

# Efrat's Nuggets

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## **Efrat's nugget -9: Color psychology: (Supply chain)**

A company that had started Viable Vision implementation about a year ago had made satisfactory progress. Nevertheless, there was a point that troubled them as well as us: the level of inventory in their regional warehouses did not significantly decrease. It was months after the establishment of a central warehouse, coupled with the activation of daily replenishment according to actual consumption throughout the supply chain. Thanks to having a good level of availability at the central warehouse (99%), the replenishment time to the regional warehouses was cut to a mere fraction of what it originally was. Setting the inventory targets in the regional warehouse in accordance with the shortened replenishment time should have reduced the original high inventory levels there to less than half, even when taking into consideration the additional inventory that was needed for raising the DDP of the regional warehouses from the original performance - below 50% - to the current delightful level of 99%. More than enough time had passed to enable the mountains of excess inventory to be flushed out. So, how come the inventories in the regional warehouses were lowered by just 10%?

A plausible explanation is that the computerized inventory buffer system was not functioning well. But since the exact same computerized system was used in order to monitor the inventory targets of the company's clients (i.e. distributors and retailers), a predicted effect of this hypothesis would be the witnessing of a similar phenomenon, of too high inventories at the clients' warehouses. However, this is not the case - on the contrary, the company's clients are extremely pleased with the new and improved service which greatly reduced their own inventory levels to less than half, as expected from a well implemented solution.

So what can explain the fact that the inventories at the regional warehouses did not shrink?

As Sherlock Holmes said: "When you have eliminated the impossible, whatever remains, however improbable, must be the truth". When all likely hypotheses are refuted, look for an unlikely one.

Since following the TOC procedures would have led to lower inventories, perhaps the explanation to their high levels is that the regional warehouses' staff are not following the TOC procedures; maybe the workers are manually overriding the instructions of the system? It seems very unlikely, since keeping the inventories in such high levels for so long obviously requires much more than one or two persons occasionally overriding the system. It would necessitate on-going efforts to insert manual orders for numerous SKUs, for each of the regional warehouses. Implausible as it may seem, if this hypothesis is true it will definitely explain the mystery of high inventory in the regional warehouses.

How can we check this hypothesis? An efficient way is to find a predicted effect that is expected to exist as a result of this hypothesis. This leads to the question - What can we expect to find if the system is functioning well but is constantly being overridden?

We should expect that the system is screaming hell; that it points to many SKUs that are over stocked; that it flags many SKUs as excessive green. In order to check that, one simple question was required: "what is the prevailing color of the inventory in the regional warehouses?"

The answer given was that by far, the dominant color at the warehouses is green – an overwhelming 80% of the SKUs were marked as excessive green.

In discovering this we have solved only part of the puzzle. We have indeed found the cause for the high inventories, but we haven't finished the analysis yet: we have to understand the reason for the workers "improbable" behavior. Otherwise, simply instructing to stop overriding the system might not be enough, or, in case it is hammered, might prevent overrides when actually needed. Well then, how come that manual override was the norm? True, there was a renewed emphasis on the importance of reducing shortages, but this emphasis was accompanied by a detailed explanation of the system's logic. Why was it that in all other areas the instructions of the system were generally obeyed, while the shipments to the warehouses were by and large overridden?

On a day to day basis, we identify red color with warning: red light, red flag, red alert, etc. Green, on the other hand, is commonly perceived as a "good" color – as in green card or green light. This "color psychology" is in line with this company's old habits of extra ordering, and encourages the warehouses' staff to distance themselves from the red zone, towards the green – and excessive green. Their overriding practice can be explained by the fact that we did not emphasize that in the case of inventory buffers, the interpretation of the colors is not according to the common interpretation (unlike in the case of time buffers, where the interpretation goes according to convention). We should emphasize the fact that not only a red buffer serves as an alarm, as it warns us from shortages, but also that a green buffer is an alarm – it provides warning against excessive inventory.

In order to uproot the old bad habit of excessive orders it is necessary to clarify/emphasize that for inventory buffers the desired color is yellow and both red and green are “red flags”; warnings against the possibility of damage.

