

## A Framework to Design, Measure and Manage Effective RD&E Projects and Services

R.A. Clark, G.R. Griffith, C. Mulholland and J. Timms

Cooperative Research Centre for Beef Genetic Technologies, University of New England, Armidale NSW 2351

Here and overseas, there is a growing expectation of increased impact and return-on-investment (ROI) from public and industry funded agricultural research, development and extension (RD&E). A system-based design, measurement and management framework, developed by the Beef CRC, is proven to achieve more rapid and sustainable improvement and innovation, and successful integration of technologies. The Sustainable Improvement and Innovation (SI&I) framework is the product of R&D within and across multiple large scale Australian and international agricultural RD&E projects. This R&D was based on the principles of: ‘fifth-generation innovation’ (Rothwell 1994); ‘fourth-generation R&D’ (Miller & Morris 1999); ‘sustainable improvement and innovation’ (Clark et al. 2009), and project and service design, measurement and management (Kerzner 2004). These principles are fundamentally different from linear one-way ‘pipe-line’ RD&E.

The SI&I framework (Table 1) highlights the six system elements, and associated success factors, necessary to achieve more rapid and sustainable improvement and innovation in projects, services, businesses and organisations (Clark et al. 2009). The framework enables necessary high value mechanisms, technologies and practices to be selected and applied to achieve target outcomes, impacts and high ROI.

**Table 1. The Sustainable Improvement and Innovation framework elements and success factors.**

SI&I System Elements	Success Factors
<b>1. Focus</b> – Enables project teams, partners & individuals to develop clear, bounded & measurable project target outcomes, CSFs & KPIs that deliver greater impact & return on investment	Vision, mission, principles, values, target outcomes
<b>2. Partnerships</b> – Enables people interested in achieving the project target outcomes to build viable partnerships, & supports them to work productively	Individuals, groups, partnerships, networks, clusters, interactions, clear roles
<b>3. Capacity</b> – Equips all partners with the necessary knowledge, skills & resources to achieve & sustain the impacts & returns, use relevant technologies, tools, information & expertise, & fulfil their roles in the project	Knowledge, skills, training – for all partners
<b>4. Technology</b> – Ensures the timely provision, use, development & improvement of needed practices, tools, technologies, information, expertise, products & services	Technologies, information, specialists, expertise, researchers
<b>5. Momentum</b> – Develop the level of impetus that will sustain & grow the impacts & returns. achievement of outcomes, improvements & innovations	Motivation, management, leadership, institutionalisation, policy, strategy, system
<b>6. Continuous Improvement &amp; Innovation</b> – Ensures all partners are achieving the focus & target outcomes, & that the SI&I system framework is itself being improved	Proven concepts, principles, processes, systems, strategies, products, services, practices, tools, technologies

Valuable results achieved by the SI&I framework in agricultural industries include measured increases in: (1) production efficiency and profit; (2) the number and scale of improvements and innovations, and associated implementation of relevant technologies; (3) capacity to sustain rates of improvement and innovation (Timms et al. 2009). If all framework elements are applied then ROI in specific target outcomes are expected to be greater than from investment in just one of the elements e.g. technology / information development and delivery.

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Email: Richard.Clark@deedi.qld.gov.au