FLOW SYSTEM

PARTICIPANT WORKBOOK

Complexity Thinking

Workbook: Constraint Management

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Constraint Management

A constraint is defined as "anything that limits the system from a higher level of performance" (Pretorius, 2014, p. 498). The idea is if the constraint were remedied (e.g., increasing capacity, reducing defects), an organization would be closer to achieving its stated goal.

We view constraints as having either a positive or a negative effect on an organization. Positive constraints are called enabling constraints and negative constraints are called inhibiting constraints.

One of the essential steps for any manager or leader in an organization is to identify which constraints are disrupting flow (inhibiting constraints) and to implement interventions with constraints that aid in achieving an organization's goals (enabling constraints).

There are a large variety of constraints that have been identified in the literature. Table 2.10.1 provides a small sample of different types of constraints.

Types of Constraints	
Capacity	**Not enough resources, lousy performance of resources, quality problems, and maintenance (Lepore & Cohen, 1999, p. 82).**
Authority	**When people have the responsibility for moving the material forward but do not have authority to solve difficulties and disruptions to the flow (Lepore & Cohen, 1999, p. 82).**
Policy	**These lead people to take the wrong actions or not to take initiatives that could have moved the material faster (Lepore & Cohen, 1999, p. 82).**
Human relationship	**Conflicts between individuals and departments prevent the removal of obstacles to the flow (Lepore & Cohen, 1999, p. 82).**

Types of Constraints (cont.)	
Marketing	Change in the marketplace that has not been addressed by the marketing policy (Lepore & Cohen, 1999, p. 106).
Attitude	Continuous battles between top management and the troops, leading to lack of trust, confidence, and support in times of crisis (Lepore & Cohen, 1999, p. 106).
Resource	Not enough demand for a product or service (Dettmer, 2000, pp. 6–7).
Material	Inability to obtain required materials in the quantity or quality needed to satisfy the demand for products or services (Dettmer, 2000, pp. 6–7).
Supplier/ vendor	Unreliability (inconsistency) of a supplier or vendor or excessive lead time in responding to orders (Dettmer, 2000, pp. 6–7).
Knowledge	Knowledge to improve business performance is not present within the systems. People do not have the requisite competence to perform at higher levels required to remain competitive (Dettmer, 2000, pp. 6–7).
Physical	Limitations to an organization's performance in relation to its goal (lack of capacity of equipment, materials-supply problems, among others) (Ikeziri et al., 2019, p. 5073).
Political	Arise from assumptions (beliefs, paradigms) that have been accepted as truths (Ikeziri et al., 2019, p. 5073).
Long lead times	Constraints the system's responsiveness to customer demand and to changes in the marketplace, constituting a bottleneck on the firm's competitiveness and profitability (Coman & Ronen, 1994, p. 69).

Types of Constraints (cont.)	
Right first time	**A high proportion of defects requires rework. Limiting the system's capacity and introducing internal bottlenecks. Many defects generate consumer dissatisfaction, reduce demand, forming an external demand bottleneck (Coman & Ronen, 1994, p. 69).**
Variation	**Preventing variation from occurring (Kauffman, 1993, p. 14).**
Branching	**Prevents converting variation within populations to variation between populations (Kauffman, 1993, p. 14).**

TABLE 2.10.1: Types of Constraints

The following exercise will aid participants to identify any constraints that may be preventing them from achieving their goals (inhibiting constraints). Participants will also identify which constraints are supporting their efforts in obtaining their goals (enabling constraints). Participants will then identify potential enabling constraints that could be implemented to further help to achieve their goals.

This exercise should be focused on one goal (e.g., personal, professional, team, organizational). Before you begin identifying constraints, first list the goal that will be your focus for this exercise, the stakeholders (those who will be involved in or impacted by the same goal) and any characteristics related to the goal (e.g., short-term, long-term, educational, skill-based).

Goal defintion	
Describe your goal.	
Type of goal (e.g., personal, professional, team, organizational).	
List any stakeholders related to your goal (those who will be involved in or impacted by the same goal).	
Characteristics of goal (e.g., short-term, long-term, educational, skill-based).	

Now list at least five inhibiting constraints that could be preventing you from achieving the above goal. Provide a brief description for each constraint.

Identify Inhibiting Constraints	
Type of Constraint	**Description**
1)	
2)	
3)	
4)	
5)	

Now list at least five enabling constraints that support or aid you in achieving your goal. Provide a brief description for each constraint.

Enabling Constraints	
Type of Constraint	**Description**
1)	
2)	
3)	
4)	
5)	

List an additional five potential enabling constraints that could be implemented to support you in achieving your goal along with a brief description on how this enabling constraint could be implemented, either by yourself or in conjunction with other stakeholders. If other stakeholders will be involved, list them here in the description section.

Potential Enabling Constraints	
Type of Constraint	**Description**
1)	
2)	
3)	
4)	
5)	

Describe any action plans that could be implemented to reduce or eliminate the inhibiting constraints listed. Identify a plan that could be used to put into action the identified enabling constraints. Be sure to list any stakeholders required for each.

Action plan	
Constraint and Type. E.g. No alignment - Attitude	**Plan/Actions to reduce inhibiting or implement enabling constraints.**

ACTION PLAN (CONT.)	

Connect the Three Helixes:

Flow can only be achieved when the three helixes are interconnected. To identify how this could occur, the next exercise requires the reader to identify examples of different methods from each of the other two helixes (distributed leadership, team science) that might work well with, or support, weak signal detection. Knowledge of all three helixes will be required to make these connections.

Connect the Helixes	
Select a scenario or problem that would include a benefit from constraint management.	
Identify three methods from distributed leadership that could work with constraint management and give a brief description about how they complement one another.	
DL Method 1:	
DL Method 2:	
DL Method 3:	
Identify three methods from the team science helix that could work with constraint management and give a brief description about how they complement one another.	
TS Method 1:	
TS Method 2:	
TS Method 3:	
Provide a description explaining which methods from each of the three helixes (with constraint management being the CT method) work best for the scenario/ problem identified earlier.	