches and frameworks/tools used for measurement, evaluation, and iterative learning for HCD+ASRH programs
3. Key metrics used for HCD+ASRH programs (inputs, outputs, outcomes)
4. Key challenges in applying measurement and evaluation strategies to HCD+ASRH programs
5. Critical gaps, challenges, and questions that remain unanswered so as to guide future areas of inquiry

Learning Questions

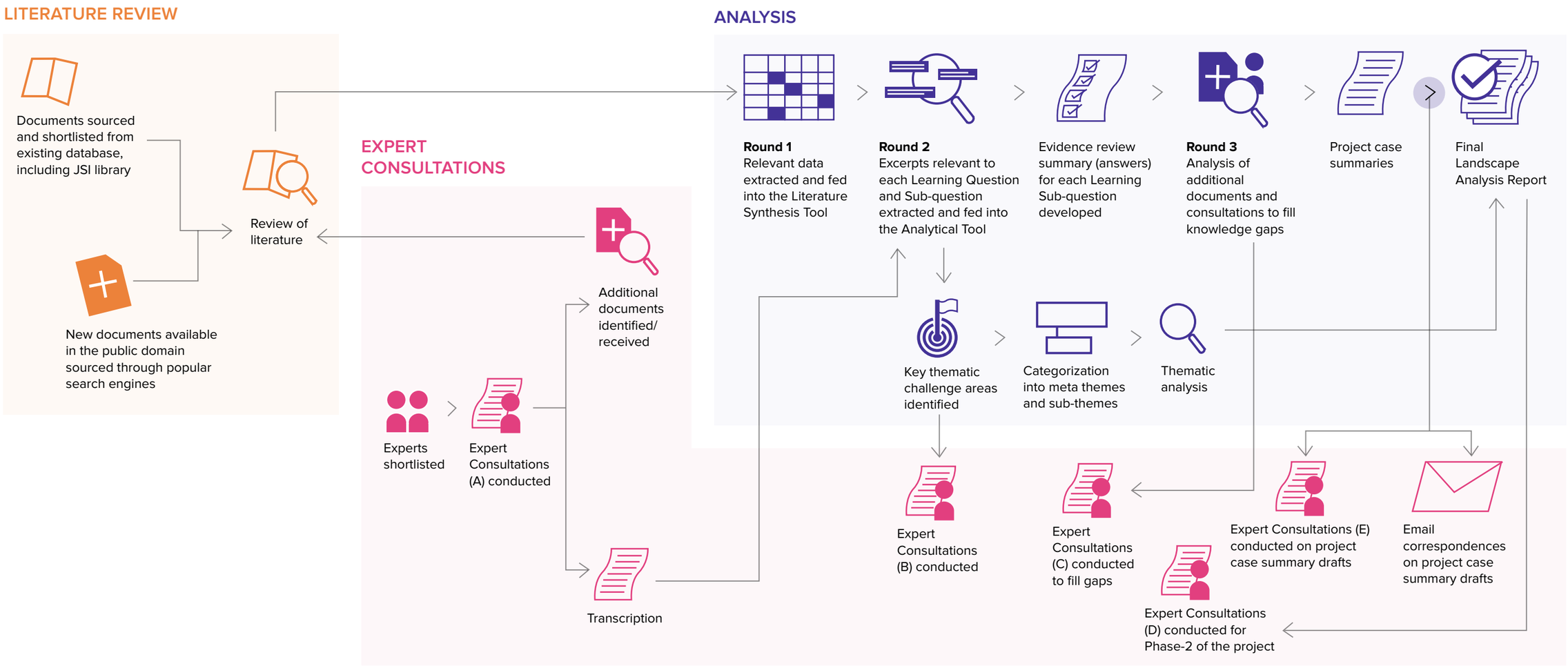
The two overarching learning questions that guided the landscape review are as follows (Annex 1):

1. How have measurement and evaluation been integrated into HCD in the context of ASRH programming?

2. How have design and its value been measured and assessed in HCD+ASRH programming?

Methodology

Process map of the methodology



This landscape review took place over ten months and applied qualitative research methods to gather evidence from primary and secondary data sources. To inform the analysis, the team curated and conducted a rapid review of 47 documents available in the public domain. To supplement information provided from secondary data, the team also conducted a phased series of 17 expert consultations with individuals working with key HCD+ASRH programs. Information gathered and experiences included in the analysis were drawn from projects and initiatives in the regions of Sub-Saharan Africa and South Asia. To synthesize and distill information presented in this report, the team also conducted a thematic content analysis.

Rapid review

The team conducted a rapid document review over seven months, beginning in May 2021 and ending in November 2021. Documents were initially curated by JSI's research advisory service to reflect projects relevant to the fields of HCD, ASRH, youth integration, and measurement. To accelerate learning and supplement existing resources in the HCDExchange database, the team independently curated additional resources available in the public domain to build a knowledge bank for learning in MLE in HCD+ASRH. Search terms employed on Google's search engine were phrases such as *HCD adolescent health projects*, **HCD adolescent health**, and *HCD adolescent health measurement* and words such as *measurement evaluation HCD* and *HCD adolescent evaluation*. Internet searches were done through the PubMed electronic database and Google Scholar. Gray literature, e.g., reports, academic theses and dissertations, conference material, and work-in-progress journal papers were searched for, from electronic sources, i.e., Google. Resources reviewed to inform and generate evidence for the analysis included published and gray literature, tools, learning products, reports, and technical briefs. The final list of projects and documents was reviewed jointly and agreed upon with the HCDExchange team. Literature was then categorized and synthesized based on the learning questions and sub-questions to guide the analysis.

The team identified 16 project examples and four articles written by subject matter experts in HCD+ASRH and MLE. After a thorough screening process, eight project examples and three expert articles were shortlisted and reviewed for this landscape study. Literature included project and expert resources, undertaken or developed from 2011 to 2021 that adopted HCD processes or approaches in ASRH programs that

also included measurement, learning and/or evaluation of the process or the outcomes. In addition to projects that had all three elements of HCD, ASRH, and measurement, researchers also reviewed design challenges and pilot projects of relatively shorter durations. For the shortlisted eight project examples and three expert articles, 47 documents were identified and finally reviewed. The documents included case studies, i.e., documentation in the form of articles, presentations, learning documents, and downloadable PDF files that provided an overview, summary, findings, and conclusion of individual projects. Academic articles on M&E that were not project-centric were a key component. Policy recommendation documents by organizations were also included in the review, which functioned as an omnibus of the entire project and its various elements. These documents did not have a specified author; rather, they were launched through their organizations and have been cited as such.

The team carried out a rapid review process of these shortlisted documents by using the HCDExchange *Practical Guidance for Rapid Review*. Once reviewed, a literature synthesis spreadsheet tool was used to systematically extract and log relevant text from resources that were related to the learning topic, including the highlighting of gaps.

There are a limited number of ASRH projects that applied HCD and also conducted and reported on MLE strategies and outcomes. In this rapid review, the team analyzed three complete projects. The completion is marked by the successful finishing and documentation of the endline in publicly available documents. These projects were: A360, (re)solve, and ITAD and Hewlett's evaluation of Diva Centres and Future Fab. The second category of projects that was analyzed included two ongoing evaluations of ASRH projects using HCD: CyberRwanda and Beyond Bias. Due to the dearth of project examples and the need to explore measurement approaches that could be relevant to HCD, the team extended the search to include a third category of projects that had substantial youth integration (short-term projects, pilots, or design competitions), adopted HCD principles, and included an MLE component. These were: UNICEF's Kosovo Project, Oxfam's Young@Heart, and Adjumani Design Challenge.

Phased expert consultations

The phased expert consultations took place over seven months from June to December 2021. The HCDExchange Partner Database served as the key sampling frame for identifying and recruiting the respondents to inform the landscape review. The research team sought also to identify alternative contacts to interview from organizations that were not within the partner database, through recommendations made by respondents or the HCDExchange team. Purposive sampling was used to review the HCDExchange members directory and shortlist and create a list of potential interviewees based on an inclusion criterion (see Annex 2). The HCDExchange Secretariat supported shortlisting experts for consultations. Target respondents included experts and practitioners with expertise in MLE and/or HCD+MLE who have been involved with various ASRH projects. A total of 17 experts were interviewed in a phased manner. Researchers studied the background profile of the experts and consulted with HCDExchange to develop a list of bespoke topics areas (per expert) that they would be best suited to reflect on, given their specific expertise and unique experiences.

For the first phase of consultations, the team shortlisted two experts to reflect on their participation in two key projects (HCD+ASRH projects that completed MLE). These consultations were designed as semi-structured dialogues where experts were encouraged to pick examples from these projects, explain the processes undertaken, and ground their sharing of key challenges, learnings, and solutions in the real-time experience of these projects. They were then encouraged to reflect, extrapolate, and nominate specific themes that they considered important for this domain for further inquiry. Supplementary information that came from these expert interviews helped curate an additional set of resources, containing knowledge pertinent to the learning questions and filling gaps in the literature.

These readings were added and simultaneously reviewed for analysis.

Then, the team held another set of consultations with five experts who were presented with the shortlisted thematic challenges emerging from the early-stage rapid review analysis. They helped verify, deepen, and refine the identified themes. This set was followed by consultations with two program officers who were asked targeted questions to help fill remaining gaps in the literature through their first-hand knowledge and experience in project examples included in this landscape study. As part of Phase 2 of the consultation, researchers conducted some interviews simultaneously for building tools for the shortlisted themes. Key insights from these interviews have also been included in this landscape analysis. The team held a final set of consultations, and corresponded by email, with two program officers to verify and refine case summaries for their respective projects.

These one-hour-long sessions were guided by a semi-structured interview tool (Annex 3), and information was captured using digital audio recordings, which were transcribed and stored in Google Drive. White papers, briefs, and reports that were not readily available in the public domain were requested and used.

Documentation and blended analysis

Analysis of literature: All 47 curated documents included in the landscape review underwent a rigorous critical appraisal process that included three steps:

1. Vetting and sorting projects identified and entering key elements of each project, including project summary, study objectives, evaluation framework, methods, outcomes, measurement indicators, and additional findings, into a tabular literature synthesis sheet.

2. Using a separate analytical tool (analysis spreadsheet), in which each learning question and sub-question was answered by first plotting relevant extracted data from across all projects, then reviewing and analyzing these extracts, summarizing them by learning question.

3. Analyzing additional documents received after the third and fourth round of consultations and using them to build short case summaries for each project example included in this landscape study.

Analysis of expert interviews: The consultation transcript was produced by combining manual and transcripts from Otter.ai. Transcribed data were documented in Google Docs and stored on a shared internal Google Drive, accessible to the internal learning teams. Interview transcripts were highlighted to select key segments and sections that answered learning questions and sub-questions and provide key learning and insights relevant to the domain overall. Data from these consultations supplemented the literature review findings in arriving at key learnings and themes.

Thematic analysis

The analysis sheet triangulated data from the literature review and expert interviews to answer each learning question, sketch the measurement and evaluation landscape, and identify gaps. The sheet was then reviewed to mark and surface emerging themes. Spreadsheet and Miro[27] were used to cluster similar thematic groups, discard weak themes, and retain and refine strong and prevalent ones, which were eventually outlined into meta themes and sub-themes. These themes represent key prevalent technical or operational challenges practitioners face related to measurement and evaluation in HCD+ASRH programming.

The research team conducted thematic analysis, within the structure of the landscaping, to inform the findings of the landscape review and guide development of technical briefs and practical public goods and assets that practitioners can use to understand and overcome challenges faced previously.

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Limitations and mitigation

Measurement in HCD+ASRH is an emergent domain and is in its nascent stages. Due to the paucity of documentation and literature on M&E within projects, tracking how decisions were made, indicators were set, and measurement and evaluation were conducted was challenging. The disciplines of MLE, HCD, and ASRH come from vastly different ideologies, vocabularies, and methods and have not yet been reconciled; therefore, established tools and templates with inputs, outputs, and outcomes are not widely available in the literature. Limitations on the amount of literature in this area also made it difficult to conduct traditional pattern analysis. Each project had to be assessed in its own universe to understand where and how HCD and MLE were experimented with and applied and therefore this document presents findings within the framework of analytic case summary. There was also a dearth of peer-reviewed papers that could add to the pool of literature, and therefore the team relied on expert consultations almost as much as written documentation to determine the dominant themes. Although researchers started out with a set of learning questions, certain questions had to be tweaked and adapted to the reality illustrated by the literature. Researchers could only access documents that were available in the public domain, as the rapid review was conducted in a two-month time period.

Application of Measurement in HCD+ASRH

Lay of the land

Every public health program has some form of MLE. Not all programs make a large effort in MLE, barring exceptions (such as A360). This landscape review explores how HCD+ASRH address MLE and what they manage to measure and evaluate in the duration of a program. In ASRH programming, projects that incorporate HCD and invest in significant MLE are scarce. However, among the programs reviewed in the landscape, various levels of investment in MLE were found. Three HCD+ASRH projects—A360, (re)solve, and ITAD and Hewlett's evaluation of Diva Centres and Future Fab—were found to have completed MLE (including a published endline). One HCD+ASRH project (Beyond Bias) is yet to publish its endline evaluation and therefore only the MLE design was analyzed. At the time of this review, one HCD+ASRH project studied (Cyber Rwanda) had not yet undertaken mid and endline assessments and only the MLE approach was analyzed for this landscape study. We identified other projects that adopted HCD approaches to develop ASRH solutions (e.g., Game of Choice not Chance), but they did not incorporate MLE and were excluded from this rapid review. Three projects (UPSHIFT's Kosovo, Adjumani Design Challenge, and Young@Heart) were considered inspiration projects, as these projects deeply integrated youth within implementation and measurement and adopted principles of design-led programming without explicitly employing HCD approaches.

Most projects incorporated HCD alongside other disciplines as a core part of the implementation strategy. Most of the projects applied process assessments to measure HCD+ASRH programming where HCD was embedded within the implementation strategy. Only one project intended to tease out whether and how design works in practice, its feasibility, potential

and limitations, and factors impacting its successful use. No project explicitly applied measurement or evaluation with the intention to tease out the influence of design along the pathway to outcomes. Measurement was also not applied in any of the projects to feed back into the early phases of design with a view to strengthening the design process and decision-making.

All projects were evaluated to understand the effectiveness of the intended program outcome and the process of the intervention itself. Most projects assessed the impact of the intervention on the target community. One evaluation went one step further to assess how the intervention had changed the target populations' intention of using contraceptives.

Four of the eight projects used the following evaluation types:[28] outcome evaluation (A360[29, 30, 31]) process evaluation (A360[32, 33, 34] and Itad-Hewett), impact evaluation (CyberRwanda[35] and (re)solve[36]), and formative evaluation (UPSHIFT's Kosovo Program[37]).

Two of eight projects used other evaluation approaches in combination with the ones mentioned above. Itad undertook a utility-focused evaluation,[38] a framework developed to evaluate the usefulness of the program to the intended users.[39] Along with process and outcome evaluation, A360 also conducted a cost-effectiveness evaluation to understand the main cost-drivers for the cross-disciplinary approaches for different geographies.[40, 41, 42] One out of the eight projects (Beyond Bias) planned an interventional clinical trial, which was employed for its evaluation cycles.[43]

Three of eight projects reported using a "mixed-methods" approach to measurement and evaluation. An emergent methodology, a mixed-methods approach advances systematic integration of "quantitative and qualitative data within a single investigation or sustained program inquiry."[44] Integration of this kind permits "a more complete and synergistic utilisation of data than do separate quantitative and qualitative data collection and analysis."[45] A360's cost-effectiveness evaluation aimed to measure costs and effectiveness with a focus on the outcome evaluation in three geographies.[46, 47, 48] The adaptive implementation phase evaluated the project activities and outputs as well as undertook mixed-method monitoring, including client exit interviews, data and clinical quality audits, and impact and outcome evaluation.[49] Project (re)solve's impact evaluation used mixed-methods cluster randomized trials in the baseline, midline, and endline.[50] Longitudinal quantitative

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surveys in intervention schools and with control populations (baseline and endline only) were conducted.[51] This survey was conducted alongside longitudinal in-depth interviews in intervention schools in baseline and endline. The project supplemented surveys with endline qualitative interviews with implementation staff and key informant interviews (KIIs) with experts and authorities.[52] The UpShift Kosovo Program's evaluation process used a mixed-methods approach that drew on four sources of information across stakeholders: 1) documentation of policies, donor reports, and external research; 2) secondary quantitative and qualitative information of national-level demographic indicators, program indicators measurement, and UNICEF's internal data sets; 3) primary qualitative data collected through a youth tracer study using youth surveys; and 4) primary qualitative information from interviews.[53]

Of the eight projects reviewed, two reported using no comprehensive evaluation approach.[54, 55] These projects did not use typical evaluation frameworks or techniques, but rather curated qualitative feedback from youth and other stakeholders around perceived benefits of and experience with the project to showcase project success. Adjumani Design Challenge, a project that was aimed at bettering youth engagement of refugees to integrate them into the economy of their host country, provides one such example.[56, 57, 58] Remarks of higher officials who were part of the training were used as markers for measuring the impact of the program in the short-term. The design challenge led to the development of community solutions (farming tools, sanitization products, financial planning tools) and the income incurred through the program was used as a measurement of the program's success.[59] Young@Heart, a project that aimed to put youth at the heart of project design, implementation, and evaluation, introduced evaluation techniques that helped youth measure their peers' ability to raise their voices on the problems that concern them with respect to their communities. Youth were trained in techniques that helped them use smartphones, cameras, voice recorders, and survey questions to interview their peers.[60]

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Brief overview of MLE approaches across projects (Table)

Table 1 below describes each of the eight projects reviewed, the focus of MLE and MLE approaches and frameworks adopted.

S. No	Project name	Project description	Type of evaluation and stages when M&E was applied	Aim of the evaluation	MLE approach and framework
Projects that have all components of HCD, ASRH, and MLE and have completed evaluation (i.e. including published endline)					
1	Adolescents 360 (A360) Ethiopia, Nigeria, Tanzania Evaluator: Population Services International (PSI)	A360 worked to design and deliver interventions that increase demand for and use of contraception among adolescent girls aged 15–19 in Ethiopia, Nigeria, and Tanzania.	Process evaluation included four rounds of data collection over the period of 2016–2017 in two regions and one municipality of Ethiopia; Oromia, Amhara, and Addis Ababa.[61] It was done across all stages (planning/problem definition, design, implementation, and scale). Outcome evaluation twice, before implementation in late 2017 and 24 months after implementation in 2019.[62, 63] Cost-effectiveness analysis after the implementation phase.	The external outcome evaluation assessed the impact of A360 on a set of primary and secondary outcomes among sexually active girls aged 15–19, including modern contraceptive prevalence rate (mCPR), unmet need for contraception, and agency to use and attitudes toward contraceptive methods. The external process evaluation was intended to complement this outcome evaluation, presenting an account of how A360's implementation has played out to	Process evaluation (PE) uses a theory-based approach that included country-level data collection aligned with all A360 phases; global data collection encompassing interviews with key stakeholders; and introduction of participatory action research (PAR) activities in 2018. Adjustments were made to the PE approach and methods at the scale phase that included adopting a United Kingdom Medical Research Council framework; and using "user journeys" as a tool to explore implementation, mechanisms, and context at the solution level.

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			Midterm review evaluation after implementation phase in 2019.	improve understanding of how and why A360 is making a difference and generate lessons for future policy and practice. The external cost-effectiveness analysis examined the main cost drivers of the A360 approach and examined what it cost A360 to achieve increases in use of modern contraception and other associated measures of program effectiveness.	Outcome evaluation (OE) used pre-and-post-population-based, cross-sectional survey design, a one-stage cluster sampling design in Nigeria as well as Ethiopia, and a two-stage cluster sampling design in Tanzania. A baseline survey was conducted in late 2017 before the start of the main A360 implementation phase, and the endline in early to mid 2020. Secondary analyses: dose-response and secular trends. Cost-effectiveness analysis (CEA) included measurement of costs and effectiveness focused on the outcome evaluation study geographies; effectiveness was measured using indicators developed for the outcome evaluation—primarily mCPR. Mid-term review (MTR) evaluation answered MTR questions and made recommendations for A360 and replication based on synthesis of findings and mapping learning points and implications (from PE, OE baseline findings, CEA, and MTR survey) and presented draft findings and learning points to PSI.

2	Itad- Hewlett evaluation of Diva Program and Future Fab Kenya and Zambia Evaluator: Itad	Beginning in 2013, this project worked toward applying HCD to improve family planning and reproductive health (FP/RH) services for adolescent girls in Sub-Saharan Africa, which resulted in the Diva Program in Zambia and Future Fab in Kenya in 2015. In 2017, an independent evaluation of these programs was conducted in the two countries.	An independent evaluation was conducted in 2016–2017 between the implementation cycle of the Diva Program in Zambia and Future Fab in Kenya.[64]	Feasibility, potential, and limitations of HCD as an approach, value added by different components of the HCD approach, capacity needed to introduce and implement HCD, contextual factors that enable and inhibit the successful use of HCD. To respond to the needs of primary audiences and inform future investments in HCD strategy. Generate findings and recommendations that inform other stakeholders of the applicability of HCD for FP/RH and other social sectors.[65]	Utility-focused evaluation (UFE) grounded in testing the theory of change model and answering top-level, framing evaluation questions. For evaluation question data collection, methods used were: document review (200 docs, emails, slides), KII (80 with country and global stakeholders from the Foundation, MSI, IDEO.org and others involved in HCD), and country visits (Kenya and Zambia—field site visits, interviews, focus group discussions (FGDs) with beneficiaries, journey mapping, and force field workshops). Analytical methods used included contribution analysis, force field analysis, organizational development and external environment analysis. Various phases of the evaluation include articulating the theory, documenting practice, analysis and synthesis, and engagement and use.[66]
3	(re)solve Ethiopia, Bangladesh, Burkina Faso Evaluator: Pathfinder	This is a four-year cross-disciplinary project that used data on and insights into women's and girls' barriers to contraceptive use and nonuse to design and test a unique solution set	Impact evaluation wherein baseline data collected from November 2019 to January 2020, midline data between January and February 2020, and endline data in July 2020 over the phone due to COVID-19 (was scheduled for	Evaluate whether (re)solve package of solutions changed girls' intention to use contraception, along with other behavioral and attitudinal outcomes. It aimed to evaluate the implementation process to understand how solutions were carried out and how it was	Impact evaluation[69] used a mixed-methods cluster randomized trial design with the following methods: 1. Baseline/midline/endline longitudinal quantitative surveys with a cohort of girls (14–18) in 4th and 3rd intervention schools and baseline/endline

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	International	in each country.	March, but was delayed).[67]	perceived by stakeholders.[68]	longitudinal quantitative surveys with the same population in control schools. 2. Baseline/endline longitudinal in-depth interviews with girls (14–18) in 4th and 3rd intervention schools. 3. Endline qualitative interviews with implementation staff. 4. Endline KIIs with experts and authorities. Also, collected impact of COVID-19 on the endline responses.
Projects that have all components of HCD, ASRH, MLE and have either not completed midline/endline or the evaluation results have not been made publicly available. Therefore, the proposed evaluation design is outlined below for reference.					
4	Beyond Bias Pakistan, Tanzania, Burkina Faso Evaluator: BERI	This project aims at designing and testing scalable innovative solutions to address provider bias toward serving youth aged 15–24 with family planning services in Burkina Faso, Pakistan, and Tanzania.	The evaluation is yet to happen. One year of implementation is complete, along with preliminary evaluation, but results will be publicly available in early 2022.	Evaluate the impact of intervention designed to reduce service provider bias towards young, married, and nulliparous women in selected geographies. “Half of the eligible clinics in each country (233 in total) are randomly assigned to receive the intervention, while the remaining half serves as control. The objective of the evaluation is to estimate the impact of the intervention on a range of outcomes related to quality of family planning care among young, unmarried, and nulliparous women.”[70]	Interventional clinical trial using randomized sampling. The pilot and evaluation together are scheduled to take place after the intervention design phase in three countries in 227 facilities, which in turn will inform the scale-up and pilot under implementation.[71]

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5	CyberRwanda Rwanda	CyberRwanda is a four-yearlong program, which aims at evaluating CyberRwanda intervention—a digital platform that aims to improve the health and livelihoods of urban and peri-urban adolescents (12–19 years) by supporting them at every step of their health care journey.	Midline and endline are yet to happen.	Evaluate two different school-based models of implementation to understand how to optimize the uptake of contraception and HIV testing amongst adolescents. Primary outcomes measured at the individual participation level include 1) uptake of modern contraception, 2) initiation of childbearing, and 3) HIV testing; along with data collection learning feasibility, acceptability, and implementation successes and challenges have also been proposed. Secondary objectives include measuring the impact of the intervention on a set of outcomes related to FP/RH in the following areas: knowledge, behavioral intentions, self-efficacy, social norms, and engagement in employment, education, and training.[72]	Evaluation to be conducted after a three-year intervention phase (2016–2019). A 24-month impact evaluation reportedly started in 2020 uses an experimental approach embedded in Proctor's implementation science framework. The three study arms include 1) CybeRwanda self-service, 2) CyberRwanda facilitated, and 3) control schools, which receive standard services available in the community. The evaluation uses hybrid trial type 2 effectiveness Implementation study design to determine the overall effectiveness of the digital intervention along with the relative effectiveness of two school-based implementation models, while answering two overarching policy-level questions. The second component is done through a three-arm cluster-randomized non-inferiority trial (sample of 6,000 youth 12–19 years in 60 schools across eight districts in Rwanda). Primary outcome measures: Use of modern contraception, delayed initiation of childbearing, and uptake of HIV testing.[73]

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Projects that have specific focus on increased youth integration and participation in programs, and employ various MLE approaches. These were either short-term projects, pilots, or design competitions, and were included to explore relevance of MLE from similar project types to HCD and ASRH programming.					
6	UNICEF Kosovo Program Kosovo Evaluator: UNICEF Europe and Central Asia Regional Office	The 2016–2020 Kosovo Program focused on the realization of children's rights, on closing the equity gap between majority and minority groups (Roma, Ashkali, and Egyptians), and on addressing gender, age, and geographical disparities (rural versus urban).	Formative end-of-cycle evaluation from January 2016 and March 2020.[74]	The evaluation assessed the totality of the Kosovo Program, focusing on the relevance of UNICEF's program portfolio and approaches taken (including cross-cutting issues and with special attention to youth-focused activities and their long-term impact), as well as UNICEF's position and priorities chosen in response to emerging needs and Kosovo's Institutional priorities. The findings and recommendations of this evaluation would strategically inform the implementation of the 2021-2025 Kosovo Program. The key evaluation criteria included relevance, efficiency, effectiveness, sustainability, and synergies. The tracer study conducted as part of this evaluation aimed to provide additional insights into the adolescent development and participation (ADAP) component, which was not evaluated thematically. It had a special focus on 3 project models employed	The evaluation process used a mixed-methods approach which drew on four general sources of information across levels of stakeholders: 1. Pre-existing documentation (policies, donor reports, external research) 2. Pre-existing quantitative or qualitative information (national level demographic indicators, program indicator measurement, UNICEF's internal data sets) 3. Primary qualitative information from interviews 4. Primary qualitative information (collected by the youth tracer study, e.g., youth surveys). Process was adjusted to account for COVID-19 and subsequent travel restrictions. As a result, the evaluation had to shift to a full remote approach wherein KIIs, FGDs, and surveys were done over virtual platforms. This led to extra organization and time management. A total of 121 KIIs,

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				with youth (UPSHIFT, PODIUM, and PONDER).[75]	32 youth cohort FGDs (tracer study), and an additional virtual survey to 4,000 participants (completed by 486 individuals) were conducted virtually.[76]
7	Young@Heart Uganda and Vietnam Evaluators: Beneficiaries (youth)	This project, commissioned by Oxfam, took a youth-centered approach and put young women and men at the heart of project design, implementation, and evaluation.	In the form of labs, time period not mentioned	The one-year pilot was implemented in Uganda and Vietnam, and was designed around three main "Labs": Exploration Lab, Innovation Lab, and Influencing Lab. This enabled young people to first identify the key issues limiting their potential and then develop action plans and collaborate with others in the community to make a positive difference. Specific aims and objectives of the evaluation component are not mentioned in the reviewed documents, nor are they publicly available.	During the Exploration Lab, groups of young people were trained on M&E techniques, and were equipped with smartphones, cameras, voice recorders, and survey questions."[77] Specifically in Vietnam, Ech Phu Ho joined Oxfam and the other organizations in the coalition for a day of reflection. This evaluation day was built into the initial project planning, which enabled all partners to identify the successes and challenges of the project, reflect on key issues that arose during it, and to mark its close.[78] This project saw Ech Phu Ho engage their audience on tax justice issues for the first time. This meant there was no existing baseline data on which to build a solid Monitoring, Evaluation, Accountability, and Learning, or MEAL, plan. During the evaluation day, participants reflected

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					that it would have been beneficial to have monitored engagement levels throughout the project, particularly any increase in interest from previously unengaged groups. However, there were no measurement indicators for what triggered young people to engage with the campaign, which are crucial for the project.[79]
8	Adjumani Design Challenge Uganda Evaluator: Beneficiaries (Youth)	This was a United Nations Development Program (UNDP)- initiated pilot of a youth design training that spanned three months in late 2016. Youth from South Sudanese refugee settlements and Ugandan host communities were guided through a complete HCD process focusing on stimulating the mindset, creativity, and confidence needed to turn challenges into opportunities for change.	Evaluation in-built with the intervention, but not explicitly mentioned.	Stimulation of entrepreneurial spirit among youth participants in Adjumani Design Challenge where employment opportunities were self-created and seen to be beneficial as well as a measurement of success. However, specific aims and objectives for evaluation are not mentioned in the reviewed documents.	No evaluation framework or methods were used as such. However, the success of the program and anecdotal evidence around program benefits have been documented, giving space for evaluation (especially long-term outcome measurement). For example, there was an acknowledgement that long-term effects could not be screened yet, but UNDP and local government and youth leaders were constantly trying to understand the "long-term benefits." The design facilitators witnessed increased motivation and persistence, resulting in successful implementation of 50 percent of the solutions designed by participants themselves.[80, 81]

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MLE approaches and learnings from select projects

Below are five case summaries that have been chosen to illustrate in detail the way the measurement and evaluation process was undertaken in the context of HCD+ASRH programming, and some lessons from each experience. In particular, these summaries showcase the integration of different approaches, methods, and techniques employed to meet the unique purposes of MLE for each project and the challenges and learnings from each experience. The case summaries are divided into two types: 1) projects that have all components of HCD, ASRH, MLE and have completed evaluation, including the endline which has been published and made available in the public domain; and 2) projects that have all components of HCD, ASRH, MLE and have either not completed midline/ endline or the evaluation results have not been made publicly available.

MLE approaches and learnings from select projects

Case 1: Adolescents 360

Project description

A360 was a four-and-a-half-year investment funded by the Bill & Melinda Gates Foundation and Children's Investment Fund Foundation (CIFF)[82] and implemented by PSI.[83] It aimed to design and deliver interventions that increase demand for and use of contraception among adolescent girls aged 15–19 in Ethiopia, Nigeria, and Tanzania.[84] A360's MERL strategy emphasized continuous quality program improvement to strengthen the project's interventions to better respond to adolescent girls' experiences and to generate impact. A360 applied HCD in its formative research phase to design resonant interventions. It then embraced adaptive implementation moving into its implementation phase as a way to retain a human-centered focus in implementation and continue to refine its interventions post-design phase.

The program integrates public health, adolescent developmental science, cultural anthropology, social marketing, meaningful youth engagement, and HCD to build country-specific AYSRH interventions. A360's key approach is the use of mixed-methods data collection strategies to support rapid course correction. This was done so that adaptations were informed not only by quantitative performance but also the experiences of girls, providers, and health system partners. Data sources that informed adaptation included routine performance data (generated primarily through government health management information systems), client exit interviews, mystery client surveys, youth PAR, and ethnographic research, among others.

Alongside these routine MLE processes, A360 was evaluated through external process, outcome, and cost-

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effectiveness evaluations implemented by Itad, London School of Hygiene & Tropical Medicine, and Avenir Health, respectively. A360's external outcome evaluation assessed the impact of A360 on a set of primary and secondary outcomes among sexually active girls aged 15–19—including mCPR, unmet need for contraception and agency to use, and attitudes toward contraceptive methods. A360's external process evaluation was intended to complement this outcome evaluation, presenting an account of how A360's implementation has played out to improve understanding of how and why A360 is making a difference and generate lessons for future policy and practice. A360's external cost-effectiveness analysis examined the main cost drivers of the approach and examined what it cost A360 to achieve increases in use of modern contraception and other associated measures of program effectiveness.

Approach to measurement and evaluation

The A360 project was designed to integrate measurement from the beginning across its four key phases: 1) inquiry, 2) insight synthesis, 3) prototyping, and 4) adaptive implementation. The funders commissioned an independent evaluation that "sought to answer whether an HCD process could deliver a larger program impact than 'standard normal' youth programming."[85] The program's external evaluation consisted of PE, quasi-experimental outcome, and a cost-effectiveness study. Measurement was undertaken to inform implementation and enable timely and evidence-based course corrections, assess program impact, generate learning on how to reach adolescent girls cost-effectively at scale, and to learn about how design works in practice.

Process evaluation: The primary aim of the PE was to "present a descriptive and analytical account of how the implementation of A360 has played out, with the aim of improving understanding of how and why A360 is making a difference, to generate lessons for future policy and practice."[86] The specific PE objectives were to: 1) provide analysis and learning to support adaptive management and course correction; 2) evaluate how the A360 approach played out in implementation; 3) investigate how A360 had interfaced with the different contexts in which it was implemented; 4) evaluate the

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experience of A360 among adolescents and community members and how it affected perceptions and opinions about adolescent use of contraception; and 5) investigate how solutions have been operationalized and their feasibility for scale-up and replication.[87] The PE, grounded in A360's theory of change (ToC), focused on four areas of inquiry: 1) process, 2) context, 3) experience, and 4) solution.[88]

The early phases of the PE focused on qualitative research generated through design research, data analysis, and interpretation and synthesis. Evaluators documented the design process (e.g., introducing prototyping report cards to gather multi-stakeholder feedback) to document and present the results and learnings of different design phases and assess them against set parameters: desirability, feasibility, sustainability, and scalability.

The PE adopted atypical methods inspired by HCD techniques. For instance, PAR was undertaken with the aim of assisting implementers in rapidly understanding beneficiaries' "actual experience" against the intended user journey.[89] PAR exercises were undertaken on an ad-hoc basis, in line with the needs of the implementing teams—through rapid, light-touch data collection and analysis, which were independently conducted by the evaluation team.[90] The program observed that methodologies such as PAR may identify PE questions that are more relevant for the implementers. Participatory youth research[91] was trialed in Ethiopia and Tanzania during the pilot and optimization phases, where girls were trained as peer researchers, engaged in co-creating interview questions, and encouraged to interview their peers about the A360 intervention. The group also undertook 1) critical group reflection methodologies to promote dialogue over findings between the peer researchers, 2) role plays to enhance understanding of the interview questions and consent process, as well as unpacking some of the issues raised through data collection, and 3) visual storytelling through the form of drawings to explore and validate the findings from the peer research. The team also adopted "report cards."[92]

The PE team adopted an HCD-inspired "user journey approach" to structure the approach to inquiry. This approach allowed them to assess how girls were navigating, experiencing, and benefiting from the intervention, which was seen to be very specific to test as opposed to an overarching ToC. This approach is similar to "journey maps"—a systematic process used in HCD research and user experience design to document service-user touchpoints with an intervention, capturing the user's physical and

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emotional journey, including behavior, feelings, motivations, and attitudes. It was therefore chosen as an alternative to country-level ToCs or logic models.[93]

The early stages of the A360 PE focused on exploring and understanding the A360 approach, with a growing emphasis on the solutions as they were prototyped and piloted. With the transition into the scale-up phase and streamlining of solutions, the PE shifted to a more detailed investigation of each solution in its content and how it was being implemented. The solutions also constantly evolved throughout the HCD process as well as the adaptive implementation process in each country, presenting challenges in differentiating between what was intended versus what was implemented. In response to these challenges, "user journeys" were used and explored the following at the solution level:

- **Implementation:** The user journeys provided a detailed description of each solution and the touchpoints between the solution and adolescent girls and were used to explore:
    - **Fidelity and adaptation:** How far were solutions being implemented according to the "spirit" of the solutions? What was being adapted and why? Were adaptations in line with PSI's adaptive implementation framework and adaptation guidelines? What have been the consequences of adaptations?
    - **Dose:** Number of touchpoints girls have with the solution, the proportion of participants accessing each touchpoint, and the extent to which solution components were being delivered in the planned numbers, districts, and sites.
    - **Reach:** How many girls were participating in A360 activities? Who is participating, from which groups, and how representative was this of the population of girls?
- **Mechanisms of impact**: User journeys helped the team investigate the causal assumptions within the solutions about how and why certain activities triggered change, which would help map out how and why each element of the solution was expected to contribute to the outcomes in the behavior change pathway. Together with PSI, the mechanisms of investigation were prioritized to build understanding of how and why the solutions were (or were not) working.
- **Context:** User journeys helped deep-dive into how specific contextual factors affected specific aspects of the solution, helping mitigate the challenge that was faced throughout the PE of how to meaningfully integrate contextual analysis into data collection and findings.

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The user-journey tool was reportedly more intuitive to program teams, who could build on existing program thinking, as they used user journey language and terminology instead of ToCs in their strategy and design documentation.[94] Also the tool provided a relatively simple way to visually depict each model for a country-level solution at specific times over the course of the project, and allowed easy and rapid documentation of adaptations, enabling distinction between unplanned "drifts" away from implementation fidelity.[95]

The PE team faced challenges during the intervention development stage "as the fast-paced, highly iterative HCD process meant that the 'design energy,' i.e., how decisions were made at key points in the design process, often went undocumented."[96] This required the PE team to be flexible "in order to align closely with the work plan of the implementers," and "methodologies such as direct participant observation were key to capturing the depth of the HCD process."[97] During the design of the PE, the intention was to allow the findings to inform the intervention design at key moments. In reality; however, there was limited uptake of PE findings by implementers due to the pace of the program.[98] To mitigate this, PE introduced "sounding workshops" and PAR case studies alongside existing activities.[99]

Outcome evaluation: The primary objective of the outcome evaluation was to assess the impact of A360 on mCPR among sexually active girls aged 15–19. The secondary objectives included evaluating the impact of A360 on fertility rates; age at first birth; unmet need for modern contraception; and girls' knowledge of modern contraceptives, agency to use them, and attitudes towards them. The outcome evaluation of A360 used a pre- and post-population-based, cross-sectional survey design, which included a comparison group in Nigeria. The methodology for primary analysis included comparing the proportion of sexually active girls who report using modern contraception at baseline and endline. Dose-response and secular trends were the approaches adopted for secondary analyses.

In the early stages of conducting the impact evaluation, researchers reported that the baseline evaluation of the intervention involving HCD as one of the interdisciplinary approaches did not set clear parameters of control and was increasingly open-ended, leading to many uncertainties around what needs to be answered through the program.[100] Evaluators observed that the challenge was to find ways to deal with this uncertainty while still retaining scientific rigor.[101] A main challenge in designing the outcome

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evaluation for A360 was "that when the outcome evaluation study protocols and data collection tools were being developed, the A360 project was in the mid-stages of intervention development" and "'key pieces of information about the intervention components and the theory of change were unclear and changed over the protocol development period. There was concern about the final intervention package being significantly different from the earlier prototypes, and how the study protocol and data collection tools for the baseline study may not be as well tailored to the intervention, as if the final package of interventions was known in advance."[102] Finally, this led to multiple challenges due to which programmers had to spend more time to coordinate on building evaluation tools.[103] The uncertainties in key study design parameters meant that the evaluation team had to develop multiple study design scenarios, which were repeatedly revised as new information came to light.

Although the value-add of HCD was to drive the idea of "putting the adolescent girl at the center," it did raise concerns about feasibility and scalability of the prototypes being tested.[104] While the approach itself was youth-centered, occasional questions did crop up around how meaningful such an addition was to the program.[105] Evaluators observed that A360 did not design for solution implementers (or service providers) who were key actors in ensuring the success of the program.[106] Additional work had to go into the optimization phase to understand service providers' perspectives and adapt the implementation accordingly.[107] Yet, A360 increased providers' empathy toward young people and designing programs in a youth-centered manner.[108]

Cost effectiveness analysis: Led by Avenir Health, this evaluation examined the main cost drivers of the A360 approach, and investigated the cost-effectiveness of A360 in relation to other methods of solution design. Measurement of costs and effectiveness focused on the outcome evaluation study geographies, and effectiveness is measured using indicators developed for the outcome evaluation—primarily mCPR.[109, 110]

The cost-effectiveness study faced challenges related to the flexible and iterative nature of the HCD process that increased the number of unknown costs.[111] Measuring the total design cost and isolating the cost of HCD specifically was difficult in the cost-effectiveness evaluation, "as HCD activities of the design process were tightly intertwined with the other A360 'lenses.'"[112]

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Adaptive implementation: At a later stage, A360 introduced an adaptive management and learning approach (adaptive implementation) that encouraged continued iteration and optimization of the full-scale interventions based on periodic data collected using a standard set of questions addressed to adolescent girls, health workers, and other stakeholders and triangulating different data sources. As the project moved into implementation in 2018, it embraced adaptive implementation (an adaptive management and learning approach) as a way to continue its human-centered focus in implementation. It continued to revise its hypotheses and iterate and optimize full-scale interventions based on periodic data collected using a standard set of questions addressed to adolescent girls, health workers, and other stakeholders, and triangulating different data sources.[113] The project found that adaptive implementation is uniquely aligned with principles of HCD. While HCD and adaptive implementation differ in their methodological approaches, they share a few key traits. Both are guided by girls' voices, perspectives, and experiences; conducted in partnership with girls, government, and other partners; and informed by the global evidence base and a variety of disciplinary lenses. Both cultivate a culture of curiosity and inquiry to inform improvement through iteration. Both orient teams to the use of data and field-based research.[114]

Observations: Overall, evaluators observed that like HCD, an iterative and adaptive PE approach is useful for evaluating HCD and its outcomes. In the design process, the hypothesis surrounding the intervention and the solutions change as the project evolves. This requires a fluid approach to measurement, which cannot only use fixed metrics but also must be flexible and adaptive. Program implementers and evaluators note that evaluation in this context is not just looking back and counting what happened, but rather learning how to use data to help people think and problem solve along the way.[115] Evaluators need to be flexible and adaptable, willing to make changes to the approach, and amenable to shifting timelines and to moving things around, as the design process is fast moving and adaptable and evaluation needs to mirror that.

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"The thing that supported evaluation was being involved from the beginning and being in the room as much as possible in the design phase. In trying to evaluate the HCD approach, it is really challenging to do that, if you are not a kind of a participant observer in the design phase. The way that processes and decisions are documented during the design phase is quite different from how evaluators would document these. There is a lot of innovation and adaptation, but it can be hard to reconstruct a journey. The more we are able to be present, the more we're able to help build up learnings and reflect back what's working and not working."[116]

The A360 program implementers recommend that evaluators, implementers, and designers take time to familiarize themselves with the methodologies used by the different disciplines[117] for better conceptual mediation. It suggests that close coordination among measurement, design, and implementing teams is critical from the initiation of the project and that, in particular, PE teams work alongside implementers to ensure that findings are timed to feed into key decisions.[118] The program recommends that future HCD-based initiatives should consider a phased evaluation, focusing initially on program theory refinement and PE, and then, when the intervention program details are clearer, following with outcome evaluation and cost-effectiveness analysis.[119] They caution that a phased evaluation approach is not easy—it needs balancing against the disadvantages of delaying the outcome evaluation baseline.[120]

"We now know that monitoring and evaluation systems should not be finalized until the design period has ended, so that teams can build monitoring indicators that reflect the full breadth and value of the interventions that teams have designed. And we understand that process indicators are far more relevant and valuable as a performance 'metric' during the design phase. Plus, evaluation methods work best when they match an intervention's technical design. That, too, is best done after the design phase, when the interventions can be fully understood and so that evaluations fully speak to them."[121]

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MLE approaches and learnings from select projects

Case 2: The Hewlett Foundation evaluation of Diva Program and Future Fab by Itad

Project description

The Hewlett Foundation (the Foundation) supported *IDEO.org* and Marie Stopes International (MSI) to apply HCD to improve FP and RH services for adolescent girls in Sub-Saharan Africa. The partnership began with Marie Stopes Zambia (MSZ) initially, resulting in the Diva Program—"a multi-touchpoint service that helps adolescent girls in urban Lusaka access the contraception they need to take control of their bodies and their futures through the Diva Centres and The Divine Divas."[122] Launched in 2014, the Diva Centres are a space where girls can do their nails while having informal conversations about boys and sex, learn about contraception from trained peers, and receive counselling and access to a variety of short- and long-term birth control methods in a safe and judgment-free environment from a trained professional. The Centres are supported by a teen-focused brand, The Divine Divas, which helps girls connect long-term contraceptives with their future aspirations.[123] In 2015, the Foundation funded similar work with Marie Stopes Kenya (MSK), resulting in the development of Future Fab. This adolescent lifestyle brand, focused in five regions across Kenya, offers a new way to talk to local teens, their communities, and their health care providers about the value of contraception.[124] It was designed to have three components:

- **Activate**: Community dialogues and events that build excitement about youth and acceptance of contraceptives in the community
- **Engage**: Meet-ups (with girls and parents separately) to educate about sexual health and contraceptive choices
- **Deliver**: Access to safe and friendly services for young people[125]

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In 2017, the Foundation commissioned Itad to independently evaluate these programs in Zambia and Kenya. The overall purpose of this evaluation was to respond to the needs of the primary audiences—the Foundation, MSI, and IDEO.org—and inform future investments in HCD strategy, program design, and implementation. The secondary purpose was to generate findings and recommendations that informed other stakeholders of the applicability of HCD for FP/RH and other social sectors. This secondary purpose was supported by the creation of an Evaluation Advisory Committee (EAC), comprising the primary audience and representatives of other donors also supporting HCD initiatives.[126]

The evaluation sought to answer the following evaluation questions (EQs):

- Does HCD work and why?
- What external and internal factors affect its uptake and success?

Also, the specific objectives of this evaluation were to better understand the:

- Feasibility, potential, and limitations of HCD as an approach
- Value added by the different components of the HCD approach
- Capacity needed to introduce and implement HCD
- Contextual factors that enable and inhibit the successful use of HCD

Approach to measurement and evaluation

Itad took a theory-based, formative, and utility-focused evaluation[127] that was grounded in testing the ToC for HCD and answering the associated top-level EQs. The evaluation had four phases: 1) articulating the theory, 2) documenting practice, 3) analysis and synthesis, and 4) engagement and use. The evaluation framework for this study was based on articulating the theory behind using HCD to improve FP/RH services for adolescent girls in Sub-Saharan Africa. The team invested time in understanding and spelling out the different phases of and craft behind the HCD process to develop a ToC for the HCD process. This was developed and agreed upon collaboratively with the

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Foundation, IDEO.org, and MSI, drawing on explicit and implicit theories that these stakeholders had articulated in setting up their partnership on HCD.

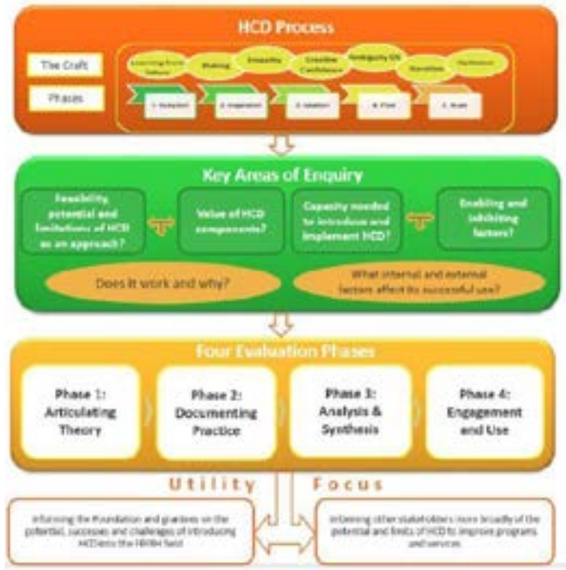
The ToC described how the joint work between MSI and IDEO.org, as partners with different areas of expertise, should increase uptake of FP/RH services by adolescent girls, leading to better ASRH. The ToC rests on the Foundation's overarching hypothesis that bringing together partners with different perspectives and expertise can solve persistent problems in ASRH.[128]

Three data collection methods were used in Phase 2:

- **Document review**: Extensive review of over 300 documents, emails, and slide decks

- **Key informant interviews**: Over 80 KIIs with country and global stakeholders from the Foundation, MSI, IDEO.org, and those involved with or exposed to HCD in other contexts

- **Country visits**: Two country visits in each country, including site visits, interviews, FGDs with beneficiaries, journey mapping, and force field workshops



Overview of evaluation approach

The following analytical methods were employed to answer the EQs:

Contribution analysis: The ToC analysis required a number of steps that form part of the contribution analysis:
1) Set out the attribution problem to be addressed; 2) Develop a ToC and risks to it; 3) Gather the existing evidence on the ToC; 4) Assemble and assess the contribution story, and challenges to it; 5) Seek out additional evidence; 6) Revise and strengthen the contribution story. This ToC analysis provided the basis for contribution analysis, enabling the team to address questions on the relative value of individual components of the HCD-designed solutions.[129]

Force field analysis: As a result of limited documentation on the processes undertaken in the two program sites, the evaluation team conducted in-country workshops with key stakeholders from MSK and

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MSZ. The workshops used interactive and visual techniques to work through their experience of the HCD process and build conclusive insights based on consensus. The visuals and the data generated through the workshops were then discussed and refined through three virtual workshops, one with the Foundation and two with IDEO.org. As a result, the workshop as part of the in-country visit enabled further documentation and understanding of the HCD process (including enablers and constraints) and its application in the design of Diva Centres (MSZ) as well as Future Fab (MSK), and refinement of the ToC.[130]

Organizational development and external environment analysis: The 7S model of organizational effectiveness guided the team's approach to questions of capacity development needed for the different stages of HCD through aligning findings with the following seven areas: strategy, structure, systems, shared values, skills, style, and staff.[131]

Findings from the evaluation suggest that "HCD-designed solutions appear to be more effective than other solutions at reaching urban adolescents, but, given the limited sample and lack of appropriate comparisons, this can be considered only a tentative conclusion."[132] There is evidence that HCD worked in these two program contexts to increase uptake of FP/RH services in among (largely) unmarried girls in urban areas; however, less evidence was found of its ability to design sustainable solutions quickly at scale.[133] Several factors have been reported as contributing to the success of the HCD-experiment in these programs:

Partnership-related factors: It's critical for partners to articulate clear objectives and measures of success upfront in a strong brief and evaluate against them; re-visit these at certain intervals as partnership contexts evolve; thoroughly "onboard" new players in the partnership to set right expectations; and set clarity on the required resources to deliver the solutions, within and across organizations. Minimizing the extent of changes in staffing during an HCD process is also critical for HCD partnerships, along with flexibility in contracting. Changes in staffing needs to be mitigated through clear documentation of process and decision-making, and multi-partner grants should be structured for greater clarity on roles, responsibilities, and accountabilitiy from the start.

Solutions-related factors: The evaluation reports that both solutions were designed for an urban context, even though in both countries the focus at first was explicitly rural, because of which it has been challenging for them to be applied to all of MSI's channels. Therefore, "if progress against the design challenge is not continually reviewed, and if the design challenge is not sufficiently clear and explicit on target audiences/segments, there is a risk that HCD will focus on populations that are easier to reach within

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fieldwork that is usually undertaken in a two- to three-week period."[134] A stronger preparation phase with a clear design brief, as well as the maturation of the long-term partnership between MSI and IDEO.org is reported to enable better understanding of the constraints and opportunities within delivery channels for IDEO.org. Analysis of KII responses suggests "a misunderstanding about the focus of the HCD process, which is to design solutions that work and not to design innovative solutions per se."[135]

Also, an opposing view on criticisms made about lack of innovation as a result of HCD have been addressed by clarifying that the partnership produced a "recipe" for mobilizing, engaging, and providing services to adolescent girls, with an emphasis on the user experience; which has the potential to be adapted for other contexts with similar target segments and population needs. Some friction between the partners around expectations about when (at what stage of the HCD process) and how quickly a scalable, sustainable solution will be reached was reported, which becomes critical to be addressed upfront in HCD partnerships, and as part of a more robust M&E plan.[136]

HCD-related factors:

- **Preparation**: Evidence suggests that the preparation phase in both programs received insufficient attention, which impacted the subsequent phases and processes. The evaluation team concluded that "this is a critical area to address in future applications of HCD, and as a crucial counterpoint to the inherent ambiguity of the design process."[137]
- **Inspiration**: Design research was not seen to be credible in the two contexts, and was reported to not meet the needs of MSI. The evaluation team recommends that this can be addressed by marrying design research with more in-depth ethnographic research, as is happening in the Sahel, and communicating inspiration as more of an ongoing process rather than merely a component.
- **Ideation**: Evidence suggests that ideation was reported to be necessary and valuable. However, synthesis of findings in IDEO.org's San Francisco office was termed to be a "black box," in that the process was not fully understood by

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stakeholders. Also, the evaluation reported that substantial work was needed to bring MSI up to speed on ideation, and to manage pressure points around transitions during ideation, including ensuring appropriate M&E systems are in place to inform decision-making.[138]

- **Implementation**: During the implementation phase, roles shift and accountability increases. The evaluation reports misalignment around expectations from the implementation phase with the language of "implementation" for development practitioners meaning that the solution should be "done and dusted," which is in contrast from an HCD viewpoint.[139]

The team faced several challenges during the evaluation and actively worked with partners to mitigate them. The evaluation team had limited opportunities to observe the HCD process being implemented, along with limited ability to track (firsthand) the HCD process in each country. The high turnover of staff at MSK and IDEO.org also limited the team's ability to interview people that had been involved in the HCD process. As a result, the team tracked down, as far as feasible, program members in both countries who were involved in the earlier HCD stages, and focused their inquiry on Kenya in the latter stages of the HCD process, where there were more key informants and better documentation. They also joined the Zambia "design sprint" during Phase 1, visited IDEO.org's San Francisco office, and took part in a mini design challenge, and explored other opportunities to observe HCD in other contexts, e.g., drawing on experience with A360.

Insufficient documentation of the HCD process in both countries made it challenging for the team to construct a detailed map of the respective HCD processes undertaken. As a result, the team supplemented data collection with email correspondence, tailored interview guides to gather information relevant for mapping the HCD process, conducted journey mapping workshops in each country, and consulted the Foundation, IDEO.org, and other MSI stakeholders remotely on the findings. The team mitigated potential biases by sampling from a wide range of respondents and triangulating perspectives. Interviews were carried out using a semi-structured interview guide and wherever possible interviewers probed for concrete examples and documentation.[140]

Another challenge encountered by the team was around the identification of suitable comparison projects in Zambia and Kenya. They had planned to compare the change seen in Kenya within Future Fab to the change witnessed in service delivery sites that

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IPAS supports. However, they could not secure comparative IPAS data. A similar comparison was not possible for Zambia due to lack of a comparable model. The team did explore options for comparison models in Zambia, but these were not considered to be suitable.

Small sample size was another limitation hindering the generalizability of data. The team spoke with a limited number of girls in Kenya and Zambia. However, the FGDs were of limited value because the numbers were small; not many of the participants provided information that was useful for the evaluation; and in Kenya, awareness of Future Fab was generally low. This was raised as a potential concern in the inception report, and in subsequent discussions it was decided that the team would not speak with more girls given the limited value this was seen as adding to the evaluation findings.[141]

In response to these evaluation findings and conclusions, 11 specific recommendations grouped into three main related categories were articulated:

Continue and embed

- **Develop clear guidance for using HCD in partnership settings** for use at the start of a new HCD partnership to help explain potential risks and mitigating strategies.

- **Strengthen the credibility of research in HCD** through: 1) commissioning more robust qualitative research to inform the inspiration process; or 2) IDEO.org upskilling in the collection, analysis, and synthesis of large amounts of qualitative data, and allocating more time to research, particularly in rural contexts.

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Monitor, learn, and adapt

- **Promote shared understanding that the implementation phase involves iteration and learning** and that undue pressure during piloting could choke innovation and kill ideas with potential.
- **Communicate at an early stage** (during live prototyping) what can be expected of the pilot phase, and consider any potential implementation constraints.
- **Undertake a well-designed impact evaluation** of the application of HCD that incorporates a wider sample with clearer comparisons.
- **Establish goals for capacity building early in the project**. Identify who the HCD "learners" are at MSI, and work with in-country management to evaluate the existing capabilities of these learners.
- **Develop a strategy to communicate** the results of the experiment of applying HCD in the FP/RH sector to the wider sector.

Act now

- **Pay greater attention in the preparation phase** to: 1) establish clear understanding of innovation appetite and associated risks; 2) develop a shared understanding of goals and what constitutes success, including in relation to considering the questions of sustainability (viability) and scale (feasibility); and 3) clarify working arrangements.
- **Ensure synthesis of insights and the process of prototyping are more inclusive and discursive, explicit, and well documented**. IDEO.org should complete synthesis in country, together with MSI staff, or find ways to ensure MSI staff are front and center during ideation.
- **At the start of the project, both partners should co-create an M&E strategy that defines outcomes that will be measured** during live prototyping, and those that will measure the success of the solution.
- **Continue to build on recent successes in applying a more robust behaviour change lens to programming in MSI**, and extend this to a deeper understanding of structural constraints and norms.

MLE approaches and learnings from select projects

Case 3: (re)solve[142]

Project description

(re)solve began in 2016 in Bangladesh, Burkina Faso, and Ethiopia. The project is led by Pathfinder International in partnership with Camber Collective, International Center for Research on Women (ICRW), and ideas42. The project "develops new and innovative solutions that can be effectively applied to improved decision-making about the use and continuation of modern contraception while gaining insights on fertility preferences, method-specific perspectives, the role of men and masculinity, gender and household dynamics."[143] (re)solve takes a cross-disciplinary approach to challenge current assumptions and tests new approaches based on context-specific behavioral insights. It generates adaptable and scalable solutions that address unmet needs for family planning.[144]

Approach to measurement and evaluation

The MLE approach incorporated mixed-methods impact evaluation to assess the effectiveness of the solution in each country. The plan was to implement research studies in each country. However, due to contextual challenges associated with the COVID-19 pandemic, the project was unable to proceed with implementation and evaluation of the (re)solve solution set in Bangladesh. In Ethiopia, implementation and evaluation activities have been delayed due to COVID-19 and political conflict in the country.

The evaluation aimed to understand whether the (re)solve package of solutions changed girls' intentions to

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use contraception, along with other behavioral and attitudinal changes.[145] The research team collected baseline data between November 2019 and January 2020. Following this, the evaluation team collected midline data in person between January and February 2020. Endline data were collected in March and July 2020 over the phone due to the COVID-19 pandemic. The primary analysis was based on the "intention-to-treat" principle.[146] The primary outcome of interest was the intention to use contraception in the following three months.[147] The secondary outcome of interest included "attitudes and beliefs related to contraception, such as the belief that contraception causes infertility."[148] The evaluation team used generalized estimating equations (GEEs) for the main analysis to examine the impact of the intervention on the primary outcome of interest through the endline data. The team examined the association between key sociodemographic and attitudinal predictors and the primary outcomes through a regression framework.[149]

The team developed a range of "pause and reflect" activities implemented by the project to document the process of design, key decisions, adaptations, and innovative solution sets using an HCD approach. Solutions and adaptations were context-specific, as they varied from one country to the other. Some of these have been captured below:[150, 151, 152]

- **After-action reviews (AARS)**: AARs helped capture the reflections of the process of collaboration and coordination.

- **Decision/reflection (D/R) memos:** D/R memos support capture of the decision and reflection process related to five predetermined decisions for (re)solve: 1) determine the population for DHS and segmentation studies/broad target population for (re)solve; 2) determine targeted subpopulation(s) and problem(s); 3) determine key behavioral drivers to target; 4) select designs to prototype; and 5) determine whether piloting is needed and/or which solutions will be formally evaluated.

- **Creative tension memos (CTMs):** Within each year of the project, a series of CTMs will be developed. The topics of these memos will be collectively decided on by all partners, but ICRW and Pathfinder will oversee developing the initial set of ideas. These memos will surface and discuss predicted or spontaneous tensions that occur throughout the project, beyond what is captured in the predetermined D/R points. These memos will be created based on a series of email

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conversations, written documents, and calls during which the creative tensions will be discussed and reflected upon.

- **Pulse taking**: Gauge progress during implementation to understand how frontline workers are adapting solutions, how, and why.

- **Country-specific ToCs and MEL plans (including RCTs):** Use these to inform country-specific routine M&E design.

- **Technical deliverables**: Products such as Camber Collective's literature reviews and segmentation analyses, ideas42's landscape analyses, problem diagnosis reports and prototyping reports, and ICRW's impact evaluation reports were developed to be used in the M&E process as reference documents, as needed. They provide background information on decisions and dynamics captured in AARs, DRMs, CTMs, and pulse taking. These deliverables will have embedded questions or sections that aim to capture a reflection on the activity, and this material can be used by the person developing the DRM or the CTM, or any other M&E source.

Impact evaluation

The primary hypothesis was that "girls…who were exposed to the board game and given a health passport to facilitate follow-up at health center would be more likely to report accurate perceptions about sex and contraception, form intentions that match their risk status—such as intent to use contraception—and seek more information and/or contraceptive services at a health center, compared to similar girls who were not exposed to this solution."[153]

The evaluation team used a mixed-methods cluster randomized trial (CRT) design with:

- Baseline/midline/endline longitudinal quantitative surveys with a cohort of girls aged 14–18 in the 4th and 3rd levels in intervention schools and baseline/endline longitudinal quantitative surveys with the same population in control schools.

- Baseline/endline longitudinal IDIs with girls aged 14–18 in 4th and 3rd levels in intervention schools.

- Endline qualitative interviews with

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implementation staff; and + endline KIIs with experts and authorities.[154]

Scaling up (re)solve and future evaluations require "close coordination between and oversight of the Ministries of Health and Education to ensure successful integration and implementation."[155] Behavioral solutions such as the game, health passport, and poster help "complement existing demand generation interventions and connect girls to youth-friendly health facilities" for SRH related queries, knowledge, and education.[156]

Some challenges surrounded the evaluation of (re)solve's implementation. Follow-up at health centers was hampered. This could have attenuated the impact of the intervention on outcome of intention use, as fewer girls must have gone to the health facilities and formed intentions.[157]

The implementation itself was reportedly staggered and due to this, several tweaks were made to it that influenced differential game playing and follow-up experiences between the two cities in Burkina Faso.[158]

One challenge was that health care providers trained by Pathfinder held biases toward "a more favorable impression of (re)solve than was achieved."[159] Their formative, pre-implementation behavioral-diagnosis data "indicated that girls would be sexually active, we did not find this to be true in our evaluation data."[160] Intervention tweaks were mostly related to addressing some of the implementation challenges on the ground, not HCD issues specifically. However, insights from behavioral diagnosis, a key component of the HCD for health process, showed that young girls were sexually active based on a small number of qualitative interviews.

Results from the evaluation study that was conducted on a large and representative sample of young school girls indicated that this was not the case.

"Conceptualization and measurement of the proximate and distal determinants of intention to use contraception is notoriously challenging…especially in a young population."[161] Even after developing a ToC, with rigorous measuring, they were unable to measure every aspect and feared missing some variables on the causal pathway.[162] These observations are not specific to HCD+ASRH programs but to ASRH behavior change programs in general. With different behavior change models being employed within the same program, it often becomes difficult for various individuals who back each model to converse with one another. The partners in (re)solve spoke different scientific languages (public

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health, behavioral economics, design for health/HCD), making it difficult for partners to understand one another's methodologies and find synergies.[163, 164] The methods in (re)solve had some "crossover," as different methods informed the different approaches, yet operated in parallel or separately at times, rather than in an integrated manner as was originally intended.[165, 166]

Obtaining accurate data on sensitive topics like sexual activity and contraceptive use is difficult and perhaps evaluation data under-report or over-report on some of these indicators.[167] Quantitative and qualitative data on sexual activity were mismatched, and as a result, the evaluation team spent more time building rapport, especially over the phone during endline interviews, to create a safe space and ensure privacy for participants.[168] Another major challenge for the study was around the idea of the "intention to use" contraception. While intention could mean just a nascent idea to some, to others it could mean acting upon this. In the study, there was no way of knowing how participants interpreted this question.[169] Although the insights emerging from (re)solve were local and contextualized, they were not always as novel as the consortium had originally assumed (what the design team noted as insightful was not new information for FP implementers).[170, 171]

Their CRT design and GEE analysis had several strengths: randomly assigning the intervention to schools from a sampling frame of schools with similar characteristics helped in the success of the randomization scheme, enabling the ease in comparing the intervention and control groups. They accounted for imbalances at the baseline by adjusting for baseline values. This was done to help 1) reduce between-cluster variation in their primary outcome at endline and increase the power and precision of the study; and 2) take into account what the regression would mean. The COVID-19 pandemic "offered an unplanned opportunity to estimate the resilience" of their intervention as a step to access SRH resources at clinics, and it allowed them to "test phone-based consent and interview processes with a vulnerable population."[172]

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MLE approaches and learnings from select projects

Case 4: Beyond Bias

Project description

Beyond Bias is led by Pathfinder International in collaboration with Camber Collective, YLabs, RAND Corporation, and Behavioral Economics in Reproductive Health (BERI). The project is funded by Bill & Melinda Gates Foundation (BMGF) and is presently running across three geographies: Pakistan, Burkina Faso, and Tanzania. YLabs led qualitative design research in collaboration with Pathfinder International.

The project aimed to ensure that young people aged 15–25 receive access to empathetic, non-judgmental, and quality counseling services along with the provision of a range of contraceptive methods[173] devoid of bias on the grounds of marital status and parity. The project is multidisciplinary, as it brings together experts from the field of AYSRH, social and behavior change communication, HCD, behavioral economics, and segmentation analysis. Such an approach supported an understanding of the various drivers, manifestations, and outcomes of provider bias in a nuanced manner to design well-tailored interventions[174] and scalable solutions.

The premise of the project is that bias occurs in the "last meter" of care in the interaction between a provider and patient; multiple barriers prevent a young person from accessing safe contraception methods. The project generated insights with the support of HCD that provided perspective on users and their environment.

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Background research

Beyond Bias was based on expert interviews and a literature review about the evidence on provider bias and past interventions that attempted to reduce bias. The foundational evidence[175] informed the creation of a quantitative segmentation survey. Also, qualitative design research interviews were conducted in each country. On the basis of this, key insights were distilled about provider and youth behavior and motivation. This was followed by facilitated structured ideation workshops to generate and prioritize ideas for interventions that could address provider bias in AYSRH services. Through a rigorous, multi-stage process, Beyond Bias partners, providers, and youth selected promising ideas for further development, prototyping, testing, and iteration. These findings informed the final intervention design and implementation.

Approach to intervention design

The process of developing an intervention and solution set to address provider bias using an HCD approach was captured through process documentation. The primary focus was to create a series of solutions to minimize provider bias. The participants were providers, young people, and other health system stakeholders. The design research methodologies included interviews, observations, role play, and participatory research activities to investigate provider biases and behavior toward young women. Each geography had a different set of interventions developed depending on the policy and legal context and the SRH needs.

Beyond Bias ensured feedback on the providers' progress each quarter, along with the opportunity for recognition for their achievements. It did this through a growth-oriented performance rewards system developed as part of the program, based on client feedback. This system had three key components: 1) a standardized rubric of excellence that enabled measurable progress and clear performance targets for the provider to work towards; 2) client feedback, which was captured directly after counselling, with objective questions about provider behavior; and 3) institutional recognition in front of their peers for improvement and maintenance of quality. A digital

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audio-visual client exit survey app was developed during the design process to collect client feedback after interacting with a provider.

An app was developed and tested with over 3,000 youth clients at 29 facilities across the three countries (Pakistan, Burkina Faso, and Tanzania) during the prototyping phase. As a result, facilities would receive report cards with performance data and recommendations for improvement, and the high-improvement facilities would get public recognition for their progress. This mechanism also enabled behavior change as it created accountability for service quality; offered visible performance-based rewards; and shifted professional norms.

Approach to measurement and evaluation

The Beyond Bias project used a mixed-methods randomized control trial to evaluate the effectiveness of the intervention by assessing changes in provider attitudes and behaviors, and measuring changes in client-level outcomes such as contraceptive use and quality of care.[176] The multi-country evaluation is in the process of completion with the analysis currently underway. Results and key findings from the Beyond Bias evaluation will be made publicly available in early 2022.

This data source and client exit interviews were useful not only in conducting the evaluation (to measure the effectiveness of the interventions between control and intervention groups), but also in monitoring provider performance, which was a key component of the Beyond Bias intervention in motivating and incentivizing providers to deliver unbiased care.

HCD and global health programs

Beyond Bias was built to integrate the HCD lens at every stage of the intervention and the program design. It consciously aimed to document its experience while using HCD as a part of its multidisciplinary approach to "develop effective and scalable AYSRH interventions."[177] Lessons learned from HCD implementation in Beyond

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Bias have been seen to be useful to the quality of design outcomes and general project operations. The process documentation approaches helped describe their HCD methodology and how they arrived at the final solution set.

- Interventions need to be grounded in existing evidence and stress-testing HCD findings at every stage of solution development; testing and refinement are key.

- "Design with an ecosystem lens," in other words, design processes need to consider and involve various players from the start. Consequently, various indicators can be developed to guide how different partners can collaborate owing to differences in approach and methodologies.

- Built-in collaboration is needed among designers, technical experts, and end users at key points to assert HCD findings against existing best practices and implementation knowledge.

- Sensitivity to participation and power imbalance between youth and providers is important to ensure that youth groups express themselves freely; participatory research and prototyping sessions were done separately with youth only and providers only with a few joint sessions. Youth-led workshops were convened where young people role-played their experiences while talking about contraception and sex with providers.

MLE approaches and learnings from select projects

Case 5: CyberRwanda

Project description

CyberRwanda is a six-year program (2016–2022) implemented in Rwanda by YLabs in close partnership with Society for Family Health-Rwanda, with guidance from the Ministry of Health, Rwanda Biomedical Center, and Rwanda Education Board.[178] The evaluation partners for this project are the School of Public Health at the University of California, Berkeley, and the University of Rwanda.[179] Other key partners include Rwandan adolescent health stakeholders who support the content development and help ensure that key messages are aligned with Rwanda's existing national health priorities to decrease unplanned teen pregnancies and HIV infection.[180] Designed using an HCD methodology, CyberRwanda is a direct-to-consumer digital education program for urban and peri-urban youth aged 12–19. It uses storytelling to deliver age-appropriate FP/RH information and economic empowerment training to adolescents, with discreet, streamlined access to contraception and other essential products from trained pharmacists through a mobile ordering platform. It has been co-designed with 800 young people and 200 parents, teachers, health care providers, and community leaders over a period from July 2016 to October 2018. The project enables youth to order products online for discreet in-person collection at participating pharmacies, after answering medically relevant questions and reading information about the products online. The program also includes gamified digital and in-person training for pharmacists at partnering health facilities that educate them on topics such as provider bias, youth access to health products, and voluntary FP/RH care. The objective of this intervention is to improve a spectrum of adolescent

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health outcomes, with specific focus on increased uptake of modern contraception, delayed initiation of childbearing, and increased rates of HIV testing.[181]

Approach to measurement and evaluation

The project is currently being implemented in two phases. The evaluation approach in Phase 1 is found below:

Phase 1: Randomized controlled trial impact study (2018–2021)

CyberRwanda[182, 183] is being implemented and evaluated in schools using two different models: 1) self-service and 2) facilitated. The aim of using two implementation models was to determine whether digital health education programs require face-to-face peer or facilitator support to be effective, or whether knowledge and behavior change can be achieved through the self-service online components only. The 24-month evaluation aims to test the comparative effectiveness of online-only and online-plus-face-to-face delivery models. In addition to rigorously measuring the impact of CyberRwanda, data will be collected on the feasibility, acceptability, and implementation successes and challenges of the program. This information will provide a good understanding not only of whether CyberRwanda achieved its desired outcomes but also of how and in what context. Finally, the study will measure the impact of the CyberRwanda intervention on a set of outcomes related to FP/RH in the following areas: knowledge, behavioral intentions, self-efficacy, social norms, and engagement in employment, education, and training.

The evaluation is rooted in implementation science and uses a hybrid trial type 2 effectiveness-implementation study design to determine the overall effectiveness of CyberRwanda, along with the relative effectiveness of the two school-based

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implementation models. The evaluation will be implemented using a three-arm cluster-randomized non-inferiority trial with a sample of 6,000 youth aged 12–19, in 60 schools across eight districts of Rwanda. It consists of the following three arms:

1. Cyber-Rwanda Self-Service, where schools receive guidance on how to set up tablets in school libraries for individual use

2. CyberRwanda Facilitated, where schools receive training on organizing a formal school club dedicated to exploring CyberRwanda in a group setting

3. Control Schools, without CyberRwanda access but receiving standard services available in the community

Data will be collected through three surveys at three different time points during the study: 1) baseline, 2) midline (9–12 months after launch), and 3) endline (after 24 months). The survey will cover broad topic areas such as sociodemographic characteristics, knowledge about FP/RH, social norms related to sexual health, gender roles, norms related to gender-based violence, intentions related to having a family, use of contraceptives, communication with partners, sexual behavior, childbearing, future aspirations and goal-setting, and attitudes and intentions toward school and employment.[184] Also, collection of continuous, real-time data is planned using Google Analytics to understand user engagement patterns (e.g., drop-off points in character storylines, online ordering behaviors) in all three arms. An eight-week pilot study was also conducted September–October 2019 in four schools and two youth centers in Nyagatare and Kigali (Nyarugenge and Gasabo Districts) to refine the implementation model and data collection instruments.[185]

Due to the long duration of data collection (24 months), the impact evaluation carries a high risk of attrition as a result of school dropout, which is higher in girls than boys from age 15 (closely related to our primary outcomes, i.e., childbearing).[186] Therefore, the team plans to collect multiple modes of contact for each enrolled student and parents at baseline, as well as provide participants small communication payments (<$1 USD) for regularly updating contact information every school term, so that the team can retain updated contact information. Along with these efforts, the team has also thought of accounting in its power calculations for

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an expected ten percent attrition rate over the course of the study.[187]

The effectiveness of the intervention will be assessed by using a generalized linear mixed model (GLMM) with uptake of a modern contraceptive method (binary outcome) and initiation of childbearing (binary outcome) as the outcome variables. The model will include a binary explanatory variable for the intervention group (control versus CyberRwanda in either the self-service or facilitated arm) with control group as the reference, and model terms for the stratification factor (district) as well as other relevant variables measured at baseline (e.g., age, sex). Relative risks and 95 percent confidence intervals will be presented using robust standard errors to account for clustering at the school and district levels.[188]

The study also intends to draw upon Proctor's Implementation Science framework to understand why, and in what context, CyberRwanda is or is not effective. This framework consists of eight components: 1) acceptability, 2) adoption, 3) appropriateness, 4) cost, 5) feasibility, 6) fidelity, 7) penetration, and 8) sustainability. This framework was employed as the team aims to build a deep understanding of why the different programmatic versions were or were not effective and to understand various barriers and facilitators in using the CyberRwanda platform. All the eight constructs of the framework will be explored in the three study arms through semi-structured interviews conducted during the impact evaluation, and through short surveys embedded into the CyberRwanda platform. If the digital intervention is found to be effective, this framework will allow the team to determine potential barriers and facilitators to scale-up and sustainability through input from stakeholders at multiple levels: the individual level (students, peer facilitators, parents, and teachers), the organizational level (schools), and the policy level (community leaders, government officials).[189]

Apart from evaluating comparative effectiveness of different implementation models, preparations for a cost-effectiveness evaluation to measure the relative cost-effectiveness of the two different implementation models is also underway.

Phase 2: National Scale (2021–2022)

Results of the evaluation will determine how CyberRwanda will be expanded nationwide, especially to more rural areas. The second phase of the project will be national-scale implementation, using community events and mass media marketing to promote product launch.[190]

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Common Challenges in MLE in HCD+ASRH

The review of recent experience integrating measurement and evaluation into HCD+ASRH programs revealed several common challenges. These challenges relate specifically to 1) how MLE works in practice in the context of HCD+ASRH programs and 2) the importance of understanding if and how to measure design and its influence on ASRH program processes and outcomes. As described above, this analysis found very few examples of HCD+ASRH projects that documented their approach to and results from MLE (including publicly available endline analyses). Thus, we synthesized the common challenges and lessons reported based on the experience of three well-documented programs[191, 192, 193, 194] and augmented the analysis through interviews with program, design, and measurement experts who represent a range of experience related to measurement and HCD+ASRH.

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Challenge #1: Lack of frameworks to define the influence of design in ASRH programming

Practitioners frequently reported that the absence of an agreed ToC that illustrates the role of HCD in ASRH programming and its influence on program outcomes remains a challenge for practitioners and funders working to integrate HCD and ASRH. None of the projects reviewed in this landscape analysis explicitly defined a pathway of change from the application of HCD to the generation of ASRH program outcomes, nor focused measurement on delineating or exploring this pathway. One project evaluation asked whether an HCD process could deliver a larger program impact than "standard normal" youth programming.[195] A second project focused evaluation and learning on two linked questions: 1) Does HCD work and why? and 2) What external and internal factors affect HCD's uptake and success?[196] While these evaluations shed light on the value and effect of HCD, the body of evidence on the link between HCD and ASRH outcomes remains limited. Many of the challenges related to integrating measurement and evaluation in HCD+ASRH programming discussed below emerge from this fundamental lack of clarity about the influence of HCD.

For example, respondents noted that stakeholders often expect that HCD will provide completely new and different insights related to adolescent needs, desires, and SRH service experience, and produce novel ASRH interventions.[197] However, the Itad evaluation of Divine Divas and Future Fab found that HCD processes inspired innovation and improved program

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effectiveness because they introduced highly user-centered program implementation strategies rather than generating novel ASRH insights or solutions.

"The HCD solutions (Divine Divas and Future Fab) in both Kenya and Zambia employ[ed] a similar structure for mobilizing, engaging and service provision. The process of developing solutions [was] innovative, as [was] the brand coherence achieved across the different solution components. However, none of the solutions [were] seen as particularly innovative by a range of key stakeholders, largely because the [intervention] components themselves [were] not novel (e.g., peer counselling, youth-friendly spaces in clinics)." [198]

Respondents reported that Divine Divas and Future Fab produced a "coherent ecosystem of solutions that [gave] primacy to adolescent girls and their desire,"[199] which made the solutions stand out as innovative.

Mapping the pathway from HCD to ASRH outcomes is also difficult because of the way in which designers approach program development, with few preconceived ideas about what solutions will be built, and iterative testing of different possible solutions. Itad's evaluation report notes that investment in HCD and related approaches should come with cautionary warnings "to not expect results immediately and be prepared to be flexible to welcome success."[200] The essence of the HCD process is the use of a "how might we" question—not knowing how a certain process would play out[201] rather than promising that novel solutions would emerge. Several respondents confirmed that the link between HCD and health outcomes is not direct, noting that HCD values the small wins that can be tracked in an individual's journey as he or she navigates within the influence of peers, the family unit, and the wider community—over the "big wins" that get counted as normative behavior change within the context of an ASRH program.

In the absence of a clear impact pathway from integrating HCD to health program performance, there is also limited use of metrics that reflect the learning that emerges from HCD (e.g., desirability of SRH services and the user experience) to track changes in user perceptions, experiences, and desires and their influence on outcomes, such as service uptake.[202, 203]

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Challenge #2: Lack of standard metrics to track HCD

In addition to helping develop user-centered health program interventions, HCD also enhances program design and implementation strategies. Yet, among the programs reviewed, few systematically tracked the influence of HCD processes (e.g., empathy building and user-centered solution development) on program implementation or performance. Respondents noted that HCD increases understanding of the drivers of human behavior, and applies this learning to developing intervention prototypes and project interventions. These design processes add value to ASRH programming because they help program implementers gain empathy for user needs and context, understand elements of user experience and health service desirability, and undertake ideation and iterative solution prototyping. The evaluation of Future Fab and Divine Divas[204] found that all components of an HCD process are needed for getting a solution "out there in the world," including making youth voices heard and generating empathy for youth among program managers. As noted by a program manager, "Design can create a more motivated, engaged and empathetic programmatic team, but there isn't a clear way to 'measure' that."[205] These features of HCD are rarely captured through program M&E.[206, 207, 208]

The absence of standard ways to define HCD processes, outputs, and

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outcomes also contributes to poor understanding of HCD's role in ASRH programming. Although designers and design agencies follow a similar design process, one respondent noted that each has its own way of applying design to health programming based on its experience. While this diversity is inherent in the practice of HCD, the lack of standard benchmarks related to HCD process and outcomes makes it challenging to determine the effectiveness and the quality of design. Two interview respondents reported that lack of benchmarks for what "good" means in terms of HCD's role in health programming puts designers at a disadvantage, without clear ways in which to document and explain the work. Designers might also perceive evaluators' attempts to pin down design with measurement as program supervision for the purpose of accountability rather than an opportunity for collective learning about how to integrate measurement more systematically into HCD+ASRH processes.[209]

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Challenge #3: Limited documentation of HCD processes and decision-making in the program cycle

Respondents noted a general lack of documentation of design methods, which contributes to poor understanding of HCD's role in health programming and limits the potential to track HCD processes through measurement. In A360, the team that conducted the PE found it difficult to document HCD activities and its roles in developing program interventions due to HCD's fast-paced and highly iterative nature.[210, 211] The team mitigated this challenge by conducting participant observation to capture the HCD process in depth rather than relying on interviews and documentation following implementation.[212] The evaluation of Diva Program and Future Fab also found insufficient documentation of HCD in the two program sites (Zambia and Kenya), making it difficult to construct a detailed map of HCD processes.[213] They employed stakeholder and participant interviews and conducted journey-mapping workshops in each country to fill these data gaps. The in-country workshops with key stakeholders from MSK and MSZ, termed "force field workshops," used interactive and visual techniques to work through participant experience of the HCD process and reach consensus on the insights that emerged. The visuals and the data generated through the workshops were then discussed and refined through three virtual visits and an in-country visit to document and understand the application of HCD in developing the Diva Centres as well as Future Fab activities.

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Challenge #4: Lack of standard measurement to inform the early phases of design decision-making

Among the projects reviewed, we found no instances of the use of monitoring or measurement in the design phase to inform the evolution of prototypes and related decisions about which interventions were selected for widespread implementation. Designers use different techniques to determine the value of prototypes at different stages of their evolution and refinement (e.g., low fidelity to high fidelity), reflecting the ideas of desirability (from the user perspective), feasibility, and viability, before the intervention might go to scale.[214, 215] The criteria used to refine or abandon prototypes may reflect standard public health metrics, such as service acceptability and perceived quality of care, but they are not explicitly expressed as metrics. One evaluator interviewed noted the difficulty of applying standard public health M&E approaches in the early design phases because design uses small samples and rapid learning cycles.[216] Others considered blending public health metrics and design metrics at this stage to align learning from design techniques with standard metrics on user perceptions and expressed needs.[217] User-centered understanding about human behavior and behavioral drivers that emerge from design techniques could be integrated into public health M&E, or used in early-stage program monitoring as well as outcome measurement.[218, 219]

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Challenge #5: Methodological challenges

Respondents noted the following challenges related to designing and implementing MLE for HCD+ASRH:

- **Integrating traditional impact evaluation into HCD-led programs.** In A360, the outcome evaluation was designed before the interventions were fully defined. Additional time was needed to coordinate across the different evaluation approaches (e.g., process, impact) and implementation teams to build appropriate evaluation tools.[220, 221, 222]
- **Cost-effectiveness analysis.** The evaluation team conducting the cost-effectiveness analysis of A360 faced challenges in isolating the cost of HCD and mapping the variation in expenditure related to implementation across geographies.[223, 224, 225] The use of a multidisciplinary approach to ASRH programming that included HCD, public health, adolescent development, social marketing, and cultural anthropology activities intensified this challenge.[226]
- **Repeated engagement with respondents.** In HCD+ASRH interventions, program participants participate in HCD research and program evaluation activities. The frequency of data collection from the same groups of respondents can lead to research fatigue. In A360, the process evaluation team noted the need to streamline the number of contacts with participants.[227] One respondent advised that it is preferable to be “in the room during the design process so that points

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that are related to evaluation can be integrated into that process rather than having a separate stream of going back to people again."[228]

- **Limited time.** Respondents from all programs reviewed reported lack of time to reflect on and integrate evaluation findings to inform implementation. For example, the A360 team expected to feed process evaluation findings into the intervention design. However, they found that program implementers had little time to pause and reflect on the findings because of the fast pace of implementation.[229] The country implementing teams engaged differently with external recommendations: while some were receptive to feedback, showing the willingness to listen and adjust, others were more protective of their "solutions."[230] When evaluators employed PAR activities, including "Sounding Workshops" focused on operational questions that were important to the country teams (e.g., health care provider attitudes), they provided a safe space for evaluators and implementers to integrate evaluation results and optimize solutions.[231]

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Challenge #6: Integration of design and measurement

Respondents reported two approaches to program funding that introduced challenges for effective use of MLE in HCD+ASRH programming. The first challenge is resource availability to take a comprehensive approach to MLE in HCD+ASRH projects. Integrating HCD techniques into ASRH programming requires flexible and adaptive measurement and learning approaches and funding for MLE at each step of the process. For example, support is needed for developing ways to monitor early-stage iteration of potential interventions (e.g., prototype testing) and to allow time to implement baseline surveys once interventions are designed.[232] The second challenge is finding ways for different disciplines to work collaboratively and avoid professional silos. HCD+ASRH project teams often include professionals and approaches from a range of disciplines. When contracted as independent contributors to the project, partners tends to work within their own professional boundaries and apply measurement frameworks that reflect their own discipline. Few processes are in place for building a common language, sharing decision-making, and developing a shared road map that integrates all partners, including measurement professionals. The evaluation of the Diva Program and Future Fab noted a lack of clarity related to roles, responsibilities, and accountability across different program partners.[233, 234] "[Each] had different expectations of what the partnership would deliver to achieve the goal, the timeframe for achieving it, their specific roles and responsibilities, and levels of effort needed."[235]

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Discussion and Lessons Learned to Date

Applying HCD to public health programming is in an early stage of development. Stakeholders have an increased understanding of the importance of the role of HCD, particularly in relation to its value in building empathy (e.g., by bringing patient voice, user perspective, and innovation) and in aligning health interventions and health systems with people's needs.[236] Research and programmatic evidence on HCD and global health programming are helping in documenting and assessing programs that integrate HCD, as well as exploring the influence of HCD on program processes and outcomes. However, additional investment is needed to guide the integration of measurement in design-led programming and to help adapt traditional MLE processes in this context.

Heller, LaFond, and Murthy (2021)[237] note that integrating HCD and global health "requires new approaches to managing measurement across multidisciplinary project teams that optimize the rigor of public health monitoring and evaluation" and the learnings that HCD can uniquely provide. Lessons learned emerging from this landscape review also suggest the need for integrated approaches to M&E of programs that apply design. With a few exceptions (e.g., Adam et al. 2020), the focus is currently limited to using measurement in design to ground HCD in empirical evidence or to address the theoretical question of how and why HCD works.[238] As an extension of that, practitioners and expert groups are found to embody emerging knowledge into how HCD and HCD programs get measured that may not always be reflected in the literature. Improved understanding of HCD's influence on program impact through thoughtful framing and measurement will help inform future investments in global health.[239] The value of integrating measurement into design comes from its role in making the overall program outcomes explicit, and in defining the hypothetical pathways and drivers that lead to these outcomes (e.g., through a ToC). Introducing subjective and objective metrics to test the pathways over time helps determine whether the intervention is developing relevant conditions critical to its overall success.[240]

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Planning for integration of design and MLE across all programmatic stages

Program and partnership structures have a direct impact on how HCD is integrated into health programming. They also influence the extent to which measurement can be integrated effectively into design processes or across the program cycle. A review of the program documentation and consultations in this landscape analysis advocated for building in processes that continuously integrate design and measurement teams to improve cross-disciplinary programming. Grant structures and resources are needed to enable designers to work with program teams in shaping M&E strategies as well as support the use of systematic measurement approaches during the design phase.

One evaluation respondent shared the value of "being in the room from the very beginning" of MLE planning to ensure that evaluators understand the intent of design and designers and can define ways to work with the M&E team across the program cycle. Evaluators reported that direct observation of design processes was instrumental in capturing the fast-paced, highly iterative HCD process and in learning how decisions were made at key points.[241] They found that PAR in early phases of a program was helpful for documenting the process of design and informing the program about the key questions that were raised and addressed through HCD. As noted by an evaluator:

> ***"The process has a lot of innovation and adaptation and can be hard to reconstruct a journey through that from post-it notes."***[242]

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From the designers' perspective, what emerged as a learning was the importance of creating opportunities for the design team to gain understanding from program partners around MLE strategies and key indicators of program success, by working alongside the implementation and measurement teams. Designers noted that early engagement on MLE enabled them to integrate program output and outcome indicators in the design process and to develop well-rounded and systemic solutions. One designer respondent emphasized the importance of implementers, evaluators, and designers co-designing measurement strategies; this ensured responsiveness between design and measurement processes. For instance, A360 paused the PE after the pilot phase and the design team worked with implementers and donors to develop evaluation questions that reflected the solutions under development, working within A360's ToC.[243] As noted by a designer:

"We are experimenting with a problem tree approach; we work with measurement teams to get clear on the outcomes and impacts expected and return to the design process to make decisions on prototypes and build them out, in essence integrating theory of change in design practice."

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Considering intermediate outcomes indicators that emerge from HCD processes

Programs employing HCD delve deeply into drivers of human behavior to identify how they can be addressed in program interventions to improve the uptake of health services or introduce new practices that improve health outcomes. Respondents recommended greater investment in defining and measuring indicators that reflect these intermediate outcomes along the pathway to overall program success as a way to assess the role of design and guide the design process. Various studies reviewed in this landscape, as well as expert consultations, suggest that a user-centered understanding about human behavior and behavioral drivers that emerge from design techniques could be integrated into public health M&E, or used in early-stage program monitoring as well as outcome measurement.

Managing cross-disciplinary approaches, methodologies, and indicators

All programs reviewed emphasized the importance of increased understanding around key concepts, vocabulary, and approaches among partners across disciplines (design, program implementation, and measurement). Doyle et al. (2019) recommend that evaluators, implementers, and designers take time to familiarize themselves with the methodologies used by other disciplines and have open discussions about the potential challenges and ways of addressing the same during interdisciplinary research.[244] Others note that activities and concepts applied in the course of the ideation process are key to building a shared understanding of program intent and metrics of success in early program design phases.[245] It has been proposed that the ideation process is where HCD adds value to traditional program design processes. Yet, the importance of this phase is least understood by stakeholders, which introduces challenges in program partnerships.[246] For example, when designers use the term 'implementation' it typically refers to the piloting rather than the scaling of solutions. The use of this term can create expectations among program implementers about "solutions readiness" that are often seen to be unrealistic. In the progressive handover of design solutions to the program managers at this phase, lack of shared understanding of concepts like "implementation'" can create tensions.[247] A few examples are found

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of tools that mediate or provide a bridge between design and implementation concepts in the form of “report cards” for prototypes and “implementer observation tools.” Also, designers need a better understanding of concepts, terms, and practices used in program M&E. The MeasuredD website notes:

> ***“Despite the important role that communication plays in the practice of social design, we do not yet have a shared language to facilitate the requisite collaboration.”***[248]

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Using adaptive M&E approaches

Iterative learning processes in HCD are increasingly integrated into program implementation in the form of adaptive management. Some programs that integrated HCD adopted additional adaptive approaches to continue to modify program interventions throughout the program cycle. Inspired by HCD, A360 adopted a user journey approach to structure the evaluation process, which enabled them to compare how girls were navigating, experiencing, and benefiting from a health intervention with behavioral pathways discovered during the design process. This tool was found to be useful for monitoring the program ToC because it was specific to the learning uncovered during design. One evaluator respondent suggested that when measurement is integrated into design, it is important to focus on "how you do it" as opposed to "what you do," indicating how measurement teams need to be comfortable in being utilization-focused. This may involve using deep-listening techniques with designers and implementers to understand decisions about the evolution of solutions and to adapt questions and timelines to align with the need for program learning. Methodologies to support adaptive approaches include PAR, sounding workshops, and pause-and-reflect sessions. These approaches allow for collective reflection, where design and implementation teams work with evaluators to review evaluation findings together and interpret and co-create modifications in program solutions or implementation strategies. Respondents noted that adaptive approaches to measurement and programming require adequate and continuous resources to implement them effectively. As noted by an evaluator:

> ***"As the design process is fast moving and adaptable and evaluation needs to mirror it to undertake evaluation well."***[249]

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Framing the value of design before undertaking assessments

To advance the integration of measurement in the context of HCD+ASRH, designers need to frame the intended role of HCD and the value of design for stakeholders at different phases of the program cycle. It is challenging to link HCD directly to achieving program outcomes. Thus, theoretical framing and exploration of the role of HCD should focus on HCD's contribution to program solutions and processes. Stakeholders cite a range of ways in which they feel design adds value, but note that the value of design is not well documented with observations or metrics, and that we lack a framework to define "what good looks like" in HCD+ASRH.[250] Research and program documents, along with respondent comments, indicate that the elements of the HCD process that add value relate to surfacing and designing interventions in response to user needs and desires, building openness to innovation, building empathy for users and the contexts in which they live, and having an iterative problem-solving and prototyping mindset. These processes contribute to solutions that are desirable and acceptable to users, are aligned with user context, and enhance the likelihood of solution adoption and satisfaction. A design organization, IDEO.org, has begun creating a framework of the value of design based on its stakeholders' experience with design-influenced programming. Such a framework will help donors and practitioners to explain the role of HCD to public health implementers and provide structure for defining ways to monitor and evaluate HCD.

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Integrating practices

Opportunities for improving the integration of measurement into HCD+ASRH programming lie at the nexus of evaluation, programming, and HCD practices. We require deliberate efforts to find synergies among these disciplines. One design expert reported that her team is increasingly focused on empathizing with and designing for implementers as users (of HCD), and facilitating processes for deploying solutions together with implementers. They have also adopted “implementor feedback moments” and live prototype tracking, applying rapid learnings to optimize solutions.

In the future, developing a symbiotic relationship between design and measurement can help improve design practices as well as the understanding of HCD’s role in defining program solutions and processes. In practical terms, HCD, ASRH, and measurement practitioners should consider the following:

1. Using a cross-disciplinary process to co-create and evolve ToCs that clearly define programmatic outcomes and theoretical pathways of change as well as reflect learning from design research and solution-development processes.

2. Involving design teams in program-shaping discussions that are grounded in the ToC and exposing them to the articulation of a ToC and the definition of program intermediate outcomes, milestones, and metrics.

3. Involving implementer and measurement teams in the design phases to gain a shared understanding of program and design processes and parameters, linking design, implementation, and MLE.

4. Building a common set of metrics that include design-focused indicators such as user experience, desirability, usability, and user fit, as well as public health indicators, such as acceptance, adoption, and affordability.

5. Extending the rapid cycles of learning of design phases to implementation and program MLE.

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Annexes

Annex 1. Learning questions and sub-questions

The landscape review sought to answer the following learning questions and sub-questions:

1. How has measurement and evaluation been integrated into HCD in the context of ASRH programming?
    a. What key elements/ components/ principles of traditional MLE methods have been used in HCD+ASRH evaluations?

    b. What evaluation strategies have been experimented with for evaluating HCD+ASRH programs and processes? (Probe: What kind of evaluation frameworks i.e. process evaluations have been used to inform design led program adaptations?)

    c. What kind of HCD driven and inspired evaluation strategies have been effective and could be conducive to HCD+ASRH programs? What have been their benefits?

2. How has design and its value been measured and assessed in HCD+ASRH programming?
    a. Does the evaluation tool/approach/strategy evaluate the impact of HCD as a method in ASRH programming or the intervention itself?

    b. What new insights around measuring the impact of HCD in ASRH programming did these tools/strategies/approaches generate?

Annex 2. Inclusion criteria

Inclusion criteria for HCD+ASRH+MEL resources (inclusive of grey literature, program documents)	
Population, or participants and conditions of interest	This includes academic institutions, youth organizations, designers, evaluators, ASRH/ HCD+ASRH practitioners/ projects, government agencies (institutions).
Interventions	ASRH projects and solutions implemented or developed through HCD or related approaches such as design thinking and behavioural economics; includes prototype development (all stages), evaluation, monitoring, measuring of any kind
Outcomes of Interest	Measurement, monitoring, evaluation or assessment of the intervention or solution in ASRH programs with elements of ; adoption of HCD in practice; robust Monitoring Evaluation and Learning system
Geographic setting (context)	This includes geographic regions of the Global South (SSA and Asia); include Global North resources that can be adapted for use in LMICs

Annex 3. Interview guide

1. What innovative evaluation practices for HCD+ASRH programs have shown promise in the longer term, that we should build upon?

2. What should you not change from traditional MLE even when you're building evaluation strategies/approaches for HCD-led programs? (Any particular approaches we shouldn't move away from?)

3. Have you seen a clash between measurement indicators from users' side and implementation-donors' side?

4. What examples have addressed the desire for quantification of HCD processes to a certain extent? Is it useful/possible?

5. While creating evaluations for the HCD-led processes during a project, what are the various contingencies that you have encountered as an evaluator?

6. How can we measure early stage innovations for their potential for implementability and scalability in HCD+ASRH programs?

7. Are there examples of common language / vocabulary on indicators and results that can be understood across design, implementation, evaluation and donor disciplines?

8. If you were to pick one theme / challenge in MLE+HCD+ASRH that you feel we should explore deeply and build solution sets for, what would that be?

Annex 4. Tools and techniques

Participatory Action Research

Participatory Action Research (PAR) was utilized only by one project i.e. A360, which introduced this component in its process evaluation in 2018 in Ethiopia and Nigeria, to provide a mechanism to answer implementers' 'burning questions' in a rapid way. It was used to understand beneficiaries' "actual experience" by comparing their actual experience against the intended user journey.

PAR allowed the A360 country teams to identify specific areas for in-depth review, also allowing a faster turnaround of findings. These included areas of challenge or areas of success where a deeper understanding was beneficial to the program, with evaluation questions and implications from the research co-developed with A360 implementers and the evaluation team. PAR exercises were conducted on an ad-hoc basis, in line with the needs of the implementing teams, which included rapid, light touch data collection and analysis conducted independently by the evaluation team, and sounding workshops (explained below).

Participatory Youth Research

This analysis indicates utilization of Participatory Youth Research only in A360, where its approach was drawn from the principles of Participatory Ethnographic Evaluation and Research (PEER). PEER 'is based upon training members of the target group…to become peer researchers to carry out in-depth conversations and interviews among their own peer group.'

It was reportedly trialled in Ethiopia and Tanzania during Pilot and Optimization phases where girls were trained as peer researchers and engaged in co-creating interview questions, who then interviewed their peers about the A360 intervention (such as their interaction with service providers). All data collection activities, research questions, etc were conducted in the

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local language by researchers fluent in the same. Other participatory techniques were also utilized during this process, such as:

- Critical group reflection methodologies, to promote dialogue over the findings between the peer researchers.
- Role plays, to enhance understanding of the interview questions and consent process, as well as unpacking some of the issues raised through data collection.
- Visual storytelling through the form of drawings, to explore and validate the findings from the peer research.

This approach was reported to have generated rich insights into girls' perspectives and experiences. However, some challenges in applying these methods were reported, as the nature of girls' interactions with A360 in both Ethiopia and Tanzania (through potentially one-off outreach events or counselling sessions) was dependent on extensive exposure and saturation in target communities. Therefore, new and revised methods were suggested to ensure maximally rich and insightful data is collected. At the Scale phase, the team proposes to consider whether a participatory ethnographic approach is suitable in each context. In cases where it isn't, lighter-touch participatory sense making workshops with girls who have taken part in IDIs and FGDs will be trialled instead. These half-day workshops will utilize above-mentioned participatory techniques, and involve sharing and discussing insights from interviews as well as focus groups with a subset of girls who participated in data collection. The participants will be encouraged to reflect on the emerging findings, which would help build a deep understanding of the issues being raised.

Tracer Study

Tracer Study is another evaluation technique reported in this analysis, which was utilized only in Kosovo Programme's evaluation, where a Youth Tracer Study was conducted as part of the evaluation. This study provided additional insights into the Adolescent Development and Participation (ADAP) component, since it had had no thematic evaluation done to date, and specifically focused on the three project models employed with youth: UPSHIFT, PODIUM, and PONDER. It intended to track long-term changes that occurred in the lives of youth who had participated in the models, under which the key evaluation criteria examined were relevance, efficiency, effectiveness, sustainability, and synergies. The team consisted of 2 local consultants who were engaged to support this component of the evaluation, and ensured collection of information from different data streams: a) KIIs with youth-specific stakeholders among Kosovo Institutions, NGOs, and current and former UNICEF KO and Regional Office staff; b) 32 youth cohort FGDs with participants of UPSHIFT, PODIUM, and Ponder; and c) a

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virtual survey that was made available through the Survey Monkey platform to participants in all ADAP models throughout the Kosovo Programme.

The KIIs and FGDs were conducted on virtual platforms of choice (Skype, Zoom, Viber, phone calls, Microsoft Teams, etc.) for the stakeholders, and were organized as mini-FGDs, with smaller numbers of persons (ideally 3–5) to cater to bandwidth and online limitations. The online survey was developed based on UNICEF KO's pre- and post-monitoring survey used for monitoring UPSHIFT and PODIUM models. The survey collected basic (anonymized) demographic data along with specific composite measures (education, economic activities, readiness self-assessment, participation and empowerment, primary contribution of the models, and quality of the activities participated in). These scores were then compared to the monitoring data compiled by UNICEF for triangulation.

User Journey Mapping to document Practitioner and User Experiences

This commonly used HCD tool was observed only in A360[9], where the project utilized a 'user journey' during its process evaluation as a visual depiction of an A360 solution, from the perspective of the beneficiary experiencing the intervention. This tool is similar to 'journey maps' - a systematic approach used in health research to document service-user touchpoints with an intervention, capturing both the physical and emotional journey of the user, including behaviour, feelings, motivations and attitudes. It was therefore chosen as an alternative to country level theories of change or logic models. The early stages of A360 process evaluation focused on exploring and understanding the A360 approach, with a growing emphasis on the solutions as they were prototyped and piloted. With the transition into the scale up phase and streamlining of solutions, the PE had to shift to a more detailed investigation of each solution in its content and how it was being implemented. In addition to this, the solutions constantly evolved throughout the HCD process as well as the adaptive implementation process in each country, presenting challenges in differentiating between what was intended versus what was actually implemented. As a result, 'user journeys' were utilized in response to these challenges and explored the following at the solution level:

Implementation: The user journeys provided a detailed description of each solution and the touchpoints between the solution and adolescent girls, and was used to explore:

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- **Fidelity and adaptation**: How far were solutions being implemented according to the 'spirit' of the solutions? What was being adapted and why? Were adaptations in line with PSI's adaptive implementation framework and adaptation guidelines? What have the consequences of adaptations been?

- **Dose**: Number of touchpoints girls have with the solution, the proportion of participants accessing each touchpoint, and the extent to which solution components were being delivered in the planned numbers, districts and sites.

- **Reach**: How many girls were participating in A360 activities? Who were participating, from which groups, and how representative was this of the population of girls?

Mechanisms of impact: It helped the team investigate the causal assumptions within the solutions about how and why certain activities triggered change, which would help map out how and why each element of the solution was expected to contribute to the outcomes in the behaviour change path. Together with PSI, the mechanisms of investigation were prioritized in order to build understanding of how and why the solutions were (or were not) working.

Context: It helped deep-dive into how specific contextual factors affected specific aspects of the solution, helping mitigate the challenge that was faced throughout the PE of how to meaningfully integrate contextual analysis into data collection and findings.

The process of developing these user journeys included development of a draft form by the evaluation team through an initial document review, followed by discussions and finalization with global and country-level A360 teams through calls and workshops at the beginning of each data collection phase. The tool was reportedly more intuitive to program teams, who were able to build on existing program thinking, as they used user journey language and terminology instead of ToCs in their strategy and design documentation. Additionally, it provided a relatively simple way to visually depict what each model for a country level solution looked like at specific time points over the course of the program, and allowed easy and rapid documentation of adaptations, enabling distinction between unplanned 'drifts' away from implementation fidelity.

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Report Cards to Gather Multi-Stakeholder Feedback

Report card is another tool that was found in this landscape analysis, which was employed only in A360. It was a tool developed by the A360 Consortium to document and present the results and learnings of different design phases, measuring against these parameters - desirability, feasibility, sustainability and scalability. They were reported to be used retrospectively as a 'sense check' and communication tool between country teams, consortium members and the Foundations. The report cards ensured influence and perspective from other disciplines than HCD during the design process. However, their level of influence on the solutions differed based on the level of effort and resources allocated to each discipline representative or organization.

Collaborative Learnings and Reflections Workshops

Various types of Learnings and Reflections Workshops were found to play an integral role in evaluations of 3 projects (A360, Hewlett evaluation study, and Young@Heart) reviewed as part of this landscape analysis. In A360's process evaluation, participatory 'sounding workshops' were introduced in 2018 to facilitate deeper engagement of A360 staff with PE findings. These were 1-day workshops where implementation and evaluation teams came together to review and discuss the draft findings, verify insights, and collaboratively identify implications for A360 and the wider sector. This component was added to the evaluation as there was very limited scope for implementers to reflect on and apply PE findings due to the intense pace of A360 and high levels of demand on country teams. These workshops, therefore, provided a safe space for critical engagement between team members to reflect on what the evaluation meant for learning and optimization of implemented solutions.

Another form of Learning and Reflections Workshop was reported in the Hewlett evaluation study, termed as Force Field Analysis (FfA). As a result of limited documentation on the processes undertaken in the two program sites (Kenya and Zambia), the evaluation team conducted in-country workshops with key stakeholders from Marie Stopes Kenya (MSK) and Marie Stopes Zambia (MSZ). The workshops utilized interactive and visual techniques to work through their experience of the HCD process and build conclusive insights based on consensus. The visuals and the data generated through the workshops were then discussed and refined via three virtual workshops - one with Hewlett Foundation and two with IDEO.org. As a result,

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the workshop as part of the in-country visit enabled further documentation and understanding of the HCD process (including enablers and constraints) and its application in the design of Diva Centres (MSZ) as well as Future Fab (MSK), and refinement of the Theory of Change.

The Young@Heart program also reports conducting creative workshops with study participants (beneficiaries i.e. youth), wherein young people were encouraged by an artist/designer from the team to think more creatively about how to capture their personal experiences. These workshops were part of the Exploration Lab, that enabled creative self-expression through art, theatre, debates and photography owned by the young people itself. This played an important role in Vietnam, where the Exploration Lab activities, including these reflection and self-expression workshops, were reported as a positive way to engage several youth groups while helping young people feel supported to express themselves freely, especially amidst the country's fragile political situation.

User experience and feedback mechanisms

User and client feedback are integral to the HCD process, as it ensures development of contextually relevant, implementable solutions. Often, programs collect feedback from the users as well as the client during the design and prototyping-testing phases. Iterative use of data and learning is intensified when HCD is brought into a project, which mainly happens at the time of solution design. This can sometimes be expanded into the implementation stage as well. In this landscape analysis, only two projects outline the feedback mechanisms they adopted in their respective programs. BeyondBias[1] project ensured feedback on the providers' progress each quarter, along with the opportunity for recognition for their achievements. It did this through a growth-oriented performance rewards system developed as part of the program, based on client feedback. This system had 3 key components - a) a standardized rubric of excellence that enabled measurable progress and clear performance targets for the provider to work towards; b) client feedback, which was captured directly after counselling, with objective questions about provider behaviour; and c) institutional recognition in front of their peers for improvement and maintenance of quality. A digital audio-visual client exit survey app was developed during the design process in order to collect client feedback after interacting with a provider. This app was tested with over 3,000 youth clients at 29 facilities across the three countries (Pakistan, Burkina Faso, and Tanzania) during the prototyping phase. As a result, facilities would receive report cards with performance data and

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recommendations for improvement, and the high-improvement facilities would get public recognition for their progress. This mechanism also enabled behaviour change as it created accountability for service quality; offered visible performance based rewards; and shifted professional norms.

On the other hand, Project (Re)solve reported that it held Adaptive Learning Meeting (ALM) every two weeks during the implementation phase. These would be collective meetings between the Burkina Faso and US program teams, based on monitoring data and facilitator meeting notes shared by the Burkina Faso program team. During the meetings, the Burkina Faso team reported on what they heard from the facilitators and how they problem-solved based on the country's context. Short-loop and long-loop adaptations emerging from the feedback and experiences of facilitators as well as the in-country program team were discussed and documented. Short-loop adaptations were organic or deliberate changes to the intended implementation of the solution and related activities that emerged from or in response to challenges faced by real-world implementation of the program (such as conducting quick refreshers for facilitators on SRH topics selected by them). On the other hand, long-loop adaptations were recommendations for changes emerging from or in response to challenges faced by real-world implementation of the program that could not be implemented within the scope and timeline of our intervention, but ought to be considered for future replication of the solutions (such as expanding the game to younger girls and boys).

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Landscape Review:
Measurement & Evaluation in HCD & ASRH

February 28, 2022

HCD EXCHANGE

विहारा VIHARA INNOVATION NETWORK