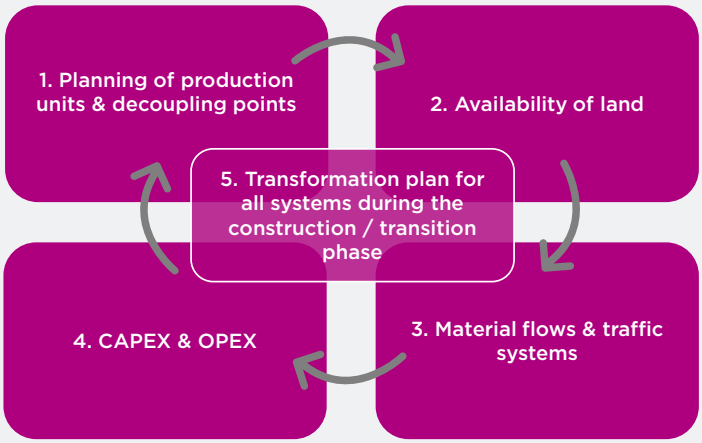
Fit-for-purpose logistical systems – an important element of Green Transformation

While Green Transformation is predominantly considered from a technical perspective as a change of production technology, it actually comprises many more facets.

Next to changing requirements for i.e. planning and steering of the adjusted value chain, also logistics plays a major role with regard to constantly securing targeted and uninterrupted material and traffic flows and thus providing a stable support of the Green Transformation. A capable and high performing logistics system is a major precondition to offer the required production capacity to the market during and after the transition to low CO_2 technologies and thus ensuring customer satisfaction and competitiveness.

Figure 1

Green Transformation following the 5-step approach



Structured approach to logistics within Green Transformation

To fully embrace the manifold aspects of logistical interaction within the own supply chain as well as with the interfaces to suppliers and customers, a structured approach to transforming the logistical system as such is recommended, following the 5-step approach of B&C (see Figure 1). This approach also allows to adequately consider and digest the constant mutual influence of transformation related construction activities (which per se pose a challenge to sustaining the logistical performance) and the design of logistical solutions as a response to the new requirements arising from the Green Transformation – even more important in a brownfield approach.

Here comes a brief explanation of the five fields of activity for the logistical Green Transformation:

1. Planning of production units & decoupling points

New „green“ production units and the related need for new input materials and/or energy source materials (for example H_2) require a new material flow design in conjunction with the creation of new decoupling points in the logistical system. This can be primary material stocks to ensure constant production unit supply in a volatile procurement environment or production lot driven intermediate stocks of semi-finished products. These decoupling points are to be considered with respect to their space consumption as well as their logistical connection to the overall system.

2. Availability of land

Available land for construction of new components of the logistical system is usually limited, even more so in a brownfield environment. Next to guaranteeing uninterrupted operation of the existing production landscape, new areas need to meet the logistical requirements derived from the desired target state. For example, there might be the need for a given mode of transport mix (i.e. dominance of inland water vessels) to receive primary material from external sources. These requirements usually limit the available

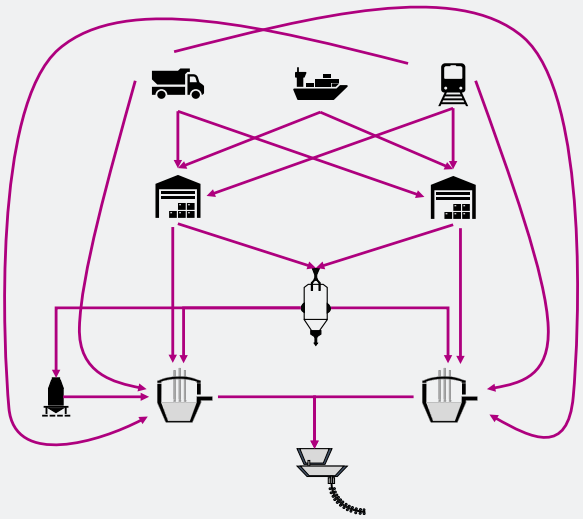
areas within the existing perimeter even further and might result in the necessity of scanning for suitable external sites.

3. Material flows & traffic systems
Once the logistical cornerstones (such as production equipment, stocks etc.) are defined along the value chain, the traffic systems as the connection of these cornerstones need to be designed and adequetely sized (see Figure 2). To master this challenge, existing and upcoming bottlenecks in multi modal traffic systems need to be identified and respective actions to eliminate these bottlenecks must be defined. Possible actions range from actual structural changes in the existing traffic systems to adjustment of the mode of transport mix (water – road – rail), up to changing the (logistical) procurement strategy. Next to that it needs to be ensured that the system is capable to digest temporary peak loads. The performance potential as well as the reaction of the logistical systems to different internal or external shocks should be constantly monitored through supporting simulation tools.

4. CAPEX & OPEX
The transformation of the logistical system - as any other CAPEX related activity - is usually restricted by the available budget. While cost efficiency has a high priority, it needs to be ensured that CAPEX limitations do not put the functionality of the system or security of supply at risk. Next to the obvious CAPEX focus, it is recommended to also consider OPEX implications of the new system design at an early stage – by doing so, processes or process components can be checked with regard to the monetary impact and counter actions can be taken if necessary (i.e. avoidance of multiple material handling activities through process redesign).

Figure 2

High complexity of material flows & traffic systems



5. Transformation plan for all systems during the construction / transition phase
Finally, all areas of activity described before are closely connected in terms of content and time. Thus, a continuous and iterating check of potentially conflicting requirements from all areas of the transformation is strongly advised, as logistical optima in one area might have negative implications somewhere else. By ensuring a constant flow of information, undesirable developments can be identified early on and the overall optimum can be achieved. A major success factor is the process-oriented involvement of stakeholders across organizational interfaces to make sure that the many and divers interdependencies of the logistical system with other fields of activity in the Green Transformation are adequately considered.

Conclusion
The design of a capable, yet constantly adapting logistical system to support the Green Transformation through all phases of the transformation process is a complex task. Especially the realization of change in a brownfield environment is very demanding. To deal with these challenges, new competencies in Supply Chain Management as the overarching discipline of logistics are needed. These include for example the capability of system-based modelling of the value chain and the simulation of risks & shocks. We define this complete set of competencies as Supply Chain Excellence – an important precondition for the successful adaption of the logistical systems and the success of the Green Transformation in total.

For more information on the role of logistics as a key component of the Green Transformation, our service offerings for a successful support of the transformation process or ways to reach Supply Chain Excellence, please contact us at info@bronk-company.com.

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B&C runs project in packaging glass industry

B&C and Vetropack Group, a leading European supplier of packaging glass, are jointly developing a Performance Improvement Program for nine production sites of the Group in order to significantly increase the competitiveness of Vetropack.