Shared Services
Funders request to centers

5. Participate in the design and implementation of shared breeding support services system-wide, in anticipation of One CGIAR, that will prevent duplication and provide CGIAR breeding programs with greater bargaining power in purchasing or contracting equipment, genotypic services, and software.

- E.g. the High-Throughput Genotyping Project managed by the EiB, which has successfully negotiated and implemented genotyping service contracts for the whole system (and NARS partners) that have greatly reduced the cost of diagnostic SNP genotyping for CGIAR and NARS breeding programs, allowing routine use of markers in forward breeding.

- Similar initiatives needed for occupational health and safety, phenotyping processes, seed storage, information management.
Key messages from 2019 annual meeting

“... Thinking on the future state, bottlenecks, we have to address redundancies...”

“.. Decentralized as much as is needed..”

“.. How to optimize in OneCG, optimizing staff and deployment, talent development...”
Priorities identified at 2019 annual meeting

Phenotyping
Genotyping
Biometrics
Product management
Shared services initiatives
CGIAR Shared Services

Centralized Operations

**Phenotyping**
- Breeding Operation Alliance of Excellence
- Digital phenotyping – service
- Phenotyping for Quality and nutritional traits - service

**Breeding schemes**
- Scheme optimization framework

**Information Technology**
- EBS adoption
- Biometric Support

**Genotyping**
- Genotyping services
Centralized Operations

CIOT - ICRISAT

IRS - IRRI
Centralized Operations

How can we create a cross center operation platform?
Centralized Operations

Trialling regional multi-crop research hubs with CtEH investment
Centralized Operations – Regional Hubs
Centralized Operations – Regional Hubs

- Would provide services to different breeding programs
- Would require SOPs to deliver services that are not in their current portfolio
- Would need to agree to perform activities for other centers
Centralized Operations – Regional Hubs

Next steps:
CtEH funds to strengthen regional hubs
• IITA - Ibadan
• ICRISAT – Hyderabad
• ESA - TBD
HTPP – Agronomic traits / field phenotyping

- Our goal

Breeding operation alliance of excellence

Grain Quality / Nutritional traits
Genotyping
Genotyping Deployment and Support Network

Centralized Deployment Strategy
1. Unified trait introgression (hubs)
2. Routine QA/QC
3. GS strategy (crop specific)

Operationalized Genotyping
1. Genotyping charge accounts
2. Reduced transaction costs
3. Data point allocation (future state)

Network Coordination & Support
1. CGIAR and NARs networks
2. Technical advisory and logistics
3. Capacity building & knowledge sharing
Breeding scheme optimization support
Breeding scheme optimization support and tools

Knowledge base
1. How-to manuals
2. CoP videos
3. Six sigma tools
4. Simulation reports
5. Breeding scheme examples

Software tools
1. Breeding scheme descriptor
2. Breeding scheme designer
3. AlphaSimR and QG code for BSO

Knowledge transfer
1. Trainings
2. Visits
3. Topic discussion on request

GitLab
Shiny
Toolbox
EiB
Excellence in Breeding Platform
Data management and biometrics support
With the existing CoPs as a foundation, we will initiate a cross-Center Breeding Informatics Network in 2021.

- **Data Management CoP**
- **Biometrics Bioinformatics CoP**

**Breeding Informatics Network**

- Focused working groups with mandate to determine Best Practices on topics of near-term relevance
- Dedicated project management provided to working groups by EiB
- Requirements for the Enterprise Breeding System with SOPs for centralized services
**Biometric resources are Center-specific and unevenly distributed across the CGIAR**

<table>
<thead>
<tr>
<th>Center</th>
<th>Biometrics</th>
<th>Bioinformatics</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIMMYT</td>
<td></td>
<td>Molecular breeding expertise, but no bioinformatician</td>
</tr>
<tr>
<td>IRRI</td>
<td>1 FTE</td>
<td></td>
</tr>
<tr>
<td>IITA</td>
<td></td>
<td>1.5 FTE</td>
</tr>
<tr>
<td>ICRISAT</td>
<td>1 FTE</td>
<td></td>
</tr>
<tr>
<td>CIAT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICARDA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AfricaRice</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Most centers are in need of additional analytical support to facilitate their continuous improvement plans
- Needs are being evaluated and positions will be funded to support gaps for high priority areas
Training and Adoption Network (TrAiN)

Enable CGIAR to support their own breeding programs and NARS

Focus on crop-cycle training – trainers available during key breeding activities
Training and Adoption Network (TrAiN)

Key activities

- Harmonize documentation for EBS, BMS, Breedbase and digitization tools
- Track adoption with KPIs
- Coordinate roll-out EBS, training, collect requirements
- Data curation
- Training for Digitization: Barcoding and data collection
## EBS Roll-out: CIMMYT maize and wheat and IITA maize

### Timeline:

<table>
<thead>
<tr>
<th>Version</th>
<th>V2.0</th>
<th>V2.1</th>
<th>V3.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>QA</td>
<td>DM</td>
<td>1st U</td>
<td>Early adopters</td>
</tr>
<tr>
<td>QA</td>
<td>DM</td>
<td>1st U</td>
<td>Early adopters</td>
</tr>
<tr>
<td>Demo version</td>
<td>QA</td>
<td>DM</td>
<td>1st U</td>
</tr>
<tr>
<td>Demo version</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Details:

- **V2.0**
  - QA
  - DM
  - 1st U
  - Early adopters

- **V2.1**
  - QA
  - DM
  - 1st U
  - Early adopters
  - Second adopters

- **V3.0**
  - QA
  - DM
  - 1st U
  - Early adopters
  - All breeders

- Demo version

**Graphical Elements:**

- **Enterprise Breeding System (EBS)**
- **CGIAR Excellence in Breeding Platform**