Choosing the right frequency for the “Paddock to Plate” continuum

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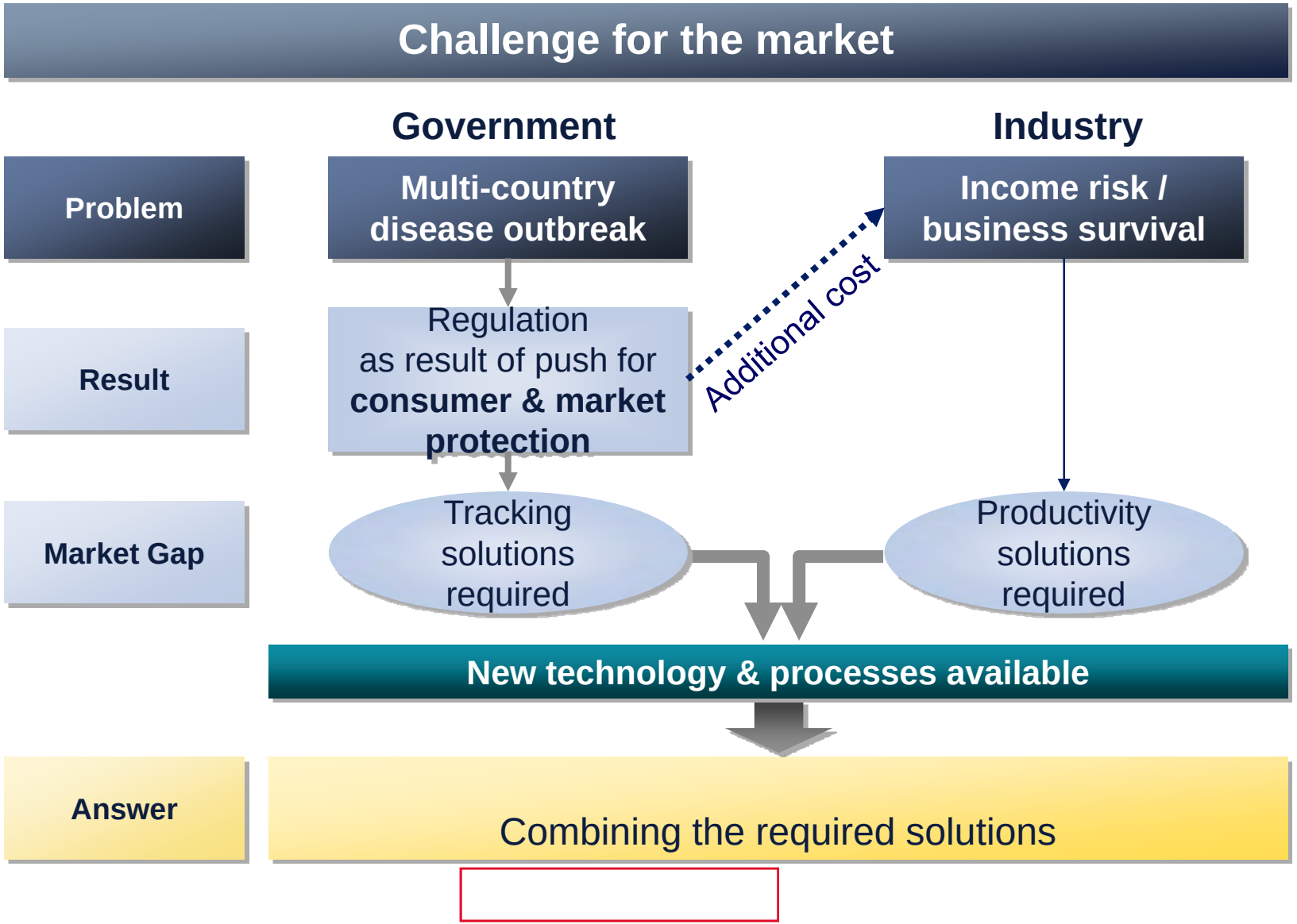
The productivity increase of an agri-business through data-mining creates more value than just tagging animals



Todays RFID

- Automatic ID technology
- The technology works by using radio waves to exchange information between tagged objects and readers.
- The data gathered is linked to a network.
- Data transfer is effected by means of non line of sight mechanisms using radio waves.
- Benefits
  - Simultaneous scanning
  - Humanless identification
  - Instantaneous updates.

The Semiconductor companies march on,

- Huge R&D investment, IFX for example 1 billion euros per annum
- Long range road maps
- Rapid efficiency improvements, cost downs
- Can application standards keep
- Technology standards important

Potential livestock markets

North America
Cattle: 47'3
Sheep: 2'9
Pigs: 137'2

European Union
Cattle: 21'5
Sheep: 53'8
Pigs: 196'8

China & other*
Cattle: 40'5
Sheep: 117'0
Pigs: 618'4

South America
Cattle: 46'8
Sheep: 11'2
Pigs: 32'5

Australasia
Cattle: 13'1
Sheep: 61'3
Pigs: 5'7

Note: Regulation started for cattle market; sheep to follow. Pigs only in definition phase.#

* Not included in business plan
# Pigs not incl. in business plan

ÏSO Technology Standards

- 18000-1 Generic parameters
- 18000-2 Air interface parameters below 125 kHz (11784)
- 18000-3 at 13.56 MHz (15693)
- !8000-4 at 2.45 GHz
- 18000-6 at 860 to 930 MHz

RFID Systems Attributes

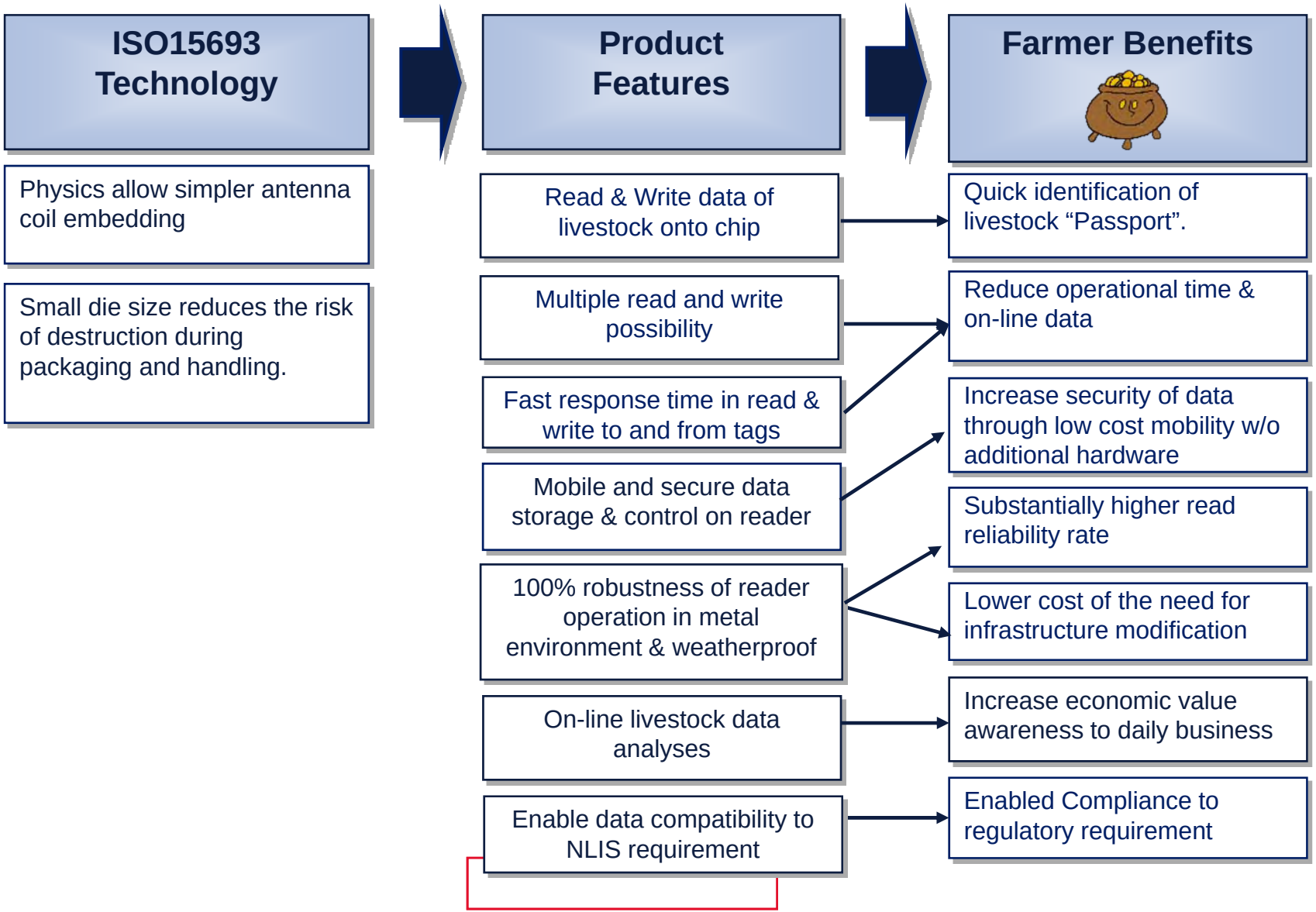
Attribute	100-500KHz	10-15MHz	UHF
TR	Short	Medium	Medium-Long
Data Rate	Low	Medium	potential High
Penetration	High	Medium	Low
Power	Low	Low	High
Cost	Medium	Low	High
Noise	Low	Medium	High

Read My Chips

- 134 kHz 4 kbits/sec read only

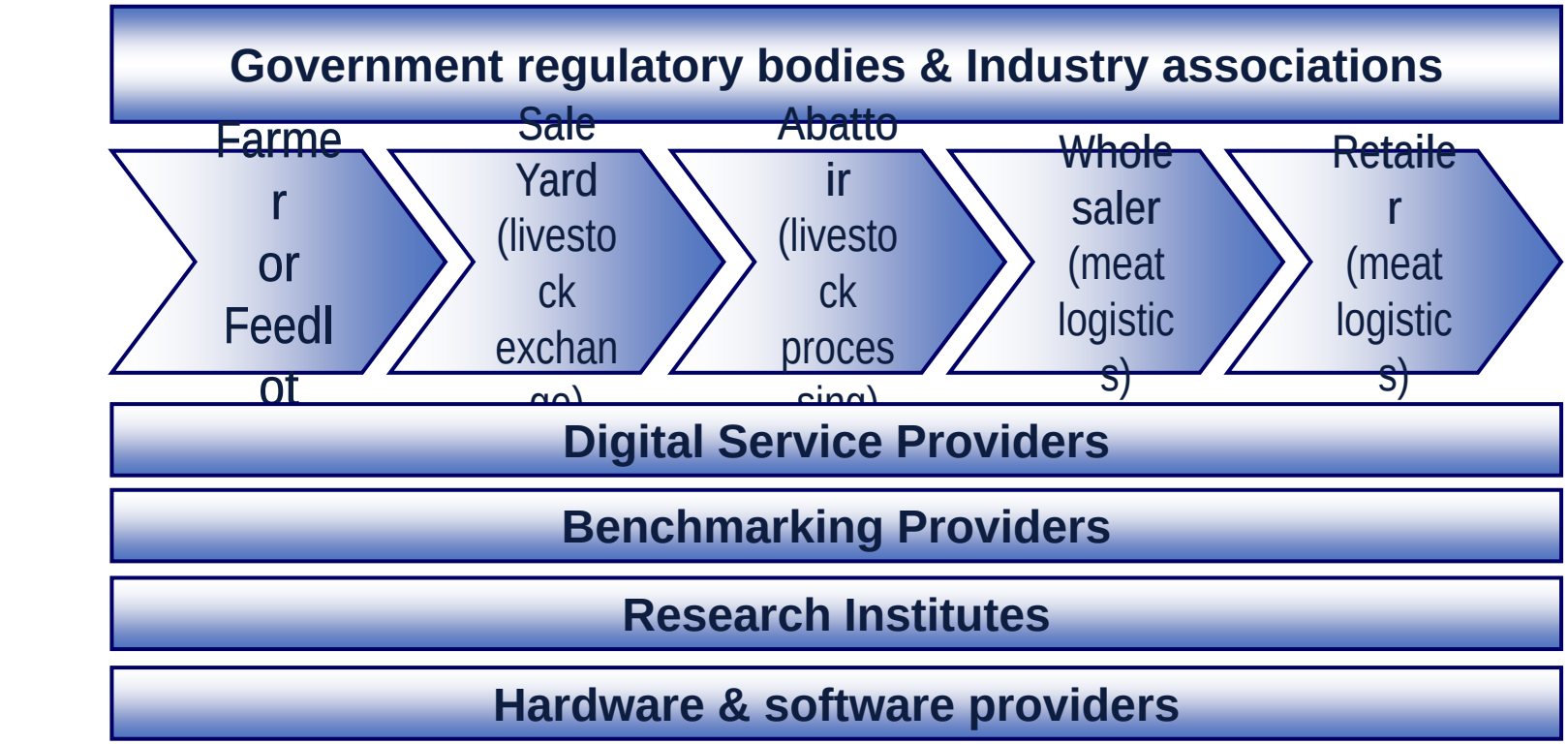
- 13.56 MHz 40-450 kbits/sec read/write

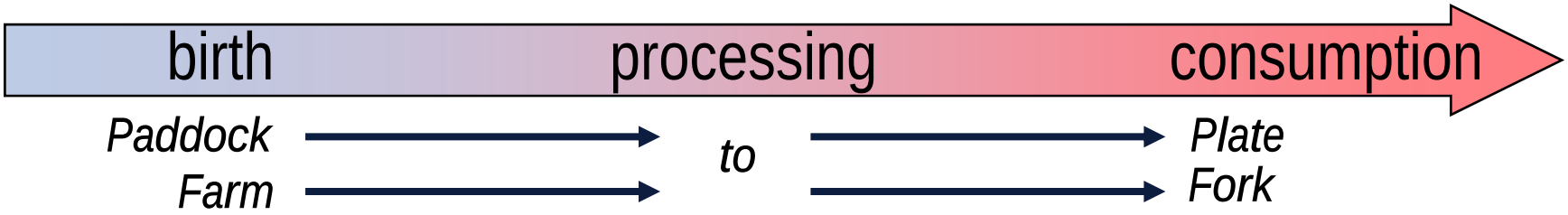
Practical Interpretation



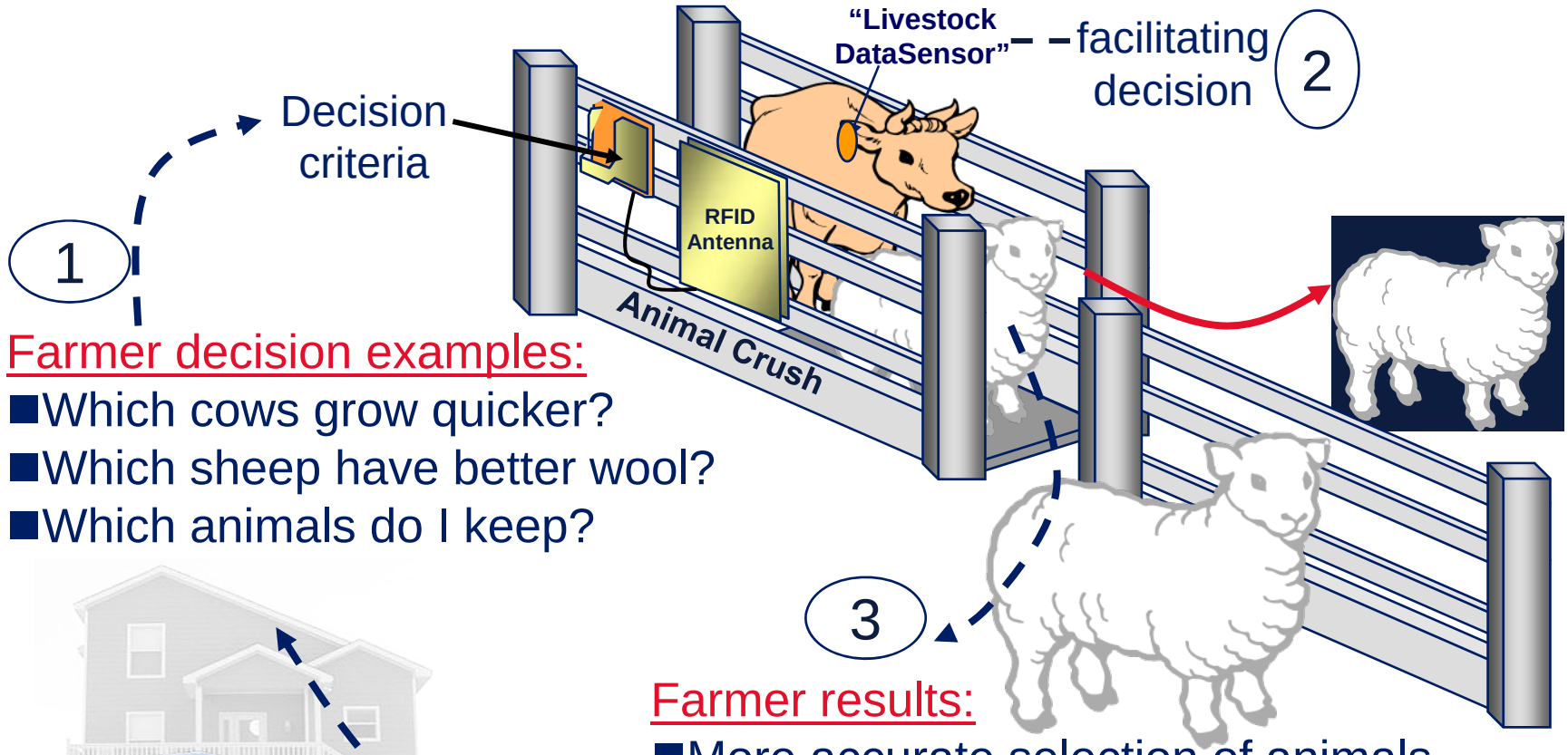
Post Farm Gate:- the most difficult phase

- Speed
- Accuracy
- Audit Protocols
- Many technologies will converge
- Involved in developing other enabling technologies:-
  - Biochip
  - Immuno track
  - Dexa/Cat scanning
  - Systems software solutions
  - Retinal scanning


Government regulatory bodies & Industry associations
Farmer or Feedlot
Sale Yard (livestock exchange)
Abattoir (livestock processing)
Wholesaler (meat logistics)
Retailer (meat logistics)
Digital Service Providers
Benchmarking Providers
Research Institutes
Hardware & software providers


birth
processing
consumption
Paddock
Farm
to
Plate
Fork

The value proposition varied and rewarding



Farmer decision examples:

- Which cows grow quicker?
- Which sheep have better wool?
- Which animals do I keep?

Farmer results:

- More accurate selection of animals
- Better negotiation position as supplier
- More accurate estimation of input cost

RFID Market Framework

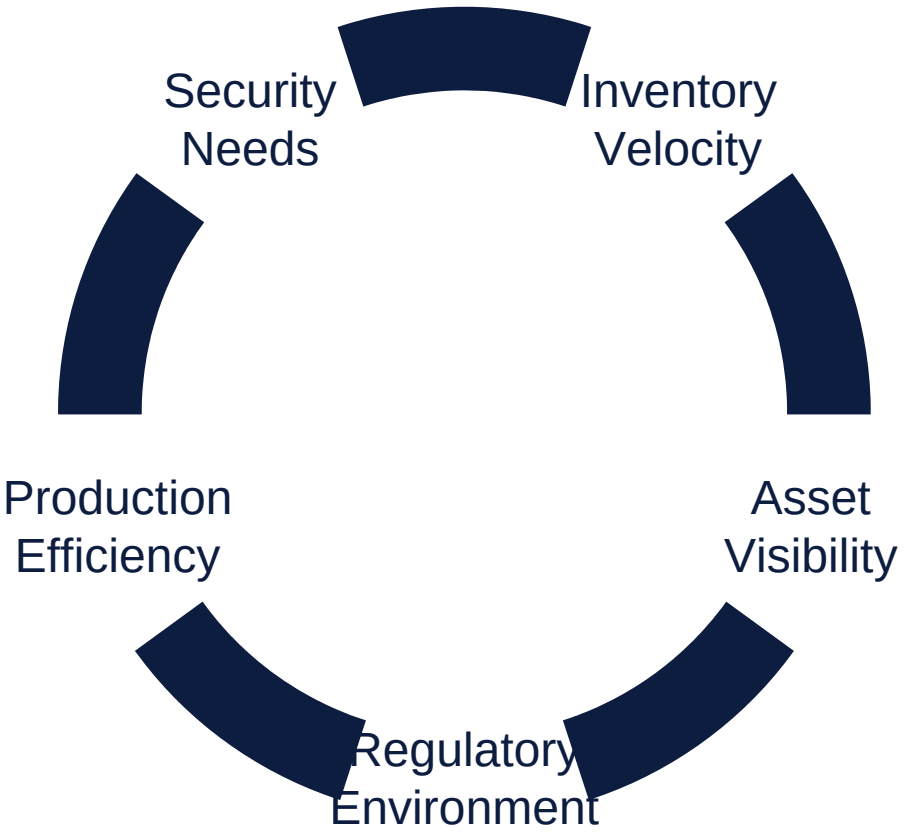
Adoption Accelerators

Market Need
Globalization
Technology Need

RFID

Adoption Inhibitors

Technology Cost
Nascent Standard
Incumbent Technology



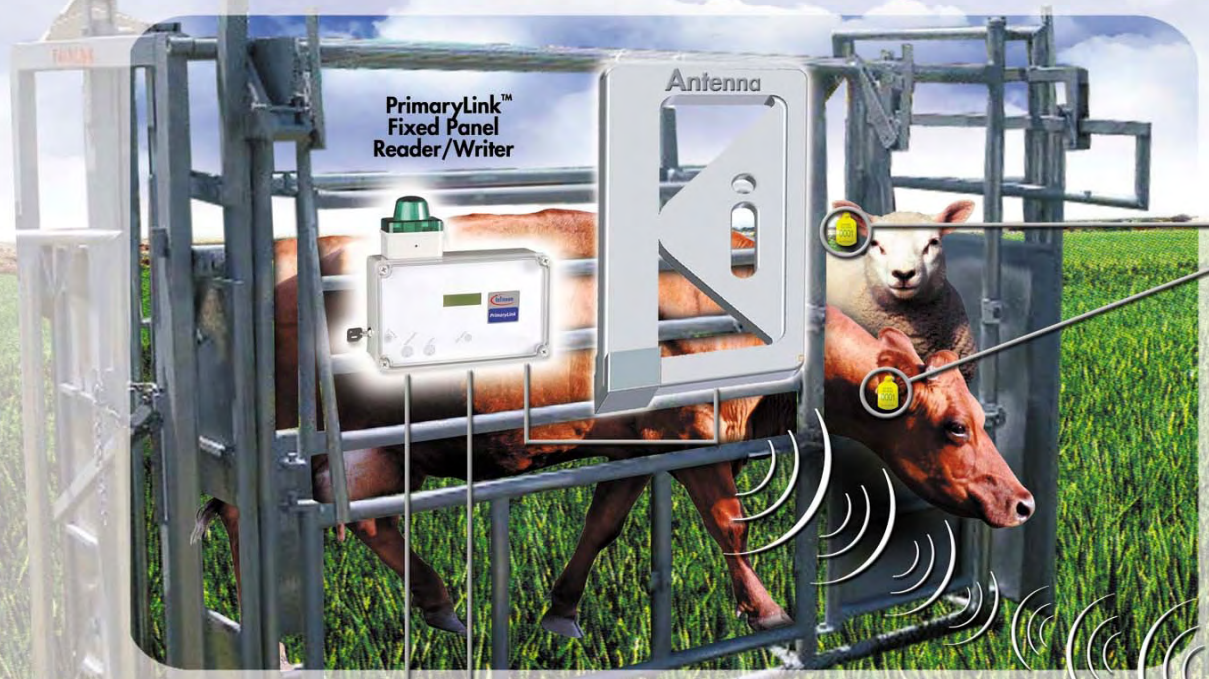
Tag, Trace, Manage

- The value proposition should value creation with the correlated benefit of animal traceability.
- Data Standards are paramount, technologies will evolve rapidly.
- Functionality is the key feature, focus on price will be the demise of a system, global demand will drive cost downs. Expected 40 billion 13.56MHz transponders by 2009 annually. (Forrester Research).
- Changing technology will be the only constant.

RFID in the future

- The gateway to the network of things
- RF tags being the atoms forming the lowest common denominator of this network.
- “Nanocomputers” communicate wirelessly and for the first time add mass sensing capability to computers.
- 100’s of billions of these nanocomputers.
- RFID will change the way information is collected, transmitted, analyzed, stored and acted upon.

PrimaryLink™ Electronic Livestock Identification & Data Management Solution



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scale

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Battery

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