

Building a Data-Driven Institute

Vision, Mandate, and Pathway

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Overview

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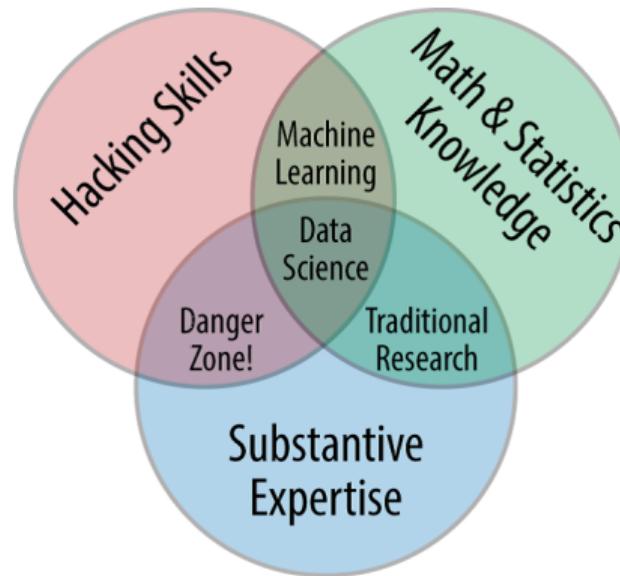
Introduction

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What are the key KIPRE milestones?

Milestone	Metric
 Year KIPRE was established	1958
 Scientific papers produced	??
 Completed research projects	??
 Competitive grants secured	??
 Postgraduate students trained	??
 Collaborations and partnerships	??
 Additional achievements	??

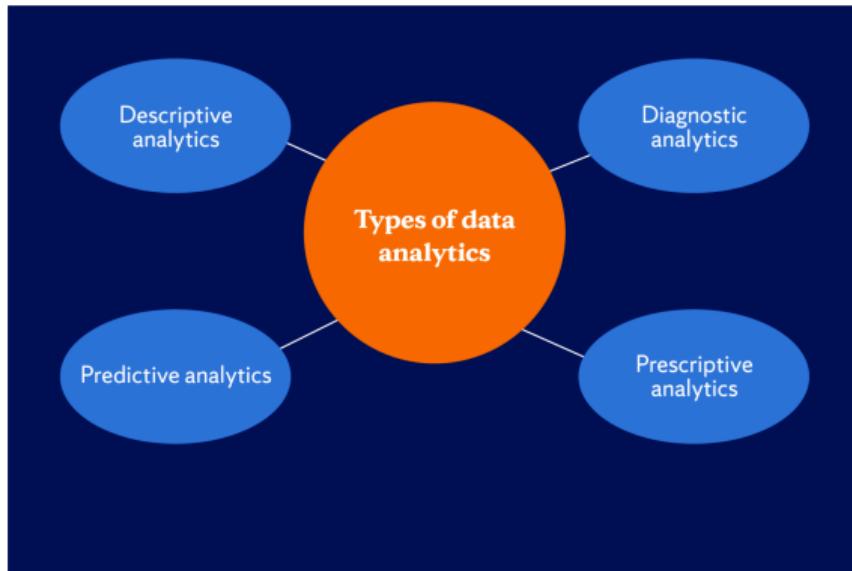
What is Data science?



Source: Drew Conway (2013),

<http://drewconway.com/zia/2013/3/26/the-data-science-venn-diagram>

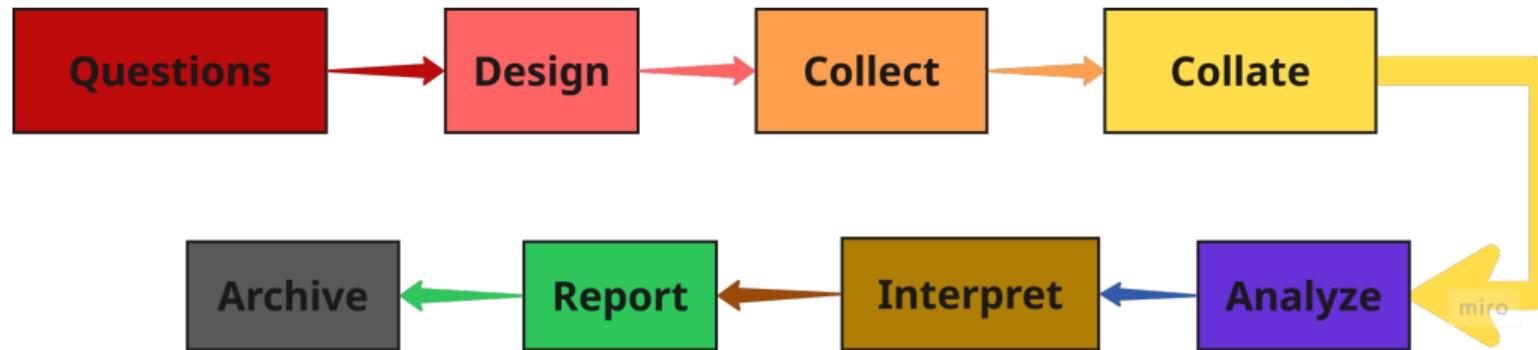
What is analytics?



- Uncover hidden patterns (exploration and discovery)
- Infer causal relationships (study design and statistical analysis)
- Make predictions (surveillance and early warning)
- Monitor performance (dashboards for programme control and reporting)

<https://ischool.syracuse.edu/what-is-data-analytics/>

Where does it start? The research pipeline



DSAS will strengthens every step through design support, data standards, analysis, reporting, and Archiving.

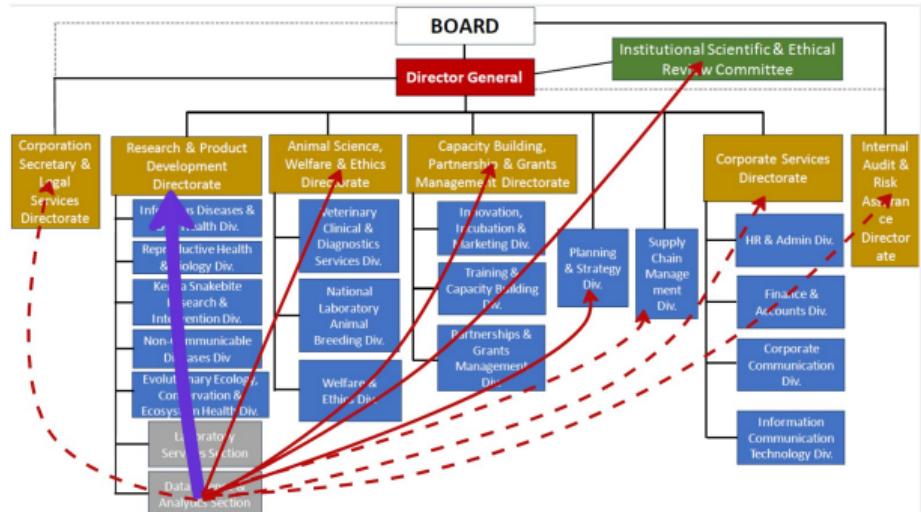


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DSAS Position and mandate

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Source: KIPRE approved organogram

DSAS Mandate summary

- Data stewardship and data governance
- Advanced analytics and statistical support
- Training and capacity building
- Reproducible research and standardised workflows
- Dashboards and reporting for Ministry of Health and partners

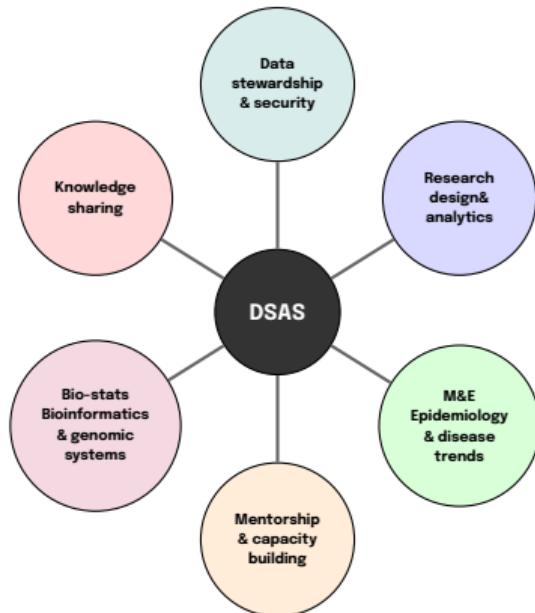


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DSAS Functions and deliverables

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What DSAS delivers:

- **Rigorous study design**

Convert research questions into **actionable evidence** through robust statistical analysis and modelling.

- **Impact measurement and learning**

Quantify outcomes, track change over time, and support adaptive decision-making.

- **Advanced analytical systems**

Enable access to complex biological and high-dimensional data through specialised tools.

- **Data governance and assurance**

Ensure data are **secure, compliant, accurate**, and fit for reuse.

- **Institutional capacity and continuity**

Build internal expertise and sustain analytical capability across projects.

Source: KIPRE approved career guidelines – empowering research through data excellence.

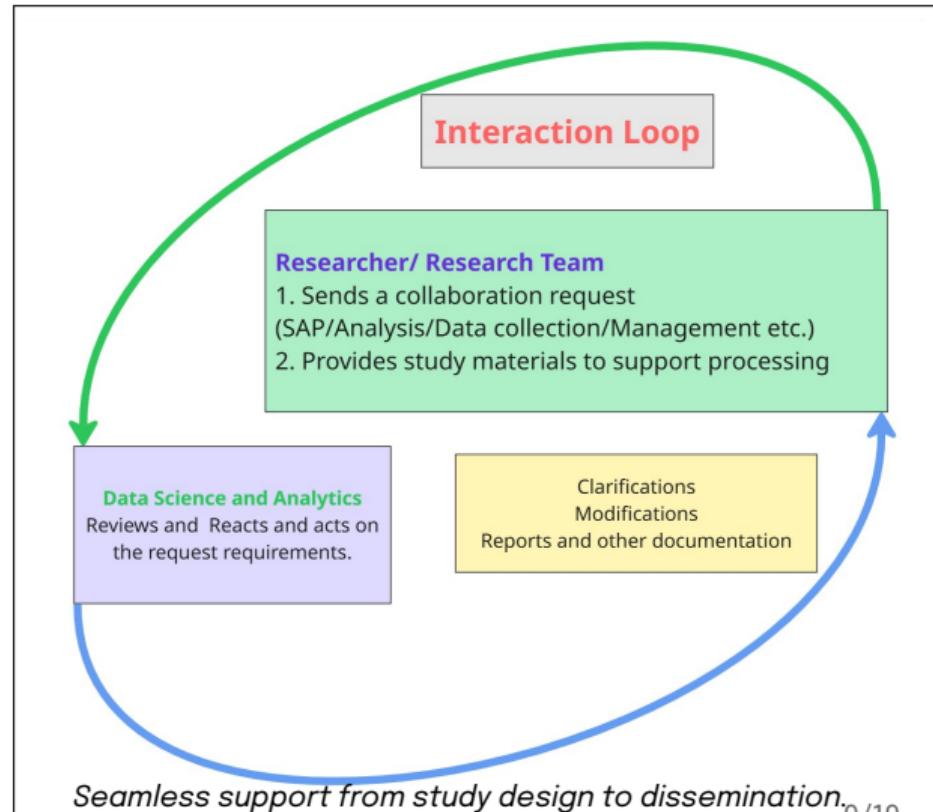
Our internal partners

- **Scientific:** Labs, Field teams, Breeding
- **Oversight:** QA, Ethics, Surveillance
- **Operational:** Grants, ICT, Finance

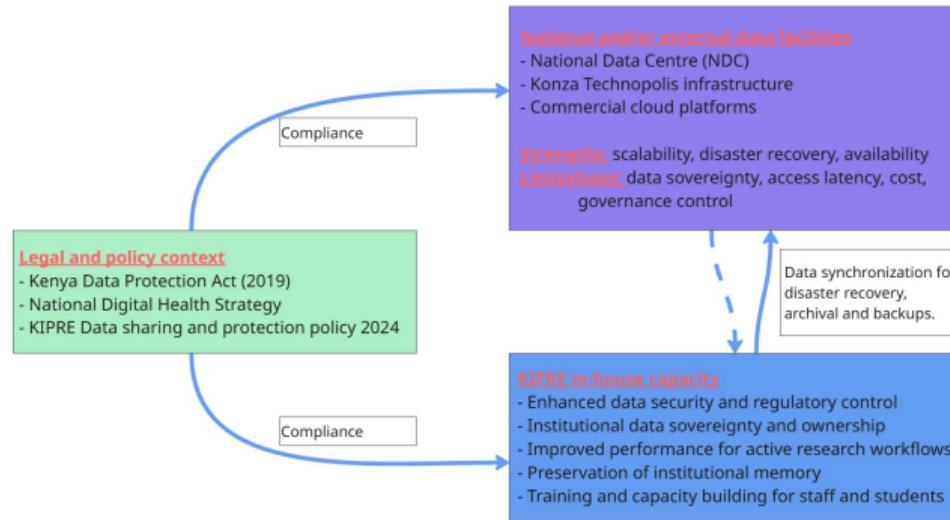
Engagement value

We transform raw field/lab data into **audit-ready** records and **fundable** research outputs.

The interaction process



Data management at KIPRE



Data management approach

Hybrid data management model

Local data warehousing

- Active research data
- Sensitive and identifiable data
- High-performance analytics and modelling

External / cloud infrastructure

- Disaster recovery and research continuity
- Long-term archival storage
- Encrypted backups with controlled access

This hybrid approach balances security, compliance, performance, and scalability while strengthening institutional capacity.

DSAS in action: Strategic impact



Laboratories

Reliability:
Eliminating errors through **automated QC** and standardized datasets.



Surveillance

Real-time:
Enabling hotspot detection and **early warning** for public health action.



Breeding

Efficiency:
Optimizing colony success through **pedigree tracking** and analytics.



Grants

Success:
Accelerating **publications** and strengthening **grant competitiveness**.

Providing the technical foundation for institutional excellence.

Standardizing excellence: DSAS SOPs

Priority SOPs

- **Data life cycle:** Intake, cleaning, and quality control.
- **Security:** Access control, sharing, and user roles.
- **Resilience:** Backup, archival, and disaster recovery.
- **Service levels:** Analysis requests and reporting SLAs.

Strategic value

- **Audit readiness:** Guaranteed accountability.
- **Efficiency:** Faster turnaround with less rework.
- **Institutional memory:** Preserving data for the future.

What we ask from HODs and HOSS

- Nominate one data focal person
- Timely and complete data handover
- Support staff participation in training
- Review and approve SOPs

What DSAS will deliver

- Standard templates and workflows
- Short, targeted trainings
- High-quality analysis and reporting
- Clear service-level agreements

Ask: Each division nominates one data focal person – a practical step we can start today.

Support to institutional committees

DSAS support

- **Ethics:** Clean, documented data
- **Scientific Review:** SAP methods review
- **QA:** Data checks and audit trails
- **ICT:** Infrastructure security input
- **Finance/Programmes:** Dashboards for oversight

Coordination

- Small DSAS Technical Advisory Group
- Cross-committee representation
- Monthly, time-bound meetings

Ensures alignment, quality, and efficient institutional decision-making.



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DSAS Vision

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Vision 2028

*To establish KIPRE as the regional leader in **data-driven research**, underpinned by a world-class analytics unit, reproducible systems, and expert talent.*

Strategic milestones

- **Infrastructure:** A fully operational, secure central data repository.
- **Talent:** 20+ staff trained in advanced analytics across all departments.
- **Impact:** High-level analytics directly informing national health policy.
- **Leadership:** Recognition as the regional reference centre for Bio-Data.



Ask & Immediate next steps

Key Asks

- Office space and budget allocation.
- More Staff to the section.

Next Steps / Timeline

- SOP Approval
- Pilot analytics projects

Scripted Ask:

"I respectfully request DG's approval for the DSAS SOPs, and support for office and budget allocation."

Appreciation

Thank you!

Special thanks to:

- Director General (DG)
- Director of Research & Product Development
- ICT team
- All division leads and departmental staff

Your collaboration makes data-driven research possible at KIPRE.



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DSAS Q&A

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Thank you for your attention and
Time

Mr. Patrick Waweru Mwaura

Lead, Data Science and Analytics Section

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