

THE DYNAMICS OF REGIONAL ECONOMIC INTEGRATION: A SYSTEM DYNAMICS ANALYSIS OF PATHWAYS TO THE DEVELOPMENT OF VALUE CHAINS IN THE SOUTHERN AFRICAN CUSTOMS UNION

S.S. Grobbelaar^{1,2*} & I.A. Meyer³

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Contact details

* Corresponding author
ssgrobbelaar@sun.ac.za

Author affiliations

- 1 Department of Industrial Engineering, Stellenbosch University
- 2 DST-NRF Centre of Excellence in Scientometrics and Science, Technology and Innovation Policy (SciSTIP), Stellenbosch University
- 3 Impact Advantage and Associate member: Agri-Africa

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ABSTRACT

Despite progress towards improved cooperation within the Southern African Customs Union (SACU), it can be argued that real economic integration is still lacking. Cross-border value chain (VC) development has been proposed as a potential enabler of regional economic integration. This article draws on a systems thinking process to explore the dynamic process of regional economic integration and value chain development. Through an inductive approach, we consider pathways for value chain development using the agro-processing and automotive sectors within SACU as case studies. The outcome of the dynamic hypothesis is to inform a framework for strategic decision-making to support policy action towards developing cross-border value chains in SACU.

OPSOMMING

Ten spyte van vooruitgang in beter samewerking binne die Suider-Afrikaanse Doeane-Unie (SADU), kan dit aangevoer word dat ware ekonomiese integrasie nog ontbreek. Die ontwikkeling van oorgrens-waardekettings word beskou as 'n moontlike drywer van plaaslike ekonomiese integrasie. Hierdie artikel maak gebruik van 'n stelseldenke proses om die dinamiese proses van streekswyse ekonomiese integrasie en waardeketting ontwikkeling te ondersoek. Ons gebruik 'n induktiewe benadering om roetes tot waardeketting ontwikkeling deur middel van gevallestudies in landbou-verwerking en die motorsektor, te ondersoek. Die uitkoms van die dinamiese hipotese is om 'n raamwerk te ontwikkel om strategiese besluitneming en beleidsaksie vir die ontwikkeling van oorgrens-waardekettings in SADU te ondersteun.

1 INTRODUCTION AND PROBLEM STATEMENT

Although many African leaders called for regional economic integration in Sub-Saharan Africa soon after independence, it was only in the 1970s and 1980s that economic integration institutions were established. With political unity as the impetus for achieving market integration in order to reach economies of scale, this process could be characterised as being mostly inwardly-focused. It failed because of, *inter alia*, small and poor domestic markets, high input costs, protectionist trade policies, broken regional commitments, and excessive emphasis on joint public investments [1], [2]¹.

¹ Some of the arguments towards improved regional integration was included in a report by Grobbelaar and Serger entitled "Final report: Realising innovation opportunities in sub-Saharan Africa" and is available at http://stias.ac.za/wp-content/uploads/2016/05/Final-Report_May-2016_Pr2.pdf.

This article considers the case of the Southern African Customs Union², as an example of challenges for economic integration to deliver on its promises.

A World Bank study conducted in 2011 found that the major pillars of successful economic integration remain an efficient transport and logistics system, easy trade across borders, and the strength of regional value chains. While there are a range of opportunities for firms to raise the level of cross-border trade in the region, it is hampered by high costs and the unpredictability of the trade regime. A number of key barriers were identified [3] :

- a. Inefficiencies in transport, border management, and logistics;
- b. Cumbersome fiscal arrangements;
- c. Poorly designed technical regulations and standards; and
- d. Non-tariff barriers (NTBs) such as import bans, permits, and licensing.

In addition to the above, supply chain constraints are now recognised as a major impediment to export-led growth. In response to these issues, role players in regional development have come to recognise Trade Facilitation and Logistics as an important policy area in development. Consequently, the World Bank commissioned a study for a Trade and Transport Facilitation Assessment of the SACU region in late 2013. The study utilised the World Bank's TTFA toolkit, which is a practical and cost-effective instrument that can be applied to identify and address bottlenecks in international value chains [4].

Acknowledging that such a TTFA cannot be completed in isolation of the realities of global competition and the structure of value chains, a significant component of the study was focused on the value chains of a number of industries. Key objectives of the study were to:

- (1) Assess selected value chains and consider the drivers of volume, variety, and global competitiveness (the aggro-processing, automotive, beef, and textile value chains were considered); and
- (2) Suggest opportunities for restructuring or strengthening value chains and the means of implementing improvements effectively at a regional level.

It is argued in this article that macro-level focus areas need to be addressed in order to create an environment for value chain integration. An understanding of the wider context as well as the nature of value chains is required, in order to consider whether or not it is practical or feasible to support cross-border value chain development. The purpose is therefore to arrive at a more systematic approach towards the planning of increased economic interdependence and cooperation, with the ultimate aim of economic integration.

The key objectives of this article are therefore to:

- (1) Develop a framework for value chain analysis and for pathways to value chain development, against which to consider the role of the trade environment in SACU and the extent to which cross-border integration of such value chains are possible; and
- (2) Develop a framework within which metrics could be defined to assess the extent of regional integration and to scope progressive development pathways.

2 METHODOLOGY

The system dynamics methodology aims to analyse complex systems and problems, and is useful in aiding and improving decision-making and policy formation. This methodology could also be used to include relevant cause-effect relationships, delays, and feedback loops in a complex system to account for exhibited behaviour [4]. The system dynamics methodology allows for dynamic structures to be included in a model, with key steps that include: 1) the problem articulation; 2) dynamic hypotheses development and formulation of the model; 3) testing; and 4) policy formulation and evaluation.

² The Southern African Customs Union, the oldest in the world, has as its members Botswana, Lesotho, Namibia, South Africa, and Swaziland. SACU member states are linked through a single tariff between member countries, and have zero customs duties for trade between partners. There is also a common external tariff that applies to non-SACU countries.

This paper focuses on developing a dynamic hypothesis of the exhibited behaviours and dynamics that explains SACU's lack of regional economic integration. Although a mathematical model is not formulated in this article, the systems thinking process allows for the key dynamic feedback loops to be uncovered that need to be considered in order to develop a dynamic theory of regional economic integration. We draw on two case studies, on which we base the development of a dynamic hypothesis and then – based on this analysis and through an inductive approach – we present a framework for a system of indicators that need to be considered in a policy framework.

The study method included an initial literature review to establish an overview of the dynamics of each industry and the relative competitiveness of regional member states, and also to identify major cross-regional role players and value chains. Fieldwork comprised semi-structured interviews with role players along cross-border supply chains, augmented by questionnaires. The role players who were interviewed for the purpose of this study are outlined in Table 1 (agro-processing industry) and Table 2 (automotive industry). A total of 65 individuals from 40 organisations were included in the study.

Table 1: Breakdown of interviews conducted for the agro-processing industry

Member	Individuals	Organisations	• Categories
South Africa	9	6	<ul style="list-style-type: none"> • Input suppliers • Food processors • Logistics service providers • Wholesalers
Namibia	7	6	<ul style="list-style-type: none"> • Input suppliers • Food processors • Logistics service providers • Retailers • Industry bodies
Swaziland	8	5	<ul style="list-style-type: none"> • Input suppliers • Food processors • Retailers and wholesalers • Industry bodies
Total	24	17	

Table 2: Breakdown of interviews conducted for the automotive industry

Member	Individuals	Organisations	• Categories
Experts and consultants	9	6	<ul style="list-style-type: none"> • Consultants • Academics
South Africa	16	9	<ul style="list-style-type: none"> • Tier 1 and Tier 2 component manufacturers • Original equipment manufacturers (OEMs) • Services • Industry associations • Industry development professionals
Botswana	11	6	<ul style="list-style-type: none"> • Component manufacturers • Aftermarket participants • Logistics service providers • Government
Lesotho	5	2	<ul style="list-style-type: none"> • Component manufacturers • Government
Total	41	23	

3 LITERATURE REVIEW

What is regional economic integration, and why is it important?

International trade theory and new economic geography suggest that regional integration facilitates increased returns and increased competition, and may lead to a range of effects that may be of benefit to member countries. These may include scale effects (e.g., reducing production costs and consumer prices), variety effects (e.g., a wider variety of products), and accumulation effects (e.g., specialisation). Furthermore, factors such as increased market size, productivity, and availability of factors of production will enable larger markets to be served. This may in turn contribute to the attractiveness of specific regions to foreign firms that will then enter these markets. Further benefits may include coordination and collective bargaining power through regional agreements, improved management of shared natural resources, and a reduced threat of conflict between countries. Under the condition of sufficient substitutes, demand in the region may increase, which may lead to increased competition in the trade zone [1], [2], [6]-[8].

However, trade diversion may take place where partners maintain high tariffs for non-members, which could then cause low-cost products from non-members to be replaced by higher-cost products from countries with a trade agreement [1], [6].

Further negative consequences could include reduced tariff revenues, leading to revenue losses for national governments. Also, indirect costs such as capital flight or brain drain may be incurred. These potential negative consequences could in some instances become drivers against economic integration, especially where the impacts are at national rather than at regional level [1], [5].

Dimensions and stages of regional economic integration

Kritzinger-van Niekerk [1] outlines three dimensions of regional integration: the geographic scope (the number of countries included in arrangements), substantive coverage or width (i.e., sector or activities such as trade, labour mobility, macro-policies, sector policies, etc.), and 'depth' of integration.

'Depth of integration' refers to the extent to which policies are integrated. Authors have described the model of integration that is followed under the Bretton Woods-GATT system as 'shallow integration' to distinguish it from the 'deep integration' that requires behind-the-border harmonisation of regulatory policies. The depth of integration is related to the economic performance that is likely to be achieved. Shallow integration is recognised to be a necessary precursor to deep economic integration. When moving from shallow to deep integration, trade is expanded, economies of scale are achieved, and productivity increases, resulting in improved economic performance [9], [10].

Three pathways of regional integration: Trade-offs

Krapohl and Fink [11] consider three cases of regional integration, and argue that regional integration is unlikely to change the economic structure of regions, but will rather reinforce pre-existing patterns of interdependence. They argue that two major factors determine the pathway for regional integration. These are the relative importance of intra-regional versus extra-regional economic interdependence, and the economic asymmetry of member states.

The following three pathways towards economic integration can be identified:

- 1) Industrialised regions with mutually reinforcing intra-regional interdependence and the development of institutions at the regional level. This places such a region in a position to exploit comparative advantages and economies of scale. An incentive therefore exists for states to drive the integration of their markets. Asymmetries are unlikely to affect this process, as economies are interdependent.

Two alternative pathways towards economic integration are outlined for less-developed member states:

- 2) Less-developed member states where there is no clear regional power, or where there are lower asymmetries, are well-suited for cooperation. In this case, no clear regional power means that the development of regional institutions will lead to increased extra-regional trade. These nations are less likely to benefit from intra-regional trade, but regional integration and the development of institutions may strengthen relations with extra-regional actors. This may be through attracting extra-regional foreign direct investment (FDI) and collective bargaining power in trade negotiations.
- 3) Less-developed member states where there is a regional power. Here, integration will result in strained cooperation, as the regional power will have interests that are extra-regional and that weigh much more than the gains attainable within the member states. Krapohl and Fink [11] call such a dynamic a 'Rambo effect', where the super power may block or fail to implement agreements. According to them, it is unlikely that such an asymmetric cooperation will succeed, as it will feed a cycle where asymmetries are reinforced.

Krapohl and Fink [11] used the case of the European Union (EU) to illustrate the first pathway, and the Association of Southeast Asian Nations (ASEAN) to illustrate the second pathway; while the South African Development Corporation (SADC) was used as an example of the third kind. SACU, by extension, would fall within the third category.

Through the SADC example, regional stumbling blocks to integration were outlined, mostly criticising South Africa for dominating the region and blocking regional cooperation when it starts to endanger extra-regional interests. Krapohl and Fink (2013) argue that the realities of huge asymmetries, the lack of intra-regional independence, and the dependence on extra-regional trade are perpetuated in this example.

Krapohl and Fink [11]'s pathway analysis is useful in providing the basic principles of our dynamic hypothesis towards understanding the regional integration process.

In the next section, we devise an analysis of the key factors for consideration in our systems thinking exercise.

4 ANALYTICAL FRAMEWORK: COMPONENTS OF A PROCESS VIEW OF REGIONAL ECONOMIC INTEGRATION

The wider macro-economic context needs to be considered when developing a more comprehensive view of the contributing factors and reasons for the current levels of regional economic integration within SACU. The authors propose that, whereas Krapohl and Fink [11] applied the pathway approach at the regional level, such an approach may also be applied at the value chain level. The aim is to enrich this framework and to propose that economic integration pathways are also dependent on the nature and factors of the competitiveness of industries. In order to develop a dynamic view of the process of regional economic integration, a range of dimensions or focus areas are considered as a way of exploring the drivers of such a process. These are:

- Context, capacity, and value chain dynamics: The macro-economic context and initial conditions in member states, and existing capacities in industries, through value chain analysis; and
- Outcomes of the process of facilitating trade and transport: Barriers to creating an enabling environment, specifically focusing on a range of trade and transport facilitation issues.

4.1 Context, capacity and value chain dynamics

As argued by Kaplinsky and Morris (2001), the value chain construct has mostly been applied as a heuristic device, but it has also generated some utility as an analytical structure. Kaplinsky and Morris (2001) suggest that value chains can provide insight into why industries behave the way they do. Although such an analysis is often descriptive and static, it certainly provides us with a framework that can assist in considering a dynamic hypotheses.

From the literature, key drivers of well-functioning value chains include appropriate and optimal use of resources along the chain. This implies that the analysis of the development of local and cross-border value chains need to take cognisance of issues such as [8]-[11]:

- Initial conditions, history, asymmetries (economics, trade levels, technological progress, manufacturing capacities, welfare issues, mobility, and flows);
- Factors of competitiveness of value chains;
- The impact of globalisation on the dynamics of the value chain;
- Extra-regional issues and their impact on the value chain – particularly in terms of what that means for the dynamics of income distribution and power relations;
- Governance – i.e., the mechanisms of the process of exerting and distributing power throughout the chain; and
- The role that institutions play in the process of structuring business relationships and industrial location.

4.2 Outcomes of the process of facilitating trade and transport

The World Bank's Trade and Transport Facilitation Assessment toolkit was used to create an extended framework for understanding trade facilitation and its impact on international commerce [12]. To this end, *action and implementation* of economic integration is typically defined on three fronts: behind-the-border, at-the-border, and between-the-borders [5]:

- *At-the-border* reforms refer to the process of liberalising the movement of production factors (capital, labour, intermediate goods and services) and supports the development of cross-border production networks;
- *Behind-the-border* reforms involve putting in place mutual recognition agreements on technical standards and business procedures, regional trade agreements, and logistics and transport facilitation initiatives; and finally
- *Between-the-borders* reforms are focused on addressing the underlying causes of the high cost and unpredictability of infrastructure, particularly with respect to transport services and electricity.

In conclusion, by combining the two focus areas that are outlined in sections 4.1 and 4.2, the proposed analytical framework provides a way to characterise and assess the main drivers and pathways towards economic integration. As an assessment tool, it highlights the current status of value chains and the opportunities (if any) for cross-border integration.

5 ANALYSIS

The analytical framework outlined in Section 4 was used as a basis for analysis of the dynamics exhibited in automotive and agro-processing value chains, as well as opportunities for, and obstacles to, more extensive regional integration.

5.1 Value chain development pathways

The nature and characteristics of value chains are determined by the nature of their underlying industries, and the value chains of the two sectors under consideration differ substantially. An understanding of these differences is important for an interpretation of the constraints experienced by role players in the value chain, and to generalise the recommendations that arise from the study.

5.1.1 Value chain development pathway for agro-processing in SACU

Regional imbalances are hampering regional integration

Participation in global agro-processing value chains is determined by the ability to deliver high-quality products to sophisticated markets, while complying with a variety of standards and food safety regulations. Regional integration would make sense in cases where collaboration enables cost-effective delivery and better positioning relative to niche markets.

The Southern African agro-processing industry is characterised by South African dominance, which results from an imbalance in the capacity of the various SACU partners to produce agricultural goods. South Africa produces over 90% of its food products domestically, while Namibia and Botswana imports 98% and 90% of processed foods, respectively. Comparative advantages between players in agro-processing are to a large extent determined by factor conditions, which is in the case of SACU dependent on climatic factors.

Fieldwork in the fruit and vegetable and sugar sub-sectors lead to the identification of a number of factors that highlight the relative competitiveness of the various SACU partners. Porter's 'diamond of national advantage' has been used to summarise factors that influence regional imbalances within SACU, as well as the global competitiveness of the region, as perceived by participants in the study [15].

Table 3: Determinants of competitiveness

	NAMIBIA	SWAZILAND	SOUTH AFRICA
FACTOR CONDITIONS	<ul style="list-style-type: none"> × Small productive capacity × Input factors imported at high cost × Some inputs not available × High transport costs × Climatic constraints 	<ul style="list-style-type: none"> × Scarce land, water, labour × High energy and transport costs × Depends on SA for energy ✓ Relatively low labour costs ✓ Good quality local sugar, cheap ✓ Potential to expand production capacity ✓ Local production of input factors 	<ul style="list-style-type: none"> × Limited access to high quality raw materials for inputs (canning) × High cost of local inputs × Labour problems × Insufficient logistics infrastructure ✓ Varied climatic regions
RELATED AND SUPPORTING INDUSTRIES	<ul style="list-style-type: none"> × Limited local production of input factors × Limited logistics infrastructure (rail, ports) 	<ul style="list-style-type: none"> × Limited local production of input factors × Limited logistics infrastructure (rail, ports) × Government and politics: perceptions and compliance 	<ul style="list-style-type: none"> × Limited local production of some input factors (cans) ✓ Relatively sophisticated logistics services industry
DEMAND CONDITIONS	<ul style="list-style-type: none"> × Relatively small local demand × Small demand in LSM 7-10 × Distance to SACU markets relative to competitors × Economies of scale difficult ✓ Vulnerable to changes in SA trade environment 	<ul style="list-style-type: none"> × Exposed to dumping in South African market × European consumer preferences change and influence demand ✓ Good proximity to Gauteng market ✓ Preferential access to European markets (sugar) ✓ Benefits from niche export markets (fruit and veg processing) 	<ul style="list-style-type: none"> × Competition from low-cost imports × Accreditation required for market access × Europe has duty-free access to SA markets × No standardization in Africa, outside SACU ✓ Large domestic market
FIRM STRATEGY, STRUCTURE AND RIVALRY	<ul style="list-style-type: none"> × Competition from low-cost imports × South African retailers dictate and dominate 	<ul style="list-style-type: none"> × Large integrated South African firms dominate × Competitive environment regulated by quotas × Competition from low-cost imports × Competition in international market from low-cost processors 	<ul style="list-style-type: none"> × Competition in international market from low-cost processors (China) × Competition from duty-free imports outside SACU (Mozambique)

Regional integration pathways can enhance regional competitiveness

The abovementioned determinants of competitiveness describe some of the factors that constrain national industry growth, and the ability to participate in global supply chains. Fieldwork indicated that regional advantages include the ability to deliver to the Northern hemisphere during its off-season, and the ability to produce for niche markets. Regional comparative disadvantages relate to

the quality and cost of input factors, inefficiency of logistics services and infrastructure, and the cost of compliance with international standards for food supply chains. Also, there is competition from low-cost producers and processors in the international market.

This fieldwork further indicated that the South African industry benefits from varied climatic regions and hence varied production. Its ability to compete more cost-effectively than other SACU partners in a variety of international markets is further enhanced by better access to agricultural inputs, better logistics infrastructure, more sophisticated logistics service providers, and more sophisticated local demand conditions. The competitiveness of the Botswana, Lesotho, Namibia, and Swaziland (BLNS) members is constrained by an underdeveloped input sector and by an underdeveloped ability to compete, given low local demand conditions.

The dynamics in the agro-processing industry are dominated by large South African retailers. The South African-based retailers define and dominate major retail chains, and determine the conditions under which regional suppliers are allowed to participate. This leads to a protective response by the BLNS members, which in turn serves as a driver against regional integration.

Given these imbalances, there are not many examples of truly integrated regional supply chains. Retailers use South Africa's productive capacity to establish their local chains, and then export into neighbouring markets where local demand cannot be fulfilled from local production.³ Some chains exist where processors have been able to establish facilities across the region, thus taking advantage of relative competitive advantages to deliver into export markets.

From our primary research it can be concluded that pathways to regional integration in agro-processing primarily depend on the ability of member countries to overcome factors that hamper efficient production. These include factors that affect product quality, processing, storage, transport, and branding. Fieldwork indicates that the location of regional supply chains does not allow them to take advantage of comparative advantages, and that an enabling environment that ensures the ability to comply with international quality and food safety standards is not sufficiently developed. Furthermore, barriers to trade and transport facilitation prevent regional integration.

Given these areas of improvement, the following development pathway for the agro-processing industry has emerged from our fieldwork (Figure 1).

The analysis illustrates an overall picture of integration that is driven by initial conditions of dominance by South African role players and of protectionist strategies by regional role players. Regional collaboration for international competitiveness happens on a case-by-case basis, where there is opportunity to respond to significant export demand. Private sector organisations collaborate to reduce their own barriers to competitiveness, and invest in infrastructure to bridge the gaps left by regional governments. In addition, they find ways to work around inefficiencies created by a lack of governmental integration.

5.1.2 Value chain development pathway for automotive industry in SACU

In the case of the automotive industry, the in-principle rationale for supporting cross-border value chain development is not clear, as a number of realities and trends have to be emphasised, based on the trends and dynamics in the automotive Global Value Chains (GVC).

³ For example, 2011 production and consumption figures of the fruit and vegetable sector indicate that Namibia and Botswana produce 35 per cent and 45 per cent of local demand respectively (Hoffman, 2011; Ministry of Agriculture, Botswana, 2011).

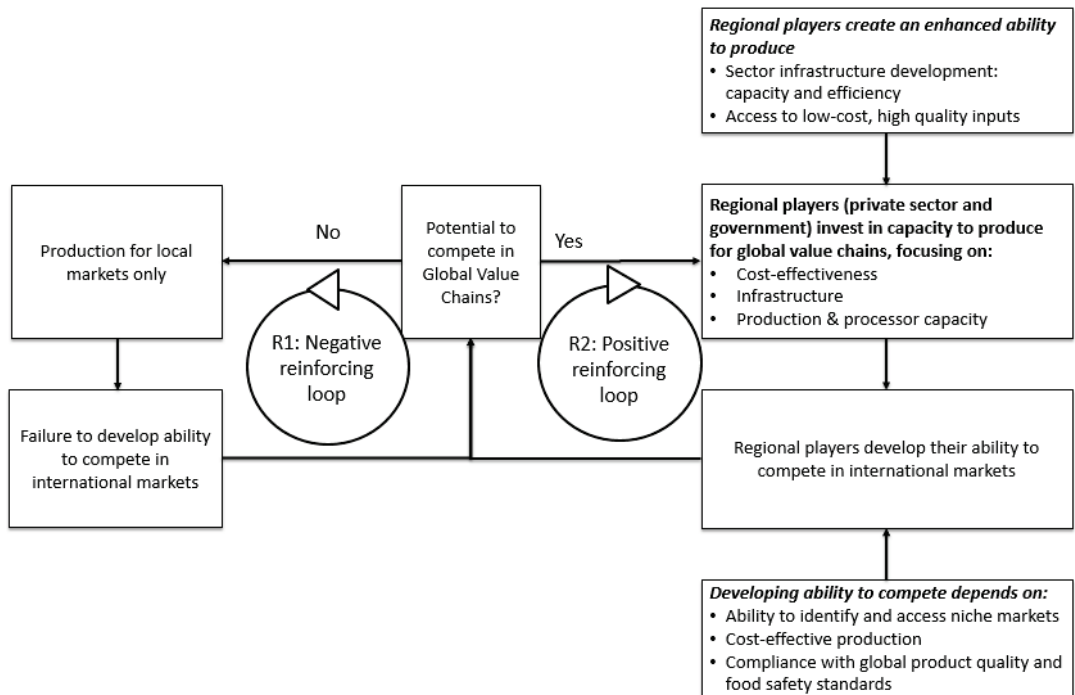


Figure 1: The industry development pathway and value chain trends for the agro-processing industry

Regional integration depends on the ability to attract foreign direct investment

The importance of initial conditions, and the process and dynamic of reinforcing existing trends in the automotive industry in SACU, have proven to be of the utmost significance. In Figure 2 we map a positive reinforcing loop that depicts the dominant pathway in South Africa towards maintaining an automotive industry. The dynamic represented in the feedback loop depends on the existence of OEMs in the country (see R1 as a reinforcing loop) and the ability of the country to retain these OEMs. This depends on the ability to secure continued production contracts, which is in turn is determined by industry competitiveness, strengthening the supplier base, and localisation as a strategy to reduce the cost of input factors⁴ [16]-[18].

Furthermore, to develop cross-border value chains for the automotive industry in SACU, OEMs have a requirement that Tier 1 suppliers (as far as possible) are located within five minutes of the plant. This has given rise to the ‘supplier parks’ trend. This restriction implies that only commodity items can enter the regional value chains from distant locations⁵ [19], [20].

There is an additional dynamic: there are at present no South African-owned OEMS, which implies that extra-regional players determine and allocate production contracts on a competitive basis. This takes place by means of competitive bidding, and South Africa has very little influence over the allocation and the resulting location of production, apart from improving industry competitiveness. International competition between locations of production is severe, and is driven by the demand to remain cost-competitive. This aspect results in specific requirements for production locations, such as large domestic markets or proximity to international markets, industry concentration, well-established services around the industry, and a strong supplier base. Furthermore, production expertise and technological capacity are required. A pathway towards automotive industry development therefore depends on establishing the ability to attract OEMs and global Tier 1 or mega-suppliers to a country [21]-[23].

⁴ Established through interviews and on-site visits.

⁵ Established through interviews and on-site visits.

As far as BLNS countries are concerned, the central location of Lesotho may provide future opportunities for ensuring that some level of concentration can be achieved in the manufacture of selected components. No OEM is at present located in Lesotho, which implies that opportunities may be limited to the manufacture of components that are more generic and commodity-like, such as the current leather stitching components, simple harnesses, or batteries. A small number of operations exist in Botswana. The most important of these is a Gabarone-based harness manufacturer that was recently acquired by a German component manufacturer. It is competing against the backdrop of no local domestic market and dependence on South Africa's export capabilities.⁶

While fieldwork indicated that South Africa is in some instances considered to be the regional 'Rambo', it is in practice playing a very small role in the international automotive industry. It is nationally and regionally important in the sense that it is responsible for eight per cent of the South African GDP. However, it is only contributing 0.5 per cent of global vehicle production. So, in spite of its regional dominance, South Africa is in essence 'surviving in global value chains' [16].

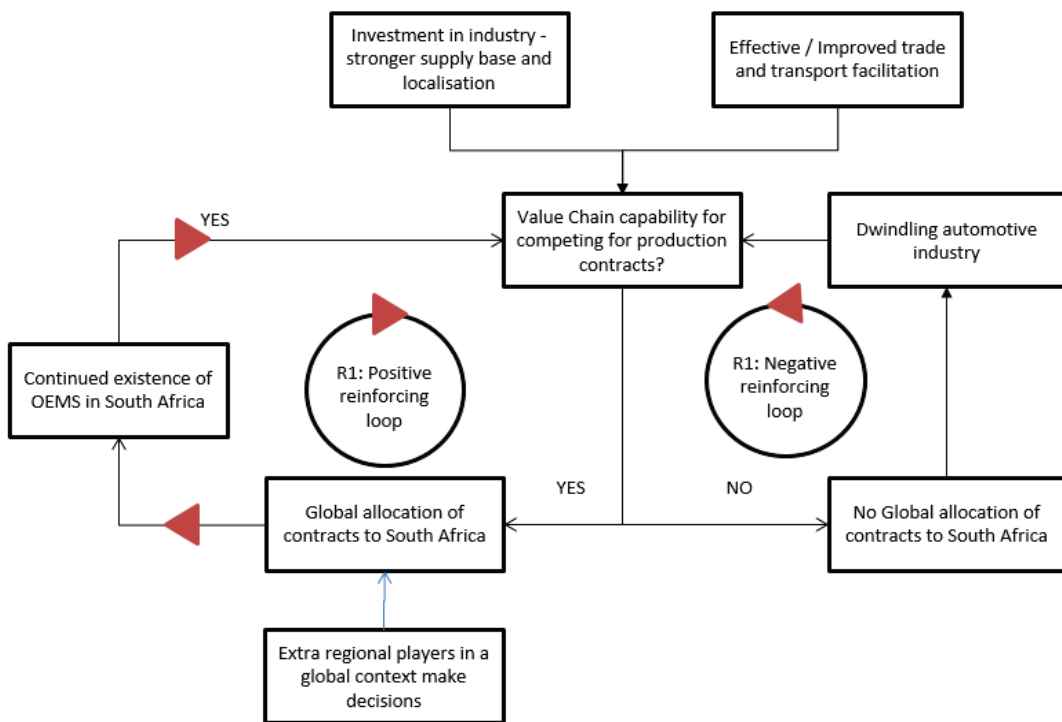


Figure 2: The industry development pathway and GVC trends impacting on regional integration of the automotive industry

5.2 Regional issues for trade and transport facilitation and logistics

Given the findings from the fieldwork, the following themes related to trade and transport facilitation and logistics (TTFL) support were uncovered, but were indicated by industry participants to be secondary to value chain development and competitiveness issues. This finding could imply that the macro environment is a primary and limiting constraint on value chain development that needs to be overcome before TTFL-related constraints come to the fore. The former could dictate and influence value chain development, while the latter has an impact on value chain efficiency and effectiveness.

The following issues are relevant *at the border*:

⁶ Established through interviews in Lesotho and Botswana (see methods section).

- The relative size of member countries makes a difference, and the dominant partner dictates the nature and cost of interactions.
- Everybody is affected by, and dependent on, the location of South Africa relative to global markets.
- Infrastructure is a known national constraint for all member states. The analysis indicated that, from a TTFL perspective, it particularly needs be addressed *at the border* and *between borders*.
- Further *at the border* opportunities for integration include improved flow of products and people, and a number of important aspects that relate to the strengthening of regional competitiveness.

Between the border opportunities require a focus on improved efficiencies and reduced costs.

Lack of harmonisation plays out at all three levels, but is primarily addressed *behind the borders*. It includes a variety of aspects, such as VAT and customs processes and procedures, transport regulations and agreements, trade finance, and operational road transport aspects. Remedies include the establishment of facilities, procedures, and institutions to measure and improve logistics performance and adhere to supply chain standards. This is a key enabler of increased competitiveness and supply chain participation.

The findings outlined above are supported by the fieldwork in the two sectors, as summarised in the table below:

Table 4: Synthesis of trade and transport facilitation and logistics issues uncovered through the study (field work)

Category	Examples of priorities to improve regional economic integration in SACU
At the border	<ul style="list-style-type: none"> • Mechanisms to ease flow of factors of production: <ul style="list-style-type: none"> ➢ Flow of labour between countries ➢ Access to development capital (from South African banks) • Integration <ul style="list-style-type: none"> ➢ Development of cross-border production networks ➢ Joint identification of niche market opportunities • System integrity <ul style="list-style-type: none"> ➢ Strategy to reduce corruption at borders, especially those with Lesotho
Behind the border	<ul style="list-style-type: none"> • Logistics performance <ul style="list-style-type: none"> ➢ Development of solid tools and institutions to measure and assess performance • Regulation of transport and logistics services <ul style="list-style-type: none"> ➢ Support for meeting standards and for certification of an increasing spectrum of logistics providers ➢ Use of technology as mechanism for regulation • Trade facilitation and harmonisation <ul style="list-style-type: none"> ➢ Development of institutions and regulations to facilitate trade ➢ Strengthening of trade finance system ➢ Harmonisation of transport agreements, regulation of transport services • Development of region-wide standards (e.g. agricultural chemicals, labelling) • Harmonisation with respect to roadworthiness
Between the borders	<ul style="list-style-type: none"> • Logistics infrastructure <ul style="list-style-type: none"> ➢ Strategy to address limitations (rail, port, roads) ➢ Development and improvement of infrastructure (port congestion, road quality, rail efficiency, limitations of telecommunications services) • Predictability of logistics services <ul style="list-style-type: none"> ➢ Efficiency improvement (rail, ports, road, customs processes) ➢ Systems and process integration (VAT and technology systems, customs processes) • Reduction of cost of trade, associated with: <ul style="list-style-type: none"> ➢ Movement of input factors ➢ Logistics inefficiencies ➢ Energy provision (electricity)

In order to attract global players to invest and participate in the regional economy, or to develop local value chains to participate globally, the regional trade environment needs to function efficiently and effectively. It should provide a sophisticated supporting environment from which firms could trade internationally, and should not suffer from inefficiencies that affect the ability to deliver cost-effectively into international markets. To this end, an integrated regional effort is required to develop the appropriate competitiveness factors, and to develop these factors at the appropriate regional locations.

6 CONCLUSION

By considering the dimensions suggested for the analytical framework, it is possible to develop metrics that will serve as an indication of the current factors that form a barrier to the process of deeper economic integration, the development of local value chains, the desirability of cross-border value chains, and the role of TTFA issues.

We propose that the analysis of barriers to (and priorities for) value chain integration be done systematically. To this end, this section outlines an in-principle generic dynamic hypothesis for describing economic integration performance.

6.1 Implications of value chain development pathways for economic integration

Based on the literature review and findings from the semi-structured interviews, the dynamic hypothesis below serves as a synthesis framework for drivers of regional asymmetries and a framework to design interventions to prioritise efforts. We now map out the (admittedly simplified) key reinforcing loops that we postulate by considering Krapohl & Fink's pathways model (2013b) and fieldwork. Figure 3 outlines a process model of the existing reinforcing loops that we believe are important for understanding the level of regional economic integration.

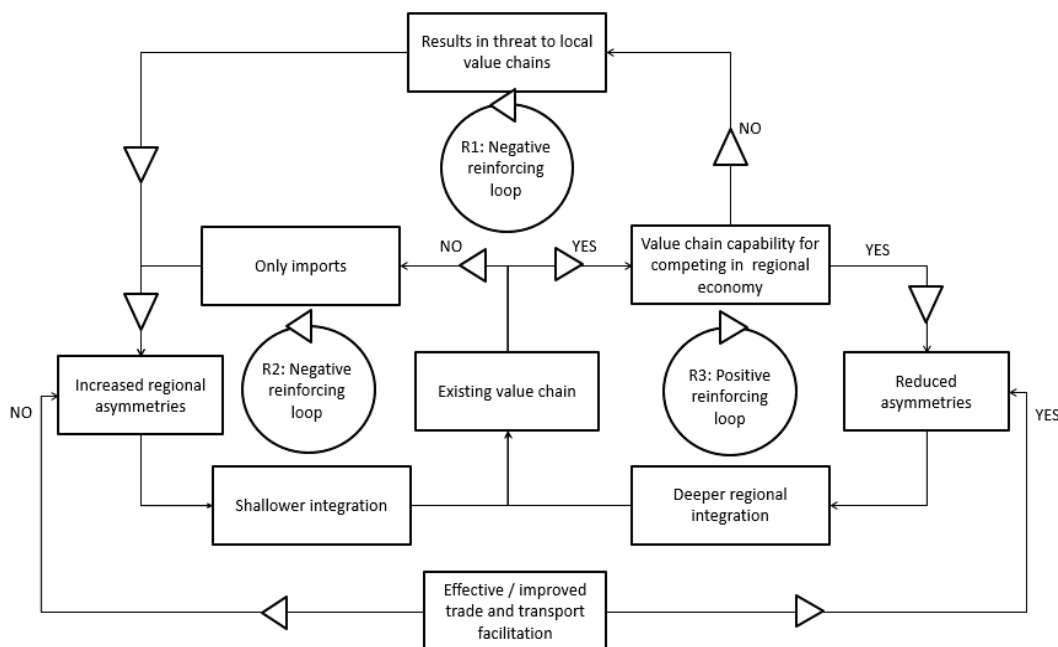


Figure 3: Generic economic integration pathway model for SACU

Negative reinforcing loop 1 (R1) in Figure 3 depicts the impact of imbalances in productive capacities and lack of ability to compete regionally that leave BNLS countries dependent on imports from South Africa and further afield, resulting in reinforcing regional asymmetries and perpetuating shallow economic integration.

Negative reinforcing loop 2 (R2) maps the observed inability of BNLS countries to establish strong value chains and production networks, which in turns results in uncompetitive local industries. Regional integration in these cases could result in a threat to local industry, which leads to protectionist trends – resulting, yet again, in reinforced regional asymmetries and shallow economic integration. In both of these negative reinforcing loops (R1 and R2) we also recognise the role that ineffective or poorly-coordinated TTF activities might play in exacerbating regional asymmetries.

We argue that a positive reinforcing loop (R3) needs to be cultivated in order to break these negative reinforcing loops. We theorise that the development of adequate and cost-effective productive capacity, the ability to remain regionally competitive, and effective TTF activities are required to reduce asymmetries and to develop options where extra-regional interests are not too strong.

6.2 Towards a framework for strategic decision-making

As argued before, any analysis of integration within SACU needs to highlight the macro-economic imbalances in the region, driven by South Africa as the economic power that dictates the extent of reforms. Cognisance of this dynamic, and the need to establish an enabling policy environment, is essential when recommending reforms within the region [24], [25].

As shown in Figure 4, we conclude that pathways towards regional integration performance are determined by economic asymmetries, initial conditions, the GVC trends in globalised industries, competitiveness, and the implications that such dynamics hold for extra-regional dependence:

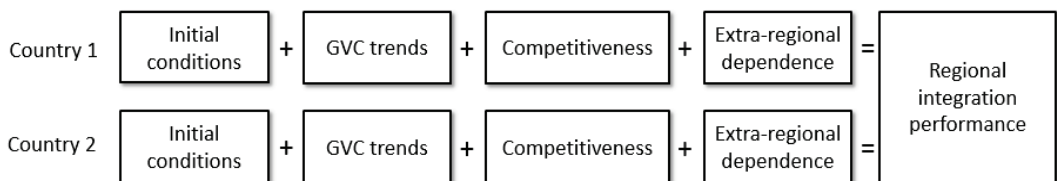


Figure 4: Factors to consider when developing a prioritisation framework for value chain integration

Initial conditions: ‘History matters’; and it has been argued that the initial conditions of existing capacities and regional asymmetries play an important role. The maturity of the industry’s efficiency, processes, and practices relative to global value chains has been found to play an important role in the ability of the industry to compete.

Global value chain trends: The maturity of major globalised industries is characterised by the concentration of players and by large global players creating significant barriers to entry. Global OEMs and large supermarket chains wield enormous power in value chains, and drive dynamics that have implications for the ability of countries to secure and sustain competitive industries. These large global or regional players also dictate the terms of engagement. As was shown in the literature review, this drives the question of the relative importance of extra-regional influence, dependence, and regional integration and interdependence.

Extra-regional dependence: Similarly, the behaviour of the individual regional players is driven to a large extent by the power wielded by extra-regional players, and by the relative importance of markets outside the region. Furthermore, there is some regional dependence on extra-regional players for input factors (such as services, labour, raw materials) and global production contracts. The focus is on delivering on the demands of extra-regional players, rather than on developing benefits based on regional integration. This inevitably results in the ‘Rambo’ effect. The key questions to resolve are how to compensate intra-regional players for asymmetries, and how to overcome such asymmetries caused by external pressures.

Competitiveness: Lack of relative competitive advantage (specifically factor conditions) of BLNS members result in limited incentives to distribute value chain elements across the region. At

present, low local demand and the immature competitive environments of BLNS members lead to a poor ability to compete with South African producers and to participate in value chains, and in underdevelopment of the capacity to identify and compete in niche markets.

Regional integration performance: As the dominant economic power, South Africa controls most of the intra-regional supply chains, and dictates value chain dynamics within the region. In some instances this leads to a protectionist response by other SACU members, which in turn leads to barriers to deep regional integration.

Table 5: Value chain factors to consider in a regional integration analysis framework (Sources: Field work, [4], [6]).

Factors	Components to consider
Factors of competitiveness as drivers of value chain performance	<ul style="list-style-type: none"> • Factor conditions • Related and supporting industries and strength of the supply base • Demand conditions • Firm strategy, structure and rivalry • Market access: geography, size of the regional or domestic market, distance from markets
Initial conditions	<ul style="list-style-type: none"> • History of industry development and maturity of existing value chains in the country • Strength of supply base • Existing manufacturing or productive capabilities • Innovative performance and technological capability
GVC trends	<ul style="list-style-type: none"> • Maturity of the industry • Level of concentration of the industry • Nature of the value chain (technological intensiveness vs national capability) • Impact of value chain trends on VC dynamics
Extra-regional dependence	<ul style="list-style-type: none"> • Level of globalisation of value chain and resultant trends • National importance of industry vs global significance of industry
Regional integration performance	<p>Asymmetries in economies and trade within region</p> <ul style="list-style-type: none"> • Share of regional GDP • Share of regional population • GDP per head • GDP distribution per sector • Export sector distribution • Foreign trade coefficient • Exports to region as percentage of total exports <p>Asymmetries in level of flows in region</p> <ul style="list-style-type: none"> • Flows of trade, goods or services • Capital flows, money • Flows of people <p>Alternative considerations</p> <ul style="list-style-type: none"> • Width of integration: policy areas covered • Depth of integration • Conflicts of interest and national economic development priorities

While the above analysis considered two fundamentally different industries, the key issues that need to be addressed in order to enable and unlock regional competitiveness remain similar. This emphasises the potential for cross-industry interventions to strengthen and deepen regional integration. Key impediments to economic integration within SACU, as identified during the fieldwork, are summarised below within the framework of different policy areas for economic integration (at the border, between borders, and behind the border).

The framework shown in Table 6 provides an indication of the policy areas that should be addressed when enabling value chains as a way to facilitate deeper regional integration. Combined with the factors that describe an enabling environment (Table 5), they form a framework within which the level of integration within a region can be assessed, and actions for improvement can be prioritised. Furthermore, they provide categories within which indicators for regional integration can be developed.

Table 6: Policy areas and TTF components that inform regional integration (Sources: field work; World Bank, 2010; Santi, 2012)

Category	Policy areas	Components of TTF
At the border	Trade facilitation	<ul style="list-style-type: none"> • Trade promotion • Development of cross-border production networks • Domestic institutions promoting trade and transport facilitation policies, mandating effectiveness and governance • Payment systems and exchange control (tax, banking, data-sharing platforms)
	Customs facilitation and modernisation	<ul style="list-style-type: none"> • Customs facilitation • Customs modernisation: <ul style="list-style-type: none"> ○ Service liberalisation ○ Customs clearance, regulations ○ Procedures (permits, licences) and facilities ○ Security issues • Use of technology to streamline customs
	Multilateral cooperation	<ul style="list-style-type: none"> • Regional trade agreements and cooperation • Trade harmonisation (logistics and transport facilitation initiatives) • Trade and tariffs: simplify, reduce certification requirements, tax policy, banking practices in trade forex transactions, e-Government, statistical collection capacity • Financial and monetary cooperation
	Institutions and regulations for trade – the environment and the ability to comply	<ul style="list-style-type: none"> • Standards and certification of logistics providers • Regulation of transport and logistics services • Foreign participation in logistics • Transport agreements • Supporting institutions – e.g., technical assistance • Regulation and measurement of quality, and reliability of transport and logistics services and business practices – e.g., tools and institutions for assessing logistics performance (e.g., observatories and indicators)
Between the borders	Transit regime	<ul style="list-style-type: none"> • Planning and management of multi-modal corridors, urban transport interfacing • Management of infrastructure • Transport links planned and developed
	Quality, reliability of logistics services	<ul style="list-style-type: none"> • Services to the industry to facilitate trade – e.g., logistics, trucking operations performance, customs brokers, railway services, finance, banking and insurance. • Incentives to upgrade fleets • Increasing scale of logistics providers • Technology • Encouragement of private sector activities and global players
	Connectivity	<ul style="list-style-type: none"> • International connectivity: air and sea connectivity, and liberalisation of services • Transit systems, port and shipping connectivity, customs performance.
	Infrastructure	<ul style="list-style-type: none"> • Trade-supporting infrastructure: roads, ports, railroad, electricity supply, other infrastructure (including technology) • Management of infrastructure • Logistics hubs • Warehousing and logistics platforms • Utilisation of technology
Behind the border	Trade facilitation	<ul style="list-style-type: none"> • Agreement on technical standards and business procedures • Logistics and transportation facilitation initiatives • Services to the industry to facilitate trade

6.3 The way forward

The framework outlined in this research paper (see Tables 5 and 6) provides a baseline from which to develop a set of indicators. It has identified critical factors for regional integration from the perspective of the enabling environment, and barriers to regional integration from a trade and

transport facilitation perspective. Critical factors were linked back to policy areas, thus enabling the definition of actionable improvement. Based on this framework, indicators could be developed that address the system of regional integration from the following perspectives:

1. *Maturity of the enabling environment*: Indicators that define the readiness and maturity of the region for integration, in terms of comparative and competitive advantages, position relative to global trends, dependence, and performance in integration.
2. *Extent of regional economic integration*: Indicators that define the extent to which the current environment facilitates economic integration, by indicating whether the balance of integration is *at the border, behind the border, or between borders*.

The factors outlined in this research position the work for the future development of a combination of qualitative and quantitative indicators, and thus will allow for indicators to lead to definition and to prioritising actions to improve regional integration.

7 LIMITATIONS OF THE RESEARCH PROJECT

This research project was aimed at understanding opportunities for value chain integration rather than generating frameworks for integration. It studied four major sectors in the region, of which this paper analysed only two with a view to generating frameworks. Given the objective of the original research project (namely, trade and transport facilitation), the frameworks proposed here are a first generalisation based on insights obtained during the fieldwork, rather than a definitive framework.

Nevertheless, this approach has provided insights by taking a ‘big picture’ and more generic view on issues of regional integration. A detailed and in-depth study of more industries could serve to confirm and refine the proposed frameworks.

Future work should include a targeted study to confirm the proposed broad framework, and to develop a system of indicators of regional integration in detail.

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REFERENCES

- [1] Kritzinger-van Niekerk, L. 2005. Regional integration : Concepts, advantages, disadvantages and lessons of experience.
- [2] Jordaan, A.C. 2014. Regional integration in Africa versus higher levels of intra-Africa trade, *Dev. South. Afr.*, 31 (February), pp. 515-534.
- [3] World Bank. 2011. Harnessing regional integration for trade and growth in Southern Africa.
- [4] Sterman, J.D. 2001. System dynamics modeling: Tools for learning in a complex world, *Calif. Manage. Rev.*, 43(4), pp. 8-25.
- [5] Santi, E. 2012. Unlocking North Africa’s potential through regional integration: Challenges and opportunities, Jun-2012.
- [6] Mattli, W. 1999. Explaining regional integration outcomes, *Journal of European Public Policy*, 6, pp. 1-27.
- [7] Krapohl, S. and Fink, S. 2013. Different paths of regional integration: Trade networks and regional institution-building in Europe, Southeast Asia and Southern Africa, *J. Common Mark. Stud.*, 51, pp. 472-488.
- [8] Kaplinsky, R. and Morris, M. 2002. *A handbook for value chain research*, no. September. Ottawa: IDRC.
- [9] Gereffi, G., Humphrey, J. and Sturgeon, T. 2005. The governance of global value chains, *Rev. Int. Polit. Econ.*, 12(1), pp. 78-104.
- [10] Adomssent, G.M.M. and Godemann, J. 2007. Transferability of approaches to sustainable development at universities as a challenge, *Int. J. Sustain. High. Educ.*,.
- [11] Sturgeon, T.J. 2001. How do we define value chains and production networks?, *IDS Bull.*, 32(3), pp. 9-18.
- [12] Wilson, V. and Cornell, F. 2012. Strategies to overcome poverty and inequality: Towards Carnegie3, 2012.
- [13] Emongor, R. 2007. *Botswana: Trends in growth of modern retail and wholesale chains and related agribusiness*, Pretoria.

- [14] Emongor, E. 2007. Namibia: Trends in growth of modern retail and wholesale chains and related agribusiness, Pretoria.
- [15] Porter, M.E. 1990. The competitive advantage of nations, *Harv. Bus. Rev.*, 68, pp. 73-93.
- [16] Barnes, J. and Morris, M. 2008. Staying alive in the global automotive industry: What can developing economies learn from South Africa about linking into global automotive value chains? *The European Journal of Development Research*, 20. pp. 31-55.
- [17] Humphrey, J. and Memedovic, O. 2003. The global automotive industry value chain: What prospects for upgrading by developing countries? *UNIDO - Sectoral Studies Series*. [Online]. Available: https://www.unido.org/fileadmin/user_media/Publications/Pub_free/Global_automotive_industry_value_chain.pdf.
- [18] Lorentzen, J. and Barnes, J. 2004. Learning, upgrading, and innovation in the South African automotive industry, *Eur. J. Dev. Res.*, 16(3), pp. 465-498.
- [19] Barnes, J., Kaplinsky, R. and Morris, M. 2004. Industrial policy in developing economies: Developing dynamic comparative advantage in the South African automobile sector, *Compet. Chang.*, 8(2), pp. 153-172.
- [20] Morris, D., Donnelly, T. and Donnelly, T. 2004. Supplier parks in the automotive industry, *Supply Chain Manag. An Int. J.*, 9(2), pp. 129-133.
- [21] Kgare, T. 2014. *The automotive industry development centre*, Pretoria:.
- [22] AIDC. 2016. Supplier and enterprise development programmes, *AIDC*. [Online]. Available: <http://www.aidc.co.za/publications/sedd/index.html>.
- [23] AIDC. 2016. Automotive supplier park: Investor guide 2015, *AIDC Publications*. [Online]. Available: <http://www.aidc.co.za/publications/asp/index.html>.
- [24] McCarthy, C. 2003. The Southern African Customs Union in transition, *Afr. Aff. (Lond.)*, 102(409), pp. 605-630.
- [25] McCarthy, C. 2013. A perspective on common industrial policies for the member states of the Southern African Customs Union, 513WP01.
- [26] De Lombaerde, P., Pietrangeli, G. and Weeratunge, C. 2006. Systems of indicators for monitoring regional integration processes: Where do we stand? 1. Introduction and aims of this paper.
- [27] World Bank. 2010. *Trade and transport facilitation assessment: A practical toolkit for country implementation*. Washington DC: World Bank.
- [28] Santi, W., Romdhane, E. and Shaw, S.B. 2012. *Unlocking North Africa's potential through regional integration: Challenges and Opportunities*. MPRA Paper No. 41830 [Online]. Available: https://mpa.ub.uni-muenchen.de/41830/1/MPRA_paper_41830.pdf.