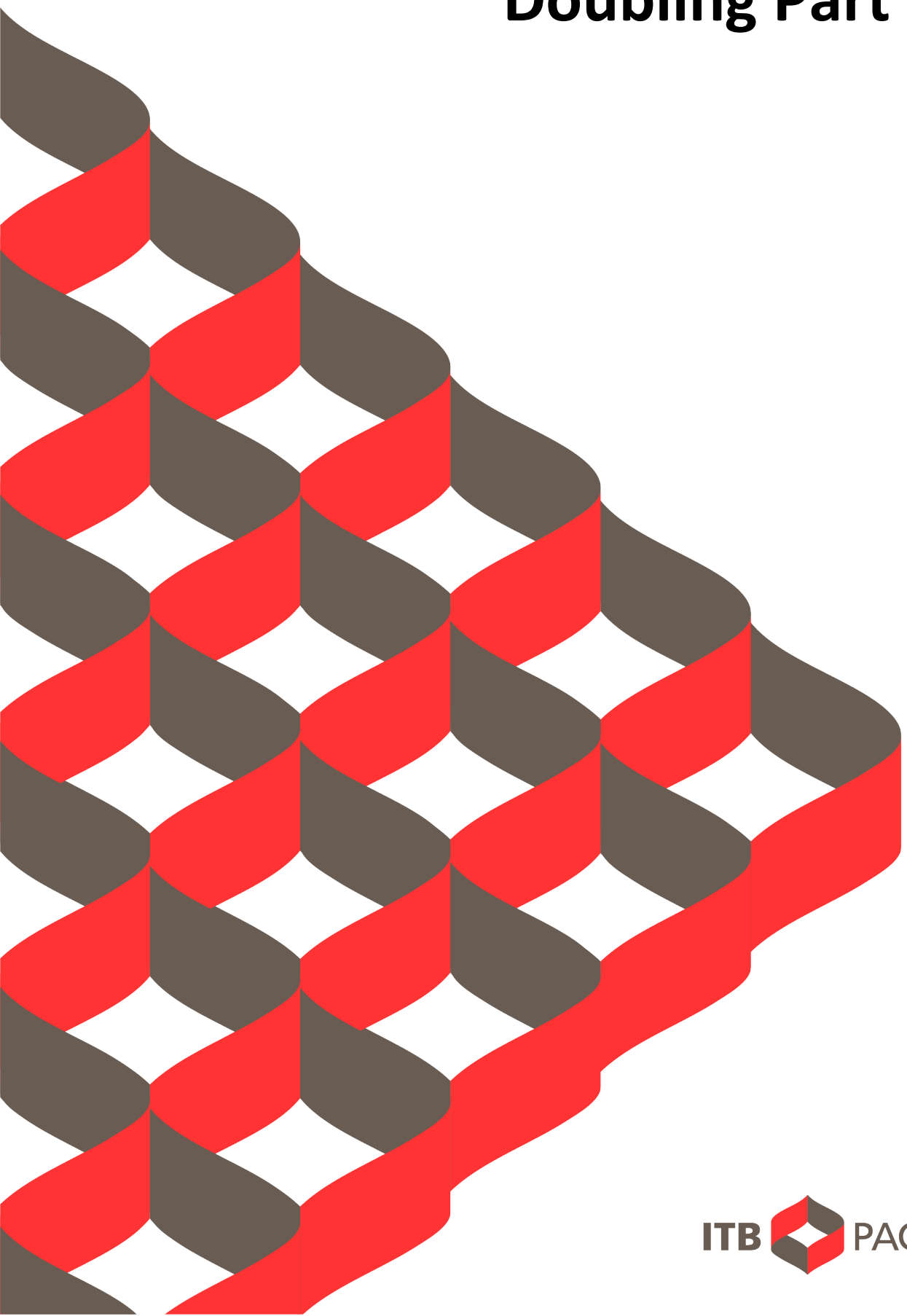
Optimizing Packaging Efficiency:
Doubling Part Density



ITB PACKAGING LLC

SITUATION:

An injection molding company tasked ITB Packaging to redesign their existing packaging solutions to enhance part density while approximately maintaining overall pack size for T-20 bezels (Pack A) and side turns (Pack B).

Currently, the company receives two types of corrugated boxes: a 13.75 x 10.5 x 9.625 box with a pack-out count of 30 parts for (Pack A) and a 15.75 x 15.5 x 7.875 box, also with a pack-out count of 30 parts (Pack B). Both packaging solutions require operators to manually assemble partitions and insert them into the boxes. Under the existing design, Pack A allows for the shipment of 1,800 parts per pallet, while Pack B accommodates 1,620 parts per pallet.

Pack A

Pack B

SOLUTION:

ITB Packaging proposed a few strategic modifications to enhance the company's packaging efficiency. Their innovative approach involved a collapsible single SKU design that doubled the pack density while maintaining the approximate dimensions of the original packs. This new design also included pre-glued inserts, eliminating the need for manual insertion, and thereby reducing setup time. By incorporating these pre-glued inserts, the packaging process was streamlined, minimizing labor requirements, and enhancing operational efficiency. Overall, ITB Packaging's solution provided a more effective and economical approach to packaging for the injection molding company.

Pack A

Pack B

Packs	Pack Count	Cost Per Pack	Pack Cost Per Part	Pack Size (O.D.)	Packs Per Layer	Layers Per Pallet	Parts Per Pallet	Pallet Increase
Current Pack A	30	$4.99	$0.17	15.75 x 15.5 x 7.875	9	6	1620	
ITB Pack A	60	$3.76	$0.06	16 x 15 x 6.75	9	7	3780	233%
Current Pack B	30	$2.97	$0.10	13.75 x 10.5 x 9.625	12	5	1800	
ITB Pack B	60	$4.33	$0.07	15 x 12 x 8.75	12	5	3600	200%

RESULT:

Through ITB's innovative design, the injection molding company achieved a twofold increase in parts per pack. For Pack A, ITB doubled the parts per pack while maintaining the 5-layer configuration of boxes per pallet. This redesign resulted in an overall increase of parts per pallet by 200%, totaling 3,600 parts per pallet. The cost per part was reduced from $0.10 to $0.07, yielding a 30% cost savings per part and a 25% decrease in packaging costs compared to the previous pack.

For Pack B, ITB successfully eliminated redundant space within the pack, reducing the box height from 7.875 inches to 6.75 inches. This optimization allowed the injection molding company to increase the pallet stacking layers from 6 boxes high to 7 boxes high. As a result, the parts per pallet for Pack B increased by an impressive 233%, reaching 3,780 parts per pallet. Additionally, ITB was able to decrease the cost per pack from $0.17 to $0.06, achieving an overall 65% cost savings per part.

Pack A

Pack B