DANISH MEAT
RESEARCH INSTITUTE

The value of sorting

Selection and routing of raw material to the products where it brings the highest value ➡ Meeting customer specifications – no more, no less.

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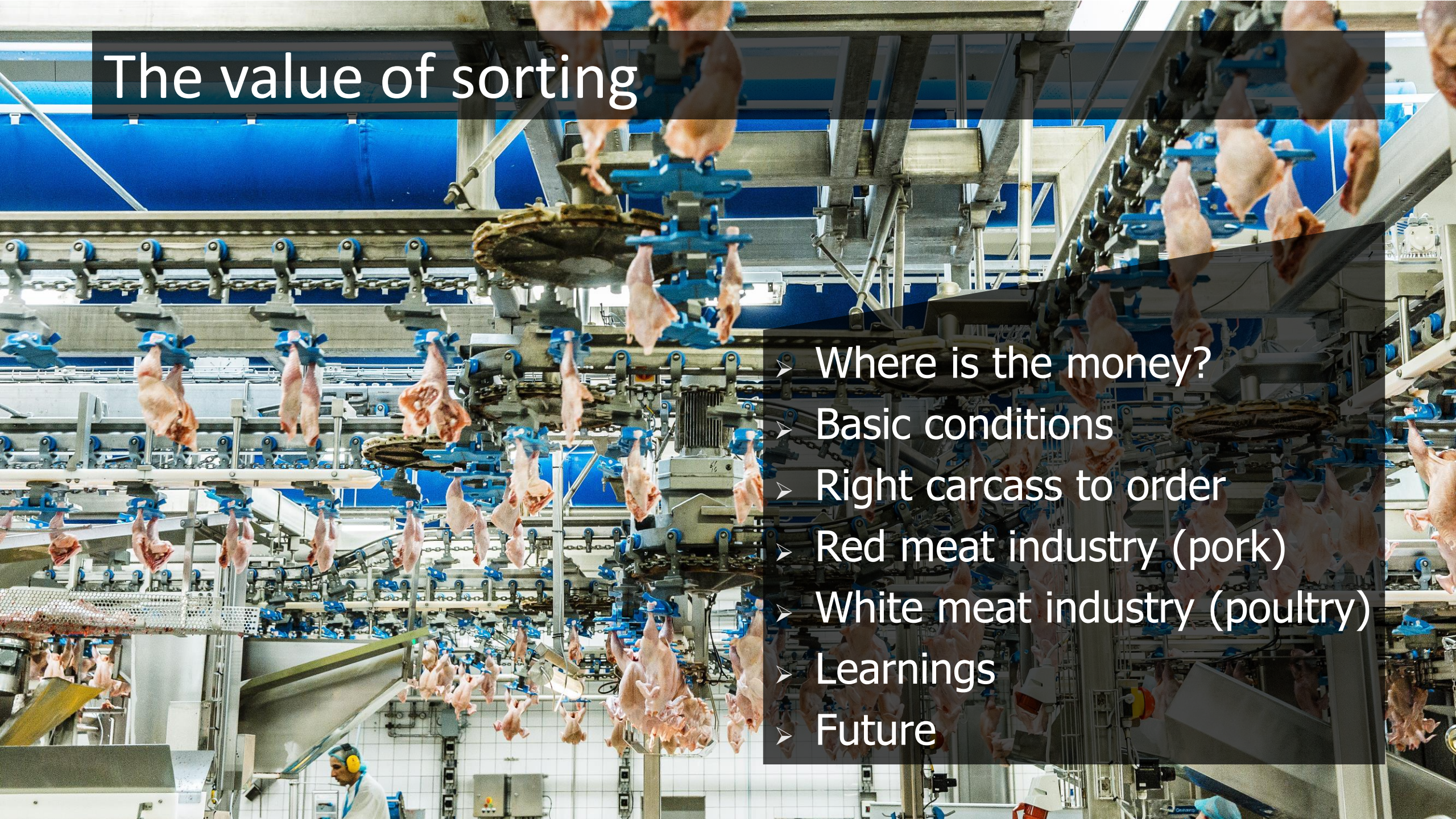
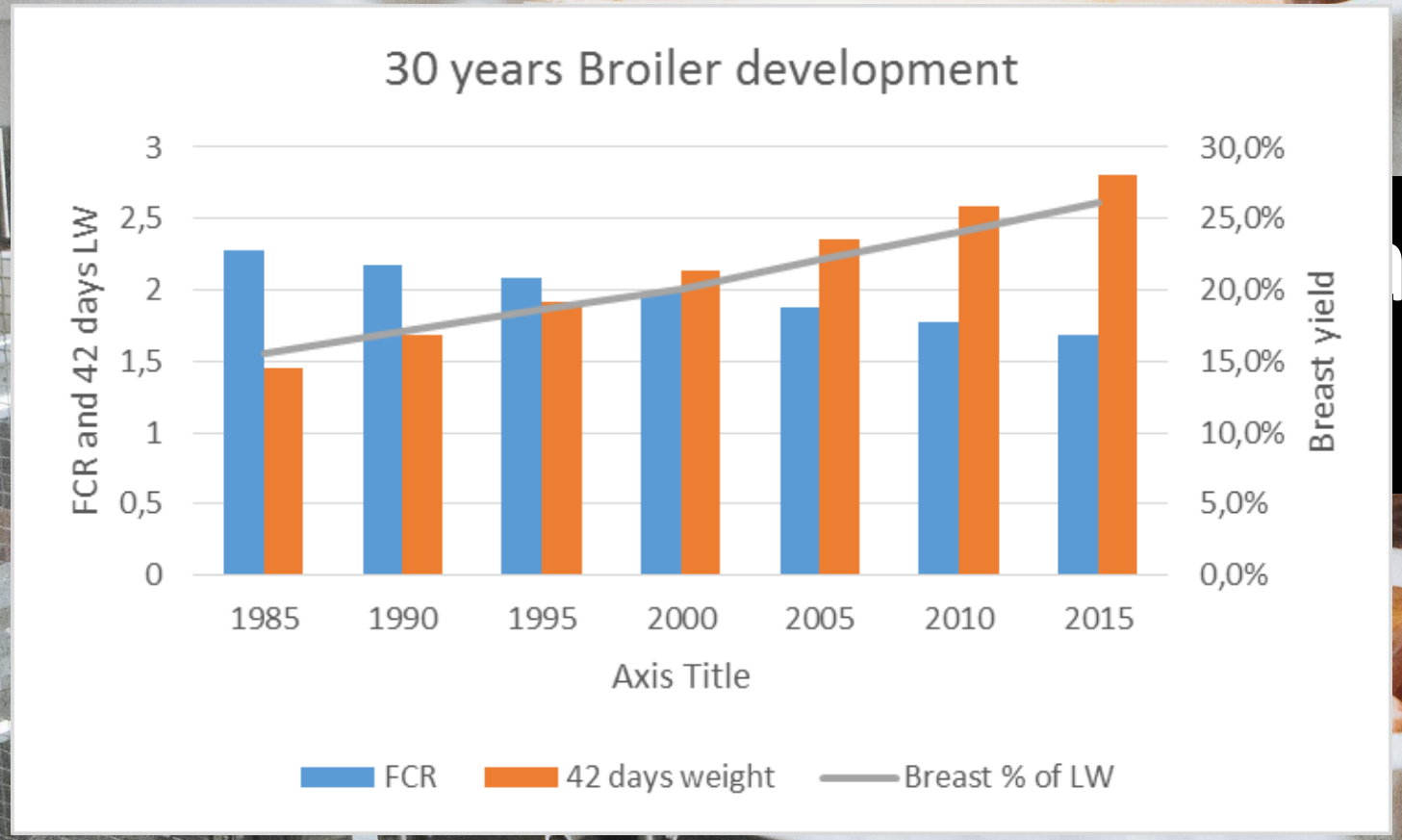
The value of sorting



- Where is the money?
- Basic conditions
- Right carcass to order
- Red meat industry (pork)
- White meat industry (poultry)
- Learnings
- Future

Here is the money



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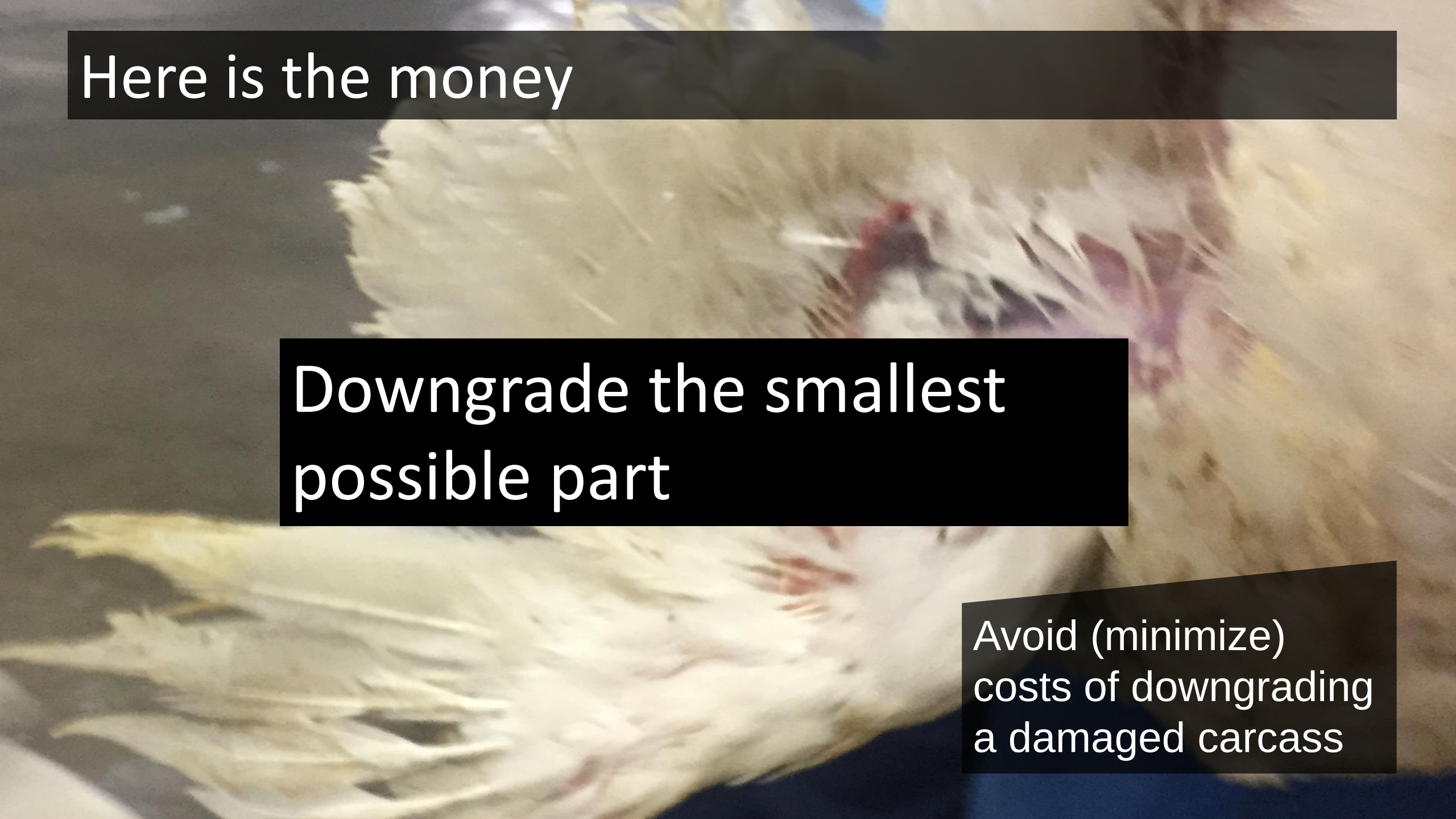
Fulfill orders with the raw material quality meeting the specification

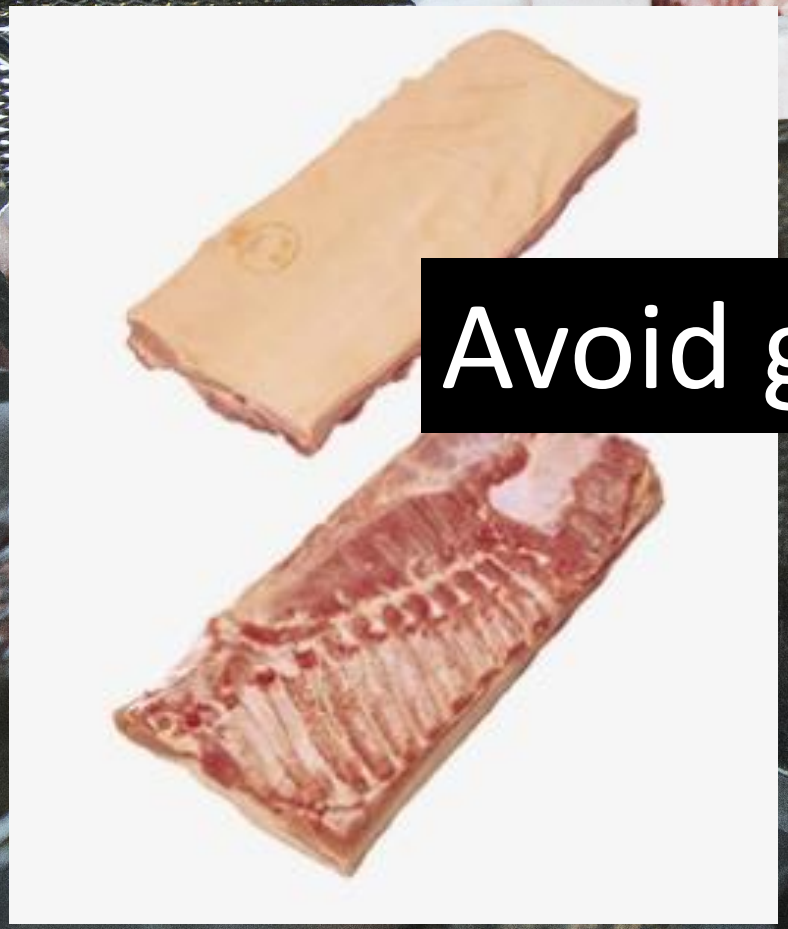

Here is the money
Downgrade the smallest possible part
Avoid (minimize) costs of downgrading a damaged carcass

Here is the money

Perfect raw material
destroyed by processing

Sorting carcasses to
fit machine settings

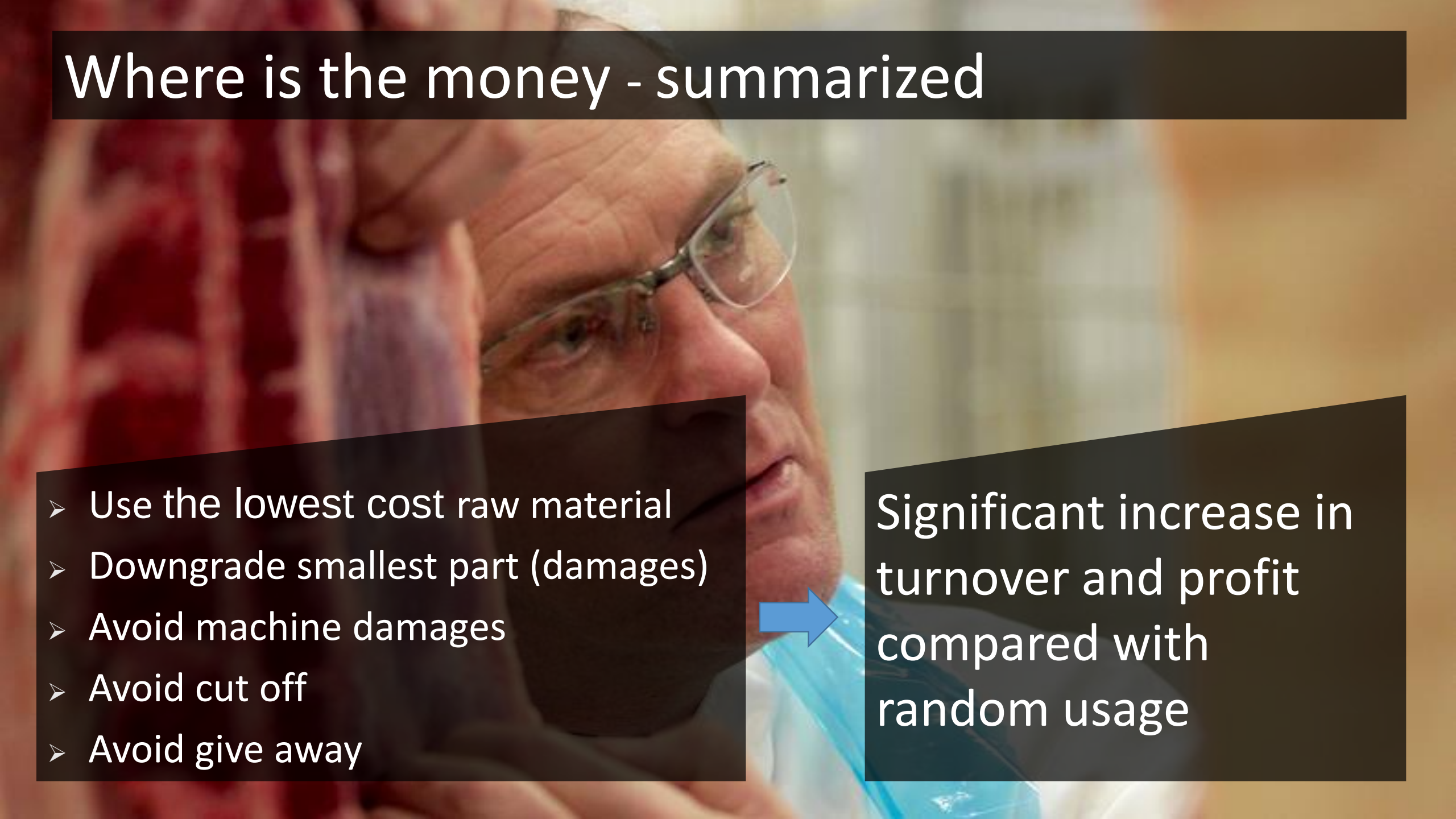
Here is the money



Avoid give away and cut off

Parts fitting product and packing specification

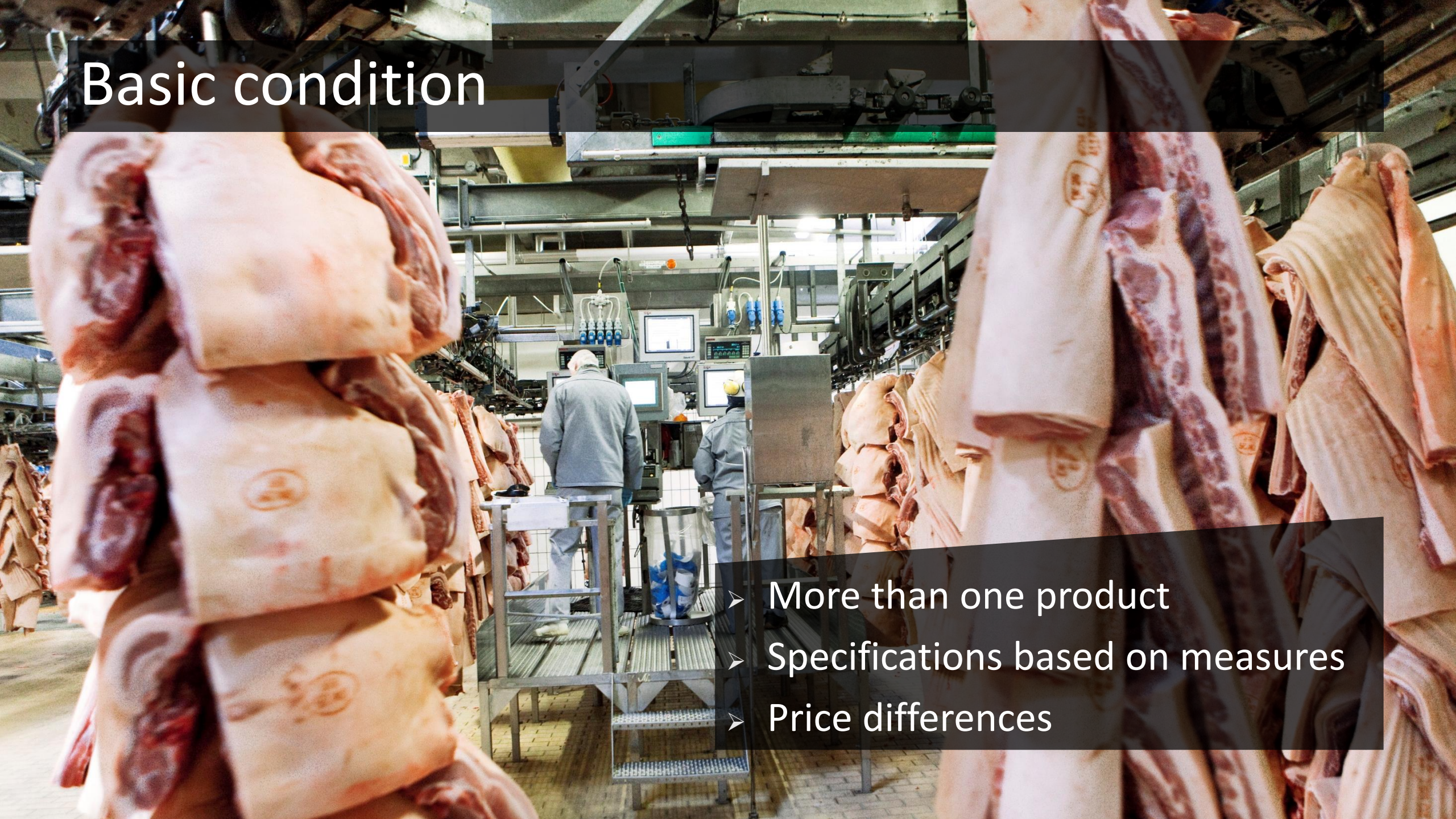
Where is the money - summarized



- Use the lowest cost raw material
- Downgrade smallest part (damages)
- Avoid machine damages
- Avoid cut off
- Avoid give away

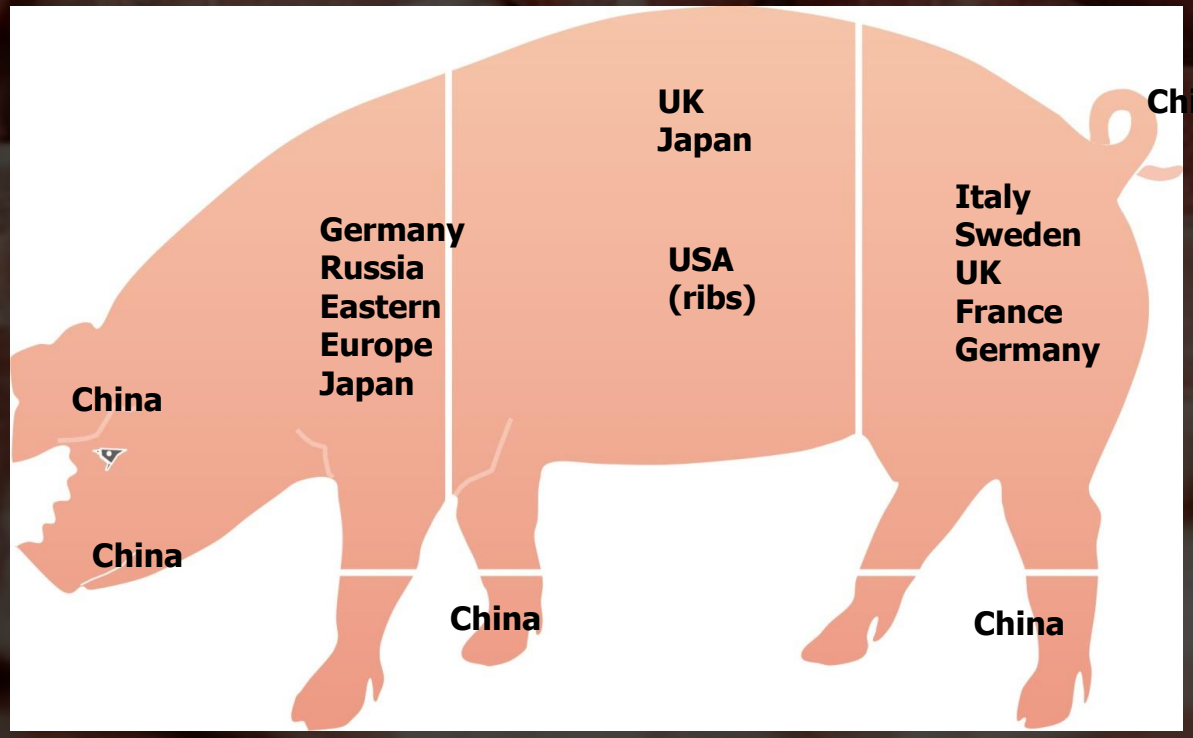
Significant increase in turnover and profit compared with random usage

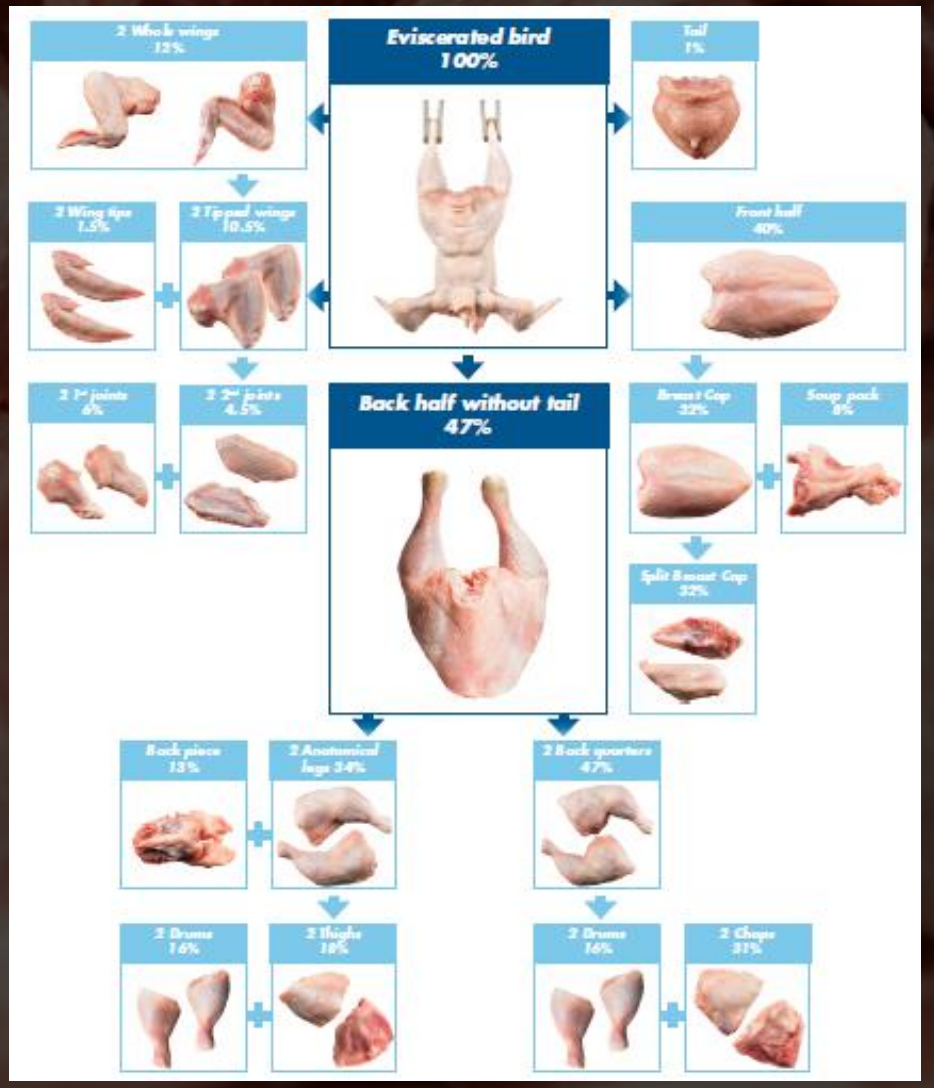
Basic condition



- More than one product
- Specifications based on measures
- Price differences

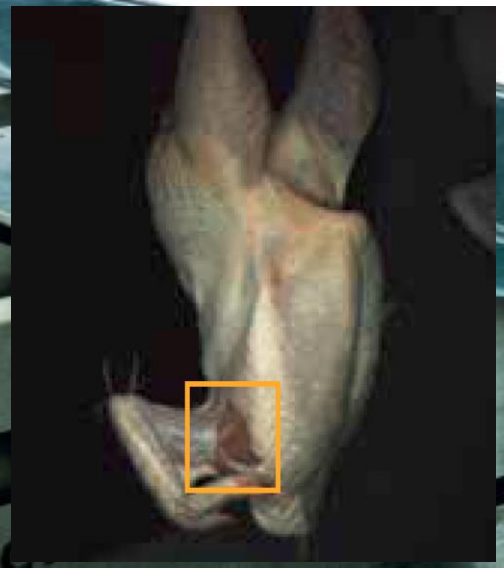
More than one product

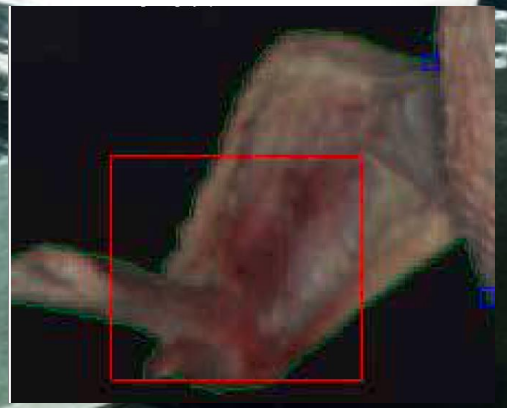




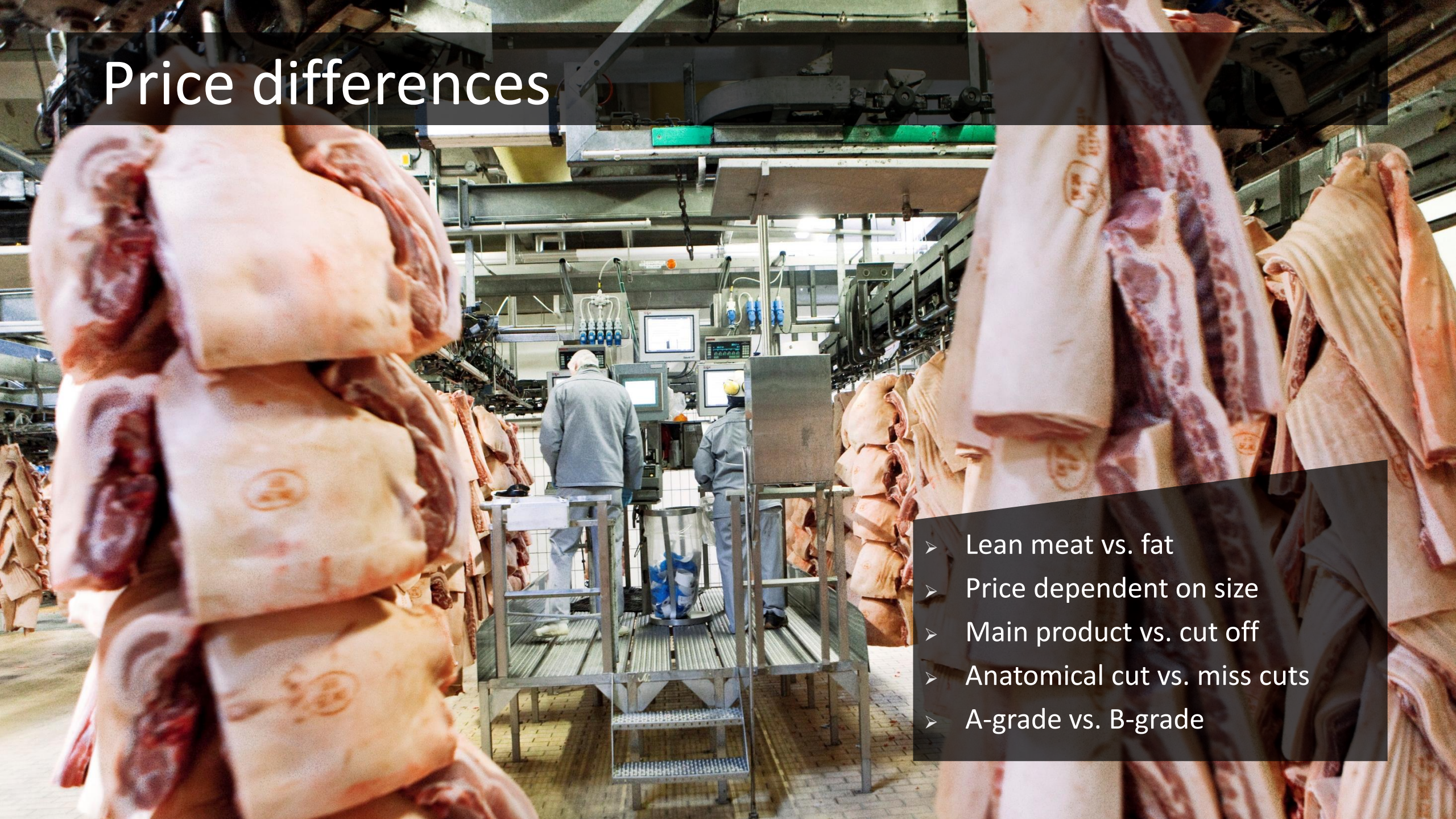
Specifications based on measures

- Well-defined weight, and sizes
- Thickness of fat layer
- Lean meat content
- Well defined defects





Price differences



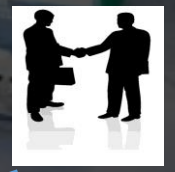
- Lean meat vs. fat
- Price dependent on size
- Main product vs. cut off
- Anatomical cut vs. miss cuts
- A-grade vs. B-grade

Right carcass to order

Supplier data

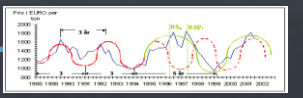
Carcass data

Sold goods & stock



Orders

Production costs



Prices

Data

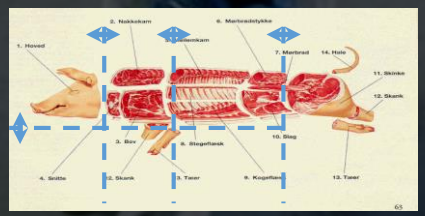
Sales

Planning

Sorting

Production

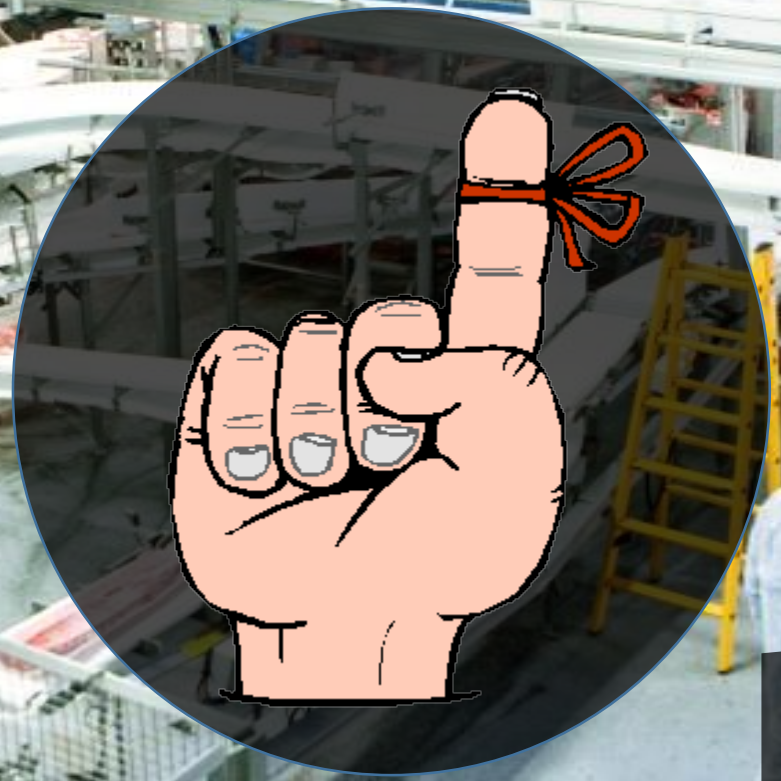
Optimizing



Maximize profits

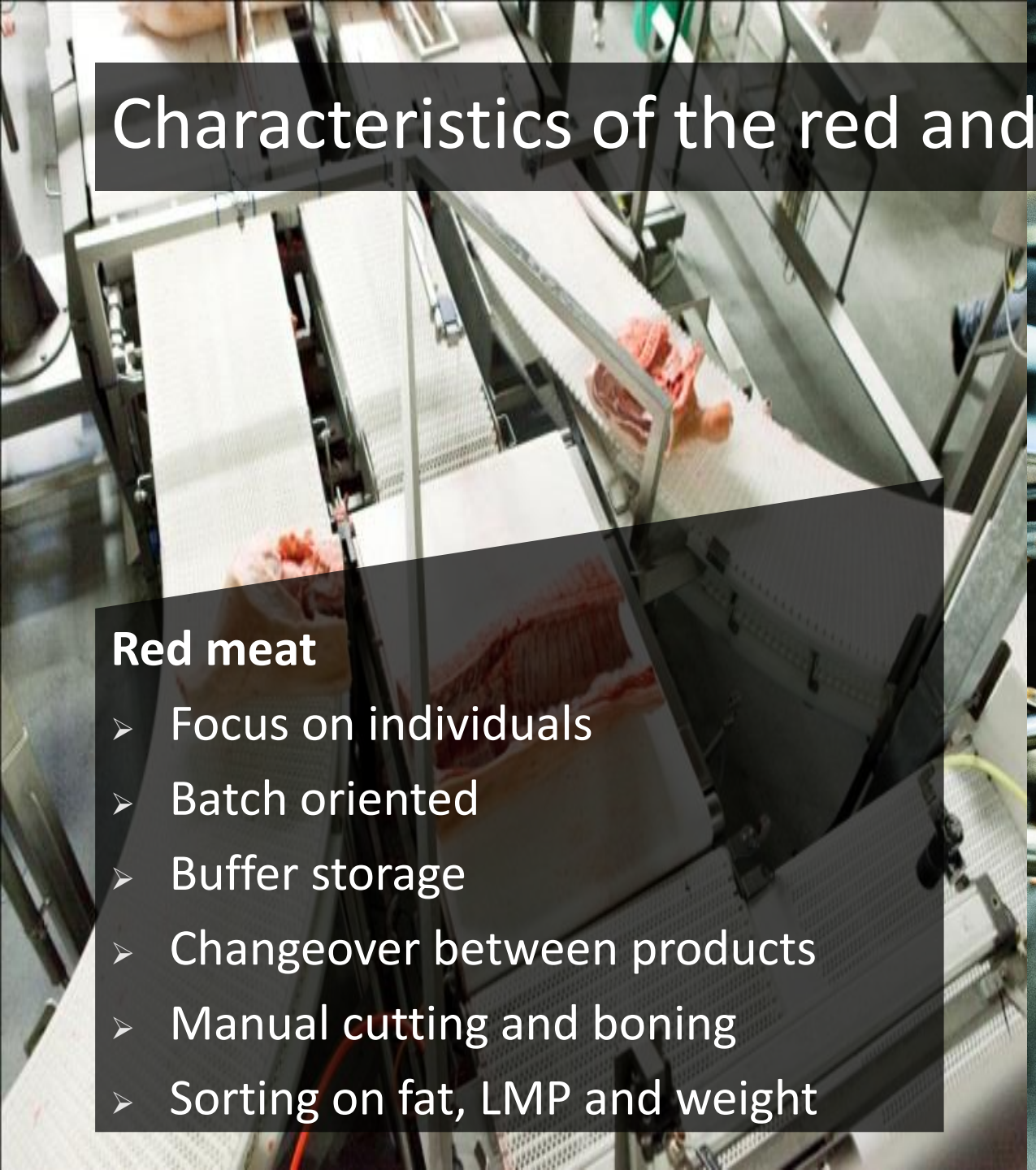
Farmer payment

Right carcass to order



Start simple and add only complexity if it brings significant value

Characteristics of the red and white meat industries



Red meat

- Focus on individuals
- Batch oriented
- Buffer storage
- Changeover between products
- Manual cutting and boning
- Sorting on fat, LMP and weight

White meat

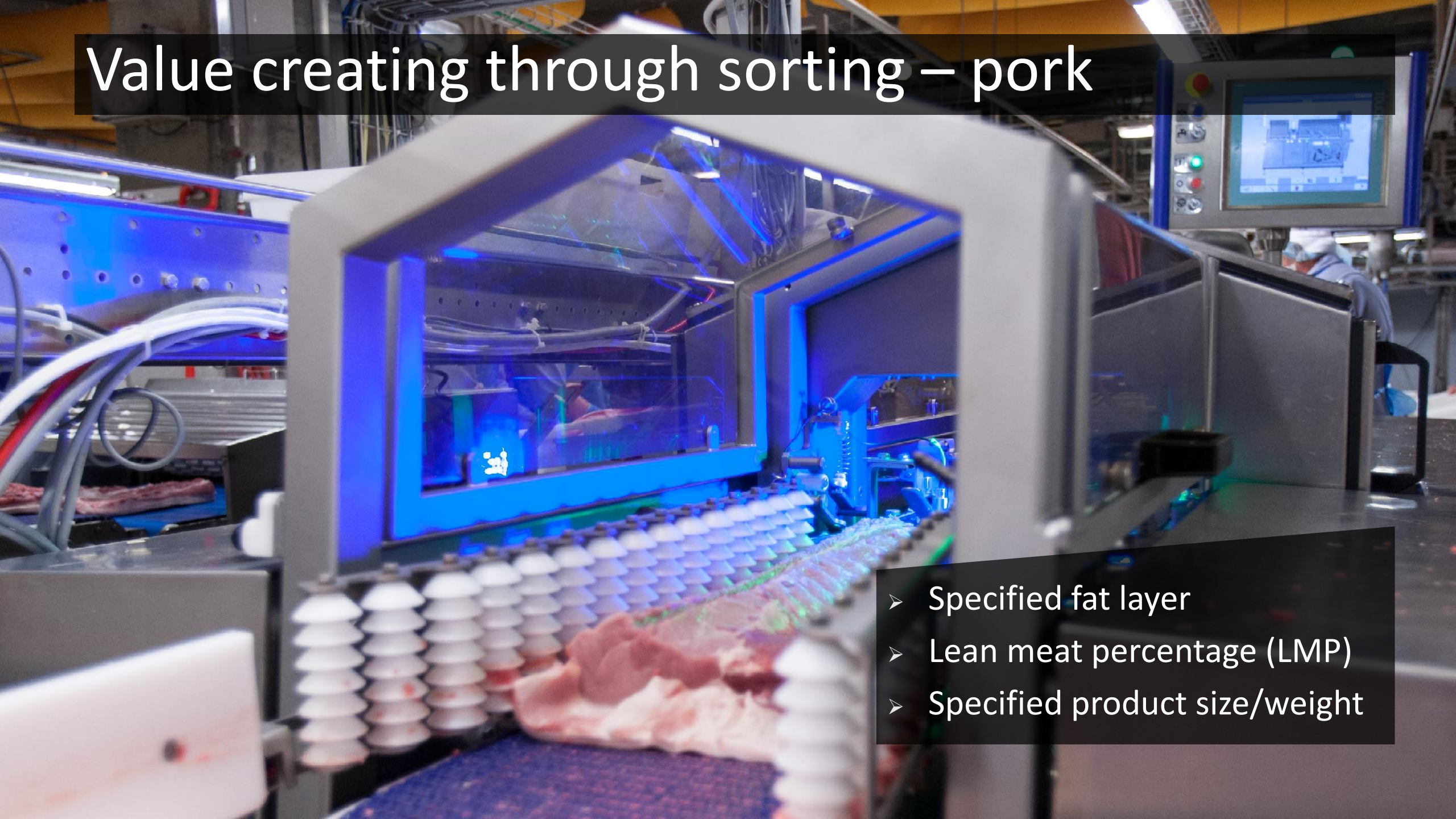
- Focus on flock
- In line distribution
- Prior to process data
- No storage between processes
- High automation
- Distributes on vision and weight

Measuring the raw material quality (pork)

Ultrasonic measurement analyzed using advanced algorithms creates detailed information regarding meat content and fat distribution.

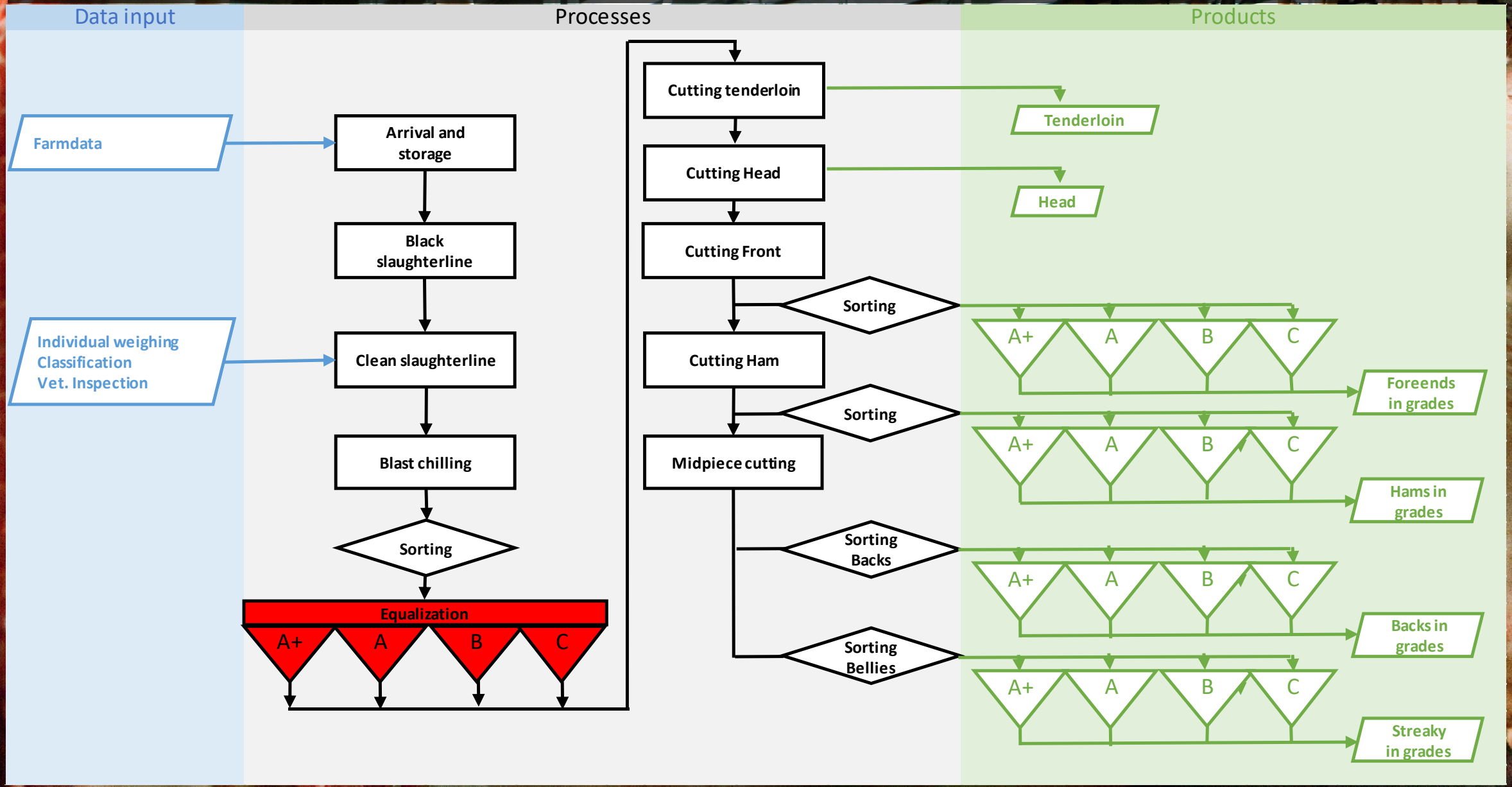
This information can be used to distribute carcasses to the products where the inbound quality parameters create the highest value.

Value creating through sorting – pork

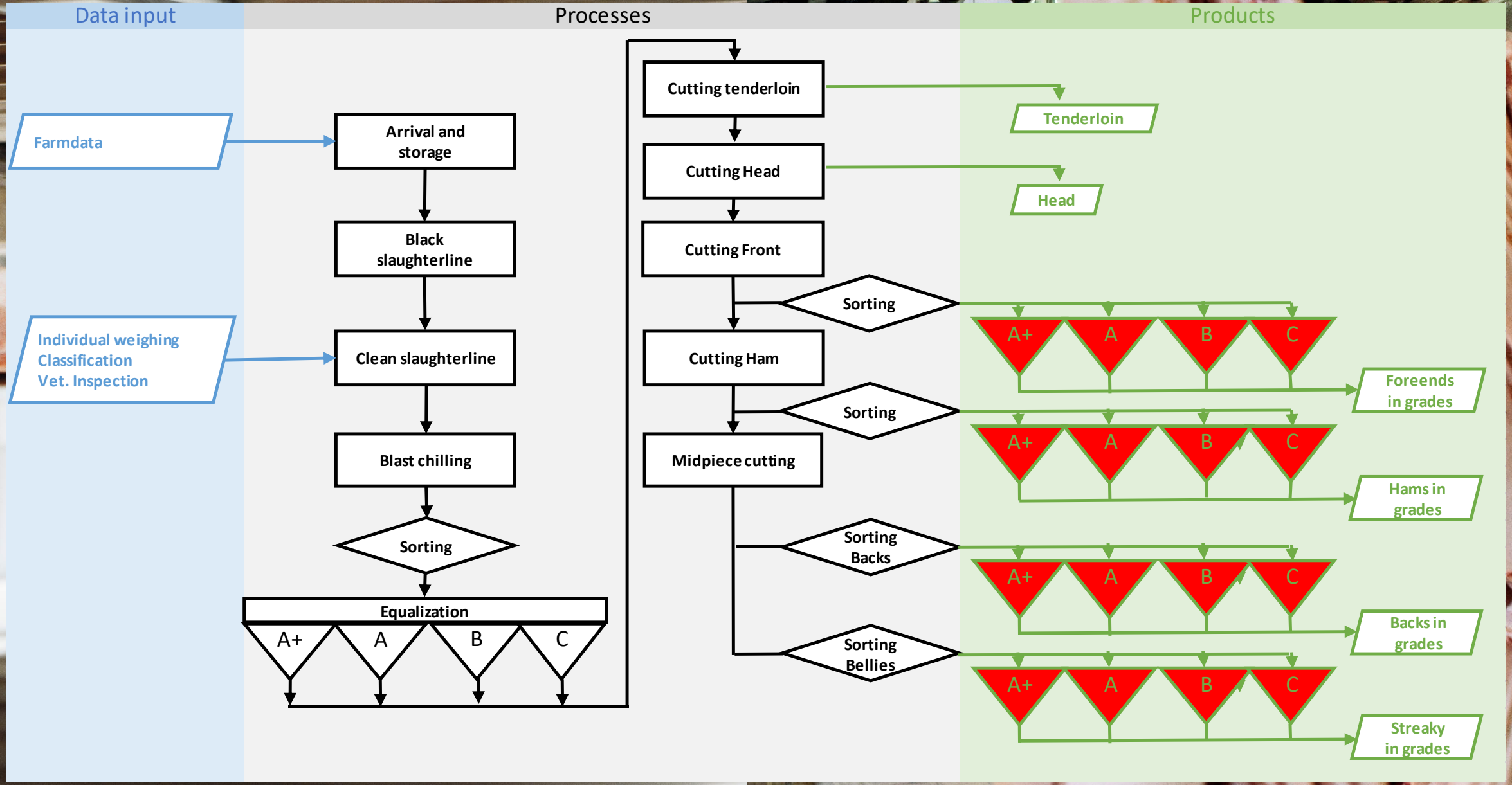


- Specified fat layer
- Lean meat percentage (LMP)
- Specified product size/weight

Sorting in batch (carcass)



Sorting in batches (primes)



Characteristics – pork cutting and boning

- Carcasses and/or primes sorted in batches
- Identity of batch on carrier or skin
- Manual labour in cut up and boning
- Lines handling one product

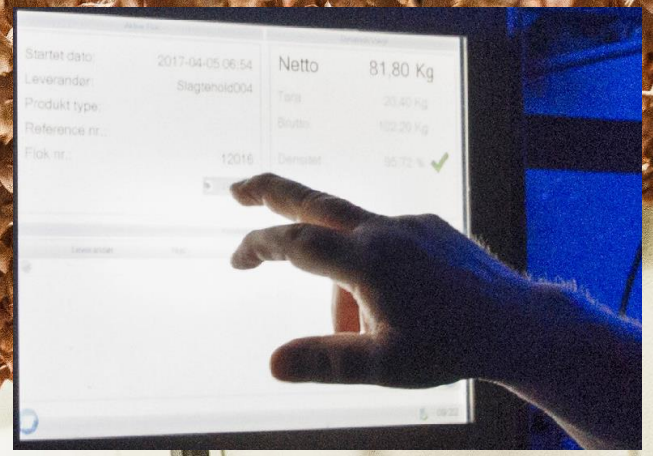
Data collection in the poultry industry

Arrival or reception

Farm and transport data registered

Crate weight recorded

Flock traceability created



Carcass vision system

Placed along the production line collecting data for optimal routing of the bird

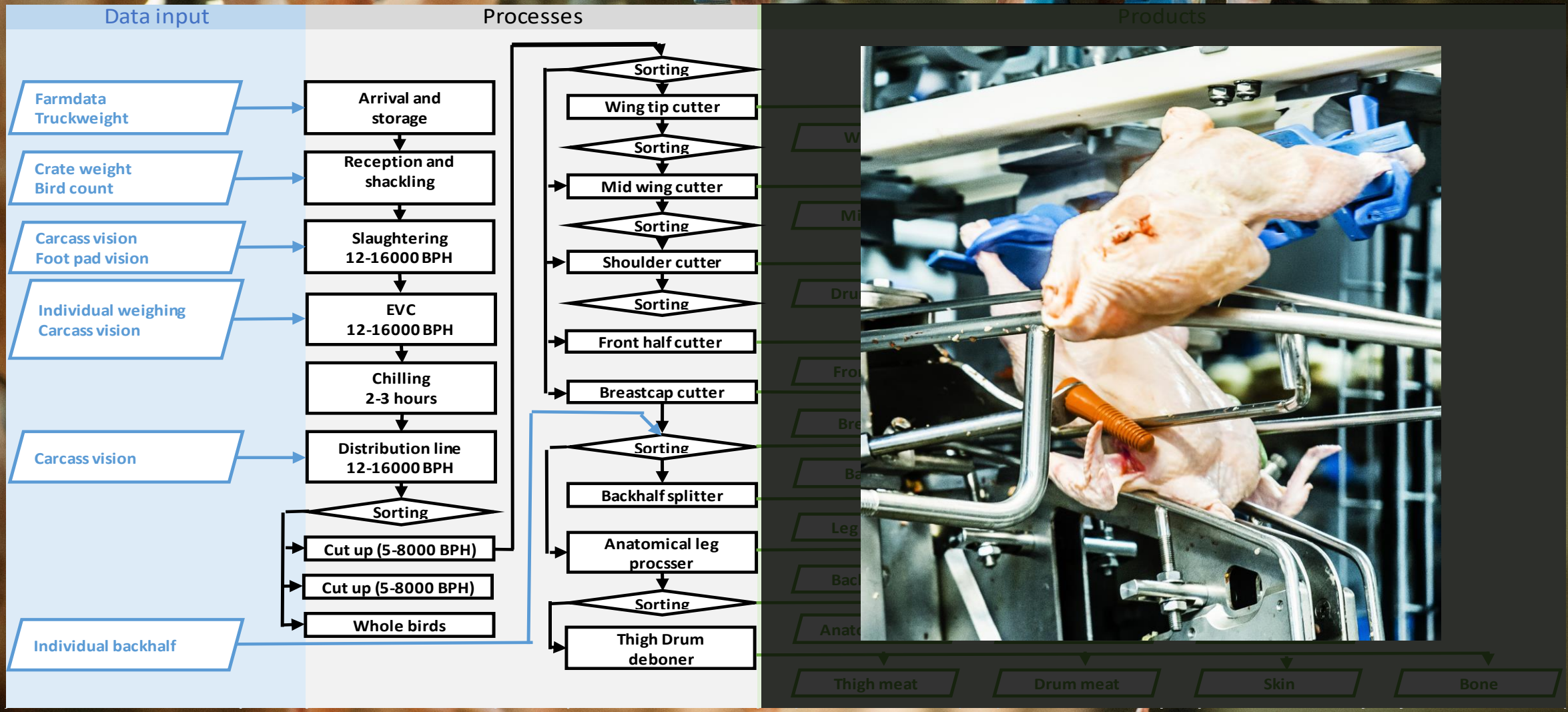
In-line weighing

Collect individual carcass weight

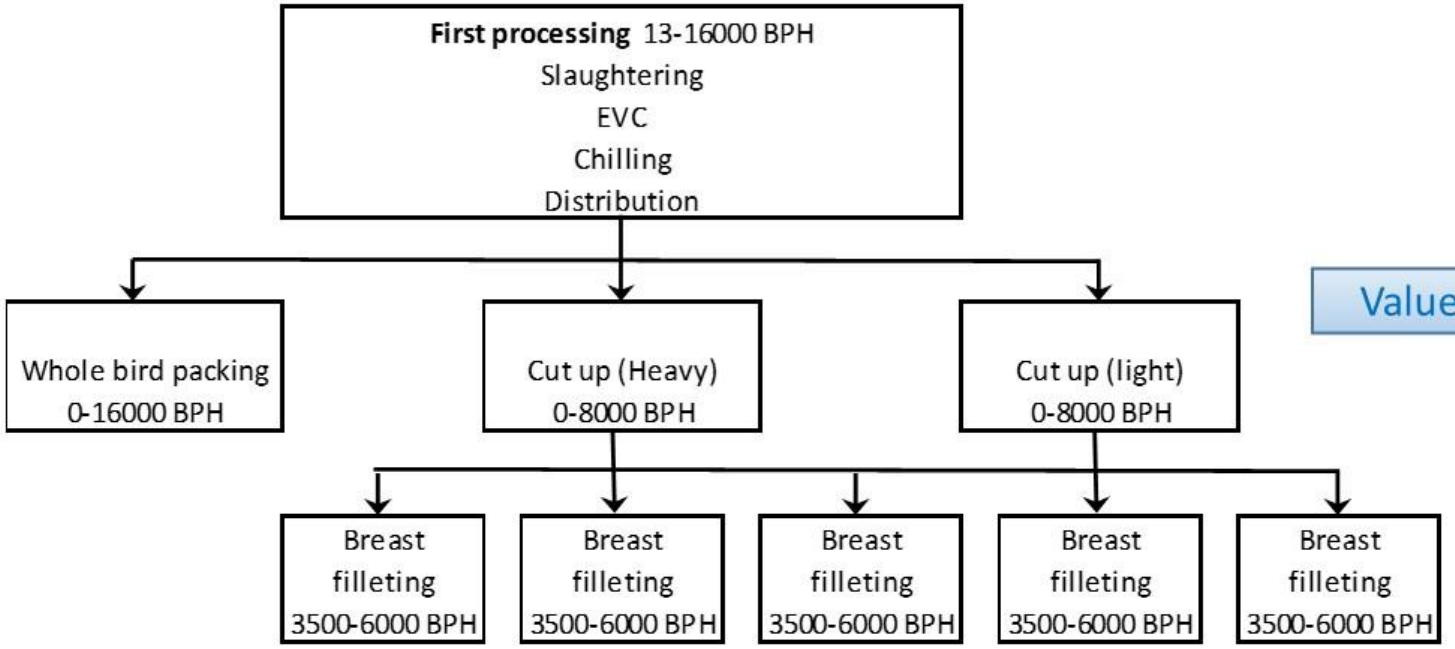
Value creating through sorting – poultry

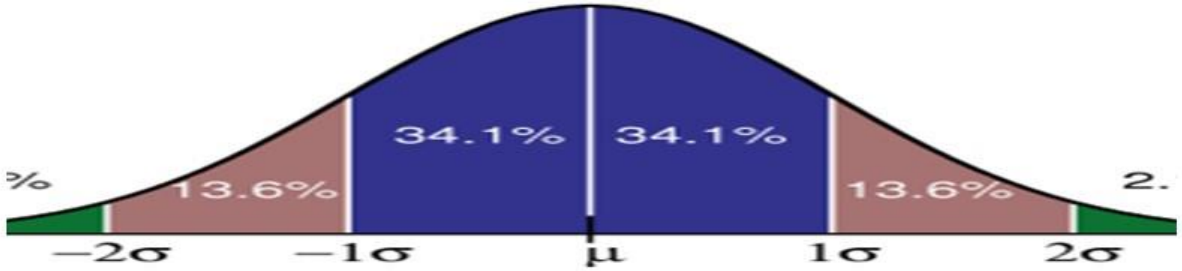
- Distributing to fit machine settings
- Minimizing give away and cut off
- Minimizing the cost of damage

Inline distribution according to quality measures



Distributing to fit machine settings



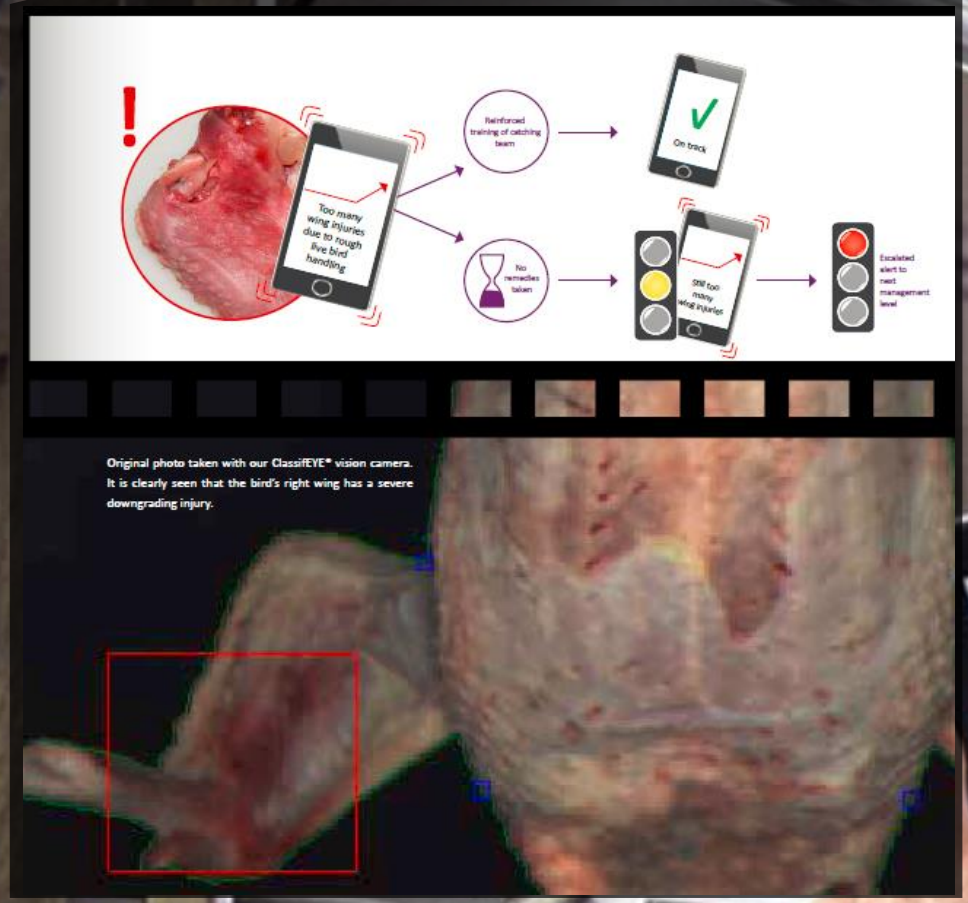


Value

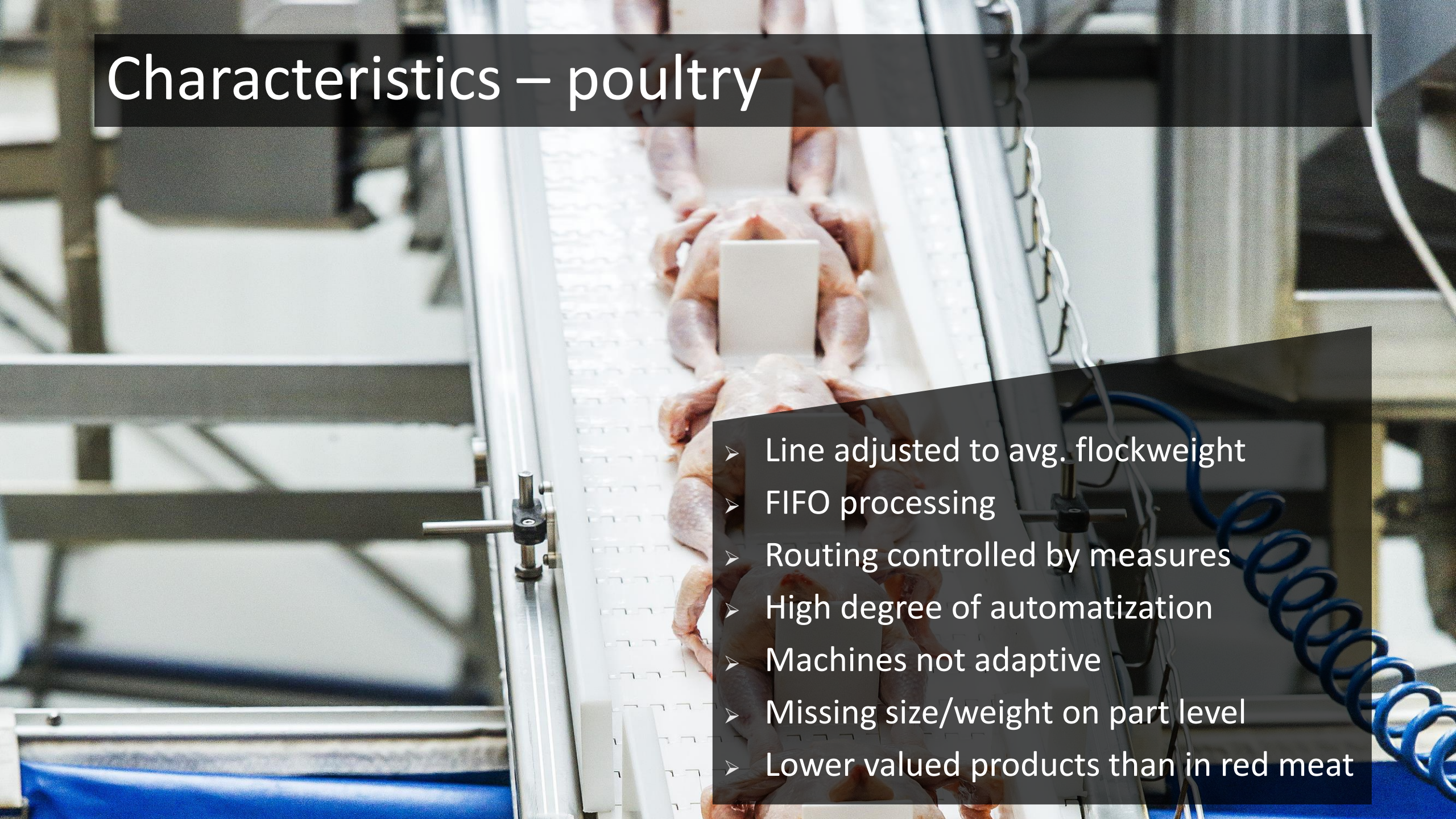
- Better anatomical cut of main products
- Higher filleting yields
- Less bone and cartilage in the meat
- Meat pre-sized for the following processes

Minimizing give away in products

Minimizing the cost of damage



Characteristics – poultry



- Line adjusted to avg. flockweight
- FIFO processing
- Routing controlled by measures
- High degree of automatization
- Machines not adaptive
- Missing size/weight on part level
- Lower valued products than in red meat

Learnings between red and white meat

Red meat

- Individuals to batch
- Buffer storage
- Changeover between products
- Sorting the products mainly on fat, LMP and weight

White meat

- Flock oriented – prior to process data
- In line distribution
- No buffer
- Fixed machine settings
- Distributing on vision and weight

Learnings between red and white meat

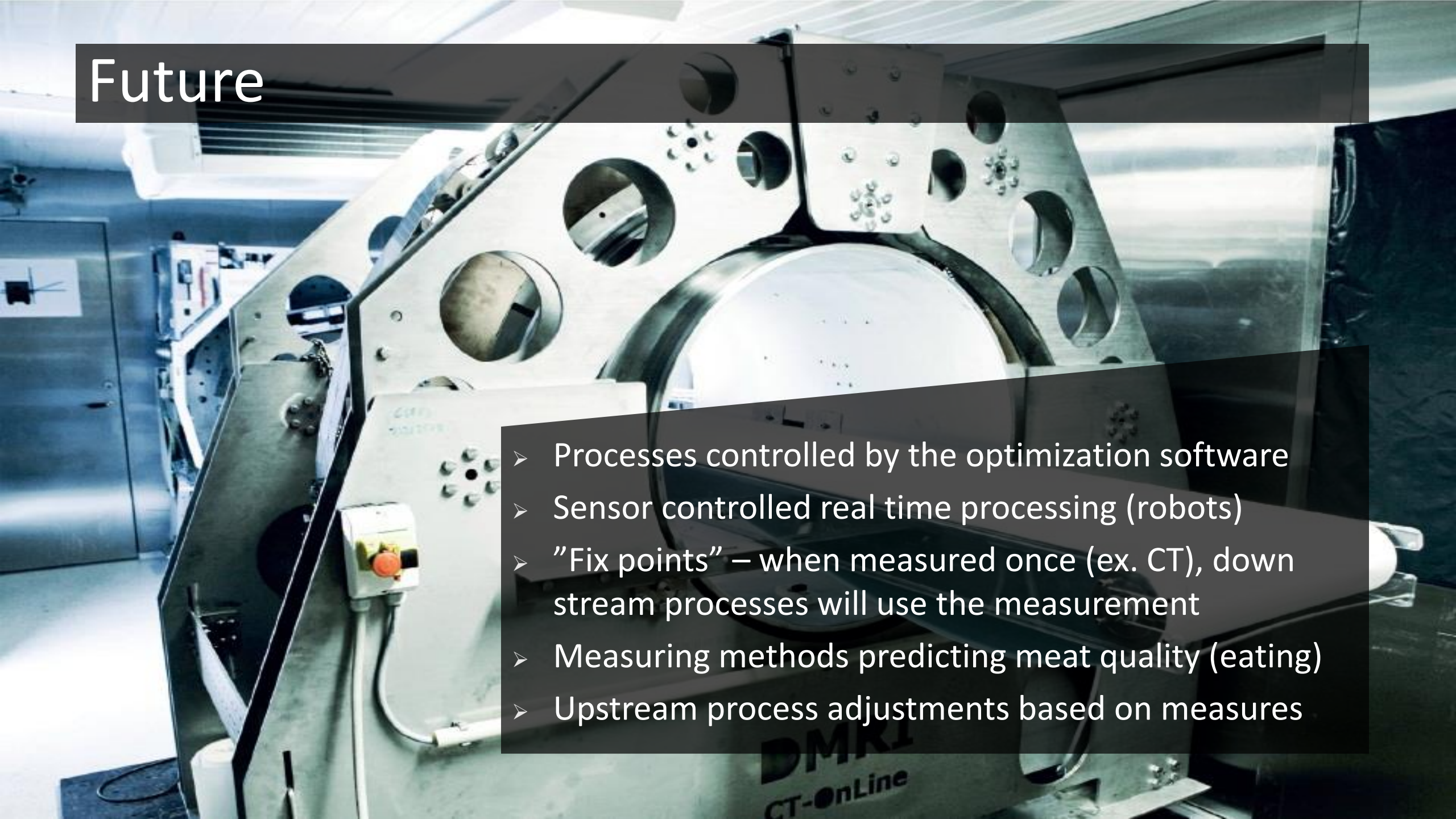
Red meat

- Use prior to process data
- FIFO processing
- Avoid buffers

White meat

- More sophisticated measuring systems measuring inside the product
- Individual handling

Future



- Processes controlled by the optimization software
- Sensor controlled real time processing (robots)
- ”Fix points” – when measured once (ex. CT), down stream processes will use the measurement
- Measuring methods predicting meat quality (eating)
- Upstream process adjustments based on measures

Thank you for your attention!

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