

# THOUGHTS ON THE SUGARCANE SUPPLY CHAIN

**T**HE TERM “SUPPLY CHAIN” IS USED WIDELY AND OFTEN WITH DIFFERENT CONNOTATIONS. AN EFFICIENT SUPPLY CHAIN, HOWEVER, IS NOT DIFFICULT TO UNDERSTAND. ALSO KNOWN AS “*The Perfect Order*”, AN EFFICIENT SUPPLY CHAIN WILL ALWAYS DELIVER:

- The right product, with
- The right quality\*, from
- The right source, to
- The right destination, in
- The right condition\*, at
- The right time\*, with
- The right documentation, for
- The right cost\*.

Most of these criteria are relatively easy to meet in a sugarcane supply chain because source – destination combinations are quite sim-

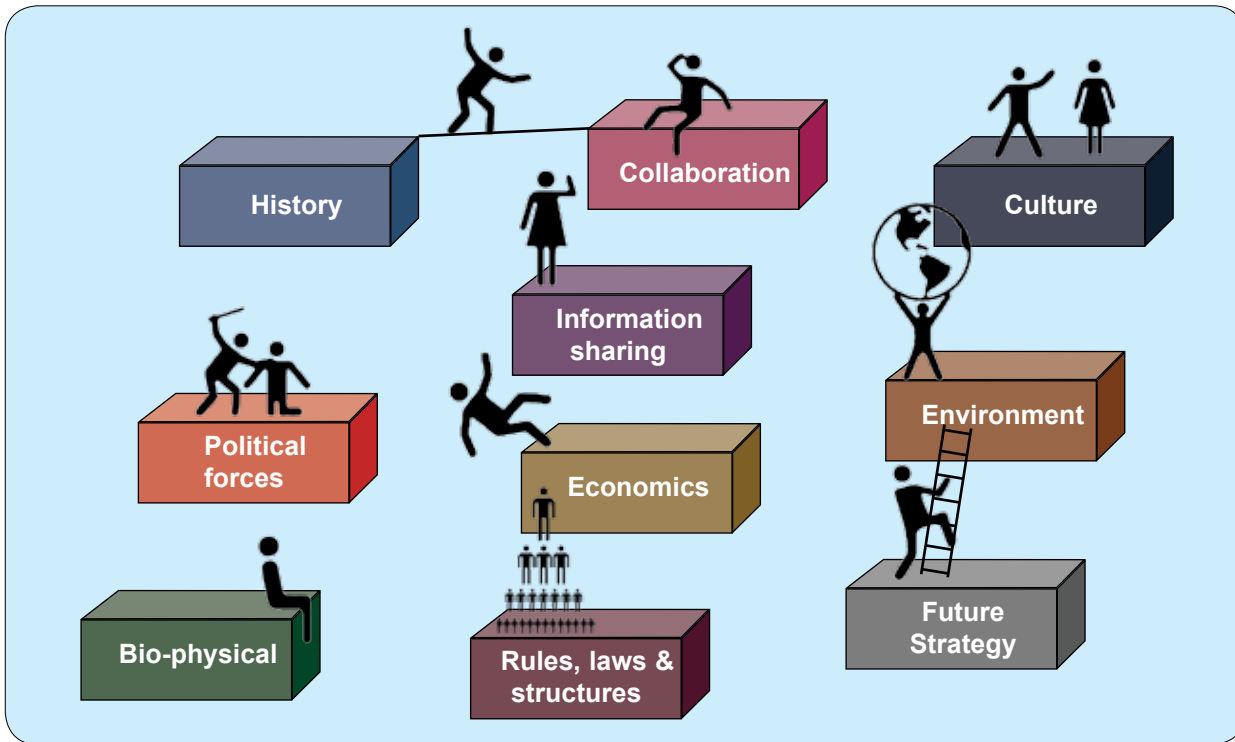
ple. However, the criteria flagged by an asterisk above remain a challenge. So, integrated sugarcane production and processing systems need to focus on cane quality, cane damage and deterioration as well as delivery schedules, with all of this to be achieved at low cost.

Quite often it is easy to detect problem areas. The sugar industry has skilled personnel, supported by rich data, who could easily point to problems in the supply chain. However, just because a problem can be identified, it does not always follow that it can be easily solved.

From our research we have identified ten domains (or components) in the sugarcane supply chain that could veto an idea which may have seemed to be a logical solution to a problem (see Figure 1). For example,

in the bio-physical domain, stakeholders on the ground may find a solution to a problem in the transport segment. However, the solution may not be adopted because it does not fit the rules, laws and structures inside the supply chain. Each supply chain is different in terms of its history, bio-physical challenges, rules, culture and even future strategies. It is therefore nearly impossible to develop a fail-proof solution that can be implemented through-out the entire sugar industry. In addition, individuals exert significant influences on the nature of a supply chain. Supply chains evolve over time and what may have been a good idea a few years ago, may now be inappropriate. Most people who have enjoyed exposure to the South African sugar industry would have identified these types of patterns in our local mill area dynamics.

FIGURE 1. TEN BUILDING BLOCKS OF A MODERN AGRI-INDUSTRIAL SUPPLY CHAIN



The solution to sugarcane supply chain improvement, therefore, does not solely rest in the innovative ideas and development of new technologies, but rather in the way that the overall system positions itself towards change. Because every mill area is unique, efficiency improvements need to be incubated on the ground and sufficient authority needs to rest with the appropriate stakeholders to implement these ideas. This is called Complex Adaptive Systems Thinking and research has shown that people who manage their supply chains as complex adaptive systems will stay ahead of the game. The overall system, in terms of its rules, culture, political issues and future strategies should be fluid and must enforce, rather than inhibit, good ideas. It may, for example, be possible to implement win-win solutions if the payment

system was more flexible. Research has also shown that a fluid system which promotes small changes to its operations is more successful than systems where a major overhaul occurs every now and then. Large system changes have been identified to cause conflict, exploitation of resources by certain stakeholders, losses in resources (especially human resources) and eventually incubate a conservative and protective culture among the supply chain stakeholders.

In addition to configuring the supply chain as a fluid and responsive adaptive system, there is one more key requirement. Each solution that is to be implemented needs a local champion who has the passion, time and authority to nurture the supply chain until the solution has become part of normal run of the mill.

Keeping these ideas in mind, we have a few take home messages on improving supply chains:

1. There is no silver bullet solution.
2. Local stakeholders are more likely to provide good ideas on how to improve the supply chain than external researchers and consultants.
3. Everybody in the supply chain must make it their responsibility to continuously try to improve the system as a whole.
4. Every change to the system must be nurtured and supported until it is well established. ✓

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