

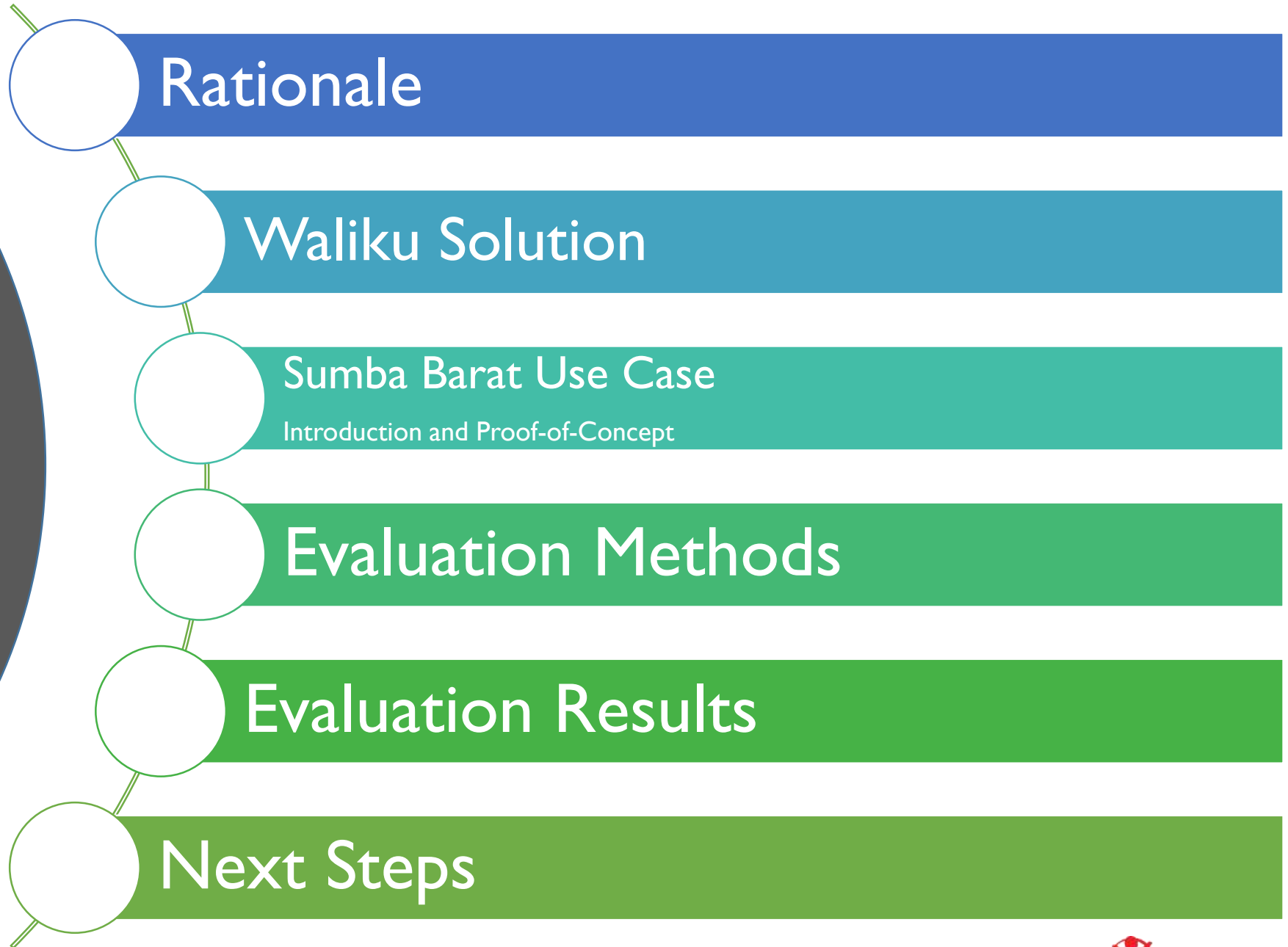


Proof-of-Concept Implementation & Evaluation

2018-2019 Academic Year



OUTLINE





Address **Absenteeism** and **Well-being** of school-aged children in low-resource contexts, with the **strategic use of technology**



Rationale

Student Absenteeism & Well-being in Low-Resource Context

Student Absenteeism

- Marker of threats to wellness
- Lost learning and risk of poor performance
- High drop-out risk
- Chronic absenteeism: a masked threat

Limited Early Detection & Response

- Late or little understanding of reasons for absence on paper-based systems
- Late recognition of health and social threats to children and their school participation
- Insufficient response of counselling, remedial support, and referrals

Threats to Participation & Wellbeing

- Preventable illnesses with high morbidity/mortality such as diarrhoea, malaria, intestinal worms, malnutrition,
- Other personal, family, school, and environmental barriers

Limited Communication

- School and Parents, and Community
- School and education system
- School and health system
- School and child welfare (protection) system


Background

Opportunities to leverage technology to address gaps

- Leveraging technology for education
 - Digitizing Teacher & administrator tasks for attendance and absence management
- Simple though complex solutions
 - Simple adaptations of analog systems,
 - Out-of-the-box digital solutions (one way KoBo/ODK)
 - Customized solution (real-time/ two-way management)
- Emerging Technology
 - Machine Learning, Artificial Intelligence and Block Chain Technology

 Principles for
Digital Development

 Design With the User


 Understand the Existing Ecosystem

 Design for Scale

 Build for Sustainability

 Be Data Driven

 Use Open Standards, Open Data, Open Source, and Open Innovation

 Reuse and Improve

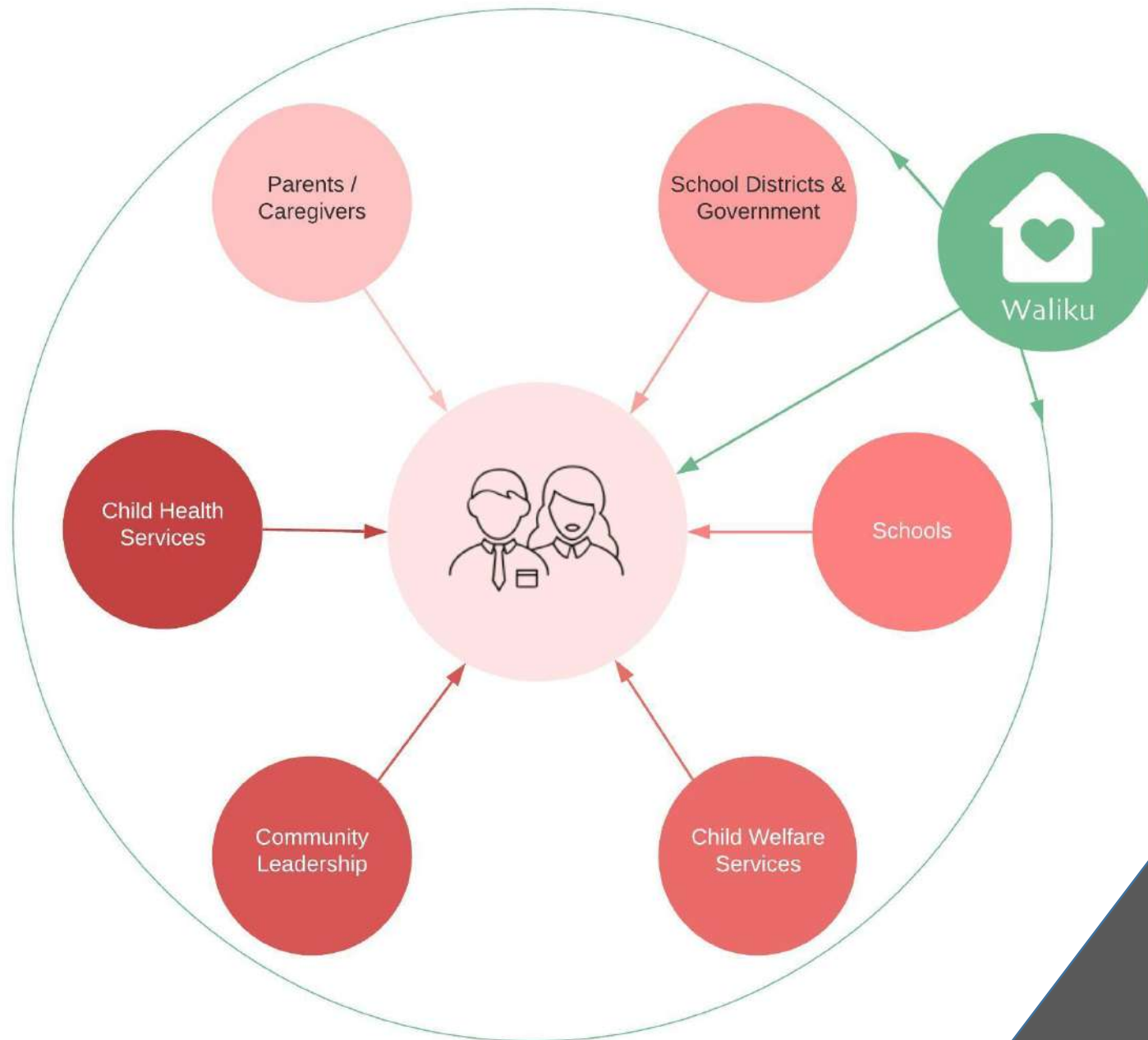
 Address Privacy & Security

 Be Collaborative

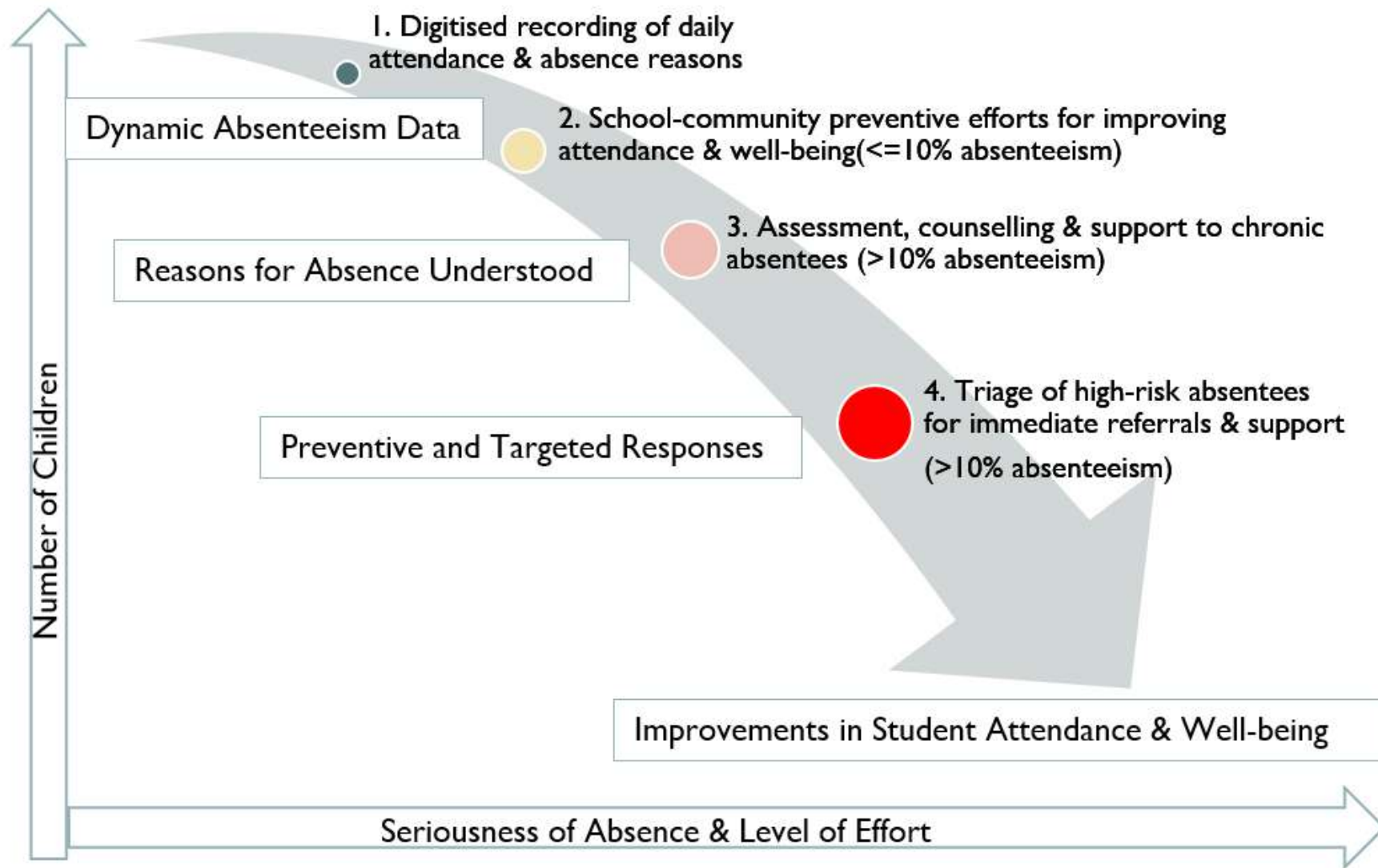
- Student-centric approach
- Addressing barriers to attendance and well-being
- Technology solutions and implementation systems
 - Recognize student absences and threats to their wellbeing
 - Take appropriate action
- A team of education, health and child protection professionals
- Built to withstand technological challenges in the most remote or resource-limited contexts



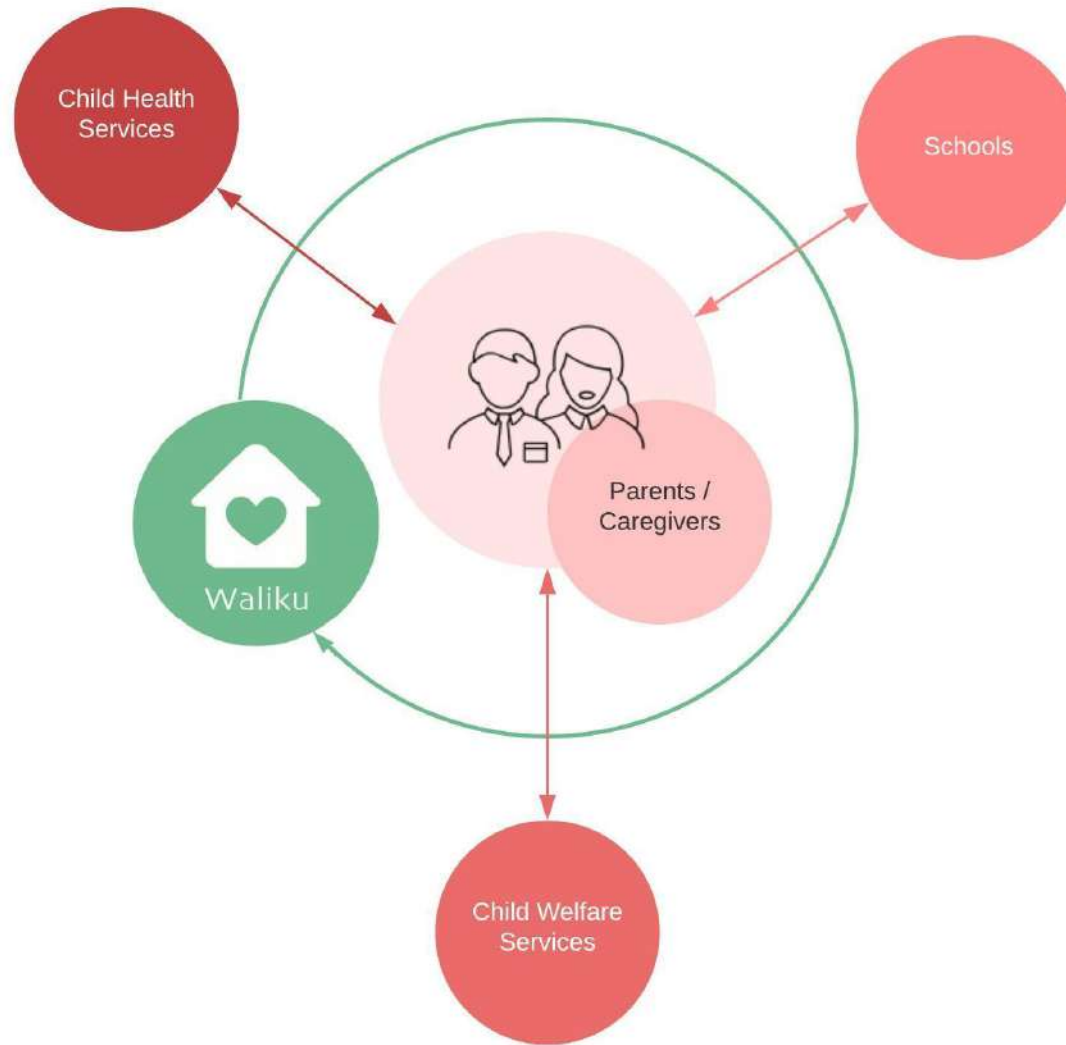
Every child has the right to wellbeing, and to attend school to learn and achieve his/her fullest potential



ECOSYSTEM



Theory of Change **for School : Parent/Child Linkage**



Theory of Change **for Service Provider Linkages**

Waliku Use-Cases

Remote – Rural Communities
(Limited access to support services)

Urban Communities
(Large numbers of underserved children)

Contexts for
marginalized groups

Locales with High Disparities
(Gender, Ethnicity,
Socioeconomic)

Refugee Communities

Waliku Use-Cases

School Safety Program

School Meals or other
Services Program

Strategic use as a
Monitoring Tool

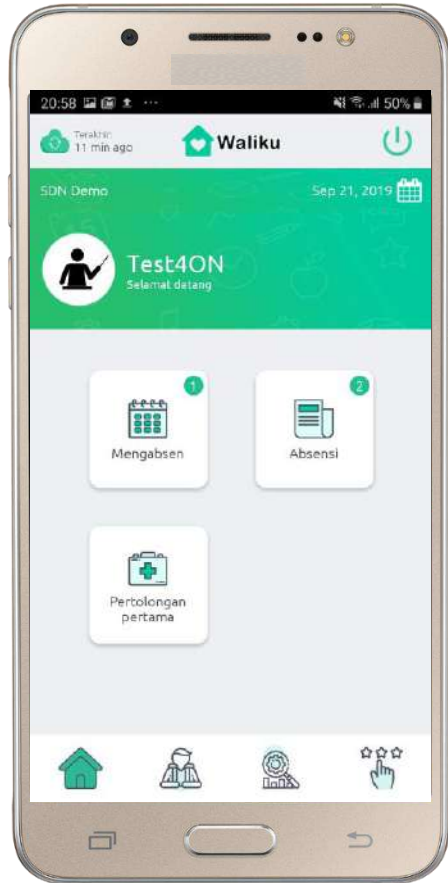
Inclusive Education Program

School Health Interventions

Sumba Barat Use-Case & Proof-of-Concept

- Low Baseline Attendance of Preschool & Primary School Students
- Reasons for Absenteeism Poorly Understood
- High Morbidity/Mortality due to Falciparum-Malaria & Diarrheal Illness
- **Feasibility Study** to elicit community perspectives on barriers to student -attendance and –wellbeing & desire and capability for Waliku’s trial





The Waliku Solution

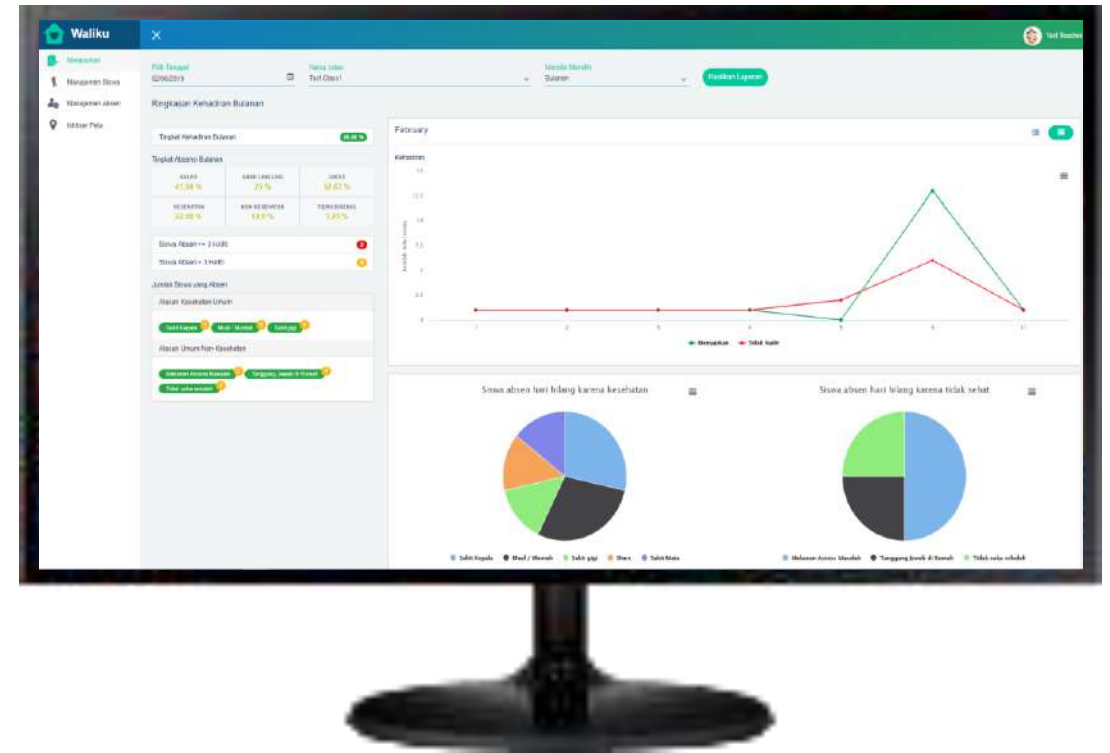
- Developed In-House
 - Specific features
 - Low-bandwidth
 - Anticipated new features

Teacher Mobile App

- Initial Prototype on Xamarin for Attendance-Absence Recording from Aug 2018 - Jan 2019.
 - Online Only
- Version 1 built for Android from Feb-May 2019.
 - Online & Limited Offline
- **Version 1.1 built for Android from Sep 2019 Onwards.**
 - **Online & Offline**
 - **On Google Playstore as V1.5 Beta**

Administrator Web App

- Version 1 built in .Net from Feb-May 2019.
 - Online Only
- Version 1.1 from September 2019 for Year 2. NISN integration for multi-year data per child.
- School Administrative Tasks & Dashboard Functions
 - Academic Calendar
 - Holiday Listing
 - User/ Class/ Student Management
 - Assign Teacher
 - Daily, month-to-date, and year-to-date dashboard summaries



The Waliku Solution

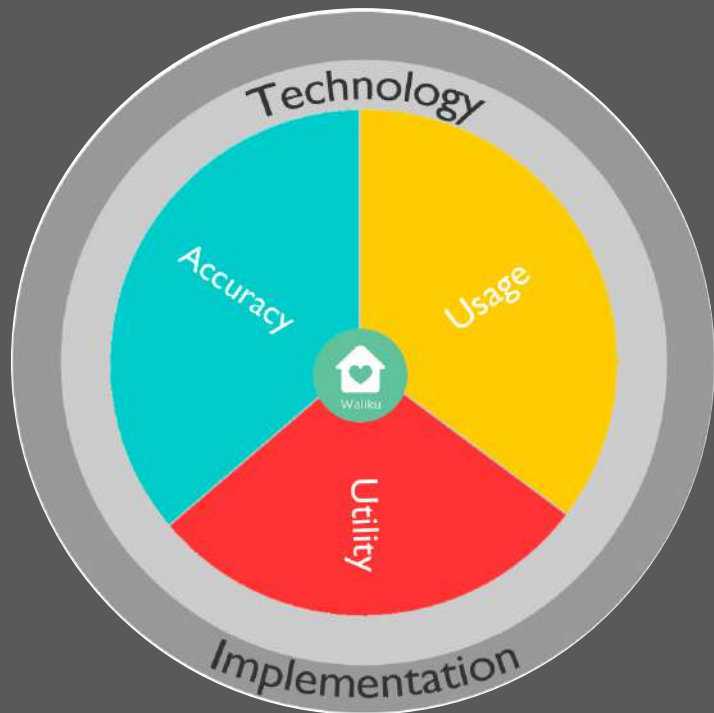
Waliku Implementation

2018/2019 Academic Year

- 48 Classrooms / 1210 Students
- Teachers:
 - Training for Initial Prototype and Version 1
 - Samsung J2 Prime Phone, Loan of one-per-class.
 - Pre-paid Sim- ~ 50,000 IDR/month (data/talk-time)
- Parents:
 - All-school assembly during Report Card Day, Consent & Orientation, Collect phone numbers
 - Meeting with Village Leaders
 - Waliku Posters for Community / School Locations
- Students:
 - Take home-stickers
 - Consultative Inquiry in Sep 2018

| Semester 1 | | | | | Semester 2 | | | | |
|------------|-----------|----------|----------|----------|------------|----------|----------|----------|----------|
| Aug 2018 | Sept 2018 | Oct 2018 | Nov 2018 | Dec 2018 | Jan 2019 | Feb 2019 | Mar 2019 | Apr 2019 | May 2019 |
| School 1 | | | | | | | | | |
| School 2 | | | | | | | | | |
| | | | School 3 | | | | | | |
| | | | School 4 | | | | | | |
| | | | | | | School 5 | | | |

Evaluation Design: 3 Goals & Questions



Usage (adoption and continued-use):

- What was the usage of the Waliku System for daily attendance recording & absence follow-up?
- What were teacher and administrator opinions about Waliku as a system for attendance recording and absence follow-up?

Accuracy (versus the paper-based system):

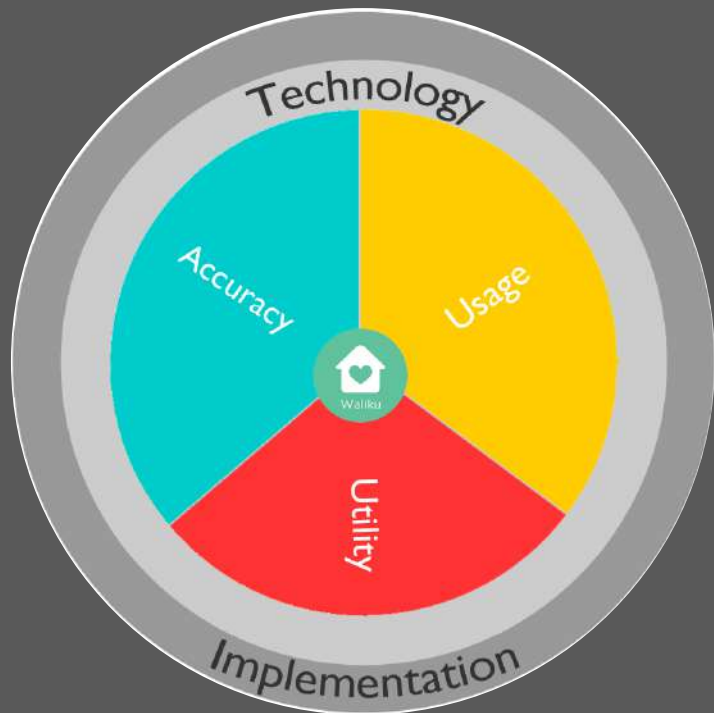
- What was the accuracy of the Waliku System when compared to the existing paper-based system?
- What were teacher and administrator opinions on the accuracy of Waliku data?

Utility (in understanding absenteeism and barriers to student well-being):

- What was the utility of the Waliku System in providing information about absent children, and threats to their well-being?
- What were teacher, and parent feedback on understanding of student absenteeism, wellbeing and response before and after Waliku?

Children's awareness and reaction to Waliku, and their feedback on absenteeism, their reasons, responses, their well-being was also gathered

Evaluation Methods: Data / Timeline



Waliku Database

- Aug 2018- May 2019: School 1 & 2
- Nov 2018- May 2019: School 3 & 4
- Feb- May 2019: School 5
- Feb- May 2019: Absence Reason Data for all 5 schools

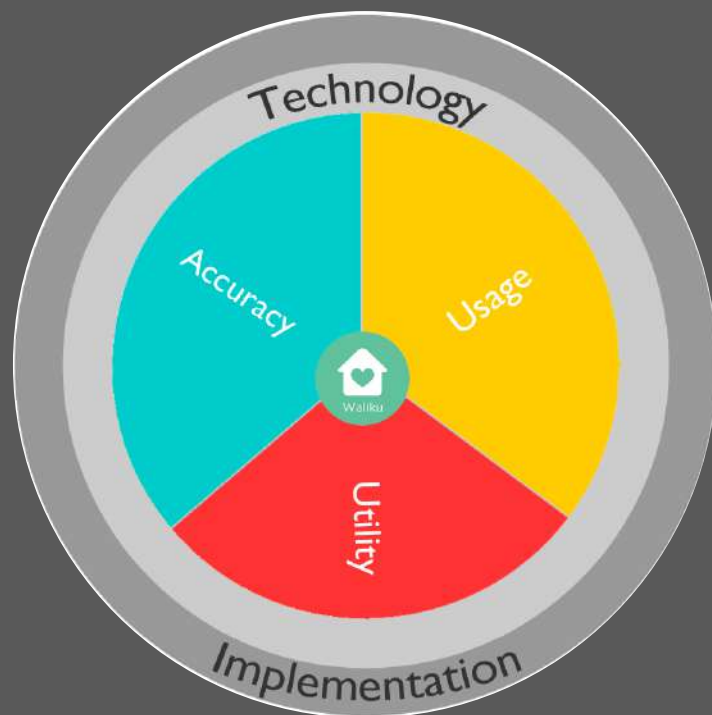
Paper-Attendance

- Aug 2017 - May 2018: Home-Room Attendance for all schools
- Aug 2018 – May 2019: Home-Room & Non Home-Room Attendance for all schools

Evaluation Methods: Qualitative Data

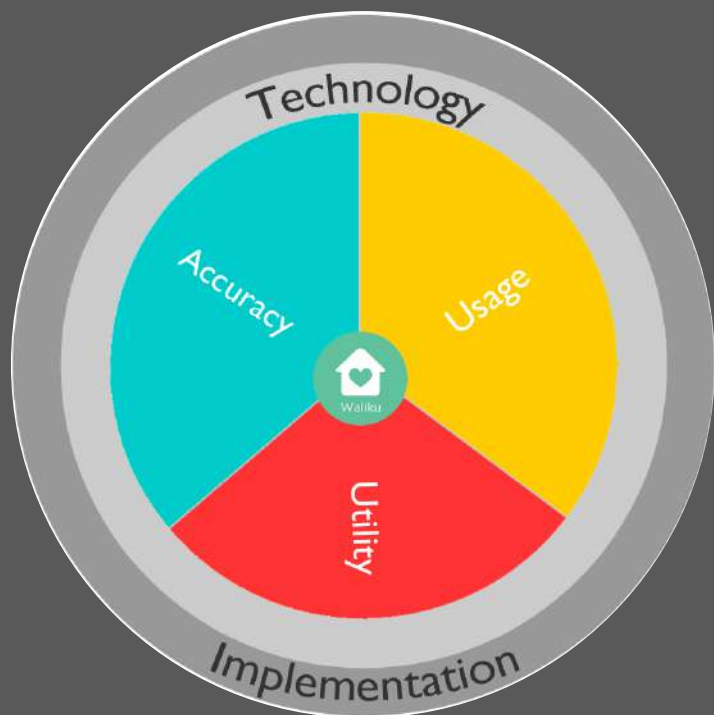
| Theme | Sub-theme | Respondents | | |
|----------|--------------------------------------------------------------------------|-------------|----------------|---------|
| | | Teachers | Administrators | Parents |
| Usage | Experience using the Waliku system & suggestions for Improvement | D/A | D/A | |
| Accuracy | Perceived Accuracy of Waliku | A | A | |
| Utility | Feedback on student absenteeism, wellbeing, and communication B/A Waliku | B/A | B/A | B/A |

B- Before, A- After, D-During



| Teachers | School Administrators (Principal / IT Operator) | Parents | Students |
|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| <p>FGDs- Before (42: 9 Male, 33 Female) After (25: 25 Female)</p> | <p>Semi-Structured Interviews Before (4 Principals) After (4 Principals, 5 Operators)</p> | <p>FGDs Before (19 : 8 Male, 11 Female) After (25 : 7 Male, 18 Female)</p> | <p>FGDs During: (44: 14 Male, 30 Female) After (66: 21 Male, 30 Female, 15: undisclosed)</p> |
| <p>Self-Administered Survey- Before (40: no full disclosure) After (37: 2 Male, 35 Female)</p> | | | |

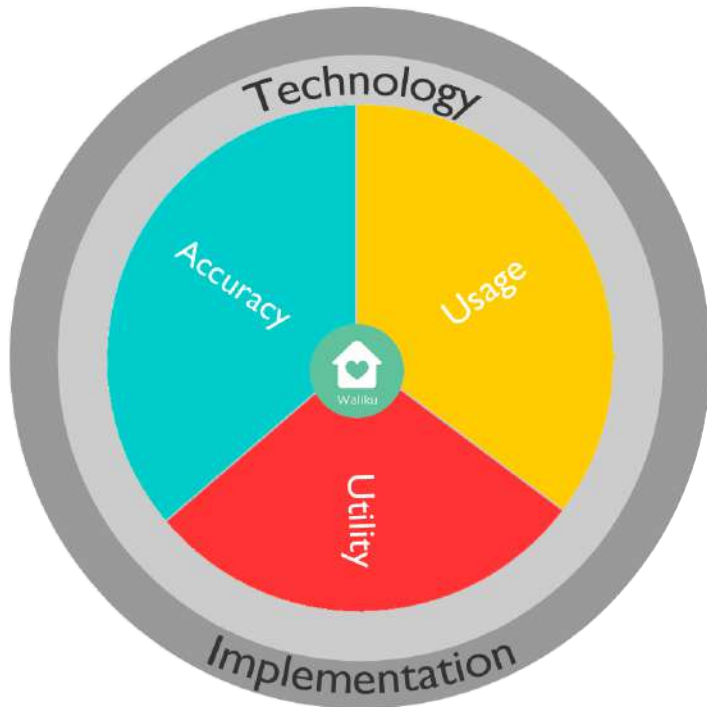
Evaluation Methods: Consideration



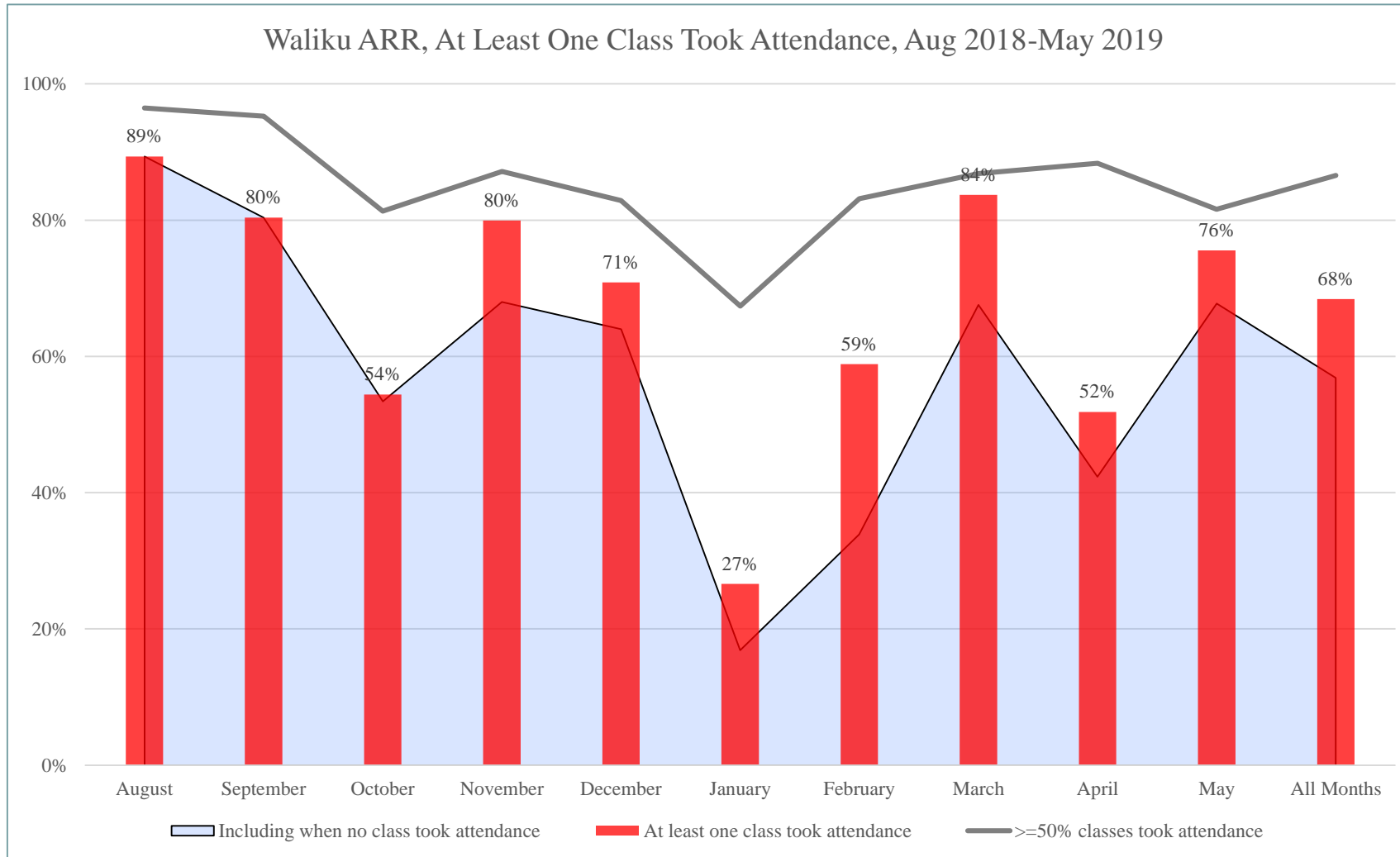
- **Paper-attendance records analyses done using class summaries** of total absence days.
 - Not by individual student. Limited gender, pre-post analyses across academic year
- **Loss of photographed paper-attendance** during the evaluation.
 - Two schools had paper attendance records for 100% of months studied, and two schools for 90%, and one school for 60% of months studied.
- **Calendar variations between schools** were considered, but variations within schools were not captured.
- **System issues with respect to technology and implementation** were considered by looking at days when <50% of the classrooms took attendance.
- **Variation in teaching-learning days by grade** was not assessed in this evaluation.
- **Teacher attendance and a substitute teacher system** was an important factor to taking student attendance daily.
 - Data on teacher attendance was, however, not collected.

Evaluation Results: Usage

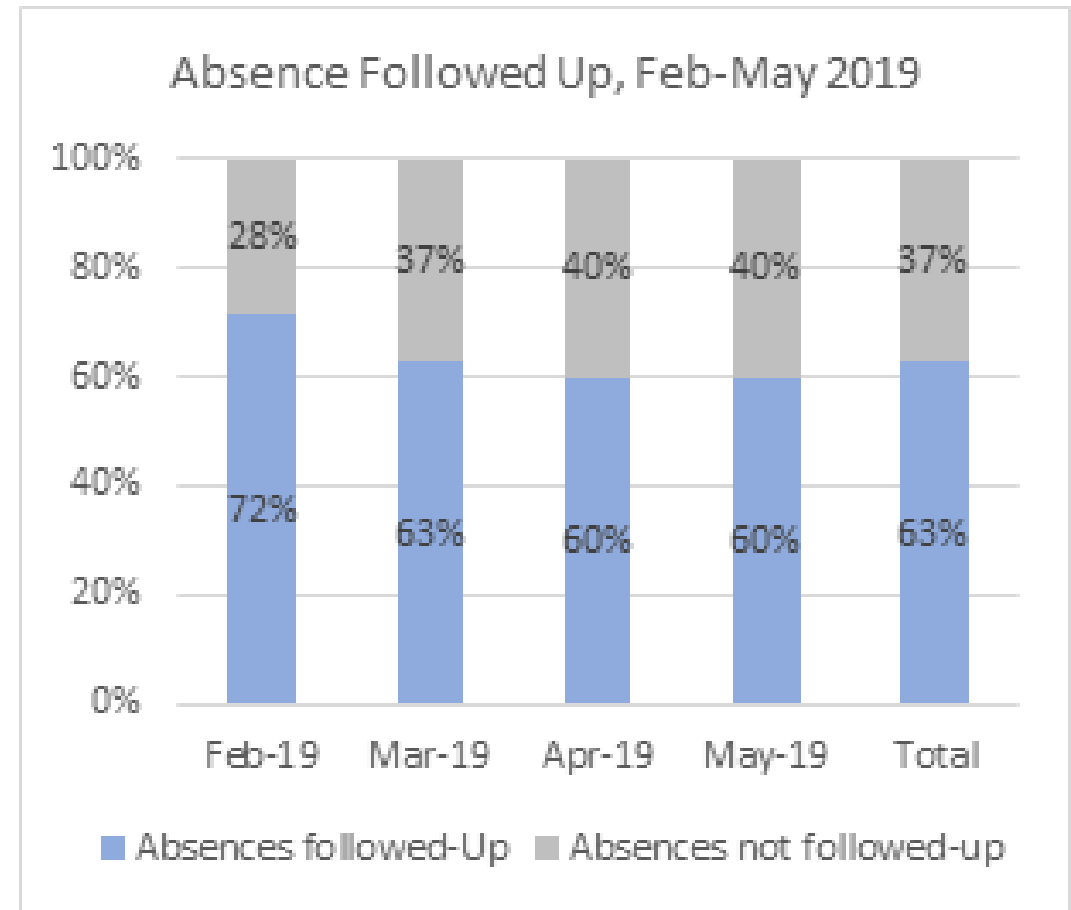
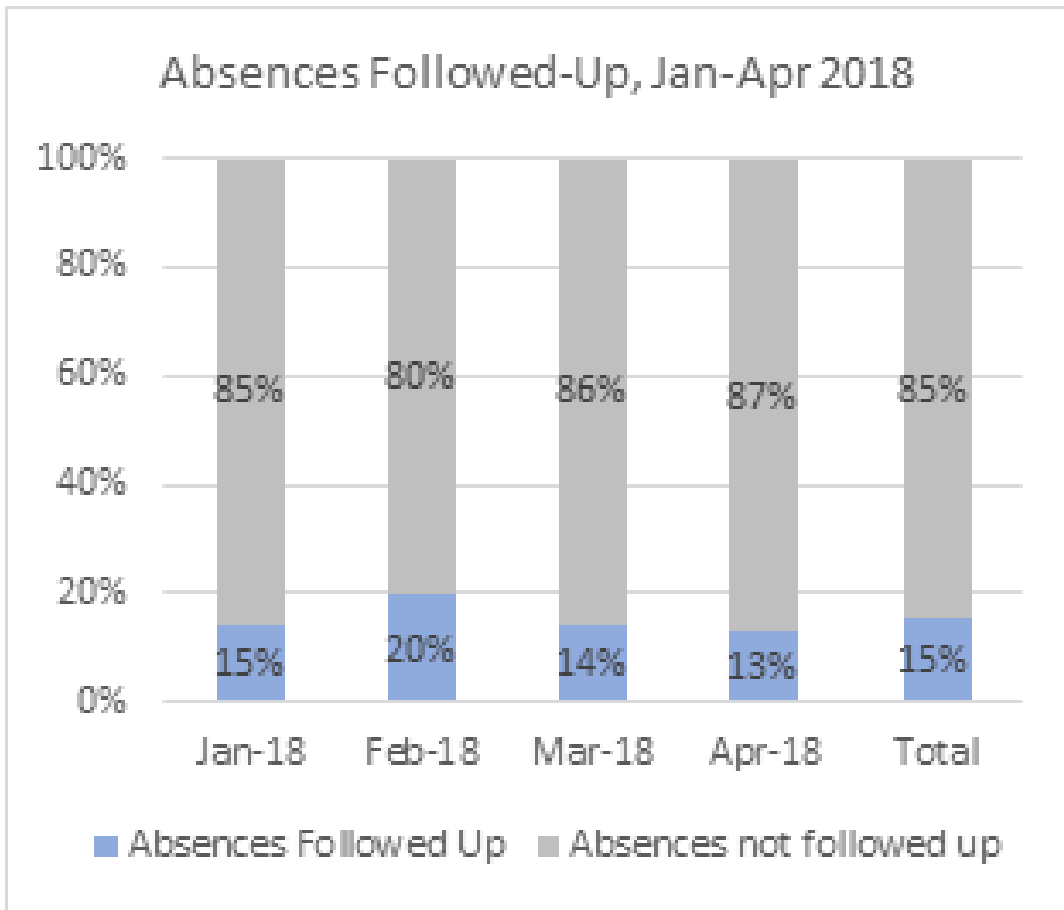
- **Adoption:** 100% (48 of 48 teachers/classrooms)
- **Continued use:**
 - Attendance Taking on Waliku
 - Attendance Reporting Rate (ARR)
 - Absence Follow-up on Waliku
 - % Absences Recorded by Main Reason (Health/ Non Health)
- **Challenges** related to Calendar and Holiday Posting (Denominator)
 - 228 School Days/ 10 Holidays
 - No-attendance-Taken Days: 17% days (19-57 days/ school)



Evaluation Results: Attendance Reporting Rate



Evaluation Results: **Absence Follow-up Rate**



* Followed up absences include known (health/ non-health- 43%) & unknown reasons (20%)

Evaluation Results: **Teacher Opinions**

Ease of Use

- 30/37 (81%): Mobile app easy to use
- 29/37 (78%): 'Recap' of attendance made easy by Waliku
- Most to all teachers: Taking attendance on Waliku is preferable, faster and saves time

Challenges with Use

- Phone data credit
- Cellular data access challenges
- Inability to update attendance after submission

Opportunities for Improvement

- WiFi in schools
- Improved systems for data credit and access
- Additional Android and Waliku training and technical support
- Reminders to take attendance

Evaluation Results: Administrator Opinions

Ease of Use

- 100% Reported both Mobile and web apps were easy to navigate
- All Operators: Waliku is 'Helpful' to 'Very Helpful' to track student attendance and follow up
- 100% Positive responses to using Waliku in the coming year

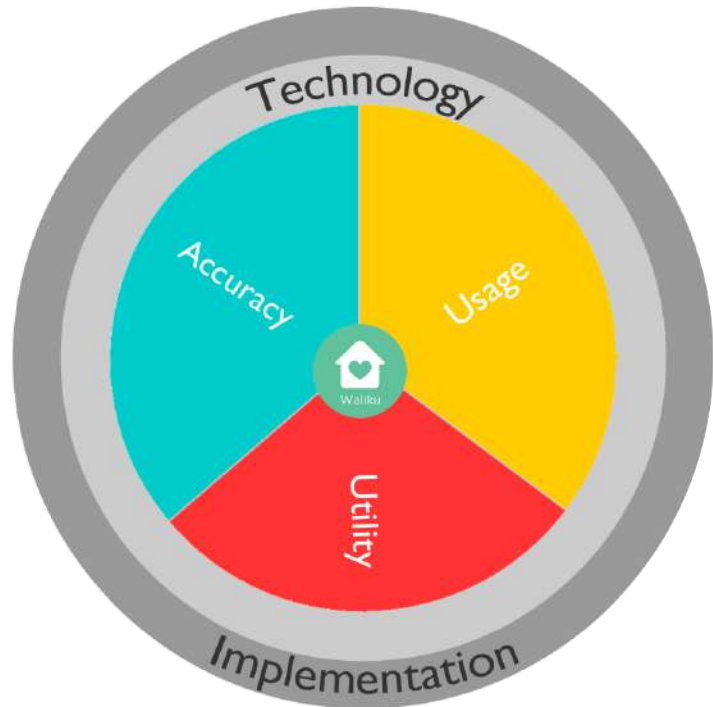
Challenges with Use

- Phone data credit
- Cellular data access challenges
- Teachers' difficulty using smartphones

Opportunities for Improvement

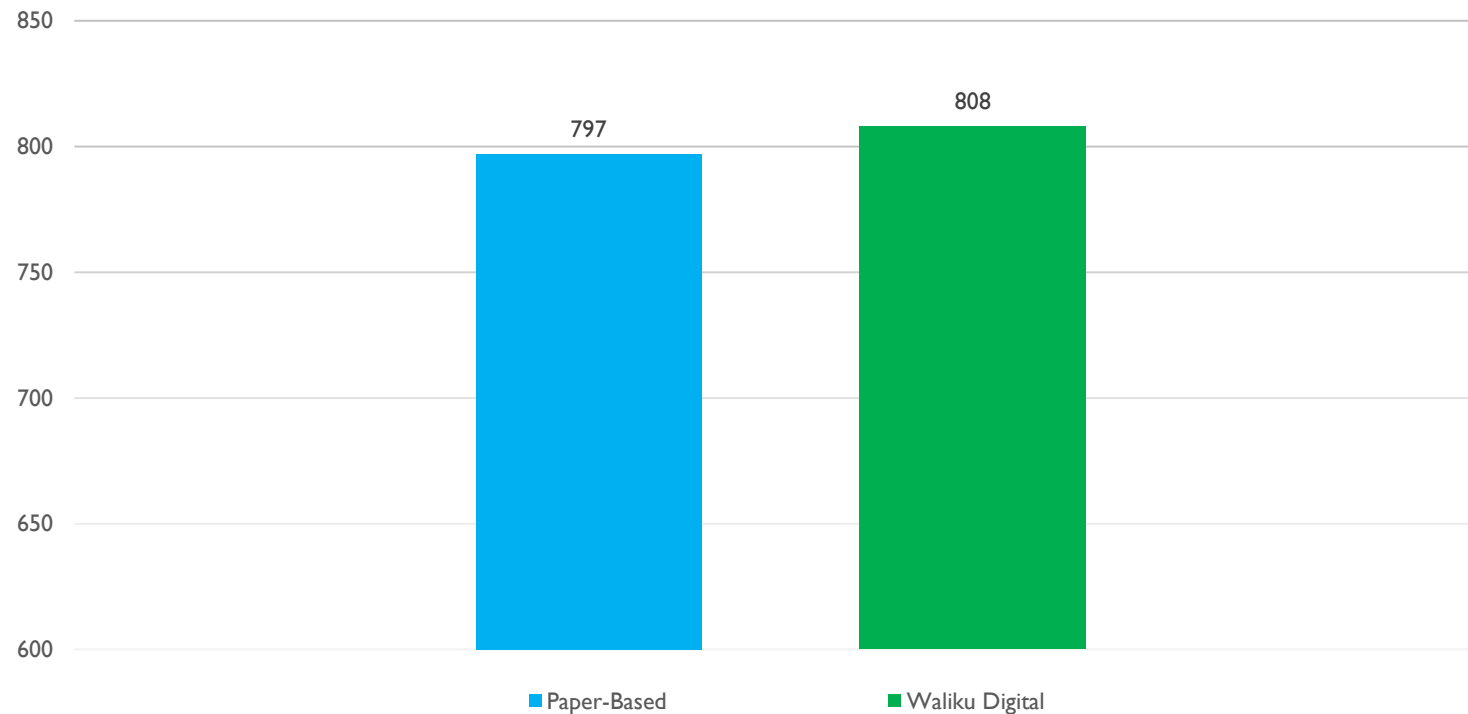
- District access to data can be enhanced
- Additional trainings
- Health Clinic data connection
- Waliku-Dapodik data linkage

Evaluation Results: Accuracy



- **Absences Identified**
 - Percentage difference in absences identified versus the paper-based system
 - Positive difference indicating Waliku was more effective in counting absences.
- Measure of Absences counted in **one School**
- Corrected for Usage Rates $> 80\%$

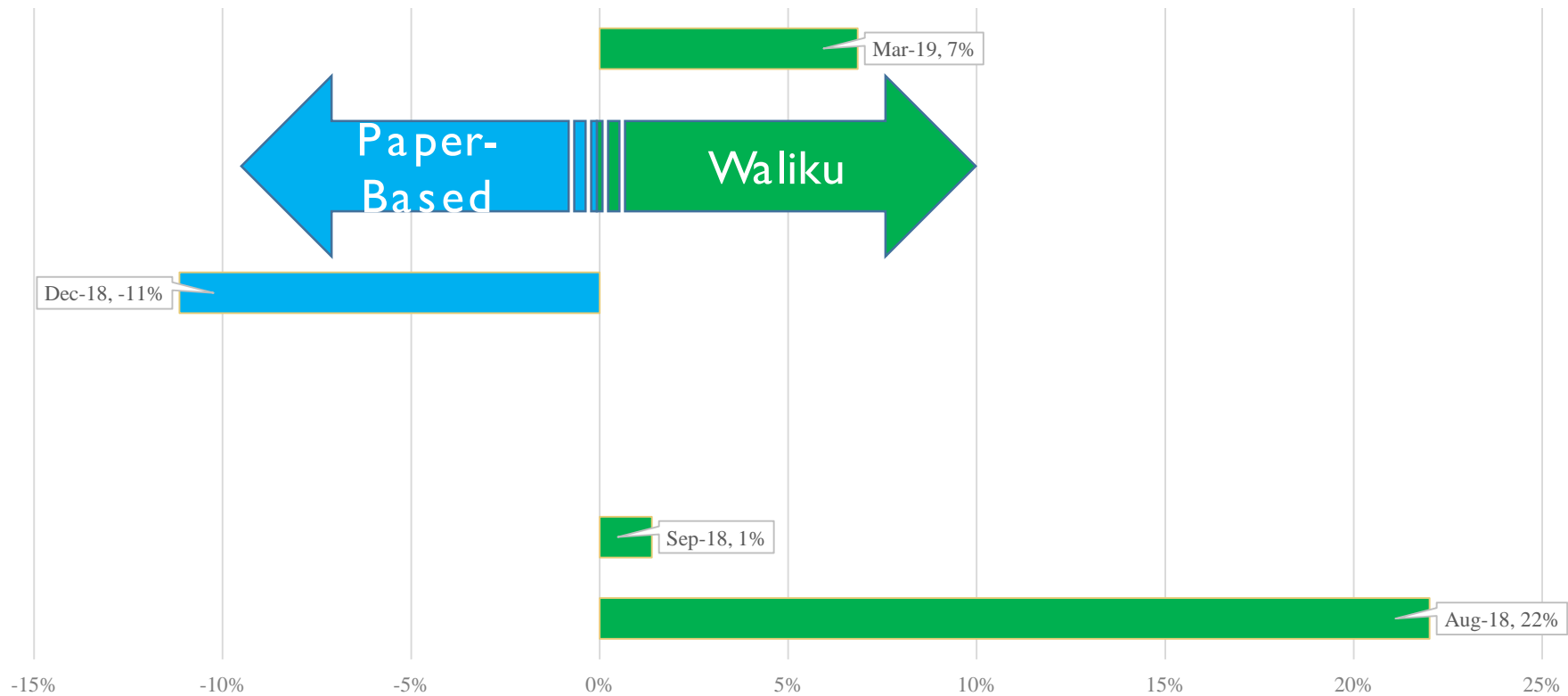
Evaluation Results: Absences Identified



- September : ARR on Paper and Waliku was 100%

Evaluation Results: Absences Identified

Months with Waliku & Paper-attendance Reporting Rate >80%



| Waliku Reporting Rate >80% | Paper Reporting Rate > 80% | Waliku Reporting Rate >90% | Paper Reporting Rate >90% |
|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • December: 89% • March: 83% | <ul style="list-style-type: none"> • March, August: 86% | <ul style="list-style-type: none"> • August: 91% • September: 100% | <ul style="list-style-type: none"> • September, December: 100% |

Evaluation Results: **Teacher Opinions**



14/25 (56%) track and record absence information accurately all the time

11 Teachers (44%) track and record absence information accurately most of the time

Challenges to accuracy included internet signal and difficulty contacting parents

Evaluation Results: Administrator Opinions



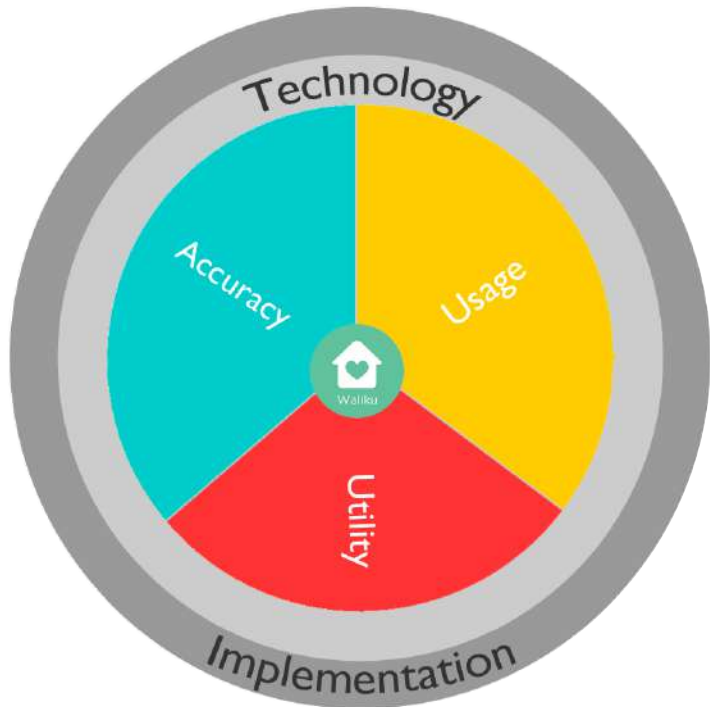
3/4 Principals and 5/5 IT Operators believe Waliku accurately tracks absences and reasons

Administrators trusted teachers taking attendance

High confidence in Waliku-presented data, due to technology and reduced need for manual calculations

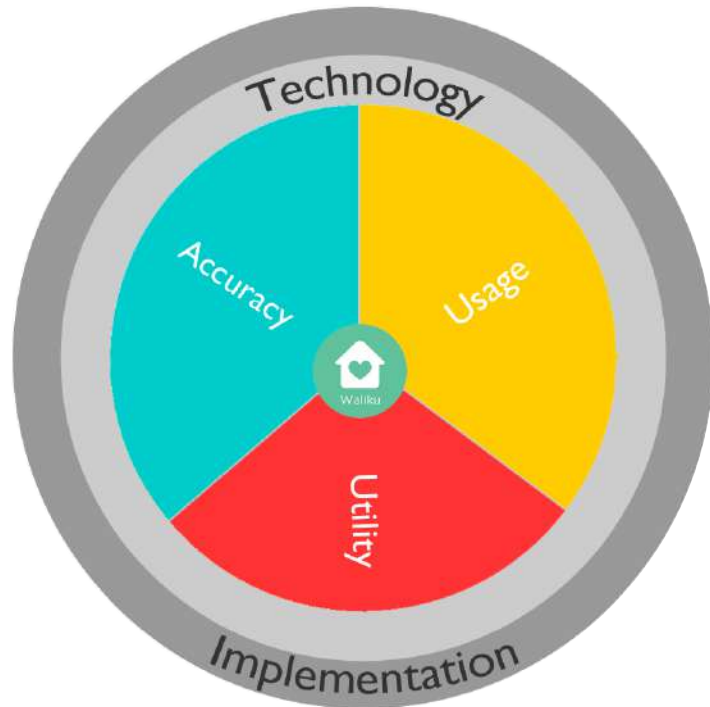
Evaluation Results: **Utility**

- Absenteeism rate, by gender (%)
 - Each school month
 - Number of absent girl- (or boy-) days divided by total number of girl- (or boy-) days in the school
- Chronic Absenteeism, by gender (%)
 - Percentage of students cumulatively absent for 10% or more (chronic and severely chronic absent students)
 - Percentage absent for 20% or more (severely chronic absent students)
 - Percentage of individual student days in the year



More Metrics →

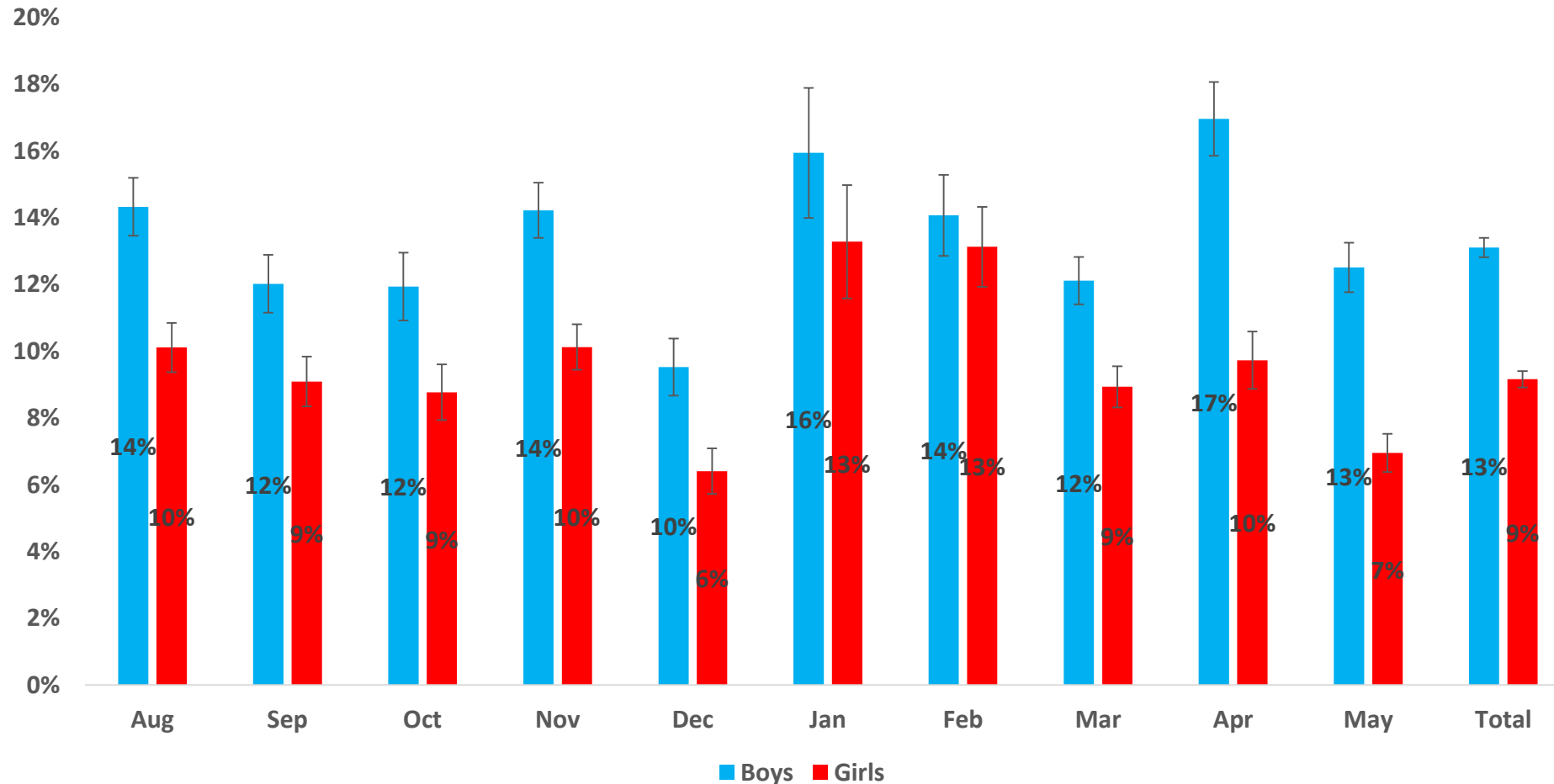
Evaluation Results: **Utility**



- **Leading Reasons of Absenteeism**
 - Gathered from the 2,393 known student absence days
 - February to May 2019
 - Measured as student absence day attributed to reason
- **Absence Informer (% of each informer)**
 - **Options:**
 - Student himself/ herself
 - A peer
 - Their parent
 - Another adult
 - Percentage of absent days attributed to each informer

Evaluation Results: Absenteeism Rate

Absenteeism Rate for Boys and Girls



Aggregated absenteeism rates:

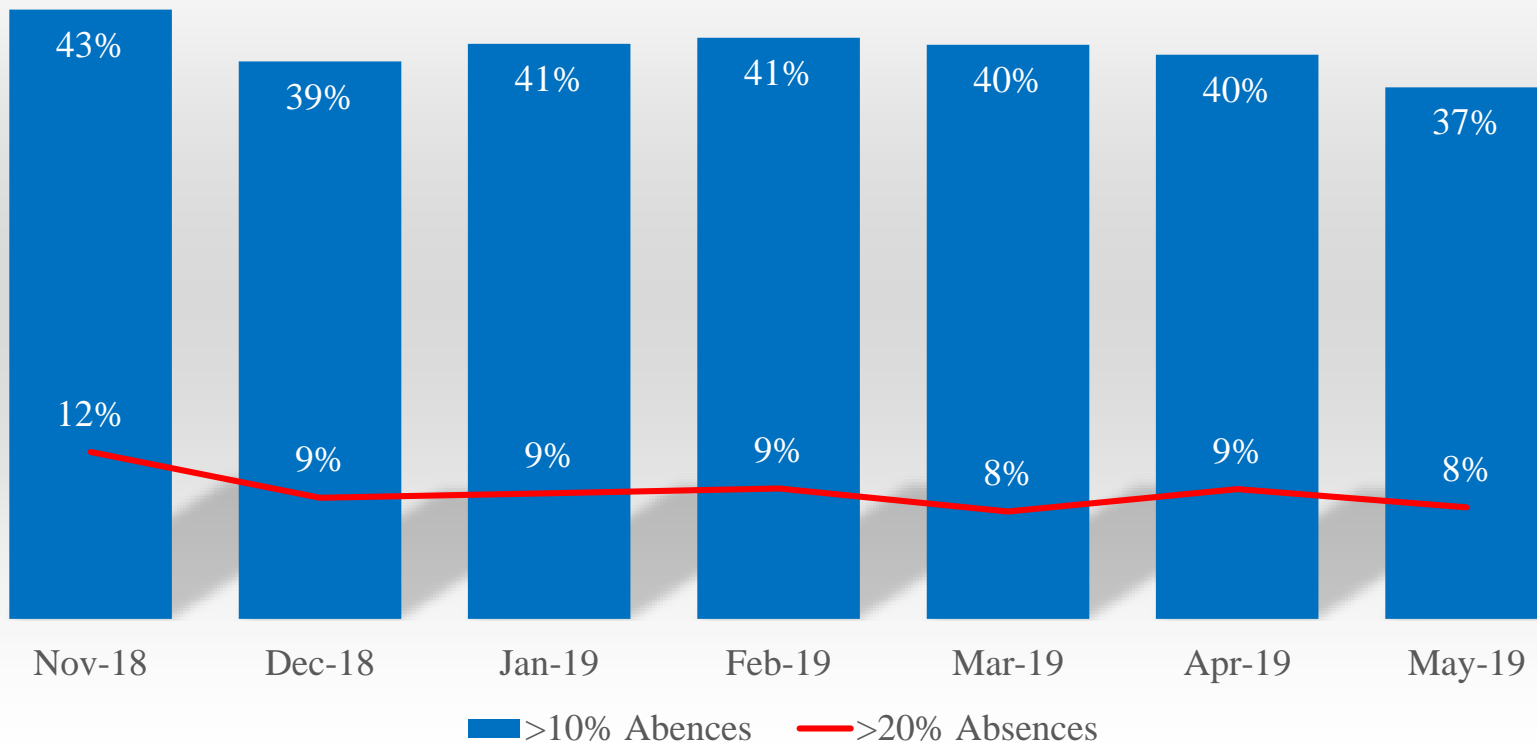
Overall:
11.1%

Boys:
13.1 %
(95%CI= 12.8%-13.4%)

Girls:
9.2%
(95%CI= 8.9-9.4%)

Evaluation Results: Chronic Absenteeism

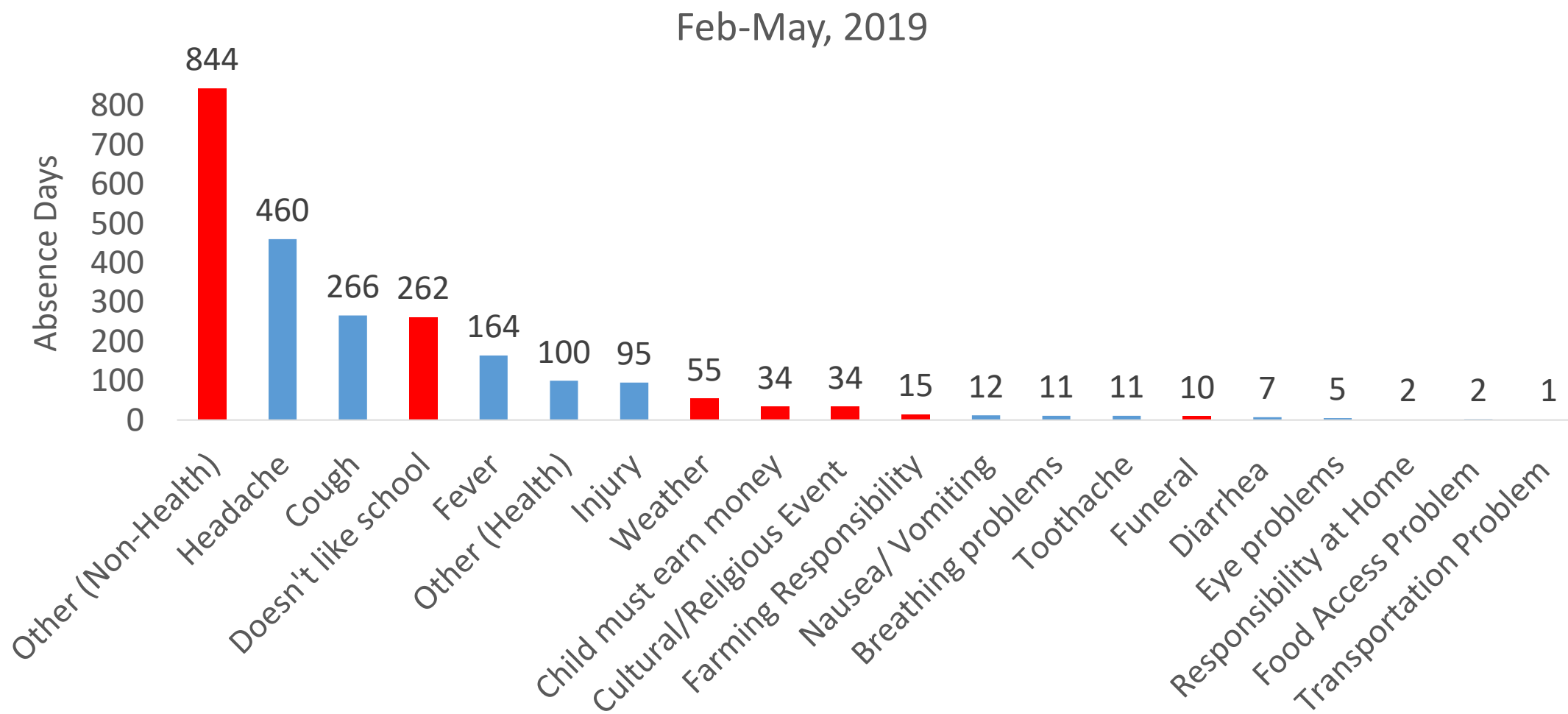
Percentage of Chronically Absent Students in a School (Year To Date)



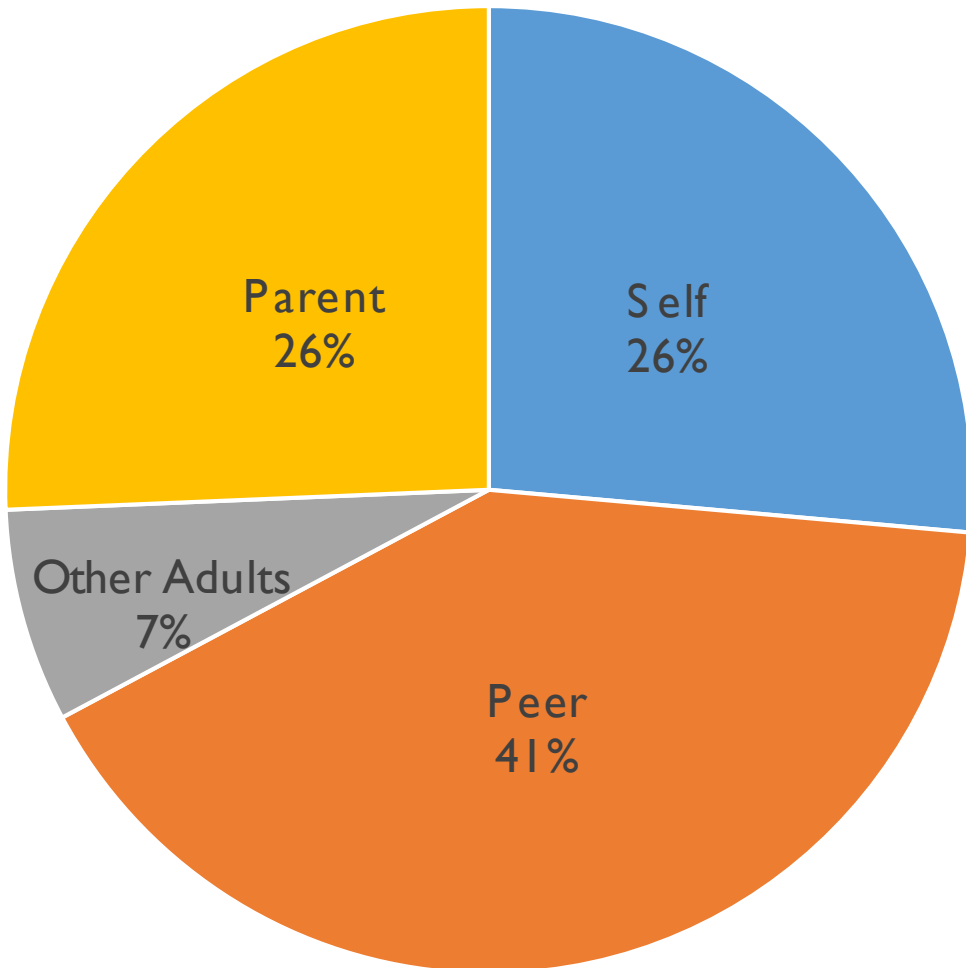
Over 24 school days (more than one month) missed by nearly two-fifths (37%) of the student population.

Eight percent of the student population had missed over 48 days of schooling. Most vulnerable to poor performance and future dropout from schools.

Evaluation Results: **Leading Reasons for Absenteeism**



Evaluation Results: Communication with parents/ caregivers



- Student's peer or by the student himself/herself accounted for two-thirds of absence cases
- A third of the known absences were reported either by a parent or other adult
- Need to strengthen the communication between teachers and parents/guardians in this rural community.

Evaluation Results: Teacher feedback on understanding of student absenteeism, well-being and response before and after Waliku



• Access to ready information on their daily absentees

- **Before:** only 6 teachers (15%)
- **After:** all 37 Teachers (100%)

• Access to ready information on their student's monthly absenteeism

- **Before:** 8 teachers (20%)
- **After:** 29 teachers (78%)

• Confidence in understanding of daily absenteeism by main reason

- **Before:** 28 teachers (70%)
- **After:** 30 teacher (81%)

• Confidence in understanding monthly absenteeism by main reason

- **Before:** 27 teachers or 68%
- **After:** 20 teachers or 54%

• Information from parents and family members by phone call or SMS

- **Before:** 1 teacher or 3%
- **After:** 10 teachers or 27%

Evaluation Results: Parent feedback on student absenteeism, well-being and response before and after Waliku

•Absenteeism

•**Before:** 15 parents (79%) reported their child had ever skipped school (left early/ missed)

•**After:** 13 parents (50%) saw behavior changes in their children. 7 parents noted children were "more spirited" and enthusiastic about going to school.

•Absent Student well-being

•**Before:** very rare for teachers to do home-visits if a child was absent for ≥ 3 days

•**After:** no parents received a home-visit for their child absent for ≥ 3 days in the previous three months

•Sick Child in School

•**Before:** Child mostly accompanied back home with a peer

•**After:** Child's teacher either called the parents or brought the child to their home

•Communication with Parents

•**Before:** no parent reported using the phone to inform their teacher about their child's absence

•**After:** all parents (24 or 96%) noted improved communication between school and home



Immediate Next Steps: Technology

Improve the User-Interface

- Simpler absence follow-up screen for teachers from prior days
- Simplify the first aid feature on the mobile app, which is a necessary reference
- Better dashboards for teachers and schools on student, class and school level summaries of absenteeism that also comply with their reporting needs

Increase usage and reduce frustration

- Improve offline use, reducing frustration from lost data related to cellular access
- Improve data access in schools through:
 - School-based Waliku WiFi
 - Post-Paid SIM Cards controlled by schools

Notifications to Remind Users

- Improve the task notifications within the mobile and web app for teachers and school administrators to take attendance or follow-up on absences.

Increase Automation in coaching and mentoring schools

- Develop dashboards for the Waliku Team and the School-District based on usage and absenteeism data to remind and encourage users to use Waliku and respond to absent students

Recognize, Encourage & Motivate

- With a teacher dashboard that provides stars for the days attendance was recorded on Waliku to encourage compliance and reaching personal and system goals for attendance-taking and absence follow-up

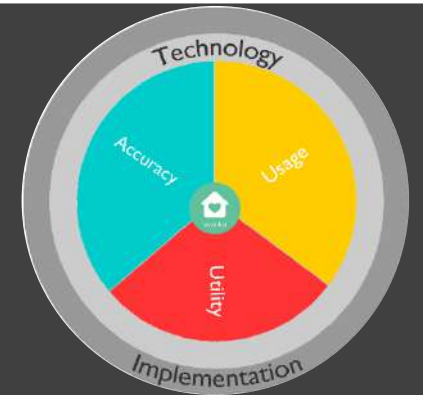
Ongoing Technology Updates

- Waliku App loaded onto Google Play Store to ensure updates are accessible to all users.

Immediate Next Steps | **Technology**



Immediate Next Steps:
Implementation



Enhance Collaboration & Trust

- Sign a technical agreement with the Sumba Barat District Education Office to support 21
- Work with School District Supervisors as Master Trainers and mentors to Teachers

Improve Supervision & Mentoring Process & School Workflows

- Work with School Supervisors to develop remote online, in-person spot checks and monthly review meeting tools and methods with schools.
- Set-up targets for Waliku usage, absence follow-up, and red-flags for chronic absentees, difference in attendance between boys and girls, and absenteeism rate for classes.
- Develop with School Supervisors and School Administrators and Teachers daily/weekly/ and monthly workflows for greater User Adoption of Waliku, and data use for absence management.

Enrich Training & Coaching Materials Support

- Improve the Training of Trainer materials for school-district staff, and trainee materials for school administrators to better support teacher during and after the training.
- Develop short videos for using each feature of the Waliku mobile and web-app and make them easily accessible, e.g. on YouTube

Expand Counseling and Remediation Processes

- Working with school supervisors, school administrators and teachers to develop standard operating procedures for counseling and remediation support to students consecutively absent for 3 or more days, and for those chronically absent.

Reduce No Attendance Days

- Encourage better management of holiday list by schools to count no-attendance days which are school off-days as holidays.
- Work with School districts to ensure district calendar includes all school-wide holidays and days when only some grades are operational.
- Enhanced workflows for substitute teachers to take attendance when class teacher is absent.

Immediate Next Steps | **Implementation**



WALIKU

ADDRESS STUDENT ABSENTEEISM & WELL-BEING
THROUGH THE STRATEGIC USE OF TECHNOLOGY



Strategic Next Steps:
Implementation

Developing absent-child assessments

- Beyond the main reasons for absence, we need simple assessments of absent children that teachers or community-workers can perform before they counsel or refer children to primary health care or child welfare/ protection service providers.

Linkages with other government systems and service providers

- Integration with Ministry of Education student enrolment systems, such as the Dapodik in Indonesia
- links with health care or child protection systems, for birth registration, immunization or family welfare services IDs for unenrolled children
- follow-up on referrals basic information from absent-child assessments need to be shared with primary health care and child protection systems.

Offline feature and a range of technology options

- Work with other projects and Teams to explore the options of merging simpler technologies such as Optical Mark Recognition (OMR) with Waliku's absence management system

Using new technologies for better data & predictive analytics

- Block-chain to better manage student absenteeism over the course of a child's primary and secondary school years
- Machine learning and predictive analyses of individual children and communities with respect to their absenteeism and well-being

Affordable product and services for school districts

- For future adaptations in to local languages, and for local dashboards and training of schools on Waliku will require a pricing strategy which is affordable to school-districts.

Broad-based availability of Waliku

- For children who are most-vulnerable and marginalized to benefit from the Waliku system, it is important for Waliku to be available anyone and everyone who works with children.

•Addressing the unmet principles for digital development

- With expansion of tested features to new geographies, we will explore the potential for the technology source-code to be accessible to new teams so that it can move towards being a more open-source solution

Strategic Next Steps | Technology, Implementation, Social Enterprise

Thank You

For more information, contact the Waliku Team:

<https://www.waliku.org/>

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Max Ritzenberg mritzenberg@savechildren.org





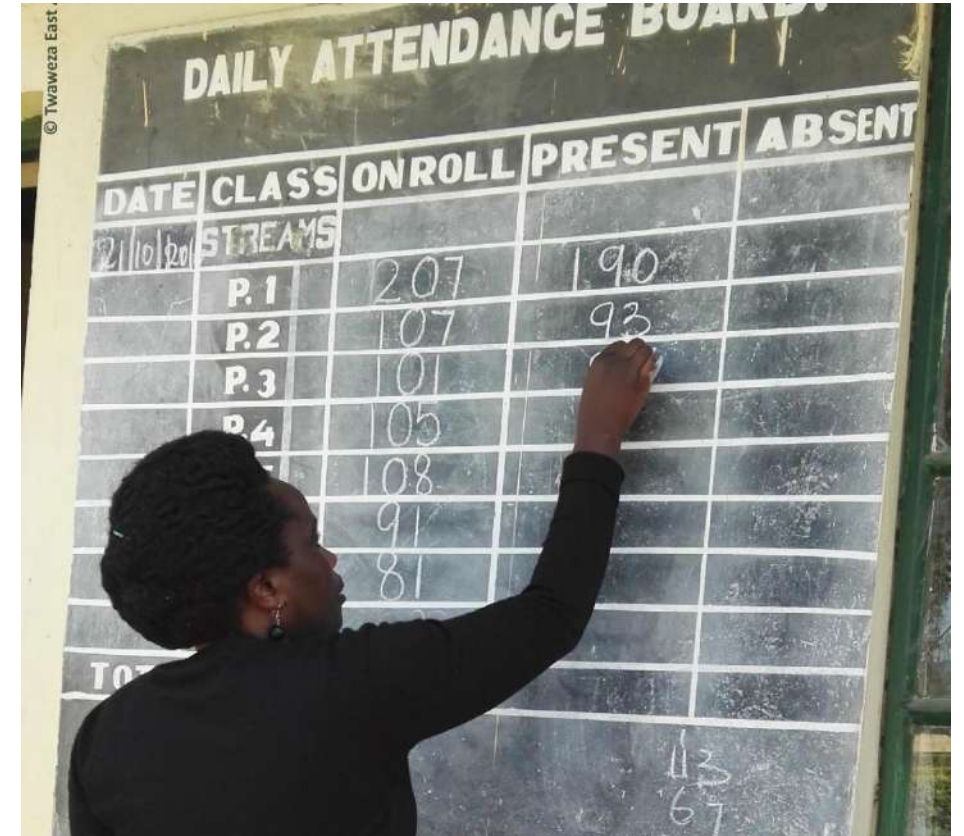
Save the Children

Drop out action research

It is possible to use low cost methods to collect accurate, regular data on individual students at risk of drop out in a fragile context!

Background

What are the most effective means of identifying cohort children at risk of dropping out of both formal and non-formal education, and the most effective interventions that can successfully prevent drop-out?



Research questions

RQ1. What is the scale of the problem in the six REALISE provinces?

RQ2. What are the best ways of identifying cohort children at risk of dropping out of both formal and non-formal education?

RQ3. What are the best interventions that can successfully prevent drop-out and poor attendance?

Research methodology

Desk review

School Dropout Rate

Gender Equality Index

Qualitative survey: participatory workshop and Focus Group

Causes of school dropout and
absence in classroom/school

Methods to identify the girls at
risk of school dropout

Preventive actions/interventions

Attendance tracking

Identifying girls and boys at risk of
school dropout and assisting them

Attendance tracking



| STUDENT | DATE | STATUS | DATE | STATUS | DATE | STATUS |
|---------|-------|--------|-------|--------|-------|--------|
| 1 | 01/01 | P | 01/02 | P | 01/03 | P |
| 2 | 01/01 | A | 01/02 | P | 01/03 | P |
| 3 | 01/01 | P | 01/02 | A | 01/03 | P |
| 4 | 01/01 | P | 01/02 | P | 01/03 | A |
| 5 | 01/01 | P | 01/02 | P | 01/03 | P |
| 6 | 01/01 | P | 01/02 | P | 01/03 | P |
| 7 | 01/01 | P | 01/02 | P | 01/03 | P |
| 8 | 01/01 | P | 01/02 | P | 01/03 | P |
| 9 | 01/01 | P | 01/02 | P | 01/03 | P |
| 10 | 01/01 | P | 01/02 | P | 01/03 | P |



FOLLOW-UP OF STUDENTS AT RISK OF DROPOUT

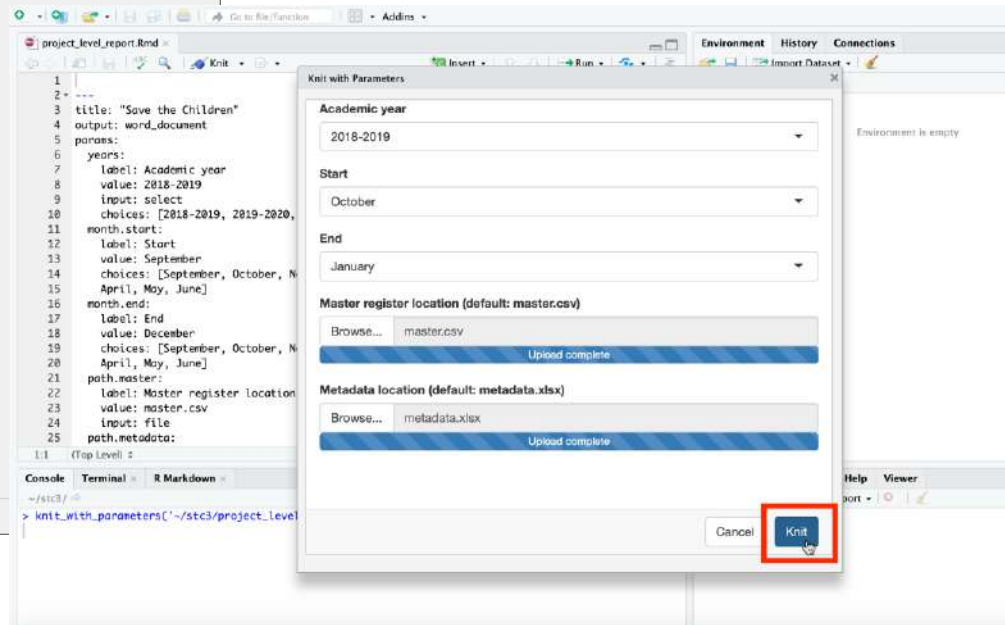
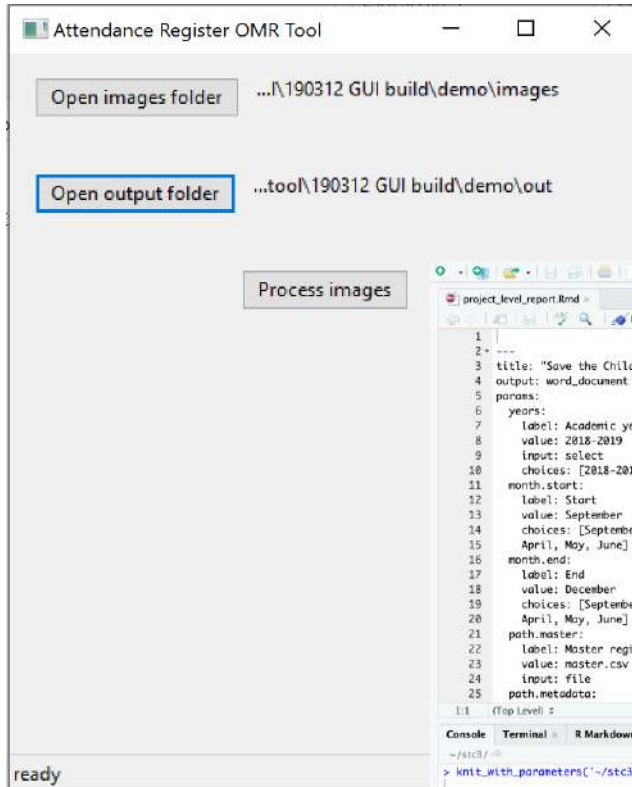


PROJECT LEVEL AND SCHOOL LEVEL REPORTS

Absence register

| Absence Register | | | School: Example 1 | | | | | | | | Class name: 3 | | | | | | | | M/Th 07 Yr 19 | | | | | | | | | | | | | | |
|------------------|------------------|--------|-------------------|---|---|---|---|---|---|---|---------------|----|----|----|----|----|----|----|---------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| # | Name of Student: | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
| 1 | First1 | Last1 | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 2 | First2 | Last2 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 3 | First3 | Last3 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 4 | First4 | Last4 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 5 | First5 | Last5 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 6 | First6 | Last6 | ○ | ● | ○ | ○ | ○ | ● | ○ | ○ | ○ | ● | ○ | ○ | ○ | ● | ○ | ○ | ○ | ● | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 7 | First7 | Last7 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 8 | First8 | Last8 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 9 | First9 | Last9 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 10 | First10 | Last10 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 11 | First11 | Last11 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 12 | First12 | Last12 | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 13 | First13 | Last13 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 14 | First14 | Last14 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 15 | First15 | Last15 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 16 | First16 | Last16 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 17 | First17 | Last17 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 18 | First18 | Last18 | ● | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 19 | First19 | Last19 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 20 | First20 | Last20 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 21 | First21 | Last21 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 22 | First22 | Last22 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 23 | First23 | Last23 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 24 | First24 | Last24 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 25 | First25 | Last25 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

Conversion to csv and report production



Research overview

Phase One (2018 – 2019 school year)

- 15 primary schools, 5 secondary schools and 2 AE centres
- 2,520 students (1315 girls and 1205 boys)
- 45 teachers (11 women, 34 men)
- 22 School directors (3 women, 19 men)
- Mix of sizes of schools.
- Criteria – easy access for field staff, school directors self-selection.
- 7 project staff



School level report

###Class 2A

#####Overview for September

Register data available: 98%

Attendance: 89%

- Male: 88%
- Female: 90%

#####Analysis for September

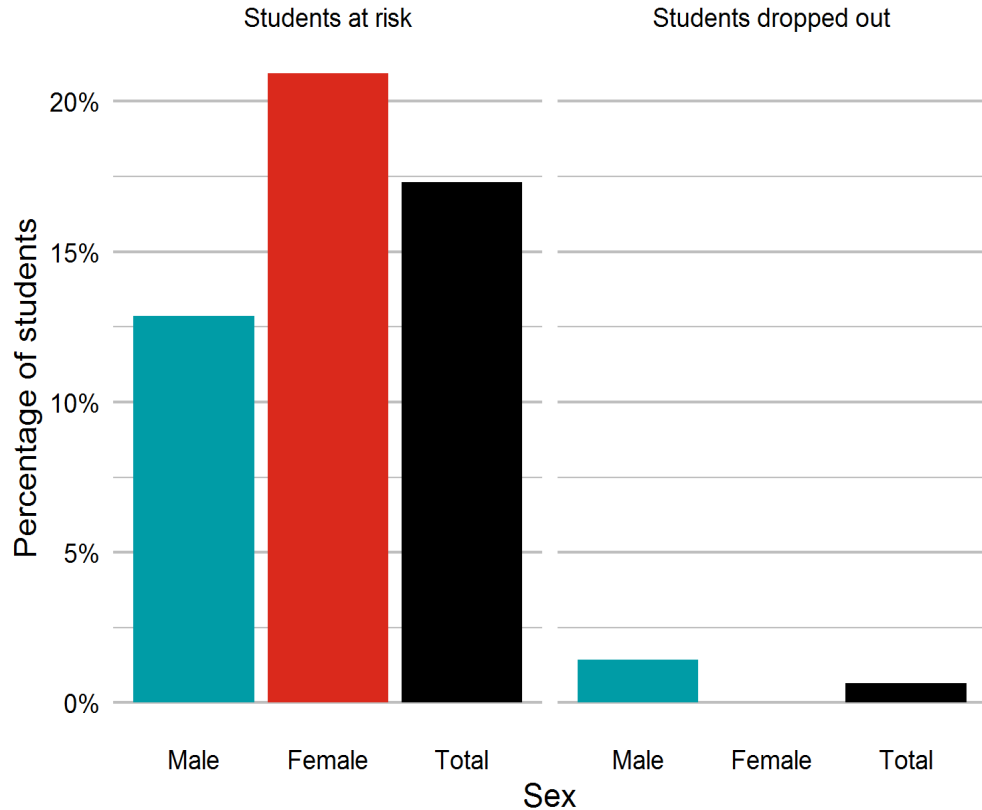
Students at risk:

| Number | Name | Surname | Absences | Tot. Trigger | Cons. Trigger | Sum Tot. Triggers | Sum Cons. Triggers | Drop Out Trigger |
|--------|---------|---------|----------|--------------|---------------|-------------------|--------------------|------------------|
| 2 | First2 | Last2 | 25 | 1 | 1 | 1 | 1 | 1 |
| 21 | First21 | Last21 | 3 | 0 | 1 | 0 | 1 | 0 |
| 26 | First26 | Last26 | 4 | 0 | 1 | 0 | 1 | 0 |
| 27 | First27 | Last27 | 5 | 0 | 1 | 0 | 1 | 0 |
| 28 | First28 | Last28 | 5 | 0 | 1 | 0 | 1 | 0 |
| 29 | First29 | Last29 | 7 | 0 | 1 | 0 | 1 | 0 |
| 35 | First35 | Last35 | 6 | 0 | 1 | 0 | 1 | 0 |
| 38 | First38 | Last38 | 6 | 0 | 1 | 0 | 1 | 0 |

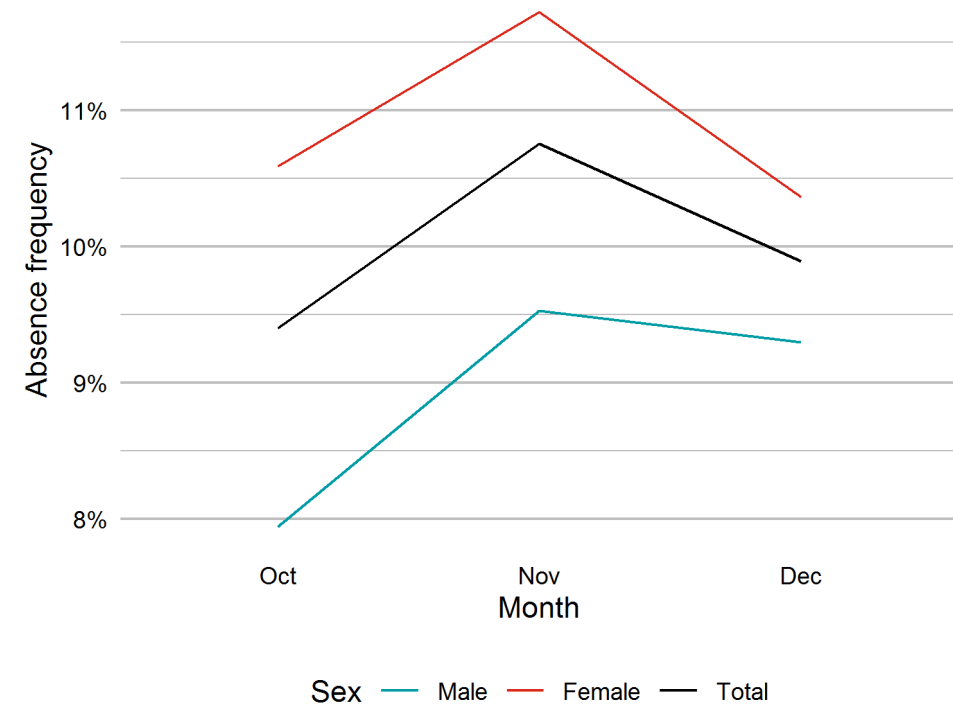
Project level report

- Learners at risk and dropped out in x month 2019
- Change in students at risk and dropped out since last month
- Change in students at risk and dropped out by month
- Absence frequency by month
- Attendance frequency by month
- Absence frequency by weekday
- Frequency of number of absences per month
- Total number of absences
- Maximum consecutive number of absences
- Absence frequency by grade
- Absence frequency by class size
- Absence frequency by institution type
- Absence frequency by institution

Project level results



Learners at risk and dropped out in December 2019



Attendance frequency by month

Challenges

- Teacher motivation
- Time for follow up
- Budget for follow up
- Time burden on teachers and staff
- Data quality
- Timeframe
- OMR quality

Next steps - Global

- Additional piloting in multiple countries
- Improvements to automated analysis – longitudinal analysis at individual level, additional disaggregation criteria
- Improved software for register production
- Integrating SBCC approach in initial stages of roll out
- Integrating child protection and school health referral systems into the approach