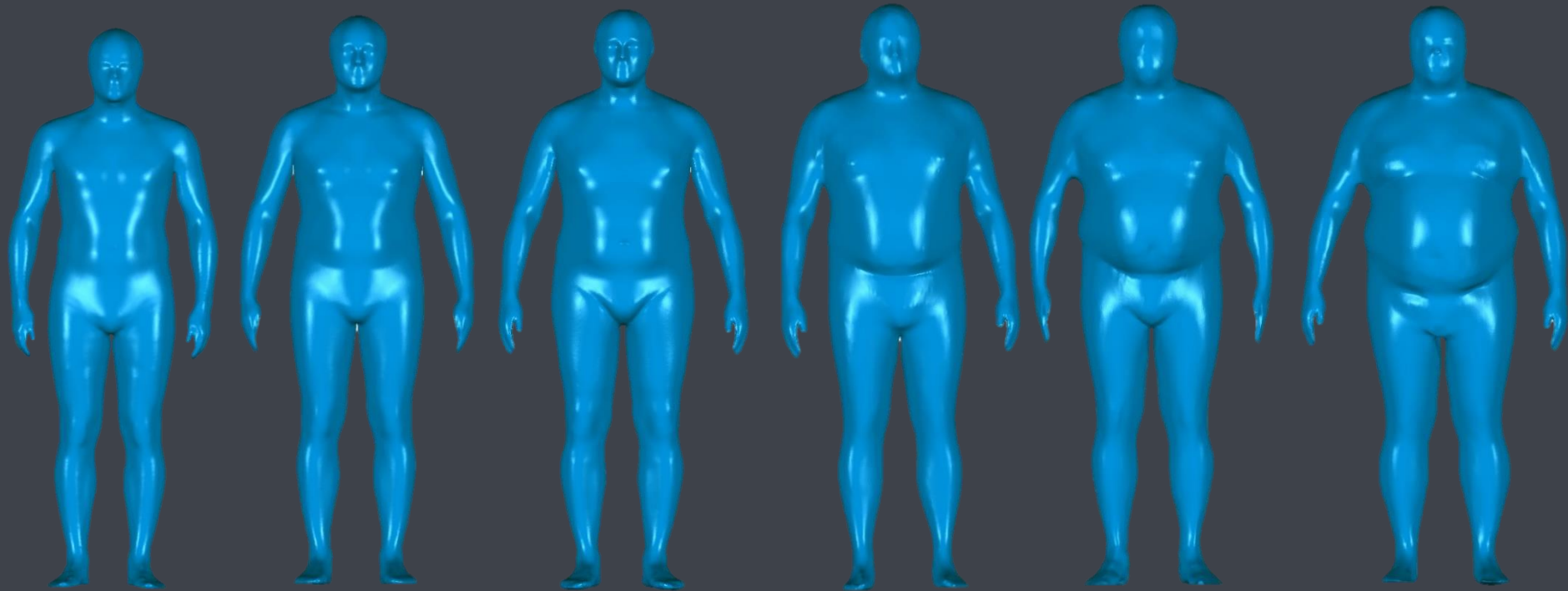


Plus Size Men
Fit across entire size ranges



Fitting across full size ranges is challenging!

That's where apparel wear testing can help:

- fit & shape conformity in all sizes
- brand identity across all sizes
- reduction of development costs and returns

Apparel is expected to fit and look good in every size

***Body measurements and shapes
of different target groups are fit
affecting!***

Apparel wear testing at Hohenstein

- > 1000 fitting models
- > real people & 3D avatars

- men, women & kids
- all sizes & body shapes
- all age groups
- different markets:
Germany, Europe, USA



Babies



Kids and Teens



Young adults



In the middle of life

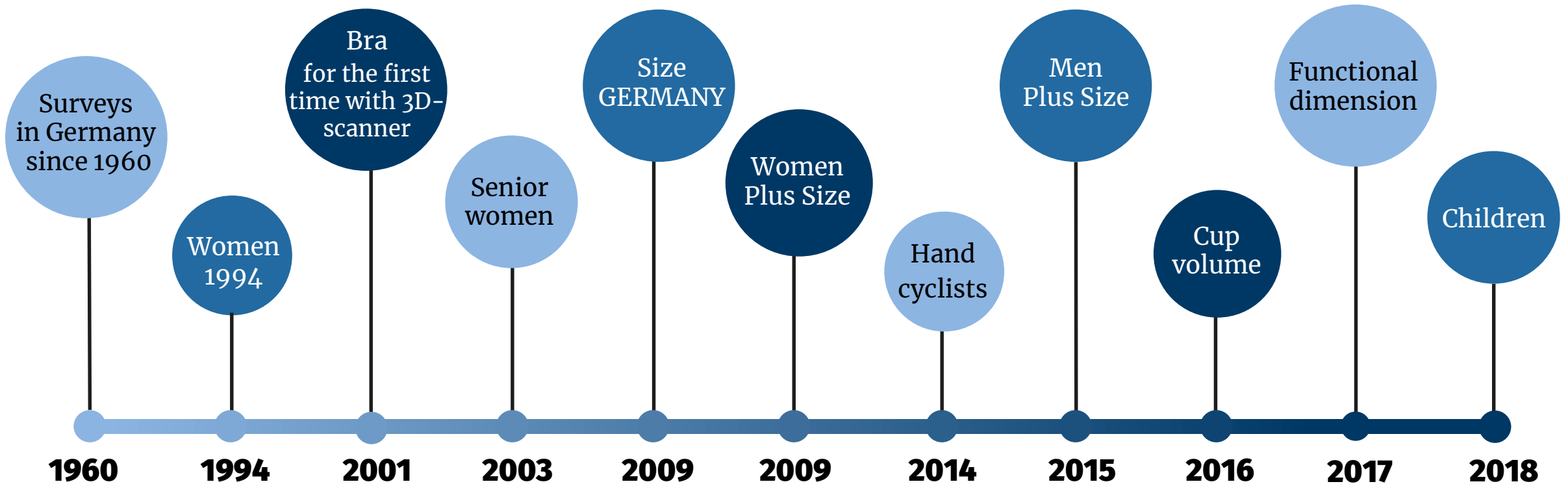


Golden Ager



Plus sizes

Anthropometric surveys by Hohenstein



Clear trend towards plus sizes



Comparing the German sizing surveys results from 1980 and 2009

R&D project "Plus size men"

Project period 01.09.2012 to 28.02.2015



Acknowledgment

The IGF project 17460 N by the research association Forschungskuratorium Textil e.V., Reinhardtstraße 12-14, 10117 Berlin, is financed through the AiF within the framework of the program for promotion of cooperative industrial research (IGF) by the German Federal Ministry for Economic Affairs and Energy based on a resolution by the German Bundestag.

Gefördert durch:



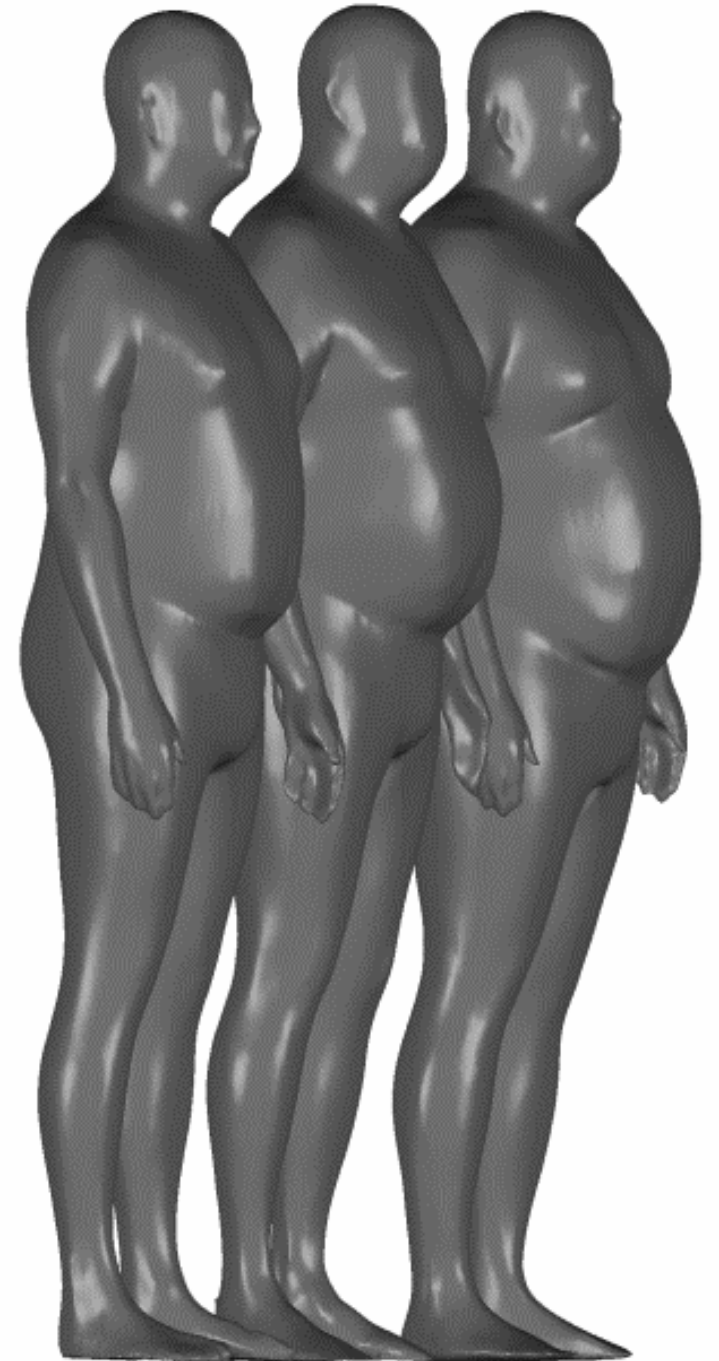
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und Energie

aufgrund eines Beschlusses
des Deutschen Bundestages



Project Output

- research report including
- size charts
- markets share tables
- visualization of the target-group specific body shapes
- pattern basics

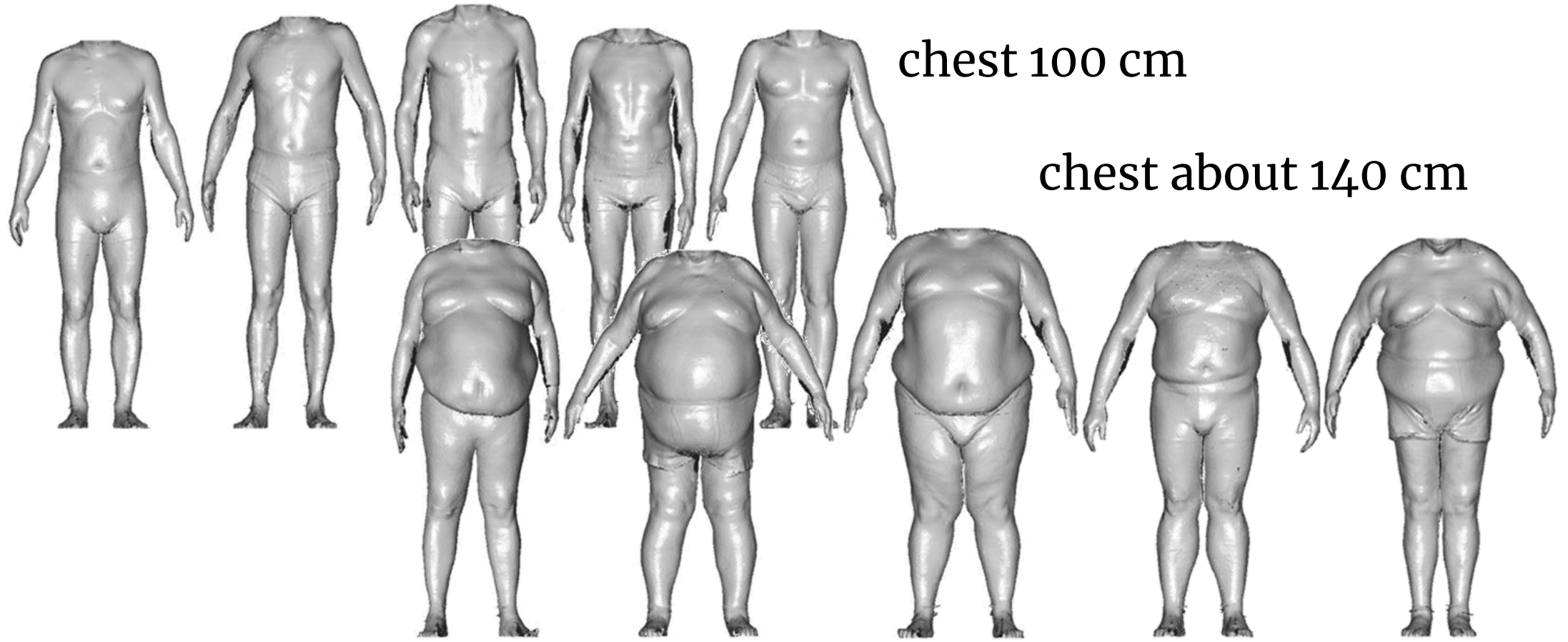


New size chart „Plus Size Men“

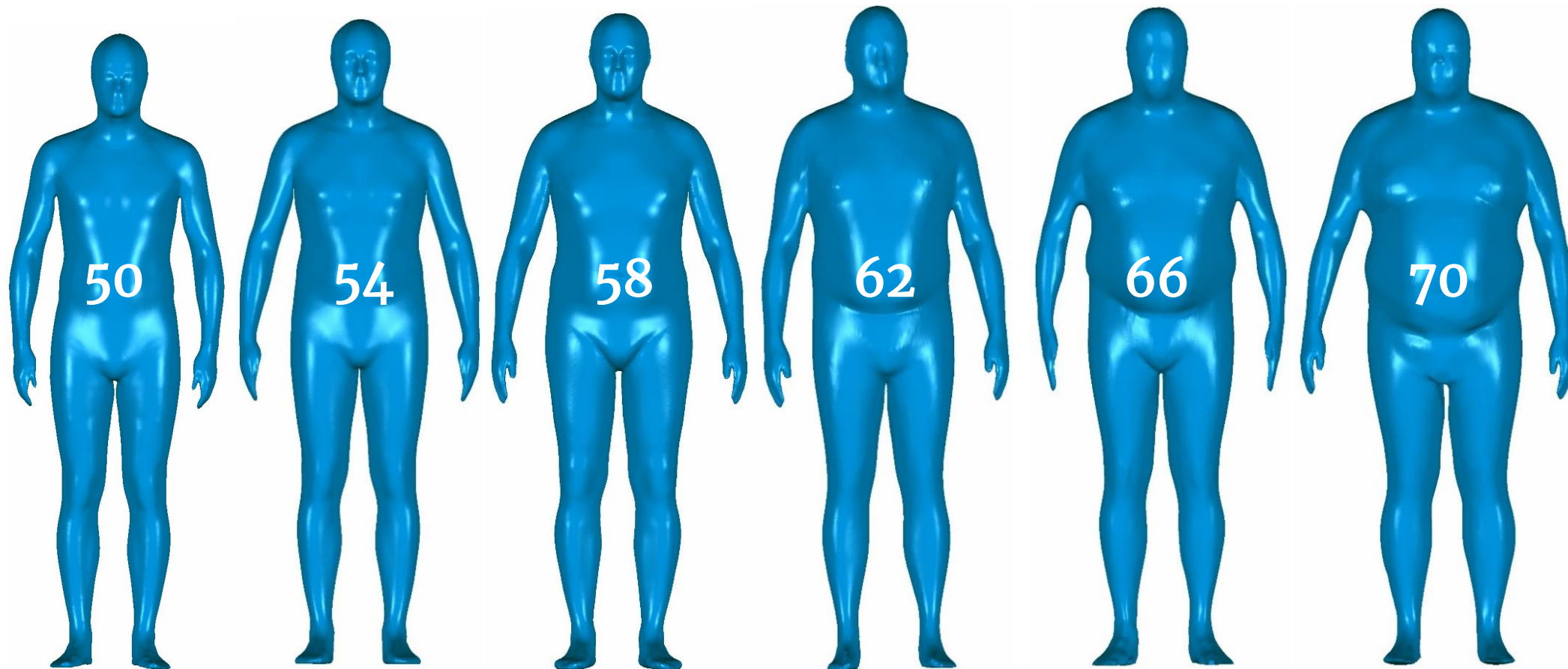
- German size 60 to 78 – chest 120 cm to 156 cm
- 6 primary measurements
- 41 secondary measurements plus weight
- Describing five figure types as well as five body height types

XXL		XXXL		4 X
60	62	64	66	68
185	185	185	185	185
120	124	128	132	136
111	116	121	126	131
114	117	120	125	130
116,5	116,5	116,5	116,5	116,5
85,5	85,5	85,5	85,5	85,5
44,5	46,0	47,0	48,0	49,0

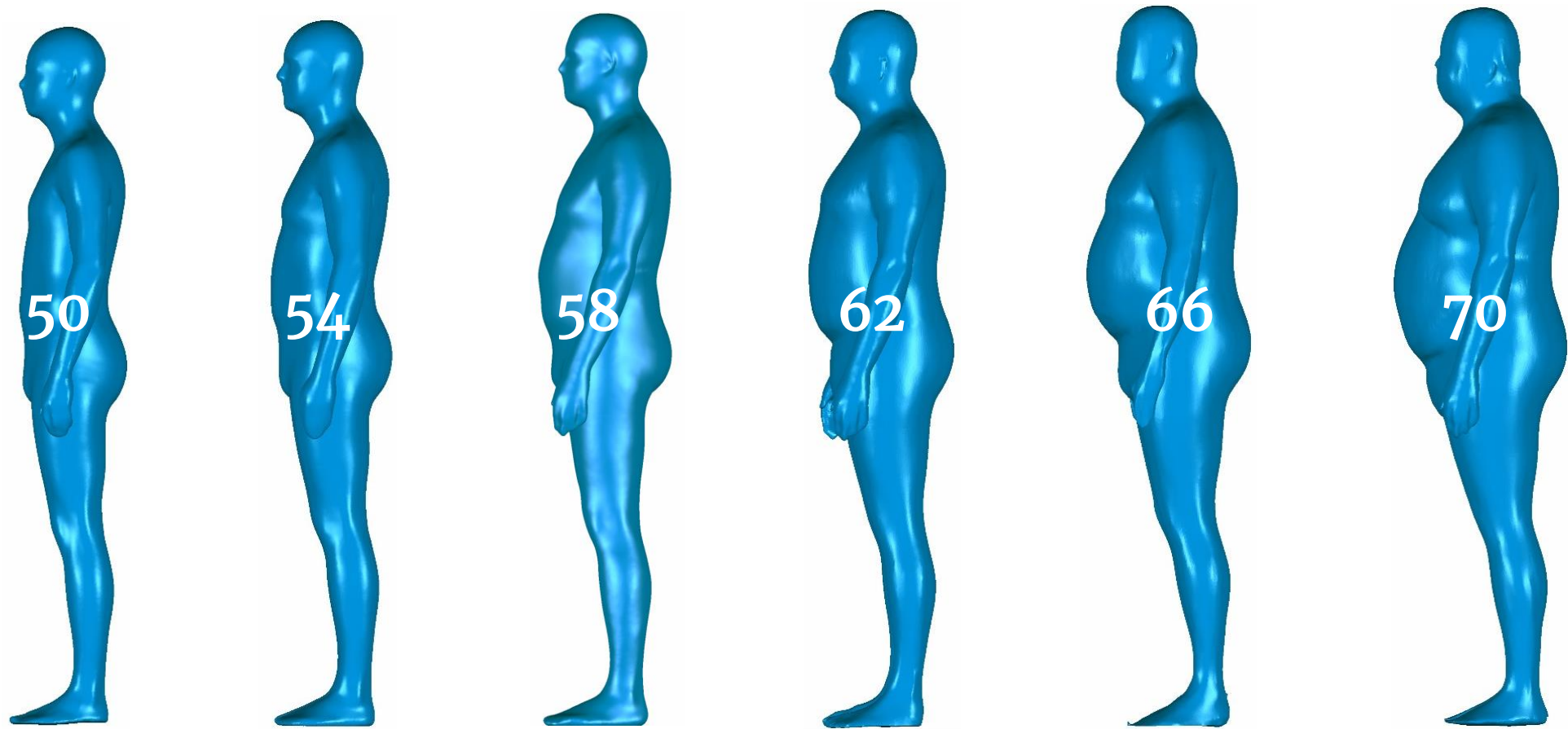
Increasing body shape variance



The change of body shape across the sizes



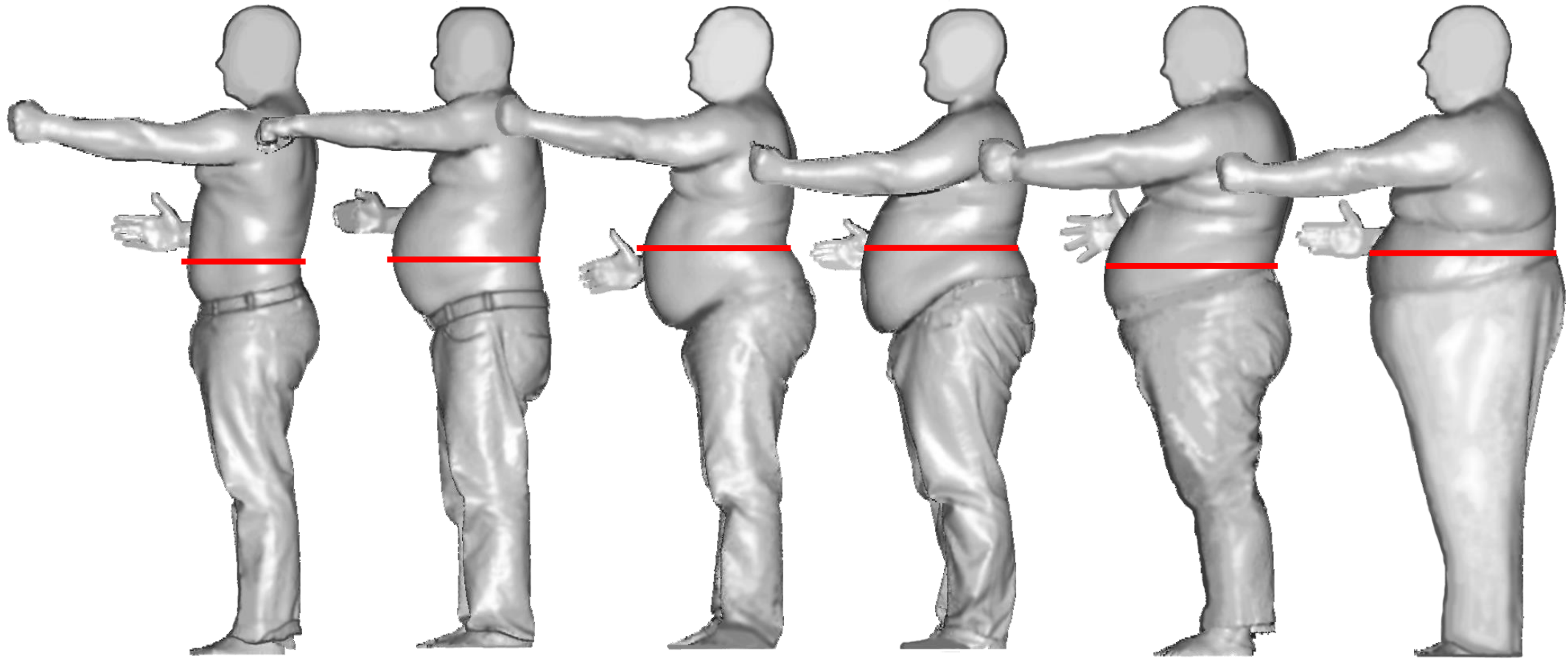
The change of body shape across the sizes



***Transfer of body data
into pattern***

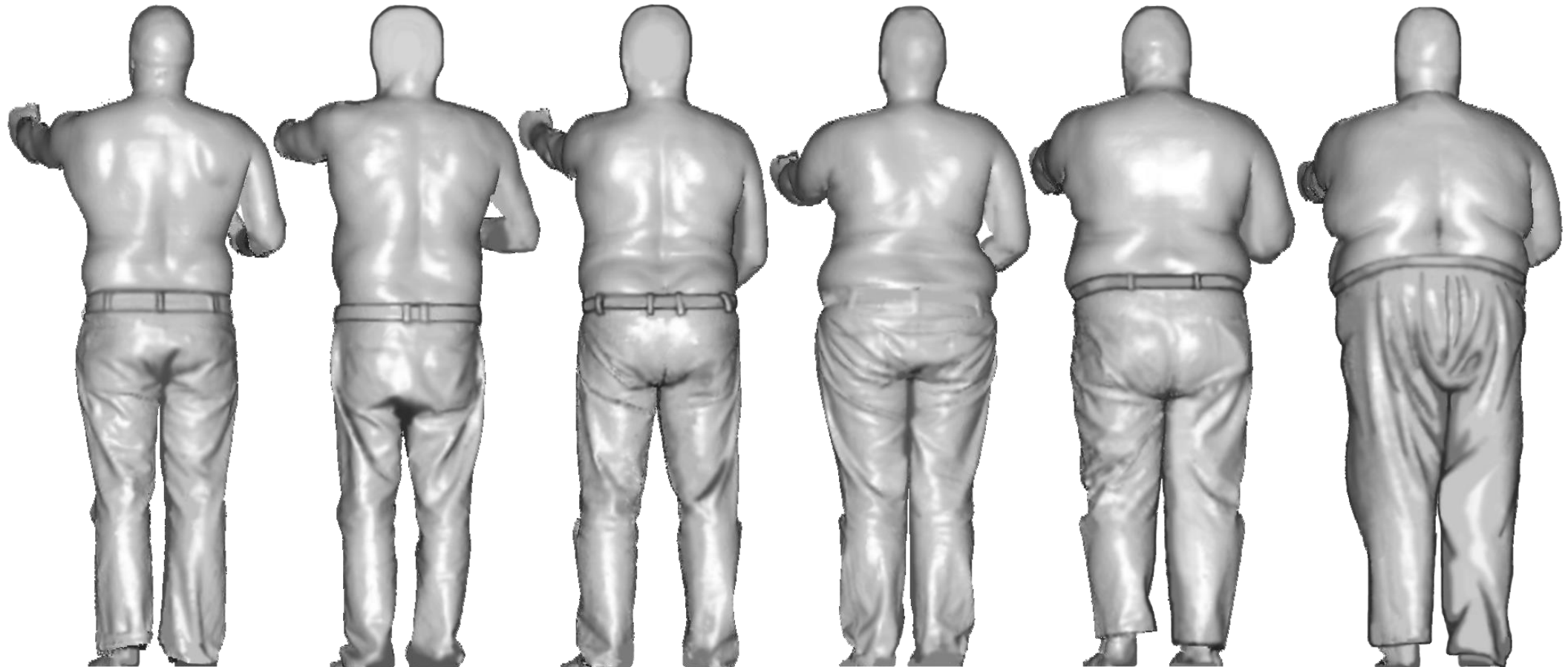
Fit analysis based on 3D scans

ill-fitting trousers of test persons – optimization potential



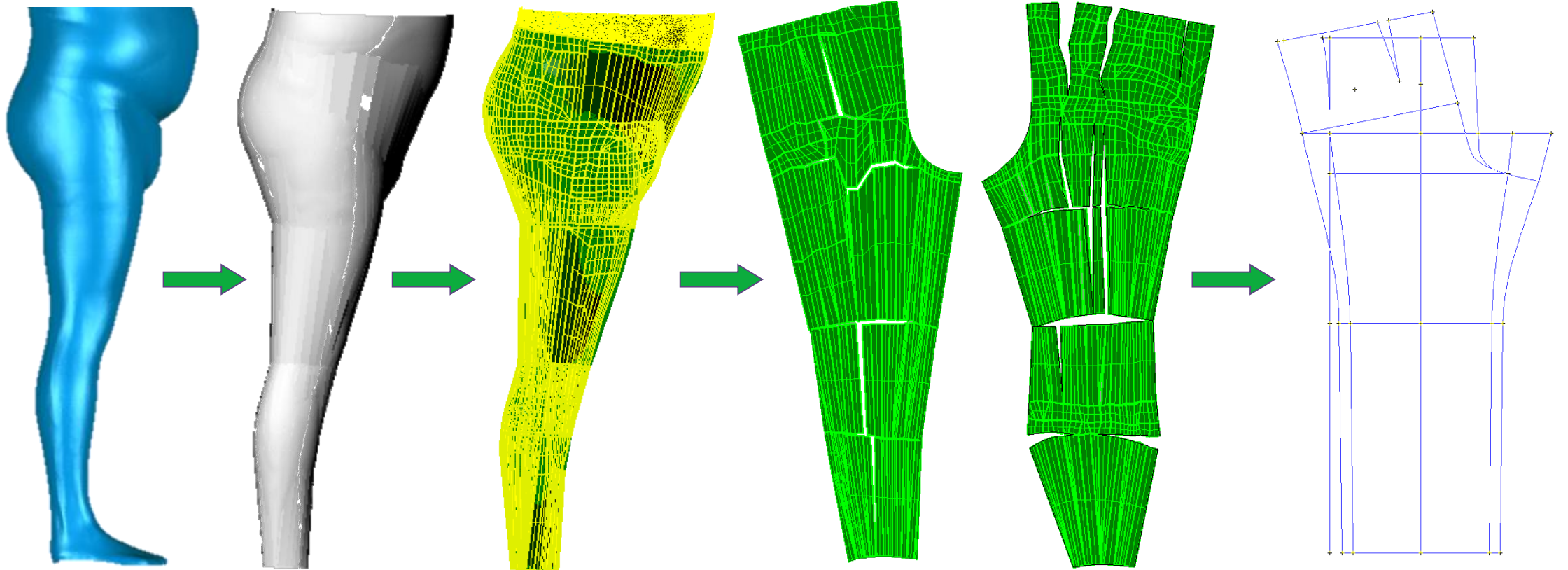
Fit analysis based on 3D scans

ill-fitting trousers of test persons – optimization potential

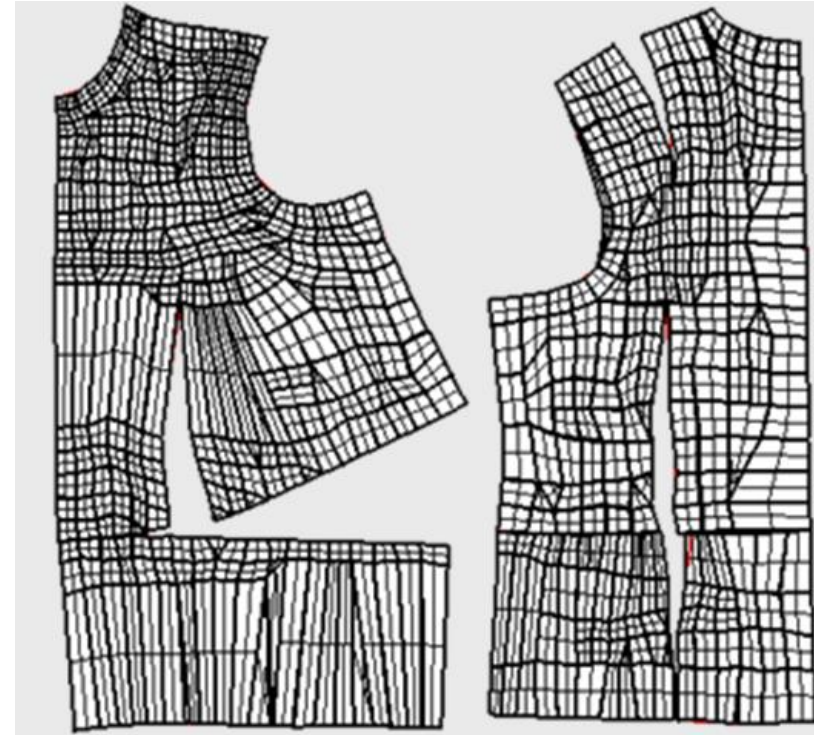
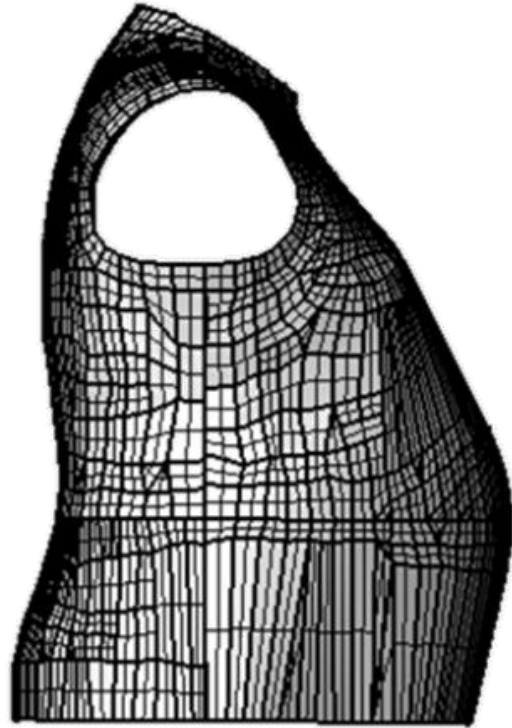
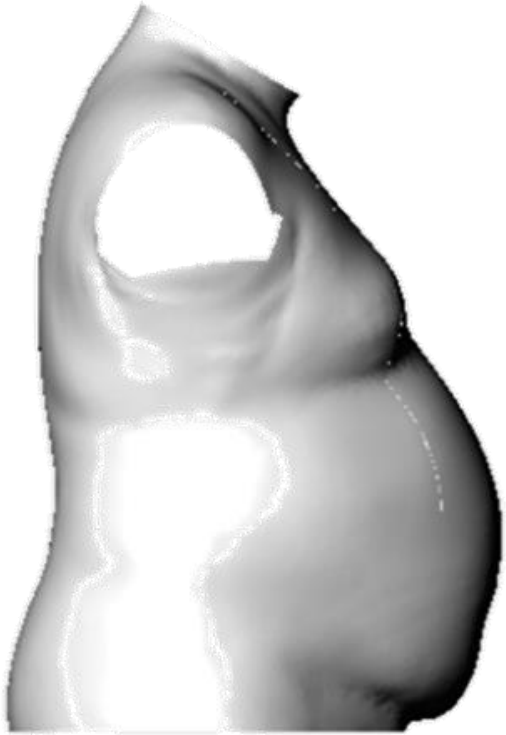


New 3D-based pattern approach – trousers

optimized basic pattern for plus sizes



New 3D-based pattern approach – jacket ***optimized basic pattern for plus sizes***



Size 70 extra heavy – chest 140 cm

Acknowledgment

The IGF project 19912N by the research association Forschungskuratorium Textil e.V., Reinhardtstraße 12-14, 10117 Berlin, is financed through the AiF within the framework of the program for promotion of cooperative industrial research (IGF) by the German Federal Ministry for Economic Affairs and Energy based on a resolution by the German Bundestag.

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***Transfer into
3D simulation***

Representative 3D body models

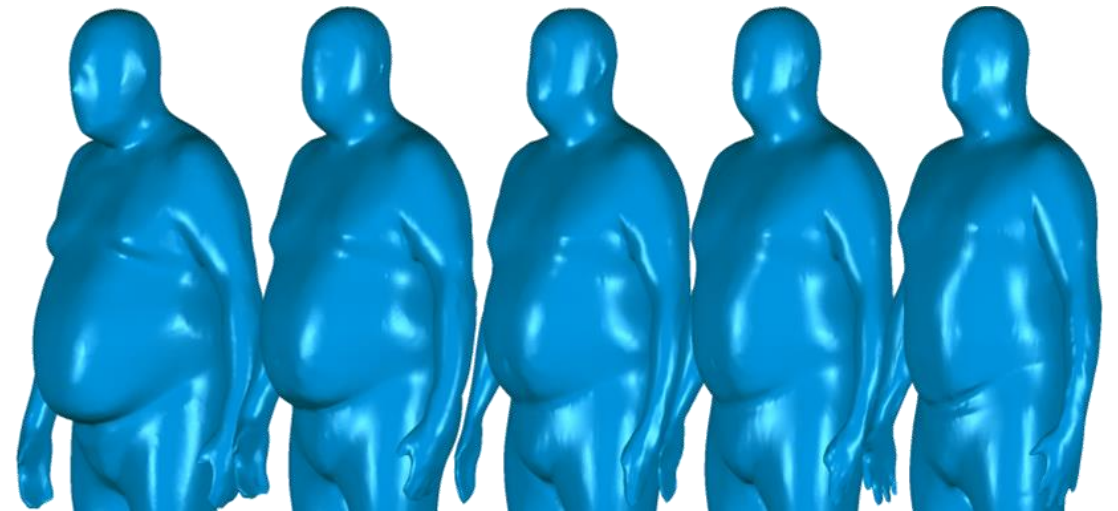
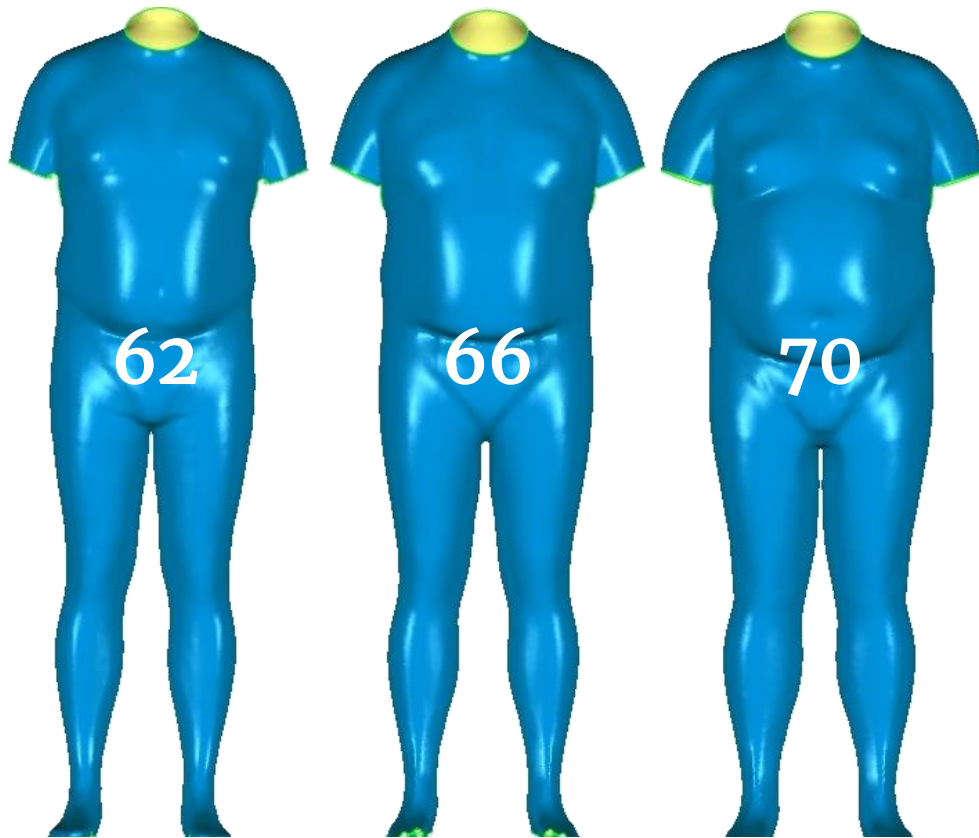


Figure types
chest circumference 132 cm

***3D fitting
across the
sizes***

***based on
representative
3D avatars***



size 50



size 58



size 66

***3D fitting
across the
sizes***

***based on
representative
3D avatars***



***The correct avatar forms are
the basis for realistic 3D fitting!***

***Starting 3D simulation of clothing:
plus size avatars with realistic body shapes
are not provided by default.***

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