Health Star Rating System
Cost Benefit Analysis

Department of Health
16 May 2014
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Executive summary

PwC has been engaged by the Commonwealth Department of Health to develop a cost benefit analysis that explores the voluntary implementation of the proposed Health Star Rating (HSR) system for Australia.

The purpose of this report is to assess and evaluate the costs and benefits based on:

- evidence-based research sourced from Australian and New Zealand and international literature, reports, data and statistics
- outcomes and input from consultations with members and representatives of the food and beverage manufacturing industry (or ‘the industry’) as well as public health and consumer groups
- PwC’s own analysis and cost estimates (and in particular the 2014 Cost Schedule for Food Labelling Changes – a document developed with input from the Australian and New Zealand food industries)
- other information sources as appropriate.

The scope of PwC’s work does not include an assessment of other policy options, and our conclusions are not meant to suggest that the proposed HSR system is necessarily the most effective government response. Specifically, the scope of this report does not include:

- a detailed review of the underlying health impacts related to food and lifestyle choices
- an analysis of the effectiveness of the HSR system relative to other policy interventions
- an analysis of other labelling initiatives (e.g. gluten labelling, country of origin labelling)
- an analysis of other health initiative options (e.g. taxation measures on ‘unhealthy’ foods).

The primary objective of the proposed voluntary HSR system is to provide consumers with a single, easy-to-use, and trustworthy interpretive labelling scheme that can help them to make better and more informed food purchase decisions. The proposed HSR system is not intended as a ‘silver bullet’ to ensure healthier food selection and consumption, but should instead be seen as one component part of broader preventative health initiatives.

In cases where the quantum of benefits are uncertain, alternative evaluations methods such as ‘cost break-even analysis’ are commonly used tools. The objective of break-even analysis to assist decision-makers to understand the:

- required benefit that need to be realised to ‘pay back’ the costs
- likelihood of those benefits being realised
• preconditions and critical success factors required to maximise the likelihood that benefits will be realised.

The proposed voluntary HSR system will have costs that accrue primarily to industry, government and non-government organisations (NGOs). Based on stakeholder input and PwC estimates, PwC has estimated that the following costs will likely be incurred:

**Table 1: Cost summary**

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Cost type</th>
<th>Total</th>
<th>Average per annum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food manufacturers that voluntarily adopt the HSR system</td>
<td><strong>Labelling costs (i.e. design, materials, proofing) and labour and overhead (i.e. executive, administrative, technical &amp; scientific)</strong></td>
<td>$40.5 million (over five years)</td>
<td>$8.1 million (per year over five years)</td>
</tr>
<tr>
<td>Governments</td>
<td><strong>Promotion, education, enforcement and oversight</strong></td>
<td>$13.5 million</td>
<td>$2.7 million</td>
</tr>
<tr>
<td>NGO</td>
<td><strong>Marketing and promotion</strong></td>
<td>$6.0 million</td>
<td>$1.2 million</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$60.0 million</strong></td>
<td><strong>$12.0 million</strong></td>
</tr>
</tbody>
</table>

The industry costs shown above reflect a forecast industry take-up of the voluntary HSR system on the same basis as industry’s voluntary adoption of the existing Daily Intake Guide (DIG) labelling scheme, which was 7,200 Stock Keeping Units (SKUs) in May 2013.1 The degree to which the adoption of the HSR system is more extensive than for the DIG labelling scheme, with a corresponding increase in industry costs, will be a result of market forces (i.e. demand from retailers and consumers for such labelling) and will only occur when food and beverage manufacturers see a financial benefit from doing so.

Broadly, the prevalence of overweight and obese adults in Australia has increased significantly over the past two decades, increasing from 56.3 per cent in 1995 to 63.4 per cent in 2011-12 (i.e. an increase of approximately 3.5 million people from 7.5 million in 1995 to 11.1 million in 2011-12). The cost of overweight and obesity in Australia totalled $56.6 billion in 2005.2 Adjusting for inflation and assuming current trends in overweight and obesity continue, this is expected to reach $106.5 billion by the end of the decade.

If current trends were to continue, in order to ‘pay back’ the total costs of the voluntary HSR system, PwC estimated the following break-even point:

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### Table 2: Break-even summary

<table>
<thead>
<tr>
<th>Cost associated with adult overweight and obesity</th>
<th>$106.5 billion (by the end of 2019-20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of the proposed HSR system</td>
<td>$60.0 million</td>
</tr>
<tr>
<td></td>
<td>$12.0 million (per year)</td>
</tr>
<tr>
<td>Overall reduction in overweight/obese compared to current trend and obesity required to break-even (persons)</td>
<td>7,565</td>
</tr>
<tr>
<td></td>
<td>1,513 (per year)</td>
</tr>
<tr>
<td>Overall reduction in overweight/obese compared to current trend required to break-even (per cent)</td>
<td>0.04</td>
</tr>
</tbody>
</table>

The break-even point is calculated against current overweight and obesity trends assuming they remain steady for the next five years. The figures presented in Table 2 illustrate a reduction in the rate of individuals classified as overweight and obese over the five year period were the same trend to continue, and do not represent an absolute reduction in overweight or obesity. Expressed another way, the growth in the number of overweight or obese people will continue but with growth at a lower rate.

While there is uncertainty as to the quantum of benefits that could be expected to flow from the proposed voluntary scheme, PwC’s literature review has found the following:

- The health and economic benefits of population level campaigns to reduce intake of the ‘big four’ (i.e. sodium, sugars, saturated fat and trans-fat) is well established.

- There is clear evidence that interpretive Front-of-Pack Labelling (FoPL) schemes like the HSR system are an effective tool to assist consumers to make healthier food choices.

- There are fewer long-term studies available (international or Australian) that have explored the impact of FoPL scheme on actual everyday food purchase decisions or the role labelling play in drive product reformulation.

- The potential risk of not fully realising benefits of an interpretive labelling scheme can be managed and mitigated through joint multi-pronged efforts by industry, government and NGOs to educate, promote and drive change.

If preconditions and critical success factors of the HSR system are met, in PwC’s view the available research suggests that the aggregate benefits of the HSR system in the context of multiple public health initiatives, will likely pay back (i.e. meet or exceed) aggregate costs over an indicative five year implementation period.
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1 Background

1.1 Scope
PwC has been engaged by the Commonwealth Department of Health to undertake two separate, but related, streams of work:

1. Develop a Cost Schedule for Food Labelling Changes (hereafter referred to as the '2014 Cost Schedule') which reflects a review, update and revision of the 2008 Food Standards Australia New Zealand (FSANZ) Cost Schedule for Food Labelling Changes, and the costing data underpinning it.

2. Develop a detailed cost benefit analysis that will explore the voluntary implementation of the FoPL HSR system in Australia.

This report is the product of the second stream of work and details the potential costs and benefits of the voluntary implementation of the HSR system based on:

- evidence-based research sourced from Australian and international literature, reports, data and statistics
- the 2014 Cost Schedule
- outcomes and input from extensive consultations with members and representatives of the food and beverage manufacturing industry as well as public health and consumer groups
- any additional substantiated costs (in addition to those outlined in the 2014 Cost Schedule) provided by industry
- other information sources as appropriate.

The scope of this report does not include:

- a detailed review of the underlying health impacts related to food and lifestyle choices
- an analysis of the effectiveness of the HSR system relative to other policy interventions
- an analysis of other labelling initiatives (e.g. gluten labelling, country of origin labelling)
- an analysis of other health initiative options (e.g. taxation measures on 'unhealthy' foods).

Costing the impacts of a system across various stakeholders is inherently challenging. PwC has developed this analysis based on publicly available Australian and international literature, government reports, and data from industry and other sources as appropriate. However, a number of the potential costs and benefits identified in this report are not easy or practical to quantify. In such cases, the analysis presented is qualitative in nature. In cases where data has been difficult to locate, not sufficiently disaggregated or where proxies or alternate estimates may prove unreliable, PwC has relied upon food manufacturer and health and consumer group consultations as well as the views of other stakeholders (such as other government entities) to base assumptions. In situations of uncertainty or ambiguity, PwC has applied its professional judgement.
1.2 Health trends

The critical concern for governments regarding consumer food choice is the maintenance of health and safety of all Australians. As such there are a number of trends that are shifting government attention to more closely examine the driving factors behind consumer decision making.

Broadly, the number of overweight and obese people in Australia has increased significantly over the past two decades with the share of overweight and obese adults increasing from 56.3 per cent in 1995 to 63.4 per cent in 2011-12 (an increase of approximately 3.5 million people from 7.53 million in 1995 to 11.13 million in 2011-12). More concerning is the number of children (2-17 years) who are either classified as being overweight or obese, with 1 in 4 children classified as either overweight or obese in 2011-12.

The problem of increasing rates of obesity is not a story unique to Australia. However, Australia’s relative position internationally is worse than many advanced economies (see Figure 1).

Figure 1: Rates of Obesity in Selected Advanced Economies

<table>
<thead>
<tr>
<th>Country</th>
<th>% of adult population</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>35.7</td>
</tr>
<tr>
<td>Australia</td>
<td>28.3</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>26.1</td>
</tr>
<tr>
<td>Ireland</td>
<td>23.0</td>
</tr>
<tr>
<td>Spain</td>
<td>16.0</td>
</tr>
<tr>
<td>Germany</td>
<td>14.7</td>
</tr>
<tr>
<td>France</td>
<td>12.9</td>
</tr>
<tr>
<td>Netherlands</td>
<td>11.4</td>
</tr>
<tr>
<td>Italy</td>
<td>10.3</td>
</tr>
</tbody>
</table>

Source: ABS, OECD Health Data 2012; Eurostat Statistics Database, WHO Global Infobase and CDC.

Research shows that excess body weight is a major risk factor for a number of significant health conditions including cardiovascular disease, diabetes (Type 2), various musculoskeletal conditions (e.g. arthritis) and some forms of cancer. As an individual who is already classified as overweight or obese gains weight, the risk of developing these diseases

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4 Ibid.
increases. Further, excess body weight can negatively impact a person’s ability to manage ongoing chronic conditions, particularly as they get older.5

Cardiovascular disease is the number one cause of death in Australia, with the disease causing around one-third of deaths in 2010.6 High blood pressure and high blood cholesterol contribute around two-thirds of the total burden of cardiovascular disease in Australia.7 Studies also found the risk of death increased linearly with body weight (as measured through the Body Mass Index), which was especially distinct for death from cardiovascular disease among males.8

Body weight is one of the strongest drivers of Type 2 diabetes.9 For example, studies in the United States of America (USA) have found that the risk of diabetes increases by 4.5 per cent for every 1 kg increase in mass.10 There is also a strong correlation between increased musculoskeletal conditions and obesity, with a USA study finding ‘more than 31 per cent of obese adults reported a doctor diagnosis of arthritis compared to only 16 per cent for non-obese people’.11

Overweight and obesity can also increase the likelihood of some types of cancer, with evidence suggesting one-third of USA cancer deaths are attributable to diet and exercise habits.12 This is supported by similar studies which found ‘dietary factors have been thought to account for about 30% of cancers in Western countries, making diet second only to tobacco as a preventable cause of cancer’.13

While higher rates of overweight and obese people in the community has well documented health impacts, it also has a significant cost to the economy. In 2005, a study by Australian Diabetes, Obesity and Lifestyle, estimated that the direct cost of overweight and obesity was $21.0 billion per year (with approximately two-thirds of this attributable to obesity). With the indirect cost totalling approximately $35.6 billion, the total cost to the economy was $56.6 billion (around 6 per cent of Australia’s economic output in 2005).14

If the current trends continue over the next ten years:

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6 Department of Health, ‘What is Cardiovascular disease?’, 2013.
14 National Health and Medical Research Council, ‘Obesity and Overweight’, 2013.
almost 70 per cent of the adult population by the middle of the next decade will be either overweight or obese\textsuperscript{15}

• the number of overweight and obese adults will be almost double the level in 1995 in Figure 2 (while total population will be 1.5 times larger)

• based on PwC estimates, the total cost to the economy could be more than $115 billion, over 30 per cent higher than 2011-12.\textsuperscript{16}

Figure 2: Number of overweight and obese adults in Australia

In response to this health challenge, health and nutritional labelling has been seen as an important step to ensure that consumers have additional information to help make better informed food choices.\textsuperscript{17}

1.3 Proposals for interpretive labelling in Australia

The growing awareness of the seriousness of chronic diet-related conditions is driving a range of initiatives as a means of encouraging better food choices by consumers. In a recent report, \textit{Labelling Logic: Review of Food Labelling Law and Policy 2011} (‘the Blewett Review’), the review panel noted that ‘while some consumers regularly use the mandated nutrition information on food labels, many consumers either ignore the information or find it difficult to interpret’.\textsuperscript{18} Indeed, industry has made efforts to improve nutritional labelling by way of the voluntary implementation of the DIG labelling scheme, a system that clearly

\textsuperscript{15} This is calculated using the Australian Diabetes, Obesity and Lifestyle study estimate of the total cost of overweight and obesity in 2005. Using a mixture of ABS population projections, assumptions on overweight/obesity rates from the ABS Health Survey (ABS catalogue number 4364.0.55.001 ), inflation figures from ABS catalogue number 6401.0 and Mid-Year Economic and Fiscal Outlook forecasts a total cost of overweight/obesity in 2023-24 is constructed.

\textsuperscript{16} Ibid.

\textsuperscript{17} Neal Blewett, N. AC et al. ‘Labelling Logic: Review of Food Labelling Law and Policy’. January 2011.

Background

highlights key nutritional information, in a standardised format, on the front of food packages.

Despite such efforts, a number of stakeholders have noted that food information presented in this manner (i.e. numerical, textual or percentage data) suffers from a potential limitation.\(^9\) The main concern is that information presented in this manner requires a higher level of literacy and numeracy to interpret, and it may not provide nutrition guidance to those in the community who may need it most. Indeed, the Blewett Review noted that such systems may be ‘challenging for consumers to use the information in the context of their whole diets, as they would need to recall the percentage of each nutrient that has already been accounted for in previously selected products’.\(^{20}\) Further the Royal Australasian College of Physicians noted that basing a system on an ‘average’ adult’s daily nutrition requirements is potentially problematic in the context of different populations sub-groups (like children or the elderly) who have different dietary requirements.\(^{21}\)

The Blewett Review panel considered that a simpler and more direct FoPL scheme could better prompt consumers to reconsider their purchase decisions. Further, as consumers increasingly factor nutritional information into their day-to-day shopping practices, this may help drive favourable product reformulation. As the Blewett Review notes:

> An effective FoPL system is also capable of encouraging industry to improve the healthiness of products available in the marketplace. More transparent labelling is an important motivation for favourable product reformulation. Of note is that numerous companies operating in Australia have already reformulated their products to accommodate new catering policies in government-controlled schools and health facilities. This illustrates that new marketing ‘opportunities’ generated by policy change can result in innovative product development by food manufacturers.\(^{22}\)

In December 2011, the Legislative and Governance Forum on Food Regulation (the Forum) responded to the recommendations of the Blewett Review. In its response, the Forum supported recommendations to develop an interpretative FoPL scheme in line with the endorsed Front of Pack Labelling Policy Statement and agreed public health priorities. To implement the development of this scheme, the Forum recommended that government should lead a co-design process with food manufacturers, public health and consumer stakeholders.\(^{23}\) Further information about consultation and the collaborative design approach taken to develop the FoPL scheme is included in 0, with the proposed scheme explained in the next chapter.

\(^{19}\) Based on input received from health and consumer groups stakeholder consultations undertaken for this review, there is a consensus view that textual and numerical information presented on its own is insufficient particularly for groups who would benefit most from this information (i.e. lower socio economic status, education, literacy, etc.)


\(^{21}\) Royal Australasian College of Physicians, Submission no. 448, question 26.

\(^{22}\) Ibid, page 121.

The proposed HSR system

On 4 June 2012, in its response to the Blewett Review, the Forum agreed to develop a single interpretive FoPL scheme for Australia through a coordinated approach.24

On 14 June 2013, the Forum formally endorsed the HSR system that, except for certain agreed exemptions, would apply to all packaged, manufactured or processed foods presented ready-for-sale to the customer.25 The Forum noted that the preferred implementation option would be a voluntary system overseen by a tripartite (i.e. government, health and industry) committee. Implementation of the system will be supported by government funded social marketing, communication and education activities. It is also expected, based on stakeholder comments, that independent non-government consumer and public health organisations may undertake their own communications and education to support the HSR system.

For the purposes of this analysis, PwC has used the system guidelines outlined in the ‘Health Star Rating System Style Guide: Version 3’ dated February 2014.

Scope and application

Under the proposed system, an applicable product is generally one that currently carries a Nutrition Information Panel (NIP). Specific food products that should not use the HSR system include:

- certain special purpose foods in Part 2.9 of the Australia New Zealand Food Standards Code (FSC) where there are required compositional formulations, namely:
  - infant formula products – Standard 2.9.1
  - food for infants – Standard 2.9.2
  - formulated supplementary foods for young children – Standard 2.9.3 (including toddler milks and formulated supplementary foods intended for young children);
  - formulated supplementary sports foods – Standard 2.9.4
  - foods for special medical purposes – Standard 2.9.5
  (i.e. supplementary foods defined in Standard 2.9.3 that are general purpose foods [Category 1D or 2D] may use the HSR system).
- foods where a NIP is not required – clause 3, Standard 1.2.8 – Nutrition Information Requirements of the FSC, specifically:

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24 Department of Health. ‘Front-of-pack labelling updates’.
25 Ibid.
The proposed HSR system

- non-nutritive condiments including vinegar, herbs and spices, salt and pepper
- non-nutritive foods including teas, coffees, herbal infusions, ice
- filled rolls, filled bagels, sandwiches and similar products. However, under the HSR system, where the product is packaged and made to a standard recipe (see section 2 above) the HSR system may be used appropriately.
  - single ingredient foods not intended to be consumed alone (single ingredients are referred to in clause 3 of Standard 1.2.8 - Nutrition Information Requirements of the FSC).
  - alcoholic beverages (>1.15% alcohol by volume).
  - alcohol kits.

In addition, the HSR system should not be used on food products listed in clause 4 of Standard 1.2.7 – Nutrition, Health and Related Claims of the FSC, which include those that are intended for further processing or labelled prior to retail sale, delivered to a vulnerable person by a delivered meal organisation, or provided as an institutional meal. These food product types align with those described in clause 4 of Standard 1.2.7 - Nutrition, Health and Related Claims of the FSC, as not being eligible to carry nutrition content claims and health claims.

**The HSR style guide**

For companies that choose to adopt the HSR system, it is suggested that they follow the HSR style guide (the guide) that outlines parameters concerning the use and placement of the HSR label and the nutritional elements displayed on the front of packages. While there is flexibility in relation to the final design and the specific nutritional elements presented on the label, any design would preferably align with the following principles:

- **a)** The HSR label should provide convenient, relevant and readily understood nutrition information and/or guidance on food packs to assist consumers to make informed food purchases and healthier eating choices.
- **b)** The HSR label is placed on the front facing of the pack.
- **c)** Food companies are encouraged to use as many elements of the full HSR label as possible consistent with the hierarchy of elements (provided in Section 6.4).
- **d)** The design must not be inconsistent with any provision of the FSC.
- **e)** Use of the HSR system is voluntary, however food companies that choose to adopt the system should do so consistently across their product range, and / or within product categories.

In brief, at the time of writing, the HSR system is composed of the following elements:

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26 Note that that HSR system may be applied to water presented in a packaged form, which may or may not contain added carbon dioxide, if it complies with FSC Standard 2.6.2 – Non-alcoholic Beverages and Brewed Soft Drinks.


The proposed HSR system

- a star rating scale of ‘½ a star’ to ‘5 stars’ (in ½ star increments) and a ‘slider’ above the relevant star/half star with the corresponding number to highlight the star rating of the food
- a star rating element:
  - being underpinned by a modified Nutrient Profiling Scoring Criterion (NPSC)
  - branded and promoted to consumers as a ‘Health Star Rating’
- a nutrient information element:
  - for saturated fat, sugars and sodium and one optional positive nutrient information element (e.g. calcium) relevant to the particular food
  - with the option of including the word ‘high’ with the positive nutrient element and ‘low’ with saturated fat, sugars and sodium elements where applicable
- an ‘energy’ icon, with the unit of measure in kilojoules.29

Figure 3 illustrates the main elements of the HSR label, as at the time of writing.

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The proposed HSR system

Figure 3: The Health Star Rating system main display elements

1. Health Star Rating

2. Energy Declaration

3. Nutrient Content Declarations

The style guide suggests the HSR label can be scaled according to the package size, provided that it remains legible (in line with Standard 1.2.9 Legibility Requirements). However, given size, layout and packaging limitations, it may not be practical to affix the HSR label and all nutritional elements according to a single style or layout. As such, the style guide gives the option to display certainly elements of the HSR system according to a set hierarchy. In these cases the hierarchy is as follows (refer Figure 4):

- energy icon + health star rating + 3 prescribed nutrient icons + 1 optional nutrient icon
- energy icon + health star rating + 3 prescribed nutrient icons
- energy icon + health star rating
- energy icon.
Figure 4: Health Star Rating system display variants

Option 1: Energy icon + star rating + 3 prescribed nutrient icons + 1 optional nutrient icon

Source: Department of Health

Option 2: Energy icon + star rating + 3 prescribed nutrient icons

Source: Department of Health
The proposed HSR system

Source: Department of Health

**Option 3: Energy icon + star rating**

Source: Department of Health

**Option 4: Health Star Rating [or energy icon**

Source: Department of Health

OR

Source: Department of Health
The proposed HSR system

The style guide allows companies to determine which HSR system hierarchy of presentation format is most suitable for their products, based on available pack size and label space. However, they are encouraged to use as many elements of the HSR system as possible consistent with the above hierarchy.31

Lastly, the style guide provides an option for companies to choose an (one) optional nutrient to present within the HSR system graphic subject to the following restrictions:

- Optional nutrients are defined as properties of food in Schedule 1 of Standard 1.2.7 of the FSC.

- The nutrient should be present at a level consistent with the requirements of Standards 1.2.7 and represented in the NIP in accordance with the requirements of Standard 1.2.8 of the FSC.

- The purpose of the icon is to provide nutritional information only. It is not to be used to provide advice on the levels of food components which have other health implications - for example gluten content, lactose content, glycaemic index etc. 32

It is important to note that the DIG labelling scheme, health logos and other certification systems are used widely in Australia and New Zealand. Theoretically, the DIG labelling scheme, health logos and certification systems can co-exist on the same labels to the extent that they do not conflict with one another or mislead consumers.

Specifically, the style guide suggests that if a pack carries the HSR label and DIG labelling scheme logo, the two should be clearly separated and placement should not lead consumers to believe that the two labels are linked or are two parts of a single system.33

‘Health Star Rating’ algorithm

The HSR algorithm was developed by the FoPL Technical Design Working Group (TDWG) in consultation with FSANZ and is based on the NPSC, with adjustments to ensure that appropriate outcomes were achieved in line with Australian Dietary Guidelines. The ‘star rating’ for food or beverage products can be determined by entering food nutrient and ingredient values in a spreadsheet calculator, known as the HSR Calculator (HSRC).

Use of the HSRC requires the following information about the food products per 100g or per 100mL:

- energy
- saturated fat
- total sugars
- sodium
- protein
- dietary fibre

31 Ibid.
32 Ibid.
33 Ibid.
• fruit, vegetables, nuts and legumes.

Calcium content will also be required for calculations of dairy products (Category 1D, 2D and 3D food products).\textsuperscript{34}

For further information about how the algorithm was developed in consultation with stakeholders, see 0.

\textit{Development, roll-out and operation of the HSR system}

With respect to development, roll-out and operation of the HSR system, at a structural level, overarching food policy and direction is set by the Forum which is composed of all State and Territory Food Ministers, a Minister from New Zealand and Australian federal related portfolios. Currently, the Forum is chaired by the Australian Assistant Minister for Health.\textsuperscript{35}

At an operational level, the HSR system, as a voluntary code based system, is currently being led by an Oversight Committee consisting of government, industry, public health and consumer representatives.

The State and Commonwealth governments have agreed to a two-year voluntary implementation period that formally began on 14 June 2013 (with roll-out of the system expected in July 2014). In the period leading up to the July 2014 roll-out, the Oversight Committee and Working Groups will continue to work with key stakeholders to finalise and roll-out the HSR system.

For the purposes of this analysis, PwC has assumed the Oversight Committee and Working Groups, with broad based representation, will continue to jointly advise on the development and roll-out of the system, placing no additional burden on other stakeholder groups. With respect to time frames, PwC has assumed a commencement period of 2014 to underpin its calculations.

\textsuperscript{34} Ibid.

\textsuperscript{35} Department of Health, \textit{Legislative and Governance Forum on Food Regulation}.
3 Conceptual framework for analysis

This section outlines PwC’s approach to the categorisation of costs and benefits.

3.1 Costs

Within PwC’s conceptual framework, costs primarily accrue to industry, consumers (and health and consumer advocacy groups), and governments. Costs primarily reflect tangible and quantifiable expenditures required to implement the HSR system, both at the point of implementation and on an ongoing basis. While there may be a number of indirect or intangible costs and benefits, these cannot be explored within the scope of this project. As such, where significant indirect costs and benefits have been identified, these have been treated separately on a qualitative basis.

In terms of implementation costs, this type of cost is a ‘one time’ direct expenses incurred to implement the proposed initiative and reflect things such as:

- costs of changing the labels
  - label design
  - label production
  - proofing
  - package redesign
  - labour/overhead
- establishing and upgrading internal systems/processes to facilitate analysis and assurance that products comply with the requirements
- education and marketing.

By contrast, ongoing costs represent direct expenses incurred on an ongoing basis to support the operations of the initiative. These typically include things like:

- ongoing monitoring and surveillance
- ongoing testing and analysis
- education, communications and training
- maintenance and/or adjustments to the HSR system.

The direct costs of the proposed HSR system will be discussed in Section 0.

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Next, PwC’s framework captures ‘full costs’ which represents all costs borne by all stakeholder groups to implement a voluntary HSR system. As will be discussed in more detail in Section 4.1.1, the magnitude of the impact depends on the extent to which labels need to be re-designed and the timeframe for implementation. It also depends on whether the label changes can be undertaken as part of a broader changeover in packaging inventory or whether the change is made as part of an unscheduled update. As such, this report presents the full cost of the proposed HSR system and assesses potential cost variation through sensitivity analysis contained in Appendix B.

3.2 Benefits

The direct tangible benefits can be viewed in much the same way as the costs. Within the context of the HSR system, the benefits can be thought of in terms of immediate benefits (that occur fairly quickly) versus those that are realised over a longer period of time. The primary objective of the HSR system is to improve information for consumers resulting in three principal benefits:

- beneficial behavioural response by consumers
- beneficial behavioural response by industry
- beneficial health outcomes, such as lower costs of obesity on society.

To evaluate the benefits of the HSR system, PwC has used a ‘break-even’ approach. Break-even analysis is a commonly used technique in situations where a policy or proposal has a higher degree of uncertainty with respect to future benefits. The benefits of the proposed HSR system and uncertainty are discussed in Section 0.

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37 Typically, in an analysis such as this, marginal cost impact is the appropriate basis for assessing the costs of a proposed labelling system. Given that the proposed HSR system is voluntary, and not a mandatory requirement, this approach would not provide a complete picture of the potential impacts of the HSR system. For example, theoretically, if a business viewed the proposed HSR system as a profitable advertising tool and had existing plans to implement the system, then the marginal cost of voluntary adoption would effectively be zero as the change would be made in the ordinary course of their business. By contrast, a food manufacturer that viewed the HSR system as negatively impacting their profits and having no plans to implement the HSR system through the normal course of its operations would simply choose not to implement the HSR system.
4 Cost analysis

Costs associated with the introduction of the proposed voluntary HSR system are separated into those accruing to industry, government and consumers and other parties. Given the available data, the focus is mainly on implementation costs, though comments are also made about the nature of ongoing costs and estimates have been included where appropriate.

4.1 Industry costs

For industry, the primary cost driver of implementing the HSR system will be labelling costs. Labelling costs are driven by a number of factors including:

- the quantity of labels impacted
- the exact printing methods used
- the potential for wasted packaging and inventory
- the labour costs of managing the relabelling process
- the complexity of the change
- the length of time available for the change
- other variable factors.\(^{38}\)

4.1.1 Implementation costs

Change complexity

Change complexity is a significant cost driver and ultimately determines the price paid by industry to change their product labels. The challenge for this report is how best to cost the inclusion of a new (foreign) element into labelling design given the variability that exists between product labels. As such, there needs to be a way of placing reasonable bounds on the cost estimates, balanced against the need for completeness and accuracy.

To try and control for many of the variable costs associated with changes to product labelling, the 2014 Cost Schedule includes three complexity scenarios as described in Table 3: minor, medium, and major. These three complexity scenarios can then be used to help the reader select the appropriate unit price to quantify the cost impact. While the three scenarios aim to be representative of the impacts to companies as a result of changes to labelling, they do not cover the full extent of all possible labelling changes. Specific firm level impacts have to be examined on a case by case basis.

Table 3 is an excerpt from the 2014 Cost Schedule and summarises the key parameters of each complexity scenario.\(^{39}\)

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## Table 3: Labelling complexity summary

<table>
<thead>
<tr>
<th>Scale of change</th>
<th>Scope of change</th>
<th>Examples of scenarios</th>
</tr>
</thead>
</table>
| Minor change    | • Label design – text changes only, no change to layout of label  
                   • Label production – change to one colour (one printing plate) only  
                   • Proofing – not required  
                   • Package redesign – no change to packaging shape/size  
                   • Additions to ingredients list – no change to label layout  
                   • Change to mandatory warning statements – no change to label layout  
                   • Change to the contents of nutritional panel – no change to label layout  
                   • Amendments to country of origin information – no change to label layout  
                   • Additions to requirements of manufacturer’s details – no change to label layout  
                   • Amendments to text regarding serving or preparation instructions – no change to label layout  
                   • Amendments to text regarding storage instructions – no change to label layout | |
| Medium change   | • Label design – changes to text and label layout  
                   • Label production – change to three colours (three printing plates)  
                   • Proofing – required  
                   • Package redesign – no change to packaging shape/size  
                   • Additions to ingredients list – change to label layout  
                   • Change to health or product claim – change to label layout  
                   • Change to mandatory warning statements – change to label layout  
                   • Removal/addition/change of endorsements (e.g. ‘tick of approval’) – minimal change to label layout  
                   • Change to the contents of nutritional panel – change to label layout  
                   • Amendments to country of origin information – change to label layout  
                   • Additions to requirements of manufacturer’s details – change to label layout  
                   • Amendments to text regarding serving or preparation instructions – change to label layout  
                   • Amendments to text regarding storage instructions – change to label layout | |
| Major change    | • Label design – changes to text and label layout  
                   • Label production – change to six colours (six printing plates)  
                   • Proofing – required  
                   • Package redesign – change required to packaging shape/size  
                   • Re-naming of product  
                   • Redesign or amendment of image/logo/graphic  
                   • Removal / addition / change of endorsements (e.g. ‘tick of approval’) – redesign of label layout | |

Cost analysis

To select a per unit price from the 2014 Cost Schedule, PwC has based its full cost estimate on a ‘medium’ complexity change scenario. Because the full cost of changing labels varies considerably from product to product, it is impossible to estimate an aggregate change complexity that could apply across all products. As such, the ‘medium’ complexity scenario represents a ‘median’ estimate of complexity. Further, based on the complexity descriptions, on the whole, PwC believes that this is a reasonable approach for two main reasons:

• Based on a review the of ‘minor’ change complexity scenario, the change will likely be more substantial than changes to existing textual elements.

• The current style guide has been developed in consultation with industry to explore a variety of mechanisms to incorporate the HSR system with minimal disruption indicating that, on the whole, the change is not ‘major’. Further, as evidenced by the DIG labelling scheme, the proposed HSR system can be added to existing products but does not obligate food manufacturers to fundamentally change how their product is presented to the customer (e.g. plain packaging).

Price base

The cost estimates presented in this report are based on the 2014 PwC report entitled ‘Schedule for Food Labelling Changes’ (‘2014 Cost Schedule’). This report leverages previous work undertaken by PwC for FSANZ in 2008 to develop a ‘per unit (per SKU)’ price when undertaking change to food and beverage labelling. The 2014 Cost Schedule combines a number of information sources including a literature review, research and information pertaining to costs associated with food labelling, input from FSANZ and industry stakeholders, and a survey of industry participants to collect cost data and other inputs to quantify the scope of cost impact.

Clearly, food products are sold in a wide variety of packaging types. As such, assumptions concerning packaging type can drastically influence an overall cost estimate. To develop PwC’s costs estimate, industry survey results were used as a proxy to help weight different packaging type per unit prices to develop a single weighted average price for labelling changes.

While this approach is based on actual industry survey results, it is limited by the breadth and depth of responses received. Where responses may have been insufficient, these have been grouped together. PwC has calculated a weighted average cost per SKU of $5,624 over five years (in discounted terms).

Quantity

Based on publicly available data sources, it is difficult to know the exact number of labels that will be impacted by the HSR system. As such, PwC’s analysis uses SKUs as a proxy

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40 The actual cost impact experienced by a specific company should be evaluated on a case by case basis. The cost estimates have been inflated using RBA data to bring cost estimates in to current dollars.


42 See Appendix E for additional detail concerning calculation methodology.
measure. It is worth noting that using SKUs as a proxy introduces two potential sources of error into the cost estimates:

- SKUs can be added/removed prior to (or during) the implementation of the HSR system as a result of product turnover
- SKUs are unique to specific products; however not every product necessarily results in changes to the design of the label (e.g. a box of biscuits might come in two different sized packages resulting in two SKUs, but the label might only have to be redesigned once).

Despite these potential shortcomings, based on a review of existing literature, SKUs appears to be an acceptable basis in the absence of detailed product data.43

Through the course of this analysis, PwC attempted to determine that total ‘population’ of food and beverage SKUs. Based on public data and stakeholder input, the overall population of food and beverage SKUs potentially ranges from ~40,000 SKUs to ~80,000 SKUs. However, as is discussed in 0, in PwC’s view, such estimates are not sufficiently detailed or independently verifiable to form a key part of this analysis.

For the purpose of this analysis, PwC’s cost estimate has been based on a total uptake of 7,200 SKUs over a five year period. This rate of uptake is based on industry uptake of the voluntary DIG labelling scheme and represents a range of 9.0% to 18.0% of the total SKU population (based on the analysis discussed above). PwC believes that this a reasonable baseline for estimating costs because the DIG labelling scheme is one of the few broadly adopted informative labelling schemes.44

**Implementation period and label ‘lifecycle’**

As has been highlighted in the available research, artificially short timelines can impose costs in situations where companies do not have sufficient time to plan for such a change.45 In these situations, companies can potentially experience impacts to their cost base resulting from:

- penalty costs associated with breaking existing labelling/packaging contracts
- re-stocking costs (where retailers are insist on a single brand approach and existing stock might have to be discarded)
- ‘price premiums’ associated with rush orders to re-design and print packaging/labels
- surplus packaging and labelling materials that have to be discarded
- differential costs associated with ‘small runs’ of different labelling.

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Given that the HSR system is voluntary, industry is able to assess the relative merits of the HSR system and can adopt at a time that aligns to their business cycle thus reducing or eliminating any costs that would be associated with short timeframes.

For ‘time value of money’ calculation purposes, PwC has assumed that the HSR system can be reasonably implemented over a five year time period. This is based on PwC’s survey of industry stakeholders. On average, respondents indicated that the average label life cycle under normal conditions is three years with an upper boundary of five years (although smaller food and beverage manufacturers are more likely to have longer lifecycles).46

Natural product turnover reflects the number of products removed/replaced from circulation each year. Currently there is little data to support such an estimate so this analysis has assumed that the net number of SKUs coming into, and leaving, the Australian market each year is immaterial. In PwC’s view, this seems reasonable given that the voluntary nature of the HSR system.

4.1.2 Ongoing costs

The main ongoing cost to industry could be associated with monitoring HSR labels to ensure that they adhere to the relevant requirements in the FSC. As part of PwC’s survey of industry, industry provided details concerning overhead and other administrative costs, expressed on a per SKU basis. While these types of costs are not specifically itemised within this report, they have been captured as part of the cost estimate. Beyond this, in the absence of other estimates or more detailed knowledge it is difficult to suggest alternate costs.

4.1.3 Cost impact

If industry were to adopt the HSR system in a similar manner (7,200 SKUs) to the DIG labelling scheme over a five year implementation period (assuming a medium complexity scenario), the full cost attributable to industry would be approximately $40.5 million in net present value (NPV) terms.47

This estimated cost to industry reflects an estimated uptake of the voluntary HSR system on the same basis as industry’s voluntary adoption of the DIG labelling scheme. The actual extent of the adoption of the HSR system will be the result of market forces (i.e. demand from retailers and consumers for such labelling). Ultimately, industry will only choose to voluntarily adopt the HSR system to the extent that the see it as part of a profitable product sales strategy.

Given that change complexity (which ultimately drives per SKU price) and SKU count are both significant cost drivers, the following tables illustrate: 1) the range of cost by applying both ‘minor’ and ‘major’ complexity scenarios, and 2) the cost impact of changes to the SKU uptake rate.48

46 Companies across the sector and between one another as such individual circumstances will need to be evaluated on a case-by-case basis.


48 All other parameters such as the real discount rate, time period, etc. have remained constant.
### Table 4: Cost impact under alternate complexity scenarios (7,200 SKUs)

<table>
<thead>
<tr>
<th>Complexity</th>
<th>Total (over 5 years)</th>
<th>Cost per year</th>
<th>Cost per SKU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor</td>
<td>$17.2 million</td>
<td>$3.4 million</td>
<td>$2,390</td>
</tr>
<tr>
<td>Medium</td>
<td>$40.5 million</td>
<td>$8.1 million</td>
<td>$5,624</td>
</tr>
<tr>
<td>Major</td>
<td>$56.0 million</td>
<td>$11.2 million</td>
<td>$7,775</td>
</tr>
</tbody>
</table>

### Table 5: Cost impact scenario assuming higher uptake rates

<table>
<thead>
<tr>
<th>Complexity</th>
<th>7,200 SKUs (Base)</th>
<th>8,280 SKUs (+15%)</th>
<th>9,360 SKUs (+30%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor</td>
<td>$17.2 million</td>
<td>$19.8 million</td>
<td>$22.3 million</td>
</tr>
<tr>
<td>Medium</td>
<td>$40.5 million</td>
<td>$46.6 million</td>
<td>$52.6 million</td>
</tr>
<tr>
<td>Major</td>
<td>$56.0 million</td>
<td>$64.4 million</td>
<td>$72.8 million</td>
</tr>
</tbody>
</table>

As is illustrated in Table 4, depending on the actual level of change complexity, the full cost to industry can range from a low of $17.2 million to a high of $56.0 million. Further, as shown in Table 5, were uptake of the HSR system to exceed expectations by 15% or 30%, the full cost under a medium complexity scenario could increase to $46.6 million and $52.6 million respectively. For a complete list of assumptions and notes concerning calculation methodology, please see 0 and 0 respectively.

#### 4.2 Government costs

##### 4.2.1 Implementation costs

**Education, marketing and promotional costs**

Labelling alone is likely not the ‘silver bullet’. The Commonwealth and State and Territory governments, as well as the broader public health community (and arguably the wider global community), have been involved in a number of policy initiatives aimed at improving health outcomes by encouraging healthy lifestyles, reducing obesity and introducing preventative measures.

PwC has established through consultation with government stakeholders that the intention is to support social marketing activities for the roll-out of HSR system using a two-pronged approach:

1. ‘below-the-line’ communication activities (e.g. email marketing, word-of-mouth, inner circle marketing, ‘re-tweets’, etc.)
2. formal co-branding with other government health focused campaigns.

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49 The purpose of this is to show the impact if the uptake rate were higher than DIG (i.e. what if the uptake is 15% higher than DIG’s 7200 was). The rates themselves are notional and can be amended if further evidence is provided that the uptake is better/worse.
Specific communication activities are likely to include a strong social media focus guided by market research to better refine the target audiences and identify appropriate media channels. Further there may be additional sundry costs (e.g. website updates, customer service enquiries, participation in public events, internal briefings, etc.) which would likely be incurred, but which are very difficult to predict or cost. As such, for the sake of completeness there is a need to include a placeholder government cost category to account for marketing and promotion as well as educational alignment activities.

With respect to government estimates of support for the HSR system, PwC has derived a nominal estimate of implementation costs to be $13.5 million.\textsuperscript{50} This is not meant to be taken as an exact figure, rather it intended as a ‘place holder’ figure to highlight that some cost will be incurred by government over the course of the HSR system implementation.

\section*{4.2.2 Ongoing costs}

\textit{Administration and evaluation costs}

As with industry, it is likely that state governments and/or their statutory agencies will bear some ongoing administrative costs. The nature of these costs will reflect the need to maintain the integrity of the HSR system through review and ‘maintenance’ activities. Examples of activities governments might have to bear with respect to the HSR system include:

- the cost of providing information about the change and the suggested approach
- the cost of the monitoring the system
- the nature of such monitoring (i.e. how detailed the analysis is, to what degree of accuracy, etc.)
- costs associated with reviewing and evaluating the system (i.e. ongoing evaluations for management purposes).

If additional resources are required, the extent of the costs will depend on the approaches taken. As such, it is very difficult to determine an exact cost so a proxy measure will likely be required. This consideration of ongoing costs has been assumed to be included in the $13.5 million cost described above.

\section*{4.3 Consumer and NGO costs}

\subsection*{4.3.1 Implementation costs}

Consumers could potentially face marginally higher prices, to the extent that the industry faces increased costs and are unable to absorb these costs. The exact price increase will be determined through demand and supply-side market interactions reflecting factors such as taste, substitutability between products, production technologies etc.

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\textsuperscript{50} To derive this figure, PwC has used a combination of sources including information on planned social marketing expenditure provided by the Department of Health and baseline cost data drawn from the review of the NSW Fast Choices data. This cost estimate drawn from the NSW Fast Choices data was then converted to a percentage figure of the overall NSW health budget. This percentage was then multiplied by each of the seven States and Territories’ health budget to derive a nominal total cost estimate for state and territory expenditure. Based on stakeholder input, these costs will likely be borne mainly on implementation but precise timing is unknown as such the impact of timing is assumed to be minimal. Fast choice baseline costs can be located here.
A study undertaken in 2013 concludes that it is unlikely labelling will directly drive higher costs faced by consumers. The author undertook a review of the publicly available literature specifically focused on the nature of label changes by food processors and the impact on retail prices of various labelling programs. The study concluded that in terms of changes made to product labels by food processors and their impact on a product’s retail prices, label changes are a relatively minor element relative to larger more complex drivers like demographics, competitor response, national and international market pressures (e.g. energy prices, raw materials, exchange rates, etc.), and supply chain and store level factors. Without any further evidence to the contrary, PwC has assumed this impact to be negligible.

NGOs can play an important role in helping to support a social marketing campaign for the HSR system by leveraging existing communications and marketing resources, such as social media, membership rolls and email lists, print media and newsletters, etc. Efforts can range from sharing tweets and Facebook posts, creating original content (for online, social media and newsletters), and potentially incorporating key messages into existing fact sheets or educational materials, which are available online and often distributed to hospitals, health professionals and consumers. Further, NGOs regularly undertake efforts to secure traditional media coverage around health related issues. These efforts often prove more successful than the reach of traditional media.

Finally, in some cases NGOs might also choose to replace propriety ‘health’ symbols in favour of the HSR system which could also add costs in the form of lost royalty revenues. However, without knowing the precise plans for existing NGO proprietary health claim symbol systems upon implementation of the HSR system, it is difficult to the extent of such potential costs and have been excluded from this analysis.

Based on sample data supplied by non-government stakeholders, Table 6 highlights potential marketing reach that can be achieved by leveraging existing communication resources. This estimate reflects sample data from seven organisations. As such it likely underestimates the actual market reach of NGOs. Further, it does not account for any ‘multiplier effect’ as messages are (re)communicated across social networks.

<table>
<thead>
<tr>
<th>Channel</th>
<th>Reach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook ‘likes’</td>
<td>~178,000</td>
</tr>
<tr>
<td>Twitter followers</td>
<td>~63,000</td>
</tr>
<tr>
<td>Pinterest, Google +, other</td>
<td>~24,000</td>
</tr>
<tr>
<td>YouTube views</td>
<td>~64,000</td>
</tr>
<tr>
<td>Print</td>
<td>~285,000</td>
</tr>
<tr>
<td>Unique web visits</td>
<td>~1,700,000</td>
</tr>
<tr>
<td>Email list / member roll</td>
<td>~190,000</td>
</tr>
</tbody>
</table>

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52 Ibid.
A number of NGOs have clearly articulated their plans to actively assist with the promotion of the HSR system. These efforts will be on top of government expenditure on media and communications. As a proxy, we have estimated the expenditure for a major national campaign in support of the HSR system. Including marketing costs, an estimated aggregate expenditure by NGOs on promotion of the HSR system could reasonably be $6.0 million. This estimate does not include additional staff, supplies or overheads. This amount is an estimate only and has been included as a place holder for the sake of completeness.

### 4.3.2 Ongoing costs

Based on discussions with health and consumer advocacy stakeholders, the majority of costs borne by NGOs will occur within the first few years of the HSR system’s implementation period. Afterwards, the HSR system will become embedded in ‘business as usual’ making it difficult to estimate. As such, PwC has assumed that these costs are negligible for the purposes of this analysis.

### 4.4 Cost summary

The following table summarises total cost of the HSR system.

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Total</th>
<th>Average per annum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry</td>
<td>$40.5 million (over five years)</td>
<td>$8.1 million (per year for five years)</td>
</tr>
<tr>
<td>Government</td>
<td>$13.5 million</td>
<td>$2.7 million</td>
</tr>
<tr>
<td>NGO</td>
<td>$6.0 million</td>
<td>$1.2 million</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$60.0 million</strong></td>
<td><strong>$12.0 million</strong></td>
</tr>
</tbody>
</table>

*Impact to small and medium business*

Labelling costs will impact subsectors of the industry in different ways. One reason for this is the size and scale of the business bearing the costs. Small and medium enterprises (SMEs) face different unit costs than their larger competitors. This is typically the result of differences related to purchasing power and product turnover. For example, a larger food or beverage manufacturer is likely to have greater purchasing power when dealing with label design and productions companies. As such, they are able to commission design work at a lower rate than their smaller competitors. They may also be able to harness economies of scale if they have a large amount of labels to change.

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53 Another way to view this estimate is through the use of a ‘what if scenario’ whereby ‘what if’ if all non-government organisations collaborated to launch a single national campaign, what would the total aggregate expenditure be?

54 Stakeholder input suggests that a reasonable cost for major national marketing campaign to be (i.e. TV, press, radio, print, digital, etc.) $5.0 million. Based on a sample government advertising, PwC found that a major media campaign (including five major formats) an average spend of $6.0 million.

The Australian Bureau of Statistics (ABS) defines small business as a business employing less than 20 people. At the end of June 2012, there were over 89,000 manufacturing businesses in Australia (approximately 4 per cent of total businesses). Of these an estimated 13,030 businesses were in the food and beverage manufacturing industry and around 81 per cent of these were either sole traders or employed less than 20 employees, while another 17 per cent were medium sized organisations (20-199 employees).

It is difficult to accurately quantify the impact of labelling changes on SMEs. Fifteen per cent of respondents to the 2014 Cost Schedule survey were SMEs. While estimates above suggest up to 98 per cent of food or beverage manufacturers in Australia are small or medium sized, it is likely that this overestimates the businesses that will be impacted by the HSR system. For example, businesses would include those who operate along the supply chain (and therefore do not produce products for retail sale), and also small businesses such as bakeries or butchers who do not have labelled products. Small bakery product manufacturers make up almost 45 per cent of all small food and beverage manufacturing businesses and given a large portion of this is non-factory based product manufacturing (3,838 of 4,701 businesses), the number of small businesses impacted by the HSR system is significantly lower than aggregate small business estimates produced by the ABS would suggest.

During consultation it was also noted that small businesses often have longer lead times for label changes. Small food processors tend to have fewer resources to dedicate to label redesign, and therefore update labels less often. In order to achieve economies of scale in printing, small businesses often order packages in bulk, and therefore have more stock on hand.

Although it is difficult to accurately quantify the impact of labelling changes on SMEs, table 13 in Appendix D, illustrates the potential magnitude of costs if a portion of the market (20%) experiences costs that are higher than those attributed to a medium complexity scenario.

**Imports**

In addition to Australian food processors, importers of food products who choose to implement the HSR system could potentially incur differential costs. While importers will face similar categories of costs compared to Australian producers, the quantum of those costs may be different given the chosen method of implementing the HSR system. For example, an importing company might choose to ‘over-stick’ the label with an Australian HSR system aligned label. This can be quite time-consuming as this may need to be done manually and could also involve opening the containers used for transport, relabelling individual packages and potentially replacing the outer packages.

Further, importers may also need to be cognisant of branding and intellectual property associated with each product. While the imported product must meet Australian requirements, the importer does not necessarily own the intellectual property and brand

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57 Ibid.
58 An exception, for example, may be important products for retailers own private labels.
associated with the product and must also be conscious of their obligations to brand owners. Hypothetically, an importer could choose to adopt the HSR system but is subsequently viewed as negatively impacting brand integrity by the brand owner (resulting in potential litigation risk). Costs that may be incurred as a result of the HSR label being used on imported products have not been included in the analysis.
5 Benefits analysis

5.1 Approach

An inherent challenge faced by the proposed voluntary HSR system is that its main objective is to help improve information thereby driving changes to behaviour. As will be explored in this section, changing behaviour is challenging given the multitude of drivers and pressures that people face on a daily basis. Given uncertainty associated with both consumer and industry behavioural drivers, analysing the benefits of the proposed HSR system is difficult. As such, PwC has used an alternate evaluation technique known as ‘break-even analysis’ to assess the benefits of the proposed voluntary HSR system.

Break-even analysis is a common approach in cases where a proposal involves a high degree of uncertainty. Indeed both Australian and international authorities specialising in cost benefit analysis highlight the ‘problem of uncertainty’ thereby necessitating an alternate approach. As highlighted by the Victorian Department of Treasury and Finance:

> Break-even analysis can be a useful tool. This technique involves dividing the costs of the option by the minimum amount of benefits required for the option to break-even. By estimating the minimum benefits required, this approach allows a judgement to be made about the likelihood of those benefits actually being achieved.\(^{59}\)

Further, as is highlighted by the Organisation for Economic Cooperation and Development in many cases expected benefits of a program are clear but the program’s likely effectiveness in generating those benefits will be subject to much uncertainty. For example, a program to encourage people to wear helmets while riding bicycles can be expected to reduce deaths and injuries to some extent, but it may be unclear how effective such a program will actually be in driving individual behavioural change.\(^{60}\)

To describe the break-even analysis approach another way, rather than asking ‘do the benefits of bicycle helmets outweigh the costs?’ one would instead ask:

1. ‘based on the available evidence, are these benefits likely to be obtained in practice?’, and
2. ‘how many deaths and injuries would need to be prevented for the benefits of helmets to at least equal the costs?’\(^{61}\)

It is then up to the reader (or the decision maker) to form an opinion as to whether the proposal is expected to have the required degree of impact. Within the context of the HSR system, PwC is looking to answer:

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\(^{61}\) Ibid.
1 “based on the available evidence, are the intended benefits of the HSR system likely to be obtained in practice?”, and

2 ‘given the cost of overweight and obesity at a given point in time, what is the required reduction in the growth rate of individuals being classed as overweight or obese required to pay back the full cost of the HSR program?’

To this end, PwC has first undertaken a review of the existing literature to understand:

1 is interpretive labelling effective in helping people to make better food choices?

2 how might the HSR system operate in practice?

Essentially this asks, based on the preponderance of evidence, does PwC think that the proposed initiative is likely to have the desired effect?

While PwC’s research into the utility of interpretive labelling suggests very promising results, further research into dietary choice under everyday conditions paints a more complicated picture. Based on PwC’s understanding of the available literature, the HSR system should help drive three principal benefits.

• improve information for consumers

• behavioural response by consumers (e.g. healthier food choices)

• behavioural response by industry (e.g. food reformulation).

The following sections will address each principle benefit in turn. Section 0 explores the break-even point required to pay back the full cost of the HSR system.

5.2 Improved information for consumers

5.2.1 Literature review

The available literature suggests that that the major hurdle against use of nutrition information is that this information is difficult to understand for many consumers. As such, finding the optimal format for nutrition information represents an important step towards increasing the usage rate of this information. Indeed, a number of studies have highlighted that consumers tend to have a poor understanding of nutritional content and/or find the information provided in numerical format confusing or misleading.

Although some consumers could understand some of the information on nutrition labelling, in general they reported finding nutrition labelling confusing, especially the use of some technical and numerical information.

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62 Ibid.


Some researchers have questioned the utility and uptake of numerical or text-based schemes, and whether they have been effective in improving information for consumers. With over 7,000 products already voluntarily featuring the DIG labelling scheme logo (an informative rather than interpretive system), some industry participants argue that another nutrition FoPL is simply unnecessary.\(^65\) By contrast, a recent study of the DIG labelling scheme at nine Australian supermarkets focused on energy-risk foods including biscuits, candy, ice creams, chocolates, crisps, sports drinks, energy drinks, flavoured milks, sweetened juices and soft drinks. The review found that many Australian manufacturers have adopted the DIG labelling scheme (consistent with industry claims of widespread adoption) but almost all choose not to use the complete DIG label and still avoid displaying the high saturated fat and sugar content of their products by opting for the ‘energy alone’ option.\(^66\)

In this light, interpretative FoPL schemes are viewed as an important avenue to help address some of the issues noted above. As such, the first key research question is to understand whether or not FoPL schemes are useful and effective tools for helping consumers make ‘healthier’ food choices. The following section discusses key themes emerging from the available literature and highlights critical success factors relevant to the proposed HSR system.

A 2013 literature review assessed 38 empirical studies related to consumer response to FoPL and shelf labelling. This review found that ‘consumers can more easily interpret and select healthier products with nutrient-specific FoPL systems that incorporate text and symbolic colour to indicate nutrient levels rather than nutrient-specific labels that only emphasise numeric information, such as Guideline Daily Amounts (GDAs) expressed as percentages and/or grams’.\(^67\) However, the authors also concluded that more research is needed to fully assess the impact of such labels systems on consumers’ actual purchases and dietary intakes.\(^68\)

Similarly, a recent New Zealand study examined several FoPL variants to test whether interpretive labelling systems have a positive effect on consumers’ ability to correctly identify healthier food products.\(^69\) The study tested three approaches to the HSR system:

- proposed full HSR label (i.e. star rating, energy icon and risk nutrient icons)
- HSR component of the label only (i.e. star rating only)
- HSR component of the label (i.e. star rating) with an accompanying DIG labelling scheme logo.

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\(^{66}\) Ibid.


\(^{68}\) Ibid.

Overall the study found that all of the FOPLs tested had some positive effects on the ability of consumers to correctly identify healthier food products. Furthermore it found that full HSR system label and the HSR component of the label with the DIG performed equally well, both in terms of the number of times these FOPLs had a positive effect on the ability of consumers to select the healthier product, and the average increases in the percentage of participants who correctly selected the product with the healthier nutrient profile.70 This result indicated that not only is the HSR system useful to help consumers differentiate nutrient characteristics, but it can potentially ‘co-exist’ with the existing DIG labelling scheme.

Other findings of the study that are relevant to the effect of the FOPLs and the HSR system specifically include:

- Ingredients displayed pictorially or in text on the front of packages for promotional purposes, or listed on the rear of products, have an influence on the consumers’ decisions and can lead them to incorrectly select less healthy products. FOPLs can help to mitigate this to some extent. Overall, consideration of product ingredients when making healthy food choices tended to decrease slightly when FOPLs were displayed on products.

- When the HSR was shown on products as part of the FOPLs, between 12% and 27% of respondents said, without any prompting, that the HSR influenced their decision. Use of the interpretive HSR was greater when there was a full-star as opposed to half-star difference in the five-star rating.

- FOPLs helped participants understand that there was not a substantial difference in the nutritional value for some of the products displayed. In the experimental trials where there was only a half-star difference in the interpretive HSRs, participants were more likely to recognise that there was ‘hardly any difference’ between the products if FOPLs were displayed on them.71

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70 Ibid.
71 Ibid.
This result is also supported by a 2009 Australian study undertaken by the Cancer Council that surveyed 790 respondents to assess consumer perceptions of nutrition information using four different FoPL schemes:

1. a traffic light (TL) system (ranking levels of total fat, saturated fat, sugar and sodium)
2. TL rankings plus an overall rating
3. monochrome percentage daily intake (%DI) system (highlighting the per cent dietary contribution of energy, protein, total fat, saturated fat, total carbohydrate, sugar, fibre and sodium)
4. a colour-coded %DI system (ranking the same nutrients but with a colour code for total fat, saturated fat, sugar and sodium).

In this study, each respondent was shown one labelling format relating to two different food products sets (a healthy product and less healthy product). A product was defined as ‘healthy’ if it qualified to make a health claims based on the (proposed) FSANZ Nutrient Profiling guidelines. The authors found that while people initially thought they would have the easiest time using a colour coded %DI label, the TL label was three times more likely to help consumers successfully identify healthier food product.72

A 2008 two-part study recruited men and women in the United Kingdom (UK), Germany, Italy and the Netherlands to assess both different labelling formats for comprehension, liking and credibility, and to measure the impact of the different labelling formats on decision-making. The results from the second part of the study highlighted that simpler front-of-pack formats such as Healthier Choice Tick or Stars can help consumers make quicker and healthier decisions than more detailed GDA scores.73 The authors note that when one accounts for time pressures faced by consumers in the everyday shopping environment, a simple tick logo on the front-of-pack to complement the detailed back-of-pack nutritional information fact box could prove to be a very effective tool. Further the authors note that endorsement by national and international health organisations strongly increased the labelling formats’ credibility.74

A 2007 literature review of research conducted in the European Union (EU) highlighted widespread consumer interest with respect to nutrition information on food packages (though this interest varies across situations and products). In general, the review found that consumers like the idea of simplified front of pack information, despite any difference of opinions with respect to various formats. Most consumers generally understand the common signposting formats in that they believe that they understand them and they can rely on key information to make more informed choices.75 Interestingly, the authors noted that ‘we have

74 Ibid.
little insight into how labelling information is/will be used in an everyday shopping situation, and how it will affect consumers’ dietary patterns.\textsuperscript{76}

Similarly, a 2006 study conducted in the UK examined the effectiveness of two types of nutrition label using two separate measures: 1) eye movements tracking and 2) healthiness ratings. The study found that for the standard nutrition label ‘participant eye movements lacked focus and their healthiness ratings lacked accuracy’.\textsuperscript{77} By contrast, the traffic light system helped to guide the attention of the consumer to the important nutrients and improved the accuracy of the healthiness ratings of nutrition labels.\textsuperscript{78}

A 2005 literature review found that while self-reported use of labels was high among consumers, more objective analysis suggested that the actual use of nutrition labelling may be much lower. Further, the degree to which consumers can understand nutrition labels can depend on the task in question. While simple numerical information was sufficient for relatively straightforward tasks, the ability to interpret information correctly reduced as the complexity of the task increased. As such, the authors concluded that interpretive labelling systems represented a potentially small but important avenue with which to improve consumer knowledge and information.\textsuperscript{79}

On the whole, there is greater evidence to suggest that the HSR system can help guide better decision making than relying on numerical and textual information alone. As was articulated in the Blewett Review, a major challenge when presenting nutrition information to help inform positive food choices is how best to communicate with those who have the greatest need for such information.\textsuperscript{80}

In particular, those consumers who stand to gain the most from selecting better quality nutrition are often the same consumers who tend to fall into lower socio-economic groups, who have lower levels of literacy and numeracy, and who are potentially members of more vulnerable groups such as minorities, indigenous groups or the elderly.\textsuperscript{81}

While the available evidence suggests that interpretive labelling appears to be a promising tool for healthier food choices, a question that emerges from the research is how a FoPL scheme, operating under everyday conditions, will perform over time. Ultimately the HSR system will be viewed not only in terms of improvements to consumer information, but also how consumers use this information to make better food choices.

\textsuperscript{76} Ibid.
\textsuperscript{77} Jones, G. and Richardson, M. ‘An objective examination of consumer perception of nutrition information based on healthiness ratings and eye movements.’ 2007. Public Health Nutrition, 10, 238–244.
\textsuperscript{78} Ibid.
\textsuperscript{80} Blewett, N. et al. ‘Labelling Logic Review of Food Labelling Law and Policy’ 2011.
\textsuperscript{81} Food Standards Agency. ‘Comprehension and use of UK nutrition signpost labelling schemes, report prepared by BMRB Social Research and the Food.’ Consumer Behaviour and Health Research Centre at the University of Surrey, FSA, London, 2009.
5.3 Behavioural response by consumers

5.3.1 Literature review

Beyond issues of nutritional comprehension, concepts of bounded rationality are also particularly helpful when examining consumer choice. Simply, bounded rationality is the idea that decision-making and the rationality of individual choice is limited and therefore may resulting in ‘sub-optimal’ choices.\(^\text{82}\)

Within the context of food choices, people do not (or cannot) always appreciate the impact of future health consequences. As result they typically will ‘discount’ or lessen the importance of health information relative to other competing information. For example, some research supports the view that factors such as personal preference, time preference, myopia or present-biased preferences, visceral factors (e.g. hunger), or lack of self-control all pose challenges for rational decision making.\(^\text{83}\) Similarly, other authors have commented:

*We can characterize decisions related to eating and body weight as an interaction between a deliberative system where individuals trade off the utility from current food intake against the associated monetary expense and disutility of future weight gains to achieve a constrained optimum and an affective system which responds to cues and stimuli but does not consider long-term effects of current actions.*\(^\text{84}\)

This observation is supported by the 2007 FSANZ Consumer Attitudes Survey which found that 58 per cent of respondents either ‘strongly agreed’ or ‘agreed’ with the statement ‘I don’t have enough time to read food labels when I’m shopping, even if I wanted to’.\(^\text{85}\) Further, as the Blewett Review points out, ‘it has been estimated that people are exposed to up to 3,000 commercial messages per day’.\(^\text{86}\)

A recent 2014 French study confirms a number of these findings. The study measured three simple FoPL schemes including:

- the ‘green tick’, the logo of the French Nutrition and Health Program and “simple traffic lights” (STL)
- two detailed FoPL formats
  - ‘multiple traffic lights’ (MTL)
  - ‘color range’ logo.

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\(^{82}\) This concept was proposed by Herbert A. Simon in 1957 as an alternative basis for the mathematical modelling of decision making, as used in economics and related disciplines; it complements rationality as optimization, which views decision-making as a fully rational process of finding an optimal choice given the information available.


\(^{86}\) Ibid.
Each FoPL scheme was placed on ready-to-eat soup packages, and dietary intake data was collected using three web-based panel surveys. The authors found that ‘after adjustment for socio-demographic and economic factors, no FoPL scheme stood out as being more suitable than another for reaching populations with poor diet’. However, the authors note that both STL and MTL may be most appropriate for increasing awareness of healthy eating among groups at higher risk of nutrition-related chronic diseases. This finding might be particularly insightful when considering more targeted initiatives to address specific populations.

A 2012 literature review conducted in the EU explored how European consumers respond to nutrition labels when shopping for food or eating out of home over a five year period from 2007 to 2012. The review concluded that while a number of experimental studies show that consumers are reasonably able to understand and use the different FoPL schemes to identify ‘healthier’ food products, studies assessing the impact of nutrition labelling on actual dietary intake are scarce, providing little evidentiary support linking nutrition label use with measured changes in body weight.

From this, the research suggests that interactions between nutritional information and how it is used in practice is an important consideration. A 2010 study undertaken in the UK examined six product categories and found that only 27 per cent of shoppers used nutrition information on food labels when making a selection in the store. The study also measured consumers’ understanding of major front-of-pack nutrition labels and found that up to 87.5 per cent of respondents were able to identify the healthiest product (in a set of three). The authors suggest that a discrepancy between the level of understanding and the level of actual use is explained by different causal mechanisms, specifically:

- The degree of use of nutrition information can depend on product category. Their findings suggested that the degree of nutritional information was highest for products like yoghurt which was a product category typically viewed as ‘healthy’ as opposed to ‘indulgence’ type products like confectionaries. This is in line with earlier research suggesting that consumers are less interested in nutrition information for indulgence-type products.

- An analysis of demographic factors found that while demographic characteristics have an effect on both use and understanding, the causal mechanisms are quite different. For example, younger people and people in the higher social grades have higher levels of nutritional understanding (with part of this effect being

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88 Ibid.


91 Ibid.
mediated by higher levels of nutrition knowledge, whereas the remaining part may be interpreted as effects of education and intellectual ability).

- For determinants of use, however, the effect of demographics is completely mediated by interest in healthy eating. Interest in healthy eating was the only variable having a direct effect on use of nutrition information in the store, and it is higher for people in the higher social grades, for women and for older people.92

Similarly, in 2009 the Food Standards Agency in the UK undertook a comprehensive evaluation of different approaches to nutrition ‘signpost FoPL’ schemes. The study aimed to understand how information provided by FoPL schemes are used by shoppers under everyday shopping situations, the extent to which FoPL information is accurately interpreted, and the impact of the co-existence of a range of labels/elements on comprehension.93

The scope of the study included an evaluation of three main types of FoPL schemes including:

- %GDA schemes (i.e. schemes providing information on amount of nutrient per portion of product as a percentage of GDA)
- TL colour coded schemes (i.e. indicating nutrient level per 100g of product – these can also be found with accompanying ‘High, Medium and Low’ text)
- hybrid schemes (i.e. schemes which provide both a TL colour code (with or without text) and %GDA).94

Overall the study found that the strongest FoPL schemes are those that combine textual elements (e.g. ‘high’, ‘medium’, ‘low’), TL colours and %GDA information. Interestingly, self-reported use of FoPL schemes (58 per cent) was higher than what was observed by way of monitoring consumer purchases when they were shopping, which suggests a degree of ‘over-claiming’ with respect to health consciousness. In actuality, the authors found that other influences tended to take precedence in purchasing decisions.95

Further, there was evidence that some groups are less likely than others to use and understand FoPL schemes as some shoppers simply lack an understanding of nutrition and healthy eating. The authors suggest that in certain groups, basic nutritional knowledge may have to be improved before FoPL schemes could help inform everyday food choice in these individuals.96

Interestingly the Food Standards Agency also noted that comparisons using FoPL schemes were carried out more often when considering buying new products, considering changing a

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92 Ibid.
94 Ibid.
95 Ibid.
96 Ibid.
usual purchase, or when taking into account particular health needs (e.g. when shopping for children). FoPL schemes were also used by some shoppers to help plan a weight loss diet, or to manage particular dietary needs (e.g. low salt). This lends support to the idea that personal interest and nutritional knowledge are two separate (albeit relate) things.97

While consumer decision making is a complex process, there is emerging research that suggests that interpretive FoPL schemes are yielding very promising findings irrespective of some of the limitations found in the controlled studies discussed above. For example, a 2014 Australian study examined the potential impact of the proposed HSR system in a simulated shopping environment among a representative sample of Australian shoppers. The study specifically aimed to build on insights gained from earlier research into the impact of the proposed HSR system which found a positive influence on food selection.98 Specifically, key findings from the study include:

- the most positive changes to purchases tended to occur at the highest star ratings presented (e.g. a 4-5 star rating for a lunchbox filler product resulted in a 26 per cent increase in purchase volume)
- findings highlighted a ‘FoPL threshold’ at about 2½ to 3 stars (i.e. reactions above and below point provoked some marked changes in consumption intention)
- confirmed previous work that suggested the two FoPL label types (‘full FoPL label’ versus ‘Stars + Energy’) tended to work similarly across rating levels
- a number of demographic sub-groups were more ‘FoPL- sensitive’ than others
  - mature families (oldest child over 15), young singles/couples, the under 25 and 40 plus age groups proved more elastic at the two ends of the FoPL star scale
  - those aged 25-39 and middle family (oldest child 6-15) grocery buyers exhibited the lowest FoPL sensitivity suggesting that some consumers may be more ‘set in their grocery ways’ than others.99

5.3.2 Critical success factor

While it appears that a FoPL scheme can potentially influence purchasing decisions in the everyday shopping situations, there is also consensus that labelling on its own does not necessarily lead to a healthy diet. Indeed, as earlier work summarises:

_The main barriers preventing them from adopting healthy eating advice was not ignorance but the sum effect of the following factors and their interrelationship: socio-cultural norms; lack of resources; financial instability; limited access to and availability of affordable healthy food and lack of choice. This would indicate broader political, economic and social_

97 Ibid.
99 Ibid.
Benefit analysis

Factors should be incorporated into any model of eating behaviour in low-income families.¹⁰⁰

A key success factor for an initiative of this nature will be the ongoing support of governments, industry and NGOs to help increase the overall value of nutritional information within the decision-making.

Without effective education concerning the use of the HSR system in everyday conditions, there is a risk of creating perverse decision outcomes. In the context of the HSR system, a hypothetical example might be a consumer who chooses products based solely on the health star rating (to the exclusion of other factors such as their own specific nutritional requirements) because ‘more stars are better’.

This view is best summarised by authors such as Cass Sunstein, who highlight clear examples of such paradoxes whereby government programs and strategies achieve an end precisely opposite to the one intended:

- First, in many cases people can sometimes process information poorly. After being given certain data, they actually ‘know’ less than they did beforehand. In particular, when people receive information about probabilities, especially low ones, they frequently rely on their own heuristics that lead to systematic errors.
- Second, increased requirements for disclosure or ‘perfect accuracy’ of information can sometimes drive producers or other regulated entities to provide little or no information at all. Authors like Sunstein caution that the push for increased disclosure requirements, while well intentioned, should be treated with caution as in some setting they could be a mistake.¹⁰¹

However, in PwC’s view, such criticisms likely oversimplify the issue in this instance. Consumer decision making process is a far more complicated process; while labelling and marketing are important factors, so too are other drivers such as price, tastes, trends, convenience, personal dietary requirements/restrictions, etc. Further, it is likely that the risk of ‘irrational food choices’ will continue to exist regardless the HSR system (e.g. ‘fad’ diets). Moreover, there is little evidence to suggest that this will actually occur, and more evidence that suggests individuals find interpretive FoPL schemes to be a useful tool to aid in decision making (should nutrition be a driving factor in decision making).¹⁰² While there is some potential for short term information asymmetry, a long term investment in education (particularly where there is alignment with existing health and nutrition campaigns) is likely the most effective means of managing such risks.

¹⁰⁰ Burns, C. ‘A review of the literature describing the link between poverty, food insecurity and obesity with specific reference to Australia’ April 2004.

¹⁰¹ Sunstein specifically excludes strategies where the costs clearly exceed the benefits or have unintended adverse consequences as separate issues. Sunstein, C. R. ‘Paradoxes of the Regulatory State’. University of Chicago Law Review. Revision 57 (1990): 407.

¹⁰² Anecdotally there are reports of ‘fad diets’ and other popular trends that could have the same impact.
5.4 Beneficial behaviour response by industry

5.4.1 Literature review

While the implementation of a FoPL scheme is aimed at providing consumers with nutritional information in a more usable format, consumers could also potentially benefit through product reformulation. Product reformulation is potentially a strategy that companies might choose in order to achieve a higher star rating for their products, but it is not a requirement of the HSR system per se. Overall, the health and economic benefits of population level campaigns to reduce dietary intake of sodium, saturated fat and trans-fat is well established.103

Within the Australian and New Zealand context are two studies examined how food and beverage manufacturers reduced the salt content of the products. The Australian study outlines how a major food manufacturer undertook a program of salt reduction in response to a comprehensive government report recommending lower sodium levels as well as public opinion spurred by an article in Choice magazine. Using the National Heart Foundation’s Tick criterion as a target, the manufacturer reduced the salt content of 12 of its breakfast cereals. The reformulation exercise meant that five more of their products were able to display the Heart Foundation Tick and overall 235 tonnes of salt were removed from the Australian food supply over a one year period, including from those products that were reformulated but did not meet the Tick criterion. Further, the authors found ‘it was possible to find ways to reformulate products that did not affect consumer appeal while also making nutrient changes that supported public health objectives’.104

The New Zealand study evaluated the specific impact of the ‘Pick the Tick’ requirement on product reformulation. The study interviewed New Zealand companies to determine whether product reformulation changes were made in order to meet the ‘Pick the Tick’ requirements, controlling for whether or not companies were reformulating products regardless of the program. The ‘Pick the Tick’ program was estimated to have removed 33 tonnes of salt from the food supply over a one year period and help drive reformulation of 23 breads, breakfast cereals and margarines.105 Interestingly, both the Australian and New Zealand programs are funded through a royalty payment arrangement. As such, it is reasonable to conclude that companies see value in interpretive labelling schemes like the ‘Pick the Tick’ otherwise they would not be willing to pay for the use of the logo.

However, a question remains as to whether drivers such as changing consumer preferences will be enough to encourage positive changes by industry including uptake, product reformulation, marketing and education, etc. The available research suggests that there are no hard or fast rules as to how industry will react with respect to the reformulation of their products. Much like the complexities of consumer demand, industry response will depend on a number of factors including cost pressures, technical limitations, economic/business...

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103 Heart Foundation. ‘Rapid review of the evidence: Effectiveness of food reformulation as a strategy to improve population health.’ 2012.

104 Ibid.

environment, a company’s position within the market, consumer demand, and whether product formulation is competitive issue for their products.\textsuperscript{106}

While industry should be careful to respond to changes in consumer demand, they also have the ability to shape consumer demand through introduction of innovative new products and reformulation of existing ones. As such this presents a potential ‘chicken and egg problem’ where a consumer demand may not be sufficient to drive reformulation; however without proactive reformulation efforts it becomes difficult to drive changes in consumer demand and preferences.

One of the most comprehensive bodies of research comes from the UK’s salt reduction strategy. In short, the UK’s salt reduction strategy was composed of three key elements:

- setting targets and working with the food industry to reformulate foods
- encourage the use of improve nutritional labelling
- work with government and non-government actors to undertake consumer education awareness, promote dietary change and increase demand for low-sodium foods.

Evidence from the UK suggests reformulation programs and voluntary FoPL schemes (accompanied by a public advertising campaign) can have a significant impact on the nutritional profile of foods.\textsuperscript{107} Over the evaluation period, the review found substantial sodium reductions, up to 70 per cent in some foods, had been achieved. Further, the study also found that the consumer campaign showed increased awareness of the benefits of reducing salt intake. In 2009, 43 per cent of adults surveyed claimed to have made a special effort to reduce salt in their diet as compared to 2004 (before the program began) where 34 per cent of adults surveyed reported the same.\textsuperscript{108} The report highlighted that it is now generally accepted that FoPL is useful and valuable to consumers in making healthier food choices.

Interestingly, a key turning point for the UK salt reduction strategy, was when salt became a competitive issue between companies.\textsuperscript{109} Once salt became a matter of competitive position, companies were more likely to base their marketing strategies on the amount of salt contained within products or their portfolio of products. In some cases, companies stopped making reductions covertly and started marketing them much more overtly thereby changing the competitive landscape.\textsuperscript{110}

With respect to business challenges, the UK Food Standards Agency highlights the fact that many products are reformulated approximately every three years as part of a normal cycle


\textsuperscript{108}Ibid.


\textsuperscript{110}Ibid.
and therefore much of the cost of reformulation is not a necessarily ‘new’.\textsuperscript{111} However, the precise costs are estimated to vary considerably depending on the type of company, the product and the processing technique being employed.\textsuperscript{112} Further, cost pressures may be comparatively greater when reformulating to meet public health outcomes given the (often) competing pressures to balance health concerns with factors such as taste, texture and/or safety of products.

\subsection*{5.4.2 Critical success factors}

There is evidence to suggest that a ‘multi-pronged’ approach could potentially be an effective means of driving positive change within the food and beverage manufacturing industry. Effectively, industry ‘acting alone’ to voluntarily adopt the HSR system is viewed by some stakeholders as a ‘high cost, high risk, and low probability of success’ proposition. As such, governments and NGOs also have a role to help reduce costs, distribute risks and/or increase the probability of success. To that end, through consultation with industry for this cost benefit analysis, some industry participants provided some cautionary feedback with respect to the development and roll-out of the HSR system to date.

First, industry stakeholders communicated to PwC the importance of certainty and predictability with respect to the development and roll-out of the HSR system. In their view, were the ‘goal posts’ to shift over the course of the development and roll-out period, and if new ‘unknowns’ were be introduced, this could potentially change the risk profile and likelihood of realising HSR system benefits. To put it another way, industry stakeholder require some certainty with respect to the HSR system so they can properly evaluate the proposal, particularly with respect to risk and reward, before deciding to adopt the HSR system.

Next, anecdotally, a few industry stakeholders expressed concerns that the benefits of the HSR system have not been clearly communicated. Further, some industry stakeholder have also expressed concern that that the process for the development of key HSR system elements had not been widely communicated. In their view, a number of key decisions are being made out of sight without broad based participation or discussion. For example, at the time of consultation for this cost benefit analysis, key details such as the style guide were still being considered. Some industry stakeholders held the view that elements like the style guide are a key input into the decision as to whether or not to take up the system.

Lastly, some industry stakeholders highlighted that the HSR system’s evaluation parameters have not been sufficiently articulated. Industry stakeholders specifically point to statements like:

\begin{quote}
The Forum noted that the preferred implementation option in Australia is a voluntary system, subject to there being consistent and widespread uptake of\end{quote}

\begin{footnotes}
\textsuperscript{111} The George Institute for International Health. ‘Reformulating food products for health: context and key issues for moving forward in Europe,’ November 2009.
\textsuperscript{112} Ibid.
\end{footnotes}
Benefit analysis

FoPL. If following evaluation after two years, a voluntary implementation is found to be unsuccessful, a mandatory approach will be required.\textsuperscript{113}

Further, some industry stakeholders were of the view that terms like ‘unsuccessful’ are unclear and do not define parameters as to what ‘success’ looks like. As such, some food manufacturing stakeholders are of the view that the proposed system may not truly voluntary.\textsuperscript{114}

The feedback provided to PwC does not represent a comprehensive assessment of the HSR system development and roll-out; rather, given the importance of broad stakeholder participation for realising HSR system benefits, PwC felt it important to highlight such concerns for discussion and consideration.

\textsuperscript{113} Department of Health. ‘Front-of-pack labelling updates’. 14 June 2013.

\textsuperscript{114} The Department of Health has advised that the Front-of-Pack Labelling Advisory Committee is in the process of developing a monitoring and evaluation strategy. Further, a voluntary HSR system was specifically adopted to provide food manufacturers with greater flexibility than would be possible under a mandatory approach.
6 Assessment of the HSR system

Based on the analysis in Section 0, given that the adoption of the proposed HSR system is voluntary, it is very difficult to predict how many businesses and brands will adopt the system.\(^{115}\) Using the DIG labelling scheme uptake as a guide, were uptake of the HSR system similar, the combined government, industry and public health cost of the HSR system would be $60.0 million.

Based on the analysis contained in Section 0, PwC has now quantified the reduction in the number of obese and overweight adults (and therefore associated health costs) that would be required to HSR system ‘break-even’. As discussed earlier in the report, the cost of overweight and obesity in Australia totalled $56.6 billion in 2005.\(^{116}\) Adjusting for inflation and assuming current trends in overweight and obesity continues the health cost of overweight and obesity is expected to reach $106.5 billion by the end of the decade.

Table 8: Annual adult overweight and obesity costs

<table>
<thead>
<tr>
<th>Current cost projection of overweight and obesity</th>
<th>$106.5 billion (by the end of 2019-20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of HSR system</td>
<td>Industry - $40.5 million</td>
</tr>
<tr>
<td></td>
<td>Government – $13.5 million</td>
</tr>
<tr>
<td></td>
<td>NGOs - $6.0 million</td>
</tr>
<tr>
<td></td>
<td>Total - $60.0 million</td>
</tr>
<tr>
<td></td>
<td>$12.0 million (per year)</td>
</tr>
</tbody>
</table>

Source: PwC, NHMRC, ABS catalogue numbers 6401.0, 4364.0, 55.001, 3222.0 and 3101.0.

Under a voluntary approach, for the proposed HSR system to break-even (again under the medium complexity scenario) on a total cost of around $60.0 million ($40.5 million cost to industry), will required a 0.04 per cent reduction in the population that is either overweight or obese by 2019-20. This implies a decrease of 7,565 persons over a five year period or around 1,513 individuals per year.

Given that a significant driver of cost is the number of labels that would incorporate the HSR system, Table 9 provides an indication of the cost impact and associated break-even point under two alternate uptake scenarios. The purpose of this table is to provide the reader with a view as to the impact to the break-even point were the HSR to achieve greater than expected uptake resulting in a higher full cost of the HSR system.

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\(^{115}\) To address some this uncertainty, PwC has undertaken sensitivity analysis in 0D and can be used by the reader to understand the potential range of costs under different scenarios. The sensitivity analysis presented is not intended to be exhaustive.

\(^{116}\) National Health and Medical Research Council, 'Obesity and Overweight', 2013.
Table 9: Break-even point under various SKU count escalation scenarios

<table>
<thead>
<tr>
<th>Number of SKUs</th>
<th>Total industry cost</th>
<th>Total cost</th>
<th>Reduction required (persons)</th>
<th>Reduction required (percentage point)</th>
<th>Reduction required (persons, per annum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7,200 (base)</td>
<td>$40.5 million</td>
<td>$60.0 million</td>
<td>-7,565</td>
<td>-0.04</td>
<td>-1,513</td>
</tr>
<tr>
<td>8,280 (+15%)</td>
<td>$46.6 million</td>
<td>$66.1 million</td>
<td>-8,322</td>
<td>-0.04</td>
<td>-1,664</td>
</tr>
<tr>
<td>9,360 (+30%)</td>
<td>$52.6 million</td>
<td>$72.1 million</td>
<td>-9,079</td>
<td>-0.05</td>
<td>-1,816</td>
</tr>
</tbody>
</table>

Additionally, as was discussed previously, change complexity is another variable that could have implications for the overall cost estimate of the HSR system. Table 10 provides an estimate of both industry cost and total cost of the HSR system as well as associated changes to the estimated break-even point for ‘minor’, ‘medium’ and ‘major’ complexity scenarios. Again, the purpose of this is to provide the reader of a sense of the cost range and the relative break-even point were the implementation of the HSR system found to be more or less complex than anticipated.

Table 10: Break-even point under change complexity scenarios (7,200 SKU)

<table>
<thead>
<tr>
<th>Complexity</th>
<th>Total industry cost</th>
<th>Total cost</th>
<th>Reduction required (persons)</th>
<th>Reduction required (percentage point)</th>
<th>Reduction required (persons, per annum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor</td>
<td>$17.2 million</td>
<td>$36.7 million</td>
<td>-4,663</td>
<td>-0.02</td>
<td>-933</td>
</tr>
<tr>
<td>Medium</td>
<td>$40.5 million</td>
<td>$60.0 million</td>
<td>-7,565</td>
<td>-0.04</td>
<td>-1,513</td>
</tr>
<tr>
<td>Major</td>
<td>$56.0 million</td>
<td>$72.1 million</td>
<td>-9,079</td>
<td>-0.05</td>
<td>-1,816</td>
</tr>
</tbody>
</table>

Table 11: 'Break-even' point

<table>
<thead>
<tr>
<th>Reduction in overweight and obese persons compared to current trend required to break-even</th>
<th>7,565</th>
<th>1,513 (per year)</th>
</tr>
</thead>
</table>

Reduction in overweight/obese share compared to current trend required to break-even (percentage) | 0.04 |

Source: PwC, NHMRC, ABS catalogue numbers 6401.0, 4364.0-55.001, 3222.0 and 3101.0.

If current trends were to continue, the share of the adult population that would be classified as either overweight or obese would be 66.58 per cent of the population by the end of 2019-20 up from 63.4 per cent in 2011-12. Expressed another way, this means that current trends expect new overweight and obese adults to be added at a rate of approximately 290,000 per year.

The break-even point of this evaluation is a 0.04 percentage point reduction in the rate of the population that will be classed as overweight or obese at the end of the five year period. This

---

117 PwC projections based on ABS catalogue number 4364.0-55.001.
estimate is based on an assumption that current trends will continue for the next five years. Therefore, the figures of reduction in overweight and obesity persons in the above table are not reductions from the current level, but rather a reduction against the level in five years’ time if the current trend continues. This will still represent a growth in the amount of overweight or obese people, albeit at a lesser rate.

Put another way, a break-even point of 7,565 persons over five years who are classified as overweight and obese means that we would need to see a reduction of 1,513 overweight or obese persons being added to the Australian population each year. This does not represent a fall from the current levels in absolute terms, but 7,565 people not entering the overweight and obese categories that otherwise would (i.e. 288,487 per year, down from 290,000).

It is important to note that this result does not speak to the likelihood of the HSR system leading to these results on its own. Given the inherent complexity of decision making with respect to consumer food choices, it is simply not possible to ascribe the proportion of such a change specifically to the HSR system. Additionally, this result does not suggest that the HSR system will have an impact on only the rates of overweight and obesity. It can be reasonably assumed that in addition to a reduction in overweight and obesity, the HSR system will also ‘pay back’ the full cost by way of a reduction in a range of chronic weight related diseases such as heart disease, type 2 diabetes, hypertension, etc.

In PwC’s view, there is strong evidence to suggest that interpretive FoPL schemes, such as the proposed voluntary HSR system, are useful tools to assist consumers make ‘healthier’ food choices and could be an effective tool to help drive change within the industry. Further, the available literature suggests that certain sub-populations (e.g. those with specific medical conditions, elderly, expectant mother, etc.) are more likely to use a FoPL scheme to inform their food choices than others. In particular those consumers that have health conditions where nutrition might be more prominent in decision making. As such, tailoring marketing, promotion and education to specific sub-populations could help increase the likelihood of success.

This break-even analysis is conducted on the direct and indirect costs of overweight and obesity in the adult population. It should be noted, however, that the HSR system could have other benefits outside the reduction of the costs measured in that study. For example, in addition to direct financial costs related to overweight and obesity, there could be additional benefits such as the indirect cost of carers, the cost of the loss of productivity due to increased sick leave or early retirement for overweight and obese people. It is also possible that better diet can have health benefits for populations outside the scope of the study, such as for children who may benefit from better eating habits passed on by their parents. As outlined in Section 0, consistent with our scope, the reader should note that PwC has not assessed other approaches and their relative effectiveness in addressing the identified problem.

While the available evidence is very encouraging, it is important to note that there is less evidence that suggests how the proposed voluntary HSR system will perform under everyday


\(^{119}\) Ibid.
conditions. This is not to say that the proposed HSR system will not improve consumer choice in practice. Clearly, from the available research, consumers place value on health and nutritional information, and it is a factor in the decision process (albeit competing with many other factors simultaneously).

In PwC's view, the proposed voluntary HSR system stands a good chance of success if risks can be mitigated in line with the critical success factors outlined in Section 0. After all, many Australian businesses have adopted a different FoPL scheme such as 'Heart Foundation Tick' or the DIG labelling scheme, indicating that industry does see role for nutritional information on their products. As industry knows, with any new venture, there are risks. But PwC believes that such risks can be mitigated through a coordinated and joint approach that involves government, industry, and health and consumer groups.
Appendices

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Appendix A  Disclaimer

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Appendix B Assumptions & limitations

Key assumptions

Costing assumptions

The following table summarises key parameters used in developing our industry cost estimate.

Table 12: Summary of Key Parameters

<table>
<thead>
<tr>
<th>Data point</th>
<th>Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of food and beverage SKUs</td>
<td>7,200</td>
<td>Provided by industry stakeholders.</td>
</tr>
<tr>
<td>Adoption rate</td>
<td>20% p.a.</td>
<td>PwC has assumed a steady uptake over a five year period. While different uptake rates would vary the overall cost estimate (relating to the time value of money), this impact is likely not material and would not impact PwC overall conclusion.</td>
</tr>
<tr>
<td>Implementation period and lifecycle</td>
<td>5 year period</td>
<td>Based on PwC industry survey.</td>
</tr>
<tr>
<td>Real discount rate</td>
<td>7%</td>
<td>There is no ‘hard and fast rule’ as to appropriate real discount rates. A 7 per cent real discount rate is the default rate used by the Productivity Commission. The Office of Best Practice Regulation cites between 5%-10% in its guidance materials.</td>
</tr>
</tbody>
</table>


Global assumptions

While it is not within the scope of this engagement to review the implementation and operation of the HSR system, stability and continuity of the implementation and operations of the HSR system is a key assumption of this report.

We understand that key implementation and operational plans are/have been developed separately.

Clearly, there is risk inherent to any new venture. However, should any of these elements not be presented or sufficiently developed, the likelihood that intended benefits may not be realised could increase.

As such, at a minimum, PwC has assumed that implementation and operational planning includes (as appropriate and tailored to scope and size of a voluntary system):

- Integrated operational model that outlines:
  - Clear ownership of, and accountability for, the HSR system
  - HSR system governance model, strategic plan and budget
  - Agreed operational structure (i.e. between government, industry and consumer/health stakeholders)
  - Key optional capabilities developed including:
    - Key distribution and public interaction channels (aligned with those of key partners)
    - High-level processes
    - People and capability map
    - Supporting information requirements and technology plan
  - Agreed performance indicators
  - Quality assurance and risk mitigation framework (HSR system focused)

- Integrated implementation plan outlining:
  - Key milestones
  - Risk mitigation strategy (project focused)
  - Communication plan
  - Review and evaluation plan (including methodology and milestones).

Survey methodology

While extensive care has been taken to ensure the robustness and accuracy of data presented in this report, a number of key parameters have been developed using a survey methodology. As with any research method, there are a number of strengths and limitations inherent to
each approach. This does not mean that the results are invalid; rather a reader must bear such limitations in mind when forming their overall view of the information presented.

In the case of a survey method, some potential advantages include:

- Surveys are relatively easy to administer and can be developed in less time (compared to other data-collection methods)
- Surveys can be much more cost-effective than other methods, particularly when leveraging powerful online platforms
- Surveys can be conducted remotely and can reduce or prevent geographical dependence
- Surveys are capable of collecting data from a large number of respondents, particularly online surveys
- Survey software typically incorporates advanced statistical tools or data can be easily uploaded into analytical software packages
- A broad range of data can be collected through many different question types (e.g., attitudes, opinions, beliefs, values, behaviour, factual)
- Standardised surveys are relatively free from several types of errors

Some potential disadvantages include:

- Surveys cannot control for honesty (respondents may not provide accurate or honest answers)
- Depending on the specific respondent, there may be limits to their ability to provide complete and accurate responses
- Surveys with closed-ended questions (e.g. ‘true/false’) may have a lower validity rate than other question types
- Data errors due to question non-responses may exist
  - For example, the number of respondents who choose to respond to a survey question may be different from those who chose not to respond, thus creating bias
- Survey question answer options could lead to unclear data because certain answer options may be interpreted differently by respondents
- Customised surveys can run the risk of containing certain types of errors.

**Total impacted SKUs**

Ultimately, the number of labels adopting the HSR system is a key driver of full cost of the scheme. However, as adoption of the proposed HSR system is voluntary it is very difficult to predict how many businesses and brands will adopt the system. As such, PwC has relied on the closest relevant proxy which is the DIG labelling scheme.
Ideally, PwC would have liked to use a detailed count of SKUs itemised by packaging, labelling and product type. This level of detailed data would have allowed us to make specific product/packing level assumptions resulting in a more accurate estimate of cost. However, at present, this level of detailed data does not exist.

Throughout the course of this project, PwC made several attempts to estimate the overall population of SKUs and products in Australia using both public and private data submissions. However, this proved problematic because the data was not sufficiently detailed to make a defensible estimate.

For example, estimates provided by industry bodies provided ranges of 60,000 - 80,000 total SKUs. Publically available data from major retailers on the amount of products they stock (45,000 - 50,000 SKUs) are not sufficiently detailed to allow amalgamation of different retailers without double counting the products they have in common and encountering other methodological issues.

The calculation of industry costs is very sensitive to the SKU count and to present a total industry cost which is heavily reliant on an unjustifiable number will give an inaccurate view. In light of this, the number of SKUs used in this cost estimate reflects the number of products that have adopted the DIG labelling scheme. This number is useful in that it reflects the uptake of a voluntary scheme over a similar timeframe, and because the amount of products has been publically audited and recorded.

Going forward, and perhaps in a manner coordinated with other labelling efforts for non-food consumer products, PwC believe[s] there is considerable value in developing a robust and comprehensive product database.
Appendix C Cost estimation approach

Cost formula

Because there are a limited number of comparable studies in the public domain, PwC has calculated its own cost estimate using a discounted cash flow method. Section 0 provides an overview of each element of the cost estimate. It also highlights source data used in the calculations. Where source data is not available or the quality/integrity of the data is questionable, assumptions, informed by stakeholder input, have been developed. The following briefly summarises the calculation for this estimate:

\[
NPV = \sum_{t=0}^{N} \frac{R^t}{(1 + i)^t}
\]

Where:

- \(NPV\) is the net present value of labelling costs
- \(R\) is the net labelling cost (i.e. number of applicable SKUs multiplied by the median price per SKU) at a given time \(t\)
- \(N\) is the number of periods
- \(i\) is the real discount rate
- \(t\) is the time period
- The following table provides an overview of the weights applied to develop a single weight average price.\(^\text{122}\)

Weighted average price

To develop the price input, PwC has calculated a weighted average price per SKU. To do this, PwC has used the results of a survey sent to food and beverage manufacturers back in March 2014. Over 100 businesses across both Australia and New Zealand were invited to provide their responses (via an electronic survey) on the cost impact of a change to their packaging due to three possible scenarios. All responses were aggregated and published in the 2014 Cost Schedule.

\(^\text{122}\) For clarity, the table also accounts for the effects of discounting and presents both a discounted (in real terms) and undiscounted price.
As well as providing details on the costs of changing packaging, respondents were also asked to:

- identify the number of manufactured SKUs;
- specify the range of food and beverage product categories (meat, seafood, etc);
- provide details on the duration of their firm’s packaging lifecycle (1,2 years etc); and
- provide information on the predominant packaging type used in the manufacturing process (plastic, metal, etc.)

Based on this information, PwC has consolidated the ‘per SKU’ prices from the 2014 Cost Schedule into broad groups and applied the following weights (based on survey responses) to calculate a weighted average price.

<table>
<thead>
<tr>
<th>Packaging</th>
<th>Survey SKU Sample</th>
<th>% weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass</td>
<td>1,277</td>
<td>17.7%</td>
</tr>
<tr>
<td>Metal</td>
<td>632</td>
<td>8.8%</td>
</tr>
<tr>
<td>Plastic</td>
<td>2,250</td>
<td>31.3%</td>
</tr>
<tr>
<td>Fibre</td>
<td>871</td>
<td>12.1%</td>
</tr>
<tr>
<td>Flexible</td>
<td>2,170</td>
<td>30.1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7200</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

*Note: variation may exist between these figures and source calculations due to rounding.*

**Timing**

All costs are in real 2013-14 terms to allow for comparability.

Given survey responses found the packaging life cycle ranged from 1-5 years, PwC assumed the cost of implementing the FoPL system would be analysed over a 5 year period. This was to take account of food manufacturers being in different stages of their packaging life cycle and would potentially capture food manufacturers who would likely take up the HSR system but who had already recently undergone labelling changes.

Assumptions around timing are critical because of the ‘disruptive’ impact of unannounced changes to business operations. In a study conducted for the UK Department of Environment, Food and Rural Affairs, the study found that there may be a series of additional costs depending on what the specific labelling change is, and the implementation period. These included:

- productivity impacts: if it is necessary to change a label, and stop an otherwise continuous process resulting in:
  - labelling lifecycle and implementation time — which vary depending on the product and its marketing platform
  - product testing or related investigation — testing of product’s nutritional or functional requirements
  - marketing costs — update of a company’s marketing material and websites
  - legal costs
  - travel costs — associated with working with suppliers to change labels
- additional design costs.

- company-wide impacts: if changes require new systems to be established or systems to be amended including management processes, warehouse and packing infrastructure processes and training management.123

This list is not exhaustive and has been included for illustrative purposes. Because of the voluntary nature of the proposed HSR system, PwC has assumed that, should companies choose to adopt the HSR system, most of these costs can be avoided or otherwise reduced.

**Real & nominal discount rate**

In general, economists are more concerned with the ‘real’ consumption and production of goods and services than with nominal figures of consumptions and production as might be the case in financial accounting and analysis.

When evaluating costs and benefits, it is important to take note of the time in which costs and benefits occur. In general, the value of money varies over time as does the amount of good and services that they can consume. In many cases, people look to maximise immediate benefits while delay costs as long as possible, particularly is there are disruptive events that occur between time periods.

For example, a dollar can be used to purchase and enjoy goods and services today; however that same dollar can also be invested to earn interest or other returns in the future. As such, to compensate for forgone consumption today, an investor would need some assurance that he would be able to consume the same amount of goods and services in the future, particularly if there is some known risk or uncertainty that might further impact on consumption.

To account for the effects of time and consumption preference, we apply a discount rate which represents an ‘exchange rate’ between money today and money in the future, accounting for such factors as inflation, risk or uncertainty, forgone returns, etc. When comparing costs and benefits across time it is there for important to ensure we are comparing ‘like for like’ as closely as possible.

Within the context of the HSR system, we are concerns about the amount of time it will take to actually apply labels. Given economic uncertainty, prevailing business condition could potentially decline within the sector making voluntary adoption of the HSR system less appealing in the future than presently, particularly if there are more appealing business options that arise.

Further, PwC has applied a real discount rate which accounts for the effects of inflation. Any notes or references to discounting or time value of money are assumed to be expressed in real terms. The relationship between real and nominal rates can be described in the equation:

---

\[(1 + r)(1 + i) = R\]

Where:

- \(r\) is the real discount rate
- \(i\) is the inflation rate
- \(R\) is the nominal discount rate

PwC has used a 7\% real discount rate in its analysis. For the purposes of this analysis this yields an estimated inflation rate of \(-2.5\%\) and a nominal discount rate of \(-9.7\%\) (subject to rounding).

To this end, we have assumed the following discounting timing parameters:

- NGO – NGO stakeholders have indicated that are currently supporting the HSR system and are able to mobilise additional social marketing resourcing relatively quickly. As such we have assumed that the NGO costs will be incurred early during program implementation.

- Government – based on stakeholder input, implementation of the HSR system is underway but precise timing of remaining marketing costs is unknown. For the sake of consistency, similar to NGO costs, we have assumed that government costs will be incurred early during program implementation.

- Industry costs – given survey responses concerning label lifecycle (i.e. min/max of 1 to 5 years), actual roll-out of the HSR logo onto packaging may not occur immediately. We have assumed that industry costs are spread out evenly over a five year period beginning after the first year.

**Industry labelling costs**

The table below shows each broad packaging category, the number of SKU’s in each and the total cost for each SKU.

<table>
<thead>
<tr>
<th>Packaging</th>
<th>Total</th>
<th>Total per SKU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass</td>
<td>$4,970,599</td>
<td>$3,892</td>
</tr>
<tr>
<td>Metal</td>
<td>$3,868,883</td>
<td>$6,120</td>
</tr>
<tr>
<td>Plastic</td>
<td>$10,891,364</td>
<td>$4,841</td>
</tr>
<tr>
<td>Fibre</td>
<td>$3,875,469</td>
<td>$4,449</td>
</tr>
<tr>
<td>Flexible</td>
<td>$16,884,262</td>
<td>$7,782</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$40,490,576</strong></td>
<td><strong>$5,624</strong></td>
</tr>
</tbody>
</table>

*Note: a reader reproducing these figures should be conscious of the impact of rounding over the five year time period selected for this analysis.*
Appendix D Sensitivity analysis

Consistent with cost analysis of this type, PwC has undertaken sensitivity analysis as a means of 'sense checking' cost estimates. In addition to SKU count and change complexity in tables Table 4 and Table 5, we have further undertaken sensitivity analysis by varying the real discount rate and proposing an alternate change complexity scenario. These parameters were selected as they are considered the influential variables on the costs side.

Table 13 illustrates the cost impact to industry by applying three different discount rates. Undertaking sensitivity analysis by varying the discount rate is one means of examining the relatively impact of future uncertainty on a proposed initiative. A lower real discount rate would reflect a lower degree of future uncertainty while a higher discount rate would reflect a higher degree of uncertainty.

Table 13: Real discount rate (total industry cost)

<table>
<thead>
<tr>
<th>Complexity</th>
<th>3%</th>
<th>7%</th>
<th>10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor</td>
<td>$19,223,560</td>
<td>$17,210,793</td>
<td>$15,912,025</td>
</tr>
<tr>
<td>Medium</td>
<td>$45,225,867</td>
<td>$40,490,576</td>
<td>$37,435,061</td>
</tr>
<tr>
<td>Major</td>
<td>$62,526,962</td>
<td>$55,980,192</td>
<td>$51,755,794</td>
</tr>
</tbody>
</table>

Based on industry stakeholder feedback, there was some industry concern that a significant proportion of products might not be able to incorporate the HSR system elements as easily into label design thereby resulting in major disruption to the overall 'look and feel' of the brand. To that end, Table 14 applies an ‘80/20’ scenario that assumes 80 per cent of products fall under a 'medium' complexity scenario while the remaining 20 per cent would be categories as a 'major' complexity scenario.

Table 14: Cost impact scenario (change complexity)

<table>
<thead>
<tr>
<th>Complexity</th>
<th>Total Cost per year</th>
<th>Cost per SKU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline – medium complexity</td>
<td>$40,490,576</td>
<td>$8,098,115</td>
</tr>
<tr>
<td>Alternate – ‘80/20’ rule (20 per cent major complexity)</td>
<td>$43,588,499</td>
<td>$8,717,700</td>
</tr>
</tbody>
</table>

124 The complexity assumption has been varied to reflect a situations where, over the five year period, and despite HSR style guide flexibility and sufficient time for implementation, some proportion of products were found to be disproportionately more costly to change than others. Again, in PwC’s estimation, this scenario reflects a theoretical scenario not the most likely scenario the HSR system (based on stakeholder input).

125 The $6,054 is a weighted average of 80% medium, 20% major costs.
Appendix E  Industry concerns and other potential costs

Food and beverage manufacturing industry in Australia

The food and beverage manufacturing industry is the largest component of Australia’s manufacturing sector, representing one quarter of total manufacturing. The industry consisted of around 19,500 businesses that employed almost 216,000 people in 2012-13 (around 1.9 per cent of total industry employment). More than half of the food and beverage manufacturing workforce is employed in the meat and bakery product subsectors. With the sector as a whole employing more people than the utilities, rental and hiring services, and arts and recreation industries, the sector is significant to the Australian economy. Figure 6 provides an overview of the food and beverage industry as a proportion of the wider manufacturing sector.

Figure 6: Food, beverage and tobacco products (% of 2012-13 manufacturing output)

Source: ABS catalogue number 5204.0.

In addition to employing a significant amount of Australians, the food and beverage industry is almost one-quarter of total manufacturing output and contributed around $24 billion to

the Australian economy in 2011-12. The sector is also a significant exporter with ‘substantially and elaborately transformed food’ exports being worth an estimated $18.1 billion over 2011-12 (total value of all food exports was $30.5 billion). The sector exports heavily to the Asian region with four of the top five export destinations located there.

While the Australian economy has performed relatively strongly over the last ten years, output in the manufacturing industry has been relatively subdued. Over the ten years to 2012-13, the size of the Australian economy increased over 30 per cent, while the food and beverage manufacturing sector increased by only two per cent (Figure 7). This shows that while the sector is a large employer and is around two per cent of Australia’s output, recent conditions have proven challenging.

Figure 7: Selected industry growth, 2002-03 to 2012-13

With output in the sector being relatively stagnant over the past decade, output prices received by food and beverage manufacturers have fallen 1.8 per cent (in real terms) over the five years to the end of 2013 (beverage and tobacco output prices have increased by 30 per cent over the same period).

Industry stakeholder feedback

There is a number of potential indirect or flow on costs which have been identified by industry during the preparation of this report. These costs could include:

129 These processed foods include: meat, dairy, wine, sugar, flour, beer, oil and fat, confectionery, bakery products and soft drinks. Department of Agriculture, Fisheries and Forestry, 'Australian food statistics 2011-12', 2012.

130 The top five Australian food export destinations are: Japan, Korea, the United States, Indonesia and China.
• **Costs associated with component testing**: Many stakeholders have noted that they may not have data on all of the components to get the best output from the algorithm. And as such would need to incur the costs of nutritional assessments to be able to include this in their HSR calculation. In addition to this, it is unclear how the algorithm calculation will be conducted, and are awaiting communications clarifying key details. There may also be costs associated with inputting data into a calculator, or conducting the algorithm tests internally. Costs may also be associated with update of systems to record this new information, such as fibre content and the algorithm outcome. If the algorithm is put on a website to allow producers to conduct their own assessment, the governments will incur costs associated with the development of this tool.

• **Consumer research associated with new packaging**: In addition to labelling costs there may be broader costs associated with changes to artwork and promotional material/changes to websites/consumer research for new packaging. One stakeholder estimated at least $250,000 in third party costs was associated with consumer research on new packaging. Costs associated with updates to websites and promotional material would be in addition to this.

• **Write off of obsolete stock**: Some stakeholders noted that product changes in the past have led to writing off obsolete stock so that retailers can have a single look/feel for all of their products. This may include not only the disposal of obsolete stock, but also of obsolete packaging material. Such costs are reduced as the period prior to any labelling change increases.

• **Loss of global manufacturers who do not want to include HSR**: At least two stakeholders for global companies who produce goods in Australia noted that their overseas head offices did not want to change the packaging of their product. They indicated that there would be a loss of manufacturing in Australia from global businesses that choose not to adjust their global brand to meet requirements.

• **Loss of brand space**: Food and beverage manufacturers noted that the loss of label space/or brand to be a direct cost associated with incorporating the HSR on their label. It was noted that some products just rely on the label (no other advertising). One major Australian processor estimated brand value at $25.0 million, while another suggested that the HSR system would represent approximately 10 – 20 per cent of brand value at an average from $10m to $100m+. Some food and beverage manufacturers viewed the adoption of the HSR as potentially impacting the overall value of their brands over the long terms so as to potentially exceed any short term gains.

• **Consumer education**: Some industry stakeholders noted that they would incur the cost of consumer education regarding the relationship with other schemes. Companies that already have other healthy eating labelling schemes in place, for example the Heart Foundation Tick (which has different parameters from the proposed HSR system) estimate further costs to explain the relationship between the two schemes to be in the realm of $10,000 to $23,000 per product formulation displaying both schemes. Costs associated with responding to consumer questions is relation to the HSR system (e.g. via telephone, email or social media) are also directly related to the scheme. Food and beverage manufacturers further clarified that they would typically never consider changing any element of their brand without devoting additional resources to explaining it to consumers.
- **Opportunity cost of funds used to change labels:** While not a direct cost, some stakeholders noted the importance of an opportunity cost of resources that could be invested in product development. Resources used to conduct testing and prepare the new labels could be otherwise invested in other efforts related to business improvement.

- **Supply chain complications:** Stakeholders noted that complications to supply chain processes may occur from adopting the HSR system as well as the potential to have to separately label some export destined products if domestic labels incorporated HSR system and exported products did not. This may include warehouse inefficiencies (estimated at $7.0 million by one major manufacturer for factory change overs, additional storage and warehousing, data systems etc.). Stakeholders also noted that there may be a loss of export business as foreign authorities in Singapore, Malaysia and Indonesia could potentially not accept products that display the HSR graphic and that separate export products may increase costs because of small product runs (one stakeholder valued at $1 million).

- **Unintended consequences:** There may be some unintended consequences for products that have both positive (e.g. calcium) and negative (e.g. fat) nutritional components. For some groups of the population, advice to switch to reduced-fat varieties can have a detrimental impact on overall intake of core foods. For example, some studies show most people prefer the taste of regular fat products over reduced-fat varieties.\(^\text{131}\) Consumer research conducted in Australia showed 60 per cent of respondents aged 14 years and older agreed regular fat milk tastes better than reduced-fat milk.\(^\text{132}\) In a separate Australian trial in which overweight adults were recommended to switch to reduced-fat dairy foods, it was observed that men cut down on dairy foods rather than compromising on taste with reduced-fat dairy foods, consuming 9 per cent less calcium from dairy.\(^\text{133}\) Therefore, if the HSR system and education campaigns focus on consumption of high star products, it may inadvertently reduce the overall consumption of certain foods.

While these costs have been identified by industry, there are a number of factors which influence change to label design. No evidence regarding the quantum of these costs and how they are attributable to the HSR system was provided by stakeholders and as such they have not been quantified in the cost analysis. It is likely that the costs incurred in by individual companies adopting the HSR system will be different depending on each company’s circumstances and individual decisions as to how they may adopt the system (e.g. while companies may choose to undertake consumer research associated with new packaging that displays the HSR label, this is not something that companies are required to undertake).

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\(^{132}\) Results of a Roy Morgan milk survey of 1,142 adults (14 yrs +) from 5 major Australian cities conducted in 2007 (Dairy Australia, 2007.).

## Appendix F Abbreviations

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>%DI</td>
<td>Percentage Daily Intake</td>
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<tr>
<td>ABS</td>
<td>Australian Bureau of Statistics</td>
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<tr>
<td>Blewett Review</td>
<td>Labelling Logic: Review of Food Labelling Law and Policy 2011</td>
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<tr>
<td>DIG</td>
<td>Daily Intake Guide</td>
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<td>EU</td>
<td>European Union</td>
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<td>FoPL</td>
<td>Front of Pack Labelling</td>
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<tr>
<td>FRSC</td>
<td>Food Regulation Standing Committee</td>
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<tr>
<td>FSC</td>
<td>Australia New Zealand Food Standards Code</td>
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<td>FSANZ</td>
<td>Food Standards Australia New Zealand</td>
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<tr>
<td>Forum</td>
<td>Legislative and Governance Forum on Food Regulation</td>
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<td>GDA</td>
<td>Guideline Daily Amounts</td>
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<td>HSR</td>
<td>Health Star Rating</td>
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<td>HSRC</td>
<td>Health Star Rating Calculator</td>
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<tr>
<td>IWG</td>
<td>Implementation Working Group</td>
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<tr>
<td>MTL</td>
<td>multiple traffic lights</td>
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<tr>
<td>NIP</td>
<td>Nutrition Information Panel</td>
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<td>NGO</td>
<td>Non-government organisation</td>
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<td>NPSC</td>
<td>Nutrient Profile Scoring Criterion</td>
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<td>NPV</td>
<td>Net Present Value</td>
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<tr>
<td>PwC</td>
<td>PricewaterhouseCoopers</td>
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<tr>
<td>SKU</td>
<td>Stock Keeping Unit</td>
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<tr>
<td>SME</td>
<td>small and medium enterprise</td>
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<tr>
<td>STL</td>
<td>simple traffic lights</td>
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<tr>
<td>Term</td>
<td>Definition</td>
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<tr>
<td>TDWG</td>
<td>Technical Design Working Group</td>
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<tr>
<td>TL</td>
<td>Traffic light</td>
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<tr>
<td>UK</td>
<td>United Kingdom</td>
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<tr>
<td>USA</td>
<td>United States of America</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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Appendix G Consultation

The Forum noted in its response to the recommendations of the Blewett Review that stakeholder views were polarised in relation to the appropriate FoPL format, in particular whether the format should be interpretive, as recommended by the review panel, or non-interpretive.134

Given the divergence of views regarding FoPL, the Forum considered that government was best placed to lead a collaborative design process with industry, public health and consumer stakeholders.135 Ministers requested that an interpretive FoPL system be developed through a coordinated approach.136

To that end, the Food Regulation Standing Committee (FRSC) was tasked with leading the process for developing this system with industry, public health and consumer stakeholders. In March 2012, FRSC established the FoPL Steering Committee to manage the process. The FoPL Steering Committee comprises all FRSC members and a representative from the Australian Health Ministers’ Advisory Council.137 To assist with the development process, the FRSC also commissioned several committees to manage various aspects of this work.

The system of committees and working groups that were set up meant stakeholders were engaged and were able to guide the development of the FoPL scheme through the development of their Objectives and Principles.138

A key governance committee was the Project Committee. The Project Committee’s role was to oversee the development of the HSR system through a collaborative process and to commission the two working groups to develop the technical specifications as well as an implementation plan. Established in early 2012, the Project Committee was comprised of State and Territory government representatives and representatives from industry groups (Australian Beverages Council, Australian Food and Grocery Council, Australian Industry Group, Australian National Retail Association), health organisations (Australian Chronic Disease Prevention Alliance, Australian Medical Association, Obesity Policy Coalition, Public Health Association of Australia) and the consumer group CHOICE.

At its first meeting in April 2012, the FoPL TDWG was tasked with developing options and recommendations for the FoPL Project Committee, including identifying and addressing any difficult or contentious issues. Their design process focused on addressing issues of concern, exploring new approaches and exploring possibilities for building on existing systems.


135 Ibid.

136 A summary of meeting outcomes for each of these groups can be found here.


Members of the TDWG were selected based on their experience and fields of expertise. Consequently, the TDWG was made up of representatives from the food industry, public health and consumer groups and experts in the fields of nutrition, food science and food policy. In June 2012, the FoPL Implementation Working Group (IWG) was tasked with developing an implementation plan and framework to make recommendations to the Project Committee on options available for various approaches, including strengths and weaknesses; the process, timeline and evidence base for monitoring and evaluating the FoPL scheme; and education and social marketing aspects. IWG members were also selected based on their expertise (and not as representatives of particular organisations) and their experience covered the fields of public health, consumer, food policy, industry and preventative health.

**Consultations timeline**

As noted above, the development of the HSR system has been a collaborative exercise involving government, industry, and health and consumer stakeholders. To ensure that a full picture is presented on the extent of consultation undertaken, the following is a timeline of key engagements and outcomes, recognising that meetings occurred and considerable other work was progressed between these milestones.

- 24 October 2008 – the Forum (meeting as the Ministerial Council) requested an investigation on whether a FoPL scheme would be an effective health strategy to inform consumer choice.
- 1 May 2009 – the Forum (meeting as the Ministerial Council) noted progress on the development of FoPL policy, including the completion of stakeholder consultation.
- 23 October 2009 – the Forum (meeting as the Ministerial Council) announced Dr Neal Blewett as Chair of the Blewett Review and confirmed that FoPL would be one of the issues to be considered by the Review Panel.
- 9 December 2011 – the Forum considered their response to the Blewett Review and agreed the need for an easily accessible interpretative FoPL scheme. The Forum agreed to lead the collaborative development of the FoPL in conjunction with industry, health and consumer stakeholders.
- 11 May 2012 - Project Committee members agreed to the final Objectives and Principles for FoPL development and terms of reference and membership for the working groups.
- 18 May 2012 – The TDWG considered a range of existing FoPL systems, categorising like systems and rating them against the Design Principles as set out in the Project Committee’s Objectives and Principles for FoPL development. The TDWG also noted the need for the system to allow for new products.
- 13 September 2012 - The Project Committee received progress reports from the two working groups and approved presentations and information to be provided at the Stakeholder information update session on 18 September 2012.
- 12 October 2012 – The Steering Committee noted the progress reports of the Project Committee and its working groups and agreed its report to the Forum meeting in December 2012, which includes a timetable for finalising FoPL recommendations.
- 30 January 2013 - The TDWG received a presentation from FSANZ about NPSC Criterion remodelling for the purpose of FoPL and agreed that work should continue on this. The Meeting considered advice received from the National Health and Medical Research Council about sugar.
5 February 2013 - The IWG settled the overall framework for the implementation of the agreed HSR system, an implementation and review plan for the system.

1 March 2013 - Market research company Hall & Partners Open Mind produced a qualitative report from the first stage of their research and testing of the HSR system.

17 April 2013 - Hall & Partners Open Mind produced a quantitative report from the second stage of their research and testing of the HSR system. Both reports are published on the Department of Health website.139

26 April 2013 – The Project Committee finalised its recommendations and draft designs for the proposed FoPL system. Key recommendations to provide to the Forum included: the system should consist of a 5 star rating (including half star increments) and a nutrient component; the nutrient component will include icons for energy, saturated fat, sodium, sugars and one optional positive nutrient; the star rating will be underpinned by a modified Nutrient Profiling Scoring system; the system will be voluntary; and the system should be supported by comprehensive social marketing and education.

14 June 2013 – the Forum considered recommendations on the proposed HSR system and confirmed the preference of voluntary implementation.

8 July 2013 – At their meeting the TDWG considered amendments to the modified NPSC following industry feedback and received a presentation from Dairy Australia about anomalies specific to some dairy products. The TDWG agreed to undertake further refinements to the modified NPSC before circulating a revised version back to industry and other key stakeholders.

1 August 2013 - The IWG developed a plan to action the social marketing campaign.

13 August 2013 – The TDWG considered an early draft version of the HSR style guide and the most recent version of the modified NPSC. The TDWG prepared a series of recommendations for the Project Committee to consider at its meeting of 2 September 2013.

6 September 2013 - The Steering Committee highlighted that they are looking forward to receiving further feedback from industry and other key stakeholders, who are currently testing the further refinements to the HSRC.

29 October 2013 - The TDWG considered feedback from stakeholders on the HSRC, which reinforced that the HSRC works reasonably well in identifying food products which may assist consumers construct healthy diets.

29 November 2013 – PwC was engaged to develop a business case for a voluntary HSR system.

13 December 2013 – the Forum endorsed the use of the HSRC, noting that a process is required to deal with anomalies. The Forum also agreed the arrangements and membership for the Oversight Committee to monitor the HSR system over time.

3 March 2014 – the Oversight Committee met for the first time and confirmed their role to oversee and advise on the HSR system. The Oversight Committee agree to establish a Social Marketing Advisory Group made up of expert representatives and considered processes to address anomalies within the HSRC. Consideration was also given to methods for monitoring and evaluating the HSR system, including the collection of baseline data.

**Issues and concerns raised to date**

As a result of the collaborative approach taken, a number of issues and concerns were able to be identified and addressed during the development of the HSR system. These are outlined below.

**FoPL Format**

**Issue**

Not all Committee members agreed on the best approach to a FoPL system. Some stakeholders specifically objected to inherent limitations on a MTL format.

**Response**

The TDWG investigated different approaches to FoPL, including:

- examination of the range of existing FoPL schemes internationally
- comparison of on-off (binary) FoPL schemes and rating systems
- consideration of systems that allow comparison of only products within a category, or across all foods, and combinations of both.

This work suggested that different approaches can have different impacts on consumer choice. The TDWG’s preliminary view was that a rating system is preferable (compared to a binary approach) as it allows more sensitive comparisons to be made between products and provides greater opportunity for the FoPL scheme to reflect industry innovation. ‘Stars’ (including half star gradations) were also viewed as a more flexible compromise allowing for greater differentiation based on nutritional profile.

**HSR graphic display**

**Issue**

Once the HSR system had been chosen as the preferred approach, there were concerns about the way it would be displayed on the packet.

- Concern was generated over issues of practicality in fitting a large logo on a small package.140

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140 Such as expressed in Katherine Rich ‘Work to be done on Australia’s health star rating labelling scheme’, 2013.
Concern over what the minimum available rating was, to be able to differentiate from products that did not have a star rating.

Response

With regard to the small package issue, the style guide that has been developed allows flexibility by establishing a hierarchy of presentation for the HSR system to allow manufacturers to choose what is most suitable for their product, taking into account pack size and available label space. While companies are encouraged to use as many elements of the HSR system as possible, there are options in the following hierarchy:

- energy icon + health star rating + 3 prescribed nutrient icons + 1 optional nutrient icon
- energy icon + health star rating + 3 prescribed nutrient icons
- energy icon + health star rating
- energy icon.

The style guide also allows discretion around scaling the HSR graphic to accommodate it on small labels, although it should still comply with legibility requirements generally set out by the Food Standards Code (Standard 1.2.9).

To give further flexibility, the style guide also allows companies to incorporate additional interpretive elements including high/low qualifiers for nutrients other than energy (to indicate that their product is low in salt or high in fibre, for example) and %DI for energy.

With regard to the minimum display, the TDWG considered whether all foods that display a HSR graphic should have a minimum of a half star rating to distinguish them from food that have not adopted the system (as to encourage uptake). The alternative considered was having a minimum nutritional threshold so that some food may receive no stars (potentially creating a disincentive to adopt the HSR system for some products). This was especially important consideration in a voluntary system such as this one, as it did not want to appear as though the rating system penalised products for choosing to adopt.

HSR algorithm methodology

Issue

There were industry and health stakeholder concerns about the methodology that would drive a rating system. These include concern that the calculation of ratings may treat dairy products as 'unhealthy' despite the fact that the Australian Dietary Guidelines actively promotes the consumption of selected dairy products such as milk, yoghurt and cheese.  


vegetables. It was initially expressed as doubt as how raw unprocessed produce would fare under a rating methodology.

Discussion was also generated over the role of serving size in any methodology that is intended across wide food groups, and well as the need for any methodology to actively promote reformulation.

**Response**

The TDWG examined a methodology based on the FSANZ Nutrient Profile Scoring Criteria (NPSC). This methodology was also the subject of further work and validation in conjunction with FSANZ.

Continuous engagement has meant that as the algorithm for HSR system was developed, it was able to be tested by industry and any anomalies identified. For example, raw nuts were initially found to be given a lower rating than what would be expected given their established place in nutritional guidelines, and have since been reviewed. However, because of expert involvement in the development of the algorithm, these anomalies were few.

With regard to the treatment of dairy, the issues were identified early and core dairy products were assigned a different scale, in recognition of the additional benefits they bring that are not measured by the standard algorithm. The treatment of dairy has been given ongoing consideration by the TDWG and the Project Committee.

Unprocessed fruit and vegetables are excluded from being rated in HSR system in recognition of their necessary inclusion in any diet as well as their inability and lack of need to reformulate or differentiate. The HSRC does include extended modifying points to increase the rating of processed food that include high levels of fruit and vegetables.

It has recognised that the methodology underpinning an overall food rating should be based on per 100g/ml, but has noted that there may be a role for serve size information, particularly where foods are consumed in unusual amounts, or where they are presented as a discrete portion expected to be consumed in one sitting.

Industry had particular concerns that the design of any FoPL scheme should make reformulation possible. If a rating system has too few increments, then incremental and manageable reformulations will not move a food up a rating, so there will be no incentive for a company to reformulate. As such, increments of ½ stars were included in the design of

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144 Detailed in the draft Food Standard Proposal P293 – Nutrition, Health and Related Claims.

145 The Weekly Times, Alex Sampson (18 Dec 2013) Food rating scheme is just nuts.

146 On 29 July 2013, Michael Moore of the Public Health Association of Australia, who helped design the algorithm, was reported in The Australian Financial Review as stating that less than 5 per cent of the 3000 items already tested had revealed anomalies.

147 The treatment of dairy was explicitly mention in the meeting outcomes if the Project Committee meeting on 2 September 2013, and the TDWG meetings of 4 march 2013 and 8 July 2013.
HSR system with the intent of making a better rating an obtainable target for food manufacturers.148

**Consultation for this report**

PwC also engaged with stakeholders in three ways for the production of this report including:

- A survey of industry to gather information on the cost implications of labelling changes and a FoPL scheme, including how the costs would be distributed across the industry and how they may effect SMEs.

- Individual interviews with key stakeholders representing industry councils and large food processors, for in depth conversations about the cost and impact on industry of the introduction of a FoPL scheme.

- Workshops with various stakeholders, including large and SME food industry representatives, to test and validate cost data collected and assumptions used for cost analysis.

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148 This concern on unobtainable changes was especially raised in regards to an earlier proposal of a traffic light scheme with only three different ratings.
Appendix H Reading list

Abaluck, Jason. ‘What Would We Eat if We Knew More: The Implications of a Large-Scale Change in Nutrition Labeling’ October 2011.


Australian Food and Grocery Council, ‘Key flaws unresolved with new food labelling scheme’, June 2013.

Australian Food and Grocery Council. ‘What is the Daily Intake Labelling’.


Burns, C. ‘A review of the literature describing the link between poverty, food insecurity and obesity with specific reference to Australia’ April 2004.


Department of Health, ‘Draft guide for industry to the Health Star Rating Calculator’, August 2013. Provided by the Department for this costing.

Department of Health, ‘Health Star Rating Scheme: For consideration by the Australian Food and Grocery Council Board’, 2013. Provided by the Department for this costing.


Department of Health. ‘Legislative and Governance Forum on Food Regulation’.

Department of Health, ‘Overview of FoPL project for ALDI meeting 10 September 2013 [confidential]’, 2013. Provided by the Department for this costing.


Department of Justice, Consumer Affairs Victoria, ‘Mandatory disclosure of information: costs and benefits of mandatory information policies to influence consumer choice’, 2012.


Heart Foundation. ‘Rapid review of the evidence: Effectiveness of food reformulation as a strategy to improve population health.’ 2012.


Heart Foundation. ‘Rapid review of the evidence: Effectiveness of food reformulation as a strategy to improve population health’. 2012.


National Health and Medical Research Council, ‘Obesity and Overweight’, 2013.


World Cancer Research Fund International et al, ‘Joint response to UK consultation on front of pack nutrition labelling’.


Yale University. Rudd Center for Food Policy and Obesity. ‘The Science on Front-of Package Food Labels (Review Article)’. February 2012.
