

# Evaluating the Effectiveness and Impacts of Regional Cluster Initiatives: The Cluster Initiative Maturity Benchmarking Tool (CIMBT)

Rae Wolpe and Glen Robbins

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Kwazulu-Natal
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# Paper Focus:

- Cluster Initiative Maturity Benchmarking Tool (CIMBT) to evaluate the effectiveness of Cluster Initiatives and to inform recommendations to enhance Cluster Initiative effectiveness.
- CIMBT informed by literature review of performance assessment framework for clusters and Cluster Initiatives, a Cluster Initiative Theory of Change, and authors' practical experience in designing, working with and assessing Cluster Initiatives
- Findings & Lessons for both supporting and evaluating Cluster Initiatives from evaluation of six regional Cluster Initiatives in Kwazulu-Natal.

# What are clusters?

- Cluster (1): “A geographically limited critical mass (i.e., sufficient to attract specialized services, resources, and suppliers) of companies that have some type of relationship to one another—generally a complementariness or similarity in product, process, or resource.” (Porter, 1998: 199).
- Cluster (2) “Regional innovation (or industry) clusters are geographic concentrations of interconnected businesses, suppliers, service providers, coordinating intermediaries, and associated institutions like universities or community colleges in a particular field.... By facilitating such dynamics as labor market pooling, supplier specialization, and knowledge spillovers, industry clusters benefit all sorts of firms and regions by enhancing the local and innovation potential, encouraging entrepreneurship, and ultimately promoting growth in productivity, wages, and jobs.” (Muro and Katz, 2010: 11).

# What are Cluster Initiatives (1)

- Cluster Initiatives (1): “Organised efforts to increase the growth and competitiveness of a cluster within a region, involving cluster firms, government and/or the research community” (Olvell et al. 2003: 15)
- Cluster Initiatives (2): “Formally organized efforts to promote cluster growth and competitiveness through collaborative activities among cluster participants” (Muro and Katz. 2010: 11).
- Cluster association: “A membership-based organization of cluster members that can collectively represent the needs and interests of members, provide services, and/or help members network  
Networks of interconnected firms and supporting institutions that accelerate innovation, business formation and expansion and job creation.” (National Governors Association. 2002: 28).

# What are Cluster Initiatives (2)

- **CI objectives:** facilitating networks between firms, people and support organisations; promoting innovation and new technologies, marketing, branding and attracting investment and new talent, promoting skills development, facilitating benchmarking improvement, lobbying for improvements in business environment / specific support measures, coordinating international market entry and expansion (Solvell et al. 2011).
- Cluster Is take many forms: projects, to programmes to dedicated institutions. Institutional arrangements vary in degree of formality, governance, permanence and business model.

# Cluster Management

“The organisation and coordination of the activities of a cluster in accordance with certain strategy, in order to achieve clearly defined objectives. Cluster management represents a continuous activity of a cyclical nature. It is a complex, interactive and non-linear process.”  
(Price Waterhouse Coopers. 2011: 8).

# Cluster Initiatives Different to Value Chain

- Clusters different from concept of Value Chain. A value chain can be described as “the full range of activities that are required to bring a product or service from conception, through the intermediary phases of production and delivery to final consumers, and final disposal after use.” (Kaplinsky. 2004: 80). Parts of the value chain can be concentrated locally but the value chain as a whole is normally stretched over several regions and/or nations (hence the concept of global value chains). Value chains can therefore operate across clusters or outside of them.



# Background: importance of clusters and Cluster Initiatives

Roles of Cluster Initiatives: address three types of market failures (Hausmann. 2007):

- **Self-discovery externalities:** Learning what new products can be produced profitably in an economy, and how (social value greatly exceeds its private value).
- **Coordination externalities:** New economic activities often require simultaneous and lumpy investments upstream, downstream, and in parallel forks, which decentralized markets are not good at coordinating.
- **Missing public inputs:** Private production typically requires highly specific public inputs (legislation, accreditation, R&D, transport and other infrastructure specific to an industry) of which the government has little ex-ante knowledge.

# Background: importance of clusters and Cluster Initiatives

- Market failures slow economic structural transformation, low economic growth.
- Obvious government failures (e.g. poor governance, corruption, and macroeconomic mis-management) inadequate to explain slow economic growth.
- Because neither economists, firms nor public officials are likely to know what distortions exist, processes are needed to identify and respond to these.
- Government intervention may be necessary when competition alone insufficient to propel business firms to innovate & improve productivity.
- Clusters, together with firm behaviour, the quality of the business environment, and other contextual dynamics (location, natural resources, history and culture) key drivers of competition & productivity & business and economic performance (European Cluster Observatory 2010).
- Clusters: potential to affect competition in 3 ways: by increasing the productivity of companies, driving innovation, and by stimulating new businesses (Porter, 1990).

# Evaluating Cluster Initiatives: challenges with complex interventions

- **Focus:** constantly adapting to changing opportunities and challenges - short term intended results are multiple and emergent;
- **Governance:** Implementation involves multiple and emerging partners, relationships and responsibilities with multiple decision-making levels;
- **Consistency:** participants in the intervention participate in different ways and the intervention is adapted for each individual participant.
- **Necessariness and Sufficiency** (a cause being necessary and sufficient to produce an outcome without other interventions or favourable contexts): there are many intervention options and other contextual factors are needed to achieve the intended outcomes;
- **Change trajectory:** intervention results cannot be predicted (even by experts) “because of the changing nature of the relationship between cause and effect or the many factors affecting it”

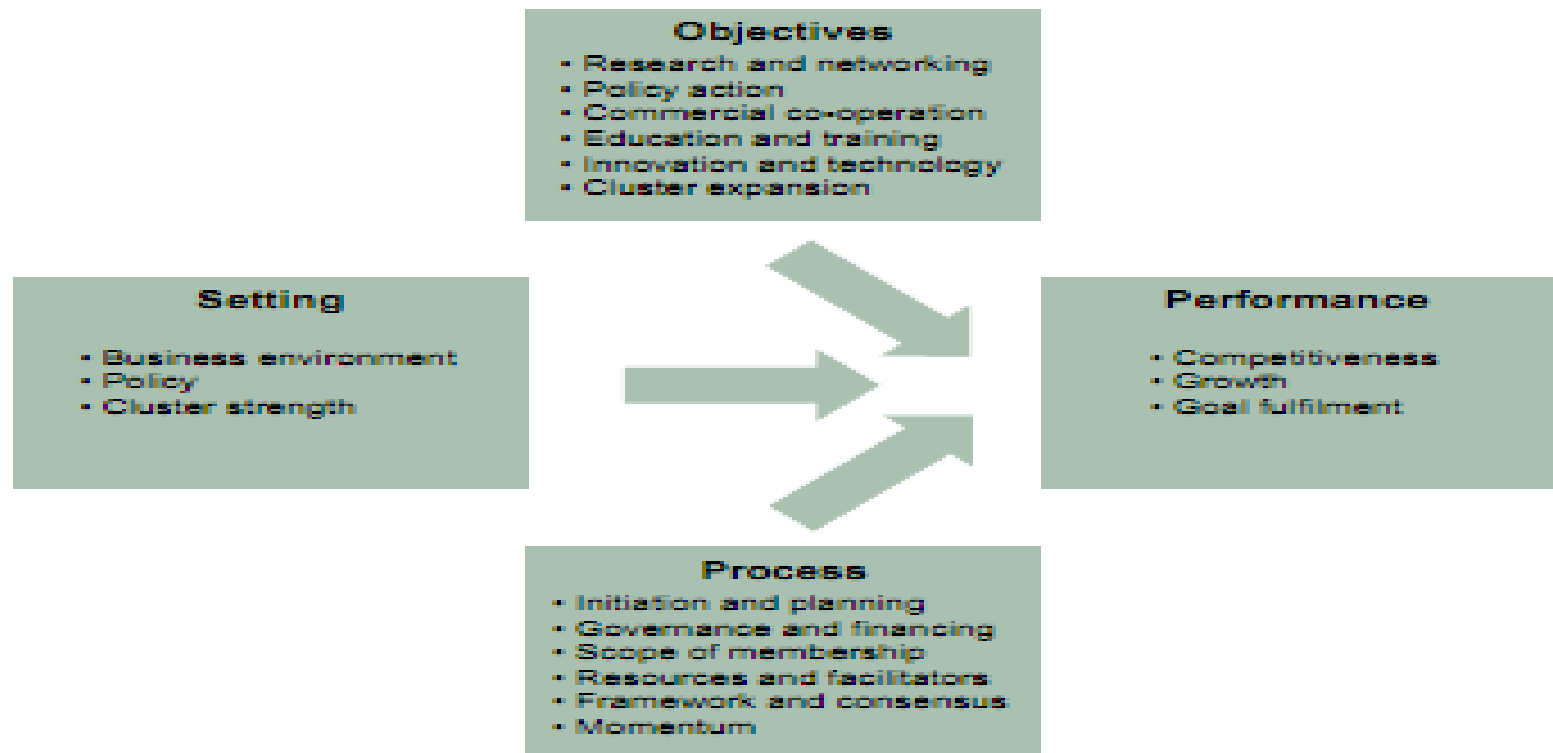
(adapted from Funnell and Rogers, 2011: 89).

# Existing cluster and Cluster Initiative Performance/ Evaluation Frameworks

- Cluster and Cluster Initiative performance evaluation frameworks focus more on cluster economic performance / cluster outcomes and impacts, less on implementation level (inputs/ resources, activities, processes, outputs, organisational and governance) dimensions
- Important to evaluate implementation components as without effective Cluster Initiative implementation, unlikely to achieve effective broader cluster economic performance.
- Examples of cluster and Cluster Initiative evaluation frameworks/ models:
  - Cluster Initiative Performance Model (CIPM) (Sölvell *et al.* 2003).
  - Cluster performance measurement system proposed by (Carpinetti *et al.* 2008).
  - Fifteen performance criteria for world-class clusters (Kocker *et al.* 2011)
  - Cluster management processes (Price Waterhouse Coopers. 2011)

# Cluster Initiative Performance Model

3 drivers affect the cluster's performance: the social, political and economic setting within the nation; the objectives of the cluster initiative; and the processes by which the Cluster Initiative develops.

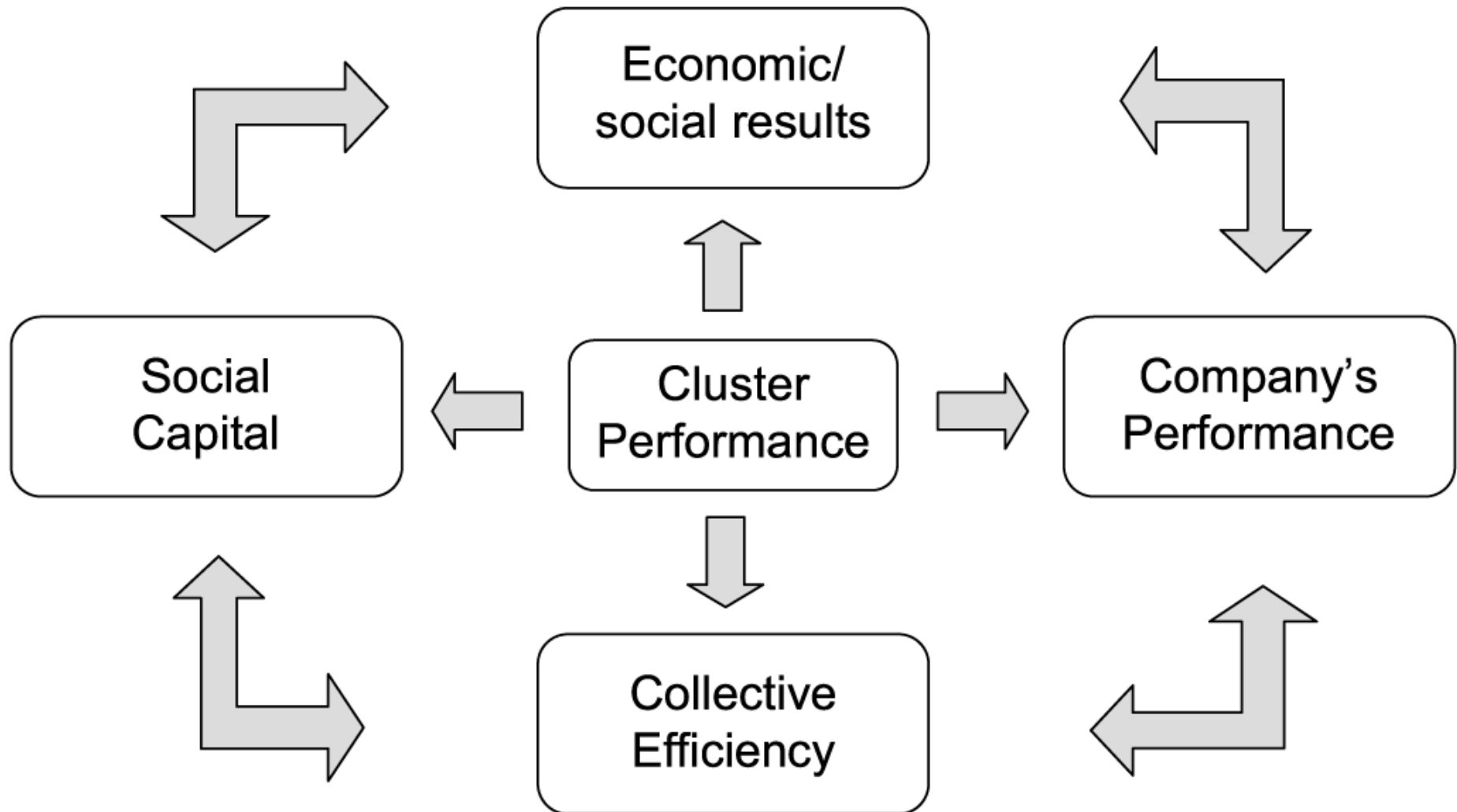


# Cluster performance management model Carpinetti et al (2008)

Adapts Kaplan and Norton's (1996) balanced scorecard perspective on performance:

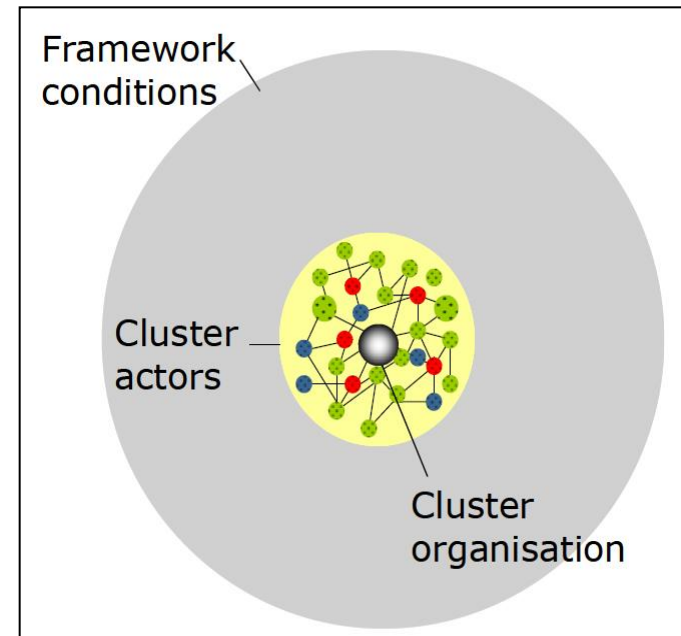
- **Economic and social results:** Measures related to local gross product, workforce occupation and any result that brings economic and social benefits;
- **Firms' performance:** Measures related to the results in terms of growth and competitiveness of the firms and measured by financial and non-financial performance of the firms in the cluster;
- **Collective efficiency:** Measures related to external economies and actions of cooperation among companies in the cluster; and
- **Social capital:** Measures related to cultural values such as trust and cooperation.

# Cluster performance management model (Carpinetti et al .2008)



# Fifteen performance criteria for world-class clusters Kocker *et al.* (2011)

- **Framework Conditions:** attractive and enabling environment: R&D and educational institutions of quality, dynamic business climate and innovation policy, general regulation for start-ups
- **Cluster Actors:** provide fertile eco-systems for firms to thrive. Excellence of clusters depends, among others, also on the competitiveness of their main actors.
- **Cluster Organisation / Management:** The strength and future prospects of a cluster are very much linked to the strengths and professionalism of the cluster management, which provides or channels specialised and customised business support services and added value to the cluster members. Cluster management of high quality is therefore seen as essential to promote cluster excellence





# Cluster Management and Processes (Price Waterhouse Coopers, 2011, German Ministry Economics Technology, 2010).

- Organisational and process excellence focus: management and governance of CIs which is seen to drive excellence in outputs and outcomes.
- Cluster management: beyond management of individual organization and involves mediating and facilitating a wide range of cluster member and related organizational relationships: “Each of the cluster members has own agenda, and a key challenge for cluster managers is to make sure those agendas are united into common objectives and collective actions, that conflicting interests are resolved, and the relevant organisations see enough added value from their participation in cluster activities”. (Price Waterhouse Coopers. 2011: 12).
- **Cluster governance:** the intended collective actions of cluster stakeholders to advance the cluster and develop a sustainable competitive advantage. Cluster governance thus represents the interests of cluster stakeholders (e.g., universities and research institutes, large and small companies, government, supporting structures etc.), while cluster managers strive to serve the needs of cluster stakeholders.

# Cluster Initiative Maturity Benchmarking tool

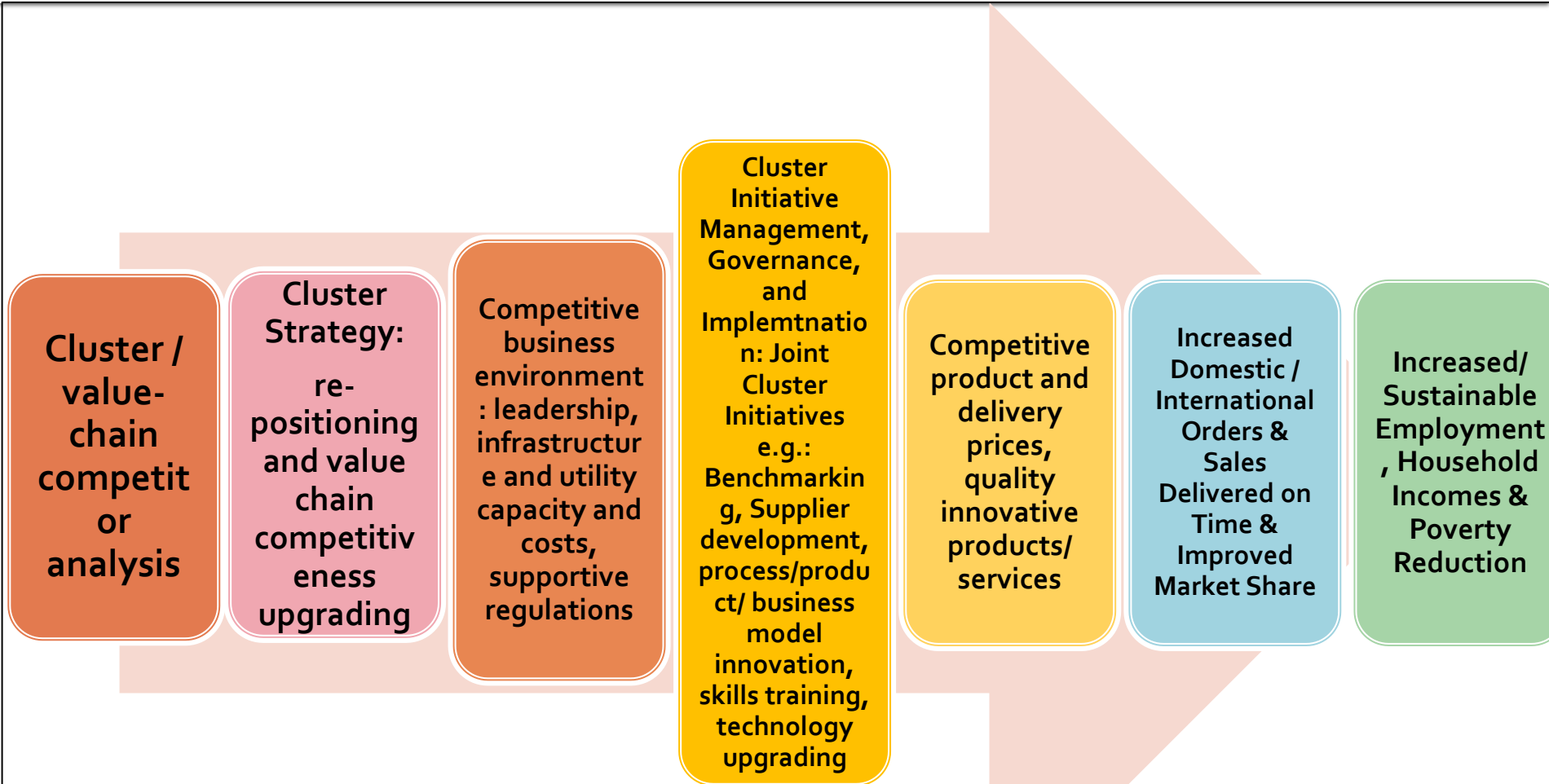
- Existing evaluation/ performance frameworks focus on various combinations of:
  - Cluster framework or business environment (enabling or constraining) conditions (e.g. support for R&D, availability of infrastructure and labour force skills);
  - Cluster outcome/ impact performance both at a company and at a cluster-wide level, and
  - Cluster Initiative process aspects (e.g. Cluster Initiative management and governance)
- Existing performance frameworks do not detail the organisational performance components of CIs, nor do they provide an evaluation framework to benchmark key Cluster Initiative organisational performance components: don't provide a sufficient basis to evaluate Cluster Initiatives or to improve effectiveness and impacts.
- CIMBT developed to provide a holistic framework to evaluate, understand, and improve relevant cluster and Cluster Initiative performance factors. CIMBT can assist in addressing these challenges and thus contribute to enhancing the effectiveness of CIs.

# Cluster Initiative Maturity Benchmarking tool

The Purpose of the CIMBT is two-fold:

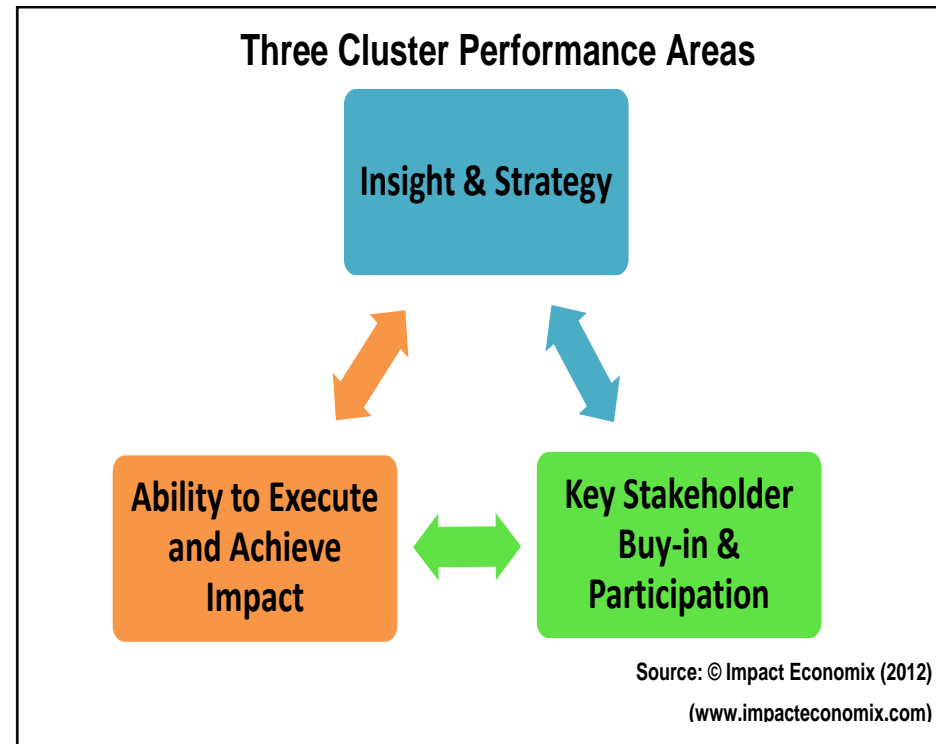
- To facilitate a learning process involving dialogue between Cluster Initiative stakeholders on priorities that need to be addressed to strengthen Cluster Initiatives.
- To identify areas of strength and weakness which can inform specific recommendations for improvement.

# High level Cluster Initiative Theory of Change (ToC)



# CIMBT: 3 Main Cluster Performance Areas

- **Insight and Strategy:** doing the right things and focusing on the priority cluster competitiveness and value chain upgrading issues.
- **Key stakeholder buy-in and participation:** maximising the resources available to address these issues through the support and participation of all relevant role-players.
- **Ability to execute and achieve impact:** doing the right things well by ensuring appropriate governance and management structures and processes are in place which support focused and effective action.



# Cluster Initiative Performance Areas: Ten Performance Components (1): Insight & Strategy

Cluster Initiative Key Performance Components / Constructs	Rationale
<b>1.1</b> Understanding of the cluster's competitive position and core upgrading challenge including quality and depth of value chain research (including the business environment, relevant policy, and cluster competitiveness & strength.)	An in depth understanding of key value chain success factors and competitiveness challenges is needed to inform a Cluster Initiatives strategy to enhance cluster competitiveness and growth.
<b>1.2</b> Strategic, Sound and Shared Cluster Vision, Objectives, Strategies, Expectations.	A strategic, shared, and focused long term vision of cluster success, objectives, strategies, and expectations between key stakeholders is vital for effective and aligned action.

# Cluster Initiative Performance Areas: Ten Performance Components (2): Key Stakeholder Buy-in & Participation

Cluster Initiative Key Performance Components / Constructs	Rationale
<b>1. Industry Social Capital: Awareness, Quality of Relationships incl. Membership.</b>	Active participation from Cluster Initiative members is a vital pre-condition for Cluster Initiative success and this also contributes to improved communication and joint action between industry.
<b>1. Participation &amp; Support from key partners incl. Cluster Governance, participation, buy-in, and commitments.</b>	Active participation and support, including leveraging funding and expertise, from key value chain organisations, especially those relevant to labour force skills development and innovation is vital if sustainable competitiveness is to be improved.

# Cluster Initiative Performance Areas: Ten Performance Components (3): Ability to Execute and Achieve Impact

<b>3.1 Cluster Initiative Governance Relationships &amp; Processes.</b>	Good Cluster Initiative governance policies and processes, an effective Board, and strategic Board leadership is vital to enhance the Cluster Initiatives reputation and trust and ability to attract and manage funding in a transparent and accountable manner.
<b>2. Cluster Management Quality &amp; Processes.</b>	Highly skilled Cluster Initiative management and effective management processes are essential to facilitate complex partnerships, and implementation of Cluster Initiative strategies and programmes.
<b>2. Pragmatic, well-designed, and adequately resourced Cluster Initiative programmes and action plans.</b>	Clear, well-structured and resourced programmes and action plans are needed to ensure Cluster Initiative strategies are logically broken down into activities with appropriate resources so as to allow for ongoing monitoring and accountability.
<b>3.4 Implementation Impacts.</b>	Outputs , processes and outcomes which ultimately improve both firm-level and cluster-wide competitiveness will be achieved if excellence can be achieved in the above key performance areas.
<b>2. Systems &amp; Processes for Monitoring, Evaluating, Learning, and Revision</b>	Monitoring and reporting of both Cluster Initiative and cluster performance against plan is essential to maintain focus, check progress and maintain accountability. Evaluation processes



# CIMBT: Evaluation Indicators and Questions: example for insight and strategy

Cluster Initiative Performance Component	Key indicators	Evaluation Questions
<b>Insight &amp; Strategy</b>		
<p><b>1.1 Understanding of the cluster's competitive position and core upgrading challenge incl. quality of research</b></p>	<ul style="list-style-type: none"> <li>• Depth of understanding of cluster's global and national positioning by management, chairperson.</li> <li>• Quality /depth of value chain research which has informed Cluster Initiatives strategic plan.</li> </ul>	<ol style="list-style-type: none"> <li>a) Is there a clear approach to cluster/ value chain re-positioning/ upgrading/ growth which is well informed by quality value chain research/ evidence and widely supported by industry?</li> <li>b) Are detailed value chain studies available which also examine the strength of the cluster in specific niches and identify the customer critical success factors (incl. business environment, policy, and cluster strength)?</li> <li>c) Are the primary competitiveness challenges and opportunities as well as the current constraints/barriers to effectively dealing with these issues clearly defined in the Cluster Initiative business plan?</li> </ol>

# KZN Cluster Initiative CIMBT Evaluation Results

- Durban Automotive Cluster (established in 2002);
- Durban Chemicals Cluster (established in 2008);
- eThekweni Maritime Cluster (established in 2009);
- eThekweni Materials Recovery Cluster (established in 2009);
- KZN Clothing and Textile Cluster (established in 2005);
- KZN Tooling and metals Initiative (established in 2007).

# Overall KZN Cluster Initiative Maturity Benchmark Tool (CIMBT) Findings

## KZN Ethekewini Cluster Initiative Maturity

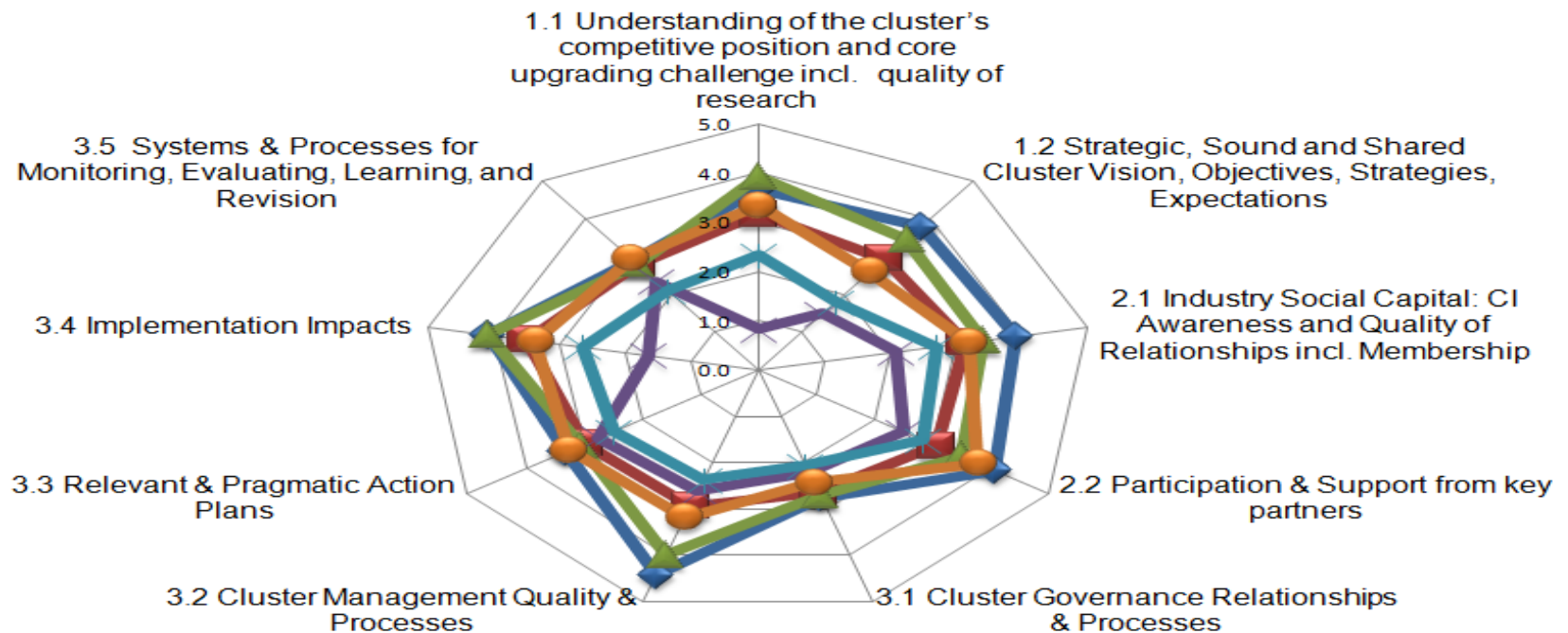


Don't know, don't care about	0
Aware of need to	1
Trying something	2
Now knows what to do but not done yet	3
Doing the right things	4
Excellence/ Best practice	5

# KZN Cluster Initiative Maturity Benchmark Tool (CIMBT) Findings by Nine Performance Components

## KZN Ethekewini Cluster Initiative Maturity Benchmarking: Overall Areas of Excellence

◆Automotives 
 ■Chemicals 
 ▲Clothing 
 ◆Maritime 
 ✦Materials 
 ●Tooling



Don't know, don't care about	0
Aware of need to	1
Trying something	2
Now knows what to do but not done yet	3
Doing the right things	4
Excellence/ Best practice	5

# Selected high level KZN Cluster Initiative findings (1)

- **Strategy and relationships:** Different public and private stakeholders involved in a Cluster Initiative often hold conflicting expectations regarding Cluster Initiative priorities, as well as the expected roles to be played by public sector representatives on the governance structures of Cluster Initiatives.
- **Participation:** Levels of firm participation in a Cluster Initiative is a good indicator of the overall effectiveness of that Cluster Initiative as this reflects the degree to which cluster firms perceive the Cluster Initiative to be adding value to the cluster.
- **Impacts:** Performance of many firms improved as direct result of participation in the Cibs & many additional firms benefited indirectly through the backward and forward linkages with Cluster Initiative member firms.
- **Impacts:** The cost-efficiency of Cluster Initiatives in terms of cost per job created is highly efficient when compared to many other job creation programmes (e.g. IDC Grow-E-Scheme is creating 1 job for R300,000-R500,000. eThekweni Materials Cluster (EMC) creating jobs at average cost of less than R100,000.)

# Selected high level KZN Cluster Initiative findings: Key Success Factors (1)

- Cluster upgrading, growth and competitiveness strategy must be developed based on high quality value chain research and well-designed and facilitated process with key industry role-players. Unpacked into relevant programmes with action plans, outputs, KPIs at the impact, outcome and output levels. Resources and time-frames and sufficient public sector funds must be made available to allow delivery;
- Cluster Initiative management/facilitator needs to have deep knowledge of the cluster and be respected by cluster firms. Cluster Initiative management's knowledge needs to be deep enough to ensure that private sector board members do not influence cluster priorities which are designed to only meet needs of selected firms and which are not necessarily critical to the overall cluster's performance;
- Senior management of the leading firms in the cluster need to be persuaded to devote their time and input by serving on the Cluster Initiative Board so as to provide strategic direction and focus on priority cluster issues;

# Selected high level KZN Cluster Initiative findings: Key Success Factors (2)

- CI must be well managed, transparent, and efficient so as not to waste scarce time of senior Board representatives;
- Programmes need to deliver tangible benefits and provide quick wins to member firms. Establishing a Technical Steering Committee to manage each programme and which is chaired by one of the private sector Board representatives is one way to ensure programmes meet member needs
- Public sector leadership's (both political and administrative) understanding of both clusters and Cluster Initiatives needs to be developed and enhanced so that such leadership is able to appreciate it's role and the importance thereof in enhancing an enabling business environment which support's the productivity and growth of key clusters.

# Lessons for Support of Regional Cluster Initiatives (1)

- Cluster Initiatives need public sector funding in both the establishment phase as well as the implementation stage for at least 3-5 years to allow for trust and relationships to develop and deepen.
- Cluster Initiative activities should include activities which attempt to maximise public goods where cost recovery is difficult or impossible including and/or where various market failures exist e.g.:
  - the dissemination of knowledge and reducing information asymmetries or failures,
  - the improvement of policies, regulations and institutions; and
  - addressing a range of coordination and other market failures, for example those relevant to both the development and adoption of new technologies, as well as development of new products and services.



# Lessons for Support of Regional Cluster Initiatives (1)

- Both the public and private sector needs to allocate resources towards the development of high quality strategies, and high quality strategy processes, designed to enhance the upgrading, productivity, competitiveness and growth of clusters as well as a shared understanding of what cluster success looks like in terms of priority objectives.
- Structure programmes and action plans so that it is clear what outputs are produced with what resources, what outputs can be funded by the private sector, and what outputs require government funding. Government can then make more transparent choices about what activities and outputs it chooses to fund or not.
- Government should have exit policy, approach or strategy to guide when and how it phases out and/or withdraws funding from a Cluster Initiative which is reflected in Cluster Initiative business plans and financial sustainability plan.

# Lessons for Support of Regional Cluster Initiatives (2)

- Following critical Cluster Initiative key performance areas need to be in place if Cluster Initiatives are to have a major impact on the performance of clusters:
  - Clarity of Cluster Initiative strategy, business plan and action plans to enhance cluster competitiveness and value chain upgrading;
  - Level of industry experience, and leadership, managerial, and interpersonal competencies, of the Cluster Initiative Manager/ Facilitator; and
  - Quality and level (both senior / top management level within the firm, and the firm being a leading local firm in the cluster) of private and public sector representatives in the Cluster Initiative Board/ governance structure.

# Lessons for Support of Regional Cluster Initiatives (2)

- CIs represent important institutional mechanism to promote more effective action by government to provide an enabling environment as well as to leverage private sector expertise and ideas in three broad areas:
  - The provision of dedicated infrastructure facilities which meet the needs of the priority clusters;
  - Improvements to the overall business environment in terms of service delivery cost effectiveness, reliability and quality esp. as it impacts on input costs (water, energy, waste, transport logistics)
  - Red tape reduction in terms of decision-making processes and time-frames as well as improvements to regulations which are negatively impacting on cluster competitiveness.

# Lessons for Evaluating Cluster Initiatives (1)

- CIMBT provided useful information to CI stakeholders on performance components which can be strengthened to enhance the effectiveness of CIs in improving innovation, productivity and competitiveness.
- CIMBT can be used to facilitate an effective learning process and shared understanding between CI stakeholders:
  - What the priority Cluster Initiative improvement issues are which need to be addressed to enhance the effectiveness of Cluster Initiatives
  - What needs to be done to address these priority improvement issues.

# Lessons for Evaluating Cluster Initiatives (2)

- Possible for the CIMBT to be further refined as a rapid evaluation approach: minimise costly and time consuming data collection procedures (e.g. firm-level surveys).
- CIMBT implemented by independent researchers with no vested stake in CIs and who also possess deep insight in the functioning of clusters and CIs and using a clear methodology manual that clearly sets out the rating metrics for the 25 evaluative questions.
- Further research and refinement of the CIMBT tool is needed to address issues such as:
  - Refinement of performance indicators (for example for return on investment and value for money) as well as the possible weighting of performance components
  - A version of the CIMBT design to assess the potential for possible future Cluster Initiatives where none currently exists.

# Lessons for Evaluating Cluster Initiatives (3)

- Vital that Cluster Initiatives design and implement their own monitoring and evaluation systems.
- Use of a theory of change and logic model approach by Cluster Initiatives has great potential as a conceptual framework to inform the design of both Cluster Strategies, implementation programmes, as well as Cluster Initiative monitoring and evaluation systems which are evidence based and make explicit key assumptions which need to be valid if they are to work.

# Conclusions and Way Forward

## Issues

- Value in further refinement and testing of the CIMBT- validation.
- Development of a CIMBT Guide and Implementation Manual requires support.
- Benefits from following a standardised CIMBT evaluation process include the ability to benchmark Cluster Initiatives and as part of this process identify Cluster Initiatives which are outstanding performers with respect to various Cluster Initiative performance components. Benchmarking could form part of a larger knowledge sharing initiative involving that sharing of Cluster Initiative good practices between Cluster Initiatives at both a national and global level. Jobs Fund and Treasury could take forward.
- Further work is required on complementary impact evaluation methodologies which can produce credible evidence of causal attribution. The use of modelling methodologies is one such newly emerging methodology which has started to be applied to value chain. Modelling can play an important role by making predictions about and estimating the impact of programmes and policies.

# Thank You!

Rae Wolpe: [rae@impacteconomix.com](mailto:rae@impacteconomix.com)

Cell: 076 8199 886

Glen Robbins: [robbsing@ukzn.ac.za](mailto:robbsing@ukzn.ac.za)

Cell: 0824969396