



MINTRAC

2019 MINTRAC National Training Conference

Evolution of Processing Technology and associated training considerations

Sean Starling, Meat and Livestock Australia



MINTRAC National Training Conference 2019

Innovation (efficient and safer):
Training needs w.r.t evolving technology

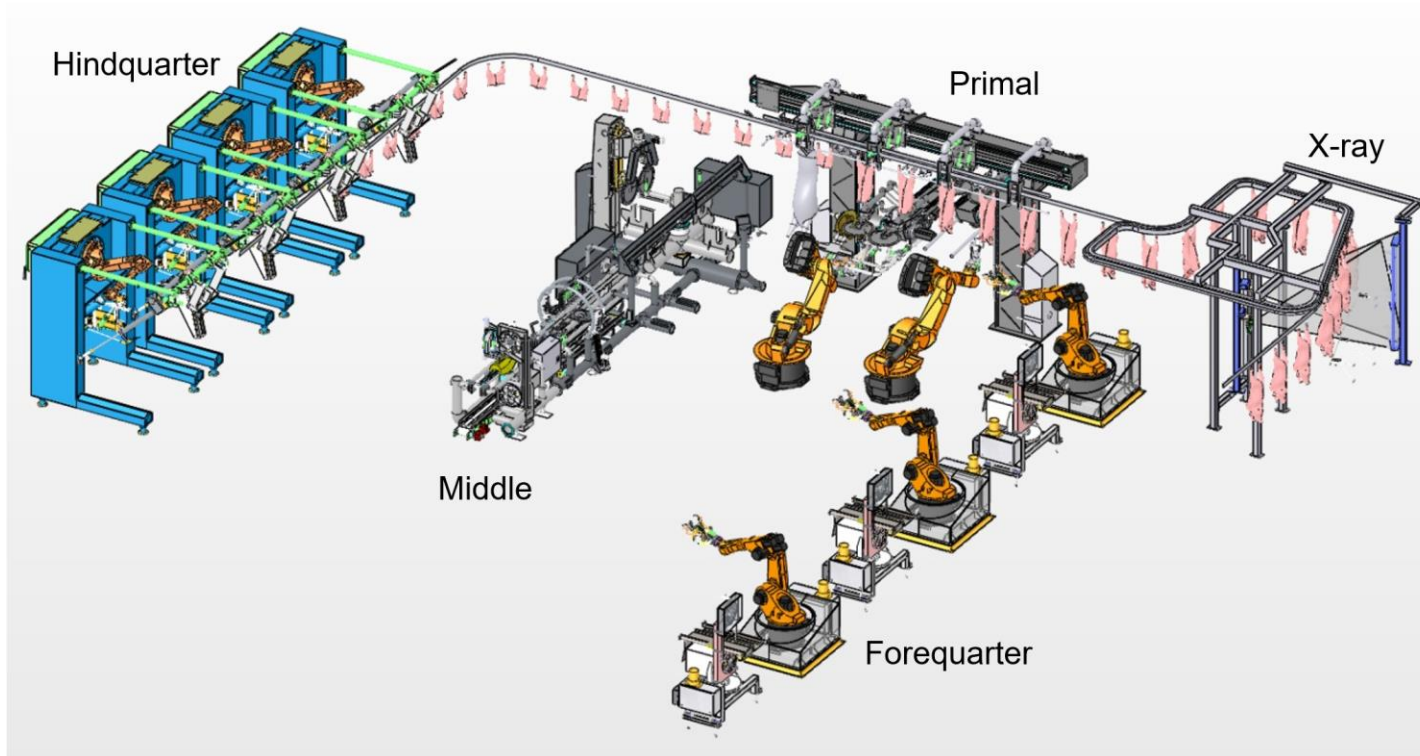
Sean Starling

Agenda

- The past (Lamb Automation)
- The Future of Beef Boning (The concept)
- Measurement systems
- Augmented reality
- Carcase inkjet printing (manual cutting and traceability)
- BladeStop

Lamb Boning – The Concept

Lamb (3 part carcasse breakdown)



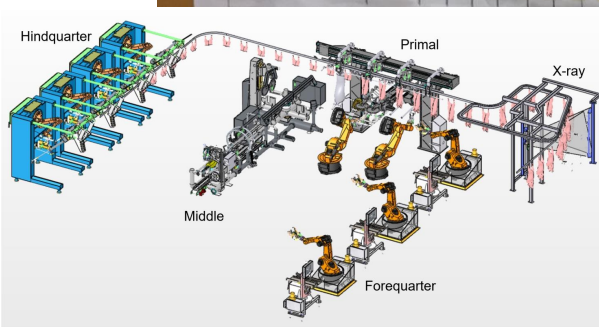
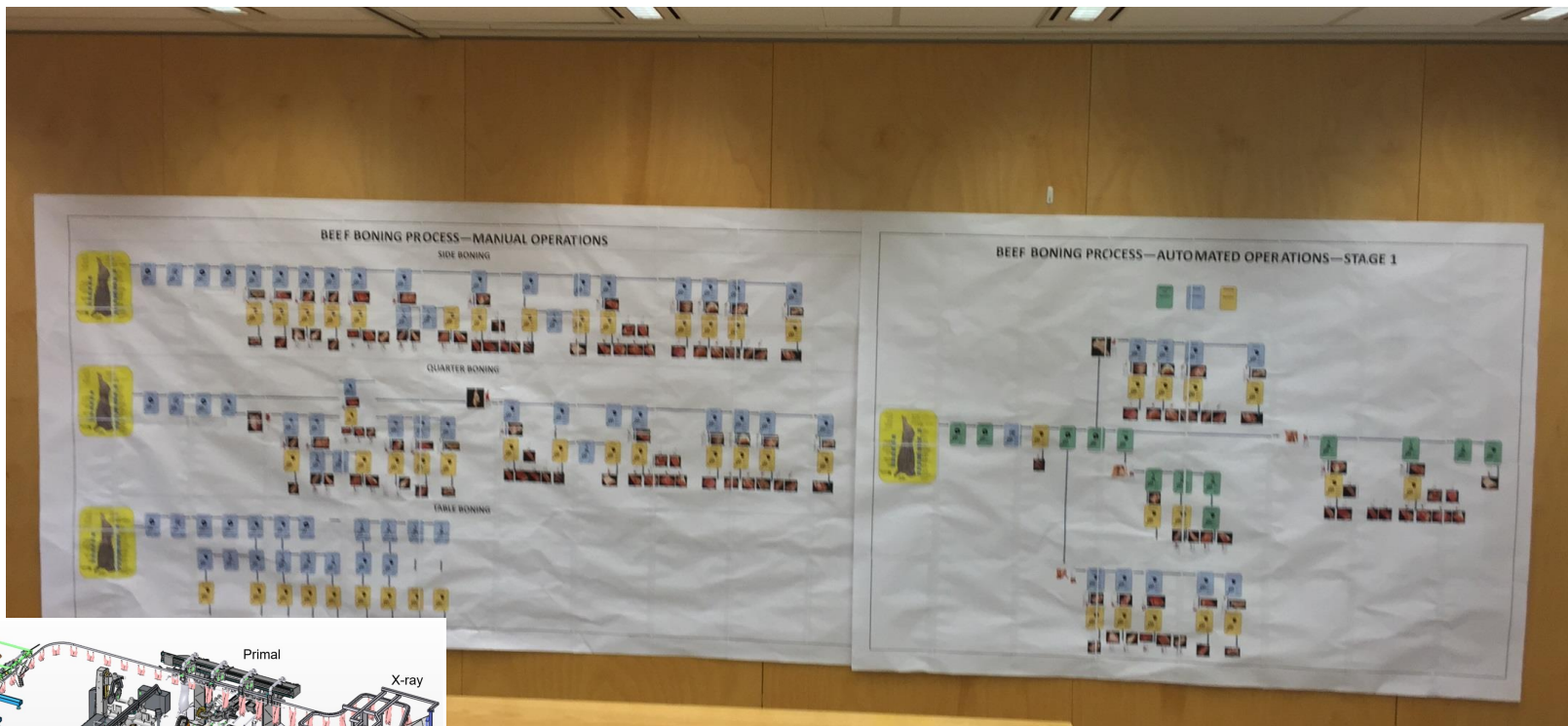
Lamb Boning – The Reality

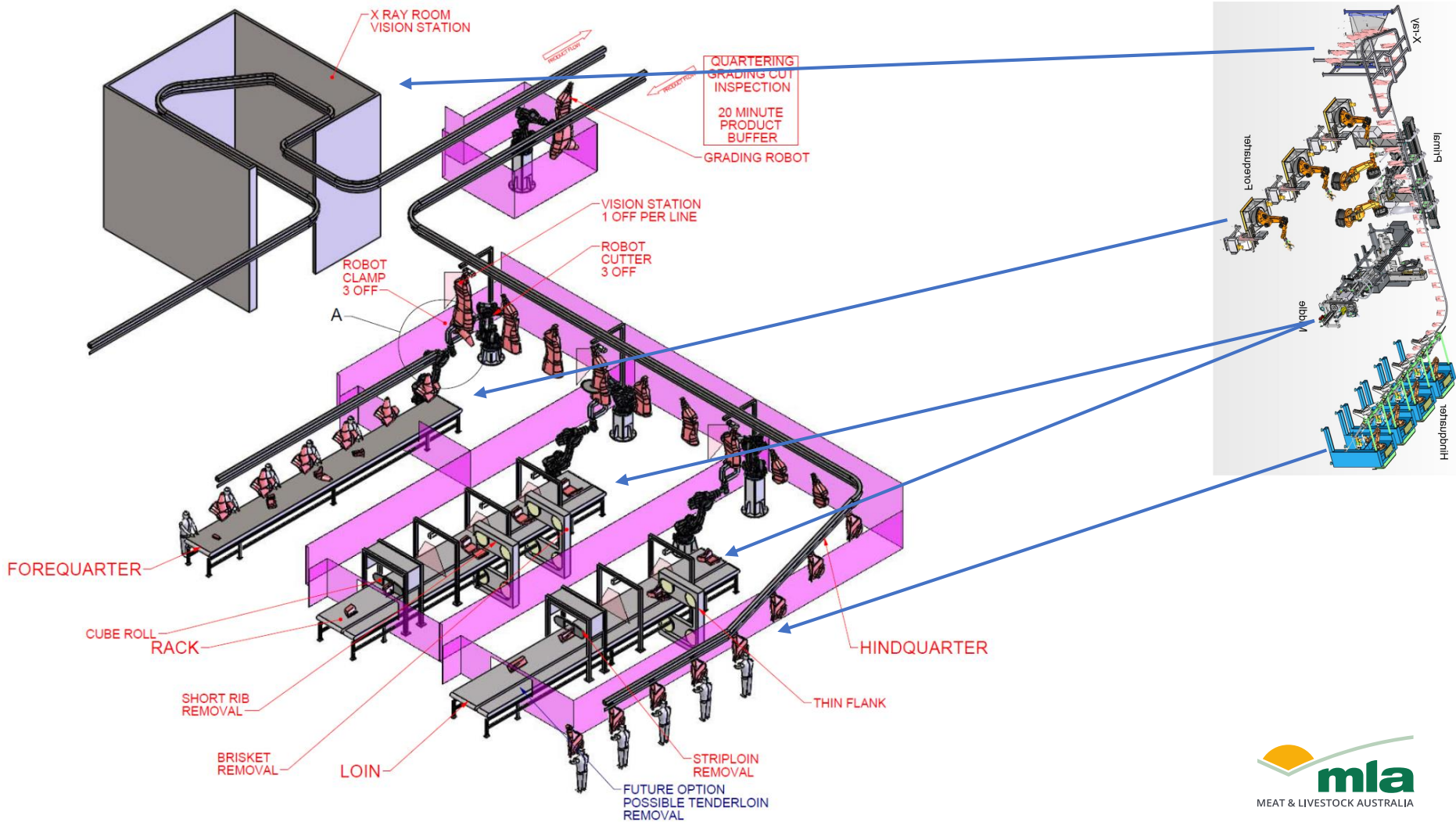
Lamb (3 part carcass breakdown)

Beef Boning – The Concept

Developments

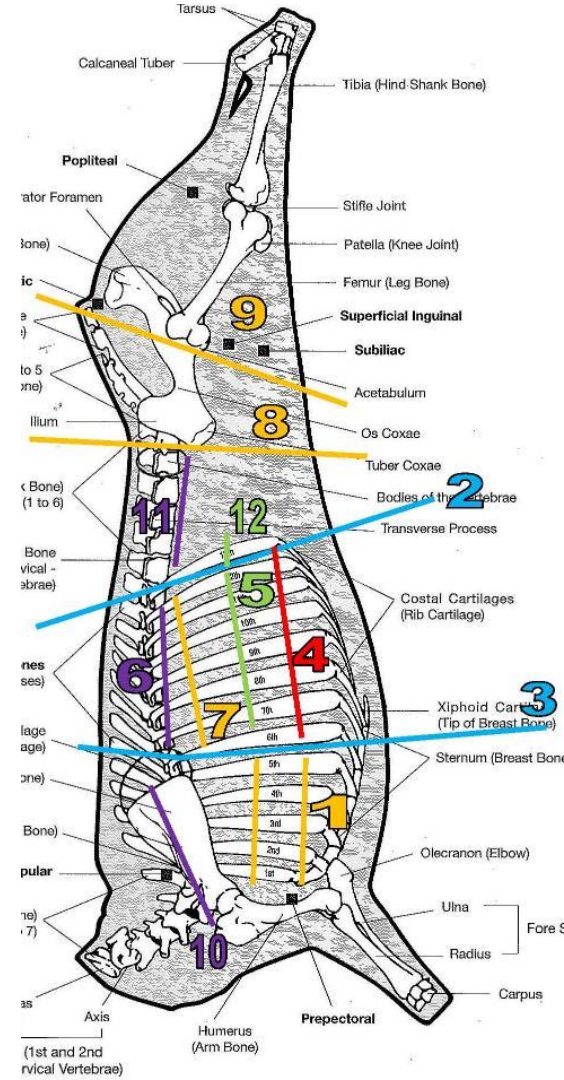
Beef Boning Automation – Industry Development





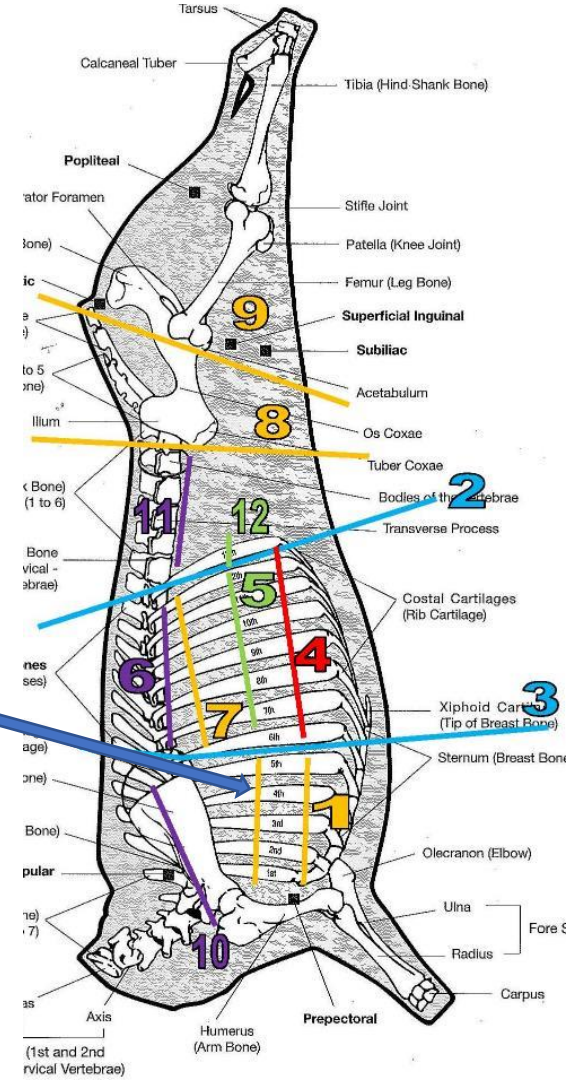
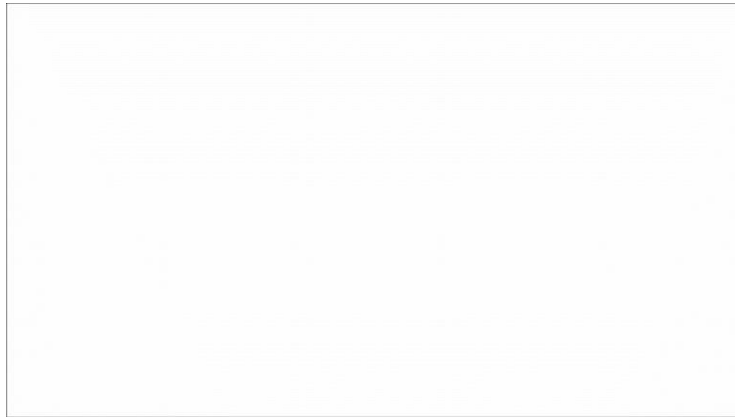
Beef Bone-in Automation (video)

- X-ray driven bone-in cutting
- Module 1 – X-ray unit (completed)



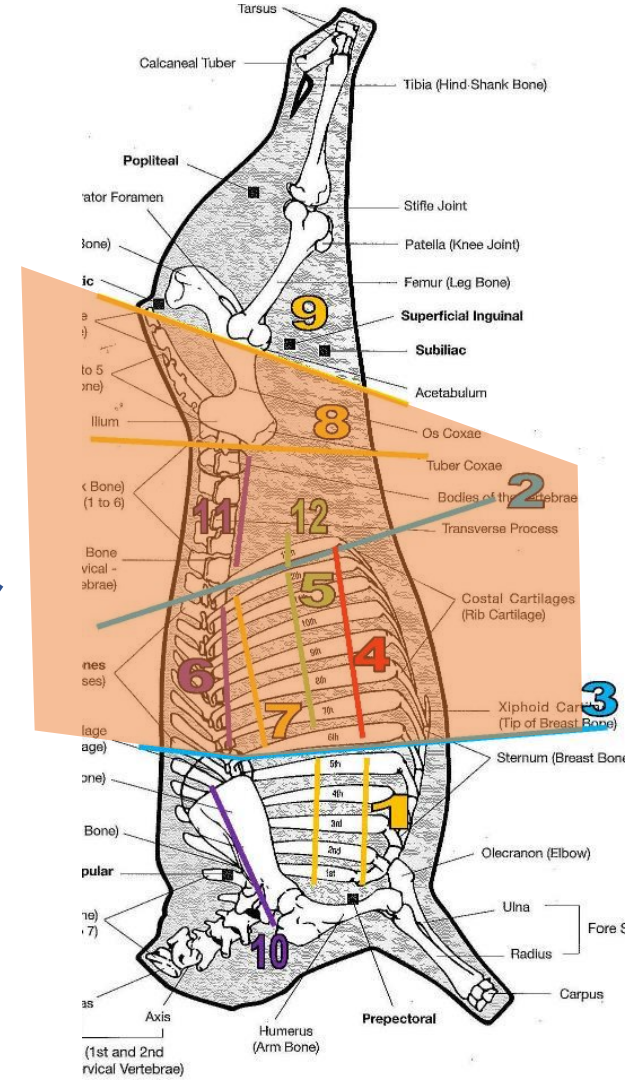
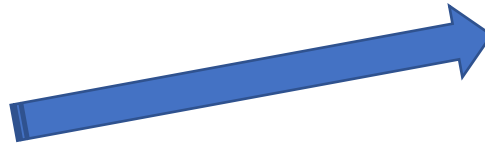
Beef Bone-in Automation (video)

- X-ray driven (1) Ribs & (2) aitchbone
- Module 1 – X-ray unit
- Module 2 – Scribing / rib cutting



Beef Bone-in Automation (video)

- X-ray driven (1) Ribs & (2) aitchbone
- Module 1 – X-ray unit
- Module 2 – Scribing / rib cutting
- Module 3 – Middle Processing
- Module 4 – Removal of FQ
- Module 5 – 'Removal' of HQ



Innovations in the pipeline

Objective Measurements

Areas of Activity

- Measurements for all parts of the supply
- Various measurement platforms

Measurement Platforms

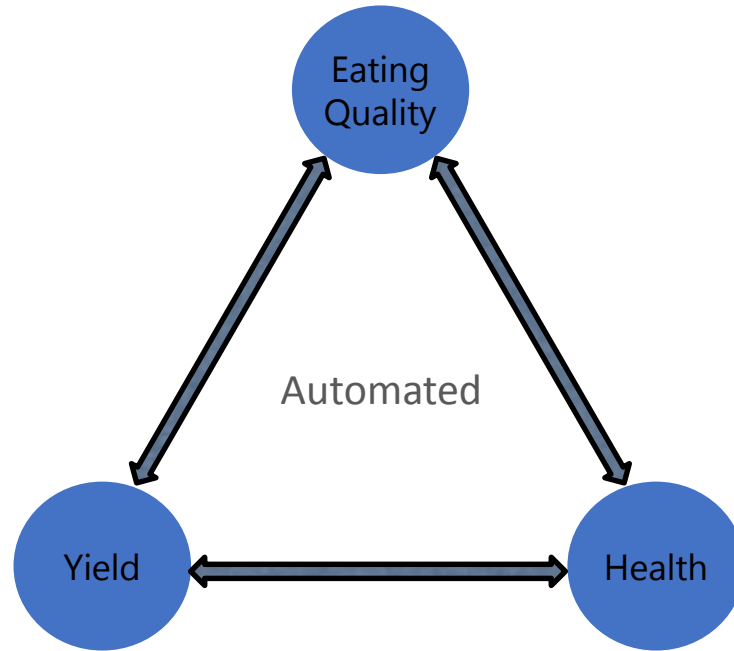
Surface	Sub-surface	Penetrating
<ul style="list-style-type: none">• 2D camera• 3D camera• Thermal• UV	<ul style="list-style-type: none">• NIR• Ultrasound• Raman Spec.• Hyperspectral• Molecular Biology• Clinical Biology• Veolicty of Sound• Shear Force• Chromotorgraphy• Terahertz• Elect. Conductivity	<ul style="list-style-type: none">• X-ray• Conductivity• CT• MRI/NMR• Microwave• Radio Frequency

Augmented Reality, Tags & Unmanned

Algorithms, Analytics & Models

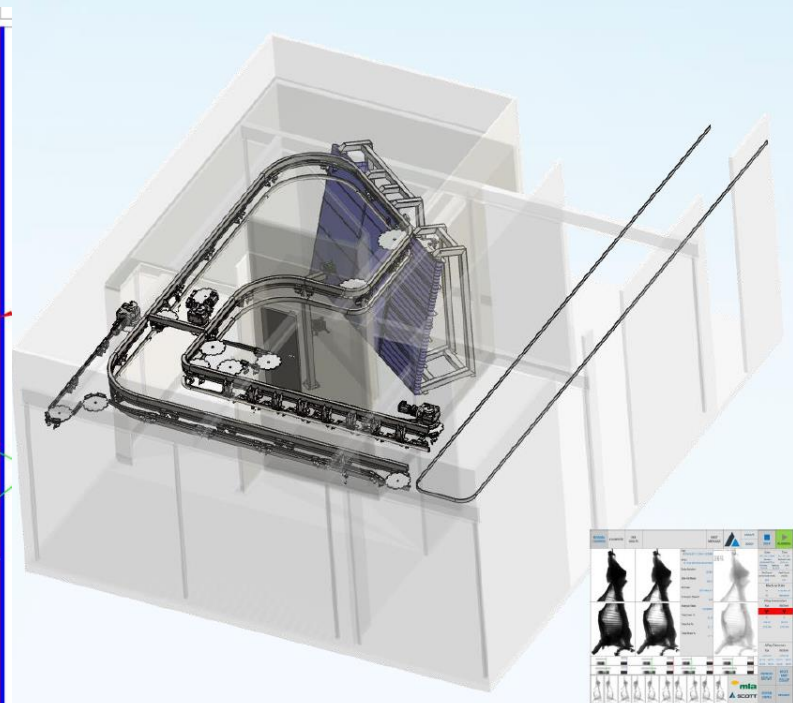
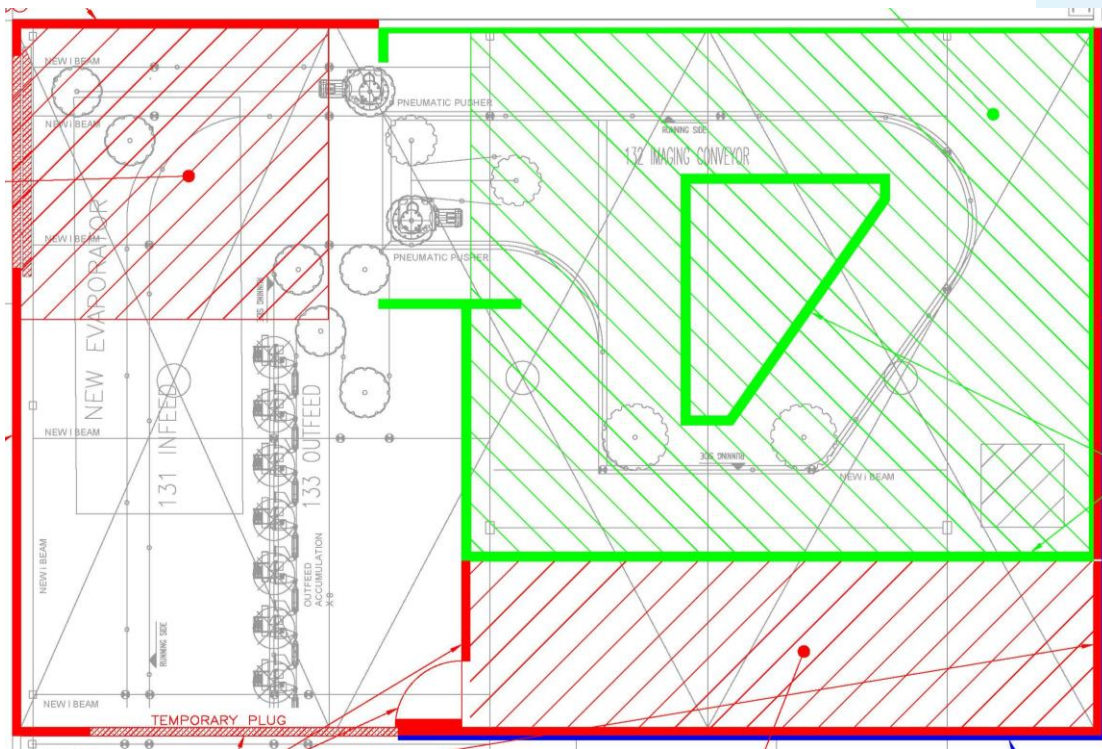


Areas of Activity – Carcase Measurement Trifecta



DEXA systems (Yield)

Innovations in the pipeline

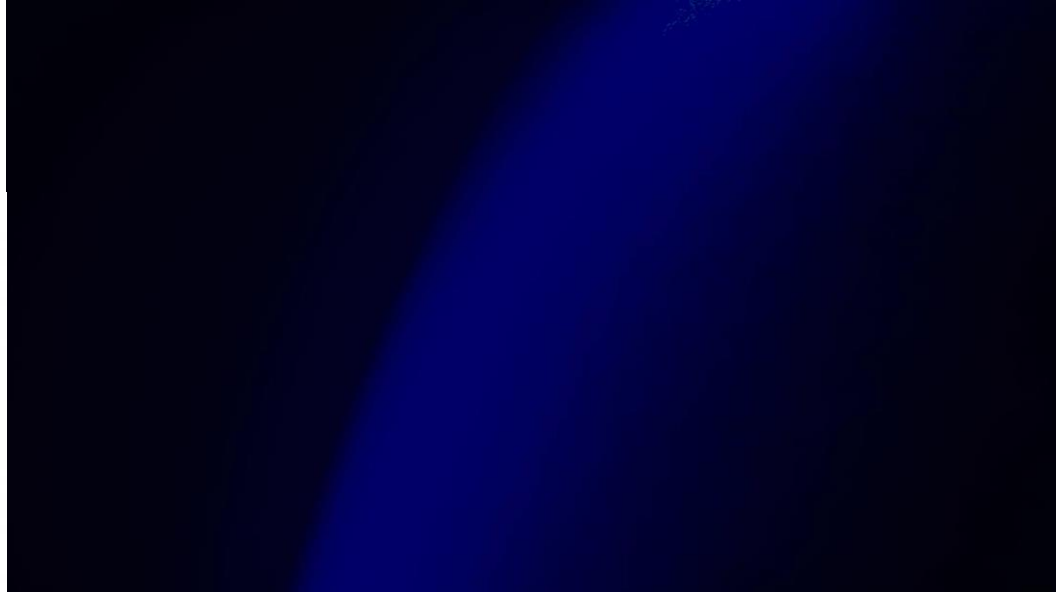


Advanced measurements (Quality and Health)

Innovations on the horizon

- Aviation CT

- Rapiscan (\$22 million)
- Nuctech (\$0.3 million)



Advanced measurements (Quality and Health)

Innovations on the horizon

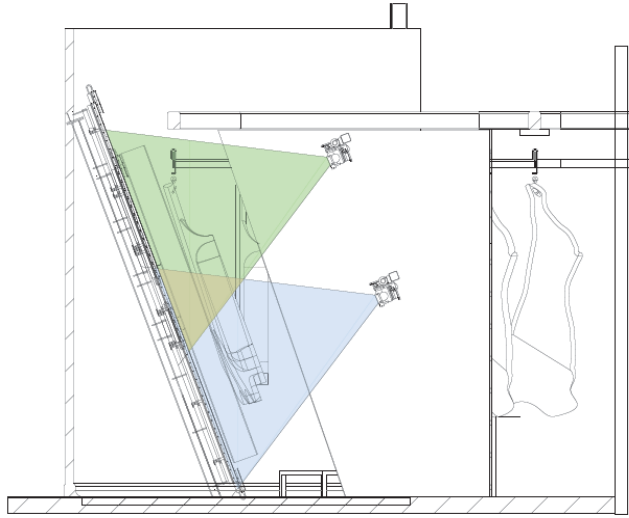
- Equine CT



This Siemens CT scanner is equipped with a large animal positioning and CT scanning table.



Carcase EQ & Yield (Producer Feedback & Processor Optimisation)



DEXA

- Whole of carcase yield
- Drive Carcase Cuts Calculator (next slide)
- Position Equine CT to rib location
- Drive 2D Bone-in cutting automation (beef, lamb and goat)

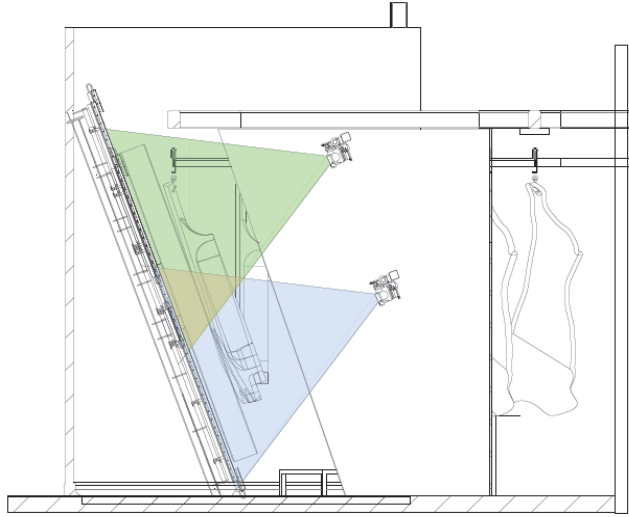


CT

- Positioned around striploin/cube roll by DEXA
- Improve Carcase cuts calculator for middle
- Marbling, EMA, Rib Fat
- Other information TBA



Processing Automation



DEXA

- Undertake carcase 2D bone-in cut breakdown automation
- Note: can not do this with a 'Via' camera system



CT

- 3D automated deboning (can not do with DEXA)

Animal Health (Producer Feedback & Consumer Health)



Live animal

- On-farm (service)
- Feedlot induction
- Also end point management



Viscera Table

- Automated health feedback
- Note: Retain 1 FTE for unusual results

Looking at Beef 'Via' Systems (Frontmatec and E+V)

NCMC and JBS Scribing

- Could not be used for accurate scribing
- Scott Technology – could not use on lamb



Innovations in the pipeline

Not all automated

Ink jet printing

AR / VR

Processor efficiency (safety)

Bandsaw safety



Processor efficiency (safety)

Cobotics / Manual Assist

The best applications for shoulderX are those that require sustained or repeated work at chest to ceiling level with light to moderate weight tools.

Examples include paneling, electrical work, painting, inspection, welding, grinding, picking, pruning, and drilling.



SHOULDERX

An affordable arm support exoskeleton to augment strength and productivity while decreasing the risk of injury during shoulder fatiguing tasks.

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Berkeley, California

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info@suitx.com

Processor efficiency (Ink jets)

Leverage measurement systems for all (Ink jet printing)



Processor efficiency (AR & VR)

Leverage measurement systems for all (smart glasses)



Innovations in the pipeline

Recap

Recap – The take home messages

- Lamb automation – from concept to proven
- The Future of Beef Boning (The concept)
- All driven by DEXA (and or CT)
- Other objective measurement systems (cameras and probes)
- BladeStop and Cobotics
- Inkjet Printing and Augmented reality options

So what does it mean for industry training needs?

Recap – The take home messages

- Knife skills (deboning and slaughter) are required for a long time
- Mechantronics / Mechanical / Electrical / IT
- Sensors / x-rays / cameras
- Safety systems (maintaining and operating)
- Printing systems
- Augmented and Virtual Reality (coding)

DISCUSSION

Innovation:
Training needs w.r.t evolving technology

THANK YOU