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Maximising Impact through the Data Value Chain

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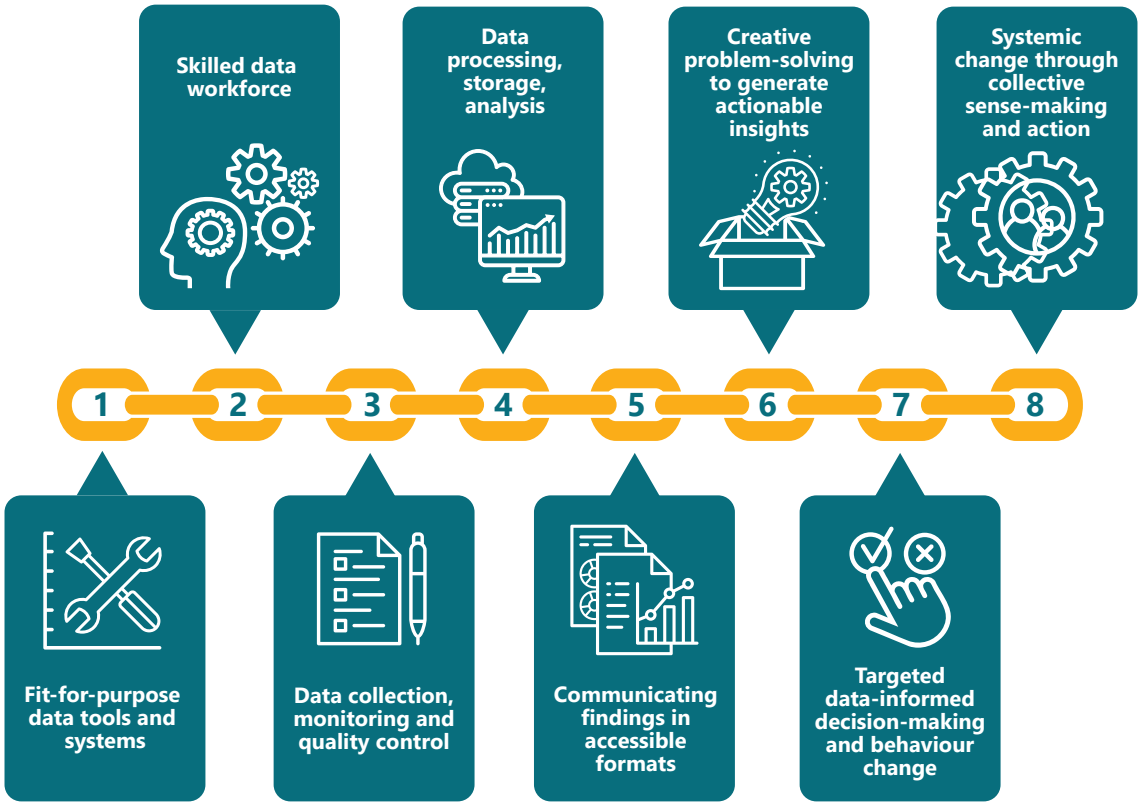
Introduction

DataDrive2030 is a non-governmental organisation that leverages high-quality data to improve early childhood development in South Africa. The organisation's primary goal is to increase the proportion of children thriving by age five, leading to reduced educational disparities between children from affluent and poorer households by 2030. Since its inception in 2022, DataDrive2030 has focused on building tools and systems to collect and analyse data for actionable insights. This work spans the Early Childhood Development (ECD) ecosystem — from macro-level surveys to meso-level research and micro-level programme improvements.

DataDrive2030 has created a framework to organise and understand the journey from data collection to effective data utilisation — represented through the concept of the Data Value Chain. This brief provides a high-level overview of the value chain and describes each of the eight components.

The Data Value Chain

The Data Value Chain (illustrated below) outlines the journey from developing fit-for-purpose data tools and systems to systemic change. Each step in the chain adds incremental value, considers context, and involves stakeholders with diverse skills and expertise — often spanning multiple sectors.



1 Fit-for-Purpose Data Tools and Systems

Effective data collection begins with user-centred tool development, where technical specialists collaborate closely with end-users to ensure relevance and utility. Tools must be psychometrically sound, contextually appropriate, and culturally sensitive, particularly within a diverse socio-economic and linguistic landscape.

DataDrive2030 develops and manages a suite of standardised and culturally fair assessment tools, designed for affordable use at scale within the South African context. The Early Learning Outcomes Measure (ELOM) suite of tools assesses preschool and Grade R child outcomes across key developmental areas/domains and evaluates the quality of learning environments in both home and programme settings.

ELOM suite of tools:

4 & 5 YEARS ASSESSMENT TOOL

Assesses the performance of children aged 50 to 69 months in five important developmental domains.

4 & 5 YEARS TARGETING TOOL

Helps identify individual children aged 50 to 69 months who are falling far behind the expected standard and need additional support.

ELOM-R ASSESSMENT TOOLS

Includes the ELOM-R Mathematics Assessment Tool and the ELOM-R Language Assessment Tool. Evaluates early mathematics and early language in children at the end of their Grade R year or the start of the Grade 1 year.

SOCIAL-EMOTIONAL RATING SCALE

Assesses preschool children's social and emotional functioning.

LEARNING PROGRAMME QUALITY ASSESSMENT TOOL

Assesses the quality of group learning programmes targeting children aged 3 to 5 years.

HOME LEARNING ENVIRONMENT TOOL

Assesses the quality of the learning environment in the home for children aged 3 to 5 years.

By embedding the ELOM tools within an end-to-end data value chain, DataDrive2030 is democratising data by ensuring data tools and insights are accessible to users with varying levels of research expertise.

2 Skilled data workforce

The accuracy and integrity of collected data are strongly influenced by the skills and behaviours of enumerators. Rigorous recruitment protocols, comprehensive training, continuous professional development, structured form design with embedded logic and prompts, ongoing field-based support and immediate feedback loops are essential for minimising potential variance due to assessor-related factors. This is especially important for direct assessments involving young children from diverse backgrounds.

3 Data collection, monitoring and quality control

Using technology improves the efficiency and cost-effectiveness of data collection and quality assurance processes. Real-time data monitoring through dashboards allows for immediate quality control and rapid course corrections. Resources such as guides, templates, and responsive helplines further augment data collection efforts and support users with little or no formal research training.

4 Data processing, storage, analysis

Investment in robust backend infrastructure is vital for affordable use of assessment tools at scale. Built-in checks, consistent methodologies, and adherence to stringent ethical standards safeguard data integrity. By automating data cleaning, analysis, and reporting, DataDrive2030 has significantly reduced the costs traditionally associated with these tasks. These savings are passed on to users of the ELOM suite of tools. Sharing anonymised datasets via open-access platforms, like DataFirst (at the University of Cape Town), enhances transparency and promotes broader analytical engagement and trust.

5 Communicating findings in accessible formats

Communication strategies must transform complex data into compelling narratives tailored to diverse stakeholder needs. Effective dissemination requires clear messaging that highlights the practical relevance and implications of findings. This fosters motivation and accountability among all stakeholders, including data contributors.

6 Creative problem-solving to generate actionable insights

Partners move from findings to actionable insight through facilitation, reflective tools, learning spaces, and collaborative problem-solving that help them interpret data, identify strengths and gaps, and generate practical, context-relevant responses.

7 Targeted data-informed decision-making and behaviour change

Partners use data and evidence to strengthen decision-making, adapt programmes, and improve practice and investments.

8 Systemic change through collective sense-making and action

DataDrive2030 supports a data-rich early learning ecosystem in which partners use trusted evidence to build shared understanding and coordinate action to improve early learning quality, access, and responsiveness.

Key Lessons and Insights

DataDrive2030's experience underscores the necessity of embedding robust data practices within an integrated value chain. Each stage, from developing fit-for-purpose tools and systems through to systemic change, requires dedicated attention, resources and cross-sector collaboration.

Three essential enablers further underpin the effectiveness of this approach: Money, Mandate, and Mindset.

- ***Money:*** Adequate investment across the entire data value chain and throughout the full duration of the learning process is essential. Funding practices that support multi-year budgets, align resources appropriately with data requirements, and allow flexibility for data-informed course corrections significantly enhance impact.

- ***Mandate:*** A clear mandate promoting transparency and accountability in data usage — including comprehensive data sharing among stakeholders and integration of insights from adjacent sectors like health and welfare — strengthens trust and fosters broader, holistic understanding.

- ***Mindset:*** Often, data collection in education is approached from perspectives of compliance or competency rather than continuous improvement. Fostering a growth mindset and co-designing data priorities (rather than imposing them top-down) encourages stakeholders to perceive data not as definitive judgements but as opportunities for learning and innovation.

Carol Dweck, a prominent psychologist known for her extensive research on motivation and mindset, highlights the importance of embracing challenges and ongoing learning as fundamental to growth and development. Her insights underscore the approach advocated by DataDrive2030, emphasising that viewing data as an opportunity rather than a threat enhances continuous improvement and innovation. In her words,

> **"Love challenges, be intrigued by mistakes, enjoy effort, and keep on learning."**

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