

An Evaluation of Print On-Demand Textile Production for Upholstered Furniture Manufacturing

By Jihyun Bae

Digital Printing Technology

• What is Digital Printing?

Digital printing enables a design to be scanned or created on computer and then printed directly on to a fabric. In theory, digital printing eliminates the need for artwork and costly screen production.

(Philippa Watkins)

• Digital Printing Materials, Processes and Technologies

Machinery Technology

- Drop-on-demand
- Thermal ink jet technology

Dye

- reactive dyes, acid dyes, disperse dyes, and pigment

Software Drivers

- Lectra, Sophis and Nedgraphics

• Application of Digital Printing

Sampling & Small scale production

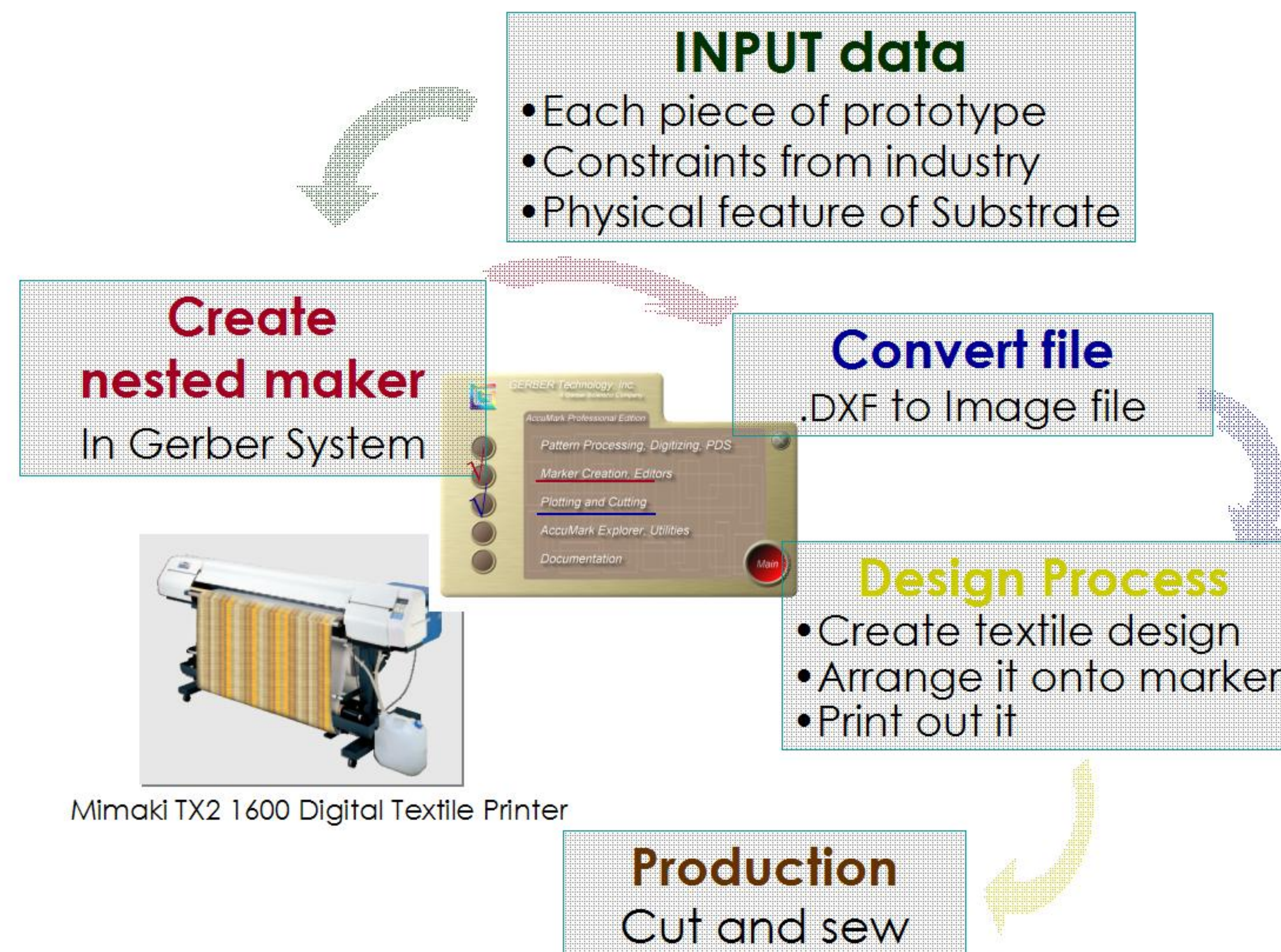
- cut out the costs of separating the colors
- reduce the waste
- quick results
- environment friendly
- WestPoint Stevens Inc. (success story)



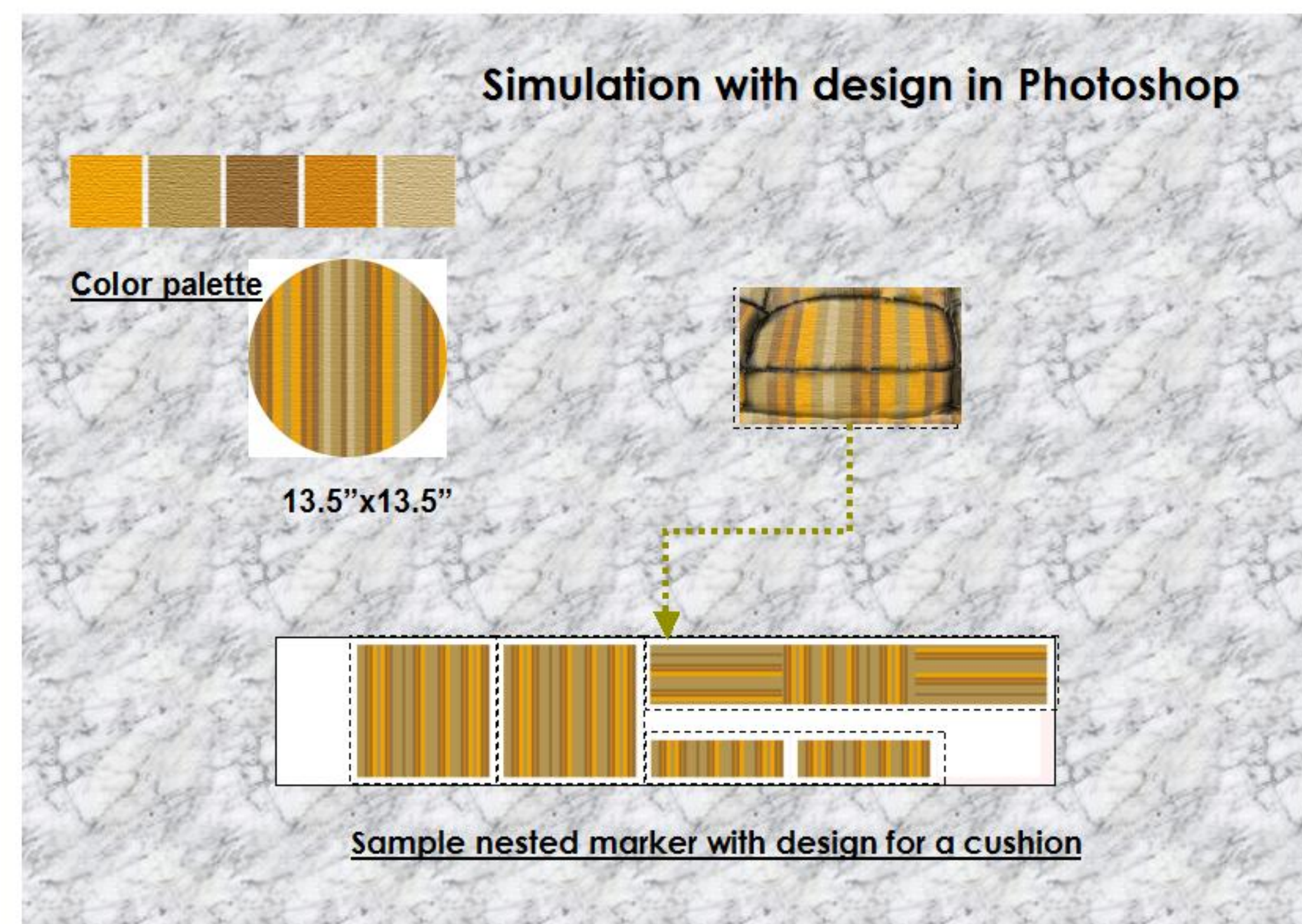
(a) Sample cushion (1) produced by purchased fabric

(b) Sample cushion (2) produced by digitally printed fabric

Design Process



Mimaki TX2 1600 Digital Textile Printer



Just-In-Time

• Items only move through the production system as and when they are need

(JE Beasley)

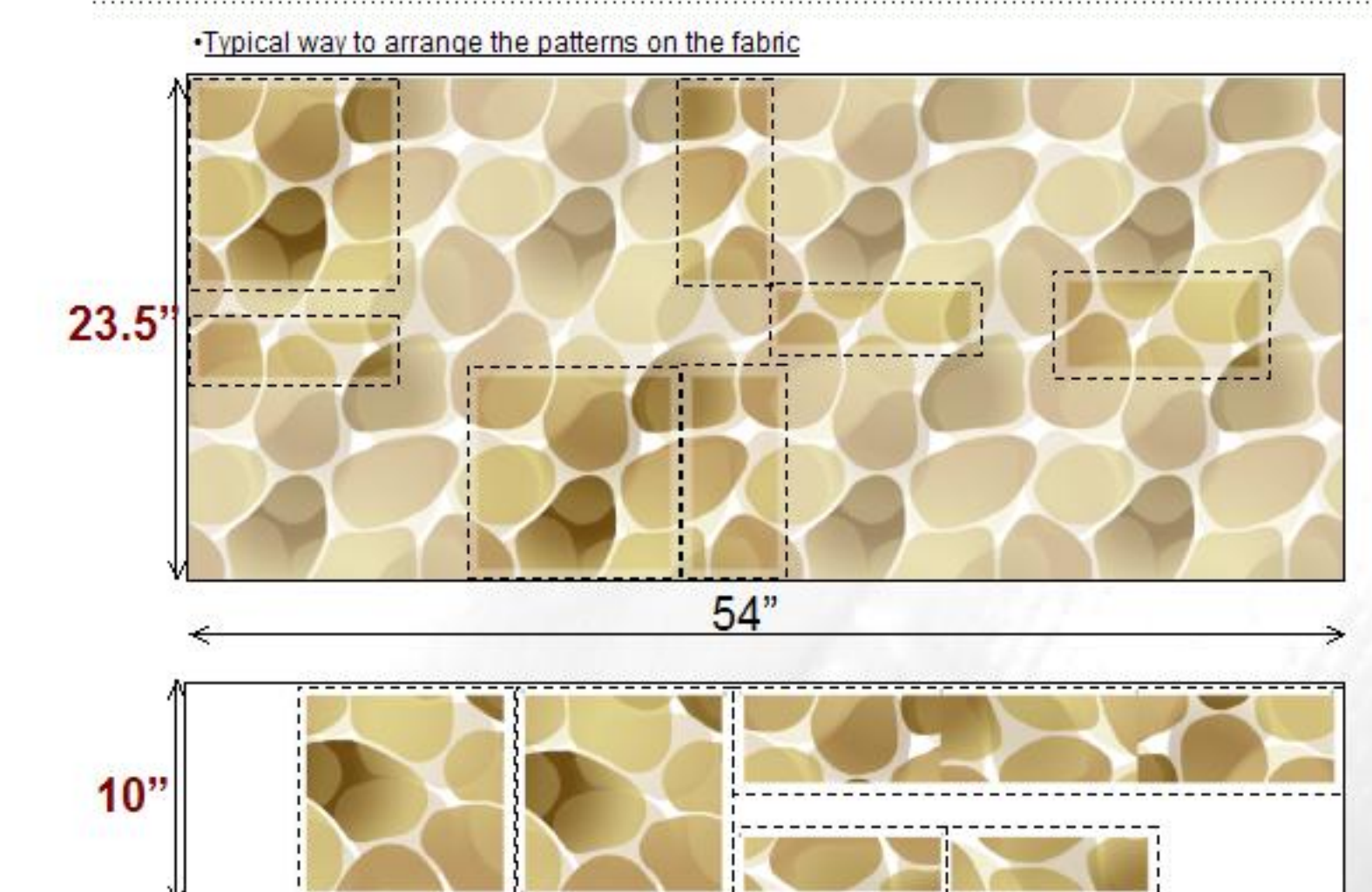
Benefit

- Better quality products
- quality the responsibility of every worker
- reduced scrap and rework
- lower setup time
- less inventory of raw materials
- cost saving
- higher productivity
- reduced space requirements

Conclusion

• SAVE MATERIALS

To produce the cushion (9" x 9") following the industry and design constraints, the amounts of fabric required can be reduced up to more than 50% by using a digitally printed fabric. For a complex prototype, more fabrics will be saved.



• Unlimited Design possibility

Without any limitation of color or repeat size, the customized design can be developed.

Advisors: **Dr. Traci May-Plumlee, Dr. Denis Cormier**