3D triple bottom line : Designing a Dairy Sustainability Scorecard

Sandra Johnson, Kerrie Mengersen, Laurie Buys
Kim van Megen, Karla Morris, Jeff Sommerfeld

Aim of project

Develop a sustainability scorecard to measure the current Triple Bottom Line (TBL) performance of the dairy industry in Australia across the entire spectrum.

3D – farm, factory & market

TBL – economic, social & environmental

Measuring Sustainability

For a measure of industry sustainability to be credible, acceptable, and holistic, it needs to amalgamate the three key perspectives of sustainability:

- Economic, environmental and social, which are commonly referred to as the triple bottom line (TBL).

Measuring Sustainability

Increased demand to measure & quantify impact of sustainability

- Minister for Sustainability, Environment, Water, Population and Communities ,Tony Burke:
  - Oct 2012 – Establishment of a National Sustainability Council for Australia
  - “... we need better information about how our economy, environment and society interact to inform better planning and decision making,"

Measuring Sustainability

"Measuring Sustainability" program announced in the 2011-12 Budget

- Enable data collection for a set of sustainability indicators
- Provide a longer term view of impact of actions & decisions

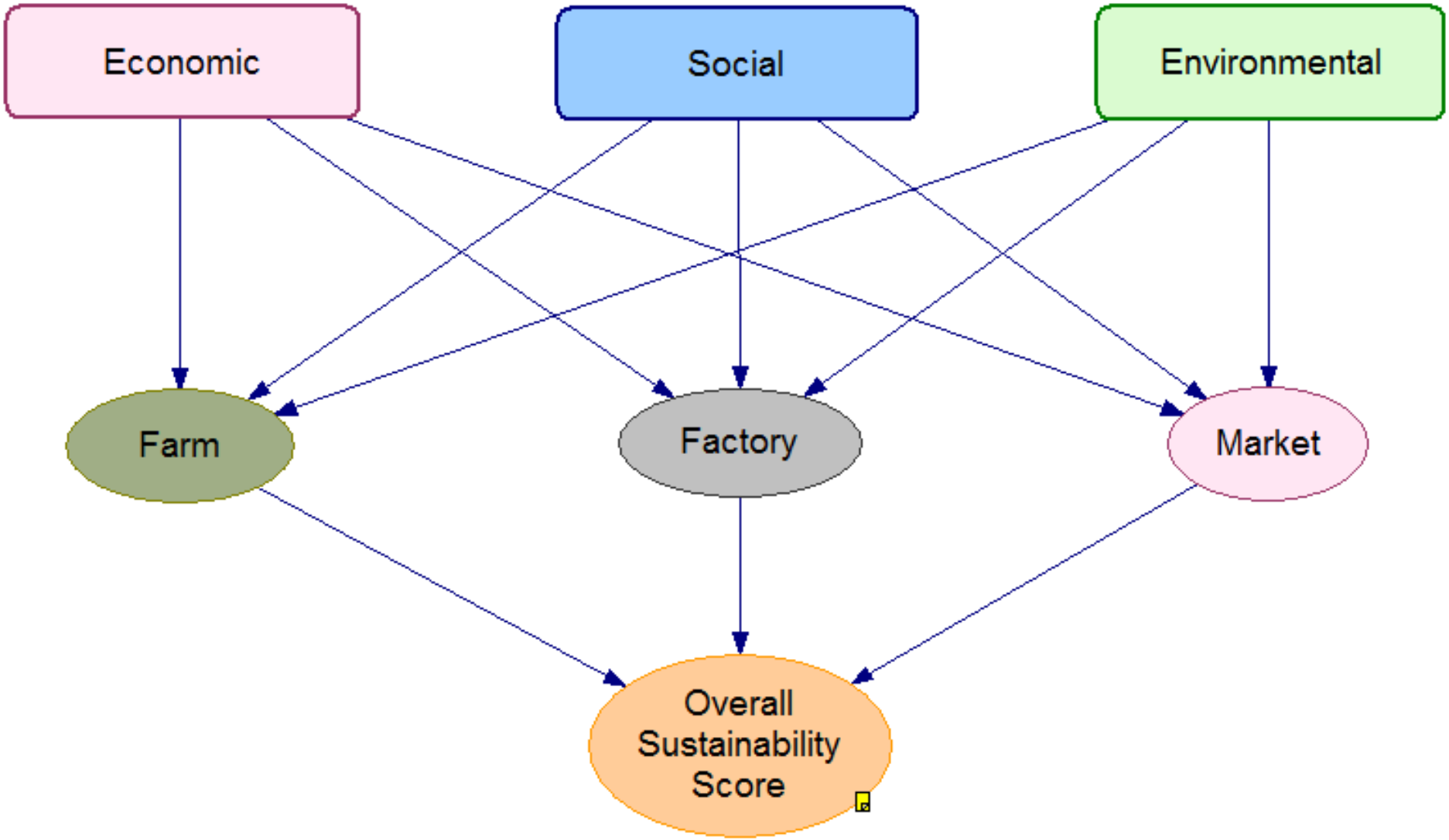
The Sustainability Council

- report against indicators every 2 years
- ".. highlighting key trends and emerging issues for policy and decision makers and communities around Australia."

Measuring Sustainability Challenges

- Many frameworks
- Numerous indices
  - across many industries, tendency to focus on one perspective
- Lack of consistency in composite indicators
  - aggregation, normalisation, weighting
- Changing trends
  - popular (“biggest loser”)
- Different scales
  - local, regional, national, international

Dairy Scorecard – high level BN



Sustainability Measurement Review

- Systematic Review
- Key Dairy Stakeholder Review
- 2009 Diary Sustainability Project
- 2011 Materiality Survey (NetBalance)
- 2007/08 Australian Dairy Manufacturing Industry Sustainability Report (DMSC)

2009 Dairy Sustainability Project

Dairy Australia (QUT 2009)		
Economic	**Social**	**Environment**
Commodity prices	Lifestyle and community	Energy, effluent and water
Profitability	Health and well being	Materials, suppliers and transport
Legal and administrative environment	Value and contribution	Products and services
Access to capital and labour	Product, safety and production	Biodiversity
Workforce capability	Social relevance	Compliance

Industry Sustainability Review

Key Diary Stakeholders using TBL Measurement Frameworks:

- Vital Capital Survey
- SAFE framework
- DairySAT
- Fonterra Sustainability Indicators
- Unilever Sustainable Code
- Nestle
- * Lactalis / Parmalat / Pauls *
- Danone Sustainability Report (performance indicators)
- Dutch Dairy Farming (van Calker et al)
- RISE
- GRI

Probability Table – Social Indicator 2.1.2

Boundary	**FACTORY**
Node	Legal & Ethics
Indicator	Discrimination
Measurement	Labour Equity
Overview	"In the latest census of all Australians conducted in 2006, women made up 46.1% of all workers."[1] As gender equality continues to grow across the Australian labour force for the Dairy Industry to be socially sustainable it needs to ensure that labour equity is established.

Calculation

Calculation is based on the available data, 2006.

Product Manufacturing Employment by Gender 2006[2]

	Dairy				Food			
State	No. Males	No. Females	% Males	% Females	No. Males	No. Females	% Males	% Females
NSW	84	41	67.2	32.8	1,462	893	62.1	37.9
VIC	188	69	73.2	26.8	1,232	880	58.3	41.7
QLD	38	19	66.7	33.3	541	452	54.5	45.5
SA	17	10	63.0	37.0	235	153	60.6	39.4
WA	34	22	60.7	39.3	225	196	53.4	46.6
Tas	7	3	70.0	30.0	33	22	60.0	40.0

Thresholds

	Males (%)	Females (%)
High	Less than 55.00%	More than 45.00%
Medium	55.00 to 65.00%	35.00 to 45.00%
Low	More than 65.00%	Less than 35.00%

Threshold Rationale

The threshold levels have been chosen based on the percentage of women in the Australian labour force as reported by the 2006 Census. To achieve labour equity, the theoretical percentage should be 50%, however it is deemed to be more realistic and sustainable to aim for 40%, and therefore percentages in the range 35% to 45% are considered to have medium sustainability, and the percentages outside that range to be either low or high levels of sustainability as outlined in the table above.

Based on the above thresholds, the summary data has been shaded GREEN for years having a High level of sustainability; ORANGE for Medium sustainability years and RED for Low level of sustainability.

	Dairy				Food			
State	No. Males	No. Females	% Males	% Females	No. Males	No. Females	% Males	% Females
NSW	84	41	67.2	32.8	1,462	893	62.1	37.9
VIC	188	69	73.2	26.8	1,232	880	58.3	41.7
QLD	38	19	66.7	33.3	541	452	54.5	45.5
SA	17	10	63.0	37.0	235	153	60.6	39.4
WA	34	22	60.7	39.3	225	196	53.4	46.6
Tas	7	3	70.0	30.0	33	22	60.0	40.0

Score

LOW

Rationale

The ethical stance of an industry provides details of how socially important its contribution is. The data selected for this indicator provides details of the gender equity within the dairy workforce, specifically in factories. Data from the food manufacturing industry is included for a comparative overview of how equitable dairy is against a similar industry.

Based on the above thresholds it was considered that this indicator had a low sustainability level.

Predicted Probability Distribution (expert judgement)

	2012/13
High	5%
Medium	40%
Low	55%

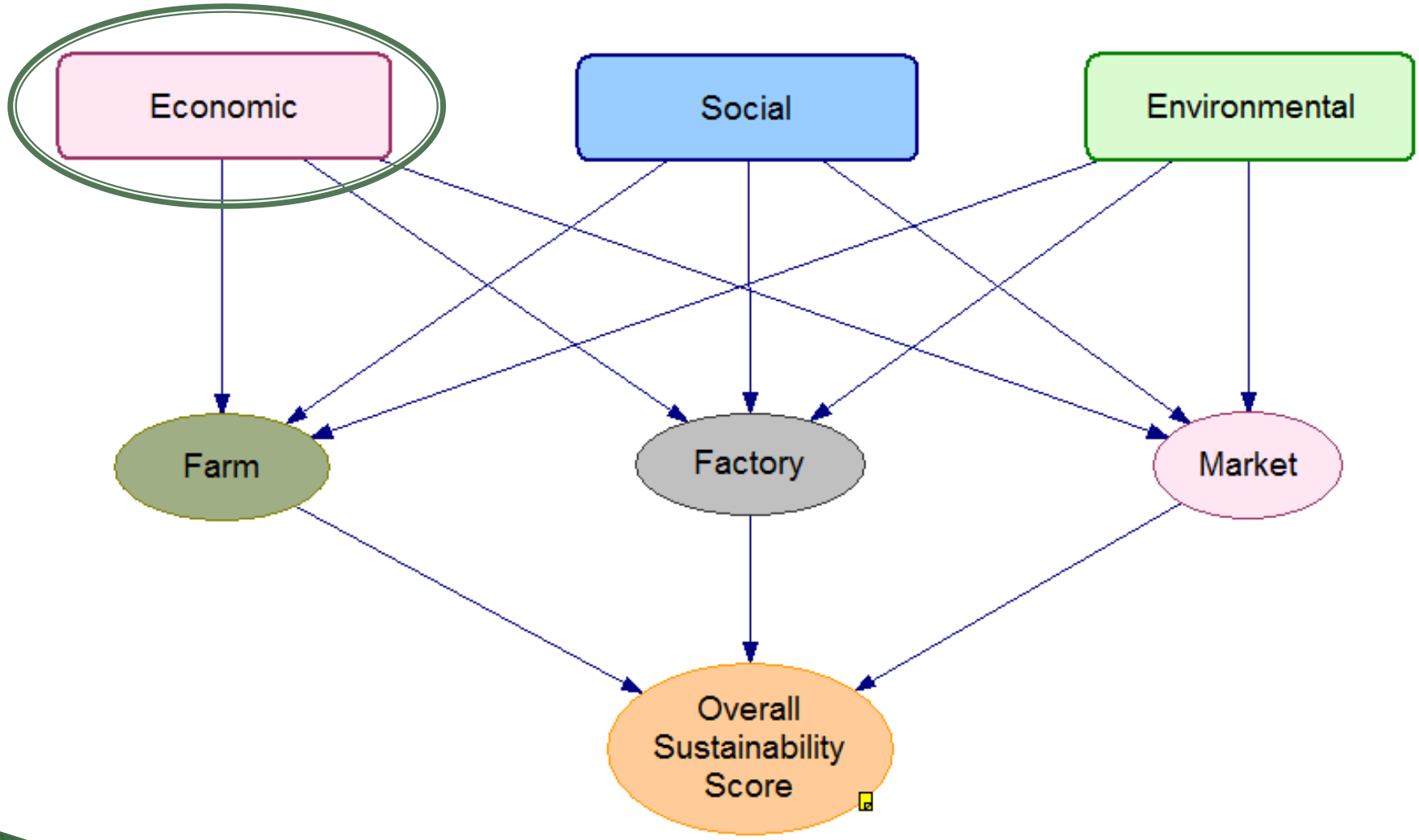
Probability Distribution

High	0%
Medium	33%
Low	67%

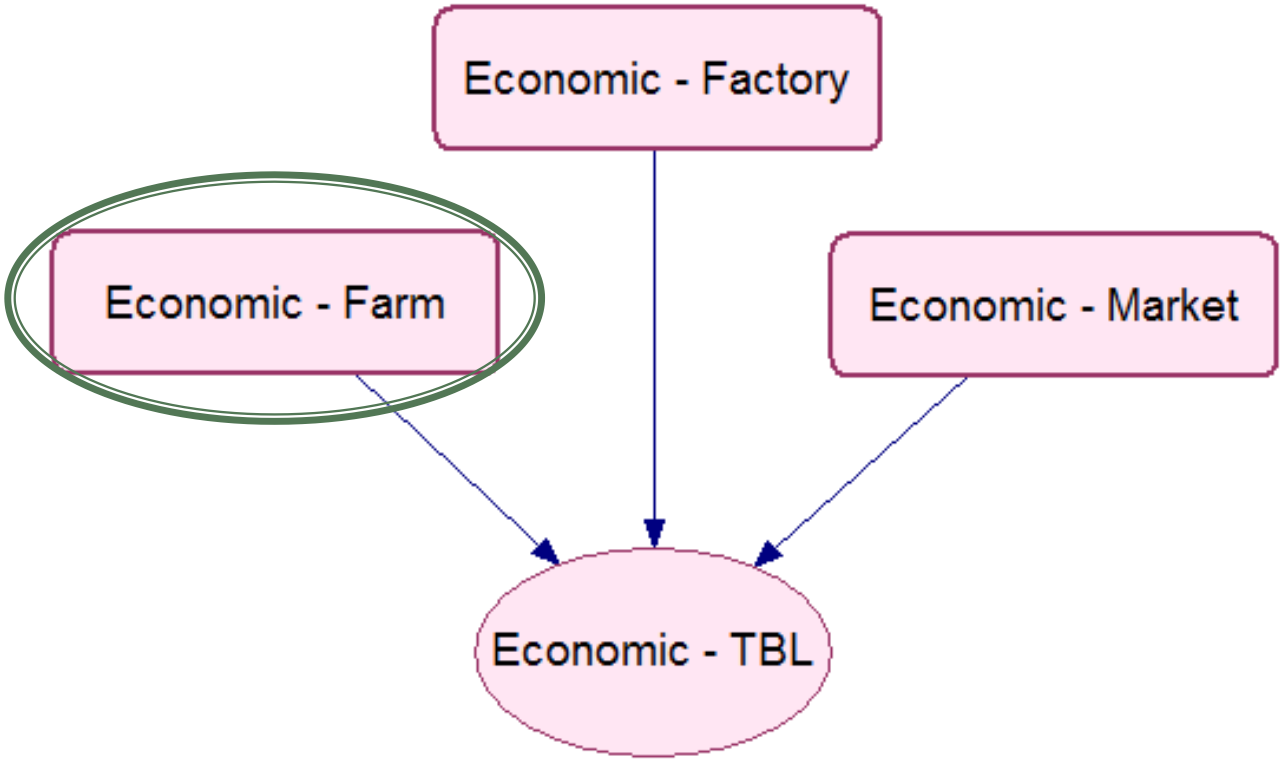
Sources:

[1] Pocock, B. 2007. *The regulation of women's employment in Australia: What lessons for China?* Women's Labour Rights Workshop, Fujian Province 20-23 November 2007.

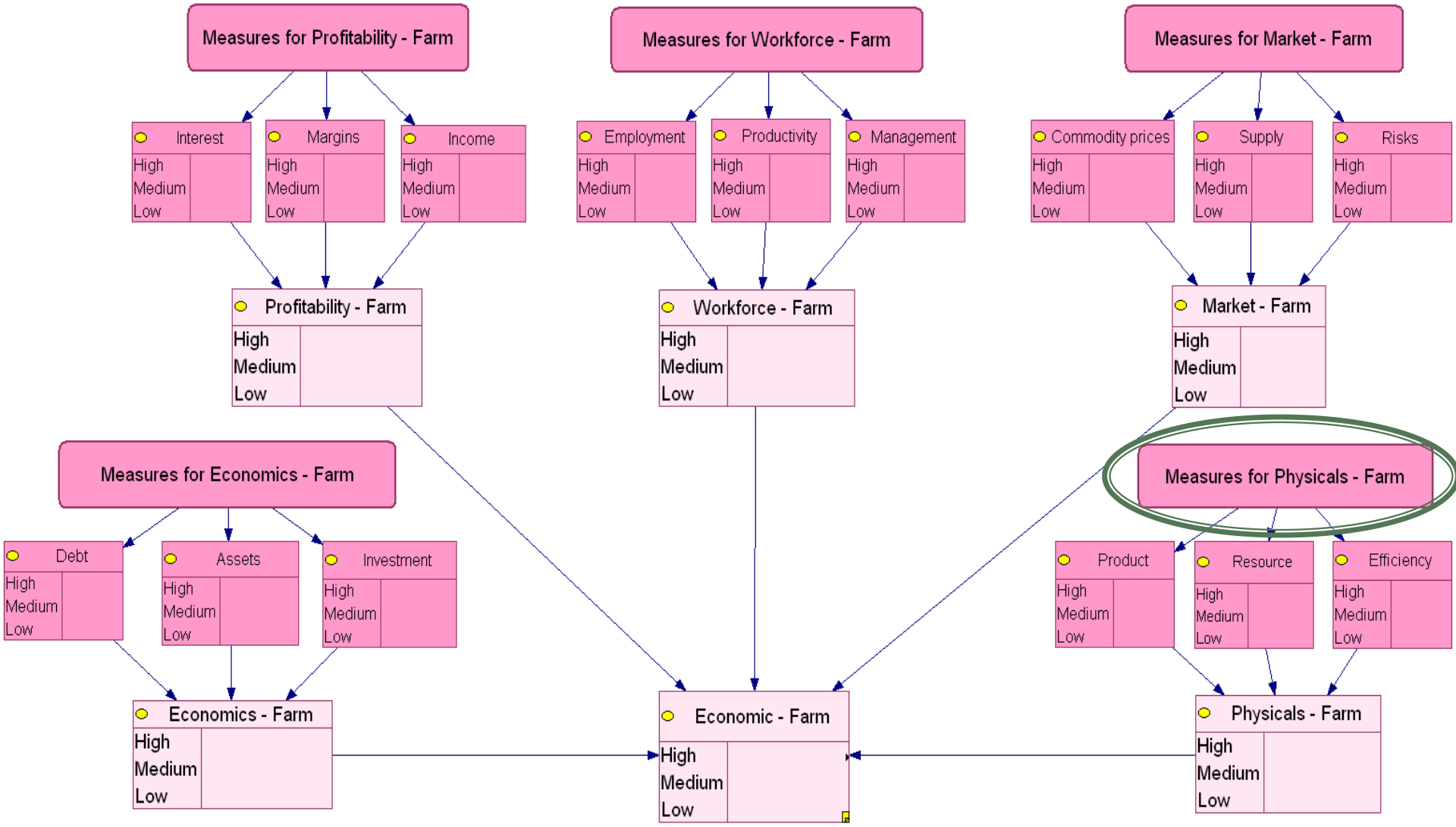
Dairy Scorecard – high level BN



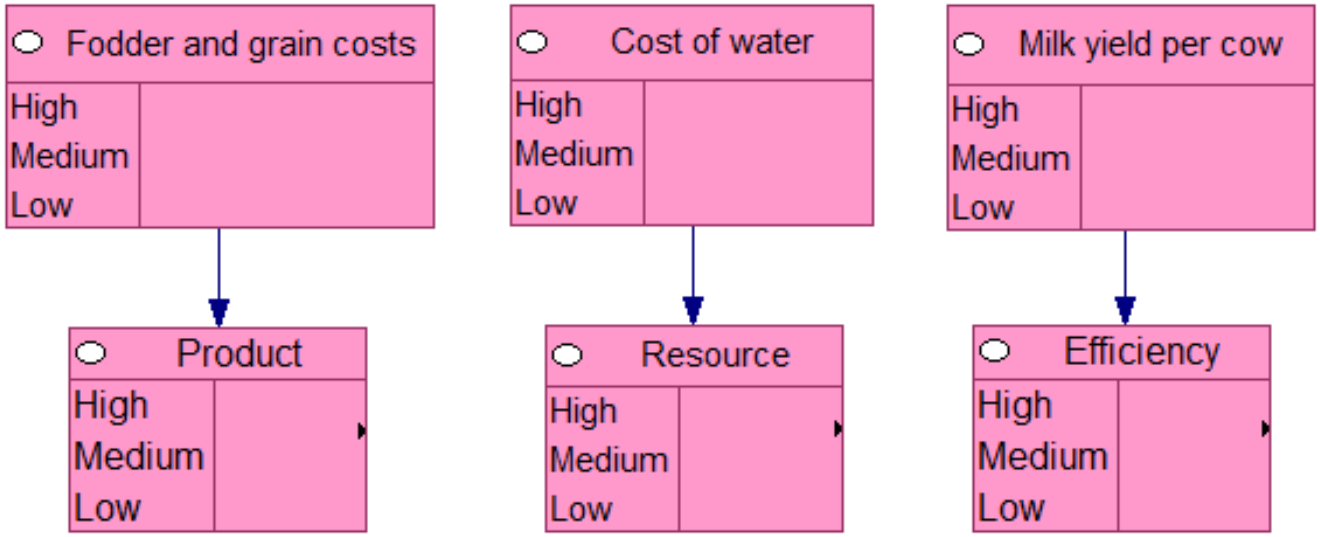
Economic Sustainability



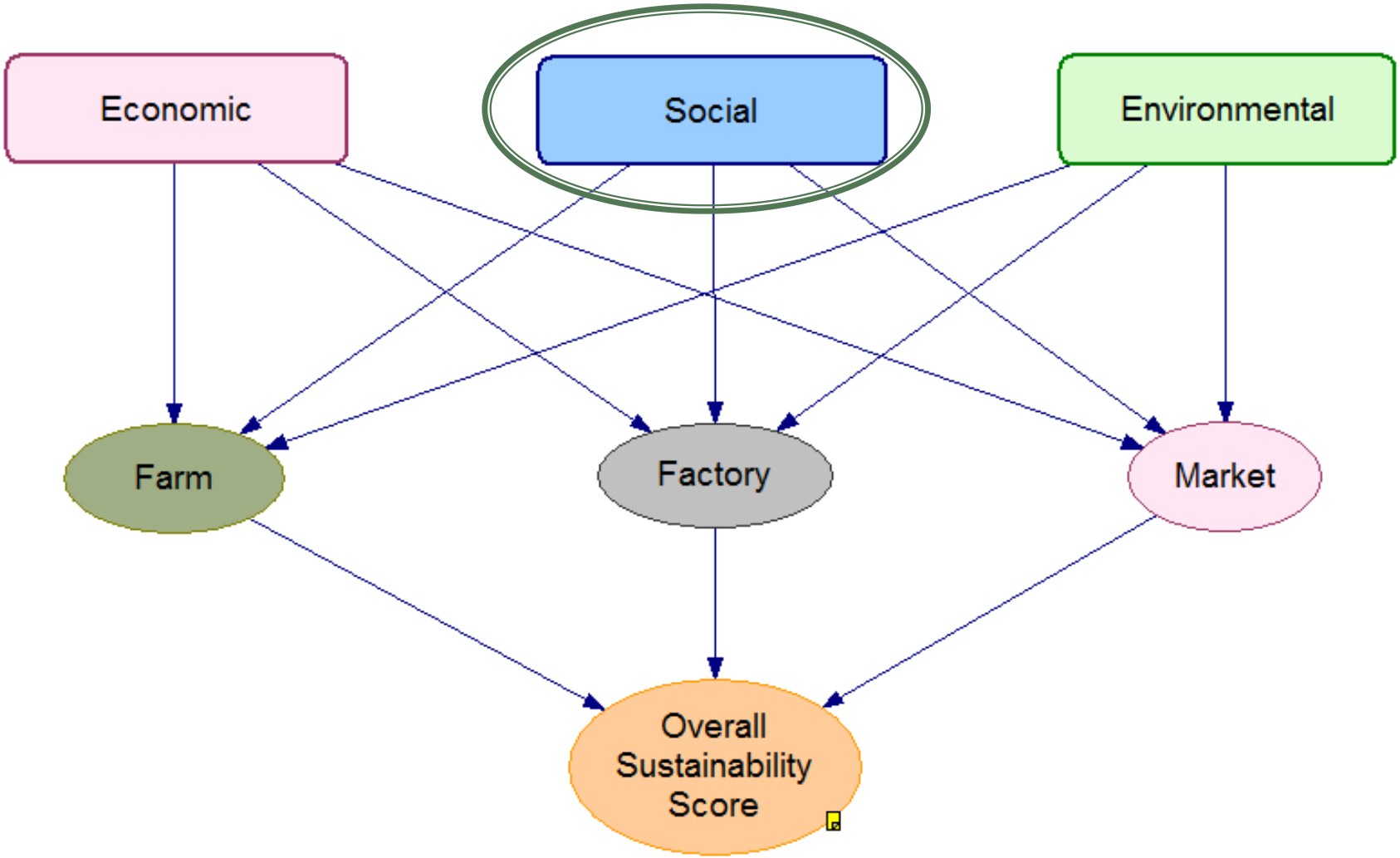
Economic Farm



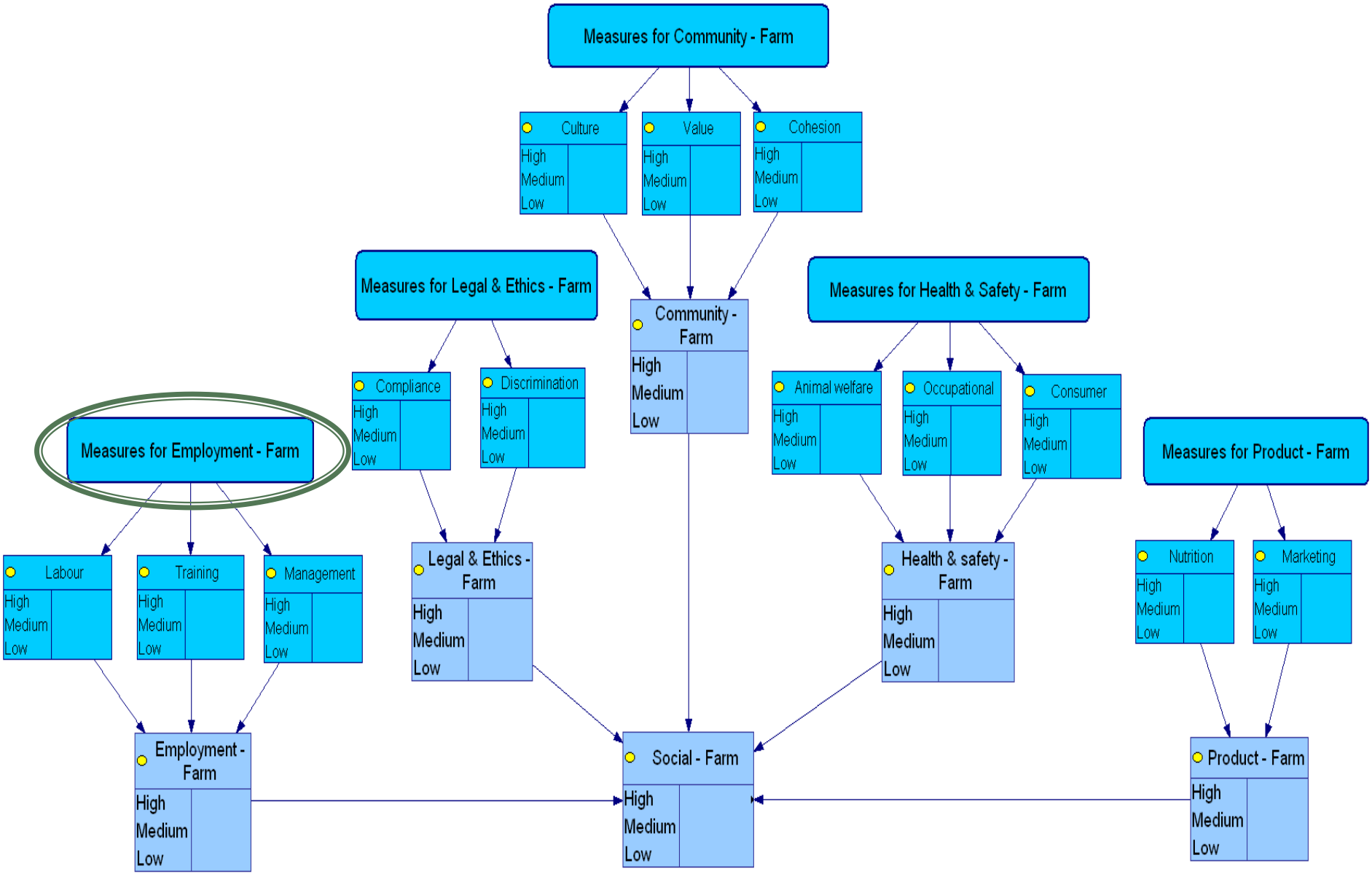
Measures for Physicals – Farm



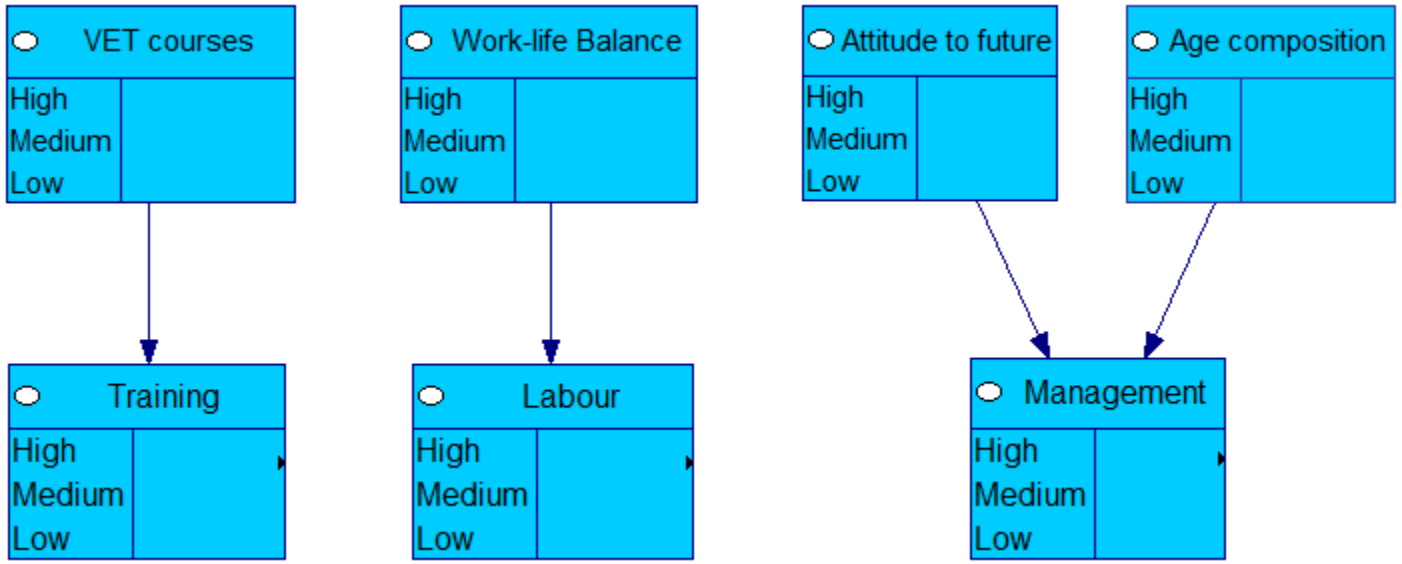
Dairy Scorecard – high level BN



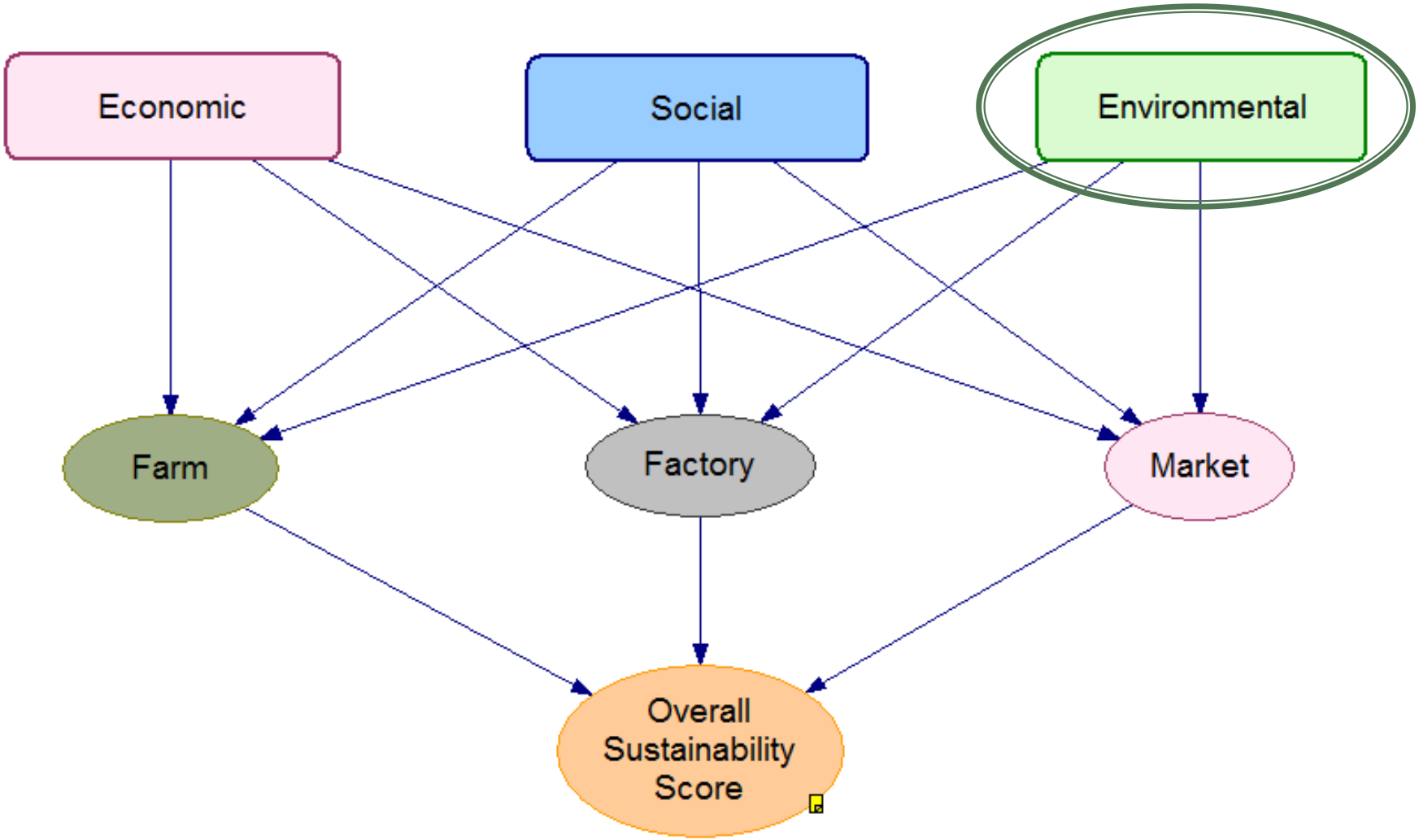
Social Farm


Measures for Community - Farm
Culture
High
Medium
Low
Value
High
Medium
Low
Cohesion
High
Medium
Low
Measures for Legal & Ethics - Farm
Community - Farm
High
Medium
Low
Measures for Health & Safety - Farm
Compliance
High
Medium
Low
Discrimination
High
Medium
Low
Animal welfare
High
Medium
Low
Occupational
High
Medium
Low
Consumer
High
Medium
Low
Measures for Employment - Farm
Measures for Product - Farm
Labour
High
Medium
Low
Training
High
Medium
Low
Management
High
Medium
Low
Legal & Ethics - Farm
High
Medium
Low
Health & safety - Farm
High
Medium
Low
Nutrition
High
Medium
Low
Marketing
High
Medium
Low
Employment - Farm
High
Medium
Low
Social - Farm
High
Medium
Low
Product - Farm
High
Medium
Low

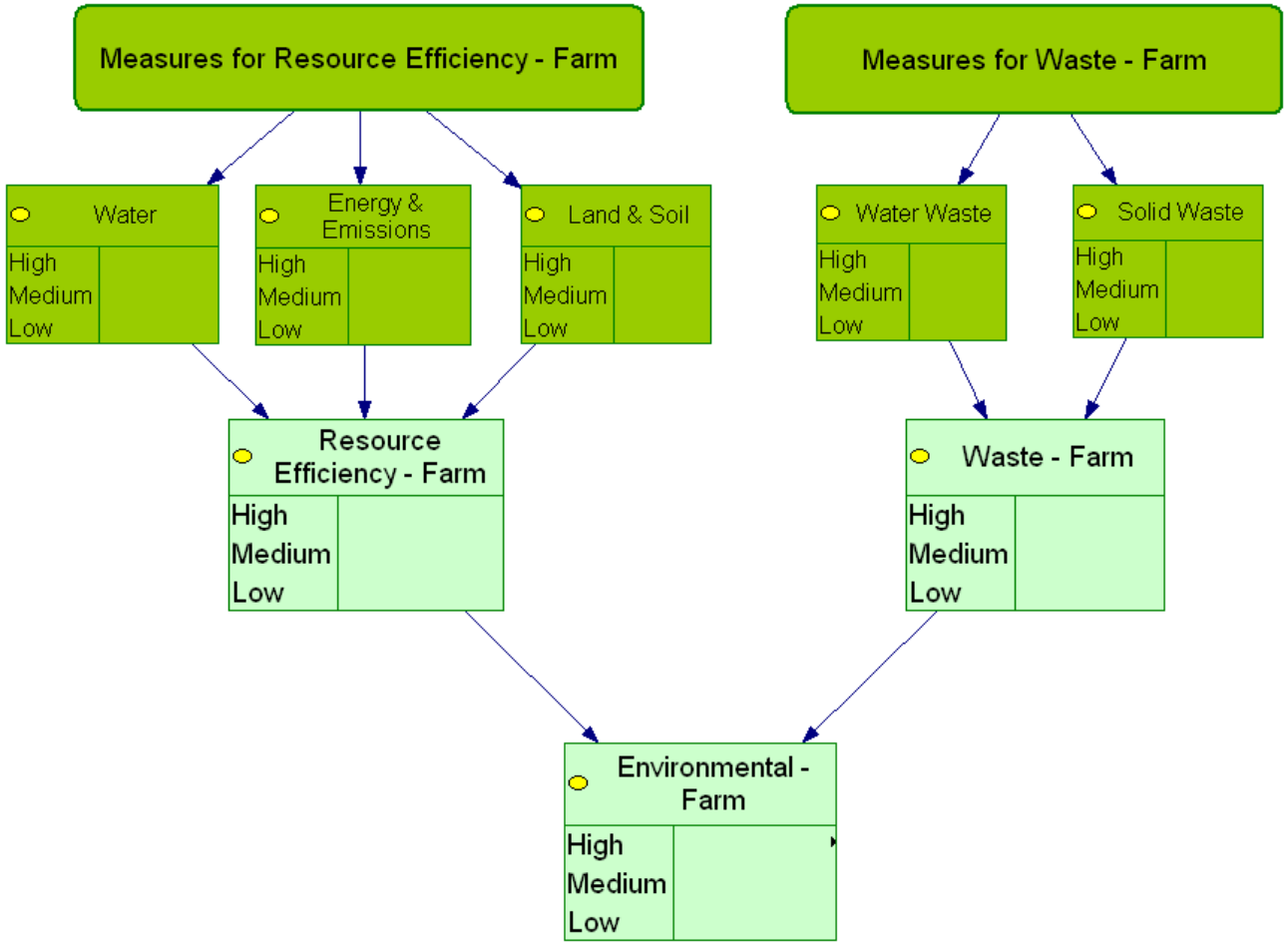
Measures for Employment – Farm



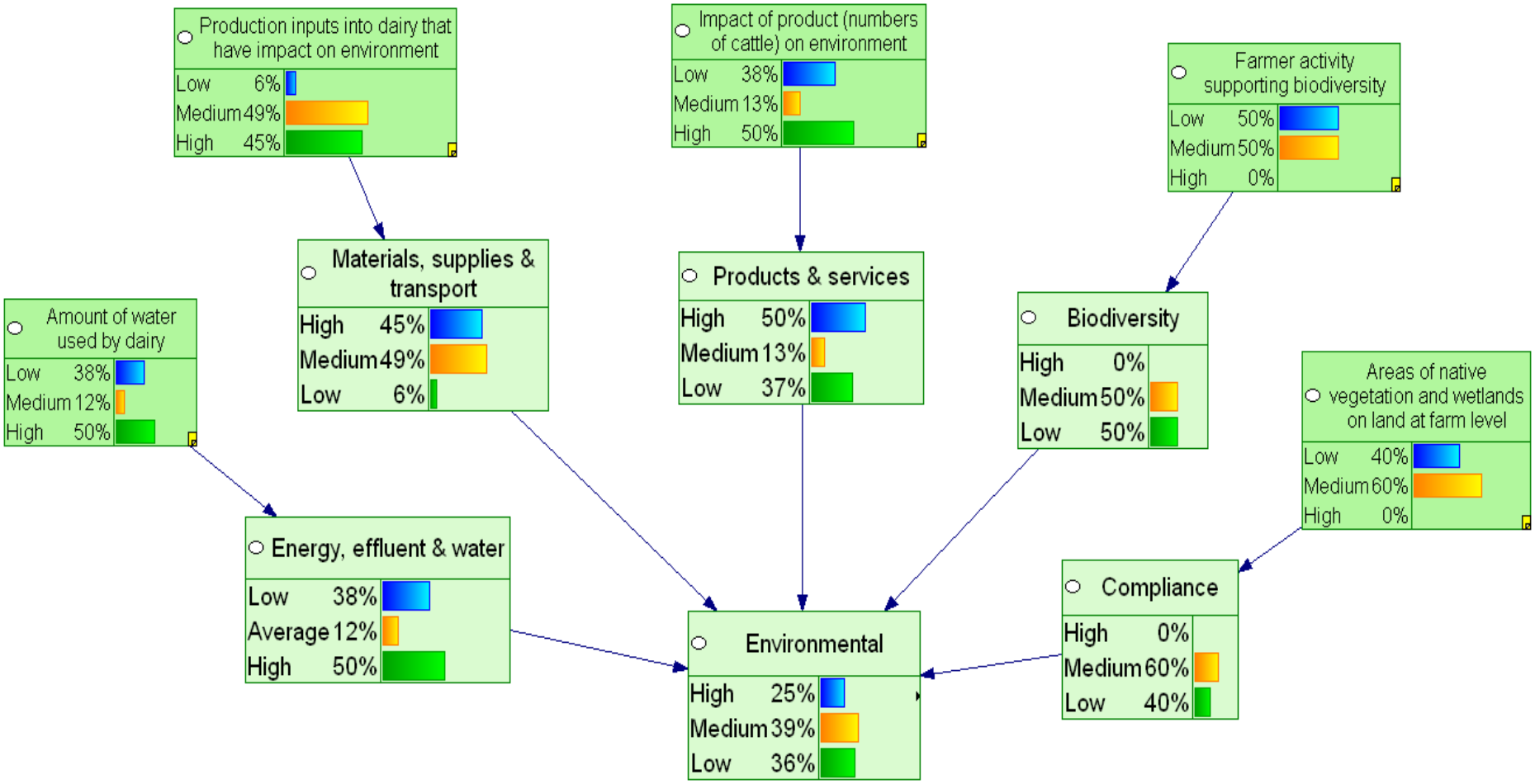
Dairy Scorecard – high level BN



Environmental Farm

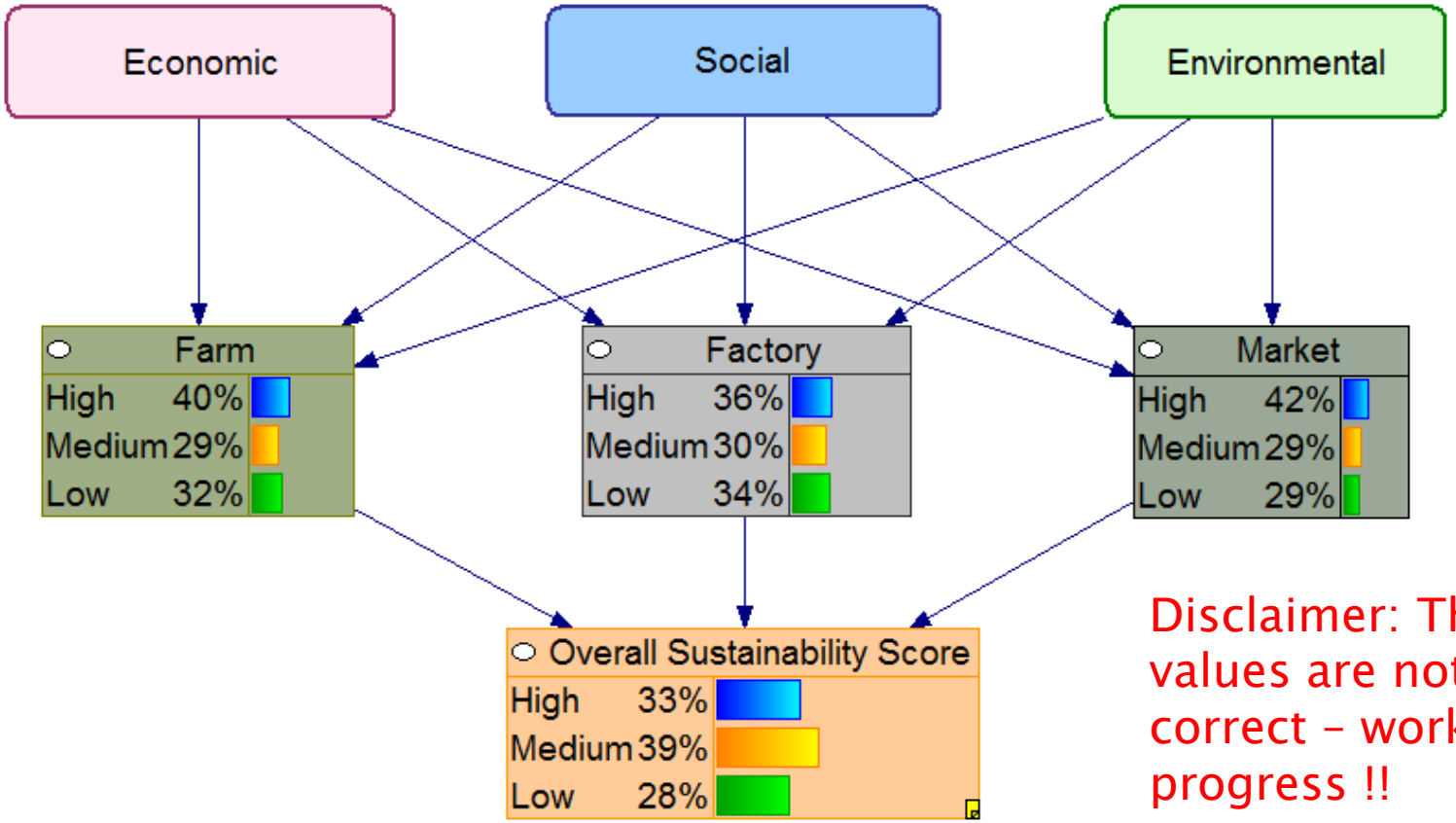


Environ BN – earlier iteration



Initial Sustainability at the Farm

- Using the quantified BN submodels & putting them together gives the initial predictive scores for sustainability at the farm level



Disclaimer: These values are not correct – work in progress !!

What if …..?

- Now able to ask many questions of the model:
  1. If the social sustainability score rating is high, how will it affect overall sustainability at the farm level?
  2. If the Dairy industry is known to have a high sustainability score at the farm level, what is the sustainability scores likely to be at the TBL?
  3. To improve the Social sustainability score, the food value of dairy products will be targeted. If this is successful, how do we expect this to affect the Social sustainability score?

Additional BN queries are possible…

- Within Dairy Australia:
  - Comparison between dairy systems
  - Changing number of factories or pasture land
- Within Dairy Sector
  - Comparison between countries
- Across Sectors
  - Comparison between different agriculture sectors, e.g. meat and dairy
- Impacts of benchmarks and targets
  - Setting of targets
  - What does it take to achieve these targets?